

A Mini Review Paper on the Power of Medicinal Plant (Ocimum Sanctum)

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Abstract: *The aromatic plant which belongs to the Genus Ocimum is popularly known as Basil, also called Tulsi the matchless one. Ocimum Sanctum has an ancient history which is rich and known since the Vedic times for its curative powers which are immense and beneficial to mankind. The extracts of ocimum sanctum consist of Amino Acids, Carbohydrates, Phenol and Terpenoids. Several studies have been carried by using herbal extracts which have a potential to determine the phytochemical properties and psychotherapeutic properties of Ocimum Sanctum. This herbal drug found in many Indian household is being used in many alternative therapeutic systems like Ayurveda, Siddha, and Homoeopathy. The studies that have been conducted invitro and vivo were able to determine the adaptogenic, anti-inflammatory, cardio protective, antimicrobial and immunomodulatory effects of Ocimum Sanctum. An extensive literature review by many researchers has been performed to study the medicinal uses of Ocimum Sanctum. Recent research has been carried out to study the action of Tulsi on Central Nervous System including anti-stress, anti-Alzheimer, anti-Anxiety, anti-Depressant, anti-Epileptic, and Antioxidant properties. Collection of the data was done after referring various articles from books, thesis, dissertations, Google scholar, PubMed, Science Direct, Medline and various medical database from the past ten years of research. Most of the studies that were conducted have reported positive results with few adverse effect reports. Further studies need to be conducted to determine the mechanisms involved and the proper amount of dosage required to prove the medicinal and therapeutic properties of Tulsi.*

Keywords: Ocimum Sanctum, Healing Properties, Antioxidant, Phytochemicals, Nutrients.

I. INTRODUCTION

Natural herbs are a part of Indian traditions and the developing countries around the world. Tulsi is also called as the Queen of herbs which has many medicinal properties in herbal drugs. It is a very excellent herb which is used since many years for treating various diseases in India during the ancient times.[1] India is the largest producer of this medicinal herb, and it is called as the botanical garden of the world. More than 70 % of the Indian population rely on the traditional mode of treatment.[26] Some of its active constituents can give quick relief, whereas the other active constituents usually take some time to give relief for various ailments in an individual. It also helps to make the body relax and boost its energy.[2] It is an aromatic plant with medicinal and therapeutic properties which is often taken in combination with other herbs. Tulsi, also known as the incomparable one is revered as an elixir of life. In India Holy Basil has been adopted in spiritual rituals and lifestyle practices having a wide range of health benefits protecting against Asthma, Bacterial and Viral infections, Skin Diseases.[3] The ancient Ayurvedic wisdom suggests that Tulsi is a tonic for the body, mind and spirit that has many solutions to many modern-day health problems. Tulsi is one of the best examples of holistic lifestyle approach to health.[8][14]

Distribution and Habitat

It is an annual delicate herb that is cultivated extensively in warm regions and the tropical climate of the country. These plants are native to the Indian subcontinent and are found throughout the southeast Asian tropics. Basil is usually

cultivated in an area of around 25000 ha, and it accounts for annual production of about 250 -300 tons of oil. It covers the entire Indian sub-continent ascending to 1800 m in the Himalayas and in Andaman and Nicobar Islands. It is also planted in kitchen garden and as an indoor plant since it is sacred in Hindu philosophy. Tulsi has significance in commercial production because of the valuable aroma chemicals extracted from its essential oil.

Morphology of the Plant

O. sanctum is an erect, herbaceous, much branched, soft hairy biennial or triennial plant, which grows to a height of about 30 – 75 cms.[25] The leaves of this plant have a pleasant odor. The plant contains many phenols, aldehydes, tannins, saponin and fats.[19] Leaves are entirely serrate and pubescent on both sides, flowers are purplish or crimson in racemes, fruits are sub-globose or broadly ellipsoid, slightly compressed, nearly smooth, pale brown or reddish with small black markings. The plant can occupy a wide range of habitat.[5]

Chemistry

The leaves of Tulsi plant contain a bright yellow oil that is volatile and is useful against insects and bacteria and the principal constituents are eugenol, eugenol methyl ether and carvacrol. The leaves also help in giving relief to persons suffering from cough, bronchitis, bacterial and viral infections.[26] The oil has anti-bacterial properties and acts as an insecticide.[23]

Classification of Different Species of Ocimum

Basilicum Group

Ocimum canum Sims, *Ocimum basilicum* L, *Ocimum Americanum* L.

Sanctum Group

Ocimum sanctum, *Ocimum Gratissimum* L, *Ocimum viridae* wild.[5]

In India two Types of *Ocimum sanctum*.

1.Green Type (Sri Tulsi)

2.Purple Type (Krishna Tulsi)

Soil and Climate

The plant can be grown on any type of soil. Well drained soil helps in better vegetative growth of the plant.

Different Parts of Tulsi Plants that are Used

Traditionally Tulsi is taken in many forms as herbal tea, dried powder, or fresh leaf. For centuries dried leaves of Tulsi have been used in the grains that are stored to repel the insects. The whole plant is used in preparation of remedies.[15]

Tulsi is enriched with various phytochemical contents. The fresh plant parts contain phenolic compounds like isothymusin, apigenin, circimaritin, circilineol, asparmaric acid.[9]

Leaves -The leaves of the plant contain volatile oil eugenol and methyl eugenol. Leaf extract is effective in treating skin disorders. The extract of black tulsi is used to treat sore eyes and night blindness. The leaves are dried and then the powder is used for brushing the teeth.[6] It is also believed that the aqueous extract of leaves taken with honey for six months helps to expel the kidney stones. Leaves when chewed also help to relieve mouth ulcers. Crushed tulsi leaves can be mixed with ginger juice and honey for relief from cough and cold.

Roots: Dried Tulsi root powder mixed with milk or ghee is good for malarial fever, relieves insect bite and pain. Fresh roots are made into a paste and applied on the part where the insect bites.[6]

Seeds: The solution of tulsi plant seeds is taken with milk or water which acts as a good antioxidant. Tulsi seeds are used as a condiment in foods.[20]

Scientific Classification

- KINGDOM - Plantae
- ORDER - Lamiales
- FAMILY-Lamiaceae
- GENUS -Ocimum

- SPECIES - Sanctum
- BINOMIAL NAME – Ocimum Sanctum or Ocimum Tenuiflorum.[6]

II. MEDICINAL AND PHARMACOLOGICAL PROPERTIES

Tulsi is very old in medicinal in the medicinal field. The therapeutic properties of tulsi have been known since 4000 to 5000 B.C. The consumption of Tulsi is said to prevent disease, promote general health, wellbeing and longevity and assist in dealing with stress of daily life. [3]It gives luster to the complexion, sweetness to the voice, intelligence, stamina and a calm emotional disposition is recommended as a treatment for many conditions including anxiety, cough, asthma, diarrhea, fever, dysentery, arthritis, eye diseases, otalgia, indigestion, vomiting, respiratory, digestive and skin diseases, genitourinary disorders.[4]The medicinal properties of Tulsi have been studied in many scientific papers including in vitro animal, and human experiments. These reveal that Tulsi has many pharmacological actions that include antimicrobial, antiviral, antifungal, antiprotozoal, antimalarial, anthelmintic, mosquito repellent, antidiarrheals, anticataract, anti-inflammatory, neuroprotective, cardioprotective, immunomodulator, cytoprotective, anticancer, antiasthmatic, antistress.[10][22].Holy Basil contains vitamin C and eugenol which helps to protect the heart and also reduces cholesterol level in the blood and are good antioxidants that protect the skin. Tulsi acts as a mild diuretic, helping to lower the uric acid levels in the body. Acetic acid that is present in holy basil helps to break down the stones in kidneys.[11] Also, Tulsi can relieve migraine pain. Holy basil helps to kill the bacteria and infections, useful in treating skin infections. It is a good ingredient for treating fever. It is one of the most important ingredients in the formulations prepared in ayurvedic medicines. The anti-inflammatory properties of Tulsi help to promote eye health by preventing viral, bacterial, and fungal infections. It soothes eye inflammation and reduces stress.[18] Ocimum Sanctum can cure mouth ulcers and is a natural mouth freshener and an oral disinfectant. Holy Basil destroys the bacteria that cause dental cavities, plaque, tartar, and bad breath, while protecting the teeth. It contains compounds like camphene, eugenol, and cineole which cures viral, bacterial, and fungal infections of the respiratory system. It cures bronchitis and tuberculosis. [7] Tulsi is a rich source of Vitamin K that plays a role in bone health and heart health. It can be given to children who are suffering from worm complaints, diarrhea, and dental problems.[17] Figure 1 and 2 shows morphological features of Ocimum sanctum.

III. DRUGS THAT ARE OBTAINED FROM OCIMUM SANCTUM IN HOMOEOPATHY AND AYURVEDA

Tulsi extracts are used as many ayurvedic preparations which are helpful in treating common colds, headache, stomach disorders, inflammation, heart diseases. Supplements of holy extract are available as pills or in capsule form. Tulsi is one of the best examples of a holistic way of life and its approach to health. Also, it has a role in perfume and cosmetic industry.[12][13]

Tulsi capsules prepared as ayurvedic herbal formulations. These capsules are effective, natural having no side effects and are used in autoimmune disorders, allergies, cancer, diabetes, sinusitis.

In Homoeopathy the mother tincture of Tulsi is available as a homoeopathic remedy. Ocimum Sanctum tincture in 2X,3X,6X is available. It clears the mind, stabilizes the blood sugar level, and soothes the chest condition. Mother Tincture refers to a combination of a botanical extract with a specific amount of alcohol. It contains the lowest potency of a homoeopathic preparation.[16] Figure3.

Homoeopathic Sanctum mother tincture is indicated in following conditions:

Fever with bone pain: It is an excellent remedy used for influenza and fevers that are associated with cough and diarrhea. There is pain all over the body. Also pain in the bones. Followed by soreness of muscles with a severe headache.[21]

Typhoid, intermittent fever: It is very beneficial in cases of typhoid fever with a feeling of chilliness. The patient is drowsy during fever which is intermittent and comes on in the afternoon with extreme chilliness, hands and feet become cold. There is loss of sensation of feet. The sensation of extreme heat and flashes of heat during heat stage, burning in palms and soles which is relieved by a cool breeze and cold washing and cold-water application.

Influenza, Flu, Catarrh: It is a very useful remedy for influenza where there is bleeding from the nose, nasal catarrh blockage of nose with frequent sneezing, white or yellow discharge from the nose.

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

Tonsillitis: Pain and sensitivity of the throat with difficulty in swallowing, followed by pain in throat while coughing. There is great hoarseness in the throat. Voice is altered with ulceration and mucus in the throat.

Forgetfulness, Lack of focus: The patient is forgetful mentally, forgets to perform his usual duties. He makes mistakes in every work. The patient is very sensitive and does not like to lie in bed. There is total lack of concentration. The patient is very weak and feels very drowsy, he falls asleep while answering.

Headache: There is throbbing pain in the head and the head feels heavy. There is a feeling of nails being driven through the head. Pain is usually better when pressure and cold water is applied, and by fanning and covering the head. Pain is worse by walking.

Teary eyes: there is sensitivity of eyes with pain and continuous flowing of tears from the eyes. Sensation as if there is mist before the eyes.

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 ears and loud sounds are painful.

Oral symptoms: bitter and putrid taste in the mouth. It is a very good remedy for ulcers in the mouth. The entire tongue is red, lips are dry and black as if burnt. Bad smell from the mouth with pain in teeth that becomes worse at night on touch and from cold.

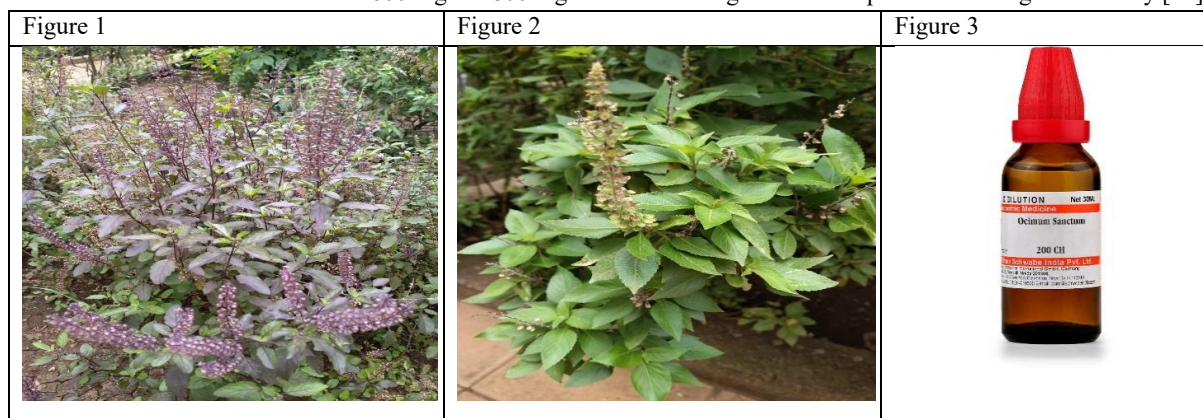
Abdominal symptoms: There is distension of abdomen, feeling of heaviness. Frequent passage of stool. There is a pain in the stomach.

Diarrhea: There is very copious stool and very offensive, watery, full of mucous, sometimes blood is present.

Bedwetting: It is a very good remedy for involuntary urination in children with burning while passing urine. There is frequent passing of urine in children.[21]

Dosage of Ocimum Sanctum Mother Tincture. -

The dosage of Mother tincture is 20 drops to 2 ml, twice or thrice a day. The exact dose will depend on the disease and its intensity. The daily dose suggested ranges from 300 mg to 2000 mg for general preventive purposes. When used for treatment the recommended dose is 600 mg to 1800 mg which must be given in multiple doses throughout the day.[21]



Disadvantages

Excess use of Tulsi can cause burning. In some cases, dizziness, nausea, and racing heart. Tulsi has property to thin the blood in the body and hence should not be taken along with other anti-clotting medications.[6] Excess consumption of tulsi by pregnant women may have long term effects on both mother and the baby.

IV. CONCLUSION

Tulsi is a traditional plant, and it is widely available. Different studies are going on in Ayurveda, Unani, and Homeopathy for evaluation of effectiveness of tulsi and it has been shown in various studies that tulsi also has effect on metabolic

disorders. It is a good immune booster and having anti-inflammatory effect. It is a useful adjunct to pharmacotherapy and its nutritional value is important for metabolic disorder. The leaves consist of bio active components like eugenol, ursolic acid, B-caryophyllene linalool and 1,8-cineole, it lowers blood sugar in animal models experiment count. It has been effective in normalising blood sugar and blood pressure and lipid profile.[24]The laboratory studies have shown the protective effect of tulsi against toxic chemical induced injury by increasing the body's level of antioxidant molecules such as glutathione and enhancing the activity of antioxidant enzymes such as superoxide dismutase and catalase, which protect cellular organelles and membranes by clearing up the damaging free radicals caused by lack of oxygen and other toxic agents.

The scientific research of Tulsi nowadays demonstrates the psychological and physiological effects from consuming tulsi. This provides a testimony to the wisdom that is inherent in Hindu culture and Ayurveda which celebrates tulsi as a plant that is worshipped, ingested, made into a tea and is used as a medicine and spiritual purpose in daily life. It provides a focus for cultivating, sustainability and ecological farming practices that provide a livelihood for many farmers.

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