

# Ocimum basilicum L.

**Synonym:** *Ocimum basilicum* var. *purpurascens* Benth.

**Family:** Lamiaceae

## Various names

**Common/Trade names:** Basil, Common Basil, Lemon Basil, Sweet Basil

**Sanskrit names:** Ajagandhika, Arjaka, Gandhapatra, Manjirika

**Hindi:** Babui, Babul, Sabzah, Jangli-tulsi

## Popular name/s in the southern region

- *Andaman & Nicobar Islands:* Babui, Babul
- *Andhra Pradesh :* Bhoo Tulasi, Komma Gaggiri, Sabja
- *Karnataka:* Kamagaggare, Kaama Kasturi, Neeru Thulasi.
- *Kerala:* Ramatulasi, Sabja, Thirunetrapacha
- *Lakshadweep:* Ramatulasi, Sabja
- *Puducherry:* Thiruneertupachilai
- *Tamil Nadu:* Thiruneertupachilai
- *Telangana :* Bhoo Tulasi, Komma Gaggiri, Sabja



## Distribution

*Ocimum basilicum* is widespread in Asia, Africa and Central and Southern America. Within India, it is cultivated throughout the tropical parts. It is also found as an escape on road sides among bushes.

## Description

Erect herbs to 60 cm tall; stems obtusely 4-angular. Leaves opposite 3.5-6 × 1.5-2.5 cm, ovate-elliptic, margins entire to distinctly crenate, pubescent with sessile oil glands beneath. Flowers in terminal racemes. Calyx purplish 6 mm long; corolla creamy coloured 7-10 mm long. Nutlets 4 per fruit, 2-3 × 1-1.5 mm, ellipsoid, black, mucilaginous when wet.

## Uses

Sweet basil has been used for thousands of years as a culinary and medicinal herb. It acts principally on the digestive and nervous systems, easing flatulence, stomach cramps, colic and indigestion. The leaves and flowering tops are antispasmodic, aromatic, carminative,

digestive, galactagogue, stomachic and tonic. Taken internally in the treatment of feverish illnesses (especially colds and influenza), poor digestion, nausea, abdominal cramps, gastroenteritis, migraine, depression and exhaustion. Externally, they are used to treat acne, loss of smell, insect stings, and skin infections. The mucilaginous seed is given in infusion in the treatment of dysentery and chronic diarrhoea. It is said to remove film and opacity from the eyes. The root is used in the treatment of bowel complaints in children. Extracts from the plant are bactericidal and also effective against internal parasites. The essential oil is used in aromatherapy.

## Agro-ecological requirements

Basil requires well-drained, fertile soils with a high organic matter content. It grows well in soils with a pH ranging from 4.3 to 8.2 and an optimum pH of 6.4. Basil requires warm temperate or Mediterranean conditions. It is best cultivated in tropical, subtropical, temperate regions. Optimum temperature for germination is 20 °C, with growing temperatures of 7 to 27 °C. The plant is susceptible to frost and cold temperatures and therefore develops best in long-day, full-sun conditions. Basil cannot tolerate drought stress as the plant tissue is very tender. Annual rainfall of 700 mm is the minimum for dry land cultivation.

## Cultivation

**Planting-stock production:** Basil grows easily through seeds. Seed are oblong, ranges from brown to black in colour and mean seed size  $2.1 \times 1.4$  mm, pitted. Sow the seeds during mid to late spring in a greenhouse. Seeds are placed in rows (10-15 cm row/-spacing). One hundred to five hundred gm seed is required for one hectare. Germination starts 3 days after sowing and finish in about 10 days. Lateral branching



and growth may be encouraged by topping when the plants are about 12 cm high. Regular irrigation is necessary. The seedlings are ready for transplanting after 4-6 weeks. At that stage they are 10-15 cm high with 4-6 pairs of leaves. For direct sowing, generally 1-2 kg/ha of high quality seeds are used.

*Improved varieties:* Kushmohak, Vikarsudha, Saumya, Sharada (developed by CSIR-CIMAP).

**Field Planting:** Basil can be raised by direct sowing of seeds or transplanted to the field from August to October. It is highly susceptible to cold weather. The seedlings ready for planting are removed from the nursery and protected from the sun and desiccation. Transplanting is carried out manually or by using vegetable transplanters. The recommended spacing for seedlings in warmer areas is row spacing of 30-90 cm apart with plants spaced every 25-40

cm are commonly used. Plant populations of 60,000 to 90,000 plants per hectare are used by most commercial producers.

**Manuring/fertilization:** Based on plant/soil analysis, apply well-rotten farmyard manure/compost at the time of planting. The crop requires intensive weeding and this is the most expensive cultural operation which contributes to a higher yield of the crop.

**Irrigation:** Basil requires water from rain or irrigation regularly, throughout the growing season in order to maintain constant growth. Drip irrigation is a better option for this crop.

**Pests and diseases:** *Ocimum basilicum* is susceptible to downy mildew caused by the Oomycete foliar pathogen *Peronospora belbahrii*. Now resistant varieties of sweet basil are commercially available. For controlling diseases, crop rotation is better, follow 3-year-crop rotation with rice, wheat and mint.

## Harvesting and post-harvest processing

Harvesting for basil is non-destructive. The first harvest is obtained at 90 to 95 days of planting. Thereafter it may be harvested at every 65-75 days interval. Some producers of essential oils harvest basil only once and then during the full flowering stage. Other producers harvest the crop just as flowering commences and allows for regrowth to have additional harvests during the same season up to 4 cuttings are possible. When harvesting basil for the fresh market, make the cuts 5 mm above a node and at a height of 10 to 15 cm, and leave sufficient foliage on the plant so that it can continue with healthy growth. The ideal time to harvest basil that has to be dried is on a sunny morning, immediately after the dew has evaporated, and before the day becomes too warm.

## Yield

The average yield is 13-14 tonnes of fresh herbage and 3-4 tonnes of flowers can be obtained per ha. in two to three harvests, which, in turn, yields around 32 kg of oil in a year..

## Economics of cultivation

Cost of cultivation: ₹ 60,000 per hectare.

Market Price: *Fresh herbage* ₹ 30-40 per kg (as on June 2019).

## Quantitative standards

- *Foreign matter*: Not more than 2 %
- *Ash*: Not more than 8.0 %
- *Acid-insoluble ash*: Not more than 0.2 %
- *Ethanol-soluble extractive*: Not less than 4.0 %
- *Water-soluble extractive*: Not less than 3.2 %

**Note:** The farmers are advised to adopt suitable cultivation practices so as to meet the quality parameters and standards of the buyers.