

A Review on Herbal Plant Tulsi

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ABSTRACT

Tulsi (*Ocimum sanctum* L.), holy basil, is indigenous to the Indian mainland. Tulsi which is also called as “Queen of herbs”. All the parts of this plant have its own importance in Ayurveda and Siddha systems of medicine. Plant has many pharmacological actions such as anti-diabetic, anticancer, antiarthritic, wound healing, anti-inflammatory, antiviral, antifungal, antioxidant, antiasthmatic, antipyretic, memory enhancer, anticoagulant, antiulcer. This review article gives the information on synonyms, chemical constituents, uses and pharmacological actions of *Ocimum sanctum* (Tulsi) and immunomodulatory impacts, yet to date there are no precise surveys of human research on tulsi's clinical adequacy. And tulsi we scanned for examines distributed in books, theories, meeting procedures, and electronics databases including Cochrane Library, Google Scholar, Embase, Medline, PubMed, Science Direct, and Indian Medical databases. An aggregate of 24 examinations were distinguished that announced restorative consequences for metabolic disarranges, cardiovascular malady, resistance, and neurocognition. The explored examinations strengthen customary uses and propose tulsi is a viable treatment for way of life related constant maladies including diabetes, metabolic condition, and mental pressure. Further examinations are required to investigate instruments of activity, explain the dose and portion structure, and decide the populations well on the way to profit by tulsi's helpful impacts. **Key words:** Anti bacterial, Anti fungal, Medicinal, Anti inflammatory.

I. INTRODUCTION

Plant kingdom is known to comprise approximately 500,000 plant species. Use of traditional plants and their products have been reported by various investigators for the treatment of diseases. Despite the ever increasing advancement in medical sciences and molecular diagnosis, it is estimated that 80% of the world population is still dependent on plant-derived pharmaceuticals. The

purpose of the paper was to review the diverse pharmaceutical aspects of Tulsi. Such plants that have medicinal properties are known to comprise of essential oils which are therapeutic in nature. Importance of having such medicinal plants for therapeutic uses is that they are economical, effective and easily available, thus, making them useful tools for the medical practitioners to treat their patients. Commonly known as “Holy Basil” in English and “Tulsi” in Hindi and Sanskrit, is a bushy plant with a unique fragrance found in the semitropical and tropical regions of the world. Tulsi occupies the supreme position among the herbs, so much so that it is referred to as “Mother.” Tulsi is also known as the elixir of life since it promotes longevity. This plant has many pharmacological actions such as antioxidant, antibacterial etc. Traditionally the various parts like leaves, flowers and stems are being used in the treatment of various disorders such as skin diseases, cold, cough, fever, vomiting, swelling etc. Tulsi has many vernacular names such as, in Hindi, Kannada, English, Malayalam, Telugu, Bengali, Gujarati, Punjab, Tamil, Marathi, etc. The main varieties of tulsi are the dark tulsi, also known as the Krishna tulsi and green tulsi, also known as the Rama tulsi. On the basis of morphology of tulsi in India and Nepal, mainly two morphotypes are cultivated such as green-leaved and purple-leaved.

TAXONOMY

Kingdom : Plantae Subkingdom : Tracheobionta
Superdivision : Spermatophyta Division : Magnoliophyta
Class : Magnoliopsida Subclass : Asteridae Order : Lamiales Family : Lamiaceae Genus : *Ocimum*
Species : *O. sanctum*(1)

CLASSIFICATION OF TULSI

Genus *Ocimum* has various species

- *Ocimum sanctum* Linn (Tulsi)
- *Ocimum gratissimum* (Ram Tulsi)
- *Ocimum canum* (Dulal Tulsi)
- *Ocimum basilicum* (Ban Tulsi)

- *Ocimum kilimandschicum*
- *Ocimum americanum* (2)

1. *Ocimum sanctum* :



Ocimum sanctum plant are Thin, wiry, branched in appearance; hairy, and soft in nature, while externally blackish-brown and internally pale violet in colour. The stem is erect, herbaceous, woody, branched by appearance; hairy, sub-Quadrangular in nature, externally purplish-brown to black, internally cream coloured; fracture, fibrous in bark and short in xylem; the odour of stem is faintly aromatic.(10)

2. *Ocimum gratissimum* (Ram Tulsi) :



Ocimum gratissimum is a herbaceous plant which belongs to the Labiatae family In India it is known by its several vernacular names, the most commonly used ones being Vriddhutulsi (Sanskrit), Ram tulsi (Hindi), Nimma tulasi . it is greenish-yellow in colour.(11)

3. *ocimum canum*(dulal tulasi)



4. *ocimum bascillicum*(ban tulsi)



5. *Ocimum kilimandschicum*



6. *Ocimum americanum*



VERNACULAR NAMES

- Hindu – Kalatulasi, Tulasi
- Kannada– Vishnu Tulasi, Kari Tulasi, Sri Tulasi, Tulashigida
- English – Holy Basil
- Malayalam –Tulasi, Trttavu Karuttarttavu, NiellaTirtua, Shiva Tulasi
- Telugu– Tulasi, Gaggera Chettu
- Tamil – Tulaci, Karuttulaci
- Bengali –Tulasi, Krishna Tulshi
- Gujarati – Tulasi, Talasi
- Punjab –BanTulsi, Tulsi
- Marathi– Tulasa, Tulasi(2)

VARIETIES OF TULSI

- Dark Tulsi or Krishna Tulsi
- Green Tulsi or Rama Tulsi(2)

USES

1. Used for bronchial asthma; expectorant and

- bronchodilator effects.
- Used against respiratory ailments including bronchitis and tuberculosis.
 - Used for rhinitis (inflammation of nasal mucus membrane).
 - Can serve as a cure and prophylactic as well for the severe acute respiratory syndrome (SARS) – The root of The tulsi plant should be crushed and boiled with turmeric powder for a few minutes, after which it should be Filtered.
 - Consuming two spoonfuls of this potion twice daily will cure SARS and prevent contracting of the Disease.
 - Tulsi tea with honey is a good expectorant especially in cases where fever is involved.
 - The juice of the leaves is given in catarrh and bronchitis in children.
 - Chewing the leaves relieves cold and flu. A decoction of the leaves, cloves and common salt also gives immediate relief in case of influenza.(3)

TRADITIONAL USES

Tulsi is also known as "the elixir of life" since it promotes longevity. Different parts of plant are used in Ayurveda and Siddha Systems of Medicine for prevention and cure of many illnesses and everyday ailments like common cold, headache, cough, flu, earache, fever, colic pain, sore throat, bronchitis, asthma, hepatic diseases, malaria fever, as an antidote for snake bite and scorpion sting, flatulence, migraine headaches, fatigue, skin diseases, wound, insomnia, arthritis, digestive disorders, night blindness, diarrhea and influenza. The leaves are good for nerves and to sharpen memory. Chewing of Tulsi leaves also cures ulcers and infections of mouth.(5)

MEDICINAL PROPERTIES

Basil is antispasmodic, appetizer, carminative, galactagogue, and stomachic. It is used for Stomach cramps, gastric catarrh, vomiting, intestinal catarrh, constipation, and enteritis. It had been sometimes used for whooping cough as an antispasmodic. Tulsi has antioxidant properties and Reduces blood glucose levels. Thus it is useful for diabetics. Tulsi reduces total cholesterol Levels. Thus it is useful for heart disease patients. Tulsi reduces blood pressure.(4) In some parts of Asia, basil considers as the goddess Tulsi,(15) it considers as traditional medicine in India,(16) and used for both medicinal purpose and religious orthodox Christian rituals.(17) Application in food industry as

flavoring agent, dental and oral products in fragrances also reported in traditional usage of this plant.

(18) It is widely cultivated in Iran and people used this herb as both vegetable and medicinal tincture.(19) In traditional medicine, its seeds use in Asian beverages and desserts as a source of dietary fiber.(20) It is also used in treatment of cough, headache, worms, diarrhea and skin infections.(21) It is also part of Mediterranean diets especially in South of Europe, for example Italian and Greek cuisines.(22) Basil polysaccharides have been used for cancer treatment in traditional Chinese medicine,(23) and still is widely used in people lives.(24)

ANTIOXIDANT

Polyphenol Rosmarinic acid present in the Tulsi chemical composition acts as the powerful antioxidant. It protects the cells in the body from smash up due to the presence of free radicals. Excess of oxidation in the body also causes the cell damage. This acid prevents the formation of excess oxidation (Simoons and Frederick 1998).(6)

ANTIFUNGAL

It was studied that the linalool and methyl chavicol content extracted from the essential oil of tulsi leaves showed antifungal property against clinically isolated dermatophytes(14)

ANTIBACTERIAL

Carvacrol and terpene are the antibacterial agents present in this remarkable plant. Sesquiterpene B-caryophyllene also serves the same purpose. This constituent is FDA approved food additive which is naturally present in Tulsi. It helps keeping the body safe from bacterium that causes illness Anti-inflammatory - Rosmarinic acid also is a good source of anti-inflammatory along with being an antioxidant. Pegenin is one more compound available in the composition serving the same function. Apart from these two, the most important anti-inflammatory driving force in Tulsi is 'eugenol'. It is main ingredient responsible for controlling the blood sugar levels in the body. It rigs the beta cell function of the pancreas and as a result augments the insulin secretion.(6)

ANTI-MICROBIALACTIVITY

The concentration of the bacterial cells inhibited gradually for an hour was studied by spread plate method.(12) Essential oil of Tulsi have antibacterial, antifungal and antiviral properties. It

inhibites the growth of *E. coli*, *B.anthraxis*, *M.tuberculosis* etc. It's antitubercular activity is one-tenth the potency of streptomycin and one-fourth that of isoniazid. Preparations containing Tulsi extracts significantly shorten the course of illness, clinical symptoms and the biochemical parameters in patients with viral hepatitis and viral encephalitis.(8)

ANTI-STRESS

It was reported that the leaves of *O. sanctum* possess antistress activity when studied in rabbits (13).

MOSQUITOCIDALACTIVITY

Mosquitocidal activity of Tulsi was investigated using its eugenol and triglyceride (isolated from Tulsi's hexane extract) on fourth instars *Aedes aegypti* larvae. When seeds of Tulsi were placed in water, it exuded within one hour, a mucilaginous substance (polysaccharides) and larvae which came in contact with seeds became firmly attached to it and died due to drowning of larvae.(9)

MORPHOLOGY

Tulsi (Holy Basil) has a branched stem usually in purple colour, 35-70 cm in height, sub quadrangular, clothed with soft spreading hair. The leaves of Tulsi are 1.7-3.3 cm broad, 2.5-5 cm long, acute obtuse or oblong, elliptical, margin serrate; the surface is pubescent on both the sides, gland-dotted, the base is acute or obtuse, petioles are 1.3-2.5, slender, long, hairy. The flower forms the verticillate inflorescence, generally 15-20 cm present in racemes. The bracts are long and broad and have a 3mm diameter, broadly ovate; slender calyx, pubescent, bilabiate, the upper lip is smaller than the lower lip. Corolla is purple and 4mm, bilabiate upper lip pubescent on the back. Stamens are exerted, slender filaments and the upper pair is a small appendage consisting of a branch present at the base. The nutlets are smooth, yellow with black marking, broadly ellipsoid and 1.26 mm long. Seeds are brownish. The taste is sharp, having a strong aromatic odour. The family of Lamiaceae consists of Tulsi, which belongs to the Basil genus. Tulsi is an aromatic plant widely spread throughout the world as a cultivated plant and an escaped weed. The plant consists of green leaves which have a strong scent. The flowers in racemes have a purple appearance in close whorls. In India and Nepal, mainly two morphotypes are cultivated: green-leaved and purple-leaved.(2)

CULTIVATION



The tulsi is a hardy annual but can grow perennial if the flowers are cut before blooming. Sow tulsi seeds after the last frost in well drained, fertile, light weight soil and cover with a thin layer of soil. Allow tulsi to receive at least four hours of sun light and protect from harsh afternoon sun and high heat water. The holy basil thoroughly and allow to dry out between watering, use a balanced water soluble fertilizer during the active growing period and discontinue during cooler months when the tulsi plant goes dormant.(7)

II. CONCLUSION

The present review revealed that tulsi has an extensive array of medicinal uses, as evidenced by various studies conducted, but its use in allopathic medicine is still limited because of the lack of clinical trials on humans. After top to bottom and thorough research it has been demonstrated and ensured that it is sheltered to devour tulsi in any structure. It helps in securing the entire respiratory tract on the basis of information presented above it is concluded that the tulsi is a medically important drug.

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