



The Therapeutic Action of Queen of Herb (*Ocimum Tenuiflorum*)

Sagar B. Marathe*, Mali Naitik, Azam Z. Shaikh

*Department of Pharmaceutical Chemistry, Ahinsa Institute of Pharmacy, Dhule Road,
Dondaicha-425408, Maharashtra, India.*

ABSTRACT

This review paper purpose is the ‘Queen of herb’ means holy basil/Tulsi is how to showing it Antimicrobial activity by using different type of method. This paper also study the pharmaceutical used of Tulsi & its Pharmacological activity of Tulsi like. Antimicrobial activity, Antifungal activity, Anti-inflammatory & Analgesic activity. It is main symbol of the Hindu region tradition this is plant having unique odor found in the semitropical and tropical country. In the world. This is plant mainly used for reducing the cough. Holy basil is ancient Hindu scriptures, Tulsi occupies the supreme position among the herb so that it referred to as “MOTHER”. It has been used Ayurveda and siddha practices for its supposed treatment of diseases. It having medicinal her that belong to the mint family and is found in 150 different worldwide. Tulsi has been used in thousands of years in Ayurveda for its diverse healing properties special about this plant is apart from being considered holy Tulsi is also reserved as great healer

Keyword: Tulsi, Holy basil, *Ocium tenuiflorum*, *Ocimum sanctum*, Eugenol

*Corresponding Author Email: sagarmarathe32225@gmail.com

Received 01 September 2021, Accepted 30 November 2021

INTRODUCTION

Ocimum tenuiflorum is also known as holy basil or its Hindi/Sanskrit name is Tulsi. It is an aromatic evergreen plant in the family belonging to Lamiaceae. It is domestic to the Asia subcontinent and well spread as a cultivated plant throughout the Southeast Asian Tropics.¹ Tulsi is a unique odour found in the semitropical and tropical countries of the world.² This plant grows all over India for its medicinal and also for religious purposes in houses, temples and parks. It is also grown on a commercial basis in cosmetic & pharmaceutical industries. Tulsi is a plant cultivated not only in India; it is also cultivated by different countries like Sri Lanka, Nepal, Malaysia, Indonesia and Burma. It is used in Ayurveda, Unani, Siddha and is extensively used in India.³ Tulsi has been used for thousands of years for its diverse medicinal properties and is considered in Ayurveda as the “Elixir of life” that promotes survival.⁴

Biological Source:

Ocimum tenuiflorum, also going by the name of Tulsi or holy basil. It is also called “Queen of Herbs”.

Scientific name: *Ocimum tenuiflorum*

Kingdom: plantae

Sub-kingdom: Tracheobionta

Super division: spermatophyte

Division: magnoliophyta

Class: Magnoliopsida

Subclass: Asteroideae

Order: Lamiales

Family: Lamiaceae

Genus: *Ocimum*

Species: *O. tenuiflorum*

Species: - *O. sanctum*.

The extract of Tulsi is mainly called used for treatment of cold, headache, stomach disorder etc.⁵

Chemical constituent:

Active component of Tulsi. Eugenol is identified as one of the main active constituents and is reported to possess myriad benefits. Tulsi is also reported to possess caryophyllene, 3-carene, alpha-humulene, citral, (-)-trans-caryophyllene, eugenol, 6-allyl-3,8-dimethoxyflavone-3,4-diamino-6-allyl-3-(4-allyl-2-methoxyphenoxy)-3, 8-dimethoxyflavone-4-allyl-1,5-allyl-3-(4-allyl-methoxyphenoxy/methyl)-2-(4-hydroxy-3-methoxyphenyl)-7-methoxy-2,3-dihydrobenzofuran

,1,2-bisc (4-allyl-2-Methoxy phenoxy)-3-(4-hydroxy 3-Methoxypheryl) 3-methoxypropane,1-(4-hydroxy-3-Methoxyphenyl) 3-Methoxypropane,1-(4-hydroxy-3-Methoxyphoxy) propane. 1-allyl-4-(5-allyl 1-2-hydroxy-3-ethoxyphenoxy)-3(4-allyl-1-2-Methoxy phenoxy)-5-Methoxy benzene, 3(allyl-2-methoxyphenoxy)- 5-methoxybenzene,3-(5-allyl-2-hydroxy-3-methoxyphenyl)-1-(4-hydroxy-3-methoxyphenoxy)-prop-1-ene,(alpha)-pineme,(beta)-pineme,(alpha) campher,carvacoral,luteolin,limetrol,methylchavicol,caryophylline,cirsilineol,decylaldehyde,cirsi maritin,isothymusin,isothymonin,apigenin,rosmarinic acid and carvacrol. Other phytoconstituents isolated from various parts of the plant include palmitric acid, Vallinin, galic acid, Vitamin A, Vitamin C, ursolic and carvacrol. ⁶

Uses:

- Holybasil is great antimicrobial agent.
- Holy basil is great antioxidant & protect the skin almost all the damage caused by free radicals.
- Tulsi act mild diuretic & detoxifying agent which the helps in lowering the uric acid level in the body.
- Holy basil contains vitamin c & antioxidant such as eugenol, which protect the heat from the harmful effect free radicals. ⁷

Pharmacological Activity:

1 Antimicrobial Activity: -

Holy basil is showing the antimicrobial activity against the different bacteria the most common being candida albicans staphylococcus aureus, Escherichia coli by its phytoconstituent isolate from various parts. ⁸ Comparably genteel reported that on comparing alcoholic and aqueous extract of *O. sanctum* L. (60mg/kg) showed wide Zones of inhibition against klebsiella. ⁹

Action of the chemical component:

Holy basil it having different chemical component like. Ursolic acid, Eugenol and carvacrol are known to pass antimicrobial activity against streptococcus mutants. It having maximum antimicrobial potential at the 4% concentration level. ¹⁰ It also increase immunity and better metabolic function. In addition, it also decreases stress and possesses antioxidant property. ¹¹⁻ ¹²Eugenol, palmitic acid, galic acid, Vallin in, vitamin A and Vitamin C are responsible for preventing dental caries, bad breath, tartar etc. thus keep safe the teeth. It having astringent properties aid & protect gum from periodontitis. ¹³

2 Antifungal activity: -

Antifungal activity has been shown by *ocimum sanctum* lion in a study where the minimum fungicidal concentration (MFC) of different extracts and fraction were tested against clinically isolated five dissimilar dermatophytid fungi which be seen antifungal activity at a concentration of 200µg/Kg. It is fungicidal activity is said to be due to the action of secondary metabolites Those are present in holy basil including alkaloid glycosides, saponins, tennis, ascorbic acid, eugenol and different other metabolites or mentored previously.¹⁴

3 Anti-inflammatory: -

It having anti-inflammatory response of 500Mg/Kg of the Tulsi paste was found to be 88.15% as that of the response observed with 100Mg/Kg of indomethacin.¹⁵

4 Analgesic activity: -

The holy basil oil was found to devoid of analgesic activity in experimental pain model. (Tail flick, tail clip and tail immersion method).¹⁶

Extraction Method: -¹⁷

Preparation of raw material: -

The holy basil leaves were dried in order to decrease the initial moisture content (90% of humidity), in an oven with a renewal and circulation. The drying temperature was 5°C and was kept constant for five hours until constant moisture. After drying, the sheets were ground in order to increase the contract surface, reducing the resistance to oil extraction the dried leaves were placed in sealed plastic bags, protected from light and moisture it stored in a refrigerator with low humidity.

1 Soxhlet extraction: -

The extraction process using Soxhlet was conducted to calculated the percentage of oil in the raw material used. The extraction was done in a triplicate way it was used approximately 5 gms of basil with 200 ml of hexane. The extraction time was fixed in hour, after reaching the boiling temperature around 69°C.

2 Supercritical carbon dioxide (CO₂) extraction: -

It was used as a supercritical extraction until to calculating total yield and the kinetics of extraction. The unit consists of a stainless steel 3165 extracted with 42ml of capacity and 2 canvas of 260 mesh to prevent the entrainment of material a high-pressure pump (palm model G100) used for pumping CO₂ was used to feeding the solvent into extractor the thermostatic was coupled in the extractor to control the temperature and manometer was installed online for pressure measurement. Extraction was carried out with approximately 4.5 grams of material. The CO₂ pumped into the extractor remained in contact with the herbaceous matrix about 20

minutes before starting from test tube by opening the micrometric value located at the outlet of the extractor.

3 Hydro-distillation Extraction: -

The extraction by using Clevenger apparatus coupled to a bottom flask of 500 ml. It was added 30g of crushed leaves of holy basil and 300ml water into the flask. The extracted time having fixed for the four hours. The extracted oil was diluted in hexane & filtered after separation then, it was dried using Na₂SO₄ to remain the water & than the solution were separated by a Roto evaporator.

Measurement of the yield of essential oils of holy basil: -

The essential oil of the *ocimum sanctum* L. were calculated by using micropipettes and silicon coated micro tips. The yield is denoted by the percentage of w/v (weight/Volume).

CONCLUSION:

“Queen of herbs” is known as *ocimum sanctum* lienor (Tulsi). This plant mainly used for reducing cough. It also used for antimicrobial activity again the actinomycete comitans similar inhibition zone. It is main symbol of the Hindu religious tradition.

REFERENCE:

1. https://en.m.wikipedia.org/wiki/Ocimum_tenuiflorum
2. Naquvi JK, Dohare LS, Shuaib M, Ahmad IM. Chemical composition of volatile oil of *Ocimum sanctum* Linn. Int J Biomed and advanced Res 2012; 3:129-131.
3. Satyavati GV, Raina MK, Sharma M. Medicinal Plants of India. Vol. 1. New Delhi: Indian Council of Medical Research; 2008.
4. Gupta SK, Prakash J, Srivastava S. Validation of traditional claim of Tulsi, *Ocimum sanctum* Linn as a medicinal plant. Ind J Exp Biol 2002; 40:765-73
5. Pattanayak P, Behera P, Das D, Panda SK. *Ocimum sanctum* Linn. A reservoir plant for therapeutic applications: An overview. Pharmacogn Rev 2010; 4:95105.
6. Watson RR, Preedy VR. Bioactive Foods and Extracts. Cancer Treatment and prevention. 1st ed. United States of America: CRS Press; 2011.
7. <https://www.dabur.com/amp/in/en-us/about/science-of-ayurveda/herbal-medicinal-plants/tulsi-benefits-and-medicinal-uses>
8. Singh S, Malhotra M, Majumdar DK. Antibacterial activity of *Ocimum sanctum* L. fixed oil. Ind J Exp Biol 2005; 43:835-7.

9. Geeta, Vasudevan DM, Kedlaya R, Deepa S, Ballal M. Activity of *Ocimum sanctum* (the traditional Indian medicinal plant) against the enteric pathogens. *Ind J Med Sci* 2001; 55:434-8.
10. Agarwal P, Nagesh L, Murlikrishnan. Evaluation of antimicrobial activity of various concentration of Tulsi extract against *S* mutans: An in vitro study. *Ind J Dent Res* 2010; 21:357-9.
11. George D, Bhat SS, Antony B. Comparative evaluation of the antimicrobial efficacy of Aloe vera tooth gel and two popular commercial toothpastes: An in vitro study. *Gen Dent* 2009; 57:238-41.
12. Mali AM, Behal R, Gilda SS. Comparative evaluation of 0.1% turmeric mouthwash with 0.2% chlorhexidine gluconate in prevention of plaque and gingivitis: A clinical and microbiological study. *J Ind Soc Periodontol* 2012; 16:386-91.
13. Aggarwal BB, Prasad S, Reuter S, Kannappan R, Yadav VR, Park B, et al. Identification of novel anti-inflammatory agents from ayurvedic medicine for prevention of chronic diseases: “Reverse pharmacology” and “bedside to bench” approach. *Curr Drug Targets* 2011; 12:1595-653.
14. Balakumar S, Rajan S, Thirunalasundari T, Jeeva S. Antifungal activity of *Ocimum sanctum* Linn. (Lamiaceae) on clinically isolated dermatophytic fungi. *Asian Pac J Trop Med* 2011; 4:654-7.
15. <https://www.ijpbs.net/abstract.php?article=MTA1Mg==>
16. Singh S, Majumdar DK. Analgesic activity of *Ocimum sanctum* and its possible mechanism of action. *Int Pharmacog* 33:1995,188
17. <https://www.agrifarming.in/tulsi-oil-extraction-process-benefits>



AJPHR is
Peer-reviewed
monthly
Rapid publication
Submit your next manuscript at
editor@ajphr.com / editor.ajphr@gmail.com