

Baliospermum solanifolium (Burm.) Suresh

Synonym: *B. axillare* Blume; *B. montanum* (Willd.) Mull. Arg.; *B. indicum* Decne

Family: Euphorbiaceae

Ayurvedic Name: Danti

Hindi Name: Danti

Trade Name: Danti, Jangli Jamalgota

Habit: Undershrub

Part Used: Roots, leaves and seeds

Active Ingredient: Baliospermin



Biological activity: Purgative, Analgesic, Anti-inflammatory, Antipyretic, Thermogenic, Antimicrobial, Antiheumatic, Digestive, Hepatoprotective

Traditional and Therapeutic use: The roots and leaves are cathartic, pungent, thermogenic, purgative, anthelmintic, and diuretic. The roots are used in dropsy, anascara, and jaundice. Decoction of leaves is used for treating asthma. Seeds are purgative, used externally as stimulant. The oil from the seeds is hydrogogue, cathartic, and used for external application in rheumatism.

Morphological and floral characteristics: The plant is a stout, monoecious undershrub up to 3.5 m high, with toothed leaves and stiff branches arising from the root. The upper branches bear small, lanceolate leaves, while the lower branches have large, and often broad, ovate, three- to five-lobed leaves with rounded base. The flowers of the plant are unisexual. In male flowers, the calyx is globose, 2.5 mm long, four to five partite, glabrous or slightly pubescent, membranous, finely mottled with a disc of six glands. Stamens are about 20 in number. Female flowers have ovate-lanceolate and pubescent sepals, and a disc about 2.5 mm in diameter. Fruit is a three-lobed capsule, about 8–13 mm long and usually hairy. Seeds are mottled, smooth, and have oily endosperm. Flowers appear during January–February, while fruits mature a month later.

Distribution: The species is distributed throughout tropical and subtropical areas receiving rainfall above 1000 mm, that is, in Himalayan foothills, Kashmir to Khasi hills, and particularly in Vindhyas southward. It is common in Bengal, Chhota Nagpur, and peninsular India.

Climate and Soil: Prefers humid climate for better growth. Well-drained sandyloam soils with pH normally ranging from 6.5 to 7.5 are good for its cultivation. But it can also grow in soils with pH up to 8.2. This is a shade loving plant but can be grown in open sun when cultivated. Low rainfall areas are not conducive for its growth.

Nursery technique

Raising Planting material: Danti can be easily propagated by seeds and terminal cuttings. The best season for seed collection is from February to April. The seeds are collected when the outer tri-lobed covering around fruits starts turning brown and dry. Kharif season is the best time for raising the crop. The crop should be raised in the beginning of monsoon rains. After raising

nursery, the seedlings can be transplanted in the main field or seeds can be sown in the rows directly in field. In the nursery, seeds can be sown during June in well prepared nursery beds, with sand, soil, and FYM (farmyard manure) in 2:1:1 ratio. Seeds are sown at a depth of 3 cm in shade. A minimum distance of 8–10 cm should be maintained between two rows and 3 cm between the seeds. Regular watering should be done to keep the nursery beds in moist condition. To raise the planting stock, terminal cuttings can also be planted in nursery beds or polybags after treating them with commercially available rooting hormones. The cuttings should be kept in shade houses or mist chambers for better rooting. The stock raised through cuttings takes longer time than seedlings to attain transplantable size. About 7–8 kg of seeds are required for raising seedling stock on 1 hectare of land. Soaking of seeds in water for two to three hours and then drying in shade before sowing also promotes germination. It takes about 25 days for complete germination to take place.

Main field plantation

Land preparation: The land should be given a deep disc ploughing followed by harrowing and levelling.

Transplanting and optimum spacing: Seedlings are ready for transplanting after 40 days of sowing. Terminal cuttings, when used for raising the nursery, take longer time. The optimum spacing recommended is 1.5 m × 1.2 m. In mono-cropping system, approximately, 5500 plants are required as planting material for 1 hectare of land.

Fertilizers: A basal dose of 10 MT/hectare of FYM is applied at the time of field preparation. In addition, NPK (nitrogen, phosphorus, and potassium) @ 75:50:25 kg/hectare may also be applied as basal dose at the time of transplantation.

Weed control: Initial weeding should be done manually after 30–35 days of transplanting. Regular weeding at an interval of 30 days up to four months keeps the field free from weeds.

Irrigation: Initial irrigation should be done for the establishment of plants immediately after transplanting, followed by irrigation at an interval of seven days in summer season and at an interval of 20 days during winter season.

Diseases and pest control: No serious insect pests or diseases have been reported. However, ants are observed when the crop is about six months old. The water sap that oozes near the inflorescence attracts the ants. No chemical pesticides should be used on the crop.

Crop maturity and harvesting: The plant flowers in January–February, while fruits appear a month later. Fruit is initially green and turns brownish black at maturity. Danti is a 10-month-duration crop. Individual plants are dug out; roots and seeds are dried under shade.

Post-harvest management: The produce is dried under shade and stored in dry cool areas in gunny bags.

Yield: The dry root yield of 1800 - 2000 kg per hectare is obtained in 10 month duration crop.