

Withania somnifera (L.) Dunal

Synonym: *W. kansuensis* Kuang & Lu;
W. microphysalis Suess.

Family: Solanaceae

Ayurvedic Name: Ashvagandha

Hindi Name: Ashwagandha

Trade Name: Ashwagandha

Habit: Herb

Part Used: Root

Active Ingredient: Withananine,
Withanolides



Biological activity: Antistress, Antianxiety, Anticancer, Anti-inflammatory, Antimicrobial, Anthelmintic, Anti-convulsant, Anti-pyretic

Traditional and Therapeutic use: The drug is rejuvenating; mainly used in Ayurvedic and Unani preparations. The paste prepared out of its leaves is used for curing inflammation of tubercular glands and that of its roots for curing skin diseases, bronchitis, ulcer and dyspepsia and eye diseases. The fruits and seeds are diuretic in nature. An infusion of the bark is given for asthma.

Morphological and floral characteristics: Dense, hairy, erect, grayish-tomentose herb or under-shrub, grows up to a height of 1.5 meter. It's all parts are covered with whitish, stellate trichomes. Branching is extensive; leaves are simple, alternate or sub-opposite, ovate, entire, basis cunate, 10 cm long. The roots are stout, long tuberous, fleshy, whitish-brown.

Distribution: Common throughout the drier parts in subtropical regions and upper Gangetic Plains. In Gujarat it is common in Jamnagar, Balachari, Ranjit Sagar, Kota, Rajkot, Bhavnagar.

Varieties: Jawahar Asgand - 20

Climate and Soil: Grown on sub-marginal waste lands and low fertility areas. Plant grows well in red, sandy, black and loamy soil with pH 6.5- 8.0 with good water drainage. It can be cultivated upto an altitudes of 1000 meter. The subtropical areas receiving 500-750 mm rainfall are suitable for its cultivation. Temperature between 20°C to 35°C is suitable for its cultivation. Late winter rains are conducive for the proper development of the plant roots.

Nursery technique

Raising Planting material: The seeds are usually sown about 1-3 cm deep in June-July in nursery. The seeds in the nursery-beds are sown in lines spaced at 5 cm and covered with light soil. The germination commences within 6-7 days of sowing and within ten days from sowing it is complete.

Main field plantation

Land preparation: The soil of the field should be well pulverized by ploughing, disking or harrowing. The field may be then leveled.

Transplanting and optimum spacing: The seedlings are 6 weeks old and sufficiently tall they are transplanted at 60 x 60 cm spaced in well prepared land during July-August. Nearly 27,500 plants are required as planting material for 1 hectare of land.

Fertilizers: Mostly organic manure should be applied. N 25 kg, P 25 kg and K 20 kg should be applied at the time of seed sowing.

Weed control: Hand-weeding at 30 days interval helps to control the weeds effectively.

Irrigation: Light shower after transplantation ensures establishment of seedlings. There is no need of irrigation if rainfall is at regular intervals. Excessive rainfall/water is harmful to the crop.

Diseases and pest control: At seedling stage fungus disease like damping of fungus, seedling blight, seed rotting, die-back etc. are common. Seed should be treated with thiram or captan to reduce the effect of seedling blight and leaf blight. 0.3% phytolone, diethane- 78 or D-45 is also spread on crop. Leaf curl tobacco and urtches broom disease were also recognized in *Withania*. These diseases are controlled through spraying of tetra-cycline hydrochloride at the interval of 15-20 days or by uprooting and burning the infected plants. 0.5% melathyone mixed with 0.1-0.3% kithane can be used as spray at 10-15 days interval for the control of insects.

Crop maturity and harvesting: The crop is ready for harvest in January – March i.e. 150 to 180 days after sowing. The maturity of crop is judged by drying out of leaves and yellow red berries. The entire plant is uprooted for roots, which are separated from aerial parts by cutting the stem 1-2 cm above the crown. The berries are plucked from the dried plants and are threshed to obtain the seeds.

Post-harvest management: The dried roots, entire or transversely cut into smaller pieces of 7-10 cm, have to be further washed, cleaned and graded. The roots are beaten with a club, which removes adhering soil and breaks off the thin, brittle lateral rootlets. Lateral branches, root crown and stem remains on roots are carefully trimmed with the help of knife.

Yield: The total root yield per hectare is estimated to be 500 - 700 kg on dry weight basis.