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Suresh G Killedar
 Bharati Vidyapeeth College of
 Pharmacy, Kolhapur,
 Maharashtra, India

Aarti V Pawar
 Bharati Vidyapeeth College of
 Pharmacy, Kolhapur,
 Maharashtra, India

Preparation of herbal tea from mulberry leaves

Suresh G Killedar and Aarti V Pawar

Abstract

Mulberry leaves are thin, glossy, and light green in color. The shape of the leaf can be quite variable even on the same tree. Some leaves have 5 lobes while others have one lobe, two lobes, three lobes, or no lobes at all. Herbal teas (which are also called 'tisanes') are simple, effective, inexpensive, caffeine- and drug-free ways to enjoy the taste and benefits of herbs and spices. By drinking herbal tea, you're also providing your body with some much-needed hydration! From this project it is concluded that mulberry leaves powder was obtained which was standardized and evaluated for preparation of herbal tea. The leaves of mulberry plant have antioxidant activity hence they can be used in order to improve the health of human being because free radicals are the major cause of different disorders. Hence by using the leaves of the mulberry plant herbal tea can be prepared. Through this project the powder extract was standardized and even evaluated and also stability study was carried out. For proper analysis of stability it can be done by further accelerated stability analysis. There are lot of uses of tulsi and ashwagandha we prepare mulberry and tulsi, ashwagandha combinations which acts like antioxidant, immunomodulator, a mood stabilizer, antiviral and antibacterial. This preparation can be used in dry or liquid form to improve human health. The taste of this herbal bend can be possible with FDA approved natural ingredients for better compliance and can be served with or without sugar. Further study is necessary to make combinations of specific herbs for treatment of different types of diseases.

Keywords: Herbal tea, mulberry leaves, ashwagandha combinations

Introduction

Plant Introduction: Mulberry

Authentic black mulberry trees have been measured over 50 feet tall, in London, but the vast majority is low, broad, and often the size of a small apple tree. Based on photographs I have seen, and its size, the so-called "National Champion" black mulberry tree, in Westminster, Carroll County, Maryland, is a White Mulberry tree (*Morus alba* L.). Since 1955 it has been misidentified thus. As of 1999 it was said to be 60 feet tall and 80 feet wide. In my own travels on the Pacific Coast, the largest black mulberry trees are around 30 feet tall and are often wider than tall. Mulberry leaves are thin, glossy, and light green in color. The shape of the leaf can be quite variable even on the same tree. Some leaves have 5 lobes while others have one lobe, two lobes, three lobes, or no lobes at all.

- **Synonym:** Morera negra, Murrier noir, Purple mulberry
- **Biological Source:** It consists of dried leaves of plant *Morus nigra*.
- **Family:** Artocapaceae (Morace)
- **Geographical Source:** The following species are generally accepted:
 - *Morus alba* L. – White Mulberry (E Asia)
 - *Morus australis* Poir. – Chinese Mulberry (SE Asia)
 - *Morus insignis* (S America)
 - *Morus mesozygia* Stapf – African Mulberry (S and C Africa)
 - *Morus nigra* L. – Black Mulberry (SW Asia)
- **Cultivation and Collection:** Mulberries can be grown from seed, and this is often advised as seedling-grown trees are generally of better shape and health, but they are most often planted from large cuttings which root readily. The mulberry plants which are allowed to grow tall with a crown height of 5–6 feet from ground level and a stem girth of 4–5 inches or more is called tree mulberry. They are specially raised with the help of well-grown saplings 8–10 months old of any of the varieties recommended for rain-fed areas like S-13 (for red loamy soil) or S-34 (black cotton soil) which are tolerant to drought or soil-moisture stress conditions.

Correspondence
Suresh G Killedar
 Bharati Vidyapeeth College of
 Pharmacy, Kolhapur,
 Maharashtra, India

Usually, the plantation is raised and in block formation with spacing of 6 feet x 6 feet, or 8 feet x 8 feet, as plant to plant and row to row distance. The plants are usually pruned once a year during the monsoon season (July – August) to a height of 5–6 feet and allowed to grow with a maximum of 8–10 shoots at the crown. The leaves are harvested 3–4 times a year by a leaf picking method.

- **Description:** The Common Mulberry is a handsome tree, 20 to 30 feet high, of rugged, picturesque appearance, forming a dense, spreading head of branches usually wider than the height of the tree, springing from a short, rough trunk. It bears unisexual flowers, the sexes in separate spikes, or catkins, which are small, more or less cylindrical and in no way beautiful. Mulberries are extremely juicy and have a refreshing, sub acid, saccharine taste, but they are devoid of the fine aroma that distinguishes many fruits of the order Rosaceae.

Tulsa

Tulsi (Sanskrit:- Surasa) has been used for thousands of years in Ayurveda for its diverse healing properties. It is mentioned in the Charaka Samhita. An ancient Ayurvedic text. Tulsi is considered to be an adaptogen, balancing different processes in the body, and helpful for adapting to stress. Marked by its strong aroma and astringent taste, it is regarded in Ayurveda as a kind of "elixir of life" and believed to promote longevity

- **Synonym:** Sacred basil, Holy basil.
- **Biological Source:** It consists of fresh and dried leaves of *Ocimum sanctum* Linn. contains not less than 0.40 per cent eugenol on dried basis.
- **Family:** Lamiaceae
- **Geographical Source:** It is multi branched annual plant found throughout India.
- **Chemical constituents:** It contains 70% eugenol, volatile oil, carryophyllin and also alkaloids, glycosides, tannins, saponins, citric acid, malic acid.
- **Uses:**
 1. Antibacterial
 2. Insecticidal
 3. Stimulant
 4. Aromatic
 5. Anti-inflammatory
 6. Expectorant.

Ashwagandha

The roots and berry of ashwagandha plant are a traditional Ayurvedic medicine in India. Ashwagandha used as a tonic to improve physical and mental health and to treat a number of specific conditions.

- **Synonym:** Withania root, Winter cherry
- **Biological Source:** It consists of dried roots and stem bases of *Withania somnifera*, family-solanaceae.
- **Geographical Source:** Madhya Pradesh, Uttar Pradesh, Punjab plains and north western parts of India like Gujarat and Rajasthan.
- **Chemical Constituents:** Withanine, Somniferine, Somnine, Tropine and Pseudo tropines.

Uses

1. Sedative and Hypnotic effects
2. Hypotensive, Respiratory stimulant.
3. Immunomodulatory agent
4. Antistress activity and mood stabilizer

Importance of Herbal Tea

What Is Herbal Tea?

Herbal tea looks like tea and is brewed in the same way as tea, but it not actually a tea at all. This is because they do not come from the *Camellia Sinensis* bush, the plant from which all teas are made. Herbal teas are actually infusions, and are properly called tisanes. Tisanes are made from mixtures of dried leaves, seeds, grasses, nuts, barks, fruits, flowers, or other botanical elements that give them their taste and provide the benefits of herbal teas. Unlike other forms of tea, herbal teas contain no caffeine. They also taste great and are easy to drink. Your herbal tea may consist of one main herbal ingredient or it may be a blend of herbal ingredients, designed to bring about a specific purpose, such as relaxation, rejuvenation, relief from a specific condition, amongst other things.

Steps for Making Herbal Tea

- Heat fresh, filtered water to a rolling boil.
- Add one teaspoon of herbs or one tea bag per six-ounce cup – the size of a traditional tea cup rather than a mug.
- Pour the water over the herbs and infuse.
- Steep herbs 5-7 minutes for herbal tea bags as well as full-leaf herbal tea.
- Experiment to find your favored steeping time. Enjoy Sip by Sip.

Uses of Herbal Tea

- Herbal teas (which are also called 'tisanes') are simple, effective, inexpensive, caffeine- and drug-free ways to enjoy the taste and benefits of herbs and spices.
- By drinking herbal tea, you're also providing your body with some much-needed hydration!
- 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.
- Nourishing the nervous system.
- Strengthening the immune system.
- Providing antioxidants to the body.
- Boosting energy levels and invigorating the body.
- Relieving stress.
- Helping to avoid colds.
- Stimulating the internal organs.
- Promoting a good night's sleep.
- It is caffeine free and tastes great.

Whether you love herbal tea for the pleasurable taste alone or you are drawn as well to herbal tea benefits, the many varieties and health benefits of herbal tea provide you with a plethora of choice! Here are some of the more common herbal teas and a taste of the benefits they can provide

Collection of Leaves

Cultivation of mulberry for silkworms began over four thousand years ago in china.

The species is now extensively planted and widely naturalized throughout the warm temperature world. It has been grown widely in Indian subcontinent. The leave of plant may be up to 30cm lobes rounded. On older trees the leaves are generally 8-18cm long chordate at base and rounded to aluminates at the tip and serrated at margins. Collection of the leaves of *Morus Nigra* was done from the region nearby kagal and

collection was done by handpicking method. Nearby kagal a sericulture farm is there from which the collection of leaves was done for performing the work. During the period of November-December the collection of leaves was done

Powdering of Leaves

After collection of the leaves they were dried under shade for about one week and with the help of disintegration the leaves were converted to powder form the maker of disintegrators used was Trimurti Company The main use of disintegrators is to crush the materials and to produce a powder of determined size

The screens that are installed in the machine have 360° of screen area which assure uniformity of final product size minimizes horsepower consumption and machine vibration and offers minimal product temperature rise. Disintegrator can be used as a grinder/mixer disintegrator is widely used for grinding powder and agglomerates.

After disintegration or conversion of the dried leaves to a powdered through a sieve having mesh size no. 40 and this passed powder was utilized further for the work

Decoction Method

This is the ancient and more popular process of extracting water soluble and heat stable constituents from crud drug by boiling in about 15 minutes. The boiled crud drug –water mixture is then cooled, filtered and sufficient volume of cold water is passed through the drug to produce the required volume.

• Mulberry+ Ashwagandha

Organoleptic Characters:

Colour: Cremish Green

Odour: Bitter

Taste: Bitter

PH: 8-9.

Physical characters

Density is calculated using density bottle

a) Density = Mass/Volume

$$= \frac{\text{weight of filled bottle} - \text{weight of empty bottle}}{\text{Volume}}$$

$$= \frac{38.700 - 12.83}{25}$$

$$= 1.03$$

b) Viscosity = viscosity is calculated using viscometer

$$\text{Viscosity of test} = \frac{\text{Density of std} \times \text{time required by std}}{\text{density of test} \times \text{time required by test} \times \text{viscosity of test}}$$

$$= \frac{1 \times 32}{1.03 \times 118} \times 0.84$$

$$= 0.22$$

• Mulberry+Tulsi

Organoleptic Characters

Colour: Gree

Odour: Bitter

Taste: Bitter

PH: 8-9.

Physical characters

Density is calculated using density bottle

a) Density = Mass/ Volume

$$= \frac{\text{weight of filled bottle} - \text{weight of empty bottle}}{\text{Volume}}$$

$$= \frac{38.886 - 12.83}{25}$$

$$= 1.04$$

b) Viscosity = viscosity is calculated using viscometer

$$\text{Viscosity of test} = \frac{\text{Density of std} \times \text{time required by std}}{\text{density of test} \times \text{time required by test} \times \text{viscosity of test}}$$

$$= \frac{1 \times 32}{1.04 \times 118} \times 0.84$$

$$= 0.21.$$

Phytochemical Screening

Table 1

Sr. No	Test	Test carried out	Plain Mulberry	Mulberry + Ashwagandha	Mulberry + Tulsi
1	Alkaloids	Meyers test	Present	Present	Present
2	Amino Acid	Ninhydrine test	Present	Present	Present
3	Glycosides	Baljets test	Present	Present	Present
4	Carbohydrates	Molischs test	Present	Present	Present
5	Volatile oil	Sudan red test	Present	Present	Present
6	Fixed oil	Saponification test	Present	Present	Present
7	Steroids	Sulfur powder test	Absent	Absent	Absent
8	Tannins	Gelatin test	Present	Present	Present
9	Flavonoids	Zinc hydrochloride test	Present	Present	Present
10	Proteins	Biuret test	Present	Present	Present

Preparation of Mulberry Tea

Start by boiling 'Pure' water - 6 to 8 ozs (200 to 250ml). Place one teaspoon of Mulberry Leaf into your pot. Let the water cool for about one minute.

Water temperature just below the boiling point is perfect at 160 to 200 degrees F (71 to 93 C). Pour a little water over the leave to rinse, and then remove. Fill your pot with water and steep 3 to 5 minutes. Pour, serve & enjoy!

Mulberry tea contains

- immune-boosting antioxidants
- anti-cancerous alkaloids
- 18 amino acids

- calcium
- potassium
- sodium
- magnesium
- Vitamins
- 0.01% or no caffeine

How to Select Mulberry Tea

We recommend drinking organic, fair trade Mulberry Tea that is grown and processed without pesticides or artificial fertilizers. This means that you can reap the health benefits of organic tea knowing that small farms are being supported, workers on tea plantations are being treated fairly, and that

both the workers and our environment are not exposed to the harmful chemicals used in conventional tea production. We also recommend selecting a loose leaf Mulberry Tea. With a loose leaf tea, you're getting whole, loose leaves with all of their essential oils intact. In contrast, the leaves that go into tea bags are leaf fragments and tea dust left over during the processing and picking of the tea leaves. The dry leaf fragments and tea dust placed into tea bags lack the essential oils found in the whole leaves and tend to be of vastly inferior quality compared to loose leaf teas. Another reason for selecting loose leaf Mulberry Tea is cost. Lower quality tea bags usually cost anywhere from twenty cents up to seventy cents for more premium tea bags. In contrast, tea brewed from good quality loose leaves can run as low as 13 cents per cup. In addition, high quality loose leaf tea can be re-infused up to four times before losing its flavor. You can also add the loose Mulberry leaves to recipes once you've finished preparing tea from them.

Stability Study

Stability study of different mulberry tea preparation was carried out and result is obtained from that study is the colour of tea was changed and preparations makes very thick after 5 days.

Result

Mulberry tea is beneficial to human body because it have antidiabetic, antioxidant like activity. We prepare 3 types of mulberry tea plain mulberry, mulberry+ tulsi and mulberry+ ashwagandha in 5, 4:1, 3:2 respectively. In that we observe when we add other ingredients which are beneficial to human body it also makes preparation more useful and there is very small difference in their stability. All 3 types of mulberry tea preparation have antioxidant activity and according to stability study all three types of preparations are stable for long time.

Conclusion

From this project it is concluded that mulberry leaves powder was obtained which was standardized and evaluated for preparation of herbal tea. The leaves of mulberry plant have antioxidant activity hence they can be used in order to improve the health of human being because free radicals are the major cause of different disorders. Hence by using the leaves of the mulberry plant herbal tea can be prepared. Through this project the powder extract was standardized and even evaluated and also stability study was carried out. For proper analysis of stability it can be done by further accelerated stability analysis. There are lot of uses of tulsi and ashwagandha we prepare mulberry and tulsi, ashwagandha combinations which acts like antioxidant, immunomodulator, a mood stabilizer, antiviral and antibacterial. This preparation can be used in dry or liquid form to improve human health. The taste of this herbal bend can be possible with FDA approved natural ingredients for better compliance and can be served with or without sugar. Further study is necessary to make combinations of specific herbs for treatment of different types of diseases.

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