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FORMULATION AND EVALUATION OF HERBAL COUGH SYRUP

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ABSTRACT

Cough is one of the most common problems faced by all people. Medicinal Plants are used as primary health care agents, mostly in Asian countries. Ingredients showing expectorant antitussive activity are Used.

Hereby cough and herbal treatments associated with cough are studied briefly. The herbal cough syrup is studied which is Liquid dosage form, it is easy to administer than solid dosage form and is more effective and fast acting in order to cure cough. Many plants category Known in people medicine of different civilization used for treatment of respiratory complaints such as cough, Pneumonia and expectoration as well as in common cold also. Nowadays many pharmaceutical companies Investing for research of improved efficacy of herbal medicines while considering the increasing interest of most Of the population of world towards the Ayurveda formulations.

KEYWORDS : *Cough, Antitussive, Expectorant, Herbal formulations, honey base, Ginger,Tulsi*

INTRODUCTION

Syrups are aqueous preparations having a sweet taste and A viscous consistency. Syrup having some added medicinal Substances are called as medicated syrups.

Herbal Plants and formulations are used for various diseases Like diabetes, hypertension, kidney disease, arthritis, GIT Problems, cough, cold, and other diseases. In cough Syrup many types of herbal plants are used, for examples :- Tulsi, ginger, cinnamon, turmeric, clove, honey. Tulsi is also used to treat heart disease and fever. Tulsi is also used to treat respiratory problems. Tulsi is used to cure fever, common cold and sore throat, headaches and kidney stones. Tulsi is rich in Vitamin C.It has immense anti-bacterial, Anti-viral and anti- fungal properties which protect us from a variety of infections.Tulsi is commonly cultivated in gardens. Tulsi is used As expectorant and diaphoretic. Boch root is also used as an expectorant. Pudinasar stops irritation of the throat.

Cough is a common respiratory symptom caused by infections, allergies, or irritants. Herbal remedies have gained popularity due to their minimal side effects and natural healing properties. Tulsi (*Ocimum sanctum*), also known as Holy Basil, is a well-known medicinal herb in traditional Ayurvedic medicine, valued for its anti-inflammatory, antimicrobial, and expectorant properties.

The formulation of herbal cough syrup using Tulsi involves extracting its active constituents and combining them with natural sweeteners and preservatives to enhance palatability and stability. The evaluation of the syrup includes assessing its physical characteristics (such as color, taste, viscosity, and pH), as well as microbial stability and therapeutic effectiveness.

This project aims to develop a safe, effective, and natural alternative to synthetic cough syrups by utilizing the medicinal benefits of Tulsi.

AIM

Formulation and evaluation of herbal cough syrup

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OBJECTIVE

1. Various herbal sources are used in treatment of common cold or cough like sore throats, coughs, cold, and Bronchitis.
2. it can relieve symptoms of cold and cough such as congestion coughing and sore thorat.
3. It can help soothe and improve the respiratory system.
4. It can boost the immune system and helps the body fight infection.
5. Along with herbal treatment the science behind its mode of action in particular disease or disorder is Discussed.
6. .From the literature we can promote the use of herbal formulations for acute infection like cough and Common cold which give better and longer effect without or minimal side effects and also avoid habit Formation.

LITERATURE REVIEW

SR.NO	TITLE	AUTHOR	WORKDONE
1)	A review of precious species of clove with multiple use (Cortés- Rojas et al., 2014)(Cortés-Rojas et al., 2014)	Diego Francisco Cortés-Rojas	This work is a review documenting the main studies reporting the biological activities of clove (*S. aromaticum*) and eugenol.
2)	Ginger on Human Health: A Comprehensive Systematic Review of 109 Randomized Controlled Trials	Nguyen hoang Anhg, Sun Jo kim	Ginger (*Zingiber officinale* Roscoe), a well-known herbaceous plant, has been widely used as a flavouring agent and herbal medicine for centuries. Furthermore, the consumption of the ginger rhizome is a typical traditional remedy to relieve common health problems, including pain, nausea, and vomiting
3)	A review paper on a Tulsi plant (ocimum sanctum L) 2020	Lopamudra Sethi	We directed a complete writing audit of human examinations that gave an account of a clinical result after ingestion of Tulsi. All investigations detailed ideal clinical results without any examinations revealing.
4)	Honey and Health: A Review of Recent Clinical Research	Saeed Samarghandian, Tahereh Farkhondeh, and Fariborz Samini	Studies revealed that the medicinal effect of honey may be due to of its antibacterial, anti-inflammatory, apoptotic, and antioxidant properties.
5)	A review of Tulsi plant & their chemical constituents 2012	D.J Garkalet.al (2012)	An aggregate of 24 examinations were distinguished that announced restorative consequences for metabolic disarranges, cardiovascular malady, resistance, and neurocognition. All investigations detailed ideal clinical results without any examinations revealing any noteworthy antagonistic occasions. The explored examinations strengthen customary uses and propose Tulsi. Herbs are well known as they are used for the same purpose.
6)	Garlic: a review of potential therapeutic effects	Leyla Bayan,1 Peir Hossain Koulivand,1 and Ali Gorji1,2*	Recently, studies were carried out to known its effect on the cancer cell lines. Many studies have shown its effects not only on carcinomas, but also on the cardiovascular system and immune system [6]

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GLASSWARES

1. Beaker
2. Measuring Cylinder
3. Buchner funnel
4. Round bottom flask
5. Dropper
6. Filter paper
7. Glass rod
8. Burette stand
9. Condenser
10. Soxhlet Apparatus

INSTRUMENTS

1. Weighing Balance
2. Heating mantle

SR.NO.	MATERIALS	CATEGORIES
1	TULSI	ANTI-BACTERIAL
2	GINGER	ANTIOXIDANT
3	CLOVE	ANTI-INFLAMMATORY
4	HONEY	ANTI-BACTERIAL
5	TURMERIC	ANTI-OXIDANT
6	CINNAMON	ANTI-MICROBIAL
7	ETHANOL	ETHYL ALCOHOL

Table - 1

DRUG PROFILE

1. **Details information about Tulsi:**

Biological Name: Holy Basil
Biological source: The fresh and dried leaves of the ocimum sanctum linn.
Family: Lamiacae Kingdom: Plantae
Chemical constituents: Eugenol, carvacrol, linalool and flavonoids.
Uses: Anti- tussive



Fig 1:- Tulsi

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2. Ginger

Details information about Ginger:
Scientific Name: Zingiber Officinale
Biological source: It consist of rhizomes of Zingiber officinale and dried in the sun.
Family: Zingibareceae Kingdom: Plantae
Chemical constituents: phenolic and terrine compounds Uses: It helps to symptoms of cold and sore throat.



Fig 2 :-Ginger

3. Clove

Details information about Clove:
Scientific Name: Syzygium Aromaticum
Biological source: Dried flower buds of Syzygium aromaticum.
Family: Myrtaceae Kingdom: Plantae
Chemical constituents: acetyl eugenol, alpha and beta caryophyllene.
Uses: It is used to treat sore throat, and cough.



Fig 3 :- Clove

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4. HONEY

Details information about Honey:
Common Name: Honey bee Scientific Name: Arthropoda
Biological source: Honey is produced by both honey bees and stingless bees.
Family: Apidae Kingdom: Animalia
Chemical constituents: glucose, fructose, and Maltese Uses: Reduce night time coughing and improve sleep



Fig 4:- Honey

5. TURMERIC

Details information about Turmeric Biological Name :- Curcuma Longa
Biological source :- Turmeric is derived from the rhizomes of the turmeric plant
Family :- Zingibareceae Kingdom :- Plantae
Chemical constituents :- Volatile oils and curcumin
Uses :- Anti- inflammatory



Fig 5 :- Turmeri

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6. CINNAMON

Details information about Cinnamon
Biological Name :- Cinnamomum Zelylanium
Biological source :- The steam are cut back to encourage new growth
Family :- Lauraceae Kingdom :- Plantae
Chemical constituents :- Cinnamaldehyde and cinnamic acid
Uses :- To treat digestive issue



Fig 6 :- Cinnamon

TYPES OF COUGH

Cough is classified depending upon duration, character and type.

i. Depending upon type

Cough is classified into two types as dry and wet cough which is depend upon type. This are identified using signs and symptoms.

1. Dry cough

- Productive and effective cough
- Signs associated for dry cough
  - i. Sensitive throat
  - ii. Non mucus expelled
  - iii. Short, dry and frequent cough
  - iv. Persistent or constant tickle
- Medicine: Cough suppressant and antitussive.

2. Wet cough

- Non effective and infective cough
- Signs associated with wet cough
  - i. Coughs up phlegm
  - ii. Wheezing
  - iii. Chest tightness
  - iv. Difficulty in breathing
- Medicine: Expectorant.

ii. Depending upon duration

It may be classified into acute, sub-acute and chronic cough depending upon duration

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1.Acute Cough

The cough lasting for less than 3 weeks are Categorized under this type.
Causes for acute cough is due to common cold, URTI, COPD, environmental pollution, and Infective bronchitis.

Sub Acute Cough

The cough lasting for at least the period of 3 to 8 Weeks is categorized under this type.
The respiratory causes are pneumonia, and B. Pertussis infection.
Non respiratory causes are GERD and rarely Tourette's syndrome.

Chronic Cough

The cough lasting for more than period of 8 Weeks or more are chronic coughs.
The respiratory causes are COPD, asthma, lung Cancer, tuberculosis and pneumoconiosis.

EXTRACTION OF TULSI EXTRACT

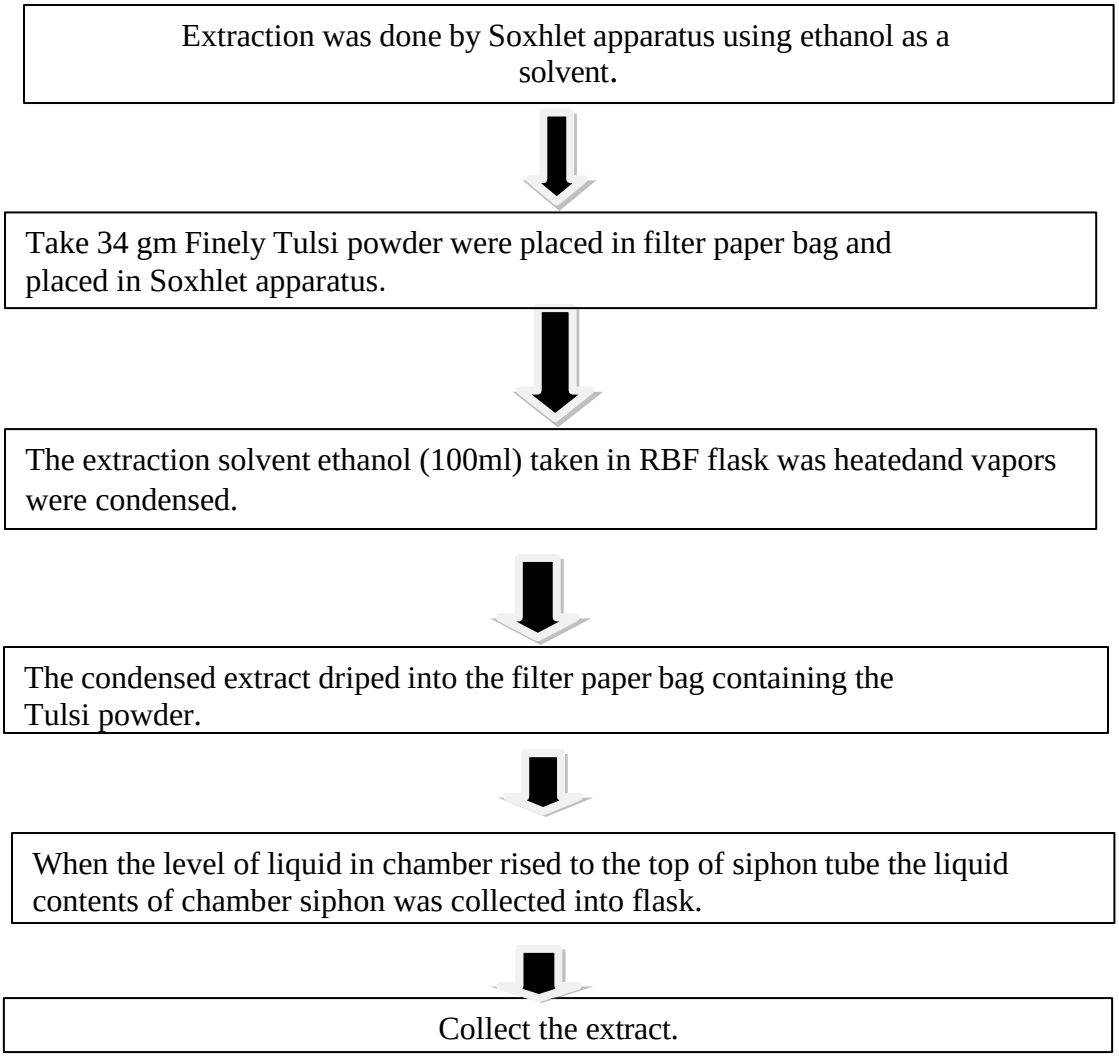


Fig. 7- Extraction Process

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Fig .8 : Soxhlet Apparatus



Fig . 9 : Tulsi Liquid Extraction

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Fig. 10 :- Ginger and Clove Extraction

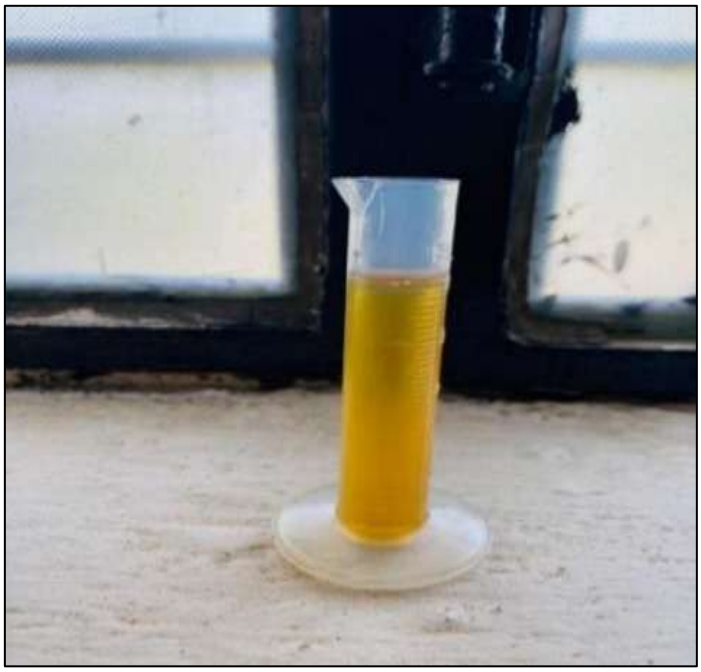


Fig 11 :- Honey

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FORMULATION TABLE

SR.NO.	DRUGS	QUANTITY	USES
1	TULSI	24ml	ANTI-TUSSIVE
2	GINGER	15ml	COLD OR SORE THROAT
3	CLOVE	6ml	REDUCE COLD SINYCITIS
4	HONEY	10ml	REDUCE NIGHT COUGHING
5	TURMERIC	3ml	ANTI-INFLAMMATORY
6	CINNAMON	1.8ml	TRAET DIGESTIVE ISSUE

Table - 2

PROCEDURE

Step 1 :- Take Round bottom flask add 24 ml Tulsi Liquid Extract into them
Step 2 :- Add 15 ml mixture of ginger and 6 ml mixture of Clove liquid extract and boil them
Step 3 :- Add turmeric and cinnamon liquid extract 3 ml and 1.8 ml respectively by continous stirring.
Step 4 :- Add 10 ml of honey into them.
Step 5 :- Make solution perfectly soluble and into container.

EVALUATION TEST

1. pH Meter

With the help of pH meter, the pH Tulsi Extraction of Cough Syrup can be detected.
pH=6.62

2. Visual Inspection

It as an inspection of an asset made using only the naked eye. The green solution is detected in Visual inspection. To verify the product is free of any foreign particles.

3. Physical Characteristics

Color: Natural Green
Odor: Strong aroma and an astringent. Taste: Bitter Flaver

4.Detection of foreign particles

Foreign particles were detected with the help of white C black background instrument.
There are no any foreign particles in the syrup.

RESULT

Extraction of Chemical Constituents from Tulsi C Their Formulation for Cough Syrup was Prepared and evaluated. The test methods described in this project are presented as example Of suitable formulation of cough syrup. A collection of recommended herbal medicine for Assessing the Expectorant Activity C also content of herbal materials, intended to assist National laboratories engaged in pharmaceutical evaluation tests. The publication includes Expectorant activities of herbal medicines . It includes the detail description of the preparation C formulation of expectorant by using Tulsi. The mostly herbal expectorant medicine is Tulsi, Ginger, clove, honey,turmeric,cinnamon etc. We also study the evaluation tests of cough syrup. In the evaluation Test its physical characteristics, visual inspection, pH of cough syrup was described.

CONCLUSION

The aim of this project was to formulate and evaluate Herbal cough syrup. The present study helped us to Understand what actually cough means, what are different Types of coughs.Conclusion The prepared syrup's physiochemical qualities, Including its colour, odour, pH, taste was all suitable.Herbal treatments for cough were studied briefly. The present study help to develop effective and safe herbal Cough with 50% w/v honey as a base of cough syrup. The various Herbal medicines are there are Tulsi, Ginger, Honey, Clove, Cinnamon, Turmeric.The Herbal Cough Syrup show less side effect Cfatly recovered the cough. The various evaluation test was Examined to Tulsi cough syrup. The World- wide in the world mostly cough is normal disorder. The various Herbal medicines are used in herbal cough syrup.

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