



(REVIEW ARTICLE)



## A review medicinal and traditional uses on Tulsi plant (*Ocimum sanctum* L.)

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### Abstract

Tulsi (*Ocimum santum* L.), which is native to the Indian subcontinent, is highly revered for its therapeutic use in both ayurveda and siddha medicine. Numerous in vitro and human studies have shown that tulsi has a variety of functions, including antibacterial and cardioprotective ones. On the clinical security of tulsi, there have been no accurate assessments of human studies to yet. We oversaw a thorough written review of human examinations that described a clinical outcome following tulsi ingestion. We searched databases from PubMed, Science Direct, and Indian medical institutions for studies, theories, and information that was distributed in print. Without any note-worthy hostile events being revealed through testing, all research described optimal clinical results. To explore activity, explain the dose, and explain portion size, more research is necessary. The research suggests that tulsi is a potential therapy option for way of life and is stronger than conventionally utilised methods.

**Keywords:** Antioxidants; Anti-inflammatory; Cough and cold; Anti-bacterial; Respiratory disorders

### 1. Introduction

Tulsi, also known as holy basil or *Ocimum Sanctum* L. in Hindi and Sanskrit, is an extraordinary herb from the Lamiaceae family. Tulsi has been used as a remedy for life's problems for at least 3000 years in Ayurveda because of its healing properties. For the treatment of bronchitis, illness, and pyrexia, tulsi leaf extracts are described in Indian medical literature. It is thought to be a widespread plant in India. The most famous family plant in India, it is revered in Hindu tradition. Numerous Hindu myths categorise the importance, uses, and qualities of tulsi. Tulsi is an upright, fragrant bush that can grow up to a height of 3 to 5 feet. It frequently grows in gardens. Both its flavour and aroma are powerful duration. The tulsi plant is extremely important to humanity. Tulsi leaves are frequently used in traditional Ayurvedic medicine. It is known to get better during the course of life. for instance, the common cold irritation, intestinal illness, heart disease, migraines, stomach problems, kidney stones, and more. Particularly feverish is it. Tulsi helped to reduce mosquito population growth and control intestinal disease. The Tulsi plant has a variety of jobs. Tulsi leaves are widely used because of their ability to restore health. It is a stimulant for the senses and in this way aids greatly with memory acuity. The tulsi herb, recognized to treat respiratory problems. The concoction made by combining honey, ginger, and tulsi leaves is highly effective in treating asthma, the flu, and bronchitis.

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**Figure 1** Tulsi Twig

## 2. Medicinal properties Heart disease can be treated with tulsi

- Tulsi reduces Blood Pressure.
- Diabetics benefit from tulsi. Total cholesterol levels are decreased by tulsi.
- Tulsi lowers blood glucose levels and contains antioxidant effects.
- It had occasionally been used as an antispasmodic for whooping cough. It helps with cramps in the stomach. vomiting, diarrhoea, constipation, and enteritis are symptoms of gastrointestinal catarrh.
- Basil has digestive, carminative, galactagogue, antispasmodic, and appetiser properties.

### 1.1 Health benefits of Tulsi

The tulsi plant has numerous medical benefits. Its leaves are a nerve tonic, improve memory, and aid in clearing mucus and catarrh from the bronchial tubes. The leaves encourage sweating and strengthen the stomach.

Colds and mucilaginous fever are the plant's seeds. Many fevers can only be treated with basil leaves. Tender leaves that have been boiled with tea can be used as a preventative measure against diseases like malaria and dengue fever during the rainy seasons.

A decoction of the leaves cooked in half water with powdered cardamom and combined with sugar and milk lowers the temperature in cases of cute fevers.

**Table 1** Geographical distribution of Tulsi

Species Name	Area of Distribution
Rama tulsi ( <i>Ocimum sanctum</i> )	Gir national park and sasangir national park
Aamrita tulsi ( <i>Ocimum tenuiflorum</i> )	Estran Nepal
Vanatulsi ( <i>Ocimum gratissum</i> )	Brazil , china
Sweet Basil( <i>Ocimum basilcum</i> )	Asea, Africa
Thia Basil ( <i>Ocimum thrysiflora</i> )	Asea, Africa
PurpleBasil ( <i>Ocimum basilcum</i> )	Africa , America and asea
Lemon Basil ( <i>Ocimum citriodorum</i> )	Central Africa and south east asea

The tallest basil plant, which was grown by Anastasia Grigoraki (Greec) in Irapetra, Creta, Greece, etc., measured 1.34m (10ft 11.5m) on July 4, 2012.

Many diverse varieties of basil are grown throughout the world; some of the most popular varieties can be divided into two groups. Mediterranean basil (*Ocimum basilicum*) and holy basil (*Ocimum sanctum*) (A) Holy basil is known as the god of riches, health, and prosperity in the Ayurvedic and Hindu religions. There are a number of popular varieties based on religious beliefs that go by a variety of common and vernacular names, including Sanskrit names like Rama tulsi and Krishna tulsi.

#### 1.1.1 Vernacular names of Tulsi

Trittavu Malayalam: Marathi Tulsi

Tamil, Telugu Tulasi, , and Holy Basil

There are 4 varieties.

- Rama tulsi, (*Ocimum sanctum*)
- Krishna tulsi (*Ocimum tenuiflorum*)
- Amiti Tulsi (*Ocimum tenuiflorum*)
- Vana (*Ocimum iratissum*)

(*Ocimum iratissum*) Cinnamon Basil Purple basil is followed by Thai basil.

- Vietnamese basil
- Lemon basil
- American Basil
- Blue African basil
- Genovese basil from Italy
- Basil lettuce
- Basil with green frills
- Cardinal Basil, age 15
- Summertime basil
- Greek basil
- Spicy globe basil.
- Mediterranean basil (B) Asia, Europe, America, and Africa all have sweet basil.

#### 1.1.2 Respiratory Disorders

A number of Ayurvedic expectorants and cough syrups use tulsi as a significant ingredient. Drink water that has been boiled with basil leaves if you have a sore throat. The herb is useful in the treatment of illnesses of the respiratory system, and this water can be gargled with.

A decoction of the leaves mixed with honey and ginger can be used to treat bronchitis, asthma, influenza, cough, and colds.

A decoction made from the leaves, cloves, and table salt is similarly effective at providing prompt relief from influenza.

- Kidney Stone

Basil leaf juice mixed with honey has a strengthening effect on the kidney in situations of renal stones. After taking it consistently for six months, they are able to be expelled through the urinary system.

- Cardiovascular diseases

Basil is beneficial for heart issues and the resulting weakness. It decreases cholesterol levels in the blood.

- Illnesses in Children

The juice from basil leaves can be used to treat common paediatric ailments such vomiting, diarrhoea, and fever. Saffron and basil leaves will hasten the onset of children's pox pustules if they are delayed.

- Stress and headaches

Recent research have demonstrated that basil leaves, which are classified as an adaptogen or anti-stress agent, provide significant protection against stress. To reduce stress, people can chew 12 basil leaves twice a day. It helps prevent certain common elements while purifying blood. The herb basil is effective as a headache remedy. For this order, the leaves may be decorated. You can also apply a paste made from ground leaves and sandalwood on your head to help with headaches, heat exhaustion, and overall cooling.

- Eye Disorders

Basil juice works well to treat night blindness and painful eyes, both of which are typically brought on by vitamin A deficiencies. Every night before bed, two drops of black basil juice are placed in the eyes.

- Mouth infection

The leaves are very efficient in treating oral ulcers and infections. Chewing a few leaves will treat various ailments.

- Insects bites

The herb works as a prophylactic, preventative measure as well as a cure for bug bites or strings. After a couple of hours, take another teaspoonful of the leaf juice. Additionally, the affected areas need to be covered in fresh juice. In the event of insect and leech attacks, a paste of fresh roots is also useful.

- Skin disorder

Basil juice applied locally is effective in treating ringworm and other skin conditions. Some natural healers have also used it to treat leucoderma with effectiveness.

- Teeth Disorder

The herb helps with dental issues. Its leaves can be used to wash teeth after being powdered and sun-dried. Additionally, a paste made from it and gathered oil can be used as dental paste. This is excellent for massaging the gums, preventing bad breath, and maintaining oral health. Additionally, it helps with pyorrhea and other dental issues.

### 1.1.3 *Tulsi used as traditional Indian ayurvedic medicine*

One of the characteristics that make the tulsi plant such an effective medical herb is its capacity to decrease stress, according to organic india, an organisation devoted to organic agriculture and sustainable development. Tulsi is rich in antioxidants and essential oils that are incredibly good at lessening the damaging effects of stress on the body.

Though traditionally utilised by Hindus or Indians, tulsi has a variety of restorative benefits that are increasingly being recognised by various cultures.

A tulsi plant's ability to function as an adaptogen.

It helps the body's various functions run in harmony and is very effective in reducing stress. Tulsi extracts have been employed in the traditional Indian ayurvedic medical system. Additionally, the unani system of medicine makes use of it. The tulsi is used in Ayurvedic treatments for cataracts, malaria, common colds, headaches, stomach problems, inflammation, infections, and heart disease.

The tulsi enhances the neurological system by acting on it.

It makes the heart stronger. It aids with digestion and serves as an appetiser. It helps to secrete digestive enzymes more easily and reduces flatulence. possessing detoxifying qualities Blood is cleansed of any potential poisons by the tulsi. Tulsi might protect against radiation poisoning. Tulsi may possibly have cancer-causing qualities, according to certain reports. The notion that daily use of tulsi leaves will provide cancer protection has gained traction. In addition to its religious significance, this herb has great medicinal value and is a staple in ayurvedic medicine.

Tulsi, which is distinguished by its potent aroma and pungent flavour and promotes lifespan, is sometimes referred to as "the elixir of life." The extracts from the plant can be used to treat and prevent a wide range of diseases and conditions, including malaria, the common cold, heart disease, and many types of poisoning. Recently, however, the majority of the uses for the essential oil extracted from karpooratulsi have been medical.

It's employed in the production of herbal toiletries.

The tulsi plant has been applied topically for skin diseases like eczema, ringworm, and bug bites in Ayurvedic remedies, according to the plant cultures projects of the medicines and health care products regulatory agency (MHRA) of the United Kingdom. It is frequently used as a prophylactic antibacterial for infections as well as to lower fevers, relieve lung and stomach issues, lessen the affects of colds, and eliminate toxins/poisons.

#### 1.1.4 *Tulsi in modern medicine*

According to studies in modern medicine, tulsi may be useful in treating problems like ulcers, high cholesterol, type 2 diabetes, obesity, and a weakened or suppressed immune system (from condition like cancers and Aids ). According to Plant Culture, the traditional use of tulsi in Ayurveda may be attributable to some inherent qualities in many tulsi varieties, such as the essential oil's presence of the anti-inflammatory compound eugenol and a variety of acids with anti-oxidant and anti-inflammatory properties. These qualities may support the assertion that tulsi is a treatment for a variety of conditions in Ayurveda. In your home, tulsi.

Like most herbs, the tulsi plant is a delightful method to improve the flavour of your cooking or prepare a superior tea.

In addition to its medical uses, the tulsi plant can be a terrific addition to your spice collection or garden, according to western medicine.

Diabeteshealth.com states. Researchers have hypothesized that holy basil (Tulsi) leaves may promote insulin secretion by enhancing pancreatic beta cell function. According to the website, a tiny research study of people with type 2 diabetes discovered that those who took 2.5 grammes of powdered tulsi had lower blood sugar fasting levels than those who took a placebo. There have not been any recorded drug interactions involving tulsi, according to DiabetesHealth.ca.

#### 1.1.5 *Natural medicinal uses*

Tulsi is used in sadha, unani, and ayurvedic medicine to treat a variety of internal illnesses, fevers, and skin disorders. Indians blend tulsi leaves with cardamom or lemon juice to make a liquid tonic used in Ayurvedic medicine to cure bronchitis. All three of these ancient medical systems are centred on all-natural treatments and remedies, mostly using herbs and plants.

#### 1.1.6 *Snake and insect bites*

Organic oil from tulsi is a natural antibacterial and anti-inflammatory, according to plant cultures. Tulsi is an effective snake bite remedy, even for bites from deadly snakes, when all portions of the plant are either consumed or combined with other plants to create a paste that is applied directly to the bite site. Because insects dislike the smell, residents of the asean subcontinent frequently place bowls of water with tulsi leaves outside their homes.

#### 1.1.7 *Nutrition value*

Include vitamin C and A as well as minerals including calcium, iron, and zinc, as well as chlorophyll and numerous other phytonutrients. Additionally improves how effectively food and other herbs are digested, absorbed, and utilised for their benefits. 30 kcal of protein, 4.2g; 0.5g of fat, 2.3g of carbohydrate, 287 mg of iron, 15.1 mg of calcium, and 25 mg of edible vitamin C per 100 grammes.

#### 1.1.8 *Phytochemical constituents*

The chemical makeup of tulsi is quite intricate and contains a variety of nutrients and other biologically active substances. Between strains and even among plants in the same field, the quantities of which might vary greatly.

Furthermore, a variety of growing, harvesting, processing, and storage circumstances that are now poorly understood have a major impact on the quantity of several of these elements.

Whole herbs' nutritional and pharmacological qualities as they have been traditionally utilised come from the synergistic interactions of numerous active phytochemicals.

As a result, single substances or extracts cannot completely mimic the total benefits of tulsi. Eugenol is in the volatile oil from the leaves (1 hydrox-2-methoxy-4-allylbenzene) eugenol (also called eugenenic acid) (also called eugenenic acid) Carvacrol, linalool, ursolic acid, and methyl carvicol whereas the volatile seed oil contains sitosterol and fatty acids. Additionally, seed mucilage includes a little amount of carbohydrates, while green leaves contain anthocyanins. The sugars are made up of polysaccharides and xylose. Tulsi does not contain any caffeine or other stimulants, despite its reputation as a general vitalizer and an increaser of physical endurance.

Many of the elements in holy basil's stem and leaves, including saponins, flavonoids, triterpenoids, and tannins, have biological activity.

In addition, the phenolic compounds rosmarinic acid, apigenin, cirsimaritin, isothymusin, and isothymonin have been found to have antioxidant and anti-inflammatory properties.

Two water-soluble flavonoids, orientin and vicenin, have demonstrated their ability to shield human blood lymphocytes against radiation-induced chromosomal damage.

#### 1.1.9 Antioxidant

The rosmarinic polyphenols included in tulsi's chemical make-up function as potent antioxidants. As a result of the presence of free radicals, it shields the body's cells from breaking apart. The body's excessive oxidation also contributes to cell damage. The production of excessive oxidation is stopped by this acid.

#### 1.1.10 Antibacterial

These extraordinary plant's antibacterial components include carvacrol and terpene. Additionally, sesquiterpene B-caryophyllene does the same feat. This ingredient is a food additive that has received FDA approval and is found naturally in tulsi. It assists in protecting the body from bacteria that cause sickness. Anti-inflammation - In addition to being an antioxidant, rosmarinic acid is a good source of anti-inflammation.

Another substance in the mixture providing the same purpose is called pegenin. Other than these two, eugenol—an substance responsible for regulating blood sugar levels in the body—is the most significant anti-inflammatory component of tulsi. It enhances insulin secretion by manipulating the pancreatic beta cell activity.

#### 1.1.11 Adaptogenic

The adaptogenic characteristics of tulsi are the perfect source for reducing erratic moods and promoting mental calmness and clarity.

The most inactive adaptogen components in tulsi's chemical makeup are eugenol and caryophyllene. These work wonders in reducing corticosterone levels, which are the main source of stress.

Additionally, it improves memory and reduces the likelihood of mental health issues brought on by ageing. Both ursolic acid and oleanolic acid serve as adaptogens and are highly effective at reducing stress levels (Gavin2001).

#### 1.1.12 Immuno-modulator

It is essential for the body to contain an immune-modulator that stabilises, restores and keeps the immune system operating in a healthy, balanced manner. Tulsi has great immune-boosting qualities that shield the body from external substances like germs, viruses, pathogens, allergies, etc., maintaining the body's general equilibrium. (chatterjee2001)

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### 3. Conclusion

Tulsi is an indisputable necessity for a happier and more fulfilling existence because of all its restorative properties. Unquestionably, this tiny plant is a fantastic source of healing abilities. It has been proven and confirmed from top to bottom and via research that consuming tulsi in any structure is safe. Present-day science respects and acknowledges all of these medical qualities. Tulsi is a herb that protects people from all risks, even those inherent in today's superficial

and unsatisfactory way of life. It is regarded as the plant king of India. They play a significant role in several Ayurvedic treatments. Both restorative and corrective qualities are present.

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## Compliance with ethical standards

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No conflict of interest.

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