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International Journal of Innovation Studies

"FORMULATION AND EVALUATION OF POLYHERBAL TEA CONTAINING OF *CLITORIA TERNATEA, YERBA MATE*, *ASHWAGANDHA* FOR DIABETES, HEART DISEASE."

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Abstract

Tisanes are another name for herbal tea. It is a helps in strengthens immunity, maintains vitality, and regenerates cells. It eases worry, weariness, tension, and exhaustion. The beverage referred to as "herbal tea" is prepared with medicinal plants, herbs, and spices. Because of its medicinal and healing qualities, it is drunk all over the world without the need for caffeine. Herbal tea can be made by decoction or infusion with a total amount of water, or it can be diluted to an appropriate consistency and steeped for a predetermined amount of time. Natural bioactive substances like carotenoids, phenolic acids, flavonoids, coumarine , alkaloids, polyacetylenes, saponins, and terpenoids can be found in abundance in herbal teas and beverages. Herbal tea has antimicrobial and anti-inflammatory qualities, among other medicinal properties. Popular herbal teas include peppermint, ginger, ginseng, black, green, chamomile, and cinnamon teas. Most herbal teas can have one primary herbal component, or a combination of herbs used to achieve a certain goal. This study investigates the preparation and assessment of herbal teas, looking at the harmonious combining of therapeutic herbs to produce tasty and useful drinks. We have selected herbal drugs because of herbal medicine have always been deemed safer than any other medicine due absence of side effect comparable to those associated with other marketed preparation of green tea . Clitoria ternatea Linn, (butterfly pea) Fabaceae family. Clitoria ternatea is used to treat a variety of ailments and symptoms. It possesses antidepressant, anticonvulsant, anticancer, hypolipidemic, anti-inflammatory, analgesic and antipyretic qualities, as well as local anesthetic, purgative, and antidiabetic effects. It's also used to treat snake bites and scorpion sting. Yerba Mate tea is Argentina's national drink, but it's also well-known for its energizing, rejuvenating, and weight-loss effects. South. The consumption of yerba mate may exert a beneficial effect on human health and its consumption is recommended in the treatment of obesity. The presence of essential phytochemical components were observed as per in earlier study report. For the preparation of herbal tea there is collection of herbs and we have evaloute test alkaoides , tannin , glycoside,

saponin , flavoinde are done . The presence study report , herbal tea is compared with the standard marketed preparation of @Liptone green tea.

Key words: tea, herbal infusions, antioxidants, polyphenols, ABTS•+, TEAC, GAE

Introduction

Herbal tea, also called tisane. 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 (1). Herbal tea is made using a combination of herbs in addition to those brewed in hot water (2). Herbal remedies have been created by ancient cultures, such as Ayurveda and Traditional Chinese Medicine (TCM), to cure a variety of illnesses(3).The current market has shown that most herbal based products have shifted from using a single herb to polyherbs, which are believed to exert more pharmacological effects compared to a single herb(4). Sourashtra Herbal Tea (SHT) is composed of several herbs, each which helps in preventing anaemia and also helps to cure premenstrual problems in adolescent 290 girls(5). Nearly 60 to 90% of the total population worldwide uses plant-based medication. Urinary tract infections can be prevented or treated with medicinal plant infusions or tea (6). After water, tea is the most popular beverage. Many individuals find it to have an astringent, slightly bitter, and cooling flavor. One of the most often consumed drinks in all home, social, and professional gatherings is tea. This preparation helps with immune building, energy levels, cell renewal, stress relief, fatigue, exhaustion, anxiety, and many other benefits (7). Many herbal teas are drunk not only as a beverage but also for their potential health benefits (8,9). A decoction or infusion of herbs, spices, or other plant material results in herbal tea, a non-caffeinated beverage. Hence, in some countries like Europe, tisanes or herbal teas are also known as infusions. Many more herbal tea varieties can be found than tea varieties for one simple reason: tea is extracted from one plant, while tisane is made from many. The term "herbal tea" is actually a misnomer, as herbal teas do not contain any tea leaves (10).Herbal tisanes ("teas") are made up of various flowers, herbs, spices, and dried fruits, which are naturally caffeine-free (11).Tea in general, and herb tea in particular, are gaining increasing consumer attention due to growing awareness of the health benefits derived from their consumption (12). The tea plant (Camellia sinensis) leaves are usually boiled in hot water to prepare it. Tea is currently a popular subject in medical and nutritional research conducted worldwide. The same tea plant (Camellia sinensis) is used to make all three of the main types of tea, which vary in terms of fermentation level and tea plant processing techniques. Green tea is produced from non-fermented tea plant leaves, black tea is formed from fully fermented tea plant leaves, and semi-fermented tea is made from semi-fermented tea plant leaves. The tea plant's leaves include phytochemicals with biological activity and antioxidant properties, like flavonoids and polyphenols (13). Tea help decrease in cardiovascular disorders, various types of cancer, increases the mineral density of bones and shows neuroprotective and antifibrotic properties. Tea is very good for oral health, reduces blood pressure, helps control body weight, and possesses antibacterial activity (14). Herbal tea is different from other beverages like

coffee and true tea (15). There are more than 4,000 bioactive compounds present in herbal tea, of which polyphenols account for one-third ratio and the rest is covered by tannins and flavonoids (16). Rich in nutrients, herbal teas made from various herbs' leaves, roots, fruits, and flowers can be used as an alternative to traditional therapy for specific conditions. These teas' high polyphenol content offers a host of health advantages, including anti-inflammatory, anti-cancer, anti-hyperglycemic and antioxidant properties . Researchers and scientists have been examining the health advantages of several herbs used in traditional teas in recent years.

• **Adaptogenic Herbs**: Due to their ability to help the body adjust to stress and enhance general wellbeing, certain herbs, such as holy basil and ashwagandha, are becoming more and more popular.

• **Anti-inflammatory Effects**: Turmeric, which is frequently used in herbal teas, has been shown to have anti-inflammatory qualities, which may help with inflammatory diseases.

• **Gut Health** : Research is being done on the possible advantages of herbal teas with constituents like peppermint and ginger for promoting digestive health and resolving gastrointestinal problems.

• **Sleep and Relaxation**: Valerian root and chamomile are well-known for their relaxing properties, and new studies are looking into how they might help with these areas as well.

• **Antioxidant Rich:** Despite being old, green tea is still being studied because of its high antioxidant content, which may have a number of positive effects on health, including cardiovascular health.

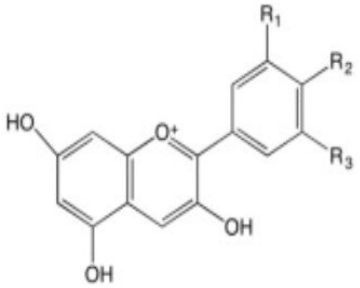
• **Cognitive Function:** Research on the possible cognitive-improving properties of several herbs, like ginkgo biloba, has sparked interest in herbal teas for mental wellness.

• **Blood Sugar Regulation:** Research is being done to determine whether certain herbal teas, such as cinnamon tea, can help control blood sugar levels. This could have positive effects for those who have diabetes.

1) **CLITORIA TERNATEA [BUTTERFLY PEA]**:-

Scientific Name : Asian pigeonwings Family : Fabaceae

Structure of ;- *Clitoria Ternatea*



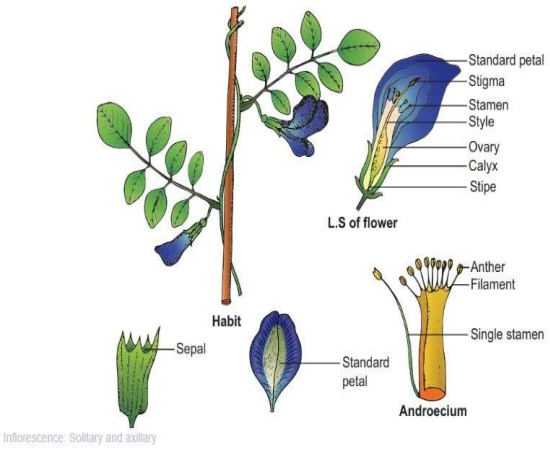
R_1- H , R_2-OH, R_3-H,

BLUE TEA (CLITORIA TERNATEA)

Clitoria ternatea (CT), or butterfly pea flowers, are used to make blue tea. Anti-oxidative, anti-inflammatory, anti-stressor, anti-diabetic, and anti-carcinogenic properties are just a few of the health advantages of blue tea. It is prepared by soaking fresh or dried blossoms of the butterfly pea flower plant, and gets its name from the rich blue color of its petals, which are traditionally used to make dye. It is typically found in South East Asian countries and is sometimes known as blue pea blossoms or pigeonwings. Ayurveda, an all-natural medical system that has been used for hundreds of years in India, refers to butterfly pea flower tea as Anchan tea.

It is associated with the strong Hindu goddess Aparajita, whose name means "the undefeated one," and is used in devotional ceremonies to symbolize love, peace, and protection. Native to Southeast Asia, the butterfly pea blossom (Clitoria ternatea) is frequently used to prepare herbal tea. It is also known as blue clitoria ternatea or butterfly pea tea.Tea made from butterfly pea flowers is also used cosmetically, helping to maintain healthy-looking skin, hair, and eyes.

Nutritious Details -



Butterfly peas when used to make herbal tea. A cup of brewed bu e of sugar, carbohydrates, fat, protein, and caffein xidants, which also give it its distinctive blue hue ges Antioxidants that are abundant in it include:

• Anthocyanins, such as s of antioxidants found in superfoods like red wine, berries, and cherries.

• p-Coumaric acid; flavonoids; kaempferol; quercetin; myricetin glycosides; gallic acid It also includes cyclotides, which are microproteins that aid in the formation of plant connective tissues.

Benefits

1. Rich in Antioxidants: In the past, butterfly pea tea was thought to be an herbal remedy for a wide range of symptoms, including fever, inflammation, diabetes, and arthritic pain caused on by the breakdown of collagen. Butterfly pea flowers are high in antioxidants and can help fight against free radicals and oxidative stress, two factors that accelerate the aging process and the beginning

of disease. These particular substances have been demonstrated to help stop the spread of cancer cells and to shield other vital organs like the liver, brain, and heart from harm.

2. Contains Antimicrobial and Immune-Suppressive Properties Naturally Because butterfly pea flowers contain substances including p-coumarin acid and delphinidin glucoside, it is thought that they have antibacterial and anti-inflammatory properties. Tea made from this plant may help prevent infections and viruses. According to research, butterfly pea tea can protect against stomach spasms, nausea, heartburn, and ulcers while also promoting gut health and a healthy digestive system—both of which are strongly correlated with immune system performance. As a moderate laxative and natural diuretic, it may also aid in detoxification and the liver's capacity to eliminate toxic waste from the body. Clitoria ternatea is occasionally used to treat parasite illnesses because it has also been shown to have anthelmintic qualities. This plant's capacity to support respiratory health is another way that it strengthens the immune system. In order to cure bronchitis, colds, and coughs, it can help clear mucus and fluids from the lungs and airways as well as lessen irritation and inflammation.It is also believed to be beneficial in the treatment of allergies and asthma. The flower of Clitoria ternatea was one of the most often used ingredients in many Ayurvedic medicines used to treat respiratory diseases.

3. Supports Cognitive Health- Some research, including on animals, suggests that Clitoria ternatea can boost levels of acetylcholine in the brain, which is a beneficial compound for focus, memory and other cognitive tasks. Because of its ability to fight oxidative stress, butterfly pea flower might be helpful for slowing age-related memory loss and for generally supporting mental health, including by protecting against anxiety, effects of chronic stress, depression and ADHD.

4. May Help Protect Your Vision: Clitoria ternatea extracts and eye gels are used in some cases to treat vision-related conditions such as glaucoma, damaged retinas, blurred vision, poor night vision, and tired, dry, or strained eyes. The antioxidants in the plant can also help protect the eyes from free radical damage caused by the sun, irritants, and the effects of a poor diet.

5. Promotes Skin and Hair Health: When used topically, butterfly pea flower may be able to stop premature aging symptoms on the skin, such as fine lines, uneven tone and texture, and loss of skin elasticity. Antioxidants like polyphenols have been shown to increase skin moisture and protect against UV damage. It may also aid in the treatment of skin-related rashes, swelling, itching, dermatitis, and allergies due to its anti-inflammatory qualities. The capacity of butterfly peas to support maintaining of a healthy scalp and hair is yet another advantage. It is believed to assist increase blood flow to the hair follicles and lessen inflammation, both of which may hinder the creation of new hair. you'll find it in some hair shampoos, conditioners and other hair products intended to reduce graying and hair thinning.

6. Assists in Metabolic Functions: According to some animal research, Clitoria ternatea may help lower hypertension (high blood pressure) and high cholesterol, support various cardiovascular processes, and balance blood sugar levels. Its capacity to eschew oxidative stress has been linked

in several studies to protection against insulin resistance and diabetic symptoms. Due to its broad metabolic advantages, butterfly peas, like other high-antioxidant plants, may aid in weight loss .

Fig - Butterfly pea (*Clitoria ternatea*) flower extracted in different solvents. Left to right: 0%, 40%, 50%, 75.5% and 95% alcohol by volume (ABV) in water. Extraction performed at 175°F (~80°C) for a duration of 60 minutes and at a solid-to-liquid ratio of 1:20 g/mL and provide protection against obesity; still further research is required on this subject.

Color-Changing Anthocyanin :-

The largest group of phenolic pigments, anthocyanins, are primarily associated with the antioxidant and colorant properties of the flower or fruit they are in. These same compounds are directly responsible for the blue, purple, pink, red and orange colors found in plants. In butterfly pea flowers, the main anthocyanin responsible for the deep blue to purple color is delphinidin. Siti Azima et al. found that with a significantly higher color density (CD) and chroma (C) value, BPFE has a more intense, vivid and saturated color than other natural colorants they tested.

Also unique to BPFE is the ability of the extract to change color; four different colored forms of the anthocyanin exist, and they can be changed back and forth purely based on the pH. In the flowers, the deep blue to purple color is caused by a near-equal mixture of the flavylium (red) and quinoidal (blue) forms. When the pH is lowered, usually through the addition of a mild acid like lemon or lime juice, there is more of the flavylium (red) form and the BPFE will appear pink or light purple instead. When the pH is raised, the quinoidal (blue) and chalcone (yellow) forms are both present, leading to a green color. This is commonly achieved through the addition of the spice saffron due to its .

pH

As presented earlier, BPFE and its associated anthocyanins are heavily influenced by pH of the surrounding solution, primarily when it comes to the color of the extract. At its normal pH (6.0–8.0) the deep blue to purple color is caused by a near equal mixture of the flavylium (red) and quinoidal (blue) forms of anthocyanin; going outside of that normal pH range can cause undesired

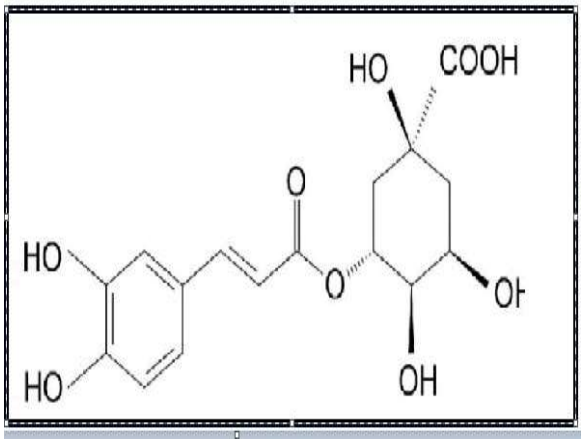
color changes in the finished product. Flour commonly contains bleaching agents such as benzoyl peroxide, which can oxidize and discolor certain anthocyanins, making them unusable in most baked goods. This color change is measured as the indices of polymeric color (PC), or the stability of the colorant towards bisulphite reaction. With a higher PC than other natural colorants tested, BPFE shows strong potential for being used in applications where it is exposed to storage and processing pH changes

2) Yerba Mate :

Scientific Name : Iiex paraguariensis

Family : Aquilfoliace

STRUCTURE OF YERBA MATE -



Yerba Mate ;-

Tea is infusion made from the leaves of the Ilex paraguariensis plant, known as yerba mate. Popular in South America, this nonalcoholic beverage is rapidly gaining popularity abroad, whether as a tea, ingredient in prepared dishes, or nutritional supplement. The dried, crushed leaves (about 95%) and stems (about 5%) of the Ilex paraguariensis A.St.-Hilaire tree are used to make yerba mate, often known as Paraguay tea. This is a plant native to South America which grows primarily in northern Argentina (Corrientes, Misiones), Paraguay, Uruguay and southern Brazil (Rio Grande do Sul, Santa Catarina, Paraná and Mato Grosso do Sul). It is relatively difficult to cultivate Ilex paraguariensis in other parts of the world, and to-date, attempts to cultivate this plant in regions with a similar climate, e.g. North America, Asia, Africa, have been unsuccessful. Therefore, the main crops come primarily from wild growing trees, although in recent years an increase has taken place in land areas under controlled cultivation in South America.

HEALTH PROMOTING PROPERTIES YERBA MATE

The antioxidant, antiobesity, and anti-inflammation activities of yerba mate extracts and components have previously been reviewed. (Bastos et al., 2007; Heck and De Mejia, 2007)
Anti-diabetic - Advanced glycation end products have been found to be controlled by yerba mate .
Increases Digestion- A team of researchers from Argentina discovered that yerba maté can stimulate bile flow and improve intestinal transit .
Stimulant and Anti Fatigue- Yerba maté stimulates the central nervous system. The ability to maintain aerobic glucose breakdown during exercise for lengthy periods of time appears to be one of maté's metabolic benefits. As a result, more calories are expended, improving cardiac efficiency and delaying lactic acid build-up .

3) ASHWAGANDHA:-

Scientific Name : Withania somnifera
Family : Solanace

Active biochemical contents :

A specific steroidal lactone called withanolides have also been observed in Ashwagandha. The presence of these alkaloids is thought to be responsible for many pharmacological properties of Ashwagandha Root Alkaloids, 18 fatty acids, beta-sitesterol, polyphenols, and phytosterols are also found in the roots .

Common uses :

Ashwagandha had already traditionally used as an aphrodisiac. It has a long list of uses as a home remedy. It is part of the Ayurvedic, Siddha, and Unani traditions, and is listed in the Indian Materia Medica. Scientific researches on ashwagandha strongly claim a vast range of potentially advantageous and diverse uses for health improvement and support. A discussion of each of these potential applications are as follows.

1. Relevance in Chemotherapy and radiation-based treatment

Chemotherapy and radiation therapy are very common to treat cancer patients. Both of these treatments have the potential to lower white blood cell (WBC) counts, and chemotherapy can cause mylosuppression, or a reduction in the capacity of the bone marrow to produce WBC. As a result, the immune function
Ashwagandha has been shown in studies to improve immune function in addition to its ability to treat cancer. It was demonstrated in a study in which mice given a daily dose of Ashwagandha had increased phagocytosis and intracellular macrophage activity against a
pathogen. In a study on mice, the tumor-fighting abilities of macrophages were found significantly affected by ashwagandha root extract. In addition to providing immunogenic effect, ashwagandha has been used to prevent organ failure in mice treated with immunosuppressive medications, resulting in significant increases in hemoglobin level, RBC count, WBC count, platelet count, and body weight .
Ultimately, mice's immune systems were suppressed using a various approach before being subjected to infectious organisms in a series of studies. Mice which were pretreated with one of

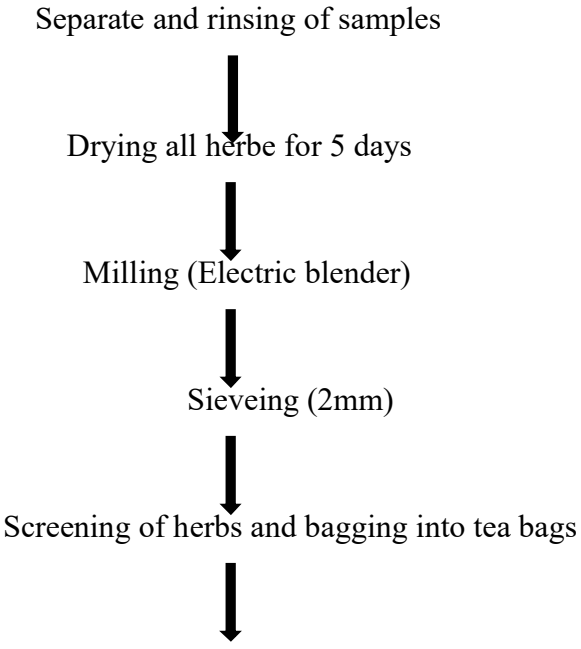
six herbs, including ashwagandha, appeared much better than the control ones in each experiment. Mice given the herbs rapidly recovered, with less illness, and very low fatality rate. Artificially produced neutropenia (a lack of neutrophils, a type of white blood cell) was reduced by these herbs, but leucocytosis was increased (an increase of white blood cells). Antibiotics and these herbs were used together in therapies that had a much better healing impact than either treatment alone. Stress-related damage was also minimized by the herbs **3. Antioxidant activity**

Ashwagandha seems to be have significant antioxidant activity, which is also one of its signaling pathways. In a study, Ashwagandha was found to reduce free radical oxidation in the liver of mice while strengthening antioxidant enzyme activity like superoxide dismutase (SOD) and catalase . In other studies, Ashwagandha was found to suppress free radical activity in stress-induced mice . From another study, Ashwagandha, given once daily for 21 days, boosted SOD, catalase, and glutathione peroxidase levels in rats in a dose-dependent manner [16]. From one investigation, Ashwagandha enhanced SOD activity in the pancreas of diabetic rats when used as an aspect of an Ayurvedic herbal formulation.

4. Mental stress exemption

Ashwagandha has been employed in the treatment of psychological and emotional well-being. In animal experiments, for instance, it has been used .

Preparation Of Herbal Tea



Preparing infusions

MATERIALS AND METHODS

The experimental material were tea bags and herbal tea bags available in the retail trade, i.e.: green tea, black tea, white tea as well as herbal teas from clitoria ternatea , yerba mate, ashwagandha leaves or root . Determinations were conducted on the material from 3 different batches and at least in triplicate. Infusions were prepared by adding 200 mL of deionised boiling water to 2 g of tea or herbal tea. The infusions were brewed under cover for 5 min (teas) or 10 min (herbal teas). The aqueous extract was obtained by filtering the mixture through filter paper and then used for analysis. The antioxidant properties of the infusions examined were analysed with a spectrophotometric method with the use of ABTS• synthetic cationradicals. The results were presented as TEAC (Trolox Equivalent Antioxidant Capacity), i.e. as μmol of Trolox per 1 g of dry tea or herbal tea. The calculations were carried out for the solutions showing the ability to "scavenge" ABTS•+ cationradicals within the range of 20-80% based on curve calibration equation . Total polyphenols content was determined with Singleton & Rossi method [1965], and the results were presented as GAE (Gallic Acid Equivalent), i.e. mg of gallic acid per 1 g of dry tea or herbal tea.

Methodology :

Collection of plant materials :-

The blue pea flower (Clitoria ternatea) used in this study and purchased from the local market. The Yerba mate leaves also collected from botanical garden of Karmaveer Bhavraro Patil Institute Of Pandharpur

Method :-

Clitoria ternatae L. flowers were taken. The flowers were washed with the help of tap running water then rewashed with distilled water. After washing, the flowers were put on the aluminium foil for air dryer sand then flowers petal were kept in place at 60°C for 4 - 5 hours for extra water content removes from the leaves. After 4 hours flowers were taken out from dry. Fine grinned powder of flowers was made with the help of Mortar and pestle. Then add dry yerba mate leaves and ashwangdha powder that has been prepared and mashed it with Butterfly pea flower that has been weighed with total weight of 1 gram of yerba mate powder addition then Put the pea flower powder and ashwangdha powder together.

Preparation of flower extracts :-

The powdered plant parts were Soxhlet extracted with ethanol. The extract, on removal of solvent in vacuum, gave a dark greenish brown semisolid residue. The powdered material or the extracts of the flower were used for the study.

Table 1 : Formulation of herbal tea:-

Sr.no.	Ingredient	Formulation				
		F1	F2	F3	F4	F5
1	Clitoria ternatea	2	8.33	7.55	3.5	5.5
2	Yerba mate	10	41.66	38.03	35.40	20
3	Ashwagandha	0.030	0.030	0.030	0.030	0.030
4	Additives	0.030	0.030	0.030	0.030	0.030

Steps 1 – Harvested fresh flower of clitoria ternatea . weigh butterfly pea flower.

Drying the Butterfly pea flower into a tray dryer at temperature 60c for 2 hours ; 2.5 hours ; 3hours; and 3.5 Hours

Steps 2 - Weigh the dry peas and then grind them in a blender , Weigh 100 grams of dry yerba mate leaves and ashwagandha that has been prepared and then mashed Butterfly pea flower that has been weighed with total weight Of 1 gram of yerba mate and ashwagandha powder addition,

Steps 3 - Put the pea flower power and yerba mate and ashwagandha power into the tea bag Packaging & Labelling of the tea Butterfly pea flower that has been weighed with total weight of 1 gram of yerba mate powder

Evaluation of herbal tea :-

Qualitative analysis – It comprised of tests for the presence of Alkaloids, Tannins, Glycosides, Resins, Steroids, Saponins, Flavonoids.

a) Test for Alkaloids: About 0.5 gm of ethanol extract was taken in a test tube and was diluted and homogenized with 10 ml distilled water, dissolved in 20 ml dilute HCl solution and clarified by filtration. The filtrate was tested with Dragendroff's Wagner's and Hager's reagent. The treated solution was observed for precipitation of white or creamy colour.

b) Hager's Reagent Test - Crude extract was mixed with 2ml of Hager's reagent followed by 1 ml of dil. HCl. It gives light yellow colour. Yellow coloured precipitate indicates the presence of alkaloids.

c) Dragendroff's Reagent Test - Crude extract was mixed with 2ml of Dragendroff's reagent followed by 1 ml of dil. HCl. Orange coloured precipitate indicates the presence of alkaloids.

d) Wagner's Reagent Test - Crude extract was mixed with 2ml of Wagner's reagent followed by 1 ml of dil. HCl. It gives light yellow colour. Reddish brown coloured precipitate indicates the presence of alkaloids.

b) Test for Tannins Five grams of the ground powder was extracted with 10 ml ammonical chloroform and 5 ml chloroform. The mixture was filtered and the filtrate was shaken with 10 drops of 0.5 M sulphuric acid. Creamish white precipitate was observed for the presence of tannins.

c) Test for Glycosides About 0.5 gm of ethanol extract was taken in a test tube and 1 ml glacial acetic acid containing traces of ferric chloride was added to it. To this solution, 1 ml concentrated sulphuric acid was added and observed for the formation of reddish brown colour at the junction of the two layers and the upper layer turned bluish green in the presence of glycosides.

d) Test for Resins For the tests concerning the presence of Resins, 0.5 gm of methanol extract was taken in a test tube and 5 ml of distilled water was added to it and observed for turbidity which indicates the presence of Resins.

e) Test for Steroids About 0.5 gm of ethanol extract was taken in a test tube and 2 ml of acetic anhydride was added to it and 2 ml of sulphuric acid was added by the sides of the test tube and observed for the colour change to violet or blue green

f) Test for Saponins: About 0.5 gm of ethanol extract was taken in a test tube and 5 ml distilled water was added to it. The solution was shaken vigorously and observed for persistent froth. The frothing was mixed with 3 drops of olive oil and shaken vigorously after which it was observed for the formation of an emulsion.

g) Test for Flavonoids: About 0.5 gm of extract was introduced into 10 ml of ethyl acetate in a test tube and heated in boiling water for 1 min. The mixture was then filtered. About 4 ml of the filtrate was shaken with 1 ml 1% aluminium chloride solution and incubated for 10 min. Formation of yellow colour in the presence of 1 ml dilute ammonia solution indicated the presence of flavonoids.

Result and discussion –

General Evalution for herbal tea :-

Sr.no.	character	F1	F2	F3	F4	F5
1	Colour	blue	blue	blue	Light blue	Light blue
2	Odour	odourless	odourless	odourless	odourless	odourless
3	PH	7-10	7-10	7-10	6-7	6-7

Evaluation parameters

Determination of ash value Ash value are helpful in determining the quality and purity of crude drug, especially in powder form. The objective of ash vegetable drugs is to remove all traces of organic matter, which may otherwise interfere in an analytical determination.

1. Total Ash value

Weight accurately about 2 gm of powdered drug in a tarred silica crucible. Incinerated at a temperature not exceeding 450 °C for 4 hrs, until free from carbon, cooled and weighted

$$\% \text{ Total Ash value} = \frac{\text{Wt. Of total ash} \times 100}{\text{Wt. Of crude drug taken}} = \frac{7.9}{2} \%w/w$$

2 .Water soluble ash value

The ash boiled with 25 ml of water, filtered and collected the insoluble matter on an ash less filter paper, washed with hot water and ignited in a tarred crucible at temperature not exceeding 450 0C for 4 hrs cooled in desiccators, weighted and sub stracted weight off insoluble matter from the total weight of ash.

$$\% \text{ water soluble ash value} = \frac{\text{Wt. of total ash- Wt of water insoluble ash} \times 100}{\text{Wt. Of crude drug taken}}$$

$$= 2.85 \%w/w$$

3. Acid insoluble ash value Boiled the ash for 5 min with 25 ml of 2 M HCL. Filtered and collected the insoluble matter on ash less filter paper, washed with hot water and ignited in tarred crucible the temperature not exceeding 450 0C for 4 hrs. Cooled in dissicator and weighted. Calculated of percentage of acid insoluble ash with the reference to the air dried drug.

$$\% \text{ Acid insoluble ash value} = \frac{\text{Wt. of acid insoluble ash} \times 100}{\text{Wt. of crude drug taken}}$$

=3.45 %w/w

4. Bulk density (gm/ml)2 -

Bulk volume in ml Mass of Granule in gram

Bulk density = Mass

Bulk Volume =0.60 g/ml

5. Tapped density (gm/ml)2 -

Tapped volume in ml

Mass of granule in gram

Tapped density = Mass

Tapped Volume

= 0.78 g/ml

6. Angle of repose-

Height of pile in cm Average radius of circle in cm

Angle of repose (ɵ) = tan-1(h/r)

=18.26

Table -: Preliminary phytochemical screening of Flower Extract

Phytochemical tests	**Name of Test**	***Floewer Extrat***
Tennins	5% $FeCl_3$, Lead acetate Test	+
Steroids	Salkowski Test	+
Flavonoids	Shinoda Test	+
Alkaloids	Hagers Test Meyers Test Wagners Test	+
Carbohydrates	Molishs Test	+
Terpenoids	Salkowski test	+
Cardic Glycoside	Keller Killiani test	+

In vitro Anti-infammatory effect flower extract

Table -: % inhibition of Flower Extract

Conc. (ug /ml)	Absorbance of Test (Extract)	Absorbance of reference (Diclofenac sodium)	*% Inhibition*
100	0.0837	0.0489	71.16
400	0.1553	0.0621	150.08

In vitro Anti-infammatory effect of prepared herbal tea formulation

Table - % inhibition of prepared Herbal Tea formulation

Conc. (ug /ml)	Absorbance of Test (Extract)	Absorbance of reference (Diclofenac sodium)	*% Inhibition*
100	0.0927	0.0489	89.57
400	0.1270	0.0621	104.50

Conclusion :

The antioxidant properties of the herbal teas examined were considerably lower in comparison with those of the Camellia sinensis teas and both groups had the approximately the same level of total polyphenols. It proves that Camellia sinensis teas have a higher antioxidant activity of polyphenols. Out of the teas and herbal teas examined – green tea, white tea and black tea were characterized by the highest antioxidant activity, whereas the lowest one was observed in chamomile, peppermint . Total polyphenols content in individual teas and herbal teas was positively correlated with the antioxidant activity expressed as TEAC .Great variation was observed in the antioxidant activity of particular teas from different producers, which emphasizes the need to establish proper technological parameters in teas production as well as systematical control of their antioxidant properties.

Compliance with ethical standards -

Acknowledgement: The author is grateful to the management and staff members for providing necessary requirements and support throughout the study.

Conflict of interest-The authors declare that they have no conflict of interest.

Informed consent- Not Applicable

Funding information- The authors declare that no funding for the research received. This study was not supported by any funding.

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