

# Review Paper on Tulsi

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**Abstract:** *Tulsi (Ocimum sanctum L.), also known as holy basil, is native to the Indian subcontinent and is highly regarded for its medicinal properties in both Ayurvedic and Siddha medicine systems. Numerous in vitro, animal, and human studies highlight Tulsi's wide range of therapeutic effects, including its adaptogenic, antimicrobial, anti-inflammatory, cardioprotective, and immunomodulatory properties. However, there are no comprehensive reviews of human studies on Tulsi's clinical effectiveness and safety. We conducted an extensive literature review of human studies that assessed clinical outcomes following Tulsi consumption. Our search covered a variety of sources, including books, dissertations, conference proceedings, and electronic databases such as the Cochrane Library, Google Scholar, Embase, Medline, PubMed, Science Direct, and Indian medical databases*

**Keywords:** Tulsi

## I. INTRODUCTION

Tulsi, often referred to as the "Queen of Herbs," is renowned for its wide range of medicinal properties in herbal medicine. Also known as Holy Basil (*Ocimum sanctum*), Tulsi is both a sacred and highly valued plant in Indian culture, cherished for its health benefits and spiritual importance.<sup>1</sup> Native to the Indian subcontinent, Tulsi has been an essential part of Indian households for centuries, frequently planted in courtyards or temples as a symbol of purity and divine protection. Tulsi belongs to the Lamiaceae family, the same family as mint and regular basil, and is widely cultivated throughout Southeast Asia, including regions like China, Sri Lanka, Malaysia, and Thailand.<sup>2</sup> Known for its distinct fragrance and healing properties, Tulsi plays a central role in Ayurvedic medicine, where it is used to treat various conditions such as respiratory problems, stress, and inflammation. In Hinduism, Tulsi is not only a medicinal herb but is also worshipped as a goddess, believed to bestow health, prosperity, and spiritual blessings upon the home.<sup>3</sup>

### Types of Tulsi<sup>4-6</sup>

1. Rama Tulsi (*Ocimum sanctum*) – A commonly used holy basil with light green leaves and a pleasant aroma.
2. Krishna Tulsi (*Ocimum tenuiflorum*) – Known for its dark purple leaves and strong medicinal properties.
3. Amrita Tulsi (*Ocimum tenuiflorum*) – A variant of Krishna Tulsi, also used in Ayurvedic practices.
4. Vana Tulsi (*Ocimum gratissimum*) – A wild type of Tulsi found in forests, recognized for its intense fragrance.
5. Sweet Basil (*Ocimum basilicum*) – A popular culinary herb with a mild, sweet flavor.
6. Thai Basil (*Ocimum thyriflora*) – Features a spicy, anise-like taste and is common in Asian cooking.
7. Purple Basil (*Ocimum basilicum*) – Notable for its deep purple leaves and slightly spicy flavor.
8. Lemon Basil (*Ocimum × citriodorum*) – Offers a fresh lemon scent, ideal for teas and desserts.
9. American Basil (*Ocimum americanum*) – Also known as hoary basil, with a sharp aroma.
10. African Blue Basil (*Ocimum kilimandscharicum × basilicum*) – A hybrid variety with purple-tinged leaves and a strong fragrance.
11. Italian Genovese Basil (*Ocimum basilicum*) – Traditional Italian basil used in pesto, with broad, sweet-scented leaves.
12. Lettuce Leaf Basil – Has large, wrinkled leaves and a mild, delicate flavor.
13. Green Ruffles Basil – A decorative basil with frilly leaves and a gentle taste.
14. Cardinal Basil – Known for its deep red flowers and spicy clove-like flavor.
15. Greek Basil – A compact variety with tiny leaves and a strong, peppery scent.



16. Spicy Globe Basil – Grows in a bushy, globe-like shape with a zesty flavor.
17. Summer Long Basil – Bred for hot climates, this variety resists bolting and thrives in warm weather.

#### **Properties of Tulsi<sup>7-9</sup>**

1. Rich in Antioxidants – Tulsi may help neutralize harmful free radicals due to its antioxidant properties.
2. Anti-inflammatory Effects – It is believed to have compounds that may reduce inflammation in the body.
3. Antiemetic Action – Tulsi might help in relieving nausea and vomiting.
4. Natural Pain Reliever – It may exhibit mild analgesic (pain-reducing) properties.
5. Stress Reduction – Regular use of Tulsi is thought to help manage stress and promote mental balance.
6. Potential Anti-Cancer Benefits – Preliminary studies suggest Tulsi could have compounds with anti-cancer potential.
7. Helps Lower Blood Pressure – Tulsi may support healthy blood pressure levels.
8. Oral Health Support – Tulsi can be used as a natural mouthwash to ease toothache and maintain oral hygiene.
9. Larvicidal Properties – Tulsi oil has been found to show effectiveness against malaria larvae.

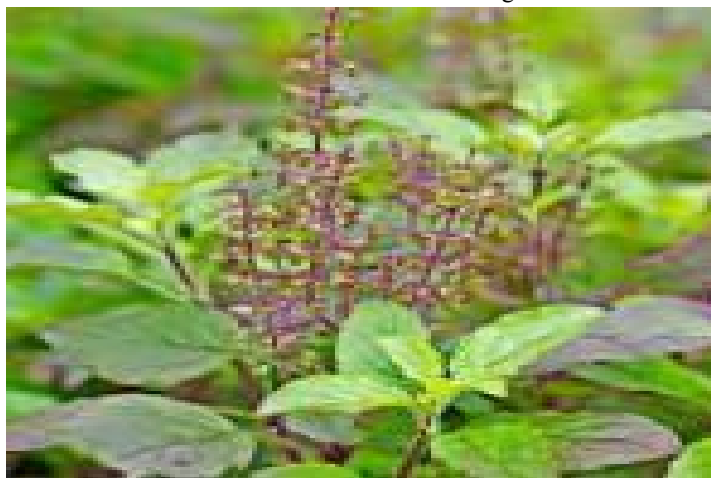


Fig 1. Tulsi

#### **Botanical Study of Tulsi (Holy Basil)**

Tulsi (*Ocimum sanctum*) is a widely distributed herbaceous plant, commonly found in tropical regions, particularly in India and Southeast Asia. It thrives in warm climates and is known for its unique fragrance and considerable medicinal benefits.<sup>10</sup>

#### **Habitat and Growth<sup>11</sup>**

Tulsi naturally grows in tropical environments, flourishing in warm, sunny areas. It is frequently found in gardens, courtyards, and temples throughout India.

- Plant Height: Ranges from 2 to 4 feet
- Growth Habit: Erect, bushy, and branched
- Flowering Season: Typically occurs in winter months

#### **Morphological Features<sup>12</sup>**

Leaves:

- Arrangement: Opposite
- Shape: Ovate
- Margin: Serrated
- Color: Dark green to light green



- Texture: Generally smooth and hairless (unlike wild variants, which may be slightly hairy)
- Petiole Length: Around 5 mm
- Stipule: Absent
- Branched and covered with tiny hairs

**Inflorescence:**

- Type: Raceme
- Floral Bracts: Caudiform (tail-like shape)
- Flower Tube: Hairy

**Flowers:**

- Size: 5–7 mm
- Color: White petals
- Calyx: Green, with 5 parts
- Corolla: Bilabiate (two-lipped) with scattered hairs
- Ovary: Absent
- Stamens: 4
- Filaments: About 1 mm long, white in color
- Style: Single, white

**Fruit and Seeds:**

- Fruit: Small
- Seeds: Yellow to reddish

**Phytochemical Composition :**

The leaves of Tulsi contain several biologically active compounds, such as:

- Ursolic acid
- Luteolin
- Apigenin

These compounds are responsible for Tulsi's medicinal properties, including its anti- inflammatory, antioxidant, and antimicrobial effects.

**Botanical Classification of Ocimum sanctum (Tulsi)<sup>13</sup>**

- Kingdom: Plantae
- Subkingdom: Tracheobionta
- Superdivision: Spermatophyta
- Division: Magnoliophyta
- Class: Magnoliopsida
- Subclass: Asteridae
- Order: Lamiales
- Family: Lamiaceae (Mint family)
- Genus: Ocimum
- Species: Ocimum sanctum (also known as Ocimum tenuiflorum)(4)



### Health Benefits of Tulsi (Holy Basil)

Tulsi (*Ocimum sanctum*) is a potent medicinal herb widely used in Ayurveda for its broad health benefits. Packed with antioxidants, essential oils, and bioactive compounds, Tulsi helps in preventing and managing various health issues.<sup>14</sup>

#### 1. Heart Health

Tulsi supports heart health by helping to lower blood cholesterol levels, which reduces the risk of cardiovascular diseases. It is beneficial for various heart conditions and general heart weakness.

#### 2. Respiratory Disorders

Tulsi is highly effective for treating asthma and other respiratory conditions. A decoction made from Tulsi leaves, honey, and ginger is commonly used to relieve symptoms like congestion, cough, and breathing difficulties.

#### 3. Kidney Stones

Tulsi is useful in treating kidney stones. Consuming Tulsi juice regularly helps flush out stone-forming substances from the body.

#### 4. Fever Tulsi

leaves are commonly used to reduce fever. A simple remedy involves boiling the leaves in tea, which helps lower body temperature and combat infections. 5.

#### 5. Cough and Cold

Tulsi is an essential ingredient in many Ayurvedic cough syrups. It helps loosen mucus in the respiratory system, making it easier to expel. It is particularly effective for bronchitis and persistent coughs.

#### 6. Skin Disorders

Tulsi juice is used to treat a variety of skin infections, including fungal infections and leucoderma (a condition that causes white patches on the skin). Its antimicrobial properties help cleanse and heal the skin. 7.

#### 7. Dental Health

8. Dried Tulsi leaves can be powdered and used as a natural tooth powder. It helps prevent conditions like pyorrhea, bad breath, and strengthens gums by fighting oral bacteria.

#### 9. Children's Health

Tulsi is especially beneficial for children suffering from common ailments like the cold, vomiting, and fever. A few drops of Tulsi juice mixed with honey can be very effective in treating these conditions.

#### 10. Stress Relief

Tulsi is known as a natural adaptogen, which helps the body adapt to stress. Its calming and anti-stress properties assist in reducing anxiety, tension, and fatigue.

### Possible Side Effects of Tulsi<sup>15</sup>

1. Oral Health Concerns Some botanists suggest that chewing raw basil leaves regularly might pose risks to dental health, as the leaves are believed to contain elevated levels of mercury and iron. However, there is currently limited scientific evidence to fully support this claim.

2. Interaction with Blood Thinners Tulsi oil has been observed in some studies to exhibit blood-thinning (anticoagulant) properties. This means it could potentially interfere with anticoagulant medications, such as warfarin or aspirin, and may increase the risk of bleeding in sensitive individuals.

## II. CONCLUSION

Tulsi is widely recognized for its powerful medicinal properties, making it an essential addition to a healthy and balanced lifestyle. This humble plant serves as a rich source of natural remedies and has been thoroughly studied and approved for safe consumption in various forms. Modern science acknowledges and respects the therapeutic benefits of Tulsi. Often referred to as the "Queen of Herbs" in India, Tulsi continues to play a vital role in promoting wellness, especially in today's fast-paced and often unhealthy way of living.



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