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FLAVONOIDS EXTRACTION BY BATHING USING ETHANOL, METHANOL IN DIFFERENT PROPORTIONS

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ABSTRACT

Flavonoids contained in butterfly pea flowers which has highly antioxidant property and phenopholic content and cynin in that which helps to improve the human health systems by consuming it and purify the human body ,which has very much medicinal uses,extraction of flavonoids by butterfly pea flowers with different proportions of Ethanol ,Methanol with different proportions where it can understand in 70%,80%,90% proportions maximum flavonoids are extracted.

INTRODUCTION: Traditionally, flowers are often used as decorations or gifts because of their colourful appearance. However, some flowers such as chrysanthemum, daylily, lilac, mint, rose and violet can also be consumed and they are known as edible flowers. One of these flower is Butterfly pea flower. Butterfly pea or Clitoria ternatea L. is a member of the Fabaceae family. It widely grows in tropical areas including Southeast Asia. Its flowers can be white, blue, or purple (Figure 1(a)). One of the well-known edible flowers in Asia. its flower has been commonly used as Flavonoids, abundant in fruits, vegetables, teas, medicinal plants, have attracted the greatest attention and have been studied extensively, because they are a kind of highly effective antioxidants with a lower toxicity than synthetic antioxidants such as BHA and BHT (Pekkarinen et al. 1999). It is well known as tropical perennial climber herb from family Fabaceae. Its anthocyanin compound, the flower could be used as a natural colorant. It is used as a companion crop, an ornamental plant, or animal feed (Morris, 2009). The physiological actions of butterfly pea in traditional usesand the potential to have valuable nutraceutical (Rao et al., 2003; Lau et al., 2005; Edwards etal., 2007) and pharmaceutical traits (Malabadi et al., 2005; Zhang et al., 2005; Nothlings et al., 2007) have been reported. In Southeast Asia, the flowers are used to color food or are used as food.

In addition, the flowers of C. ternatea have diverse natural antioxidants that could counteract oxidative radicals (Youwei et al., 2008). As oxidative radicals are harmful to the body due to their reactivities toward biomolecules and associations with many diseases, such as intrauterine growth restriction, preeclampsia, endometriosis and polycystic ovary syndrome, C. ternatea flower, which is rich in a variety of natural antioxidants and bioactive compounds might thus as a natural food colouring for its vivid deep blue colour in cooking The blue color of butterfly pea flowers comes from anthocyanins which are classified as ternatins (Terahara et al., 1998). Severalflavonoids together with quercetin and robonin are also found in the butterfly pea flowers (ILDIS, 1994).
The abundant usefulness of the butterfly pea has been documented. Many studies have shown that natural antioxidants from plant sources can effectively inhibit oxidation of food and reduce the risk of age-dependent diseases flower, which is rich in a variety of natural antioxidants and bioactive compounds might thus provide protection against the oxidative damage and those reproductive diseases. Therefore, this study aimed to investigate the antioxidant activity of C. ternatea flower. The flower extract was then screened for its potential in ameliorating bisphenol-A (BPA)-induced adverse reproductive effects. Various reports have showed that BPA , which is an endocrine disrupting compound, could induce oxidative stress in the reproductive system (Fernández et al., 2010; Kimet al., 2001). The vibrant blue hue of the butterfly pea flower petals are due to the presence of anthocyanin components called ternatin. Ternatins have been shown in test tube tests to reduce inflammation and they may inhibit the development of cancer cells (Nair et al., 2015).

Delphinidin-3,5-glucoside –This antioxidant may aid in enhancing immune response and causing colorectal cancer cells to die. Potential Medicinal Value of Butterfly Pea Flower. A plethora of health benefits are associated with the butterfly pea flower

The aromatic ring's position in the function of benzopyran aids in classifying these naturally occurring compounds as 2-phenylbenzopyrans (flavonoids), 3-phenylbenzopyrans (iso-flavonoids),4-phenylbenzopyrans(neo-flavonoids),andchalcones(Rana&Gulliya,) 2019);(Ramesh,Jagadeesan,Sekaran, Dhanasekaran,&Vimalraj,2021).Flavonoids arefurtherclassifiedasflavan-3-ol,flavanone, flavone, and flavanol, depending on the oxidized form of the pyran heterocyclic

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provide protection against the oxidative damage and those reproductive diseases. Therefore, this study aimed to investigate the antioxidant activity of C. ternatea

petals, such as these petals support skin and hair health, aids in weight loss and normalize blood sugar levels. The butterfly pea, also known as Shankupushpam, is a popular brain tonic in traditional Indian medical systems and is thought to improve memory and intelligence. The efficacy of butterfly pea blossoms in everything from skin care serums to hair mists and shampoos is bragged about by cosmetic producers (Adisakwattana et al., 2020; Christiani Dwiputri & Lauda Feroniasanti, 2019)

Ayurvedic system of medicine is a well-known and oldest system of medicine being usedcenturies in India. In this system, plants with medicinal properties are used for various ailments and may be a source of drugs. Medhya drugs prescribed in Ayurvedic system of medicine are a group of herbal drugs used to improve mental abilities. These herbal drugs include the extracts from Clitoria ternatea (CT), Celastrus paniculatus, Acorus calamus, Centella asiatica and Areca catechu. Out of several medicinal plants/herbal drugs mentioned in Ayurveda, Clitoria ternatea iswell known Ayurvedic medicine used for the treatment of various diseases. The blue color of Butterfly Pea flowers. This indicates the presence of anthocyanins. Depending on the application, it is used to color food or other objects. The butterfly pea (Clitoria ternatea L.) is oneof those plants in which all parts have a beneficial effect on our body.

Flavonoids have a 15-carbon basic skeletal (C-6-C3-C6) composed of two aromatic rings(A and B) linked by a pyran heterocyclic (C) (Kumar & Pandey, 2013)

MEDICINAL ACTIVITY

1. Anti-inflammatory antipyretic and analgesic effects.
2. Antioxidant effects
3. Antiparasitic and insecticidal effects.
4. Antimicrobial effect.
5. Anticancer effect.
6. Central nervous effect.
7. Gastrointestinal effect.
8. Hypolipidemic effect.
9. Antihistaminic and antiasthmatic effect.
10. Immunomodulatory activity.
11. Diuretic and anti urolithiasis effect.
12. Wound healing effect.
13. Anti-ulcer activity.

(Miroslav, Bonnet, Ferreira, & Van der Westhuizen, 2010) as shown in figure 2. The chemical properties of flavonoids are determined by their chemical structure, hydroxylation level, conjugation, other substitutions, polymerization (Kelly, Tagliaferro, & Bobilya, 2002), level of oxidation,glycosylation pattern,and other

Although flavonoids have various biochemical characteristics, their capacity to function as antioxidants is one of the best known in almost every flavonoid group. The configuration of functional groups in the flavonoid core structure determines those compounds' antioxidant activity. Numerous antioxidant processes,including metalion

distinguished from other techniques by its extensive use of solvent, its low extraction yields, and lengthy extraction times. When heat is used in the extraction procedure, the flavonoids' chemical structure can degrade, leading to decreased bioactivity (Chávez- González, et al., 2020).

The most widely used unconventional extraction is ultrasound-assisted extraction (UAE)(Ali,Lim,Chong,Mah,&Chua,2018) (Marana, S.Manikandanb, Nivethaa, & R.Dinesh,2017), microwave-assisted extraction technology (MAE) (Alara, Abdurahman,&Olalere,2018)(M.S.Ferreira, et al., 2019), supercritical fluid extraction (SFE),and pressur ized liquide xtraction(PLE) (Tzanova, Atanasov, Yaneva, Ivanova, & Dinev, 2020). Many solvents are used, including ethanol, methanol, ethyl acetate, acetone, and others (Agustin-Salazar et al., 2014).High concentrations of alcohol(90-95)

Were used to extract free flavonoids,while around 60 % of alcohol was used to extract flavonoid glycosides (Feng, Hao, & Li, Isolation and Structure Identification of Flavonoids, 2016), andethyl acetateis preferred for the extraction of highly alkylated aglycones, for instance (Dias, Pinto, & Silva, 2021).

The type of flavonoid extracted and the biologicalactivityoftheretrievedcompounds are influenced by the characteristics of the extractingsolvent(solvent).Becauseoftheir greater flavonoid recovery yields, methanol and ethanol are the most frequently used agentsforflavonoidextraction(Yu,Wang,Qi, Xin,&Li,2019)(Daud,Fatanah,Abdullah,& Ahmad, 2017).

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2. METHODS AND MATERIALS:-

i. Collection of butterfly pea plants

Before all the required ingredients and butterfly pea plant in our local areas. Butterfly pea flower is a common ingredient in many herbal teas andhospital products.

ii. Preparation of butterfly pea powder

when we collect the butterfly pea plant first dried in normal temperature then these plants are put in oven because plants become completely dried.the temperature of the Bowen is given that is 50°C up to 24 hours or 48 hours.

iii. Preparation of sample using Ethanol:

C collect 1gm Powder and 50ml of ethanol and 50ml of distilled water add in a 200ml beaker. That sample kept in ultrasonic cleaner about 45min with 45^0C temperature. After getting residue it gets invovles filtration. After filter the sample remains at corner of the paper, do bathing that sample with acetone for get complete residue. Next separate the solid sample and liquid sample this process continues different ratios.

PROCESS: after bathing the flower powder with ethanol methanol with 50%,60%,70%, 80%,90% filtering the solution which is heated under 20 Khz oscillation in a bathing mashine
filtered sample is in wet form dried in oven at 50 temparature for 24 hours filtred residue send to UV-charectirization the data has been retrived by instrumentation.

RESULT AND CONCLUSION:

- Flvonoids are extracted by using ethanol methanol in different proportions in this method the best residue is 80%,90%
- Flvonoids are widely used to in medicines the extracted sample can easily able to consume for better result.
- The PH of the solution is change when you added the lemon drops and directly its able to consume.
- Many contries are adopted this butterfly pea flower as tea element and food colouring agent.

cleaner about 45min with 45^0C temperature. After getting residue it gets invovles filtration. After filter the sample remains at corner of the paper, do bathing that sample with acetone for get complete residue. Next separate the solid sample and liquid sample this process continues different ratios.

iv. Preparation of sample using Methanol:

To collect 1gm Powder and 50ml of methanol and 50ml of distilled water add in a 200ml beaker. That sample kept in ultrasonic cleaner about 45min with 45^0C temperature. After getting residue it gets invovles filtration. After filter the sample remains at corner of the paper, do bathing that sample with acetone for get complete residue. Next separate the solid sample and liquid sample this process continues different ratios.

v. statistical analysis:

To determine the ratio of Ethanol and distilled water. we analyse the values of the materials.

EXTRACTION: The solvents are chosen based on the polarity of the flavonoids because the solubility of flavonoids in various solvents varies. Flavonoids can be extracted using conventional and unconventional techniques. Conventional extraction techniques are maceration, percolation, reflux, and continuous reflux(Feng,Hao,&Li,Isolation and Structure Identification of Flavonoids, 2016). This standard extraction method is distinguished from other techniques by its extensive use of solvent, its low extraction yields, and lengthy extraction times. When heat is used in the extraction procedure, the flavonoids' chemical structure can degrade, leading to decreased bioactivity (Chávez-González, et al., 2020).

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