



## *Ocimum tenuiflorum* – Holy Basil

### ***Ocimum tenuiflorum* 1:2 Fluid extract**

**Synonyms:** *Ocimum sanctum*

**Common Names:** Holy Basil //Tulsi // Surasa // Tulasi // Karuttulaci // Tulaci

**Botanical family:** Lamiaceae

**Part Used:** Dried Leaf

**Dosage:** 20-50ml per week

**Primary Active Constituents:** Eugenol // Ursolic acid // Rosmarinic acid //  $\alpha$  &  $\beta$ -caryophyllene //  $\beta$ -elemene // germacrene D // Ocimumoside A & B // Flavonoids (orientin & vicenin) // Oleanolic acid

**Contraindications:** Pregnancy & lactation.  
May act as a male contraceptive agent in large doses.

**Actions:** Adaptogen // Neuroprotective // Antioxidant; // Chemoprotective // Nervine // Immune modulator // Anti-inflammatory // Hepatoprotective // Anti-microbial

#### **Main Indications:**

Stress & related conditions  
Cancer-protective // Adjunctive cancer treatment  
Dementia // poor memory  
Mild anxiety disorders  
Diabetes  
Liver conditions

### **Research Summary**

Holy Basil is native to tropical Asia and though relatively new to western medicine systems, has been grown and used medicinally in India for over 3000 years. Also known as 'Tulsi', it is one of the most sacred plants in India & it has the status of deity on the Indian subcontinent.

There is a growing body of research into a wide range of possible therapeutic benefits of Holy Basil, much of which suggests protective actions against health concerns common in today's environment. These properties make it an invaluable component of the modern herbalists toolkit.

#### Anti-aging

Anti-inflammatory & antioxidant actions have been demonstrated in a number of studies, & the components eugenol & ursolic acid are believed to significantly contribute to these actions. Ursolic acid is also well established as an anti-aging agent, helping to maintain healthy skin and promoting skin elasticity. *Ocimum* extract also extended the lifespan of the fruit fly *Caenorhabditis elegans*, used as a genetic model for studies of aging and the role of stress (Ishii 2005; Pandey 2013). This combination of actions supports the herbs traditional use as an 'elixir of life' to promote longevity.

#### Adaptogen

One of the most strongly supported actions of this herb is that of an adaptogenic tonic (Sembulingam, 1997).

*Continued overleaf*

## Research Summary continued

### Adaptogen continued

Constituents identified as key contributors to this adaptogenic action include Ocimumoside A & B. A recent placebo-controlled clinical trial demonstrated a 39% reduction in stress symptoms in people taking Holy Basil over a 6 week period (Saxena, 2012), particularly for improving forgetfulness.

### Cancer-protective

Encouraging findings have emerged from research into Holy Basil's potential anti-cancer activity and its ability to mitigate the negative effects of radiation exposure. These include preventative effects against chemical-induced skin, liver, oral & lung cancers for extracts of Ocimum or some of its phytochemicals, including eugenol, apigenin, myretanal, rosmarinic acid, luteolin,  $\beta$ -sitosterol and carnosic acid (Bhattacharyya 2013; Baliga 2013). Selective protection of normal tissues against the tumoricidal effects of radiation (Joseph, 2011), and *in vitro* tumorigenic effects against human pancreatic cancer cells, have also been reported (Shimuzu, 2013).

### Diabetes

Ocimum has also been used traditionally for the management of Diabetes mellitus. Studies have shown it to protect against lipid peroxidation and improve the antioxidant status of diabetic rats, suggesting a potential protective effect against diabetic complications including retinopathy (Muralikrishnan 2012; Halim, 2006). Stimulation of pancreatic insulin release, has also been reported (Hannan, 2006).

These studies and traditional usage information suggest a potential role as an adjunctive treatment in diabetes.

### Anxiety

Anxiolytic effects have been shown in mice, (Chatterjee, 2011), and an Ocimum tenuiflorum-containing formulation has shown anxiolytic effects in ethanol-withdrawal related anxiety in rats (Mohan, 2011).

Activity in an animal model of depression suggests possible applications in mixed anxiety and depression syndromes. A Nepalese trial in patients with generalised anxiety disorder, found a lessening of anxiety as well as attenuation of associated feelings of stress and depression, in a group of 35 subjects, following 60 days Ocimum treatment (Bhattacharyya, 2008). Further human clinical studies to explore possible antidepressant activities, however, are lacking.

Ocimum protects against neurological deficits secondary to cerebral ischaemia, suggesting a potential application in those prone to or having recently suffered from strokes (Yanpallewar, 2004; Ahmad, 2012).

### Digestive actions

The efficacy of Ocimum against inflammatory conditions extends to hepatic injury and gastric ulcer. Leaf extracts and the essential oil protect against hepatic steatosis in animals, and anti-ulcer and anti-secretory activities have been reported in gastric epithelial tissue (Kamyab, 2013).

### Neuroprotective

Various antioxidant properties have also been strongly implicated in the neuroprotective effects of a hydroethanolic extract against hydrogen peroxide-induced damage to human neuron cells (Venuprasad, 2013).

### References

- Ahmad A. et al, *Neurol Sci* 2012; 33(6):1239-47.  
Baliga MS et al, *Nutr Cancer* 2013; 65 (Suppl 1):26-35.  
Bhattacharyya D et al, *Nepal Med Coll J.* 2008; 10(3):176-179.  
Charrerjee M et al, *Pharm Biol* 2011; 49(5): 477-83.  
Halim EM, *Indian J Clin Biochem* 2006; 21(2):181-188.  
Hannan JM, *J Endocrinol* 2006; 189(1):127-136.  
Ishii N. *Br J Dermatol* 2005 Dec; 153 Suppl 2:1-5.  
Joseph LJ, *Cancer Biother Radiopharm* 2011; 26(6):737-743.  
Kamyab AA, Eshraghian A. *Inflamm Allergy Drug Targets* 2013; 12(6): 378-384.  
Mohan L. *Evid Based Complement Alternat Med* 2011; 2011: pii 327160.  
Muralikrishnan G et al, *Nat Prod Res* 2012; 26(5):474-478.  
Pandey R et al, *Indian J Exp Biol* 2013 Jul; 51(7):515-521.  
Saxena RC et al, *Evid Based Complement Alternat Med* 2012; 2012:894509.  
Sembulingam K, *Indian J Physiol Pharmacol* 1997; 41(2):139-143.  
Shimuzu T et al, *Cancer Lett* 2013; 336(2): 270-280  
Venuprasad MP et al, *Neurochem Res* 2013; 38(10): 2190-2200.  
Yanpallewar SU et al, *Pharmacol biochem Behav* 2004; 79(1):155-164.

## ***Ocimum tenuiflorum***

### **Suggested Combinations**

#### **Stress and anxiety**

- Withania
- Kava
- Chamomile

#### **Cancer prevention**

- Nasturtium
- Baical skullcap
- Echinacea purpurea.

#### **Diabetic complications:**

- Cinnamon
- Rehmania
- Chamomile
- Milk thistle.

