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Study of Plant Tulsi and its benefits for human beings

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Abstract

Ocimum tenuiflorum (synonym *Ocimum sanctum*), commonly known as holy basil, tulsi is an aromatic perennial plant. In this paper, various characteristics and cultivation methods of soil is discussed. Chemical composition and forms of tulsi is also described. The main objective of this paper is to mention different uses of tulsi. Various side effects and considerations are thoroughly considered.

Keywords: *Ocimum tenuiflorum*, holy basil, human beings

Introduction

Ocimum tenuiflorum (synonym *Ocimum sanctum*), commonly known as holy basil, tulasi (sometimes spelled thulasi) or tulsi, is an aromatic perennial plant in the family Lamiaceae. It is native to the Indian subcontinent and widespread as a cultivated plant throughout the Southeast Asian tropics.

Tulasi is cultivated for religious and supposed traditional medicine purposes, and for its essential oil. It is widely used as herbal tea, commonly used in Ayurveda, and has a place within the Vaishnava tradition of Hinduism, in which devotees perform worship involving holy basil plants or leaves.

It is associate degree aromatic plant within the Labiatae that is native to the Indian landmass and widespread as a tracheophyte throughout the Southeast Asian tropics. It's an erect, several branched suffrage, 30–60 cm tall with furry stems and straightforward opposite inexperienced or purple leaves that area unit powerfully scented. Leaves have petioles and area unit ovate, up to five cm long, typically slightly toothed. The flowers area unit violet in elongate racemes in shut whorls. The 2 main morphotypes cultivated in India and Kingdom of Nepal area unit green-leaved (Sri or Hindu deity tulasi) and purple-leaved (Krishna tulasi)



Tulsi flowers



Tulsi leaves

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Characteristics of the plant

Sacred basil or Holy basil, *Ocimum sanctum* Linn is a biennial or triennial shrub. The leaves of this plant on steam distillation yield a bright yellow colour volatile oil possessing a pleasant odour with an appreciable note of clove oil. The plant contains mainly phenols, aldehydes, tannins, saponin and fats. The essential oil major components are eugenol (71%),

eugenol methyl ether (20%), carvacrol (3%) etc. The leaves are used as condiment in salads and other foods. *O. sanctum* is an erect, herbaceous, much-branched, softly hairy biennial or triennial, which grows to a height of 30-75 cm. Leaves are entire, serrate, pubescent on both sides, flowers purplish or crimson, in racemes, fruits are sub-globose or broadly ellipsoid, slightly compressed, nearly smooth, pale brown or reddish with small black markings.

Ocimums are important groups of aromatic and medicinal plants which yield many essential oils and aroma chemicals and find diverse uses in perfumery, cosmetic industries and also in indigenous systems of medicine. In view of great diversity, various species are classified into two broad groups, viz., basilicum and sanctum groups, In India two types of *O. sanctum* are under cultivation; the green type - Sri tulsi (Ram tulsi) is the most common; the second type, Krishna tulsi bears purple leaves and is preferred in the trade for its higher potency of drug.

Cultivation methods

- Soil condition: Sacred basil thrives well on a wide range of soils. Rich loam, poor laterite, saline and alkaline to moderately acidic soils are also well suited for its cultivation. Well drained soil helps in better vegetative growth. Water logged conditions can cause root-rot and results in stunted growth.
- Climate: It flourishes well under fairly high rainfall and humid conditions. Long days and high temperatures have been found favorable for plant growth and oil production. It can grow up to an altitude of 900 m. The plant is moderately tolerant to drought and frost. The plant can be grown under partially shaded conditions but with low oil contents.
- Propagation: Tulsi is propagated through seeds. Seeds will get deteriorated over generations, due to its high cross-pollination. Hence, for fresh plantings, the growers have to take fresh seeds from the pedigree stock.
- Planting time: The nursery can be raised in the third week of February and transplanting is generally done in the middle of April.
- Harvesting: The crop is to be harvested at full bloom stage to obtain maximum essential oil yield and better quality oil. The first harvest is obtained at 90-95 days of planting. Thereafter, it may be harvested at every 65-75 days interval. Harvesting should be done usually on bright sunny days for high and good quality oil. It is not desirable to harvest the crop if there was a rain in the previous day. The crop should be cut at 15-20 cm above the ground level.
- Processing: The harvested produce may be allowed to wilt in the field itself for 4-5 hours so as to reduce the moisture and also the bulkiness. However, oil quality and its yield do not diminish up to 6-8 hours after harvest, but further delay may cause considerable loss in yield and quality of oil. Steam distillation is found to be superior to hydro distillation and hydro cum steam distillation. Distillation unit should be clean, rust free and free of any other odour. The oil obtained is then decanted and filtered. The distilled oil is treated with anhydrous sodium sulphate or common salt at the rate of 20 g per litre to remove the moisture. The oil should be stored in sealed amber coloured glass bottles or containers made of stainless steel, galvanised tanks, aluminium containers and stored in a cool and dry place. All processing

activities should be recorded.

- Expected yield: About 8 to 10 tons of fresh herbage per acre can be obtained by two to three harvests in a year. The oil yield varies with type, season and place of origin. Oil recovery ranging from 0.3 – 0.4%. Expenses is around Rs.6,000/acre. Present market rate ranging from Rs.600 to Rs.800.

Chemical composition

Some of the phytochemical constituents of tulsi are oleanolic acid, ursolic acid, rosmarinic acid, eugenol, carvacrol, linalool, β -caryophyllene (about 8%).

Tulsi essential oil consists mostly of eugenol (~70%) β -elemene (~11.0%), β -caryophyllene (~8%) and germacrene (~2%), with the balance being made up of various trace compounds, mostly terpenes.

Forms of Tulsi

According to an article in "Natural Product Radiance," the tulsi herb is available fresh, in capsules, tea and in a tincture. The best way to get fresh tulsi leaves whenever needed is to keep a pot of the herb growing in a kitchen window or on a sunny porch.

Traditional Tulsi Uses

Tulsi has many traditional health uses, including treatment of eczema, psoriasis and aging effects. It is also used as an antibiotic, an immune system booster, an anti-inflammatory and a stress reducer. In its native India, tulsi is considered a sacred plant and no household would dare be without the plant.

Insect repellent: For centuries, the dried leaves have been mixed with stored grains to repel insects.

The holy basil is additionally a flavoring remedy for lots of common ailments. Here're prime fifteen healthful uses of tulsi.

1. Healing Power: The tulsi plant has many medicinal properties. The leaves are a nerve tonic and additionally sharpen memory.
2. Fever & Common Cold: The leaves of basil square measure specific for several fevers. Throughout the season, once protozoal infection and dengue square measure wide prevailing, tender leaves, cooked with tea, act as preventive against these diseases.
3. Respiratory Disorder: The herb is beneficial within the treatment of system disorder. A decoction of the leaves, with honey and ginger is a good remedy for respiratory disease, asthma, influenza, cough and cold.
4. Excretory organ Stone: Basil has strengthening impact on the excretory organ. just in case of urinary organ stone the juice of basil leaves and honey, if taken often for six months it'll expel them via the tract.
5. Heart Disorder: Basil incorporates a helpful result in viscous sickness and also the weakness ensuing from them. It reduces the amount of blood steroid alcohol.
6. Children's Ailments: Common pediatric issues like cough cold, fever, diarrhea and vomiting respond favorably to the juice of basil leaves. If pustules of chicken pox delay their look, basil leaves smitten saffron can hasten them.
7. Stress: Basil leaves are thought to be associate degree 'adaptogen' or anti-stress agent. Recent studies have shown that the leaves afford vital protection against stress.
8. Mouth Infections: The leaves are quite effective for the

ulcer and infections in the mouth. a couple of leaves chewed can cure these conditions.

9. **Insect Bites:** The herb is a prophylactic or preventive and curative for insect stings or bites. A teaspoonful of the juice of the leaves is taken and is repeated after a number of hours.
10. **Skin Disorders:** Applied domestically, basil juice is useful within the treatment of tinea and different skin diseases.
11. **Teeth Disorder:** The herb is beneficial in teeth disorders. Its leaves, dried within the sun and small-grained, are used for brushing teeth. It may be mixed with mustered oil to form a paste and used as dentifrice.
12. **Headaches:** Basil makes a decent drug for headache. A boiling of the leaves is often given for this disorder.
13. **Eye Disorders:** Basil juice is a good remedy for sore eyes and night-blindness, which is mostly caused by deficiency of fat-soluble vitamin. 2 drops of black basil juice area unit place into the eyes daily at time of day.
14. **Treats Skin Issues:** Tulsi works fine on disease of the skin, skin disorder associated pimples and lots of cosmetic firms use Tulsi as an ingredient in skin ointments attributable to its anti-bacterial properties. Individuals plagued by itch and disease of the skin ought to drink Tulsi juice to assist cure it.
15. **Prevents Inflammation:** Tulsi leaves contain anti-bacterial and anti-fungal compounds. A paste manufactured from Tulsi leaves alongside wood paste and essence will be applied on the face because it helps to forestall inflammation.

There are various other uses of Tulsi plant. The plant is progressively finding its approach in the Ayurvedic treatment of diseases. Tulsi leaves are widely used because of their healing power. It is a tonic for the nervous system and so, helps an excellent deal in sharpening the memory. This aromatic plant supports the removal of phlegm and rubor matter from the cartilaginous tube. It also works wonders in preventing stomach disorders. The herb Tulsi is glorious to cure the metabolic process disorders. The simmering ready by mix honey, ginger and Tulsi leaves is sort of useful in combating respiratory disease, contagion and asthma attack.

Considerations

It is possible to experience an allergic reaction to tulsi, according to Drugs.com. Taking any medicinal herb can cause an allergic reaction, even if it's been taken before with no reaction. Be aware of rashes, hives and signs of swelling of the tongue, lips, face or throat from taking tulsi and if these occur, stop using it and contact your health care provider.

Possible Side Effects

The use of tulsi while pregnant or breast-feeding could potentially be harmful to your unborn child. Use of tulsi is discouraged while pregnant or nursing, and tulsi has also been reported to cause lack of fertility in animal studies, according to The Chopra Center. Avoid tulsi when even considering getting pregnant. Men and women trying to procreate are also warned to avoid tulsi because of possible problems with fertility.

Quality assurance and identification

Like any medicinal plant, optimal cultivation, harvesting, preservation and storage methods are required to preserve

tulsi's medicinal value. For example, it is suggested that tulsi should be grown employing organic methods in rural areas free from environmental pollution. This is supported by the finding of toxic elements at almost twice the concentration in tulsi leaves grown in polluted compared with unpolluted areas.

It is also important to ensure the correct herb is used and that manufacturers adopt stringent quality assurance standards and processes. Concerns about product quality in European "tulsi" products have been raised by reports of a high frequency of substitution with surrogate herbs such as *Ocimum basilicum*. This may be addressed using high-performance liquid chromatography fingerprints and microscopic assays to ensure batch-to-batch quality and the safety and botanical integrity of standardized extracts of standardized extracts.

Conclusion

Modern day scientific research into tulsi demonstrates the many psychological and physiological benefits from consuming tulsi and provides a testament to the wisdom inherent in Hinduism and Ayurveda, which celebrates tulsi as a plant that can be worshipped, ingested, made into tea and used for medicinal and spiritual purposes within daily life. In providing a focus for ethical, sustainable and ecological farming practices that provides a livelihood for thousands of farmers, the cultivation of tulsi goes beyond providing benefits for individuals and households and begins to address broader social, economic and environmental issues.

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