

Piper longum L.

Synonym: *Chavica longa* H. Karst.; *C. roxburghii* Miq.; *C. sarmentosa* Miq.

Family: *Piperaceae*

Ayurvedic Name: Pipali

Hindi Name: Pipali

Trade Name: Pipalimul

Habit: Ascending herb

Part Used: Dried Spikes and Roots

Active Ingredient: Guineensine, Piplartine, Piperine, Piperlongumine



Biological activity: Anticancer, Antiinflammatory, Antispasmodic, Antiulcer, Brochial relaxant, Detoxicant, Diuretic, Analgesic, Antiastmatic, Antimalarial, Antitumor, Astringent

Traditional and Therapeutic use: Plant root is used in Ayurveda as a carminative, liver tonic, stomachic, emmenagogue, abortifacient and aphrodisiac. Fruits contain haematinic, diuretic, digestive and general tonic properties, besides being useful in liver inflammation, joints pains, scorpion sting and night blindness, dyspepsia, abdominal pain, diuretic splenopathy, anorexia, asthma, fever and act as appetiser.

Morphological and floral characteristics: Slender, much branched, ascending herb and needs support for its proper growth. The leaves are 5-9 cm long and 5 cm wide; lower leaves are broadly ovate, deeply cordate with big lobes at the base, sub-acute, entire and glabrous; upper leaves are dark green and cordate with short petiole or nearly sessile. The young shoots are drooping type.

Distribution: Native to Indo-Malaya region and found growing wild in the tropical rainforests of India. Indian long pepper is mostly derived from the wild plants, but is also grown in small area in the Khasi hills, the lower hills of West Bengal, Eastern Uttar Pradesh, Madhya Pradesh, Maharashtra, Kerala, Karnataka and Tamil Nadu. It occurs wild in the forests of Andhra Pradesh and Andaman & Nicobar Islands as well.

Climate and Soil: The plant requires hot, humid climate and an elevation between 100 to 1000 m asl. It needs partial shade for its ideal growth. Partial shade of about 20-25% intensity is found to be optimum. The crop thrives well in a variety of soils. It is cultivated successfully in laterite soils with high organic matter content, water holding capacity and well drained fertile black cotton soil. However, light, porous and well-drained soil rich in organic content is most suitable for its cultivation.

Nursery technique

Raising Planting material: Nursery is prepared with soil, sand and organic matter in 1:1:1 ratio. Dried cow-dung or farmyard manure at the rate of 100 gm/pit is applied and mixed with soil. The

best time for raising nursery is during March and April. Normal irrigation may be given on alternate days. The cutting will be ready for planting by the end of May.

Main field plantation

Land preparation: The field needs 2-3 ploughing followed by harrowing and leveling considering the slope of land to facilitate drainage of excess water.

Transplanting and optimum spacing: Raised beds of appropriate length and width are prepared and pits are dug at a distance of 60 x 60 cm, approximately, 27500 plants are required as planting material for 1 hectare of land.

Fertilizers: Pippali needs heavy manuring. In soils with low fertility, the growth of the plant is very poor. About 20 t/ha FYM or any other organic manuring is applied at the time of area preparation. In the subsequent years also a similar quantity of FYM or organic manure is to be applied before the onset of monsoon.

Weed control: In the first year, weeding is required as and when necessary. Generally two to three weeding's are sufficient. Once the crop grows and covers the field, no serious problem of weed is noticed.

Irrigation: Irrigation is utmost essential during summer months. One or two irrigations in a week depending upon the water holding capacity of the soil, is needed. Even in the monsoon period if there is a failure of rain for quite some time, irrigation has to be given. In irrigated crop, fruit production continues even in summer months.

Diseases and pest control: *Phytophthora* leaf, stem rot and anthracnose are diseases of long pepper. Spraying of 0.5% Bordeaux mixture at 15 days interval and soil drenching of 1.0% Bordeaux mixture at monthly interval reduce the loss caused by these diseases effectively. Application of 0.25% Neem seed kernel extract as spray, is effective to control mealy bugs (*Helopeltis theivora*) damaging tender foliage and spikes.

Crop maturity and harvesting: Vines start flowering six months after planting. Fruits take about two months to mature from its formation. Full-grown mature fruits are harvested before ripening, when it is firm and blackish-green. Harvesting of over-matured or ripened fruits reduce the quality of the produce as well as it does not break easily after full drying.

Post-harvest management: The harvested spikes are dried in the sun for 4 to 5 days until they are perfectly dry. The dried spikes are then stored in the moisture proof containers. Besides fruits, roots and thicker basal stem portions are also collected before crop is abandoned. These are cut into small pieces of 3.0-5.0 cm long and dried. On an average about 500 kg roots are obtained per hectare.

Yield: Yield of dry fruits in first year is about 100 - 150 kg per hectare and it attains up to 250 – 300 kg per hectare in third to fourth year. Thereafter, yield starts declining and gradually becomes uneconomic after fifth year. Therefore, it is usually cultivated as a 4 to 5-year crop.