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Tulsi Leaves – Immunity Boosting Herb

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Abstract

The global pandemics are due to modern lifestyle, associated lack of physical activity, high intake of processed foods containing more of sugars, fat, salt, consumption of alcohol, smoking and exposure to a toxic cocktail of chemicals. The solution to the current health crisis can be found at homes with dietary changes in humans. 'Ayurveda' focuses on healthy lifestyle practices and regular consumption of adaptogenic herbs used for centuries in traditional methods of healing that were long forgotten but with renaissance now. Traditionally, tulsi (*Ocimum sanctum Linn*) has incredible therapeutic value due to its restorative activities like adaptogenic, antimicrobial, anti-inflammatory, cardioprotective and immunomodulatory effects. High concentration of eugenol in tulsi may act as a COX-2 inhibitor similar to modern day painkillers. It is especially effective in supporting the heart, blood vessels, liver and lungs for regulating blood pressure, blood sugar levels and body's overall defense mechanism.

1. Introduction

Plants have been used by humans from prehistoric times to get rid of suffering and for curing ailments. They are important sources of medicine and a large number of drugs in use are derived from plants. The therapeutic uses of the plant are safe, economical and effective as they are easily available (Andola et al., 2011). The use of medicinal plants in traditional medicine has been described in literature dating back several 1000 years. The books on Ayurvedic medicine from Vedic times describe practices including the use of medicinal plants that formed the basis for all other medical sciences development world over.

Among the medicinal plants, aromatic herbs are a rich source of biologically active compounds useful both in agriculture and medicine (Yamani et al., 2016). Of these *Ocimum tenuiflorum* (*Ocimum sanctum*) commonly known as holy basil or Tulsi is an aromatic shrub in the basil family Lamiaceae (tribe ocimene) native to the Indian subcontinent and widely cultivated throughout the Southeast Asian tropics. Ocimum genus has 50 to 160 species of herbs and shrubs from the tropical regions of Asia (Labh, 2014). Ram tulsi, dulal tulsi and ban tulsi are examples of few known

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species grown in different parts of world with medicinal properties (Andola et al., 2011).

Of all species of tulsi, *Ocimum sanctum* is described as a sacred and medicinal plant in ancient literature for its wide range of medicinal properties. The name Tulsi is derived from sanskrit language meaning "matchless one" (Kalyan et al., 2012). Tulsi has been used within Ayurvedic medicine for more than 3000 years. In Ayurveda, tulsi is known as "The Incomparable One," "Mother Medicine of Nature" and "The Queen of Herbs" and is revered as an "elixir of life" as there are none equal for both its medicinal and spiritual properties (Cohen, 2014; Jamshidi and Cohen, 2017). It is known to promote the longevity of life.

The extracts of this plant are extensively used for curing various diseases like common cold, inflammation, malaria, heart diseases, headaches, stomach disorders and kidney stones many more. Tulsi leaves are rich in vitamins A, C, and K and minerals like calcium, magnesium, phosphorus, iron and potassium. It has immense anti-bacterial, antiviral and anti-fungal properties which protect us from a variety of infections and is so good for boosting immune system (Patel, 2020).

2. Morphology

Tulsi (Figure 1) is an erect, branched shrub and fragrant plant developing to a height of about 30 – 40 cm when mature. Its aromatic leaves are arranged in the plain, branched, incompatible, thick and oval-shaped with dentate margins growing up to 5 cm long. The flowers are purple to reddish color elongated and are present in small compact clusters on cylindrical spikes. Its fruits are moderate and the seeds yellow to reddish. After the rainy season, it will be seeded and harvested (Mounica, 2017; Bhooshitha et al., 2020).

Figure 1: Tulsi plant

3. Medicinal Properties

Tulsi leaves also known as basil leaves is a common plant in Indian households and is revered for its divine properties. Apart from praying to the plant, a number of people advice including the leaves and roots of this plant in various medical decoctions as well. Tulsi is tonic for the entire body with vast benefits right from clear skin to dissolving kidney stones. Conventionally, it is taken in many forms as fresh leaves or dried leaves herbal tea (Figure 2) or dried powder (Figure 3) (Nivedhaa et al., 2018). It has a unique combination of actions like antimicrobial, antidiarrheal,

Figure 2: Dried tulsi leaves

Figure 3: Tulsi leaves powder

antioxidant, anti-inflammatory, neuroprotective, cardioprotective, antidiabetic, anti-hypercholesterolemia, anti-hypertensive, anti-carcinogenic, analgesic, anti-pyretic, anti-allergic as well as chemo preventive, radioprotective and hepato-protective (Pattanayak et al., 2010; Mohan et al., 2011; Cohen, 2014)

• Tulsi is known to possess antimicrobial activity against various bacteria like the most common being *Candida albicans*, *Staphylococcus aureus* and *Escherichia coli* in its phytoconstituents isolated from various parts (Srinivas and Ketki, 2016)

• Tulsi extract has antifungal activity as its extract is effective against filamentous fungi which include *Aspergillus niger*, *A. fumigatus*, *A. flavus*, *Rhizopus stolonifer* and *Penicillium digitatum* (Srinivas and Ketki, 2016)

• Tulsi is also used to prepare herbal tea for building up stamina

4. Nutritive Value

Tulsi contains vitamin C and A and minerals like calcium, zinc, and iron as well as chlorophyll and many other phytonutrients. It also enhances the efficient digestion, absorption, and use of nutrients from food and other herbs. 100g to tulsi leaves provide 23.0 Kcal energy, 4.2 g protein, 0.5 g fat, 2.3 g carbohydrate, 25.0 mg calcium, 287.0 mg phosphorus, 15.1 mg iron and edible portion has 25.0 mg vitamin C (Pattanayak et al., 2010).

5. Health Benefits of Tulsi

Tulsi is a popular healing herb used to treat several systemic diseases because of its anti-microbial property. The most important advantage claimed for the therapeutic use of medicinal plants in various ailments is its safety besides being economical, practical and easy availability (Umme et al., 2016).

5.1. Keeps your skin and hair healthy and glowing: The holy basil has powerful purifying properties and consuming it raw can help to purify blood giving the skin a fine-looking glow and prevents the skin diseases and blemishes. Its medicinal and antifungal properties are effective in preventing breakouts on acne-prone skin. Besides this, it helps in reducing the itchiness of the scalp and helps to control hair fall. Chewing tulsi leaves and juice of its leaves cure skin and hair conditions (Nivedhaa et al., 2018).

5.2. Eye disease: The tulsi leaf juice along with Triphala is used in Ayurveda for eye drop preparations recommended for glaucoma, cataract, chronic conjunctivitis and other painful eye diseases (Andola et al., 2011).

5.3. Respiratory disorders: A decoction of tulsi leaves with honey and ginger is commonly used to treat cold, cough, bronchitis and bronchial asthma. It helps to mobilize mucus in bronchitis and asthma thus helping in maintenance of clear and healthy respiratory passage (Umme et al., 2016).

5.4. Fever and common cold: The leaves of basil are specific for many fevers. In malaria and dengue fevers, tender leaves boiled with tea can act as preventive against these diseases. In acute fevers, a decoction of the leaves boiled with powdered cardamom in half a liter of water mixed with sugar and milk brings down the temperature. The juice of tulsi leaves can be used to bring down a fever. The extract of tulsi leaves in freshwater should be given every 2 to 3 hours (Kalyan et al., 2012).

5.5. Kidney stones: Tulsi has a strengthening effect on the kidneys. In renal stone, the juice of basil leaves and honey, if taken regularly for six months, can expel the stones. Tulsi being a detoxifying agent can help to reduce uric acid levels which is the main reason behind kidney stones (Kalyan et al., 2012; Nivedhaa et al., 2018).

5.6. Tooth problems: Tulsi leaves are dried in the sun and powder mixed with mustard oil are used as toothpaste. This paste is perfect for maintaining overall dental health, countering lousy breath and massaging the gums. The paste is also helpful in treating pyorrhea and other tooth disorders (Nivedhaa et al., 2018).

5.7. Headaches: Basil makes a good medicine for headaches. A decoction of the leaves can be given for this disorder. The pounded leaves mixed with sandalwood paste can also be applied on the forehead for getting relief from heat, headache and for provide coolness to body.

5.8. Leukoplakia and oral submucous fibrosis: The polyphenol, rosmarinic acid present in tulsi can act as a powerful antioxidant so this property can be therapeutically utilized in treating common oral precancerous lesions and conditions (Sumit and Geetika, 2012).

5.9. Diabetes: The tulsi leaves contain various essential oils that can be beneficial in improving pancreatic β-cell functioning and thus enhancing the insulin secretion to keep a check over the blood sugar among diabetes (Sumit and Geetika, 2012).

6. Conclusion

Tulsi leaves act as adaptogen to fight different physical, chemical, emotional and infectious stresses and restore normal physiological and psychological functions. For centuries, the dried tulsi leaves were added stored grains to repel insects. These traditional herbs are being used extensively nowadays because of more and more scientific evidences pertaining to their health benefits are available. Hence, for its unique properties, tulsi is regarded as the "Queen of green medicines".

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