

To review on the medicinal plant of Tulsi

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ABSTRACT

Herbal plants are considered as the most significant source of medicines. These herbal plants are in practice from ancient times. Traditionally, all the parts of the plant are used for curing various diseases. One of the most important herbal plants is the *Ocimum sanctum* also called tulsi. This plant is considered a sacred plant in Indian culture and used for holy purposes as well.

The name Tulsi comes from Sanskrit word which means "the incomparable one". Tulsi plant is not only used in ayurvedic medicines but also used in other medicinal systems in Greek, Roman and Unani. Apart from this, the Tulsi plant possesses different therapeutical properties due to the presence of several phytochemical constituents in its roots, stem, fruit, and leaves due to the presence of eugenol, vallinin, gallic acid, palmitic acid, oleic acid, linoleic acid, and many more.

I. INTRODUCTION

Plants are known for various medicinal properties from ancient times. The essential oils extracted from therapeutic plants are safe, economical, effective and easily available [1,2,3,4]. India is the home for more than 8000 species of vascular plant out of which 1748 are considered for their therapeutical uses Tulsi (*Ocimum sanctum* L) is one of the most common herb used in Indian traditional system and also named as "Holy Basil", "Queen of Herbs"

The name Tulsi comes from Sanskrit word that means "the incomparable one" In Indian culture, it is worshiped very religiously and known as "Vishnupriya". The scientific name of Tulsi is *Ocimum sanctum* (Linn)

Botanical Classification of *Ocimum sanctum*

Kingdom - Plantae

Division - Magnoliophyta

Class - Magnoliopsida

Order - Lamiales

Family - Lamiaceae

Genus - *Ocimum*

Species - *Ocimum sanctum*

Botanical Description

Ocimum sanctum belongs to the family Lamiaceae/Labiatae. Tulsi is an erect, branched, fragrant plant with height reaches upto 30-60cm when completely mature. The leaves of Tulsi are simple, inverse, elliptical, ovoid, dense or acute with entire margin. The leaves grow up to 5cm long. It has small phyllotaxy and petiole is 2-5 cm long, slender and pubescent. The leaves of the plant mainly possess medicinal property.

They are also pubescent on both sides with small glands. The stomata are present on the lower surface but also rarely present on the upper surface of leaf. The flowers of this plant consist of verticillaster inflorescence with varying color from purple to pink. Flowers are simple or branched raceme 5-30cm of height, bracts sessile, ovate, caduceus, hermaphrodite, pedicel 1-4 mm long, spreading or slightly curved. Flowering started after 136 days and continue up to 195 days and their seeds matures after 259 days. Fruit having 4-dry, 1-seeded nutlets covered in the persistent calyx; long up to 1.5mm, rugose brown, outer pericarp does not turn into mucilaginous in water. It produces small seeds which are reddish black in colour. Stem are green in newly born plant and become woody when getting older. The roots of the *Ocimum sanctum* contains various essential oil like eugenol

Reported Therapeutic Uses of *Ocimum sanctum*

- There are several reports on the use of natural materials sources like plants, bacteria, fungi, yeast and honey.

Ocimum sanctum is also considered as a wide source for the modern or herbal formulation. Various studies (like in-vivo, in-vitro) have been done for the therapeutical uses of Tulsi.

1. Analgesic: It was reported that the oil extracted from *Ocimum sanctum* plant possesses analgesic activity. This study was carried out in mice using acetic acid-induced writhing methods, tail flick, tail clip and tail immersion. From the results, it was clear that the inhibitory activity of the oil is due to the combined inhibitory effect of acetylcholine,

histamine and prostaglandin [53].

2. Anti-oxidant: The experimental study on streptozocin-induced diabetic rats showed the antioxidant activity of *O. sanctum*. It was reported that the leaves of this plant contain hydroalcoholic extract which is responsible for the antioxidant property. When the leaves of *O. sanctum* were provided with streptozocin-induced diabetic rats for 30 days, it was found to improve the activity of antioxidant enzyme catalase and reduce the plasma level of thiobarbituric acid in the vital organs like kidneys and liver [54].

3. Anti-ulcer: It was reported that the *O. sanctum* plant possesses to have antiulcer activity against histamine, aspirin, reserpine, serotonin aspirin indomethacin in rats [55]. The experiment was performed in Wistar rats where it was found that the aqueous extract of *O. sanctum* protects against ethanol-induced gastric ulceration [56].

4. Anti-arthritis: In order to find out the anti-arthritis activity, the experiment was conducted in a mice model where it was found that the oil extracted from the seeds of *O. sanctum* possesses antiarthritic activity against turpentine oil-induced joint pain [57].

5. Anti-pyretic activity: The fixed oil of OS was tested against typhoid-paratyphoid A/B vaccine-induced pyrexia in rats and it was found that the oil extracted from the plant exhibit antipyretic activity.

6. Antitussive: It was reported that the aqueous and methanolic extracts of the OS plant showed antitussive activity when studied in guinea pigs.

7. Hepatoprotective: It was reported that the leaf extract of the *O. sanctum* plant possesses significant hepatoprotective activity when studied against paracetamol-induced liver damage against albino rats

8. Anti-stress: It was reported that the leaves of *O. sanctum* possess anti-stress activity when studied in rabbits.

9. Anti-plasmodial: It was studied that the root and leaf extract of *O. sanctum* showed antiplasmodial activity because of the presence of ethanolic extract mainly flavonoids, phenols, saponins, alkaloids, glycosides, proteins, resins, steroids, triterpenoids.

10. Memory Enhancer: To study the antedementia and anticholinesterase activity, the aqueous and alcoholic extract of the leaves of *O. sanctum* were studied in rats. Atropine, cyclosporine, and electroshock were used to activate dementia. It was reported that the inactive restraint was used to assess memory [62].

11. Immunomodulatory: It was studied that leaves of *O. sanctum* increase the RBCs, WBCs hemoglobin and antibodies production without affecting other biochemical activities when tested in mice

12. Chemopreventive: It was reported from various studies that the oil extracted from seeds of *O. sanctum* showed chemopreventive activity against It was injected 20 methylcholanthrene induced fibrosarcoma tumors in Swiss albino mice. It was found that the survival rate of mice was enhanced and tumor spread rate delayed in seed oil supplemented mice which showed its chemopreventive property [

13. Antidepressant and Antianxiety: The ethanolic extract of *O. sanctum* were tested in swiss mice. It was found that the plant extract possesses antidepressant and antianxiety properties and can act as a therapeutic drug against these disorders

14. Antiemetic: It was reported that the leaves of *Tulsi* possess antiemetic properties and used to treat vomiting diarrhea

15. Anti-fertility: The *tulsi* leaves were reported to have antifertility property. The experimental study was carried out in albino rats where the model was treated with benzene extract of *tulsi* leaves for 48 days. Results showed a decrease in sperm count and sperm motility

16. Anti-inflammatory: The presence of fatty acids in the *tulsi* plant possesses anti-inflammatory activity. The main fatty acid responsible for the anti-inflammatory activity is linoleic acid which is capable of blocking the cyclooxygenase and lipoxygenase pathways

17. Antithyroidic: It was reported that the leaf extract of *tulsi* leaves acquire antithyroid activity which changes the T3, T4 concentration when tested in male mice [71].

18. Anti-helminthic: The in-vitro study showed that the eugenol content and essential oil extracted

from tulsi leaves possess antihelminthic properties. In the Caenorhabditis model [72].

19. Antihyperlipidemic and Cardioprotective:

The reported study has shown that fixed oil of OS decrease high serum lipid concentration and show cardioprotective and antiatherogenic actions against hyperlipidemia when tested in high fat(HF) rat.

20. 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

Research-Backed Benefits of Tulsi are:

- Natural Immunity Booster
- Reduces Fever (antipyretic) & Pain(analgesic)
- Reduces Cold, Cough & Other Respiratory Disorders:
- Reduces Stress & Blood Pressure: ...
- Anti-cancer Properties
- .Good for Heart Health
- Good for Diabetes Patients: .
- Useful in Kidney Stones

II. CONCLUSION

Herbal plants are used in Indian for treating and curing various disease because of their high value. Tulsi (*Ocimum sanctum*) is considered a holy plant. It is mainly used for medicinal purposes and also as an herbal tea.

It is used in Ayurveda, Sidha, greek, roman and Unani medicinal systems. It was reported in various research studies that the *Ocimum sanctum* plant contain therapeutical properties including antiulcer, antistress, antifertility, antiasthmatic, analgesic, antidiabetic, antiinflammatory, antioxidant, antimicrobial and neuroprotective activity. Conclusively from various repeated scientific studies that the Tulsi plant has

great medicinal importance and is used worldwide to treat various diseases

REFERENCES

- [1]. Medicinal plants have been used for different ailments of human beings all over the world just from the beginning of civilization
- [2]. Kumar V., Andola H.C., Lohani H. and Chauhan N. (2011). Pharmacological Review on *Ocimum sanctum* Linnaeus: A Queen of herbs. *J of Pharm Res*, 4:366-368
- [3]. Atal CK, Kapoor BM. Cultivation and utilization of medicinal plants Eds. PID(SIR). 1989.
- [4]. Govind P, Madhuri S. Medicinal plants: better remedy for neoplasm. *Indian drugs*. 2006;43(11):869-74.
- [5]. Singh DK, Hajra PK. Floristic diversity. In *Changing Perspective of Biodiversity Status in the Himalaya*, GS Gujral, V Sharma, Eds.
- [6]. British Council Division, British High Commission Publication. *Wildlife Youth Services: New Delhi, India*. 1996, 23-38.
- [7]. Rahal A, Kumar A. Tulsi: A miracle herb in the hands of traditional house lady.
- [8]. Kayastha BL. Queen of herbs tulsi (*Ocimum sanctum*) removes impurities from water and plays disinfectant role. *J Med Plants Stud*. 2014;2(2).
- [9]. Kadian R, Parle M. Therapeutic potential and phytopharmacology of tulsi. *International Journal of Pharmacy & Life Sciences*. 2012 Jul 1;3(7).9. McIntosh C. *The book of the garden*. Roy.1855.