

Ocimum Sanctum-The Indian holy power Medicinal plant

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ABSTRACT: : *Ocimum sanctum* (Tulsi) herb has been known from as the vedic period. Its extract has numerous pharmacological activities like hypoglycaemic, immunomodulatory, analgesic, anti-stress, anti-pyretic, anti-ulcerogenic, anti-inflammatory, anti-hypertensive and anti-bacterial. The active constituents of herb include volatile oil eugenol and B-caryophyllene, flavonoids and a number of other components present in fixed oil.

Key Words: *Ocimum sanctum*, Tulsi, Medicinal plant.

Introduction

Plants are one of the most important sources of medicines. Among them *Ocimum* species belonging to the family Lamiaceae are very important for their therapeutic potentials. *Ocimum sanctum* Linn (Tulsi), *ocimum canassims* (dulal Tulsi), *ocimum basilicum* Linn (Ban tulsi), *Ocimum gratissimum* Linn (Ram Tulsi), *Ocimum micranthus* wild & *ocimum americanum* Linn are examples of known important species. Among them *Ocimum sanctum* has been well documented for its therapeutic potential¹.

Tulsi is a fragrant bushy perennial growing up to 1.5 m in height with profusion of white blooms and slightly purple tinted foliage. This herb has been known from as early as the vedic period and is held by Hindus and is often planted around temples and used in rosaries. It is native to India, reached Western Europe in the 16th century. In several ancient systems of medicine including ayurveda, Greek, Roman, Siddha and Unani, *Ocimum sanctum* has vast number of therapeutic applications such as in cardiopathy, haemopathy, leucoderma, asthma, bronchitis, catarrhal, fever, otalgia, hepatopathy, vomiting, lumbago, hiccups, ophthalmia, gastropathy, genitourinary disorders, ringworm, verminosis and skin diseases etc.

Medicinal properties

Hypoglycaemic and Hypolipidemic activity

Ocimum sanctum has numerous pharmacological activities. Oral preventing tonic convulsions induced by transcorneal electroshock². The analgesic action is exerted both centrally as well as peripherally and involves interplay between various neurotransmitter systems³.

Immunomodulatory activity

The seed oil can modulate both humoral and cell mediated immune responsiveness and these immunomodulatory effects may be mediated by GABAergic pathways. Godhwani et al indicated an immunostimulatory capability, which may be contributory in explaining the adoptogenic action of the plant⁴.

Toxicant -stress activity

The ability of tulsi to protect against the damaging effect of various toxicants has been documented in numerous experimental studies. These studies attest to the ability of tulsi to prevent liver, kidney and brain injury by protecting against the genetic immune and cellular damage caused by pesticides, pharmaceuticals and industrial chemicals. Thus, tulsi has been shown to protect against the toxic effects of industrial chemicals such as butylparaben⁵.

Antimicrobial activity

The narrowest spectrum of antibacterial activity was observed in *Ocimum sanctum*⁶. The crude aqueous extract of leaf possesses some antibacterial and immunomodulatory active principles⁷. *Neisseria gonorrhoea* clinical isolates and WHO strains were found to be sensitive to extracts⁸. The ethanolic extracts from the leaves showed better activity against the β -lactamase producing methicillin-resistant *Staphylococcus aureus* strains⁹.

Anti-ulcer activity

Holy basil is reported to possess potent anti-ulcerogenic as well as ulcer-healing properties¹⁰ and it is due to its ability to reduce acid secretion and increase mucous secretion¹¹. The fixed oil of tulsi was found to possess significant anti-ulcer activity against Aspirin-, Indomethacin-, alcohol-, histamine-

,reserpine,serotonin- and stress- inducedulceration in experimental animal models.

Antioxidant activity

It has significant ability to scavenge highly reactive free radicals³⁰. Antioxidant bioassay-directed extraction of the fresh leaves and stems of tulsi extract yielded: cirsilineol,cirsimaritin, isothymonin, apigenin,rosmarinic acid appreciable quantities of eugenol. Eugenol is a major component of the volatile oil, and other compounds also demonstrated good antioxidant activity¹³.

Anti-inflammatory activity

Gas liquid chromatographic analysis of fixed oil of *Ocimum sanctum* revealed the presence of five fatty acids. The triglyceride fraction of the oil showed higher protection compared to fixed oil against carragenan-induced paw edema and acetic acid induced writhings in rats and mice, respectively¹⁴.

Antistress activity

Tulsi has been used extensively throughout its history in India as a supreme anti stress solution, used for claiming the distraught and dealing with long-term irritants. In a 2000 study performed at the University of Madras, in Madras, India, researchers tested Tulsi extract on rats who were also subjected to acute levels of noise. The stress altered levels of several brain chemical makers including corticosterone were lowered after feeding the rats¹⁵.

Antipyretic activity

Prevents, removes or reduces fevers Treatment for viral encephalitis, malaria and typhoid; The Imperial Malarial Conference has declared Tulsi to be a genuine remedy for malaria. Drug and nicotine withdrawal Tulsi oil is also used as ear drops in case of pain. Add fresh garlic juice after you cook Tulsi in mustard oil and then place this warm medicated oil in the ears to remove ear aches. The fresh juice of Tulsi taken with black pepper powder cures periodic fevers. In case of acute fevers, a decoction of the leaves boiled with powdered cardamom in half a liter of water and mixed with sugar and milk brings down the temperature. Reproductive System Antifertility effect – may reduce the estrogen hormone levels in females and decrease the sperm count in men.

Chemopreventive and radioprotective activity

Oral treatment with the leaf extract significantly elevated the activities of cytochrome p-450, cytochrome b5, aryl hydrocarbon hydroxylase and glutathione S-transferase in the liver, all of which are important in the detoxification of carcinogens as well as mutagens. Prakash and Gupta concluded that the potential chemopreventive activity of seed oil is partly attributable to its antioxidant properties¹⁶.

Therapeutic Uses

Some of the basil leaves are a rich source of key nutrients like vitamin A, vitamin C, calcium and phosphorus. The presence of vitamin A helps in strengthening eyesight. Tulsi also contains antioxidants like beta carotene that helps in preventing cell damage. Tulsi or the holy basil is famous throughout the globe for its healing and other medicinal properties. Its leaves are helpful in sharpening memory and curing fever and common cold. The leaves of the basil are also effective in reducing mouth ulcer and other infections of the mouth.

Conclusion

Tulsi has been widely used for curing various ailments due to its great therapeutic potentials. A number of pharmacological effects like hypoglycaemic, immunomodulatory, antistress, anti-inflammatory, anti-ucrogenic, anti-hypertensive, CNS depressant, radio protective, antitumour and antimicrobial of *Ocimum sanctum* have been studied by various workers. These studies help in establishing a scientific basis for therapeutic uses of the plant. However much more studies are still required to explore other potential activities of this plant.

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