



Ocimum Sanctum – A Medicine from my Courtyard

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1. INTRODUCTION

Plants are of the important sources of medicine and a large number of drugs in use are derived from plants. The therapeutic uses of plant are safe, economical and effective as their ease of availability. Among the plants known for medicinal value, the plants of genus *Ocimum* belonging to family Lamiaceae are very important for their therapeutic potentials.

Ocimum sanctum has two varieties

1. Black (*Krishna Tulsi*)
2. Green (*Rama Tulsi*)



Ocimum sanctum is widely distributed covering the entire Indian sub continent, ascending up to 1800 m in the Himalayas and Andaman and Nicobar Island.

Tulsi is a Sanskrit word which means “the incomparable one” and has a very special place in the Hindu culture. Various synonyms used in India and all over the world for *Ocimum sanctum*.

The phytoconstituents isolated from various parts of the plant include eugenol, cardinene, cubenol, borneol, linoleic acid, linolenic acid, oleic acid, palmitic acid, steric acid, Vallinin, Vicenin, Vitexin, Vallinin acid, Orientin, Circineol, Gallic Acid, vitamin A, vitamin C, phosphorous and iron.

Ocimum sanctum is one such plant showing multifarious medicinal properties viz. analgesic activity, Immunomodulatory activity, antiasthmatic activity, anticancer activity, anticonvulsant activity, antidiabetic activity, antihyperlipidemic activity, antistress activity in addition to possessing useful memory enhancer and neuroprotective activity etc.

SCIENTIFIC CLASSIFICATION

- Kingdom: Plantae – Plants
- Subkingdom: Tracheobionta – Vascular plants
- Superdivision: Spermatophyta – Seed plants
- Division: Magnoliophyta – Flowering plants
- Class: Magnoliopsida – Dicotyledons
- Subclass: Asteridae
- Order: Lamiales
- Family: Lamiaceae/Labiatae – Mint family
- Genus: *Ocimum* L. – basil
- Species: *Ocimum tenuiflorum* L. – holy basil
- Binomial name: *Ocimum tenuiflorum* or *Ocimum sanctum* L.

Common names of *Ocimum sanctum*:

Holy Basil	Sacred Basil	Tulasi	Surasaa
Surasa	Bhuutaghni	Suravalli	Sulabhaa
Manjarikaa	Bahumanjari	Deva Tulasi	Nalla-Tulasi

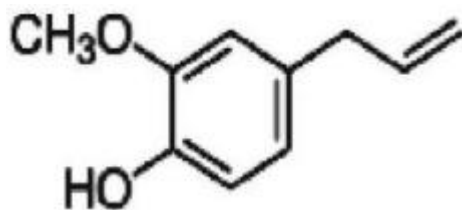
Phytochemical constituents

The chemical composition of Tulsi is highly complex, containing many nutrients and other biologically active compounds, the proportions of which may vary considerably between strains and even among plants within the same field.

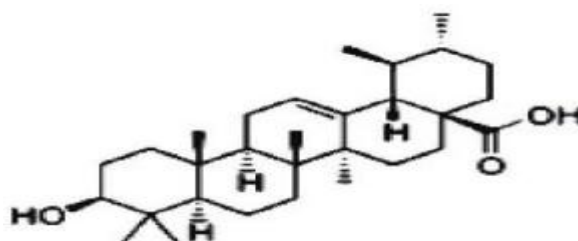
The nutritional and pharmacological properties of the whole herb in its natural form, as it has been traditionally used, result from synergistic interactions of many different active phytochemicals. Consequently, the overall effects of Tulsi cannot be fully duplicated with isolated compounds or extracts. Because of its inherent botanical and biochemical complexity, Tulsi standardization has, so far, eluded modern science.

The leaf volatile oil contains

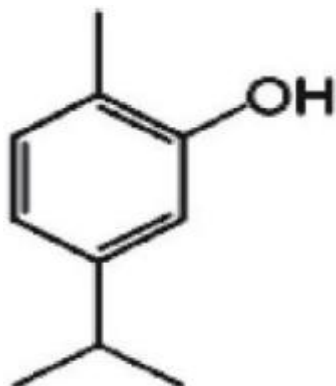
1. Eugenol (1-hydroxy-2-methoxy-4-allylbenzene)
2. Euginal (also called eugenic acid)
3. Urosolic acid (2,3,4,5,6,6a,7,8,8a,,10,11,12,13,14b-tetradecahydro-1h-picene-4a-carboxylic acid),
4. Carvacrol (5-isopropyl-2-methylphenol)
5. Linalool (3,7-dimethylocta-1,6-dien-3-ol)
6. Limatrol, caryophyllene (4,11,11-trimethyl-8-methylene-bicyclo[7.2.0]undec-4-ene)
7. Methyl carvicol (also called estragol: 1-allyl-4-methoxybenzene)



Eugenol



Urosolic acid



Carvacrol



Linalool

Nutritive Values of *Ocimum sanctum*

Vitamin A & C mg vitamin C per 100 g	Minerals: calcium, zinc, iron
Protein: 30 Kcal, 4.2 g	Fat: 0.5 g
Carbohydrate 2.3 g	Calcium: 25 mg
Phosphorus 287 mg	Iron: 15.1 mg

2.BIO-POTENTIAL OF TULSI

2.1 Analgesic Activity

Singh et al., in 1995 studied the Analgesic activity of fixed oil from the seeds of *Ocimum sanctum* (OS) in mice and rats using the tail flick, tail clip, tail immersion and acetic acid-induced writhing methods. It was found to be effective against acetic acid induced writhing in dose dependent manner suggesting that writhing inhibiting activity of the oil is peripherally mediated due to combined inhibitory effects of prostaglandins, histamine and acetylcholine.

2.2 Antiasthmatic Activity

50% aqueous ethanol extract of dried and fresh leaves and the volatile and fixed oils of OS was evaluated against histamine and acetylcholine induced pre- convulsive dyspnea (PCD) in guinea pigs.

The 50% ethanol extract and volatile oil extracted from fresh leaves and fixed oil from the seeds significantly protected the guinea pigs against histamine and acetylcholine induced preconvulsive dyspnea.

2.3 Antibacterial Activity

Antibacterial activity of the aqueous, alcoholic, chloroform extract and oil obtained from leaves of *Ocimum sanctum* were studied against *E.coli*, *P.aeruginosa*, *S. typhimurium* and *S.aureus*. OS were observed equally effective against pathogenic gram-positive and gram-negative bacteria.

2.4 Anticancer Activity

Antimelanoma activity of 50% alcoholic aqueous leaf extract of different species of *Ocimum* was studied by Monga et al. in 2011. Leaf extract administered orally resulted in significant reduction in tumor volume, increase in average body weight and survival rate of mice.

2.5 Anticataleptic Activity

Aswar et al in 2010 studied the anticataleptic activity of the aqueous extract (300

mg/kg, i.p) and the alcoholic extract (300 mg/kg, i.p) of the leaves of *Ocimum sanctum* and observed a significant ($P < 0.001$) reduction in cataleptic scores

2.6 Anticonvulsant Activity

Different extractives of stem, leaf and stem callus of *Ocimum sanctum* were tested for anticonvulsant activity against standard drug phenytoin using maximal electroshock (MES) model. Ethanol and chloroform extractives of stem, leaf and stem calli were effective in preventing tonic convulsions induced by transcorneal electroshock.

2.7 Antiemetic Activity

Tulsi leaves also check vomiting and used for antiemetic action.

2.8 Anti-helminthic Activity

The essential oil of *Ocimum sanctum* and eugenol, tested in-vitro, showed potent anthelmintic activity in the *Caenorhabditis elegans* model.

2.9 Antihyperlipidemic and Cardioprotective Activity

The antihyperlipidemic and cardioprotective activity of OS fixed oil in rats fed with a high fat diet and concluded that treatment with OS fixed oil decreased the high serum lipid profile. The anti-hyperlipidemic action of OS fixed oil was mainly resulted from the suppression of liver lipid synthesis.

2.10 Antihypertensive Activity

The OS fixed oil administered i.v. produced hypotensive effect in anaesthetized dog which seems to be due to its peripheral vasodilatory action.

2.11 Antistress Activity

Fresh leaves of OS were evaluated for antistress activity against experimentally induced oxidative stress in albino rabbits by Jyoti et al in 2007.

2.12 Antianxiety and Antidepressant Activity

Chatterjee et al in 2011 studied the effect of ethanolic extract of leaves of *Ocimum sanctum* in Swiss albino mice against both anxiety and depressive disorder. The *Ocimum sanctum* extracts shows antianxiety and antidepressant properties at the same dose and can be a potential therapeutic agent against mixed anxiety and depressive syndrome.

2.13 Demulcent/Stimulant/Expectorant

The seeds are mucilaginous and demulcent and are given in different ailments of genito-urinary system. An infusion of leaf had been used as anti-spasmodic in gastric disorders of children.

2.14 Eye Disease

The leaf juice of *Ocimum sanctum* along with triphala is used in ayurvedic eye drop preparations recommended for glaucoma, chronic conjunctivitis and other painful eye disease.

2.15 Hepatoprotective Activity

Lahon et al in 2011 studied hepatoprotective activity of *Ocimum sanctum* alcoholic leaf extract against paracetamol-induced liver damage in albino rats synergism with silymarin and concluded that *Ocimum sanctum* alcoholic leaf extract showed significant hepatoprotective activity and synergism with silymarin.

2.16 Immunomodulatory Activity

Jeba et al in 2011 studied that aqueous extract of *Ocimum sanctum* at the oral doses in rats enhances the production of RBC, WBC, haemoglobin and enhanced the production of antibodies without affecting the biochemical parameters.

2.17 Neuroprotective Activity

Ocimum sanctum shows ameliorative potential in attenuating vincristine induced peripheral neuropathic pain in rats which may be attributed

to decrease in oxidative stress and calcium levels.

Ocimum Sanctum as Homeopathic Medicine

In Homeopathy, the mother tincture of Tulsi is available as a Homeopathic remedy, *Ocimum sanctum* tincture in 2x, 3x, 6c potency. It clears the mind, stabilizes the blood sugar levels, and soothes the chest conditions.

Mother tincture refers to a simple combination of a botanical extract with a specific amount of alcohol. In general, a mother tincture contains the lowest possible potency of any particular homeopathic preparation.

Homeopathic Medicine *Ocimum Sanctum* MT is indicated in the following conditions:

Fever with bone pain:

It is an excellent remedy for influenza and fevers associated with cough and diarrhea. There is pain all over the body. Pain is also felt in bones. There is soreness of the muscles with a severe headache.

Typhoid, intermittent fever:

It is beneficial for typhoid fever with a feeling of chilliness. Along with fever, the patient feels very much drowsy. There is intermittent fever which comes on in the afternoon with extreme chilliness, hands and feet become cold. There is the loss of sensation of feet. Feet are difficult to warm easily. The sensation of extreme heat and flashes of heat during the hot stage, burning in palms and soles relieved by a cool breeze and cold washing. In general, the patient feels better by cold water application.

Influenza, flu, catarrh:

It is a very good remedy for influenza. There is bleeding from the nose, nasal catarrh blockage of the nose with frequent sneezing, with white or yellow discharge from the nose

Cough:

It is a very good remedy for diarrhea and fever associated with cold, cough, bronchitis. It is very good for asthma where the patient sits bent forward and supports the head with the hands while the elbows rest on the knee, cannot lie quietly in bed. There is a pain in the chest while coughing or sneezing.

Tonsillitis:

There are pain and sensitivity of the throat with difficulty in swallowing. Pain in the throat is seen while coughing. There is great hoarseness in the throat. It is a very good remedy for tonsillitis, with altered voice ulceration of the throat and mucus in the throat.

Forgetfulness, lack of focus:

Mentally the patient is very forgetful, he forgets to perform his usual duties. He do mistakes in every work. The patient is very sensitive and starts from sleep, does not like to lie in bed. There is a total lack of concentration. The patient is very weak and always feel drowsy, he falls asleep while answering.

Headache worsens by walking:

There is throbbing pain in the head, and the head feels heavy. He feels as if a nail is being driven in the head. This kind of pain is better by pressure, application of cold water, and by fanning the head, by covering the head. Pain is worse by walking.

Teary eyes:

There is the sensitivity of eyes with pain and there is the continuous flowing of tears from eyes. Sensation as if there is mist before the eyes when the patient is trying the eyes to fix on something.

Symptoms in Ear:

It is a very important remedy for pain in the ears due to nasal complaints, with offensive discharge from the ears. There is noise in the ears and loud sounds appear to be very painful.

Oral Symptoms:

There is a bitter and putrid taste in the mouth. It is a very good remedy for aphathes (small ulcers) in the mouth, because of which the entire tongue is bright red. Lips are dry and black as if burnt. It is a very good remedy for the bad smells from the mouth. Pain in teeth which is worse at night, on touch and from cold.

Abdominal symptoms:

It is often seen in this remedy that there is distension of the abdomen. There is a feeling of heaviness. There is no relief despite frequent passages of stool. There is a pain in the stomach.

Diarrhea:

It is a very good remedy for diarrhea which is generally seen in the rainy season or in autumn. In this, there is a very copious stool and very offensive, watery, full of mucous at times stools or bloody, involuntary during high fever.

Bedwetting:

It is a very good remedy for involuntary urination in children with burning while passing urine. There is the frequent passing of urine in children.

Period problem:

In females, there is lochia (Vaginal discharge seen after delivery) which is terribly offensive, lasts long, and at times mixed with pus, blood, and mucus. Menses are irregular.

Dosage of Ocimum Sanctum MT

The dosage of Mother Tincture of Ocimum Sanctum is 20 drops to 2 ml, twice or thrice a day. The exact dose depends on diseases and intensity.

Ocimum sanctum a remedy for Covid 19-a review study

Human coronaviruses are α -coronaviruses (HCoV-229E and HCoV-NL63) while the other two are β -coronaviruses (HCoV-OC43 and HCoV-HKU1). These viruses are endemic in the human populations, causing 15 – 30% of respiratory tract infections. They cause more severe disease in neonates, the elderly, and in individuals with underlying illnesses, with a greater incidence of lower respiratory tract infection in these populations. HCoV-NL63 is also associated with acute laryngotracheitis (croup).

Most common symptoms

- Fever & Fatigue
- Coughing up sputum, or thick phlegm, from the lungs
- Shortness of breath & Bone or joint pain
- Sore throat & Headache
- Chills & Nausea or vomiting
- Stuffy nose & Diarrhea
- Dry cough or Coughing up blood & Swollen eyes

Conclusion

Plants have been used for the treatment of diseases throughout the world since the beginning of civilization. Tulsi is cultivated for religious and medicinal purposes. It is widely known across South Asia as a medicinal plant and an herbal tea. The vast survey of literature showed that Ocimum sanctum has a broad spectrum of pharmacological activities. It has an esteemed status in herbs with diverse biological potentials and has a great scope for further new area of investigations. Traditionally crude extracts of various parts of plant have been used for their analgesic anticancer, anticoagulant, and antibacterial and many other properties.

Future research on sacred basil should be emphasized for control of various diseases especially it should be explore as a significant remedy regarding neuropsychological disorders for the welfare and service of mankind.

REFERENCES

1. Singh S, Majumdar DK. Effect of fixed oil of Ocimum sanctum against experimentally induced arthritis and jointedemainlaboratoryanimals.Int JPharmacog34:1996,218.
2. Kath R K & Gupta R K. Antioxidant activity of hydro alcoholic leaf extract of Ocimum sanctum in animal models of peptic ulcer. Indian J Physiol Pharmacol 2006, 50 (4): 391–396.
3. Madhuri Sharma and Pandey Govind. Ethno medicinal plants for prevention and treatment of tumours 2009, 3 (1):2-5.
4. Nair V D, Jaleel CA, Gopi R, Gomathinayagam M, Panneerselvam R. Antioxidant potential of Ocimum sanctum under growth regulator

treatments. Eur Asia J BioSci 2009; 3: 1- 9.

5. Nakamura C V, Ishida K, Faccin L C, Filho B P D, Cortez D A G, Rozental S, de Souza W and Ueda-Nakamura T. In vitro activity of essential oil from *Ocimum gratissimum* L. against four *Candida* species. Research in Microbiology 2004, 155(7): 579-586.