



AIM: To Study Pharmacognosy and Phytochemistry of Holy Basil (Tulsi)

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ABSTRACT: *Ocimum sanctum* also known as Tulsi or holybasil is an aromatic plants and it belong to the family Lamiaceae. The dried powder of tulsi was placed in the thimble of soxhlet apparatus and the experiment was done separately for methanol ethanol and distilled water. The medicinal plants are widely used by the traditional medical practitioners for curing various diseases in their day to day practice. In traditional systems of medicine, different parts (leaves, stem, flower, root, seeds and even whole plant) of *Ocimum sanctum* Linn (known as Tulsi in Hindi), a small herb seen throughout India, have been recommended for the treatment of bronchitis, bronchial asthma, malaria, diarrhea, dysentery, skin diseases, arthritis, painful eye diseases, chronic fever, insect bite etc. The *Ocimum sanctum* L. has also been suggested to possess antifertility, anticancer, antidiabetic, antifungal, antimicrobial, hepatoprotective, cardioprotective, antiemetic, antispasmodic, analgesic, adaptogenic and diaphoretic actions. Tulsi plant has been proven health promoting effect through modulation of various biological activities. Tulsi provide wide range of therapeutic applications like cardiopathy, asthma, homeopathy, leukoderma, bronchitis, catarrhal fever, otalgia, hepatopathy, vomiting, lumbago, hiccups, ophthalmia, gastropathy, genitourinary disorders, ringworm, verminosis, and skin disease. Tulsi have been proven effective in supporting the heart, blood vessels, liver and lungs and also regulates blood pressure and blood sugar. Tulsi has a complex chemical structure. Its leaves are used for consumption, as tea and wood and seeds are used to make the garland, [6,7] As mentioned above, this her.

KEY WORDS: History of Tulsi, Botanical Study, Taxonomy, Phytochemicals, Medicinal Properties, Health benefits of tulsi.

Introduction:

Ayurveda and lifestyle medicine. Ayurveda is a science of life as well as world's oldest medical system. Ayurveda has a holistic approach to health as well as good health and preventing disease through healthy lifestyle practices [1]. Ayurveda Tulsi is a mother medicine of nature and queen of herbs [2]. Plants are one of the most important source of medicines. Among them *Ocimum* species belonging to the family Lamiaceae are very important for their therapeutic potentials. *Ocimum sanctum* Linn. (Tulsi), *O. gratissimum* Linn. (Ram Tulsi), *O.*

canum Sims (Dulal Tulsi), *O. basilicum* Linn. (BanTulsi), *O. kilimandscharicum* Guerke (Camphor Basil), *O. americanum* Linn.(Hoary ranthumWilld. are examples of known important species. Among them Holy Basil, *Ocimum sanctum* has been well documented for its therapeutic potential [3] It is an important symbol of the Hindu religious tradition. The name Tulsi is derived from „Sanskrit“, which means “matchless one” [4]. Its other name, Vishnupriya means the one that pleases Lord Vishnu.[5] Tulsi is present in every home In India for its nutritional, medicinal and spiritual properties. ‘The Incomparable One and Mother of natural medicine’ are the other names of Tulsi. It is believed to protect the house and family from the harmful effect.[6] . Acetylcholine is liable for memory sustaining sleep , promoting Rapid Eye moment sleep (REM)[7] .As mentioned above this herbal drug possesses a greater extent of medicinal properties against various diseases for example Asthma, bacterial and viral infection, cancer, convulsions, hyperlipidemia, CVS disorder, hypertension, stress, anxiety, depression, Alzheimer’s diseases, and hepatotoxicity etc.[8,9] Tulsi leaves show protective action for coughs, bronchitis, skin diseases, diarrhea, cholera, influenza and malaria and therapeutic action of Tulsi seeds for curing ulcers, emesis, tiredness and it achieves as an overall tonic. Tulsi (*Ocimum tenuiflorum*) extract is also utilizing for synthesizing Ag nanoparticles with glucose as a capping agent[10,11]

History of Tulsi:

Sanskrit, the meaning of Tulsi is ‘one that is incomparable or matchless. Tulsi was recognised as one of the most remarkable healing herbs by the ancient rishi a thousand years ago. They saw the plant was good for health and healing and that it was declared a god. Tulsi is herb with a mythological background. Tulsi is supposed to be beloved of Lord Krishna, a reincarnation of Lord Vishnu.[12]

CLASSIFICATION

Ocimum sanctum Linn (Tulsi)

Ocimum grtissium (Ram Tulsi)

Ocimum canum (Dulal Tulsi)

Ocimum bascilicum (Ban Tulsi)

Ocimum kilimandschricum

Ocimum americanum

A] Holy Basil:

It is known as Tulsi and is the most revered houseplant , in India it is associated with ayurveda and hindu religion as goddess of wealth health and prosperity.[13]

O.tenuiflorum (Krishna tulsi)

O.tenuiflorum (Amrita tulsi)

O.gratissium (Vana tulsi)

B] Mediterranean Basil

It is known as sweet basil and is the most popular varieties of basil the world including Asia , Europe , America and Africa.[13]

O.basilicum (sweet basil,purple basil)

O.citriodorum (lemon basil)

O.cinnamon (Vietnamese basil)

O.americanum (American basil)

O.kilimandscharicum (African blue basil)

O.basilicum (Italian gevonese basil)

Botanical Study:

Fig : TULASI

Tulsi herb is found commonly in all areas. The plant grows in the wild in the warm tropical region. The height of the plant varies between 2 to 4 feet. The flowering of the plant is taken place in between the winter season. The aroma of Tulsi is powerful and has an astringent taste. Tulsi leaf extraction gives biologically active compounds like ursolic acid, Luteolin, and apigenin. It is smooth and hairless , unlike the tulsi slightly hairy.[14] Holy basil have branched plant, 30– 60 tall, leaf arrangement: Opposite arrangement, petioles: 5mm, ovate margin: serrated, flowers: vertical, 5–7mm in length, stipule: absent, leaf: dark green to light green, inflorescence: raceme type, floral bracts: caudi form in shape, calyx: greenish; 5 in number, corolla: bilabiate in shape and covered with scattered hairs, white petals,Ovary: absent, stem: stem are covered with minute hairs, fruit: no seed, stamens: 4, filament length is 1mm, and filament colour is white, style: single style, colour: colour is white.[15] Flower tube is hairy. The fruits are small and the seeds yellow to reddish in colour [16]

TAXONOMY:

Kingdom : Plantae

Subkingdom : Tracheobionta

Superdivision : Spermatophyta

Division : Magnoliophyta

Class : Magnoliopsida

Subclass : Asteridae

Order : Lamiales

Family : Lamiaceae

Genus : Ocimum

Species : *O. sanctum***Phytochemicals :**

The leaves of *Ocimum sanctum* reported to be a rich source of volatile oil containing eugenol (71%) and methyl eugenol (20%) content. The volatile oil also consists of carvacrol and sesquiterpine hydrocarbon caryophyllene. The other chemical constituents present are phenolics, flavonoids, terpenoids and fattyacids. [17]Two flavonoids orientin and andvicenin from aqueous leaf extract of *Ocimum sanctum* hav been isolated .Ursolic acid, apigenin, luteolin, apigenin-7-O-glucuronide, luteolin-7-O glucuronide, orientin and molludistin have also been isolated from the leaf extract.[18] It's oil have “carvacrol” & “sesquiterpine hydrocarbon caryophyllene”[19].

Medicinal Properties :**Hypoglycaemic and Hypolipidemic Activity:**

O. sanctum has numerous pharmacological activities . Oral administration of alcoholic extract of leaves led to marked lowering of blood sugar level in normal, glucose fed hyperglycaemic and streptozotocin induced diabetic rats[20]. It might potentially regulate corticosteroid-induced diabetesmellitus[21] Sarkar et al demonstrated that administration of fresh leaves of tulsi mixed in diet resulted in significant lowering in serum total cholesterol, triglyceride, phospholipidand LDL-cholesterol levels, and significant increase in the HDL-cholesterol and total faecal sterol contenSarkar et al demonstratedthat administration of fresh leaves of tulsi mixed in diet resulted in significant lowering in serum totalcholesterol, triglyceride, phospholipid and LDL-cholesterol levels, and significantincrease in the HDL-cholesterts [22] Its fixed oil can inhibit enhancement of the vascular/capillary permeability and leukocyte migration following inflammatory stimulus[23] Tulsi has antioxidant properties and reduces blood glucose levels, and blood pressure[24].It reduces lipid level. So, it is good for heart disorders [25].It also used to treat gastric disorders, cough, common colds, malaria, and headaches [25]

Health benefits of tulsi :

Heart Disease: Tulsi plant are usefull for all types of heart disease and weakness of heart. Tulsi is the most usefull in the reduce blood cholesterol level [26]

Respiratory Diseases: Tulsi is the good herb to cure the asthma.Kwath of leafs with honey and ginger are useful in the respiratory disorder [26]

Kidney Stone: Tulsi is the most useful and effective result on the kidney [27]

Fever: The leaf are used in the treatment of fever, tulsi leaf are boiled with tea and give to the Patients. It is useful in the reduce of fever.

Cough: Tulsi plant is main ingredient in many Ayurvedic cough syrups it's dosage forms because It is help in release mucus in respiratory disorder [26]

Skin disorder: Tulsi juice is used in treat the fungal infection and other type of skin disorder .It is Used to cure leucoderma.[27]

Dental Disorder: Leafs dried under the sunlight and powdered, and it can be used in cleaning of teeth cure the teeth disorder. It is used to treat the pyorrhoea and other teeth disorder. [26]

For children: Tulsi leaf juice is most useful in the common cold , vomiting, high body Temperature.[26]

Stress: Tulsi leafs are observed as an stress booster agent.[2 1.Helps beat stress Tulsi is a natural herb with anti-stress qualities. Hence, sipping a cup of Tulsi tea can Skincare and healthy hair One of the important holy basil uses to prevent and treat a number of skin and hair conditions. *Tulsi* extract has antibacterial properties.

Mouth Infections: The leaves are quite effective for the ulcer and infections in the mouth. a couple of leaves chewed can cure these conditions [28]

Insect Bites: The herb is a prophylactic or preventive and curative for insect stings or bites. A teaspoonful of the juice of the leaves is taken and is repeated after a number of hours [29]

Nutritional value of Tulsi: (*Ocimum gratissimum*)

- Energy – 22.4 Kcal
- Carbohydrate – 2.65 g
- Protein – 3.15 g
- Dietary Fibre – 1.6 g
- Fat – 0.64 g
- Water – 92.06 g
- Calcium – 177 mg
- Iron – 3.17 mg
- Potassium – 295 mg
- Sodium – 4 mg

- Phosphorus – 56 mg
- Zinc – 0.81 mg
- Manganese – 1.148 mg
- β -Carotene – 3142 μ g
- Thiamine – 0.034 mg
- Niacin – 0.902 mg
- Riboflavin – 0.076 mg
- Pantothenic acid – 0.209 mg
- Vitamin B6 – 0.155 mg
- Choline – 11.4 mg
- Vitamin C – 18 mg
- Vitamin E – 0.8 mg
- Vitamin K – 414.8 μ g

Uses:

1. It is used as an antiseptic, antiviral and antibiotic.
2. It is used in cough and cold with Kali mirch, Ginger juice and honey.
3. Face pack prepared from the juice of Tulsi and honey clears the oily skin and improves the skin glow.
4. External application of juice of Tulsi, lime Juice pimples with softness of skin.
5. It is very useful in chronic fever.
6. Keeping a Tulsi plant in the house will prevent all types of insects and mosquitoes, so that Malaria and Dengue etc. can be prevented.
7. The holy plant of Tulsi in House gives RiddhiSiddhi, Prosperous and Healthy Wealthy Life
8. Use its fresh flowers for bronchitis.
9. Use the whole plant for diarrhea, nausea, and vomiting. the pill and ointment form for eczema.
10. Use an alcohol extract for stomach ulcers and eye diseases
11. Use an essential oil made from the leaves for insect bites.

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