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REVIEW ON ATOMIC EMISSION SPECTROSCOPY

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ABSTRACT

Atomic Emission Spectroscopy (AES) is a chemical analysis method that employs the intensity of light produced at a certain wavelength from a flame, plasma, arc, or spark to quantify the quantity of an element in a sample. The identification of the element is determined by the wavelength of the atomic spectral line in the emission spectrum, while the intensity of the emitted light is related to the number of atoms in the element. Various methods can be used to excite the sample. By examining the radiation released by atoms, atomic emission spectroscopy can be used to establish their identification, structure, and surroundings. We may determine the energy levels (or stationary states) of the atom from wavelength measurements, and this offers an experimental basis for atomic structure theories in this review its consists of history, principle, instrumentation and detectors.

1. INTRODUCTION

Atomic emission spectroscopy (AES or OES) uses quantitative measurement of the optical emission from excited atoms to determine analyte concentration. Analyte atoms in solution are aspirated into the excitation region where they are desolvated, vaporized, and atomized by a flame, discharge, or plasma. These high-sufficient energy to promote the atoms into high energy levels. The atoms decay back to lower levels by emitting light. Since the transitions are between distinct atomic energy levels, the emission lines in the spectra are narrow. The spectra of multi-elemental samples can be very congested, and spectral separation of nearby atomic transitions requires a high-resolution spectrometer. Since all atoms in a sample are excited simultaneously, they can be detected simultaneously, and is the major advantage of AES compared to atomic-absorption (AA) spectroscopy.

2. HISTORY

Atomic Emission Spectroscopy (AES) has a long history; as far back as the 1550s, where qualitative applications based on the color of flames were used in the smelting of ores. It is based on the physical and

chemical principle of atoms that, after being heated by a flame, return to a normal energy state and give off excess energy in the form of light.

2.1 The 17th Century

In 1666, Sir Isaac Newton showed that white light from the sun could be separated into different colors of light; he also introduced the word 'spectrum'.

The idea was developed over time, with work from William Herschel, JW Ritter, Joseph Fraunhofer, and William Bunsen, all of whom studied spectra from sparks, arcs, and flames.

2.2 The 19th Century

In 1859, Gustav Kirchhoff recognized that each element and compound had its own unique spectrum and by studying the spectrum of an unknown source, you can determine its chemical composition. Kirchhoff's laws also state that emitted power and absorbed the power of light at a given wavelength is the same for all bodies at the same temperature.

Although the quantitative application based on atomic emission from electric sparks was developed by Sir Norman Lockyer, a British scientist and astronomer credited with discovering helium in the

1870s, it was Henrik Lundegårdn who pioneered the technique. Very early in its history, AES was understood to be a very powerful tool, but it was not utilized extensively until the 1930s

3. PRINCIPLE

AES is based on the principle that when energy is applied to a molecule in the form of light or heat, molecules are excited and move from a lower energy level state to a higher energy level state. At the higher energy level state, the molecules are unstable and jump back to the lower energy level state on emitting radiations in the form of photons. The wavelengths of emitted photons are recorded in the emission spectrometer. The level of emissions for a molecule is the energy differential between the excited energy and lower stable energy. Each element has its own level of emission frequencies, which helps to detect the elements. The frequencies of the emissions are recorded in the emission spectrometer. According to Bohr, this frequency (ν) occurs when the excited element undergoes a transition between two discrete states with energies E_1 and E_2 . Energy conservation leads to the well-known relationship between the energy of the photon and the energy difference between these states:

$$\Delta E = E_2 - E_1 = h\nu = h \frac{c}{\lambda}$$

where h is Planck's constant.

4. INSTRUMENTATION

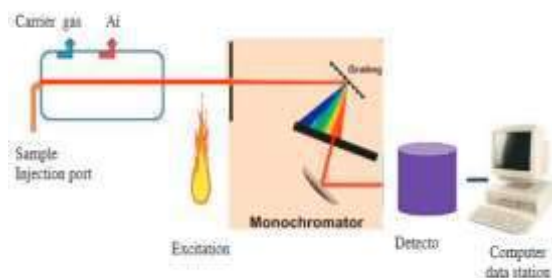


Fig.1 Instrumentation of atomic emission spectroscopy.

4.1 Sample Introduction

Sample preparation and introduction of the sample into the plasma is the critical part of the analytical process of AES. A process flow diagram for sample preparation is given in Fig.2. The sample that needs to be analyzed should be first converted into highly excited free atoms. To transport the liquid samples to the source of excitation an inert gas is introduced, typically argon flowing at 0.3–1.5L/min. The most convenient method for the introduction of liquids into the gas stream is as an aerosol from a nebulizer. The aerosol could be formed from the action of a high-speed jet across the tip of the small orifice or by other means, e.g., by using an ultrasonic transducer. Stability of the spectral emission is highly dependent on these droplet sizes. Hence it is critical to select the appropriate nebulizer type for the production of uniform droplet sizes. Appropriate nebulizer selection depends on the characteristics of the sample such as density, viscosity, organic content, total dissolved solids, and total sample volume.

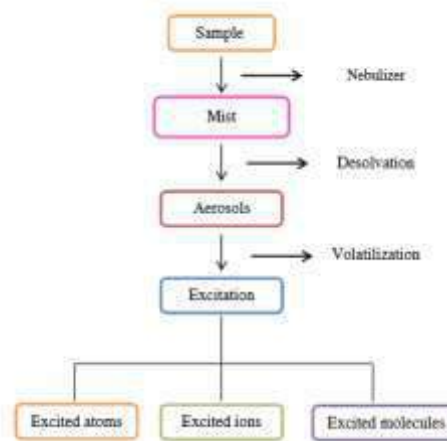


Fig.2 Process diagram for sample preparation

4.2 Excitation Sources

An excitation source is used to dissolve, atomize, and excite the atoms of the sample. The ideal excitation source will allow the excitation of all the elements in the sample and does it repeatedly until it encompasses the entire elemental excitation in the sample. A number of excitation sources can be used for these purposes, which include but are not limited to the following.

4.2.1 Direct-Current Plasma

This excitation process involves using two electrodes to produce an electrical discharge to heat the plasma gas, typically argon. This method of excitation is more suitable for samples that contain a high portion of solids.

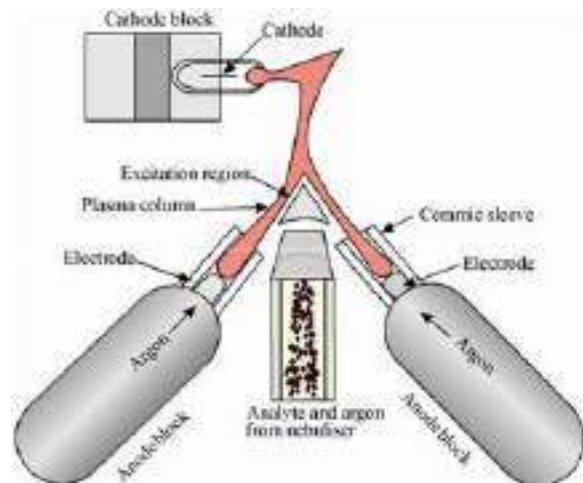


Fig.3 Schematic of a three electrode, Note the inverted-"Y" Shape of the plasma

4.2.2 Inductively coupled plasma

This is the most commonly used excitation process and it requires a plasma torch made up of concentric quartz tubes to induce excitation in the sample. The inner tube contains argon and the sample, and argon gas flows through the outer tube and acts as a cooling agent. A radiofrequency generator having a range of 1–5kW at 27 or 41MHz creates an oscillating current within an induction coil that surrounds the tubes. An oscillating magnetic field is produced by this induction coil and this induces a change in the electric field. The flowing gas seeded with electrons undergoes acceleration and gains energy that is required to excite and ionize the gaseous atoms by collision. This produces the plasma and the sample particles entering the plasma then undergo desolvation, dissociation, atomization, and excitation

4.2.3 Flame

The flame is a high-temperature source that is used to desolvate and vaporize the sample to generate free atoms for spectroscopic study.

4.2.4 Laser-Induced Breakdown

A high-energy laser pulse is utilized in this method to provoke the elemental excitation in the sample.

4.2.5 Microwave-Induced Plasma

In this method, typically a 2.45GHz microwave generator (a magnetron) is required to produce a microwave that travels through a cable and is focused via a tuning system where a torch sits in the center of the cavity. The torch has a carrier gas that flows in the outer portion of the torch, and plasma is ignited by a spark. Ozbek and Akman [3] reported that MP-AES is the most versatile new generation analytical method, which operates at a 2.45GHz magnetic field with nitrogen as the carrier gas.

4.2.6 Laser-Induced Plasma

In this method, heated plasma is maintained by a support gas, typically argon, which is focused by a high-energy CO₂ laser source.

4.2.7 Spark or Arc

Spark and arc excitation sources employ a spark or an electric pulse or an arc of continuous electrical discharge between two electrodes for vaporizing and exciting the atoms of the sample.

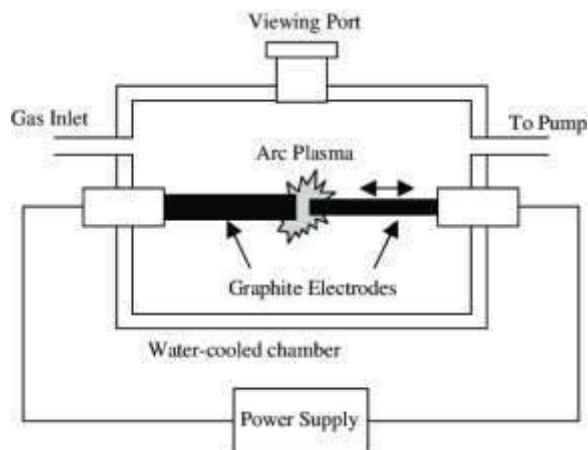


Fig.4 Schematic representation of an arc-discharge apparatus

4.3 Spectrometer

The spectrometer is used to view and analyze a range of given characteristics for a sample. The atomic emission source will excite the atoms or ions from its lower energy stable state to a higher energy state. These excited atoms or ions will then spontaneously return to their stable or lower energy state. During this transition an emission spectrum is produced

when a photon of energy is generated. This emitted energy is directly proportional to the concentration of atoms or ions in the sample. The spectrometer is used to measure this energy by using optics to separate the characteristic elemental wavelengths from the plasma background. The spectra of samples containing many elements can be very congested, and spectral separation of nearby atomic transitions requires a high-resolution spectrometer. The spectrometer consists of a dispersive element and image transfer assembly.

In the AES spectrometer, the gratings are used as a dispersive element to disperse the incident light into component wavelengths. This grating works by reflecting the light off the angled grating surface, causing the wavelengths to be dispersed through constructive interference at wavelength-dependent diffraction angles. Since all atoms from multiple elements in a sample are excited simultaneously, they can be detected sequentially by using a monochromator or simultaneously by using a polychromator with multiple detectors. The image transfer assembly of the spectrometer consists of entrance and exit slits through which light enters and exits, producing a line separated from the rest of the spectrum, and concave mirrors or lenses.

4.4 Detector

Detectors are transducers that transform the analog output of the spectrometer into an electric signal that is viewed and analyzed using a computer. Photon detectors work generally by either causing electrons to be emitted or developing a current when photons strike the detector surface and measuring the intensity of the emission line. Examples include a photomultiplier tube (PMT), charge-coupled device (CCD), and charge-injection device (CID). PMTs are the most widely used detector in inductively coupled plasma atomic emission spectroscopy (ICP-AES). The PMT detector consists of a photocathode in a vacuum tube and ejects electrons when struck by light. These electrons travel to a dynode that produces secondary electrons that strike another diode and produce new secondary electrons, and so on. The anode is situated in the last end of the last dynode that collects the electrons. One photon produces about a million secondary electrons on striking the photocathode in the tube. At the phototube the electrical current at the anode is measured as elemental line intensity per unit time. The advent of multichannel solid-state detectors provides more flexibility to carry out multiple elemental analyses. PMT detectors are durable and extremely reliable

when carrying out elemental analyses. However, they limit the number of elements that can be determined simultaneously, because a separate detector is required for each wavelength

To overcome this challenge, modern AES instruments are equipped with solid state detectors. These solid-state detectors can measure the continuous emitting spectra. There are two types of solid-state detectors: CID and CCD. These detectors have multiple pixels rows, which are sensitive to light. When struck by radiation, both these detectors generate and store the charge. The magnitude of the charge generated in the detectors is directly proportional to the intensity of the incident radiation. The major difference between these two detectors is how the signal is read from the chip. In CCD detectors, the charge is measured by moving the charge from the detector element, where it is collected by a charge-sending amplifier. However, in CID detectors the charge is measured in terms of voltage change induced by the movement of the charge within the detector element. CID detectors have the advantage of collecting signals at their optimal signal-to-noise ratio. CCDs are used to measure very sensitive and low-level light applications and have the capacity to monitor any wavelength between 170 and 780nm. CIDs can monitor any wave-length between 165 and 800nm.

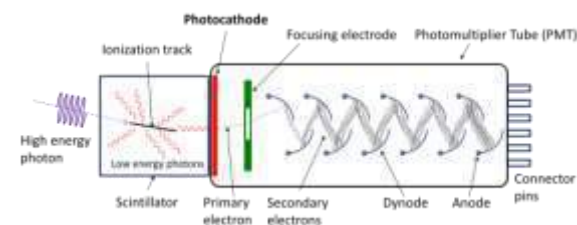


Fig.5 Schematic diagram of photo multipliertube

4.5 Data processing and instrumentation control:

The electrical current measured at the anode of the photomultiplier tube is converted into some form of signal that can be passed onto a computer and accessed immediately for analysis. The current generation of AES instruments use a computer to control the spectrometer and to collect, manipulate, and report the analytical data. The amount of computer control over all these functions varies from model to model

5. CONCLUSION

AES is a qualitative technique, it allows scientists to figure out what metal they are looking at, and it



only concerns visible light. It is an incredibly powerful means of determining the elemental composition of samples based on the emission of light.

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A REVIEW ON HIGH PERFORMANCE THIN LAYER CHROMATOGRAPHY

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ABSTRACT

High Performance Thin Layer Chromatography (HPTLC) technique is a sophisticated and automated form of the thin-layer chromatography (TLC) with better and advanced separation efficiency and detection limits and is often an excellent alternative to GC and HPLC. Applications of HPTLC include phytochemical and biomedical analysis, herbal drug quantification, active ingredient quantification, fingerprinting of formulations, and check for adulterants in the formulations. HPTLC is useful in detecting chemicals of forensic concern. Various advance techniques in reference to HPTLC like hyphenations in HPTLC-MS, HPTLC-FTIR and HPTLC-Scanning Diode Laser have made HPTLC a power analytical tool in the field of analysis. Experts are of the opinion that HPTLC future to combinatorial approach and the utilization of instrumental HPTLC toward the analysis of drug formulations, bulk drugs, and natural products will increase in future.

KEYWORDS: *High Performance Thin Layer Chromatography (HPTLC), HPTLC-Scanning Diode Laser, adulterants*

INTRODUCTION

High Performance Thin Layer Chromatography (HPTLC) is a sophisticated and automated form of the thin-layer chromatography (TLC) with better and advanced separation efficiency and detection limits. It is also known as High Pressure Thin Layer Chromatography/Planar chromatography or Flat-bed chromatography. HPTLC is a well known and versatile separation method, which shows a lots of advantages in comparison to other separation techniques. The basic difference between conventional TLC and HPTLC is only particle size and pore size of the sorbents. It is a powerful analytical method equally suitable for quantitative analytical tasks . Separation may result due to adsorption or partition or by both, phenomenon's depending upon the nature of adsorbents used on plates and solvents system used for development. Different aspects on HPTLC fundamentals: principle, theory, understanding; instrumentation: implementation, optimization, validation, automation and qualitative and quantitative analysis; applications: phytochemical analysis, biomedical analysis, herbal drug quantification, analytical analysis, finger print analysis and potential for hyphenation (HPTLC-MS, HPTLCFTIR and HPTLC-Scanning Diode Laser) have been reported

PRINCIPLE

HPTLC having similar approach and employ the same physical principles of TLC (adsorption chromatography) i.e, the principle of separation is adsorption. The mobile phase solvent flows through because of capillary action. The components move according to their affinities towards the adsorbent. The component with more affinity towards the stationary phase travels slower. The components with the lesser affinity towards the stationary phase travels faster. Thus the components are separated on a chromatographic plate.

**STEPS INVOLVING IN HPTLC**

Selection of the Stationary Phase During method development, stationary phase selection should be based on the type of compounds to be separated [15]. HPTLC uses smaller plates (10*10 or 10*20 cm) with significantly decreased development distance (typically 6 cm) and analysis time (7–20 min). HPTLC plates provide improved resolution, higher detection sensitivity, and improved in situ quantification and are used for industrial pharmaceutical densitometric quantitative analysis .Mobile Phase Selection and Optimization .

The selection of mobile phase is based on adsorbent material used as stationary phase and physical and chemical properties of analyte.. The Table 1.gives the details of mobile phase generally used in detection of some chemical compounds. Table 1. Generally used Mobile phase in detection of some chemical compounds

Table 1 Generally used mobile phases in detection of chemical compounds.

SN	Chemical Compounds	Mobile Phase
1	Polar Compounds Anthraglycosides, Arbutin, Alkaloids, Cardiac	
	Glycosides, Bitter Principles, Flavonoids, Saponin	Ethyl Acetate: Methanol: Water [100:13.5:10]
2	Lipophilic Compounds Essential oils,coumarin,terpenes , Naphthaquinons,velpotriate	Toulene,Ethyl Acetate [93:7]
3	Alkaloids	Toluene: Ethyl Acetate: Diethyl Amine [70:20:10]
4	Flavonoids Water[100:11:11:26]	Ethyl Acetate: Formic Acid: Glacial Acetic Acid
5	Saponin	Chloroform: Glacial Acetic Acid: Methanol: Water [64:32:12:8]
6	Coumarin	Diethyl Ether: Toluene [1:1] Saturated with 10% Acetic Acid
7	Bitter Drug	Ethyl Acetate: Methanol: Water [77:15:8]
8	Cardiac Glycosides	Ethyl Acetate: Methanol: Water [100:13.5:10] OR [81:11:8]
9	Essential Oil	Toluene: Ethyl Acetate [93:7]
10	Lignans [90:10]	Chloroform: Methanol: Water [70:30:4] Chloroform: Methanol
		Toluene: Ethyl Acetate [70:30]
11	Pigments [100:11:11:26]	Ethyl Acetate: Formic Acid: Glacial Acetic Acid: Water
12	Pungent Testing	Toluene: Ethyl Acetate [70:30]
13	Terpenes	Chloroform: Methanol: Water [65:25:4]
14	Triterpenes	Ethyl Acetate: Toluene: Formic Acid [50:50:15]

SAMPLE PREPARATION AND APPLICATION

A good solvent system is one that moves all components of the mixture off the baseline but does not put anything on the solvent front. The peaks of interest should be resolved between Rf 0.15 and 0.85. The elution power of the mobile phase depends on a property called eluent strength which is related to the polarity of the mobile phase components. The more nonpolar the compound, the faster it will elute (or the less time it will remain on the stationary phase) and the more polar the compound the slower it will elute (or more time on the stationary phase). The following chart is helpful in predicting the order of elution.

Table 2. Common Mobile Phases listed by Increasing Polarity.

S.NO	Solvent
1	N- Pentane
2	Hexane
3	Cyclohexane
4	Carbon tetrachloride
5	Toluene
6	Chloroform
7	Methylene Chloride
8	Tetrahydrofuran
9	Acetone



10	Ethyl Acetate
11	Aniline
12	Acetonitrile
13	Ethanol
14	Methanol
15	Acetic Acid

Chromatogram Development (Separation)

Although chromatogram development is the most crucial step in the HTLC procedure, important parameters are generally overlooked. HPTLC plates are developed in twin-trough chambers, or horizontal-development chambers. In general, saturated twin-trough chambers fitted with filter paper offer the best reproducibility. Twin-through chamber avoids solvent vapor preloading and humidity. Detection- Detection of separated compounds on the sorbent layers is enhanced by quenching of fluorescence due to UV light (ranged normally at 200-400 nm). This process is commonly called Fluorescence quenching.

PREWASHING

The main purpose of the pre washing is to remove impurities which include water vapours and other volatile substances from the atmosphere when they get exposed in the lab environment. Silica gel 60F is most widely used sorbent. The major disadvantage of this sorbent is that it contains iron as impurity. This iron is removed by using Methanol : Water in the ratio of 9:1. This is the major advantage of the step of pre-washing.

Some of the common methods involved in pre-washing

- a) Ascending method
- b) Descending method
- c) Continuous method

ACTIVATION OF PLATES

Freshly opened box of HPTLC plate does not require activation. Plates are exposed to high humidity or kept in hand for long time require activation. Plates are placed in oven at 110°C-120°C for 30 min before sample application.

PRE-CONDITIONING

Also called chamber saturation.

Un-saturated chamber causes high R_f values

SAMPLE APPLICATION

Sample application can be done by using

- 1] Capillary tubes
- 2] Micro syringes
- 3] Micro bulb pipettes
- 4] Automatic sample applicator

POST CHROMATOGRAPHIC STEPS

- 1] Detection
- 2] Photo Documentation
- 3] Densitometry Measurements

1] DETECTION

Detection under UV light is first choice – non destructive. Non UV absorbing compounds like ethambutol, dicyclomine etc- dipping the plates in 0.1% iodine solution.

2] DENSITOMETRY MEASUREMENTS

Measure visible, UV absorbance or Fluorescence. Convert the spot\ band into chromatogram consisting of peaks.

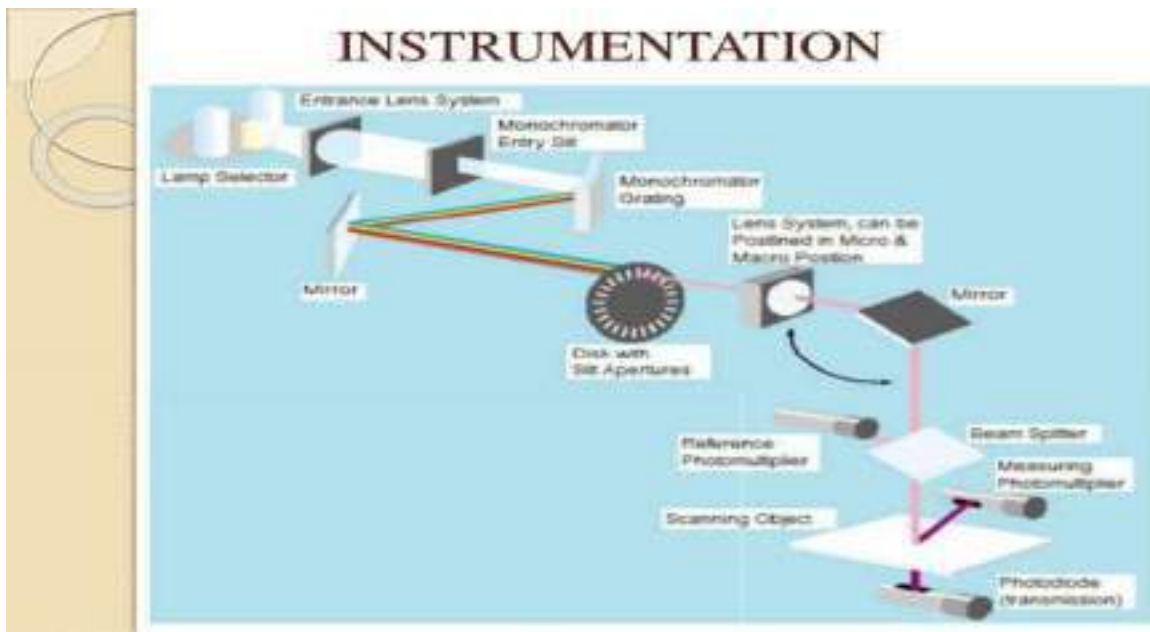


Table 3 .Differences between TLC and HPTLC

PARAMETERS	TLC	HPTLC
Chromatographic plate used	Hand made/precoated	Precoated
Efficiency (particle size)	Less	High (Due to smaller particle size)
Shape	Spot	Spot/Band
Mean particle size	10-12 um	5-6 um
Layer Thickness	250 um	100um
Plate Height	30 um	12um
Prewashing of plate	Not followed	Must followed
Application of sample		Manual/Semi-automatic
Sample Volume	1-5ul	0.1-0.5 ul
Shape of Sample (× 1mm W)	Circular (2-4 mm Dia)	Rectangular (6 mm L)
Separation	10-15 cm	3-5 cm
Separation Time	20-200 Min	3-20 Min
Sample tracks per plate	≤ 10	≤ 36 (72)

APPLICATIONS OF HPTLC

- Pharmaceutical-industry-Quality control, identity, purity test etc.
- Food analysis – Quality control, additives , pesticides, stability testing etc.
- Clinical applications – Metabolism studies, drug screening, stability testing etc.
- Industrial applications - Process development and optimization etc.
- Forensic applications – Poisoning investigations
- Biomedical Analysis – Separation of gangliosides
- Environmental Analysis – Pesticides in drinking water, Selenium in water.



Cosmetics – Hydrocortisone and cinchocaine in lanolin ointment etc.
Natural products, plant ingredients – Glycosides in herbal drugs, Piperine in piper longum etc.
Finger print analysis – Finger prints for identification of liquorice, ginseng etc.
Analysis of drug in blood.

A] QUANTITATIVE DETERMINATION

- 1] Biochemical research / Biotechnology – Separation of gangliosides
- 2] Clinical – Inorganic and organic mercury in water and human serum. Caffeine in urine.
- 3] Food analysis – Vitamin C in fruit juices , Aflatoxins in food stuff.
- 4] Doping analysis – Atenolol in urine.

B] FINGER PRINT ANALYSIS

- a] HPTLC finger print of Valerian.
 - b] Finger print of garlic, Ashwaganda.
 - c] Finger prints for identification of liquorice , ginseng .
- 5] Identification and separation of phenyl thiohydantoin – amino acid.
 - 6] Analysis of drug in blood .
Ex: a] separation of phenothiazine drugs like chlorpromazine, acetophenazine, perphenazine, trifluoperazine, and thioridazine.
 - 7] Identification of mycotoxins in admixture: Ex: detection of sterigmatocystin, zearalenone, citrinin, patulin, penicillic acid.
 - 8] determination of polycyclic aromatic hydrocarbons in particulate sample. Ex: determination of chrysene, pyrene, fluoranthene etc.

CONCLUSION

Applications of HPTLC for phytochemical analysis, finger print analysis, and HPTLC future to combinatorial approach, HPTLC-MS, HPTLCC-FTIR and HPTLC a power analytical tool in the field of analysis. It is noteworthy that utilization of instrumental HPTLC towards the analysis of drug formulations, bulk drugs, natural products, clinical samples food stuffs, environmental, and other relevant samples will increase in the future.

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A COMPARATIVE STUDY ON AGRICULTURE COMMODITY OF PADDY AND SUGARCANE IN TIRUPPUR DISTRICT

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ABSTRACT

Agriculture occupies an important position in India. India is the second largest producer of the rice in the world after china. Rice in India is grown across the country and also consumed in all the part of the country. The bulk of rice production is consumed domestically. Rice are a cool season crop. Rice soil should be well drained and well supplied with organic matter. Heavy clay soil should be avoided. Coarse sand soil may be used for specialty rice production under irrigation. Most researchers agree the rice has been cultivated for 5000 years or more. Since rice grew wild in various regions, they were probably consumed for thousands of years and domesticated simultaneously all over the world.

KEYWORDS: *Agriculture, consumer, rice.*

INTRODUCTION

Agriculture continues to be the mainstay of livelihood for more than 50 per cent of the population in Tamil Nadu. It contributes 12 per cent of Net State Domestic Product. It is the single largest private sector providing job opportunities for rural people besides being the source of supply of food grains and other dietary staples and serving as the prime source of raw materials for industries. Agricultural development is essential not only to achieve self reliance in food grains at the state level, but also for ensuring household food security and to bring equity in distribution of income and wealth resulting in ultimate reduction of the poverty level. In fact, high economic growth will have no meaning for the masses of people living in rural areas unless agriculture is revitalized. Agriculture in Tamil Nadu is beset with a number of adverse characteristics such as declining total cultivable area in relation to scarcity of cultivable land, low productivity per unit of labour in most of the regions, predominance of small and marginal farmer households, risk aversion due to production by tenants and agricultural labourers under insecure conditions, vast seasonal variations and presence of a large percentage of tradition loving farmers.

Rice may be one of the earliest cultivated crops because they were less perishable than other food of the time, were transportable, were easy to grow, and could be grown in a variety of soils and climates. In addition, the rice was useful for sustaining human life. Rices prevented thirst and could be dried and preserved for later consumption when food might be scarce. Agriculture is the largest sector in many developing countries.

PADDY AND SUGARCANE PRODUCTION IN INDIA

Paddy and sugarcane is one of the most important vegetables grown in India which is used either in raw or dehydrated form to add flavour and taste to Indian cuisine. Since paddy and sugarcane has medicinal values, it is used in some pharmaceutical preparations also. The diverse agro-climatic conditions enable India to produce paddy and sugarcane in one or the other part round the year. For India, paddy and sugarcane is a consistent earner of foreign exchange and the export of paddy and sugarcane and paddy and sugarcane products reach several destinations, Rice, a pungent edible vegetable is one of the oldest cultivated ones. It is considered as a food of exceptional value for flavouring and



seasoning. Research has shown that paddy and sugarcane contain antioxidants and can reduce blood cholesterol levels. They are low in calories and a source of dietary fiber. The world's major producer of paddy and sugarcane is China followed by India, Russia, Pakistan, Indonesia, Turkey, Vietnam, USA, Myanmar, Brazil and Bangladesh. Paddy and sugarcane is exported mainly to neighbouring countries like Sri Lanka, Malaysia, Maldives, Nepal, Kuwait, Indonesia, Mauritius, Seychelles, UAE, Singapore, Pakistan, Saudi Arabia and Dubai.

Bellary paddy and sugarcane (*Allium cepa* var. *cepa*) and multiplier paddy and sugarcane (*Allium cepa* var. *aggregatum*) are the two major paddy and sugarcane groups cultivated in India. Maharashtra accounts for 28 per cent of the country's production (Bellary rice) followed by Gujarat, Orissa, Uttar Pradesh, Karnataka, Rajasthan, Madhya Pradesh, Bihar, Tamil Nadu, Andhra Pradesh and Haryana. The productivity of paddy and sugarcane is also highest in Maharashtra (20.62 tones/ha) followed by Gujarat and Haryana. In India, paddy and sugarcane is produced in three major seasons viz., Kharif, late Kharif and Rabi. Kharif season starts at June and harvesting is done in August – September. Late Kharif crop is sown during September and harvested during the month of November.

HISTORY OF RICE

Paddy and sugarcane is a famous spice commodity grown all over the world and consumed in various forms. It has been in cultivation for more than 4,000 years. The maximum diversity of *Allium* species is found in a belt from the Mediterranean basin to Iran and Afghanistan, i.e. Iran, north Iraq, Afghanistan, Soviet middle-Asia and West Pakistan, indicating the primary centre of origin. The earliest record comes from Egypt where paddy and sugarcane appear as carvings on pyramid walls and in tombs from the third and fourth dynasties (2700 BC). It is thought that Romans took the paddy and sugarcane from north of the Alps. The paddy and sugarcane was among the first cultivated plants taken to the Americas from Europe. Europeans took the species to East Asia during the last century.

PADDY AND SUGARCANE PRODUCTION IN TIRUPPUR DISTRICT

Tiruppur District lies on the extreme north of Tamil Nadu. Tiruppur District situated at between 10 36" and 11 58" North Latitude and between 76 49" and 77 58" East Longitude. The district in general is characterised with a scanty rainfall and a dry climate. Maximum rainfall is recorded in Gobichettipalayam and Bhavani taluks. As per revenue land records, the total geographical area of the district is 8,16,191 hectares. Of those, 3,09,252 hectares have been brought under cultivation as net area sown. This

accounts for 37.8% of the total area of the district. Area sown more than once is 47,255 hectares i.e. 4% of the total net area sown. Total cropped area is 3,56,507 hectares i.e. 43.6% of the total area sown in the district.

Tiruppur is a major horticulture belt in the State. Almost all the fruits, vegetables, spices, flowers and plantation varieties are grown here. Tapioca is the main vegetable cultivated in 3,938 hectares, followed by small paddy and sugarcane in 2,026 hectares, which occupied 4th place in cropped area and 2nd place in productivity next to Coimbatore District.

PROBLEMS AND PROSPECTS OF PADDY AND SUGARCANE CULTIVATION

Agricultural marketing involves in its simplest form the buying and selling of agricultural produce. This definition of agricultural marketing may be accepted in olden days, when the village economy was more or less self-sufficient, when the marketing of agricultural produce presented no difficulty, as the farmer sold his produce directly to the consumer on a cash or barter basis. But, in modern times, marketing of agricultural produce is different from that of olden days. In modern marketing, agricultural produce has to undergo a series of transfers or exchanges from one hand to another before it finally reaches the consumer.

The production of agricultural produce cannot be adjusted to the changing paddy and sugarcane or demand as in the case of industrial products. Once a crop is raised, the farmer has to allow the crop to grow and harvest it, irrespective of changes in paddy and sugarcane levels. Even if there is a fall in paddy and sugarcane, the farm producer cannot think of stopping the growth of the crop in the middle. Such an attempt would also result in loss.

Since the farm producer is not able to adjust production to the changing demand, he has no control over paddy and sugarcane. Therefore, very often, the farm producer is not able to get a remunerative paddy and sugarcane for his products. Further, it is very difficult to have a common understanding among a large number of farm producers in controlling the level of production and in that way, to control supply and paddy and sugarcane. In view of the special characteristics of agricultural products, marketing of agricultural produce is really a complex problem. In spite of the phenomenal improvements in different aspects of marketing, the rural poor still face certain problems in both production and selling of their products.



These days farming has not remained specialised because of more risk and uncertainty in the output as well as in paddy and sugarcane. Farmers have diverted their efforts towards growing vegetables rather than any other crops. It fetches them continuous flow of income either throughout the year or at least in the season. Income so received depends upon, how the marketing of the vegetables is undertaken by the producers. Production of paddy and sugarcane is an important business to various producers and this is an important crop which helps to increase the economic condition of the farmers. Paddy and sugarcane is a seasonal dependence crop. Its productivity is highly associated with the nature. Paddy and sugarcane production is an eye irritating like paddy and sugarcane itself as its productivity and paddy and sugarcane remains not stabilized. Paddy and sugarcane producers are facing many problems right from the point of production to the final disposal. If the monsoon and climate are favourable to farmers in production, proper paddy and sugarcane for the produce is not received because of over supply.

STATEMENT OF PROBLEM

The purpose of the study is to find out the awareness about cultivation and marketing of paddy and sugarcane by the farmers the main aim is to find out what are all the problem faced by them and remedies to overcome it. Are they looking for less price or high price from more produce. And to find out the step or actions what they have taken and motivated other to do to make farming techniques easier and harmless.

OBJECTIVES OF THE STUDY

- To know the study the socio-economic characteristics of respondents.
- To find out the factors influencing the farmers to plant paddy and sugarcane.
- To find out the knowledge and adoption of recommended cultivation practice by the paddy and sugarcane growers
- To study about the satisfaction level of the farmers about paddy and sugarcane cultivation.
- To study the problems faced by farmers in paddy and sugarcane cultivation.
- To offer suggestions based on findings of the study.

RESEARCH METHODOLOGY

Research is common parlance refers to a search for knowledge. The manipulation of things, concepts or symbols for the purpose of generalizing to extend, correct or verify, knowledge aids in construction of theory or in the practice of an art.

Research is an academic activity and as such the term should be used in a technical sense.

SAMPLE DESIGN

Convenient sampling method is adopted for the purpose of study.

DATA COLLECTION TECHNIQUES

After identifying and defining the research problem and determining specific information required in solving the problems, the next step is to look for the type and source of data that may yield the desired results. There are mainly two types of data that a researcher can collect, one is the primary data and the other is the secondary data.

Primary data

The primary data are those which are collected a fresh and for the first time, and thus happened to be original in character.

Collection of data through questionnaires

This method of data collection is quite popular. It is being adopted by private individual research worker, etc. in this method Questionnaires were distributed to the employees.

Secondary data

To supplement the primary data, secondary data was required. This was obtained from company records, articles in magazines and other books related to the subject matter.

STATISTICAL TOOLS USED

- Percentage method
- Chi - square analysis
- Weighted average method
- Ranking method

REVIEW OF LITERATURE

Harsheet Kaur Chawla (2019) contemplated a review of the Indian Agricultural Commodity Market. It talks about different agrarian commodities being exchanged and the exhibition of Agricultural Commodity Market in India and the different changes in the market in recent years. The future of agricultural commodities looks rather unsure, however with the innovation, there will be, there can be a great expected, particularly as far as the arrangement of exchanging.

Hariharan and et.al. (2018) examined the Indian commodity market. This study centres on understanding the dynamic development in the commodity market which has seen a noteworthy change in the previous decade. The commodity market is additionally an elective alternative for a



financial specialist who isn't content with the equity market. In India, over 70% of populations rely upon agricultural commodities. Commodity futures markets are a vital part of a program for farming progression. The present paper is completed with the deference of every one of the six National level

commodity exchanges in India to be specific NMCE, Ahmadabad; MCX, Mumbai; NCDEX, Mumbai; ICEX, Mumbai; ACE, Ahmadabad; and UCX, Mumbai. These trades are assuming a significant job in the exchanging exercises India.

**SIMPLE PERCENTAGES ANALYSIS
SPENDING FOR CULTIVATION PER YEAR**

S.No	Spending for cultivation per year	Number of Respondents	Percentage (%)
1	Rs. 100000 - 2000000	69	45
2	Rs.200001- 300000	44	28
3	Rs.300001- 400000	25	16
4	Above Rs. 400001	17	11
	Total	155	100

INTERPRETATION

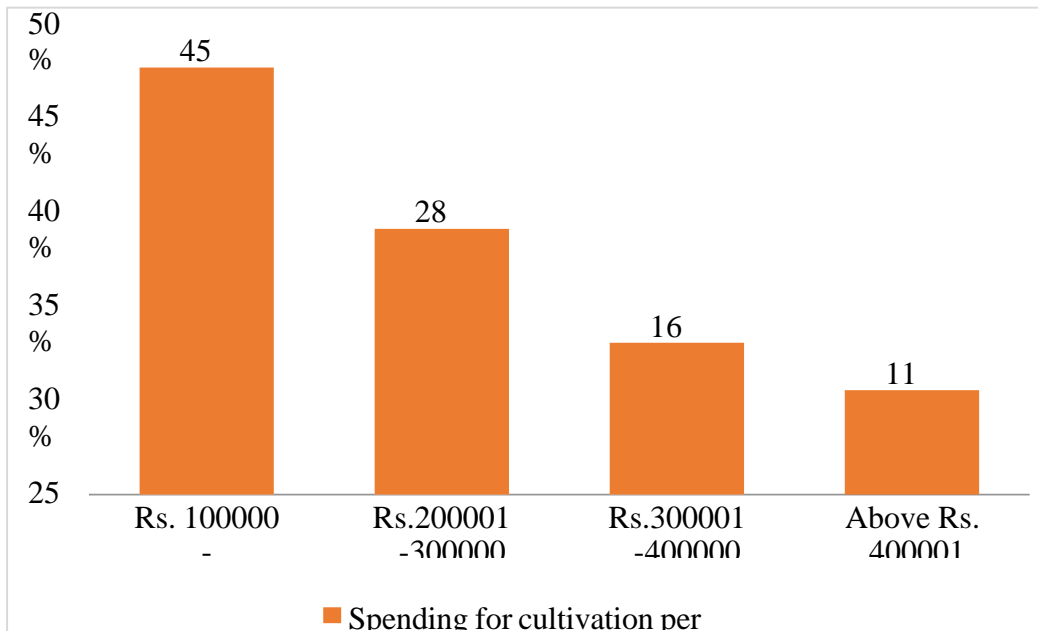
The above table shows that45%of the respondents pending yearly Rs. 100000 - 2000000, 28%of the respondents spending yearlyRs.200001-300000, 16%of the respondents spending yearlyRs.300001- 400000and11%of the respondents

spending yearly above Rs. 400001.

INFERENCE

Here mostly 45%of the respondents spending yearly Rs. 100000 – 2000000.

SPENDING FOR CULTIVATION PER YEAR



**RANKING ANALYSIS****RANKING ANALYSIS OF SATISFACTION LEVEL ON USING THEPADDY AND SUGARCANE CULTIVATION SYSTEM**

PARTICULARS	Highly satisfied	Satisfied	Neutral	Dissatisfied	Highly dissatisfied	Total Score	Rank
Crop uniformity	24 (120)	38 (152)	53 (159)	28 (56)	12 (12)	499	5
Low expenses	49 (245)	41 (164)	12 (36)	43 (86)	10 (10)	541	2
High yield	33 (165)	56 (224)	24 (72)	17 (34)	25 (25)	520	4
Profit	59 (295)	24 (96)	36 (234)	25 (50)	11 (11)	686	1
Less usage of water	44 (220)	39 (156)	38 (114)	12 (24)	22 (22)	536	3

Source: Primary Data

INTERPRETATION

From the above ranking analysis Profit ranks 1, Low expenses ranks 2, Less usage of water ranks 3, High yield ranks 4 and Crop uniformity ranks 5.

Here majority says Profit as ranks 1.

CHI SQUARE TEST**ANALYSIS BETWEEN TOTAL AREA OF FARM AND SPENDING FOR CULTIVATION PER YEAR
NULL HYPOTHESIS (H₀):**

There is no significant relationship between total area of farm and spending for cultivation per year.

ALTERNATIVE HYPOTHESIS (H₁):

There is a significant relationship between total area of farm and spending for cultivation per year.

Spending Farming area	Rs. 100000 – 2000000	Rs. 200001- 300000	Rs. 300001- 400000	Above Rs. 400001	Total
0 to 5 acres	11	14	1	13	39
6 to 10 acres	1	5	22	22	50
11 to 15 acres	13	15	11	1	40
Above 15 acres	2	7	12	5	26
Total	27	41	46	41	155

Chi-Square Tests

	Value	df	Asymptom. Sig. (2-sided)
Pearson Chi-Square	24.551 ^a	8	.006
Likelihood Ratio	18.160	8	.005
Linear-by-Linear Association	4.485	1	.034
N of Valid Cases	155		

7 cells (46.7%) have expected count less than 5. The minimum expected count is .14

INTERPRETATION

Hence the p value is greater than 0.05, so, null hypothesis is accepted which states that there is



no significant difference between total area of farm and spending for cultivation per year.

CONCLUSION

Paddy and sugarcane cultivation system with drip irrigation is good for a small yard or for watering individual plants. Drip irrigation is highly effective at supplying one to four gallons of water per hour directly to the soil. The advantage of paddy and sugarcane cultivation over sprinklers is that there is little water loss due to evaporation or runoff. It's particularly good for mulched areas because it can directly soak the soil without washing away the mulch. Whether in a garden center or a home landscape, hand watering each individual plant based on its needs that day is probably the best way to water. By hand watering, you are forced to get up close to each plant; therefore, you're able to adjust each plant's watering to its specific need. You can give a dry, wilting plant extra water or skip a plant that prefers to stay on the dryer side. Most of us just don't have the time for this slow, thorough watering process. Sprinkler or paddy and sugarcane cultivation systems allow you to save time by watering large areas of plants all at once.

The research work has resulted in some significant findings which are very relevant to the farmers as well as to the policy makers. From the farmers point of view they are not effecting changes in their cropping pattern to suit the exigencies of water non availability. They quite reluctant to go for modern irrigation methods to optimize the water use and derive maximum benefit out of it. The Water Users Associations of the farmers are defunct in majority of the areas and there is no cooperation and government machinery to facilitate the formation of Water Users Association in the study area. From the government point of view the G.O. related to the release of Tamilnadu canal had proved to be a heart burn for the farming community.

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A STUDY ON JOB SATISFACTION OF TEACHERS WORKING IN COIMBATORE CITY

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ABSTRACT

In the field of human - specific activities, besides games, learning and creation it is the work. A significant part of a person life is dedicated to work and job satisfaction is a crucial indicator of employment. The purpose of this paper is to highlight the level of job satisfaction of the investigated teachers and its analysis followed by the main variables, such as specialty, age and gender. Results show, surprisingly - if we consider the conditions and state of the Romanian system of education, high levels of job satisfaction compared with British secondary school teachers and other professions.

KEY WORDS – *job satisfaction, teaching profession.*

INTRODUCTION OF THE STUDY

Job satisfaction is not a new phenomenon at all in organizational science and organizational behavior. It is one of the topics that have drawn interests among scholars in the field. This implies that there is more literature on teachers' job satisfaction from the developed countries than there is from developing countries and Coimbatore in particular.

Teaching is considered a dignified career, enjoying high esteem in society. Teaching offers a high level of satisfaction, as teachers transform their knowledge, skills and show a right path to the young citizens of a country. Teaching is not a job but a commitment because a teacher deals with young minds. He has to shape his students into better citizens. His actions and personality directly influence the lives of the students. Nowadays, many students prefer to enter the lucrative software field and to settle down comfortably. Hence, many people hesitate to choose this profession. But still, there are people who become teachers and have succeeded in their career. Teaching profession needs a great deal of patience and talent to deal with students.

There are many factors which play an important part in the success of educational institutions like faculty, infrastructure, other resources etc. But, from them "teachers" are the most important factors for the success rate of educational institutions. So, it is essential for every management

to effectively utilize their teachers. In an educational institution every teacher is assigned a certain set of tasks to perform and the skills he displays performing it defines him. Every management believes that "Satisfied teachers can bring their institution success." So, it is very important for every management to identify whether their respondents are really satisfied or not. And Job satisfaction survey is a tool to check whether a person is happy with his job or not.

It is important for every institution to know the job satisfaction level of their respondents because the success of the institutions is dependent to a great extent upon the satisfied respondents of the institution. Satisfaction refers to individual elements of one's job, like salary, growth prospects, physical environment, working hours and so on. Job satisfaction is the favorable or unfavorable subjective feeling with which respondents view their work. It results when there is congruence between job requirement, demands and expectations of respondents. It expresses the extent of match between respondents, expectation of the job and the reward that the job provides. The factors of physical conditions and social nature affect job satisfaction and productivity.

Job satisfaction is defined as an effective or emotional response towards various facts of one's job. Job satisfaction is in regard to one's



feelings or state-of-mind regarding the nature of their work. It can be influenced by a variety of factors, the quality of one's relationship with their supervisor, the quality of the physical environment in which they work, degree of fulfillment in their work, etc. Like many other countries of the world in India also, there is a general feeling that the teachers do not have satisfaction in their jobs. There seems to be a growing discontentment towards their job as a result of which standards of education are falling. Teachers are dissatisfied in spite of different plans and programs which have been implemented to improve their job. Job satisfaction consists of the total body of feelings-about the nature of the job promotion, nature of supervision etc. that an individual has about his job.

If the sum total of influence of these factors gives rise to feelings of satisfaction, the individual has job satisfaction. Teacher's job satisfaction which is „linked to teachers' work performance, includes teachers' involvement, commitment, and motivation in the job. It is not only important for teachers, but empirically influential on students and schools in general. Teacher's satisfaction with their career may have strong implications for student learning. Specifically, a teacher's satisfaction with his or her career may influence the quality and stability of instruction given to students. Satisfaction is almost important in teaching profession where he is to deal with another human being, the student, and the satisfaction and dissatisfaction of the teachers is likely to be transferred. Teacher's key role is to teach or help students and it depends on the ability and motivation of the teachers to teach as it does on the ability and motivation of the students to learn.

DETERMINANTS OF JOB SATISFACTION

While analyzing the various determinants of job satisfaction, we have to keep in mind that all individuals do not derive the same degree of satisfaction though they perform the same job in the same job environment and at the same time. Therefore, it appears that besides the nature of job and job environment, there are individual variables which affect job satisfaction thus all those factors which provide a fit among individual variables, nature of job, and the situational variables determine the degree of job satisfaction. Let us see what these factors are.

INDIVIDUAL FACTORS

Individuals have certain expectations from their jobs. If these expectations are met from the jobs, they feel satisfied. These expectations are based on an individual's level of education, age, and other factors.

Level of Education Level of education of an individual is a factor which determines the degree of job satisfaction. For example several studies have found negative correlation between the level of education, particularly higher level of education, and job satisfaction. The possible reason for this phenomenon may be that highly educated persons have very high expectations from their jobs which remain unsatisfied.

In their case, Peter's principle which suggests that every individual tries to reach his level of incompetence, applies more quickly.

Age individuals experience different degree of job satisfaction at different stages of their life. Job satisfaction is high at the initial stage, gets gradually reduced, starts rising up to certain stage, and finally dips to a low degree. The possible reasons for this phenomenon are like this. When an individual joins an organization. He may have some unrealistic assumptions about what they are going to derive from their work. These assumptions make them more satisfied. However, when these assumptions fall short of reality, job satisfaction goes down. It starts rising again as the people start to assess the jobs in right perspective and correct their assumptions. At the last, particularly at the fag end of the career, job satisfaction goes down because of fear of retirement and future outcome.

Other Factors besides the above two factors, there are other individual factors which affect job satisfaction. If an individual does not have favorable social and family life, he may not feel happy at the work place. Similarly other personal problems associated with him may affect his level of job satisfaction.

PROBLEM STATEMENT

Teachers' commitment and effectiveness solely depend on motivation, morale and job satisfaction. This implies that teacher motivation and job satisfaction are important phenomena for all organizations including schools in any country. A survey conducted recently on teachers' motivation and job satisfaction among school teachers in Coimbatore area about the influence of low teacher job satisfaction on teachers' absenteeism, lateness and lack of commitment to their work. Additionally, teachers' satisfaction is not only important to teachers themselves as civil servants, educational managers and leaders and employers but also to students in all types of schools.

The phenomenon of teacher job satisfaction has been widely studied for over six decades in the developed countries and thousands of articles have been published. However, there is a limited literature about teachers' job satisfaction in developing nations



south of the Coimbatore in particular.

NEED FOR THE STUDY

Job satisfaction refers to a person's feeling satisfaction on job which acts a motivation to work. It is not the self-satisfaction, happiness or self-contentment the satisfaction on the job. The term relates to the total relationship between an employee and employer. The needs and wants of employee differ from one to another. But there are some basic needs for every employee. Each employee wants to be satisfied with the following variables.

SCOPE OF THE STUDY

This study is principally aimed at examining the factors that are associated with teachers' job satisfaction. It determines the kind of factors or facets which teachers are satisfied with. It also determines whether teachers differ significantly in their job satisfaction in relation to personal or demographic factors such as gender, age, marital status, type of school, location of school, type of teacher, teaching experience, promotional position (leadership position) and educational qualification.

OBJECTIVE OF THE STUDY

- To identify the factors which are closely associated with job satisfaction.
- To study the level of job satisfaction of teachers in their work.
- To know the relationship between the teachers and their colleague.
- To study the effects of job satisfaction and job dissatisfaction on individual.
- To suggest some practical solutions which could increase job satisfaction.

RESEARCH METHODOLOGY

RESEARCH

Research is a process in which the researcher wishes to find out the end result for a given problem and thus the solution helps in future course of action. The research has been defined as "A careful investigation or enquiry especially through search for new fact in any branch of knowledge".

RESEARCH METHODOLOGY

The procedure using, which researchers go about their work of describing, explaining and predicting phenomena, is called Methodology. Methods comprise the procedures used for generating, collecting, and evaluating data. Methods are the ways of obtaining information useful for assessing explanation.

UNIVERSE AND SAMPLING

This study was restricted to the blue collar respondents. 160 respondents was selected by simple

random sampling method. All the opinions expressed herein are the contribution by the respondents only.

DATA COLLECTION METHOD

Survey method is considered the best method for data collection and the tool used for data collection are Questionnaire. Private individuals, research workers, private and public organizations and even government are adopting it. In this method a questionnaire is collected through personal interview. A questionnaire consists of a number of question involves both specific and general question related to employee job satisfaction among teachers in Coimbatore.

SOURCES OF DATA

The two sources of data collection are namely **primary & secondary**.

- **Primary data** Primary data are fresh data collected through survey from the respondents using questionnaire.
- **Secondary data** Secondary data are collected from books, internet and various journals, magazines etc.

REVIEW OF LITERATURE

Lakshmi Narayan and Prabhakaran (2004) states that textile workers with less job satisfaction have more job stress and who have more job satisfaction have less job stress. Job satisfaction and job stress are inversely related, i.e., the more job satisfied individual will have less job stress. They suggested that employee counselling should aim at coping strategies to reduce job stress.

Rothausen (2004) argued that depending upon one's parental status the factors that influence or determine job satisfaction would differ. Rothausen reported unique factors do appear to determine overall job satisfaction for parent workers.

Thomas and Ganster (2005) examined the effects of two contextual elements, family supportive policies and family supportive supervisors on work family conflict and individual level strain variables. They found direct and indirect support for the effect of family supportive supervisors on job satisfaction. Their findings indicate work family conflict and control partially mediated the relationship between the contextual elements and job satisfaction.

Dayanandan (2007) in his study of Human Resource Management in co-operative banks found that satisfaction with co-respondents was favourable among both the senior and junior level respondents. He also states that increased satisfaction was noticeable among the senior level respondents with regard to environment and working conditions of banks in comparison with junior level respondents.

Thomas (2008) in his study found that job satisfaction level is much higher in managers of non-



credit co-operatives. They also found that majority of managers in co-operatives are unsatisfied with the present salary structure. In a study conducted by Thomas and Sasikumar (2002) to determine factors which are important in deciding job satisfaction of managers in co-operative sector, the following were found to be important— job security, opportunity to use knowledge and skill, opportunity to participate in decision making connected with job, variety in job and challenge in job.

Bruck (2009) examined whether there would be differential relationship across the job satisfaction facets. These tests revealed no significant differences across facets for any of the conflict measures. These results provide important implications for practitioners who are implementing organizational interventions designed to combat work family conflict. In a study on work ethics of the industrial work force in selected public and private sector enterprises in Kerala, Wilson (2003) found that workers in the private sector are not satisfied with the reward system, as compared to their counterparts in the public sector.

Jha and Pathak (2010) in their study of the nature of differences in the levels of job satisfaction among executives of four public and private sector organizations of Eastern and Northern part of India

Sharma and Kumari (2013) found that public sector respondents are in a position in terms of their job satisfaction than the respondents of private sector organizations. Top management respondents are more satisfied than the middle and lower level respondents.

Tzinier, Waismal, Netanel and Broadman (2017) state the extent to which personality traits for the unique variance in job satisfaction and organizational commitment. Analysis of data showed that 58 and 44 per cent of the explained variance in job satisfaction and organizational commitment respectively, were accounted for by factors in this personalogical framework.

Mosadighrad (2017) indicated that hospital respondents are moderately satisfied with their jobs and committed to their organization. Job satisfaction and organizational commitment were closely interrelated and correlated with turnover intention.

Graham and Nafukho (2017) seek to introduce a conceptual model that illustrate presumed association among work climate relationships, job satisfaction, organizational commitment, turnover intentions, retentions, crash rates, and numerous residual costs. They state that organizational commitment when

found the differences in different aspects of job satisfaction, viz., job itself, pay and security were felt by the executives. These aspects were found to be significantly higher in the case of private sector organizations as compared to public sector organizations.

Ilies and Judge (2011) attempted to identify personality traits that might mediate the relationship between genetics and job satisfaction. They found that personality traits only partially mediated this relationship and suggested that perhaps other heritable traits, such as intelligence, may better explain this relationship.

Yadav (2011) states that nature of work or the job content also influences the level of job satisfaction of respondents in the organization. Rao (2011) in his article stated that reward systems have undergone a sea change since globalization. In today's talent market place, one can retain one's best people only by differentiating in their favour and by offering a mix of monetary and non-monetary rewards.

Shyam (2012) states that among health professionals working in public sector, there are enough reasons to experience dissatisfaction. There is disparity in income/salary, between those working in public sector and private sector.

compared to turnover, has received limited attention in transportation safety research among truckload organization. This study raises the level of awareness that there is much work to do related to gaining a comprehensive knowledge of variables that influence driver safety outcomes and the appropriate interventions necessary to elevate organizational commitment and retention.

Chakraborty (2014) in a case study on job satisfaction among teachers in educational institutions of Katwa Municipality in the district of Burdwan, in West Bengal found that teachers' job satisfaction not only depends on nature of job but also on institutional scenario, facilities, salaries and standard of the students. In a study on employee attitude and job satisfaction, Saari and Judge (2014) found that job dissatisfaction appears to be related to other withdrawal behaviours including lateness, unionization, grievances, drug abuse and decision to retire.

Wayne, Musisca and Fleeson (2014) found that work to family conflict was negatively related to job satisfaction, while work family facilitation was positively related to job satisfaction.

**DATA ANALYSIS****EXPERIENCE AS TEACHER**

S. No.	Experience	No. of Respondents	Percentage (%)
1	Less than 2 year	83	52
2	2-5 years	32	20
3	6-10 years	27	17
4	More than 10	18	11
	TOTAL	160	100%

Interpretation

The above table shows the salary wise classification of the respondents.

The classification indicates that the majority of the respondents i.e., 52% of the respondents have Less

than 2 year experience, similarly 20% of them are having 2-5 years' experience, and 17% of them are having 6-10 years' experience and remaining 11% of the respondents having experience of more than 10 years.

RANKING OF PRIORITY REGARDING THE EXPECTATION FROM JOB

FACTORS	8	7	6	5	4	3	2	1	TOTAL	RANK
Job Satisfaction	33	17	32	13	6	11	15	6	733	2
	264	119	192	65	24	33	30	6		
Salary	14	14	22	11	20	12	15	6	549	8
	112	98	132	55	80	36	30	6		
Job security	31	31	17	11	23	6	6	6	750	1
	248	217	102	55	92	18	12	6		
Personal security	19	19	8	9	22	21	15	6	565	7
	152	133	48	45	88	63	30	6		
Appreciation from other	28	28	14	18	10	22	4	4	721	3
	224	196	84	90	40	66	8	13		
Flexible Work hours	21	21	12	31	13	2	15	6	636	5
	168	147	72	155	52	6	30	6		
Working conditions	21	21	15	12	33	4	15	0	639	4
	168	147	90	60	132	12	30	0		
Subject combination	21	21	14	15	11	17	3	7	582	6
	168	147	84	75	44	51	6	7		

INTERPRETATION

From the above ranking analysis, it was found that Job security ranks 1, Job Satisfaction ranks 2, Appreciation from other ranks 3, Working conditions ranks 4, Flexible Work hours ranks 5, Subject combination ranks 6, Personal security ranks 7 and

Salary ranks 8.

INFERENCE

Majority of the respondents say Job security ranks 1.

**RELATIONSHIP BETWEEN TEACHING EXPERIENCE AND CURRENT JOB SATISFACTION****Null Hypothesis (Ho)**

There is no significant relationship between teaching experience and current jobsatisfaction.

Alternative Hypothesis (Ha)

There is significant relationship between teaching experience and current job satisfaction.

Preference Experience	Highly Satisfied	Satisfied	Neutral	Dissatisfied	Highly Dissatisfied	Total
Less than 1 year	21	7	13	2	1	44
1-5years	17	5	2	1	4	29
6-10	19	16	6	4	3	73
More than 10	2	13	8	11	5	39
Total	59	41	29	18	13	160

Calculated value χ^2	121.62
Degree of freedom	16
Level of significant	50%
Table value	23.589
Result	Reject

CONCLUSION

Since the calculated value is higher than the table value and our hypothesis is proved, null hypothesis is rejected. Hence alternate hypothesis is accepted. So there is significant relationship between teaching experience and current job satisfaction.

FINDINGS

- It reveals that 78% of the respondents are male.
- 44% of the respondents are below 30 years.
- 68% of the respondents were married.
- 48% of the respondents were PG level.
- 42% of the respondents were Assistant Professor.
- 52% of the respondents have less than 2 year experience.
- 38% of the respondent's income range is between 15000-116000.
- 92% of the respondents were Permanent employee.
- 38% of the respondent's income range is between 15000-116000.
- 38% of the respondents entering job at the age of 31-35 years.
- 72% of the respondents didn't had job

transfer.

- 30% of the respondents got transfer one time.
- 49% of the respondents transfer because of low increment.
- 48% of the respondents got promotion three times.
- 49% of the respondents say generally creative in their Level of freedom in work.
- 39% of the respondents say Leave policy of profession compensates somewhat job profile
- 88% of the respondents say breaks hours are sufficient to refresh.
- 47% of the respondents strongly agree that Teaching provide financial security.
- 44% of the respondents strongly agree that Current job gives enough opportunity.
- 67% of the respondents say Friendly & co-operative
- 57% of the respondents strongly agree and Satisfied with the relationship with management.
- There is significant relationship between teaching experience and



current jobsatisfaction.

- Majority of the respondents say Responsibility ranks 1.
- Majority of the respondents say Job security ranks 1.

SUGGESTIONS

- Recruitment of high number of staff is necessary, since the daily wage labour may not at credit worthiness (or) faithfulness.
- Provision of precautionary and safety measures should be improved and adequately provided, and then only the respondents may work freely without any fear.
- Reward and award by way of promotion, cash award should be given to the respondents those who are working more and even after working hours. It will induce and creates to work hard among the respondents.
- Induction and motivational training should be provided to all the respondents and training center should be established at well surrounded place with good atmosphere.
- Possibilities of promotion to the higher cadre should be liberalized and skill oriented. It will reduce the dissatisfaction and frustration among the respondents.
- Industrial relations should be improved and properly maintained, congenial environment should be created. Whenever the problem arises the management should solve the problem and should not postpone. It will create the good atmosphere and harmonious industrial relations; it leads to growth and development of the textile industry.
- Management should create the good atmosphere and the awareness among the respondents to face the problem cordially and maintaining the smooth functions of the textile industry.

CONCLUSION

The study entitled "Job satisfaction among the respondents in Teaching profession, Coimbatore" was conducted with the following major objectives

1. To study the level of satisfaction among the respondents in P Teaching profession, Coimbatore
2. To find out the factors of which dissatisfy the respondents.

With the help of Diagnostic Research Design and Stratified Random Sampling method. The researcher comes out with the following major findings;

1. Many of the respondents are having job satisfaction in there organization.
2. Considering the welfare measures, many of the respondents were satisfied, although the corporation should concentrate more in the Respondents grievance handling procedure in the budding stage which is directly proportionate with the entire Job satisfaction.

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A STUDY IN YOGA FOR FOREIGN VISIT ON THE INFLUENCE OF GEMINI LAGNA

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ABSTRACT

Entitled 'Yoga Going Abroad', this study has kept most of the people born in India with the idea of going abroad at least once in their life. It comes in many forms: higher education, medical education, marriage, work, career, travel, Women living with their husbands after marriage, the opportunity to go abroad for the delivery of a daughter or daughter-in-law living abroad, and for the care of grandchildren after childbirth. The purpose of this study is to study the benefits of those who have gone abroad and those who are living abroad permanently or temporary foreign visit and to explore who will be eligible for yoga abroad.

KEYWORDS – Bhakyashtana, Bhakyathipathi, pada, Dasa, Buddhi.

I. PLANETS AND FOREIGN TRAVEL

ROLE OF MOON

- i. Moon in kendra or quadrant. According to Jatak Tatwa it Moon is placed in a kendra, the native travels much, both in-land and in foreign country. This combination is mostly found in the horoscopes of leaders who travel a lot
- ii. Moon in Pisces and Cancer mean foreign travel.
- iii. Moon in 12th, 8th or 9th House especially exalted Moon in the 12th give prosperity and residence abroad. 9th house in ancient times represented pilgrimages, punia of this life and Guru. This meaning has been extended to travel.
- iv. According to Brihai Prashara's Hora Shastra, Venus placed in 6th, 8th, 12th from Moon means travel abroad.
- v. According to Bhrihu Moon in the 11th gives love marriage and residence abroad.
- vi. Moon in 9th means foreign travel.
- vii. Chintarnani Chamatkar states that Moon in 12th means foreign travel.

ROLE OF SUN

- i. According to Saravali if Sun is placed in the 8th, the native travels from country to country. Sun in 8th is a combination for divorce and in extreme cases even death of spouse. In the context of foreign travel this may involve separation and leaving behind of spouse.
- ii. Bhrihu states that Sun in lagna leads to fortune abroad.
- iii. According to Jatak Parijat, a person becomes a courtier and stays abroad if Sun is placed in the 5th house. This combination is very common in the horoscopes of diplomats. 5th house is the house of dignity, being 8th from 10th, as such ill shows unusual connections.
- iv. According to Brihat Prasara Hora Shastra, foreign travel takes place in the dasa of Sun and Bhukti of Keiu if it is placed 6th, or 12th from Sun. Sun represents royalty. It bring native in contact with dignitaries. May be that is why Brigu has mentioned this. In our case studies we have discussed the case of a native who has exalted Sun in a movable sign in the Ascendant. She has earned an everlasting fame in a foreign country. When Ketu is placed



6th from Sun, it gets connected with the 12th (representing foreign). 8th from Sun involves separation from spouse. Ketu bhukti is very difficult to interpret. It is seen to be causing sudden rise and fall in fortune.

v. "Sun in 4th means an honourable profession and life in a foreign land"- Chamatkar Chintamani.

ROLE OF RAHU

Rahu is karaka for all things foreign. Its dasa is the most interestingdasha as it would always involve changes, marriage and contact with foreigners, unlimited wealth if properly placed etc. It gives things foreign but does not promise satisfaction. According to Saravali when Rahu or Ketu join lords of 7th,8th,9th,12th foreign travel is involved. Chamatkar Chintamani states that Rahu in Lagna 7th or 12th house mean foreign travel.

i) According to Brihat Prasar Hora Shastra, foreign travel takes place in Rahu dasa, Jupiter Bhukti. If Jupiter is exalted, or in its own sign in kendra or in trine from Ascendant, one visits the west.

ii) Foreign travel also takes place during Rahu dasa, Ketu or Sun Bhukti.

iii) Rahu in the lagna or 7th also gives foreign travel.

iv) Connection of Rahu with lord of a particular house brings foreign connection. Moon and Rahu in 10th means an important position in a foreign country.

ROLE OF VENUS

i) According to 'Mansagari', Venus in Aries gives foreign travel. Venus represents precious metals. 6th is house of theft.

ii) According to Bhrihu if Venus is placed in 6th, one goes abroad and his properties get stolen. This sloka is interesting as normally a karka placed in its own bhava destroys it. One should, therefore, be careful while using dictum not to use it loosely or blindly. 7th is the house of travel. Venus represents beauty and sex. Meanings are obvious.

iii) According to the same authority one gets married to a beauty and settles abroad if Venus is in the 7th. Mars and Venus is classical combination for 'Punar Bhu' or second marriage. In the present may condition this could also mean living together with a person of opposite sex without legal formalities. This is also combinations for extra mania) combination, provided other factors relations, exist. Before passing judgement on this combination, degree of Venus & Mars should be noted. Closeness of the two planets arouses passions. However Jupiter's direct or indirect aspect nullifies harmful effects.

iv) Venus in the 12th is a strong factor for taking one abroad.

v) Mars and Venus in the 9th give two wives and foreign residence. Venus is the planet of luxury and royalty. Salurn means employment.

vi) Venus and Saturn in the 9th make a person diplomat or engaged in a similar work under the government.

ROLE OF MARS

i) Mars in the 10th from Ascendant or Moon takes one abroad or a long time.

ii) According to Jatak Parijat if Mars conjoins Moon in the 10th, one is humiliated in a foreign country. Mars in the 10th gets Dibble, as it is planet of authority. Malefic effect on 4th makes oneleave one's house.

ROLE OF SATURN

i) Saturn in 12th cause's separation and life spent abroad.

ii) Saturn and Jupiter in 9th make one visit abroad as a lecturer or preacher.

ROLE OF MERCURY

According to Western Astrology, If Mercury is placed in the 4th, one changes home very often and travels abroad. Here again Mercury will give better results in movable or dual raises. Jatak Chintamani states that Mercury in 10th and Moon in 12th give foreign travel.

II. ASPECTS IN YOGA FOR FOREIGN VISIT HOROSCOPES

1. Yoga going abroad occurs when the planets Rahu, Saturn and the Moon sit in 9th – 12th places.

Overseas yoga is caused by the sitting of the planets Rahu, Saturn, and the Moon, which can provide overseas yoga in Bhakyashtana(9), overseas, distant, and sleepy places (12).

2. 1 - 9 - 12 house lords get the essence of Rahu, Saturn and the moon star, so the yoga of going abroad occurs.

3. 1-9 - 12 obtaining the essence of their star pada causes yoga to go abroad.

4. Yoga going abroad occurs as the movable zodiac, water zodiac or air zodiac is 9th – 12th places to the Lagna target.



As the average person is unable to stay in one place like a snake, the 9 – 12th sign of the average person will go abroad, resulting in yoga going abroad. Water Zodiac gives to the person an unstable state like stagnant water, so 9th – 12th water zodiac will have the opportunity to go abroad. As the air zodiac becomes unstable in one place like an airborne cargo, the air zodiac becomes 9th – 12th place as air zodiac will giving it a chance to go abroad.

5. 1 - 9 – 12th Lords change within themselves and the yoga of going abroad occurs.

Lagna house lord, Bhakyathipathi, Foreign zodiac house Lord Change within themselves are those who are spiritually driven to go abroad.

III. RULES IN FOREIGN VISIT HOROSCOPE

Rule No. 1:

1 - 9 - 12th houses in Rahu, Saturn, the moon is going to get the yoga going abroad.

Rule No. 2:

Rahu, Saturn and Moon in 1 - 9 - 12th house Lord padas.

Rule No. 3:

Lagna Lord in 9th - 12th house Lord padas.

Rule No. 4:

9th and 12th houses to the Lagna is to go abroad as a Movable Zodiac, Water Zodiac, or Air Zodiac.

Rule No. 5:

1st - 9th - 12th house lords change within themselves to get yoga going abroad.

IV. HOROSCOPE TABLES

Example Horoscope : 01

Date of Birth : 15.06.1982 Time of Birth : 07.58 AM
 Place of Birth : Tiruchirapalli Lagna : Gemini
 Signs : Pieces Star : Uthrabhadra - 1
 Dasa Bhukthi : Saturn Dasa 17 Years 08 Month 00 Days
 Foreign Visit : 15.04.2007 – America – Job related Travel
 Time of Foreign Visit : Mercury Dasa – Moon Buddhi – Moon Antharam
 17.03.2007 – 29.04.2007

MOON	VENUS	MERCURY	SUN LAGNA RAGU
	<u>RASI</u>		
KETU		JUPITER	SATURN MARS

	MARS MERCURY RAGU		LAGNA
	<u>NAVAMSA</u>		SATURN
			MOON
JUPITER	VENUS	SUN KETU	

Rules applied in horoscope table:

Rule 2: Lagna house Lord Mercury and 9th house lord Saturn in Moon pada.

Rule 4: 9th house to the Lagna is to go abroad as Air Zodiac.

Rule 5: Lagna house Lord Mercury in 12th house to get yoga going abroad.

9th Lord connection with Moon.

Example Horoscope : 02

Date of Birth : 03.04.1981 Time of Birth : 10.50 AM
 Place of Birth : Arakkonam Lagna : Gemini
 Signs : Aquarius Star : Poorvabhadra - 3
 Dasa Bhukthi : Jupiter Dasa 07 Years 05 Month 23 Days
 Foreign Visit : 02.06.2004 – Oman – Job related Travel
 Time of Foreign Visit : Saturn Dasa – Rahu Buddhi – Venus Antharam – Rahu Sukshman
 08.05.2004 – 03.06.2004



SUN VENUS MARS			LAGNA
MOON MERCURY	<u>RASI</u>		RAGU
KETU			
			JUPITER SATURN

	JUPITER SATURN	KETU	MERCURY MOON
	<u>NAVAMSA</u>		
SUN VENUS MARS	LAGNA RAGU		

Rules applied in horoscope table:

Rule 1: 9th house in Moon is going to get the yoga going abroad.

Rule 2: 9th Lord Saturn in Moon pada.

Rule 4: 9th to the Lagna is to go abroad as a Air Zodiac.

Rule 5: Lagna Lord Mercury in 9th house to get yoga going abroad.

9th Lord connection with Moon.

Example Horoscope : 03

Date of Birth	: 02.08.1970	Time of Birth	: 03.20 AM
Place of Birth	: Tiruchirapalli	Lagna	: Gemini
Signs	: Cancer	Star	: Visaka - 4
Dasa Bhukthi	: Jupiter Dasa 00 Years 10 Month 05 Days		
Foreign Visit	: October 2018 – America – Job related Travel		
Time of Foreign Visit	: Mercury Dasa – Rahu Buddhi – Saturn Antharam 02.06.2018 – 30.03.2020		

RAGU	JUPITER		LAGNA
	<u>RASI</u>		
	SATURN MOON	SUN VENUS MERCURY	KETU MARS

KETU	JUPITER	VENU S MARS	LAGNA
SATURN MERCURY	<u>NAVAMSA</u>		MOON
SUN			RAGU

Rules applied in horoscope table:

Rule 2: Lagna Lord in Rahu pada,

Rule 4: 9th house to the Lagna is to go abroad as a Air Zodiac.

Lagna Lord connection with Rahu.

V. CONCLUSION

The hypothesis of the study is to confirm that the influence of the planets Rahu, Saturn and the Moon, which can give yoga abroad, is in the horoscopes of those who receive yoga abroad, and the influence of the karmic signs of Lagna, Nine and Twelfth house, which give yoga abroad.

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IMPACTS ON SIVACHARYA'S YOGA IN VEDIC ASTROLOGY IN SAGITTARIUS LAGNA

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ABSTRACT

Astrology and spirituality are closely related. There is no doubt that astrology helps us a great deal in protecting ourselves from the evils that befall us and in bringing us to the Lord. Our Tamil motto is 'It is better to worship in a temple' and 'Do not live in a city without a temple'. Thus 'spirituality' and 'worship of the gods' have been well developed and rooted since the time of our forefathers. All the best core tenets of our Hinduism are one of temple and worship. All the beauty, glory and majesty of the deities are reflected in the growth and perpetuation of the spiritual norm. Numerous texts such as Thevaram, Thiruvacakam, Tirupukal, Kandapuramam, and rare epics such as the Ramayana and the Mahabharata are expressions of spirituality in our Hindu religion. These Hindu texts make the glory of Hinduism known to the world. Religions such as Jainism, Veganism, Vaishnavism, and Buddhism appeared in ancient times. According to their religion, six daily pujas were performed for the Lord. These were promoted by the kings of the time in all sorts of forms of gold, material, and grants. We know that the lands were also given to the temple and grew spiritually. This was continued by the Sivacharyas through their lineage. Its ethics have been unwavering. Sivacharya advice and counsel can bring about positive changes in the minds of the devotees who come to tell their grievances to God and help them to forget their sorrows and worries and bring peace of mind and happiness.

KEYWORDS - Sivacharya, Ragu, Ketu

I. INTRODUCTION

The Sivacharyas have been serving the Lord with peace of mind since time immemorial, the work of 'Sivacharyas' as their clan and optional profession. They have been teaching the scriptures and Sivagama rituals to others from an early age and preparing them for the work of Sivacharya. After a period of time the Vedic mantras and Sivagama worship are taught in a special way in the Vedic school and are developed into excellent Sivacharyas. In the early days, the teacher would listen to all the scriptures and Sivagama methods through Sivacharya and record them in his mind. Later he was taught the Vedic and Sivagama methods of writing with his fingers in the sand and with a stylus in the palm grove. Everyone from the king to the common citizen went in search of the teacher's place of work and gave him assignments and educated him by imprinting in his mind what he had taught.

II. HISTORY OF SIVACHARYA

The Sivagams praise the Sivacharyas as those who appeared directly from the five faces of Shiva. Kamikamam states that Sivacharyas who worship in Shiva temples must be over sixteen years of age and under seventy years of age.

The Sivacharyas were Brahmins who studied the Vedas and the Agamas. Worshipers of Lord Shiva by Sivagama mantras are also known as Sivacharyas, with the profession of reciting the Vedas in general and Sivagama better. Sivacharya is also known as 'Andanar' as he possesses the profession of reading the scriptures after receiving the Upanayana. Since Sivacharya read Sivagama very well and stood by them, he himself has the right to receive the priesthood and thus the teaching status.



To qualify as 'Sivacharya', Kamikaragamam, Yogajagam, Sindhiyam, Karanakamam, Adam, Deeptha Agamam, Kushmam, Sahasra Agamam, Amsuman Agamam, Subrapetham, Vijayagamam, Kvasam, Swayambhuvam, Analam, Veeragam, Rauravagamam, Makudagamam, Vimalagamam, Vimalagamam, Saivagama says that one should have mastered the twenty-eight types of Shastra viz. Inscriptions and literature refer to Sivacharya by other names as 10th century Udayargudi inscription, Sivavediyar, Sivamarayor, Chithramezhi Butter Sivathuvijar. There are five tribes among them.

Saivars are divided into five types. Adi Saivar, Maha Saivar, Anusaivar, Avantara Saivar, Prasavasaiavar. The Vedic Brahman who seeks the eternal Shiva, Adi Saivar, is said to be the Vedic Brahmin Maha Saivar, who received Shiva Deesha, and others who received Shiva Deesha are said to belong to other Saiva names. Adhisavars are also called Sivacharyas. These so called 'Sivacharyas' are the ones who worship Lord Shiva in their homes in the form of Sivagams and in the shrines.

In the study of Sivacharyas, information was collected that Sivavediyar, Sivamarayor, Chithramezhi Butter Sivathuvijar Samrat, Sironmani, Bhushanam, Ratnakaram, Praveenar, Sarvasatakars, Acharyatilakam, were called by various special titles.

III. ASPECTS IN SIVACHARYA HOROSCOPES

1. Position of Sun, Jupiter and Ketu planets in Sivacharya horoscopes.
2. Sun, Jupiter, Ketu contact in 1st, 9th, 10th houses.
3. Correlation between Sun, Guru, Ketu.
4. Rules for setting up Sivacharyar mission.
5. Relation of Sun, Jupiter, Ketu to the work of Sivacharya.
6. The connection between the 9th house and the work of Sivacharya.

IV. RULES IN SIVACHARYA HOROSCOPE

Here mentioned the collected, compiled, analyzed and researched the horoscopes of Sivacharya's in horoscope table.

The following rules were taken from the study:

1. Sun, Jupiter and Ketu planets conjunction with 1st, 9th, 10th houses
2. Sun, Jupiter and Ketu planets aspecting with 9th house.
3. Sun, Jupiter and Ketu planets in 9th house.
4. Sun, Jupiter and Ketu in their padas.
5. Sun, Jupiter and Ketu planets aspects on 9th lord.

V. SIVACHARYA'S HOROSCOPE TABLES

Example Horoscope : 01

Date of Birth	: 29.02.1980	Time of Birth	: 02.32 AM
Place of Birth	: Namnadu	Lagna	: Sagittarius
Signs	: Cancer	Star	: Ashlesha - 3
Dasa Bhukthi	: Mercury Dasa 07 Years 07 Month 08 Days		

VENUS			
SUN MERCURY KETU	RASI		MOON
			RAGU MARS JUPITER
LAGNA			SATURN

VENUS		RAGU	MERCURY
MOON SUN	NAVAMSA		MARS JUPITER
SATURN			LAGNA
	KETU		



Rules applied in horoscope table:

- Based on Rule 1: Jupiter planet conjunction with 10th house Lord Mercury.
- Based on Rule 2: Sun planets aspecting with 9th house.
- Based on Rule 3: Jupiter planet in 9th house.
- Based on Rule 4: Jupiter in their Ketu padas.
- Based on Rule 5: Jupiter planet 7th aspects on 9th lord Sun.
- 10th Lord connection with Ketu.

Example Horoscope : 02

Date of Birth	: 26.07.1991	Time of Birth	: 04.23 PM
Place of Birth	: Thiruvenkadu	Lagna	: Sagittarius
Signs	: Caprocorn	Star	: Uthrashaada - 3
Dasa Bhukthi	: Sun Dasa 01 Years 10 Month 12 Days		

			KETU
	RASI	SUN JUPITER	
SATURN MOON		MARS MERCURY VENUS	
LAGNA RAGU			

SATURN		KETU MERCURY	LAGNA
JUPITER MOON	NAVAMSA		VENUS MARS
	RAGU		SUN

Rules applied in horoscope table:

- Based on Rule 1: Ketu planet conjunction with 10th house Lord Mercury.
- Based on Rule 2: Ketu planets aspecting with 9th house.
- Based on Rule 4: Ketu in their Jupiter padas.
- 10th Lord Connection with Ketu.

Example Horoscope: 03

Date of Birth	: 04.11.1984	Time of Birth	: 09.27 AM
Place of Birth	: Thiruchengodu	Lagna	: Sagittarius
Signs	: Aquarius	Star	: Poorvabhadra - 3
Dasa Bhukthi	: Jupiter Dasa 06 Years 01 Month 00 Days		

		RAGU	
MOON	RASI		
JUPITER LAGNA MARS	VENUS MERCURY KETU	SUN SATURN	

SUN	LAGNA	SATURN	MOON
RAGU VENUS	NAVAMSA		MERCURY
			KETU JUPITER
MARS			



Rules applied in horoscope table:

Based on Rule 1: Ketu planet conjunction with 10th house Lord Mercury.

Based on Rule 2: Jupiter planets aspecting with 9th house.

Based on Rule 4: Mercury in their Jupiter padas.

10th Lord Connection with Ketu.

VI. CONCLUSION

The study, entitled “Impacts on Sivacharya’s Yoga in Vedic Astrology in Sagittarius Lagna”, was done to know more about the Sivacharya’s who contribute to the development of spirituality and devotion in the society and to help in further research.

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AN INFLUENCE OF LEO LAGNA IN YOGA FOR FOREIGN VISIT

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ABSTRACT

Our people follow the Indian culture and take it to spread the pride of our country all over the world. 'Yoga Going Abroad', this study has kept most of the people born in India with the idea of going abroad at least once in their life. It comes in many forms: higher education, medical education, marriage, work, career, travel, Women living with their husbands after marriage, the opportunity to go abroad for the delivery of a daughter or daughter-in-law living abroad, and for the care of grandchildren after childbirth.

KEYWORDS – Bhakyashtana, Bhakyathipathi, Pada, Dasa, Buddhi.

I. INTRODUCTION

The purpose of this study is to study the benefits of those who have gone abroad and those who are living abroad permanently or temporary foreign visit and to explore who will be eligible for yoga abroad. Going abroad was considered a great achievement and an active activity in the 1970s - 80s. It was considered an act performed only by the affluent. They only went abroad for higher studies and work. Due to the subsequent scientific development and technological development, going abroad has become a very simple thing. Indians got job opportunities abroad through computer and software. The growth of India's current computer industry has made it easier for all people to go abroad. Due to this the number of our people living abroad permanently is increasing exponentially. Income tax and foreign exchange are being levied on our people living abroad. The value of our country is enhanced by the knowledge and professionalism of our people.

II. IMPACT OF PLANETS

Rahu is a leader in the field of yoga. The planets Saturn and the Moon also play a role. All three planets have the advantage of being able to go abroad. As far as sins are concerned, the ninth and twelfth sins play a major role in the system of going abroad. The impact of the planets Rahu, Saturn and the Moon on the advantages of those who go abroad for higher education and work, and to what extent the important planet for going abroad is influenced by those who are born in which destinations are more likely to go abroad. The purpose is to examine the impact of the ninth sin, the tenth sin, which can give them the privilege of living in higher education and living abroad, and the tenth sin of the professional position.

In astrology, the planets Rahu, Saturn, and the Moon are referred to as planets for going abroad. Of these, Iraq means separation from the family and deportation to a foreign country, a foreign country, or a foreign country. Saturn and the Moon together with it represent the mission of sending abroad. Going abroad requires the strength of the three planets Rahu, Saturn and the Moon. All those who go abroad are likely to have these strengthened. But this is not to say that all those who are strong are going abroad. The caricatures of sins going abroad can also take place. It can be said that there is yoga going abroad if the dominance of Rahu is high. The effects of the planets Rahu, Saturn and the Moon on the benefits of going abroad have been explored and the extent to which those influences have contributed to going abroad. The facts of this study can confirm the causality of the planets mentioned in ancient astrological texts.



Only those who have a certain advantage system can go abroad and find out the reason why they go abroad and their pros and cons. This study has been done with the further objective that astrology can be a great help to them in knowing their mood, lifestyle, higher education, professional consciousness, appropriate opportunity and circumstances and acting accordingly.

III. ASPECTS IN YOGA FOR FOREIGN VISIT HOROSCOPES

1. Yoga going abroad occurs when the planets Rahu, Saturn and the Moon sit in 9th – 12th places.

Overseas yoga is caused by the sitting of the planets Rahu, Saturn, and the Moon, which can provide overseas yoga in Bhaktyashtana(9), overseas, distant, and sleepy places (12).

2. 1 - 9 - 12 house lords get the essence of Rahu, Saturn and the moon star, so the yoga of going abroad occurs.

3. 1 - 9 - 12 obtaining the essence of their star pada causes yoga to go abroad.

4. Yoga going abroad occurs as the movable sign, water sign or air sign is 9th – 12th places to the Lagna target.

As the average person is unable to stay in one place like a snake, the 9 – 12th sign of the average person will go abroad, resulting in yoga going abroad. Water Sign gives to the person an unstable state like stagnant water, so 9th – 12th water sign will have the opportunity to go abroad. As the air sign becomes unstable in one place like an airborne cargo, the air sign becomes 9th – 12th place as air sign will giving it a chance to go abroad.

5. 1 - 9 – 12th Lords change within themselves and the yoga of going abroad occurs.

Lagna house lord, Bhaktyathipathi, Foreign sign house Lord Change within themselves are those who are spiritually driven to go abroad.

IV. RULES IN FOREIGN VISIT HOROSCOPE

Rule No. 1:

1 - 9 - 12th houses in Rahu, Saturn, the moon is going to get the yoga going abroad.

Rule No. 2:

Rahu, Saturn and Moon in 1 - 9 - 12th house Lord padas.

Rule No. 3:

Lagna Lord in 9th - 12th house Lord padas.

Rule No. 4:

9th and 12th houses to the Lagna is to go abroad as a Movable Sign, Water Sign, or Air Sign.

Rule No. 5:

1st - 9th - 12th house lords change within themselves to get yoga going abroad.

V. HOROSCOPE TABLES

Example Horoscope : 01

Date of Birth	: 04.10.1969	Time of Birth	: 04.55 AM
Place of Birth	: Erode	Lagna	: Leo
Signs	: Gemini	Star	: Punarvasu - 1
Dasa Bhukthi	: Jupiter Dasa 12 Years 08 Month 23 Days		
Foreign Visit	: June 1993 – Dubai – Job related Travel		
Time of Foreign Visit	: Saturn Dasa – Moon Buddhi – Moon Antharam – Rahu Sukshman 07.06.1993 – 14.06.1993		

	SATURN		MOON
RAGU	RASI		
			LAGNA VENUS KETU
MARS			JUPITER SUN MERCURY

MERCURY	MOON	RAGU	SUN
	NAVAMSA		JUPITER
			SATURN MARS
LAGNA	KETU		VENUS



Rules applied in horoscope table:

- Rule 1: 9th house in Saturn is going to get the yoga going abroad.
- Rule 2: Lagna Lord Sun in Moon pada.
- Rule 3: Lagna Lord Sun in 12th house Lord Moon padas.
- Rule 4: 9th – 12th house to the Lagna is to go abroad as Movable Sign.
12th Lord Connection with Saturn.

Example Horoscope : 02

Date of Birth	: 30.11.1986	Time of Birth	: 00.10 AM
Place of Birth	: Vijayawada	Lagna	: Leo
Signs	: Libra	Star	: Swathi - 4
Dasa Bhukthi	: Rahu Dasa 04 Years 03 Month 14 Days		
Foreign Visit	: 01.01.2009 – England – After Marriage		
Time of Foreign Visit	: Saturn Dasa – Saturn Buddhi – Moon Antharam – Moon Sukshman 19.12.2008 – 02.01.2009		

RAGU			
MARS JUPITER	<u>RASI</u>		
			LAGNA
	SUN SATURN	MOON MERCURY VENUS	KETU

MOON	JUPITER	MERCURY	
RAGU	<u>NAVAMSA</u>		LAGNA
VENUS			KETU
SATURN MARS	SUN		

Rules applied in horoscope table:

- Rule 2: Lagna Lord Sun in Saturn pada. 9th Lord Mars and 12th Lord Moon in Rahu pada.
- Rule 4: 9th – 12th to the Lagna is to go abroad as a Movable Sign.
12th Lord Connection with Rahu.

Example Horoscope : 03

Date of Birth	: 08.03.1958	Time of Birth	: 04.50 PM
Place of Birth	: Chengalpattu	Lagna	: Leo
Signs	: Libra	Star	: Chithra - 3
Dasa Bhukthi	: Mars Dasa 02 Years 03 Month 21 Days		
Foreign Visit	: 23.10.1983 – London – Job related Travel		
Time of Foreign Visit	: Saturn Dasa – Rahu Buddhi – Moon Antharam 07.08.1983 – 02.11.1983		

	KETU		
SUN MERCURY	<u>RASI</u>		
MARS VENUS			LAGNA
SATURN		JUPITER MOON RAHU	

	LAGNA VENUS SATURN	SUN	MERCURY
	<u>NAVAMSA</u>		KETU
MARS RAGU			
JUPITER		MOON	



Rules applied in horoscope table:

Rule 4: 9th 12th house to the Lagna is to go abroad as a Movable Sign and 12th house as Water Sign.

12th Lord Connection with Moon.

VI. CONCLUSION

The hypothesis of the study is to confirm that the influence of the planets Rahu, Saturn and the Moon, which can give yoga abroad, is in the horoscopes of those who receive yoga abroad, and the influence of the karmic signs of Lagna, Nine and Twelfth house, which give yoga abroad.

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IMPACT OF FOREIGN DIRECT INVESTMENT AND MACROECONOMIC FACTORS IN NSE BASED ON THE INFLUENCE OF MAKE IN INDIA

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ABSTRACT

This study examined the moderating role of political stability (PS) in the relationships between macroeconomic variables and the inflow of foreign direct investment (FDI) into India. For this purpose, this study uses the authentic annual data for the period 2011 to 2020. The empirical analysis involves the use of the ADFtest to check the downtime of the data, the EViews software, and hierarchical regression using the SPSS 19.0 statistics software package. The results of the study confirm that the GDP growth rate, exports, imports and balance of payment has a positive significant effect on the inflow of FDI into Pakistan. On the other hand, the inflation rate was not significant in determining the direct inflow into the country. The GDP growth rate and the balance of Payment tends to be a significant factor for the inflow of FDI when the moderate effect of political stability is accounted for. Based on the findings of this study, it is strongly suggested that political stability is crucial to the country's foreign and foreign investment expansion in the future direction. Study also provides a basic insight towards the FDI inflow towards the NSE and its impact on Make in India with a pre and post analysis on the influence of the make in India scheme.

KEYWORDS: FDI Inflows, political stability, balance of payment, imports, export, inflation rate, GDP growth rate.

INTRODUCTION

In the modern era of the 21st century, it has been strongly emphasized that Foreign Direct Investments (FDIs) provides various economic conditions, such as capital inflows that add to the reserves and thus improve the balance of payments, increasing export and export-led growth, promoting innovation and modern technologies, new style of management skills, increasing jobs and jobs in the host country (Salman & Feng, 2010; Javed et al., 2012; Shahzad et al., 2012). Several researchers also emphasize the importance of foreign direct investment in the sense that it can stimulate domestic investors to invest further in the country (Awan, Khan, & Us-Zaman, 2011; Brooks & Sumulong, 2003). Time and time again, both developed and developing countries offer very attractive packages to attract foreign investment inflows rising rate. Countries such as China, India, Russia and Barizal (BRIC Economic Segment) offer profitable packages with incentives for foreign enterprises, such as low tax rate, cheap labor, export facilities, liberalized

trade policy, market orientation of the economy, good infrastructure, good order and security system. In the new economic order of the globalization era, foreign direct investment (FDI) is considered be a major contributor to the economic growth of any developed and developing economy (see World Development Report, 2011). Since the 1990s, foreign direct investment (FDI) has been a boon for development countries to promote industrialization, growth and development. This is interesting enough to compare the growth trends of trade and investment in observing the dynamics of international affairs in the world economy in the year corresponding to a new millennium era. An increasing trend of direct influences in the emerging segments of the developing world economy is attributed to the perception that such inflows tend to help the productive resources and fills a technological gap and overcomes capital shortages to facilitate growth development process in the coming years of developing countries.

**REVIEW OF THE LITERATURE**

Ashutosh (2017) studied the focuses on the ease of doing business and determines the variables for it. India is undergoing various reform processes that will enhance the overall business environment, which is an essential pillar of Make in India that will boost India's manufacturing industry. This study is conceptual and reviews nature, using various secondary data from secondary data sources, the researcher has implemented exploratory research design. Based on the secondary data and review, in Ease of Doing Business, the researcher reported on various emerging trends and problems and challenges. The researchers analysed India's position in the World Bank's Ease of Doing Business Index and emphasised the various reforms initiated by the Government of India to improve India's business environment.

Aanchal (2017) explored the impact of macroeconomic variables on the Indian stock market to test whether the growth of macroeconomic variables is leading to growth in the stock market for India. GDP, inflation, exports, imports and investment and the market indices of the CNX Nifty 50 are taken as a measure of stock market performance. Further correlation and Granger causal testing is used with the help of Eviews7 to find the relationship between variables. Further empirical results of the study show that all variables have a unit root, viz. There is no cause or effect relationship between the Indian stock market and the five variables studied, and finally, it can be seen that there

is a positive correlation between the Indian stock market and the five variables studied.

Sugandh Mittal (2018) discussed in this study is to study the role played by the Government of India to attract foreign direct investment and to analyze the yields on foreign direct investment in the Indian economy. The paper also pointed out the impact of foreign direct investment in the host country. The research has conducted from 1980 to 2016 and the result indicates that India's FDI inflows were very low at about \$ 0.08 billion. Though the hostile effects of the US monetary crisis in late 2008, FDI inflows decayed in 2009 and 2010, India has flourished in tempting substantial inflows in 2011.

OBJECTIVES OF THE STUDY

- To check the impact of select macroeconomic factors on the FDI inflow.
- To find the correlation between FDI inflow and structural indicators of NSE.
- To analyse the FDI inflow in NSE pre and post period of make in India.

HYPOTHESIS

- **H₀₁** there is no impact on FDI inflow by macroeconomic factors
- **H₀₂** there is no relationship between FDI inflow and structural indicators of NSE
- **H₀₃** there is no significant difference between FDI inflow in NSE pre and post period of make in India.

**Foreign direct investment inflows during the period of 2000– 2020 (Millions of U. S. dollars)
Indian Economy, 2020 p.556.**

	2000-2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
World	869,122	817,574	716,128	559,576	710,755	958,697	1,411,018	1,833,324	15,294,653	17,950,498	19,140,603
Developed Countries	491,856	571,483	547,778	366,573	396,145	611,283	940,861	1,247,635	10,616,230	12,263,733	12,501,569
Developing countries	172,364	219,721	155,528	172,033	275,032	316,444	412,990	499,747	4,441,301	5,060,116	5,951,203
Asia	97,502	111,966	92,009	107,278	156,622	210,572	274,291	320,489	608,492	769,542	916,972
ASEAN	24,391	19,601	14,507	17,364	25,666	39,091	51,243	60,514	173,976	220,008	260,980
India	2082	484	798	949	1524	3521	5410	5140	3720	2206	1739

Sources: IMF (2020) p.10, and UNCTAD, World Investment Reports, 20, SBP, Handbook of Statistics

The gloomy economic situation of India can be specifically attributed to the downfall of the country's political stability and increased corruption in the government sector, leading to the biggest security threats in the enterprise environment in India (Shahzad et al., 2012). Indian policymakers leave business the most important aspects of the environment are: poor infrastructure, energy shortages, inflation, corruption, the rule of law and security in the country. There is a striking research

gap with regard to in-depth analysis of the major subject

Issues and policy guidelines that the current study sought to address by examining the case of a developing country like India.

INSPIRATION OF THE STUDY

The current study generally seeks to determine whether the country's economic growth rate is real reflects the steps taken by the reforms



undertaken by Indian policymakers over the years directions. It is disturbing to note that the economic growth rate of the Indian national economy was received since 2008 due to various controllable and uncontrollable interactive factors, including the largest natural flood in India's history, the deteriorating balance of payments due to rising current account deficits (CAD), political party's rivalry issues and absence of competitively attractive economic policies to stimulate investment and business activities. The Indian currency has started to weaken since 2007 until today(2012) against the US

dollar. By the way, the gloomy economic situation tends to cause a low level and declining FDI trend in the Indian economy. Data in Figure 1 explicitly show that foreign direct investment in India has declined from 2008 to 2012. By the way, in India, political stability is worse compared to the some neighboring Asian countries such as Pakistan, China, and Malaysia. For a country like India in the If a developing shortage of capital develops, it could affect her growth rate. Indian policymakers must improve business-friendly investment policies.

H₀₁ there is no impact on FDI inflow by macroeconomic factors

ADF Unit Root Test Result Using the Trend and Intercept

	Variable	1st Diff	2nd Diff	Lagged
1	FDI	0	S	2
2	GDPGR	0	S	1
3	Exports	0	S	1
4	Inflation	S	-	1
5	Imports	S	S	1
6	BOP	0	-	1
7	PSI	s	-	1

Regression Analysis Results for Predictor Power

After reviewing all the regression assumptions and being satisfactory, this study performed the regression analysis using SPSS 19.0 to examine the predictive power of the putative model. Besides, it was used to it identify and compare the predictive power of the dimensions of macroeconomic variables namely GDPGR, Exports, Inflation Rate, Imports and BOP. Based on the results, it can be concluded that GDPGR ($\beta=0.288$,

$t=3.067$, $p<0.05$), Exports ($\beta=1.306$, $t=2.351$, $p<0.05$), imports ($\beta=2.090$, $t=3.361$, $p<0.05$) and BOP ($\beta=0.362$, $t=3.191$, $p<0.05$) have significant positive impact of the FDI inflows at 0.05 levels of significance. In addition, the results revealed that GDPGR, Exports, Imports and Balance of Payment had greater impact on the FDI inflows in India. These results, however, supported the hypotheses H1, H2, H4 and H5. The Inflation Rate was not significant determinants of the FDI inflows in the case of India.

EMPIRICAL RESULTS

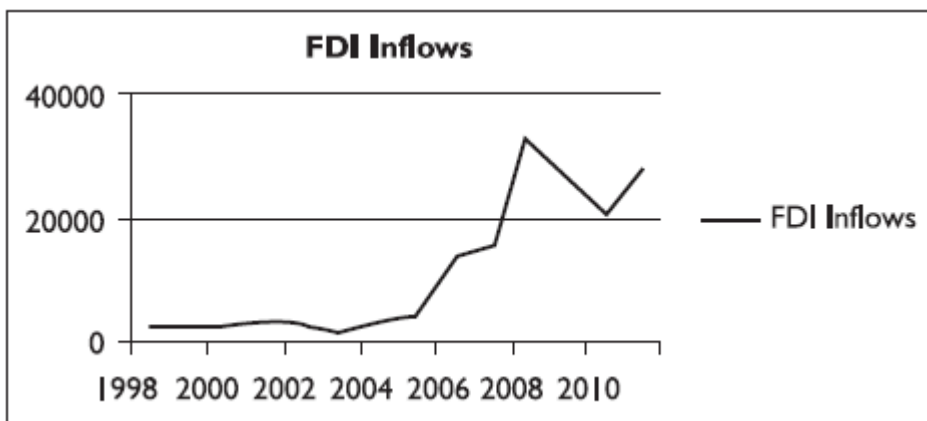


Figure shows the investigation of FDI influx in India during the study period shows that the inflow of FDI has increased exponentially due to major reforms introduced by the Indians government since 1991.

However, there has been a decline in 2009–2010 at the beginning of the global financial crisis before take an upward turn.

**CORRELATION****H₀₂ there is no relationship between FDI inflow and structural indicators of NSE****FDI inflow and structural indicators of NSE**

	FDI	trend	Momentum	Volatility	volume
FDI	I	0.816	.812	0.094	0.842
	0.000	0.000	0.000	0.000	0.000

Table shows the correlation between FDI in flow and the indicators of NSE, the results shows that there is a high positive correlation between the FDI inflow and the indicators of NSE all the indicators

will move upwards when the FDI inflow increases and their significant values are below the limit, thus the null hypothesis is rejected.

H₀₃ there is no significant difference between FDI inflow in NSE pre and post period of make in India.**Paired Samples Test**

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 FDI inflow in NSE pre make in India- FDI inflow post make in India	52094	2.11688	.10831	1.30798	1.73390	14.043	5	.000

The table shows the significant value is .000 at five percentage level of significant. It indicates that there is a significant difference between significant difference between FDI inflow in NSE pre and post period of make in India, as per the study and collected data make in India is positively affected the FDI inflow in NSE.

CONCLUSION

India needs to offer the attractive packages for high-tech enterprises to invest in the province. High production of technical enterprises in India can facilitate her export to other neighboring countries. Indian Policymakers need to learn further lessons from the experience of Malaysia, Thailand and China. Exporttargeted FDI will bring many benefits to the country, such as new job opportunities, latest technology andimprovement of human capital, super Knowledge Management, stronger exchange rate and improvementof the balance of payments in the country. It is high time that Indian policymakers try to increase the numbervolume output and try to reduce the input. In the current situation, India's exports are much lower thanimport. The country must by all means improve its BOP position. Strong balance of payments also attracts theforeign investment for the country. The current study focuses on and emphasizes the moderating role of politicsstability for

macroeconomic stability. The country's good infrastructure, stable political system, a strong balance ofpayments and trade policy will affect her economic growth.

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PUBLIC INVESTMENT IMPACT TO AGRARIAN SECTOR: COST - BENEFIT ANALYSIS

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ABSTRACT

In this paper examines the economic assessment of the investment funds in agriculture, sources and toward of public capital to agricultural activities, forestry and fisheries in Uzbekistan. Also, analyzed a profit taken from farm activity and the assessed public investment funds spent to agricultural activity. Factors impact to farm activity benefits have also been studied. The analysis used data from a social survey conducted on 44 farms in terms of distance not far from each other. It was found that investment funds at a rate of 1% ($p < .01$) plays a statistically significant role in increasing the profitability of farms from production activities. It is scientifically justified to increase the amount of investment funds involved in the activities of farms by 1 unit, which will increase the amount of income from activities by 22.6%. In the case of an increase in the profit received from the production activities of farms, the investment amount is increased by 1 percent ($p < .01$) statistically important significance was determined. It is scientifically justified to increase the amount of investment funds involved in the activities of farms by 1 unit, which will increase the amount of income from activities by 22.6%.

KEYWORDS: *profit, investment, investment funds, sources of investment, “robust (consolidation)”, “strengthen”.*

INTRODUCTION

Investments¹ are considered one of the main directions of economic development of foreign countries and their production, and investments in

agriculture are considered as the decisive factor for economic growth, poverty reduction and food security².

Investments play an important role in the continuous implementation of reforms in the socio-

¹ World Bank. 2007b. Philippines: agriculture public expenditure review. Technical working paper 40493. Washington, DC.

² Lowder S. K., Carisma B., Scoet J. Who invests in agriculture and how much? An empirical review of the relative size of various investments in agriculture in low-and middle-income countries. – 2012.



economic spheres in our country, the development of industries and sectors, the sustainable development of integration processes between them, and the development of their attraction are carried out through an active investment policy³.

As a result, the volume of production of products in agricultural activities has affected the increase in quantity and quality, and by providing the population with agricultural products and processing industry with raw materials, the country is creating a basis for strengthening⁴ food security, increasing export potential.

However, in the recent years, although measures have been developed to improve the investment climate involved in agricultural activities and to guarantee the rights and interests of investors, to give them economic benefits, but in the volume of total investments in the sectors of the economy, the share of investments in agriculture is decreasing.

However, investment funds are important in ensuring the employment of the population of the rural area, diversifying the production activities of farms in the creation of a production chain, forming the activities of diversified farms. However, today, a significant part of the investment allocated to agricultural activities is being spent on improving the reclamation of irrigated crop areas. As a result, during 2008-2017, the water supply of more than 1.7 million hectares of irrigated land and the improvement of the land reclamation situation of 2.5 million hectares of land were achieved.⁵

Investments in the production of agricultural products and the achievement of food security goals have been studied by several scholars. Economists point out that it was impossible to achieve financial stability and improve the sector economy without attracting huge volume of investment in agriculture⁶.

“The state support fund for Agriculture” was established in order to⁷ finance the sectors of the agrarian sector, ensure price stability in the domestic market, create a high value-added chain, implement a wide range of market principles in the development, production, purchase and sale of products. In this way, it is planned to cover part of the interest rate on loans allocated to support the activities of cotton, grain and vegetable growing in clusters and farms. The establishment of this system will have own impact on strengthening the relationship between production and distribution of material and technical resources in all conditions, especially during the pandemic, the efficiency of market infrastructure, as well as sustainable growth of agricultural activity, reducing inequality between manufacturing and processing industries.

It is important to make an economic assessment of the relationship between agricultural profits and investments in or involved in main activities and the factors that affect them.

The aim of this scientific article is to develop scientific proposals and recommendations based on an economic assessment, which affects the relationship between the profit from the activities of farmer farms and the investment funds involved.

MATERIALS AND METHODS

In this scientific article, initially, the annual statistical data of the Republic of Uzbekistan and the main economic indicators that characterize financing of the activities of the agrarian sector of the economy from 2013 to 2020, the changes in investment funds included in agricultural activities were studied.

Although the agricultural crop areas in Uzbekistan have decreased by an average of 4-5 percent over the past 5 years, the value of investments in agricultural, forestry and fisheries has increased significantly over the years 2014-2020 (Fig. 1).

³ Makhmudov S. Investitsiyalarni moliyalashtirishda investitsion muhitini takomillashtirish. Arxiv nauchnyx issledovaniy. 2020. – T. 35.

⁴ Yusupov M. Markazlashgan davlat investitsiyalari va maqsadli dasturlari orqali qishloq xo'jaligini rivojlantirishning ustuvor yo'nalishlari. Arxiv nauchnyx issledovaniy. – 2020. – №. 10.

⁵ O'zbekiston Respublikasi Prezidentining Farmoni. Qishloq xo'jaligida yer va suv resurslaridan samarali foydalanish chora-tadbirlari to'g'risida. PF-5742-son. 17.06.2019

⁶ Murtazaev O., Axrorov F. Qishloq xo'jaligi iqtisodiyoti. Ilim Ziyo, - Toshkent. 2017

⁷ O'zbekiston Respublikasi Prezidentining Farmoni. O'zbekiston Respublikasi moliya vazirligi huzuridagi qishloq xo'jaligini davlat tomonidan qo'llab-quvvatlash jamg'armasi faoliyatini takomillashtirish to'g'risida. PF – 6179 – son. 26.02.2021. <https://lex.uz/docs/5309649> -

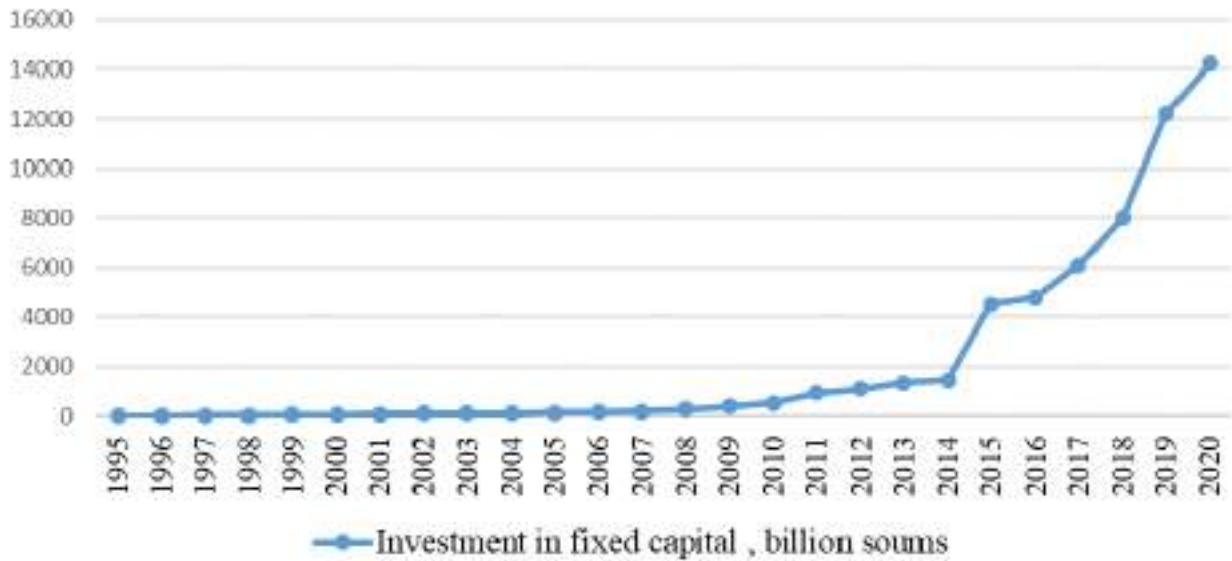


Figure 1. Investment in the fixed capital, billion soums

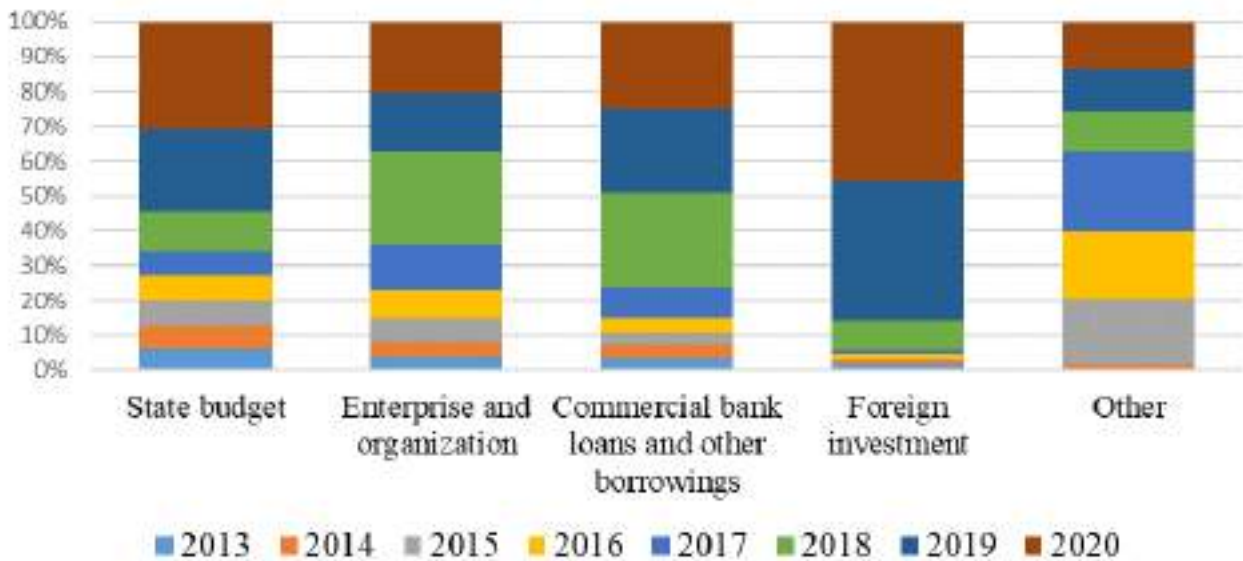


Figure 2. Investment sources included fixed capital, %

In 2013-2014, if the average 35 percent of the investments in the main capital was accounted for by the budget of the Republic, the average 40-42 percent for the period of 2019-2020 was accounted for by foreign investment. However, although the value of agricultural, forestry and fisheries products (Fig. 3) has increased, the share of Agriculture in gross domestic

product [GDP] has been in the trend of decline from 2017 to 2020 years. However, this was due to an increase in the share of other economic sectors in gross domestic product GDP.

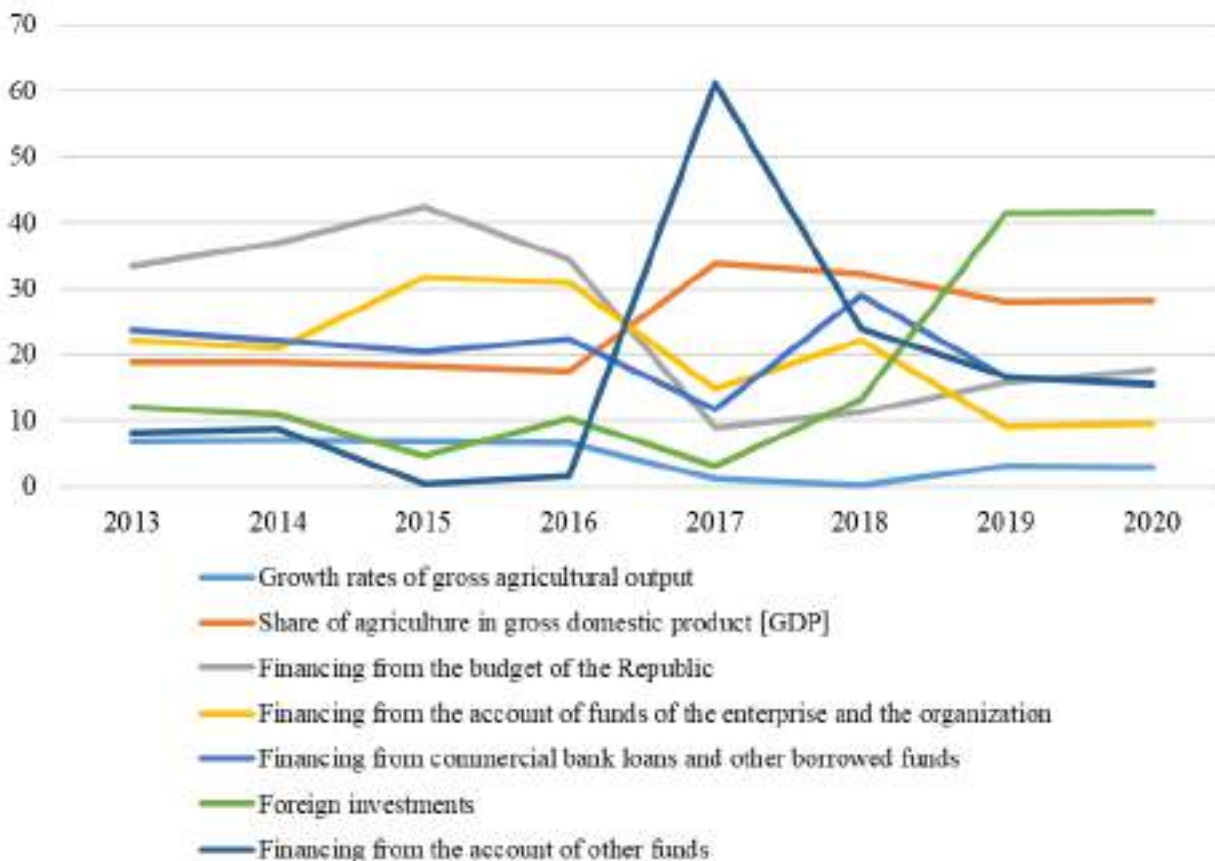


Figure 3. The main economic indicators in the activities of agriculture, forestry and fisheries and the change of investment sources in which the main capital was invested, %

In our scientific research work, a social survey was conducted on 2 farms in Pastdargom and Akdarya districts (Fig. 4) located in the Zarafshan River area of Samarkand region to evaluate the relationship between farm profits and investment as well as the economic factors affecting it.

The social survey was conducted in 44 farmer farms, of which 19 or 43,1 percent are multi-sectoral farmer farms (Table 1), while the main activity of which is the farms that grow plant products is 52.2 percent.

In the social survey, this indicator was not obtained because the heads of farms are the same gender, male. Farm managers had secondary special, higher, and post-graduate education, expressed in 1: 2: 3 quality values, respectively. On average, 82 percent of

farmers received secondary special and higher education.

In the data of the questionnaire, investment funds in profit derived from the activities of farmer farms were expressed in decimal logarithms (ln) in order to eliminate "bias" in the economic assessment of the factors influencing them, as well as quantitative indicators (profit, crop area, labor resources, investment funds, and expenditure expenditure).

For an economic assessment of the relationship between these indicators, a linear regression method was used, by using the STATA16 software package. The results of the analysis were obtained using the command "robust (reinforcement)" to strengthen the relationship between variables.

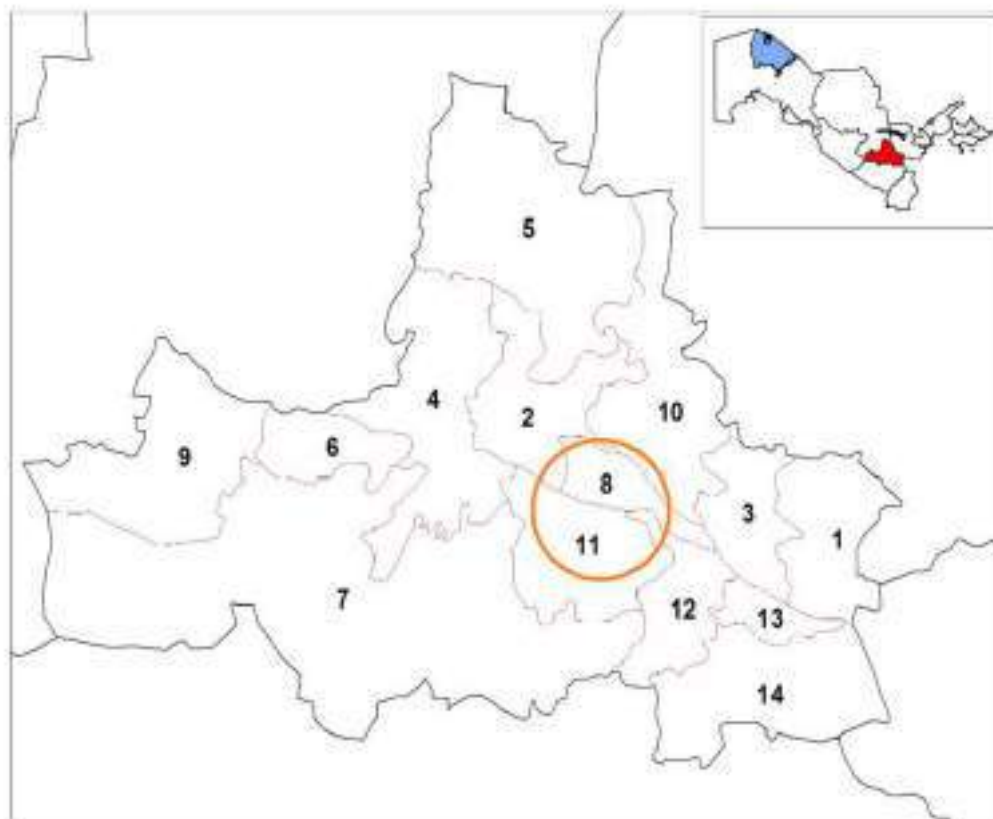


Figure 4. The area where the object of scientific research is located

**Table 1
Classification of variables***

Variables	Average	Deviation from the standard	Min	Max
Profit, million sum	120.523	96.476	25	380
Information	1.773	.743	1	3
Crop field, hectare	87.477	54.042	25	258
Labor resource, person	19.25	7.189	9	43
Investment funds, million soums	125.909	100.312	15	385
Activity	.477	.505	0	1
Network activity	.432	.501	0	1

* Source: Social Survey data conducted by the researcher

RESULTS OF THE ANALYSIS

According to the results obtained (Table 1), in the increase in the profit received from the production activities of farms, the investment amount is increased by 1 percent ($p < .01$) statistically significant. That is, 1 unit (1 million soums) for the activity of farmer increase the amount of profit received from the activity by 22.6 percent. Despite the fact that, the investment funds involved in the activity are spent on innovation or the

digitization of production activities can have an impact on the number of labor resources employed in the activity.

The increase in the amount of profit in the activity of farmers is due to the fact that the information of the head of the farmer and the size of the crop area is also 1 percent ($p < .01$) statistically important. An increase of 1 unit of information of the head of the farm will increase the amount of profit from activities by 26,9 percent.



In addition, the increase of crop areas by 1 hectare in farmer farms increases the profits by 69.6 percent. However, the main activity of farmer Farms is considered livestock 10 percent ($p < .1$) it is considered statistically significant and increases the amount of profit by 10,1 percent. However, the activity of diversified farms is statistically significant at a change

in the amount of profit at 5% ($p < .05$), which contributes to the increase in profit by 15.4 percent.

Based on this obtained result, the marginal effect of the relationship between the dependent variables and the independent variables were determined (Fig. 5).

Table 2
Influence of investment funds on profits derived from farm activities

ln_profit	coefficient	t-value	p-value	[95% accuracy	transitional]	Importance
Education	.269	4.68	0	.153	.386	***
ln_crop_area	.696	7.82	0	.516	.876	***
ln_labor_resource	.134	1.34	.189	-.069	.338	
ln_investment_funds	.226	3.25	.002	.085	.366	***
Activity	.101	1.73	.091	-.017	.218	*
Network_activity	.154	2.30	.027	.018	.289	**
Constant	-.52	-2.49	.017	-.944	-.097	**

Mean dependent var 4.466 SD dependent var 0.833
 R-squared 0.964 Number of obs 44.000
 F-test 158.953 Prob > F 0.000
 Akaike crit. (AIC) -24.443 Bayesian crit. (BIC) -11.954

*** $p < .01$, ** $p < .05$, * $p < .1$

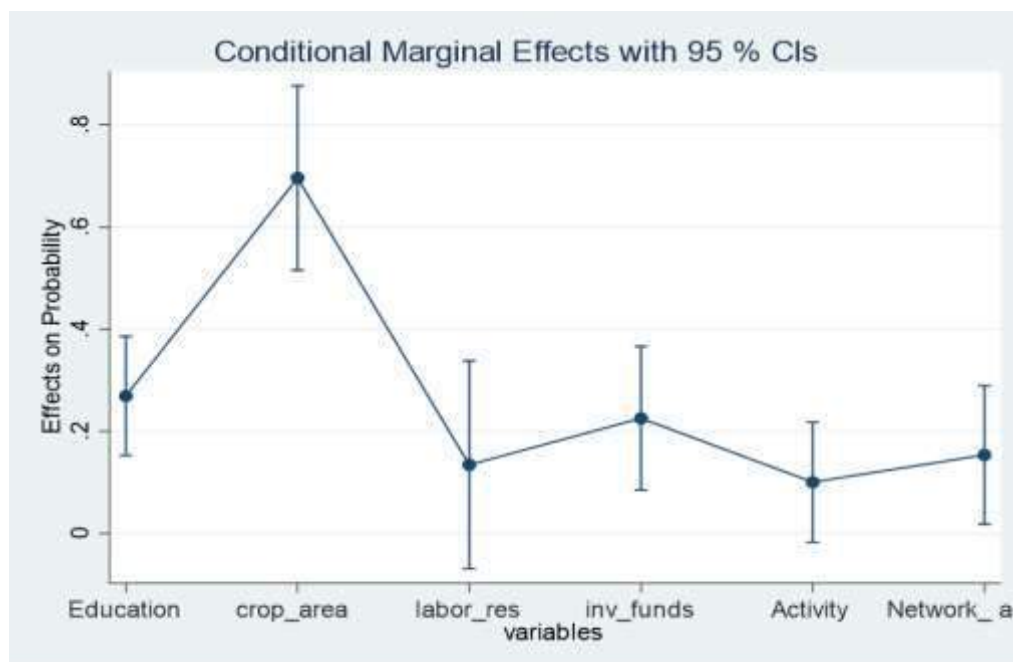


Figure 5. The marginal effect of relationships between variables

The marginal impact level of the independent variables is expressed between 0 and 1, and the investment amount, farm data, and the area of the crop are statistically significant at 1 percent ($p < .01$) of the amount of profit received from farm activities. The

predicted value of these variables in the change in the amount of profit on farms is in the range of ± 0.05 - 0.08 , which affects the increase or decrease in profit.



CONCLUSION AND RECOMMENDATIONS

In our country, agricultural activity plays an important role in meeting the demand of the population for food products, increasing the income of the rural population, providing ensuring labor-intensive employment. Investment funds are important for the sustainable development of this sector, increasing production, the formation of diversified activities.

Over the past 5 years, the investment funds included in the main capital in the activities of agriculture, forestry and fisheries have increased. However, in the sources of investment, the budget funds of the Republic decreased and foreign investment funds increased by an average of 40-42 percent.

The relationship between investment funds and the amount of profit received from the activities of farmer is statistically significant at 1 percent. In the future, increasing the amount of investment involved in the farm activity by 1 unit will increase the amount of profit received from the activity by 22.6 percent.

It is necessary to pay attention to the factors that are statistically significant in increasing the amount of profit derived from the activities of investment funds attracted by the government to agricultural activities. That is, it is necessary to increase the volume of investment funds spent on the organization of diversified farmer economic activity, which is relatively large in the area of crop. It is also possible to give opportunities for attracting investment funds in the expansion of production capacity by improving the skills of farm managers, their knowledge.

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SEMANTIC FEATURES OF THE TERM "TOURISM" IN ENGLISH AND UZBEK

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ANNOTATION

A synonym of terms is considered one of the types of inconsistency of concepts and terms with terms, that is, there is an excess of means of formal expression of the concept. The problem of synonymy of terms, that is, the use of several special lexical units to denote one concept, remains one of the main and most important problems of terminology.

KEYWORDS: *tourism, tour, travel, vocabulary, terminology.*

Инглиз ва ўзбек тилларида “туризм” атамасининг семантик хусусиятлари

Дилдора ХОЛБОЕВА

*Тошкент тиббиёт академияси
Ўзбек ва хорижий тиллар кафедраси
инглиз тили ўқитувчиси*

Аннотация

Терминларнинг синонимияси - терминлар тушунчалари ва терминлар номувофиклиги турларидан бири деб ҳисобланади, яъни бу ерда тушунчани расман ифодалашнинг воситалари ортикчалиги намоён бўлиши қайд этилган. Терминларнинг синонимияси, яъни бир тушунчани номлаш учун бир нечта махсус лексик бирликлардан фойдаланиш муаммоси атамашуносликнинг асосий ва энг муҳим муаммоларидан бири бўлиб қолмоқда.

Калит сўзлар: *туризм, тур, саёҳат, лексик, термин.*

Аннотация

Синоним терминов считается одним из видов несоответствия понятий и терминов терминам, то есть здесь отмечается избыток средств формального выражения понятия. Проблема синонимии терминов, то есть использования нескольких специальных лексических единиц для обозначения одного понятия, остается одной из главных и важнейших проблем терминологии.

Ключевые слова: *туризм, тур, путешествие, лексика, терминология.*



Терминларнинг синонимияси - терминлар тушунчалари ва терминлар номувофиқлиги турларидан бири деб ҳисобланади, яъни бу ерда тушунчани расман ифодалашнинг воситалари ортиқчалиги намоён бўлиши қайд этилган. Терминларнинг синонимияси, яъни бир тушунчани номлаш учун бир нечта махсус лексик бирликлардан фойдаланиш муаммоси атамашуносликнинг асосий ва энг муҳим муаммоларидан бири бўлиб қолмоқда [Гринева-Гринева С.В., 2008, 102-бет].

Терминлар бўлмаган, улардан кўплари кўп маъноли бўлган сўзлардан ташқари, бир фан доирасидаги терминлар бир маънолилик хусусиятига эга бўлиши лозим. Уларга аниқ чегараланган, асосан мотивацияланган ва асосланган илҳомлашув, ва абсолют семантик аниқлик хос бўлиши лозим. Лекин, битта лексик шакл билан бир нечта тушунчани, айниқса бир предмет соҳасига тегишли бўлган тушунчаларни номлаш, муҳим терминологик муаммолардан бири ҳисобланади, чунки у билимнинг деярли барча соҳаларида учрайди ва терминларнинг кўп маъноли бўлишига ва маъносининг ноаниқ бўлишига олиб келади, бу эса мутахассислар ва олимларнинг мулоқотини қийинлаштиради.

Терминнинг кўп маънолилиги муаммоси узоқ вақт давомида атамашуносликнинг анъанавий муаммоларидан бири бўлиб келган. Лекин бир лексик бирлик билан бир нечта тушунча номланадиган ҳолатлар, полисемия (кўп маънолилик) ёки омонимия каби малакаланиши мумкин. Атамашунослик адабиётида кўп йиллар давомида бу ҳолатнинг хусусиятлари юзасидан ўзгаришлар кузатишган.

тур - tour, туризм - tourism, турист - tourist лексемаларининг семантик хусусиятларини таҳлил қилиб, «tour» термини инглиз тилида анча кенг тарқалганлигини қайд этиш лозим. *Oxford English Dictionary* унинг қуйидаги таърифини беради: «a going or travelling round from place to place, a round; an excursion or journey including the visiting of a number of places in a circuit or sequence; often qualified, as cycling, walking, wedding tour». {«Бир жойдан бошқа жойга, айлана бўйлаб сайр ёки саёҳат; бир нечта жойга кетма-кет боришни ўз ичига олган экскурсия ёки саёҳат; кўпинча: велосипедли, пиёда, тўйдан кейинги тур каби малакаланади»). Айни пайтда, ҳамма луғатлар таркибида ушбу лексема топилавермайди. «Чет эл сўзлари луғати» да у «раксинг бир айланаси, ҳамда бирор нарсанинг атрофида битта яқунланган ҳаракат, ёки у ерга бориш ва қайтиш» маъносига эга. Фақат Л.П. Воронкова таҳрири остидаги «Туризм, меҳмондўстлик, сервис: Луғат-маълумотнома», Е.И. Тамм таҳрири остидаги «Турист

энциклопедияси» каби илҳомлашган луғатлар ушбу терминнинг торроқ маънодаги таърифини беради. Яъни: «индивидуал ёки жамоавий асосда маълум йўналиш ва дастур бўйича, йўл чипталарини, меҳмонхона, транспорт, экскурсия хизматлари ва озиқ-овқат хизматлари, визаларни, суғурталашни расмийлаштириш ва ҳоказо хизматларни аввалдан захирага киритиш ва сотиб олиш билан ташкил этиладиган мажмуий туристик хизмати, саёҳат, сафар», «жиҳатлари (йўналиши, муддатлари, хизматлар тўплами) аввалдан режалаштирилган туристик саёҳат; туроператор фирмаси томонидан ягона нарҳда сотилган ҳолда ташкил этилади». Демак, «tour» оммавий инглиз терминидан фарқли равишда, русча «тур» термини бизни қизиқтирган маъносидан фақат туристик соҳада тарқалган.

Инглиз тилида «tourism» термини, рус тилида унга эквивалент бўлган «туризм» терминига нисбатан кенгроқ маънога эга бўлади. Таққосланг: «tourism - the theory and practice of touring; travelling for pleasure. Also, the business of attracting tourists and providing for their accommodation and entertainment; the business of operating tours» [*Oxford English Dictionary*]. («Туризм – лаззат олиш учун саёҳат қилишнинг назарияси ва амалиёти. Шунингдек, сайёҳларни жалб қилиш ва уларни яшаш жойи ва кўнгилочар тадбирлар билан таъминлашдан иборат бўлган бизнес; турларни бошқариш бўйича бизнес»). «*Замонавий адабий рус тили луғати*» да келтирилган дефиниция: «туризм – фаол дам олиш турларидан бири, билим олиш мақсадида, организмни чиниқтириш ва бошқа мақсадларда амалга ошириладиган саёҳатлардан иборат». Юқорида кўрсатилган илҳомлашган луғатлардан бирида қуйидаги дефиниция мавжуд: «туризм – бўш вақтида саёҳат қилиш (саёҳат, сайр), фаол дам олиш тури, соғломлаштириш, билим олиш, шахснинг маънавий ва ижтимоий ривожланиши воситаси» [Турист энциклопедияси, 1993 йил]. У ҳолда ҳам, бу ҳолда ҳам «tourism» терминининг маъноси кенгроқ бўлади. Луғатларда берилган таърифларга мувофиқ, «tourist» ва «tourist» терминларини тўлиқ эквивалент деб ҳисоблаш мумкин. «Tourist – one who makes a tour or tours; one who does this for recreation; one who travels for pleasure or culture, visiting a number of places for the objects of interest, scenery, or the like; a member of a touring sports team» [*Oxford English Dictionary*]. («Турист – турга ёки турларга борадиган киши; буни дам олиш мақсадида қиладиган киши; лаззат олиш учун ёки ўзини маданий бойитиш мақсадида, ҳар хил жойларга уларнинг диққатга сазовор жойлари, табиат манзаралари ва ҳоказоларини зиёрат қилиш учун бориб саёҳат қиладиган киши; туристик спорт



жамоасининг аъзоси»). «Турист – вақтинча яшаш давлатига (жойига) иш ҳақи тўланадиган фаолият билан машғул бўлмасдан, соғломлаштириш, билим олиш, касбий-иш, спорт, диний мақсадларда ва бошқа мақсадда, 24 соатдан 6 ойгача давр мобайнида ташриф буюрадиган, ва камида битта тунаб қолишни амалга оширадиган фуқаро» [Туризм, меҳмондўстлик, сервис: Словарь-справочник, 2002 г.].

Кузатишлар шуни кўрсатадики, туризмнинг баъзи тушунчаларини белгилаш учун узун синонимик қаторнинг мавжудлиги, турли изоҳли луғатларда айтилиши бир лексеманинг дефиницияларини таҳлил қилишга, ҳамда лексик бирликларнинг таржимаси адекватлиги ва тўғри бўлишини таҳлил қилишга олиб келиши аниқланган. Бунда «путешествие-саёҳат» термини таянч элементи сифатида олинган. Ўтказилган таҳлил натижасида «путешествие-саёҳат» лексемасининг энг адекват ва нейтрал таржимаси деб «journey» сўзини ҳисоблаш мумкинлиги аниқланган.

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PSYCHOLOGICAL ASPECTS OF FORMATION CREATIVE IMAGINATION IN PRESCHOOLERS

Yarmatova Sevara Tolibovna

RESUME

The problem of developing the creative imagination of children is relevant because this mental process is an integral component of any form of creative activity of a child, his behavior in general. In recent years, in the pages of psychological and pedagogical literature, the question of the role of creative imagination in the mental development of a child, of determining the essence of the mechanisms of creative imagination, has been increasingly raised. This article reveals the sequence of the formation of creative imagination in preschool age.

KEYWORDS: *creative imagination, preschool age, originality, semantic flexibility, figurative adaptive flexibility, spontaneous flexibility.*

The preschool period is one of the most intense periods of human development. At this age, cognitive processes are actively developing, which are the most important component of the child's mental development. They also serve as the basis for the formation of his mental abilities.

One of the neoplasms of preschool age is the creative imagination.

Creative imagination is a person's ability to build new images by processing mental components that were acquired in past experience. According to N.R.Vetruk, imagination is the mental process of creating an image of an object or situation by restructuring existing ideas. Imagination is part of the consciousness of a person, it is one of the cognitive processes that can be characterized by a high degree of clarity and concreteness [1].

Researchers (*J.P.Guilford, E.P. Torrance*) highlight the main characteristics of creativity, namely:

1) Originality - the ability to solve problems in a new, non-standard way, in preschool age manifests itself in various activities of children and in their games;

2) Semantic flexibility - verbal flexibility of thinking manifests itself in children as an increased sensitivity to speech, as speech creativity - the formation of new words, rhymes or something;

3) Figurative adaptive flexibility as a typical form of manifestation of creativity in older preschool age - the child's ability to highlight the functions of an object in such a way as to see new possibilities in

it. Children's thinking is predominantly imaginative, the child sensually perceives the world around him, often transforms objects into new images, notices in objects that which adults do not see;

4) Spontaneous flexibility - the ability to find various ideas in a somewhat limited situation [2].

Creative imagination depends on many factors: age, mental development and developmental characteristics (the presence of any violation of psychophysical development), individual personality traits (stability, awareness and orientation of motives; evaluative image structures, communication characteristics; degree of self-realization and evaluation of one's own activity; traits character and temperament), and, which is very important, from the elaboration of the process of teaching and upbringing [3].

A child's imagination begins to develop quite early, it is weaker than that of an adult, but it takes up more place in his life. What are the stages in the development of imagination in preschool children? By the age of three in children, imagination exists within other mental processes, in which its foundation is laid.

At the age of three, the formation of verbal forms of imagination takes place. Here imagination becomes an independent process.

At 4 - 5 years old, the child begins to plan, draw up in his mind a plan for future actions.



At 6-7 years of age, the imagination is active. The reproduced images appear in various situations, characterized by content and specificity. Elements of creativity appear. Psychologists believe that the development of imagination requires the presence of certain conditions: emotional communication with adults; subject manipulative activity; the need for different types of activities.

Already in preschool age, the child's creative orientation is manifested as a property of the human psyche itself. The kid makes really creative discoveries almost at every step, since for the first time he studies the world around him, learns the surrounding objects, people. And in some types of creative activity, preschoolers can carry out not just "micro-discoveries of a subjective scale" (A. Molyako), but reach a sufficiently high level, almost professional, because some children's poems, drawings are recognized by experts as being quite "adults" [4].

In the process of creating images, children show initiative, their own aesthetic attitude, search interest, strive to draw attention to the results of their creativity. This, one might say, is creativity for oneself. Therefore, the child himself changes, he operates with new means of activity, knowledge and skills. In the activity, a global reproduction of his creative abilities is carried out within the framework of society. Scientists pay tribute to the child's own activity, "spontaneity", "self-movement" (G.S.Kostyuk), thanks to which a person from childhood creates his own psychological destiny.

According to V.T.Kudryavtsev, "creativity for oneself" becomes an indisputable condition for "creativity for others". And besides, realizing his plans, the child discovers new things about himself. She manifests her understanding of the environment, her attitude towards him, which helps to understand her essence, features of perception, ideas, interests, abilities [5].

The prerequisite for creativity, creative abilities of children of senior preschool age is creativity (E.Torrens), as a potential ability for versatile thinking, feelings and actions. Creativity is perceived as a synonym for creative activity, which is an individual trajectory of the child's mental development, its integral quality, which manifests itself in its: orientation, which is characterized by the dominance of curiosity, the desire for knowledge; the ability to overcome stereotypes of character, as a system of her relationships and behavior. Creativity can be considered as the basis for the productive development of a child, as a potential that ensures his growth, inherent to one degree or another in every child. And as a result - her creativity - the level of mastering social experience, characterized by an independent choice of the direction of the

preschooler's activity, the ability to create a new product [6].

The beginning of the development of children's imagination is associated with the end of early childhood, when the child first demonstrates the ability to replace some objects with others and use some objects in the role of others (symbolic function). The imagination is further developed in games, where symbolic substitutions are made quite often and with the help of a variety of means and examples.

The development of children's imagination in preschool age is judged not only by the ideas and roles that children take on in games, but also on the basis of an analysis of the material products of their creativity, in particular crafts and drawings .

In the first half of preschool childhood, the child's reproductive imagination predominates, mechanically reproducing the impressions received in the form of images. These can be the impressions received by the child as a result of direct perception of reality, listening to stories, fairy tales, watching videos and films. In this type of imagination, there is still little exact similarity with reality and there is no proactive, creative attitude to the figuratively reproduced material. The very images-imaginings of this type restore reality not on an intellectual, but mainly on an emotional basis. The images usually reproduce what made an emotional impression on the child, caused him to have quite certain emotional reactions, and turned out to be especially interesting. In general, the imagination of preschoolers is still rather weak.

A small child, for example a three-year-old, is not yet able to completely reconstruct a picture from memory, creatively transform it, dismember and further use separate parts of what is perceived as fragments from which something new can be put together. Younger preschool children are characterized by the inability to see and imagine things from a point of view different from their own, from a different point of view. If you ask a six-year-old child to place objects on one part of the plane in the same way as they are on the other part of it, turned to the first at an angle of 90 degrees, then this usually causes great difficulties for children of this age. It is difficult for them to mentally transform not only spatial, but also simple planar images. In the senior preschool age, when volition in memorization appears, imagination from reproductive, mechanically reproducing reality, turns into creatively transforming it. It connects with thinking, is included in the process of planning actions. As a result, children's activities acquire a conscious, purposeful character. The main type of activity where the creative imagination of children is manifested, all cognitive processes are improved, and role-playing games become plot.



Imagination plays a greater role in the life of a child than in the life of an adult. It manifests itself much more often and allows a much easier "departure" from reality. And most importantly, children believe in what they come up with. The imaginary and real worlds are not separated by such a clear border as in adults. The experiences that are caused by imaginary events are completely real for them and much stronger than for adults. Children 3-5 years old can mourn the fate of a gray goat and a bun, threaten an evil wizard and try to beat him during a performance, come up with ways of escape from a cunning fox, etc. What happens in an imaginary space (in a fairy tale, in words, on a stage), evokes the strongest emotions in them, an imaginary character can become a real threat or salvation for them. It is known that adults, for educational reasons, introduce into the life and consciousness of a child different invented characters: Babu Yaga or the Gorynych snake, who take naughty children, or good fairies who bring wonderful gifts and perform different magic. These characters become alive and completely real for the child. Children are seriously beginning to be afraid of the fictional Baba Yaga and are waiting for a good fairy. Cruel jokes of older children on the street: "Baba Yaga is flying!" - cause tears and stampede of the preschooler. Even at home, in an intimate and safe environment, fear of imaginary events can arise. Numerous childhood fears, which are often found at this age, are explained precisely by the strength and liveliness of the child's imagination.

It must be remembered that the imagination of a preschooler develops in activity: in play, in drawing, in classes in the native language. Therefore, the organization of these types of activities, pedagogical guidance of them are crucial for the development of imagination.

The artistic education of children plays an important role in the development of imagination. Listening to fairy tales and art stories, attending performances, examining works of painting and sculpture available to him, the child learns to imagine the events depicted, his imagination develops.

The development of imagination is not the result of direct learning [7]. It is due to the growing transformative activity of the child and the mechanisms of self-development of the imagination: the opposite direction of variation and modeling of elements of experience, schematization and detailing of images.

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YOGA RELATED TO FOREIGN VISIT BASED ON LIBRA LAGNA

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ABSTRACT

The Inhibition Hindus had in earlier decades about going to foreign countries after crossing the "seven seas" has vanished. A common question being asked of astrologers these days relates to settlement abroad. A snap shot method for giving quick predictions is given below with illustrations. However, like other snap shot methods, it has its limitations. This rule has, however, been widely tested and generally found to be accurate. The purpose of this study is to study the benefits of those who have gone abroad and those who are living abroad permanently or temporary foreign visit and to explore who will be eligible for yoga abroad. Going abroad was considered a great achievement and an active activity in the 1970s - 80s.

KEYWORDS – Bhakyashtana, Bhakyathipathi, Pada, Dasa, Buddhi.

I. INTRODUCTION

College students pursue their higher education, medical education, work and going abroad as their dream and life's goal during their college years and study hard to get high marks. They also know that this will help them realize their dream. This is also the wish of their parents. Both state-owned banks and private banks offer education loans for them to go abroad for study. It is very effective in realizing their dream. Thus the parents of the students approach the astrologers to find out if their horoscope system helps the students to go abroad. Do astrologers have in their horoscopes yoga that they can go abroad? Is the position of the planets correct? After researching well and giving a positive response, they agree to fulfil their foreign dream.

II. TRAVEL ABROAD FOR EDUCATIONAL PURPOSES

In all such cases there should be a proper 'dasha' and connection between houses/lords of 5th, 10th, 12th, 7th and 9th. Since 8th house is a mysterious house and deals with deep researches as well as travel by sea, there would be sometimes an involvement of this house also. Dasa of Rabu and 5th lord should invariably be watched and care should be taken to observe following points.

- i) Education abroad is highly expensive, so the horoscope should promise enough means combined with average/above average intelligence.
- ii) The person concerned should be extremely brilliant so as to be able to get a scholarship for studies abroad. This can be easily established by strong 5th, 9th houses and their lords, as well as strong placement of Mercury and Jupiter, significations for intellect and education. Classical "Saraswati Yogas" should also be checked.
- iii) As is true in other cases, most of the planets should be placed in movable or dual signs
- iv) There should be a promise of foreign travel as per classical rules enunciated earlier.

**III. ASPECTS IN YOGA FOR FOREIGN VISIT HOROSCOPES**

1. Yoga going abroad occurs when the planets Rahu, Saturn and the Moon sit in 9th – 12th places.

Overseas yoga is caused by the sitting of the planets Rahu, Saturn, and the Moon, which can provide overseas yoga in Bhaktyashtana(9), overseas, distant, and sleepy places (12).

2. 1 - 9 - 12 house lords get the essence of Rahu, Saturn and the moon star, so the yoga of going abroad occurs.

3. 1- 9 - 12 obtaining the essence of their star pada causes yoga to go abroad.

4. Yoga going abroad occurs as the movable Sign, water Sign or air Sign is 9th – 12th places to the Lagna target.

As the average person is unable to stay in one place like a snake, the 9 – 12th sign of the average person will go abroad, resulting in yoga going abroad. Water Sign gives to the person an unstable state like stagnant water, so 9th – 12th Water Sign will have the opportunity to go abroad. As the Air Sign becomes unstable in one place like an airborne cargo, the air Sign becomes 9th – 12th place as Air Sign will giving it a chance to go abroad.

5. 1 - 9 – 12th Lords change within themselves and the yoga of going abroad occurs.

Lagna house lord, Bhaktyathipathi, Foreign Sign house Lord Change within themselves are those who are spiritually driven to go abroad.

IV. RULES IN FOREIGN VISIT HOROSCOPE**Rule No. 1:**

1 - 9 - 12th houses in Rahu, Saturn, the moon is going to get the yoga going abroad.

Rule No. 2:

Rahu, Saturn and Moon in 1 - 9 - 12th house Lord padas.

Rule No. 3:

Lagna Lord in 9th - 12th house Lord padas.

Rule No. 4:

9th and 12th houses to the Lagna is to go abroad as a Movable Sign, Water Sign, or Air Sign.

Rule No. 5:

1st - 9th - 12th house lords change within themselves to get yoga going abroad.

V. HOROSCOPE TABLES**Example Horoscope : 01**

Date of Birth	: 07.07.1989	Time of Birth	: 12.55 PM
Place of Birth	: Hyderabad	Lagna	: Libra
Signs	: Leo	Star	: Magha - 4
Dasa Bhukthi	: Ketu Dasa 01 Years 05 Month 19 Days		
Foreign Visit	: 21.04.2011 – America – Job related Travel		
Time of Foreign Visit	: Sun Dasa – Moon Buddhi – Moon Antharam 15.04.2011 – 30.04.2011		

			MERCURY SUN JUPITER
RAGU	RASI		MARS VENUS
			MOON KETU
SATURN		LAGNA	

	SUN	KETU	
	NAVAMSA		MOON
			SATURN
MARS MERCURY	RAGU VENUS	LAGNA JUPITER	

Rules applied in horoscope table:

Rule 2: Lagna Lord Venus in Saturn pada.

Rule 4: 9th house to the Lagna is to go abroad as a Air Sign.

Rule 5: 12th house lord Mercury in 9th house to get yoga going abroad.

9th Lord Connection with Rahu.



Example Horoscope : 02

Date of Birth : 28.09.1988 Time of Birth : 07.30 AM
 Place of Birth : Tiruchirapalli Lagna : Libra
 Signs : Aries Star : Aswini - 4
 Dasa Bhukthi : Ketu Dasa 00 Years 00 Month 02 Days
 Foreign Visit : March 2012 – America – Job related Travel
 Time of Foreign Visit : Sun Dasa – Saturn Buddhi – Moon Antharam (23.02.2012 – 23.03.2012)

MARS	MOON	JUPITER	
RAGU	<u>RASI</u>		VENUS
			KETU
SATURN		LAGNA MERCURY	SUN

RAGU VENUS	SUN SATURN JUPITER		
	<u>NAVAMSA</u>		MOON
		MARS LAGNA MERCURY	KETU

Rules applied in horoscope table:

- Rule 3: Lagna Lord Venus in 9th house Lord Mercury padas.
- Rule 4: 9th house to the Lagna is to go abroad as a Air Sign.
- Rule 5: 9th - 12th house lord Mercury in Lagna house to get yoga going abroad.
- 9th Lord Connection with saturn.

Example Horoscope : 03

Date of Birth : 14.07.1963 Time of Birth : 01.30 PM
 Place of Birth : Amirthasaras Lagna : Libra
 Signs : aries Star : Aswini - 1
 Dasa Bhukthi : Ketu Dasa 06 Years 04 Month 19 Days
 Foreign Visit : 05.02.1989 – Japan – Job related Travel
 Time of Foreign Visit : Venus Dasa – Ketu Buddhi –Moon Antharam
 (27.01.1989 – 04.03.1989)

JUPITER	MOON		MERCURY SUN RAGU VENUS
	<u>RASI</u>		
SATURN			MARS
KETU		LAGNA	

LAGNA	MOON		SUN RAGU MERCURY
JUPITER VENUS	<u>NAVAMSA</u>		
KETU MARS			SATURN

Rules applied in horoscope table:

- Rule 1: 9th houses in Rahu is going to get the yoga going abroad.
- Rule 2: Lagna Lord Venus in Rahu pada.
- Rule 4: 9th house to the Lagna is to go abroad as a Air Sign.
- Rule 5: Lagna lord Venus and 12th house lord Mercury in 9th house to get yoga going abroad.
- 9th Lord Connection with Rahu.



VI. CONCLUSION

The hypothesis of the study is to confirm that the influence of the planets Rahu, Saturn and the Moon, which can give yoga abroad, is in the horoscopes of those who receive yoga abroad, and the influence of the karmic signs of Lagna, Nine and Twelfth house, which give yoga abroad.

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EFFECTS OF SAGITTARIUS LAGNA IN YOGA FOR FOREIGN VISIT

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ABSTRACT

The hypothesis of the study is to confirm that the influence of the planets Rahu, Saturn and the Moon, which can give yoga abroad, is in the horoscopes of those who receive yoga abroad, and the influence of the karmic signs of Lagna, Nine and Twelfth house, which give yoga abroad. This study examines the horoscopes of those who want to go abroad for education, those who want to go abroad for work, and women who want to go abroad for marriage by examining the horoscopes of those who want to go abroad for education. 'Yoga Going Abroad', this study has kept most of the people born in India with the idea of going abroad at least once in their life. It comes in many forms: higher education, medical education, marriage, work, career, travel, Women living with their husbands after marriage, the opportunity to go abroad for the delivery of a daughter or daughter-in-law living abroad, and for the care of grandchildren after childbirth. The purpose of this study is to study the benefits of those who have gone abroad and those who are living abroad permanently and to explore who will be eligible for yoga abroad.

KEYWORDS – *Bhakyashtana, Bhakyathipathi, Pada, Dasa, Buddhi.*

I. INTRODUCTION

As times change so do the beliefs, traditions, superstitions, Dogmas, Taboos. Time it was when an Indian who crossed the seas had to do penance for having committed the "Signs" going to the country of the mlecchas.

But these days, particularly after the impact of the industrial revolution and technology, going abroad, particularly to the western countries, is looked upon as a piece of good luck mainly because the West has come to be regarded as the land of opportunities. Indians going abroad or foreigners coming to India are in millions. We have in our collections hundreds of horoscopes of Indians going abroad and foreigners coming to India. Broadly, not exhaustively, they fall into the following categories:

- (a) Those who go abroad in connection with job, professionally.
- (b) Those who go abroad to settle down there permanently after taking up citizenship there. The green card in U.S .A. is a valuable possession of many Indians.
- (d) Those who go abroad for medical treatment.
- (c) Many Indian girls and even some boys go abroad after their marriage with someone abroad of Indian or foreign origin.

II. PLANETS AND DIPLOMATIC SERVICE

- i) Beside what has already been stated, the involvement of the 7th and 8th houses would, somehow or the other, be there.
- ii) Saturn in 7th makes a person diplomatic and enterprising during residence abroad.
- iii) Venus with Saturn in the 9th makes a person a diplomat or otherwise engaged in similar work under a king or government.



- iv) Placement of lord of 10th in 7th house makes one travel abroad on diplomatic missions.
 v) If the 10th lord occupies the 12th house the native will have to work in a far off place.
 vi) Sometimes there will be involvement of 8th house as this is the house of secrecy which involves diplomacy.

Gurus/Preachers & Travel Abroad:

Certain features are to be noted here. Unless one is an imposter, his 9th, 5th and 10th houses should be very strong and interconnected. Secondly, invariably in the married life of the person concerned there would be a break. So, following features would be called for.

- i) 'Wanderlust'-shown by planets being mostly in movable and dual rasis.
 ii) Strong Jupiter, Saturn, Sun and the Lagna lord Strong Jupiter and Saturn for pursuing a spiritual life. Sun for fame and strong Lagna lord to withstand the rigours of life in foreign countries.
 iii) Note the position of Moon which represents the mind. Saturn or Mars or both would be aspecting it to take the mind away from worldly affairs.
 iv) Venus Planet would be afflicted to cause a break in family life.
 v) Appropriate Dasa would be prevalent.
 vi) If Saturn, Jupiter and 12 lord are favourably disposed native goes abroad for setting up an Ashram or in quest of spiritual mission.

III. ASPECTS IN YOGA FOR FOREIGN VISIT HOROSCOPES

- Yoga going abroad occurs when the planets Rahu, Saturn and the Moon sit in 9th – 12th places.
 Overseas yoga is caused by the sitting of the planets Rahu, Saturn, and the Moon, which can provide overseas yoga in Bhaktyashtana(9), overseas, distant, and sleepy places (12).
- 1 - 9 - 12 house lords get the essence of Rahu, Saturn and the moon star, so the yoga of going abroad occurs.
- 1 - 9 - 12 obtaining the essence of their star pada causes yoga to go abroad.
- Yoga going abroad occurs as the movable Sign, water Sign or air Sign is 9th – 12th places to the Lagna target.
 As the average person is unable to stay in one place like a snake, the 9 – 12th sign of the average person will go abroad, resulting in yoga going abroad. Water Sign gives to the person an unstable state like stagnant water, so 9th – 12th Water Sign will have the opportunity to go abroad. As the Air Sign becomes unstable in one place like an airborne cargo, the air Sign becomes 9th – 12th place as Air Sign will giving it a chance to go abroad.
- 1 - 9 – 12th Lords change within themselves and the yoga of going abroad occurs.
 Lagna house lord, Bhaktyathipathi, Foreign Sign house Lord Change within themselves are those who are spiritually driven to go abroad.

IV. RULES IN FOREIGN VISIT HOROSCOPE**Rule No. 1:**

1 - 9 - 12th houses in Rahu, Saturn, the moon is going to get the yoga going abroad.

Rule No. 2:

Rahu, Saturn and Moon in 1 - 9 - 12th house Lord padas.

Rule No. 3:

Lagna Lord in 9th - 12th house Lord padas.

Rule No. 4:

9th and 12th houses to the Lagna is to go abroad as a Movable Sign, Water Sign, or Air Sign.

Rule No. 5:

1st - 9th - 12th house lords change within themselves to get yoga going abroad.

V. HOROSCOPE TABLES**Example Horoscope : 01**

Date of Birth	: 02.12.1982	Time of Birth	: 09.20 AM
Place of Birth	: Arakkonam	Lagna	: Sagittarius
Signs	: Gemini	Star	: Mrigashiras - 3
Dasa Bhukthi	: Mars Dasa 02 Years 05 Month 25 Days		
Foreign Visit	: Febuary 2007 – America – Job related Travel		
Time of Foreign Visit	: Jupiter Dasa – Saturn Buddhi – Moon Antharam 31.12.2006 – 18.03.2007		



			MOON RAGU
	RASI		
MARS			
LAGNA KETU	MERCURY SUN JUPITER VENUS	SATURN	

	NAVAMSA		JUPITER KETU
RAGU,MARS VENUS MERCURY			
LAGNA SATURN	SUN	MOON	

Rules applied in horoscope table:

- Rule 2: 9th Lord Venus in Moon pada.
- Rule 4: 9th - 12th house to the Lagna is to go abroad as a Water Sign.
- Rule 5: 9th house lord Sun in 12th house to get yoga going abroad.
- 9th Lord Connection with Saturn.

Example Horoscope : 02

Date of Birth	: 11.09.1969	Time of Birth	: 02.40 PM
Place of Birth	: Chennai	Lagna	: Sagittarius
Signs	: Leo	Star	: Poorvaphalguni - 2
Dasa Bhukthi	: Venus Dasa 10 Years 02 Month 23 Days		
Foreign Visit	: March 2015 – America – Child Take Aaring Job		
Time of Foreign Visit	: Rahu Dasa – Venus Buddhi – Moon Antharam (16.02.2015 – 18.05.2015)		

	SATURN		
RAHU	RASI		VENUS
			SUN KETU MOON
LAGNA MARS			JUPITER MERCURY

	MARS		RAHU JUPITER
	NAVAMSA		MERCURY
VENUS			SATURN
LAGNA KETU	SUN		MOON

Rules applied in horoscope table:

- Rule 1: 9th houses in Moon is going to get the yoga going abroad.
- Rule 2: Lagna Lord Jupiter in Moon pada.
- Rule 4: 12th house to the Lagna is to go abroad as a Water Sign.
- Rule 5: 12th house lord Mars in Lagna house to get yoga going abroad.
- 9th Lord Connection with Moon.

**Example Horoscope : 03**

Date of Birth	: 14.09.1968	Time of Birth	: 12.55 PM
Place of Birth	: Namakkal	Lagna	: Sagittarius
Signs	: Taurus	Star	: Rohini - 4
Dasa Bhukthi	: Moon Dasa 00 Years 10 Month 17 Days		
Foreign Visit	: 17.06.2014 – SriLanka – Tour Travel		
Time of Foreign Visit	: Saturn Dasa – Mercury Buddhi –Venus Antharam (03.06.2014 – 29.06.2014)		

RAHU	SATURN	MOON	
	RASI		
			SUN MARS JUPITER
LAGNA			MERCURY VENUS KETU

	SATURN MARS	LAGNA	KETU
	NAVAMSA		VENUS MOON
			MERCURY
SUN RAHU	JUPITER		

Rules applied in horoscope table:

Rule 4: 12th house to the Lagna is to go abroad as a Water Sign.

Rule 5: Lagna lord Jupiter in 9th house to get yoga going abroad.

12th Lord Connection with Rahu.

VI. CONCLUSION

The hypothesis of the study is to confirm that the influence of the planets Rahu, Saturn and the Moon, which can give yoga abroad, is in the horoscopes of those who receive yoga abroad, and the influence of the karmic signs of Lagna, Nine and Twelfth house, which give yoga abroad.

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A CUSTOMER SATISFACTION ON SERVICE OFFERED BY STATE BANK OF INDIA WITH SPECIAL REFERENCE TO NILGIRIS DISTRICT

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ABSTRACT

The purpose of this study on customer satisfaction will help us to understand the needs & Wants of the customers towards service offered by SBI. The study could provide appropriate and timely information about the position of preference level of customer towards State Bank of India. As the objectives of this study is to analyze the customer satisfaction on service offered by State Bank of India. 165 customers were selected and obtained the various responses based on the questionnaire method.

KEYWORDS: - SBI, Bank, Customers, Customer satisfaction.

I. INTRODUCTION

Customer satisfaction is deliberate at the individual level, but it is approximately always reported at a collective level. Customer satisfaction, an expression often used in marketing is a determination of how products and services full by a company meet or exceed customer expectations. The recent trends show that most of the banks are shifting from a product-centric mold to a customer-centric model since customer satisfaction has become is of the major determinants of business growth. The study will provide in sequence about the satisfaction level of customers of SBI and banking sectors and resolve be help for framing new policies involving the customers. Commercial banks play a significant role in helping the economy of a country in realizing its socio-economic goals. The role of commercial banking assumes much importance especially in a developing country like India. Customer's satisfaction is measured at the individual level, but it is almost always reported at an aggregate level. Customer satisfaction, a term

frequently used in marketing is a measure of how products and services supplied by a company meet or surpass customer expectation. Today customers are now becoming increasingly conscious of their right and are demanding ever more than before. The recent trends show that most of the banks are shifting from a „product-centric model“ to a customer-centric model“ since customer satisfaction has become are of the major study.

II. SCOPE OF STUDY

The present study was undertaken of the customer towards state bank of India (SBI). The problem of the customer is they are not aware of the services provided by their bank. The study also force on the customer perception that how the banking services can be improved.

- The study has been conducted on behalf of – State Bank of India.
- The study is confined to the Nilgiris district.



- The scope of the study is to find out the customer satisfaction.
- The study covers the service providers and users of – SBI.

III. OBJECTIVES OF THE STUDY

- To examine the various services provided by SBI in Nilgiris District.
- To study the level of customer satisfaction towards the services provided by the SBI in the study area.
- To examine the expectation and the level of satisfaction of the customer services rendered by state bank of India.
- To suggest the strategies for the bank to improve the level of customer satisfaction.
- To understand the comfort ability in SBI banking among public.
- To know how far SBI banking helps the public

IV. LIMITATIONS OF THE STUDY

- The survey has been conducted only on 165 respondents.
- The accuracy of the findings of study depends upon the correctness of the responses provided by the respondents.
- The results of the analysis depend on the quality of data provided by the customers of the bank.
- The study is conducted only in Nilgiris district.
- The study was done within a period of 3 months of time.
- Sometimes customers may not be genuine in their answer.

REVIEW OF LITERATURE

- Prasana Chandra (2010): Fundamental of financial management covers all the aspects of the subject from the basics overview of the financial environment to the financial analysis and financial planning. The basic consists of forms of business organization which gives detailed information about the financial management of the organization. After the analysis part budgeting of capital and fundamental valuation of concept is in detail. It provides an introduction to the financial management and to the financial environment. The fundamental of financial management provides a good coverage of the basic concepts relating to the financial environment.

The topics are explained with various examples like the tax system, financial institution, banking arrangement & the regulatory framework. All the concepts are explained using numerous examples & illustration besides the illustration given within the chapter, additional concepts, tools & technique with illustration are provided at the end of chapter section. The book takes an analytical approach and explains the various analytical methods in context.

- Jha DK and D S Sarangi (2011): The financial performance of seven public sector and private sector banks during the period 2009-10. They used three sets of ratios, operating performance ratio, financial ratio and Efficiency ratio. The study revealed that Axis bank was on the top of these banks followed by ICICI, BOT, PNB, SBI, IDBI and HDFC.
- Fernando Ferreng (2012) it is generally agreed that recent economic crisis intensified worldwide competition among financial institution. This competition has direct impact on how bank deal with their customer and achieve its objectives performance evaluation of banks is the key function for improving banks performance. Banks profitability and success to a large extent depends on bank branch financial performance.

RESEARCH METHODOLOGY

1) SAMPLE DESIGN

- **Population:** Population for this search is set of customers satisfaction on service offered by SBI in Nilgiris district.
- **Sample size:** The sample size is 165.
- **Sampling method:** The method used for sample technique was an area sampling method where there are more number of users.

2) SOURCE OF DATA:

- ❖ Primary data.
- ❖ Secondary data.

a) Primary data:

- Personal evolution based on pre designed format of structure questionnaire, which helps to read the consumers.
- Short interview with the consumers.

b) Secondary data:

- Websites
- Business magazines
- Trade rights



- Published data on credit card
 - Weighted average analysis
 - Ranking analysis
- 3) TOOLS FOR DATA COLLECTION:**
- Simple percentage analysis
 - Chi – square test analysis

A. SIMPLE PERCENTAGE ANALYSIS**Transactions of the Respondents**

Transaction	No. of respondents	Percentage
Daily	16	9.7%
Weekly	68	41.2%
Monthly	59	35.8%
Occasionally	22	13.3%
TOTAL	165	100%

INTERPRETATION

It is observed from the above table that 41.2% of the respondents making weekly transaction, 35.8% of the respondents making monthly transaction, 13.3%

of the respondents making occasionally, 9.7% of the respondents are daily.

Majority 41.2% of the respondents are making weekly transaction.

Area of Residence

Area	No. of respondents	Percentage
Rural	51	30.6
Urban	90	32
Semi Urban	24	21.3
Total	150	100

INTERPRETATION

It is observed from the above table that 55.6% of the respondents are belongs to urban, 31.5% of the respondents are belongs to rural, 12.2% of the respondents are semi urban.

Majority 55.6% of the respondents are belonging to urban.

B. CHI-SQUARE TEST ANALYSIS**(1) EDUCATIONAL QUALIFICATION & BANK A/C THEY HOLD:**

QUALIFICATION	BANK A/C				Total
	Savings A/C	Current A/C	Fixed deposit A/C	Others	
School level	5	2	1	0	8
UG	46	32	15	1	94
PG	15	16	21	2	54
Diploma	0	3	4	1	9
TOTAL	66	53	41	4	165

Factor	Calculated value	D.F	Table value	Remarks
Pearson chi square	22.800a	9	16.919	Rejected

INTERPRETATION

It is clear from the above table show that, the calculated value of chi square is high more than the table value. Hence the hypothesis is rejected. So

there is no significant relationship between the educational qualification and banks- in which they hold account.

**C. WEIGHTED AVERAGE ANALYSIS****(1) LEVEL OF SATISFACTION**

Factors	1(5)	2(4)	3(3)
Satisfy	47	29%	0.17
Highly satisfy	42	25.9%	0.15
Neutral	59	36.4%	0.35
Dissatisfied	9	5.6%	0.05
Highly satisfied	8	3.1%	0.04

INTERPRETATION

The above table justifies the satisfactory level of State bank of India banking. The highest mean score or

average is 0.35 for feedback regarding SBI customer service representative.

D. RANKING ANALYSIS**(1) RANKING ANALYSIS OF THE RESPONDENTS**

Factors	1(5)	2(4)	3(3)	4(2)	5(1)	Total	Rank
Payment/ transfer	71 (355)	21 (84)	32 (96)	14 (48)	5 (5)	165 (588)	1
Funds & transfer	20 (100)	62 (248)	40 (120)	17 (34)	6 (6)	165 (508)	2
Inter-bank transaction	22 (110)	49 (248)	50 (150)	13 (26)	10 (10)	165 (492)	3
Credit cards	24 (120)	29 (116)	37 (111)	36 (72)	12 (12)	165 (431)	4
E-tickets	14 (70)	42 (168)	39 (117)	19 (38)	19 (19)	165 (412)	5

INTERPRETATION

The above table shows the analysis it is understood that the respondents have given 1st rank Payment/transfer, 2nd -Funds & transfer, 3rd - Inter-bank transaction, 4th -Credit cards, 5 th -E-tickets.

CONCLUSION

The banking sector in India is undergoing major changes due to competition and the advent of technology. The customer is looking for better quality services which enhance his/her satisfaction. From the above analyses, it is evident that SBI has many positive features and the customers are mostly satisfied with the service offered. The main aim of the study was to assess the service quality of bank and its impact of customer satisfaction. The study also tried to test the relationship that exists between customer 73 satisfaction and their loyalty. The respondents of the bank mostly focus on people factor for improving customer satisfaction while the banks are focus on modern banking services, to attract its customers. 21st century banking has become totally customer driven

and technology driven. During the last one decade, technology has been dramatically transforming banking in India.

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THE IMPORTANCE OF GROWING MAIZE AND CORN AS ROTATIONAL CROPS

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ANNOTATION

In the case of saline soils of the north zone of Karakalpakstan, it is important to study the influence of growing maize and corn as rotational crops after winter wheat on the continuation of the vegetation period and cultivating the soil. Under these conditions, after the winter wheat, when the soil is cultivated in good quality in the production of maize and corn as rotational crops, maize and corn grow well and there is a large amount of fodder from green mass for livestock.

KEYWORDS: crop rotation, land cultivation, plowing, subsoiling, fodder, maize, corn, green mass.

INTRODUCTION

In agriculture, especially, in developing fodder production, it is important and necessary to complete tasks on fully providing animal husbandry farms with qualitative fodder by developing maize and corn production as rotational crops for fodder.

It will increase the production of animal husbandry products in Uzbekistan and is a necessary task to improve its quality. In order to fulfill this task, it is necessary, first of all, to strengthen the fodder base of the farm.

In recent years, 4 districts of Karakalpakstan specialized in animal husbandry, with the organization of multi-sectoral farms, agricultural clusters and agro-farms, a great attention is being paid to strengthen the fodder base of the animal husbandry. In Karakalpakstan, winter wheat is planted to most fields, and the vacated fields need to be re-planted, which makes it more efficient to use the climatic and soil conditions of the republic.

F. Boboev and others [2] noted that if the hybrid maize "Uzbekistan - 300 AMV" is planted and harvested in the first decade of July, the grain will ripen in 90-96 days before the days begin to cool and rain. It is noted that if the germination is delayed

for 2-3 decades of July, it is possible to obtain nutritious silage.

B. Abdolnizoyov [1] in his experiments studied the hybrids of maize "Moldavia", "Nart" and "Uzbekistan-306 AMV" and "Vatan", planted as a rotational crop after winter wheat, and obtained the following results: 37.0 t/ha of grain from the hybrid "Moldavia" and 97.0 c/ha of stalks, 33 and 102 c/ha of "Nart" hybrid, 34.0 c/ha of grain and 123 c/ha of stems from "Vatan" hybrids, i.e. total nutrient unit per hectare (grain + stalks) respectively 66.4; 67.9 and 66.8 t/ha, 61.5 t/ha of grain and 131.8 t/ha of stalks were obtained from the hybrid "Uzbekistan-306 AMV". During the application period, the crop was irrigated 3-4 times at a rate of 600-700 m³/ha.

Chinese scientists Manxiang Huang, Tao Liang, Lingqing Wang, Chenghu Zhou [5] studied the effect on soil agrophysics when planting wheat in the main crop maize as a rotational crop for a long time without cultivating the land. The results of the study showed that in the application of nitrogen fertilizer in addition to unprocessed wheat straw and in the application of manure and nitrogen fertilizer in unprocessed wheat straw, the weight of the soil was slightly reduced compared to the control option and



soil water-resistant aggregates (>2 mm) and water permeability increased.

According to D. Edenbaev, K. Azizov [4], the "Uzbekskoe 18" type, which is regionalized in Shimbay district, yielded 560-620 c/ha of green mass when the grains were harvested during the milk ripening phase for 3 years (2012-2014). "Uzbekskoe 18" (late ripening), "Oranjevoe 160" (medium ripening) and "Karabas" (fast ripening) varieties of corn were planted on the field of "Azamat" farm of Khojeli region which has good water permeability, and the amount of green mass was 746.8; 472.6 and 312.6 c/ha.

METHODS OF CONDUCTING THE EXPERIMENT

Field experiments were carried out in the conditions of saline soil in experimenting fields of KSSRI during 2020-2021 and according to the following variants. Maize was planted in 1-3 variants, in this, 1st variant is controlling (10-12 cm subsoiling, plowing); in the 2nd variant 15-18 cm subsoiling, plowing; in the 3rd variant 20-25 cm plowing. Maize was planted in variants 4-6, including 1st variant is controlling (10-12 cm subsoiling, plowing); in the 2nd variant 15-18 cm subsoiling, plowing; in the 3rd variant 20-25 cm plowing.

The research is currently being conducted on the basis of methodological manual of the UzPITI "Methods of conducting field experiments" (Tashkent 2007).

RESULTS OF THE RESEARCH

In the case of saline soils of the north zone of Karakalpakstan, it is important to study the influence of growing maize and corn as rotational crops after winter wheat on the continuation of the vegetation period, biometric indicators, development, yield of green mass fodder and cultivating the soil. Under these conditions, after the winter wheat, when the soil is cultivated in good quality in the production of maize and corn as rotational crops, maize and corn grow well and there is a large amount of fodder from green mass for livestock.

In practice, the influence of growing maize and corn as rotational crops after winter wheat was studied and research is being continued. At the same time, after the winter wheat was harvested, the experimental options were arranged.

The study identified differences in variants compared to observations on seedling thickness of rotational crops.

It was observed that the seedling thickness of maize and corn was slightly higher in the variant, when 20-25 cm subsoiling, plowing was used, in comparison with other variants.

After harvesting the yield of winter wheat, it is necessary to apply various tillage to the soil, i.e. subsoiling and plowing in different depth in order to have a positive effect on the agrophysical properties of the soil. In this case, comparing to the variant, when 10-12 cm subsoiling, plowing were carried out, in the variant, when 15-18 cm subsoiling and 20-25 cm plowing were carried out, both plants have more growth and development.

In the experiments, depending on the method of soil preparation, the growth of forage crops was different, and after harvesting the yield of winter wheat, in variant, when 10-12 cm subsoiling and plowing were conducted and maize and corn were planted as rotational crops, their height was 140-150 cm, number of leaves 9-20, in variant, when 15-18 cm subsoiling and plowing were carried out, 145-160 cm, number of leaves 10-11, and in variant, when 20-25 cm subsoiling and plowing were carried out, 150-180 cm, number of leaves 11-12.

It was defined that in the fields where maize and corn were planted as rotational crops, the growth and development of the plant was lower in variant, when 15-18 cm subsoiling and plowing were carried out, compared to the variant, when subsoiling and plowing were carried out in 20-25 cm depth, and in variant, when 10-12 cm subsoiling and plowing were carried out and rotational crops were planted, it was high.

In the variant, when 15-18 cm subsoiling and plowing were carried out, there was good conditions for the growth and development of the plant, and receiving high yield. When 15-18 cm subsoiling and plowing were carried out and rotational crops were planted, comparing to other variants materials of fuel were saved, and it is economically efficient.

CONCLUSION

In the Republic of Karakalpakstan, the use of maize and corn as fodder crops in the sustainable use of arable land has significant importance in increasing the fodder base of the farm.

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A STUDY TO IDENTIFY THE RETAIL PENETRATION LEVEL OF AIRTEL PRE-PAID CARD

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ABSTRACT

The project entitled "a study to identify the retail penetration level of airtel pre-paid card" is carried out with an objective to determine consumer preference and satisfaction. India's telecommunication network is the second largest in the world based on the total number of telephone users. Telephone industry in the country which is an ongoing process of transforming into next generation network, employees extensive system of modern network elements such as digital telephone, mobile centers, media gateways and signaling gateways at the core, interconnected by a wide variety of transmission systems using optical fiber or microwave. Telecommunication in India greatly been supported by the INSAT system of the country, one of the largest domestic satellite system in the world.

INTRODUCTION

The Indian Telecommunication industry has grown into a billion dollar industry. In this unforgiving highly competitive industry it is not just doing something right that matters but it is also about doing nothing wrong. Making profit does not only mean a large customer base but also, depends on usage level of the services, provided to the customers. The telecom companies come out with many schemes and offers, to attract customers and to make them use the various schemes provided by these companies. The aim of this study would supplement this effort of the company in a small way. Thus through a Study to understand the current penetration level of their product, the organization can motivate the current efforts of their sales force and efforts could be taken to reduce the weakness, complaints, and also could come up with new attractive schemes according to the expectations of the retailers.

STATEMENT OF THE PROBLEM

Let us look into the profile of our company and the opportunity is facing us. The great opportunity focus to provide high quality service for a low cost.

Airtel has an unbelievable opportunity in front of them, because last year DOT has collected Rs. 720 crores about Rs. 312 crores were pertaining to calls made the state with an average of about Rs. 26 crores in amount.

This statistics shows that we already have an enormous subscriber base to catch up to obtain a strong establishment in the market. Airtel shall target the existing DOT customer base. Since Airtel has big volumes of sale where the company has set up a high goal to achieve 5,00,000 customers in 3 years. Especially in Tamil Nadu, Airtel launched in major areas and occupies more hands in the short span of time gigantically. Even though, another cellular service

OBJECTIVES OF THE STUDY

- To find out the current Retail Penetration level of Airtel Prepaid cards in coimbatore.
- To understand the awareness of Airtel products among retailers in the market
- To identify the factors taken into account by the retailers while they go for Shifting / Non Shifting of Airtel products.

**RESEARCH METHODOLOGY**

Research methodology is a way to evaluate the research problem scientifically. primary data-It is collected through questionnaire Secondary data-It is collected from journals ,magazines and websites

TOOLS USED FOR STUDY

The collected data from the respondents are first classified into two things like tabular and inference. Further, the following specific tools were used Simple percentage analysis Chi-square analysis

LIMITATIONS OF THE STUDY

- Due to time constraints the researcher taken only limited sample 120 respondents.
- The presence of uneducated sales people in the retail outlet, who is merely unaware of the word questionnaire itself, is one of the main limitations to the research.
- The non-availability of the concerned person in the outlet who could disclose all the information required for the study.
- During certain time of the day, most of these outlets would be very busy with their business, as they would not encourage all these research activities.

- To target all retail outlets during this short span of time is considered as another limitation.

REVIEW OF LITERATURE

Katz (2019) examined the creation of own micro cultures by the usage of cell phone. He claimed that changing cultural norms and values demonstrate the consumers' ability to modify and repurpose technology for their own use. He emphasized that by allowing people to insulate their private interactions from the culture around them, will encourage a kind of "walled garden" of micro culture that is complex but, exclusive.

Drennan, Brown and Mort (2018) investigated on m-bullying which is widespread among high school students. There is every need to develop methods to fight the m-bullying, as it triggers blow to their self-esteem. Strategies should be devised to promote health attitudes and behaviors that positively affect their well-being.

DATA ANALYSIS & INTERPRETATION

➤ The analysis and interpretation of the study is based on the information supplied by a sample of 120 respondents. Simple percentage analysis of collected data Chi-square analysis

SIMPLE PERCENTAGE ANALYSIS**Table No 1 Age**

S.No	Age	Number of Respondents	Percentage (%)
1	Below 21years	21	18
2	21 to 30 years	21	18
3	31 to 40 years	34	28
4	Above 40 years	44	37
	Total	120	100

INTERPRETATION

The above table shows that 18% of the respondents age is below 21years, 18% of the respondents age is 21 to 30 years, 28% of the respondents age is 31 to 40 years and 37% of the respondents age is above 40 years. Here mostly 37% of the respondent's age is above 40 years.



Table No 2
Duration of Using An Airtel Network

S.No	Duration of using an airtel network	Number of Respondents	Percentage (%)
1	Less than 6 months	16	13
2	6 months to 1 year	21	18
3	1 to 2 years	31	26
4	More than 2 years	52	43
	Total	120	100

INTERPRETATION

The above table shows that 13% of the respondents using an airtel network for less than 6 months, 18% of the respondents using an airtel network for 6 months to 1 year, 26% of the

respondents using an airtel network for 1 to 2 years and 43% of the respondents using an airtel network for more than 2 years. Here mostly 43% of the respondents using an airtel network for more than 2 years.

CHI-SQUARE ANALYSIS

CHI-SQUARE TEST TO FIND THE SIGNIFICANT RELATIONSHIP BETWEEN SERVICES PROVIDED AND SATISFIED WITH THE MARGIN PROVIDED

Satisfied	Highly satisfied	Satisfied	Neutral	Dissatisfied	Total
Service					
Sim Cards	15	9	0	8	32
Selling Airtel's Vouchers	1	15	7	5	28
Easy Recharge	7	11	12	1	31
All of The Above	12	10	2	5	29
Total	35	45	21	19	120

The table value showing chi-square analysis:

HYPOTHESIS

There is significant relationship between various e commerce factors and satisfaction level of the respondents.

Calculated value χ^2	275.97
Degree of freedom	12
Level of significant	50%
Table value	28.300
Result	Reject

INTRPRETATION

Since the calculated value is higher than the table value and our hypothesis is proved, null hypothesis is rejected. Hence alternate hypothesis is accepted. So there is significant relationship between services provided and satisfied with the margin provided.

- Here mostly 70% of the respondents providing all of the above service.
- Here mostly 48% of the respondents say network attracted customer.
- Here majority 65% of the respondents prefer Jio.

FINDINGS**SIMPLE PERCENTAGE ANALYSIS**

- Here majority 64% of the respondents aware about airtel through advertisement.

CHI-SQUARE ANALYSIS

There is significant relationship between various e commerce factors and satisfaction level of the respondents.



SUGGESTIONS

- Other than the company's marketing and promotional effort, there is something else which could create an impact on the penetration level of the product i.e. Distributor service, as distributor plays the middle man role between the company and the retailer.
- The retailer after shifting the product expects something called as distributor service, which the distributor sales people have to give and this has to be trained / taught by the company to the distributor sales people, which would reduce the retailer attrition rate, increase the penetration level and would be in a position to satisfy one of the retailer preferences.
- The retailer had to be constantly updated with the new and latest schemes from the company by the distributor sales people as this had to be conveyed to the customer by the retailer.

CONCLUSION

The coimbatore market is a very competitive market. The market share of the leader will not be a constant one and could change at any time. Even though it is clear from the study that Airtel have a maximum penetration level among the Retail Outlet at present when compared to its competitor. But this could change at any time as the retail penetration level margin that Airtel is having is not that too big. Also the study reveals that several factors like Retail Margin, Distributor Service, Tariff Plan, and Schemes Available all are taken into consideration by the retailers before going for Shifting of the product.



THE THEORY OF RETALIATION (STRAF RECHT THEORIEEN): CRIMINALIZATION IN ORDER TO CREATE A SENSE OF SECURITY IN SOCIETY

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ABSTRACT

This article aims to determine if theories of the purpose of punishment successfully alter the conduct of criminals or inmates so that they do not commit crimes against the law again and can be welcomed back into society once their sentences are completed. As part of the Verenigings Theorien system, perpetrators of criminal acts are subjected to punishments such as imprisonment or confinement where the crime represents absolute theory, as well as spiritual guidance and the provision of other sciences, which represent the relative theory, so that later on, the prisoners can have beneficial provisions to return to their previous social lives. There are many goals that must be met throughout the sentencing process in order for the penalty to be effective and serve its intended purpose. These are the goals of the punishment in question: preventing the commission of criminal acts by enforcing legal norms for the protection of the community; socializing convicts through coaching so that they become good and valuable people; resolving conflicts caused by criminal acts, restoring balance, and bringing a sense of peace to society; releasing the convict from his or her responsibility for the crime. The four components of criminal goals are carried out via collaboration between the government and the community, ensuring that convicts do not become totally cut off from human nature during their imprisonment. As a result of this, a correctional system has been established to facilitate the implementation of crime. If someone performs a criminal act or breaches existing laws, they will be informed of the penalties they will face, and by carrying out their penalty, the violation of the law will be brought to attention via the direction and protection that he or she will get. As long as they carry out their sentence, he/she will be able to think about his acts and will be less likely to repeat them when he is freed later in life.

KEYWORDS: Criminal Law, Criminal Offense, Absolute Theory, Relative Theory, Combined Theory.

INTRODUCTION

Law is a governmental social control, as social rules and processes attempt to encourage good behavior (functional) or prohibit bad behavior (Black, 1976). On the other hand, social control is a comprehensive network, rules, and processes that bring legal consequences to certain behaviors, for example, general rules for unlawful acts. There is no other way to understand the legal system than to look at legal behavior influenced by government decisions or laws issued by competent authorities. If a person behaves in a particular manner, it is since he/she is ordered by law, or sense of the actions of a government or other official or in the legal system.

The law was created basically to maintain security and create harmony in people's lives. Although each community, with its characteristics, presents its own set of difficulties within the law

enforcement framework, each community has a common objective to establish peace in society due to formal law enforcement.

This peace can be interpreted that on the one hand, there is an external interpersonal order, and on the other hand, there is internal personal peace. For the sake of achieving order and peace, the law serves to provide guarantees for someone so that their interests are considered by everyone else. If that interest is disturbed or there is a violation of the law, then it must protect it. Therefore, the law must be implemented and enforced without discriminating against or not applying the law in a discriminatory manner.

The characteristics of law, as a rule, are always stated to be generally applicable to anyone and anywhere within the territory of the country, without discriminating. However, there are



exceptions stated explicitly and based on specific reasons that can be accepted and justified. Basically, the law does not apply in a discriminatory manner unless the law enforcement officers or organizations in the social reality have applied the law in a discriminatory manner. Finally, law enforcement does not reflect the existence of legal certainty and a sense of justice in society.

In reality, society does not demand much in the implementation of the law. They want their right to be protected is, and they can carry out their obligations without any fear of becoming a victim of a criminal act, but this is not easy to realize because the diversity of human characteristics such as ethnicity, religion, and race makes interpretations of the law sometimes misunderstood mean. Not a few small people feel that the law is only for upper-class people or people who have power, but not for poor people, so that sometimes, as a result of such an interpretation, many people take shortcuts to take anarchic actions in protecting what they do which they consider being their right.

The fatal consequences of the community's assumptions include the occurrence of vigilante acts or street justice, which is not uncommon for criminals to become victims of criminal acts, even sometimes the perpetrators of these crimes lose their lives due to their actions. Those who commit or are perpetrators of criminal acts are generally not the first to commit a criminal offense, but most of them are recidivists who repeatedly commit criminal acts so that society always acts anarchy in the face of crime events.

RQ: Is the implementation of the theories of the purpose of punishment able to resocialize the perpetrators of criminal acts?

Accordingly, the purpose of this paper is to see whether the theories of the purpose of punishment are effective in changing the behavior of criminals or prisoners so that they do not repeat acts against the law and can be accepted back into social life.

LITERATURE REVIEW

Since ancient times, people have always sought and debated the purpose of punishment. This can be seen from the thoughts of legal philosophers such as Plato, who talk about crime as special prevention and general prevention. Likewise, Sneca, a philosopher from Rome, formulated punishment with his expression, which reads "nemo prudens punit quia peccatum est, sed ne peccetur," which means "it is not appropriate for people to punish because a wrongdoing has occurred, but intending to prevent another wrongdoing."

Immanuel Kant has a way of thinking that evil causes injustice, so he must be repaid with injustice as well. Because punishment is an absolute

requirement of law and morality, this way of thinking gave birth to an absolute theory, and the basis of morality that is firmly held can be called "de Ethische Vergeldingstheorie." While Hegel had the idea that law or justice is a reality, if a person commits a crime, it means he denies the existence of law or justice, and it is considered unreasonable.

From this description, it appears that the conflict regarding the purpose of sentencing has occurred since time immemorial, namely between those who view crime as a retributive means, and they state that punishment has a positive purpose.

Purpose of Criminal Law

Determining the purpose of sentencing is a problem that is quite a dilemma, especially in determining whether the punishment is aimed at retaliating for the crime that occurred or the moral purpose of the criminal process is the prevention of anti-social behavior.

In general, it can be concluded that the purpose of criminal law is to protect the public. If someone is afraid to do not good deeds for fear of being punished, everyone in society will be safe and peaceful. On the other hand, if a person has committed a criminal act and therefore he is punished, if that person then realizes that after repenting, he will not commit such an act again, in the end, the community will be safe and peaceful. Therefore, it can also be said that the purpose of criminal law is the same as the purpose of punishment, namely, protecting the community.

The purpose of criminal law recognizes two streams for the purposes and objectives of establishing criminal law regulations, namely the classical flow and the current flow. According to the classical flow, the purpose of the criminal law arrangement is to protect individuals from the ruler's power or the state. The foundation stone was Markies van Beccaria who in his writings "Dei Delitte Edelle Pene" demanded that criminal law be regulated by written law. The writing was so influential that there was a flow in society that demanded that the criminal law be held in writing (Poernomo, 1992).

On the other hand, modern schools teach that criminal law aims to protect society against crime. In line with the above objectives, the development of criminal law must pay attention to the crime and the condition of the criminal. So this modern school can be influenced by the development of criminology, which has received less attention from the classical flow of criminal law. In addition, what is meant by protecting individuals from state power ultimately relates to the form of government of popular sovereignty with powers regulated in the law or constitution and the criminal law, which is also written in the law. So that gradually, the goal of



protecting individuals from state power shifted to protecting society from crime.

According to Van Bemmelen, the ultimate goal of criminal law is to mention and describe matters in which the government, on behalf of the authority granted by the community, relates to an order, tranquility, security, protection of specific interests, and to prevent vigilante action on the part of the population individually or as a body administration in the form of "on rechtmatige daden," and must always uphold the truth. Meanwhile, the purpose of criminal law for Indonesia is that with the blessing of God Almighty, the ideals of the Indonesian nation to realize the Pancasila society should not be hindered and hindered by criminal acts so that both the Indonesian state, society, institutions, and citizens of the Republic of Indonesia and other residents receive shelter. From these descriptions, it can be seen that sentencing has several purposes that can be classified into several theories about sentencing.

CRIMINAL OFFENSE PURPOSE

The purpose of a criminal offense needs to be known because the public must know the nature of the crime (straffen). The objectives of the crime can be seen from several theories about punishment, including the theory of retaliation (the absolute theory), the theory of objectives (relative theory), and the combined theory (verenigings theory).

THE THEORY OF ABSOLUTE (ABSOLUTE THEORIEEN)

The theory of absolute was known at the end of the 18th century, which had followers with their respective ways of thinking, such as Immanuel Kant, Hegel, Hebert, and Stahl. Basically, the flow of vengeance is distinguished by a subjective style or a subjective verification; namely, retaliation is aimed at the fault of the perpetrator because it is despicable, and an objective style (objective vergelding), namely revenge is aimed only at what actions have been done by the perpetrator concerned.

Kant thought that evil causes injustice, so it must be repaid with injustice as well. Hegel had the idea that law or justice is a reality, so if a person commits a crime, it means he denies the existence of law or justice; this is considered unreasonable. Thus the situation of denying justice must be eliminated with injustice, namely by imposing a sentence because the crime is also an injustice.

This way of thinking is dialectical, so the theory is called "de Dialectische Vergeldingstheorie." Herbert thinks that if a person commits a crime, it means that he or she creates a sense of dissatisfaction with the community. The community must be given satisfaction by imposing a sentence so that that

satisfaction can be returned. This way of thinking uses the basic principle of Aesthetica, so the theory is called "de Aesthetica Vergeldingstheorie." Stahl believes that God created the state as His representative in maintaining law and order in this world. The criminal must be punished so that legal order is restored. According to Vos, the criminal theory described by Stahl and Kant is a subjective theory of retaliation, and Herbert's opinion is included in the objective theory of retaliation. In contrast, Hegel's opinion is included in the objective, subjective theory of retaliation.

The theory of retaliation that attracts attention is the theory proposed by Leo Polak, namely that the criminal must have three conditions. First, the disgraceful act must be contrary to ethics. Secondly, the criminal must not pay attention to what might happen, but only pay attention to what has already happened occurs, and thirdly that criminals must not be punished unfairly, which means that the severity of the crime must be balanced / not less but also not more than the severity of the "verdiend leed" offense. Leo Polak's theory is known as "het leer der objectieve betreurents-swaardigheid" or "objectieveringst theory."

The theory of relative (Relative Theorieen)

The theory of relative or "relative theorieen" views punishment as not retaliation for the wrongdoing of the perpetrator but as a means of achieving a worthwhile goal to protect society towards the welfare of society. Sanctions are emphasized on their purpose: to prevent people from committing crimes, so they are not aimed at absolute satisfaction of justice (Poernomo, 1985).

There are several schools of thought that are the schools of goal theory.

(1) General Prevention/Generale Preventie

The primary purpose of the crime to be achieved is prevention aimed at the general public/everyone to violate public order. According to Vos, the most extended form of general prevention theory is in the form of a criminal, which contains a deterrent/frightening nature with its implementation in public which expects suggestions from other community members so that they do not dare to commit another crime. So that other community members can be frightened, it is necessary to carry out a deterrent criminal implementation that is carried out in public. According to this theory, such implementation views the criminal as forced to need "noodzakelijk" to maintain public order.

(2) Special Prevention/Special Preventie

The flow of special prevention has the aim of preventing the criminal from repeating the crime. Adherents of the particular prevention school include



Van Hamel from the Netherlands and Von Liszt from Germany.

According to Van Hamel, that the purpose of criminal law, in addition to maintaining public order (objective theory), also has a combined purpose of frightening (afschrikking), repair (verbetering), and for certain crimes to destroy (onschadelijkmaking).

Combined theory (Verenigings Theorien)

Hugo De Groot (Grotius) views this combined theory as a punishment based on absolute justice "de absolute gerechtigheid" in the form of limited retaliation for what is beneficial to society. It is known by the Latin name, "Punidus nemoest untra meritum, intra meriti vero modus magis aut minus peccata puniuntur pro utilitet," which means that no one is punished as a reward beyond what he meant (no less or no more than his benefit).

Although criminal objectives have progressed, mainly due to the influence of the science of penology, which studies the growth, meaning, and benefits of punishment, this penology cannot eliminate the existing "Strafrechtstheorieen" schools. So, since the verdict of the criminal judge was handed down, the nature of the vengeance and sorrow of the criminal was finished, and then it was only the task of guiding and fostering prisoners under the basis of punishment for "treatment."

Indonesia developed the correction effect, which began in 1964-1966, commonly known as "correctional." Correctional is a method or way of carrying out a crime with a guidance and guidance system used to deal with prisoners. In this relationship, it can be said that the idea is still based on the flow of combined criminal theory, while the implementation of the work guidelines for correctional officers, guidance, and coaching is used by the correctional system.

CONCLUSION

From the discussion above, it can be seen that Indonesia adheres to the Verenigings Theorieen system. The perpetrators of crimes are given punishments such as imprisonment or confinement. The crime represents the fundamental theory and spiritual guidance and provision of other sciences, which embodies the relative theory so that later inmates can have beneficial provisions to return to social life.

Sentencing has several objectives that must be achieved so that the effectiveness and function of the punishment itself can be achieved. The purposes of the punishment in question include: Preventing the commission of criminal acts by enforcing legal norms for the protection of society; Socializing the convicts by conducting coaching so that they become excellent and valuable people; Resolving conflicts caused by criminal acts, restoring balance, and

bringing a sense of peace in society; Release the guilt of the convict.

The four elements of criminal objectives are carried out through cooperation between the government and the community so that prisoners cannot be separated from human nature. The process of implementing such a crime is formulated in the form of a correctional system. It is so that the public is aware of their rights and obligations as citizens, where if they commit a criminal act or violate existing laws, they are aware of the sanctions they will receive. By carrying out the punishment, the violator of the law can be aware through the guidance and protection they receive can as long as he carries out their punishment to reflect on these actions and not repeat them when he is free later.

In addition, the government should also need to give a deep appreciation for this resocialization process so that former prison inmates do not repeat their actions that violate the law, for example, such as creating decent jobs where they can appreciate the skills they got in prison so that people are not restless for their existence. This is because the ex-convicts often repeat their actions because of the difficulty of finding work or gaining the community's trust.

However, there are many obstacles to realizing these goals. One of which is the attitude of the people who tend to be antipathetic towards recidivists. So that many of those who have been in prison feel ostracized and unappreciated (stigmatization), or are even called scum of society. On the one hand, these ex-convicts feel that their actions have been paid for by the loss of their right to freedom for a long time, and in losing their right to freedom, they have also reflected on the mistakes they have made.

SUGGESTIONS

Following the theories that have been put forward above, both in the discussion section and in the conclusion section, that from several theories put forward by legal experts, it is clear to us that what is the purpose of the punishment which is essential to provide a sense of security to the community and the community. The perpetrator is not retaliation for what he/she has done, but there is a deterrent effect for every community not to commit the crime. So that with this, it can minimize criminal acts amid a society which in the end can create harmony in society, where this is always associated with legal developments, both written positive law and unwritten positive law.

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TEXTURE CHARACTERISTICS OF ZINC ACETATE CATALYST

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ABSTRACT

The article first studied the properties of carbon sorbents obtained on the basis of FC modified with acetic acid or hydrogen peroxide as carriers for zinc acetate catalysts of vinyl acetate synthesis. It was found that the adsorption process in modified coal is strongly dependent on the hydrodynamic regimes, the adsorption transfer temperature, the initial salt concentration and the initial value of the pH solution. Adsorption isotherms were obtained on the surface of the modified FC, which belongs to the langmuir type of adsorption isotherms. On the surface of the modified sorbents ($T = 50^{\circ}\text{C}$, solution rotation speed $15 + 2 \text{ cm / sec}$, initial values $\text{pH} = 5.5-6.0$ and $= 20\%$ mass.) Optimal conditions of zinc acetate immobilization corresponding to catalytic activity were established. The obtained catalysts were studied by small-angle scattering of X-rays, scanning electron microscopy, and X-ray microanalysis methods.

The aim of the work is to study the texture characteristics of zinc acetate catalyst prepared by soaking in activated carbon in different ways.

KEYWORDS: activated carbon, zinc acetate, surface, Dubinin-Radushkevich equation, vapor adsorption.

INTRODUCTION

In recent years, one of the directions of catalyst development for the acetylation reaction of acetylene with acetic acid is the preparation of catalysts with high catalytic activity and efficiency using carbon as a carrier [1-6]. Carbon materials have several important advantages: a large surface area, the ability to regulate the size distribution of pores, and the ability to recover active metals from spent catalysts by burning carbon. An important advantage of carbon as a catalyst carrier is the immobility of the surface, which excludes the occurrence of unwanted side reactions [7-12]. Carbon catalysts are resistant to the coke layer [13-19]. The carbon materials used as carriers are different in nature. They can be activated carbon, technical carbon and compositions based on it. The advantages of technical carbon-based compositions, for example, Sibunite [20-25], are their chemical purity (content of C is not less than 99.5%), high strength and spherical shape of granules compared to activated carbon [26-28]. The creation of materials with hierarchical porosity is one of the fastest growing areas of material science today. Due to the improved transport properties of the porous structure, such materials are widely used as carriers

of sorbents, catalysts. The template method for the preparation of hierarchical porous materials is distinguished among other approaches in the creation of hierarchical structures by its simplicity, versatility compared to the previous ones used and the ability to strictly control texture properties, and as a result, the resulting material is mechanically strong. In this study, the use of polymer microspheres was preferred as a cheap and easy-to-measure method for their synthesis, as well as a removable template due to its ability to accurately set particle diameters from 50 nm to 1000 nm. It should be noted that monodispersed polymer microspheres with different functional groups and sizes of 5 μm are valuable research objects for themselves. Up to a quarter of a billion tons of hydrocarbons, including heavy hydrocarbons, are mined in the country every year, but the depth of their processing is about 70%. [20-28].

EXPERIMENTAL PART

The general scheme of the laboratory device of vinyl acetate synthesis is shown in Figure 1.

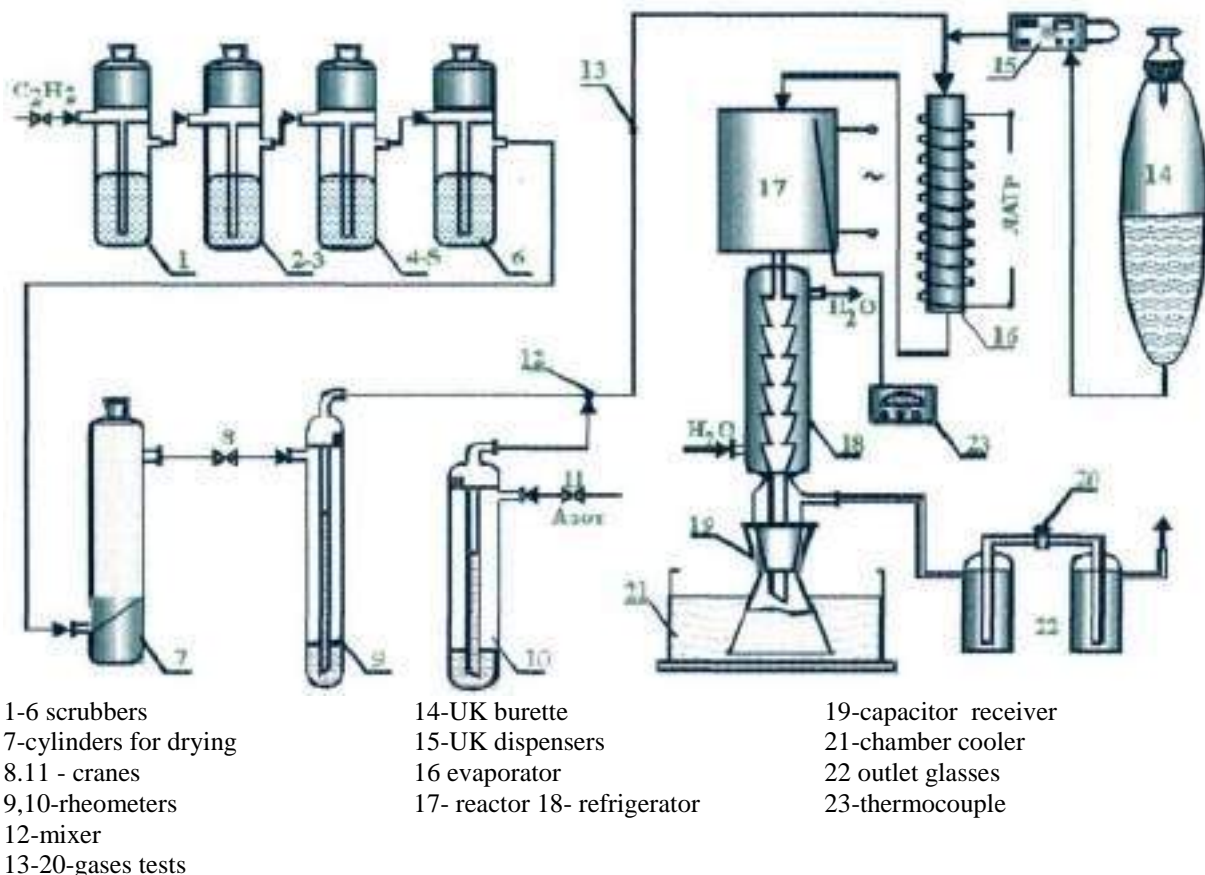


Figure 1. Laboratory device for the synthesis of vinyl acetate

The study of the activity and stability of zinc acetate catalyst samples is carried out in a flow reactor made of heat-resistant glass. The reactor is a silicone oil-filled tube with a length of 130 mm and an inner diameter of 11 mm, equipped with a shield for heating. The temperature in the reactor is maintained using a relay and a contact thermometer. There is a channel for thermocouple to measure the temperature more accurately in the reaction zone. Temperature measurement accuracy +1°C.

The quality control of the prepared catalysts was carried out in a cyclic mode, the essence of which is the repeated repetition of the activity measurement at the three temperatures of catalysis.

The experiments are carried out at 175, 205, 230°C at circulating levels not exceeding 50% of acetic acid. The transfer rate of the gas mixture is 722c-1. Relative. Catalyst activity on vinyl acetate is

calculated according to the following formula [29-37]:

$$\eta = X \cdot m / v_k \cdot t; \quad \text{g/l} \cdot \text{hour}$$

here: X – the mass composition of vinylacetate (VA) in the test;

m–test mass, g;

v_k – catalyst capacity, l; $v_k = 6 \text{ cm}^3$

t – sampling time interval, hours.

EXPERIMENTAL RESULTS AND THEIR DISCUSSION

All the obtained isotherms of adsorption are given in the coordinates of the Dubinin-Radushkevich equation used to calculate the structural parameters of the pores. An example of a calculation based on the Dubinin-Radushkevich equation is shown in Figure 2.

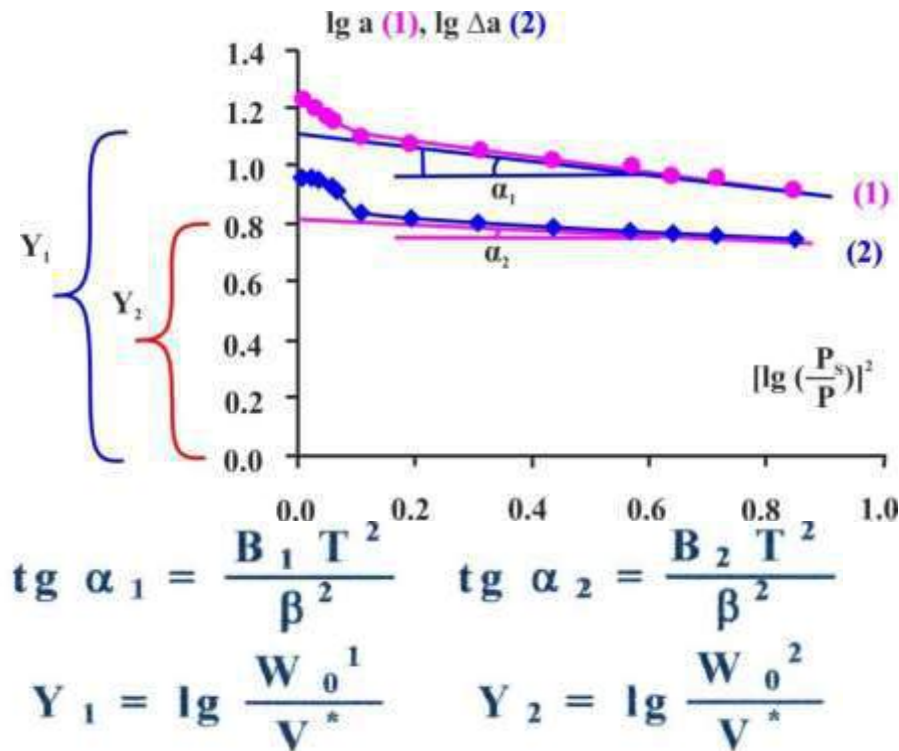


Figure 2. Vapor adsorption isotherms in the coordinates of the Dubinin-Radushkevich equation.

Specific properties of vapor adsorption differential heat measurement. It is possible to determine the adsorption heat of vapors on the adsorption isotherms of vapors, but reliable determination of the isosteric heat of adsorption from

the isotherms is possible only if the isotherms are thermodynamically equal and reversible.

As can be seen from Figure 3, the dependence of the specific surface temperature on the discharge temperature of zinc acetate from aqueous solutions passes through $T \approx 50^\circ\text{C}$ in activated carbon.

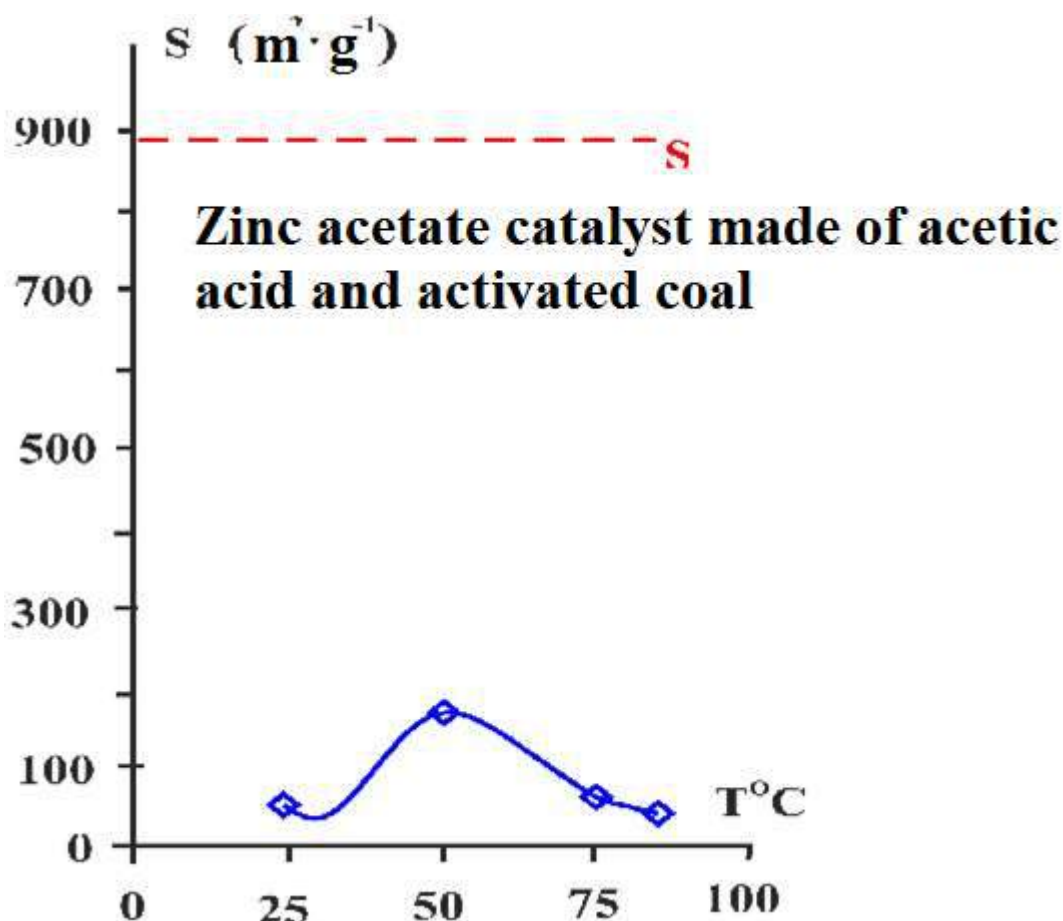


Figure 3. Dependence of the specific surface area of catalysts on the drying temperature of the solution.

All of the hydrogen peroxide-treated and acetic acid-treated catalysts described above were dried at 150–160°C for 3 h after zinc acetate was reduced. It is known that the drying mode significantly affects the distribution of the saline component and may be reflected in the activity of the catalyst. To determine the effect of the drying mode, we changed the rate of temperature rise by further drying at 150°C for 2 h (0.3°C per minute).

Thus, a comparison of the disperse structures of the catalysts under consideration shows the superior effect of the method and conditions of formation on the state of the salt component in their composition.

The presented results of X-ray studies of catalysts are reconciled with SEM and RMA data. Electronic microphotographs obtained at a maximum magnification (x20000) for this method show only the morphological structure of the activated charcoal, which has a well-branched system of carriers - pores. Particles of activated carbon have a corpuscular structure formed by irregularly shaped bubbles and a globular structure belonging to amorphous carbon.

The structure of the salt component is not reflected in these magnifications.

Quantitative analysis of the lateral and internal surfaces of the granules of catalyst samples was performed to obtain information on the specific properties of the distribution of the saline component.

CONCLUSIONS

Thus, for the first time, the properties of carbon sorbents obtained on the basis of FC modified with acetic acid or hydrogen peroxide as carriers for zinc acetate catalysts of vinylacetate synthesis were systematically studied.

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EFFECT OF PROMOTORS ON CATALYST ACTIVITY IN CATALYTIC AROMATIZATION OF OIL ASSOCIATED GASES

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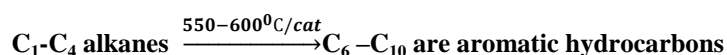
ABSTRACT

Catalytic aromatization reaction of petroleum gases in a flow catalytic device in the stationary phase of the catalyst (catalyst volume 6 cm³), at 450-600°C, at normal atmospheric pressure ($P = 0.1$ MPa), under the conditions of volumetric velocity of the initial gas mixture 600-1000 h⁻¹ was held. When the Mo-based catalyst was modified with different metals, the best result was obtained when the content of zirconium in the composition was 1.0%. It was also proved that the activity of the catalyst is high when zinc metal is added to the catalyst in the form of zinc nitrate. As a result of the research, the following optimal conditions for the catalytic aromatization reaction of petroleum gases were selected: catalyst: 6.0% Mo, 2.0% Zn, 2.0% Zr; 0.1MPa; VNPG = 1000 hours⁻¹; T = 550°C.

INTRODUCTION

Aromatic hydrocarbons (ArU) are important starting raw materials in organic synthesis. On the basis of aromatic hydrocarbons are obtained synthetic fibers, plastics, pharmaceutical and agricultural drugs, dyes, various rubbers and others. Benzene, toluene, ethylbenzene, and xylenes are more commonly used in organic synthesis. At present, aromatic hydrocarbons are obtained by cracking and

pyrolysis of petroleum liquid hydrocarbons [1-5]. But to date, it is noted that oil reserves are also limited. Therefore, the replacement of oil with alternative sources of raw materials remains an important issue. Such alternative raw material reserves are natural gas, petroleum gases and biogas. Today it is important to catalytically process natural gas and petroleum gases to obtain aromatic hydrocarbons in one step:



The thermodynamic probability of the aromatization reaction of lower alkanes is high, which is higher than 400°C for butanes, 500°C for propane, and 600°C for ethane.

The chemical processing is to obtain aromatic hydrocarbons. A number of scientists are conducting research on the catalytic synthesis of aromatic hydrocarbons [6-11]. In this reaction, high-silicon zeolites containing Zn, Zr, and Pt have high catalytic activity [12 - 19]. The disadvantage of the catalytic interaction of these systems is that the reaction produces a certain amount of coke and high molecular weight aromatic hydrocarbons (naphthalene, alkyl naphthalene). As a result, the stable service life of catalysts is reduced.

It is known from the literature that Mo-preserving catalysts have high catalytic activity in the

aromatization reaction of petroleum gases without the participation of oxidizers [20-21].

One of the disadvantages of the process of dehydroaromatization of petroleum gases, which takes place at 450-600°C without the participation of oxidants, is the rapid inactivation of catalysts as a result of coke formation. For long-term operation of the catalyst without changing its activity, it is necessary to promote it with different metals (Cu, Zr, Pt, Zn, Fe, Co, etc.).

EXPERIMENTAL PART

The studies were carried out in a flow catalytic device in the stationary phase of the catalyst (catalyst volume 6 cm³), at 450-600°C, at normal atmospheric pressure ($P = 0.1$ MPa), under conditions of volumetric velocity of the initial gas mixture 600-1000 h⁻¹ [22-25].



Qualitative and quantitative composition of petroleum gases and reaction products was analyzed on the chromatograph "Chromatec-Crystal 5000M" under the following optimal conditions: increased [26-27].

Separation of liquid products was carried out in a DV-1 capillary quartz column (30 m x 0.25 μm), and detection was carried out in a flame ionization detector.

EXPERIMENTAL RESULTS AND THEIR DISCUSSION

Table 1

Effect of zirconium oxide content in zeolite on propane conversion and selectivity of formation of reaction products

Catalyst	T, °C	X, %	A, %	Product yield selectivity, %				
				H ₂	CH ₄	Alkans, C ₂ -C ₅	Alkens C ₂ -C ₄	Arens
1 % Zr - HCZ	500	21	0,9	1,3	21,1	62,5	5,8	4,4
	550	43	2,7	1,5	35,3	43,2	13,7	6,4
	575	75	16,2	2,0	38,3	30,0	13,2	21,6
	600	93.2	34,0	2,4	33,9	15,8	14,8	31,6
2 % Zr - HCZ	500	16	0,8	0,5	19,8	57,1	17,4	5,2
	550	33	3,1	1,1	29,3	38,8	21,6	9,2
	575	58	4,4	1,6	38,0	26,8	25,9	7,7
	600	88	24,9	2,0	32,8	16,1	21,0	27,2
3 % Zr-HCZ	500	8	0,3	0,3	19,2	50,9	25,1	4,5
	550	21	0,7	0,9	27,3	39,6	28,9	3,2
	575	42	1,8	1,5	34,9	26,1	33,1	4,3
	600	72	5,0	2,6	40,9	18,7	30,9	7,0
4 % Zr-HCZ	500	3	0,2	0,2	21,3	30,7	41,2	6,6
	550	11	0,2	0,5	24,4	27,2	45,8	2,1
	575	28	1,3	0,9	27,7	20,4	46,4	4,6
	600	54	3,9	1,5	30,3	13,1	47,9	7,2

Increased concentrations of oxide of zirconium in the catalyst up to 2% lead to the reduction of the total ego (measured by the degree of conversion of propane) and aromatizing activity. At a temperature of 600°C, the degree of conversion of propane to the output of aromatic hydrocarbons in the formation of 2% Zr-YuKTs is 87 and 23.9%, respectively. When increasing the concentration of oxide of zirconium in the catalyst up to 3% of the disease nablyudaetsya further reduction of ego catalytic activity in the process of aromatization of propane, and on the formation of 4% Zr-YuKTs selectivity of formation of aromatic acidity of 400% of all aromatic carbohydrates. In the products of the reaction, formed on this catalyst, contains a significant amount of low-grade olefins C₂ - C₄, the selectivity of the formation of metals at 600 ° C is 47.9% (see Table 1).

The catalytic activity of a catalyst depends not only on its qualitative and quantitative composition, but also on what substance the active components are incorporated into the catalyst. Therefore, we tested its catalytic activity by introducing zinc into the catalyst in the form of various compounds.

Initially, the tests were performed by injecting zinc nitrate into YuKTs at a temperature of 500-650°C with a zinc content of 2 and 5% (by mass). The duration of the experiments was 120 minutes, and the volumetric velocity of the initial gas mixture was varied between 1000-1200 h⁻¹.

Conversion of petroleum gases decreases sharply when the temperature is below 550°C, while coke formation increases and selectivity decreases when the temperature exceeds 650°C. The results obtained are presented in Tables 2-4.



Table 2
Dependence of the process of aromatization of petroleum gases on the temperature, the nature of the promoter and the volumetric velocity of the raw material flow

Catalyst HCZ +	t, °C	V, c ⁻¹	Conversion, %	Selectivity, %	Productivity, %
2 % Zn Zn(CH ₃ COO) ₂	550	1200	32,0	30,6	9,8
		1000	49,8	65,5	32,6
	600	1200	43,0	55,3	23,8
		1000	71,5	57,2	40,9
	650	1200	76,7	40,0	30,7
		1000	96,5	41,7	40,4
5 % Zn Zn(CH ₃ COO) ₂	600	1200	50,1	50,7	25,4
		1000	69,3	60,7	42,1
	650	1200	81,7	30,7	25,1
		1000	81,7	30,7	25,1
2 % Zn Zn(NO ₃) ₂	550	1200	54,0	61,3	33,1
		1000	66,7	52,3	34,9
	600	1200	70,6	56,8	40,1
		1000	84,3	48,0	40,5
	625	1200	84,3	48,0	40,5
		1000	79,7	60,6	48,3
	650	1200	90,1	43,6	39,3
		1000	89,4	54,6	48,8
5 % Zn Zn(NO ₃) ₂	550	1200	58,6	55,1	32,3
		1000	75,6	52,6	39,8
	600	1200	75,6	52,6	39,8
		1000	73,6	53,3	39,2
	625	1200	90,8	43,2	39,3
		1000	89,3	59,1	52,8
2% Zn ZnO	550	1200	46,0	49,3	22,7
		1000	90,3	32,3	29,2
	600	1200	69,5	44,3	30,8
		1000	73,5	52,8	38,8
	625	1200	91,5	44,0	40,3
		1000	91,5	44,0	40,3

In all cases, the yield of aromatic hydrocarbons increases as the volumetric velocity of the initial mixture decreases. As the temperature rises, the conversion of petroleum gases and the yield of aromatic hydrocarbons increase, but the selectivity

decreases. At the same time, the amount of benzene in the catalyst increases as a result of hydrodealkylation of toluene, and the amount of hydrogen methane in the gas phase also increases.

Table 3
Dependence of the composition of reaction gases in the process of aromatization of petroleum gases on the temperature, the nature of the promoter and the volumetric velocity of the raw material flow

Catalyst HCZ	T, °C	V, c ⁻¹	Catalyst content, mass %						
			H ₂	CH ₄	C ₂ H ₆	C ₂ H ₄	C ₃ H ₈	C ₃ H ₆	ΣC ₄
2 % Zn Zn(CH ₃ COO) ₂	550	1200	28,9	4,5	2,0	2,3	40,0	3,7	18,6
			1000	46,4	12,8	8,5	1,6	24,9	2,5
	600	1200	50,5	9,6	5,8	2,7	21,8	5,3	4,3
			1000	49,3	18,2	12,4	2,2	13,1	3,3
	625	1200	51,6	17,9	11,3	3,2	10,2	4,6	1,2
			1000	51,0	6,6	19,0	16,5	1,6	3,8
5 % Zn Zn(CH ₃ COO) ₂	600	1200	40,1	14,2	6,6	4,0	25,5	4,8	4,9
			1000	41,7	22,4	12,0	3,9	14,1	4,4
2%Zn Zn(NO ₃) ₂	550	1200	46,8	15,1	9,1	1,7	25,1	1,8	0,3
			575	1200	53,9	16,8	8,9	2,0	16,0
	600	1200			53,3	19,2	7,8	2,8	14,4
			600	1200	51,6	24,5	14,1	1,6	6,6
	600	1000			58,1	18,4	8,8	3,4	9,1



	625	1200	61,3	21,2	10,0	2,1	4,2		1,3
		1000	56,3	24,6	10,2	2,7	4,7	1,6	
5% Zn Zn(NO ₃) ₂	550	1200	46,9	15,1	10,8	1,3	23,0		3,1
	575	1200	49,1	21,0	14,7	1,3	12,1		2,0
		1000	47,8	21,6	14,5	1,4	13,0		1,6
	600	1200	47,7	28,6	17,3	1,5	3,9		1,1
1000		52,4	24,8	15,0	1,4	5,3		1,2	
5% Zn ZnO	550	1200	39,9	12,4	4,5	3,0	31,7	2,6	6,0
	575	1200	52,8	17,1	8,0	2,1	17,5	2,2	0,5
		1000	54,3	24,0	11,8	1,6	6,6	1,3	0,3
	600	1200	57,7	17,9	8,1	2,4	11,0	2,1	0,9
		625	1200	57,5	22,6	9,7	2,1	3,8	1,4

In selecting the optimal amount of zinc, not only the maximum yield of aromatic hydrocarbons, but also the stable service life of the catalyst was taken into account.

Based on the above, it has been proved that it is not expedient for the content of zinc in the catalyst to be higher than 4%.

Table 4

Dependence of catalyst composition on temperature, promoter nature in the process of aromatization of petroleum gases $V = 1000 \text{ hours}^{-1}$

Catalyst HCZ	t, °C	Catalyst content, % mass						
		ΣC_6	C_6H_6	C_7H_9	ΣC_8H_{10}	ΣC_9H_{12}	$C_{10}H_8$	C_{11+}
2 % Zn Zn(CH ₃ COO) ₂	550	1,3	25,7	46,6	21,6	0,4	2,3	2,1
	600	2,0	35,6	44,4	12,5	0,7	2,8	2,1
	625	1,3	25,7	46,6	21,6	0,4	2,3	2,1
2% Zn Zn(NO ₃) ₂	575	-	37,3	39,9	11,9	5,9	3,4	1,6
	600	-	37,4	40,0	0,8	17,0	3,4	1,6
	625	-	39,3	37,7	10,0	7,5	3,8	1,8
5% Zn Zn(NO ₃) ₂	600	-	32,1	35,9	11,2	0,2	11,8	8,8

The acidic centers of the catalyst increase the ring properties of the alkenes. It is therefore important to increase the acidity of the catalyst. For this purpose, we added 2% by weight of B₂O₃ to the catalytic system (MoO₃)_x · (ZnO)_y · (ZrO₂)_z. B₂O₃ not only increases the activity of the acid centers of the catalyst, but also reduces the formation of coke.

As the concentration of zinc increases from 2% to 5%, the amount of naphthenes in the catalyst also increases. As can be seen from the tables above, the results obtained when using an aqueous solution of zinc acetate are lower than when using zinc nitrate.

CONCLUSION

Catalytic aromatization reaction of petroleum gases in a flow catalytic device in the stationary phase of the catalyst (catalyst volume 6 cm³), at 450-600°C, at normal atmospheric pressure (P = 0.1 MPa), under the conditions of volumetric velocity of the initial gas mixture 600-1000 h⁻¹ was held. When the Mo-based catalyst was modified with different

metals, the best result was obtained when the content of zirconium in the composition was 1.0%. It was also proved that the activity of the catalyst is high when zinc metal is added to the catalyst in the form of zinc nitrate. As a result of the research, the following optimal conditions for the catalytic aromatization reaction of petroleum gases were selected: catalyst: 5.0% Mo, 2.0% Zn, 2.0% Zr; 0.1MPa; VNPG = 1000 hours⁻¹; T = 550°C.

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HISTORICAL THINKING AND HISTORICAL MEMORY - A MEANS FOR FORMATION OF IDEOLOGICAL IMMUNITY

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ABSTRACT

The article deals with the content and essence of historical memory and historical thinking, its role in the spiritual life of mankind, people, nation and society, as well as the role of ideological immunity in protecting the minds of young people from various spiritual threats in today's complex global ideological processes. and issues such as the use of educative and coaching power in history lessons.

KEYWORDS: *historical memory, historical thinking, understanding and knowing history, spiritual growth, social consciousness, worldview, historical development, ideological threats, ideological immunity, past experience, history lessons.*

INTRODUCTION

At the current stage of world development, that is, in a complex world of polarization and globalized ideological processes, the right approach to reality, observation plays an important role. At a time when ideological threats are on the rise, it is an objective necessity to restore historical memory and make decisions in the formation of ideological immunity in the minds of young people. Indeed, "Man, nation and people live with a sense of historical memory. The memory illuminates our lives like the bibles of the Bible, which represent the past, the teachings of our ancestors, our national heritage"¹.

METHODICAL SECTION

The changes taking place in the world today require a deeper study of history, a deeper understanding of the past, and a deeper observation and analysis of all periods and processes. Because, "without historical memory, there is no future. The

future of a nation that does not remember the past will not be bright. If a nation wants to see its future brightly, its memory must be vigilant. The people and the nation must draw the necessary conclusions and lessons from the life of yesterday, from the hard and difficult days they went through, from the tests of history."² Today's problems and tasks have made the world of mankind a whole, in which case a person cannot understand the essence of the social changes taking place in the life of his country, people, nation, people without having his own historical thinking.

Informed ideological processes to acquaint young people with the contribution of our great scholars to world civilization in the formation of historical thinking, to commemorate great historical events, to tell the story objectively, honestly, to strike at false views, to preserve the cultural heritage of our ancestors. learning is important.

Historical thinking and historical memory enhance a person's ability to think, reason, analyze, and draw conclusions. A person with a healthy and high outlook cannot be persuaded or deceived by false ideas. It is known from history that the ideas and ideologies based on living for the happiness of

¹ Resolution of the President of the Republic of Uzbekistan dated April 4, 2017 No PP-2865 "On measures to prepare for and hold the Day of Remembrance and Honor" // [Electronic resource]: <http://www.lex.uz/acts/3150991>.

² Karimov IA Memory is eternal - dignity is sacred.// Voice of Uzbekistan.-2007.-№56 –P.1-2



one's family, homeland and people and wishing good for all mankind have been and will continue to be the strongest.

At the present stage of development of human society, we must approach historical events with a philosophical thinking and look at the factors, causes and roots of its origin. A correct understanding of the essence of historical processes helps people to form a clear vision, a healthy approach to events. Society cannot be changed without changing the way people think. Because change must first take place in the human mind, in the way of thinking. The importance of the formation of historical memory and historical thinking in the youth, who are the future of society, is reflected in the following:

-First, historical thinking and historical memory allow young people to understand that the processes taking place in society are based on objective laws, the violation of which can lead to serious consequences. Historical thinking is an important concept that reflects the ethnic and cultural development of a nation. Society has come a long and difficult way before today's development process, which helps it to distinguish between good and bad, black and white;

- Second, historical thinking and historical memory serve to form a healthy worldview in the minds of young people, the formation of ideological immunity against harmful ideologies;

- Third, historical thinking and historical memory contribute to the effective organization of political, social, economic and cultural reforms in the country, to ensure the broad mobilization and participation of the population;

-Fourth, historical thinking and historical memory lead to the realization that the development of today's Uzbekistan can make a difference through the use of world best practices, to this end, to understand the need for radical reconstruction of society, renewal from national revival to national progress.

Through historical thinking, a person understands himself, increases his political activity, becomes aware of the essence of the concepts of freedom and liberty and the mechanism of its achievement.

Historical memory, which is an important element of social consciousness, influences the formation of a broad worldview in young people, the formation of a strong ideological immunity in them through the understanding of national consciousness, national pride, the interests of the nation. In the current situation, when the ideological and ideological foundations of our independent state are becoming stronger, the role of historical memory is

great, that is, historical memory nurtures a harmoniously developed, broad-minded, independent-minded young generation. Every young generation enjoys the sources of history as a result of having historical memory and thinking, and as a result, in their hearts there is honor, duty, patriotism, conscience, honesty, rejection and criticism of harmful ideologies. nicknames are formed.

Historical memory can play the role of a specific ideological immunity in the human mind, that is, through the study of history, with the knowledge of human past experience, this knowledge can create ideological immunity in the human mind . In addition, a person with a historical memory, by knowing history, first of all understands himself, studies the past, evaluates the present, observes and looks to the future³.

We all know that historical memory contains positive and negative memories of the past, if positive memories lead a person to goodness, kindness, creativity, and negative memories encourage people not to repeat the mistakes of the past today and in the future, to draw the right conclusions from them. A person with a historical memory has a deep worldview, he is able to accurately analyze the essence of the processes taking place today, to distinguish between different information, having his own independent opinion. Understands the true purpose of various ideological threats and is not easily deceived by them. Historical memory performs another function in the human mind in such a way that the mental experience and the knowledge derived from it do not allow an ideological vacuum to appear in the human mind. It enriches the human heart with noble goals and ideas.

CONCLUSION

The conclusion is that in today's context of accelerated information process, the emergence of various ideological threats to the human mind and heart, the development of our society and the protection of young people from ideological threats and the establishment of a healthy outlook on them. it is important for them to inculcate historical memory in the formation of ideological immunity in their minds.

In the system of social development, historical memory establishes ideological immunity in the minds of young people through education, the study of existence, and commitment to political, legal, social, and national values. In this process, it is expedient to create a systematic and successful model

³ Narzulla Jorayev "Theoretical foundations of the philosophy of history" - T.: "Spirituality", - P.325



of identifying the factors influencing the process of historical memory in the formation of ideological threat in the younger generation.

In the implementation of this system, it is necessary to pay attention to the principle of scientific basis in the formation of historical memory, teaching history, because the solution of this problem has a great impact on the spiritual goals of young people. Only young people with a scientifically based knowledge of history will be able to independently search, retrieve and process information in today's information society, which will allow them to properly assess the past and learn about the present. allows you to have an idea. As a result, in today's global ideological processes, ideological immunity against harmful ideas is formed through historical memory.

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A REVIEW ON HPLC METHOD DEVELOPMENT AND VALIDATION

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ABSTRACT

HPLC is the dominant separation technique to detect, separate and quantify the drug. A number of chromatographic parameters were analyzed to optimize the method like sample pretreatment, choosing mobile phase, column, detector selection. The objective of this article is to review the method development, optimization and validation. HPLC method development depends on chemical structure of the molecules, synthetic route, solubility, polarity, pH and pKa values, and functional groups activity etc. Validation of HPLC method as per ICH Guidelines gives information regarding various stages and knowing characteristics like Accuracy, specificity, linearity limit of detection, limit of quantification.

KEYWORDS: High Pressure Liquid Chromatography (HPLC), Method validation, Method development

1. INTRODUCTION

High Performance Liquid Chromatography is now one of the most powerful tools in analytical chemistry. It has the ability to separate, identify, and quantify the compounds that are present in any sample that can be dissolved in a liquid. High performance liquid chromatography (HPLC) is the most accurate analytical methods widely used for the quantitative as well as qualitative analysis of drug product. The principle is that a solution of the sample is injected into a column of a porous material (stationary phase) and a liquid (mobile phase) is pumped at high pressure through the column. The separation of sample is based on the differences in the rates of migration through the column arising from different partition of the sample between the stationary and mobile phase. Depending upon the partition behaviour of different components, elution at different time takes place. The sample compound with the greater affinity to the stationary layer will travel slower and for a shorter distance in comparison to compounds with less affinity which travel faster and for a longer distance. The High Performance Liquid Chromatography is more versatile than gas chromatography since (a) it is not limited to

volatile and thermally stable samples, and (b) the choice of mobile and stationary phases is wider.

HPLC has numerous advantages like

- Simultaneous Analysis
- High Resolution
- High Sensitivity
- Good repeatability
- Small sample size
- Moderate analysis condition.

Classification of HPLC can be done as

- preparative HPLC and analytical HPLC (based on scale of operation)
- affinity chromatography, adsorption chromatography, size exclusion chromatography, ion exchange chromatography, chiral phase chromatography (based on principle of separation)
- gradient separation and isocratic separation, (based on elution technique)
- normal phase chromatography and reverse phase chromatography (based on modes of operation).

**METHOD DEVELOPMENT ON HPLC**

A step involved in method development of HPLC is as follows:

- 1 Understanding the Physicochemical properties of drug molecule.
2. Selection of chromatographic conditions.
- 3 Developing the approach of analysis.
- 4 Method optimization
- 5 Method validation

1. Understanding the Physicochemical properties of drug molecule.

Physicochemical properties of a drug molecule play an important role in method development. For Method development one has to study the physical properties like solubility, polarity, pKa and pH of the drug molecule. Polarity is a physical property of a compound. It helps an analyst, to decide the solvent and composition of the mobile phase. The solubility of molecules can be explained on the basis of the polarity of molecules. Polar, e.g. water, and nonpolar, e.g. benzene, solvents do not mix. In general, like dissolves like i.e., materials with similar polarity are soluble in each other. The selection of mobile phase or diluents is based on the solubility of analyte. The analyte must be soluble in diluents and must not react with any of its component. pH and pKa plays an important role in HPLC method development.

1. Selection of chromatographic conditions:

Selection of column: Selection of the stationary phase/column is the first and the most important step in method development. The development of a rugged and reproducible method is impossible without the availability of a stable, high performance column. To avoid problems from irreproducible sample retention

during method development, it is important that columns be stable and reproducible.

Buffer Selection

Choice of buffer is governed by the pH that is desired. The typical pH range for reversed phase on silica based packing is pH 2 to 8. It is important that the buffer has a pKa close to the desired pH since buffer controls pH best at their pKa. A rule is to choose a buffer with a pKa value <2 units of the desired mobile phase pH.

Buffer Concentration

Generally, a buffer concentration of 10-50 mM is adequate for small molecules. Generally, no more than 50% organic should be used with a buffer. This will depend on the specific buffer as well as its concentration. Phosphoric acid and its sodium or potassium salts are the most common buffer systems for reversed-phase HPLC. Sulfonate buffers can replace phosphonate buffers when analyzing organophosphate compounds.

Selection of Mobile Phase: The mobile phase effects resolution, selectivity and efficiency. Mobile phase composition (or solvent strength) plays an important role in RP-HPLC separation. Acetonitrile (ACN), methanol (MeOH) and tetrahydrofuran (THF) are commonly used solvents in RP-HPLC having low UV cut-off of 190, 205 and 212nm respectively. These solvents are miscible with water. Mixture of acetonitrile and water is the best initial choice for the mobile phase during method development.

Selection of Detectors

Detector	Type of compound can be detected
UV-Visible & Photodiode array	Compounds with chromophores, such as aromatic rings or multiple alternating double bonds.
Fluorescence detector	Fluorescent compounds, usually with fused rings or highly conjugated planer system.
Conductivity detector	Charged compounds, such as inorganic ions and organic acid.
Electrochemical detector	For easily oxidized compounds like quinines or amines
Refractive Index detector & Evaporative light scattering detector	Compounds that do not show characteristics usable by the other detectors, eg. polymers, saccharides.

3. Developing the approach for analysis

While developing the analytical method on RP-HPLC the first step which is followed is the selections of various chromatographic parameters like

selection of mobile phase, selection of column, selection of flow rate of mobile phase, selection of pH of mobile phase. All of these parameters are selected on the basis of trials and followed by considering the



system suitability parameters.

4. Sample preparation

Sample preparation is an essential part of HPLC analysis, intended to provide a reproducible and homogenous solution that is suitable for injection onto the column. The aim of sample preparation is a sample aliquot that, is relatively free of interferences, will not damage the column, and is compatible with the intended HPLC method that is, the sample solvent will dissolve in the mobile phase without affecting sample retention or resolution. Sample preparation begins at the point of collection, extends to sample injection onto the HPLC column.

5. Method optimization

Identify the “weaknesses” of the method and optimize the method through experimental design. Understand the method performance with different conditions, different instrument set ups and different samples.

6. Method Validation

Validation is the confirmation by examination and the provision of objective evidence that the particular requirements for a specific intended use are fulfilled. A process of evaluating method performance and demonstrating that it meets a particular requirement. In essence, it knows what your method is capable of delivering, particularly at low concentrations.

Types of Analytical Procedures to be validated

The discussion of the validation of analytical procedures is directed to the four most common types of analytical procedures:

- Identification tests;
- Quantitative tests for impurities' content;
- Limit tests for the control of impurities;

Components of method validation: The following are typical analytical performance characteristics which may be tested during methods validation:

1. Accuracy
2. Precision
3. Linearity
4. Detection limit
5. Quantitation limit
6. Specificity
7. Range
8. Robustness

1) Accuracy

Accuracy is the closeness of understanding between the worth which is acknowledged either as an ordinary genuine quality or an acknowledged reference quality, and the quality discovered.

2) Precision

It communicates closeness of understanding (level of diffuse) between a progression of estimations acquired from various testing of the same homogeneous specimen under the recommended conditions. Accuracy may be considered at three levels: repeatability, transitional exactness and reproducibility.

3) Linearity

The linearity of a systematic strategy is its capacity (inside an offered extent) to acquire test outcomes that are specifically relative to the convergence of analyte in the specimen. Linearity is dictated by a progression of three to six infusions of five or more norms.

4) Detection limit

The detection limit of an individual explanatory method is the most minimal measure of analyte in an example which can be recognized yet not so much quantitated as an accurate quality.

5) Quantitation limit

The quantitation limit of an individual expository system is the least measure of analyte in an example which can be quantitatively decided with suitable accuracy and exactness. The quantitation limit is a parameter of quantitative tests for low levels of mixes in test lattices, and is utilized especially for the determination of polluting influences and/or corruption items

6) Specificity

Selectivity and specificity are once in a while utilized conversely to depict the same idea in strategy approval. Specificity is the capacity to evaluate unequivocally the analyte in the vicinity of parts that may be required to be exhibit. The specificity of a test system is controlled by contrasting test results from an investigation of tests containing contaminations, debasement items, or placebo fixings with those got from an examination of tests without debasements, corruption items, or placebo fixing.

**7) Range**

The Range is the interim between the upper and lower convergence of analyte in the example (counting these focuses) for which it has been shown that the systematic method has a suitable level of exactness, precision and linearity

8) Robustness

The robustness of an analytical procedure is a measure of its capacity to remain unaffected by small, but deliberate, variations in method parameters and provides an indication of its reliability during normal usage

CONCLUSION

This review describes about RP-HPLC Technique. The method development and validation are continuous and interrelated processes that measure a parameter as intended and establish the performance limits of the measurement. The selection of Column, buffer, detector and wavelength and another conditions composition (organic and pH) plays a dramatic role on the separation selectivity The advantages of HPLC technique were high selectivity, sensitivity, economic, less time consuming and low limit of detection. Final optimization can be performed by changing the gradient slope, temperature and flow rate as well as the type and concentration of mobile-phase modifiers. Optimized method is validated with various parameters (e.g. specificity, precision, accuracy, detection limit, linearity, etc.) as per ICH guidelines.

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EFFECTIVENESS OF SOCIAL SKILLS TRAINING IN KIDS WITH ASD

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ABSTRACT

Autism is a neurodevelopmental disorder which highly affects the sensory integration, behavior and social skills of a child. In this project, social skills were evaluated. The objective of the study is to find out whether social skills are addressed to enhance the quality of life and socialization and its success in the client return to society.

A different subject prospective, experimental, flexible pre-and-posttest for intervention design followed by descriptive analysis with questionnaire has been used for the purpose of this study.

The social skills inventory and Autism treatment and evaluation checklist was main outcome measure. 12 patients with affected social skills shared similar demographic background with post social skills from 5 to 10 years with mean age of 6 years. Paired t-test showed significance difference ($p < 0.05$) improve in work skill in pre-post social skills training. 94% clients who completed the program returned to work and switched over to different social areas, social norms and social age.

KEY WORDS: *social skills training, Quality Of Life, Autism, Neurodevelopmental disorder.*

INTRODUCTION

ASD is a neurological and developmental disorder that begins early in childhood and lasts throughout a person's life. It affects how a person acts and interacts with others, communicates, and learns. It includes what used to be known as Asperger's syndrome and pervasive developmental disorder.

Social skills are the rules, customs and abilities that guide our interactions with other people and the world around us. In general, people tend to "pick up" social skills in same way they learn language skills; naturally and easily. Overtime, they build a social "map" of how to in act in situations and with others.

For people with autism it can be harder to learn and built up these skills, forcing them to guess what the social "map" should look like.



Social skills development for people with autism involves:

- Direct or explicit instruction and “teachable moments” with practice in realistic settings.
- Focus on timing and attention.
- Support for enhancing communication and sensory integration.
- Learning behaviors that predicts important social outcomes like friendship and happiness.
- A way to build up cognitive and language skills.

MATERIAL AND METHODS

Design

Single group pretest posttest experimental design followed by descriptive analysis.

A different subject prospective, experimental, flexible design has been used for the purpose of this study. Social skills training has many components such as verbal/nonverbal communication, anger management, basic behaviors and manners with treatment plan based on client capabilities, deficits, interest, work history and goals.

Subjects

A total number of 12 subjects having autism with affected social skills were selected for the study. Mean age was 6 years (range 5 to 10 years) having both male and female. The post skill duration for participation in is 08 to 40 weeks, mean 16 weeks. Period of study from Dec 10 to July 11. Clients were explained the purpose of the study and were requested to participate in the study. Written consent obtained from each participant before study begins.

Inclusion Criteria

- Kids with ASD.
- Age between 5-10 years.

Exclusion Criteria-

- Did not include individuals with an ASD
- Recruited participants with a mean age of younger than 5 years of age
- Not a group-based SST intervention.

Outcome measure used for work skill assessment

- ATEC (autism treatment and evaluation checklist)
- Social skills Inventory

ATEC

The ATEC is a one-page form designed to be completed by parents, teachers, or caretakers. It consists of 4 subtests: I. Speech/Language Communication (14 items); II. Sociability (20 items); III. Sensory/ Cognitive Awareness (18 items); and IV. Health/Physical/Behavior (25 items).

Thus, if a person scores a '20' on one day, and then a '15' two weeks later, then the individual showed improvement. In contrast, if the score was '30', then the individual's behavior worsened.

Many parents and teachers use the ATEC to monitor how well the child is doing over time. In addition, researchers have used the ATEC to document improvement following an intervention by comparing the baseline ATEC scores with the post-treatment ATEC scores.

SOCIAL SKILLS INVENTORY

The Social Skills Inventory (SSI), also known as the Self-Description Inventory, assesses 6 basic social skills that underlie social competence. It evaluates verbal (social) and non-verbal (emotional) communication skills and identifies strengths and weaknesses. As such, the SSI acts as a reliable and valid abilities measure of Emotional Intelligence. Clients respond to either the 90 item Original Form or 30 item Brief Form using a five-point scale, indicating the extent to which the description of the item applies to them. Scores are reported for one's ability to



send (encode), receive (decode) and manage (control) messages in both the social and emotional domains. A combined score is given to indicate global social and emotional intelligence.

The Social Skills Training Guide is a comprehensive resource guide for Social Skills training and development. The Guide provides a wide range of exercises to develop this domain of Emotional Intelligence.

PROGRAM DESCRIPTION

The program is designed to help an individual to make a gradual, progressive transition from a medical setting to social area and society. Not all kids with ASD needs social skills development but most of the kids needs it to work in an effective manner in society and adaptive behavior to behave with different people with different values and norms.

SOCIAL SKILLS TRAINING

Eye contact: Developing eye contacts through various manners

- Providing every object child wants or asks from the midline of both eyes.
- By developing interactions through high 5, high 10 and claps etc.
- By various means of play such as cooperative play

Gestures: gestures are the facial expressions which are make to tell others what the person feels in a non-verbal manner

- By making them aware of different facial expressions and their sense of feeling for the same.
- By showing them different facial expressions and associating them with the appropriate response.

Verbal communication; when child uses some words or phrases to communicate.

- By play using sound toys such as animals, utensils, boxes, and musical instruments like what does a cow says child have to say moo on a repetitive manner.
- Pretend play with any of favorite toy, mobile phone and a person.
- Role play also enhances the verbal capacity of child.

Managing anger and self-control:

- Developing the concept of waiting with boundary setting for a minimum counts to up to several minutes.
- Making a visual schedule chart in which child has the full time table for daily routine which relieves his/hor anxiety for performance and thus helps in managing anger and cope ups with the good social skill performance.
- Breaking of difficult or non-interested activity into simpler steps.

Managing self-care and relationship skills

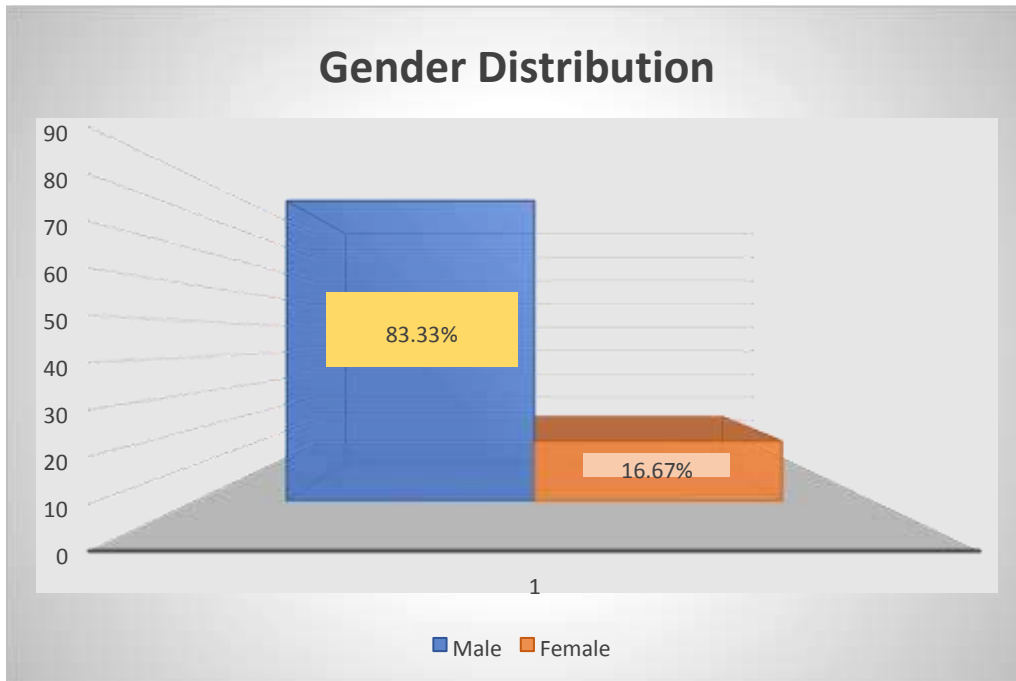
- Promoting self-care by making them understanding the concept of hygiene and non-hygiene on a doll and then comparing the dolls.
- Building roadblocks for maintaining relationship skills by making them aware of common age groups of society and the manner of treating them like younger than you, elder than you and eldest than you and also teaching the basic manners to respond them accordingly.

RESULT

DATA ANALYSIS

1 Mean age and sex distribution

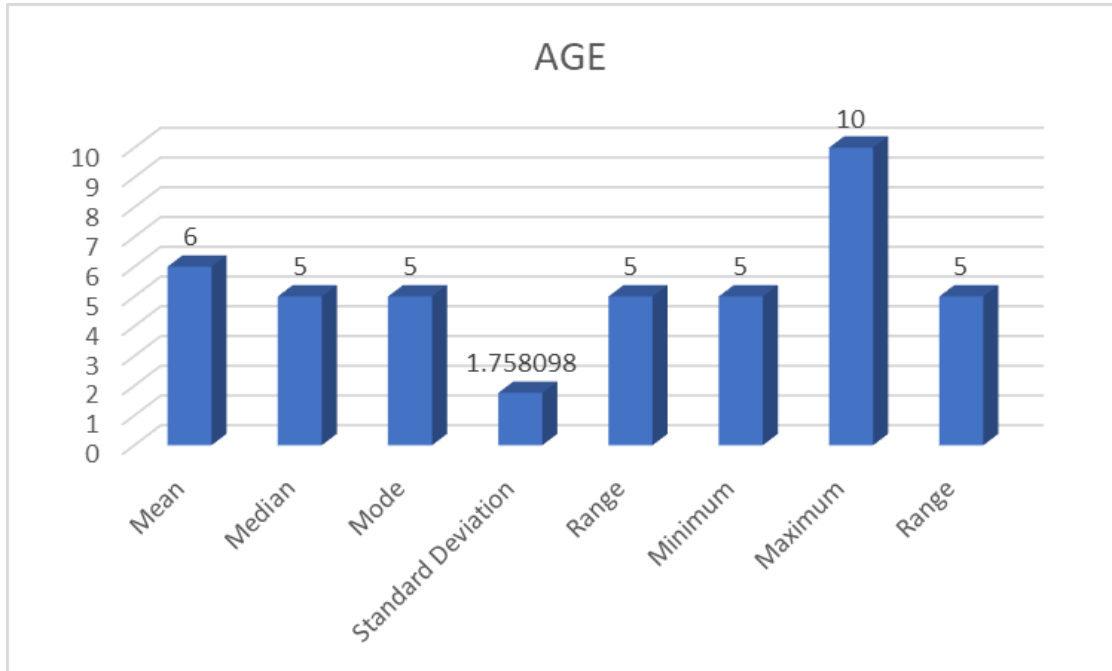
Group	Percentage	Frequency
Male	83.33%	7
Female	16.67%	3



G.1. GRAPHS SHOWING GENDER DISTRIBUTION

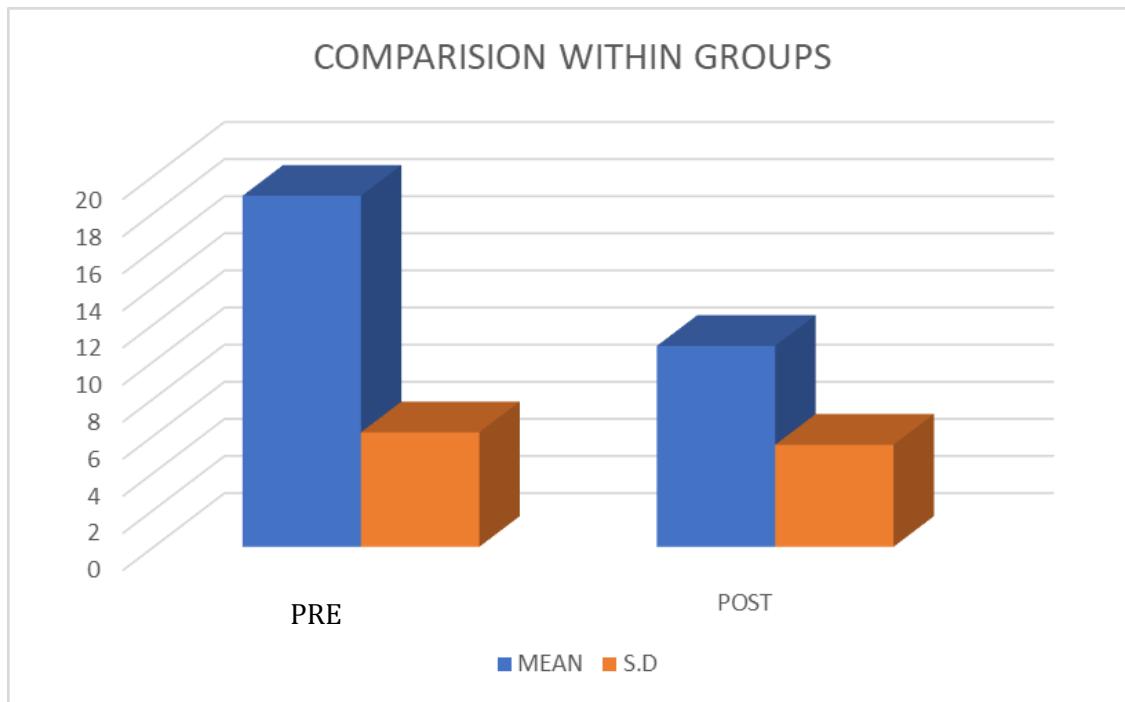
AGE ANALYSIS

<i>Descriptive Statistics</i>	<i>Age</i>
Mean	6
Median	5
Mode	5
Standard Deviation	1.758098
Range	5
Minimum	5
Maximum	10
Range	5



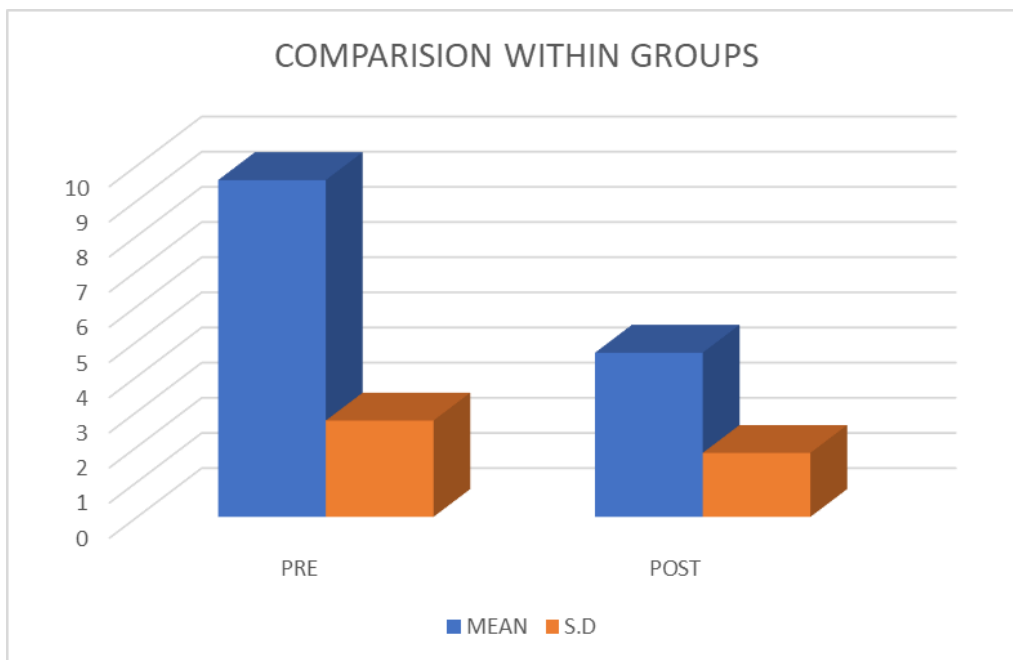
G.2. GRAPHS SHOWING AGE DISTRIBUTION

Paired T Test	BASIC MANNERS	
	PRE	POST
Mean	18.92	10.83
S.D.	6.17	5.50
Number	12	12
Mean Difference	8.08	
Paired T Test	8.18	
P value	.000005	
Table Value at 0.05	2.20	
Result	Significant	



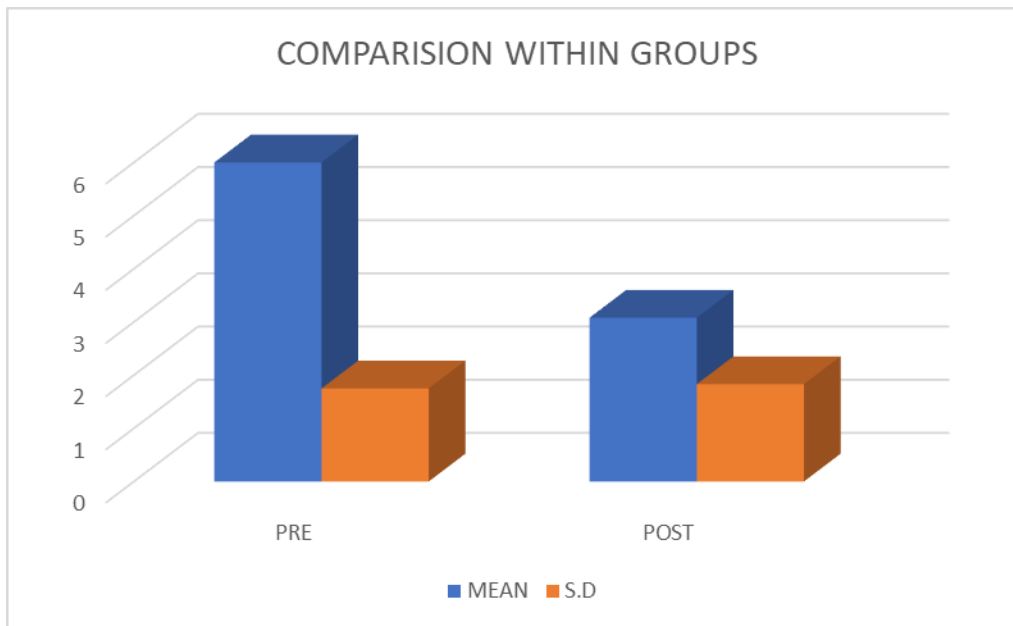
G.3. GRAPHS SHOWING BASIC MANNERS SKILLS

Paired T Test	VERBAL COMMUNICATION SKILLS	
	PRE	POST
Mean	9.48	4.67
S.D.	2.74	1.82
Number	12	12
Mean Difference	4.91	
Paired T Test	8.83	
P value	.000002	
Table Value at 0.05	2.20	
Result	Significant	



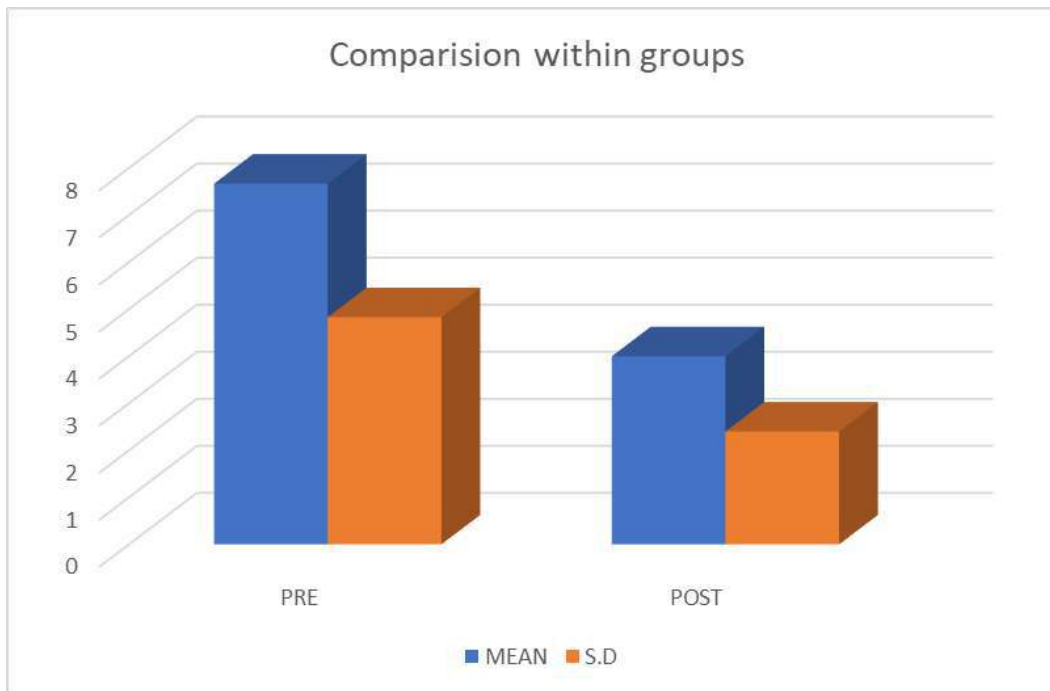
G.4. GRAPHS SHOWING VERBAL COMMUNICATION SKILLS.

Paired T Test	NON VERBAL COMMUNICATION SKILLS	
	PRE	POST
Mean	6	3.08
S.D.	1.75	1.83
Number	12	12
Mean Difference	2.92	
Paired T Test	7.32	
P value	.0000014	
Table Value at 0.05	2.20	
Result	Significant	



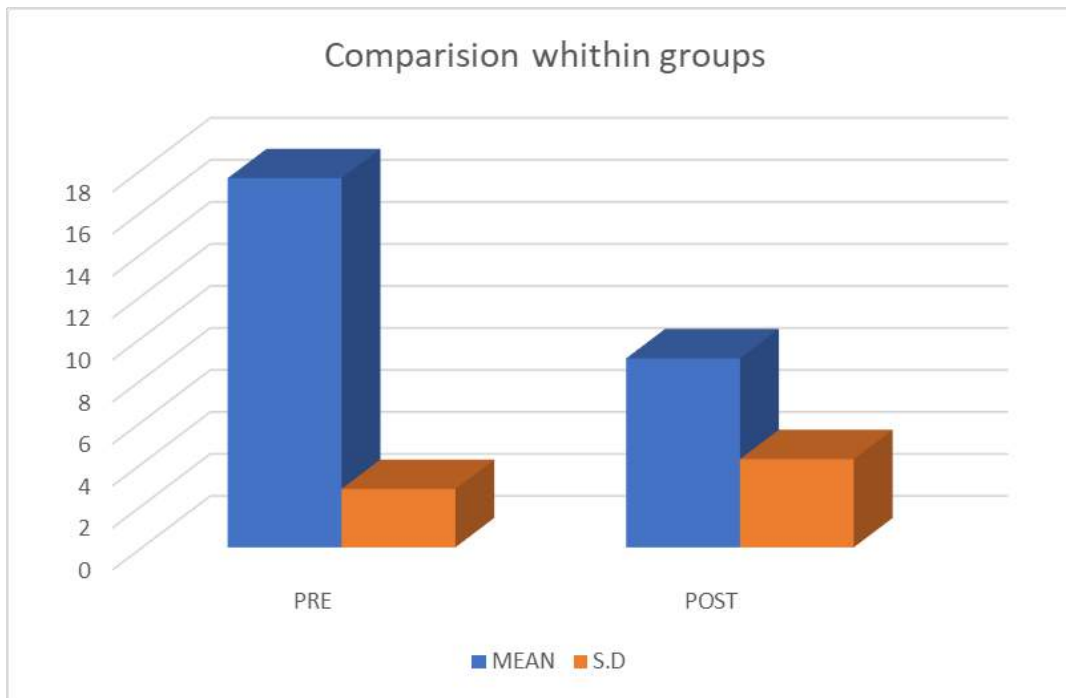
G.5. GRAPHS SHOWING NON VERBAL COMMUNICATION SKILL

Paired T Test	SELF CARE	
	PRE	POST
Mean	7.67	4
S.D.	4.83	2.4
Number	12	12
Mean Difference	3.67	
Paired T Test	3.49	
P value	.000525	
Table Value at 0.05	2.20	
Result	Not-Significant	



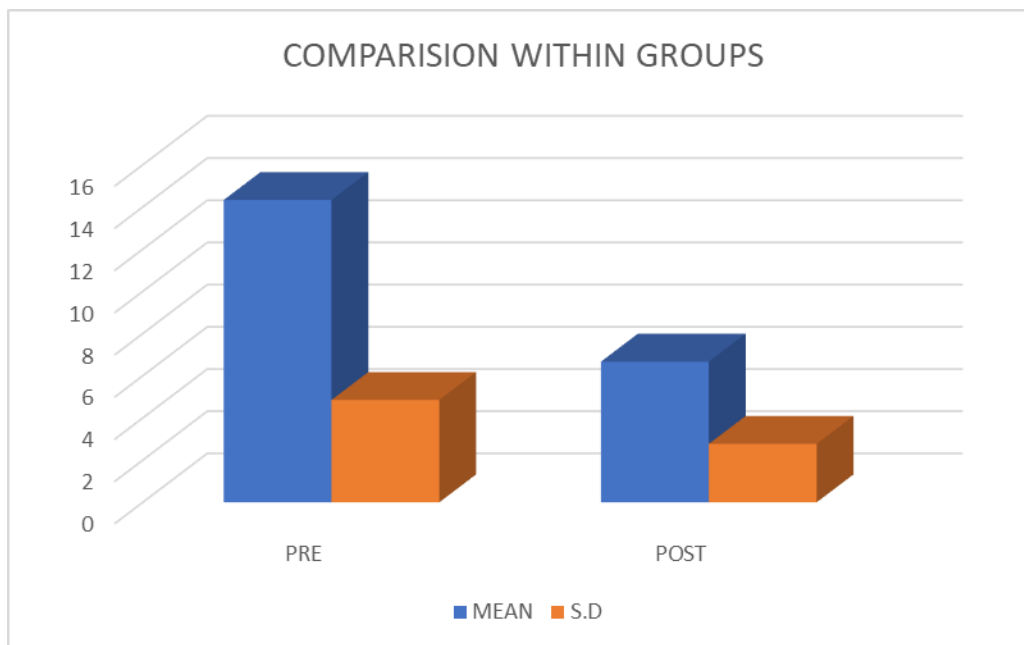
G.6. GRAPHS SHOWING SELF CARE SKILLS

Paired T Test	SELF CONTROL	
	PRE	POST
Mean	17.58	9
S.D.	2.78	4.2
Number	12	12
Mean Difference	8.58	
Paired T Test	9.04	
P value	.000002	
Table Value at 0.05	2.20	
Result	Significant	



G.7. GRAPHS SHOWING SELF CONTROL SKILLS

Paired T Test	RELATIONSHIP SKILLS	
	PRE	POST
Mean	14.33	6.67
QS.D.	4.85	2.77
Number	12	12
Mean Difference	7.66	
Paired T Test	7.48	
P value	.00001	
Table Value at 0.05	2.20	
Result	Significant	



G.8. GRAPHS SHOWING RELATIONSHIP SKILL

Measuring difference in behaviour and maximum behaviour impacted by therapy

S.N	Age/Sex	Difference in Basic manners	Difference in Verbal communication skills	Difference in Non-verbal communication skills	Difference in Self care	Difference in Self control	Difference in Relationship skills
1	5/M	4	3	3	2	13	9
2	5/M	8	4	4	5	9	7
3	5/M	4	3	3	0	11	3
4	5/F	3	1	2	0	14	3
5	7/M	12	7	0	7	9	9
6	5/F	9	7	4	7	5	12
7	6/M	6	5	3	7	6	13
8	5/M	6	5	1	5	7	11
9	5/M	11	7	5	7	10	6
10	10/M	10	7	4	4	6	3
11	9/M	11	5	3	5	10	10
12	5/M	13	5	3	2	3	6
	Mean	8.08333	4.916667	2.916667	4.25	8.583333	7.666667



Maximum Difference is observed in Self Control That shows that, this behaviour was largely influenced by the therapy..

RESULTS

Initially with the age group of kids within 5-10 years we assess them with social inventory scale. Then we are able to assess different components of each child needed for social skills such as basic manners, verbal and non-verbal communication skill, self-care, self-control and relationship skills.

We are able to figure out the data collected before the therapy and after the therapy has huge differences. There is marked increase in social skills of kids in each component after Occupational therapy interventions but the maximum effect is shown in self-control with a mean value of 8.58 which means after Occupational therapy interventions children are able to self-control themselves in manner of waiting, turn taking, controlling frustration and agitation etc.

Now we are able to conclude that Occupational therapy is effective in increasing social skills of kids with ASD.

DISCUSSION

With data collection of 12 children with age limit of 5-10 years have assessed with autism treatment and evaluation checklist for ASD and then social inventory skills which have numerous components of basic manners, verbal and non-verbal communication skills, self-care and self-control skills in pre-test (before therapy) as well as post-test(after therapy).

Post test data shows significant effects in social skills of kids with ASD.

LIMITATIONS

- Limitations of the study was in collecting data because of the present scenario of Covid19.
- I was not able to take 30 subjects which was the actual size of my data.
- I am successful in collecting data of 12 kids and undergone for the same number for my study.

FUTURE RECOMMENDATIONS

- I will try to take bigger sample size next time
- Will try to work on community level
- Can also try to work of social skills on various pediatrics conditions.

CONCLUSION

On providing social skill training to ASD kids and it shows significant effects after occupational therapy intervention. Thus null hypothesis is rejected.

It is very evident through the data analysis (pre-test and post-test) and result which is clearly showing the significant effects of Occupational therapy interventions in kids with AS

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A CLINICAL STUDY TO EVALUATE THE EFFECT OF DADRUGHNA PATRA TAILA IN DADRU KUSHTA

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ABSTRACT

Introduction: All the skin diseases in Ayurveda have been classified under the broad heading, “Kushta”. Dadru is one among Kushta. It involves the clinical features like kandu, raga, pidaka, utsannamandala. Dadru kushta mostly simulates with ‘Dermatophytosis’ commonly referred to as ringworm which is highly contagious. In this study an effort has been made to evaluate the Dadrughna karma (Antifungal activity) of the oil prepared from Dadrughna (*Cassia alata* Linn) leaves.

Materials and methods: In the present study, action of Dadrughna (*Cassia alata* Linn) patra taila on Dadru kushta was evaluated in 32 subjects who were treated with Dadrughna patra taila as an external application twice a day for 30 days and follow up was done on 45th day. Assessment was done for subjective parameter-itching and objective parameters-distribution of lesion, severity of inflammation, extent of lesion.

Results: The effect of therapy was assessed before treatment, 15th day, 30th day of treatment and follow up was done on 45th day. The results were statistically analyzed; it showed significant changes in subjective parameter-itching ($p < 0.001$) and Objective parameters- distribution of lesion ($p < 0.001$), severity of inflammation ($p < 0.001$), extent of lesion ($p < 0.001$).

Discussion and conclusion: The external application of Dadrughna patra taila applied for 30 days has helped in reduction of itching, distribution of lesion, extent of inflammation and severity of inflammation where the taila was found more effective in reducing itching when compared to other symptoms

KEY WORDS: Dadru kushta, Dermatophytosis, Dadrughna (*Cassia alata* Linn), Dadrughna patra taila

INTRODUCTION

All the skin diseases in Ayurveda have been classified under the broad heading, “Kushta” which are further classified into Mahakushta and Kshudrakushta.¹ Dadru is one among Kushta. Dadru kushta is mentioned under both Mahakushta and Kshudrakushta by different acharya^{2,3,4} It involves the clinical features like kandu, raga, pidaka, utsannamandala and it is also mentioned as anushangini⁵

On the basis of clinical appearance, Dadru kushta mostly simulates with ‘Dermatophytosis’ The Dermatophytes are a group of closely related fungi that have the capacity to invade keratinized tissue (skin, hair and nails) of humans and other animals to produce an infection, Dermatophytosis, commonly referred to as ringworm which is highly contagious. The infections caused by a dermatophyte (species of fungi belonging to the genera *Trichophyton*, *Microsporum* or *Epidermophyton*) are referred to as Tinea. Ringworm



involving body, arms and legs is termed as Tinea corporis⁶.

According to WHO, the prevalence rate of superficial mycotic infection worldwide has been found to be 20-25%. The Tinea infections are prevalent globally but they are common in tropics and may reach epidemic proportions in geographical areas with higher humidity, over population and poor hygienic living conditions⁷.

In the context of *Dadru* Kushta, *Bahirparimarjana* type of *chikitsa*⁸ is mentioned which includes *Taila kalpana* also. Fat/water soluble active constituents can be extracted easily in this method. Hence in the current study, *taila* of the leaves of *Dadrughna* (*Cassia alata* Linn) has been selected to assess the *Dadrughna* activity. *Dadrughna* botanically identified as *Cassia alata* Linn belonging to the family Caesalpinaceae is an ornamental shrub, distributed from tropical America to India. It is commonly known as Ringworm senna. This plant is used as a folklore medicine for the treatment of skin diseases like Scabies, Eczema, Pruritus, Ringworm and other fungal infections.

AIMS AND OBJECTIVES

To evaluate the *Dadrughna* karma of *Dadrughna* (*Cassia alata* Linn) patra taila

MATERIALS AND METHODS

Source of data: Patients attending the Outpatient department (OPD) of Skin at a tertiary Ayurveda healthcare centre attached to a teaching institute, situated at the district headquarters in South India

Ethical Committee Approval Number -
SDM/IEC/24/2019

Clinical Trial Registry of India -
CTRI/2019/09/021113

CRITERIA OF EVALUATION

Diagnostic criteria

For diagnosis detailed medical history and physical examination was done according to both Ayurvedic and Modern clinical methods

Inclusion criteria

1. Patients clinically diagnosed with tinea infection.
2. Direct microscopy skin test positive.
3. Aged over 18 years and of any gender.
4. Patients who are willing to be a part of this study and sign the informed consent form.

Exclusion criteria:

5. Patients associated with other types of *Kushta*.
6. Systemic disorders like uncontrolled Diabetes and uncontrolled hypertension
7. Use of corticoids, cytostatics, antibiotics or immune depressing drugs

STUDY DESIGN

The present study was an open label, single arm, clinical study conducted in a tertiary *Ayurveda* healthcare centre attached to a teaching institute, situated at the district headquarters in Hassan, Karnataka. 32 patients suffering from *Dadru kushta* who signed the informed consent form and who fulfilled the inclusion criteria for the study were selected using convenience / purposive sampling technique and treated with the external application of *Dadrughna*(*Cassia alata* Linn.) patra taila

DOSAGE AND DRUG ADMINISTRATION

Drug: *Dadrughna* patra taila

Dosage: Quantity sufficient

Mode of administration: External application

Duration: 30 days

ASSESSMENT CRITERIA

Assesment will be done on 15th, 30th and 45th day of the treatment. Assesment tables are given below

Subjective parameter: Assessment of itching as per pruritus severity scale

Sl No	Questions	Possible answers	Scorings
1.	How often did you feel pruritus within the last 3 days?	(i) All time	3 points
		(ii) All morning/afternoon/evening/night long itching episodes	2 points
		(iii) Occasionally short itching episode	1 point
2.	Did pruritus hinder your ability to do simply things, like watching TV, hearing music, etc.?	(i) Yes (ii) No	1 point 0 points
3.	Did you feel irritated or nervous because of your itching?	(i) Yes (ii) No	1 point 0 points



4.	Did your pruritus cause you depressed?	(i) Yes (ii) No	1 point 0 points
5.	Did your pruritus impede your work or learning abilities?	(i) Yes (ii) No	1 point 0 points
6.	Did you scratch your skin because of itching?	(i) Yes (ii) No	1 point 0 points
7.	Did scratching bring you relief?	(i) Yes (ii) No	0 points 1 point
8.	Were you able to refrain from scratching?	(i) Yes (ii) No	0 points 1 point
9.	Did you wake up during last night because of pruritus?	(i) No (ii) Yes, 1-2 times (iii) Yes, 3-4 times (iv) Yes, 5 and more times	0 points 1 point 2 points 3 points
10.	Could you assess the severity of your pruritus within last 3 days?	(i) Very mild (ii) Mild (iii) Moderate (iv) Severe (v) Very severe	1 point 2 points 3 points 4 points 5 points
11.	Could you indicate pruritus location?	(i) Single locations of pruritus (ii) Large body areas (iii) Generalized pruritus	1 point 2 points 3 points
12.	Are excoriations or other scratch lesions present?	(i) Yes (ii) No	1 point 0 points

OBJECTIVE PARAMETERS**1. Distrubution of lesions:**

1. Mild: involvement of only one region of the body
2. Moderate: involvement of more than one region of the body and less than or equal to three regions of the body
3. Disseminated: involvement of more than three regions of the body

2. Severity of lesions:

SI No	Inflammation	Severity
1	Scaly plaque-like lesions with mild inflammation	1 point
2	Typical "ringworm" lesions with an annular appearance	2 points
3	Vesicular or exudative lesions with intense inflammation	3 points

3. Extent of lesions:

SI No	Inflammation	Severity
1	Lesions < 3 cm in diameter	1 point
2	Lesions 3-6 cm in diameter	2 points
3	Lesions > 6 cm in diameter	3 points



STATISTICAL ANALYSIS

- Friedman's test was applied to analyze the significance of change in Subjective and objective parameters (within the group)
- Wilcoxon's sign rank test was done for post Hoc analysis with Bonferroni correction on parameters which show significance in Friedman's test, to interpret the time of significant change

OBSERVATION

In the present study total 58 subjects were screened, out of which 35 subjects were registered for the study, among them 32 subjects completed the study and 3 were dropped out

Among 35 completed subjects maximum from the age group of 21-40 (n=20) and predominance of males (n=21) over females was found. Majority of the subjects were married (n=27). Diet wise distribution showed maximum were having non veg diet (n=33). Considerable number of subjects (n=19) were having family history

RESULTS

In the present study total 58 subjects were screened, out of which 35 subjects were registered for the study, among them 32 subjects completed the study and 3 were dropped out

32 subjects were given *Dadrughna patra taila* to apply externally twice a day for a period of 30 days

Friedman's test and Wilcoxon's sign rank test were conducted (Table 1- 8)

DISCUSSION

Effect of therapy on Subjective parameter: Based on 12-item Pruritus severity scale

It's a validated scale created for the assessment of pruritus severity which consists of 12 questions. The questions are mainly related to pruritus intensity, pruritus extent and duration and influence of pruritus on concentration and patient psyche.

Pruritus intensity

All the 32 patients had the complain of pruritus with varying intensity. Assessment regarding severity of pruritus (*kandu*) was done before treatment and on 15th day, 15th & 30th day, 30th & 45th day (follow up). On application of statistics Wilcoxon sign rank test with post hoc test with Bonferroni correction – 0.0125, the obtained result was statistically significant in all the 4 occasions with P value <0.001. No patients were distributed in positive rank in any of the occasions

showed that there was no aggravation of *kandu*. Further on comparison of reduction in severity of *kandu* between before treatment and follow up, 32 patients were distributed in negative rank which shows that there was reduction in severity of *kandu* in all the patients after application of *Dadrughna patra taila*.

Pruritus Extent and Duration

Most of the patients had the complain of long itch episodes all morning/afternoon/evening/night. Assessment regarding extent and duration of pruritus (*kandu*) was done before treatment and on 15th day, 15th & 30th day, 30th & 45th day (follow up). On application of statistics Wilcoxon sign rank test with post hoc test with Bonferroni correction – 0.0125, the results were statistically significant when compared to before treatment & 15th day, 15th day & 30th day with p value < 0.001. When compared to 30th day and follow up, there was reduction observed in extent and duration of *kandu* but statistically the result was non-significant with p value 0.025. However the result was significant when compared to before treatment and follow up with p value < 0.001 with 32 patients distributed in negative rank which shows that there was reduction in extent and duration of *kandu* in all the patients after application of *Dadrughna patra taila*.

As there is no classical reference available on *Rasapanchaka* of *Dadrughna* (*Cassia alata* Linn) *patra*, an attempt is made to discuss the results of present study with the help of previous supportive research studies.

The specific mechanism of itching due to dermatophytoses is still unknown. In general mechanisms of any infection induced itch can be direct through the neuronal recognition of PAMPs. Neuronal activation may also be indirect, in particular through immune cells that are activated during infection. These cells release cytokines, lipids and other inflammatory mediators in response to pathogens that then sensitize neurons. Pathogenic infections may also indirectly cause itch through other mechanisms such as the induction of oxidative stress. Recent work has shown that anti-oxidants are potent modulators of acute and chronic itch and thus could be useful in the treatment of infectious itch⁹. Previous research studies have been proved that *Cassia alata* leaf has strong inhibitory action against dermatophytes that cause ringworm. The phytoconstituents claimed to have antifungal properties are anthracene derivatives, chrysophanol, chrysophanic acid, crude anthraquinones, rhein and aloe-emodin. Thus *Dadrughna patra taila* is potential enough to reduce itching by inhibiting the activities of dermatophytes. Owing to the role of anti-oxidants in



fungal infections, based on previous research study it is evidenced that the *Cassia alata* possess strong anti-oxidant activity, as it contains good quantity of phenols, vitamin-C, vitamin A, flavonoids, caretenoids and anthraquinone.¹⁰

Concentration and Patient Psyche

The questions based on concentration and patient psyche had covered the effect of pruritus on patient's learning ability, irritability, nervousness etc. Assessment was done before treatment and on 15th day, 15th & 30th day, 30th & 45th day (follow up). On application of statistics Wilcoxon sign rank test with post hoc test with Bonferroni correction – 0.0125, the results were statistically significant when compared to before treatment & 15th day with p value < 0.001. When compared to 15th and 30th day, 30th day and follow up, there was reduction observed but statistically the result was non-significant. However the result was significant when compared to before treatment and follow up with p value < 0.001 which shows that there was reduction in complains related to concentration, irritability, nervousness etc.

Itch is a complex sensory phenomenon that incorporates discriminative, cognitive, motivational and affective components. Recent studies have highlighted that most of the itchy skin conditions are associated with higher rates of stress, anxiety, depression leading to major deficits in quality of life. In turn, stress and anxiety exacerbate itch, leading to a vicious cycle that affects patient behavior (scratching) and worsens disease prognosis¹¹. In the present study, there was significant result for the complaints related to stress and anxiety even on the 15th day of application of oil. This might be because of reduction of severity of itching in most of the patients on the 15th day of treatment as shown in the above results.

Effect of therapy on Objective Parameters

Distribution of lesion

Majority of patients were having distribution of lesions in more than 1 region and less than or equal to 3 regions of the body. Assessment regarding distribution of lesions was done before treatment and on 15th day, 15th & 30th day, 30th & 45th day (follow up). On application of statistics Wilcoxon sign rank test with post hoc test with Bonferroni correction – 0.0125, the result was non-significant when compared to before treatment and 15th day with p value 0.317 and no patient was distributed in negative rank hence there was no reduction in the distribution of lesions in any of the patients. When compared to 15th day and 30th day, there was reduction observed and 5 patients were distributed

in negative rank but the result was statistically non significant with p value 0.025. Further the obtained results were statistically significant when compared to 30th day and follow up, before treatment and follow up with p value <0.001, 8 and 13 patients were distributed in negative rank respectively which shows that there was reduction in distribution of lesions after application of *Dadrughna patra taila*

In the present study, the results were non-significant for 30 days of treatment and even after treatment only 13 patients showed the reduction of distribution of lesions. As the disease is contagious in nature, the important factor in the spread of this infection is the scratching which develops due to the local reaction between the fungus and the body's immune system. Whenever a patient scratches the lesion, some fungal particles stick to the fingers or the instruments used for scratching and get dislodged to a new site where the person touches after that. This may be considered as one of the reasons for delay in cure of the dermatophytoses.

Severity of Inflammation

All the 32 patients had typical ringworm lesions with annular appearance. Assessment was done before treatment and on 15th day, 15th & 30th day, 30th & 45th day (follow up). On application of statistics Wilcoxon sign rank test with post hoc test with Bonferroni correction – 0.0125, the result was non-significant when compared to before treatment and 15th day with p value 1.000 and no patient was distributed in negative rank hence there was no reduction in the distribution of lesions in any of the patients. When compared to 15th day and 30th day, there was reduction observed and 10 patients were distributed in negative rank but the result was statistically non significant with p value 0.002. Further the obtained results were statistically significant when compared to 30th day and follow up, before treatment and follow up with p value <0.001, 12 and 21 patients were distributed in negative rank respectively which shows that there was reduction in severity of inflammation after application of *Dadrughna patra taila*.

Previous research studies have revealed that *Cassia alata* leaves extract have been proven to have effective anti-inflammatory action. Rhein is one of the major chemical constituents found in *Cassia alata*. According to a previous study pre-treatment with rhein on t-BHP induced inflammation in human keratinocytes showed that the chemical constituent could diminish the inflammatory responses such as production of TNF- α and IL-8 and these effects occurred via suppression of ROS production¹², thus



supporting the anti-inflammatory action of *Dadrughna patra taila*.

Extent of Lesion

Majority of patients had lesions measuring 3cm – 6cm. Assessment was done before treatment and on 15th day, 15th & 30th day, 30th & 45th day (follow up). On application of statistics Wilcoxon sign rank test with post hoc test with Bonferroni correction – 0.0125, the result was non-significant when compared to before treatment and 15th day with p value 1.000 and no patient was distributed in negative rank hence there was no reduction in the extent of lesions in any of the patients. Further the obtained results were statistically significant when compared to 15th day & 30th day, 30th day & follow up, before treatment & follow up with p value < 0.001 and in the last occasion 31 patients were distributed in negative rank which shows that there was reduction in extent of lesion after application of *Dadrughna patra taila*.

The dermatophyte invades the uppermost non-living keratinized layer of the skin namely the stratum corneum, produces an exoenzyme keratinase and induces inflammatory reaction at the site of infection. Inflammation causes the pathogen to move away from the site of infection and take residence at a new site. This movement of the organism away from the infection site produces classical ringed lesion¹³. The diameter of the lesion varies according to strength of the infecting dermatophyte and immunity of the host. In the present study the reduction in the size of the lesion is due to anti-fungal and anti-inflammatory action of phytoconstituents present in *Cassia alata* as explained previously. But there was delay in the reduction of size of the lesions or no complete reduction in the majority of patients. The reason may be the chronicity of the infection in many of the patients and also due to application of steroid creams previously. Steroid creams can temporarily reduce ringworm symptoms like itching and redness, but they don't kill the dermatophyte. These creams also can make ringworm worse because they weaken the skin's defenses.¹⁴

PROBABLE MODE OF ACTION

According to a previous research study, the inhibition of tested clinical dermatophytes by *Cassia alata* leaf extract confirmed their antifungal activity and this is most likely due to the action of different phytoconstituents present in the leaf extract and a wide range of physiological activity of saponins, alkaloids,

carbohydrates, flavonoids, anthraquinones, steroids and tannins.¹⁵

Anthraquinones, the quinines are aromatic rings with two ketone substitutions. They are ubiquitous in nature and are characteristically highly reactive. The switch between hydroquinone and quinone occurs easily through redox reactions. In addition to providing a source of stable free radicals, quinines are known to complex irreversibly with nucleophilic amino acids in protein often leading to inactivation of the protein and loss of function thus acting as anti-fungal.

Tannins are found in almost every part: bark, wood, leaves, fruits and roots of *Cassia alata*. The tannins present in the leaf extract of *Cassia alata* were believed to act on skin infections by coagulating the cell wall proteins. According to number of studies, Tannins can be toxic to filamentous fungi, yeast, bacteria.

Saponins are the surface active agents which interfere with or alter the permeability of the cell. Saponins were reported as major components acting as antifungal secondary metabolite.

Flavonoids are phenolic in nature and acts as cytoplasmic poisons. Flavonoids are also hydroxylated phenolic substances but occur as a C6-C3 unit linked to an aromatic ring. Their activity is probably due to their ability to complex with extracellular and soluble proteins and to complex with fungal cell walls.¹⁶

A previous research study confirms that there are antifungal properties in the crude extract of *Cassia alata* leaf and this activity may be due to the presence of chrysophanol in the leaf extract. The study states that the reduction in the growth of dermatophytes (*Trichophyton spp*, *Microsporum gypsum*, and *Microsporum canis*) was possibly due to interference by active principles of the extract. Such interference may be at the biosynthetic level. Dermatophytes parasitize keratinized tissue such as the horny layer of the epidermis, hair and nails. It exists in either a hyphal form or conidial form. Therefore in this the susceptibilities of the conidia to drugs were examined. Under a light microscopy study, control or untreated culture showed many smooth walled and regularly shaped macroconidia, whereas the treatment culture showed the shrunken and collapsed macroconidia. This phenomenon could be due to the leakage of the cell wall or perhaps some alteration in the membrane permeability and resulting in the loss of cytoplasm. This could lead to loss in rigidity of the macroconidia and finally cause the death of the cells, thus proving the fungicidal activity of *Cassia alata*.¹⁷

Thus a handful of research studies provide an insight into the usage of the plant *Cassia alata* in



traditional treatment of diseases associated with fungal infections.

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Table: 1 Friedman test for subjective parameter Pruritus
Statistical assessment on questionnaire of ‘Pruritus severity scale’

Parameters	Day	N	Mean rank	Chi Square(x ²)	P value	Remarks
‘How often did you feel Pruritus within last 3 days?’	D1	32	3.88	77.410	<0.001	Significant
	D15		2.52			
	D30		1.92			
	D45(FU)		1.69			
Did pruritus hinder your ability to do simple things like watching TV, hearing music,etc?’	1	32	3.69	68.348	<0.001	Significant
	15		2.44			
	30		1.94			
	Follow up(45)		1.94			
‘Did you feel irritated or nervous because of your itching?’	1	32	3.36	51.814	<0.001	Significant
	15		2.30			
	30		2.17			
	Follow up(45)		2.17			
‘Did your pruritus cause you depressed?’ Table: 43 Friedman test	1	32	3.05	33.324	<0.001	Significant
	15		2.36			
	30		2.30			
	Follow up(45)		2.30			
‘Did your pruritus impede your learning abilities?’	1	32	3.55	63.676	<0.001	Significant
	15		2.23			
	30		2.11			
	Follow up(45)		2.11			
‘Did you scratch your skin because of itching?’	1	32	3.80	73.457	<0.001	Significant
	15		2.48			
	30		1.92			
	Follow up(45)		1.80			
‘Did scratching bring you relief?’	1	32	2.81	18.545	<0.001	Significant
	15		2.44			
	30		2.38			
	Follow up(45)		2.38			
‘Were you able to refrain from scratching?’	1	32	2.69	12.000	<0.001	Significant
	15		2.44			
	30		2.44			
	Follow up(45)		2.44			
‘Did you wake up during last night because of pruritus?’	1	32	3.86	77.927	<0.001	Significant
	15		2.67			



	30		1.95			
	Follow up(45)		1.52			
'Could you assess the severity of pruritus within last 3 days?'	1	32	4.00	92.584	<0.001	Significant
	15		2.97			
	30		1.80			
	Follow up(45)		1.23			
'Could you indicate pruritus location?'	1	32	2.59	9.000	<0.001	Significant
	15		2.59			
	30		2.41			
	Follow up(45)		2.41			

Friedman test for objective parameters

Table: 2 Distribution of lesions

Parameters	N	Mean rank	Chi Square(x ²)	P value	Remarks
Distribution of lesions D1	32	2.80	26.745	<0.001	Significant
Distribution of lesions D15		2.73			
Distribution of lesions D30		2.48			
Distribution of lesions FU		1.98			

Table: 3 Severity of inflammation

Parameters	N	Mean rank	Chi Square(x ²)	P value	Remarks
Severity of inflammation BT	32	2.98	50.020	<0.001	Significant
Severity of inflammation D15		2.98			
Severity of inflammation D30		2.38			
Severity of inflammation FU		1.66			

Table: 4 Extent of lesion

Parameters	N	Mean rank	Chi Square(x ²)	P value	Remarks
Extent of lesions BT	32	3.33	77.504	<0.001	Significant
Extent of lesions D15		3.33			
Extent of lesions D30		1.95			
Extent of lesions FU		1.39			

Table: 5 Wilcoxon sign rank test for questionnaire of 'Pruritus severity scale'

Parameters	Day	Negative ranks			Positive ranks			Ties	Total	Z value N	P value MR	R SR
		N	MR	SR	N	MR	SR					
'How often did you feel Pruritus within last 3 days?'	D1-D15	25	13.00	325.00	0	.00	.00	7	32	-5.00	<0.001	S
	D15-D30	11	6.00	66.00	0	.00	.00	21	32	-3.31	<0.001	S
	D30-FU	5	3.00	15.00	0	.00	.00	27	32	-2.23	>0.001	NS
	D1-FU	32	16.50	528.00	0	.00	.00	0	32	-5.18	<0.001	S
Did pruritus hinder your ability to do simple things	D1-D15	20	10.50	210.0	0	.00	.00	12	32	-4.47	<0.001	S
	D15-D30	8	4.50	36.00	0	.00	.00	24	32	-2.82	<0.001	S
	D30-FU	0	.00	.00	0	.00	.00	32	32	.000	>0.001	NS
	D1-FU	28	14.50	406.00	0	.00	.00	4	32	-5.29	<0.001	S



like watching TV, hearing music, etc?'												
'Did you feel irritated or nervous because of your itching?'	D1-D15	17	9.00	153.00	0	.00	.00	15	32	-4.12	<0.001	S
	D15-D30	2	1.50	3.00	0	.00	.00	30	32	-1.41	>0.001	NS
	D30-FU	0	.00	.00	0	.00	.00	32	32	.000	>0.001	NS
	D1-FU	19	10.00	190.00	0	.00	.00	13	32	-4.35	<0.001	S
'Did your pruritus cause you depressed?'	D1-D15	11	6.00	66.00	0	.00	.00	21	32	-3.31	<0.001	S
	D15-D30	1	1.00	1.00	0	.00	.00	31	32	-1.00	>0.001	NS
	D30-FU	0	.00	.00	0	.00	.00	32	32	.000	>0.001	NS
	D1-FU	12	6.50	78.00	0	.00	.00	20	32	-3.46	<0.001	S
Table: 43 Friedman test	D1-D15	21	11.00	231.0	0	.00	.00	11	32	-4.583	<0.001	S
	D15-D30	2	1.50	3.00	0	.00	.00	30	32	-1.414	>0.001	NS
	D30-FU	0	.00	.00	0	.00	.00	32	32	.000	>0.001	NS
	D1-FU	23	12.00	276.0	0	.00	.00	9	32	-4.79	<0.001	S
'Did your pruritus impede your learning abilities?'	D1-D15	21	11.00	231.00	0	.00	.00	11	32	-4.58	<0.001	S
	D15-D30	9	5.00	45.00	0	.00	.00	23	32	-3.00	<0.001	S
	D30-FU	2	1.50	3.00	0	.00	.00	30	32	-1.41	>0.001	NS
	D1-FU	32	16.50	528.00	0	.00	.00	0	32	-5.65	<0.001	S
'Did scratching bring you relief?'	D1-D15	6	3.50	21.00	0	.00	.00	26	32	-2.449	>0.001	NS
	D15-D30	1	1.00	1.00	0	.00	.00	31	32	-1.000	>0.001	NS
	D30-FU	0	.00	.00	0	.00	.00	32	32	.000	>0.001	NS
	D1-FU	7	4.00	28.00	0	.00	.00	25	32	-2.646	<0.001	S
'Were you able to refrain from scratching?'	D1-D15	4	2.50	10.00	0	.00	.00	28	32	-2.000	>0.001	NS
	D15-D30	0	.00	.00	0	.00	.00	32	32	.000	>0.001	NS
	D30-FU	0	.00	.00	0	.00	.00	32	32	.000	>0.001	NS
	D1-FU	4	2.50	10.00	0	.00	.00	28	32	-2.000	>0.001	NS
'Did you wake up during last night because of pruritus?'	D1-D15	23	12.00	276.00	0	.00	.00	9	32	-4.70	<0.001	S
	D15-D30	13	7.00	91.00	0	.00	.00	19	32	-3.60	<0.001	S
	D30-FU	10	5.50	55.00	0	.00	.00	22	32	-3.16	<0.001	S
	D1-FU	32	16.50	528.00	0	.00	.00	0	32	-5.09	<0.001	S
'Could you assess the severity of pruritus within last 3 days?'	D1-D15	32	16.50	528.00	0	.00	.00	0	32	-5.578	<0.001	S
	D15-D30	30	15.50	465.00	0	.00	.00	2	32	-5.477	<0.001	S
	D30-FU	17	9.00	153.00	0	.00	.00	15	32	-4.12	<0.001	S
	D1-FU	32	16.50	528.00	0	.00	.00	0	32	-5.08	<0.001	S
'Could you indicate pruritus location?'	D1-D15	0	.00	.00	0	.00	.00	32	32	.000	>0.001	NS
	D15-D30	3	2.00	6.00	0	.00	.00	29	32	-1.732	>0.001	NS
	D30-FU	0	.00	.00	0	.00	.00	32	32	.000	>0.001	NS
	D1-FU	3	2.00	6.00	0	.00	.00	29	32	-1.732	>0.001	NS

Table: 6 Wilcoxon sign rank test for Distribution of lesions

Parameters	Negative ranks			Positive ranks			Ties	Total	Z value	P value	R
	N	MR	SR	N	MR	SR					
D1-D15	0	.00	.00	0	.00	.00	31	32	-1.000	>0.001	NS
D15-D30	5	3.00	15.00	0	.00	.00	27	32	-2.236	>0.001	NS
D30-FU	8	4.50	36.00	0	.00	.00	24	32	-2.828	<0.001	S
D1-FU	13	7.50	97.50	1	7.50	7.50	18	32	-3.207	<0.001	S

**Table: 7 Wilcoxon sign rank test for Severity of inflammation**

Parameters	Negative ranks			Positive ranks			Ties	Total	Z value	P value	R
	N	MR	SR	N	MR	SR					
D1-D15	0	.00	.00	0	.00	.00	32	32	.000	>0.001	NS
D15-D30	10	5.50	55.00	0	.00	.00	22	32	-3.162	<0.001	S
D30-FU	12	6.50	78.00	0	.00	.00	20	32	-3.217	<0.001	S
D1-FU	21	11	231.00	0	.00	.00	11	32	-4.291	<0.001	S

Table: 8 Wilcoxon sign rank test for Extent of lesion

Parameters	Negative ranks			Positive ranks			Ties	Total	Z value	P value	R
	N	MR	SR	N	MR	SR					
D1-D15	0	.00	.00	0	.00	.00	32	32	.000	>0.001	NS
D15-D30	22	11.50	253.00	0	.00	.00	10	32	-4.690	<0.001	S
D30-FU	9	5.00	45.00	0	.00	.00	23	32	-3.000	<0.001	S
D1-FU	31	16.00	496.00	0	.00	.00	1	32	-5.568	<0.001	S



CLINICAL STUDY TO EVALUATE THE EFFICACY OF YAVAKSHARA PRATISARANA IN THE MANAGEMENT OF TUNDIKERI (CHRONIC TONSILLITIS)

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ABSTRACT

Introduction: The symptoms of Tundikeri resembles with Chronic Tonsillitis. This disease is more frequent in young and middle aged adults. If not treated in time, chronic tonsillitis may lead to Middle ear infection, Rheumatic fever, Nephritis, Rheumatic heart disease and many other systemic complications. Looking into above facts there is a need of treatment which can prevent complications of the disease as well as reduces the recurrence effectively. In this study an effort has been made to evaluate the efficacy of Yavakshara pratisarana in Tundikeri (Chronic Tonsillitis).

Materials and methods: The present study was an open labelled, single arm, clinical study in Tundikeri (Chronic Tonsillitis) (n=30) selected using convenience sampling technique with pre and post design conducted in a tertiary Ayurveda healthcare centre attached to a teaching institute, situated at the district headquarters in South India. 31 patients fulfilling the inclusion criteria suffering from Tundikeri w s r to Chronic Tonsillitis were selected with the intervention of Yavakshara pratisarana in single sitting.

Results: The effect of therapy was assessed before and after treatment, the results were statistically analyzed; it showed significant changes in subjective parameters like Katina shopha, Mandaruk, Galaragata, Galoparodha, Halitosis, Enlarged Jugulodigastric lymph nodes, and Objective parameter- ESR

Conclusion: Yavakshara pratisarana has shown better efficacy in subjective parameters like Katinashopha, Mandaruk, Galaragata, Galoparodha, Halitosis, Enlarged Jugulodigastric lymph nodes, and Objective parameter like- ESR

KEY WORDS: Tundikeri, Yava kshara, Pratisarana.

INTRODUCTION

In Ayurveda, Tundikeri is described under Mukha roga. Acharya Sushrutha has mentioned Tundikeri as Talugata roga and Acharya Vagbhata as Kantagata roga.

Tundikeri presents with the features of Katina shopha (enlargement of tonsils) in Hanusandhi, Mandaruk (pain), Toda (pricking sensation), Daha (burning sensation) and resembles Karpasa phala^{1, 2} (fruit of cotton). Mainly caused due to vitiation of Kapha and



*Raktha dosha*³

Tundikeri is commonly encountered now days due to the dietary habits of taking spicy food, cold beverages and cold climate. Lower socio-economical people are particularly prone as the immunity status is low in them. These factors coupled together results in recurrent episodes of the disease.

In modern science *Tundikeri* can be co-related to Tonsillitis. Tonsillitis is the infection of tonsils, situated on either side of back of throat, which forms vital part of immune system and aids the body in fighting diseases and infections.

Tonsillitis is one of the most common disease of upper respiratory tract which affects all age groups, It is estimated that 15% patient visit to a family doctor are because of Chronic Tonsillitis⁴. At puberty prevalence rise to 70-90%. Most common age of Tonsillitis found to be 11-21(56%) ; 21-30(20%) ; <10(10%) ; 31-40(9%) ; 41-50(3%) ; 50(1%)⁵.

If not treated in time, chronic tonsillitis may lead to Middle ear infection, Rheumatic fever, Nephritis, Rheumatic heart disease and many other systemic complications⁶.

Antibiotics are the main stay of treatment in allopathic medicine which gives temporary relief and does not check the recurrence of disease and sets a platform for Tonsillectomy, which has its own complications.

Looking into above facts there is a need of treatment which can prevent complications of the disease as well as reduces the recurrence effectively.

Many treatment modalities are described in *Mukharogas*, among them *Shastrakarma* is said to be the effective one⁷. *Kshara* is said be *Pradhana* among *shastra* and *anushastra karmas*.

The *yavakshara pratisarana* was selected from *Rasa tarangini* for this present clinical trial. This formulation is indicated in all types of *Kanthagata Roga* in the form of *Kavala* and *Pratisarana*⁸ etc.

Pratisarana with *Yavakshara* mentioned in *Rasa tarangini* in the management of *Tundikeri* possess qualities like *kaphahara*, *Vrana shodhaka*, *ropaka* as well as crapping effect, *Kapha-Rakta Shamaka*, *Lekhaka*, *Shodhaka*, *Krimihara*, *Shothahara*, etc properties. The *Kshara* does the *Ksharana* of localized *Vikriti* and thus helps in *Samprapti Vighatana*.

Sushruta opines that the diseases which can be treated with *Kavala* can also be treated with *Pratisarana*⁹. Keeping this into consideration, the present study was planned to evaluate the efficacy of *yavakshara Pratisarana* in the management of

Tundikeri (Chronic Tonsillitis).

AIMS AND OBJECTIVES

To Evaluate the effect of *Yava kshara Pratisarana* in *Tundikeri*.

MATERIALS AND METHODS

Source of data: The patients will be selected from the out patient and in patient department of Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan.

Ethical Committee Approval Number – SDM/IEC/65/2019

Clinical Trial Registry of India – CTRI/2020/11/029371

CRITERIA OF EVALUATION

DIAGNOSTIC CRITERIA

Diagnosis will be made on the basis of any of the 4 symptoms of *Tundikeri*.

- *Kathina Shopha* (enlargement of tonsils)
- *Manda Ruk* (pain)
- *Ragata* (hyperemia)
- *Galoparodha* (dysphagia)
- *Mukha daurgandhya* (Halitosis)
- Enlargement of lymphnodes.

INCLUSION CRITERIA

Age group between 16-50 years
Irrespective of gender, religion, socioeconomic status

- Patients clinically diagnosed with *Tundikeri* and fit for *Ksharakarma*.
- Patients ready to sign informed consent form.
- Patient not respond to medical management will be included.
- Parents willing to sign the informed assent form (age group between 16-18 year)

EXCLUSION CRITERIA

- Patient with Acute tonsillitis, Peritonsillar abscess, Acute otitis media, Tonsillar cyst.
- Uncontrolled Hypertension and Diabetes Mellitus
- Physiological conditions like pregnancy, lactation and puerperal stage.

STUDY DESIGN The present study was an open labeled, single arm, clinical study in *Tundikeri* (Chronic Tonsillitis) (n=30) selected using convenience sampling technique with pre and post design conducted in a tertiary Ayurveda healthcare centre attached to a



teaching institute, situated at the district headquarters in South India

LABORATORY INVESTIGATION

Following lab investigations will be performed for the diagnosis.

Blood investigations: ESR, DC, TC, Hb%.

DRUG ADMINISTRATION

Drug: Yavakshara

Dosage: As required

Duration: single sitting application

ASSESSMENT CRITERIA

The subjects will be accessed before treatment (0th day), after 24 hours of treatment (1st day) and on eighth day (8th day) and after this subject will be asked to visit the center on 15th and 30th day of treatment to notice any changes if occurred. Assessment table is given at (Table 1)

PARAMETERS

Both subjective and objective parameters will be assessed.

Subjective parameters

1. *Kathina shopha* (Enlargement of tonsils)
2. *Manda Ruk* (Pain)
3. *Ragatwa* (Redness)
4. *Galoparodha* (Dysphagia)
5. Halitosis
6. Jugulo-digastric lymphadenopathy

Objective parameters

1. Pictorial presentation
2. Investigation

STATISTICAL ANALYSIS

- Friedman's test was applied to analyze the significance of change in Subjective parameters
- Wilcoxon signed rank test was done as post hoc with Bonferroni correction on parameters which show significance in Friedman's test, to interpret the time of significant change
- Paired T test was done for analyzing the significance of objective parameters

OBSERVATION

In the present study total 42 subjects were screened, out of which 33 subjects were registered for the study, among them 31 subjects completed the study

and 2 were dropped out Among 31 completed subjects maximum (n=15) were from the age group of 31-60 years and predominance of females (n=27) over males was found. 14 subjects were from middle class group and majority of them (n=19) were having sedentary life style. Diet wise distribution showed maximum (n=31) were having non veg diet ,14 were habituated to Guru ahara ,(n= 9)subjects to Dadi/ksheera, (n=7) subjects were habituated to cold beverage. Considerable number of subjects (n=14) were having mandagni ,(n=11) subject were practicing vishamashana, maximum number of subjects (n=16) were having moderate oral hygiene

RESULTS

In the present study total 42 subjects were screened, out of which 33 subjects were registered for the study, among them 31 subjects completed the study and 2 were dropped 32 subjects were underwent application of Yavakshara pratisarana in single sitting Friedman's test was run on subjective parameters and has shown significant improvement in symptoms like Katina shopha ,Mandaruk,Galaragata,Galoparodha, Halitosis ,jugulodaigarstic. Results are placed at (Table 2) Paired t Test was run on objective parameters like HB, TC, DC and ESR . ESR values has shown significant improvements. Results are placed at (Table 3)

DISCUSSION

EFFECT OF THERAPY ON SUBJECTIVE PARAMETER

Effect on Katina shopha :

There was significant reduction Katina shopha , Wilcoxon signed rank test as post hoc test with Bonferroni correction - 0.01 also showed reductions in between D1 to D30 (p < 0.001)The *Shopha* (Swelling) is due to inflammatory process in tonsils. When the inflammatory process begins in the tonsillar tissue, it becomes swollen and causes the symptoms like pain in throat, difficulty in deglutition (dysphagia).

Vitiation of *kapha* and *rakta* invariably involved in the pathogenesis of *Tundikeri* will bring about inflammatory changes, due to which there will be pain in the throat. Intensity of pain depends upon extent of inflammation.

This might be due to two reasons. Viz. –

- The antibacterial and anti-inflammatory action of the drug clears the infective focus. Thus, the tonsillar tissues might have relieved from inflammatory symptoms. *Kapha –pitta hara* and *Shotha hara* property of *yava*



brings down the inflammation and also by analgesic effect of *yava* reduces the intensity of pain.

- The overall property of the formulation is *Kshareeya* in nature. It is responsible for *Chhedana, Bhedana, Lekhana karma* in the tonsillar tissue. Though the medication is applied over the surface of the tonsils it penetrates in to the crypts and core of tonsillar tissue by means of its *Sukshma, Teekshna, Vyavayi* properties. The drug also acts as an agent for chemical cauterization by which causes the atrophy of inflamed tonsillar tissue.

Effect on manda ruk

- There was significant reduction in manda ruk, Wilcoxon signed rank test as post hoc test with Bonferroni correction - 0.01 also showed reductions in between D1 to D30 ($p < 0.001$) Vitiating of *kapha* and *rakta* invariably involved in the pathogenesis of *Tundikeri* will bring about inflammatory changes, due to which there will be pain in the throat. Intensity of pain depends upon extent of inflammation.
- *Kapha –pitta hara* and *Shothahara* property of *Yavakshara* brings down the inflammation and also by analgesic effect of *Yava* reduces the intensity of pain.

Effect on Galaragata

- There was significant reduction in *Galaragata*, Wilcoxon signed rank test as post hoc test with Bonferroni correction - 0.01 also showed reductions in between D1 to D30 ($p < 0.001$)
The change in colour of mucus membrane is due to the inflammatory process in the tonsillar tissues. *Ragatwa* is assessed on changes in colour of muco-lymphoid tissues. The change in colour of mucus membrane varies as per changing pattern of vascularity
The probable reason might be the action of medication till the core of tonsillar tissue which subside the disease through its invaded area. The trial drug due to its anti-inflammatory, analgesic action reduces the inflammation and hence colour of the mucus membrane becomes normal.

Effect on Galoparodha

- There was significant reduction in Galoparodha, Wilcoxon signed rank test as

post hoc test with Bonferroni correction - 0.01 also showed reductions in between D1 to D30 ($p < 0.001$)

Dysphagia is due to inflammatory process and increase in the size of the tonsils and surrounding areas. The inflammatory process in tonsils causes pain in throat. The pain felt by the patient was assessed on the basis of extent and its appearance like mild tolerable pain during deglutition of food articles, liquids.

The intensity, appearance and nature of pain changes as the inflammatory process come down. The anti-inflammatory and analgesic action of the drug property of drug reduces pain on deglutition.

Effect on size of lymph node

- There was significant reduction in size of lymph node, Wilcoxon signed rank test as post hoc test with Bonferroni correction - 0.01 also showed reductions in between D1 to D30 ($p < 0.001$)
The Jugulo-digastric lymphadenopathy is a clinical feature predominantly in chronic tonsillitis with minimal pain and hypertrophy. The reduction in inflammation, signs and symptoms of tonsils result in reduction in size of lymph nodes.

Effect on Mukhadourgandya

- There was significant reduction in Mukhadourgandya, Wilcoxon signed rank test as post hoc test with Bonferroni correction - 0.01 also showed reductions in between D1 to D30 ($p < 0.001$) Though, halitosis is not mentioned in classics as a clinical feature, it is found in clinical practice and literature of contemporary sciences. Halitosis is one of the features observed in chronic tonsillitis, pharyngitis or Pharyngo-tonsillitis. Apart from this there are several other causes which cause systemic conditions which causes halitosis like poor digestive power, coated tongue. The probable reason can be taken as the medication acts as (*Vaktra shodhana*), by acting upon the accumulated *Vikrita Kapha* causing Halitosis and as infection reduces complaint of Halitosis will be reduced



EFFECT OF THERAPY ON OBJECTIVE PARAMETER

Analysis of change in the Hemoglobin concentration BT and AT had insignificant changes in the Hemoglobin percentage which implied that treatment was ineffective in increasing the Hemoglobin concentration of tonsillitis patients of the study.

Trial drug was effective in the reduction of ESR after treatment ($p < 0.05$). Statistically significant reduction of these parameters implies the control of the infection

Pictorial presentation – significant change when compared with before and after the treatment (Fig number -01)

Probable mode of action of *Yavakshara*

- The *Yavakshara* possess qualities like *lekhana*, *shothahara*, and *kapha-raktha hara*.
- *Yavakshara* is *shothahara*, *vedanahara*, *amapachaka* and by its *lekhana guna* it scrapes the vitiated *kapha dosha*. It possess the *Ksharana* and *Shodana* quality which reduces the obstructive lesions in throat and helps in reducing the pain and does *dosha shamana*.
- *shothahara* by which it helps to reduce the inflammation of the tonsils and also its antibacterial property reduces the infective condition.
- has the property of *shulaprashamana*, *krimighna*, *jwaraghna*, and *deepana*, which reduces the inflammatory changes in the oral mucosa and tonsils..

1. Ksharana – This property helps in *Ksharana* of *Vikrita Kapha* and *Mala* accumulated in oral cavity, and alleviates the halitosis and thus helps in reducing the symptoms.

The *Ksharana* effect of medication could have removed the debris and wastes from surface of tonsils as well as deposited elsewhere in oral cavity

The patients Parenchymatous tonsillitis responded well due to *Ksharana* property of the formulation.

2. Anti-biotics – Different phytochemicals, high percentage of low polar compounds, and various amino acids like histidine, tryptophan etc helps in arresting the further growth of bacteria and inflammatory processes. This also prevents the complications of the diseases.

3. Antimicrobial – The formulation contains

lysine bitter principles, which acts as anti-microbial agent and reduces the growth of micro organisms like bacteria and viruses.

4. Analgesics – Once inflammation subsides by *pratisarana*, pain reduces and also this formulation possess analgesic property which helps in alleviating the pain.

PROBABLE MODE OF ACTION OF PRATISARANA

The word meaning of *Pratisarana* is *Gharshana* or rubbing. In present clinical study the *Pratisarana* of *Yavakshara* is performed over the tonsils. Its probable mode of action can be assumed as follows – **Action of Lignox 10%** –

It is a local anaesthetic agent, used to desensitize the mucosa of the oro-pharynx and palate temporarily. This prevents the gag reflex, pain of procedure and irritation due to medications. This facilitates the convenience of the procedure even in non-cooperative patients. With in 1 to 2 two hours of procedure patient regains the sensation and gustatory perception.

Action of cotton ball rubbing over the anterior surface of tonsils –

The gentle rubbing of the cotton over the tonsils in case of follicular tonsillitis, ruptures the follicles and opens the crypts. It removes the sticky thick mucosal coating from the anterior surface of tonsils and facilitates the direct contact of tonsil tissue with the medication. This facilitates easy penetration of the medicine into crypts to reach the action of medication till core of tonsils.

Action of the medication over the tonsillar tissue –

explains that *Rasa* acts when it comes in contact with mouth, *vipaka* acts after digestion and *virya* acts at the both level internally and externally. Hence for mode of action of *pratisarana* drug, we have to rely on *Rasa* and *Virya* of drug. Due to *Laghu ruksha guna* subsides *kapha dosha*, *ushna virya* both *vata* and *kapha*. Due to *Ushna virya*, and *laghu*, *Ruksha guna*, it stimulates *agni* and due to its *ushna virya*, *teekshna*, *laghu guna* removes *Srothorodha* and vitiation of *Rakta dhatu* is normalized by *katu*, *madhura rasa* properties of drugs

The medication contains the *Kshareeya dravya* and *lekhana property*, (it corrodes the hypertrophied muscle tissue) which acts as a chemical cauterizing agent over the tonsillar tissues. By the local application of *Kshara* it reduces the *Vikrita Kapha*. Due to *Chhedana*, *Bhedana* action of *Kshara*, it reduces the



size of tonsils significantly due to its *Ruksha Guna*, it has *Kledahara* property. Due to *Katu Rasa*, it causes “*Shonita Sanghatam Bhinnatti*” (clears the obstruction in Raktavaha strotas)

The alkaline medication entered into core of tonsils cause chemical cauterization. Due to *Cchedana*, *Bhedana*, *Ushna*, *Teekshna* properties forms minute burns and there is a coagulation of muco-lymphoid tissues. This reduces the intracellular space and aggregates the lymphoid tissues. This intern stimulates fibrosis of tonsillar tissue and reduces the size of the tonsils.

CONCLUSION

- 1) The study drug, *Yavakshara pratisarana* is effective in reducing the majority of signs and symptoms of Chronic Tonsillitis.
- 2) *Yavakshara pratisarana* is effective in reducing the number of attacks of Chronic Tonsillitis.
- 3) *Yavakshara pratisarana* has provided sustained effect.

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Conflicts of interest: There are no conflicts of interest

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Table: 1 Self formulated Scale for assessment of Subjective parameters

SI NO	Assessment criteria	0	1	2	3	4
1.	Size of Tonsil (Khatina shopha)	No tonsils seen	Small tonsils within the tonsillar fossa.	Visible beyond anterior pillars.	Extended 3/4 th of way to midline.	Completely obstructing airway. (kissing tonsils)
2.	Mandaruk (pain)	No pain	Pain on external pressure	Pain during deglutition and relieves thereafter	Pain increases on deglutition and remains Consistent	
3.	Galaragata (Hyperaemia)	No hyperaemia	Hyperaemia of tonsil surface.	Pinkish appearance of Pillars	Reddish appearance of surrounding	Reddish appearance of pharynx
4.	Galoparodha (Dysphagia)	No pain while swallowing.	Pain during swallowing solid food	Pain during swallowing solid food	Pain during consuming liquid food	Continuous pain or unable to swallow.



			substance.	substance.	substance.	
5.	Mukhadourgandya (Halitosis)	No halitosis	Foul breath experienced by patient only.	Foul breathe experienced by patient & friends or parents.	Foul breathe experienced by a group of surrounding people.	Foulbreath experience by as soon as the patient opens the mouth.
6.	Enlargement of lymph nodes	No palpable lymph nodes.	Palpable lymph node U/L, warm	Palpable lymph nodes B/L, soft fluctuant.	Palpable lymph nodes B/L which are hard	Palpable lymph nodes B/L which are hard

Table: 2 Showing effect of yavakshara pratisarana on subjective parameters by applying Friedman's test

Parameters	N	Mean Rank	Chi Square (x2)	p value	Remarks
<i>Katina shopha</i> BT	31	4.39	101.249	< 0.001	Significant
<i>Katina shopha</i> 1 st DAY		4.19			
<i>Katina shopha</i> 8 th DAY		2.37			
<i>Katina shopha</i> 15 th DAY		2.05			
<i>Katina shopha</i> 30 th DAY		2.00			
<i>Mandaruk</i> BT	31	4.79	109.873	<0.001	Significant
<i>Mandaruk</i> 1 st DAY		3.92			
<i>Mandaruk</i> 8 th DAY		2.15			
<i>Mandaruk</i> 15 th DAY		2.10			
<i>Mandaruk</i> 30 th DAY		2.05			
<i>Galaragtva</i> BT	31	4.74	111.360	<0.001	Significant
<i>Galaragtva</i> 1 st DAY		4.13			
<i>Galaragtva</i> 8 th DAY		2.39			
<i>Galaragtva</i> 15 th DAY		1.94			
<i>Galaragtva</i> 30 th DAY		1.81			
<i>Galoparodha</i> BT	31	4.73	102.771	<0.001	Significant
<i>Galoparodha</i> 1 st DAY		3.82			
<i>Galoparodha</i> 8 th DAY		2.23			
<i>Galoparodha</i> 15 th DAY		2.11			
<i>Galoparodha</i> 30 th DAY		2.11			
Jugulo-digastric lymphadenopathy BT	31	4.63	100.602	<0.001	Significant
Jugulo-digastric lymphadenopathy 1 st DAY		3.94			
Jugulo-digastric lymphadenopathy 8 th DAY		2.40			
Jugulo-digastric lymphadenopathy 15 th DAY		2.05			
Jugulo-digastric lymphadenopathy 30 th DAY		1.98			



Table: 3 Showing effect of Yavakshara pratisarana on Objective parameters by applying Paired t Test

Parameter	Mean		Paired Difference					Remark
	BT±SD	AT±SD	Mean Difference	SD	SE	't' value	'P' value	
ESR	8.958	5.661	12.910	7.472	1.342	9.620	.000	S
TC	2277.671	1308.278	-93.548	1992.475	357.859	-.261	.796	NS
HB	1.522	1.249	-.110	.110	.190	-.579	.567	NS

Fig no – 01



Fig No : 05 Before treatment on 0th day



Fig No: 06 After treatment on 30th day



A COMPARATIVE PHARMACEUTICO ANALYTICAL STUDY OF YASTIMADHU KSHEERAPAKOTTHA GHRITHA AND YASTIMADHU GHRITHA

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ABSTRACT

Drug research is an important part of pharmaceutical field especially in Ayurveda pharmaceuticals to revalidate and establish various formulations. Ghritha kalpana has got prime importance due to a special property of Ghritha i.e Samskarasyanuvartana. Ksheera ghritha and Ghritha are explained with different properties in Ayurveda classics. Present study is to compare between Yastimadhu Ksheera ghritha and classical Yastimadhu ghritha by organoleptic and analytical parameters. Ksheera ghritha procedure may bypass the long procedure, maximise the percentage of extract in Ghritha. Reference of Ksheera ghritha is available in various classical texts like Sushruta samhitha etc. Ksheera ghritha said to have properties like Netrya, Sangrahi, Rakthapitta hara etc.

Ksheera ghritha of Yastimadhu prepared by preparing Ksheerapaka taken as G1 and Yastimadhu Ghritha prepared by normal classical way taken as G2. Analytical study for standardization of both samples were carried out on the basis of classically illustrated organoleptic tests and modern parameters of physico-chemical properties like LOD, Refractive index, Saponification value etc., and TLC done for qualitative analysis. By this study the major difference between Ksheera ghritha and Ghritha are established giving further scope for clinical research to establish efficacy of same.

KEY WORDS : Ayurveda, Ghritha, Yastimadhu, Ksheerapaka.

INTRODUCTION

In the vast ocean of knowledge of Ayurveda many formulations and pharmaceutical procedures are still unexplored or not in use. One among them is Ksheera Ghritha¹. Ghritha is told to be sarva snehottama in Charaka samhitha as it is having the unique quality of Samskarasyanuvartana². There are two methods to obtain Ghritha, by Takrodbhava navaneetha or by Ksheerodbhava navaneetha. References can be sought from Sushruta samhitha. In contemporary dairy industry also we get the description about Ghee and Desi Ghee³. Both have different method of preparation. Desi ghee go in hand with Takrodbhava i.e. butter is

separated from curds by churning separating buttermilk, whereas Ghee can be correlated to Ksheerodbhava ghritha i.e. derived from cream of milk obtained by churning/centrifuging milk.

Here an attempt is done to compare between Ghritha and Ksheera ghritha by using Yastimadhu⁴ to compare by which method maximum extraction happens.

MATERIALS AND METHODS

Pharmaceutical study :

- Yastimadhu Ksheera ghritha.
- Yastimadhu ghritha.



Analytical study : A.Yastimadhu Ksheera ghritha.
B.Yastimadhu ghritha.

characteristic odour of ghee and residue at bottom. It is then measured and preserved in airtight container with proper labelling.

PHARMACEUTICAL STUDY

Preparation of *Yastimadhu Ksheera ghritha*:
Yastimadhu sample procured from KVG Ayurveda Pharma & Research Centre, Sullia, *Ksheera paka* is prepared as per *Sharnghadhara samhitha* reference and kept overnight and next day it is churned to get cream. It is then washed thoroughly and weighed. It is then heated in a pan in *mandagni* till clear *Ghritha* devoid of water content is obtained with the

Preparation of *Yastimadhu ghritha* :
Yastimadhu ghritha is prepared as per classical *Sneha kalpana vidhi* i.e 1 part of *Yastimadhu kalka*, 4 parts of *gou ghritha* and 16 parts of *Yastimadhu Kashaya*, heated till *Sneha siddhi lakshanas* then measured and stored properly.

Observations

<i>Yastimadhu Ksheera ghritha</i>	<i>Yastimadhu ghritha</i>
<ul style="list-style-type: none"> • 2 Litre <i>Yastimadhu Ksheera paka</i> kept overnight formed a layer of cream next day. • Churning process took around 10 minutes. • 130gms of cream obtained having dull brownish colour, odour of <i>Yastimadhu</i>, tasted sweet, unctuous on touch. • Around 2.5 minutes taken to convert to ghee on heating in a low flame. 	<ul style="list-style-type: none"> • During preparation after adding <i>Kalka</i> and <i>Kwatha</i> it absorbed all ghee and formed like a mass. • After around 2 hours it started to separate from <i>kalka</i> with golden yellow colour. • <i>Sneha siddhi lakshanas</i>* attained and hissing sound stopped. • Total time taken 5 hours.

ANALYTICAL STUDY

Analysis of organoleptic characters⁵:

- Description / Appearance / Colour :1gm. of both the samples taken in a watch glass and examined through naked eye.
- Odour : 2gms. of both samples smelled separately for odour.
- Taste : A pinch of each sample toasted to estimate the taste of *ghritha*.
- Texture : 2gms of each sample taken and rubbed against thumb, index finger gently.

Analysis of Physico-chemical parameters:

Loss on Drying (LOD)⁶:

This parameter determines the amount of volatile matter (i.e water drying off from the drug). For substances appearing to contain water as the only volatile constituent.

Refractive Index⁷

It is the ratio of velocity of light in air divided by velocity of light in substance. It was determined by Abbe refractometer. For this, the sample (G1,G2)of ghee was dropped over the prism after complete cleaning of the prism. The refractive index of the sample G1 and G2 noted.

Iodine Value⁸

The iodine value of the substance is the weight of iodine absorbed by 100 parts of weight of substance when determined by Pyridine Bromide method.

Saponification Value⁹

The Saponification value is the number of mg of KOH required to neutralize the free fatty acids, resulting in the form of complete hydrolysis of 1 gm of fat. About 2 gm of the sample taken in a 250 ml flask , add 25 ml of Alcoholic KOH solution. Attached to a reflux condenser and heated in a water bath for about an hour. After cooling 1ml of phenolphthalein solution as a indicator and titrated with 0.5N HCL and number of ml of HCL required noted. Procedure repeated for a blank and value noted and finally calculated.

Acid value¹⁰

The acid value is the number of mg of KOH required to neutralize the free acids in 1 gm of the substance. Note the number of ml of alkali required, repeat the same experiment for blank and note the reading and calculate.

Ester value¹¹

The ester value is the number of milligrams of KOH required to saponify the esters present in 1gm of sample. Ester value = Saponification value – Acid value.

Qualitative analysis

Thin layer chromatography¹² is a technique in which a solute undergoes distribution between two phases, stationary phase acting through adsorption and a



mobile phase in the form of a liquid. Both the samples of *ghrithas* are extracted in ethanol by soaking for 18 hours, then filtered in filter paper. 6 micro litre of sample applied to TLC plate and dried. Mobile phase is prepared in the ratio of 6:3:1 (Toluene:Ethyleacetate : Formic acid). The TLC plate was kept dipped in the mobile phase. Then it is dried and visualised under ultra violet rays.

RESULTS

During preparation of *Yastimadhu Ksheera ghritha* and *Yastimadhu ghritha*, the observations are noted at each stage and the results are shown in the

tables. The refractive index of G1 is slightly greater than G2; also, the bricks value of G1 stands greater than G2 signifies that particles distribution is better in G1 than G2. Saponification value, Iodine value, found to be almost similar. The acid value of G2 is slightly greater than G1. Keri's test (Rancidity) passed by both the samples. TLC has shown significant difference between G1 and G2. The band obtained inn G1 is better than G2 when compared with the sample. It signifies that maximum extraction has happened by G1 methods than G2 method.

Table 1: Organoleptic characters.

Organoleptic characters	G1	G2
Description	A low melting medicated fat.	A low melting medicated fat.
Appearance	Soft viscous mass	Soft viscous mass
Colour	Light yellow	Dark Yellow
Odour	Pleasant sweet odour	Characteristic Ghritha odour
Touch	Unctuous , Clear	Unctuous , Small particles could be felt
Taste	Sweet	Sweet

Table 2: Physicochemical Parameters.

Physico-chemical parameter	G1	G2
Loss On Drying (LOD)	0.9%	1%
Refractive index	1.46	1.45
Bricks	68	66.5
Iodine value	42.8	40
Saponification value	226	229
Acid value	1.98	2.01
Ester value	224.02	226.99

DISCUSSION

Reference of *Ksheerotha navaneetha* and *Ksheera ghritha* are obtained in *Suhrutha samhitha* and *Astanga Hridaya*. *Dalhancharya* commentary says the *navaneetha* derived form *Ksheera* is used to prepare *Ksheera ghritha*. The properties of *ksheerotha navaneetha* as follows best *sneha*, sweet, very cold in potency, good for eyes, cures epistaxis and said to good for skin¹³. Properties of *Ksheera ghritha* are good *sangrahi* due to its *prabhava*, good for eyes and cures fainting and seizures¹⁴. By considering above references the *Yastimadhu ksheerotha navaneetha* is heated to get *Yastimadhu Ksheera ghritha*, another sample of classical *Yastimadhu Ghritha* prepared and analysed with different parameters mainly to see the property of *Samskarasyanuvartana* could be seen. By TLC, it is substantiated that *Ksheera ghritha* has more capacity to extract the active principles than the normal *ghritha*. This process potentially can bypasses the long procedure of *sneha kalpana* considering the

indication etc. saving time, drug etc. giving maximum availability of drug for absorption. Thus, this study gave a platform for further research and clinical study for getting more accurate idea about its efficacy.

CONCLUSION

Ksheera ghritha reference first mentioned in *Suhrutha samhitha* and then inn *Astanga hridaya* etc. By this study we come to know that both are having almost similar organoleptic character and analytical character, but by TLC it showed significant extraction happened by *Ksheera ghritha*. Thus qualitatively *Ksheera ghritha* found to better than classical *ghritha*. Further study has to happen to establish the clinical efficacy of both *ghritha*.

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THE PHENOMENON OF DISCOURSE IN THE FIELD OF MODERN PRAGMATICS

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ABSTRACT

The analysis of examples explaining the participation of spatial-temporal indicators of movement in ensuring the thematic and temporal integrity of discourse in this article testifies to their important role in the realization of this task. The ability of these tools to perform this discursive task is one of the factors determining the choice of pragmatic elements in the context of text creation.

KEYWORDS: *cooperation, proposition, awareness, narrative, activation, communication, anaphoric, deictic*

Academician N.I. Konrad once warned not to ignore the behavior of the listener when studying the process of speech act. After all, the listener is not indifferent to the content, he, as an active person, "listens" rather than simply hears what is being said. Listening, on the other hand, is, as the academic puts it, arousing emotion by learning something (Konrad 1959: 9). Hence, the formation of discourse must be described in terms of the interaction between the two parties — the speaker and the listener. Such "cooperation" takes place in the thinking of the participants of the dialogue.

Each of the interlocutors, in addition to their own point of view, tries to model their partner's perception. The resources for text integrity are rich and the interlocutors use them to coordinate their cognitive activities. Using the available tools, the speaker seeks a way to place the information being conveyed in the listener's (reader's) knowledge base. It has become customary to divide information into old (previously known) and new types. Therefore, the proposition that occurs in the text is a unit that carries old and new information.

Typically, old information serves as a base for shaping and disseminating new information. However, any information has a stage of imagination or conjecture in the text. There are three sources of such perception: awareness of the speech situation, socio-cultural knowledge, and awareness of the front of the discourse.

The importance of grammatical means of information placement is reflected in the presence of old information in discourse sections. Such grammatical possibilities include gestures. Temporal signs allow information to be pushed to the front. Such a situation is the basis for the expansion of the speech structure (Thompson 1983).

The relationship between old information and new information is important in ensuring the semantic integrity of discourse. P. Hopper and S. Thompson used the concepts of backgrounding and foregrounding in order to distinguish the narrative part of the text from other parts (Hopper, Thompson 1980).

The temporal order of events, the complexity, and the execution of purposeful actions, which are the main features of the narrative considered as a particular type of discourse, are noted in the given descriptions. For example, M. Fludernik's description emphasizes the anthropocentric nature of the narrative:

A narrative.... Is a representation of possible world in a linguistic and / or visual medium, at the center of which there are one or more protagonists of an anthropomorphic nature who are existentially anchored in a temporal or spatial sense who (mostly) perform goal directed actions (action) and plot structure). It is the experience of these protagonists that narratives focus on, allowing readers to immerse



themselves in a different world and in the life of the protagonists (Fludernik 2009: 6).

In the theory of narrative discourse, the practice of foregrounding traditionally connects the main events described in the text with new information, while the concept of "background" is associated with pre-existing information. But such a view can lead to a static interpretation of the discourse.

(D.Jusupov 2020). It is well known that text creation is a dynamic process. Therefore, the relationship of the above events should reflect the process of building a holistic text. Researchers interested in these phenomena argue that the practice of advancing information may be inconsistent with the plot of the story, as well as inconsistent with the way in which new information is expressed. For example, in English, the *when* connector is considered to act as a "background" in grammar manuals, but in some cases can be used as a means of advancing information. Follow-up sentences in which such a task occurs are called "narrative *when*-clause" (Couper-Kuhlen 1987).

Compare: Mrs. Macphail looked at him doubtfully. Her conversation with the Davidsons had left her a little uneasy, but she did not like to say she thought they had better not play cards when the Davidsons might come in at any moment (Maugham. *Pain*, p. 45).

The variation of tense forms leads to an exchange of tasks:

I had intended to swim in the pool here, when I went to inspect it from the balcony and found it quite deserted and somehow uninviting (Lodge. *Paradise News*, p. 202).

In this sentence, the Past Perfect signifies the end of the event, and the Past Simple follows the task of bringing information to the fore in the following sentence. From the examples given, it can be seen that grammatical phenomena such as the location of the following sentence, the grammatical forms of the verb, and the indicators of the meaning of the aspect contribute to the expression and distribution of information.

In the early stages of the formation of cognitive linguistics, the main focus was on the mental structure of knowledge and its manifestation in the thinking of the individual. Nowadays, there are more and more questions about how these mental structures are formed, how they become informative in the process of communication, and how they are updated in the context of communication. Particular attention is paid to the problem of learning how people can understand each other based on the environment, experience, and come to a single conclusion (Coulson, Matlock 2014: 91).

Some research in this area aims to shed light on the order in which linguistic forms and structures are arranged in the discourse and the functions they perform (Pickering, Carrod 2004).

In any case, the analysis of the connections between the grammatical system and the cognitive aspects of discursive activity requires the researcher to be careful in drawing conclusions. In particular, some include non-predicate structures in the text as a means of representing pre-determined information.

However, the analysis of the texts suggests that these structures have the potential to be a means of communicating new information (a new event). We can see this in the use of *now* / *then* in English and *now* / *then* in Uzbek. Let's compare the following examples:

Stanton: No, there happened to be another reason, much more important. I knew that if Olwen had a hand in Martin's death, then something like that must have happened, and so Olwen couldn't be blamed. I knew her better than any of you - or I felt I did (Priestley). *Dangerous Corner*, p. 52.

I wish they knew that my inner feelings were raging and my heart was "stirred up" to enjoy the great bliss, although I can't tell it, I can't do it.

Duyshen smiled at me and gently stroked my hot forehead with his cold hands until I fell asleep. (Aitmatov. *The first teacher*, p. 88).

It is known that the *then* form is adapted to anaphoric and deictic applications. He points out that the event takes place much earlier than the time of the speech while performing the deictic task. While this unit is acting as an anaphora, it is indicated that a new reported event may follow. Hence, the reported information is highlighted.

The function of the English form "*now*" in the text is not limited to referring to the time of events. The authors of *A University Grammar of English* note that this element can serve as a connector for logical connection of sentences.

In this case, the *now* form marks a new stage in the duration of contemplation:

We have settled that at last. Now, what was the other thing we wanted to discuss? (Quirk, Greenbaum 1989: 289).

In the literary text, the *now* element, accompanied by the past tense form, is able to perform two functions: the action is placed in a specific time zone and it is determined that the course of events has entered a new stage. In short, it is now becoming a means of promoting information. For example:

We gossiped pleasantly about our common friends and Mrs. Tower brought me up to date in the scandal of the day.



After roughing it here and there it was very agreeable to sit in a comfortable chair, the fire brightly burning on the hearth, charming tea - things, attractive women. She treated me as a prodigal returned from the husks and was disposed to make much of me... .. Now she and asked me whom I would like to meet. (Maugham. Pain, p. 319).

It is often observed that the words belonging to the category Ravish in the Uzbek literary text promote information, its function is to emphasize: Compare:

He was really scared then. After the old man's death, he fell seriously ill.

Never before had there been such a confrontation with a dying man who had given up his life. He did not want to eat or want to see anyone. He was getting thinner and thinner day by day. The bakhshis said, "The ghost has struck." So, a week later, on the advice of someone, they went to the grave with their sisters-in-law, recited the Qur'an at the reception of their father-in-law, and returned to the sheikh's house near the grave. Then they offered a vow and a blessing to the great believer in the village. After that, he slowly recovered and stood up ... (Adham Damin. The pains of this world, p. 64).

While studying the issues related to the activation of temporal meaningful means in the text, it should be noted that they not only express the existing knowledge, but also serve to promote new information. The ability of language tools to perform the specified task determines the cognitive-pragmatic basis of text creation. In his recent doctoral dissertation, N. Jusupov said that the means of promoting information should be considered as a separate mechanism of language.

Indeed, "their basis, as a whole, is an integrated set of knowledge structures that determine the versatility of stylistic and cognitive features and their interconnectedness, linguocreative potential, individual-authorship specificity, functional load and artistic and aesthetic significance" (Djusupov 2020:24).

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JURIDICAL ANALYSIS OF NARCOTICS MISUSE TYPES OF METHAMPHETAMINE ITS IMPACT ON THE YOUNGER GENERATION (RESEARCH STUDY AT THE BINTAN POLICE STATION)

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ABSTRACT

The misuse and illicit trafficking of narcotics has now reached an alarming level and threatens all aspects of the life of the nation and state. The problem of drug misuse in Indonesia has penetrated most levels of society. Starting from the upper layers of society to the lower society. The problem in this research is how to regulate the law on the use of narcotics and methamphetamine, their impact on the younger generation (Research Study at the Bintan Police Station). How is the implementation of the Crime of Misuse of Methamphetamine Types of Narcotics, their Impact on the younger generation (Research Studies at the Bintan Police Station) and what factors are obstacles or obstacles as well as solutions for law enforcement for the crime of misuse of methamphetamine, their impact on the younger generation (Research Study at the Bintan Police Station). This study aims to determine the Legal Arrangements for the Misuse of Narcotics Types of Methamphetamine, their Impact on the younger generation (Research Study at the Bintan Police Station). To find out the implementation of the juridical analysis of Law Enforcement of the Crime of Misuse of Narcotics Types of Methamphetamine, their Impact on the younger generation (Research Study at the Bintan Police Station). To find out the factors that become obstacles or obstacles as well as solutions for law enforcement for the misuse of narcotics type methamphetamine, their impact on the younger generation (Research Study at the Bintan Police Station). This study uses a descriptive method by using a normative approach. This is to obtain primary data through field research (research). The results of the study indicate that Law Enforcement of the Crime of Misuse of Narcotics Types of Methamphetamine, their Impact on the younger generation (Research Study at the Bintan Police Station) has basically been implemented well, although there are still many obstacles in the field. Especially external and internal factors, community participation is needed to tackle the crime of drug misuse in the family and community of law enforcers. In particular, by providing regular counseling about the dangers of narcotics.

KEYWORDS: *Law Enforcement, Criminal Law, Narcotics*

INTRODUCTION

Indonesia is one of the primary destinations for illegal drugs and their precursors. The misuse and illegal trafficking of drugs has reached an alarming level, endangering every element of national and state life. In Indonesia, the issue of drugs addiction has permeated all sectors of society, from the higher to the lowest. The distribution of drugs is no longer limited to large cities, but has spread to small towns, sub-districts, and even villages (Waluyo, 2007).

Narcotics users are essentially misusing the narcotics' and substances' characteristics and functions. Narcotic misuse is the intentional use of

drugs in excessive quantities, often and for a long enough period of time to create health, physical, mental, and social issues. Continuous drugs misuse may result in addiction, which is the behavior of narcotics use dependency. In Indonesia, the number of drugs addicts seems to grow year after year.

The younger generation is critical in attaining the goals of national development outlined in the Preamble to the Republic of Indonesia's 1945 Constitution's state objectives. Gatot Supramono stated that drugs may impede national development on all levels, from material to spiritual. The risks of drug use have a significant effect on the country; if



widespread drug use occurs in society, the Indonesian nation will deteriorate into a sick nation. If that occurs, the country would become fragile from within due to a decrease in national resilience (Sunarso, 2004).

In order to regulate and prevent the wider impact of narcotics misuse, the existence of a criminal law is very necessary. As a public law that governs the legal relationship between the state and its citizens, criminal law contains a number of norms and provisions that must be followed. The goal is to create harmony, order, order and legal certainty in the life of the nation and state. Violations of criminal provisions are commonly referred to as crimes and have legal sanctions for violators. Misuse of narcotics and illegal drugs is categorized as a crime because the consequences are very dangerous, not only for the user but also for the family and the surrounding community. The determination of narcotics abuse as a crime starts with placing narcotics and psychotropic abuse as a crime in the law, which is commonly stated as criminalization. Along with advances in science and technology, narcotics crimes are seen as having increased to become transnational in nature, carried out with a high modus operandi, and supported by technology and an extensive organizational network, so that more and more narcotics victims become victims. Especially among the younger generation, who are very dangerous to the life of the community, nation, and state. The statutory provisions governing narcotics issues have been drafted and enforced. However, crimes involving narcotics cannot be appeased. In the last case, many dealers and dealers were caught and received severe sanctions, but other actors seemed to ignore them, and even tended to expand their area of operation (Sunarso, 2004).

The Law Number 35 of 2009, concerning Narcotics as a revision of Law Number 22 of 1997, concerning Narcotics and also covering the classification of narcotics groups I and II in Law Number 5 of 1997, concerning Psychotropics, was promulgated on October 12, 2009 and placed in the State Gazette of the Republic of Indonesia Year 2009 Number 143 and an additional State Gazette of the Republic of Indonesia numbered 5062.

This law was issued as a government action in responding to the increasing misuse of illicit narcotics trafficking. In order to ensure the regulation of medical and social rehabilitation efforts for narcotics misusers and addicts in accordance with the objectives contained in Article 4 letter (d) of the Law on Narcotics. The impact of the purpose in Article 4 letter (d), is the adoption of alternative penalties imposed on perpetrators of narcotics misuse. In addition to punishment in the form of imprisonment and fines, the Narcotics Law also opens up

opportunities for rehabilitation for addicts and victims of narcotics misuse.

This is due to the fact that the imposition of criminal sanctions in the form of imprisonment and fines has no impact or deterrent effect on the perpetrators who ignore them and are even more inclined to expand their area of operation. Law Number 35 of 2009 concerning Narcotics as a revision of Law Number 22 of 1997 concerning Narcotics and also covering the classification of narcotics groups I and II in Law Number 5 of 1997 concerning Psychotropics, was promulgated on October 12, 2009 and placed in the State Gazette of the Republic of Indonesia Year 2009 Number 143 as well as an additional Sheet of the Republic of Indonesia numbered 5062. This law was issued as a government action in responding to the increasing misuse of narcotics illicit traffic and to ensure the regulation of medical and social rehabilitation efforts for narcotics misusers and addicts in accordance with the purposes contained in Article 4 letter (d) of this Law on Narcotics. The impact of the purpose in Article 4 letter (d), is the adoption of alternative penalties that can be imposed on perpetrators of narcotics misuse. In addition to punishment in the form of imprisonment and fines, the Narcotics Law also opens up opportunities for rehabilitation for addicts and victims of narcotics misuse. This is due to the factor that the imposition of criminal sanctions in the form of imprisonment and fines does not have an impact or deterrent effect on the perpetrators, not quia peccatum est (because people make crimes) but ne peccetur (so people don't commit crimes)."

Punishment is not merely giving punishment to people who have committed a crime but also has the aim of restoring justice to the victim. Aspects of punishment given to drug addicts are intended to provide treatment and rehabilitation rather than just punishment. Because basically, narcotics misusers or addicts are perpetrators of narcotics misuse crimes as well as victims of their own actions. In addition to several provisions governing rehabilitation for addicts and victims of narcotics misuse, in Law Number 35 of 2009 there are still provisions in articles that are still ambiguous when related to the existence of rehabilitation opportunities for addicts and victims of narcotics misuse. There is still a threat of imprisonment for every narcotics misuser, namely in Article 127 paragraph (1) which states that, Every misuser of Narcotics Category I for himself shall be sentenced to a maximum imprisonment of 4 (four) years. Narcotics Category II for oneself shall be sentenced to a maximum of 2 (two) years in prison, and Narcotics Category III for oneself shall be sentenced to a maximum of 1 (one) year in prison.

Furthermore, in Article 127 paragraph (3), it is also stated that in the event that the misuser as



referred to in paragraph (1) can be proven or proven to be a victim of narcotics misuse, the misuser is obliged to undergo medical rehabilitation and social rehabilitation. The definition can be proven or proven in the provisions of the article, meaning that an misuser must be proven or proven as a victim of narcotics misuse or as a narcotics addict through a process known as an integrated assessment. This illicit trafficking and misuse of narcotics does involve a complex and globally influential system and can be closely related to the national resilience of a nation. This situation is of course a challenge for the Indonesian people in order to maintain and ensure the continuity, peace, and welfare of the people. This is even more so if it is related to the ideals of the founding fathers, namely "To protect the entire Indonesian nation and the entire homeland of Indonesia based on unity by realizing social justice for all Indonesian people". The Indonesian government has made a firm determination that the misuse and illicit trafficking of narcotics is a real danger that must be handled early by involving all components of the nation. In the last five years alone, the trend of increasing narcotics crimes continues. This increase can be seen by the increasing number of reported cases and the number of suspects involved, both as users and as drug dealers.

One of the concrete manifestations of the efforts to eradicate narcotics is the enactment of Law No. 35 of 2009 concerning Narcotics on September 14, 2009. This law is a refinement of Law No. 22 of 1997 concerning Narcotics and Law No. 5 of 2009. 1997 on Psychotropics. Law number 22 of 1997 is deemed to have less deterrent effect in reducing the level of prevention both qualitatively and quantitatively against narcotics misuse and illicit trafficking. The various regulations implemented in Law Number 35 of 2009 concerning Narcotics, State Gazette of the Republic of Indonesia of 2009 Number 143 have indeed brought changes when compared to the previous law, especially regarding the expansion of the types of narcotics groups and the expansion of evidence related to electronic goods.

Based on this background, the following problems can be formulated.

- 1) How does the Legal Arrangement for the misuse of methamphetamine and other types of narcotics and their impact on the younger generation (Research study at the Bintan Police Station)?
- 2) How does the implementation of the crime of misuse of methamphetamine affect the younger generation (Research study at the Bintan Police Station)?
- 3) What are the obstacles and the solutions to the misuse of methamphetamine and other types of

narcotics and their impact on the younger generation (Research study at the Bintan Police Station)?

Therefore, the purpose of this research is first, to find out the Legal Arrangements for the misuse of methamphetamine and other types of narcotics and their impact on the younger generation (Research Study at the Bintan Police Station). Second, to find out the the implementation of the crime of misuse of methamphetamine and their impact on the younger generation (Research Study at the Bintan Police Station). Third, to find out what are the obstacles and solutions for the legal regulation of the misuse of methamphetamine-type narcotics and their impact on the younger generation (Research Study at the Bintan Police Station).

Theoretically, the results of this study are expected to contribute to the development of legal science, especially criminal law. This is because the results of this study provide clarity on the laws and regulations regarding the crime of misuse of narcotics types of methamphetamine, their Impact on the younger generation (Research Study at the Bintan Police Station) in the future. Practically, this research is expected to provide benefits to legislators and agencies. For legislators, the results of this study are expected to provide an explanation of the prospects for an ideal arrangement in the future regarding the crime of misuse of narcotics types of methamphetamine, their Impact on the younger generation (Research Study at the Bintan Police Station). For authorized law enforcers, the results of this study are expected to provide explanations and guidelines regarding the policies that should be applied by law enforcement officials in the crime of misuse of narcotics types of methamphetamine, their Impact on the younger generation (Research Study at the Bintan Police Station).

LITERATURE REVIEW

Legal Regulations on the Misuse of Methamphetamine Types of Narcotics Impacts on the younger generation (Research Study at the Bintan Police Station)

The scope of criminal law includes three provisions, namely criminal acts, liability, and punishment. The criminal provisions contained in Law No. 35 of 2009 concerning narcotics are formulated in Chapter XV of Criminal Provisions Articles 111 to 148.

Law No. 35 of 2009 concerning Narcotics, there are four categorizations of unlawful acts that are prohibited by law and can be threatened with criminal sanctions, namely:

The first category is acts in the form of possessing, storing, controlling or providing narcotics and narcotics precursors (Articles 111 and 112 for narcotics class I, Article 117 for narcotics class II and



Article 122 for narcotics class III and Article 129 letter (a))

The second category, namely acts in the form of producing, importing, exporting, or distributing narcotics and narcotics precursors (Article 113 for narcotics class I, Article 118 for narcotics class II, and Article 123 for narcotics class III and Article 129 letter (b))

The third category, namely acts in the form of offering for sale, selling, buying, receiving, intermediary in buying and selling, exchanging, or delivering narcotics and narcotics precursors (Article 114 and Article 116 for narcotics class I, Article 119 and Article 121 for narcotics class II Article 124 and Article 126 for narcotics class III and Article 129 letter (c));

The fourth category is acts in the form of carrying, sending, transporting or transiting narcotics and narcotics precursors (Article 115 for narcotics class I, Article 120 for narcotics class II and Article 125 for narcotics class III and Article 129 letter (d)).

Law No. 35 of 2009 concerning Narcotics has regulated the types of sanctions given to narcotics crimes, including:

- (1) Criminal acts for misusers or as victims of narcotics misuse, the misuser is obliged to undergo medical rehabilitation and social rehabilitation.
- (2) Criminal Acts of Parents / Guardians of Narcotics Addicts who are not yet old enough (Article 128) shall be punished with imprisonment for a maximum of 6 (six) months or a fine for a maximum of Rp. 1,000,000.00 (one million rupiah)
- (3) Crimes Committed by Corporations (Article 130) shall be punished with imprisonment and a fine with a weighting of 3 (three) times. Corporations may be subject to additional penalties in the form of revocation of business licenses and/or revocation of legal entity status.
- (4) Criminal acts for people who do not report the existence of narcotics crimes (Article 131). Sentenced to a maximum imprisonment of 1 (one) year or a maximum fine of Rp. 50,000,000.00 (fifty million rupiah).), shall be sentenced to the same imprisonment in accordance with the provisions referred to in those Articles. Paragraph (2), imprisonment and fines.

Article 136 of Law no. 35 of 2009 provides sanctions in the form of narcotics and narcotics precursors as well as the proceeds obtained from narcotics crimes, whether movable or immovable assets or tangible or intangible assets and goods or equipment used for narcotics crimes are confiscated for the state. Article 146 also provides sanctions for

foreign nationals who have committed a narcotic crime or have undergone narcotics crime, namely expulsion from the territory of the Republic of Indonesia and prohibited from re-entering the territory of the Republic of Indonesia. Whereas in Article 148, if the fine as stipulated in this law is not paid by the perpetrator of a narcotic crime, the perpetrator is sentenced to a maximum imprisonment of two years as a substitute for a fine that cannot be paid.

Implementation of Law Enforcement for the Misuse of Narcotics Types of Methamphetamine their Impact on the younger generation (Research Study at the Bintan Police Station).

Narcotics misuse has involved many elements. The drug cartels, for example, play the most important role in the high circulation of narcotics in Indonesia. Officials, pilots, law enforcement officers, students and children have become victims of narcotics misuse. Law enforcement officials even cooperate with narcotics cartels to sell and protect the narcotics cartels. Narcotics misuse remains high in Indonesia because of law enforcement. For instance, it can be bribed and law enforcement is weak. It has become an increasing element that causes narcotics misuse to remain high in the country. The concept of criminal law for narcotics itself includes criminal, criminal and non-criminal (penal) acts.

A criminal action is a crime prevention science that can be done by combining the application of criminal means and prevention without using criminal means. Criminal law action is an effort to overcome crime by using criminal means. While related to non-criminal action, it is a preventive measure before the occurrence of a crime. Criminal law actions and non-criminal actions are part of criminal acts and criminal acts themselves are part of law enforcement actions which have the ultimate goal of protecting society, namely to achieve community welfare.

Criminal actions against narcotics crime regulations in Indonesia include criminal liability, actions that qualify as criminal acts and criminal sanctions. Criminal liability itself consists of accountability carried out by humans and corporations as the subject of criminal acts. Prohibited acts consist of distributing narcotics or narcotic precursors and abusing narcotics or narcotic precursors, either for oneself or for others. There are sanctions in this law, namely criminal sanctions consisting of basic and additional criminal sanctions. The main punishments consist of capital punishment, imprisonment, imprisonment and fines. While additional penalties consist of revocation of business licenses and revocation of legal entity status for corporations, The action sanction given is treatment and rehabilitation for addicts or victims of narcotics



misuse. The Narcotics Law also regulates the functions and roles of the National Narcotics Agency as an institution for the prevention and eradication of narcotics crimes and narcotics precursors. BNN has a role and function as an investigator in the context of eradicating illicit trafficking and misuse of narcotics and narcotics precursors.

RESEARCH METHODS

The research method consists of two words, namely the word method and the word research. The word method comes from the Greek word *methodos*, which means way or path. The method is a scientific activity related to a method of working (systematic) to understand a subject or object of research, as an effort to find answers that can be scientifically justified and include their validity (Ruslan, 2003).

Related to the writing of this research, the authors used empirical law or sociological research methods. This research is based on primary data or basic data, namely data that can be obtained directly from the community as the first source through field research. Primary data was obtained through field research, for example through observation, interviews and distributing questionnaires. Sociological legal research can be realized in research on the effectiveness of the current law or research on legal identification. Primary legal research cannot be conducted independently of normative legal research. Normative legal research is library research or document study, because it is mostly carried out on secondary data in the library. In normative research, secondary data as sources/information materials can be primary legal materials, secondary legal materials and tertiary legal materials.

Secondary data is obtained by library research in order to obtain a theoretical basis in the form of opinions or writings of experts or other authorized parties and also to obtain information both in the form of formal provisions and data through existing official texts. Secondary data in the field of law can be divided into:

a) The binding primary legal materials are the basic norms of Pancasila, the 1945 Constitution of the Republic of Indonesia, the Criminal Code (KUHP); The Criminal Procedure Code (KUHAP), Law Number 35 of 2009 concerning Narcotics which was revised over Law Number 22 of 1997 concerning Narcotics and the classification of narcotics groups I and II, Government Regulation of the Republic of Indonesia Number 47 of 2019 Amendment to Presidential Regulation of the Republic of Indonesia Number 23 of 2010 concerning the National Narcotics Agency, Government

Regulation of the Republic of Indonesia Number 25 of 2011 concerning the Implementation of Compulsory Reporting of Narcotics Addicts, Joint Regulation of the Chairperson of the Supreme Court of the Republic of Indonesia, Government Regulation of the Republic of Indonesia Number 40 of 2013 concerning the Implementation of Law Number 35 of 2009 concerning Narcotics, Regulation of the Attorney General of the Republic of Indonesia Number PER-029/A/JA/12/2015 concerning Technical Instructions for Handling Narcotics Addicts and Victims of Narcotics Misuse in Rehabilitation Institutions, Regulation of the Minister of Health of the Republic of Indonesia Number 80 of 2014 concerning Technical Instructions for Implementation Medical Rehabilitation For Addicts, misusers and Victims of Narcotics misuse who are in the Process of Investigation, Prosecution and Trial or Have Received a Court Decision/Decision, Regulation of the Minister of Health of the Republic of Indonesia Number 4 of 2020 concerning Organization of Institutions Recipient of Compulsory Reporting, Regulation of the Head of the National Narcotics Agency Number 11 of 2014 concerning Procedures for Handling Defendants of Narcotics Addicts and Victims of Narcotics misuse in Rehabilitation Institutions and Joint Regulations with the Chairman of the Supreme Court of the Republic of Indonesia, Minister of Law and Human Rights, Minister of Health of the Republic of Indonesia, Minister of Social Affairs of the Republic of Indonesia, Attorney General of the Republic of Indonesia, Chief of the State Police of the Republic of Indonesia Indonesia, Head of the National Narcotics Agency of the Republic of Indonesia, Number 01/PB/MA/III/2014, Number 03 of 2014, Number 11/Year 2014, Number 03/Year 2014, Number PER-005/A/JA/03/2014, Number 1 of 2014, Number PERBER/01/III/2014/BNN Concerning the Handling of Narcotics and Drug Addicts Ban Narcotics misuse Into Rehabilitation Institutions.

b) Secondary legal materials, which include dictionaries, literature, books, articles, and the internet, and are closely related to primary legal materials and can aid in the analysis and understanding of primary legal materials.



- c) In general, tertiary legal materials or supporting legal materials include materials that provide guidance on primary and secondary legal materials (Soekanto, 2003).

LOCATION, POPULATION AND SAMPLE

This research was conducted by the authors at the Bintan Police Station. The population of this study is the Head of the National Narcotics Agency of the Riau Islands Province and users who undergo an integrated assessment. Meanwhile, for the sample in this study, the authors used a non-probability sampling technique, or non-random sampling technique by means of purposive sampling. How to take this sample is based on a specific purpose. This technique is usually chosen because of the limitations of time, effort, and cost so that it cannot take large and distant samples (Soekanto, 2003).

DATA COLLECTION TECHNIQUES AND DATA COLLECTION TOOLS

In this study, the authors used interview techniques to collect data. The interview used is an open interview by conducting direct questions and answers based on a list of questions that was made previously and developed during the interview. The authors conducted interviews with narcotics investigators at the Bintan Police Station. In addition, the source of data used by the authors in this study is secondary data.

All secondary data uses data collection techniques in the form of searching documents collected through the library. Library research is a method of data collection which is carried out through library materials in the form of journal books, and articles written by experts. From all the data that has been obtained and collected, both the results of interviews and library materials are re-examined to determine the completeness and clarity, and then a data management process is held by compiling the data, then classified so that it is easy to perform data analysis.

DATA ANALYSIS

Data analysis is an important and decisive stage in a study. Data analysis is also a stage to find the source of the problem and the answer to the research problem being carried out. (Soekanto, 2003) There are two types of data analysis methods, namely qualitative and quantitative. Qualitative analysis is descriptive data, including words and pictures, is obtained from interview transcripts, field notes, photos, video tapes, personal documents, and others. Quantitative analysis is by providing codes, numbers, measures and operational variables. obtained from data collection in a literature study (legal research)

and field studies in this study, were analyzed using qualitative data analysis, which is a scientific way to obtain valid data with the aim of discovering, proving and developing knowledge. so that it can be used to understand, solve and anticipate the problem in question from natural data and has deep accuracy (Manab, 2015).

For decision making from the data from this research, the positive legal study method used by the authors in this study is a deductive (general) to induction (specific) method, which is a method used to complete the normative system that has been compiled and organized through efforts. collection and inventory (Manab, 2015).

CONCLUSION

Legal Arrangements for the Misuse of Narcotics Types of Methamphetamine Its Impact on the younger generation (Research Study at the Bintan Police Station) It is in accordance with the rules stipulated by the 1945 Constitution of the Republic of Indonesia, the Criminal Code (KUHP); The Criminal Procedure Code (KUHAP), Law Number 35 of 2009 concerning Narcotics which was revised over Law Number 22 of 1997 concerning Narcotics and the classification of narcotics groups I and II, Government Regulation of the Republic of Indonesia Number 47 of 2019 Amendment to Presidential Regulation of the Republic of Indonesia Number 23 of 2010 concerning the National Narcotics Agency, Government Regulation of the Republic of Indonesia Number 25 of 2011 concerning the Implementation of Compulsory Reporting of Narcotics Addicts, Joint Regulation of the Chairperson of the Supreme Court of the Republic of Indonesia, Government Regulation of the Republic of Indonesia Number 40 of 2013 concerning the Implementation of Law Number 35 of 2009 concerning Narcotics, Regulation of the Attorney General of the Republic of Indonesia Number PER-029/A/JA/12/2015 concerning Technical Instructions for Handling Narcotics Addicts and Victims of Narcotics misuse in Rehabilitation Institutions, Regulation of the Minister of Health of the Republic of Indonesia Number 80 of 2014 concerning Technical Instructions for Implementation Medical Rehabilitation For Addicts, misusers and Victims of Narcotics misuse who are in the Process of Investigation, Prosecution and Trial or Have Received a Court Decision/Decision, Regulation of the Minister of Health of the Republic of Indonesia Number 4 of 2020 concerning Organization of Institutions Recipient of Compulsory Reporting, Regulation of the Head of the National Narcotics Agency Number 11 of 2014 concerning Procedures for Handling Defendants of Narcotics Addicts and Victims of Narcotics misuse in Rehabilitation Institutions and Joint Regulations with



the Chairman of the Supreme Court of the Republic of Indonesia, Minister of Law and Human Rights, Minister of Health of the Republic of Indonesia, Minister of Social Affairs of the Republic of Indonesia, Attorney General of the Republic of Indonesia, Chief of the State Police of the Republic of Indonesia, Head of the National Narcotics Agency of the Republic of Indonesia, Number 01/PB/MA/III/2014, Number 03 of 2014, Number 11/Year 2014, Number 03/Year 2014, Number PER-005/A/JA/03/2014, Number 1 of 2014, Number PERBER/01/III/2014/BNN Concerning the Handling of Narcotics and Drug Addicts Ban Narcotics misuse Into Rehabilitation Institutions.

Implementation of the Criminal Acts of Misuse of Narcotics Types of Methamphetamine Its Impact on the younger generation (Research Study at the Bintan Police Station) It has been going well, but in fact, it is still found in the field of narcotics misuse in terms of the professionalism of the performance of police personnel and strict legal sanctions for perpetrators of criminal acts of misuse Narcotics. In accordance with the provisions of Law Number 35 of 2009 concerning Narcotics.

Factors that become obstacles and solutions that are carried out in Law Enforcement of the Crime of Misuse of Methamphetamine Types of Narcotics Its Impact on the younger generation (Research Studies at the Bintan Police Station) are internal factors in the form of Police leadership policies to establish a Drug Directorate at the Headquarters level and at the Polres level until The Regional Police have made the prevention of drug misuse in Indonesia in particular become more focused and focused, so that it is expected to obtain optimal results. 5 of 1997 concerning Psycho-tropics and Law no. 22 of 1997 concerning Narcotics and Presidential Decree No. 17 of 2002 concerning the National Narcotics Agency is a legal umbrella that regulates the prevention of drug misuse, so as not to make law enforcement officers hesitate in carrying out law enforcement.

SUGGESTION

Based on the conclusions that have been mentioned above, there are some suggestions for law enforcement on the Misuse of Methamphetamine and its Impact on the younger generation:

Legal Regulations on the Misuse of Methamphetamine Types of Narcotics Its Impact on the younger generation (Research Study at Bintan Police Station) requires strict sanctions for perpetrators and police officers who use methamphetamine narcotics.

Implementation of Law Enforcement on the Misuse of Methamphetamine and its Impact on the younger generation (Research Study at the Bintan Police Station) is expected to have coordinated

actions between parties or agencies such as between the police and the National Narcotics Agency, the Ministry of Transportation, the Ministry of Education and Culture, the Ministry of Religion, other institutions educational institutions, community organizations and others.

Inhibiting factors and solutions for law enforcement of the misuse of methamphetamine and its impact on the younger generation (Research Study at the Bintan Police Station), it is necessary to involve the community in tackling the crime of narcotic misuse, especially in the family and community. Special enforcers, in particular, provide routine counseling about the dangers of narcotics.

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THE WOMEN'S FAMILY CRONICLE IN AMERICAN LITERATURE OF XIX-XX CENTURY

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ABSTRACT

The aim of the research work is a determination of the peculiarities of development of American women's "family chronicle" genre of XIX- XX century. The article study the novels «Little Women» of Louisa May Alcott and «How the Garcia Girls Lost their Accents» of H. Alvares, writing in genre of family chronical. The scientific novelty of the research work is: the works of American family chronicle of the XIX-XX century have been philologically analysed for the first time for their typical particularity, to display the familial state of women in USA. The article raises a question of identification of the place of women in family chronical novel of L. M. Alcott and H. Alvares distinguishing "family chronical" as epic work of literature and family chronicle novel about family relations in America and Europe in the second half of XIX century.

KEY WORDS: *family, familial rapports, generation, family chronical, origin, epical work, characteristic trait.*

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XIX-XX АСРЛАР АҚШ АДАБИЁТИДА АЁЛЛАР «ОИЛА ХРОНИКАСИ»

ЖЕНСКАЯ «СЕМЕЙНАЯ ХРОНИКА» В ЛИТЕРАТУРЕ США XIX-XX ВЕКОВ

THE WOMEN'S «FAMILY CRONICLE» IN AMERICAN LITERATURE OF XIX-XX CENTURY

АННОТАЦИЯ

*Цель исследования - определить особенности развития женского жанра семейной хроники в американской литературе XIX-XX веков. Для этого рассматриваются романы Л.М.Олкотт и Х.Альварес, написанные в жанре семейной хроники. Основное содержание исследования составляет анализ романа «Маленькие женщины» Л.М.Олкотт и романа «Как девочки Гарсия утратили свой акцент» Хулии Альварес. **Научная новизна работы***



заключается в подходе к изучению развития жанра американской семейной хроники с точки зрения ее жанрового своеобразия, раскрытию семейного состояния американской женщины и отношению к ней в обществе. **В результате** выявлено, что в семейных хрониках Л.М.Олкотт и Х.Альварес раскрываются столкновения характеров с положительными и отрицательными исходными данными, сыгравшие определенные роли в развитии американского общества XIX-XX веков.

The aim of the research work is a determination of the peculiarities of development of American women's "family chronicle" genre of XIX- XX century. The article study the novels «Little Women» of Louisa May Alcott and «How the Garcia Girls Lost their Accents» of H.Alvares, writing in genre of family chronical. The scientific novelty of the research work is: the works of American family chronicle of the XIX-XX century have been philologically analysed for the first time for their typical particularity, to display the familial state of women in USA. The article raises a question of identification of the place of women in family chronical novel of L.M. Alcott and H.Alvares distinguishing "family chronical" as epic work of literature and family chronicle novel about family relations in America and Europe in the second half of XIX century.

Ключевые слова: семья, семейные отношения, поколение, семейная хроника, истоки, эпическое произведение, характерные черты.

Key words: family, familial rapports, generation, family chronical, origin, epical work, characteristic trait.

ВВЕДЕНИЕ

Понятие семейная хроника прочно вошло в литературоведческий обиход. Семейная хроника, взятая во всей совокупности своей проблематики, направленной на осмысление взаимоотношений в семье, складывающаяся и видоизменяющаяся на протяжении последних двух веков, представляет собой сложное явление. Мы имеем в виду не только американскую «family saga», но и семейную хронику в целом.

Семейная хроника отличается от других жанров «своеобразием композиции, проявляющееся в повторяющихся, привычных в своей обыденности событиях семейной жизни: рождение, учение, воспитание детей, свадьба, смерть, похороны.

Семейная хроника ближе всего к историческому роману. Однако историзм семейной хроники своеобразен: крупные события и реальные исторические деятели, присутствующие в романе, не интересуют автора сами по себе, но они находят отражение, как имеющие значение для данной семьи. Например, для формирования характера подрастающего поколения или изменения взглядов взрослого поколения, как отмечает Е.Никольский, «авторы предлагают именно несколько иной взгляд на историю, как бы снижая ее масштабы и очеловечивая ее».¹

В XIX веке в русском литературоведении широко была распространена расплывчатость определений жанра семейной хроники. В основном исследователи обращали внимание на структурно-композиционные особенности семейной хроники. Подход, намеченный З.И.Кирнозе, отмечал структурную неоднородность семейного романа, и тем самым, обосновывал необходимость разделения семейно-бытового романа и семейных хроник. В семейно-бытовом романе, по определению З.И.Кирнозе, «семейный конфликт возникает как конфликт характеров, помещенных в круг избранных обстоятельств».² Все эти черты семейно-бытового романа органически присущи семейным хроникам.

В XX веке противоречия между личностью и обществом, с одной стороны, героем и другими персонажами произведения, с другой, осложнились настолько, что они уже не вмещались в рамки одного романа в традиционном понимании. И, стремясь разрешить эти противоречия, роман как бы модернизирует эту форму («субъективное повествование»). Семейная хроника связана именно с этой задачей. Эту особенность современной прозы отмечает критик Н.А.Анастасьев, который пишет: «Сейчас явно возрождается тип панорамного, многогеройного повествования, семейная

¹ Никольский Е. Жанр семейного романа – хроники в русской литературе рубежа веков. – М., 2002. – С.5.

² Кирнозе З.И. Проблемы романа во французской литературе 20–30 годов XX века (развитие семейно-бытового романа и семейной хроники). – Горький, 1977. – С. 15.



хроника в стиле «Будденброков» или «Саги о Форсайтах».³

Семейным хроникам присуще объединение сразу нескольких повествовательных коллизий, объясняемых большим количеством действующих лиц и принципиальным различием их судеб, причиной чему служит принадлежность героев к разным поколениям. Семейная хроника отличается от семейно-бытового романа именно характером временного плана. Наряду с родовым временем в семейных хрониках присутствует и историческое время, показывающее смену поколений, представляющих собой новые этапы общественного развития.

Часто критики сопоставляли семейную хронику с историческим романом и семейным романом. Так в статье П.В.Анненкова, хотя и не обозначавшего прямо семейную хронику как исторический роман, содержится, однако, отсылка к творчеству В.Скотта. Рассуждение С.С.Дудышкина вводит семейную хронику в контекст исторического романа А.С.Пушкина.⁴ Н.П.Гиляров-Платонов также отмечал, что семейная хроника «обладает внутренним единством взамен внешнего», а достоверность и историческая обусловленность материала позволяет ему обозначить семейную хронику как «нечто близкое историческому роману».⁵ Видимо, имея в виду нравоописательное и историческое начала в семейной хронике, критики говорили о ней как о «произведении романического».

Здесь мы склонны согласиться с такими, во многом схожими подходами и, исходя из этого, рассматриваем семейную хронику как своеобразный вариант семейного романа, показывающий именно историю, иерархию семьи, а не просто семейные отношения. На наш взгляд, жанр семейной хроники предполагает, прежде всего, тематическую общность произведений, поэтому его изучение требует выявления проблемно-тематической семантики. Семейная хроника объединяет многочисленные элементы повествования о жизни не одного отдельно взятого члена семьи, а семьи в целом,

причем не одного поколения данной семьи. Наличие внутрисемейного конфликта в родственных отношениях становится характерной чертой данного жанра. Отношения между разными членами семьи, которые, имея целый ряд особенностей характера строятся по принципу движения от органического единства до разрыва, имеют решающее значение для всей архитектоники жанра. Отсюда – своеобразие сюжета и композиции, всей структуры произведения.

а) Американская женская «семейная хроника» XIX-XX веков. В это время увеличивается количество женщин-писательниц как в западноевропейской, так и в американской литературе. Если в английской литературе это Джейн Остен (1774-1817), Маргарет Дрэбл, Айрис Мердок, Шарлотта Бронте (1816-1855) и Элизабет Гаскелл (1810-1865), то в литературе США это в первую очередь Луизы Мэй Олкотт (1832–1888). Как видно, в американской литературе и «семейная хроника» имеет свою собственную историю, которую, можно проследить со второй половины XIX века. Главной художественной спецификой американской женской «семейной хроники» этого периода является то, что в них рассказываются о жизни, о семьях не только белых, властвующих людей в Америке, но основное внимание уделяется жизни представителей подчиняющихся им народам и народностей, проживающих в США. Так, если большинству главных героев и других персонажей семейных хроник Луизы Мэй Олкотт (*Louisa May Alcott*, 1832–1888) составляют креолы, то в творчестве писательницы и поэтессы доминиканского происхождения Хулии Альварес (*Julia Álvarez*, род.1950) основная проблематика – «проявление бытия личности в микросреде семьи, а также бытие семьи (как отображение истории отдельного класса) в социуме».⁶

Основоположницей жанра семейной хроники не только среди американских писательниц, но и в американской литературе в целом считается Луиза Мэй Олкотт. Л.М.Олкотт первая в американской литературе написала семейную хронику – хронику южных областей США, где проживают выходцы многих национальностей – афроамериканцы, мексиканцы, представители многих народов и национальностей Карибского бассейна. Поэтому

³ Анастасьев Н. Обновление традиции. – М.: Советский писатель, 1984. – С.334.

⁴ Дудышкин С.С. «Семейная хроника» и «Воспоминания» С.Т. Аксакова. // Отечественные записки. 1856. Т. 35. № 4. Отд. 3. – С. 69–90. // <http://www.lib.ua-ru.net/>

⁵ Гиляров–Платонов Н.П. «Семейная хроника» и «Воспоминания» С.Т. Аксакова. // Гиляров–Платонов Н.П. Собр. соч. Т. 2. – М., 1899. – С. 75–143. // <http://www.lib.ua-ru.net/>

⁶ Никольский Е. Жанр семейного романа–хроники в русской литературе рубежа веков. – М., 2002. – С.5.



анализ её произведений требует отдельного подхода.

б) Семья в творчестве Луизы Мэй Олкотт. Американская писательница Луиза Мэй Олкотт родилась в небогатой семье писателя Амоса Бронсона Олкотта и участницы движения против дискриминации женщин Эбби Мэй. В 1838 году семья Олкоттов переехала в Бостон, а спустя еще несколько лет - в Конкорд. Детство и юность Луизы прошли в кругу известных интеллектуалов того времени: Генри Дэвида Торо, Ральфа Уолдо Эмерсона, Натаниеля Готорна и Маргарет Фуллер. Она рано начала работать, была гувернанткой, учительницей, швеей. С детства увлекалась литературой, сочиняла небольшие рассказы и сказки, писала пьесы для домашнего театра. В 22 года девушка написала свою первую книгу «Басни о цветах» (Flower Fable).

Во время Гражданской войны в США Луиза служила медсестрой в военном госпитале в Джорджтауне. В 1863 году в переработанном виде были изданы ее письма родным, которые она посылала из госпиталя, и эта книга принесла ей первую, хотя и не очень широкую известность.

В начале своей карьеры Луиза использовала псевдоним М. Барнард и писала молодежные романы. 1857 год стал трудным для семьи Олкоттов, и Луиза подумывала о самоубийстве. Спасла ее Шарлотта Бронте, чью биографию она изучала в тот момент. Она провела параллели со своей жизнью и нашла много общего.

В 1860 году Луиза стала писать статьи для американской газеты The Atlantic Monthly. Однако успех пришел к ней в конце 60-х, когда была опубликована самая известная и популярная книга Олкотт «Маленькие женщины» (*Little Women*, 1868), повествующая о взрослении четырех дочерей семьи Марч: Мег, Джо, Бет и Эми. Прообразом Мег послужила старшая сестра писательницы Анна, саму себя она выразила в образе Джо, а образы Бет и Эми были списаны с ее младших сестер Элизабет и Мэй соответственно. Один из критиков назвал его лучшей книгой, «способной доставлять до сердце людей от шести до шестидесяти».

Полуавтобиографический роман Луизы Мэй Олкотт о четырех сестрах-подростках признан классикой юношеской литературы. Ключевая тема книги - взросление - актуальна во все времена. Сестры Мег, Джозефина, Бет и Эми Марч живут в Конкорде, штат Массачусетс. Идет Гражданская война, и семейству Марч приходится нелегко: отец воюет, а вся забота о доме ложится на плечи матери. Но девочки не

унывают. Они стараются сообща справиться с трудностями и всегда помнить о том, что семья – их главная опора и поддержка.

Сестры очень разные: Мег – самая «правильная» и романтичная, Джо – настоящий сорванец в юбке, Бет – тихоня с добрейшим сердцем, а младшая, Эми – легкомысленная, кокетливая, но по-своему мудрая. Вместе они проходят через радости и горести, мечтают о будущем и постигают нелегкую науку взросления.

Успех книги побудил писательницу сочинить несколько связанных с этим произведением романов. Вторая часть повести «Маленькие женщины», широко известная под названием «Порядочные женщины» («Good Wives», 1869) повествует о юности сестер Марч и их замужестве. В 1871 году была издана книга «Маленькие мужчины», также полуавтобиографическая, – о племянниках писательницы; наконец, в 1886 году вышла книга «Ребята Джо». Кроме того, многие из последующих рассказов и повестей Олкотт перекликались с «Маленькими женщинами».

В третьей части семейной тетралогии рассказывается о дочерях семьи Сары и Джо Хапкинса – втором поколении. В четвертой книге «Мальчики Джо» («Jo's Boys») речь идет уже о судьбах внуков и правнуков этой семьи.

Сама тетралогия называется «Четыре дочери доктора Марча» (1868). При жизни Луизы Мэй Олкотт хроника издавалась неоднократно. В целом, исследователи отмечают, что «...эта тетралогия – великолепный рассказ об американской жизни второй половины XIX века» [Le Petit ROBERT en 2 volumes, tome II. – Paris: SNL – Le Robert, 1979; 33].

«Маленькие женщины» Луизы Мэй Олкотт - это роман, на котором воспитывалось не одно поколение читателей по всему миру. Луиза Мэй Олкотт начал писать роман в мае 1868 года. Она работала над ним день и ночь, забывая периодически поесть или поспать. 15 июля она поставила финальную точку в рукописи и отправила 402 страницы редактору. В сентябре, всего через четыре месяца после начала работы над книгой, «Маленькие женщины» были опубликованы. Несмотря на нежелание Олкотт писать подобный роман, он мгновенно стал бестселлером, сделав писательницу богатой и знаменитой женщиной.

Роман «Маленькие женщины» рассказывает о четырех сестрах: Мег, Джо, Бет и Эми Марч – которые живут в Америке в эпоху Гражданской войны. Их отец ушел на войну, мать активно участвует в любой деятельности, которая может помочь солдатам на фронте, и девочки не



этом время стараются быть достойными своих родителей. У каждой из героинь свой яркий характер, свои привычки, увлечения и свои проблемы. Каждая из девочек ищет в жизни свой путь, и в этом их мягко направляют родители и окружение. Конечно, бывает, что они ошибаются, оступаются, случаются в их мире и серьезные трагедии и испытания, но в целом книга очень легкая и светлая, ее приятно читать, и при чтении постоянно тянет улыбаться. Героини совсем не идеальны, у них много своих недостатков, которые делают их живыми и настоящими, но за каждую из них хочется переживать и болеть, чтобы у них нашлись силы и упорство для того, чтобы пройти задуманный путь.

Старшая **Мег** помнила время, когда семья Марч жила в роскоши и развлечениях, и ее больше всех угнетала их бедность. Она работала гувернанткой в богатой семье и завидовала своим удачливым подругам в красивых платьях. Сестры Мег, Джозефина, Бет и Эми Марч живут в Конкорде, штат Массачусетс. Идет Гражданская война, и семейству Марч приходится нелегко: отец воюет, а вся забота о доме ложится на плечи матери. Но девочки не унывают. Они стараются сообща справиться с трудностями и всегда помнить о том, что семья – их главная опора и поддержка.

"Джо отличалась вспыльчивым нравом, никогда не лезла за словом в карман, и мятежный дух часто толкал ее на различные безрассудства", а еще она зачитывалась книгами и писала сама. Прототипом для героини стала сама Луиза Мэй Олкотт.

Бет была застенчива и трудолюбива. Она заботилась о своих растрепанных куклах, доставшихся ей от старших сестер, и устроила для них больничку. Она мечтала играть на хорошем фортепиано и плакала оттого, что не их семья не может этого позволить.

Самым большим несчастьем, по мнению **Эми**, был ее приплюснутый нос. Она мечтала, *"чтобы у нее был греческий профиль и в качестве некоторой компенсации постоянно рисовала носы излюбленной формы"*. У нее был талант к живописи, сестры прозвали ее "маленьким Рафаэлем". За хороший характер и манеры ее любили в школе.

Сестрам приходится нелегко, потому что их отец ушел на Гражданскую войну. Вместе с матерью дожидаясь возвращения отца с войны, девочки проходят непростой путь взросления, на котором им встречаются лишения и награды, смертельные опасности и бескорыстная помощь, ложные ориентиры и настоящие друзья. Роман способен поднять настроение читателям любого возраста. Милые сестры становятся примером

того, как сдерживать свой нрав, как учиться ценить то, что имеешь, как дружить и помогать друг другу, вопреки бедности и неудачам. Книга пропитана христианской моралью. К тому же, действие романа начинается и заканчивается в Рождество. Эпиграфом служит цитата из популярной в то время книги Джона Беньяна «Путь паломника». Сравним: в «Маленьких женщинах» сестры играют в «Странствия пилигримов».

Пусть эта небольшая повесть
Все тайное со дна души поднимет,
Заставит вас подумать и понять,
Что нету доблести превыше доброты.

Пусть эта небольшая повесть
Представится вам вроде пилигрима,
Который вам поведал тьму историй,
Чтоб, их узнав, вы сделали мудрей.

Пусть эта небольшая повесть
Заставит вас задуматься о ближнем
И, несмотря на множество преград,
Обучит вас науке милосердия.

Из Джона Беньяна⁷

Эти строки из Джона Беньяна приводятся как «Вместо предисловия».

Повествование поделилось на две примерно равные части, первая из 23 глав, вторая из 24 глав каждая со своим названием. Каждая глава представляет собой небольшую историю из жизни каждой из четырех главных героинь. При этом каждая из историй обязательно чему-нибудь учит ту из сестер, с которой она приключилась, а в конце четко проговаривается «мораль сей сказки».

Вторая часть книги в этом плане оказалась отличной от первой. Там уже нет отдельных историй с моралью длиной в главу, их сменили куда более приятные сценки из жизни главных героинь, а также несколько относительно длинных сюжетных линий. В последних главах на первый план выходит романтическая линия.

Вся история – это один год жизни четырех сестер Марч. История их взросления, поисков себя, борьбы с собой. В книге ничего не происходит. Описание быта, маленьких происшествий, конфликтов девочек друг с другом – вот из чего состоит книга.

Книга полна нравоучений и морали. К тому же мораль и нравоучения в тексте

⁷ В книге не раз упоминается знаменитый нравоучительный роман-аллегория писателя и проповедника Джона Беньяна (1628–1688) «Странствия пилигрима».



появляются как-бы между прочим, вскользь, не так навязчиво, как можно было бы предположить. И это очень сильно утомляет. Например, у сестер «Gardening, walks, rows on the river, and flower hunts employed the fine days, and for rainy ones, they had house diversions, some old, some new, all more or less original. - Работа в саду, катание на лодках, собирание цветов – таков был круг занятий девочек в хорошую погоду. На случай плохой погоды у них тоже имелись развлечения. Одни были придуманы давно, другие родились этой весной... As spring came on, a new set of amusements became the fashion, and the lengthening days gave long afternoons for work and play of all sorts. The garden had to be put in order, and each sister had a quarter of the little plot to do what she liked with. Hannah used to say, "I'd know which each of them gardings belonged to, ef I see 'em in Chiny," and so she might, for the girls' tastes differed as much as their characters. Meg's had roses and heliotrope, myrtle, and a little orange tree in it. Jo's bed was never alike two seasons, for she was always trying experiments. This year it was to be a plantation of sun flowers, the seeds of which cheerful land aspiring plant were to feed Aunt Cockle-top and her family of chicks. Beth had old-fashioned fragrant flowers in her garden, sweet peas and mignonette, larkspur, pinks, pansies, and southernwood, with chickweed for the birds and catnip for the pussies. Amy had a bower in hers, rather small and earwiggy, but very pretty to look at, with honeysuckle and morning-glories hanging their colored horns and bells in graceful wreaths all over it, tall white lilies, delicate ferns, and as many brilliant, picturesque plants as would consent to blossom there. - Весна вместе с удлинившимися днями принесла новые заботы и новые игры. Марчи принялись наводить порядок в саду. У каждой из сестер тут был свой участок, и она могла творить на нем все, что угодно. Ханна уверяла, что ей ничего не стоит узнать, кто из сестер над чем трудился. У Мег росли розы, гелиотропы, мирта и маленькое апельсиновое дерево. У Джо растения каждый сезон менялись – она обожала эксперименты. В этом году, например, она решила посадить подсолнухи, дабы было чем кормить насадку и ее потомство. Бет, напротив, культивировала традиционные растения – душистый горошек, резеду, маргаритки, анютины глазки, мяту и дикие гвоздики. Эми на своем участке устроила маленькую живописную беседку. Верхнюю ее часть увивали вьюн и жимолость, а внизу росли стройные белые лилии и другие экзотические растения, из тех, что не требуют много света.»⁸

В то время как раз началось повальное увлечение всякими клубами. И вот, не желая отставать от моды, девочки изобрели игры с интригующими названиями «The P. C. and P. O.» - «П. К.». Девочки обожали Диккенса и решили назвать свой клуб в честь Пиквикского клуба:

«С некоторыми перерывами «П. К.» заседал целый год. Собрания проводились на чердаке по субботам. Происходило это так: к столу в ряд придвигались четыре стула, на стол клали четыре белых повязки с разноцветными буквами «П. К.». Потом на свет извлекался еженедельник «Портфель Пиквика», в создании которого принимали посильное участие все члены клуба, а Джо, лучше других научившаяся владеть пером, была главным редактором.

В семь вечера члены общества поднимались в зал заседаний, усаживались за стол и надевали на головы повязки с эмблемами. Мег, по старшинству, была Сэмюелом Пиквиком, Джо, личность литературно одаренная, – Огастесом Снодграссом, пухлая, розовощекая Бет – Треси Тапменом, а Эми, с ее вечным стремлением делать то, что не умеет, – Натэниелом Уинклем.

Мистер Пиквик, председатель, читал вслух газету. Она содержала стихи и прозу, местные новости, смешные объявления и прозрачные намеки, в коих добродушно высмеивались оплошности присутствующих.» (Глава X. Пиквикский клуб)

Все свое детство девочки провели вместе, но настает время, когда каждая из них должна выбрать свой путь и, самое главное, по дороге не потерять свою индивидуальность, не изменить себе и своим принципам. Впереди их ждет нелегкий путь, пройти который можно только поддерживая друг друга.

Если первая часть говорила о тёплых и дружеских отношениях, вторая говорит уже о том, как эти отношения с лёгкостью разрушаются. Казалось бы кому-кому как не сёстрам дружить, поддерживать друг-друга. Но как уже было видно из первой части книги - все девушки были абсолютно разные. Одна составила привычное семейное счастье с кучей детишек, вторая отправилась на поиски приключений, третья стала известной дамой, а четвёртая проклинала судьбу. Всё бы было вполне хорошо и интересно, если бы не выходящие за грань факты. Это уже был конец 19 века, распущенные нравы, и это как раз коснулось и главных героинь - одна из сестёр почти вешается на мужчин,

⁸ Chapter Ten – The P.C. and P.O. - Глава X.

Пиквикский клуб.



вторая рискует своей честью, а две другие погрязли в эгоизме.

Не хватает действий, приключений, событий. Только к самому концу, когда повествование приобретает немного мрачные краски, читать станет чуть интереснее. На первый взгляд может показаться, что сюжет примитивен, но это не так. Стоит только открыть эту книгу, как тебя затягивает быстро развивающаяся история семьи, с множеством сюжетных линий. Уже после первых страниц вам захочется понять героев и занять чью-то сторону.

Не смотря на всё это книга очень светлая, добрая, наивная и вселяющая в сердце веру в лучшее, несмотря ни на что. Автор не пытается сделать своих героинь исключительно положительными, напротив, показывает и их нелицеприятные качества. Поэтому особенно интересно наблюдать за тем, как по мере взросления и претерпевания невзгод, каждая из "маленьких женщин" становится самой собой. В этом романе поднимается не только тема взаимоотношений между родителями и детьми, но и такие важные вопросы, как: первая любовь, эгоизм по отношению к людям, соперничество в семье и пагубное влияние общества на становление личности.

Впервые опубликованное в 1868 году в США, это произведение было переведено более чем на 50 языков и положено в основу шести фильмов, четырех телесериалов, нескольких опер и спектаклей. Роман Луизы Мэй Олкотт «Маленькие женщины» был экранизирован уже несколько раз и однажды даже завоевал Оскар.

«Little Women has been filmed several times. The screenwriters Sarah Y. Mason and Victor Heerman received an Academy Award for best adapted screenplay for the 1933 version, directed by George Cukor and starring Katherine Hepburn. Mervyn LeRoy's adaptation from 1949 is considered mediocre. It also softens Jo's beliefs in an autonomous life. Gillian Armstrong's version (1994), adapted by Robin Swicord, dealt with feminist issues. "In writing the screenplay, Swicord views this story as a tale of strong women, and she ideally wants young girls to come away from the film with a sense of validation and feeling stronger in this male-dominated world." (from *Novels into Film* by John C. Tibbetts and James M. Welsh, 1999) Other film adaptations of Alcott's work include *The Inheritance* (1997), directed by Bobby Roth, starring Meredith Baxter and Tom Conti. Also *Little Men* has inspired filmmakers.»⁹

⁹ <https://www.readcentral.com/author/Louisa-May-Alcott>

После оглушительного успеха «Маленьких женщин» Олкотт не могла не продолжить свой рассказ о семействе Марч, распутывая судьбы любимых героев, подобно клубку разноцветных нитей. Так, вскоре на свет появились «Юные жены», а за ними – «Маленькие мужчины». Наконец, в 1886 году Олкотт закончила последний роман тетралогии, в котором бывшие «маленькие мужчины», воспитанники пансионата в Пламфилде, который открыла вместе со своим мужем миссис Джо Марч, становятся студентами, влюбляются, попадают в неприятности и, преодолев множество опасных приключений, трудностей и соблазнов, выходят в свободное плавание по великому океану взрослой жизни.

В отличие от Джо Марч, своего литературного воплощения, Луиза Мэй Олкотт никогда не была замужем. В 1879 году, после смерти своей сестры Мэй, писательница взяла на воспитание двухлетнюю племянницу Луизу Мэй Нерикер (девочка была названа так в честь тети и даже получила такое же семейное прозвище – Лулу). Позднее Луиза стала активным борцом за права женщин и была первой женщиной, зарегистрировавшейся для участия в выборах в Конкорде, Массачусетс. Она посвятила свою жизнь творчеству, а также была участницей феминистского движения.

Несмотря на ухудшавшееся здоровье, Олкотт продолжала писать до самой своей смерти, оставив своим читателям около 30 произведений.

Повесть «Роза и семь братьев» была впервые опубликована в 1875 году. Это история о тринадцатилетней Розе Кэмпбелл, которая после смерти родителей осталась сиротой и попала в замечательный дом родственников отца, где ее воспитанием занялись многочисленные дядушки и тетушки. Девочка впервые в жизни оказалась в компании мальчиков – своих семи разновозрастных кузенов. Отзывчивому сердцу девочки предстоит научиться ценить их дружбу и преданность. На русский язык повесть была переведена О.Бутеневой в 1897 году и стала настолько популярна, что IV отделение Собственной Его Императорского Величества Канцелярии рекомендовало ее для чтения в женских институтах и гимназиях.

Луиза Мэй Олкотт умерла 6 марта 1888 года от инсульта.

В XX веке линию Луизы Мэй Олкотт продолжила Хулия Альварес, американская писательница доминиканского происхождения.

в) Творчество Хулии Альварес в контексте современной американской литературы. Семейная хроника – это способ



изображения истории через судьбы обычных людей. В этом смысле характерным примером является творческая эволюция одной из самых интересных представительниц американской литературы Хулии Альварес.

Творчество Хулии Альварес может быть рассмотрено в контексте американской литературы, созданной представителями различных народностей, которые внесли в литературу США свой национальный колорит. Среди них – Эмми Тэн (Amy Tan, 1952), американская писательница китайского происхождения, афроамериканские писательницы Элис Уокер (Alice Malsenior Walker, 1944) и Майя Энджелу (Maya Angelou, настоящее имя Маргарит Энн Джонсон, 1928- 2014). Некоторые из них, как и Л.М.Олкотт, оказали непосредственное влияние на творчество Хулии Альварес.

Имя Хулии Альварес неизвестно не только в нашей стране, но и во многих странах мира. Поэтому мы считаем уместным привести некоторые данные из ее биографии и творчества. Хулия Альварес родилась 27 марта 1950 года. До 10 лет будущая писательница жила в Доминиканской Республике, откуда были родом её отец и мать. Затем Х. Альварес училась в США, неоднократно получала стипендии и поощрительные премии различных фондов. В настоящее время она работает учительницей литературы в колледже Мидлберри, штат Вермонт. Она автор более десяти романов, нескольких книг для детей, сборников стихотворений. Ее произведения до сих пор полностью не переведены на русский язык. В журнале «Иностранная литература» №1 за 2003 г в переводе С.Силаковой на русский были опубликованы только две главы романа «¡Yo!» – первая и последняя.

В 1991 году вышел в свет первый роман Хулии Альварес «Как девочки Гарсия утратили свой акцент», *How the Garcia Girls Lost their Accents*. В то время это был первый крупный роман, написанный на английском языке писателем – выходцем из Доминиканской Республики. Книга поднимает темы культурной гибридизации и социальных противоречий в Доминиканской Республике второй половины XX века. Хулия Альварес освещает проблемы интеграции латиноамериканских иммигрантов в американское общество и показывает, как личность может столкнуться с проблемами, связанными с гендерными, этническими и классовыми различиями. Она использует свои собственные переживания, чтобы проиллюстрировать культурные контрасты между странами Карибского бассейна и США. В романе

было так много личного, что в течение нескольких месяцев после того, как он был опубликован, ее мать отказывалась говорить с ней, а ее сестры были также недовольны книгой. По данным Американской Библиотечной Ассоциации до 2001 года роман был переиздан несколько раз и продан более чем в 250 тысяч экземплярах.¹⁰

В 1994 году Хулия Альварес отмечена Национальной Премией Критики за роман «В то время, когда летали бабочки» (*In the Time of the Butter flies, 1994*). Книга Хулии Альварес «Как девочки Гарсия утратили свой акцент», может с достаточным основанием быть названа «автобиографией».¹¹ Семейная хроника Хулии Альварес – автобиография культурного «скитальца», в которой в полной мере проявилась «латиноамериканская проблематика».¹² Она принесла ей успех и признание, и была воспринята почти как документальный текст. Хулия Альварес продолжила работать над семейной хроникой и в 1997 году опубликовала роман «¡Yo!», «¡Yo!» который вместе с «Как девочки Гарсия утратили свой акцент» составил дилогию о семье Гарсия.

Годы после завершения второй мировой войны до 1970 г. были периодом угнетения и нестабильности в Доминиканской Республике. Диктатор Рафаэль Трухильо был убит в 1961 году, после чего не прекратилось военное правление, произошла революция, вмешательство со стороны Соединенных Штатов, и новая диктатура. Центральное правительство разрешало только избранным покинуть островное государство. Критик Уильям Луис так описывает ситуацию иммигрантов из Доминиканской Республики в США во время революции: «Иммиграция жителей Карибского региона в США, по политическим или экономическим причинам, создала напряженность в отношениях между культурами страны происхождения и их новой родины, первая представляла прошлое, а

¹⁰ Sirias Silvio. Julia Alvarez: A Critical Companion. – Westport, 2001. – p. 17.

¹¹ Butler, J. Still Southern After all These Years. // The Future of Southern Letters. Ed. By Jefferson Humphries and John Lowe. – N.Y., 1996.

¹² Глостанова М.В. Проблема мультикультурализма и литература США конца XX века. Диссерт. доктора филол.н. – М.; 2000. – С.275.



вторая будущее иммигранта»¹³. Семья Гарсия является примером этого явления.

Хулия Альварес – представительница двух культур, испаноязычной (доминиканской) и американской. Свои эстетические взгляды она сформировала в послесловии “On the Power of Telling Our Stories”¹⁴ к роману «Как девочки Гарсия утратили свой акцент».

В нем она обозначает свою профессию – преподавателем, а сочинение – призванием. Она гордится тем, что занимается воспитанием молодого поколения, что часть своей жизни посвящает аудитории, студентам, юным и молодым читателям: “I was in love with my students and the classroom. If I couldn’t make a living as a writer, I could at least make more young people passionate readers”¹⁵.

Хулия Альварес не является профессиональным писателем, её творчество связано с периодом летних каникул или она уделяет ему свое свободное время, часто поздно ночью или рано утром: “That’s not to say that I stopped writing. Summers, vacations, late nights, early mornings, I kept at it”¹⁶.

По мнению Хулии Альварес, писать – это нелегкая работа. Для неё творчество – это тяжелый труд, который напрягает умственно и физически. В этом смысле для неё всегда был примером дисциплинированный Хемингуэй, который заставлял себя работать в любых условиях: “Often people ask me, how did you do it? I do believe in the statement, ascribed to Hemingway, that writing is 1 percent talent, 99 percent applying the seat of the pants to the seat of the chair”¹⁷.

Хулия Альварес рассказывает о писателях, о специфике писательского труда. Она считает что, несмотря на всякие трудности, писатель должен быть настоящим человеком, человеком с большой буквы. Он не должен бояться трудностей, изгнаний, должен рассказать правду, охватить всю полноту жизни, но и вместе с этим стремиться показать свою семью, культуру, страну с лучшей стороны: “I listened: that the novel was not about us, even if was based on

our experiences; that fiction tells a different kind of truth, the truth according to feelings rather than just the facts; that there is nothing shameful in being a complex human being; that a writer has to try to capture the fullness and variety of a family, a culture, a country, a situation, without picking out the problematic parts and touching up and beautifying that family, culture, country, situation”¹⁸.

Хулия Альварес «верит в то, что писательство не карьера, не профессия, не цель, не публикации, не деньги, не слава, а способ жизни. Однако, по словам ее друзей–буддистов, это превратилось в ее работу»:

“I kept at it because by then, writing had become not a career, not a profession, not a means to an end, publication, money, fame, but a way of life. I didn’t know any other way to process experience or make meaning of my life. Writing had become – in the words of my Buddhist friends – my practice”¹⁹.

Интересы писательницы охватывают все стороны жизни современного общества, при этом она резко критически относится к современной американской реальности. Хулия Альварес критикует расовую, культурную, языковую дискриминацию, существующую в США:

“Many of our American writers coming from diverse cultures, racial backgrounds, and other first languages, not to mention from different parts of the world, it’s astonishing to think that in the late sixties and early seventies. The big table of American literature was still off-limits to minority writers, who were sent to eat in the kitchen of Langston Hughes’s poem “I, too, Sing America”²⁰.

¹³ Luis William. A Search for Identity in Julia Alvarez’s *How the García Girls Lost Their Accents* // *Callaloo* 23 (3). – p. 839.

¹⁴ Alvarez Julia. *How the García Girls Lost Their Accents*. – Chapel Hill, North Carolina: Algonquin Books of Chapel Hill, 2010. – p. 293–297.

¹⁵ Alvarez Julia. *How the García Girls Lost Their Accents*. – Chapel Hill, North Carolina: Algonquin Books of Chapel Hill, 2010. - p. 293.

¹⁶ Ibidem, p. 293.

¹⁷ Ibidem, p. 293.

¹⁸ Ibidem, p.296. – «Я понимала, что роман не о нас, даже если он был основан на нашем опыте. Роман открывает различного рода истины, истины связанные с чувствами, переживаниями, нежели чем с фактами; нет ничего постыдного в том, чтобы быть настоящим человеком; писатель должен попытаться охватить всю полноту и разнообразие семьи, культуры, страны, ситуации, не выделяя проблемные части, исправляя и украшая эту семью, культуру, страну, ситуацию и т.д». (перевод наш – Н.Л.)

¹⁹ Ibidem, – p.293–294.

²⁰ Ibidem, p.294. – «Многие наши известные американские писатели являются представителями разных культур, рас, языков со всех концов света, удивляют все его шесть континентов. Вокруг большого стола американской литературы нет места писателям, выходцам из национальных меньшинств, как это в свое время было сказано Лэнгстоном Хьюзом в его стихотворении «Я тоже воспеваю тебя, Америка». (перевод наш – Н.Л.)



Хулия Альварес считает, что писатели постоянно нуждаются в общении, в поддержке со стороны читателей: "I recall attending a writer's conference, eager for community, hungry for encouragement".²¹

Хулия Альварес поддерживает мнение отдельных авторов о том, что настоящий писатель должен сочинять свои произведения на своем родном языке. Но вместе с этим, она сожалеет, что сама пошла по другому пути, стала писать на английском языке: "At one of the lectures, a famous writer whom I greatly respected made the statement that no writer could write in a language they hadn't said "mama" in. Never mind that there were examples to the contrary; I felt crushed. I was convinced that I had been fooling myself".²²

Сама писательница признает воздействие на её творчество других авторов, из них она выделяет американскую писательницу китайского происхождения Максин Хонг Кингстон ("The Woman Warrior", 1976), которая оказала большое влияние на формирование эстетических взглядов Хулии Альварес: "Mon thslater, I happen edtopick up Maxine Hong Kingston's The Woman Warrior. I experienced poetry made out of a bicultural life not unlike my own. This was American literature written by someone whose first language was Chinese, whose parents still lived in China in their heads. And although Maxine was writing about growing up Asian American in Stockton, she might as well have been me, a Dominican American adolescent in Queens!"²³

²¹ Alvarez Julia. How the García Girls Lost Their Accents. – Chapel Hill, North Carolina: Algonquin Books of Chapel Hill, 2010. - p. 293–294.

²² Ibidem,- p. 293. – «Один из известных, уважаемых мною писателей на встрече с читателями сказал, что ни один писатель не может писать на языке, на котором он впервые не произнес слово «мама». Неважно, что были примеры обратного. Я почувствовала себя раздавленной. Я была уверена, что я обманывала себя». (перевод наш – Н.Л.)

²³ Ibidem,. - p.295.– «Несколько месяцев назад я нашла книгу Максин Хонг Кингстон «Женщина-воин». Я познакомилась с бикультурной жизнью, не отличающейся от моей личной жизни. Это было произведение представителя американской литературы, родным языком которого был китайский, и чьи родители мысленно живут в Китае. Максин Хонг писала о тяжелом положении китайских иммигрантов в Америке, и она оказала огромное влияние на меня, молодую

В творчестве Максин Хонг, Хулию Альварес привлекает то, что она писала о своей собственной семье, разглашала «семейные тайны»: писала о своем трудном детстве, о том, как ее сильно наказывали «неудачные родители» за малейшие проступки. Именно это стало характерным признаком прозы Хулии Альварес: «Maxine gave me the courage to be a writing warrior. She started her memoir by facing the biggest block I myself was facing as a writer, the mandate of silence from my family, especially from my mother. Then Maxine went on to tell the story that must not be told, the story of an aunt who killed herself. A story of female erasure and despair. Of girlhood among ghosts».²⁴

Хулия Альварес видит между собой и Максин много сходства. Максин, так же как и сама Хулия Альварес, писала свои произведения, испытывая значительные трудности. Обе писательницы находились под давлением родных и близких, которые мешали их творчеству. Максин Хонг показала Хулии Альварес образец силы и мужества творческой личности: "I got brave, I began write my story. Years later, when Garcia Girls came out and my mother stopped speaking to me [except to utter ultimatums and banish me from her home], Maxine's book pulled me through".²⁵

Выход первого романа был встречен в штыки близкими родственниками Хулии Альварес, вот почему следующее произведение писательницы вышло спустя несколько лет. Только когда вышел второй роман Хулии Альварес, отношения между родителями и писательницей наладились. Мать и дочь снова стали самими близкими людьми: "Years later, my mother was herself transformed, in part through reading *In the Time of the Butterflies* and facing her own erasure, her own past in that dictatorship that made her fearful of letting the stories out. She asked me to forgive her. She became one of my biggest champions".²⁶

Писательница понимает причину беспокойства матери, которая боялась

королеву доминикано–американского происхождения». (перевод наш – Н.Л.)

²⁴ Ibidem, – p. 294–295.

²⁵ Ibidem – p.295. – «Я набралась смелости и начала писать свою историю. Годы спустя, роман Девочки Гарсия был опубликован, моя мать перестала разговаривать со мной (за исключением ультиматумов и изгнания меня из своего дома), книга Максина привела меня в сознание». (перевод наш–Н.Л.)

²⁶ Ibidem – p.295.



негативного общественного мнения о произведении: “I was curious to know what it was that had upset her so about that first novel. She confessed that she was worried what people would think of us. She was afraid my sisters would lose their jobs, their friends, maybe even their husbands”.²⁷

Таким образом, творческая позиция и эстетические взгляды Хулии Альварес во много определялись её собственными семейными взаимоотношениями.

Для писательницы характерен интерес к каждой отдельной человеческой личности. Хулия Альварес убеждена в том, что в этом мире у каждого есть своя жизнь, своя история. Каждый человек должен быть услышанным: “Over the years I, too, had been chastened. I had learned that the ones who do not write the books also need to tell their stories and to be listened to”.²⁸

Хулия Альварес отстаивает принцип реализма, правдивости, отображения человеческих отношений, даже неприглядных сторон жизни. Для нее характерен принцип полной открытости и доверия к читателю, который сам разберется в поставленной писательницей проблемах. Писатель не должен бояться общественной критики, несправедливых обвинений, он должен смело говорить обо всем значительном ради исправления порока: “This story end son a happy note. Not all stories do. And it took years for my mother to face her furies, to come around. It took years for my own imagination to make room for her fears. Why we have to be brave. Why we need each other’s stories to tell and enlarge our own”.²⁹

Эстетические принципы Хулии Альварес в полной мере проявились в её важнейших

произведениях, составивших знаменитую семейную дилогию. Она посвятила роман «Как девочки Гарсия утратили свой акцент» памяти четырех сестер Мирабаль, казненных по приказу диктатора Рафаэля Трухилио за участие в революционном движении. Сестры Мирабаль стали легендарными фигурами, прозванными в народе *Las Mariposas, или бабочки*. Патрия, Минерва и Мария Тереса Мирабаль стали национальными героями не только Доминиканской Республики, но и всех латиноамериканских стран. Легенда изображает их как женщин сильных по характеру, желающих изменить ход истории. Этот мотив использует Хулия Альварес в своем произведении, персонажи которого явно похожи на легендарных героинь антиколониального движения. Сама Хулия Альварес дает пояснение: «Я надеюсь, что благодаря этой беллетризованной истории я познакомлю англоязычных читателей с этими знаменитыми сестрами. Каждый год 25 ноября – день убийства сестер во многих странах Латинской Америки отмечается Международный день борьбы с насилием по отношению к женщинам. Очевидно, что эти сестры, которые боролись против тирана, послужили прототипами для женщин, борющихся против несправедливости всех видов».³⁰

Однако Хулия Альварес утверждает, что её роман «не исторический документ, а путь к пониманию человеческого сердца»³¹ (A novel is not, after all, a historical document, but away to travel through the human heart).

Как было уже отмечено, роман Хулии Альварес «Как девочки Гарсия утратили свой акцент» автобиографичен. Факты из биографии персонажей во многом совпадают с фактами биографии самой писательницы, в частности, сама Хулия Альварес формально родилась в США, но фактически воспитывалась и стала личностью в Доминиканской Республике. Её опыт отразился в истории семьи Гарсия, которая так же была поставлена перед проблемой переезда в США и адаптации.

Сама писательница откровенно рассказывает о собственной жизни и её проблемах после переезда в США в эссе под названием «Американское детство в Доминиканской Республике». В этой работе она приводит конкретные факты своей биографии, конфликт с властями, и переезд в США в возрасте

²⁷ Ibidem – p.296. – «Мне было любопытно узнать, что это было, что расстроило ее в моем первом романе. Она призналась, что волновалась за то, что подумают о нас люди. Она боялась, что мои сестры потеряют свои работы, друзей, возможно, даже своих мужей». (перевод наш – Н.Л.)

²⁸ Ibidem, - p.296.

²⁹ Ibidem, - p 296 – «Эта история заканчивается на радостной ноте. Но не все истории так заканчиваются. Для этого потребовались годы для моей матери, чтобы справиться со своей сварливостью. Потребовались годы и для моего воображения, чтобы освободить место для ее страхов. Вот почему мы должны быть смелыми. Вот почему нам нужны истории друг друга, чтобы рассказать и расширить наши собственные». (перевод наш – Н.Л.)

³⁰ Latina and Latino Voices in Literature: Lives and Works. - p. 45.

³¹ Alvarez Julia. Something to Declare. – N.Y.: Plume, 1999. – p. 324.



10 лет, когда иммигрировала семья в полном составе. В этом плане сюжет романа представляет собой вариацию ее реального жизненного опыта, который, возможно, был немного изменен. Большинство событий оцениваются с нескольких точек зрения и в них присутствуют скрытые политические действия³². В романе показывается воздействие политического режима на семью, на воспитание девочек. Автор стремится понять прошлое, и время до того, как сестры потеряли свою невинность и акцент.³³

Диалогия Хулии Альварес повествует об истории семьи Гарсия, которая в Доминиканской Республике жила достаточно зажиточно и была довольно известной в этом обществе. Большинство членов семьи были преуспевающими политиками и бизнесменами, владельцами заводов. Семья Гарсия представляет собой достаточно большой клан, но писательница останавливается на истории его главных представителей. Среди многочисленных родственников эти персонажи явно выделяются по силе своего характера; каждый детально обрисован автором. Но при этом, безусловно, сохраняется единство всех членов этого клана, о чем говорит Иоланда: "I couldn't under stand my self with out the rest of the clan to tell me who I am".³⁴

Основным событием автор показывает иммиграцию семьи в США, оно обрамляется рассуждениями, дискуссиями представителей семьи по разным вопросам, и, в частности, о перспективах жизни семейства в Америке.

Перед семьей, которая иммигрировала, возникает проблема адаптации при вхождении в американское общество, сложности преодоления определенных трудностей. Первой из них является языковая адаптация. Большим препятствием для членов семьи стало привыкание к английскому языку. У каждого члена семьи это проявляется по-разному. Если у Иоланды быстро формируется «американская речь» и она начинает писать сочинения на английском языке, то у Карлы освоение английской речи идет более медленным путем, даже в трудной для себя

ситуации она не может объясниться с американской полицией.

Членам семьи Гарсия приходится начинать жизнь фактически заново, искать работу и средства к существованию. Главе семьи приходится в сорок пять лет начинать всё с нуля – добиваться врачебной лицензии, завоевывать доверие пациентов в незнакомом городе.

Латиноамериканский литературовед, Жаклин Стефанко считает, что из важнейших проблем в романе «Как девочки Гарсия утратили свой акцент» является «проблема раздвоения личности»,³⁵ которой страдают все четыре дочери Гарсия на протяжении всей диалогии. Критик считает, что раздвоению личности девушек Гарсия способствуют и множество их прозвищ. Стефанко отмечает, что: "as Yolanda's names proliferate on the page, we begin to see the multiplicity of her identity realize the struggle Yolanda must engage in to not be fragmented in a society that marginalizes her".³⁶

Мы видим, что иммиграция заставляет героиню романа разрываться между их доминиканской и американской сущностью. Такого же мнения придерживается и литературовед Уильям Луис. Он считает, что разрушенная личность Иоланды соответствует количеству имен, которые ей дают: "By multiple names used [tore fer to her]. She is Yolanda, Yoyo, Yosita, Yo and, last but not least the English Joe".³⁷

Поиски четкой и ясной личной идентичности тематически довольно тесно связаны с проблемой раздвоенности личности персонажа. Не только Иоланда, но и все сестры Гарсия предпринимают попытку уточнения их запутанных идентичностей. Уильям Луис напоминает читателям Хулии Альварес, что «поиск Иоландой своей доминиканской идентичности должен рассматриваться в контексте 1960-х годов в Соединенных Штатах» (Yolanda's search for her Dominican identity must be unders to od with in the context of the 1960 sin the United States)³⁸. По мере взросления, девушки все

³² Bing Jonathan. Julia Alvarez: Books That Cross Borders / Publishers Weekly 243 (51), 1996. – p. 38–39.

³³ Luis William. A Search for Identity in Julia Alvarez's How the García Girls Lost Their Accents // Callaloo 23 (3). – p. 840.

³⁴ Alvarez Julia. ¡Yo! –N.Y.: Plume, 1997.– p. 209. – «Я не могла представить себя без остальной части клана, чтобы понять, кто такая я». (перевод наш – Н.Л.)

³⁵ Stefanko Jacqueline (1996). New Ways of Telling: Latinas' Narratives of Exile and Return // Frontiers: A Journal of Women Studies 17 (2): P.60.

³⁶ Stefanko Jacqueline (1996). New Ways of Telling: Latinas' Narratives of Exile and Return // Frontiers: A Journal of Women Studies 17 (2): P.59.

³⁷ Luis William. A Search for Identity in Julia Alvarez's How the García Girls Lost Their Accents // Callaloo 23 (3).– p. 846.

³⁸ Luis William. A Search for Identity in Julia Alvarez's How the García Girls Lost Their Accents // Callaloo 23 (3).– p. 842



больше обижались на своих родителей, которые не обращали внимания на их потребности «вписаться в американское общество, они нуждались в помощи. Они не понимали, кто они, почему ирландские дети, чьи бабушки и дедушки были также иммигрантами, оскорбляли их, называя SPICS.

В конце первой части (*The Rudy Elmenhurst Story*) Иоланда сообщает: “I would never find someone who would understand my particular mix of Catholicism and agnosticism, Hispanic and American styles”.³⁹

Дальнейшее повествование связано с жизнью семьи Гарсия в Америке – глава “A Regular Revolution”. Девушки обучаются в католической школе Нью-Йорка и в школе-интернате. Они учатся усердно, понимая, что образование является залогом приспособления к новой среде, но при этом автор ярко рисует и определённые разочарования героинь в американской жизни: “We didn't feel we had the best the United States had to offer. We had only second-hand stuff, rental houses in one redneck Catholic neighborhood after another”.⁴⁰

В первое время сестры воспринимают Америку как чужую страну, тоскуют по родине и оставшимся там родственникам, приставая к матери с вопросом, когда же они, наконец, вернутся домой: “Every day it was the same question, «When are we going to go back?». They wanted to go back to their cousins and uncles and aunts and the maids... they were still having nightmares and nagging me all the long days that they wanted to go back. Goback. Goback. Goback”.⁴¹

Героини мечтают вернуться на родину, не признают и не понимают ценности американской жизни. Девочки постоянно сталкиваются с расизмом, они проходят через унижения и оскорбления, их одноклассники грубо советуют им убраться из Америки: «Goback to where you came from, you dirty spic!»⁴²

Жизнь в США требовала определенных изменений в их привычках и образе жизни. В Доминиканской Республике детей воспитывала горничная, в Соединенных Штатах Лауре

приходится взять на себя все материнские обязанности по воспитанию дочерей. Семья живет поначалу подобно «мышам на мели», обходится остатками скромных сбережений.

По прибытию в США сестры Гарсия на своем опыте убеждаются в том, что здесь иммигрантами называют самые разные слои населения по социальным и национальным признакам, но всем без исключения приходится молча осваивать американский образ жизни. Вместе с другими иммигрантами сестры учатся приспособлению к новым условиям жизни. Они посещают престижные учебные заведения и постепенно теряют свои доминиканские привычки.

Одной из ведущих тем, поднятых в романе, – это тема страха и одиночества. Как и в романах Энн Тайлер, героини романа «Как девочки Гарсия потеряли свой акцент» становятся американцами, начинают сталкиваться с типичной проблемой иммигрантов. Прибыв в США, любая семья боится чиновников иммиграционной службы, боится быть высланной обратно. В романе постоянно присутствует ощущение страха за себя и за близких.

Причиной страха у героинь романа является не только неприспособленность к незнакомой жизни, но и чисто американская отчужденность, о которой также писала Энн Тайлер.

В дни Карибского кризиса девушки очень боятся начала мировой войны. В очень короткой главе под названием «Снег», Хулия Альварес показывает, как на них оказывает влияние американская пропаганда, пугающая «советской угрозой». Иоланда принимает первый в ее жизни снегопад за «начало ядерной атаки». Уже во взрослой жизни, когда Иоланда временно возвращается в Доминиканскую Республику, ей не удается побороть свои старые страхи. В главе «Antojos» во время дневной прогулки она пугается даже естественных звуков природы: “the rustling leaves of the guava trees echo the warnings of her

old aunts: you will get lost, you will get kidnapped, you will get raped, you will get killed”.⁴³

Роман «Как девочки Гарсия утратили свой акцент» является попыткой автора понять представления своего народа о прошлом. Память в романе становится средством, с помощью которого девочки могут вернуться в прошлое, в

³⁹ Alvarez Julia. *How the García Girls Lost Their Accents*. – N.Y.: Algonquin Books of Chapel Hill, 2010. – p. 99 – «Я никогда не найду кого-нибудь, кто бы понял мою католическую и агностическую смесь, мой испанский и американский стиль». (перевод наш – Н.Л.)

⁴⁰ Ibidem, p. 107.

⁴¹ Ibidem, p. 29.

⁴² Ibidem, p. 153.

⁴³ Alvarez Julia. *How the García Girls Lost Their Accents*. – N.Y.: Algonquin Books of Chapel Hill, 2010. – p. 17.



свое детство, в попытке осмыслить свое положение в современном мире.

Сознание героев складывается из их впечатлений, воспоминаний и созданных их воображением картин. По точному выражению известного литературоведа В.Хализева, «оно свободно от устремленности к какому-либо действию, как бы оттесняет в сторону окружающую реальность и предстает как «убежище, защита от мира, а в то же время – как нечто поглощающее и присваивающее внешнюю реальность».⁴⁴

Память помогает дочерям Гарсия осознать свою национальную идентичность.

Корни семьи Гарсия уходят к испанским конкистадорам. Об этом четко сказано в романе «Как девочки Гарсия утратили свой акцент». Однако отдельные критики с этим не согласны и не признают дилогию семейной хроникой. Так, М.В.Тлостанова считает, что роман Хулии Альварес «Как девочки Гарсия утратили свой акцент» представляет собой пародию: «Роман Альварес построен во многом как пародия на семейную хронику, традиционная форма которой непременно предполагает наличие генеалогического древа, призванного объяснить терпеливому читателю все тонкости происхождения персонажей. Пародируя такие привычные генеалогические древа семейных саг, Альварес размашисто помещает в «древний» угол своей таблицы, где должны находиться предки, гордое слово «конкистадоры».⁴⁵ Критик либо не знает историю Доминиканской Республики, либо игнорирует ее.

В самом начале книги, непосредственно перед текстом Хулия Альварес изображает генеалогическое древо семьи Гарсия. Там и по линии Карлоса, и по линии Лауры корни уходят к испанским конкистадорам. Один из пра-пра-прадедов семьи де ля Торре когда-то женился на шведке, откуда и пошла светлая кожа и голубые глаза их потомков, в том числе и Лауры. Эту ссылку автора на предков-конкистадоров М.В.Тлостанова считает «иронической, снижающей» (по мнению критика снижающей причастность романа к семейной хронике). Нам кажется, что история семьи интересует Хулию Альварес всерьез, и если тут есть ирония, то она не связана с пародией. М.В.Тлостанова уверена,

что сюжет романа выдуман, представляет из себя миф: «Ироническая, снижающая переключка с наследием конкистадоров появится в романе еще раз, в главе под названием «Кровь конкистадоров», где смертельная опасность для семьи Гарсия будет представлена в виде семейного предания, потерявшего свою ужасную сторону, обезоруженного коллективной памятью, особой временной перспективой».⁴⁶

Она считает, что «Подобное воспоминание семейных историй сообща помогает освободиться от ужаса, выполняя роль катарсиса, некой коллективной терапии в семье Гарсия, превращая ужасное и жестокое в смешное и нелепое».⁴⁷

Мнение М.В.Тлостановой можно оспорить. Если семьи Гарсия и де ля Торре не приехали и не переселились на остров позже завоевания его конкистадорами, они родились здесь и естественно, будучи этническими испанцами, их корни уходят к средневековым конкистадорам.

В Доминиканской Республике многие члены огромной семьи Гарсия и де ля Торре жили рядом, почти в одном городе, как добрые соседи. Как было отмечено ранее, дочери Гарсия воспитывались не только своими родителями, но и тетями и дядями, которые сохраняли семейные традиции. Девочки росли среди бесчисленного множества двоюродных братьев и сестер, этот факт отмечает мать главных героинь романа: “Back on the island we lived as a clan... The girls used to run with their gang of cousins, supervised – if you can call it that – by a whole bunch of aunts and nanny-maids who had wiped our bottoms when we were babies and now were wiping the drool of the old people who had hired them half a century ago. There was never any reason to clash with anyone. You didn't get along with your mother? You had two sisters, one brother-in-law, three brothers and their wives, thirteen nieces and nephews, a husband, your own kids, two great-aunts, your father, a bachelor uncle, a deaf poor relation, and a small army of housemaids to mediate and appease—so that if you muttered under your breath”.⁴⁸

Несмотря на это, М.В.Тлостанова считает нарисованное автором генеалогическое древо «фальшивым», которое «не стремится ни назад во времени, ни вширь, ограничиваясь, по существу,

⁴⁴ Хализев В.Е. Теория литературы. – М.: Высшая школа, 2002. – С.217.

⁴⁵ Тлостанова М.В. Проблема мультикультурализма и литература США конца XX века. Диссер.доктора филол.н. – М.; 2000. – С.279.

⁴⁶ Alvarez Julia. How the Garcia Girls Lost Their Accents. – Chapel Hill, North Carolina: Algonquin Books of Chapel Hill, 2010. – p. 17

⁴⁷ Idem.

⁴⁸ Alvarez Julia. ¡Yo! – Chapel Hill: Algonquin Books of Chapel Hill, 1997. – p. 9.



лишь их собственной семьей в строгом смысле, воспринимаемой уже по-американски «прагматически», т.е. исключая побочные ветви и предшествующие поколения». ⁴⁹ По мнению критика, в романе Альварес нет рассказов о родственниках девочек: «Об одной из сестер матери девочек мы узнаем, что «Тиа» – Иза вышла замуж за американца, а кузины с материнской стороны даже не имеют имен. Со стороны отца информации в этом древе еще меньше: читатель только обращает внимание на «Тео» – Орландо с женой Фиделиной, и их сына Мануэля». ⁵⁰

Однако, именно в главе под названием «Кровь конкистадоров», рассказывается история одной из тетей девушек по имени Иза (*Tía* – по-испански «тетя»), о жизни дяди Орландо (*Tío* – по-испански «дядя») и его сына Мануэля.

Мнение критика о том, что роман «Как дочери Гарсия потеряли свой акцент» является пародией на семейную хронику, нам кажется необоснованным. Данный роман является не пародией, а полноценной семейной хроникой со всеми её характерными признаками, при этом Хулия Альварес трактует жанр по-своему, вносит свой вклад в его разработку. В романах Хулии Альварес нет ничего пародийного, сцены и ситуации в произведениях описаны всерьез, без тени иронии, сам жанр семейной хроники Хулия Альварес не ставит под сомнение и опирается на его традиции в мировой литературе. В любом случае, нельзя утверждать, что она этот жанр осмеивает и ставит под сомнение. Семейная хроника применяется ею в самом серьезном смысле.

Таким образом мы вкратце изучили творчества двух американских писательниц Л.М.Олкотт и Хулии Альварес на примере двух произведений. Рассмотрев особенности американской «семейной хроники» XIX-XX веков как литературного жанра, мы пришли к выводу, что женской «семейной хронике» этого периода присущи следующие черты:

- детальное повествование жизни одной или нескольких семей;
- основу композиции составляют важнейшие события в жизни человека;
- главное место занимают отношения, определяемые идеалами.

В то же время отмечаются и специфические черты американской женской

«семейной хроники» XIX-XX веков, которые отличают ее от семейного романа или от других семейных хроник:

- расширение рамок повествования, вовлечение в действие исторических событий, определяющих направление дальнейшего общенационального развития;

- американской женской «семейной хронике» присуще объединение сразу нескольких повествовательных коллизий, объясняемых большим количеством действующих лиц разных рас и народностей, различием судеб персонажей;

- в «семейных хрониках» американские писательницы выступают за защиту прав человека и равноправие, за семейное счастье представителей разных континентов;

- в американских женских «семейных хрониках» наряду с родовым временем присутствует и историческое время, представленное сменой поколений, каждое из которых являет собой новый этап в общественном развитии.

Рассмотренные нами произведения Л.М.Олкотт и Хулии Альварес отражают в себе эти специфические черты американской женской семейной хроники XIX-XX вв.

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IN VIVO STUDY OF GLUCOSE AND PROTEIN LEVELS USING THE DIABETIC WISTAR RAT MODEL

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ABSTRACT

Background and Aims

The diabetic animal model was developed as a type for studies in vivo because of the death rates in many countries associated with the prevalence of diabetes, this disease is a respecter of no person. This study assessed and compared total protein and albumin concentration, basal fasting blood sugar and post induction fasting blood sugar levels in rat model.

Methods

Qualitative and Quantitative test and analysis were carried to assess the levels of albumin and total protein and their absorbance levels were read and recorded in g/dL, while the fasting blood sugar was determined using the glucometer strip method at intervals and recorded in mg/dL. Group A served as the negative, non-diabetic control for the study and they were fed normally with water without inducing diabetes while Group B served as the positive control, diabetic untreated group where Diabetes mellitus was induced using 150 mg/kg body weight of alloxan and left untreated.

Results

Plasma total protein in diabetic Wistar rat (8.44 ± 4.39 g/dl) did not change significantly ($P > 0.05$) compared with the control Wistar rat (10.04 ± 4.14). However, the level of 1-week post-induction FBS in diabetic Wistar rat (475.75 ± 66.74 mg/dl) was significantly ($P < 0.05$) higher compared to that of the control (85.0 ± 6.7 mg/dl).

Conclusions

Protein levels may not change within a week after developing diabetes mellitus and as such should not be the sole biomarker to test for diabetes.

KEYWORDS: Glucose metabolism, Protein metabolism, Glucose metabolism disorders, Protein metabolism disorders, Diabetes mellitus.

1.0 INTRODUCTION

All mammalian cells require glucose as a metabolic substrate. The predominant form made available to the cell for energy synthesis and other metabolic functions is D-glucose isomer. The glycolytic pathway is where glucose is broken down

and delivered past the intestinal walls to the hepatic portal vein, where it is subsequently transported to the liver cells and other tissues. They can be transformed to fatty acids, amino acids (protein monomers), and glycogen, as well as oxidized by a variety of cellular



catabolic mechanisms. Glucose is a key energy source for most tissues and organs, including the brain [1].

Hyperglycemia, on the other hand, is a sustained increase in blood glucose levels that can result in blindness, renal failure, vascular disease, and neuropathy. As a result, blood glucose levels must be kept under control and balanced. Glucose homeostasis is the process of maintaining a steady blood glucose level by regulating peripheral glucose uptake, hepatic glucose synthesis, and glucose uptake during carbohydrate absorption with the right hormones (Insulin and glucagon). This is accomplished by balancing a number of factors, including the rate of dietary carbohydrate intake and intestinal absorption, the rate of glucose utilization by peripheral tissues and glucose loss through the kidney tubule, as well as the rate of glucose removal or release by the liver and kidney. To prevent postprandial hyperglycemia (uncontrolled elevations in blood glucose levels after meals) and fasting hypoglycemia, the body uses insulin and glucagon to regulate blood glucose levels (decreased blood glucose levels during periods of fasting). Hormones, cytokines, and fuel substrates all have important activities that cellular processes detect. Diabetes mellitus is a long-term metabolic condition that affects various organs and hormonal pathways, compromising the body's ability to maintain glucose homeostasis. Long-term blood glucose elevations can lead to blindness, renal failure, heart and peripheral vascular disease, neuropathy, foot ulcers, and limb amputation, among other problems. In diabetic patients, vascular problems are the major cause of death [1].

Amino acids, which make up proteins, are made up of hundreds or thousands of smaller units. Peptide bonds connect the amino acids to form a protein molecule, which is made up of 20 different types of amino acids. The sequence of amino acids determines each protein's unique 3-dimensional shape and function, such as catalysis of biochemical events, mechanical support and immune defense, motility, ligand transport, nerve impulse transmission, and govern growth and differentiation [2]. Proteins contain polar, nonpolar, hydrophilic, hydrophobic, acidic, basic, aliphatic, and aromatic amino acids. A protein can acquire stable secondary structures such as the α -helix, β -pleated sheet, γ -turn, and coils. The secondary structures are folded even more to form the tertiary structure, which is primarily stabilized by hydrogen-bonding, electrostatic interactions, hydrophobic interactions, and van der Waals interactions. Proteins aren't entirely made up of solid atoms. They undergo conformational changes when they bind to a ligand.

Myoglobin and haemoglobin undergo conformational changes as they bind oxygen, allowing them to deliver oxygen to various tissues and lungs, respectively. As a result, these proteins have a structure-function link.

Proteins are used in bodybuilding since they carry out all of the body's major structural and functional functions. Protein structural abnormalities will result in molecular illnesses with significant metabolic function changes. Carbon, Hydrogen, Oxygen, and Nitrogen are the major 3 components of proteins, whereas Sulfur and Phosphorus are minor components. Proteins have a lot of nitrogen in them. All proteins, on the other hand, are made up of the same building blocks: amino acids. Proteins are used in bodybuilding because they play a key structural and functional role in the body. Molecular disorders with substantial metabolic function alterations will emerge from protein structural abnormalities. Proteins are primarily composed of carbon, hydrogen, oxygen, and nitrogen, with tiny amounts of sulfur and phosphorus [2].

Diabetes mellitus is characterized by abnormalities in glucose metabolism. However, there is a scarcity of data on glucose and protein levels in diabetics. Diabetes is also linked to a variety of other comorbidities that are yet to be fully understood. As a result, this study is necessary to close the gap in the literature. The objective of this study is to determine in vivo the glucose and protein levels in diabetic Wistar rats by assessing insulin, glucagon, total protein and albumin levels in diabetic Wistar rats.

2.0 INSULIN

Insulin was discovered by Banting and Best at the University of Toronto in 1921-1922. It aids in the delivery of blood glucose into body cells, where it is digested for energy production. Insulin decreases blood glucose levels through boosting glucose uptake by muscle, liver, and fat cells. Exogenous insulin therapy is used to treat diabetes mellitus. Various forms of insulin with variable action times have been created for this purpose [1]. Insulin is the principal hormonal regulator of metabolism in the resting animal. In the absence of insulin, glucose absorption in tissues reduces but lipid mobilization in adipocytes increases. When insulin is absent, blood glucose levels rise; this medical condition is known as hyperglycemia [3].

2.1 GLUCAGON

Glucagon acts as a hyperglycemic, catabolic or an energy mobilization hormone in the body. Glucagon stimulates glucose release by the liver and maintains



glucose homeostasis by binding to specific glucagon binding sites. It causes amino acids and fatty acids to be converted into ketone bodies through a negative feedback mechanism. When blood glucose levels return to normal, glucagon secretion stops. The inhibitory effects of somatostatin on glucagon secretion are more sensitive in ruminants than insulin.

When glucose concentrations are high, insulin and glucagon have an effect on carbohydrate metabolism. Insulin activates cells while glucagon inhibits them. The hormone glucagon encourages the liver to absorb amino acids from the blood and convert them to glucose. Through a negative feedback mechanism, rising blood glucose levels inhibit glucagon [1] to prevent insulin hypoglycemia as seen in tables 1 and 2 [3].

2.2 ROLES OF INSULIN AND GLUCAGON IN GLUCOSE METABOLISM

Metabolism involves catabolism which is the breakdown and anabolism which is the build-up. The roles insulin and glucagon play in the synthesis and break down of glucose are explained below.

Glycogenesis is the primary enzyme that controls glycogen formation. It is activated by insulin and is linked to the level of glucose 6-phosphate. Insulin, unlike glucagon, slows down the breakdown of glycogen in muscle and liver tissues. Increased blood glucose limits glucagon output because cells believe there is already enough glucose in the blood and that more is unnecessary. Glucagon levels break down lipids, which strengthens the heart (preventing atherosclerosis and other cardiovascular disorders), increases blood flow in some tissues, particularly the kidneys, improves bile production, and slows gastric acid release [4,5]. This is to maintain a steady blood glucose level following carbohydrate consumption which is in line with the theory that maintaining blood glucose levels allows anabolism to occur [6,7].

2.3 DIABETES MELLITUS

Diabetes mellitus (DM) is a long-term glucose metabolism condition characterized by aberrant insulin function or insulin insufficiency [8,9]. Glucosuria occurs when glucose levels are at or below the threshold for hyperglycemia. Because of the lack of insulin, the cells become devoid of glucose and have to look for other sources of energy that can be mobilized [10, 11].

2.4 CLASSIFICATION/TYPES OF DIABETES MELLITUS

The aetiology and clinical presentation of diabetes mellitus are used to classify the disease. Type 1 diabetes is the most common type of diabetes in children, but it can strike anyone at any age. Type-1 diabetes is marked by a lack of insulin production and high blood glucose levels. People with T2DM require daily insulin injections to keep the disease under control [12].

Type I diabetes mellitus (IDDM)

Type I diabetes is defined by the sudden onset of severe symptoms, the need for exogenous insulin to maintain life, and the proclivity for ketosis even in the basal state. Type Ia is caused by immunological destruction of pancreatic β cells, resulting in insulin insufficiency. Type Ib has no indication of autoimmunity, which normally defends the body against infection by detecting and eliminating bacteria, viruses, and other potentially harmful foreign substances [13,14].

Type II diabetes mellitus (NIDDM)

Type 2 diabetes is a metabolic condition that causes increased blood glucose levels as a result of the body's inability to create enough insulin or failure to use the insulin it does make. Because it affects primarily persons over the age of 40, this kind of diabetes was previously known as adult-onset diabetes. It is becoming more common in children, teenagers, and young adults, with type 2 diabetes accounting for 90% of all diabetes occurrences globally [15, 16].

Gestational diabetes mellitus (GDM)

Gestational diabetes mellitus develops during pregnancy, usually in the second or third trimester. The placenta causes insulin resistance in Gestational Diabetes as a result of hormonal changes. Approximately 2-10% of women develop this disease during pregnancy. Within 5-10 years, 30-40% of people with gestational diabetes would acquire type II diabetes.

Other types

Other type of diabetes mellitus: This is where diabetes mellitus is associated with other conditions, for example, pancreatic disease, hormonal disorders and drugs such as glucocorticoids and oestrogen-containing preparations. Depending on the ability of the pancreas to produce insulin, the patient may require oral agents or insulin.



2.5 METABOLIC DISORDERS IN DIABETES MELLITUS

Metabolic diseases and aberrant tissues, organs, and systems are two types of linked disorders in DM. The organism as a whole live because of this dysfunction. Diabetes patients have showed symptoms of abnormalities in many types of metabolism, not just glucose metabolism, as the term implies.

Carbohydrate Metabolism Disorders

Disorders of carbohydrate metabolism clinically manifested by hyperglycemia, glycosuria, acidosis and hyperlactacidemic.

1. **Hyperglycemia:** Hyperglycemia occurs when a diabetic's blood glucose level surpasses the normal range. If fasting glucose level is consistently above 140 mg/dL (7.7 mmol/l), it is a marker of impaired glucose tolerance. HPA levels can rise to 500 mg percent (22 mmol / l) in untreated patients, and 1000 mmol/l or more in precoma stages.
2. **Glucosuria:** Glucosuria is a metabolic condition in which no glucose is discovered in the urine. It only develops after reaching a physiological renal threshold of roughly 180 mg/dL (9.9 mmol/L). Individual differences exist as this threshold grows with age, so the glucosuria test should only be used as a guide for admission hyperglycemia.
3. **Hyperlactacidemic:** Hyperlactacidemia is defined as an increase in blood MK concentration above normal (more than 16 mg%, or 1.3 mmol/l). Causes: 1. Lactate oxidative catabolism in the Krebs cycle is inhibited; 2. Lactate glycogen re-synthesis is disrupted.

Protein metabolism disorders

1. **Hyperasotemia** is a condition in which blood nitrogenous substances (protein products of metabolism) are elevated above normal levels. Nitrogen protein has a typical concentration of 0.86 mmol/l, while total nitrogen has a concentration of 0.87 mmol/l. Causes: 1. Increased protein catabolism; 2. Activation of the process of amino acid deamination in the liver as gluconeogenesis intensifies.
2. **Azoturia** occurs when the amount of DM in the urine increases

Fat metabolism disorders

Hyperlipidemia, ketonemia, and ketonuria are symptoms of lipid metabolism problems in people with diabetes.

1. **Hyperlipidemia:** Hyperlipidemia in diabetes mellitus is defined as a rise in blood total lipid levels above normal (more than 8 g/l). Hyperlipidemia can be caused by a number of factors. 1. Lipolysis activation in tissues 2. Lipid cell waste inhibition 3. An increase in the production of cholesterol ketone bodies 4. Increased fatty acids in cells as a result of vehicle deceleration 5. Lower LPLase activity.
2. **Ketonemia** is a condition in which the concentration of CT in the blood is higher than normal (more than 2.5 mg percent). Acetone, acetoacetic acid, and -hydroxybutyric acid are all examples of CT. Ketoacemia is a common side effect of IDDM. The overall amount of CT in the blood might range from 30 to 50 milligrams per milliliter. Causes include: activation of lipolysis, increasing the rate of IVH oxidation in the cells, lipid synthesis inhibition, production of CT suppresses the oxidation of acetyl-CoA in hepatocytes.
3. **Ketonuria** is the excretion of ketone substances in the urine, which is thought to be a sign of a diabetic condition that is not improving. It is caused by a high quantity of ketone bodies in the blood, which is filtered well by the kidneys.

2.6 EFFECTS OF DIABETES MELLITUS ON PROTEIN METABOLISM

Insulin deficiency is a catabolic state for proteins. Insulin deprivation causes an increase in protein degradation and protein synthesis. There is a net protein loss during insulin deprivation because the magnitude of the increase in protein breakdown is greater than the decrease in protein synthesis after treatment. In poorly controlled type 1 diabetics, there is a rise in protein breakdown and protein synthesis [17].

Protein breakdown occurs mostly in skeletal muscle during insulin deprivation, while protein synthesis occurs in the splanchnic area. Glucagon, the hormone linked to increased energy expenditure and protein breakdown, may also play a part in the increase in protein synthesis that happens when the body is insulin deficient [18]. Ketoacids improve whole-body and skeletal muscle protein synthesis while decreasing nitrogen loss and leucine oxidation. The failure of whole-body or regional isotopic tracer experiments in



type 1 diabetes individuals to properly demonstrate if insulin can increase protein synthesis highlights the need for research into insulin impact on individual protein synthesis. Because whole body or even regional tissue investigations provide a summation of the effects on individual proteins, the effects of insulin on protein synthesis rates are not seen [19].

2.7 INDUCTION OF TYPE 1 DIABETES MELLITUS IN ANIMAL MODELS

Rats, mice, hamsters, guinea pigs, and rabbits are ideal models which can be employed for experimentation in diabetic investigations and research. Chemicals (alloxan, streptozotocin, dithizone, monosodium glutamates, etc.) and viruses, and genetically diabetic rats are currently the best, most effective, and efficient ways to produce diabetes (type 1 diabetes) The main benefit of utilizing such substances is that body changes can be evaluated throughout and after diabetes induction [20].

Alloxan

The most common chemical substance employed in diabetogenic studies is alloxan. It's been used to induce Type 1 diabetes in studies. Alloxan is a urea derivative that stimulates pancreatic islet - cells to necrotize [21]. By adjusting the dose of alloxan utilized, it has been widely used to create experimental diabetes in animals such as rabbits, rats, mice, and dogs with variable degrees of disease severity [22].

Chemical Characteristics

Intravenous administration delivers the drug directly to the targeted site and cells, resulting in a high level of effectiveness [23]. Tyrberg *et al.* 2001 [24] also noted that alloxan has been shown to be non-toxic to human beta-cells, even at very high dosages, because humans and rats have distinct glucose uptake pathways.

Streptozotocin (STZ)

Streptozotocin is a naturally occurring substance that is used in animal models to create Type 1 diabetes and Type 2 diabetes with several low doses. It's also used to treat metastatic cancer of the islets of Langerhans in medicine [25].

Chemical Characteristics

Streptozotocin enters the pancreatic cell by a glucose transporter called GLUT2 (Glucose transporter 2), which causes DNA to be alkylated. Furthermore, STZ causes activation of poly adenosine diphosphate ribosylation and nitric oxide production, which causes

necrosis in pancreatic cells, resulting in insulin-dependent diabetes [26].

3.0 MATERIALS

Nine (9) healthy Wistar rats, animal cages, cotton wool, hand gloves, universal bottles, needles and syringes, standard digital scale, scissors, EDTA bottles, plain bottles, sample bottles rack, measuring cylinders, beakers, test tubes, automatic micropipette, pipettes, incubator, refrigerator, spectrophotometer, glucometer, detergent, permanent marker, commercial rat feed and water, centrifuge

3.1 EXPERIMENTAL ANIMALS

Nine (9) male healthy Wistar rats obtained from an animal house in Imota, Ikorodu were used for this study. The rats weighed between 200g and 350grams and were maintained in galvanized wire mesh cages, under hygienic conditions, freely ventilated and naturally illuminated animal rooms. They were made to acclimatize to the animal house condition for two weeks under laboratory conditions maintained at a temperature of 25°C and humidity of 50%. The animals were maintained on standard commercial pelleted rat feed and also provided with clean water. The cages were cleaned daily and washed weekly.

Chemicals

Alloxan, fortress total protein assay kit, and fortress albumin assay kit. Alloxan was prepared according to the manufacturer's guide and the scope of the study.

Experimental design

In this experiment, a total of fifteen nine (9) Wistar rats were used. They were randomly divided into three (2) groups of five (5) rats. The blood glucose level was monitored at interval.

Group A: This group served as the negative, non-diabetic control for the study. The Wistar rats were not given alloxan. The Wistar rats were fed only normal feed and water ad-libitum.

Group B: This group served as the positive control, diabetic untreated group. Diabetes mellitus was induced in the Wistar rats using 150 mg/kg body weight of alloxan and left untreated.

Determination of body weight

The body weights of rats were determined using a standard digital scale. Body weights were measured and recorded.



3.2 EXPERIMENTAL INDUCTION OF DIABETES MELLITUS

The rats were subjected to a 12-15 hours overnight fast and diabetes induced by a single intra-peritoneal injection of 150 mg/kg body weight alloxan monohydrate dissolved in 0.9% normal saline. Since alloxan is capable of producing fatal hypoglycaemia as a result of massive pancreatic insulin release, the rats were treated with 2ml of 10% glucose solution using orogastric tube 4 hours after induction. Diabetes was confirmed after two days (48hours) in animals with fasting blood glucose level (FBGL) above 250mg/dl which were selected for the experiment.

3.3 ESTIMATION OF ALBUMIN

Principle: The test is used for quantitative determination of albumin in serum, serum albumin binds with the bromocresol green indicator in an acid medium to form a green BCG complex, the amount of which is directly proportional to the albumin concentration present in that sample.

Procedure: 1000µl of reagent and 5µl of Demineralized water was pipetted into a plain sample bottle labelled with blank. 1000µl of reagent and 5µl of standard reagent was pipetted into a plain sample bottle labelled with standard, then 1000µl of reagent and 5µl of each of the plasma of the 9-blood sample collected was pipetted into a plain sample bottle labelled with their corresponding tag. The whole samples, including the blank and standard were incubated for 5minutes at 25°C. The absorbance of the sample and standard was then measured at 600nm against the reagent blank.

3.4 ESTIMATION OF TOTAL PROTEIN

Principle: Copper ions reaction alkaline solution with protein peptide bonds to give a purple-colored biuret complex. The amount of complex formed is directly proportional to the amount of protein in the specimen.

Procedure: 1000µl of reagent and 20µl of Demineralized water was pipetted into a plain sample bottle labelled with blank. 1000µl of reagent and 20µl of standard reagent was pipetted into a plain sample bottle labelled with standard, then 1000µl of reagent and 10µl of each of the plasma of the 9 blood sample collected was pipetted into a plain sample bottle labelled with their corresponding tag. The whole samples, including the blank and standard were incubated for 10minutes at 25°C. The absorbance of the sample and standard was then measured at 500nm against the reagent blank

3.5 ESTIMATION OF GLUCOSE LEVEL

Principle: glucometers use test strips containing glucose oxidase, an enzyme that reacts to glucose in the blood droplet, and an interface to an electrode inside the meter, When the strip is inserted into the meter, the flux of the glucose reaction generates an electrical signal. "The glucometer is calibrated so the number appearing in its digital readout corresponds to the strength of the electrical current: The more glucose in the sample, the higher the number.

Procedure: The tail of each rats was cut with a surgical scissors and a drop of blood was placed on the disposable test strip that has been inserted to the glucometer, The values were recorded.

4.0 RESULTS

As illustrated in Figure 4.1, the total protein concentration in the plasma of the diabetic Wistar rat (8.44 4.39 Mg/dl) did not differ substantially ($P>0.05$) from that of the control Wistar rat (10.04 4.14 Mg/dl). When comparing the albumin levels of diabetic Wistar rats (1.72 0.41 Mg/dl) to those of the control rats (1.58 0.13 Mg/dl) in Figure 4.2, it was found that there was no significant difference ($P>0.05$). Figure 4.3 shows that there was no statistically significant difference ($p>0.05$) between the levels of Basal FBS in diabetic Wistar rats (88.0 2.2 Mg/dl) and controls (84.2 4.4 Mg/dl) in diabetic Wistar rats. According to Figure 4.3, the level of FBS in diabetic Wistar rats at one week post-induction was substantially higher ($P0.05$) than the level in the control group (85.0 6.7 Mg/dl), indicating that the diabetic Wistar rat was diabetic.

5.0 DISCUSSIONS

Specifically, the results of nine male wistar rats were examined. The mean values for total protein, albumin, basal FBS, and post-induction FBS in alloxan-induced wistar rats were determined. The statistical programme for social sciences was used to compare the total protein and albumin concentrations in healthy and diabetic Wistar rats. In the experimental class and the controls, there was no substantial difference comparing the basal fasting blood sugar and the post-induction fasting blood sugar levels. The findings revealed that the total protein and albumin concentrations were the same in both groups of participants. As a result, it is reasonable to conclude that blood protein and albumin levels are not important indicators for the diagnosis of diabetes. Induced alloxan in rats has the ability to elevate glucose blood levels [26] which is consistent with the statistically significant high values for post-induction FBS found in our study.



Alloxan is a urea derivative that produces selective necrosis of the β -cells of the pancreatic islets when administered intravenously [21]. In the experiment, diabetes was confirmed after two days of induction (48 hours) in mice with fasting blood glucose levels greater than 250 mg/dL, which were initially selected for the experiment. That alloxan can cause diabetes by damaging the pancreatic islets that contain insulin, which is important for controlling blood glucose levels, has been demonstrated [27].

As a result, we can conclude that the current study is consistent with prior studies and reports in that induced alloxan is capable of triggering inflammatory activities in the pancreas through the death of pancreatic cells. The increased urinary activity that some Diabetic mellitus patients experience can help to dilute proteins in their urine.

Diabetes can be diagnosed by measuring the level of glucose in the blood, preferably while fasting, because hyperglycemia is a significant marker for the disease, which is characterised by insulin secretion deficit, pancreatic cell malfunction, and insulin resistance in body cells. Serum proteins, on the other hand, cannot be utilized to make a diagnosis of diabetes by themselves.

CONFLICT OF INTEREST

The author declares no conflict of interest in this research.

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Table 1: Action of some hormones (Shrayef & Gerich, 2010)

Hormones	Glucose production	Glucose utilization	Lipolysis
Insulin	Decrease	Increase	Decrease
Glucagon	Increase	-	-
Epinephrin	Increase	Decrease	Increase
Cortisol	Increase	Decrease	Increase
Growth hormone	Increase	Decrease	Increase
Free fatty acids	Increase	Decrease	-

Table 2: Mechanism of action of key metabolic regulators (Shrayef & Gerich, 2010)

Pathway	Insulin	glucagon	Epinephrin	T3, T4	Cortisol	Growth hormone
Glycolysis	+	-	+	+	-	-
Glycogenesis	+	-	-	-	+	+
glycogenolysis	-	+ ‘liver’	+ ‘L & M’	+	-	+
Gluconeogenesis	-	+	+	+	+	+
Lipogenesis	+	-	-	-	+ ‘central’	-
Lipolysis	-	+	+	+	+ ‘peripheral’	+
Protein synthesis	+	-	-	+	+	++
Proteolysis	-	+				

Note: (+) stimulated, (-) inhibited.

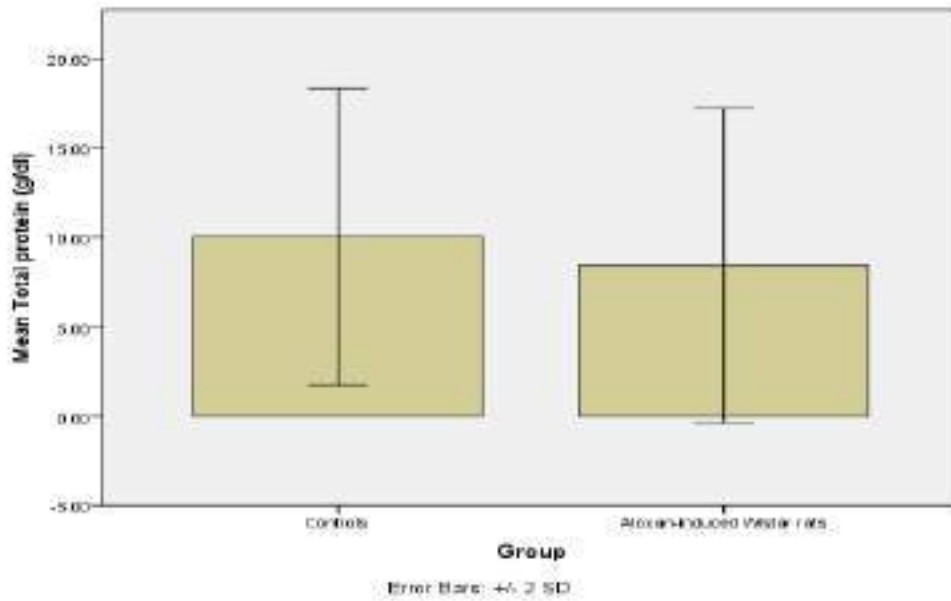


Figure 4.1: Levels of Total protein in Diabetic Wistar rats and Controls

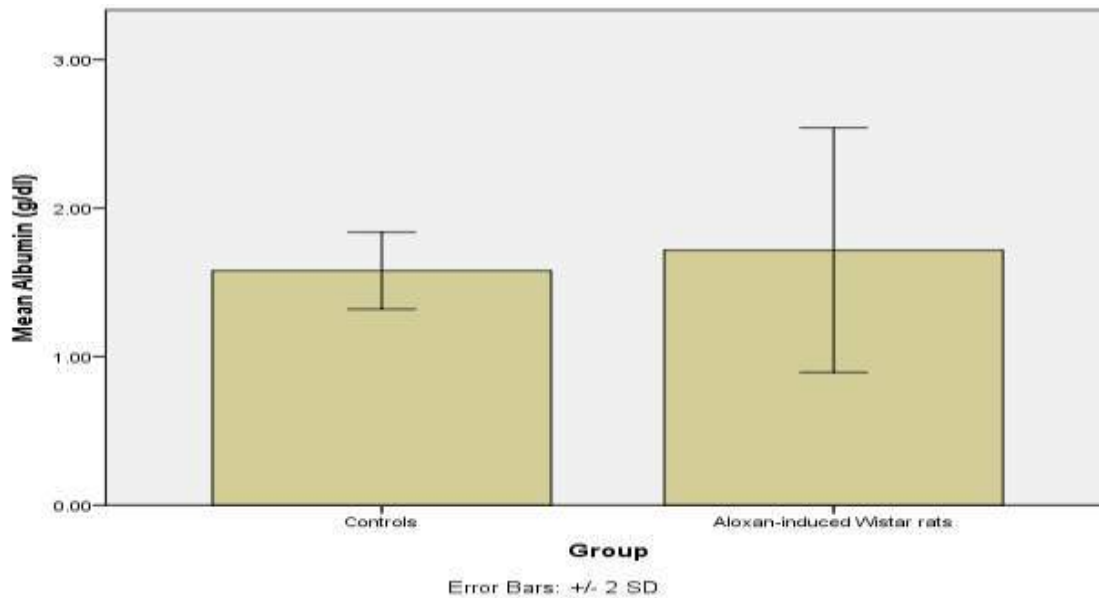


Figure 4.2: Level of total albumin in controls and diabetic patients

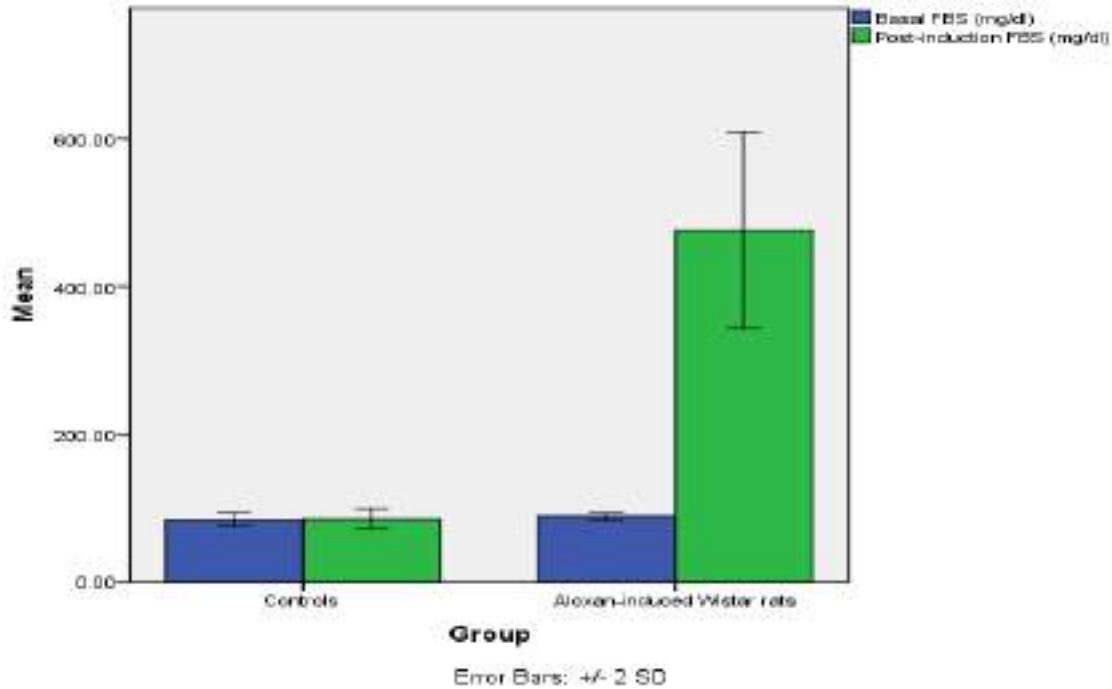


Figure 4.3: Alloxan induced rat and controls

Research Highlights

- Damage and Improper functioning of the pancreatic cells can lead to diabetes
- Blood protein and albumin levels are not important biomarkers for the diagnosis of diabetes
- Diabetes can be diagnosed by measuring the level of glucose in the blood, preferably while fasting



A STUDY ON CUSTOMER AWARENESS AND USAGE OF NET BANKING THROUGH MOBILE PHONES

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ABSTRACT

The world is changing at an increasing and technology that is considered to be the key driver for these changes around us. An analysis of technology and its use shows that it has permeated in almost every aspect of our life. Many activities are handled electronically due to the acceptance of information technology at home as well as at work place slowly by steadily. Nowadays the Indian customers are moving towards the internet banking. Internet banking system is a system that has been developed in order to help clients with their day to day transactions. The system of online transactions has become popular.

KEY WORDS: Net banking, banking transactions, online, customers

1. INTRODUCTION

E-banking or Online banking is a generic term for the delivery of banking transaction and products through the electronics channels such as the telephone, the internet etc. This paved a way for the budding concept of E-banking .

It facilitates an effective payment and accounting system thereby enhancing the speed of delivery of banking transaction considerable. Business relies on efficient and rapid access to banking information for cash flow reviews, auditing and daily financial tractions processing E-banking to eliminates immediate rushing to the bank and to make financial decision with update information.

A number of authors and experts have defined E-banking services as a contemporary facility that provides conventional bank products and services through a new medium. The most recent technological advancement is the evolution of e-banking. Various alternative modes of providing banking products are evolved and gained popularity in recent past, such as, tele-banking, Automated Teller Machines, e banking, credit & debit cards.

2. STATEMENT OF THE PROBLEM

The Technology-based self-service has greatly changed the way business firms and consumers

interact with their bankers. Moreover, modern day consumers feel it both time consume costly and unsafe when dealing with banks. So they prefer to utilise more E-banking services such as internet banking, RTCGs services, core banking, mobile banking and ATM facilities. Technology based services offered by banks highly facilitate them to solve their banking financial problems without moving from their premises either office or home. But, so far, less literature, survey and empirical research work has been conducted in the past that has analysed the banking customers' perception and utilisation pattern of e-banking services.

3. OBJECTIVES

- To Eknow the socio economic characteristics of the customer of E-banks.
- To know the awareness of E-banking transactions among the customer.
- To find out the reason for preferring E-banking transactions through mobile phone.
- To know satisfaction level experienced by the user in E-banking transactions through mobile phone.
- To find out the opinion of the respondents regarding the various problems of E-banking transactions.



- To give valuable suggestion to improve the awareness and usage of E-banking transactions.

4. NEED OF THE STUDY

Today the customers demands the services of bank 24 hours. Now in this modern age the entire banking structure has been changed due to widespread internet technology. Now all the business like commerce, trade, import, export, purchase and sales of goods is relying upon electronic banking. By using the advance electronic technology the banking services are fast and economical

5. LIMITATIONS

- With respect to actual population the sample size were too small. This might affect the final result.
- Since the responses were only from part of Coimbatore, the report cannot be generalized for other areas.
- The time taken for this study was also limited and it was the major constraint to complete the work entirely.

6. TOOLS OF THE STUDY

The tools used for analysis are

- Simple percentage Analysis
- Ranking Analysis
- Weighted average analysis

7. RESEARCH METHODOLOGY

A research design is purely and simply the framework for a study that guides the collection and analysis of data. The research design is descriptive in nature

AREA OF THE STUDY

The study is undertaken in Coimbatore city

SAMPLE SIZE

The study is restricted to 130 respondents

SAMPLING TECHNIQUES

Convenience sample technique is used for the study

PERIOD OF THE STUDY

The period of the study is 3 months i.e. January 2021-March 2021

METHODS OF DATA COLLECTION

Questionnaire method is used to collect the data from respondents

SOURCES OF DATA

The study is based on primary data and secondary data

The primary data had been collected from the respondents through respondents.

The secondary data had been collected from articles, books, magazines and newspapers

8. NET BANKING

The information technology has revolutionized various aspects of our life. The world at large is rapidly entering into the net age. Internet or simply net is an inter connection of computer communication networks covering the whole world. The growth and expansion of internet and information technology have facilitated the emergence of e-commerce. When the business and commerce tend to be electronic modern banking can never remain isolated. Hence E-banking implies performing basic banking transactions electronically. Internet banking/E-banking is a method of banking that allows a customer to perform banking transactions through a bank's website hosted in the internet. This is called virtual banking, online banking. It denotes the provision of banking and other related services through the extensive use of IT, without direct resource to the bank by customers.

9. CONCEPT OF E-BANKING

Liberalization and de-regulation process, which started in 1991-92 has made a drastic change in the Indian banking system. From a totally regulated environment, we have gradually moved into a market driven competitive system.

In today's era, one cannot think about the success of any service industry including banking industry without information technology. It has increased the contribution of banking industry in the economy. Financial transactions and payments can now be processed quickly and easily in fractions of seconds. Every second development in Information Technology (IT) and its acceptability by the commercial banks in India has enabled them to use IT extensively to offer their products and services to customers apart from just back office processes. Banks with latest information technology techniques are more successful in the cut throat competitive market in these days. Further, they can generate more and more business opportunities resulting in greater profitability. Information technology revolution in banking sector has not only provided improved service to the customers, but also reduced the operational cost (Talwar 1999).

10. FINDINGS OF THE STUDY

1. Majority (55%) of the respondents are male.
2. Most (35%) of respondents are in the age group of 20-25 years.
3. Majority (53%) of the respondents are unmarried.
4. Majority (62%) of the respondents are graduated.
5. Most (29%) of the respondents are employed.



6. Most (42%) of the respondents are belong to the group of Rs. 10000 to Rs. 30000.
7. Majority (62%) of the respondents are nuclear family.
8. Majority (58%) of the respondents have 3 to 5 members in their family.
9. Majority (98%) of the respondents are aware of the E-banking transactions.
10. Majority (68%) of the respondents stated the private sector bank is technologically advanced.
11. Majority (50%) of the respondents holding savings account.
12. Most (35%) of the respondents are come to know about E-banking transactions through friends and relatives.
13. Most (36%) of the respondents are using E-banking transactions for less than 1 year.
14. Most (42%) of the respondents are using E-banking transactions for money transfer.
15. Majority (91%) of the respondents are satisfied with electronic bank transaction.
16. Most (47%) of the respondents are using E-banking transactions due to time saving.
17. Majority (67%) of the respondents are not requested check book through online.
18. Majority (60%) of the respondents having problems while e banking transaction through mobile phones.
19. Most (26%) of respondents are using e banking transactions in network problems.
20. Majority (63%) of respondents are ready to recommend e banking transaction through mobile phones to others.
21. Majority of the respondents preferred time saving factor in rank, in which influence e banking through mobile phones.
22. Majority of the mean score level 4.23for the use of money transfer of the respondents.

11. SUGGESTIONS

The study of revealed the most of customers hesitate to use internet banking as they feel it is unreliable. Hence, banks should conduct awareness programs stressing on the safety issues and educate the customers about the steps to be taken to ensure safety while banking through the internet. Online customers are mainly concerned on safety issues, so the bank should educate their customers regarding how to use their passwords and pin numbers and customer should change the passwords and pin numbers frequently so no authorized fraudulent practices happen in e-banking.

EFT/NEFT should also be used for bill payment like mobile bills, electricity bills as millions of customers required such kin in services. Further it

also covers the LIC policies premium and payments. MIRC code with branch, bank location is familiar to millions of account holders in the country but shifting to IFSC code (internally used within the systems) from MIRC code is quite difficult for the customers to understand, so still IFSC code gin the popularity both code must co-exist.

As the use of internet is increasing day by day so the internet banking is also rapidly followed by the customers. To make E-payment services more adaptable among the customers bank should provide more services through internet banking fir query as well as for transactions purpose.

13. CONCLUSION

The result of the study shows that perceived usefulness, customer awareness ans perceived risk are the important determinants of the mobile banking adoption. Majority of the customers are aware that mobile banking is now available in India, but very few are aware and familiar with various banking transactions that can do with the help of mobile banking.

Consumer awareness has signified impact on entreat to use in mobile banking. Consumer's are interested because they have heard about it somewhere and think that, with the help of mobile banking, they can do the e-banking transactions anywhere and anytime. Consumer's often come to know about new products or services through unofficial channels like family, friends and colleagues and through internet. Thus, word of mouth is one of the strong communication channel which provide information to various consumer groups. On the whole it can be said that technology is now enabling consumers to do their banking transactions just by clicking some buttons on mobile or by sending some SMS.

E- banking has transformed not only the banking relationships but transformed the whole banking industry. The e-banking, therefore taken as a mandate by the banks rather than just an additional feature in most of developed nations, as it is the economical medium to cater the banking customers. Today banking is not restricted to the traditional physical banking system, where banking staff need to be there personally to enable banking transactions. But till there are strong requirements of customers-awareness regarding e-banking facility prevails in India and it can be served through proper scanning and analysis of the market.

Through E-banking, customers can process any banking transactions without even visiting bank branch at any time, anywhere and this is known as "anywhere banking". Providing E-banking is no more considered as an additional feature of a banking



institution, but now it has become an essential feature of a bank.

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EFFECT OF ORGANIZATION SUPPORT ON WORK ENGAGEMENT WITH SPECIAL REFERENCE TO SELF FINANCING COLLEGE

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ABSTRACT

Teachers are expected to be well-driven when it comes to personal and professional growth and take courage in setting higher goals for the development of their careers and imparting these to their learners, thereby achieving the role of the Department of Education. employees are highly energetic, self-efficacious individuals, and they have full control over events that affect their lives. Employees' positive attitude and wellengaged activity levels create positive feedback in appreciation, recognition, and success. For engaged employees, work stress is pleasant because it is a driving force for productivity and work accomplishment. socio-emotional needs and assess the benefits of increased work effort, employees constitute a general perception of how the organization values their contribution and cares about their wellbeing. Such perceived organizational support (POS) is assumed to be based on the organization's favourableness of employees' history of treatment. Likewise, based on reciprocity, perceived company support would elicit employees' felt obligation to care about the organization's welfare and help the organization reach its objectives. Employees could satisfy this indebtedness through a more outstanding practical commitment to the organization and more significant efforts to help the organization. The purpose of this study is to examine the relationship between work engagement and perceived organizational support and organizational climate.

KEYWORDS: *Organization Support, Work Engagement, Job Satisfaction, Work Life, Job Performance*

INTRODUCTION

Employee engagement has become a hot topic in recent years. Despite this, there remains a paucity of critical academic literature on the subject, and relatively little is known about how employee engagement can be influenced by management. Although there is a great deal of interest in engagement, there is also a good deal of confusion. At present, there is no consistency in definition, with engagement having been operationalised and measured in many disparate ways.

Perceived organizational support is accepted as the perception that workers are valued by the organization and their happiness is taken into account by the organization (Eisenberger, Huntington, Hutchison, & Sowa, 1986). The perception of organizational support is the extent of belief of workers that their organization appreciates their contributions and that it cares about their well-being (Robbins & Judge, 2012). Hellman (2006) defines the perception of organizational support as workers' perceiving the acceptance of the contributions they make to the organization they work for as a result of

their efforts by the organization and the attention the organization gives to its workers' well-being. While Martin (1995) defines organizational support as the awareness of workers' contribution by the organization and the importance that the organization gives to their well-beings, Eisenberger et al. (1986), in a different definition, described organizational support as the organizational values' taking workers' well-being into consideration and bearing the qualities that increase happiness of workers.

Teachers must always be updated of the latest trends and issues concerning their field of specialization to keep their students well informed on the situations of the corporate world. Mote et al. (2014) stated that competent faculty members enriched learning activities using up-to-date reference, practiced innovation towards globalization. Teachers of the future are expected to develop their competencies in delivering up-to-date knowledge to sustain their duties and functions as knowledge providers in a constantly changing and increasingly competitive work environment (Del Mundo & Refozar, 2013). They could acquire information



through giving them the equal opportunity to attend in training and seminars as well as through participation in symposium and research conferences. Appropriate learning and development programs of the organization provides holistic, dynamic and satisfied human resource to better serve the academic community. It is the heart of personal and professional growth of individual that make them more effective and efficient teachers. If every part of human resources is not addressed in appropriate manner, employees fail to fully engage themselves in their job in the response to such kind of mismanagement (Markos & Sridevi, 2010).

REVIEW OF LITERATURE

Schaufeli (2012) states that the work engagement concept first emerged in the business world, that the concept, although the origin is not so clear, was used by the Gallup Organization in 1990, and that the first academician to conceptualize work engagement, which was a new concept both in the business world and the academic society, emerged in the 1990s, and became the topic of over 200 scientific publications, was Khan (1990), an ethnographic researcher. Khan (1990) defined work engagement as workers' having themselves being made use of for their roles in their jobs, and after they get themselves hired for the position, workers' display of physical, cognitive, emotional, and mental performances for the sake of their roles in their jobs, and regarded this as the source of the production of positive outcomes on both individual and organizational levels. The concept of burnout, which was first defined by Ferudenberger (1974), was completed and expanded with the antithesis of work engagement that referred to a positive state as a result of the studies conducted later on (Maslach & Leiter, 1997; Schaufeli & Bakker, 2003). It is possible to mention many factors in the engagement of workers to their jobs. There are numerous and a variety of factors affecting individuals' behaviors in the working environment. These factors can be classified into organizational, individual, environmental, and work-related. Work engagement behavior is affected by many factors such as organizational culture, institutional communication, management upon trust and respect, leadership, and prestige of the organization (Lockword, N.R., SPHR, GPHR, M.A., 2007). Workers' continuing to work in the institution and their willingness to compete determine their work engagement levels. The importance of work engagement is that there are positive results for the organization (which is the power behind work engagement). Studies conducted on work engagement shows that having a high level of work engagement leads to high level of organizational responsibility, increased job satisfaction, less

absenteeism and lower workload ratios, improved health and well-being, a display of more responsible behaviors, high performance, high demands in personal attempts, behaviors that take preventive actions, and motivation in learning (Schaufeli & Salanova, 2007). Having engaged workers can be the key to competition (Macey & Schneider, 2008) and organizational success (Lockwood, 2007). Kahn (1990) coined one of the most recognizable definitions of engagement: "the harnessing of organizational members' selves to their work role." Work engagement could be described as "a positive, fulfilling, work-related state of mind characterized by vigour, dedication, and absorption" and can influence employee health (Schaufeli et. al., 2002). It is also a state of enthusiastic and complete work involvement (Rich et. al., 2010). Maslach and Leiter (1997, 2008) defined engagement as the opposite of burnout; engaged employees have a sense of energetic and effective connection with their work. Accordingly, engagement is characterized by energy, involvement, and professional efficacy – the three core burnout dimensions' direct opposites. Engagement will make a more substantial contribution as a unique construct that adds exceptional value to the nomological network (Halbesleben & Wheeler, 2008). Shirom et. al. (2008) add an exciting view of the literature on work engagement with his elaborated vigour concept. Accordingly, vigour refers to individuals' feelings that they possess physical strength, cognitive liveliness, and emotional. Feeling invigorated connotes the combined sense of a positive energy balance and pleasantness or contentment.

Organizational support theory that makes efforts to explain the relationships between the organization and workers is based on the social exchange theory (Tokgöz, 2011). The social exchange theory by Blau (1964) points out that individuals tend to have positive responses towards an individual or individuals that will provide benefits to them in certain conditions. (Bateman & Organ, 1983). According to the social exchange theory, the relationship between workers and the organization is in a way a relationship of exchange and trade (Blau, 1964). The concept of perceived organizational support is one of the main arguments of this exchange. (Akkoç, Çalışkan, & Turunç, 2012). Perceived organizational support has an important role both for the institution and for workers. Perceived organizational support enables workers to feel safe and feel that the power of the organization they work for behind them (Özdevecioğlu, 2003), makes workers that feel the support of their organization right beside them all the time become more attached to their jobs in that safe working environment and gives them the idea not to leave their working places (Akkoç et al., 2012), ensures



workers to have tendency to show behaviors that theoretically provide benefits to the organization (Eisenberger, Huntington, Hutchison, & Sowa, 1986), makes organizational citizenship behaviors stronger and decrease behaviors of tardiness (Vandenberghe et al., 2007; as cited in Robbins & Judge, 2012), leads to less absenteeism by workers and more conscious about the tasks related to their jobs when compared to workers who have lower levels of perception of organizational support (Eisenberger et. al, 1986). Perceived organizational support increases performance in standard work-related activities, is effective in going over the predetermined standards and increases the level of organizational identification significantly (Turunç & Çelik, 2010).

OBJECTIVES

1. To know the level of Organizational support in terms of Learning and Development
2. To know the Level of Work Engagement of Self financing college Teachers as an Entire Group

RESEARCH METHODOLOGY

The population of the study consists of teachers working in self financing college in Ernakulam District. 100 self financing college teachers taken as sample size. Both primary and secondary data were used. Weighted mean and rank were employed to analyse the level of organizational satisfaction and work engagement. In relation to the level of organizational support of self financing college teachers, the study used the adapted perceived organizational support scale checklist by Eisenberger (1986). The respondents were asked to check the items to indicate the degree of their agreement or disagreement with each statement using the following four response options: 4 - Strongly agree; 3 - Agree; 2 - Disagree; 1 - Strongly disagree.

DATA ANALYSIS AND INTERPRETATION

Table 1 presents the level of organizational satisfaction in terms of learning and development among faculty members. Faculty members were normally satisfied in the opportunity that the university is providing them to use their abilities and the motivation for professional development as denoted by the computed weighted mean scores of 3.43 and 3.40, respectively.

Table 1: Level of Organizational support in terms of Learning and Development

No	Learning and Development	WM	Rank
1	Motivation for professional development	3.40	2
2	Privilege for educational opportunities	3.25	4
3	Amount of responsibility being given based on my capacity	3.36	3
4	Opportunity to use my abilities	3.43	1
5	Attention paid to my suggestions for development	3.15	5
Composite Mean			

They were also normally satisfied in the amount of responsibility being given to them based on their capacity and the privilege for educational opportunities as indicated by the computed weighted mean scores of 3.36 and 3.35, respectively. Attention paid to their suggestions for development obtained the least weighted mean score of 3.15. The composite mean score of 3.32 implies that the faculty members were normally satisfied in the learning and development of the university in general. Training and Development is important instrument that greatly contributes to the employee's career development (Quizon, 2014). Most organization applied competency training as a form of reward package particularly to employee's promotion (Macalaguim & Menez, 2014). As an educational institution it has to deliver the products and services necessary to

achieve the outcomes it intends to produce (Javier, 2012).

Level of Work Engagement of Self financing college Teachers as an Entire Group

Table 2 shows that the Self financing college teachers have a very satisfactory work engagement level as an entire group, as revealed by the overall mean of 3.99 and standard deviation of 0.49. This result implies that Self financing college teachers are well-engaged in their work as manifested by their performance when it comes to teaching and learning process (M=4.38, SD=.35); pupils-students outcomes (M=4.24, SD=.40); community involvement (M=3.76, SD=.64); and professional growth and development (M=3.56, SD=.56).

**Table 2. Level of Work Engagement of Self financing college Teachers as an Entire Group**

Work Engagement Aspects	Mean	S D	Description
Teaching-learning process	4.38	0.35	Very satisfactory
Pupils/students outcomes	4.24	0.40	Very satisfactory
Community involvement	3.76	0.64	Very satisfactory
Professional growth and development	3.56	0.56	Very satisfactory
Over-all mean	3.99	0.49	Very satisfactory

FINDINGS

Self financing college teachers are also normally satisfied in the amount of responsibility being given to them based on their capacity and the privilege for educational opportunities as indicated by the computed weighted mean scores of 3.36 and 3.35, respectively. Attention paid to their suggestions for development obtained the least weighted mean score of 3.15. The composite mean score of 3.32 implies that the faculty members were normally satisfied in the learning and development of the university in general. Self financing college teachers are well-engaged in their work as manifested by their performance when it comes to teaching and learning process

CONCLUSION

Faculty members are the number one beneficiary of the professional development program of the human resource development and management office through taking advanced studies in the graduate school, sending them in seminars, training and research conferences. They used their abilities to do research and allowed them to present its findings in the local, national and international research forums. Program accreditation also helps improve the educational background of the faculty members through requiring them to finish graduate studies. The faculty development program also provides guidance and clear plan for the career of the teachers in terms of the time frame when to complete their master's and doctorate degrees. They were highly engaged in performing their duties, particularly in the four aspects - teaching-learning process, pupils-student's outcomes, community involvement, and professional growth and development. Moreover, teachers are equipped with the knowledge and varied teaching skills used in attaining successful teaching and learning process; and they have been actively involved in the different activities of the community. Public elementary school teachers exhibited a high level of organizational support. This denotes that teachers acknowledged the support given to them by the organization. They are satisfied with their respective schools' services, which afforded them the right motivation as effective teachers.

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ALGOFLORA OF TYPICAL GRAY SOILS FOR CONTINUOUS TILLAGE

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ABSTRACT

The abstract depicts and gives data on reserves, wheat fields, meadows, cotton fields, vineyards and apple-tree orchards, distribution of systematic and ecological groups of algae in different soils on anciently cultivated soils on the basis of typical gray soils, the distribution of life forms in protected and ancient arable lands.

KEY WORDS: *Fergana valley, reserve, wheat field, meadow, cotton field, soil, algae, soil algae, systematic groups, ecological groups, life forms.*

INTRODUCTION

The scale of the harvest in the wheat fields, meadows, cotton fields, vineyards and apple-tree orchards of the Fergana Valley is higher than in other regions. This is due to the fact that the land is fertile, rich in freshwater basins and, of course, in optimal temperature. By studying the algae flora of soil algae in the gray soils of such an environment, it is possible to determine whether there are other reasons for high yields, and whether it is possible to create similar conditions in other environments.

MATERIAL AND METHODS

We have tried to create as similar conditions as possible for the development of species with different systematic compositions, taking into account the phototrophic nature of algae. For this, the "soil culture" method was used (Fritsch a John, 1942) [1]. The room temperature is 25-30 ° C, and depending on the period of light fall (sunlight or 25wt of fluorescent lamps) in the spring, autumn, early summer, algae dust appears in 10–12 days (sometimes earlier). These dusts were seen under a microscope. Placing a sterilized cover glass on the soil culture in a petri dish makes it more convenient for diatom algae species to show more of the algae species in it. After a certain period of 5 - 6 days, dust formed by the development of algae under the cover glass began to appear. Each cover glass was viewed under a microscope for a period of time, then new cover glass was placed 5-6 times in each container.

The appearance of algae in one petri dish was observed for 4–6 weeks. The "water culture" method was also used to more fully study the taxonomic composition of soils in which algoflora content was studied. It was ensured that the nutrient medium prepared for the full expression of all the algae in the soil contained almost all the minerals. In order to do this, the solution was assumed to contain nitrogen, phosphorus, sulfur, magnesium, iron, calcium, potassium and a number of microelements. The nutrient that allows the algae in the soil to appear in the "water culture" is Bristol solution: NaNO₃ -0,25r, KH₂PO₄ -0,25r, MgSO₄ -0,15r, CaCl₂ -0,05g, NaCl -0,05r, Fe₂Cl₂ -(3 drops of 1% solution), water -1000 mg.

RESULTS

Reserves, wheat fields, meadows, cotton fields, vineyards and apple-tree orchards, which differ in the water regime and agro-technical characteristics of the Fergana Valley, have long been cultivated on the basis of typical gray soils since ancient times. It was once suggested by Bristol-Roach [3] that arable soils have specific algae groups. Scientific data on this subject, collected since that time, have shown that some regularities occur in the algae groups in the cultivated soils.

Its productivity increases in tillage soils. Biogenic and biological productivity are activated. When tilled soil is cultivated, algae communities of



plowed soils are gradually formed. Ancient arable soils [4] have the following characteristics:

- 1) The main divisions of algae are Cyanobacteria, Chlorophyta, Xanthophyta, and Bacillariophyta, which increase the diversity of species;
- 2) Of the cyanobacteria, species of the Nostocales order, especially the Nostoc, Anabaena, Cyndrospermum families, proliferate;
- 3) The development of small-cell diatom algae occurs;
- 4) The diversity of single-celled forms of yellow-green algae, especially the families Pleurochloris, Characiopsis, Munodus Ellipsoidion, enhances their development.

Many algal researchers have reported an increase in the number of algae cells in arable soils [2].

According to the data, the organic mass of the soil weighs from 60 kg to 100 kg per hectare. The biomass of the water is often updated during the growing season. Soil algae enhances biological activity in the soil, in addition to which soil water provides nitrogen accumulation as nitrogen compounds (Pankratova, 1979, 1986). Accordingly, the nitrogen accumulated in the soil is 3.0-5.5 kg / ha in different years [5].

In our research, soil algal flora, which has been cultivated since ancient times, has been compared to other soils and phytocenoses. The following sources were used for comparison:

Table 1
Distribution of systematic groups of water algae in different soils
(1-number of species, 2-percentage)

Soils and phytocenoses	Number of all types	Cyanophyta		Chlorophyta		Xanthophyta		Bacillariophyta	
		1	2	1	2	1	2	1	2
Tundra	136	43	31,6	60	44,1	25	18,4	8	5,9
Forest	383	96	25,1	157	41,0	94	24,5	36	9,4
Desert	410	208	50,7	111	27,1	23	5,6	67	16,4
Typical gray land	190	71	37,37	47	24,73	8	4,2	64	33,68
Types in total	845	297	35,1	274	32,4	125	14,8	140	16,6

In the studied soils, which have been cultivated for a long time, algae belonging to all systematic groups, as in other soils, were identified. Green algae in soils that have been cultivated since ancient times accounted for 44-41% in tundra and forest soils. They make up 27-24% in desert and typical gray soils. Cyanobacteria make up 50.7% of the forms distributed in the arid region. It is 37.3% in the typical gray soils of the study area. Species belonging to the genus Xanthophyta are rare in all soils: they accounted for 4.2% in typical gray soils. Species of the Bacillariophyta division have a large rate of 33.68% in typical gray soils [6].

Nostoc punctiforme, *Phormidium foveolarum*, *Navicula mutica*, *Phormidium borealis*, *Pleurochloris magna*, *Pleurochloris pyrenoidosa*, *Botrydiopsis arhiza*, *Caraciopsis minuta*, *Chlamydomonas gloeogama*, *Chlorococcum Chicro*, *Chlorococcum humicola*, *Chlorococcum humicola*.

nitens, *Stichococcus minor* dominated in forest soils (Alexaxina, Shtina, 1984).

Dominant species in the typical gray-brown soils which have been studied are as follows: *Nostoc punctiforme*, *Anabaena sphaerica*, *Cyndrospermum licheniforme*, *Cyndrospermum muscicola*, *Phormidium autumnale*, *navicular mutica*, *Nantzschia amphioxys*, *Pleurochloris magna*, *Pleurochloris pyrenoidosa*, *Botrydiopsis archive*, *Polyedriexilis*, *Chlomydomonada gloegama*, *Chlorococcumhumicola*, *Chlorella vulgaris*, *Chlorhormidium feaccidum var. Nitens*, they formed the dominant species composition. The *Jacquard floristic* commonality coefficient is 0.37 in dominant species.

Ecological analysis of algoflora in the comparable soils shows that edaphiphil species make up 75.9% in the arable soils that have been cultivated since ancient times, and it is second only to tundra soils (89%).



Table 2
Distribution of algae in different soils by ecological groups
(1- number of species; 2-percentage)

Soils and phytocenoses	Edophophylls		Amphibians		Hydrophiles		Total
	1	2	1	2	1	2	
Tundra	121	89	10	7,3	5	3,7	136
Forest	275	71,8	56	14,6	52	13,6	383
Typical gray	86	45,26	70	36,84	33	17,37	190
Types in total	384	45,2	311	36,8	150	18	845

The number and percentage of algae typical gray soils were determined in accordance with those of other soils.

Table 3
Distribution of systematic groups in protected and ancient arable lands

Soils	Types in total	Cyanophyta		Chlorophyta		Xanthophyta		Bacillariophyta	
		1	2	1	2	1	2	1	2
Protected lands	25	11	44,0	8	32,0	1	4,0	5	20
Lands that have been cultivated since ancient times	165	65	37,14	43	24,57	7	4,0	43	24,57

The biodiversity of all systematic groups of algae is high in the ancient arable soils. The number of species belonging to cyanobacteria is 5.9 times higher than in protected areas, green algae - 5.3 times, yellow-green - 7 times. The differences in the number of diatom algae species are not large: only

1.22 times. Yellow-green algae have a strong "sensitivity" to changes in the soil. Soil drainage and soil softening increase the diversity of algae species.

There are ecological differences in the algoflora in the protected and ancient cultivated soils.

Table 4
Distribution of algae by ecological groups
(1-number of species; 2 - percentage)

Soils	Types in total	Edophophylls		Amphibians		Hydrophiles	
		1	2	1	2	1	2
Protected lands	25	15	60,0	8	32,0	2	8,0
Lands that have been cultivated since ancient times	165	86	45,26	51	30,90	28	16,97

According to our data, 86 species of edophophytes accounted for 45.26% of the total algoflora in ancient arable soils, while amphibians

accounted for 30.9%. The share of hydrophils is around 17%. Amphibious and hydrophilic species produce mass development.



Table 5
Distribution of life forms of algae in protected and ancient arable lands
(1-number of species; 2 - percentage)

Life forms	Protected lands		Lands that have been cultivated since ancient times	
	1	2	1	2
Ch	2	8,0	16	9,7
C	6	24,0	40	24,24
CF	2	8,0	23	13,9
X	3	12,0	20	12,12
B	3	12,0	16	9,7
H	3	12,0	20	12,12
P	6	24,0	30	18,18
жами	25	100	165	100

According to our data, C-form and P-form are more abundant in algae.

CONCLUSION

The data show that there were no changes in the composition of algoflora during the drainage of plowed soils, in which a set of species specific to plowed soils was formed. However, the deep mitigation of subsurface drainage has led to an increase in algae species and cell numbers. Separate algoflora is formed in the soils, which have been cultivated since ancient times.

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A DESCRIPTIVE STUDY TO ASSESS THE KNOWLEDGE REGARDING HEALTH BENEFITS OF YOGA AMONG THE ADOLESCENTS STUDYING IN SELECTED SR. SEC. SCHOOLS AT JODHPUR, WITH A VIEW TO DEVELOP AN INFORMATION BOOKLET

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ABSTRACT

INTRODUCTION: The word Yoga is derived from the Sanskrit word “to join” or “unity.” It is described in spiritual terms as union of the individual consciousness with the universal consciousness. In another term, Yoga is the “union of mind and body” for balancing and harmonizing the physical and mental functions of body. This is done through the practice of physical postures (asana), breathing control (pranayama), and meditation. In this study, distribution of booklet among adolescents is an attempt to improve the knowledge regarding health benefits of yoga.

AIM OF THE STUDY: Assess the knowledge regarding health benefits of yoga among adolescents.

MATERIAL AND METHOD: A descriptive study was carried out to assess the knowledge of 60 adolescents selected by purposive sampling, who were studying in selected sr. sec. school at jodhpur Rajasthan were assessed by using a structured knowledge questionnaire and analyzed by using descriptive and inferential statistics were used for data analysis.

RESULT: Therefor percentage distribution the sample with reference shows that majority of adolescents have (83.33%) poor and (16.66%) average and no one has good knowledge of health benefits of yoga. However the majority of the demographic variables like gender, religion, area of residents, education of father, types of family, previous attend any yoga programme were not significant at 0.05 level.

CONCLUSION: It can be concluded the adolescent’s students are having poor knowledge regarding health benefits of yoga. There are very important to Provides institutional and academic knowledge for yoga theory and practice. So I request to respected department of education to added the yoga subject in primary to Sr. sec academic season for improve student’s health physically, mentally and spiritually health lifestyle. Self-information booklets were distributed to them to improve the knowledge regarding health benefits of yoga.

KEY WORDS: Knowledge, adolescents, Health benefits of yoga, Information booklet.

INTRODUCTION & BACKGROUND OF THE STUDY

Yoga originated from India thousands of years ago. It has been described in Bhagavad - Gita and Pat Anjali – Darshan, Bhagavad - Gita defines it as lifestyle with consuming appropriate food, doing appropriate exercise, discharging duties properly, going early to bed, and getting up early. All these

comprise Yoga and are shot way of remaining healthy without suffering. This definition is comparable to an aphorism quoted by Peter McDonald - there best physicians are the doctors quite, and doctors” merry man.

Before discussing the importance of Yoga in modern lifestyles. It is essential to discuss the problems associated with modern life. It is obvious that modern lifestyles are easing the life of today's



man. However, it also has a negative effect on health both physically, socially, psychologically and spiritually. The reasons for such problems are multiple to mention some of them are lack of physical exercises, using technology given machine for easing life and spending much of our time on these machines, moving with transportation from place to place and sitting long hours in the office and in front of computers are some of them. Modern lifestyle intensifies the risk of fatness or obesity.

Yoga has an important role in Modern medicine. Many researches are going on about yoga for good health. One of the main etiologic factors for any disease is stress, yoga has a greater impact on reduction of stress and stress related disorders. Various studies indicate that chronic emotional stress disturbs the blood pressure mechanism and cholesterol level. Various scientific studies have revealed that appropriate changes in the life style on the basis of yogic principles can even reverse the heart disease and would help us in maintain our healthy state of body and mind and to prevent such stress disorders.

According to WHO – “Health is a state of complete physical, mental and social well-being and not merely an absence of disease or infirmity” (WHO 1964). Hence the contribution of yoga in providing this integrated whole benefit to individuals who practicing yoga in the day to day life is huge. Regular yoga practice builds mental lucidity and coolness, boost body awareness, relieves stress patterns, relaxes the minds and sharpens concentration. Yoga provides tools through which one can manage which the pain and helps contradict with the feeling of helplessness and depression (Verma 2015).

“While addressing the 69th session of United Nations General Assembly (UNGA) on September 27, 2014, the Honorable Prime Minister of India Shri Narendra Modi urged the world community to adopt an International Day of Yoga. “Yoga is an invaluable gift of ancient Indian tradition. It embodies unity of mind and body; thought and action; restraint and fulfilment.”

Yoga is being practiced worldwide today. Approximately 2 billion people around the world practice Yoga. According to a survey, it is said that number of Americans doing yoga has grown by 50% over the last few years to over 36 million as of 2016 from 20.4 million in 2012. In addition to these 9 out of 10 Americans have heard of Yoga, one in three have tried yoga at least once and more than 15% of Americans have done Yoga in the past six months. Yoga is an ancient physical, mental and spiritual practice that originated in India and is now practiced in various forms around the world. Indians have known the importance of Yoga from decades and

from last many years the whole world is talking, practicing and adopting Yoga and its benefits.

To achieve target knowledge regarding health benefits of yoga among the adolescents are the most important factor. So, the researcher was motivated to conduct this study to find the level of knowledge regarding health benefits of yoga and educate them through information booklet.

OBJECTIVES OF THE STUDY

- To assess the knowledge regarding health benefits of yoga among the adolescents studying in selected Sr. Sec. Schools at Jodhpur.
- To find out an association between the level of knowledge regarding health benefits of yoga among the adolescents with selected demographical variables.
- To develop an information booklet regarding health benefits of yoga.

HYPOTHESIS OF THE STUDY

- H1 There is a significant association between the level of knowledge regarding health benefits of yoga among the adolescents and selected demographic variables at the level of $P < 0.05$.

OPERATIONAL DEFINITION

- **Assess-** Assess refers to an activity to estimate the knowledge of health benefits of yoga among the adolescents.
- **Knowledge:** Refers to the correct responses obtained from adolescents regarding health benefits of yoga through a structured knowledge questionnaire.
- **Adolescents:** Refers to boys and girls studying at selected school level between the group of 16-18 years.
- **Health benefits:** Refers to includes deep breathing, relaxation and focused attention which can improve physical posture, sleep and have added mental health or spiritual benefits.
- **Yoga:** Yoga is recognized as a form of mind-body exercises improve muscle strength, flexibility, blood circulation and oxygen uptake as well as hormone function. In addition, the relaxation induced by meditation helps to stabilize the autonomic nervous system with a tendency towards parasympathetic dominance.
- **Information booklet:** In this study, it refers to the educational tool prepared by the investigator to generate knowledge regarding health benefits yoga.



ASSUMPTION

- Adolescents may have some knowledge regarding health benefits of yoga.
- Adolescent's knowledge regarding health benefits of yoga can be improved by the Information booklet.

DELIMITATION

The study is delimited to the adolescents studying in selected Sr. Sec. School at Jodhpur.

RESEARCH METHODOLOGY

• RESEARCH APPROACH

Quantitative research approach is considered appropriate for the present study.

• RESEARCH DESIGN

Descriptive survey design was adopted for this study.

RESEARCH VARIABLE

• Research variable

Research variables are those variable which are observed a measured in natural setting as they exist without any manipulation in the descriptive study no last effect relationship is examined. In my study the research variables is knowledge, regarding health benefits of yoga.

• Demographic variable

Demographic variables are the characteristics and attributes of the study sample. In my study the demographic variables are gender, religion, and area of residence, parent's education status, type of family and previously attended any yoga programme.

POPULATION

Adolescents studying in selected Sr. Sec. School at Jodhpur.

SAMPLING SIZE

In this study, the sample consists 60 Adolescents studying in XI and XII class from Diamond ser. Sec. School at Jodhpur, Diamond Academy.

SAMPLING TECHNIQUE

Non-probability purposive sampling technique was used for this study.

RELIABILITY OF THE TOOL

The reliability was established by using Cronbach's Alpha Coefficient formula and it is found to be reliable ($r = 0.726$).

MAJOR FINDING OF THE STUDY

Table 1 Depicted that of adolescents participated in the study, Gender - Female (32, 53.33%), Religion -Hindu (59, 98.33 %), Area of Residence -Urban (39, 65%), Education of Father - High secondary school (19, 31.67%), Education status of Mother - Illiterate (27, 45%), Types of Family - nuclear family (34, 56.67%), Previous attend programme - No (33, 55%).

Table 2 Depicted that our interpretation level of knowledge regarding health benefits of yoga among adolescents out of 60 samples, majority 50 (83.33%) have Poor (<50 %)Knowledge, 10 (16.66%) have average (50-75 %) knowledge, 0 (00%) have good(>75 %) knowledge regarding health benefits of yoga.

Table 3 Depicted shows that the adolescents have knowledge regarding introduction of yoga contain max. Score 5, mean have 2.62, SD have ± 1.21 and mean% have 52.4 %, knowledge aspect in general knowledge of yoga contain Max score 5 mean have 1.97SD have ± 0.95 and Mean% have 39.4 %, knowledge aspect in health benefits of yoga. Found the Max score 20, mean have 6.5, SD have ± 2.75 and mean% have 32.75 % While assess the knowledge regarding health benefits of yoga among the adolescents, I found that the total max score 30, mean have 11.9, SD is ± 4.91 .and total mean% have 124.55%.

Based on the findings we can conclude that the knowledge of adolescent regarding health benefits of yoga have been poor regarding all different aspects of the health benefits of yoga.

**Table 1. Frequency and percentage distribution of demographic variables among adolescents (N=60)**

S. No	Socio-demographic variable		Frequency	Percentage
1	Gender	Male	28	46.67%
		Female	32	53.33%
2	Religion	Hindu	59	98.33 %
		Christian	01	1.67 %
3	Area of Residence	Urban	39	65
		Rural	21	35
4	Education of Father	Illiterate	3	5
		Primary school	10	16.67
		Secondary school	16	26.67
		High secondary school	19	31.67
5	Education status of Mother	Degree and above	12	20
		Illiterate	27	45
		Primary school	19	31.67
		Secondary school	8	13.33
6	Types Of Family	High secondary school	5	8.33
		Degree and above	1	1.67
		Nuclear family	34	56.67
7	Previous attend programme	Joint family	26	43.33
		Yes	27	45
		No	33	55

Table 2. Level of knowledge regarding health benefits of yoga (N=60)

Level of Awareness	Frequency	Percentage
Poor (<50%)	50	83.33%
Average (50-70%)	10	16.66%
Good (>75%)	00	00%
Total	100	100.0%

Table 3. Aspect wise mean, SD and mean percentage knowledge scores of respondents on health benefits of yoga among the adolescents (N=60)

No.	Knowledge Aspects	Max. Possible Score	Respondents Knowledge		
			Mean	Mean (%)	SD
1	Introduction of yoga	5	2.62	52.4	1.21
2	General knowledge of yoga	5	1.97	39.4	0.95
3	Health benefits of yoga	20	6.5	32.75	2.75
	Total	30	11.9	124.55	4.91

DISCUSSION

The findings of this study that our interpretation level of knowledge regarding health benefits of yoga among adolescents out of 60 samples, majority 50 (83.33%) have Poor (<50 %) Knowledge, 10 (16.66%) have average (50-75 %) knowledge, 0 (00%) have good (> 75 %) knowledge.

CONCLUSION

The following conclusions were drawn on the basis of the present study to assess the knowledge regarding health benefits of yoga among the adolescents studying in selected sr. sec. school at Jodhpur. Therefore percentage distribution the sample

with reference shows that majority of adolescents have (83.33%) poor and (16.66%) average and no one has good knowledge of health benefits of yoga. The knowledge level regarding health benefits of yoga among the adolescents studying in selected sr. sec. school and selected demographic variable. Variables like gender, religion, area of residents, education of father, types of family, previous attend any yoga programme were not significant at 0.05 level.

The study shows that the adolescent's students are having poor knowledge regarding health benefits of yoga. There are very important to Provides institutional and academic knowledge for yoga theory and practice. So I request to respected department of



education to added the yoga subject in primary to Sr. sec academic season for improve student's health physically, mentally and spiritually health lifestyle.

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PHILOSOPHICAL ANALYSIS OF THE EVOLUTION OF SPORTS AESTHETICS IN UZBEKISTAN

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ANNOTATION

Sport as a means of delicate education has a special place in the development of modern man. At present, the development of sports in our country has become a state policy. The main goal is to bring up the young generation to be physically strong, healthy and brave defenders of the homeland. Today, our country has developed many programs for the development of sports, and they are actively involved in public relations. In recent days, Uzbekistan has become a prominent figure in the world community as the host and host of many world sports competitions. All of this, in a sense, is aimed at improving the human outlook and thinking. The article provides a philosophical analysis of the fact that sport is an important means of delicate education and sports aesthetics.

KEYWORDS: *Physical Education, Sports, Aesthetics, Elegance, Evolution, Mountaineering, Badminton, Kayaking, Biathlon, Bodybuilding, Freestyle, Wrestling, Radio Sports.*

Sports aesthetics is an integral part of the science of aesthetics and philosophy, which studies the aesthetic laws of sports, as well as the aesthetic content of sports, its place in the culture of society, the relationship between sports and art. "Sports aesthetics is the aesthetic perception of the beauty and grandeur of human movement." [1. 164] Sports shape a person through any difficulties, such as patience, strong will and aspiration, respect for others. A new look at the inner world of a sports person through sports, a new human feeling. Sport heals the will, teaches a person to strive for a specific goal, to overcome difficulties with endurance and perseverance.

Sport instills in the human heart a sense of confidence, pride and pride in victory. Nothing can make a nation and a country as world-famous as a sport by educating a person to be brave, resilient, raising a spiritually and physically harmoniously developed generation is not only a national need, but also a matter of national importance. In recent times, the emphasis on the beauty of sports, sports, organizational issues to adapt to human needs and the personal participation of people in it leads to the formation of the most attractive, beautiful and pleasurable feelings. Sport promotes the full development of people and strengthens their health. Sport transforms a person's spiritual and aesthetic existence by creating a healthy lifestyle in society.

The role of physical education and sports in educating young people with the means of aesthetic education is incomparable. Physical education is an important tool for people to grow up healthy, strong and strong-willed.

The famous Greek sage Plato commented on happiness: "The first happiness for man is his health, the second - his beauty" [2. 427], - he said. In fact, if you want to stay healthy, you have to do sports. Sport, regardless of age, strengthens a person, strengthens his body, strengthens people's health, increases their interest in work, and ensures longevity.

It is known through history that physical education is a folk culture. In particular, the ancient peoples of Uzbekistan knew at that time that physical culture enhances the spiritual and physical well-being of people. According to the Avesta, in ancient times, preparing children for military service consisted of physical training. By the way, during military training, children were required to be able to ride a horse, hunt, play fencing and defend themselves from an opponent on a shield, swim, run long distances, jump, throw a spear [3. 22]. The physical culture of the people is embedded in the way of life of our people, based on this heritage of our past, and encourages people to love the land where they grow up, to develop beautiful and delicate sports in their country.



In fact, in the process of marriage, "a man must first be materially and spiritually strong and physically strong in order to marry" [3. 26]. That's why our ancestors paid special attention to the physical culture of their children.

Archaeological monuments, historical monuments found in Uzbekistan, as well as the ideas put forward in the legend "Tomaris", "Alpomish", "Gorogly", "Forty Girls" and a number of other folk tales here physical training is evident from the time of the tribe and the tribe.

The great thinkers of the East, Farabi, Beruni, Ibn Sina, At-Termizi and others, made a great contribution to the development of physical education. In particular, Abu Nasr al-Farabi, in his political and philosophical views, said that it is necessary to engage in physical activity, which is a key factor in achieving human happiness. Abu Ali Ibn Sina has a special place in the development of physical education. In his works, he showed the importance of exercise in human development and health, keeping the body clean, active, travel is an important factor in human development. Ibn Sina emphasized that physical training should be suitable for everyone and should be done as much as possible.

Various national exercises, games and competitions: archery, javelin throwing, wrestling, fencing, horse racing, equestrian games, chess, chess is a traditional part of the life of the peoples of Uzbekistan [4 . 362-363].

Attitudes towards spiritual and physical culture developed in our country in the XIV-XV centuries, during which time Amir Temur made physical culture the main field of aesthetic education. In particular, special attention was paid to the physical training of the military, among which there were many competitions in wrestling, archery, equestrian sports. However, it is not surprising that Amir Temur's words "A strong country will be rich, a rich country will be strong" are based on the issue of physical education.

Our country has always been rich in national games. After all, the national games "Argymchok", "Bekinmachok", "Fencing", "White poplar, blue poplar?", "Chillik", "Tortishmachak" and others are the soul of children. These games play an important role in shaping the physical culture of young children.

Physical education as a means of aesthetic education plays an important role in educating the younger generation. It has a direct impact on a person's faith and devotion, endurance and unanimity, health and vigor. Physical education ensures the healthy growth of all organs of children and fosters their mental and physical development. The purpose of physical education is, first of all, to

bring up physically strong, sane, strong-willed, as well as alpine boys, beautiful and handsome girls.

Physical training always encourages vigilance and sensitivity. Being physically healthy is the result of one's own goal-oriented activities, exercise in nature or in beautiful gyms and fields - all of which affect a person's aesthetic feelings, ideals, attitudes. , cultivates the taste. Such sports games and a variety of exercises enrich the aesthetic experience and emotions. Sometimes it seems that exercise does not reflect aesthetic education, but if we look closely at these exercises, we can see the harmony of physical and aesthetic education. More students are paying attention to this. Because in physical education classes, students do beautiful physical exercises through their curiosity and aspirational qualities, and they enjoy it. The teacher not only educates the children physically, but also aesthetically. A person who has a deep understanding of the essence of physical education not only ensures that he is healthy, but also that he is always cheerful, open-minded, polite, beautiful and beautiful.

Bringing up the young generation to be physically strong and aesthetically beautiful has become a requirement of the time. The fruit of the future is the construction of sports facilities in Uzbekistan, which is becoming more beautiful every year. More and more of our young people are being brought up in such places, both physically, mentally and aesthetically. Just as the flowing water is beautiful and clear to the fields, so the Uzbek children are proud of their achievements in sports, their beauty, their morals, and the fame of our country in the world are making great strides.

Sport is important for a person's physical and spiritual development, and playing sports requires creative activity. Types of sports directly related to aesthetics - figure skating, rhythmic gymnastics, synchronized swimming, equestrian sports, fencing, sports acrobatics, gymnastics, diving, athletics and others is executed at the level of. Athletes are required to be creative in performing the exercises they perform in many sports, to develop new behaviors and exercise techniques that have never been used before, and to apply them creatively in the performance process. In sports such as figure skating, rhythmic gymnastics, sports acrobatics, gymnastics, the athlete takes a creative approach to his work, applying a new method, a new movement to a particular sport, and the movement is later called a creative athlete. Sport is constantly evolving in the development of society, new sports are emerging, various national sports are being adopted by other nations and gaining popularity in the international arena. Many sports are being developed at the Olympic Games and World Championships. The aesthetic aspects of sports are expanding and



improving. Sports aesthetics is the aesthetic perception of the beauty and splendor of human movement. The development of sports aesthetics is a reflection of the harmony of spiritual and physical maturity. There are stages of physical development, physical training, physical maturity, physical education, physical culture. Sport is a special activity aimed at achieving the highest results in a particular type of exercise, which is manifested during the competition. "... In any field, it involves the individual or group competition of young people, mostly young people with special training under the supervision of specialist coaches" [5. 243].

As sports are constantly evolving in connection with creative activities, so are the material resources in sports. Material resources in the field of sports include sports facilities, stadiums, gyms, swimming pools, courts, physical training equipment, special clothing, footwear, as well as achievements in sports, the level of maturity. Spiritual riches include physical education, art, literature, music, and more.

The purpose of physical culture and sports is to ensure the healthy growth of all organs of the human body, as well as to prepare it for mental and physical labor, as well as for the defense of the Motherland. According to Abdulla Avloni, it is necessary to train the body in order to have a sound mind, good morals and knowledge.

Physical education and sports have a great impact on people, strengthen their health, increase their ability to work, and help them live longer. Sport is a means of maintaining posture and strength at any age.

Sports are important for the harmonious development of the individual. Sport physically strengthens and educates a person, invites him to beauty and goodness. Athletes perform great exercises and movements, which give a great aesthetic pleasure to the fans and give them joy. Aesthetic sports include figure skating, rhythmic gymnastics, synchronized swimming, equestrian sports, fencing and others. These sports, by their very nature, are performed at the level of art. There are many types of sports, including Academic Rowing, Mountaineering, Aviation, Motor Sports, Rhythmic Gymnastics, Badminton, Basketball, Kayaking and Canoeing, Biathlon, Bodybuilding, Boxing, Judo, Freestyle Wrestling, Figure Skating, Freestyle, Football, Handball, Archery, Karate, Wrestling, Mini football, Motorsport, Weightlifting, Equestrian, Uzbek Martial Arts, Parachuting, Fencing, Radiosport, Rugby, Sambo, Checkers, Chess, Sports acrobatics, Gymnastics, Table Tennis, Water Polo, Swimming, Diving, Synchronized Swimming, Tennis, Skiing, Turan Single Wrestling, Taekwondo, Capricorn, Cycling, Volleyball, Hockey, Athletics, Greek Rum sports such as wrestling, checkers, chess,

field hockey. All kinds of sports have a positive effect on a person's physical and mental development.

Another aesthetic sport is figure skating, which is based on the movement of a skater on the ice, changing the direction of movement, rotations and jumps. Figure skating involves women and men dancing on the ice, individually and in pairs, to the sound of music. Figure skating has a number of exercises that must be performed, such as a combination of steps, lifting, individual and joint rotations, and jumps.

One of the winter sports, freestyle is alpine skiing, which includes mogul, ski ballet and ski acrobatics. Mogul is a quick descent from a low, high track, ski ballet is a performance of various shapes, steps, turns, turns, etc., while ski acrobatics is a somersault, pirouette and other acrobatic jumps. Freestyle is one of the most beautiful, graceful, and attractive sports, and at the time of its inception, it was a form of skiing recreation and was later incorporated into sports competitions. In freestyle, the artistic skills of the athletes are judged by the judges and included in the skiing events for the beauty and spectacle of the sport.

One of the most popular and exciting sports is football, which is known for its popularity and large number of fans. Football is a sport that meets the aesthetic tastes and needs of the fans as a result of the skill of the players, the organization of the game by the coach, the definition and demonstration of combinations. The skill of the players, the teamwork in the organization and conduct of the game, the beautiful performance of the players in scoring the goal and the support of the fans give a special interest and charm to football.

According to the rules, wrestling is a sport based on the individual wrestling of two athletes, and the art of wrestling has been developed and improved in many nations. Wrestling is one of the means of training a person to be strong, agile, resilient and strong-willed, and Greco-Roman wrestling, freestyle wrestling, judo, sambo, Uzbek wrestling and other sports are widely used in the international arena. Kurash has long been an integral part of the Uzbek people's way of life. Uzbek wrestling is distinguished not only by its aesthetic beauty, but also by its adherence to certain moral norms and principles. Among the martial arts of the East, Japanese karate, Chinese wushu, and Korean taekwondo have their own style and charm. Equestrian sport, which is one of the aesthetic sports, consists of performing various beautiful exercises with a horse. hunting, etc. The rider can perform various exercises with the horse, move forward, backward, rotate, and perform dance elements by



walking and jumping. This gives equestrian sport a special charm and charm.

Uzbek martial arts is a unique sport, which uses national costumes, uses both defensive and offensive methods, and plays an important role in educating young people in the spirit of military patriotism and high aesthetics. Uzbek martial arts include sports and fitness, handicrafts, Temurids' martial arts, such as knives, swords, sticks, spears and martial arts represent the unique aesthetic movements and techniques. Fencing is also a sport with a unique aesthetic value, with a variety of agile and engaging behaviors using sharp weapons such as the rapier, sword, and sword. The winner gets a lot of satisfaction from the sport and enjoys his achievement aesthetically.

One of the aesthetic forms of sports, acrobatics consists of exercises in the form of gymnastics, which is a set of exercises that show strength and agility, performed with or without balance, with or without sports equipment. Acrobatic exercises are divided into dynamic and static exercises, dynamic exercises such as squats, flips, somersaults It consists of performing various exercises.

Sports acrobatics are divided into strength acrobatics, jumping acrobatics, shoulder acrobatics, and comic acrobatics. Acrobatics is widely used in Uzbek circus and variety programs, as well as acrobatics on horseback, clowns and martial arts.

Gymnastics is one of the main sports, which includes competitions in women's and men's special gymnastic equipment, slingshot and freestyle. Gymnastics is a set of exercises that have great aesthetic value, requiring great physical strength, agility, fearlessness, accuracy in coordination of movements. In gymnastics, the exercises are performed among men on a wooden horse, in rings, in the form of pole vault, in double poles, in parallel poles, in solo. Women's gymnastics is divided into lean jumping, pole vault, high jump, and freestyle. Gymnastics is a sport in which athletes have the opportunity to perform the most beautiful, diverse, and highly aesthetic exercises.

Jumping is also one of the aesthetic forms of the sport. Jumping is divided into techniques such as jumping from a springboard and a tower, and diving involves a variety of rotations and movements. When diving, the athlete is required to perform the exercise by splashing less water with his head or feet. In diving, the athlete performs a forward, backward, twisting jump in the direction of rotation, standing in front, backwards, leaning on the hands in different positions, in which the exercise demonstrates a unique beauty and charm. The athlete moves lightly in the air and performs the exercise at a high aesthetic level using a variety of complex techniques.

Synchronized swimming is also known for its beauty and elegance. In synchronized swimming, women participate, and several athletes perform the same movements in harmony. The repetition of the same action by many with great precision creates a certain subtlety in the execution process.

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VARIABILITY OF MORPHO-BIOLOGICAL TRAITS UNDER THE INFLUENCE OF LOW-FREQUENCY ELECTROMAGNETIC FIELDS ON VEGETATIVE ORGANS OF COTTON

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ABSTRACT

In this article presents the obtained data on research the effect of low-frequency electromagnetic fields on the vegetative organs of cotton in conditions of normal and insufficient water regime. On the basis of the obtained results was revealed that the treatment of the vegetative organs of cotton with EMF will accelerate the growth-development, ripeness and resistance to water deficiency.

KEY WORDS: cotton, processing, vegetative organs, low-frequency electromagnetic fields, water supply, plant height, between nodes, cotton boll.

INTRODUCTION

As you know, stress (hardening) increases other resistance to various harmful environmental factors. In this case, different data use different sources of electromagnetic fields: permanent magnets, sinusoidal fields of industrial frequencies of 50 hertz and other frequencies, pulse fields with different characteristics [1-2]. In addition, the effect of electromagnetic fields at other stages of plant development has practically not been studied, and the effect of various stress factors, for example, salinity or lack of water, has been poorly studied [3-4]. In the textbook "Electrotechnology" [5], it is recommended to carry out pre-sowing treatment of seed treatment with EMF, provided that they are not of high quality or that the growing environment does not correspond to the requirements of the genotype. Under optimal modes of electrical stimulation, the sowing qualities of seeds (germination energy, germination) improve, plant growth is accelerated, resistance to unfavorable environmental factors increases, which can result in an increase in yield by 5-20%. Moreover, the probability of a positive effect depends on many factors and ranges from 0.50 to 0.75. Such low

reproducibility is in many cases the complexity and high cost of seed treatment plants. Despite these problems, it forces researchers to continue research in this direction. The stimulation of plants by EMF at the stages of vegetative development has been little studied, although there are a lot of works on the acting artificial EMF on living organisms in general and plants in particular, however, the mechanisms of this influence are hypotheses that need to be confirmed [6-7].

MATERIALS AND METHODS

The research material was the lines of the genetic collection of cotton of the species *G.hirsutum* L. L-452, L-4112 and the economic varieties Sultan, Ibrat. Field experiments on the experimental field of the NUUZ botanical garden. The lines and varieties were sown in two plots, which were carried out in two background regimes - the regime of optimal water supply and (70-72% of soil moisture content (WT, irrigation 1: 2: 1) and the mode of insufficient water supply (48-50% WT, irrigation) 1: 1: 0). In each of the two background sources, each cultivar and line was planted in different rows with 25 plants



in a row, i.e. 75 plants per cultivar and line according to the sowing scheme 90 x 20 x 1. During the flowering period for 10 days, the vegetative organs were treated with EMF and electric wires at frequencies of 4 Hz.

RESULTS AND DISCUSES

The obtained values are presented in tables 1 and 2, which show the average values and differences between the plants of the experimental and control variants in the height of the main stem and the number between the nodes in the periods of flowering and ripening.

Significant differences and superiority of the experimental plants over the control plants during the flowering period were observed among the plants of the Ibrat variety (K-57.5 ± 2.11 cm.; O-67.4 ± 1.91 cm; P-9.9) and in the line L -452 (K-71.2 ± 1.96 cm; O-73.3 ± 1.87 cm; P-2.1), L-4112 (K-80.3 ± 2.19 cm;

O- 81.3 ± 2.14 cm; P-1.0) under conditions of normal water supply, and under conditions of water deficiency in the Sultan variety (K-56.3 ± 1.86 cm; O-62.6 ± 2.15 cm ; R-6.3) and in lines L-4112 (K-55.1 ± 2.05 cm; O-65.2 ± 1.96 cm; R-10.1), L-452 (K-54 , 1 ± 1.91 cm; O-57.0 ± 2.04 cm; P-2.9) according to the growth of the main stem. In terms of the number between nodes in the normal mode of water supply, the superiority of experimental plants over control observations in the Sultan variety (K-18.6 ± 0.29; O-19.1 ± 0.33) and in the L-4112 line (K-18.1 ± 0.34; O-18.6 ± 0.31), L-452 (K-17.1 ± 0.30; O-17.8 ± 0.29), and in the mode of water deficiency in the Sultan variety (K -17.3 ± 0.27; O-17.8 ± 0.29 and in lines L-4112 (K-15.2 ± 0.33; O-15.9 ± 0.32). were observed in the variety Ibrat (Table 1).

Tab. 1. Indicators of growth and the number of internodes under the influence of EMF on the vegetative organs of plants, varieties and lines during the flowering period

Materials	Main stem height $M \pm m$ (sm)					
	Normal mode			Water deficient mode		
	K	O	P	K	O	P
Sultan	71,4±1,67	71,6±2,31	0,3	56,3±1,86	62,6±2,15	6,3
Ibrat	57,5±2,11	67,4±1,91	9,9	47,8±1,94	48,2±1,89	0,4
L-4112	80,3±2,19	81,3±2,14	1,0	55,1±2,05	65,2±1,96	10,1
L-452	71,2±1,96	73,3±1,87	2,1	54,1±1,91	57,0±2,04	2,9
Number between nodes $M \pm m$ (pc)						
Materials	Normal mode			Water deficient mode		
	K	O	P	K	O	P
Sultan	18,6±0,29	19,1±0,33	0,5	17,3±0,27	17,8±0,29	0,5
Ibrat	16,5±0,31	16,7±0,35	-0,2	15,8±0,32	15,1±0,27	-0,7
L-4112	18,1±0,34	18,6±0,31	0,5	15,2±0,33	15,9±0,32	0,7
L-452	17,1±0,30	17,8±0,29	0,7	14,7±0,31	14,8±0,34	0,1

For note: K-control, O-experience, P-difference.

By the height of the main stem during the ripening period, the following results were obtained: in the mode of normal water supply, the Ibrat variety (K-72.3 ± 2.11 cm; O-77.9 ± 2.11 cm, P-2.9), variety Sultan (K-81.2 ± 2.17 cm; O-84.1 ± 1.87 cm, R-5.6), line L-452 (K-93.4 ± 2.11 cm. ; O-95.7 ± 1.96 cm, P-1.6) and line L-4112 (K-91.7 ± 2.07 cm; O-93.3 ± 1.96 cm, P -2.3), and in the mode of insufficient water supply, line L-4112 (K-59.8 ± 2.15 cm; O-68.4 ± 2.23 cm, R-8.6), variety Sultan (K -61.4 ± 2.14 cm; O-68.5 ± 2.15 cm, R-7.1), line L-452 (K-57.3 ± 1.95

cm; O-60 , 1 ± 1.94 cm, P-2.1) and variety Ibrat (K-52.9 ± 2.04 cm; O-54.1 ± 2.11 cm, P-1.2). In terms of the number between the nodes in both modes of water supply (normal and water-deficiency), the superiority of the experimental plants over the control plants was observed in the Sultan variety and in the L-4112, L-452 lines (Table 2). Variety Ibrat, responding less to EMF in both water supply conditions, on the contrary, the control plants outperformed the experimental plants (normal mode P-0.4; water-deficient mode P-0.3).

**Tab. 2. Indicators of growth and the number of internodes under the influence of EMF on the vegetative organs of plants of varieties and lines during ripening**

Materials	Main stem height $M \pm m$ (sm)					
	Normal mode			Water deficient mode		
	K	O	P	K	O	P
Sultan	81,2 \pm 2,17	84,1 \pm 1,87	2,9	61,4 \pm 2,14	68,5 \pm 2,03	7,1
Ibrat	72,3 \pm 2,11	77,9 \pm 2,21	5,6	52,9 \pm 2,04	54,1 \pm 2,11	1,2
L-4112	91,7 \pm 2,07	93,3 \pm 1,96	1,6	59,8 \pm 2,15	68,4 \pm 2,23	8,6
L-452	93,4 \pm 1,96	95,7 \pm 1,91	2,3	57,3 \pm 1,95	60,1 \pm 1,94	2,8
Number between nodes $M \pm m$ (pc)						
Materials	Normal mode			Water deficient mode		
	K	O	P	K	O	P
Sultan	19,2 \pm 0,33	19,9 \pm 0,28	0,7	17,5 \pm 0,31	17,8 \pm 0,29	0,3
Ibrat	17,7 \pm 0,39	17,3 \pm 0,31	-0,4	16,1 \pm 0,27	15,8 \pm 0,34	-0,3
L-4112	19,2 \pm 0,31	19,8 \pm 0,26	0,6	16,0 \pm 0,30	16,9 \pm 0,37	0,9
L-452	19,4 \pm 0,28	20,3 \pm 0,32	0,9	15,4 \pm 0,29	15,9 \pm 0,33	0,5

For note: K-control, O-experience, P-difference.

On table 3 shows the results of the analysis of the number of sympodial branches and the number of bolls during the ripening period. As can be seen from the data in the table, the superiority of experimental plants over control plants under conditions of normal water supply in the following order, line L-452 (K-13.4 \pm 0.31 pcs.; O-14.3 \pm 0.35 pcs.; R- 0.9) and L-4112 (K-13.1 \pm 0.29 units; O-13.8 \pm 0.36 units; R -0.7), then Sultan varieties (K-13.3 \pm 0.29 pcs.; O-13.9 \pm 0.37 pcs.; R-0.6) and Ibrat (K-12.3 \pm 0.32 pcs., O-12.7 \pm 0.41 pcs. , P-0.4). In the mode of water deficiency, in addition to variety Ibrat, a clear superiority of experimental plants over control plants was observed in lines L-4112 (R-0.9 pcs.), L-

452 (R-0.6 pcs.) And in variety Sultan (F- 0.4 pcs.). According to the number of bolls, the following results were obtained: under normal water conditions - variety Ibrat K-6.4 \pm 0.39; O-10.1 \pm 0.48 (R-3.7 pcs.), Line L-4112, line K-11.7 \pm 0.43; O-12.9 \pm 0.46 (P-1.2 pcs.), Variety Sultan K-9.7 \pm 0.47; O-10.6 \pm 0.51 (P-0.9 pcs.) And line L-452 K-10.4 \pm 0.38; O-11.2 \pm 0.44; P-0.8 pcs.), And in conditions of water shortage, at the beginning the Sultan K-5.5 \pm 0.43 variety; O-8.2 \pm 0.54 (P-2.9 pcs.), Then the variety Ibrat K-4.2 \pm 0.47; O-6.3 \pm 0.38 (P-2.1 pcs.) And lines L-4112 K-6.3 \pm 0.50; O-8.40 \pm 0.46 (R-2.1 pcs.), L-452 K-4.9 \pm 0.41; O-5.3 \pm 0.57; P-0.4 pcs. (Table 3).

Tab. 3. Indicators of the number of sympodial branches and bolls under the influence of EMF on the vegetative organs of plants of varieties and lines during ripening

Materials	number of sympodial branches $M \pm m$ (pc)					
	Normal mode			Water deficient mode		
	K	O	P	K	O	P
Sultan	13,3 \pm 0,34	13,9 \pm 0,37	0,6	11,1 \pm 0,28	11,5 \pm 0,33	0,4
Ibrat	12,3 \pm 0,32	12,7 \pm 0,41	0,4	10,4 \pm 0,34	10,2 \pm 0,31	-0,2
L-4112	13,1 \pm 0,29	13,8 \pm 0,36	0,7	10,7 \pm 0,37	11,6 \pm 0,28	0,9
L-452	13,4 \pm 0,31	14,3 \pm 0,35	0,9	10,5 \pm 0,32	11,1 \pm 0,34	0,6
number of cotton bolls $M \pm m$ (pc)						
Materials	Normal mode			Water deficient mode		
	K	O	P	K	O	P
Sultan	9,7 \pm 0,47	10,6 \pm 0,51	0,9	5,5 \pm 0,43	8,2 \pm 0,54	2,9
Ibrat	6,4 \pm 0,39	10,1 \pm 0,48	3,7	4,2 \pm 0,47	6,3 \pm 0,38	2,1
L-4112	11,7 \pm 0,53	12,9 \pm 0,46	1,2	6,3 \pm 0,50	8,4 \pm 0,46	2,1
L-452	10,4 \pm 0,38	11,2 \pm 0,44	0,8	4,9 \pm 0,41	5,3 \pm 0,57	0,4

For note: K-control, O-experience, P-difference.



CONCLUSIONS

Thus, the following can be noted: - the effect of low-frequency EMF on the vegetative organs of plants in the varieties Sultan, Ibrat and in the line L-4112, L-452, dynamic growth was observed along the height of the main stem both under normal water conditions and under water conditions. deficiency, superiority of experimental plants over control plants;

- in terms of the number between nodes and sympodial branches, the superiority of the experimental plant variants over the control plant variant was observed in the Sultan variety and in the L-4112, L-452 lines, such a change in the studied traits was not observed in the Ibrat variety;

- in terms of the number of bolls, significant differences in the condition of the normal water supply regime were observed in the Ibrat variety and in the L-4112 lines, and in the condition of insufficient water supply in the Sultan, Ibrat and L-4112 varieties.

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FINNISH MISSION HISTORY: A STUDY ON SOCIO-CULTURAL IMPACTS MADE BY FINNISH MISSIONARIES IN THE NORTH-EASTERN HIMALAYAS, INDIA

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ABSTRACT

Once Winston Churchill rightly said and I quote: "Those that fail to learn from history are doomed to repeat it." History is not just a past to remember but history is an opportunity to explore new things and learn from it. With a great vision and mission-heart, Finnish missionaries came in the Himalayan belt in the early nineteenth century. They had a vision of entering Tibet as soon as they set foot on Indian territory. They stayed and lived difficult lives since India is riven by caste, creed, and regional backwardness, which a few of them (missionaries) correctly termed as "darkness."

The Himalayan people are living considerably more comfortable lives after several decades, yet the efforts and services of Finnish missionaries are still mostly unknown among Himalayan natives. Few of numbers of published articles and books are here to describe their major contributions and chronological evidences of Finnish missionaries' arrival to India.

In this article, a thorough analysis of the socio-economic repercussions of Finnish missionaries in the Himalayan belts and Buxaduars regions of Indian states West Bengal and Sikkim was conducted using collected primary and secondary data.

Therefore, this article carry out this study by collecting data (qualitative and quantitative) and information from various sources viz. Published and unpublished articles and notes, collection of primary data/information from various sources remained in India and Finland and through analysis of historical documents of Finnish Mission History.

KEYWORDS: Finnish missionaries, Himalayas, Socio-economic, mission history, education, community, Scandinavian Alliance Mission, Education, Livelihood, Darjeeling, Sikkim, Buxaduars.

A. INTRODUCTION & BACKGROUND

Socioeconomic status has been operationalized in various ways, the most common of which are education, class, and income. A continuous refinement of current behavioural patterns, feelings, attitude toward others, and comprehension of others is known as social growth. Community economic development is also a branch of local economic development. Two fundamental concepts underpin community economic development. First, the community or neighbourhood should be the foremost target for developing human, social, and physical resources. Second, for any development effort, indigenous resources, particularly human and

organisational resources, must be very cheap. Within the community, economic growth is based on the idea of creating new wealth by repositioning vital local resources as capital attractors. This could be accomplished by re-using local building to incubate local artists and entrepreneurs and other related strategies that restore pride and provides local people more economic power to manage their own economic destiny.

Frederick Franson, an American-Swedish preacher, came in Helsinki, Finland's capital, in October 1888. He led a three-week Bible study programme in Helsinki during his trip. During the session, Reverend Frederick and his colleagues prayed that



the Lord would bring them to Tibet in a vision. They established SAM (Scandinavian Alliance Mission) as an organization. The Himalayan Mission was founded in 1892 by the Scandinavian Alliance Mission (SAM). Scandinavians based in North America initiated the Scandinavian Alliance Mission's involvement in the Himalayas. In 1892, J.F. Frederickson, his sister Anna, and ten Canadian missionaries travelled from Vancouver to Kolkata and Darjeeling, only to discover that they were unable to enter Tibet as planned. Instead, they requested for authority to start the mission in India, and they bought the first mission residence in the Ghoom bazar to serve as the main mission station. The nearest stations to Tibet were established near Tibet's southern border in the Sikkimese villages of Lachen and Lachung, and there were expectations that the operations may soon be extended to Tibet as well. The SAM, like all alternative missions around the world, operated under British administration in colonial era. There were also expectations that the Mission may be able to reach Tibet through Bhutan; and a new station has been established near the Bhutan border in Baxaduar for this purpose. Unfortunately, the closing of Tibet was a result of the complicated political situation in Central Asia. Earlier till 17th century, many missionaries had been travelling and staying in Tibet. However, by the 19th century the borders were closed and punctiliously guarded by the Tibetan and Chinese authorities. Even the Tibetans living within the Lachen Valley weren't allowed to enter further to Tibet. Then in India, contacts between the SAM workers and thus nation officials were more or less regular. All permits for purchasing land, establishing new stations, or operating schools had to be obtained from the local – or colonial – authority. For missionaries to enter Sikkim, they needed a visa that included a commitment not to enter Tibet. Ms. Sigrid Gahmberg, the first Finnish missionary, arrived in India in 1895 and went to Chunabhatti for mission work. Ms. Klara Hertz, a Finnish missionary, arrived in Ghoom, Darjeeling in August 1896. A school had been operational since 1897, with the goal of educating the locals (particularly children). Four new missionaries (Mr. Carlo Waismaa and his wife Hanna Waismaa, Ms. Massinen, and Hilja Heiskanen) arrived in India in December 1898. Sigrid contracted malaria while on a mission trip in Ghoom and died in 1900. She was laid to rest near the Ghoom mission headquarters. Ms. Klara Hertz arrived in Lachen (Sikkim) from Finland in 1906 and began working as a missionary. Meanwhile, Massinen grew ill and died in 1908 while on her way back to Finland. Klara and Elin Kronqvist returned from Ghoom to Lachen in 1909. As a result, the constant presence of Finnish missionaries at regular intervals had a major impact

on the Himalayan people in the areas of education, society, culture, religion, and livelihood. After having a tremendous impact on the Himalayan people, nine Finnish missionaries died in Indian soil (Himalayas). Himalayan people have benefited from quality education, improved livelihoods, and societal improvement as time has passed.

B. AIM(S) AND OBJECTIVES

The major aim is to carry out the proposed research work is as follows –

- To study Finnish missionaries' works and contributions towards the Himalayan people.
- To study social-cultural impacts made by Finnish missionaries towards the Himalayan livelihood.
- To carry out extensive collection of data and information about Finnish mission history from the both sources (India as working field and Finland as their native land).
- To contribute (compile) and secure Finnish missionaries contributions in documented form for future reference.

C. PROFILE OF THE STUDY AREA

i. Darjeeling & Kalimpong Districts:

Darjeeling district is in the state of West Bengal in North-East India, and is situated in the undulating landscape of the eastern Himalayas. It spans the latitudes of 26°27'N and 27°13'N, as well as the longitudes of 87°59'E and 88°53'E. Darjeeling district is bordered on the west by Nepal, on the north by the Indian state of Sikkim, on the east by Bhutan, and on the south by Bangladesh. Darjeeling district comprises the lower Himalaya, as well as Terai (which means "foothill" in Sanskrit and "lands lying at the foot of a watershed" in Urdu) and, to a lesser extent, 'dooars' (which means "gateway/door to Bhutan and North-East India) regions.

The town's name symbolises a place that is synonymous with good times and laughter, leisure and tranquilly, joy and harmony. The phrase Kalimpong loosely translates to "Ridges where we place" in the Lepcha language (Lepchas are the region's indigenous population). Hill tribesmen are said to have congregated in the beauty-decked town in the early phases of its development for leisure purposes.

Kalimpong is surely a spot where tourists can experience an once-in-a-lifetime vacation, with lush green valleys, a panoramic view of the Eastern Himalayan ranges, the snow-capped Kanchenjunga kissing the blue sky, warm weather, and a relaxed attitude. Kalimpong gives its visitors a vacation unlike any other, away from the maddening throng and the hustle and bustle of city life.



After centuries of development and refining of its infrastructure, the town is without a doubt one of North East India's most prominent and appealing tourist sites. With the spectacular Kanchenjunga rising in the distance and other prominent Himalayan peaks providing an almost surreal backdrop, this is a picture postcard setting. On a clear day, almost every portion of town offers a nearly 360-degree panoramic view of the snow-capped towering mountains and the pine-draped nearby hills. Kalimpong is not one of those traditional tourist locations where visitors are expected to follow the same schedule as everyone else.

i. Sikkim

Sikkim was an autonomous political entity for a long time until becoming an Indian protectorate in 1950 and a state in 1975. Despite its tiny size, Sikkim holds significant political and strategic significance for India due to its location along multiple international borders. Sikkim is a state in India's northeast. It is one of India's most populous, multiethnic, and multilingual states. It is bordered on the north and northeast by Tibet, on the east by Bhutan, on the west by Nepal, and on the south by West Bengal. Sikkim is also close to India's Siliguri corridor, which runs across Bangladesh. Sikkim is the smallest and least populous of the Indian states. Sikkim is notable for its biodiversity, including alpine and subtropical climates, as well as being a host to Kanchenjunga, the highest peak in India and third highest on Earth. Sikkim's capital and largest city is Gangtok. Having an area of 7069 sq.kms. the state comprises four (4) districts and sixteen (16) sub-divisions.

ii. Jalpaiguri

The name Jalpaiguri comes from the word "Jalpai," which means "olive," and which grew in the town and surrounding areas as early as 1900. The suffix "guri" denotes a location. The district is situated between 26° 16' and 27° 0' North latitude, and between 88° 4' and 89°53' East longitude. It is located in the northern section of West Bengal and shares international boundaries with Bhutan to the northeast and Bangladesh to the south. Darjeeling district in the west and northwest, Kalimpong district in the north, Coochbehar district in the southeast, and Alipurduar district in the west share the remaining borders.

The district is mostly made up of rural residents, with a large proportion of SCs/STs (Schedule Castes/Schedule Tribes). The tea gardens, which are found across the district, also house a sizable population. The backbone of the trade industry in this district is 'Tea,' 'Timber,' and 'Tourism.' Agriculture

and livestock husbandry are also widely practised in the district.

D. IMPLICATIONS OF THE STUDY

The study's major goal is to look into Finnish missionaries' work and contributions to the Himalayan people, as well as their social and cultural impacts on Himalayan livelihood. The findings of the proposed study will aid others in learning more about Himalayan Mission history, as well as its elements and repercussions on local Himalayan livelihood.

E. SOURCES OF DATA

The required data was collected from different respondents with the help of pre-tested interview and focused group interviews schedules as primary data. The information about the history and works of Finnish missionaries is collected from various published and un-published secondary data sources.

F. ASPECTS OF SOCIO-ECONOMIC IMPACTS MADE BY FINNISH MISSIONARIES IN THE NORTH-EASTERN HIMALAYA

The principal mission stations during the SAM (Scandinavian Alliance Mission) were Ghoom in Darjeeling, Buxaduars in the Dooars (Jalpaiguri district), and Lachung, Mangan, and Lachen in North Sikkim. Later, new workstations sprang up around each station, such as Alubaari in Ghoom, Bob and Soong in Sikkim, and Adama in the Buxaduars.

In the fields of education, society, culture, religion, and livelihood, the frequent presence of Finnish missionaries at regular intervals had a major impact on the Himalayan people. After having a tremendous impact on the Himalayan people, nine Finnish missionaries perished in Indian soil (Himalayas). The Finnish missionaries provided superior education, improved livelihoods, and societal upliftment to Himalayas over time.

1. Children's Home named "Sparrow's Nest"

In 1909, the Finnish Missionaries Hilja Heiskanen founded "Sparrow's Nest," a children's home where children were brought from Ahmedabad (Gujarat) during the late nineteenth century (1899–1901). Ghoom and the surrounding area were once part of Sikkim, but the borders moved over time, and each conqueror left their mark. The Darjeeling Himalayan Railway (DHR) and Darjeeling Tea Gardens boosted the residents' options to make money in the 19th century, resulting in a continual flow of immigrants, mainly from Nepal. The people, particularly the Lepchas, quickly mastered Nepali, and the Tibetan and



Lepcha place names are now merely relics of the past.

Sparrow's Nest's main goal was to offer housing for the homeless and impoverished, as well as to provide quality education as possible. Here's an example of a Brahmin (Bahun) family race from Nepal called Sharma - From Nepal, seven members of a Brahmin family arrived. Sadly, spouse died at a young age after arriving at Ghoom. His wife and five children fled to a different location without a backbone. The widow mother was later forced to sell her children into slavery (Child labour) after becoming unwell. The eldest son was able to sustain himself in some way. When Finnish missionaries learned of the widow family's story, they took their children to the Sparrow's nest and began caring for the entire family.

Three of them (James Sharma, David Sharma, and Ruth Sharma) went on to become theologians, teachers, and doctors, respectively. Sparrow's nest children's home was afterwards moved to Buxaduars by Edla Traskback and Hanna Juureva in the year 1930. In 1956, a tiny boarding hostel in Ghoom was established with a few school-aged youngsters from Sikkim and the Buxaduars.

2. Educational Institutions and Women Empowerment through Education

Christian missions pioneered Western education in the Darjeeling district. The Church of Scotland was instrumental in the establishment of several schools in Darjeeling and Kalimpong. Finnish missionaries established a tiny elementary school in Ghoom, Darjeeling. In 1904, there were a total of 42 (forty-two) pupils registered for school, representing many countries and beliefs. Separate classes for boys and girls had previously been held. Every Saturday, villagers' children receive a special lesson because they are unable to attend school throughout the week.

Hilja Heiskanen, a missionary, was passionate about girls' education and women's empowerment through effective and high-quality education for girls. Separate classes for girls had been established for this reason alone. In 1907, the school was upgraded and designated as an English Secondary School. The school had 102 students and six teachers in 1924. After an earthquake in 1934 (Nepal-India Earthquake popularly known as Bihar-Nepal earthquake, 1934), the school had to close. Mariam-mati Rai, who grew up at the Children's Home called Sparrow's Nest, was the

teacher when the school reopened in the following years. Later, in 1958, the school became a secondary school, with Late David Mangratee as principal, who was also the pastor of Ghoom Church at the time. At the time, the school had about 200 students and six teachers. When the missionaries left the Ghoom, the state government took over the institution.

3. Weaving Industry

J. Claude developed a cottage industry by founding a weaving school in Lachen and Lachung, North Sikkim, as part of economic and livelihood reforms in rural Sikkim. The Swedes Mathilda Johansson and Signe Fredricksson ran a weaving school in Lachung until Finnish missionary Anna Massinen and then Edla Traskback arrived. In the year 1921, Edla Traskback established a comparable weaving factory in Ghoom. Hanna Juureva (Edla's coworker) opted to using cotton yard in Ghoom and trained the weavers how to manufacture items for western clients. Tablecloths, pillow covers, handkerchiefs, coffee pot covers, and various curtains were among the most popular weaving products. Similar cottage weaving industries existed in Sikkim, where cotton textile was produced on narrow looms for the households' own use and using yarn primarily imported. Vegetable materials discovered in the forests had been widely used for dyeing purposes. Later, industrial (artificial) aniline colours were used to replace dyeing colours of vegetables.

The weaving business, which was led by Finnish missionaries, was dominated by local girls and women. The main woven goods of Sikkim's cottage industry were carpets and woollen blankets. Locals (adult men and women), children, and women learning the knitting used to meet at Mission House every morning and evening. Hanna and Edla used to transport woven handicrafts to Calcutta for sale every year, and the profits were used to pay the workers' wages and fund for numerous community activities.

Edla Traskback and Hanna Juureva later moved the weaving industry cum shop to Buxaduars in 1930. The weaving shop provided Himalayan women with an excellent opportunity to develop self-employment and self-sustainability in terms of their livelihood. The Himalayan society's socioeconomic sustainability had been brought about by the weaving cottage industry.



4. Health Care and Hospital and awareness on various superstitious beliefs

Missionary Edla Traskback's favourite work, aside from weaving, was nursing, as she had studied childbirth care, natural healing, and home nursing in her youth. Ruth Longman Sharma, once a Sparrow' Nest child, went on to become an ophthalmologist and open a small hospital in Ghoom. Ruth's brother James's wife was a professional nurse who assisted with nursing duties at the hospital, and Edla Traskback was a patron of the institution. They used to take patients from all across Darjeeling, including Ghoom.

Anna Massinen, who got dried blueberries from Finland, applied cold wrappings and blueberry beverages for natural cures in Lachen, North Sikkim. Local medicines were mostly oriented on Buddhist religion in Sikkim at that time, and Lepchas had a reputation as adept botanists. As a result, missionaries in Sikkim considered nursing to be a more suitable task for serving the local communities. Edla and Hanna also worked in the Buxa region, selling herbal remedies and providing nursing care to the sick. Kaarlo and Hanna Waismaa worked in Ringim, Sikkim, teaching local women about basic cleanliness and health awareness (particularly communicable diseases), as well as spreading child care awareness among young mothers. They've also worked with Lapers who had been shunned by society because they were unclean. Kaarlo and Hanna visited lapers' homes and did various awareness campaigns.

5. Translation and Documentation Works

A Tibetan ABC Book and a songbook were jointly published by Fredrik Franson and David Macdonald (an interpreter of SAM leader Franson) among the few Christian publications and leaflets by Finnish missionaries. With the help of the Calcutta Department of the British and Foreign Bible Society, the New Testament Bible was also translated into two Tibetan dialects. It took ten years for the revised version of the New Testament Bible to be published, and the translation work is recognized as "the Ghoom Bible." Kaarlo Waismaa was a well-known Finnish devotional song composer. She has translated a number of Finnish songs into Tibetan, as well as written and arranged music and released song books.

6. Agriculture and Farming

Klara Hertz, Edla Traskback, and Elin Kronqvist, three missionaries who stayed in Sikkim, taught the natives how to grow apple,

potato, cabbage, and other crops. Sikkim's royal government has designated Lachen-Lachung Apple as "Mission Apple." In Lachen and Lachung, using climate-friendly agricultural products aids in the economic development of the local population. They were also allowed to market agricultural products to the rest of Sikkim, including Darjeeling and other districts, with the government's approval. Finnish missionaries taught locals how to make apple juice, which they sold to the Sikkim royal government from Mission House in Lachen.

G. CONCLUSION

"Socio-economic impact" refers to any direct or indirect significant consequences of a transaction on a local community's social or cultural conditions, livelihood, indigenous knowledge systems, or technology, as well as the country's economy. The Finnish Free Mission, founded in 1889, and the SAM Mission, a minor player in the Himalaya, had a considerably longer impact on the lives of Himalayan and sub-Himalayan natives from the early nineteenth century to the mid-nineteenth century. For decades, Finnish missionaries have helped Himalayan and sub-Himalayan peoples strengthen their social and economic livelihoods through a number of actions. Women empowerment and girls' education along with basic health facilities are the major tools exercised by the Finnish missionaries made long term impact on Himalayan women population of Sikkim and Darjeeling towards self-sustainability. Besides, women missionaries from Finland done tremendous job towards the upliftment of economic stability, trade, commerce of Himalayan natives to a great extent.

Acknowledgement

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FORMULATION DEVELOPMENT AND EVALUATION OF CLOZAPINE TRANSDERMAL PATCHES

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ABSTRACT

The Clozapine is available in the form of 25 Yellow Tablets of 100mg. Clozapine is very famous in now-a-days due to its use of optimisation in transdermal metric basically for experimental process and design. It is used for the improvement of bioavailability. The medications are demonstrated for mitigating the risk of recurrent suicidal behaviour in schizophrenia patients or schizoaffective disorder who really are evaluated to be at persistent risk of convolitional suicidal behaviour in a historical and controlled experimental state. The paper provides a brief analysis of Clozapine drugs Usage, Formulation and Evaluation. The drugs were used upon animals at first to test the effects. There are several side effects of Clozapine that includes High fever and also symptoms like flu, Weakness and dizziness, allergy in skin and red spots, Sometimes itching problems in vaginal, in serious problems it can also create breathing problems and worsening cough. This is known as the Second Generation Antipsychotic that helps in balancing the dopamine and serotonin that improves the cognitive functions like mood, thinking and behaviour of an individual. Clozapine is restricted to use however it is used under one particular condition i.e. when the person suffering from Schizophrenia does not respond to other medications, have suicidal incidents or have positive symptoms. Furthermore, considerable clinical study has proven that clozapine seems to be more efficacious than just about any other antipsychotic drug throughout therapeutic interventions and therefore it clearly outperforms some other antipsychotics with in treatment of recurrent schizoaffective disorder.

KEYWORDS: schizophrenia, transdermal, clozapine, antipsychotic

INTRODUCTION

Clozapine transdermal drugs and its characteristics

Clozapine drugs are provided to Schizophrenia patients when they are in the primary stage or have positive symptoms. Thus the dosage is also provided when the patient does not respond to other antipsychotic disorders or harm themselves or attempt suicides. Clozapine is banned in some Nations due to life threatening factors. However it could be used with proper guidance of the dosage (Meltzer., et al 2019).

Clozapine can be induced all alone or with other medications as per the requirements of the patients. The Clozapine is available in the form of 25 Yellow Tablets of 100mg. It is strictly prohibited to use, however it is advised only to use in cases where patients do not respond to any antipsychotic medications.

The medications are demonstrated for mitigating the risk of recurrent suicidal behaviour in schizophrenia patients or schizoaffective disorder who really are evaluated to be at persistent risk of convolitional suicidal behaviour in a historical and controlled experimental state. Suicidal behaviour makes reference to a patient's behaviour that puts him or herself at risk of injury or death.

Side effects of Clozapine-

1. Weaknesses
2. Flu and Cold
3. Weight loss or Weight Gain
4. Nausea and Dizziness
5. Arrhythmic heartbeats
6. Coughing out Blood
7. Shortness in the breathing rhythm.
8. No urination
9. Bleeding
10. Yellowish or Pale skin
11. Tremor



12. Constipation

Formulation Process of Clozapine for Physical Stability

Clozapine is very famous now-a-days due to its use of optimisation in transdermal metric basically for experimental process and design. It is used for the improvement of bioavailability. This medicine is taken in oral form (Baldessarini., et al 2010). The basic factor of these clozapines is influenced by polynomial equations and tensile strength. It is also used as antiseptic in blood vessels particularly in the primary stage of schizophrenia. It is quite a long process because it cannot be given to the patient at one time due to the side effects. It gives strength to the patient by monitoring and managing risk. The basic element of this clozapine is loxapine and dibenzodiazepine. It is soluble in water but at 25 degree Celsius. It is also used for Parkinson disease and effective in controlling the mood disorder in the human brain. It is being used by the consultation of a particular doctor regarding this treatment and it is being able to decrease the probability of drug-drug continuation. Clozapine however is used for so many disorders such as bipolar affective disorder, the personality problem and most importantly for schizophrenia.

Adverse effect of Clozapine in Human Brain

It is quite good that clozapine is used for schizophrenia and for Parkinson disease also but it has quite a good number of side effects such as teen related problems and allergy problems. The irregularity in taking doses can lead to severe problems in eyes and skin and also so the cause for fatal infection. How are you here are some examples of the infection caused by clozapine,

- High fever and also symptoms like flu.
- Weakness and dizziness
- Allergy in skin and red spots.
- Sometimes itching problems in vaginal.
- in serious problems it can also create breathing problems and worsening cough.

METHODOLOGY

-Formulation of Transdermal patch of Clozapine

The Transdermal patches of Clozapine were introduced or prepared by solvent casting techniques. The transdermal drug delivery comprising antipsychotics were created using the solvent casting method and tested for physicochemical properties and in cultured cells drug absorption through amputated rat skin. Amongst tested formulations, treatments with 20% - point risperidone, 3:2 ERL 100 and Type people 100 as polymeric materials, and a good mix of oils and jojoba as improver, exhibited significant accumulated amount of medication

pervaded (1.87 0.09 mg/cm²) in 72 h, so batch ROJ was concluded to be an optimised conceptualisation and evaluated for pharmacodynamics, pharmacokinetic properties, and skin rashes potential (Miller., et al 2000).

Animals were used to test the pharmacokinetic parameters of the optimised transdermal major update, while ingested orally drug in solution is being used as a control. With protracted release of the drug, the closest companion rate of absorption of risperidone transdermally was 115.20%. The antipsychotic drugs efficacy of a transdermal composition was evaluated using a different shift and clamp quiz in comparison to a regulation and marketed intranasal preparation that caused no contact dermatitis. This suggests that topically applied risperidone implementation looks promising for increased bioavailability and long-term strategic planning of schizophrenia.

Clozapine solubility research has been done via means of including an extra quantity of drug in numerous solvents and leaving the flasks on a mechanical stirrer for twenty-four hours at room temperature (Coward., et al 2010). The answers have been filtered after 24 hours, and the filtrate is used for drug estimation. The filtrate was tested using an ultraviolet (UV)/seen spectrophotometer set to 259 nm. The quantity of drug dissolved was calculated using a well-known curve ($y = 0.0603 - 0.013x$, $r^2 = 0.9993$).

-Evaluation of Transdermal patches

1. Folding Endurance

Upon disposing of the clinging fats and hair the formula becomes carried out to the pores and skin in order that the drug matrix confronts the donor side. As the receptor fluid, phosphate buffers (ph 7.4) become used at a temperature of 32 0.5°C and a stirring pace of fifty rpm. At numerous time intervals, the samples had been eliminated and changed with identical quantities of herbal media. Aliquots had been spectrophotometrically analyzed at a wavenumber of 259 nm. The substance pervaded in keeping with cm of the patch becomes measured and tabulated towards time the usage of the continuity formula, and the fluctuation becomes decided via means of calculating as drug pervaded in keeping with cm² in keeping with 60 minutes.

2. Moisture Content

The ready tweaks were weighed and recorded and kept at room temperature in a rotary evaporator-selected products silica for 24 hours. Independently, the tweaks were decided to weigh at regular intervals until a consistent mass was disclosed (Kane., et al 2011). The equation of the distinction among original and final mass with regard



to final body weight was used to find out the percentage of water content.

3. Thickness

This take a look at became carried out at room temperature for twenty-four hours, with a weighted patch stored in a desiccator and uncovered to 84% humidity levels (saturated potassium chloride solution) in a desiccator till pretty consistent poundage for the foremost replace became acquired. The system of the discrepancy amongst each very last and preliminary frame mass to reverence to unique weight became used to decide the share of hydration uptake.

The weight rack and pinion technique (Tensile testing device, SE – 2000, Medford, USA) with a 50 KN strain gauge was used to characterise TS. At such a speed of 5 mm/min, three specimens of each composition were evaluated.

4. TS Value

To characterise TS, the weight shelf and input shaft methodology (Tensile testing device, SE – 2000, Medford, USA) with a 50 KN force sensor has been used. Three samples of each content have been assessed at a depth of 5 mm/min.

DISCUSSION

Usage of Clozapine Drugs for Schizophrenia:

Clozapine is the first antipsychotic medication used by professionals to treat mood and behavioural problems. Thus it is also known as the Second Generation Antipsychotic that helps in balancing the dopamine and serotonin that improves the cognitive functions like mood, thinking and behaviour of an individual. Clozapine works best for Schizophrenia or Schizoaffective or psychological disorders.

The Schizoaffective disorder continued with Schizophrenia and mental disorders which have hallucinations and depression or mood swings as very common symptoms. Cutting the long short, Schizophrenia is a mental disorder that affects the ability to think, understand or feel and behave rationally. The person suffering from Schizophrenia acts abnormal or behaves abnormally far away from reality. Schizophrenia is said to be a disorder caused in the brain, however, the exact reason is not known. Hence, it can be treated with proper medication.

As per many researchers and medical records Clozapine serves effectively for treatment of patients with positive symptoms of Schizophrenia. Furthermore, considerable clinical study has proven that clozapine seems to be more efficacious than just about any other antipsychotic drug throughout therapeutic interventions and therefore it clearly outperforms some other antipsychotics with in treatment of recurrent schizoaffective disorder.

-Related Studies:

Agrawal MB, Patel MM (2021)	Evaluation of clozapine and diffusion for the treatment of schizophrenia
Patel MM (2020)	Formulation and Optimization of Clozapine
Patel HP, Chaudhari PS, Gandhi PA, Desai BV, Desai DT, Dedhiya PP, Vyas BA, Maulvi FA (2021)	Clozapine nanosuspension tocopherol polyethylene

CONCLUSION

However, clozapine is the basic medicine which is used for mental disorders especially in schizophrenia.

It is being certified by several pharmacy experiments to stop the basic problem which it has been proved to solve is that it can reduce the risk of suicidal behaviour of the patient. It is also a good medicine for Parkinson disease (Goldberg., et al 2013). Yes it is good that it is used in several problems but the irregularity in taking doses and overdose can create problems in the patient such as it can also cause serious cardiac arrest. However, it is a dose only for the adults not for the children. Most importantly clozapine cannot be for the persons who have other problems or symptoms of other diseases such as

- Patients with high blood pressure and heart problems cannot take the time without consulting a doctor.
- If there are QT symptoms in a family then it will be risky for the patient to take clozapine.
- The patient of a constipation weak bowel system cannot take clozapine.
- The patient of liver and kidney diseases should also take care during the time of taking the medicine.
- Most importantly, patients of obesity and diabetes cannot take the medicine within proper checking.
- Clozapine should not be taken by the patient who smokes and drinks.



- It is the medicine which should be taken in oral form but regularity and doctor's consultation is vital.

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BIOLOGY OF FLOWERING OF HETEROGENOMIC COTTON SPECIES

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ABSTRACT

It has given the results of studying of biological features of flowering of wild-growing Australian species (*G.sturtianum* J.H.Willis, *G.australe* F.Muell, *G.nelsonii* Fryx, *G.bickii* Prokh.) and intraspecific diversity of Indo-Chinese cotton (*G.arboreum* L.). It was determined for the Australian species is characteristic two types of flowering: cleistogamous and chasmogamous, and for Indochina species only chasmogamous flowering type. Discrepancy of cycles of the reproductive period, and also a dormant period of plants at the studied species and forms was revealed. Discrepancy of cycles of flowering complicates works on hybridization heterogenomic species and to their involving to genetic and breeding process.

KEYWORDS: biological features, cotton, species, comparative morphology, cleistogamous, chasmogamous.

INTRODUCTION

The genus *Gossypium* L. has a pantropical range covering the steppe and semi-desert provinces of the Paleotropic, Neotropical and Australian floristic regions of the Globe. Representatives of this genus are inhabitants of lowlands and do not occur above 200-500 m above sea level. Only some cultural forms in the mountainous regions of tropical countries rise higher. All of them are heat-loving plants, more or less xerophytic. Australian and Indochinese wild cotton species belong to subtropical and tropical xerophytes, are more moisture-loving [1]. These species are light-loving and develop better in conditions of a large number of sunny days, especially during the flowering and maturation of the boxes. One of the factors geographically limiting its cultivation in Uzbekistan is the temperature. The optimal temperature for the growth and development of cotton plants is 25-30°C. Until recently, it was believed that temperatures above 36-37°C cause overheating of fabrics, and above 40°C strongly depresses cotton. At high temperatures, the viability of pollen decreases, which leads to a decrease in the degree of fertilization, increases the fall of the ovaries. However, more recent studies by physiologists have shown that an increase in temperature to 36°C accelerates the development of pods, seeds and fiber. High temperature somewhat reduces the yield of fiber, but favourably contributes

to some increase and improvement of its quality [2].

MATERIAL AND METHODS

The aim of the research was to study the peculiarities of the flowering biology of wild Australian species (*G.sturtianum* var. *sturtianum*, *G.sturtianum* var. *nandewareense*, *G.australe* F.Muell, *G.nelsonii* Fryx, *G.bickii* Prokh.) and intraspecific varieties of Indo-Chinese cotton *G.arboreum* L. (ssp. *obtusifolium* (Roxb.) Mauer, ssp. *obtusifolium* var. *indicum*, ssp. *perenne* (Blanco) Mauer, ssp. *neglectum* (Tod.) f. *sanguineum*, ssp. *nanking* (Meyen) Mauer).

Long-term observations and morphological descriptions of the phases of the development of cotton flowering, allowed us to identify the features of the reproductive period of plants grown in conditions of natural daylight and photoperiod (10 hour daylight) in the greenhouse and vegetative area.

RESULTS

It has been established that the Australian species *G.australe* F.Muell, *G.nelsonii* Fryx, *G.bickii* Prokh. sections of *Hibiscoidea* enter the reproductive phase of development at the age of 3-3.5 months.

The flowers of the species *G.australe* and *G.nelsonii* are medium-sized, wide-opening, the petals are lilac-lilac, lilac with a dark cherry anthocyanin spot at the base. Staminate filaments of



medium length (1.5-3.0 mm), anthers lilac, orange, cream pollen. The stigma is protruding. Out-of-flower nectaries 3, purple. Bracts 2-8 mm long, xiphoid and pubescent. The cup is notched with 5 teeth, 1.0-1.2 cm long with typical fluting.

In the species *G.bickii*, the flowers are medium-sized, the corolla is wide-ringed, the petals are light lilac, there is an anthocyanin spot at the base. Staminate filaments are short (1.5 mm), anthers and stigmas are cream. The stigma is protruding. Outwardly, there are 3 flower nectaries. The calyxes of *G.bickii* and *G.australe* species are morphologically similar. The bracts are xiphoid. A characteristic feature is the presence and alternation in the process of two types of flowering: kleistogamous and hazmogamous. The reproductive period usually begins with the formation of kleistogamous flowers. In plants of the first year of life, 20-25 flowers are formed on one plant in the species *G.australe*, and up to 20 in the species *G.bickii* and *G.nelsonii*. Hazmogamous flowers are formed later on the upper nodes, at the same time there is a process of maturation of the ovaries of kleistogamous flowers.

The plants bloom and bear fruit from June to October - November. The reproductive period of adult perennial individuals is longer (March - November), fruiting is abundant. For a short time (2-3 months), the plants go into a state of relative rest, dropping the bulk of the leaves. During this duration, the growth of lateral shoots and the main stem slows down or stops.

The peak of kleistogamous flowering occurs, as a rule, in April - May, and the peak of hazmogamous in July - August, when up to 40-50 flowers are formed on plants. During the entire period of hazmogamous flowering, up to 100-115 flowers are formed on individual plants in the species *G.australe* and *G.nelsonii* and 60-80 in the species *G.bickii*. The duration and intensity of flowering of both types varies and depends on the climatic conditions of the year.

The kleistogamous type is characteristic of cool and humid conditions, although extreme factors such as high temperature and dry air can also cause the formation of kleistogamous flowers.

The hazmogamous flowers of the studied representatives are bisexual, five-membered, heterochlamydic. Androecium fused into a staminate column, a guinea of 3-4, less often 5, carpels. The ovary is upper. The fruits are 3-4 leaf-shaped boxes, ripen in 30-35 days. Flowers, ovaries and fruits have a number of morphological differences characteristic of each species.

The flowers of the variety *G.sturtianum* var. *sturtianum* are medium-sized, wide-opening, the color of the corolla pads varies from purple to light

purple, with a dark red anthocyanin spot at the base. Staminate filaments 1-3 mm and anthers red, pollen cream. The stigma protrudes above the stamen column by 1.5 cm. The bracts are one-piece with a pointed tip, measuring 3.0 x 2.0 cm, and vary from egg-shaped to triangular in shape. The calyx is 5-toothed, light green. The out-of-flower outer nectaries are colorless.

In the variety *G.sturtianum* var. *nandewarensis* flowers are medium-sized, wide-opening, the petals of the corolla are slightly lighter than those of the variety *G.sturtianum* var. *sturtianum*. Staminate filaments 1-3 mm, anthers red, pollen cream. The stigma protrudes above the staminate column by 1.0-1.3 cm. Bracts 3.0 x 2.0 cm vary from oval to heart-shaped, with 3-5 small teeth. The calyx is 5-toothed, light green. The out-of-flower outer nectaries are colorless.

Plants of the varieties *G.sturtianum* var. *sturtianum* and *G.sturtianum* var. *nandewarensis*, as a rule, does not start flowering in the first year of life. The flowering of plants in the second year of life is more abundant in the variety *G.sturtianum* var. *nandewarensis*. Flowering plants in the variety *G.sturtianum* var. *nandewarensis* of the second and third years of life begins, as a rule, from mid-June and ends in August. From 45 to 90 flowers are formed on one plant for the entire period (for the entire flowering period). The boxes ripen in 30-35 days. The flowering period of the variety *G.sturtianum* var. *sturtianum* is somewhat shorter and lasts from mid-June to mid-July. The number of flowers on one plant varies by year, from 4 to 16-20 flowers are formed over the entire period.

It should be noted that the morphology of flowers and the biology of flowering of Indo-Chinese species is somewhat different from Australian cotton. Indo-Chinese species are characterized only by a hazmogamous type of flowering, as well as weak photoperiodicity. They enter the reproductive phase of development at the age of 4.5-5.0 months.

In wild forms of the subspecies *G.arboreum* ssp. *obtusifolium*, the flowers are medium-sized, medium-opening, the petals of the corolla are yellow, with an anthocyanin spot on the base. Staminate filaments of medium length, anthers and pollen are yellow. The stigma is protruding. Out-of-flower nectaries 3. Heart-shaped bracts with weakly pronounced teeth 0.1-0.3 cm long. The calyx is toothed, with 5 teeth. Flowering usually begins in the second decade of June and lasts until September. The peak of flowering occurs in July-August months and from 20 to 40 flowers are formed on one plant. The boxes are 3-fold, mature in 30-32 days.

The ruderal form has ssp. *perenne* flowers are small, medium-opening, the corolla petals are yellow with an anthocyanin spot on the base.



Staminate filaments of medium length, anthers and pollen are yellow. The stigma is protruding. Out-of-flower nectaries 3, Bracts- heart-shaped with 7-8 teeth, 0.2-0.3 cm long. The cup is notched with 5 teeth. The peak of flowering occurs in the month of July (05.VII-20.VII), 40 to 60 flowers are formed on one plant. The boxes are 3-4-fold, mature in 25-28 days.

In the culturally tropical form - ssp. *neglectum* f. *sanguineum*, the flowers are small, medium-opening, the petals of the corolla are yellow with an anthocyanin spot on the base. Staminate filaments are of medium length, anthers are light pink, pollen is yellow. The stigma is protruding. Out-of-flower nectaries 3, Bracts- 0.1-0.2 cm long, heart-shaped with 3-4 teeth. The cup is notched with 5 teeth. The peak of flowering occurs in the month of July (20.VII-30.VII), 40 to 60 flowers are formed on one plant. The boxes are 3-fold, mature in 28-30 days.

In the subtropical form of ssp. *nanking*, the reproductive period begins in June, and the flowers are small, medium-opening, the petals of the corolla are yellow, there are no gossypoly glands. Staminate filaments are of medium length, anthers are rare, pollen is yellow. The stigma is protruding. There are 3 out-of-flower nectaries, the bracts are heart-shaped with 7-8 teeth, 0.2-0.3 cm long. The cup is notched with 5 teeth. The peak of flowering occurs in the month of July. The boxes are 3-4-fold, mature in 35-40 days.

CONCLUSIONS

Thus, the results of the conducted studies revealed some distinctive and similar signs of the biology of flowering of Australian and Indochinese cotton species.

It has been established that two types of flowering are characteristic for Australian species: kleistogamous and hazmagamous, and for Indochinese species only the hazmagamous type of flowering. If Australian species are strictly photoperiodic, then intraspecific varieties of Indochinese cotton *G.arboreum* L. are practically unpretentious to the length of daylight, only wild forms of this species are characterized by weak photoperiodicity. Also, in the condition of natural daylight, the discrepancy between the cycles of the reproductive period in the studied species and forms was revealed. Accordingly, they do not have the same periods of dormancy of plants. The mismatch of flowering cycles complicates the work on hybridization of heterogeneous species and their involvement in the genetic selection process.

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MICRO HYDROELECTRIC POWER: FEASIBILITY OF A DOMESTIC PLANT RENATA ARCHETTI

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ABSTRACT

The article provides an analysis of the technical and economic feasibility of a small hydroelectric power plant for domestic use (micro-hydro), how it can be implemented in Prignano sulla Secchia (MO, Italy). The required data and information on the duration of the waste curve are recovered here directly and indirectly methods.

KEYWORDS: *water flow rate, generator, water flow rate, electricity.*

The problem of resource delivery and climate change, however, ratification of the world-renowned Kyoto Protocol [8]. Through this protocol, each participating state undertakes its commitment to reduce emissions of pollutants, the most responsible for climate change. This includes the use of incentive policies for renewable energy sources. Renewable energy sources can produce energy without sacrificing natural resources. Demirbas [4] has now emphasized the role of hydropower over other renewable sources such as wind, solar and biomass due to some important advantages of hydropower.

This typically involves a lower cost compared to equal power, higher reliability, and energy of the installation, and more intensity and consistency over time.

Currently, hydropower is the largest renewable resource at the national and global levels [9]. In 2005, in Italy, energy from hydropower plants met 10.7% of domestic energy needs and 72% of energy sources from renewable sources (Power Services Management, GSE [5]. Currently, hydropower technologies have reached full maturity in the field and after almost two centuries of exploitation, the use of water for industrial purposes has almost reached its technical limit [3].

Hydroelectric power stations in our country have already been built in the last century and water sources have been exploited and they are still

working, confirming the renewal of the resource. In recent years, we have witnessed the reopening of old miniatures plants that were previously economically unviable. Indeed, today renewable energy producers due to reduced tariffs are offered green certificates and "energy sales" convention, and due to the cheapness of electronic equipment now has a generally lower impact on the budget than in the past, hydropower plants also Small and medium-sized plants can be a source of great economic income. While traditional wisdom regarding hydropower plants is of great importance in the first place, it is very well applied in plants equipped with reservoirs and in hydraulic systems of hydropower generation from small to very small irrigation canals and water currents [10]. This will not be a big innovation in the use of hydropower, but in recent years has begun to show itself as a possible direction of investment.

Since there is not always time to produce a water flow system that corresponds to that water flow, it has become customary to connect the existing system to an electrical distribution network (e.g., [7], [1]). This makes it better and easier to manage the plant, but the disadvantages of having to sell energy to the national manager at the price they set. These ideas apply to private hydropower plants in general, but play a crucial role in the economic evaluation of the system, as discussed in the example here.

In recent years, the purchase price of energy produced from renewable sources has been set by national governments for most of the member states of the European Community. These governments have become aware of the environmental benefits of these resources. Prices are set by setting a guaranteed minimum amount. [11]. In Italy, as in other European countries, the legislation is constantly changing. Currently, the reference standard for renewable energy devices is the decree "On the promotion of electricity generation from renewable sources", which was repealed on 18/12/2008, 24/10/2005. is called the decree of the government and defines new methods of production. state benefits.

The purpose of this article is to assess the feasibility and affordability of a micro-hydroelectric power plant (installed capacity less than 100 kW) for

domestic use. In this study, the author looked at a stream unofficially known as the Cunettone, which runs through the city of Modena Apennines Saltino. The article focuses on the analysis of various scenarios for the implementation of economic and planning changes in recent legislation.

This study examines one of the smaller streams that cross the Saltino region, Secchia Prignano in the province of Modena, on the right bank of the Secchia River. The question of flow was that the area, especially the part that crosses the city, was covered with concrete steps as a result of large landslides that affected the 70s. The width of the channel is about 60 cm (see Figure 1). The distance between the receiving and discharging area is 106.83 meters, the straight line and the vertical distance (head) is 25.31 meters (Figure 1).



Figure 1. Leakage location. The receiver is 360 meters high and the turbine is 334 meters high.

The flow pipe in the section under consideration is made of concrete with a regular trapezoidal

figure. This feature offered to take a ready-made metal box at a low price on a mobile phone, as shown in Figure 2.

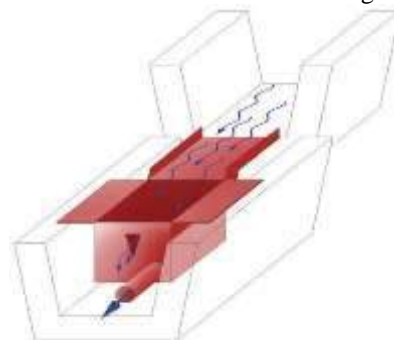


Figure 2. Mobile, low-cost metal box used for reception.

Certain advantages can be achieved with this design solution: - limited environmental impact acceptance does not require excavation and new construction work, does not change the availability of structures and can always be removed to restore it to its original state, and any maintenance can be very easily accomplished.

The storage tank is equipped with a strainer that allows excess water to be measured through the turbines or a flow reading available in the event of a machine failure. At the top of the tank is a metal

fence for the following protection: to catch the coarse debris transported by the stream to prevent the risk of injury to people or animals.

The feasibility study for a hydropower plant, albeit a small one, requires information on available water resources to assess the plant's potential energy production. The flow duration curve of the stream is derived from data published in the Italian journal Annals hydrology. The problem can be solved directly by using flow measurements made in a part of a river or by a stream that receives water from a

source, or indirectly, by using rainwater flow models based on rainfall flow models.

In the absence of any type of data in the basin under study, or in the absence of any information on the hydrology of the Cunettone River, some flow measurements have been made for this purpose. It was decided to do it with the device removed and adjusted. Output measurements were made by reading a triangular porous level built into the portable container wall. The maximum and minimum readable levels made it possible to measure flow rates of 5 l/s and 0.5 l/s. Measurements were performed once a day in two periods: a) November 24, 2008 to December 22, and b) February 8, 2009 to May 23, 2009. At the end of the measurement campaigns, 134 discharge data samples were taken.

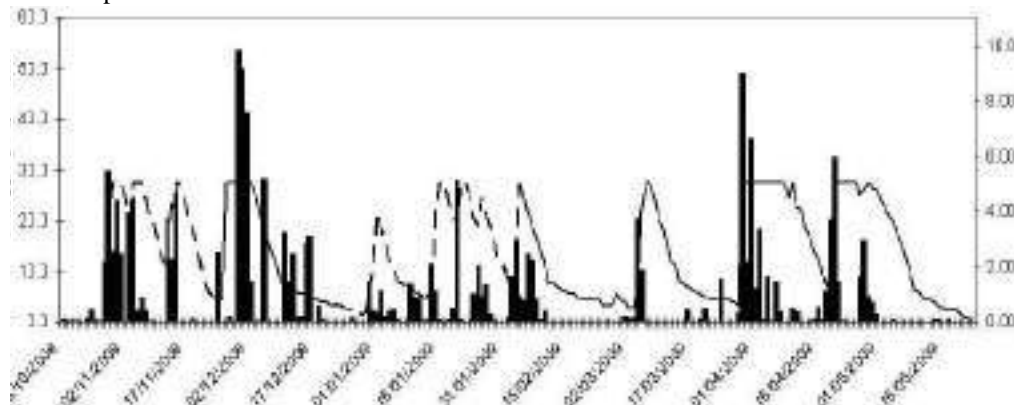
An empirical model was used to allow the

relationship between rainwater to be restored to fill the sample all year round. The results were confirmed by daily precipitation data recorded at the nearest rain gauge (approximately 10 km from the Montefiorino River) and the corresponding measured flow.

Flood hydrographs were predicted after a rain event recorded by a rain gauge on March 4 and 5, 2009. Details are described in Archetti et al., 2010.

From this analysis, it can be seen that the river also collects water from the soil, a very important feature that guarantees the production of the plan even in very dry conditions.

The described hydrograph was used to drain water even when there was no direct data, only when there was information about rain.



The results are shown in Figure 3.

The data covered the period from 18 October 2008 to 23 May 2009; the summer period was canceled because the river water was below 0.5 l/s or too short to operate the hydroelectric.

The current duration curve required to implement a mini hydropower plant (Figure 4) is shown in Figure 4.

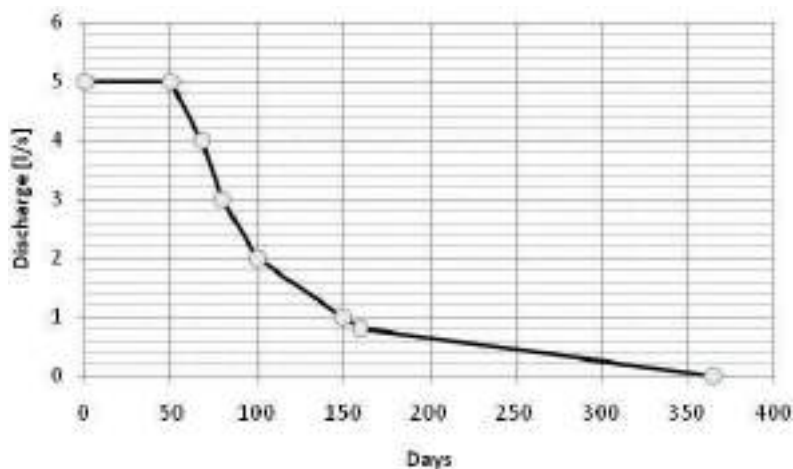


Figure 4. Current duration curve.



Many technical choices are determined by the reduction in the waste current supplied by the currents and the resulting low size of the power plant. In particular, only Pelton or Turgo turbines are capable of operating with a head the size of the factory head described here [11]. It was decided to use polyethylene pipes in the design of the plant because they correspond to the low values of waste as in the analyzed case. They are also used for water supply and agricultural irrigation systems. This choice was ensured by the low cost and relative ease of installation of these types of pipes and the low maintenance required by them.

Various solutions and combinations of pipes, turbines and tanks were analyzed to determine the most convenient. In particular, the following alternatives were considered:

- systems with or without storage;
- Ability to sell the generated energy directly to the grid or use the energy for their own needs.

For each of the 4 project hypotheses (Table 2), costs, profitability, and depreciation periods were calculated to determine the profitability of the local plant. The analysis of the first hypothesis is described in more detail, and only the results are given for the remaining three.

In the first hypothesis, the plan uses an existing charge flowing through a water system using a Pelton turbine permanently connected to a magnetic generator, which powers a permanent inverter connected to the national grid. Feasibility study The economic benefits of renewable energy sources

(green certificates) is analyzed through an agreement called “network sales” taking into account the efficiency and is 0.22 euros per kilowatt hour produced. For each combination of discharge-pipe diameters ($D = 63\text{mm}$, $D = 90\text{mm}$, and $D = 110\text{mm}$), the net effective head simulation was simulated, taking into account the flow-duration curve in Figure 4 as input data. , the results are summarized in Figure 5. The power plant was calculated by multiplying the number of working days expected per year. Of course, the power increases as the current increases, but the days of being charged decrease. The maximum amount of energy produced can be increased from 3 l/s to 4 l/s for a diameter of 110 mm . In fact, the pipe diameter (DN) $D = 90\text{ mm}$ was chosen because the advantages in terms of power generation for the largest diameters were very small compared to the cost of building the plan with larger pipes.

The second hypothesis of the project is to exploit the existing waste through a plant with a small storage tank with a capacity of 2 m^3 to obtain the minimum discharge regulation sent to the turbine. It is planned to use two Pelton turbines (one with a flow rate of 1 l/s and a flow rate of 5 l/s) connected axially by the same permanent magnetic generator that powers the permanent electric inverter connected to the national grid. . In this scheme, the turbine can generate energy continuously for the previous state. This scheme allows users to maximize the performance of the turbines, but at a more expensive construction cost.

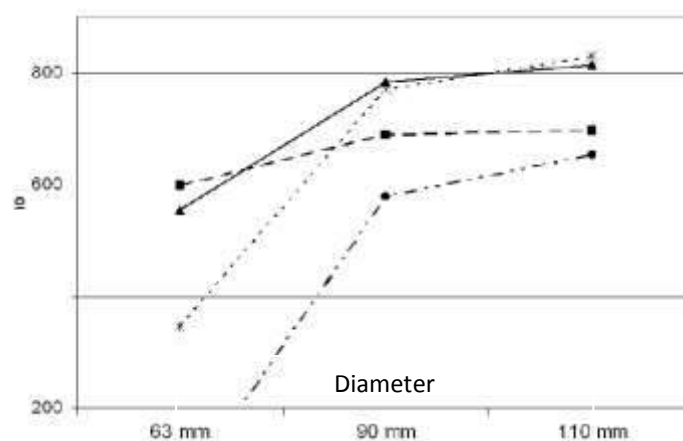


Figure 5. Energy sources with the first design hypothesis. Waste: 1) \blacksquare 2 l/s ; 2) \blacktriangle 3 l/s , 3) \times 4 l/s and 4) \bullet 5 l/s .

In the third version of the project, the hydraulic structure is the same as in the first hypothesis, but the economic assessment is different: in fact, the tax benefits associated with the reconstruction in order to save energy were considered. This type of solution is often used for

small wind turbines that consume less electricity to reduce the amount of energy received from the national grid. The final cost of electricity from the national grid for domestic utilities is, in fact, an average of 0.29 euros per kWh, which is higher than the price of the “sell to the grid” contract that has



been considered so far. This is because the cost structure includes various taxes and operating expenses.

The fourth hypothesis of the project is to increase the jump head by placing the turbine generator downstream. The assessment of energy resources is the same as in the first solution; the additional costs of leasing farmland should be taken into account in the economic valuation.

Costs and financial analysis

For each of the 4 production hypotheses, costs, economic profitability, depreciation period were calculated to determine the profitability of the local plant [12], [13]. Costs are divided into initial costs to build the plant (for example, shown for the first solution in Table 1) and include maintenance costs of € 35.00 per year and costs incurred by the manager costs incurred. electrical services valued at € 30.00 per year.

Table 1. Estimation of costs for Hypothesis 1

Description	Quantity	Unit cost	Total(Jami)
			€
Turbine	1	150.00	150.00 €
Generator	1	450.00	450.00 €
Inverter	1	420.00	420.00 €
Polyethylene pipeline	120 m	5.42	650.00 €
Electric cable	150 m	0.36	54.00 €
Intake work		200.00	200.00 €

Description	Quantity	Unit cost	Total(Jami)
Outflow works		150.00	150.00 €
Small building		200.00	200.00 €
Laying of pipeline	120 m	4.00	480.00 €
Electric connection	1	150.00	150.00 €
			2904.00 €
Taxes		20 %	580.00 €
			3485.28 €

From a financial point of view, the different options are built according to the design parameters

shown in Table 2 or for the initial cost, annual net profit, return on investment, payback period.

Table.2. Synthesis of annual net profit, return on investment for the 4 hypotheses considered.

	Use of energy produced	Plant cost	Annual net profit	Return of investment	Amortization time
First hypothesis	Selling to the network	3485,28 €	229,14 €	6,5 %	25 years
Second hypothesis	Selling to the network	4049,48 €	292,51 €	7,2 %	21 years
Third hypothesis	Own consumption	3605,28 €	262,05 €	7,3 %	8 years
Fourth hypothesis	Selling to the network.	4776,24 €	520,53 €	10,9 %	12 year

CONCLUSIONS

In this study, four design solutions for the generation of hydropower from a small river in the Italian city of Appenin were analyzed and compared. Measured and intended for one year, river water is low (up to 12 l/s) but relatively high. The design hypothesis considered whether the energy produced could be consumed directly or whether it could be transferred

to the energy operator through a “sell to the grid” contract. This is now possible due to new laws for renewable energy.

The most convenient solution among the considered solutions is the third one, which plans to use the existing flow through the water system using a Pelton turbine generator combined with a



permanent magnet direct current that supports a parallel-connected inverter. directly home

This solution considers tax breaks related to redevelopment in order to save energy. With this solution, the investment will be depreciated over eight years. This solution also seems more independent of the technical solution because it does not require agreements with the electrical services manager and is not subject to the Renewable Energy Act, which can lead to unpredictable changes. Despite the initial investment, it is currently not financially viable because the depreciation period is too long. It is also true that during the energy crisis, the hydroelectric power plant, which cost several thousand euros, was built in conjunction with a large-scale work to improve energy efficiency.

In addition, given that energy costs may increase, then the payback period will be significantly reduced and the investment will be very profitable in the long run. However, the fact that the building in question consumes all the energy produced is already a good value for money. Finally, we can say that micro-hydro technology is not yet developed, but the time is not yet ripe to consider an attractive form of investment for individual investors who should expect an overall rise in energy prices and stabilization of incentives. Renewable energy policy.

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DEVELOPMENT OF STATIONARY PARABOLOCYLINDRIC SOLAR WATER HEATERS

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ANOTATION

This article presents the development of stationary parabolocylinder concentrator-based water heaters, their daily heat generation capacity, the results of experiments and the economic performance of the device.

KEYWORDS: *solar water heater, stationary hub, accumulator tank, receiving pipe.*

INTRODUCTION

It is known that one of the main conditions for the technical development of civilization of both individual states and the world community as a whole is the degree of energy supply. Modern energy production is based mainly on the combustion of oil products - 33%, coal - 28%, gas 25%. The rest of the balance is provided by all other energy sources, including nuclear energy, hydro and other renewable energy types [1]. Due to the growing population of the Earth and the demands of economic growth, the need for energy is constantly increasing, while the reserves of fossil fuels, primarily oil, are being depleted. At the same time, energy production from the combustion of fossil fuels leads to the release of gigantic and ever-increasing volumes of carbon in the form of greenhouse gases that poison the human environment and cause global climate change.

Under these conditions, mankind is forced to turn to renewable energy sources (RES) - the sun, wind, water, geothermal energy reserves in order to ensure the sustainability of energy supply in the present and future. The technical potential of renewable energy sources is quite sufficient to meet the growing needs of mankind for clean "green" energy that does not pollute the environment. It is for this reason that the development and expansion of the

use of renewable energy sources are considered by many countries as the priorities of national energy programs for the foreseeable future [2-5].

In Uzbekistan, the technical potential of renewable energy sources is about 180 million tons of oil equivalent (toe), which is three times higher than its current energy consumption. At the same time, 95.5% of the potential of all renewable energy sources falls on the share of solar energy. The number of sunny days in Uzbekistan is 250-270 days a year, and the maximum direct solar radiation flux density reaches 1100 W / m². Therefore, the use of solar energy as the main source of renewable energy is the most natural and appropriate choice [6].

MATERIAL AND METHODS

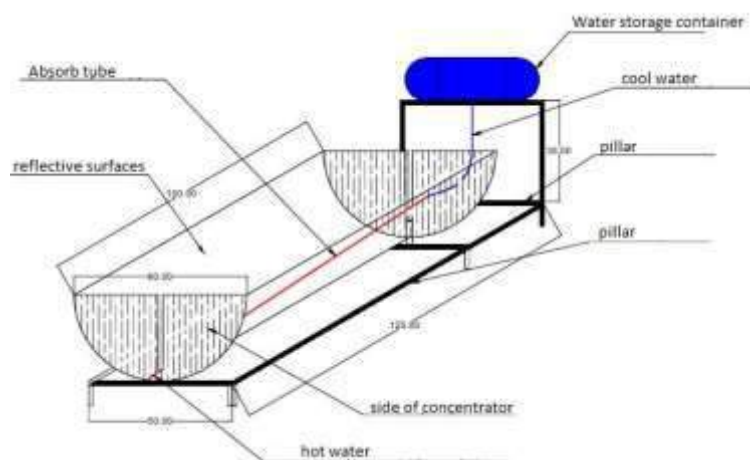
Currently, there is a steady development of two main areas related to the conversion of solar energy into other types of energy. The first direction is the design and commissioning of tower-type solar thermal power plants, the second is the development and use of parabolocylindrical concentrators with linear focusing of the directional solar radiation flux. Solar devices based on parabolocylindrical concentrators are widely used in agriculture and utilities, industry, as well as for various purposes, including heat supply, electricity generation, water

softening, cooking, cooling [7-8]. Despite the fact that research methods of these types of devices are widely studied in the field of economics, there are a number of scientific and technological challenges to their introduction into the economy of our country. In particular, the development of methods for determining the optical-geometric and optical-energy parameters of the device, depending on the purpose of use, the development of economically economical

structures, the simplification of the operating modes of the device and increase efficiency.

In view of the above, this work involves the development of an experimental design of a stationary concentrator parabolocylindrical household solar water heater and the determination of their experimental results and economic performance.

Figure 1. shows a simple schematic diagram (a) and an overview (b) of a stationary concentrator parabolocylindrical home solar water heater.



a)



b)

Figure 1. Construction scheme and general appearance of a parabolocylindrical solar water heater.



Figure 2. Parabolic cylindrical concentrator with hot water storage accumulator.



This device consists of the following elements. The parabolocylindrical surface, which receives sunlight, consists of a tube that receives the sunlight, a water storage vessel, supports, a tap that serves to discharge hot water, and parabolocylindrical surfaces.

Geometric dimensions of the device:

Collector section - 1.15m x 0.6 m;
Base part - 0.5m x 1.25m;
Tank capacity - 19 l;
Height -0.55 m;
The diameter of the light-receiving tube is 0.015 m;
The length of the light-receiving tube is 1.15 m;

Optical parameters of the device:

Surface light reflectance - 0.75;

The light absorption coefficient of the receiver is 0.9.

The reflective surface of the parabolocylindrical solar water heater is a silver-colored material with a thickness of 0.05 mm.

DISCUSSION RESULTS

The results of the experiments performed on the developed experimental stationary parabolocylindrical solar water heater are given in Table 1.

Table 1. Results of experiments performed on a parabolocylindrical device at different times of a sunny day

No	Days	hours	t°C (temperature of environment)	t°C (temperature of water in the container)	t°C (absorb tube temperature)	t°C (absorb tube temperature with water)	t°C (outlet water temperature)	Wind speed (m/s)
1	12.06.2020	15:15	30	27	77	65	59	2
2		16:15	28	25	74	62	58	
3		17:15	27	24	69	60	56	
4	16.06.2020	11:00	32	26	78	64	60	2
5		11:30	33	28	80	65	63	
6		12:00	35	29	82	68	66	
7	18.06.2020	11:10	26	18	62	56	53	3,2
8		13:00	28	32	69	64	60	
9		13:30	30	33	70	65	62	

Experiments show that with the help of a developed device (on a sunny day) it is possible to get 60 liters of hot water at 60-65 ° C for domestic service needs.

The cost estimates of materials used to develop an experimental model of a stationary parabolocylindrical water heater are given in Table 2.

Table 2. Costs for device development

No	Material name	units	quantity	unit price (in USD)	total cost (in USD)	note
1	Metal tin	m ²	0,9	5,600	5,600	
2	Reflective foil	m ²	0,9	5,230	5,230	
4	Tube	M	1,2	2,150	2,580	
5	Profile	m	5,5	2,140	11,770	
6	Container	L	19	3,120	3,120	
7	Faucet	piece	1	1,750	1,750	
8	Other expenses				9,363	
	Total				39,413	

The cost of preparing a stationary solar water heater to receive 60 liters of hot water per day (domestic) for domestic services amounted to 39,413 USD.

CONCLUSION

1. The design and experimental design of a stationary solar water heater for domestic service needs have been developed.



2. Experimental tests were carried out in natural climatic conditions using the developed device.

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AYURVEDA FOR PREGNANT WOMEN DURING COVID-19 ERA – A REVIEW

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ABSTRACT

The Novel corona virus disease (COVID-19) is highly communicable viral infection caused by SARS-CoV 2. WHO mentions that pregnant women or recently pregnant women seem to have an increased risk of developing severe COVID-19. Due to physiological changes in the body and immune system, pregnant women can be badly affected by respiratory infections. It is therefore important that they take precautions to protect themselves against COVID-19. Overall, 10% of pregnant women suffered from COVID-19. Ayurveda mentions Garbhini paricharya (antenatal care of the pregnant) which recommends ahara (dietary regimen) and vihara (specific activity for physical, emotional and mental wellbeing) that is required for the safe motherhood and healthy progeny. Here is an attempt to understand how Garbhini paricharya helps in preventing corona.

KEY WORDS: Garbhini paricharya, COVID-19, Pregnancy

INTRODUCTION

Ayurveda is a “science of life” which is having explanation for all the queries.

As Dridabala mentions,

यदिहास्ति तदन्यत्र यन्नेहास्ति न तत् क्वचित् ।

That is whatever mentioned in *Ayurveda shastra* is present everywhere and whatever is not mentioned is not present anywhere. *Ayurveda* has not mentioned diseases like COVID-19. However, they explain the things briefly which should be understood using *Arthapatti tantrayukti*.

Acharya Sushruta quotes,

स्वस्थस्य स्वास्थ्य रक्षणं आतुरस्य विकार प्रशमनम् ।

Which means the aim of the *Ayurveda* is to cure the disease of the diseased individual and to maintain the health of a healthy individual by following the *paricharya*'s mentioned.¹

As *garbhini* is *sukumara* and *abala*, she is easily prone for infections. *Acharyas* have priorly mentioned certain norms to be followed by the *garbhini*, so that she can prevent the forthcoming diseases.

Garbhini paricharya mentioned by our *acharyas* refers to antenatal care given to the pregnant women. Various *ahara*, *vihara* and *ausadhas* in the form of do's and dont's are explained for maintenance of the physical and mental health of the pregnant women.

MATERIALS AND METHODS

Review regarding *Garbhini paricharya* was done from ayurvedic & modern text books, journals, internet sources.

DISCUSSION

Dravyas used in *garbhini paricharya* majorly includes *ksheera* (milk), *ghrita* (ghee) and *madhura varga dravyas* which acts as *rasayana* (immunomodulators).

- *Bala* – owns properties like *balya* (improves strength), *kshayahara* (relieves emaciation), *ojovardhaka* (improves immunity). It is also proven to have anti-oxidant, anti-inflammatory, anti-pyretic and anti-microbial properties.²



- *Yashtimadhu* – contains phytochemical such as flavonoids like glycyrrhin, glabridin that has been proved to have anti-viral activity against the SARS corona virus.³
- *Ashwagandha* – it is observed that one of the compound present in *Ashwagandha* called withanone is quite effective and useful in blocking and weakening the structure of M^{pro} (enzyme, which plays a key role in viral replication and transcription).⁴
- *Amalaki* – *Amalaki* is *balavardhini* (improves strength and immunity), *rasayani* (immunomodulator) and proved to have anti-microbial activity.⁵
- *Shatavari* – anti-oxidant, anti-inflammatory, anti-microbial and potential immunomodulatory properties.⁶
- *Palasha* – mentioned in the 1st month of *garbhini paricharya* by *Vagbhata I*, has an unique *krimighna*(anti-viral) properties.⁷
- *Jeevaniya gana dravyas* – mentioned by *Acharya Charaka* in *sutrasthana* 4th chapter owns the properties of *balya* and *rasayana*

Vihara:

- *Abhyanga* – it helps in healing and promoting health. It makes the *garbhini balavan* and traps the entry of foreign body.
- *Garbhini snana* – *Acharyas* have mentioned the use of certain drugs for *snana* which includes *bilva* (*Agle mermelos*), *karpasa* (*Gossypium herbaceum*), *agnimantha* (*Clerodendrum phlomidis*), *jatamamsi* (*Nardostachys jatanansi*), *eranda patra* (*Ricinis comunis*) which owns anti-viral properties. *Snana* is also *malapaha* (which removes the *mala*).
- *Manidharana* (amulet) – *trivrut manidharana* by *garbhini stree* has been mentioned by *Acharya Kashyapa* which also owns anti-viral properties.
- *Rakshogha dravya dhupana* – use of *rakshogha dravya* in *sutikagara* has been mentioned by the *Acharyas*. *Dhupana* of *rakshogha dravyas* like *guggulu* (*Commiphora mukul*), *nimba* (*Azadiracta indica*), *hinggu* (*Ferula foetida*) has anti-viral properties and thus, helps in sanitization, purification and disinfection of *sutikagara* as well as helps in treating diseases such as cold, fever and *graha doshas*. Almost all the *rakshogha dravyas*

have antiseptic, insecticidal, anti-pyretic and anti-inflammatory properties.

- *Devathacharana* – by performing *yajna* and *yaaga* we can tackle the communicable diseases because the drugs offered during *yajna* like *haridra* (*Curcuma longa*), *apamarga* (*Achyranthes aspera*), *vidanga* (*Embelia ribes*), *kushta* (*Saussurea lappa*), *devadaru* (*Cedrus*) etc owns *krimighna* property. It will work like a natural purifier of air through which we can avoid droplet infections of air.

Acharya rasayana – out of various types of *rasayana*, *achara rasayana* is a unique non-pharmacological therapy which comprises of wholesome diet, ideal lifestyle, etiquettes to be followed by a person at social level with all the benefits described for the *rasayana*. Due to its effects on improving immunity, *rasayana* therapy may have direct relevance in the prevention and management of SARS COVID infection. *Acharya Charaka* in *chikitsa sthana* 1st chapter described *achara rasayana* which indicates its importance to keep the disease away from humanity. *Achara* means following good discipline or doing behaviour modification for a healthy life. Proper implementation of these principles results in the *dhatu samya* (equilibrium of dhatus) which is the ultimate aim of *Ayurveda*. For instance:

- *Satyavadinam* – when patient tries to hide the history of contact, it might aid in the spread of the disease.
- *Shoucha param* – in corona outbreak maximum importance is given to personal hygiene interms of hand washing, social distancing, wearing face mask. The same can be correlated with *shoucha param*.

Achara rasayana helps the individual in understanding the society and to know the role of individual in the society. Recommendations of WHO and MHA guidelines in controlling the pandemic of COVID-19 have close resemblance with the principles explained in *achara rasayana*.

- *Yogasana* - *Yoga* is one way which can naturally uplift vitality. However, the benefits of yoga are not just limited to stress relief and mental wellness but also can recharge the body, get rid of the toxins, and keep the vital organs functioning properly. Certain *yogasanas* can help support, balance and boost the immune system. *Yoga* reduces stress



systemically in the body, which in turn, cuts down inflammation and degeneration.

- *Pranayama – pranayamas like nadi shodhana, brahmari, sheetali, ujjayi strengthens the immune system including pranavaha srotas.*
- Avoiding *garbha upaghatara bhavas* like *yana, advagamana* also helps in preventing the disease.
- Along with this *hasta parimarjana*, avoiding travel and social distancing would help prevent the disease.

CONCLUSION

Ayurveda mainly focuses on an individual's health and recommends preventive measures for a healthy lifestyle rather than mere prescription of drugs. The risk and severity of infections are increased during pregnancy due to combination of physiological and immunological changes. Several general measures which are described by *Acharyas* are useful to reduce incidences of upcoming disease like covid-19 and complement therapeutic management as add-on treatment. By avoiding unhealthy lifestyle, adopting the geographical needs and by following the *paricharya* mentioned in *Ayurveda*, *Garbhini* can effectively prevent the acquired disease like SARS-CoV.

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A STUDY ON IMPACT OF USING MOBILE PHONE IN STUDENT LIFE

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INTRODUCTION

Research shows that nearly 90% of students have their mobile devices with them during the school day. Portable computers and iPads do cost money, but textbooks are also costly and become out-of-date within a couple of years. As there is a huge amount of free academic material available online, and this means that high technology can often mean low-cost. Certain institutes are introducing textbook cost-free zones and substituting these purchases with iPads and laptops. Free access to the online world ensures quick updates and free textbooks. The main examples of technology are mobile phones, television sets, computers, electric cars. The smallest piece of technology can cause a big change in our daily life. The mobile phone as we said in the examples is one of the fastest-growing technology in the last few decades, it started as a device to just dial and receive calls.

STATEMENT OF PROBLEM

Good health is above wealth. We can't but agree with this folk wisdom. However, as it turns out to be, many of us undermine our mental and physical state day by day, using cell phones so excessively. A recent survey found out that 92% of American adults have mobile phones today.

OBJECTIVES OF THE STUDY

- Students can create threats by using devices.
- Mobile devices may make disruptive noises during the class.
- Students can take improper photos and videos using the mobile Devices.
- In unexpected situations, the use of mobile devices by students

METHODOLOGY OF STUDY

Students can create threats by using devices. Mobile devices may make disruptive noises during

the class. Students can take improper photos and videos using the mobile devices. In unexpected situations, the use of mobile devices by students may overload the transmission system. In other words, the methodology chapter should justify the design choices, by showing that the chosen methods and techniques are the best fit for the research aims and objectives, and will provide valid and reliable results. A good research methodology provides scientifically sound findings, whereas a poor methodology doesn't. We'll look at the main design choices below

SAMPLE DESIGN

The research design is intended to provide an appropriate framework for a study. A very significant decision in research design process is the choice to be made regarding research approach since it determines how relevant information for a study will be obtained; however, the research design process involves many interrelated decisions.

PRIMARY DATE

Primary data is a type of data that is collected by researchers directly from main sources through interviews, surveys, experiments, etc.

SECONDARY DATE

Secondary data is the data that has already been collected through primary sources and made readily available for researchers to use for their own research. It is a type of data that has already been collected in the past. A researcher may have collected the data for a particular project, then made it available to be used by another researcher. The data may also have been collected for general use with no specific research purpose like in the case of the national census.



PERIOD OF THE STUDY

All subjects are assigned to a Study Period. The two main study periods are Study Periods 1 and 2, which are 13 weeks long. Each Study Period has a: Start date End date Payment Due Date Census Date Results Publication date.

strengthened as well as new relationships formed and have also allowed individuals all over the world that, without the mobile phone would never have access to all of the networks, access information that they do through the mobile phone

TOOLS USED FOR THE STUDY

This section describes the tools and techniques that are used in quantitative and qualitative methods. Quantitative methods involve the collection and analysis of objective data, often in numerical form. The research design is determined prior to the start of data collection and is not flexible. The research process, interventions and data collection tools

TOOLS FOR ANALYSIS

Analysis tools help researchers make sense of the data collected. It enables them to report results and make interpretations. How the data is analyzed depends on the goals of the project and the type of data collected. Some studies focus on qualitative data, others on quantitative data, and many on both (mixed-methods studies); examples of these can be found in a NAGT-GER Division hosted collection of presentations on Methods for Conducting GER.

SUGGESTION

We use mobile phones for almost everything now. Gone are the days when we used them for only calling. Now, our lives revolve around it.

They are no less than a computer and sometimes even more. You can video call people using this phone, and also manage your official documents.

We carry out all the tasks through mobile phones which we initially did use our computers.

CONCLUSION

A conclusion is the final piece of writing in a research paper, essay, or article that summarizes the entire work. The paragraph should restate your thesis, summarize the key supporting ideas you discussed throughout the work, and offer your final impression on the central idea Mobile phones have an effect on the way that individuals function in society, and while there has not been a lot of research on the effects of mobile phone use, it has both positive and negative consequences. Mobile phones have provided time in existence have changed the way in which individuals are interacting with each other avenues for individuals to stay connected on a new level that does not depend on space or time, but is readily accessible at anytime, anywhere. Mobile phone has allowed social networks and relationships to be



A STUDY ON THE IMPACT OF ADVERTISING ON CONSUMER PURCHASING DECISION TOWARDS WOW PRODUCTS

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ABSTRACT

This paper is analysis the impact of Advertising on Consumer Purchasing Decision towards Wow Products. In the current world advertising plays an effective role in promotion of goods and services. Advertising serves as a key tool to in creating product awareness in the mind of a potential consumer to take eventual purchase decision. Increasingly products need to be “cool”, “wow”, fun, rather than merely being ‘functional’ in order to appeal to consumers. Product useful product function, but also in how to create an appealing experience. Innovation then turns into not only working out how to apply technologies realize some us.

KEY WORDS: Consumer Purchase Decision, Impact

INTRODUCTION

Advertising plays a vital role in shaping dreams and helping customers in taking conscious product and brand decisions. Through advertisement the impact can reach a wider audience, and the main motive of advertising is to inform/ persuade / convince / remind the customers about the product/services. Advertising among competing brands has seen to be rapidly increasing and has made consumers more knowledgeable about several products and services in the market. Advertising has evolved from the local stage to an international level. Now corporations are looking outside their own country for new customers.

STATEMENT OF THE PROBLEM

The study aims to measure cosmetics buying behaviour level of the customers regarding online shopping in Coimbatore. The area within which the study was conducted regarding the information the primary data is collected in the form of questionnaire collected from the consumers in Coimbatore. To sum up the project had within the scope of the study in the area of “Customer Buying Behaviour” towards online shopping in Coimbatore for a particular time. The research measures the experiences of customers.

Defines and analyses the experiences based on key deliverables. Gains insights into Customer expectations.

OBJECTIVES OF THE STUDY

- To study the impact of advertising on consumer purchase decision with reference to consumer durable goods from wow product.
- To study various factors affecting the consumer buying process with respect to advertisements.
- To find out the consumer awareness level and usage level of cosmetics products.
- To find out factors that customers consider while purchasing cosmetics products from wow.
- To offer suggestions to the online service providers for improving services.

SCOPE OF THE STUDY

- The scope of this study is to access and evaluate various aspects of the consumer’s buying purchase intention of customers during online shopping from wow products.



- To know about the factors that influences the consumer's decision to use online shopping in Coimbatore.
- To know about the attributes that a consumers look for in the online shopping in while purchasing cosmetics form wow.
- To analyze the satisfaction level of the customers towards online shopping in Coimbatore.

RESEARCH METHODOLOGY

RESEARCH DESIGN

The study undertaken was descriptive in nature as it provides description of the state of affairs, as it exists at present "A study on consumer buying behaviour towards online shopping in Coimbatore city".

SAMPLE DESIGN

A sample design is a definite plan for obtaining a sample from a given population. 90 samples were selected by simple random sampling method. It is one of the probability sampling techniques.

NATURE OF DATA

The data was collected by using both primary and secondary data which is used for the study.

ANALYSIS OF TOOLS

It is carried out in the following ways.

- Simple percentage method
- Chi-square test
- Ranking Method
- Weighted Average

LIMITATIONS OF THE STUDY

- Due to very large size of the population, only a selected sample of customer could be contacted.

- Personal biases might have come while answer the questionnaire.
- Due to fast pace of life, some bank customers were not able to do justification to the questionnaire.
- There is some restriction to meet the customers directly.
- All the findings and observations related to service are purely based on respondents answer; the response may be due to personal factor.

REVIEW AND LITERATURE

According to a research on "Consumers' Perception on Online Shopping" (Dr.R.Shanthi, 2015) it's mostly the youngsters who are attached to online shopping whereas the senior people still prefer the traditional methods of buying the product in comparison with the young adults. However there is shift in focus where middle age people are showing interest towards online shopping as well. This study also reveals that the price of the products has the most influencing factor on online purchase.

Ganesh (2019) - In his article titled Consumers' Perception towards Brand Loyalty of Cosmetics Products -An Analysis. The author analysed that the consumers' perception towards brand loyalty of the Cosmetics product is awareness, knowledge, attitude of the brand, risk aversion to change the brand, satisfaction and brand trust of the consumers, variables namely brand, image, product quality, product knowledge, product involvement, products attributes and brand loyalty of consumers.

Singh and Sharma (2018) analyzed the customers' perception towards brands of cosmetic products. The study used exploratory-cum-descriptive research design. It was used judgment sampling to select female respondents from the Hisar city of the Haryana State. The study found that Majority of the customers used the major Cosmetics like shampoo, powder, cream. Wow is the top brand of cosmetic which are preferred by customers.

**ANALYSIS AND INTERPRETATION****Simple Percentage Analysis****GENDER OF RESPONDENTS**

S.No	Gender	No. of respondents	Percentage (%)
1	Male	0	0
2	Female	150	100
	Total	150	100

Source: Primary Data**INTERPRETATION**

The above table reveals that 100% of the respondents are Female

All of the respondents are female

OCCUPATION

S.No	Occupation	No. of respondents	Percentage (%)
1	Business	32	21
2	Private employee	47	31
3	Home maker	29	19
4	Student	44	29
	Total	150	100

Source: Primary Data**INTERPRETATION**

The above table reveals that 21% of the respondents are business people, 31% of the respondents are Private Employee, 19% of the

respondents are Homemaker and 29% of the respondents are students.

Majority of respondents are Private Employee.

**MONTHLY INCOME**

S.No	Monthly Income	No. of respondents	Percentage (%)
1	Below Rs.20,000	15	10
2	Rs.20,001 to 30,000	36	24
3	Rs.30,001 to 40,000	51	34
4	Above Rs.40,000	48	32
	TOTAL	150	100

Source: Primary Data

INTERPRETATION

From the above table, it is found that 10% of the respondents monthly income is below Rs:20000, 24% of the respondents monthly income is Rs:20001 to 30000, 34% of the respondents monthly income is

Rs:300001 to 40000 and remaining 32% of the respondents monthly income is above Rs:40,000.

Here majority 34% of the respondents income is Rs:40,000

SOURCES OF AWARENESS

S.No	Source of awareness	No. of respondents	Percentage (%)
1	Newspaper	75	50
2	Television	18	12
3	Social media	33	22
4	Friends and relatives	24	16
	Total	150	100

Source: Primary Data

INTERPRETATION

From the above table, it is found that 50% of the respondents were aware through Newspaper, 12% of the respondents were aware through Television, 22% of the respondents were aware

through social media and 16% of the respondents were aware through Friends and relatives.

Here majority 50% of the respondents aware through newspaper.

**FEATURES OF WOW PRODUCTS**

S.No	Features	No. of respondents	Percentage (%)
1	Quality	45	30
2	Brand	30	20
3	Price	29	19
4	Other	47	31
	Total	150	100

Source: Primary Data

INTERPRETATION

From the above table, it is found that majority 30% of the respondents says Quality, 20% of the respondents says Brand, 19% of the respondents says

price and remaining 31% of the respondents says others. Here majority of the respondents says Quality as the feature.

CHI-SQUARE ANALYSIS**CHI-SQUARE TEST TO FIND THE SIGNIFICANT RELATIONSHIP BETWEEN PURCHASING WEBSITE AND PURCHASING INFLUENCE****Null Hypothesis Ho**

There is no significant relationship between purchasing website and purchasing influence

Alternative Hypothesis Ha

There is significant relationship between purchasing website and purchasing influence.

Influence	Brand	Convenience	Quality	Availability	Total
Website					
Amazon	3	16	13	6	38
Snap deal	14	16	3	8	41
Big Basket	24	35	1	0	60
Flipkart	3	8	0	0	11
Total	44	75	17	14	150

**CONCLUSION**

Since the calculated value is higher than the table value and our hypothesis is proved, null hypothesis is

rejected. Hence alternate hypothesis is accepted. So there is significant relationship between purchasing website and purchasing influence.

RANKING ANALYSIS**RANKING PROBLEMS OF WOW PRODUCTS THROUGH E-BUYING**

FACTORS	I	II	III	IV	V	TOTAL	AVERAGE	RANK
Skin allergy	27	38	12	20	53	416	83.2	III
	135	152	36	40	53			
Affordable price	17	41	43	13	36	440	88	I
	85	164	129	26	36			
Quality	19	28	17	33	53	377	75.4	IV
	95	112	51	66	53			
Quantity	6	11	26	49	58	308	61.6	V
	30	44	78	98	58			
Easy availability	22	42	24	16	46	428	85.6	II
	110	168	72	32	46			

Source: Primary Data

INTERPRETATION

From the above ranking analysis, it was found that majority of the respondents Affordable price ranks I, Easy availability ranks II, Skin allergy ranks

III, Quality ranks IV and Quantity ranks V. **Majority of the respondents say Affordable price ranks I.**



**WEIGHTED ARITHMETIC MEAN
SATISFACTION WITH WOW PRODUCTS**

Factors	Satisfied	Very satisfied	Neutral	Dis-satisfied	Very Dissatisfied	Total score
Price	84	24	23	19	0	150
Quantity	48	13	27	44	18	150
Quality	55	30	33	21	11	150
Variety	19	48	37	22	24	150
Availability	37	32	41	7	33	150
Skin safety	31	66	21	15	17	150

Factors	Satisfied	Very satisfied	Neutral	Dis-satisfied	Very Dissatisfied	Mean score	Mean	Rank
Price	420	96	69	38	0	623	41.53	1
Quantity	240	52	81	88	18	479	31.93	5
Quality	275	120	99	42	11	547	36.47	2
Variety	95	192	111	44	24	466	31.07	6
Availability	185	128	123	14	33	483	32.20	4
Skin safety	155	264	63	30	17	529	35.27	3

Source: Primary Data



INTERPRETATION

The above table shows Price ranks 1, Quality ranks 2, Skin safety ranks 3, Availability ranks 4, Quantity ranks 5 and Quantity ranks 6.

Majority of the respondents ranks Price as 1.

CONCLUSION

This study gives female customer perception and behavior related to the usage of cosmetic products in India with particular reference to Wow products. It is interesting to note that along with women in India men also using large quantities of cosmetics for their personal grooming. Naturally, a person grooms himself or herself perceives that their level of confidence and happiness would increase.

The study concluded that mostly respondents are graduates from the 26-35 years age group and from Coimbatore area. Most of the factors influences the customers purchase decision in which life style and value at the top; followed by quality, personality, culture, reference group, occupation, religion, price, brand name and packaging. The study also explains the impact of the brand on the consumer mind which influences the buying behaviour of the customer in the context of cosmetics

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A SURVEY OF MARINE POLLUTION IN WESTERN COAST OF KERALA AND EFFECTIVE UTILISATION OF THE RECYCLED WASTE FOR ROAD PAVEMENT

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ABSTRACT

Marine based plastics contribute to one of the major sources of plastic waste pollution across the globe, for which many solutions have been proposed. However, there is very little emphasis on the development of waste treatment options, as most of the solutions focus on the collection and prevention of plastic waste.

In this case study, I've developed a questionnaire to investigate the issues surrounding the involvement of fishermen, Self- help groups and organisations who have adopted the strategy to use plastic waste as a substitute for road pavement.

As there is a lack of proper technology for the treatment of marine plastic globally, the present research intends to drive more people to this area. The survey aims to create awareness and encourage implementation of technologies and research in the field. This in turn, it is hoped, will increase public risk perception about plastic pollution and its adverse impacts.

KEYWORDS: *Plastic, waste, Pollution, Questionnaire, environmental impacts, development.*

1. INTRODUCTION

1.1. Marine Plastic Waste Scenario

The marine environment is prone to the accumulation of plastic waste, which directly impacts aquatic life as well as the water quality- it is one of the major global environmental concerns today (Rochman, 2018; Ronda et al., 2019; Villarrubia-Gomez et al., 2018). Due to the influence of inter-continental pollution sources, coastal areas are plastic pollution hotspots (Alfonso et al., 2020), creating a major threat to their vast biodiversity and ecosystem services (Soto et al., 2021). Sources show that more than 8 million tons of plastic make their way into the sea every year (Jambeck et al., 2015) and by 2045 plastics will supersede fishes in the ocean (MacArthur et al., 2016). There are alarming concerns over the impacts of the plastic burden in the oceans on marine organisms as well as the resultant impacts on humans and other habitats that consume the marine organisms (Naidoo et al., 2020). Our failure to manage plastics efficiently and the long-term durability have led to marine plastic debris becoming a significant problem in recent times (Thompson et al., 2009). A recent report on 'Marine plastic debris and microplastics' by the United Nations Environmental Program (UNEP) revealed the fishing industry as a significant contributor to marine litter in the oceans (Kershaw Peter, 2016). Without a doubt, public awareness and response, environmental factors play a vital role in influencing pollution management (Steel et al., 2005).

1.1. Waste Plastics in Indian Road Pavements

India's road network consists of about 114,158 kilometres (km) of national highways, 761,217 km of state highways and district roads, and 4.2 million km of rural roads. (GoI, Road Transport and Highways dept., Road Statistics, 2020). In 2013, the Prime Minister's Rural Road Program (PMGSY) was required to initiate innovative approaches on at least 15% of the length of rural roads in all the states proposed for PMGSY funding. This condition was intended to (i) cut down construction costs; (ii) conserve non-renewable natural resources by using environment-friendly materials; and (iii) utilization of waste materials by maximizing the use of locally-available materials, industrial wastes,



new materials, and environment-friendly (“green”) technologies in road construction (National Rural Roads Development, GoI, 2020).

In the construction of flexible pavement, bitumen plays the role of binding the aggregate together by coating over the lump. It's shown that its resistance towards water is poor and the costly. Heavier loads, high traffic volume and tire pressure-demand higher performance pavements (Vasudevan et al., 2006). Using plastic waste as a bitumen modifier in road surface mixes can potentially improve the performance of road laying while reducing the use of virgin materials at the same time (Al-Hadidy & Yi-qiu, 2009a, 2009b; Attaelmanan, Feng, & Al-Hadidy, 2011; Gawande, 2013; Gawande et al., 2012; Kalantar et al., 2012; Rokade, 2012; Zhang et al., 2016).

1.2. *Suchitwa Sagaram* Mission (Clean sea) by Government of Kerala

Global concern amongst the general public and policymakers has rapidly increased with the growing concern on the impacts of plastics (Avio et al., 2017; Borrelle et al., 2017; Mæland and Staube-Delgado, 2020). To help mobilize the international community to abate marine plastic pollution, several initiatives and actions at many levels (global-regional-national) have been put forth (UNEP, 2018a). *Suchitwa Sagaram* (Clean Sea Mission) - a flagship initiative by the Government of Kerala, have come up with successful missions in accomplishing plastic waste management initiatives in 2017. The initiative aims in cleaning the ocean by removing all forms of plastic materials and also pledging to stop the illegal dumping of waste. Such initiatives pave way for the future generations to keep hope in our climate and environment and to put forth valuable efforts in leading a sustainable life. However, in most cases such efforts are unrecognized and the emergency of the situation is often overlooked.

This study develops a measurement instrument for Clean Sea Mission activities organised at the local level by the Government of Kerala. The paper is structured as follows: section two describes the method of a questionnaire survey conducted among the actively involved groups in the mission. The group includes the fishermen community, Self- help group (SHG's) and the organisation involved in the construction and maintenance of roads, with the plastics collected from the ocean. Section three mostly describes the results of the survey, analyses the major factors influencing the results and the causes for the gaps among the government and different groups set for the study. Conclusions and recommendations are included in the last section where the government can enhance the system for the betterment of the mission.

2. RESEARCH METHOD

There are lumps of plastic waste in the ocean that have been formed over the years which need to be collected and processed. As of 2018, over 250,000 tons of marine plastic had been removed from the oceans worldwide, but there wasn't evident information available regarding the waste post-collection (Schneider et al., 2018). When compared to the total mass of plastic waste entering the oceans every year, this recovered mass is very negligible. Novel collection methods and advancements in existing techniques need to be addressed at the local as well as at the national level to increase the collection rates. Environmentally ethical waste management techniques (basically reuse, repair, recycling or disposal) need to be addressed and implemented to treat the marine debris, and in particular, the dirty plastic, once it is recovered from the ocean.

Kerala is a state widely known for the vast variety of seafood and an enormous amount of fish is included in the daily diet pattern of its people. The future is not far when plastic could seep into the human food chain, with the drastic increase in the amount of plastics in the ocean day by day. This concern has been taken up as a mission known as the *Suchitwa Sagaram* put forth by the Fisheries department of the Government of Kerala in the year 2017 (Logical Indian, 2018). This initiative promises that plastic materials in the ocean or the ones which get entangled in the nets while fishing will be cleaned.

Based on several characteristics of the Clean Sea Mission, there are many activities associated with it. Some of the activities include a) collection of waste plastics from the ocean by fishermen; b) assembling, separation and shredding of the different kinds of plastics by the *Kudumbasree* Self-help group members and c) Conversion of the shredded plastics used along with bitumen for road tarring purposes by Public Works Department (PWD) of Kerala. The following features have been set for measurement of the survey, statistics and assessment of the people associated with the project-

- 1) Concern about the marine plastic pollution
- 2) Awareness and importance of a safe and healthy marine environment as socially valuable
- 3) Ability to identify and negate the main threats for the marine life
- 4) Government involvement in the activities



- 5) Readiness to take a personal part in the marine environment concerning activities to prevent, protest and protect.



Fig1: Coastal stretch of Kerala

Therefore, the interaction of the “concern-awareness-understanding- actions- improvements” is identified as the key for the output. In this paper, the clean sea mission activities are divided into these components. To measure the aspects of Marine Environmental issues and activities associated with it, a questionnaire consisting of several questions to assess the effective involvement of fishermen, SHG’s, agencies and organisations have been conducted. A detailed interview has been conducted with the *Kudumbasree* Self-Help Group (SHG) which played a vital role in the segregation of plastics of various kinds (which were in turn put in the shredding machine for road tarring purposes). A set of questionnaires have been prepared for the survey with the fishermen, which include the following details: a) background information of their fishing career, b) challenges they faced so far in their career, c) environmental concerns, d) the involvement and activities by *Suchitwa Sagaram* initiative by the Government of Kerala and few general questions concerning the ocean plastic pollution, waste disposal, health, behaviour and threats to the ocean environment. And the final set of questionnaires were to the organisation involved in the Road construction works with the recycled plastics. The structure of the questionnaire is summarised in Table 1, Table 2 and Table 3

a) Table 1: Structure and questions of the questionnaire for the interview with Self-Help Group (SHG)

	Measurement	Expected Outcome
1.	How many people are there in your group? How long have you been working with the group?	Strength
2.	a) What is your opinion on the clean sea mission? b) What were your major responsibilities? c) Did the government provide all the necessary amenities, support and infrastructure?	Duties and Responsibilities
3.	a) How was your daily schedule? b) How was the payment done? (daily/hourly) c) Did you have regular meetings with the authorities?	Government intervention and involvement



4.	a) Did you face any challenges throughout the process? b) What do you think have changed over the past four years, from 2017 to 2021, any notable improvements or disappointments?	Challenges, changes
5.	What do you think about marine plastic pollution? a) Did you observe anything around the issue? b) Do you think there is a viable solution to reduce dumping?	Concern/ awareness

3. RESULTS AND DISCUSSIONS

The results were categorized into different sections. Interviews were conducted with fishermen, *Kudumbasree* Self Help Group members, agencies, and organisations involved in the tarring of roads with the waste plastics collected from the ocean. The results are mentioned in detail in the following discussion part.

3.1. Interview with the *Kudumbasree* Self Help group (SHG)

Kudumbashree is the poverty eradication and women empowerment programme implemented by the State Poverty Eradication Mission (SPEM) of the Government of Kerala. The name *Kudumbashree* in the Malayalam language means 'prosperity of the family'. As part of the *Suchitwa Sagaram* Mission, more than 800 fishing vessels head out from the harbour every day, 40 boats head back daily carrying the waste plastic they net alongside the fish. The fisheries department has set up waste collection centres close to the fish landing points in most sites. The wastes are collected, washed, segregated, separated and put to the shredding unit by the *Kudumbashree* women employed at the collection centres. Thirty women are employed at the Kollam Harbour to sort and dry the retrieved plastic, which is then processed and converted to usable products at a plant set up by the harbour engineering wing.



Shredding and sorting plastic waste in shredding units

(Source: china dialogue; Image: Shailendra Yashwant)

3.1.1. Concern about the marine plastic pollution

Macro plastic pollution is a global concern and is recognized as one of the most severe forms of pollution in shorelines, oceans and freshwater bodies. From the project clean sea mission more than 100 tons of plastics has been removed from the ocean so far which includes plastic bags, plastic bottles, discarded nets, plastic ropes and other plastic items. It is a bulk amount that has been brought by our fishermen.

The interview was conducted among the thirty women working with the SHG, each of them has shared different stories of their hardships and how such initiatives get them going. Sheela, a widower with two children works in the shredding unit set by the mission. She pays her daughter's college fees from the amount she earned



through the Self- Help Group (SHG) activities. She says that at times it gets hard making ends meet and there were times she and her children stayed hungry for days without a proper meal. Mary, who works with the segregating unit shares her story about her sick husband and three children. Her husband, a fisherman, got paralysed five years ago from a devastating cyclone that almost took his life. Since then, she has been struggling with the hospital bills, household, and children's education, all of which is partially met by the activities and events conducted by SHGs.

What is your opinion on the accumulating plastic waste in the ocean?

It is unbelievable, the amount of plastic waste the fishermen used to bring daily in the first few years of the program. We were astounded by the huge amounts and were confused about how to go about it, but experts from various fields have guided us to effectively make use of the waste plastic. We have to judiciously use the resources God provides us, but the waste collected from the ocean determines how unsympathetic we are to our mother earth.

What is your opinion on the Suchitwa Sagaram mission? What were your major responsibilities?

We are a group of 30 women employed for the initiative put forth by the Fisheries department of the Government of Kerala. This is indeed an excellent initiative showing the concern for our planet and to keep our ocean clean as well as protecting our marine ecosystem. Our major responsibilities include cleaning the huge lump of plastics brought by our fishermen, drying the plastics and segregating them according to the norms given by the authorities, and scraping it in the shredding machine installed by the authorities. The shredded plastic is then collected inside huge sacks which were then taken for road construction purposes.

3.1.2. Challenges and difficulties

Did you face any challenges throughout the process? What do you think have changed over the past four years (from 2017- 2021)?

The mission is not processing the way it used to in 2017 due to fund shortages and insufficient support from the government. The *Kudumbasree* workers were not paid regular wages, most of the time their wages took more than 5 months to process. In many cases, there weren't enough collection points to segregate the waste plastics which takes considerable effort to wash and convert to a form that can be further used for recycling.

What are the improvements to be made?

Major improvements needed are the constant support from the government as well as from the public. This is not just an issue concerning an individual or a particular group, this is a national issue that has to be dealt with utmost importance. The lack of awareness of the urgency of the issue and insufficient allocation of government funds for such global issues is the key problem. We (SHGs) hope that all these will be taken into consideration once the pandemic is over.

3.1.3. Government intervention

The government has been a constant support during the initial year of the project. All necessary amenities, training and infrastructure were provided for the smooth sailing of the program. The situation has changed in the past 2 years, there was a gradual dip in government involvement. SHGs were not provided wages for months and several incentives were also dropped. The situation has worsened due to COVID-19 as further raises in registration, deposits and licence fee were introduced.

As per the UN report, just 10 months since the launch of the *Suchitwa sagaram* scheme, the fishermen have removed 25 tonnes of plastic from the Arabian Sea which includes 10 tonnes of plastic bags and bottles.

**Clean Seas staff carry washed marine waste.***(Source: china dialogue; Image: Shailendra Yashwant)***b) Table 2: Structure and questions of the questionnaire for the survey with fishermen**

	Measurement	Expected Outcome
Section 1	Personal Background-	
1.	Name, City, Age	Influencing factors
2.	How many years have you been Fishing? a) How often have you visited the ocean in the past 1 year? b) Did you observe any change in the pattern of the sea behaviour/climate in the past few years? c) What do you think have changed in the ocean behaviour in your fishing career so far?	Determine sea behaviour/ climate change patterns.
3.	What are the major challenges you have faced in your fishing career to date?	Determine the role of local self-Government Organisations
4.	What is the major equipment you use for fishing? Is it made up of plastic? How many times do you use it for fishing?	Devices used for fishing
Section 2	Ocean/ environmental concerns-	
5.	What are your major concerns about the ocean? (What do you feel needs to be done or addressed by the government?)	Awareness/ concern
6.	Where do you think the ocean pollution comes from? What could be the major factor in your opinion?	human activities both on land and on the ocean as the major source of pollution
Section 3	Clean sea Mission in Kerala-	
7.	Have you heard of the 'Suchitwa Sagaram' Mission? Have you been a part of it? a) If yes, how was the mission going on in 2017 and 2020?	Awareness / Comparison/ Government Involvement



	<p>b) What do you think were the issues you faced? Were you paid regularly?</p> <p>c) Was there any other mission by any other department, (other than <i>Suchitwa sagaram</i>) previously or at present as part of Marine conservation?</p>	
Section 4	General questions-	
8	What do you think of building hotels/ resorts near a public beach?	safe coastal environment concerns
9	Do you know the following terms? (coral reef, Exclusive economic zone, marine protected area, overfishing, marine litter)	Familiarity with ocean-related environmental terms
10	Have you heard of global warming and carbon footprint?	Awareness/ Concern
11.	<p>Below is a list of some problems our oceans are facing, which ones do you think are a result of human activities?</p> <ul style="list-style-type: none"> ● Plastic/ trash ● Pollution ● Overexploitation of fishing resources ● Marine engineering/ oil drilling ● Unsustainable aquaculture 	Recognition of human activities as the key threats to the marine environment
12.	<p>Which one of the following two statements do you agree with more?</p> <ul style="list-style-type: none"> ● Marine resources are so plentiful that every human being should use them freely ● Marine resources are limited; we need to set some rules controlling the use of marine resources even though this has some negative effects on human lives 	Recognition of marine resources depletion and the need to protect them
13.	Protecting and taking care of the oceans has a major impact on the global economy. (Do you agree?)	The marine environment is globally valuable, and its contribution to the global GDP
14.	It's not only our activities in the marine environment that affect life in the sea, it's also the things we do on land. (Yes/No)	Human relation to the ocean even when we are far from it
15.	Do you think ocean problems can also affect human's health? Are there any health problems for your family members or you?	The interconnectedness of humans and the oceans
16.	Do you think our daily activities can contribute to marine environment protection or if that was a matter of the government?	Personal role in marine environment protection
17.	<p>What are the major organisations related to marine-related activities which you are aware of? Can you name a few?</p> <p>a) Do they contact you regularly?</p> <p>b) Do you have meetings often on the clean sea mission or other related environmental activities?</p>	Inclusion, awareness



3.2. Survey with the Fishermen

The interview was conducted either via phone or personally meeting the people. Each of the questions connected to their activities was asked. They had the freedom to respond about their experience, ocean-related concerns, issues, and even suggestions for the general public on the judicious use of resources and the rapid depletion in aquatic life forms due to the intake of plastics in marine organisms. The answers were analysed in the marine environment context and also were able to identify a safe marine environment as socially valuable. Most of them have been actively involved during the devastating *Kerala floods 2018*, the floods which took a toll on their career, habitat and lives of many.

How often have you visited the ocean in the past 1 year?

Small scale trawlers go fishing once or twice a week, they own non-mechanised boats which don't go very far from the coast. Fishermen with mechanised boats go quite far for about 4 days fishing at a stretch and return after 6 days. Nowadays, due to COVID-19, Cyclone- one after the other and on top of that monsoon trawling ban have ruined their life and career. Most of their houses have been demolished by severe cyclones. So, the fishermen and families were relocated to relief camps, also the catch these days is very low, fishermen are not able to meet their monthly expenses and have starved for days without food and money.

Do you agree that protecting and taking care of the oceans has a major impact on the global economy?

Kerala being a coastal state, fisherfolk form an important sector of the population. There could be lakhs of fishermen in the marine as well as in the inland sector. In all these fishing villages throughout the state, fishing and related aspects provide a livelihood to the vast majority of the population. So, the government must take care of the sector with utmost supervision and protection like any other sector which plays a vital role in the state economy.

3.2.1. Concern about the marine plastic pollution

Findings show that 89% of the interviewed fishermen were very deeply worried about the accumulation of plastics in the ocean. Every time they go for a catch, they used to bring tons of plastic waste along with the fish, they never considered it a serious issue before the *Suchitwa sagaram* mission was launched in 2017. The general public awareness is such that the modern wastewater treatment facilities can remove up to 99% of microplastics, the microplastics released through the effluents are significant due to their sheer amount, so it'll never degrade once it reaches the ocean instead become tiny bits of microplastics which the fish mistakenly consider as their food and eventually get into the food chain. Thus, microplastics readily enter the marine environment and may accumulate in seas and freshwater bodies.

What are your major concerns about ocean pollution?

We are the section of people who reside along the coast. We fisherfolk look up to the ocean as sacred, (always referred to as the *Kadalamma, Kadal* (Malayalam term) meaning the sea and *amma* meaning 'mother', representing the fertility of a woman. Deaths in the sea are regarded as the wrath of the mother, which is attributed to violations of any tradition.) we don't do any harm to her. But it is unbelievable how these wastes are stacked up in the ocean. We are often the marginalised section of society, but we don't slaughter our ocean by dumping plastic wastes. Our Kerala coastal stretch is about 600km, we are obtaining tons of plastic waste just from the Kollam coast (a district in Kerala), the situation could be impertinent towards the northern coast. The government should ban the use of plastics or at least impose strict rules and enforcement on the use of plastics.

What do you think have changed in the ocean behaviour or the amount of fish from your catch in your fishing career so far?

It is unbelievable to say how much it has changed, the change would be massive. Over the past few years, marine fish production has declined drastically. Central Marine Fisheries of India (CMFRI) have revealed an 11% - 15% decline in overall fish catch in 2019, compared to the previous year. There must be something going on, as we have observed a rise in sea surface temperature which is eventually changing the nature of oceans, which may, in turn, affect the ocean life and its food chain.

3.2.2. Awareness and importance of a safe and healthy marine environment as socially valuable

The survey however has been narrowed down such that, one could conclude that about 80% of the plastic debris in the marine environment are land-based sources of plastic debris. The densely populated or



industrialised places being the major sources due to littering, unbridled use of plastic bags and enormous disposal of solid waste. The survey also found that large quantities of plastic debris derived from raw manufacturing materials were transported onto beaches following accidental spillage during handling and other processes mainly from major industrial towns, especially in the Kollam district of Kerala. Plastics are transported from their sources by river systems and wastewater treatment stations to the ocean. In addition, extreme weather conditions (e.g., hurricanes or flooding) increase the transfer of land-based debris to the sea.

What is your opinion on the 'Suchitwa sagaram' mission by the Government of Kerala?

The mission set by the Government of Kerala has put a realisation to the amount of plastics that are accumulated in the ocean beds each day and the question on how to overcome the issue has been put forward. It was then that the fishermen were assigned to bring along the plastics back to the harbour along with the fish that they catch. Previously, they would dispose of the plastic debris that would get caught in the nets which then remains in the sea. They now pay extra attention to the plastic that would tangle in the net. Also, the government has provided incentives for the amount of plastics that we fishermen bring back. Nowadays, we hardly get any response or attention from the mission organisers.

Do you think ocean problems can affect human health?

We are not so sure about how it may affect our health, but it does have a severe impact on the marine ecosystem. We could observe a drastic reduction of fish in the ocean over the past few years. There were times when we used to make enough for a month's survival, but this is not the case now. We barely get going for a month and the expense is too high these days.

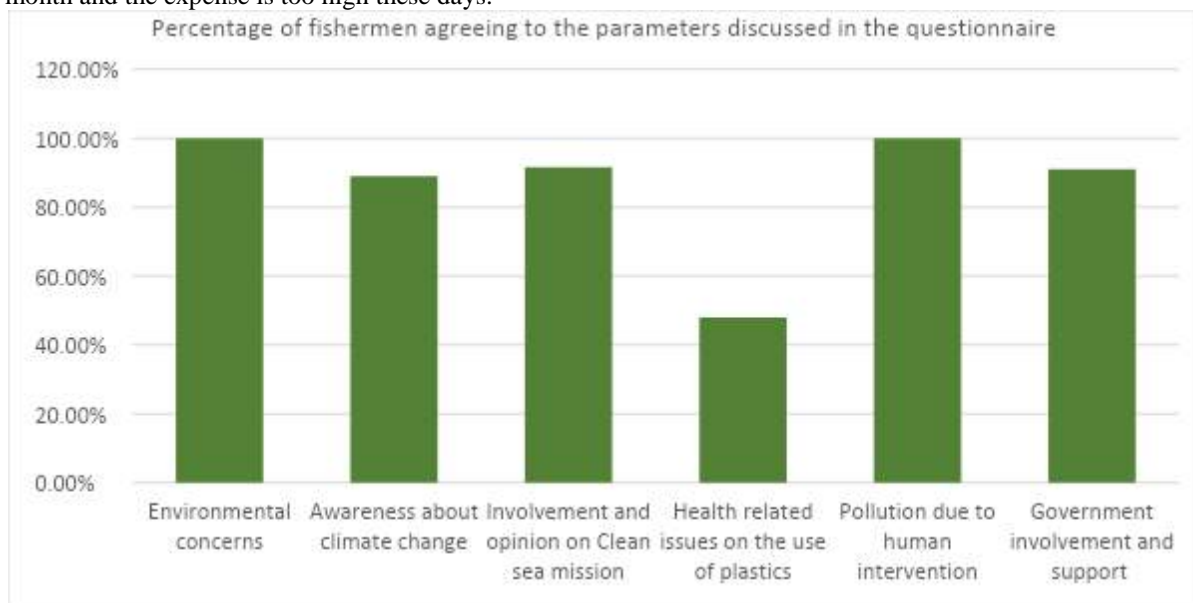


Fig: Responses from the interviewed fishermen

3.2.3. Government involvement

When the project was launched in the year 2017, the government wholeheartedly supported the authorities associated with the program which gained active involvement from the fishermen community as well as the SHGs. The initiative gained widespread recognition at the local, national as well as in international levels by the United Nations Environmental Program (UNEP). The participation from the fishermen was mostly self-driven due to the urge of keeping the ocean and surroundings clean. Over the years due to fund crunch, the program has taken a major toll and the involvement and incentives which were provided in the beginning had no follow-ups from the concerned authorities.

Which were the major organisations which took a considerable step forward for the smooth sailing of the Suchitwa Sagaram program by the Govt. of Kerala?

1. *Suchitwa Mission, Kerala* - Financial support for the establishment of plastic shredding unit at fisheries harbour and training to members of SAF
2. *Clean Kerala Company* - Technical support before and after the establishment of the shredding unit.



3. *Harbour Engineering Department (HED)*- Providing area and electrical connection for installation of Plastic shredding unit at fisheries harbour
4. *Society of Assistance to Fisherwomen(SAF), Department of Fisheries, Kerala* - Running of the shredding unit including manpower, salary to the workers, electricity charges, etc.
5. *Boat Operators Association, Kollam District* –
 - a. Overall Monitoring and running of the project.
 - b. Bringing and collecting plastic from the sea.
 - c. Deployment and sufficient manpower to look after the programme.
6. *NETFISH-MPEDA* - Supply of eco-friendly bags for waste collection, awareness stickers to fishing boats and conducting awareness training for fisheries

3.2.4. Readiness to take a personal part in the marine environment concerning activities to protect the planet

Bunch of extremely kind and down to earth human beings who were ready to take up the daunting task wholeheartedly over government Intervention. The govt. has provided sufficient facilities and supplies for the smooth sailing of the program during the initial year when the program was launched. Over time, due to various reasons the support from the Government and related authorities declined and the fishermen could no longer risk their life and the hard-earned money for a cause where the government and people by themselves were the least interested.

What is your opinion on climate change?

We are killing our planet in a way, the unbelievable amount of waste brought from the ocean is a clear example of how we treat our planet. There is a gradual decline of fish in the ocean, which could also be the result of climate change and global warming on our planet. This is an emergency where the government and public have to take key steps in controlling the illegal use of plastics through strict restrictions and awareness programs. The general public isn't aware of the issues surrounding the use of plastics, the environmental harm that it causes and the very evident coastline erosion that takes place every monsoon. We fisherfolk are suffering for the harm that people do to our planet.



Fig2: Fishermen crew with litter recovered from the Sakthikulangara Harbour, Kollam, Kerala
 (Source: the china dialogue; Picture courtesy: Shailendra Yashwant)

Table 3: Structure and questions of the questionnaire – for the organisation involved in the mission.

	Measurement	Expected Outcome
1.	a) How was the shredded plastics processed? b) What were the difficulties encountered during the process?	Utilization of plastic waste
2.	a) How was the output obtained compared to normal bitumen roads? b) Do you think this is the most viable option for the rapid global challenge of plastic waste?	Comparison



3.	Do you think there could be any health-related issues revolving around the plastics being treated with bitumen?	Health issues
4.	a) Was there any change in expense structure when the waste plastics were used in place of bitumen/asphalt? b) Do you think this could be the future?	Output/ achievement

3.3. Interview with the organisation involved in the construction of roads with the plastics collected from the ocean

Plastics have been recycled since the 1970s, the quantities that are being recycled vary geographically, according to plastic-type and application. Recycling of packaging materials has seen rapid expansion over the last decades in several countries. Advances in technologies and systems for the collection, sorting and reprocessing of recyclable plastics are creating new opportunities for recycling, and with the combined actions of the public, industry and governments it may be possible to divert the majority of plastic waste from landfills to recycling over the next decades.

3.3.1. Marine plastic for road pavements

The structural problems facing the road and highway pavements of both the northern and southern parts of the state and the harm that may cause the huge amounts of plastic waste produced to the environment represent the main incentives of this contribution. The organisations involved in the process have investigated this study and the possibility of improving the characteristics of a surface course asphalt mix by using plastic waste (low-density polyethylene) as a bitumen modifier.

3.3.2. Researches on Road pavement infrastructure using Plastic waste

Swami et al. (2012) investigated the use of waste plastic in the construction of Bituminous Road. They concluded that plastic waste consisting of carrying bags, cups and other utilized plastic could be used as a coating over aggregates and this coated stone could be used for Road construction.

Dr R. Vasudevan (2007) investigated that the coating of plastics reduces the porosity, absorption of moisture and improves soundness. The polymer-coated aggregate bitumen mix forms better material for flexible pavement construction as the mix shows a higher Marshall Stability value and suitable Marshall Coefficient. Hence, one of the best methods for easy disposal of plastic waste includes the use of waste plastics for flexible pavement. The use of plastic bags on roads has many benefits like the Easy disposal of waste, better roads and prevention of pollution.

Bhageerathy et al.(2014) investigated the use of Biomedical Plastic Waste in Bituminous Road Construction. They concluded that the Marshall stability value of the plastic modified mix was found to be 51 per cent more than that for the normal mix which indicates an increase in load-carrying capacity.

What were the notable impacts of the program for road pavements?

“ The plastic shredding systems established across the state as part of RRF have shredded 9,700 tonnes of plastics used in blacktopping 246 kilometres of road. One prerequisite for higher efficiency in this process is the segregation of waste at source — it is critical to ensure a smooth recovery process” says a Member of the road construction authority. As plastics are being used, a considerable amount of bitumen is saved (approx. 8%). Bitumen required petroleum, which is becoming a scarce commodity, so using less bitumen could potentially save on cost and resources.

Do you think there could be any health-related issues revolving around the use of plastics with bitumen?

There was a section of people who were against the use of plastics. Research and developments have suggested the specific plastics that must be used for road pavements and we have taken care of it with utmost importance. We have trained the SHG to segregate plastics such that they could be used for the road infrastructure, without causing further harm to our planet.



Do you think this could be the future of road pavements in India?

Road construction is one of the most conservative industries, upscaling the technology is important to improve the quality of finished roads and maintain their serviceability. According to the World Economic Forum, roads made from waste plastic are more durable against extreme weather conditions like floods and heat as compared to conventional roads. Kerala being prone to extreme floods and climate conditions, this could be a viable solution to move forward to.

From the research analysis it has been observed that from an industry point of view, sustainable development is all about the commitment to minimizing the waste generated and maximizing recycling. It is equally important to minimize the use of virgin materials through several improved design methodologies, effective use of water and energy and most importantly choosing wisely with a concern for the future generation.

Could you explain in detail the benefits from an environmental point of view?

From the project, the following has been inferred-

1. The durability of the roads laid out with the shredded plastic waste is much more compared with roads with asphalt with the ordinary mix.
2. The binding property of plastic makes the road last longer along with the added strength to withstand more loads.
3. Plastic roads would be a boon for India's hot and extremely humid climate, where temperatures frequently cross 50°C and torrential rains create havoc, leaving most of the roads with big potholes.

3.3.3. Technical benefits inferred from the use of Binders with plastic waste

1. Improved resistance to cracking due to high binder content.
2. Improved ageing and oxidation resistance.
3. Reduction in construction time on site.
4. The eco-friendly method of construction, and helps maintain the balance of the environment.

Using plastic waste can help India, which has the world's second-largest road network, in curbing road accidents deaths. One-tenth of deaths that occurred in 2017 due to road accidents in the country, was due to potholes, a common feature of roads in India. Therefore, effective and planned management of waste, collection and processing is important.



Fig: Shredded plastic wastes handed over to road pavement authorities

(Source:thebetterindia)

4. CONCLUSION

The study concludes existing gaps with the communication and regular intervention of the Government with the fishermen and SHGs. People working for the cause are mostly from the Below Poverty Line (BPL) section of society. Delayed wages and unemployment can affect their livelihood and their major income source. The findings address a need for improvement of the process by adding more collection points, supporting the workers through incentives and most importantly public awareness on the judicious and thoughtful use of



plastics in the future. Moreover, awareness drives and public events on environmental conservation with utmost importance have to be addressed at the local, national as well as in international levels.

The study indicates that the win-win initiative solves two problems in one go—addressing the burgeoning waste problem and providing indigenous, innovative construction materials for the infrastructure while employing. This is an initiative that could be emulated across the country.

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A CRITICAL DISCOURSE ANALYSIS OF PRESIDENT RODRIGO DUTERTE'S SPEECH IN COVID-19 PANDEMIC

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ABSTRACT

President Duterte whenever he gives speeches has never been exempted to different pangs of criticisms from media and his critiques. His unique styles in proving and uttering ideas and his unpretentious and fearless remarks on susceptible issues are either admired or hated by some. Following the framework for Critical Discourse Analysis by Norman Fairclough (1995), five transcripts of the President's nation addresses retrieved from the official website of the Presidential Communication Operations Office (PCOO) were analyzed. So, this study is intended to investigate textual features used by President Duterte in his speeches and to explain how his discursive strategies reflect his beliefs and views about leading his people. The findings indicated that Duterte uses different linguistic devices to maintain contact, convince, and impose power. Finally, it shows in his speeches that not only by inducing fear through implicit and explicit threats but also by establishing positive representations in front and creating direct relationship with his people can help him manipulate his audiences and make it easy for him to achieve his purposes.

KEY WORDS: *Critical Discourse Analysis, Duterte, media, linguistic strategies*

INTRODUCTION

The first few weeks, when COVID-19 pandemic has entered the Philippines that eventually calls for total lockdowns in some parts of the country, majority of the Filipinos waited for the President's strategic preparations and plans both for the country and the people. Probably because of panics and anxieties, hatred against what President Duterte uttered escalated during those weeks in various social media platforms, which came to a point where he trended worldwide. Commonly, it was because of what and how he says things that caused him to be talked about. Politician's speech conveys information-building and ideology (Kordowe, 2014 as cited in Salayo, 2020). Sipra and Rashid (2013) postulates that political discourses are influential in the sense that it is socially vital and socially shaped. However, Fairclough (1995) believes political discourse as a type of discourse is complex distribution in a way that it can be depicted from the type of audience the speaker has. It basically

implies that constructing a political speech should be well-thought-of because it is vulnerable to criticism.

Critical Discourse Analysis (CDA) is a linguistic approach that deals mainly with how social power is abused and inequality is expressed, reproduced, represented, or legitimated as opposed by text and talk in both political and social context (Van Dijk, 2015). Van Dijk (2009) noted that in addition to investigation of power and ideology, current approaches to CDA also examines the way discourses (whether spoken or written) are reproduced. According to Locke (2004), CDA is also concerned as to how power relations revealed in discourses are challenged, or maintained through practices and texts, which can eventually affect their production reception and dissemination". Thus, CDA can help construct and reproduced unequal power relations in different ethnicities, social classes, ages, professional groups, and genders. It also focuses on the relationship between power, ideology, and language (Coffins, et al., 2010) which can be in the form of a public speech. With this,



the researcher will utilize critical discourse approach in the study to determine how president Duterte construct his speeches and how he makes us of language in meaning making to earn public support.

OBJECTIVES

The present study applied the framework for Critical Discourse Analysis by Norman Fairclough (1995), five transcripts of the President's nation address that are retrieved from the official website of the Presidential Communication Operations Office (PCOO) were analyzed. Fairclough's framework (1989) is used to show the connection between the properties of the text and the nature of social practices. With these means, this paper specifically aimed to investigate textual features used by President Duterte in his speeches and to explain to what extent the ideology of President Rodrigo Duterte is reflected through the discursive styles in the speech.

METHODOLOGY

Norman Fairclough (1989) suggested three dimensions for critical discourse analysis, particularly a written or spoken text, a discursive practice, and a social practice. Each dimension has a different type of analysis, such as for textual dimension. Textual dimension is a descriptive examination of linguistic features of the speech is required. In this phrase, the focus lies on the pronouns, imperatives, vocabularies, rhetorical devices, and relational values of words. The second phrase would be the interpretation, or the contexts where the object is addressed and received in society. Finally, the last phase is the emphasis of power behind the discourse where an explanation on the social ideologies of the subject is done.

RESULT

Textual Analysis

This section provides an analysis focusing on the linguistic features. The President is known for using ordinary words and for using strategies that may intensify his statements (Sabio & Lintao, 2018).

President Duterte in his speeches directly addressed the people who pertain to different categories – he himself, the government, the public, the medical teams and the violators – through pronouns. The use of first-person personal and possessive pronouns 'I', 'we' and 'our' 'my' and of second-person personal pronoun 'you' seek to address the public personally and directly. In his speech this help create a friendly environment to persuade the viewers. Smith (as cited in Kaur, Arumugam, & Yunus, 2013) said that the use of

personal pronouns in spoken or written texts establishes a specific relationship between the writer and reader. For example, the pronoun 'we' suggests power and is viewed as authoritative, while 'you' exhibits a special engagement when the audience is addressed directly. Examples of pronouns used by the President are:

"As your President, I am now invoking the sanctity of my oath of office – to help people and my country men."

"I am saddened by the news that the virus has claimed the lives of our doctors along the way."

"We are now procuring medical supplies, devices and personal protective equipment."

"But we are here to serve you and every day we are meeting and in contact with the rest of the country."

Imperatives are also evident in the President's speeches. These imperatives are directives, which mean they possessed an illocutionary force that facilitates in persuading the audience to take certain actions. For example,

"Avoid trouble with the law, avoid trouble with anybody, just in the meantime, follow."

"Do not try to overdo things or think that you can do what you want to do because that is not allowed."

"Follow government at this time because it is really critical that we have order."

Moreover, vocabulary usage reflects the ideological opinions of someone about people and events (Kaur, Arumugam, & Yunus, 2013). In President Duterte's speech, his use of the words, such as 'peace' and 'order' are signified by 'task force,' 'military,' 'police,' 'government,' and 'law,' and 'obedience'. For example, *"The purpose: to protect and defend you. From what? From COVID-19. Then what's the purpose of the government? The purpose of the government is see to it that things are in order. To do that, if things deteriorate, I said, the military and the police will maintain order."*

The underlined words above are part of his persuasive style embedded in the sentential structure of the text. Persuasion is mostly evident, which helps him convince the audiences to follow orders, however, it is not in a friendly but in an intimidating approach even though pronouns are present to establish friendly atmosphere. Consequently, the use of *military, death, jailing, police* can establish fear because these words connote a direct military control that his audiences were traumatized by during Ferdinand Marcus' term.

Also, the textual devices, such as pronouns and imperatives serve as a bridge between him and his audiences. These certainly help create a pleasant



environment and a trust-worthy leadership. These also are common among politicians and political speeches since it could help establish relationship and trust. Creating a friendly relationship and environment among audiences and discreetly enforcing rule over them are part of the President's persuasive strategies characterized in the context and structure of his speeches.

Discursive Practice Analysis

Fairclough (1989) said that discourse practice refers to the implementation of social practice through a discourse. In this section, it examines the discursive strategies or styles, which relate to the expressive value of the speech, used by the President in his speeches that are shown in the table below.

Strategies employed	Examples
1. Phrasal/Lexical repetition	<i>Avoid trouble with the law, avoid trouble with anybody, just in the meantime, follow. I will not hesitate my soldiers to shoot you. I will not hesitate to order the police to arrest and detain you. Equally is equally</i>
2. implicit threats	<i>You know, the only reason why you can impose these quarantine restrictions and impose it on everyone passing your areas, is because the national government is allowing you to do so. But if you go beyond the standards that we have set, you are abusing your authority, and you know that it can lead to administrative cases or even worse, unless you stop what you are doing and cooperate fully. Criminal cases cannot be far behind. Ayaw ko na masita kayo ng pulis pati military [I don't want that you'd be confronted by the military]. It could be messy. Kasi mga—'yung iba sa inyo suplado [Because they – others feel superior] . And itong mga pulis pati military [The police and the military], they have their orders to enforce.</i>
3. explicit threats	<i>You better implement this because if not, then you will also go to prison for dereliction of duty or simply not enforcing a rule imposed by government. Huhulihin ko kayo [I will arrest you] and I will detain you. Makalabas lang kayo pagkatapos ng COVID dadating [You will get off when COVID ends].</i>
4. deductive reasoning	<i>Kung makikipag-away ka [If you fight], it becomes—baka mag—masuntok mo o ano [probably you punch them or whatever] then it becomes an assault on an agent of a person in authority In which case, from a simple violation of a rule, it will now ripen into a crime that is punishable by law and you can go to prison.</i>
5. inductive reasoning	<i>To do that, if things deteriorate, I said, the military and the police will maintain order. Kaya nga tawag diyan peace and order. There has to be peace and that peace nakalagay na orderly. There must be order in the country.</i>
6. positive self-representation	<i>I --- my heart bleeds for them. We are now procuring medical supplies, devices and personal protective equipment. To our farmers and our fisherfolk: We have not forgotten you.</i>
7. promises	<i>Gagawin namin ang lahat. Hindi naming kayo pababayaan. As President, I assure you --- I assure the public that the government will be on top of this situation at all times. We will not leave anyone behind.</i>
8. chiasmus	<i>But let our country lead the way in imposing a lockdown [that] is strict enough to effectively kill COVID-19, liberal enough so that our people will not die of hunger, and orderly enough, so that our country will not be driven towards chaos during this difficult time.</i>



Expression of the speaker indicates the expressive value, which is regarded through his personal experiences (Sipra & Rashid, 2013). The table shows that the President used many rhetorical devices as tools for his informative-persuasive speeches. These devices are repetition, reasoning, chiasmus, promises, and positive self-representation. His use of reasoning, particularly by articulating claims as either cause or effect, is solely based on his own perceptions. Aside from that, the structure of the phrasal repetition found is parallelism. This is a strategy where the sentential structure elevates in repetition is also applied to another phrase or sentence. For example, "*Huwag kayong matakot, huwag kayong manerbiyos* [don't be afraid, don't be anxious]."

Additionally, the President is noticed how he would like to unify the people by making them think that there is no political agenda involved and that the government and the people should work together to fight the problem brought and caused by the pandemic. He is also open for the idea of being misinterpreted again because of what he says. These implications are based on the discursive styles found in his speeches and when he repeatedly said that "This is not a Martial law... our enemy here is not the government, but the COVID-19." His way for expressing his concern to the people and the country is crafted not only through the rhetoric he employed but also through his threats.

Involving threats in his speeches could show that his words express his militarism and hostile way of thinking and leading the country, but not oppressive. The threats found in the President speech could also be rhetoric in the sense that he used them for convincing the people to follow his orders. Threats are also his style of keeping the country in order and of unifying the audiences. The content of his threats are admittedly terrifying and somewhat believable; however, he uses threats just to create fear among the audiences. According to Gregory Kavka (1983) people are ruled by fear. This means that people generally obey orders when they believe that punishment may be inflicted on them when they do not. Kavka (1983) also said that commonly people fear the lower-level authorities such as the policemen and military forces, who are also citizens in the state, because they are the ones that carry out directives and punish the disobedient.

In the thought of how 'peace and order' are achieved in a distressed country, the President, thus, employed implicit and explicit threats, such as jailing someone who disobeys, calling military officials to punish them, etc., which consequently show that he was only threatening the people, particularly those who

violate the rules. The president, therefore, also believes that one should be ruled by fear to maintain stability and attain trouble-free transmission of his power.

SOCIAL PRACTICE ANALYSIS

The President who had been a mayor for over 22 years in Davao City was "allegedly tied to Davao Death Squad (DDS)" (Rodrigo Duterte Fast Facts, 2020) in support for his campaign on war against drug. He even outdoes some politicians for being blunt and fearless when he expresses his ideas. And during his term as a mayor, many had approved his hostility and unique leadership and had testified how he kept Davao city as one of the safest cities in Southeast Asia (Llemit, 2019, August 5). His unique strong use of language reflects his strong leadership style and method. And it leads him to be called a reflection of the ex-president Ferdinand Marcos' authoritarianism; but the President's methods are very far from the past era according to Syjuco (2018, December 7). Basing on his years of experience as a politician, the President has eventually identified and mastered how to run a country. Based on the analysis of his discourse, the linguistic features of the President's speeches show that there is manipulation, threats, and power. His beliefs on leading his people and the country are by operating a direct military control that could result to fear because of intimidation. Ferrari (as cited in Sabio & Lintao, 2018) said that inducing certain emotions (e.g., fear) to the people through stylistic language usage helps politicians manipulate them; and most of the time they succeeded.

CONCLUSION

As regards this study, the purpose was to identify the linguistic features in Duterte's speech and to explain how these discursive strategies his ideologies in leading the people and the country. The findings indicated that pronouns and imperatives played in the complexity of his speeches. Lexical repetition, implicit threats, explicit threats, deducting reasoning, inductive reasoning, positive self-representation, promises and chiasmus are discursive strategies evident in Duterte's speech. The president said he wanted to express his own ideas when he engages in public interaction because he wants his audiences to understand his feelings. His beliefs, values, and set of knowledge are evidently manifested in his stylistic use of language that made him provoked much attention in local, even international scene. Thus, it is because of his unique and radical usage of language that make him continue to be the center of local and international media outlets.

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BASIC PRINCIPLES OF PLANNING THE PROCESS OF TEACHING AND UPBRINGING IN PRESCHOOL EDUCATION

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ANNOTATION

This article describes basic principles of planning the process of teaching and upbringing in preschool education, that it is important to organize regular training courses and trainings for teachers and methodologists of preschool educational institutions in order to improve the quality of the educational process.

KEYWORDS: *teacher, preschool education, principles, training courses, trainings, professional activities.*

INTRODUCTION

Planning is the basis of the content of educational work in a preschool educational organization. The plan of pedagogical work determines specific tasks, content, forms and methods of working with children for a certain period of time. This gives the pedagogical process an organized character, makes the teacher's work purposeful and effective, strengthens the competence of adults in raising a child.

A prerequisite for successful planning is a solid knowledge of the program. But knowledge of the program is not the only condition for successful planning. The teacher must know the children of his group well, study and observe each child in the dynamics of his development.

When drawing up a plan, the teacher, first of all, relies on:

1. State requirements for the development of children of early and preschool age.
2. State curriculum "Ilk adam" for preschool educational institutions.
3. Thematic planning of educational activities in a preschool institution (by age group) [1].

In "Thematic planning of educational activities in a preschool institution" (by age group), the construction of the educational process proceeds from the topic of the month, week. The topic, as communicated knowledge about any field of activity, is presented not only in educational, but also in an emotionally-figurative form. The child "lives" the theme in various types of children's activities (in organized educational activities, in playing, drawing, designing, dramatization, etc.).

The implementation of the topic in a complex of different types of activity forces the adult to a freer position - the position of a partner, not a teacher, that is, in organizing a personality-oriented approach in the educational process. In this situation, the subject of educational activities is very convenient for the teacher to work in the technologies of "Project Activity", "Problem-Based Learning", etc.

MAIN PART

The state curriculum "Ilk Kadam" provides for the organization of educational activities in the following educational areas (Fig.1):

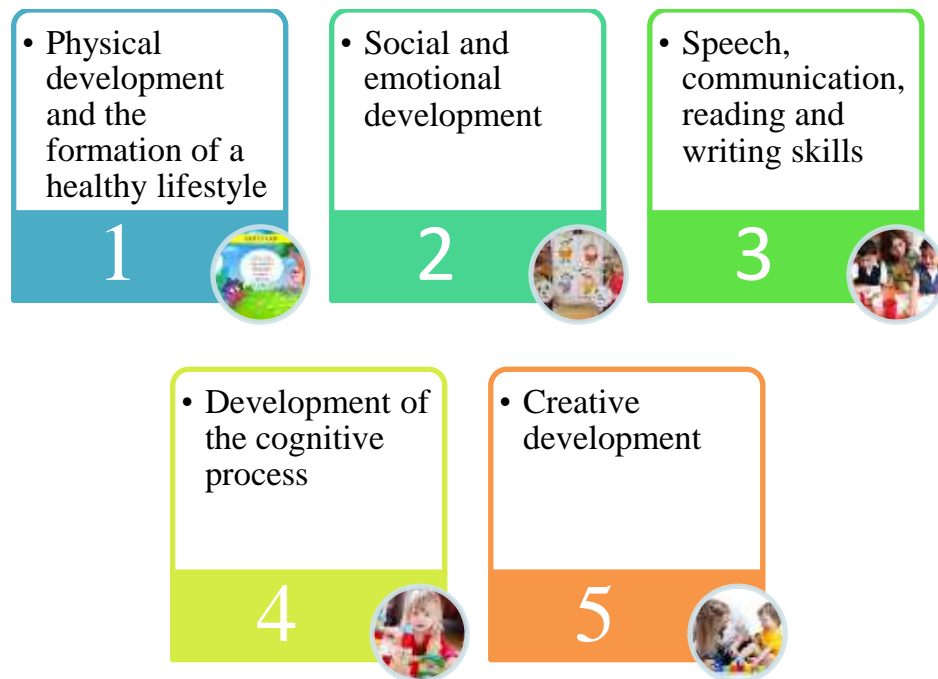


Fig.1. Forms of organizing of educational activities

The content of education and training, forms of organization of children's life, methods and techniques of pedagogical influence are selected and reflected in the plan, based on the goals and objectives of education - the comprehensive, harmonious development of the child.

The weekly plan of educational and upbringing work of a teacher is the main document in working with children, and provides for the planning of all types of activities of children and the corresponding forms of work for every day. The purpose of the document is to help achieve the intended educational and educational tasks. A plan is a project of the pedagogical activity of all participants in the educational process.

Planning Requirements Based on a Person-Centered Approach:

1. The plan should be based on developmental learning and personal

2. oriented approach, the purpose of which is the comfortable and natural development of each child.

3. The plan should be based on the integration of educational areas into

4. in accordance with the age capabilities and other characteristics of the pupils of the group.

5. The plan should ensure the unity of educational, developmental and teaching goals and objectives of the education of pupils, in the process of implementation of which, competencies (knowledge, skills and abilities) are formed.

6. The planned content and forms of organization of children must correspond to the age and psychological and pedagogical foundations of preschool pedagogy.

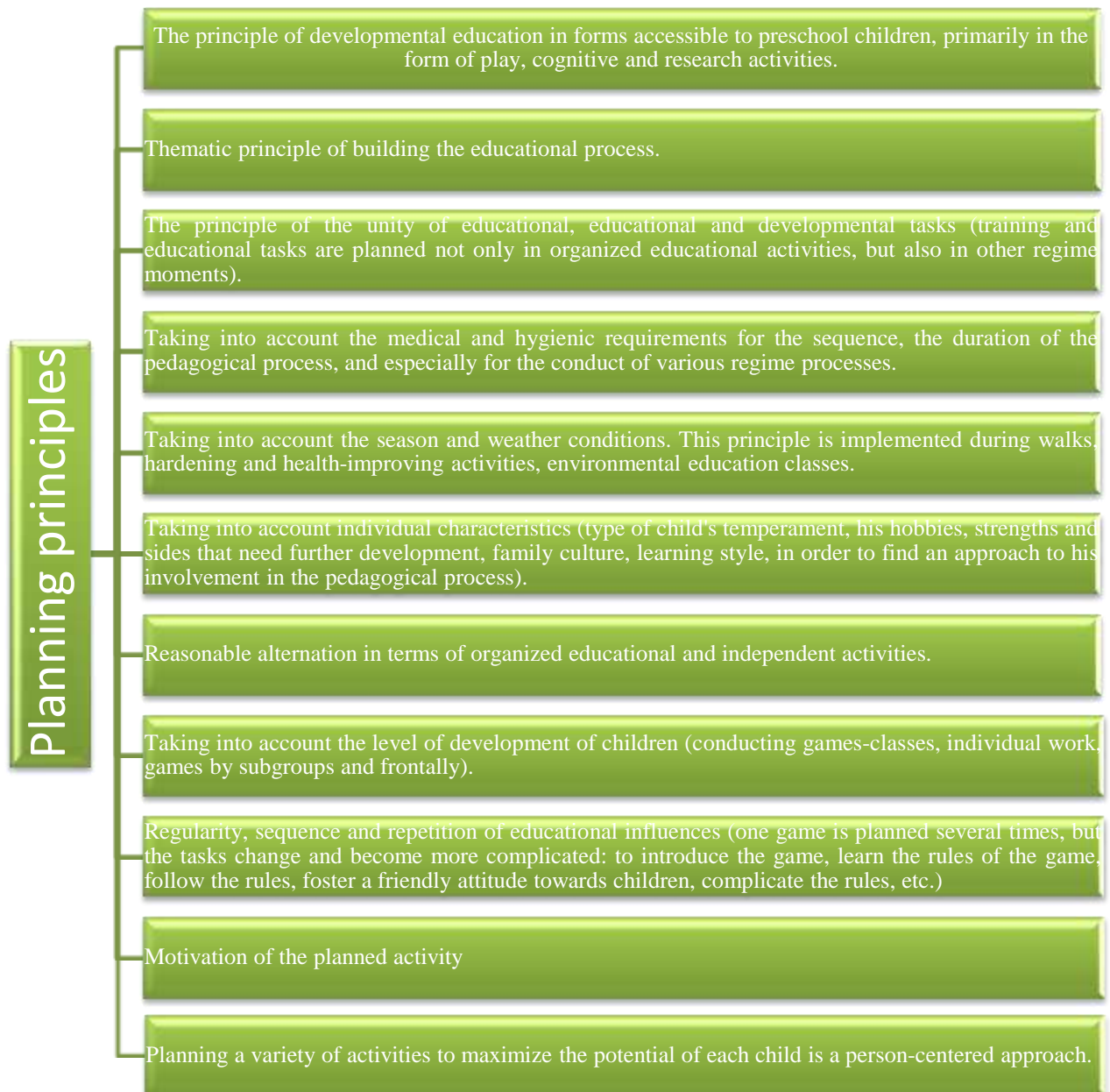


Figure 2. Principles of planning educational activities with preschool children

The organization of play educational activities based on a personality-oriented approach is a departure from educational activities in the classroom, an increase in the status of play as the main activity of preschool children, inclusion in the process of effective forms of work with children: ICT, project activities, play, problem-teaching situations within the integration of educational areas.

Thus, "lesson" as a specially organized form of educational activity in the preschool

educational institution is replaced by another activity. The place of the lesson was occupied by an interesting for children, specially organized by the teacher, a specific children's "play educational activity", implying their activity, business interaction and communication, the accumulation of certain information by children about the world around them, the formation of certain knowledge, skills and abilities. That is, the learning process remains. Teachers continue to "engage" with children,



meanwhile teachers need to understand the difference between "old" teaching and "new".

Now, many teachers, trying to transform the lesson and make it a new educational activity, take the outline of the lesson "the old fashioned way", first include some problematic situation, productive activity, use ICT, and, done! And the essence has not changed!

This happens because teachers do not quite understand the essence of the joint activity of a teacher with children, they do not see how *play educational activity* differs from a *lesson*.

In order to properly organize play educational activity, you need to understand well some issues and identify the difference between "occupation" and "play educational activity".

Lesson is an organized form of teaching and a time period of the learning process, capable of reflecting all its structural components (general pedagogical goal, didactic tasks, content, methods and means of teaching). The main *signs of a lesson* should be highlighted:

- In terms of the time interval, it takes from 10-15 minutes in the younger preschool age, up to 30-35 minutes in the older preschool age);
- The leading role in the lesson belongs to the teacher, who organizes the process of transfer and assimilation of educational material, tracking the level of development of each child;
- Group - the main organizational form of bringing together children in the classroom, all children are of approximately the same age and level of training, the main composition of the groups remains for the entire period of stay in the preschool;
- The group works according to a unified curriculum;
- The lesson is held at predetermined hours of the day.

CONCLUSION

When organizing educational activities, the professional position of the teacher consists in a deliberately respectful attitude to any statement of the child on the content of the topic under discussion. It is necessary to think in advance how to discuss children's "versions": not in a rigidly evaluative form (right or wrong), but in an equal dialogue. Only in this case children will strive to be "heard" by adults. At the same time, throughout the entire activity, the child finds himself in a situation in which he needs to argue, object, make a request and an assessment, enter into other types of communication.

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STUDIES ON THE SUITABILITY OF ELITE MULBERRY VARIETIES AT DIFFERENT ALTITUDES OF UTTARAKHAND

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ABSTRACT

Mulberry leaf is a major economic component in sericulture since the quality and quantity of leaf produced per unit area has a direct bearing on cocoon harvest, although various highly productive mulberry varieties and appropriate cultivation packages have been developed to produce a high quantum of quality leaf. Data recorded on Bio-chemical analysis viz. Total Soluble Carbohydrate (TSC) (mg/g dwt) Total Soluble Protein (TSP)(mg/g dwt) and Total Chlorophyll Content (TCC) (mg/g dwt) at all 03 sites and Bioassay studies show that 02 mulberry varieties i.e. S-140 (PPR-1) and Tr-10 were found superior to other varieties including S-146, which was taken as control under this experiment.

KEY WORDS: *Mulberry Varieties, Silkworm rearing, Biochemical analysis, Bioassay.*

INTRODUCTION

Sericulture in India is of ancient origin, dating back prior to the inception of Christian era. Sericulture industry today is very well established agro based cotton industry providing employment to more than 6 million people of approximately 50,000 villages of the country with diversified socio economic background. This industry till recently was mostly being popularised in the states of Karnataka, Andhra Pradesh, Tamil Nadu, Jammu & Kashmir and West Bengal, even though the potential of sericulture lied in other regions as well. Hills and foot hills of Doon valley are ideal place for silk production. In this state sericulture was introduced on forest mulberry plantation at Lucknow as early as 1847 by Capital Holing but did not progress well. It was in the year 1858 that Capt. Hutton took a keen interest to restart mulberry sericulture by conducting breeding experiment on mulberry silkworm, consequently ReshamMajri village in eastern part of Dehradun was designated as model sericulture village and State Govt. initiated to develop this industry by establishing a mulberry farm at Doiwala village of Doon valley in the year 1948- 49. The survey of sericultural belt reveals that sericulture sustains mainly on the mulberry trees in North West India. Doon Valley is considered as most suitable for bivoltine cocoon production in Utrankhand State. The cocoon production of this area is about one lakh kg per year and declining periodically due to pressure of rapid industrialization and urbanization of area resulting in reduction of cultivated land area, Hence, farmers are bound to utilize mulberry leaves from trees growing naturally or cultivated in forest area, roads and along bunds of field etc. Therefore, it is urgent need to develop a schedule for silkworm



rearing on tree mode of cultivation. Presently spring crop is with an average yield of 31.89 Kg. /100 DFLs and autumn crop average yield is 21.25 Kg. /100 DFLs. To make sericulture more sustainable autumn crop productivity has to be enhanced. Govindan, *et al* (1987).

MATERIALS & METHODS

- The experiment was conducted during the experimental period in 04 season's viz., spring-2019, autumn - 2019, spring -2020 and autumn- 2020 at the mulberry farm of Regional Sericultural Research Station, Sahaspur, Dehradun and selected sites in Uttarakhand.
- Soil samples from experimental plantation sites were collected and analysis of soil was done for pH, organic carbon and NPK at CSR&TI, Pampore during 2019.
- Nursery of 06 mulberry varieties viz. S-1635, T.R.-10, S-140, Vishala, T.R.-23 and S-146 (as control) was raised.
- Plantation of 06 mulberry varieties as treatments viz.S-1635, T.R.-10, S-140, Vishala, T.R.-23 and S-146 (as control) was raised at R.S.R.S., Sahaspur and at different altitudes of hills in Uttarakhand.
- The data on the survival during October 2018 and March, 2019 at all sites and various growth parameters was recorded after 90 days, 180 days and 360 days.
- The saplings of the said six mulberry varieties were transplanted and raised the plantation at 04 study sites viz. RSRS, Sahaspur, DOS Farm, Srinagar, DOS Farm, Bageshwar and DOS farm Almora during the month of September, 2018. The plantation was maintained as per the package of practices. However, DoS, Srinagar, in a policy decision of the state Govt. was handed over to NIT, Campus and hence the Srinagar site was dropped from the experiment and data were recorded from only 03 sites. The survivability%, of the plantation at different sites was recorded during the month of March, 2019. Data on morphological characters viz. shoot length, inter nodal distance, fresh weight of 100 leaves, leaf yield per plant and biochemical analysis was recorded. Moisture% and moisture retention capacity after 12 hours during spring and autumn 2020 was recorded.
- The bioassay studies of the six mulberry varieties at RSRS, Sahaspur was conducted during spring and autumn -2020.
- Cocoon samples was got tested for technological parameters during spring and autumn 2020 in all the 06 mulberry varieties.

The experimental details are as under:-

- Name of mulberry variety: S1635, TR-10, S-140, Vishala, TR-23 & S146 (Control)
- No of plants/Localities: 10 in three replication
- Training: Tree (Crown 5.5- 6.0 feet)
- Spacing: 8' x 8' feet
- Design: RBD
- Size of the pit: 2' x 2' x 2'
- Ratio of Mixture: 3: 2:1

After the establishment period the growth observations were taken as per the standard recommendations, normal standard recommended package of practices. Bioassay was also conducted to evaluate the nutritive value of the mulberry wealth in term of quality of raw silk. The Post-Cocoon parameters s for both seasons were also tested.

**RESULTS & DISCUSSION**

1- Variety wise survivability% of mulberry plantation raised at different sites in Uttarakhand: Data recorded on survivability% is presented as under:

Varieties	No. of plants raised at each site	No. of Plants Survived and survivability							
		RSRS, Sahaspur		DOS Farm, Srinagar		DOS Farm, Garur		DOS Farm, Sironia	
		No. of plants survived	Survivability	No. of plants survived.	Survivability	No. of plants survived	Survivability	No. of plants survived	Survivability
S-1635	36	32	88.88	29	80.55	34	94.44	35	97.22
Tr-10	36	32	88.88	26	72.22	34	94.44	30	83.33
S-140	36	31	86.11	22	61.11	29	80.55	36	100.00
Vishala	36	31	86.11	26	72.22	35	97.22	29	80.55
Tr-23	36	32	88.88	29	80.55	35	97.22	34	94.44
S-146	36	35	97.22	26	72.22	30	83.33	30	83.33

Survivability% ranges from 61 to 97.22% at all sites and in all the varieties.

Note: In the meantime a part of DoS Farm, Srinagar was handed over to NIT, in a policy decision of the government and entire portion in which, 06 mulberry varieties were planted under this experiment was transferred to NIT campus. As such this site was dropped, henceforth under this experiment and further observations and recording of data were made at 03 sites only, i.e. RSRS, Sahaspur, SDD, Bageshwar and SDD, Almora.

2- Growth Parameters of 06 mulberry varieties: Growth parameters during spring-2019 at 03 locations are presented as under:

Study site: RSRS, Sahaspur, Dehradun: Season; Spring, 2019.

Variety	Shoot Length (cm)	Inter-nodal distance	fresh weight of 100 leaves (g)	Leaf yield per plant (gm)	Moisture %	Moisture Retention Capacity (%) 12 hours
Tr-10	170.25	4.10	133.75	173.75	73.30	61.95
S-140	165.25	4.80	140.00	182.50	69.84	65.42
S-1635	185.00	4.38	125.00	179.25	68.79	64.68
Vishala	189.75	5.43	119.50	174.25	72.17	66.27
Tr-23	178.00	4.34	123.75	176.25	72.26	64.23
S-146	174.25	4.75	122.00	164.75	69.73	63.93
C.D.	N/A	N/A	N/A	N/A	2.682	1.826
SE(m)	6.525	0.306	5.827	5.946	0.882	0.600
SE(d)	9.227	0.433	8.241	8.409	1.247	0.849
C.V.	7.369	13.209	9.153	6.791	2.483	1.864

The role of Moisture% and Moisture Retention Capacity% in leaf play significant role in successful silkworm rearing and during spring season-2019 all 06 mulberry varieties were found good on these 02 parameters.



Study site: SDD, Gurur, Bageshwar:

Season: Spring, 2019.

Variety	Shoot Length (cm)	No. of Branches	Inter-nodal distance	fresh weight of 100 leaves (g)	Leaf yield per plant (g)	Moisture %	Moisture Retention Capacity (%)
Tr-10	152.50	13.75	4.18	106.05	166.41	70.27	67.93
S-140	155.00	17.00	5.16	99.99	131.25	73.13	65.37
S-1635	169.00	18.00	4.83	115.91	146.80	70.38	62.34
Vishala	151.25	15.75	4.45	137.68	186.52	73.14	69.56
Tr-23	144.75	17.50	4.88	120.45	144.78	76.86	60.85
S-146	150.00	11.75	5.44	95.26	90.47	71.42	69.17
C.D.	N/A	3.288	0.789	N/A	44.855	2.859	3.466
SE(m)	17.767	1.081	0.259	16.076	14.746	0.940	1.140
SE(d)	25.127	1.529	0.367	22.735	20.854	1.329	1.612
C.V.	23.131	13.838	10.759	28.565	20.428	2.622	3.512

Moisture% and Moisture Retention Capacity in leaf% was found good at Bageshwar and Almorah site also in all 06 mulberry varieties selected under this experiment.

Study site: SDD, Sironia, Almora: Season: Spring, 2019

Variety	Shoot Length (cm)	No. of Branches	Inter-nodal distance	fresh weight of 100 leaves (g)	Leaf yield per plant (g)	Moisture %	Moisture Retention Capacity (%)
Tr-10	155.00	16.75	4.58	131.79	157.79	67.78	64.64
S-140	181.25	21.75	5.00	122.05	171.40	70.38	62.78
S-1635	170.00	18.25	4.88	119.55	159.55	73.65	61.89
Vishala	142.50	12.50	5.01	123.95	194.20	69.07	63.14
Tr-23	144.25	15.50	4.50	118.67	144.10	78.29	64.36
S-146	158.75	11.50	4.60	119.76	146.39	69.74	63.92
C.D.	N/A	N/A	N/A	N/A	N/A	5.689	N/A
SE(m)	23.783	2.301	0.394	8.668	13.437	1.870	2.044
SE(d)	33.634	3.255	0.558	12.258	19.003	2.645	2.891
C.V.	29.986	28.693	16.558	14.137	16.565	5.233	6.444

Growth Parameters of 06 mulberry varieties during autumn, 2019: Growth Parameters recorded during autumn-2019 at all 03 sites are presented as under:



[Study site: RSRS, Sahaspur]:

Variety	No. of branches	Shoot length (cm)	Internodal distance	Weight of 100 leaves (gm)	Leaf weight per plant (gm)	Moisture (%)	Moisture retention capacity (%)
Tr-10	12.35	190	4.65	108.00	314.00	76.395	62.765
S-140	5.50	175	5.30	153.50	210.25	75.486	61.718
S-1635	8.60	200.20	4.73	113.50	208.75	64.748	61.403
Vishala	7.00	208.00	5.05	150.00	257.50	74.363	60.418
Tr-23	7.60	185	4.25	96.00	218.75	74.825	61.671
S-146	10.35	205.95	3.98	107.00	348.75	75.098	62.931
C.D.	2.947	13.835	0.837	36.638	N/A	18.213	N/A
SE(m)	0.969	4.548	0.275	12.045	49.278	5.988	3.184
SE(d)	1.370	6.432	0.389	17.034	69.690	8.468	4.503
C.V.	22.615	4.844	11.812	19.759	37.955	16.860	10.098

3- Growth Parameters of 06 mulberry varieties during autumn, 2019-

Study site: SDD, Gurur, Bageshwar:

Variety	No. of branches	Shoot length (cm)	Inter nodal distance	Fresh weight of 100 leaves (gm)	Leaf yield per plant (gm)	Moisture (%)	Moisture Retention Capacity (%) after 12 hours
S-1635	11.75	164.83	4.44	208	334.50	72.971	60.699
TR-10	14.25	165.58	3.81	164	330.00	71.000	60.633
S-140	11.25	163.08	5.10	268	352.00	75.447	61.494
Tr-23	12.50	149.53	4.41	160	212.00	72.712	60.256
S146	10.75	154.30	5.42	172	340.00	71.086	58.855
Vishala	14.00	152.23	4.53	316	580.00	73.472	62.166
C.D.	N/A	N/A	0.537	74.751	154.966	N/A	N/A
SE(m)	1.233	17.699	0.177	24.575	50.945	2.759	1.289
SE(d)	1.743	25.030	0.250	34.754	72.047	3.902	1.823
C.V.	19.855	22.368	7.647	22.967	28.454	7.724	4.276

5. Growth Parameters of 06 mulberry varieties during autumn, 2019-

Study site: SDD, Sironia, Almora:

Variety	No. of branches	Shoot length (cm)	Inter Nodal Distance	Fresh weight of 100 leaves (g)	Leaf yield per plant (g)	Moisture (%)	Moisture Retention Capacity (%) after 12 hours
Tr-10	16.00	158.25	4.48	440	896.00	76.92	60.93
S-140	14.50	179.98	4.68	412	720.00	76.11	62.27
S-1635	14.50	193.65	4.53	372	740.00	74.91	60.95
Vishala	12.75	106.60	6.25	464	990.00	78.03	61.82
Tr-23	15.75	188.18	4.68	412	745.00	75.61	61.57
S-146	15.00	117.60	5.20	340	685.00	74.29	60.32
C.D.	N/A	N/A	N/A	N/A	N/A	5.689	N/A



Variety	No. of branches	Shoot length (cm)	Inter Nodal Distance	Fresh weight of 100 leaves (g)	Leaf yield per plant (g)	Moisture (%)	Moisture Retention Capacity (%) after 12 hours
SE(m)	23.783	2.301	0.394	8.668	13.437	1.870	2.044
SE(d)	33.634	3.255	0.558	12.258	19.003	2.645	2.891
C.V.	29.986	28.693	16.558	14.137	16.565	5.233	6.444

The data recorded on growth parameters during autumn season-2019 also show that all 06 mulberry varieties were having good Moisture% and Moisture Retention Capacity% at all 03 sites viz: Sahaspur, Almorah and Bageshwar.

6. Biochemical analysis of different varieties of mulberry leaf at different altitudes during autumn, 2019. (Mean Values)

Study site: RSRS, Sahaspur

Sl.No	Mulberry Variety	Total Soluble Carbohydrate (TSC) (mg/g dwt)	Total Soluble Protein (TSP) (mg/g dwt)	Total Chlorophyll Content (TCC) (mg/g dwt)
V1	S-1635	240.58	49.07	3.82
V2	Tr-10	291.44	43.70	5.82
V3	S-140	277.10	49.67	4.85
V4	Vishala	157.45	32.66	2.84
V5	Tr-23	239.28	50.12	3.85
V6	S-146	236.02	39.24	3.89
Total		1441.87	264.46	25.07
Mean values		240.31	44.08	4.18

Data recorded on Biochemical analysis during-autumn-2019 reveal that at Sahaspur, Dehradun site, Total Soluble Carbohydrate (TSC) i.e. 291.44 mg/g dwt, was found maximum in Tr-10 followed by S-140 i.e. 277.44 mg/g dwt and superior to control i.e. 236.02 mg/g dwt in S-146. Total Soluble Protein (TSP) was found maximum in Tr-23 (50.12), followed by S-140 (49.67) and superior to control i.e. 39.24 in S-146, and Total Chlorophyll Content (TCC) was found maximum i.e. 5.82 in Tr-10 followed by 4.85 mg/g dwt in S-140 (PPR-1) was also superior to control i.e. 3.89 in S-146.

Study site: DOS, Bageshwar: The data recorded are presented as under:

Sl.No	Mulberry Variety	Total Soluble Carbohydrate (TSC) (mg/g dwt)	Total Soluble Protein (TSP) (mg/g dwt)	Total Chlorophyll Content (TCC) (mg/g dwt)
V1	S-1635	210.92	32.21	3.11
V2	Tr-10	311.00	43.35	5.39
V3	S-140	292.74	44.75	4.32
V4	Vishala	155.17	27.64	2.60
V5	Tr-23	187.77	30.25	3.45
V6	S-146	228.85	28.20	3.62
Total		1386.45	206.4	22.49
Mean values		231.08	34.40	3.75

Data recorded on Biochemical analysis during-autumn-2019 reveal that at Bageshwar site Total Soluble Carbohydrate (TSC) i.e. 311.00 mg/g dwt, was found maximum in Tr-10 followed by S-140 i.e. 292.74 mg/g dwt.



Total Soluble Protein (TSP) and Total Chlorophyll Content (TCC) were also found maximum i.e. 44.75 and 4.32 and 43.35 and 5.39 mg/g/dwt, respectively, in S-140 and Tr.10, which was superior to control i.e. S-146, on all aspects.

Study site: DOS, Almora-

Sl.No	Mulberry Variety	Total Soluble Carbohydrate (TSC) (mg/g dwt)	Total Soluble Protein (TSP) (mg/g dwt)	Total Chlorophyll Content (TCC) (mg/g dwt)
V1	S-1635	123.22	30.05	2.78
V2	Tr-10	325.34	44.86	5.19
V3	S-140	332.19	37.28	4.25
V4	Vishala	107.90	20.42	2.29
V5	Tr-23	159.08	30.25	2.04
V6	S-146	211.90	23.73	3.26
Total		1259.63	186.59	19.81
Mean values		209.94	31.10	3.30

Data recorded on Biochemical analysis during-autumn-2019 reveal that at Almora site Total Soluble Carbohydrate (TSC) i.e. 332.19 mg/g dwt, was found maximum in followed by Tr.10 i.e. 325.34 mg/g dwt. Total Soluble Protein (TSP) and Total Chlorophyll Content (TCC) were also found maximum i.e. 44.86 and 5.19 and 37.28 and 4.25 mg/g/dwt, respectively, in Tr.10 and S-140 and was superior to control i.e. S-146.

7. Data recorded on TSC, TSP and TCC at different sites are summarized as under:

Variety	Total Soluble Carbohydrate (TSC) (mg/g dwt)			Total Soluble Protein (TSP) (mg/g dwt)			Total Chlorophyll Content (TCC) (mg/g dwt)		
	Sahaspur	Bageshwar	Almorah	Sahaspur	Bageshwar	Almorah	Sahaspur	Bageshwar	Almorah
S-1635	240.58	210.92	123.22	49.07	32.21	30.05	3.82	3.11	2.78
Tr-10	291.44	311.00	325.34	43.70	43.35	44.86	5.82	5.39	5.19
S-140	277.10	292.74	332.19	49.67	44.75	37.28	4.85	4.32	4.25
Vishala	157.45	155.17	107.90	32.66	27.64	20.42	2.84	2.60	2.29
Tr-23	239.28	187.77	159.08	50.12	30.25	30.25	3.85	3.45	2.04
S-146	236.02	228.85	211.90	39.24	28.20	23.73	3.89	3.62	3.26
Total	1441.87	1386.45	1259.63	264.46	206.4	186.59	25.07	22.49	19.81
Mean	240.31	231.08	209.94	44.08	34.40	31.10	4.18	3.75	3.30

8- Results of the soil samples analysis: (2019): Data on soil samples analysis, presented as under, show that there is no major nutritional deficiency was observed, in all these 03 sites, selected under this experiment.

parameters	RSRS, Sahaspur		Sironia, Almora		Garur, Bageshwar	
	Test Values	Rating	Test Values	Rating	Test Values	Rating
pH	6.48	Slightly acidic	7.15	Moderately alkaline	6.59	Normal
EC (ds/m)	0.04	Normal	0.41	Normal	0.28	Medium
OC (%)	0.89	High	1.06	High	0.58	Low
Available N (kg/ha)	341.10	Medium	480.00	Medium	290	Medium
Available P (kg/ha)	162.20	Very High	66.00	High	88	Medium
Available K (kg/ha)	74.81	Low	251.00	Medium	157	Sufficient
Available S (ppm)	6.00	Deficient	19.00	Sufficient	14	Sufficient
Available Zn (ppm)	2.29	Sufficient	2.20	Sufficient	1.66	Sufficient



Available B (ppm)	0.47	Deficient	2.70	Sufficient	2.76	Sufficient
Available Fe (ppm)	30.20	Sufficient	22.50	Sufficient	20.30	Sufficient
Available Mn (ppm)	1.08	Deficient	5.50	Sufficient	11.50	Sufficient
Available Cu (ppm)	3.18	Sufficient	2.30	Sufficient	2.80	Sufficient

9- **Moisture% & MRC (%) Spring 2020: (RSRS, Sahaspur)** The data recorded on growth parameters during spring and autumn season-2020 also show that all 06 mulberry varieties were having good moisture% and moisture retention capacity% and presented as under:

Variety	FRESH WT. OF 25 LEAVES	WT. AFTER 12 HRS	DRY WEIGHT	MOISTURE %	MRC AFTER 12 HRS
Tr-10	141	130	039	72.43	60.48
TR-23	136	127	039	71.18	60.13
PPR-1 (S-140)	232	216	058	74.90	62.03
S-1635	133	120	035	74.00	60.52
S-146	138	125	037	73.18	60.06
Vishala	146	135	039	73.13	61.66
C.D.	0.011	0.012	0.004	1.126	1.082
SE(m)	0.004	0.004	0.001	0.353	0.339
SE(d)	0.005	0.005	0.002	0.499	0.479
C.V.	3.935	4.618	5.710	0.836	0.966

10- **Moisture% & MRC (%) Autumn 2020: (RSRS, Sahaspur)**

Variety	Wt. of 25 leaves (g)	Wt. after 12 hours (g)	Dry Weight (g)	Moisture %	MRC after 12 Hours (%)
Tr-10	145	134	040	72.45	60.58
Tr-23	173	162	049	71.47	60.35
PPR-1 (S-140)	254	241	065	74.55	63.09
S-1635	164	154	045	72.30	61.66
S-146	149	139	043	71.39	60.60
Vishala	151	143	043	71.65	61.26
C.D.	0.042	0.041	0.012	1.145	1.227
SE(m)	0.013	0.013	0.004	0.359	0.384
SE(d)	0.019	0.018	0.005	0.507	0.544
C.V.	13.211	13.654	13.928	0.859	1.087

11- **Moulting % during Spring, 2020(RSRS, Sahaspur)**

Variety	1st moult	2nd moult	3rd moult
S-1635	98.67	99.19	99.46
Tr-10	99.33	99.19	99.46
PPR-1 (S-140)	99.07	99.60	99.87
Vishala	98.00	99.18	99.45
Tr-23	98.27	99.19	99.59
S-146	97.73	98.77	99.31
C.D.	0.536	0.419	N/A
SE(m)	0.168	0.131	0.133
SE(d)	0.237	0.185	0.188
C.V.	0.295	0.229	0.231



Moulting % was also more than 90% in all the varieties. The statistical analysis of the data also reveals that it was found statistically significant on this parameter.

12- Bioassay studies during Spring 2020, at R.S.R.S. Sahaspur:

Variety	Fec.	Hat. %	Larval duration (D:H)	Wt. of 10 mature larvae	Yield/10000 Larvae		SCW (g)	SSW (g)	SR %
					By Wt. (kg)	By No.			
S-1635	487.0	96.67	24.00	50.00	13.150	9786.00	1.74	0.35	20.11
Tr-10	482.00	97.33	24.00	45.00	13.260	9800.00	1.76	0.36	20.45
S-140 (PPR-1)	476.00	98.00	23.12	43.33	14.067	9720.0	1.72	0.36	20.93
Vishala	469.00	95.67	23.06	42.00	12.900	9906.00	1.78	0.35	19.66
Tr-23	480.00	96.67	23.06	48.00	12.860	9773.00	1.73	0.33	19.08
S-146	474.00	98.00	23.00	42.00	13.200	9800.00	1.66	0.33	19.88
C.D.					0.616	64.866	0.022	0.019	0.890
SE(m)					0.193	20.323	0.007	0.006	0.279
SE(d)					0.273	28.741	0.010	0.008	0.394
C.V.					2.526	0.359	0.680	2.980	2.413

Bioassay studies during spring-2020- Bioassay data reveal that yield/10000 larvae by wt. (kg) was found maximum in S-140 mulberry variety i.e. 14.067 kg. The single cocoon wt., Single shell wt. and S/R %, 1.720(g), 0.360(g) and 20.93%, respectively, were also recorded maximum in S-140 followed by Tr-10 with yield/10000 larvae by wt. (kg) the Single Cocoon wt., Single shell wt. and S/R %, as 13.260, 1.76, 0.36 and 20.45, respectively. Statistical analysis of the data reveals that it was found statistically significant on parameters such as Yield/10000 larvae (By Wt. kg), SCW (g), SSW (g) and S/R%. The statistical analysis of the data also reveals that it was found significant on all these parameters to control i.e. S-146.

13- Moulting test during autumn 2020:

Variety	1 st moult	2 nd moult	3 rd moult
Tr-10	97.33	97.00	97.56
PPR-1(S-140)	97.56	96.89	97.78
S-1635	97.33	96.89	97.11
Vishala	97.33	96.33	96.89
Tr-23	97.11	95.89	96.78
S146	97.22	96.44	96.89
C.D.	<i>N/A</i>	0.635	0.361
SE(m)	0.162	0.199	0.113
SE(d)	0.229	0.281	0.160
C.V.	0.288	0.357	0.202

**14 Bioassay studies during autumn 2020, at R.S.R.S., Sahaspur:**

Variety	Fecundity	Hatching %	Larval duration (D:H)	Wt. of 10 mature larvae	Yield/10000 Larvae		SCW (g)	SSW (g)	SR %
					By Wt. (kg)	By No.			
S-1635	475.3	96.30	23.00	38.0	11.50	7830.0	1.61	0.320	19.88
Tr-10	373.33	95.33	23.00	37.00	12.07	8023.33	1.59	0.317	20.13
S-140 (PPR-1)	481.00	95.67	23.06	37.67	11.73	7961.67	1.57	0.320	20.38
Vishala	485.67	95.67	23.06	37.33	11.43	7738.33	1.59	0.300	18.87
Tr-23	475.33	95.67	23.06	37.33	11.41	7863.33	1.58	0.310	19.62
S-146	482.00	95.67	23.00	37.33	10.69	7436.67	1.55	0.293	18.90
C.D.					0.487	92.164	0.028	0.017	0.770
SE(m)					0.153	28.876	0.009	0.005	0.241
SE(d)					0.216	40.836	0.012	0.008	0.341
C.V.					2.306	0.640	0.957	3.061	2.133

Bioassay studies during autumn-2019- Bioassay data reveal that yield/10000 larvae by wt. (kg) was found maximum in Tr-10 mulberry variety i.e. 12.07 kg. The single cocoon wt., Single shell wt. and S/R %, 1.59(g), 0.317(g) and 20.13%, respectively, were also recorded better in Tr-12 followed by S-140 with 11.73 kg, 1.57 gm, 0.320gm and 20.38%, respectively. Statistical analysis of the data reveals that it was found statistically significant on parameters such as Yield/10000 larvae (By Wt. kg), SCW (g), SSW (g) and S/R%. The statistical analysis of the data also reveals that it was found statistically significant on all these parameters to control i.e. S-146.

15. Post cocoon parameters during spring 2020: Post cocoon parameters result presented as under show that performance of all varieties was as per norms and reelability was at around 80%, however, maximum filament length was maximum in S-140 i.e. 1052 meter.

Variety	Filament length (m)	Denier	Renditta	Reelability %
S-1635	1021	2.7	7.67	79.03
Tr-10	898	2.7	7.22	81.27
S-140 (PPR-1)	1052	2.8	6.69	81.18
Vishala	1051	2.4	8.63	78.14
Tr-13	1087	2.8	7.58	80.12
S-146	1010	2.7	6.25	82.72
Mean	1019.83	2.68	7.34	80.41
Range	898-1087	2.4-2.8	6.25-8.63	78.14-82.72

16. Post cocoon parameters during autumn 2020: Post cocoon parameters result presented as under show that all varieties performance was as per norms and reelability was at around 80%, however Filament length was found maximum in S-1635 followed by S-140 i.e. 993.50m and 962.00m, respectively.

Variety	Filament length (m)	Denier (d)	Renditta (kg)	Reelability (%)
S-1635	993.50	2.60	7.085	79.085
Tr-10	865.00	2.55	7.256	81.165



S-140 (PPR-1)	962.00	2.60	7.214	80.485
Vishala	920.50	2.45	8.161	79.00
Tr-23	959.50	2.60	7.138	80.580
S-146	898.00	2.55	6.929	81.315
Total	5598.5	15.35	43.783	481.6
Mean	933.08	2.56	7.30	80.27
Range	865- 993	2.45-2.60	6.929-8.161	79.00-81.315

On the basis of results obtained on different parameters, moisture%, Moisture Retention Capacity%, moulting % all 06 mulberry varieties were found good, however data recorded on Bio-chemical analysis viz. Total Soluble Carbohydrate (TSC) (mg/g dwt) Total Soluble Protein (TSP)(mg/g dwt) and Total Chlorophyll Content (TCC) (mg/g dwt) at all 03 sites and Bioassay studies show that 02 mulberry varieties i.e. S-140 (PPR-1) and Tr-10 were found superior to other varieties and also S-146 which was taken as control under this experiment. Statistical analysis of the data on these parameters was also found significant at 5% level of significance.

CONCLUSION

After compilation of all data on morphological characters, rearing parameters and post cocoon parameters, it was observed that out of 06 mulberry varieties tested under this experiment, Tr-10 and S-140 (PPR-1) are recommended for raising of plantation and maintenance, at all the three sites viz. Sahaspur, Bageshwar and Almora (03 different altitudes) for increasing the mulberry wealth in the field, which will enhance the cocoon production at farmers level. (Dhar *et al*, 1997).



Mulberry variety Tr-10



Mulberry variety S-140 (PPR-1)



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DESIGN AND BASIC ENERGY PARAMETERS OF SOPLOL REACTIVE HYDROTURBINE MICRO-HYDROELECTRIC POWER STATION

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ABSTRACT

The article investigates the dependence of the output parameters of a new device of a micro hydroelectric power station with a hydro-turbine operating on the basis of the reactive principle on the factors of water flow and design. It has been experimentally confirmed that the necessary calculations for a new design can be performed using a kind of differential equations for jet propulsion. It has been determined that the operational parameters obtained by experimental testing of the manufactured device of a micro hydroelectric power station differ from the calculation results by only $4 \div 5\%$.

KEY WORDS: *micro hydroelectric power station, jet turbine, impeller, turbulent flow, efficiency.*

INTRODUCTION

In the field of hydropower, consistent research is being conducted worldwide on the creation of efficient micro-hydropower plants operating on low-pressure watercourses. In recent years, special attention has been paid to this area in our country.

Due to the available natural water resources and conditions, the demand for small - $2 \div 100$ kW micro-hydropower plants is growing in our country, as in all countries.

Micro-hydropower plants produced in Europe, China, the Netherlands and Russia are mainly made in the form of a paddle wheel [1]. Factors such as the force of water pressure on the large surface of the paddles, the reverse pressure due to the flow of water, the scattering of water on the paddles due to the angle of impact prevent the high torque and efficiency of the device.

Overcoming such shortcomings can be done by optimizing the device design or creating a device with a design that works on a reactive principle.

THE MAIN PART

The new micro-hydropower plant proposed by the authors is designed to be used autonomously from the general electrical network and in low-pressure wastewater. The main working part of the micro-hydroelectric power plant is the structure of the hydro turbine, which is radically and structurally fundamentally different from conventional hydro turbines. The flow of water entering this turbine enters the impeller cylinder and exits the nozzle attached to it, creating a torque that rotates the impeller relative to the vertical axis OO1 shown in Figure 1. However, the rotational frequency and energy performance of the impeller depend not only on the forces acting on it, but also on its moment of inertia. However, the rotational frequency and energy performance of the impeller depend not only on the forces acting on it, but also on its moment of inertia. The change in torque over time of the amount of movement of the water coming out of the nozzle to

the impeller creates a torque. The moment of inertia of a rotating system is one of the main technical factors of a micro-HPP, as its increase leads to a decrease in the rotational motion energy. Therefore, it is necessary to calculate the moment of inertia of the system in advance.

To calculate the reactive force F generated by the water leaving the nozzle in the turbine, we calculate the difference in the amount of movement of the incoming and outgoing water in it.

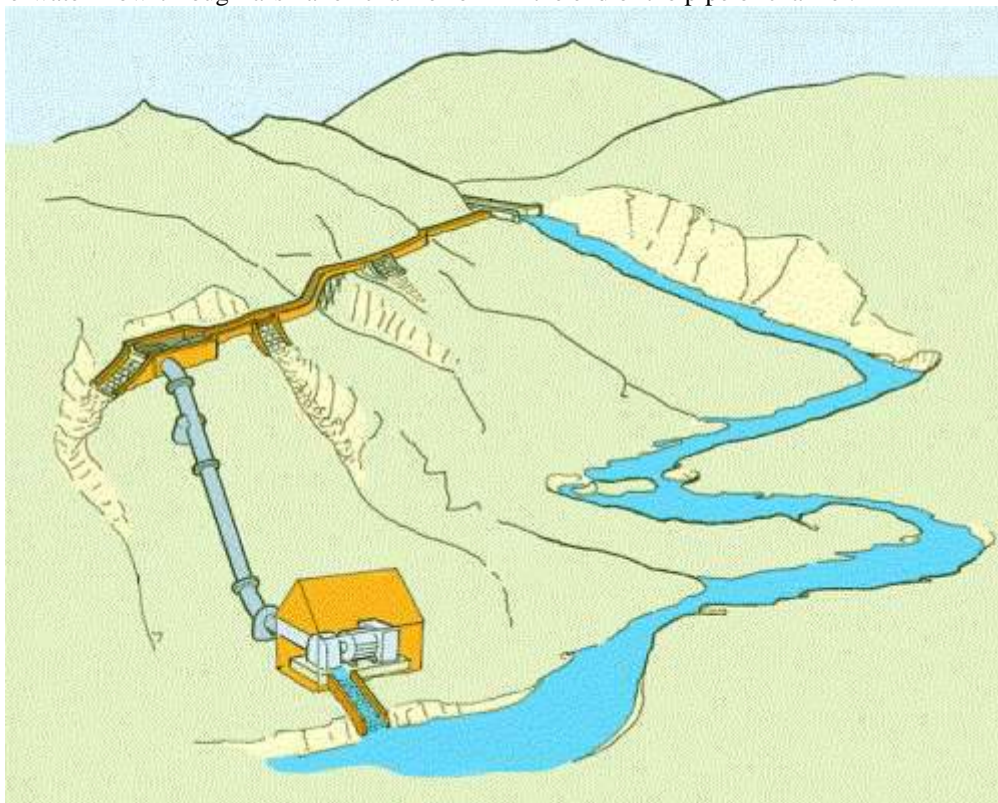
Methods of building microHPPs. Micro-hydropower plants are divided into several types depending on the method of construction. Ozan micro-hydropower plants are built by building dams on a fast-flowing slope of a river or canal. The capacity of this type of micro-hydropower plant is much higher than that of other micro-hydropower plants. They are mainly built to provide electricity to smaller residential complexes.



View of Ozan type micro HPP.

Derevision type microHPPs. In this case, part of the water flow through a smaller channel or

pipe is extended from the upper part of the channel flow to the lower part. A hydroturbine is installed at the end of the pipe or channel.





Simple micro-hydropower plants built on the river itself without any changes to the river flow. They have the least power. MicroHPPs usually consist of a hydroturbine (generator), an output voltage regulator, a series of elements, ballast resistors and protective valves depending on the type of station. The most important device in microHPPs is its generator. In addition to converting mechanical energy into electrical energy, its generator is also involved in the process of adjusting its parameters. Therefore, it also serves as a controller for such devices. Synchronous machines are often used instead of such generators.

The difficulty of excitation in asynchronous generators, the low ability to adjust the output electrical parameters, leads to their low use. In such equipment, frequency and voltage adjustment is done in different ways. Adjusting the frequency by changing the angle of inclination of the working blades or reducing the water consumption. The disadvantage of this method is the length of the adjustment time (1.5-3 sec) using ballast resistors. In this case, a ballast resistor is connected to the generator output, and its voltage and frequency are adjusted to the consumers. Through the generator frequency adjustment device. It is mounted on the blade and the shaft connecting the generator, and helps keep the output frequency constant by giving the generator shaft a constant speed. Mashinno - through the valve source uskina. This device will replace the generator. It differs from other methods in that it produces high-precision voltage and frequency. But such equipment is very expensive, so they are rarely used in practice. The most widely used method today is the autoblast system voltage adjustment, which is also cost-effective. Generators (hydro turbines) used in micro HPPs are also divided into 2 types. Active hydroturbines. In doing so, the turbine produces energy at the expense of the kinetic energy of the water flow of the water flow to the nozzle. They are usually used freely in fast-reading, sloping channels. They mainly produce small power. Reactive hydroturbines. Such hydroturbines operate at the expense of the potential energy of the water flow. They are used in derecation and stream micro-hydropower plants. Examples of simple active generators are wheel mounted generators. Due to the large size and low FIC, wheeled hydroturbines are almost never used. Depending on the amount of water consumption and the height of the water pressure, hydroturbines are divided into Pelton, Tugro, Banki, Kaplan, Francis. Their average FIC is 75-80%. The primary energy carrier in microHPPs is water flow. Factors such as water flow rate, water consumption, water pressure, seasonal stability of water flow are important in the operation of hydropower plants. However, in many canals and rivers, water consumption and pressure are

seasonally variable. This depends on the climate and the landscape of the area where the river is located. In addition, the slope of the river, the maximum and minimum annual water consumption are taken into account when designing micro-hydropower plants. Proper accounting will reduce capital expenditures and reduce energy costs. The choice of the location of micro-hydropower plants takes into account the strength of the river flow and the fact that the energy received from the same hydropower plant fully meets the energy needs of the consumer. In mountainous areas, micro-hydropower plants of the derevitation type are often used. Some of the water is sent to the lower part through a pipe or a specially dug canal through a dam that is smaller than the upper part of the river.

A jet turbine is installed at the end of the pipe or channel. We can increase the energy of the water flow through this pipe. In this case, the choice of generator takes into account the diameter of the pipe and the height between the bottom and top of the pipe. Micro HPP pipes can be made of steel, rubber, concrete or other hard materials. The choice of material and its cost depends on the shape of the terrain where the micro-hydropower plants are located. The location of the land surface in mountainous areas, the high slope of local rivers, or the presence of a slope in some parts of the flat-flowing rivers increase the possibility of using micro-hydropower plants. If the local water pressure would be less than 1 m, the construction of micro-hydropower plants in such areas would be inefficient. 404 Water consumption in rivers varies seasonally. Therefore, the study of local water consumption characteristics of micro HPP capacity also takes into account the minimum water consumption during drought. Another important factor is the freezing of rivers. That is, the duration of this degradation period also affects the capacity of micro-hydropower plants.

Even small changes in river flow can lead to changes in water quality and the lifestyle of the surrounding wildlife. Therefore, when constructing micro-hydropower plants, it is advisable not to use more than 10% of the river's total water consumption. The location of the station plays an important role in the technical and economic condition of the construction of micro-hydropower plants. They are: The average slope of the river. H (m). Average water consumption. Q (m^3 / s). Average water flow rate. v (m / s). The duration of the flow during the year. (hours)

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EFFECT OF CRYSTALLIZER CATALYST ON PROPERTIES OF GLASS-CRYSTALLINE MATERIALS

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ABSTRACT

It was shown that the properties of the glass-crystalline material are much higher than those of the material obtained by conventional technologies. Therefore, it can be argued that on the basis of pyroxene glass synthesized on BSP with the addition of chromium oxide (no more than 3 wt%), it is possible to mass-produce abrasive-resistant yarn-guiding and yarn-guiding products for alkaline and spinning machines of textile enterprises.

KEYWORDS: glass-crystalline material, solar furnace, glass phase, wear resistance;

INTRODUCTION

One of the important tasks of creating glass-crystalline materials is to identify the optimal conditions for the technology of obtaining mono mineral glass-crystalline materials with a dropsied structure based on basalt rocks.

Thus, the properties of the glass-crystalline material are related to the properties of the amorphous phase. In other words, the carrier of the properties of the glass-crystalline material is the glass phase located in the inter granular region. This microstructure determines a peculiar combination of mechanical, dielectric and other properties of the glass-crystalline material.

METHODS AND MATERIALS

The Melting was carried out on a big solar furnace in a concentrated light flux in the flux range of 100 - 300 W/sm². Glass melting technology included the following stages: crushing, grinding of raw materials - mixture preparation - pressing -

melting - hardening. TiO₂, CaF₂, P₂O₅ are used as crystallization catalysts, as well as heavy metal sulfides, which dissolve in the glass mass and form crystallization centers [1-7].

The technology of sintering of glass-ceramic materials synthesized on Large Solar Oven consisted of the following stages.

Wet grinding of glasses in a ball mill. Drying at 4000C. Molding. Firing in a resistance furnace in an air atmosphere for 4-6 hours in the temperature range 900 - 1150⁰C (pyroxene materials) and 1300⁰C (barium titanate) with arbitrary cooling in the furnace.

We used chromium oxide Cr₂O₃ (3 wt%) as a catalyst: 1) basalt without catalyst, composition I; 2) basalt (90%) + dolomite (10%) + chromium oxide (2 - 3%), composition II.

RESULTS

Please Figure 1 shows micrographs of stall samples of various compositions.

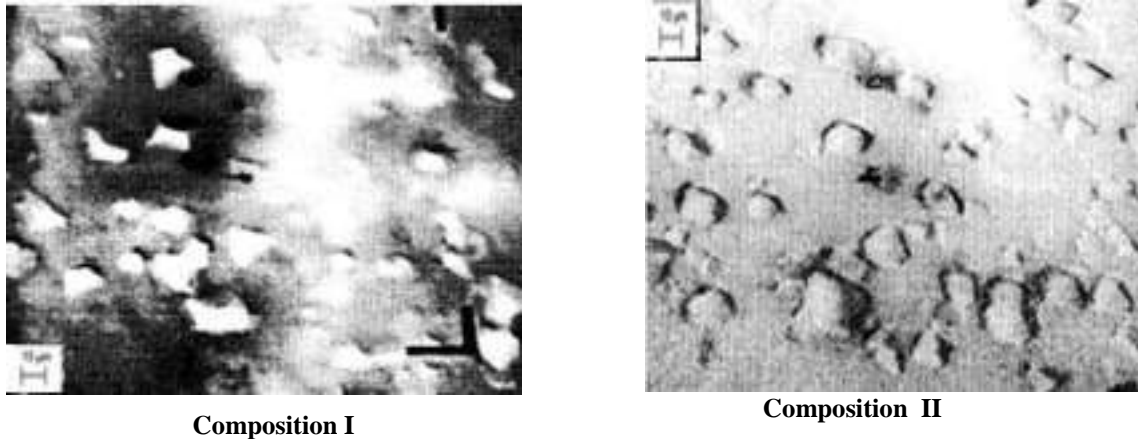


Fig. 1. High-resolution EM images of pyroxene SC materials: I - original without additives; II - basalt (90%) + dolomite (10%) + chromium oxide (3%)

Composition I is characterized by the presence of polyhedrons of various sizes and shapes, distributed randomly over the volume of the glass-crystalline material. There is a glass phase interlayer between the grains. The material of composition II is characterized by the presence of slightly oriented polyhedrons of grains and a densely packed region with dimensions of 70 - 500 nm. This shows that additionally added chromium oxide stimulates the

formation of a fine-grained structure, which improves powder sintering. glass-crystalline material obtained by directional crystallization contains 5 wt% glass phase and has a brown tint. The density of the stall material without a catalyst is on average 2.75 g/sm^3

In fig. 2 shows the dependence of the abrasion of the glass-crystalline material of the pyroxene composition on the amount of added (over 100%) chromium oxide.

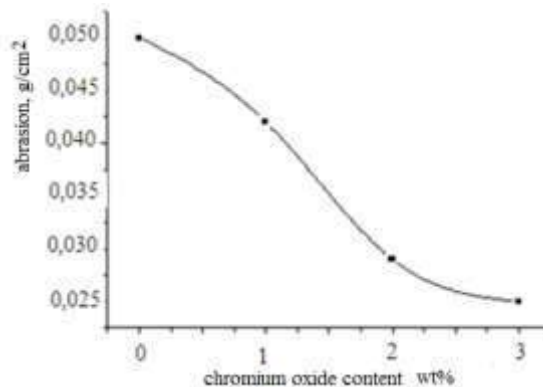


Fig. 2. Dependence of the abrasion of the glass-crystalline material of the pyroxene composition on the amount of added (over 100%) chromium oxide.

Figure 2 shows that the wear resistance of glass-crystalline material obtained by sintering fused basalt rocks with the addition of chromium oxide increases with an increase in the proportion of chromium oxide.

Chromium oxide acts as a catalyst for the crystallization of the main phase of dropsied – hedenbergite $\text{Ca Mg (FeOFe}_2\text{O}_3\text{Cr}_2\text{O}_3) \text{Si}_2\text{O}_6\text{-x}$

The presence of chromium oxide stimulates an increase in the adhesion of adjacent grains and thereby increases the wear resistance of the glass-crystalline material.

Table 1 shows some parameters of the pyroxene material with the addition of chromium oxide.

**Table 1 Properties of samples of glass-crystalline materials of different composition.**

Properties	The amount of introduced Cr ₂ O ₃ , wt %			
	0	2,0	2,5	3,0
P_{mak}, MPa	125	135	150	155
density, g/sm³	2,75	2,85	2,85	2,85
abrasion, g/sm²	0,045	0,043	0,040	0,040
Thermal expansion coefficient , 1/°C	1,7x10⁻⁶	1,6x10⁻⁶	1,3x10⁻⁶	1,1x10⁻⁶

It can be seen that with an increase in the amount of Cr₂O₃, the ultimate strength increases, and abrasion decreases. These results indicate that chromium ions under the action of high-density of Cr₂O₃ transforms into Cr₃O₄ (CrO Cr₂O₃) due to a change in the valence of a part of chromium ions from Cr⁺³ to Cr⁺². Chromium ions participate in the formation of spinels of the type (Mg, Cr, Fe) (Cr, Al, Fe)₂O₄ at the grain boundaries, which contribute to the growth of the crystallization ability of glasses.

CONCLUSION

The use of chromium oxide as a catalyst leads to an increase in the wear resistance of the glass-crystalline materials. When exposed to high density of Cr₂O₃ transforms into Cr₃O₄ (CrO Cr₂O₃) due to a change in the valence of a part of chromium ions from Cr⁺³ to Cr⁺². Chromium ions participate in the formation of spinels of the type (Mg, Cr, Fe) (Cr, Al, Fe)₂O₄ at the grain boundaries, which contribute to the growth of the crystallization ability of glasses.

Consequently, the properties of the glass-crystalline material are much higher than those of the material obtained by conventional technologies. Therefore, it can be argued that on the basis of pyroxene glass synthesized on BSP with the addition of chromium oxide (no more than 3 wt%), it is possible to mass-produce abrasive-resistant yarn-guiding and yarn-guiding products for alkaline and spinning machines of textile enterprises.

Acknowledgments

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CORRELATIONS BETWEEN FIBER OUTPUT AND SOME ECONOMICALLY VALUABLE CHARACTERISTICS IN COTTON LINES IN DIFFERENT CULTIVATION REGIONS

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ABSTRACT

*Phenotypic correlations were determined between fiber yield and some economic traits in ten lines of medium-fiber cotton *Gossypium hirsutum* grown in three different regions of Uzbekistan. It is noted that there is a direct relationship of average strength between the fiber yield and the length of the growing season.*

KEYWORDS: *cotton, phenotype, correlation, fiber yield, growing season length, fiber quality, productivity.*

INTRODUCTION

It has been determined phenotypic correlations between fiber yield and some economic traits in ten lines of middle-fiber cotton *G.hirsutum* grown in three different regions of Uzbekistan. It is noted that there is a direct relationship of average strength between the fiber yield and the length of the growing season. Inverse relationship of varying degrees was observed between the fiber yield and the weight of 1000 seeds in the studied cotton lines, regardless of the growing region. Feedback of weak and medium strength was observed between the output and the length of the fiber. The specific breaking load of the fiber weakly correlated with the fiber yield, or there was no connection. In most cases, a direct relationship of medium strength was observed between the outlet and the microneir of the fiber. The fiber yield in the studied lines practically did not

correlate with the weight of raw cotton per boll, productivity and yield of cotton. As a result of selection, it was possible to shift correlations in the required direction for a number of features such as yield and weight of 1000 seeds, yield and length of fiber, yield and microneir of fiber.

The study of correlations between traits provides information for conducting selection in one direction or another and purposefully carrying out breeding work for a complex of traits.

At the moment, a fairly large, but far from complete, material has been accumulated on the study of the correlations of various traits in cotton.

The aim of the researches. to study the relationship between the yield of fiber and the main economically valuable traits of cotton grown in three regions of Uzbekistan.



MATERIALS AND METHODS

Researches were carried out in 2018-2020. on the fields of the Institute of Breeding, Seed Production and Agricultural Technology of Cotton Growing (Tashkent region, Salar settlement), as well as branches of the Institute in Fergana region (Kuva) and Kashkadarya region (Kasbi), differing in soil and climatic conditions. The sowing of seeds was carried out at the optimum time. Sowing pattern 60 cm × 20 cm × 1 plant.

We used 10 lines of cotton of the species *Gossypium hirsutum* L., obtained on the basis of introgressive forms with the participation of the wild species *Gossypium trilobum* Skovsted, as well as varieties of foreign selection from the collection of NIISAVKh. The most productive individual selections of these lines were divided into three parts and their seeds were sown in three different ecological zones - Tashkent,

Fergana and Kashkadarya regions of the republic. Studied the early ripening, the mass of raw cotton one box, the mass of 1000 pieces. seeds, fiber yield, length, specific breaking load, fiber microneir, as well as productivity and yield. Statistical processing of the data was carried out according to B.A. Dospokhov.

RESULTS AND DISCUSSION

As the data in the table show, for the studied lines in all the years of testing in different regions of cultivation between the fiber yield and the length of the growing season, a direct relationship of average strength was observed - the correlation coefficient was from 0.28 to 0.60. That is, with an increase in the length of the growing season, the yield of fiber, as a rule, also increased. In the overwhelming majority of cases, there was no correlation between the fiber yield and the weight of raw cotton of one boll, and only in the Fergana region in 2020 and in the Kashkadarya region in 2018 there were weak direct correlations $r = 0.29$ and $r = 0.23$, respectively.

An inverse relationship from a weak to a high degree from -0.02 to -0.54 was observed between the fiber yield and the weight of 1000 seeds in cotton lines, regardless of the growing region. It should be noted that in the third year of testing, the relationship between these characters was practically absent in the Tashkent and Fergana regions, that is, a high fiber yield was observed both in small-seeded forms and large-seeded ones.

The creation of cotton varieties that combine high yield and fiber quality has always been of interest to breeders [2]. The study of the relationship between these

features contributes to a targeted search for forms with positive correlations.

The data in the table show that in the first two years of experiments, the lines showed weak and medium-strength feedbacks between the output and the length of the fiber. The correlation coefficient varied from -0.05 in the Tashkent region in 2018 to -0.35 in the same place in 2019. In 2020, the tested lines showed a positive change in the correlation coefficient in all three regions: from 0.03 to 0.39. This is apparently due to the influence of the selection of forms that combine high quality with high fiber yield.

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In most cases, the specific breaking load of the fiber weakly correlated with the fiber yield, or there was no connection. And only in the first year of testing in the Tashkent region, a direct relationship of the average strength $r = 0.35$ was noted between these features.

Microneir is an indicator that characterizes the fineness and maturity of cotton fiber. For I and II grades of cotton fiber, the acceptable range is 3.5 - 4.9 microns / inch. Below 3.5, fiber is considered immature and has little cellulose. Above 4.9 - overripe, rough [3]. Therefore, the breeder should be interested in negative associations between microneir and some other trait.

As can be seen from the table in 2018 and 2019, that is, in the first two years of testing between the yield and microneir of the fiber, in most cases, there was a direct relationship of average strength, the correlation coefficient was from 0.30 to 0.57. In Fergana and Kashkadarya regions, in different years, there was a strong direct relationship between these characters ($r = 0.83$ and $r = 0.71$, respectively). As in the case with the fiber length in the third year of testing, the correlation coefficient shifted, but only in a different, negative direction. In all three regions in 2020, weak feedbacks between these signs were noted (from -0.20 to -0.16).

Fiber yield did not practically correlate with productivity. In the third year of testing, in two cases in the Fergana and Kashkadarya regions, a weak direct relationship was noted ($r = 0.33$ and $r = 0.24$, respectively).



Table 1
Correlations in cotton lines between fiber yield and main economically valuable traits

Trait	Region	Years	Vegetation period	Boll mass.	Mass. Of 1000 seeds	Fiber length	Break length	Microneir	Productivity	Yield
Fiber output	Tashkent	2018	0.56	0.09	-0.16	-0.05	0.35	0.50	0.05	-0.33
		2019	0.36	-0.01	-0.45	-0.35	0.006	0.30	0.03	-0.007
		2020	0.47	0.05	-0.02	0.39	-0.14	-0.16	0.05	-0.001
Fiber output	Fergana	2018	0.35	0.09	-0.45	-0.26	0.04	0.57	-0.05	-0.09
		2019	0.49	-0.03	-0.54	-0.11	0.22	0.83	-0.09	-0.02
		2020	0.49	0.29	-0.02	0.03	-0.01	-0.20	0.33	0.49
Fiber output	Kashkadarya	2018	0.60	0.23	-0.32	-0.30	0.20	0.71	-0.02	-0.47
		2019	0.28	-0.03	-0.21	-0.34	0.10	0.46	-0.09	0.17
		2020	0.40	-0.005	-0.20	0.06	0.07	-0.20	0.24	0.04

Over the years of testing, in the overwhelming majority of cases, the yield of the lines did not depend on the fiber yield. That is, both high and low water lines could be productive. In 2018, in the Tashkent and Kashkadarya regions, an inverse relationship of average strength $r = -0.33$ and $r = -0.47$ was noted between fiber yield and yield, respectively. And in the Fergana region in 2020, these signs positively correlated with each other, $r = 0.49$.

CONCLUSION

Thus, the analysis of correlations between the yield and some other economically valuable traits according to the data of three-year tests of cotton lines of various genetic origin showed that there is a direct relationship of average strength between the fiber yield and the length of the growing season. That is, an increase in the length of the growing season, as a rule, also increases the yield of fiber. In the overwhelming majority of cases, there was no correlation between the fiber yield and the weight of raw cotton of one boll.

An inverse relationship was observed between the fiber yield and the weight of 1000 seeds in the studied cotton lines, regardless of the growing region. Feedback of weak and medium strength was observed between the exit and the length of the fiber. The specific breaking load of the fiber weakly correlated with the fiber yield,

or there was no connection. In most cases, a direct relationship of medium strength was observed between the outlet and the microneur of the fiber. Fiber yield practically did not correlate with the productivity and yield of cotton.

It should be noted that for a number of features such as output and weight of 1000 pieces. seeds, fiber yield and length, fiber yield and microneir, as a result of selection, it was possible to shift correlations in the required direction.

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PSYCHOLOGICAL IMPACT OF COVID 19 PANDEMIC AMONG HEALTHCARE PROFESSIONALS IN KERALA

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ABSTRACT

Mental health is a major concern as it is attributed to decreased quality of life and productivity in work. Psychological well being of all other professions discussed many times and interventions adopted. But the mental health of Health Care Workers (HCWs) are least mentioned and in this pandemic era it had raised its significance. This work aimed to identify the prevalence of Depression and Anxiety among front line HCWs deployed for COVID 19 patient care in reputed Hospitals in Kerala. The data collected by an online survey, circulated among frontline HWCs especially Doctors, Nurses and PG scholars. The sample size obtained was 130 participants in a random survey irrespective of gender. The data collection and analysis of the results was done using the Patient Health Questionnaire (PHQ 9) and Generalised Anxiety Disorder 7 item (GAD-7). Data revealed that HCWs on COVID 19 duty experience mild to moderate levels of depression and anxiety. In which anxiety is more prevalent in all categories. HCWs in younger age (25-28) are more responsible to take COVID care and they had moderate level of anxiety. Doctors experienced more psychological disturbances than nurses and PG Scholars. COVID 19 pandemic has significant levels of psychological disturbances in HCWs and it indirectly reflects in the patient care. It is recommended to take care of the mental health of HCWs by appropriate measures. HCWs should be aware of self care in the form of relaxation techniques like Yoga, Meditation and breathing exercises. There should be a team lead/supervisor to monitor the physical and mental wellbeing of each category of HCWs. Those who are identified with severe levels of symptoms referral, Yoga Therapy sessions and treatment should be ensured.

KEYWORDS - *Depression, Anxiety, Psychological impact, COVID 19, Health Workers.*

INTRODUCTION

Kerala the southernmost state of India, always had an international mention for its health care mechanisms which left behind its financial backwardness. Because of great achievements in population health it is always been referred as “Kerala Model Development” and it has become a reference model for many lower income countries. Many of Kerala healthcare systems surpass other Indian states, some of which can be even compared with developed countries. Effective and well organised healthcare system is the key contributor to these achievements. Ever since the formation of the state, health care was Governments top priority and which was practised in a fare combination between traditional system and modern system of medicine. The private health care provisions in Kerala also work in hand with the facilities of public sector, which in fact help to maintain high quality standards in health sector (Koji NABAE 2003). Kerala has also gained worldwide recognition for its fight against

COVID 19 Pandemic; it was all possible due to the Government and commendable contribution from Health Care Workers (HCWs). Since the reported first case in Kerala, the HCWs and all public sector employees responsible to ensure the population health including law and enforcement working double the time than before. This situation is bringing them under tremendous workload and emotional stress.

Frontline HCWs are those who are the first respondents to a reported case in a healthcare setting. There can be suspected or confirmed cases of COVID positive patients. The chance of infection and become a carrier of virus to transmit to other non infected colleagues, patients and staffs is another major stressor. The effective management of COVID 19 by Kerala health system enabled a worldwide discussion on “Kerala Model” management of the pandemic. This was due to effective management despite its vulnerabilities such as dense population, financial backwardness and contact exposure of



foreign contacts (Chathukulam J 2021). However, the HCWs who are on tireless service need much more attention and their health status should be discussed more. They are also humans need the same attention and care as the public population. The Physical and mental status of health care provider directly impact the lives of a patient who cares. More positive outcomes should be expected when the mental well being of all front line HCWs are maintained. During a Pandemic burden the health attention of public is more discussed in media and Government bodies, no intervention is practically applied.

The COVID 19 Pandemic had created significant global health burden. Psychological impact of infectious outbreak on healthcare professionals and general population happened in history also, one fine example could be the psychological disturbances observed in SARS (Severe Acute Respiratory Symptom) in 2003 (McAlonan 2017). The pandemic outbreak caused occurrence of varied psychological disturbances such as depression, anxiety, stigma, confusions, in significant feeling of getting affected by the disease. It had reflected in healthy people, high risk people and health care providers. Mass quarantine will generate a feel of fear and anxiety in Health Care Workers (HCWs) working in hospitals and isolation Units. Frontline Health workers are having direct contact with suspected and confirmed cases of COVID 19 cases. They are more exposed to infected patients and having more work stress due to long working hours and probably affected mental health.(Wang D et al. C2020).

HCWs having psychological distress ranging from sleep disturbances, feeling of helplessness, stigma, personal isolation and isolation from the family, lack of social support as well as over concern about family members and friends being exposed to infection.(Zheng W 2020). Mental health issues and psychological disturbances are quite often among HCWs, although they usually won't seek health care assistance or they neglect. (Xiang Y-Tet al. W2020).

The common psychological disturbances seen in HCWs on pandemic duty is "burnout". Classically it can be described as emotional exhaustion, depersonalisation (loss of caring, compassion and empathy) and low sense of personal achievement. This can be seen in varied presentation and one can be expressed more. Burnout can have significant impact on the capability and delivery of healthcare. HCWs on quarantine may experience anxiety and guilt because of the thought of they may infected their team, family or patients. They have to undergo a sudden separation from their family and working environment can cause more sense of social isolation. Doctors or team head have to often make strong decisions and choices about removing ventilation and

explain the situation to family members. This can put them under tremendous mental pressure. Professionals who are working in hospitals during pandemic have to experience stigmatising attitude from the general public. Friends and families may show hesitations to interact with them. There have been instances of landlord refuses to admit the healthcare workers after pandemic duty (Abel Thamby & Jaisooriya TS 2020).

LITERATURE REVIEW

The COVID 19 is latest in the list of pandemic which has wider community transfer. Discussions are going on the mental health of Patients who are affected with disease and their stress in quarantine or isolation. Effects are made to address the psychological disturbance faced by the public, but the research and literature on the mental health of HCWs are still not recognised much even amidst the pandemic. India has to face more medico socioeconomic challenges as it is not completely immune or prepared to fight a sudden onset of pandemic. As a low income country India has limited resource settings in health care to fight a global pandemic. To curb the community spread, different strategies had been administered in Health care settings such as Curfew, restrictions on regular OPD visits, elective surgical procedures, complete duty shifts, more working hours, and change in leave pattern and so on. This had probably affected the stability of mental health of most of the HCWs. India can learn and took guidance from the countries which affected earlier, in terms of the measures implemented to take care of psychological well being of front line HCWs (Snehil Gupta et al.2020).

A study in China found that female gender and direct contact with COVID-19 patients were significant risk factors associated with higher levels of psychological distress. Wearing full PPE is exhausting and proper work-rest cycles should be ensured. Skin damage due to frequent hand washing and enhanced infection-prevention measures could also compound one's psychological Personal coping style. Presence of job-related burnout might also have an important impact on levels of anxiety and depression among healthcare workers. A pandemic leads to short and long-term mental health burden for healthcare workers. Emerging, current literature suggests that psychological distress is a very real outcome for staff providing health care amidst the COVID-19 pandemic. A study published March 23, 2020, surveyed 1257 healthcare workers in 34 hospitals in China. It found that rates of psychological stress were high: 50.4% had symptoms of depression, 44.6% for anxiety, 34% for insomnia, and 71.5% for general psychological distress. Nurses,



female staff, staff in Wuhan, and staff working directly with patients were more likely to have “severe” scores on these outcomes (Lai et al., 2020).

HCWS have been highly strained during the pandemic. As they have higher risk of infection, and longer working hours without recovery time. The shortage of supplies of Personal Protective Equipment and they have to take ethically and mentally challenging decisions around resource allocation and patient care.(Kanchibhotla Divya et al.2021)

There should be a study shift to understand how the experience of patient care can be a positive activity for HCWs. The resource setting identification is needed to focus more on the wellbeing and empowerment of healthcare providers. There should be more research proposals and interventions to create evidence based frame work to adopt, examine an implement strategies to achieve the physical and mental health when they are exposed to stress. There are studies which show that positive

attitude development is possible with suitable interventions. Research evidence suggests improvements in quality of life of primary and secondary care givers are possible and promoting resilience to avoid the adverse impact of continues exposure to stressful environment. (Kalaitzaki, A. E et al 2020).

RESEARCH METHODS

The data were collected using an online survey from April 2021 to June 2021. Patient Health Questionnaire 9 item (PHQ-9), Anxiety Disorder 7 item scale (GAD-7) and demographic data of participants collected from HCWs in reputed hospitals in Kerala. 130 Frontline HCWs including Doctors, PG scholars and Nurses were participated between 25 to 40 age group. In order to reach the survey to more HCWs participants were encouraged to share the Survey form to their colleagues through social media platforms.

PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

SI No.	Question	Not at all	Several days	More than Half days	Nearly every day
1	Little interest or Pleasure in doing things	0	1	2	3
2	Feeling down, depressed, or hopeless	0	1	2	3
3	Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4	Feeling tired or having little energy	0	1	2	3
5	Poor appetite or overeating	0	1	2	3
6	Feeling bad about yourself or that you are a failure or have let yourself or your family down	0	1	2	3
7	Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8	Moving or speaking so slowly that other people could have noticed. Or the opposite being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9	Thoughts that you would be better off dead, or of hurting yourself	0	1	2	3
10	If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult

Scores are calculated based on how frequently a person experiences these feelings. Each “not at all” is scored as 0,several days as 1,more than half the

days 2 and each nearly every day is 3. For obtaining the result added together column scores to get a TOTAL score. Referred to the PHQ-9 Scoring Box for interpretation of the results.



Interpretation of total score

Total Score	Depression severity
1-4	Minimal Depression
5-9	Mild Depression
10-14	Moderate Depression
15-19	Moderately Severe Depression
20-27	Severe Depression

GENERALISED ANXIETY DISORDER 7 ITEM (GAD-7)

Over the **last 2 weeks** how often have you been bothered by the following problems?

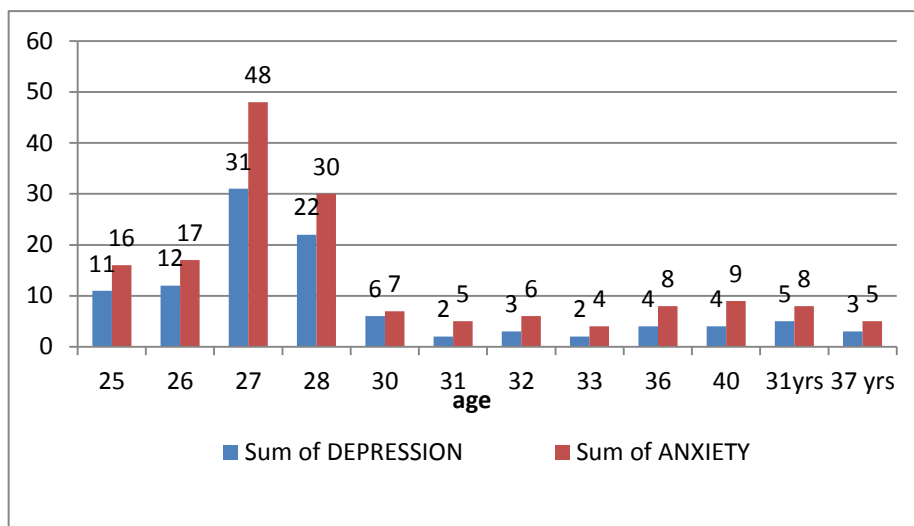
SI No.	Questions	Not at all	Several days	More than half the days	Nearly every day
1	Little interest or pleasure in doing things?	0	1	2	3
2	Feeling down, depressed or helpless?	0	1	2	3
3	Trouble falling or staying asleep or sleeping too much?	0	1	2	3
4	Feeling tired or having little energy?	0	1	2	3
5	Poor appetite or overeating?	0	1	2	3
6	Feeling bad about yourself or that you are a failure or have let yourself or your family down?	0	1	2	3
7	Feeling afraid as if something awful might happen?	0	1	2	3
	If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult

The GAD 7 score is calculated by assigning scores 0,1,2,3 to the response categories of not at all, several days, more than half the days, and nearly every day. Total score obtained by adding the columns of response. Cut of points of 5,10,15 might be interpreted as representing mild, moderate and severe levels of anxiety on the GAD-7.

RESULT AND ANALYSIS

Analysis of the survey was done in different ways so as to provide a clear conclusion. Obtained data analysed according to the age, job title of participants, overall depression and anxiety trend.

CHART 1: ACCORDING TO AGE

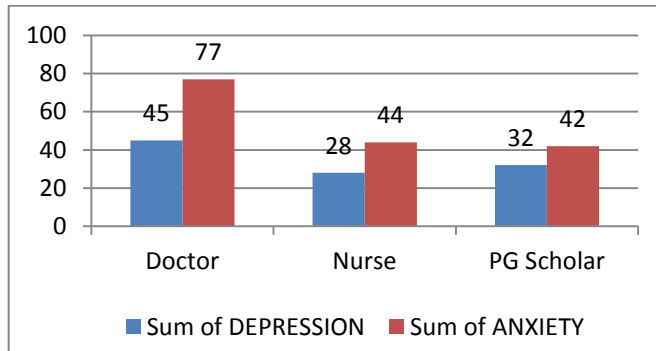




According to age it can be seen that age between 27 to28 had experienced more psychological disturbance. This may be due longer working hours and more exposure to patients. HCWs of all age

experienced more anxiety than depressive symptoms irrespective of their age. HCWs aged above 30 had minimal mental health issues and they are having less number of duty days than younger HCWs.

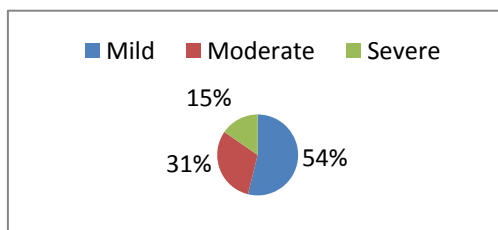
CHAERT 2: ACCORDING TO JOB TITLE



According to the position they hold HCWs showed significant result in survey report. Doctors experienced more psychological disturbances than nurses and Pg Scholars. Anxiety is more predominant than depressive symptoms in all categories. 77 % of

Doctors responded to anxiety symptoms and 45 % had depressive symptoms. Nurses and PG scholars share almost same proportions of psychological disturbances while performing duties.

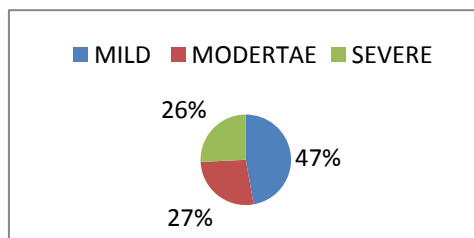
CHART 3: ANXIETY IN HCWs



In general HCWs are having more prevalent anxiety symptoms. Most of the participants responded for having mild to moderate level of anxiety.15 % had

severe anxiety while they had to longer hours for COVID 19 patients care

CHART 4: DEPRESSION IN HCWs



47 % of HCWs had mild depressive symptoms and moderate to severe symptoms were seen in more than half of the participants.

working hours with COVID patient care. Mild to moderate level of depression and anxiety is observed in the majority of the respondents. Doctors had higher levels of emotional disturbances as they have more responsibilities like major decision making and new experience of the virus attack. They have to give proper explanations to media, authorities and government and guidance to subordinates during this

CONCLUSION

It is evident from the data that healthcare workers have a notable level of psychological disturbances while they are being exposed to long



pandemic surge. Lack of proper rest and sleep added more to ill health. Nurses and PG scholars on duty also experienced a similar proportion of psychological disturbances. They are not much concerned about their health status while on duty. Nobody reported seeking medical assistance after or before the duty. This could be a serious concern and not discussed much. HCWs are responsible for the control and recovery of the patients in this Pandemic time. Mental and physical well being is needed for everyone to give their maximum output in whatever duties they are holding. In case of HCWs their responsibilities have a wider spectrum of impact in the society. More measures should be adopted to take care of the Physical and psychological wellbeing of HCWs in stressful duty schedules.

RECOMMENDATIONS

- All HCWs in the frontline should be made aware about the self care principles. Self care can be in the form of physical, relational, spiritual /religious wellness. This can be administered by setting a definite duty hour with breaks for proper rest and sleep. Provide time for recreational activities unrelated to their work; allow them to be connected with friends and family, Promote regular exercise, healthy diet and relaxation therapies like Yoga, Meditation and breathing exercises.
- Yoga Interventions – Yogic breathing technique Shad Kriya Yoga (SKY) can be advocated by trained Yoga professionals. For the convenience of HCWs in their busy schedule daily 10 minutes online session is advisable. It would reduce the stress and anxiety, sleep quality will improve. Can build resilience, Quality of work and Job satisfaction in HCWs.
- There should be a team leader/supervisor to ensure the wellbeing of HCWs. They can ensure good communication with the staff and take care of working hours and holidays to quality working experience. Regular team meeting to discuss the issues and create proper solutions.
- Flexible schedules can be provided for those who had an impactful issue within like deceased family members.
- Those who are in severe levels of psychological disturbance referral and needed medical care should be ensured.

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COMPARATIVE PHARMACOGNOSTIC EVALUATION OF MARKET SAMPLES OF *PRSNIPARNI* WITH GENUINE SOURCE OF *URARIA PICTA* (JACQ) DESV EX DC

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ABSTRACT

The medicinal plants and its active principles are playing a dominant role in the maintenance of human health since ancient times. The degree of threat to natural population of medicinal plants has increased, because more than 90% of medicinal plant raw material for herbal industries in India draw from natural habitat. In ayurvedic medicine Dasamula plants are top traded group and their annual demand is more than 1000 Metric tons, Prsniparni moola is one among the Dasamula. The degree of threat to natural population of medicinal plants has increased, because more than 90% of medicinal plant raw material for herbal industries in India draws from natural habitat, this demand is not often met with supply of original raw drugs alone and is topped up with other species of plants that are substitutes or adulterants. This directly affects the quality and efficacy of the herbal products and the same has reflected in case of *Uraria picta*. Over usage, destructive harvesting and lack of cultivation have reduced the availability of *Uraria picta*. In order to characterize and compare the raw drugs used as prsniparni in market, the candidate species traded under the name Prsniparni were subjected to macroscopic and organoleptic evaluation, microscopic study, Physical and Phytochemical evaluation.

INTRODUCTION

The medicinal plants and its active principles are playing a dominant role in the maintenance of human health since ancient times. The annual demand of botanical raw drugs in India was estimated to be 3,19,500 Metric tons during the year 2005-2006 amounting trade value of Rs. 1,069 crores.¹ The degree of threat to natural population of medicinal plants has increased, because more than 90% of medicinal plant raw material for herbal industries in India draw from natural habitat. This demand is not often met with supply of original raw drugs alone and is topped up with other species of plants that are substitutes or adulterants. As a result, the quality of herbal products becomes compromised. Natural sources of medicinal plants are often unable to meet demand for herbal products. Because of the exceptional growth in demand of herbal drugs, the required medicinal plants are randomly over exploited leading to scarcity or shortage of many valuable plant species. In India more than 90% plant species used by industry are collected from wild and over 60% of the collection involve destructive harvesting. According to an estimate over half a million tonnes of raw materials are indiscriminately collected from wild, mostly following destructive harvesting procedure and thus about 165,700 hectares forest being clear-felled each year. Hence alarming situations have resulted into short supply, high prices, forced import, or substitution and adulteration in crude drugs.² The reference of *pratinidhi dravya* is not seen in *Brihatrayi* except *Vagbhata* in *Shodhanadi gana sangraha* and other references are in *Bhavaprakasha Nighantu*, *Yogaratanakara* and *Bhaishajyaratnavali* but for scientists in contemporary times the substitution seems non-scientific and inappropriate, raising questions about validity of their use in treatment.³ In ayurvedic



medicine *Dasamula* plants are top traded group and their annual demand is more than 1000 Metric tons, *Prsniparni moola* is one among the *Dasamula*, *Uraria picta* is the original *Prsniparni* source while in trade or use *Uraria lagopodioides* (L.) DC, *Desmodium gangeticum* (L) DC, *Pseudarthria viscida* (L) Wight & Arn are observed. *Prsniparni* is one of the most widely used herbs in Ayurvedic pharmaceutical industry where roots are mentioned in various formulations which results in destructive form of harvesting, so in order to meet the high demand the drug is overexploited and also adulterated and substituted with other drugs. In order to characterize and compare the raw drugs used as *prsniparni* in market, the candidate species traded under the name *Prsniparni* were subjected to macroscopic and organoleptic evaluation, microscopic study, Physical and phytochemical evaluation and High-performance thin layer chromatography (HPTLC)

MATERIALS AND METHOD

The present study was carried out under- the following headings:

- Collection of drugs
- Macroscopic study and organoleptic study
- Microscopic study (powder microscopy)
- Physico-chemical evaluation
- Phytochemical evaluation

Collection of drugs: Samples were collected from market and pharmacies of different parts of the country and were coded as:

Table: 1 Collection of Sample

Sample	States
1.	Himachal Pradesh
2.	Maharashtra
3.	Karnataka
4.	Tamil Nadu
5.	Kerala

Place of study: Physico-Chemical and Phyto chemical were carried out in department of *Dravyaguna*, Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital Hassan. Microscopy was carried out at Foundation for Revitalisation of Local health Traditions (FRLHT) Bangalore and High-performance thin layer chromatography (HPTLC) was done from Sri Dharmasthala Manjunatheshwara Research Centre for Ayurveda and Allied Science, Udipi.

Table: 2 Macroscopic study of Market Samples

Features	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Texture	Smooth	Smooth	Smooth	Smooth	Smooth
Shape	Cylindrical	Cylindrical and twisted	Cylindrical and tortuous	Cylindrical and elongated	Cylindrical and elongated
Surface	Rough with longitudinal striations	Rough	Smooth	Rough	Rough
Shape	Elongated	Cylindric	Cylindrical elongated	Cylindrical	Cylindrical
Colour	Light yellow	Light brown	Dark brown	Dark brown,	Dark brown
Odour	Characteristic herbaceous	Characteristic	Saw dust odour	Agreeable	Agreeable
Fracture	Fibrous	Flexible	Brittle	Fibrous	Fibrous
Fracture surface	Pale yellowish	Creamish	Creamish	Light brown	Light brown
Taste	Slight acrid	Slight sweetness	Bitter	Slight sweet	Slight sweet

S 1-Himachal, S 2-Maharashtra, S 3-Karnataka, S 4-TamilNadu, S 5-Kerala

**Table: 3 Microscopic findings of Market samples**

Features	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Cork cells	Present	Present	Present	Present	Present
Sclereids	Columnar	Columnar and rounded	Columnar, small, Thin walled	Thick walled	Thick walled
Starch grains	Simple	Simple rounded	Simple rounded	Simple rounded	Simple rounded
Scalariform vessels		Long, broad and pitted	Pitted and spiral	Spiral	Spiral

S 1-Himachal, S 2-Maharashtra, S 3-Karnataka, S 4-TamilNadu, S 5-Kerala

Table: 4 Powder Microscopy

Features	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Cork	Stratified		Filled with tannin content		Thin walled Stratified
Cortex	Uniform	Thin walled	Thin walled	Thin-walled rectangular shape	Thin walled tangentially arranged
Pericycle		Present, discontinuous fibres	Present with narrow lumen	Present as discontinuous rings	Present with narrow lumen
Secondary phloem	Secondary phloem outside secondary xylem	Thin walled Compactly arranged	Thin walled compactly arranged		Thick walled
Secondary xylem	Ring porous	Simple pitted scalariform	Simple and compound pitted, scalariform	Simple, pitted, round to oval shape	Simple pits
Xylem fibres	Concentric bands	Thick walled with narrow lumen, blunt tips	Thick walled with narrow lumen	Narrow lumen	
Xylem rays	1-3 cell thick with phenols	1-3 cells wide	1-2 cells with abundant starch grains	1-4 cells with calcium oxalate crystals	Isodiametric showing simple pits
Pith	Absent	Present Thin walled	Present thin walled	Present Parenchymatous cells	Present Parenchymatous cells

S 1-Himachal, S 2-Maharashtra, S 3-Karnataka, S 4-TamilNadu, S 5-Kerala

Table: 5 Physicochemical evaluations

SI NO	Physicochemical study	API	S 1	S 2	S 3	S 4	S 5
1.	Foreign Matter	Not more than 2%	1.5%	1%	1.8%	2%	2.5%
2.	Loss on drying		8.4%	15%	6.24%	8.9%	7.7%
3.	Total ash value	Not more than 11%	6%	2.8%	19.6%	9%	6.94%
4.	Acid insoluble ash	Not more than 4%	2%	.90%	4.5%	3.94%	2.33%
5.	Water extractive value	Not less than 8%	18.83%	22.90%	7.94%	7.4%	16.42%
6.	Alcohol extractive value	Not less than 7%	7%	4%	3.89%	3.37%	2.93%

S 1- Himachal, S 2- Maharashtra, S 3- Karnataka, S 4- Tamil Nadu, S 5- Kerala

**Table: 6 Phytochemical evaluation:**

SI NO	Test For	Test	Extract used	S 1	S 2	S 3	S 4	S 5
1.	Carbohydrates	Fehling's test	Water	+	+	+	+	+
			Alcohol	+	+	-	+	-
		Benedict Test	Water	+	+	-	+	+
			Alcohol	+	+	-	-	-
2.	Alkaloids	Dragendroff's Test	Water	-	-	-	-	-
			Alcohol	+	-	-	-	+
		Wagner's Test	Water	-	-	-	-	-
			Alcohol	+	-	-	+	+
		Mayer's Test	Water	-	-	-	-	-
			Alcohol	+	-	-	+	+
3.	Tannins	Ferric chloride Test	Water	-	+	-	-	+
			Alcohol	+	+	-	+	+
		Lead acetate	Water	-	-	-	-	+
			Alcohol	+	-	-	+	+
4.	Flavonoid	Lead acetate	Water	+	+	-	+	+
			Alcohol	+	+	+	+	+
5.	Glycosides	Cardiac glycosides	Water	+	+	-	+	+
			Alcohol	+	-	+	+	+
6.	Steroids	Salkawski reaction	Water	+	+	-	+	+
			Alcohol	+	+	-	+	+
7.	Phenols		Water	+	-	-	-	-
			Alcohol	+	-	-	-	-
8.	Coumarins		Water	-	-	-	-	-
			Alcohol	-	-	-	-	-
9.	Triterpenoids		Water	+	+	-	-	-
			Alcohol	+	+	-	-	-
10.	Carboxylic acid		Water	-	-	-	-	-
			Alcohol	-	-	-	-	-
11.	Saponins		Water	+	+	-	+	+
			Alcohol	+	+	+	+	+
12.	Quinones		Water	-	+	-	-	-
			Alcohol	-	+	-	-	-

S 1-Himachal, S 2-Maharashtra, S 3-Karnataka, S 4-TamilNadu, S 5-Kerala

OBSERVATION

As per section 9 A of the drug and cosmetic act, 1940 defines an adulterated drug as the one containing any harmful or toxic substance which may be injurious to health; or if any substance has been mixed with it so as to reduce its quality or strength⁴. The results of organoleptic evaluation, Microscopic evaluation, powder microscopy, Physico-phytochemical evaluation of the market samples to that of genuine sample and also the standards mentioned in API evidenced that the majority of market samples were unintentionally adulterated and also some samples were substitutes as per database. As per the microscopic evaluation; sample 3 which was *Pseudarthria viscida* and also sample 4 and 5 was identified as *Uraria lagopodiodes* which was mentioned by database as substitutes, but sample 2 was entirely a different drug which was not a substitute but can be taken as adulterant and was identified as *Vigna mungo*. All the market sample were showing almost similar properties in Physico-chemical evaluation.

DISCUSSION

Through the present study its evident that what is received from the market by the name of *Prsniparni* are not the original one its either substitute or adulterant. Almost all the substitute is dissimilar taxonomically as they belong to different families or species, but majority of the species which was received for the study was substitute which was a better option than adulterants. By using substitutes the pressure over a single drug can be reduced. The most important criteria for the selection of pratinidhi seem to be similarity in indications &



Pharmaco-therapeutic uses. Finally, the study reveals that the status of the commercially available crude drug which was received as *prsniparni* was having less quality and purity and the materials received from markets were either substitute or adulterant, also care should be taken during the time of harvest

Being an unavoidable drug among Dasamoola with wide spectrum of uses, the substitution of *Prsniparni* should be judicial and authorised after conducting detailed scientific evaluation studies. Substitution with other useful plant or part is one of the early signs of upcoming extinction. Therefore, judicious usage and cultivation should be initiated for common medicinal species having huge consumption

CONCLUSION

The present study was Comparative Pharmacognostic evaluation of market samples of *Prsniparni* with genuine source of *Uraria picta* (jacq.) Desv. ex DC

- The objective of the study was pharmacognostic evaluation of market samples of *Prsniparni* and compare with natural habitat sample of *Uraria picta*
- Since the genuine root samples were not available, the Pharmacies were overcoming the situation mainly by substituting the drug with available substitutes.⁵
- Four samples were collected from different market across the country and compared with the sample collected from natural habitat, Sirmour district of Himachal Pradesh.
- The present study showed that the four market samples are not the original source drug they are either substituted or adulterated and possess less quality and purity.

As per the study conducted the samples received to be concluded as

Table: 7 Identification of Market samples

Sample No	Place of collection	Source Plant
1.	Himachal Pradesh	<i>Uraria picta</i> (jacq.) Desv. ex DC
2.	Pune	<i>Vigna mungo</i> (L.) Hepper
3.	Karnataka	<i>Pseudarthria viscida</i> (L.) Wight & Arn.
4.	Tamilnadu	<i>Uraria lagopodioides</i> (L.) DC
5.	Kerala	<i>Uraria lagopodioides</i> (L.) DC

LIMITATIONS

The study was carried out in finest possible manner by managing the time. But still there were limitations. The limitation faced during the study was:

- HPTLC should have been done by comparing with marker compound.

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ANNEXURES

Figure: 1 Macroscopy of market samples



Sample 1



Sample 2



Sample 3



Sample 4



Sample 5



Figure: 2 Powder microscopy






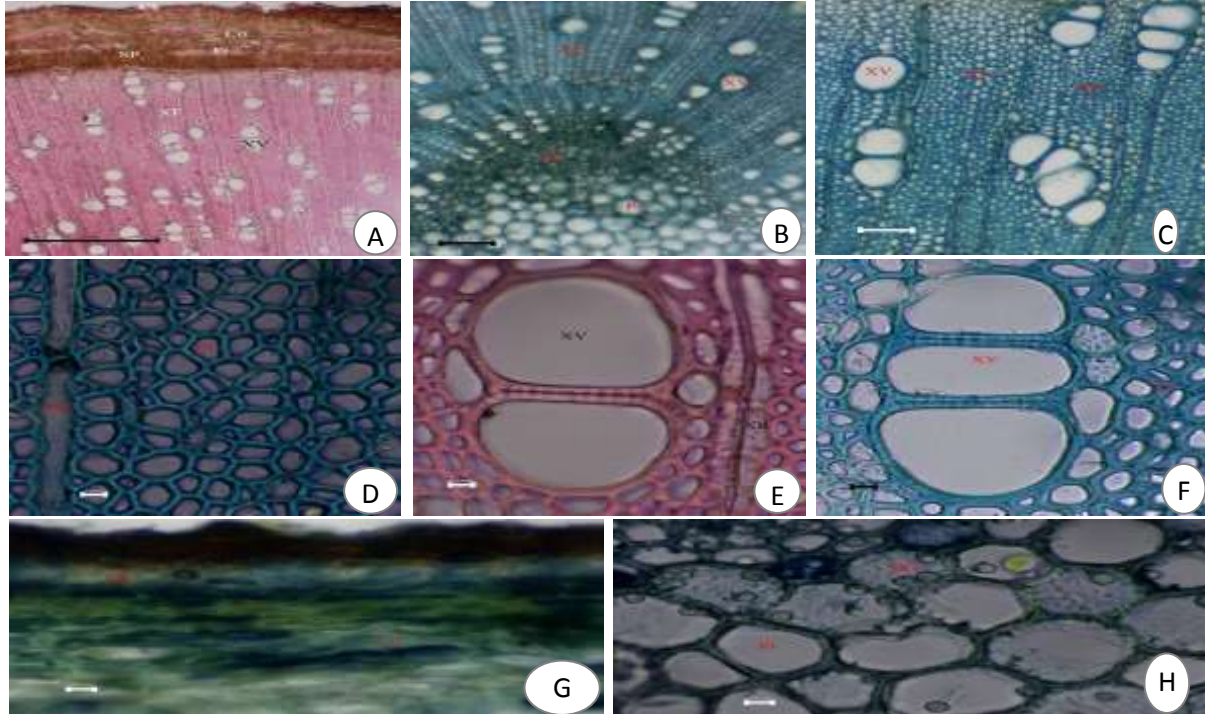
	
Sample 1	Sample 2
	
Sample 3	Sample 4
	
Sample 5	

Figure: 3 Microscopy Sample 1

Co – Cortex; Ck – Cork; Fi -Fibres; Pi – Pith; SG – Starch Grains; SP – Secondary Phloem; SXV – Scalariform Xylem vessels; Ta – Tannin; XF – Xylem Fibre; XR – Xylem Rays; XV – Xylem Vessels

Figure:4 Powder Microscopy Sample 1

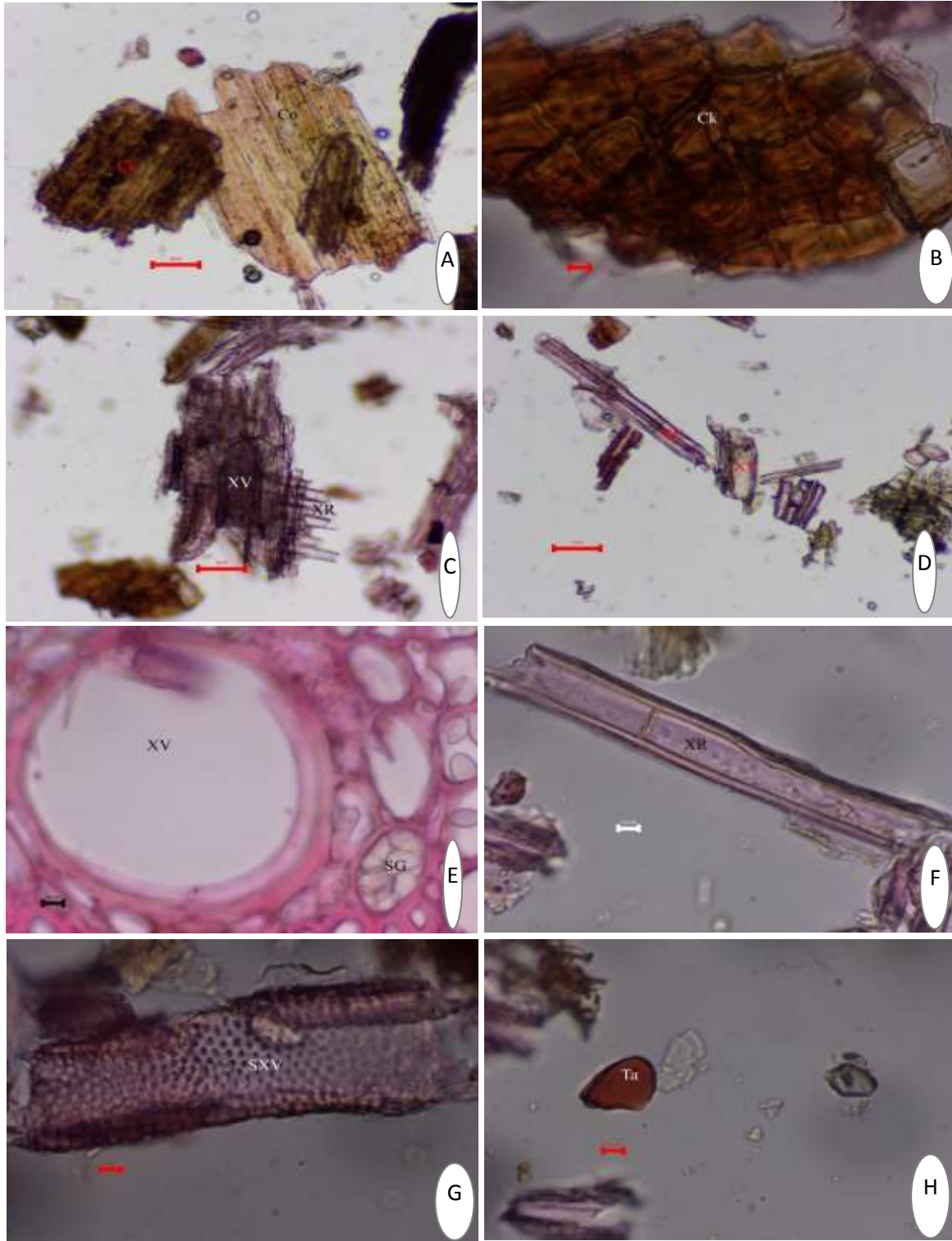
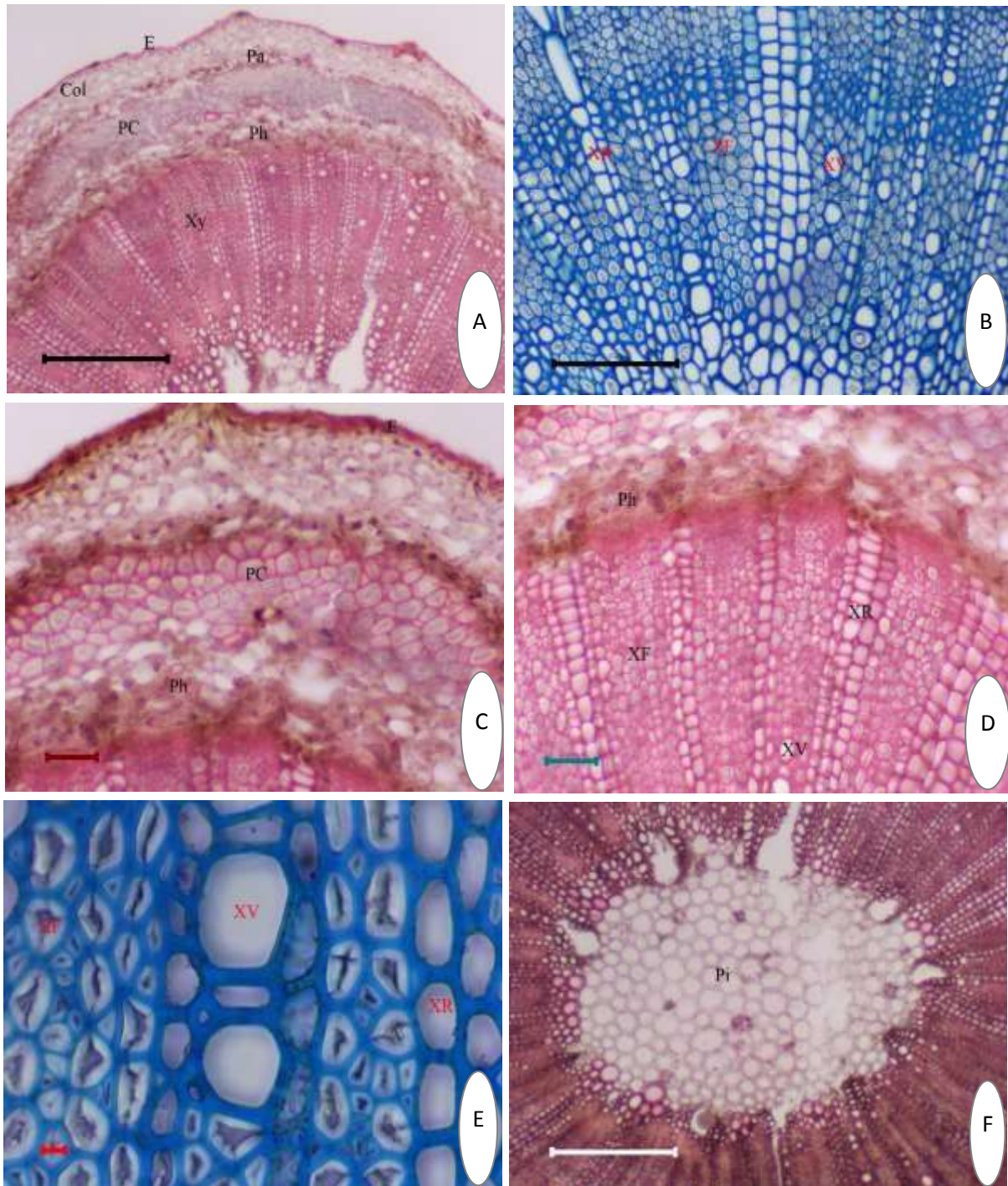


Figure: 5 Microscopy Sample 2

Co – Cortex; Col – Collenchyma; E – Epidermis; Pa – Parenchyma; PC – Pericycle; Ph – Phloem; Pi – Pith; SG – Starch Grains; ST – Stone cells; SXV – Scalariform Xylem vessels; Ta – Tannin; XF – Xylem Fibre; XR – Xylem Rays; XV – Xylem Vessels; Xy – Xylem

Figure: 6 Powder microscopy Sample 2

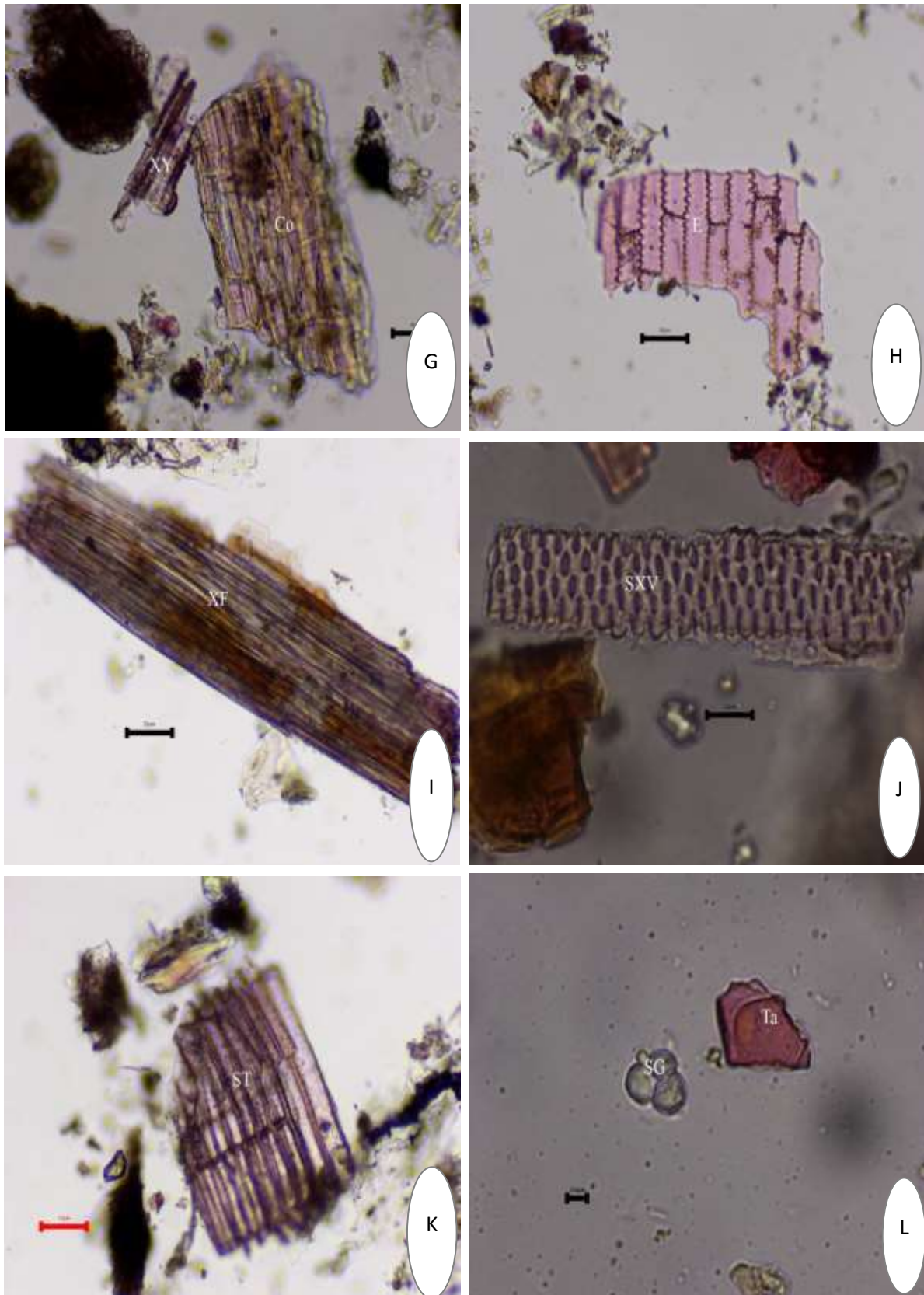
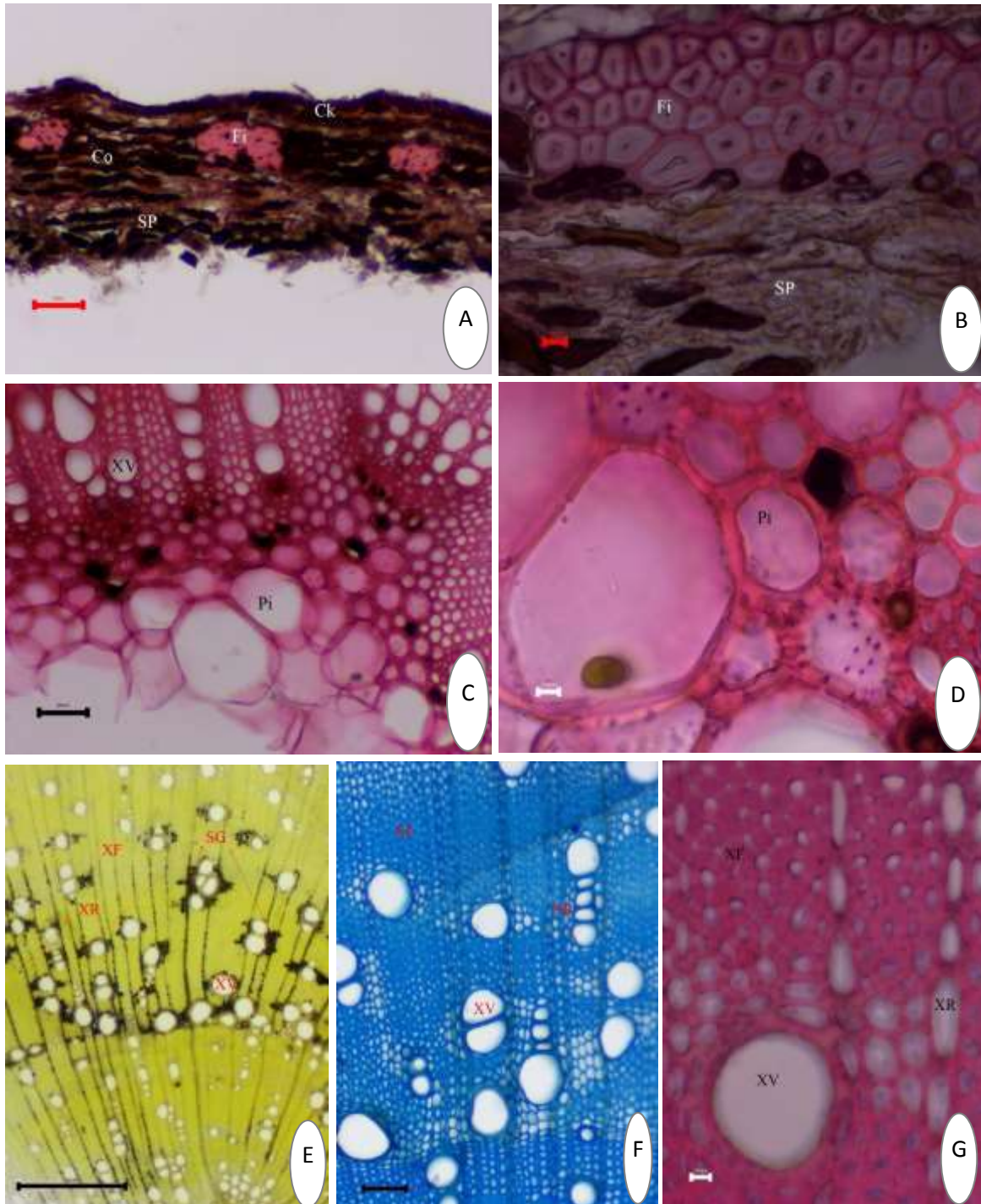


Figure:7 Microscopy Sample 3

Co – Cortex; Ck – Cork; Fi - Fibres; Ph C – Phenolic Compound; Pi – Pith; SG – Starch Grains; SP – Secondary Phloem; SXV – Spiral Xylem Vessels; SxV – Scalariform Xylem vessels; Ta – Tannin; XF – Xylem Fibre; XR – Xylem Rays; XV – Xylem Vessels

Figure: 8 Powder microscopy Sample 3

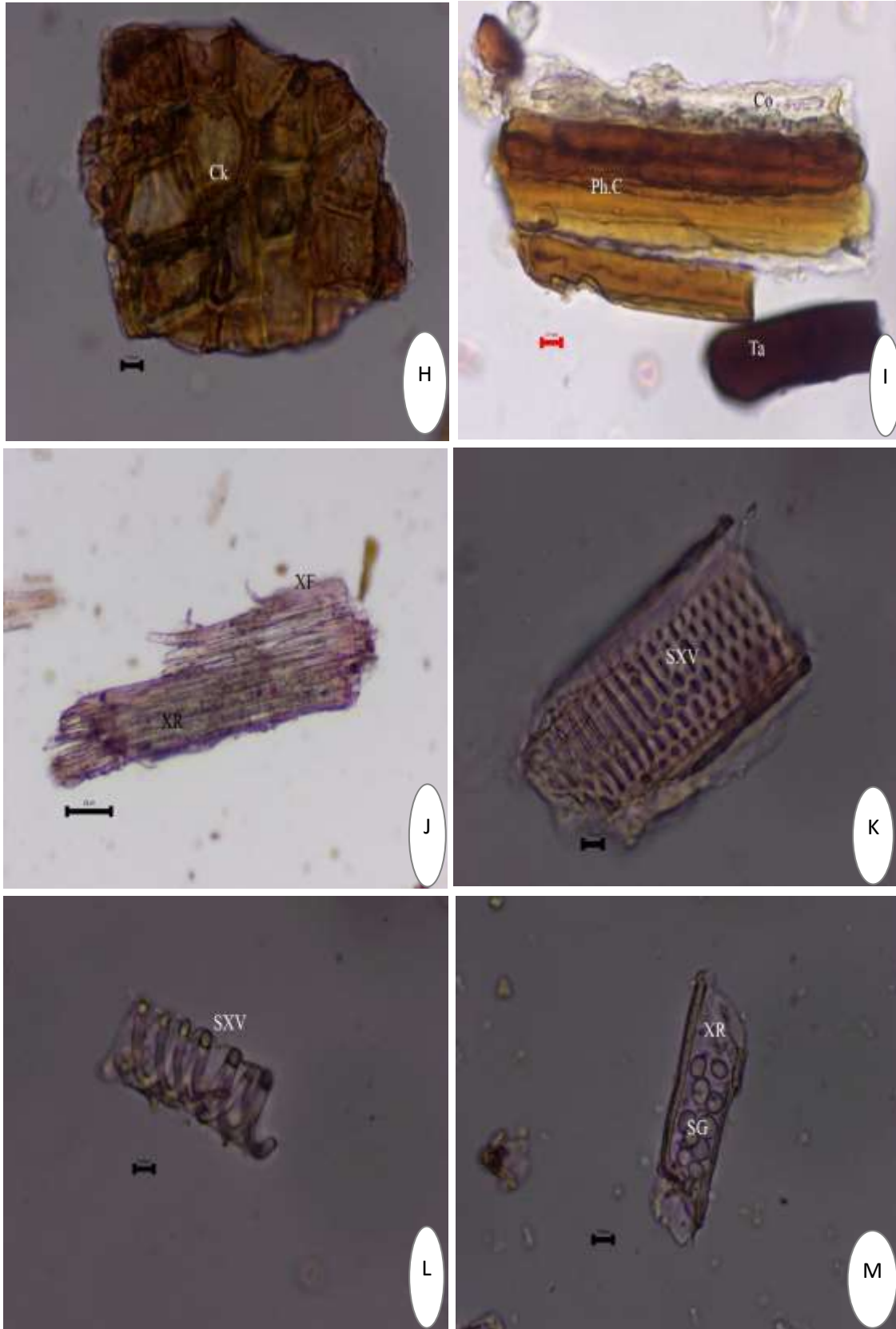
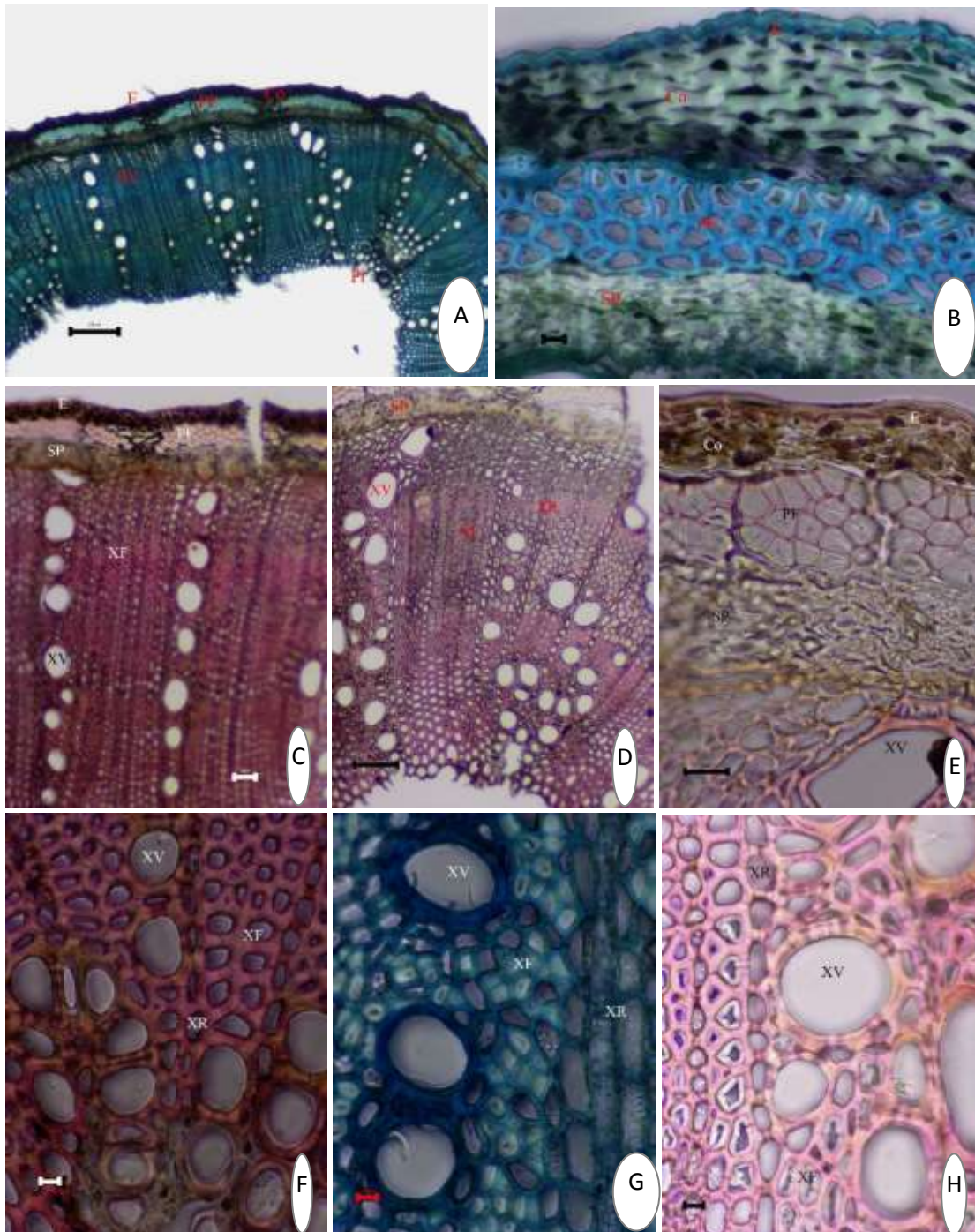


Figure: 9Microscopy Sample 4

Co - Cortex; Ck - Cork; Fi - Fibres; SX - Secondary xylem; SP - Secondary Phloem; XF - Xylem Fibre; XR - Xylem Rays; XV - Xylem Vessels; XCF - Xylem crystal fibres

Figure: 10 Powder microscopy Sample 4

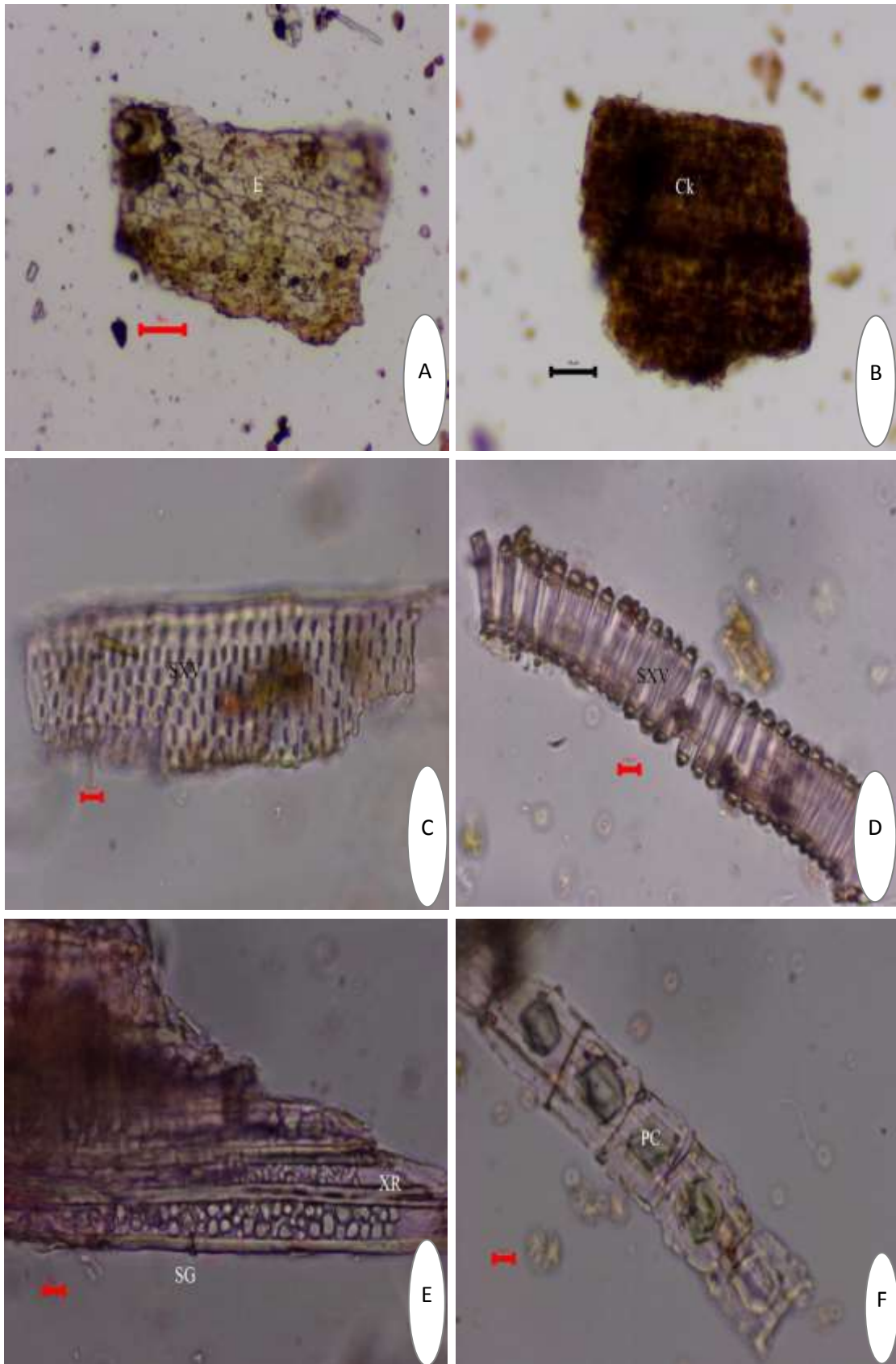
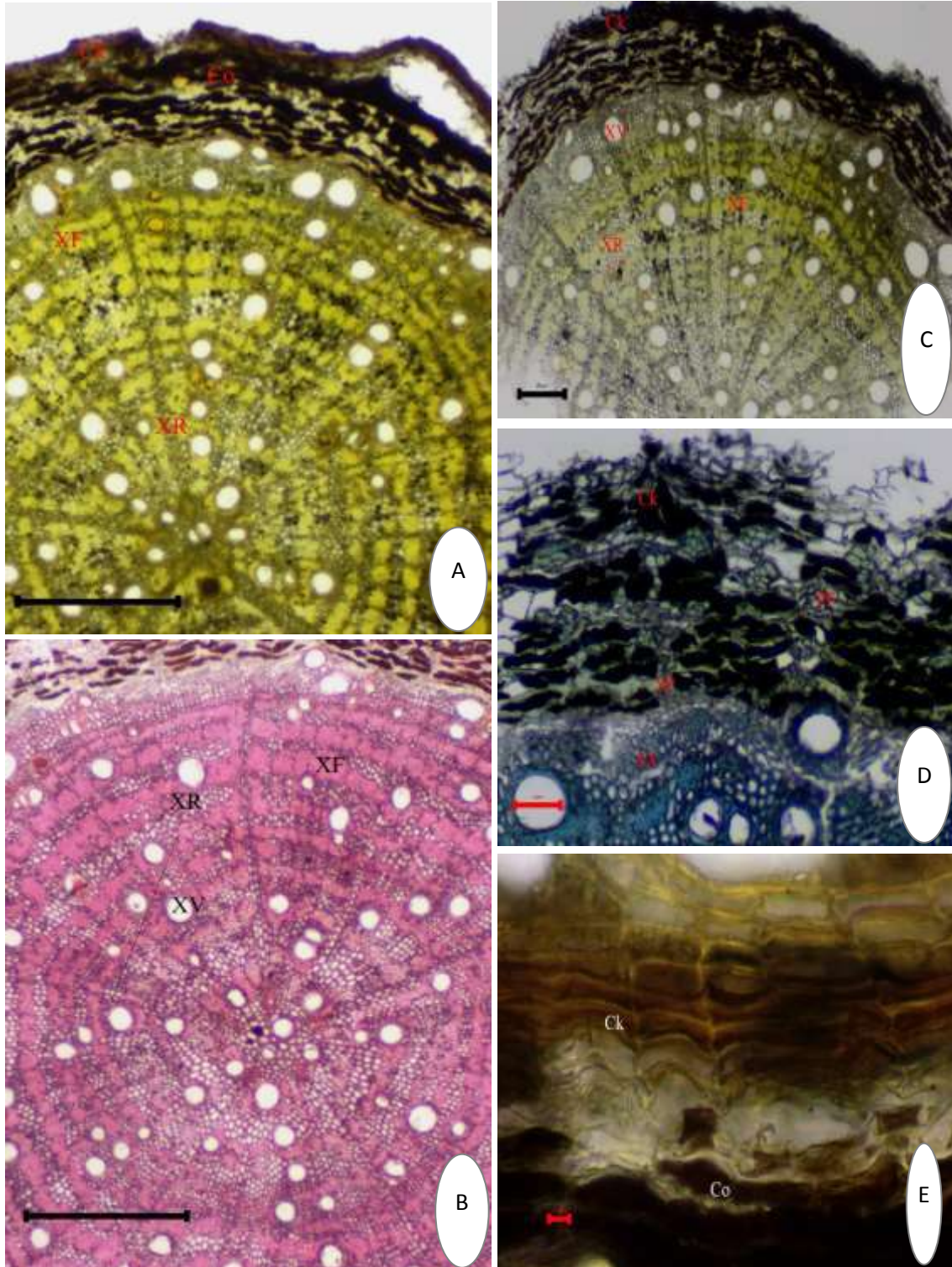
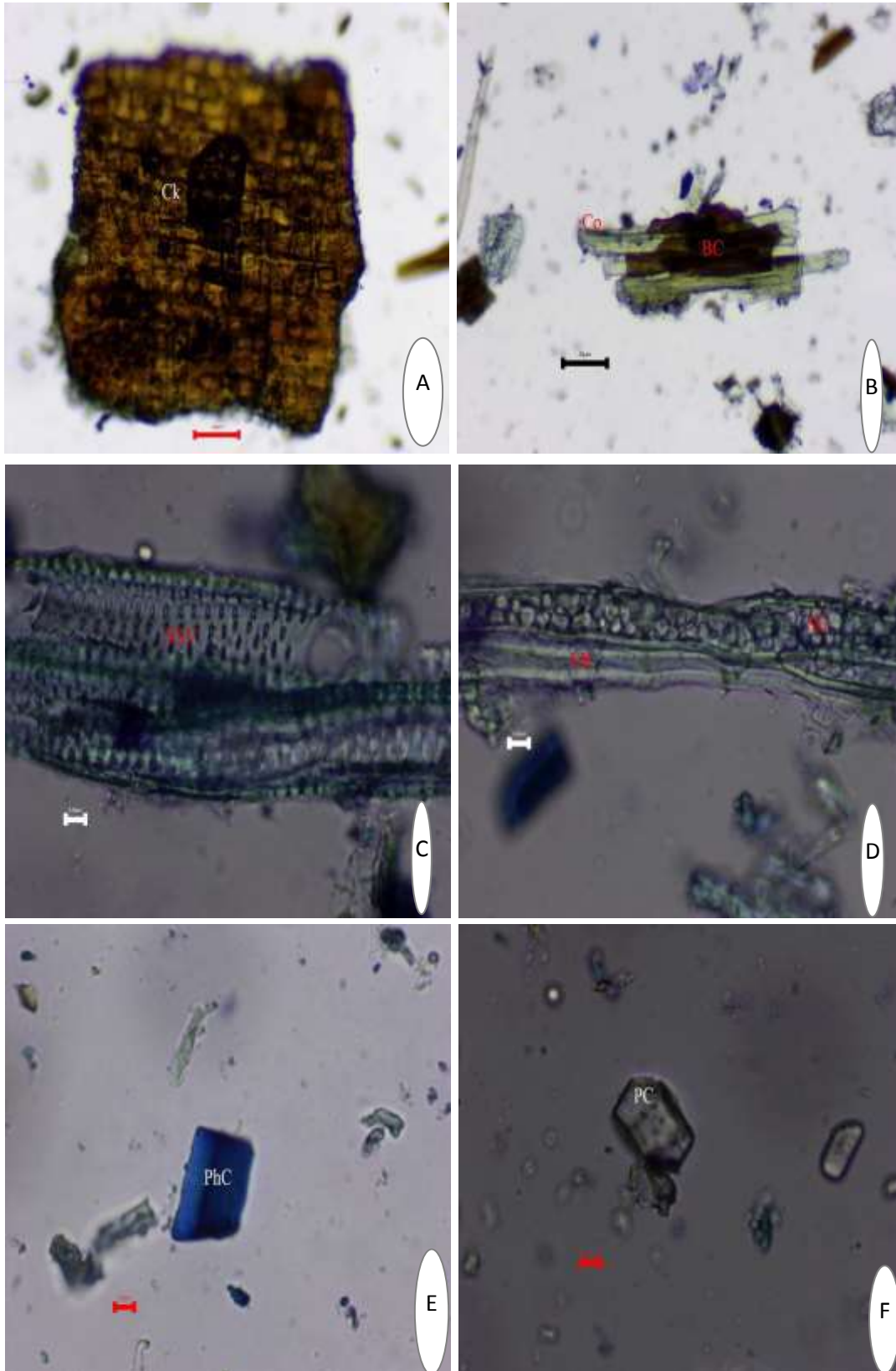


Figure: 11 Microscopy Sample 5

BC – Brown content; Ck – Cork; Co – Cortex; PC – Prismatic crystals; Ph C – Phenolic content; SG – Starch Grains; SXV – Scalariform Xylem vessels; XR – Xylem Rays



Figure:12 Powder microscopy Sample 5





METHODOLOGY OF VOLLEYBALL LESSON AND TECHNOLOGICAL FUNDAMENTALS

ВОЛЕЙБОЛ ДАРСИНИНГ МЕТОДОЛОГИК ВА ТЕХНОЛОГИК АСОСЛАРИ

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*It is named after Mirzo Ulugbek, National University of Uzbekistan,
Teacher of Taekwondo and Sports Faculty*

This article describes the initial and main purpose of the teaching process, teaching techniques, stages and tools of the teaching process. Determining, monitoring, and evaluating the effectiveness of methods, tools, and learning technologies used at different stages of the learning process is one of the key requirements of a multi-year sports training system.

Калит сўзлар: ўргатиш жараёни, тайёргарлик, мақсад, сифат, натижа, умумий ва махсус тайёргарлик, тайёргарлик босқичлари.

В этой статье написана начальные и основные цели преподавание, техника, степени и методика обучение. Уточнение результатов обучение и использование методов и ресурсов в разных степени обучении.

Ключевые слова: процесс обучения, подготовка, цель, качества, общий и специальный подготовка, степени подготовки

In this article enlightened primary and main aim of teaching period, teaching techniques, degrees and tools of teaching process. And specify teaching techniques results and using methods and resources in various stages of teaching. The main requirements of annual sport preparing are assessment and control.

Key words: teaching process, preparing, the aim, quality, result, common and special preparing, stages of preparing.

Initial training for sports skills is the foundation of a long-term sports training system. If the earlier the training is based of its organizational, methodological, scientific and logistical, and it will be more quality, the shorter, preparation will easier for sports substitutes. But this, of course, depends directly on the knowledge, professional skills and qualifications of the specialist. Therefore, one of the most important and key parts of the training program is the methodology and technology of elementary education. This article will describe the goals, objectives, methods and tools of the elementary education process, as well as relevant information. One of the main conditions for the successful performance of the tournament is the level of technical training and improvement of the volleyball player. So the first and the primary goal of the learning process is to learn the techniques of the game perfectly. Movement - (game) skills are acquired, improved, improved by certain techniques and tools in transferring, receiving (defending), throwing, striking, blocking the ball at certain stages. This process is carried out on the basis of pedagogical, psychological

and biomechanical laws. Teaching is a pedagogical process that requires a great deal of training and professional training from the trainer and teacher. However, training for performance (playing skills) also depends on other important reasons: child activity, number of training sessions, quality, duration of stay, auxiliary equipment, place of work, interest of the child, "wealth" of the movement, experience and so on. It is also important to note that the timing of mastering the movement techniques depends on the family status of the child, his / her social and economic potential, and his / her mental state. The information given above and the factors to be considered in the training process should be included in the planning documentation that is based on a specific methodology. In addition, the identification of the child's "mysterious" abilities and the presence of factors should be done through a selection program and exercises. Taken results should serve as a key factor in the application of teaching methods, stages and technology. Initial training is carried out in several stages, each of which has its own specific methods and tools. The overall developmental



exercises are used to refine the player's physical well-being and the skills and abilities needed for the player. All exercises are combined according to their specifications in the following sections of sports training: general physical, special physical, technical, tactical, game preparation. Each type of preparation has its own leading factors that help achieve its intended purpose. At the same time, all types of training are linked inextricably. For example, if a student is not physically well prepared, he or she will not be able to perform an attacking technique well. In this case, physical training of the student is more beneficial than repetition of the method of impact.

Stage one: - Acquaintance with the techniques of motion study. It uses methods of telling, demonstrating and explaining. In addition to showing the teacher in person, used also visual aids: film, feature film, scheme, plot model, and so on. The demonstration should be accompanied by explanations. The teachers' initial efforts give them a sense of primordial behavior.

Second stage: - Simplified learning of the technique. Success in this phase of the study is largely dependent on the correct selection of the adjunctive exercises.

They should be as close to the movement technique as they are in their structure, shape and learners. Movement (attack shock), which has a complex structure, is subdivided into the main components (components) that constitute it. At this stage, control methods are used (ordering, instructing, seeing and hearing, visualizing, technical equipment, etc.) and visual movement (direct assistance of the teacher, the use of auxiliary equipment), information (punching force, falling accuracy, light or sound).) such methods are of particular importance.

Stage three: - Teaching technology in complex conditions. The following methods are used: repetitive methods, complex exercises, game and evaluation techniques, joint methods, and circular exercises. The method of repetition is the most basic at this stage. Repetition is the only skill. Repetition for qualifications requires training in different conditions (changing behavior, gradual complication). Even when you're tired, the exercises are done, and the joint and play styles at the same time improve the technique and to address the issues of developing special physical attributes, as well as improving technical and tactical training and game skills. Training and learning games involve packing, improving and perfecting each method (skill). Competition is the most powerful tool for developing skills. Active teaching methods have great potential.

Among them - problem-based learning (problem-solving) and self-assessment has an important meaning. Creating challenging tasks creates a situation and a situation that seeks to solve it, and self-esteem leads to further activism of the movement, which

increases the interest of the reader and encourages creative thinking.

How are active methods implemented?

After summarizing the meaning and importance of a particular game rule, the delivery of the ball with both hands from the top, the technique (technique) to perform it, and the students are given the opportunity to do the same. Then the problematic question is: "Where is the collision of the ball with the hand?" In many attempts to respond, we are likely to say the following: Then the new questions are asked, "Why do the hands bend slightly from the elbow while passing the ball? What determines the angle of their bending?"

In their search for answers to these questions, students will focus on biomechanics, accordingly, if the answer to the first factor of the question is to achieve the goal by choosing the shortest distance (from a space perspective), secondly, the strength and speed of the transmitter. In accordance with the above requirements, we propose to do one more transfer. We are not concerned that time is wasted, because it will justify itself in the future. Why is the player bent at the waist when the player is in the starting position? This includes the direction of the ball, the natural movement of the ball, and the speed-boosting support.

Self-Assessment: Getting Started by Gesture and Comparing the Teacher's Model or Movie Record: Movement. Problems:

1. What is the basic method of action? The position of the ball, player's position, the direction, speed, and trajectory of the ball.

2. What are the factors that ensure timely movement towards the ball? Observation, readiness, speed

Self-Assessment: Hold the ball of your partner or teacher-chef on the face or move it down with the right hand after moving in different ways in response to the sign.

Deliver of the ball with two hands from above. Problems:

1. Where the ball collides with the paws. Above the face, on the chest and chin.

2. What is the angle of the arm's elbow angle when passing the ball? With the developing quality of the arm's rapid strength.

3. What is the effect of the ball on the ball when it is rotating?

Self-Assessment: 1. Move the ball up to 1-2 kg after starting and moving in different directions.

2. Throwing (transmitting) the ball to the target on the wall at a distance of 20-30 cm (delivery). 3. Push the ball on the wall for precision marks (10 balls), the target is 10,30,50, and so on. The center of the target is 4 meters above the floor. The distance to the wall is 2.5 m. The score is 40 points (hitting the center of the target is 5 points, second turn 4 and so on).

Flight of the ball without rotation. Accepting the ball with both hands. Problems:



1. How should be the hands in front of the chest?
2. At what angle the ball is taken against the shoulder?

Self-Assessment:1. Throwing the arm at a distance of 6-8 m, without raising the arm above the shoulder height, with the right hand up and down.

2. Initial correction in response to visual and auditory signals after standing and following different directions.

3. Receive the ball on the wall with the ball returning the target, 30 points for accuracy. The distance to the wall is 3 m. 5 balls on the offensive field (zone 3-2).

Attack: Problems: 1. What role do hand movements play in depression? (Increasing pressure of the base).

Why should the hand be the right one when hitting the ball? Increases strength. How to beat the ball in the palm of your hand?

- Depending on the level of development of rapid strength of the arm and joint joints.

-What is the technical rationale for attacking? (Jumping height varies with the precision and strength of the palm impact.

Self-Assessment: Standing hands with and without arms, bumping two-legged hands, running down a tennis ball with one hand, and throwing it over the net.

Shooting the ball independently to height and taking a step after the hitting to the net.

Set up: Problematic issues:

1. What determines the inactivity and passivity of the blocking (the size of the arm held to the opponent by the set).
2. How to determine the jump time to block the attack (in terms of the transmission trajectory). When the ball is high, it is done after the striker jumps, and at mid-height, with the striker, if low, before the striker.
3. What factors determine the effectiveness of the barrier? (by jumping in time, finding out the direction of the strike and the long arms that are passed through the net to the opponent)

Self-Assessment:

1. When jumping from position to position and after jumping, the hand-held net can be 20 cm or more.

2. The impact of an obstacle on an independent throw of the ball should be 70-80% Thus, organizing the learning process based on the aforementioned problematic questions encourages children to think independently, to move freely, and to master various game skills. Determining methods, tools and techniques used in various stages of the learning process, control and assessment is one of the main requirements of the multi-year sports training system. This activity is carried out by the trainer at each stage of the training process and at all stages of training. Determining the effectiveness of the process, regular pedagogical supervision, monitoring, interpretation of assessment lessons, the extent to which the students have acquired the technical skills learned or their physical capabilities

are introduced through specified control and testing exercises. Occasionally, if possible, technical or physical training should be evaluated through special devices. The results are interpreted and presented at the discussion. If the results prove that the learning process or physical attributes are in the wrong direction, it includes the necessary adjustments and changes to the training process, planning documents, and then re-checked after a certain period of time. In addition to organizing physical education classes and students to do the assigned task faster (eg, training in sports technique), use of non-traditional pedagogical technologies in the learning process is of great practical importance for learning more easily and effectively.

In this regard, The results of A.A. Pulatov research are remarkable. The author observed the methodology of more than 50 physical education teachers in volleyball. More than 72 percent of observers teach game skills to play volleyball, ball passing, and field passing skills, made a number of mistakes in using the methods of "explain", "show", "return" and demonstrated less effective teaching technology. For example, while teaching a volleyball player how to pass a ball, the following methods have been described: "explain", "show", and "return": the legs should be slightly bent at the knee, one should be placed forward and the other behind. Such a methodological guide is likely to distract students. Because one of the legs is in the foreground, the other cannot be placed in parallel. Here is one more another example for methodical style. "When moving from the first ball position to the right, the movement starts from the right foot and then moves to the left."

It is desirable to have the technique to perform this act from a technical point of view, and its accuracy is natural. Because, to make this movement skills in other way it may not be as effective. After all, moving the legs to the right is like starting the movement from the left foot to holding the left ear while moving the right hand from the back. Obviously, the skills of movement must be performed in the secondary, in the natural and specific ways. Increasing attention to these small parts of the movement during training may slow down the effectiveness of training and extend the duration. Therefore, the focus should be on training technology to focus on the parts and phases that address the meaningful purpose of the movement. The secondary parts of the movement, however, are subordinated to the main parts of the movement, and do not leave the entire "chain" of that movement. (AA Pulatov, Bogen).

In addition, the biggest methodological error noted by almost all observers is that, they correctly explained and demonstrated the classical technical copy of how well-meaning and purposeful movement performance is at a higher rate of volleyball movement, ball reception, and transmission. However, from the students were asked to repeat and execute the same



action when they did so. Consequently, the learner was not given the opportunity to freely choose the most effective method or to discover a whole new method, depending on the purpose of the particular skill.

It is well-known that a person can discover a new way of doing that action under the influence of circumstances, opportunities, needs and other causes when performing a purposeful action. The famous American track and field athlete, the Olympic champion Fos Byeley, discovered a way of jumping high, called the Fos Byel-flop, The new movement of pantomime Olympics and world champion, former Soviet athlete OLGA CORBUT, is named after him; the example of the Japanese volleyball player Morita is the "morita" fint and many others.

As you know, curricula, programs, manuals developed by the Center for training and research institutes of the Center during the Soviet period were compulsory for educational institutions in Central Asia, including Uzbekistan. It is a pity that in all educational institutions of the republic there are still cases of use of old educational documents. Of course, there are also difficulties in resolving this issue. But now the curriculum, curriculum manuals, and tests of physical exercise and sport control tests are adapted according to the climatic conditions of our localities, our traditions, customs, rituals, and ceremonies and it is desirable to implement it quickly. **Teaching** physical education and sports skills, developing physical qualities, as well as reviewing the selection and selection exercises used in the recruitment of boys and girls for sports, one of the most important issues in this process is the need to address the use of folk games for each sport. Because the classroom exercises and examinations used during the examinations are strictly limited and are performed in the same standard setting.

The selection, training, and exercise exercises that restrict the freedom of movement of trainees and, to a certain extent, reduce the scope for performing skills.

And the skills of movement used in folk games give the learner the opportunity to choose the course of action freely and independently, depending on their meaning. It was revealed who participated in Pulatov's observations that future physical education teachers, still organize lessons and classes in the old fashioned ways. The revised control exercises in assessing the level of physical activity, physical activity of teachers were not included in the tests. Theoretical requirements are also not included in the evaluation process. In addition to the practical tools in the physical education and training sessions, traditional games, motivated to the lessons or sports, are not used at all. Consequently, the intensity of physical training and sports training in the classroom, it is not feasible to independently discover the feasibility of a new or completely new way of performing the skills of the movement to improve their effectiveness. **So**, the aforementioned

results, comments and examples, practicing observers, physical education teachers use ineffective, even distracting, technology to use behavioral skills training.

In teaching and learning, it is important for students to be free to choose a particular course of action or to discover a whole new way of doing it.

Consequently, in schools, secondary special educational institutions, children's and youth sports schools and physical education teachers working in other institutions, trainers should be control according to the established plan of the special commission and, if necessary, improve their skills at existing training institutions.

Teaching and technical training is a multi-year pedagogical activity, it is a complex process that ensures that a specific set of actions or sets of actions is technically, in a certain orderly, orderly, complete and efficient manner. This process is an essential and integral part of sports training.

The main task of training and technical training is to master the biomechanical regularities of gaming techniques, to make the ability to play a set of movements skillfully and effectively in any situation. Teaching and mastering new movement techniques is based on existing experience. Exercises that develop these qualities should be "synchronized" to the skills of continuous play.

The following guidelines should be followed in the training of movement techniques:

- First of all, it is necessary to train the most effective method of direct movement techniques from the beginning of the training process in order to put an end to the re-training of certain movement techniques.

- Secondly, theoretical lessons should be given special attention in teaching, so that the learner fully understands the order of performing the technique of movement, from the "thread to the needle", to remember well in memory and to "perform" correctly.

- Thirdly, in the learning process the learner will be able to use the technique of training in different situations, it is necessary to create a well-developed body of physical attributes that enables accurate and expedient execution at various speeds. Because when the learner is physically weak, the technique of action that is being taught is performed by mistakes and is ineffective, the intended purpose of the learning process is limited, error will be eliminated. The technical training implementation is related to the process of implementation, training and improvement and it includes several stages.(A. Pulatov. A.A. 2017)

In particular, the above four stages of teaching can be divided into more stages.

Stage I

To make the first idea about the order of execution of movement techniques and psychologically training of learners these techniques.



Stage II. Formation and training of initial skills and skills in the process of training in movement techniques. Gradual complications of assimilation.

Stage III. Complete and perfect performance of movement techniques. Avoid unnecessary movements.

Stage IV. Stable, accurate and fast performance of movement techniques.

Stage V. Performance of the technique of movement in various changing situations.

Stage VI. "Deep" is a complex learning and improvement process.

Stage VII. Ensuring the perfection of the skills and techniques, expansion, enrichment and improvement of methods of preserving and executing them.

Implementation of technical training goals and objectives is carried out using specialized tools.

In fact, "resource" are of a broader meaning and are of many types. The main ones are, of course, orientation exercises, technical exercises or basic exercises and a two-way volleyball game. However, in order to successfully and effectively solve the problem, it is advisable to use training and tactical exercises during training and improvement. In other words, developing physical and tactical skills in the training of techniques increases the ability of the volleyball player to use his or her technical abilities during the game. Thus, technical training is inextricably linked to physical and tactical training. The above mentioned means are used according to certain methods. Methods are a tool of teaching technology. Methods are conditionally divided into 3 types: explanatory, visual, and practical.

In the course of technical training, there may be advantages of a particular method, depending on the age, capacity, and training stage of the trainees.

Interpretation techniques include speaking, interviewing, instruction, analysis and discussion.

Demonstration techniques: training films, feature films, pictures, demonstration of techniques by trainers, watch games, and more.

Practical Methods

1. Completely training of movement techniques.
2. Teaching movement techniques in parts.
3. Management style.
4. Moving exhibition style.
5. Method of repetition.
6. Complication method.
7. How to play your game skills when you are tired.
8. Game style
9. Competition style
10. Combined method.
11. Workout in a circular fashion.

There are several factors that can improve the technical skills of a volleyball player: it is essential to consider them in planning, organizing and managing the training and training process. These include:

A) Special physical qualities and abilities should be in high level:

B) Technical skills of all game skills:

C) stable and perfect performance of moving game techniques in changing conditions and external and internal influences:

D) High level of professionalism in volleyball:

E) Demonstrate good judgment, playfulness, cunning and entrepreneurial qualities in accordance with the rules of the game and the discipline of the game:

Z) Volleyball player can effectively use his / her personal potential:

J) Ensuring high level of functionality of the body, enhancing its load resistance.

The above mentioned factors should not only be considered in improving technical skills, but are also the conditions and requirements for the athlete. Therefore, these factors should serve as a key element in the management of sports training.

Movement techniques training are carried out in the following order:

1. Acquaintance with the technique of action, the order of its execution and the copy of the trace in memory:
2. Mastering the skills in a simple environment:
3. Acquisition of skills in complex conditions:
4. Perfect acquisition and improvement of skills in the game.

The tools used in the learning process should be based on the following didactic principles:

- "from simple to complex":

- From light to heavy:

- From passed till "not passed on".

All teaching methods and tools should be based on the principles outlined. Improvement of technical skills of game techniques is associated with a significant increase in training equipment.

Because the game's skills will be widened according to their types, methods, speed and complexity. For example, just getting shot from different parts of the pitch in different ways and repeatedly requires a lot of physical training from the volleyball player. At this stage, you will be able to adapt your game skills to changing external and internal conditions: it is necessary to increase the athlete's ability to withstand load. For this purpose, the techniques and tactics used in training should be repeated over and over in situations of fatigue, noise, and heat.

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