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Formulation And Evaluation Of Herbal Tea Powder.

Poonam Ashok Kharde, Rushikesh Kuldharan, Samir Gandole,

Department of Cognosy,

sharadchandra pawar college of pharmacy Otur.

Abstract: Tisane is a different name of herbo tea. Due to its biologic properties, it has reached the increased popularity and can definitely fill in the gaps in modern medicine. This drink is made out of any botanical material that is dried leaves, seeds, grasses or flowers, nuts or any other of the many species of plants except the one widely consumed called as tea species, Camellia sinensis. Other than the herbs steeped in hot water, numerous herbs are applied in the preparation of herbal tea.

Keywords:- Extract, Tea, Seeds, Herbal.

INTRODUCTION

1. Another term of herb tea is tisane. Due to the biological properties, it has become more popular and can certainly compensate modern medicine. This drink includes dry plant leaves, seeds, grass, flowers or nuts, or any other type of plant matter, other than the most commonly consumed Camellia sinensis species, tea. Other than the herbs one brews onto hot water, there is a host of herbs being used to create herbal tea.
2. Traditional Chinese Medicine (TCM) and Ayurveda are some of the societies that existed traditionally and embarked on creating herbal medicines which were used to treat various illnesses. The herbs were mixed basing on the similarity of their legacies in the health benefits to each of the species. Because polyherbs are considered to possess greater pharmacological action than one herb alone, most of the existing medicines available today that rely on herbs would utilize them rather than a single herb.
3. Numerous studies state that the herbs can be used to prevent anemia. Sourashtra Herbal Tea (SHT), a blend of various herbs, prevents the occurrence of anemia and treats adolescent female premenstrual symptoms according to International Journal of Creative Research Thoughts (IJCRT). A wide array of medicinal plants has been used to prevent and treat a number of disorders.
4. Sixty to 90 percent of individuals living in the world use plant-based medicines. Due to its sensory and health promoting benefits, herbal teas have been very popular. The major producers of the herbal teas in Asia are Bangladesh, China, India and Indonesia.
5. popularity people know more about its benefits to their health. Tea is produced out of infusions of the leaves or other portions of a type of evergreen plant known as the tea plant. Herbal teas that are based on plants are becoming increasingly popular among the customers. Its flavor is characterized by many people as astringent, chill and mildly bitter.
6. This preparation is helpful in the process of mind relaxation, lowering of stress, fatigue, anxiety, and many other provocations simultaneously increasing immunity, maintaining the activity of the body and to revitalize

the cells. One of the most convenient and versatile method of consuming herbal tea is herbal tea powder, or also known as tisane powder or herbal infusion powder. All the teas sourced in the tea plant contain caffeine. It is herb endogenous to the plant.

7. Caffeine is not included in herbal teas since these types of teas do not even have tea. Among the overproduced reactive oxidative species (ROS) are superoxide (O 2 -), singlet oxygen (-O 2), hydroxyl ions (OH -), and H 2 O 2 which are prompted by environmental stressors (dryness, high radiation, and temperature).
8. They may consequently reroute the photosynthetic apparatus of plants to cover the defensive reactions against the hazardous environmental factors to aid vegetative (biomass) and reproductive stages (secondary metabolites). Consequently, the herbal teas are using secondary metabolites as defense systems to degrade H2O2 into H2O in different cellular locations and the ROS scavenge and detoxification using enzymes such as CAT, peroxidase or SOD. Monumentality Today, the vast majority
9. It has been determined that Labisia pumila plants can produce increased carbon-based secondary metabolites in instances where their weather conditions promote non-structural carbohydrate production and storage, as well as its distribution.
10. Herbal tea, also called tisane. It has increased in popularity due to its biological properties and certainly can be a complement to modern medicine. Dried leaves, seeds, grasses, flowers, nuts, or any other botanical components originating from plant species other than the commonly consumed tea species, Camellia sinensis, are consumed in this beverage.

LITERATURE REVIEW

Sr.No.	Title of the article	Author	Biological importance
1	Review: Herbal Tea	Ravindra Sanjay Badak, PoojaWankhede, Gajanan S. Sanap 2023	Herbal teas, made from leaves, fruits, flowers, and roots from factory corridors, provide energy, relaxation, and digestive support.
2	Promoting Sleep Health with herbal Tea: Development, Evaluation and Anxiolytic Effects	Dr. Mehwish Khan, Dr. Nudrat Fatima, Dr. Asma Wazir, Dr. Zuneera Akram, Dr. Hina Rehman Ansari, Dr. Fatima Qamar 2023	Insomnia negatively impacts quality of life.Herbal teas like passionflower have calming properties, potentially aiding digestion and managing sleep issues. Further clinical exploration is warranted for healthy sleep patterns.
3	Review on herbal tea as a functional food: classification, active compounds, biological activity, and industrial status	Yuchao Liu, Chunyan Guo, Erhuan Zang 2023	Herbal tea infusions, derived from medicinal plants, offer healthcare benefits but require modern pharmacological studies for classification, nutritional value, and quality evaluation, despite their antioxidant properties.
4	Production, consumption, and benefits of different herbal tea: A review	Kajol Batta, Hradesh Rajput 2021	Tea, brewed from Camellia sinensis leaves, is the most consumed beverage after water and has medicinal properties.

5	Formulation and evaluation of immune boosting herbal tea	Sushmita L Bhandare Smita P and Borkar 2019	Herbal tea, gaining consumer attention for health benefits, requires modern-day forms with palatability and presentation benefits.
6	Preparation And Evaluation of Herbal Tea Powder	Vijaya S. Rabade and Shailju G. Gurunani 2021	Tea, a popular beverage with immune-boosting properties, is consumed daily for stress relief. Herbal tea, or tisane, is a non- caffeinated beverage made from herbs, spices, and dried fruits, with different antioxidant properties and therapeutic applications.

AIM AND OBJECTIVE

AIM:- Formulation and Evaluation of Herbal Tea

Objectives

- To Lower Blood pressure.
- To Prevent body from undergoing the common cold and flu.
- In prevention of Pre-Cancerous cells from growing.
- To decrease risk of heart diseases.
- To increase rate of weight loss.
- To Reduces anxiety and depression.
- To reduce LDL cholesterol levels in blood.

PLAN OF WORK

The work was planned as follows:-

1. Literature Survey
2. Selection Of Herbal Drug
3. Determine Active Constituent of Herbal Drug
4. Selection Of Material & Equipment'
5. Grinding of materials to form powder
6. Formulation of Herbal Tea
7. Evaluation H. Packing & Labelling

MATERIALS AND METHODS

Sample Collection

The required ingredients were collected and the leaves of Ficus religiosa were authenticated from Kendriya Sadan, Koti.

1.Ficus religiosa

- Biological Source- The leaves belonging to Ficus religiosa or Peepal tree is a species of fig that belongs to the Moraceae family.
- Chemical constituents- Phenols such as Gallic acid, rutin and gallocatechin are present. It also contains Terpenoids such as Friedlein, lupeol, Beta amyrin. Additionally, the presence of Rhein, anthraquinone and taraxosterol are also observed.

Medicinal Uses-

- It is an antioxidant and anti-diabetic.
- It also shows anticancer and anti-inflammatory effects.

Fig no.1.Ficus religiosa

2.Tulasi

- Biological Source- The leaves of Ocimum tenuiflorum or Holy Basil are considered sacred in many cultures and belongs to the family Lamiaceae.
- Chemical Constituents- It contains approximately 70% eugenol, carvacol (3%), eugenol-methyl-ether (20%) and caryophyllin.

Medicinal Uses

- It acts as an immunomoulant
- It also shows anti-diabetic, analgesic effects and reduces cold, cough and other respiratory disorders

Fig no 2.Tulasi

3.Clove

- Biological Source- Cloves are the aromatic flower buds of a tree (Myrtaceae) Syzygium aromaticum (Eugenia caryophyllus).
- Chemical Constituents- Its main constituent is eugenol which is an essential oil comprising total 23 identified constituents, among them eugenol (76.8%), followed by Beta caryophyllene (17.4%), alpha humulene (2.1%) and eugenyl acetate (1.2%) as the main components.

Medicinal Uses

- It is used as an analgesic and antiviral due to presence of Eugenol.
- Cloves are good expectorant that clears respiratory passage.
- The aromatic clove oil, when inhaled soothens the respiratory conditions like asthma, cold, cough

Fig no.3 Clove

4.Cinnamon

- Biological Source- Cinnamon are dried inner bark of shoots of trees of Cinnamomum zeylanicum belongs to family Lauraceae.
- Chemical Constituents- Cinnamon oil contains cinnamaldehyde, eugenol, benzaldehyde, cumin aldehyde and other terpenes like pinene, cymene and caryophyllene.

Medicinal Uses

- Cinnamon is fragnant and delicious spices with high antioxidant content.
- It also provides antibacterial activity.
- Cinnamon may help fight throat pain and infection due to cold and cough.

Fig no.4.Cinnamon

5. **Ginger**
   - Biological Source- It consists of rhizomes of Zingiber officinale belonging to family Zingiberacaea.
   - Chemical Constituents- The pungent taste of ginger is due to presence of zingerol. It consists of 0.25-3% volatile oils,5-8% resinous matter, 56% starch and proteins.

Medicinal Uses

- Ginger has antimicrobial property that can fight bacterial and viral infections.
- It has anti inflammatory property that can manage and reduce the risk of sore throat.

Fig no 5.Ginger

6. **Cardamom**
   - Biological Source- Cardamom consists of the dried nearly ripezfruits of Elettaria cardamomum Var. minuscule. The seeds of cardamom contain about 3-6% of volatile oil.
   - Chemical Constituents- Cardamom contains steam-volatile oil, fixed oil, pigments, proteins, cellulose, pentosans, sugars, starch, silica, calcium oxalate and minerals

Medicinal Uses

- It is antioxidand properties
- antioxidant and diuretic properties may lower blood pressure

Fig no 6. Cardamom

7. Hibiscus

- **Biological Source-**

• Hibiscus is a genus of flowering plants in the mallow family, Malvaceae. The genus is quite large, comprising several hundred species that are native to warm temperate, subtropical and tropical regions throughout the world

- **Chemical Constituents**

The Hibiscus rosa-sinensis plant contains tannins, quinines, anthraquinones, phenols, flavonoids, alkaloids, saponins, terpenoids, cardiac glycosides, proteins, carbohydrates, free amino acids, reducing sugars, mucilage, essential oils, &steroids, according to a preliminary phytochemical investigation

Medicinal Uses

- May Help Lower Blood Pressure.
- One of the top health benefits of hibiscus
- May Reduce Cholesterol Levels.
- Hibiscus benefits the body's ability to balance

Fig.7 Hibiscus

Camellia sinensis

- **Biological Source** - The botanical name of tea is Camellia sinensis. • The biological source of tea is prepared leaves and leaf buds of it. • It belongs to the theaceae family.
- **Chemical Constituents** -The leaves of tea consist of thease which is an enzymatic mixture containing an oxidase, which partly converts the phlobatannin into phlobaphene, as chemical constituent.

- Other chemical constituent present in tea leaves are tannins, caffeine.
- It contain 1-5% of tannin and 10-24% of caffeine.

Medicinal Uses -

- It helps to treat blindness caused due to diabetes which is an angiogenic condition.
- It helps to lower the risk of ischemic heart disease in older man.
- The major application of tea is to maintain cardiovascular health.
- It helps in the prevention of cancer.

- Green and black tea helps to protect against obesity .

Fig no 8. Camellia sinensis

Formulation Of Herbal Tea Powder

The materials were shade dried and reduced to coarse powder. The powder was passed through appropriate sieve and was weighed accurately. The F1, F2 and F3 were formulated as per the table.

Formulation 1

Ingredient	Quantity
Hibiscus	5g
Ginger	0.01g
Tulasi	0.1g
Cardamom	0.2g

Formulation 2

Ingrediant	Quantity
Hibiscus	5g
Clove	2g
Cinnamon	2g

Formulation 3

Ingrediant	Quantity
Hibuscus	5g
Tulasi	1g
Cinnamon	2g

Preparation of Herbal Tea Powder

The decoction of different formulations was prepared and evaluated. Decoction is a method of extraction by boiling the herbal tea powder to dissolve the chemicals present

Fig no .9. Preparation of Herbal Tea powder

Evaluations

Organoleptic test:

Organoleptic test was performed by visual inspection for appearance, colour, odor and tast

Ingrediant	Colour	Odor	Taste
Hibiscus	Green	Pungent	Sour
Ginger	Light brown	Aromatic, penetrating	Spicy
Tulsi	Green	Fresh aromatic	Astringent
Clove	Dark brown	Strong aromatic	Spicy
Cinnamon	Dark brown	Aromatic	Sweet

Physical test:

- Determination of Total Ash Value: Ash contains inorganic radicals like phosphates, carbonates and silicates of sodium, potassium, magnesium, calcium etc. Inorganic variables like calcium oxalate, silica, carbonate content of the crude drug affects 'Total Ash Value'. Weigh accurately 2g of the air-dried drug in a tarred silica crucible and incinerate at a temperature not exceeding 450ºC until free from carbon, cool and weigh. If a carbon-free ash is not obtained, wash the charred mass with hot water, collect the residue on an ashless filter paper, incinerate the residue and filter paper until the ash is white or nearly white, add the filtrate to the dish, evaporate to dryness and ignite at a temperature not exceeding 450º.
- Loss on drying: Loss on drying is the loss of weight expressed as % w/w resulting from water and volatile matter can be driven off under specified conditions. Weigh about 2 gm of the air-dried crude drug in a dried and tarred flat weighing dish. Dry in oven at 100-105°C. Cool in desiccators over phosphorus pentoxide for specific period of time. The loss in weight is recorded as moisture. Repeat the process till constant weight is obtained.
- Qualitative estimation: The decoction of herbal tea was subjected to phytochemical screening for identification of different phytoconstituents like carbohydrates, proteins, alkaloids, tannins, glycosides, and flavonoids.

Phytochemical Screening

The formulated herbal tea powder was first extracted by heating it for 15-20mins. Then the solvent was filtered out. This was done to purify the original solvent by removing unwanted components.

1. Test for Glycosides (Keller- Killani Test): 0.5ml of glacial acetic acid was added with 4-5 drops of ferric chloride. It was then mixed with 1-2ml of extract, then concentrated sulfuric acid was added to the walls of test tube. Deep blue color indicates the presence of glycosides.
2. Test for Flavonoids (Shinoda Test): 10 drops of dilute hydrochloric acid were added in 1-2ml of extract. A piece of magnesium tungsten was then added, on shaking deep pink color indicates the presence of flavonoids.
3. Test for Tannins (Ferric chloride Test): In 1-2ml of extract 2ml of ferric chloride was added. Dark blue color indicates the presence of phenolic compound
4. Test for Alkaloids (Mayer's Test): In 1-2ml of extract few drops of Mayer's reagent was added. Creamy white precipitate indicates the presence of alkaloids
5. Test for Saponins (Foam Test): Drop of Sodium carbonate was added in 5ml of extract. On shaking formation of foam indicates the presence of saponins.
6. Test for Carbohydrates (Benedict's Test): 5ml of benedict's reagent was added in 2ml of extract. It was then heated for 5mins. Dark red precipitate indicates the presence of

carbohydrates

7. Test for Proteins (Xanthoproteic Test): Few ml of nitric acid was added in 1-2ml of extract. Yellow color indicates the presence of proteins.
8. Test for Sterols (Salkowski Test): 2ml of chloroform and concentrated sulfuric acid was added in 5ml of extract. Reddish- Brown color indicates the presence of sterols. Test for Alkaloids (Mayer's Test): In 1-2ml of extract few drops of Mayer's reagent was added. Creamy white precipitate indicates the presence of alkaloid

RESULT

The present work of herbal tea was subjected to organoleptic test, physical test, and qualitative estimation. Organoleptic test: It includes

Evaluations	F1	F2	F3
Colour	Green	Green	Green
Odor	Pungent	Pungent	Pungent
Taste	Sour	Sweet	Sour
Overall acceptability	Low acceptability	High acceptability	Medium acceptability

Table no 3.Organoleptic test Physical test: It includes

Test	F1	F2	F3
Total ash	3.7	3.5	3.6
Loss on drying	5	4	4.5

Uses of herbal tea

- Achieving a more calm and relaxed state of mind
- supporting heart health
- aiding with stomach and digestive problems
- providing cleansing properties for the body
- promoting energy and wellness
- Relaxing the nervous system
- Boost the immune system
- providing antioxidants to the body
- boosting energy levels
- relieving stress
- stimulating the internal organs

CONCLUSION

The consumption of tea as a beverage, health drink or medicated tea needs to be promoted for research and its publication. The detailed literature survey was done, and it was found that the tea can be an interesting topic of research. Here a new combination of herbal tea has been prepared using ficus religiosa, tulasi, ginger, clove, and cinnamon in three different formulations and evaluated. In conclusion, the formulation and evaluation of herbal tea utilizing Ficus religiosa leaves present a promising avenue for exploration within the field of pharmaceutical research. The findings suggest that Ficus religiosa leaves possess significant medicinal properties, including antioxidant, antimicrobial, and anti- inflammatory properties, making them a valuable ingredient

in herbal preparations. Furthermore, the sensory evaluation indicates that the herbal tea offers a palatable and enjoyable sensory experience, further enhancing its appeal to consumers. So, we can conclude that the F2 formulation has showed better taste than other two formulations and preferable for consumption. Overall, this study contributes to the growing body of knowledge surrounding herbal medicine and underscores the potential of Ficus religiosa leaves as a natural remedy for various health condition.

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