

HOLY BASIL –ONE ANSWER FOR MULTIPLE QUESTIONS

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ABSTARCT

In today's world the Natural environment are being reduce day by . There are multiple plant ,Species of plant which are beneficial for the humans life by the means of therapeutic, additive medicinal options.Holi basil(or Tulsi) is an important therapeutic plant which posses the multiple quality such as adaptogenic , antimicrobial, Anti-inflammatory, antioxidant ,antidiabetic ,immunomodulator, Hepatoprotective, Hypolipidemic etc. only one plant is use for multiple use.it has found that Tulsi (Holi basil)can shows effect on chemical , physical, metabolic, physiological stress by its pharmacological action.the preservation of such useful plant is the major key concern in the today's world, tulsi is the powerful weapon to treat the multiple diseases without any type of side effects.

KEY WORDS

Tulsi, Holy basil, Additive , Adaptogenic, Hepatoprotective, Hypolipidemic

Introduction



IMAGE NO-1

KINGDOM : PLANTAE

DIVISION : MAGNOLIOPHYTA

CLASS : MAGNOLIOPSIDA

ORDER. : LAMIALES

FAMILY : LAMIACEAE

GENUS : OCIMUM

SPECIES. : O.TENUIFLORUM

BOTANICAL NAME : OCIMUM TENUIFLORUM or OCIMUM SANCTUM L.

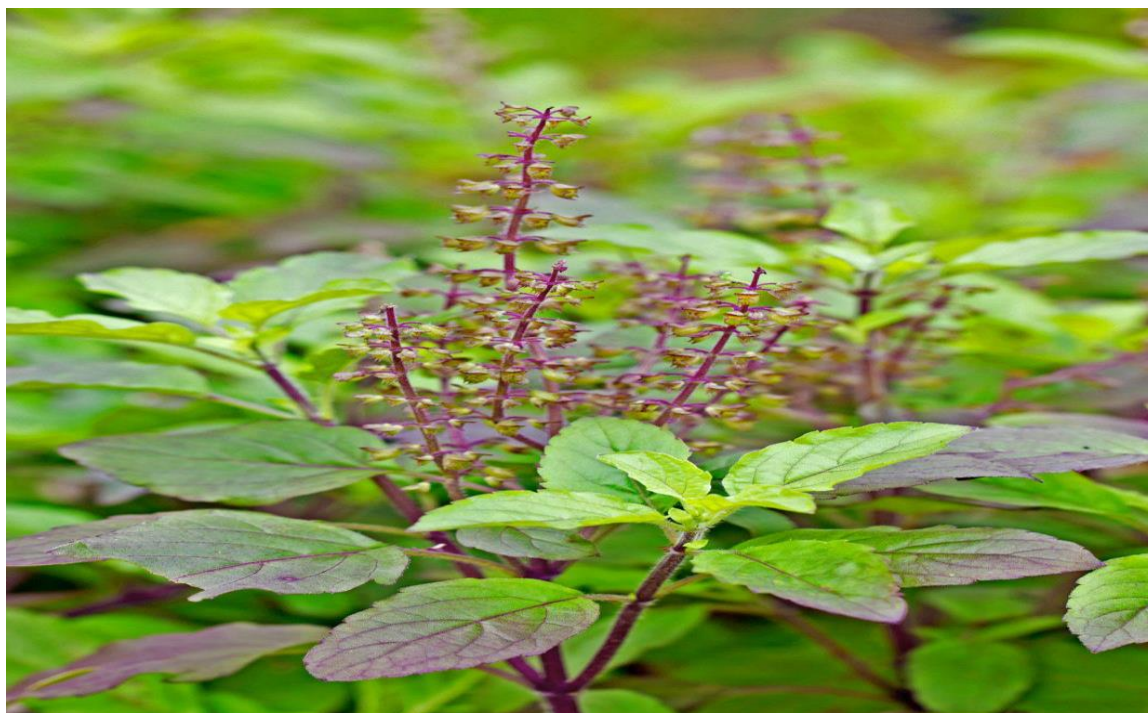


IMAGE NO-02

Chemical constituents of an Tulsi

1) Eugenol

Rate : 60-80%

Properties: Eugenol is the major constituent capable for the characteristic smell of Tulsi. It has sterile, pain relieving, anti-inflammatory, and antimicrobial properties.

2. Methyl Eugenol

Rate : 5-10%

Properties: This compound is related to eugenol and has antimicrobial and insecticidal properties.

3. Caryophyllene

Rate : 5-8%

Properties : A terpene with anti-inflammatory, pain relieving, and anti-anxiety impacts. It is additionally found in other plants like dark pepper.

4. Linalool

Rate : 2-5%

Properties: Linalool is known for its calming and relieving impacts. It too has antimicrobial and antioxidant properties.

5. Ocimene

Percentage : 2-3%

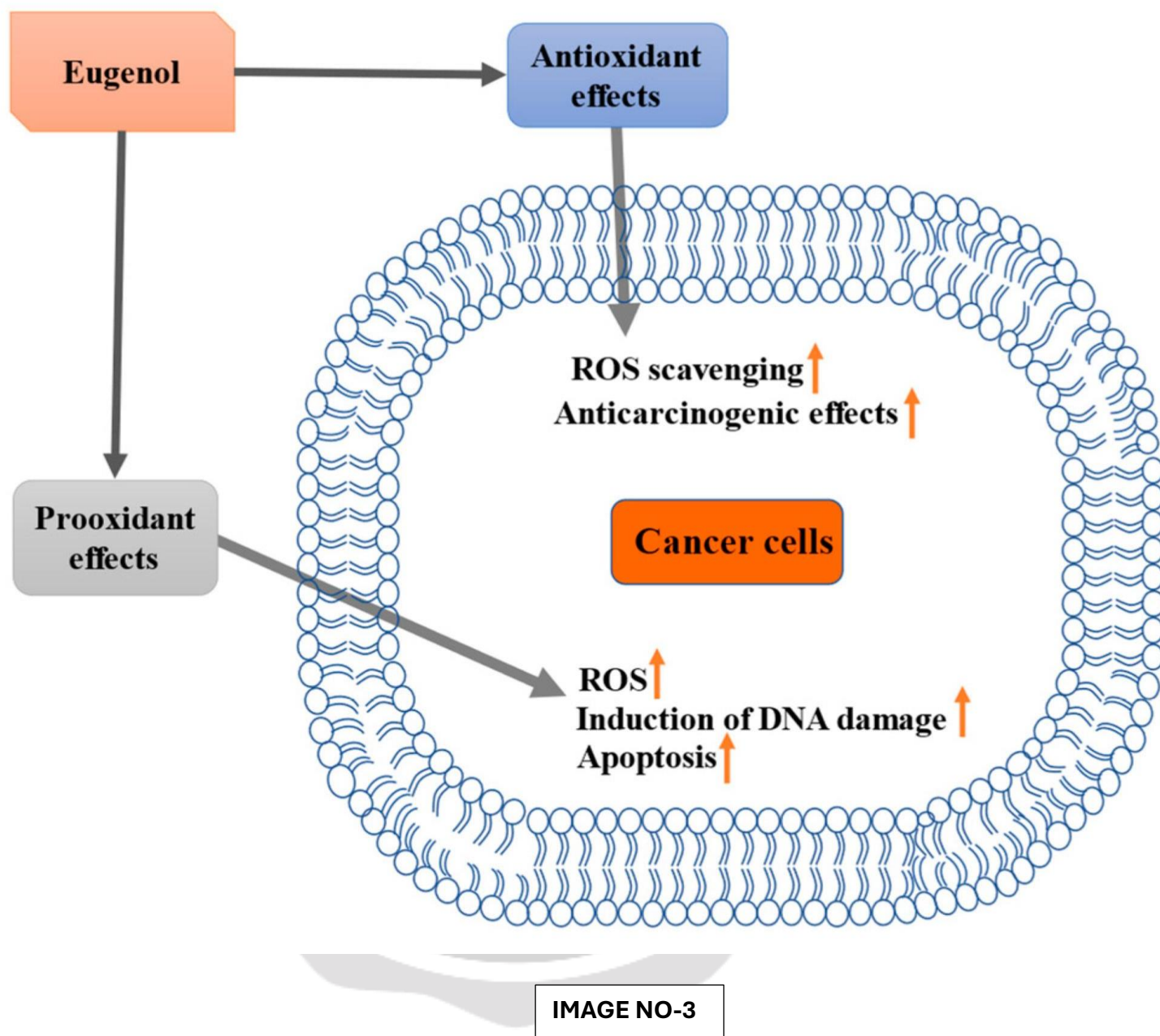
Properties: Ocimene has antifungal, antimicrobial, and anti-inflammatory properties.

6. Thymol**Rate : 1-2%****Properties : Thymol is known for its sterile, antimicrobial, and antioxidant properties.****7. Terpinene****Rate : 1-2%****Properties : It has antimicrobial and anti-inflammatory impacts and is commonly found in fundamental oils like tea tree oil.****8. Rosmarinic Acid****Rate : Follow sums****Properties : A strong antioxidant and anti-inflammatory compound****9. Flavonoids (e.g., Luteolin, Apigenin)****Rate : Follow sums****-Properties : Known for their antioxidant, anti-inflammatory, and anti-cancer properties.****10. Triterpenoids (e.g., Ursolic corrosive, Oleanolic acid)****Rate : Follow sums****Properties: These compounds have anti-inflammatory, hostile to- cancer, and hepatoprotective effects.****11. Saponins****Rate : Follow sums****Properties : Have immune-boosting, antimicrobial, and anti-inflammatory impacts.**

Tulsi also known as holy basil which having a scientific name that is *ocimum tenuifloram* which is belonging to *lamiaceae*. Which is found in Asia ,Africa and south and central America and it is effectively used in ayurvedic and siddha system of medicine [1,2].It is a highly aromatic, culinary and medicinal plant from the *Lamiaceae* family, native to the Indian subcontinent and used in Ayurvedic medicine for over 3,000 years. In the Ayurvedic system, Tulsi is often called the “elixir of life” for its healing powers and is known to treat a variety of ailments. Tulsi leaf extract is described in the Indian *Materia Medica* as treating bronchitis, rheumatism and fever [3]. Other reported treatments include treating epilepsy, asthma or shortness of breath, hiccups, coughs, skin and blood, parasites, neuralgia, headaches, aches and pains [4] and diseases of the mouth [5]. The juice of the leaves has been used as drops to treat ear infections [6], while the tea has been the used to treat stomach and liver disorders [7]. The roots and stems are also traditionally used to treat mosquito and snake bites, as well as malaria [7]

AN EFFECTIVENESS OF TULSI**1)ANTI-CANCER ACTIVITY**

Tulsi consist a important chemical constituents known as eugenol cancer is an life Affective disorder which can be affect the life of an individual .



In most instances, cancer develops because of ordinary cellular boom and next tumour formation. because of full-size constraints

with modern-day treatments, natural compounds are being explored as potential alternatives. There at the moment are around 30 natural compounds underneath clinical trials for the remedy of cancer. Tulsi, or Holy Basil, of the genus *Ocimum*, is one of the maximum extensively to be had and fee-effective medicinal vegetation. In India, the tulsi plant has deep non secular and medicinal importance. Tulsi important oil consists of a precious supply of bioactive compounds, such as camphor, eucalyptol, eugenol, alpha-bisabolene, beta-bisabolene, and beta-caryophyllene. these compounds are proposed to be chargeable for the antimicrobial homes of the leaf extracts. The

anticancer consequences of tulsi (*Ocimum sanctum* L.) have earned it the title of "queen of herbs" and "Elixir of existence" in Ayurvedic treatment. Tulsi leaves, that have excessive concentrations of eugenol, have been proven to have anticancer homes. In a numerous cancers, eugenol exerts its antitumour effects thru some of distinct mechanisms. In mild of this, the cutting-edge evaluation makes a speciality of the anticancer blessings of tulsi and its number one phytoconstituent, eugenol, as a potential healing agent against a extensive variety of most cancers sorts. In latest years, tulsi has won popularity because of its anticancer homes. In ongoing medical trials, some of tulsi plant compounds are being evaluated for their capacity anticancer consequences [8]. It works on various types of cancer such as Skin Cancer [9], Lungs Cancer[10,11], Breast cancer [12,13,14], Gastric cancer[15,16],Osteosarcoma[17] Colorectal cancer [18,19]

1) ANTIDIABETIC ACTIVITY OF TULSI

In the past, *ocimum sanctum* leaves have been used for treatment of diabetes. Rephrase A group of people were given fresh tulsi leaves in a dose of 2gm BW for 30 days. Intake of *Ocimum sanctum*

resulted in an increase in levels of superoxide dismutase, reduced glutathione, and total thiols, but a marked reduction in peroxidised lipid levels as compared to the control group. The leaves had both superoxide and hydroxyl free radical scavenging action. The major impact of *Ocimum sanctum* leaves in maintaining the blood sugar levels has been reported by the present observations [20,21]

3) AN ANTIOXIDANT ACTIVITY

Determined robust antioxidant capacity of *Ocimum Sanctum* compared to ascorbic acid tasks *O. sanctum* as significant source of natural antioxidants. Widespread antioxidant interest of *OsH* fraction is probably because of vast potential of hydrophobic small chain essential oils and related polyphenols on this fraction to scavenge hydroxyl radicals. Those results indicate that the critical oil fraction of this plant may also guard lipids from hydroxyl radical harm. Inside the recent studies it has discovered that the presence of flavonoids glycosides associated to fatty acids in methanol extract of *O. sanctum* leaves (Ali and Ali 2012). Ethanol extract of *Ocimum* leaves containing fatty acids, polyphenols and flavonoids reveals desirable hydroxyl radical scavenging activity (Venuprasad et al. 2014). It suggests a fashionable impact in opposition to the oxidative agent. Beneficial to reduce lipid peroxidation, it save you lipids from hydroxyl radical damage, it Reduces the pores and skin roughness and make skin easy [22]

2) ANTIMICROBIAL ACTIVITY OF TULSI

In recent years, scientists around the world have found that the effectiveness of antibiotics is limited due to the continuous development of microbial resistance. For this reason, many studies have been conducted to find new sources of antibiotics, especially plants. Tulsi oil at concentrations of 4.5 and 2.25% totally hindered the development of *S. aureus*, counting MRSA and *E. coli*, whereas the same concentrations as it were mostly restrained the development of *P. aeruginosa*. The MBC comes about appeared that Tulsi basic oil had as it were bacteriostatic action against the inspected bacterial strains. Practical bacterial tallies were not measured since the plates were blended demonstrating bacteriostatic action. Measurable examination of the spectrophotometric comes about appeared that both the concentration of Tulsi oil and bacterial species utilized altogether influenced the sum of development ($P < 0.05$). The rate of bacterial development was lower by and large when microbes were treated with Tulsi oil at a concentration of 4.50% (17.29) and 2.23% (15.07) in comparison to 1.13% concentration (56.62). The most impact on the bacterial species development for all fundamental oil concentrations was noteworthy as well. [23,24,25,26,27]

ANTI-INFLAMMATORY ACTIVITY OF TULSI

Side effects are still an area of research interest, probably due to the lack of safe and effective anti-inflammatory drugs. This has led to an increased demand for natural products with anti-inflammatory activity and fewer side effects. Nonsteroidal anti-inflammatory drugs (NSAIDs), such as indomethacin, are used to treat pain, fever, and inflammation. However, the main side effect of NSAIDs is stomach damage. In this study, *O. Sanctum* alone and in combination with indomethacin were investigated using carrageenan-induced paw edema in rats. *O. sanctum* aqueous extract (200 mg/kg or 400 mg/kg) was administered to separate groups of rats alone and in combination with indomethacin (25 mg/kg) and analyzed by plethysmograph to measure paw volume and compared with the control group honor. There was significant anti-carrageenan-induced paw edema in rats in all test groups ($P < 0.05$). o

Reduction of edema Sanctum is superior to the standard antibiotic indomethacin, and the combination slightly enhances the antibacterial effect of indomethacin. *O. sanctum* has significant anti-inflammatory properties, probably due to inhibition of the cyclooxygenase and lipoxygenase pathways of arachidonic acid metabolism (dual inhibitory properties).[28,29]

ANTICOAGULANT ACTION OF TULASI

Singh et al. showed that *O. sainttum* essential oil can increase clotting time and its anti-inflammatory properties are similar to aspirin. This effect seems to be due to the anti-aggregant effect of the oil on platelets. Srinivas et al reported that linolenic acid in *O. sanctum* essential oil is metabolized to eicosapentaenoic acid (EPA). EPA inhibits TXA2 production by producing PGI3 and thromboxane A3 (TXA3) via the cyclooxygenase pathway. In contrast to TXA2, TXA3 reduces platelet aggregation, while PGI3 has anti-platelet aggregation activity [30,31,32]

OTHER MULTIPLE USE OF TULASI

Tulasi or holy basil (*Ocimum sainttum* Linn.) is widely dispensed in India from sea stage to an altitude of 1800 m within the Himalayas (India Fortune, 1991). Its medicinal residences are defined in Ayurveda (technological know-how of life), an Indian medical text believed to be five Thousand years old. Historically, all parts of this plant were used within the remedy of different sicknesses such as cough and bloodless, allergies, pneumonia, belly ache, skin troubles, eye and ear hassle, erratic fevers, snake and scorpion bites (Ghosh, 1995) [34]



IMAGE NO-5

Studies on the medicinal blessings of Tulsi flourished in the mid-twentieth century. Even as most of the clinical evidence for the advantages of medicinal plant life is observed in animal studies, just a few human studies exist. Those studies display that many components of the plant have antibacterial, adaptogenic, antidiabetic, hepatoprotective, anticytotoxic, radioprotective, neuroprotective, cardioprotective and larvicide/mosquito repellent

benefits (Mondal et al., 2009). Animal studies absolutely show residences of Tulsi leaf extract (Godhwani et al., 1988; Singh et al., 1995; Mediratta et al., 2002; Mukherjee et al., 2005). The human immune system could be very complicated and there is a stability among health and sickness. Any artificial or biological substance that can decorate, decrease or alter the immune system is called an immunomodulator (Agarwal and Singh, 1999). In India, humans commonly consider that ingesting Tulsi leaves on an empty stomach is beneficial and boosts immunity of an individual [35,36]

CULTURAL IMPORTANCE OF TULSI



Image no-6

Tulsi is still part of South Asian families in the UK and has religious significance, particularly for those of Hindu origin. Participants reported that the plant is revered as a goddess, and therefore a symbol of luck and fortune if grown; therefore, the analysis criteria were broad across participants. Medicinal uses were also important to participants in this study, who used Tulsi to treat asthma, diabetes, eczema and other skin conditions [1]. Clearly, the importance of Tulsi's religious and medicinal properties adds to its cultural and economic value.

CONCLUSION

In recent years it has found that there is no option without addition of ayurveda in daily routine life. There are multiple ayurvedic plants which have been found more beneficial than the allopathic practice of the medicine without any harmful side-effects and in an affordable and optimum price. Tulsi is an important plant which is beneficial for the multiple. Tulsi having importance by the means of chemical, physical, Cultural, and medicinal way.

By the multiple times research it has found that Tulsi having a Adaptogenic, Antimicrobial, Antidiabetic, Anti-cancer, Hepatoprotective, Anti cold, Antitussive, Radio protective, Anticoagulant

Anti-infective Properties and other thousand of beneficiary things. The faith of the ayurveda is increasing day by day due to their less side effects, more efficacy, optimum price, and due to wide availability. It is responsibility of an individual to adopt the ayurvedic medicine for the better future.

In this study we include the multiple uses of Tulsi ,their Chemical Constituents and other useful information about Tulsi.

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