

Atees

ACONTIUM HETEROPHYLLUM WALL.ex. ROYLE. FAMILY - RANUNCULACEAE

Atees is a herbaceous, erect, Biennial; leaves more or less heteromorphic; flower blue or violet, fruits follicles. Root tuberous in pairs whitish or grey, breaks very easily and taste very bitter. The plant is found in sub-alpine and alpine zone of the Himalayas, between 2400-3600 m altitude.

COMMON NAMES: Aruna, Ativasa, Visa.

LOCATION: Hills of Himachal Pradesh, Uttaranchal, Jammu & Kashmir, Arunachal Pradesh & Sikkim

PART USED: Tuberous root

CULTIVATION:

SOIL AND CLIMATE

Sandy loam and acidic soil is best for seed germination, survival, better growth and yield. In general, cultivation up to 2200m elevation having sandy textured soil with rich organic matter is recommended for cultivation.

NURSERY RAISING AND PLANTING

Germination study of seeds of *Aconitum heterophyllum* can be undertaken at lower altitude in polyhouse as well as in open nursery beds under different experimental conditions. Seeds sown in Styrofoam seedling trays containing sandy soil with litter treatment, gives maximum germinability when seeds were sown 0.5-0.7 cm. sowing depth inside polyhouse during November and December at lower altitude and during April in open beds at 2200m. Germination as well as true leaf initiation is earlier in sandy soil. Otherwise seedlings remained in cotyledonary stage (pseudomonocotyl) up to 3-4 months. About 44,000 plants planted 1 acre of land. Seedlings raised at lower altitude during winter months are transplanted in nursery beds at higher altitude during April-May, which reduce their vegetative growth period. In open nursery beds seed germination is very low. Plants raised from seedlings have very slow growth and cotyledonary phase (pseudomonocotyl) remained at least for one growth season (3-4 months). Vegetative growth phase is for 3-4 years and at last it leads to reproductive phase. Addition of forest litter or organic manure to the soil increases survivability and growth of seedling at lower altitude.

For vegetative propagation top tuber segment having innovation bud was found more successful. Top tuber segment produces single shoot, which was found more suitable for multiplication in comparison to middle and basal segments. Vegetative propagation was found most successful for multiplication as well as for higher production within short period than cultivation through seedlings.

MANURES, FERTILISERS AND PESTICIDES

The medicinal plants have to be grown without chemical fertilizers and use of pesticides. Organic manures like, Farm Yard Manure (FYM), Vermi-Compost, Green Manure etc. may be used as per requirement of the species. To prevent diseases, bio-pesticides could be prepared (either single or mixture) from Neem (kernel, seeds & leaves), Chitrakmool, Dhatura, Cow's urine etc.

Irrigation and Weed Control

Beds needed excessive watering/irrigation to decrease the mortality rate of seedlings. However, watering is not required during monsoon period in cultivated fields. Irrigation requirement also depends on the texture of soil. Frequent watering is required once at 24hrs interval for 6 months old seedlings at lower altitudes (1800-2200m) in dry season. Weeding during rainy season is required at weekly interval. During winter months irrigation is needed once in a week to retain moisture and weeding at 15-20 days interval is required when plant is cultivated at lower altitude.

Harvesting/Post-harvesting

Harvesting of tubers is recommended after the completion of reproductive phase and maturation of seeds during October-November. Maximum yield is recorded during October-November period. However active content (atisine) and other alkaloids content were found maximum when plant were harvested in July-August at the time of onset of flowering period. Further percentage of active contents slightly decreased with maturation of plant.

After completion of reproductive phase at any altitude, plants become mature for harvest and yield good percentage of active contents. Time of completion of reproductive phase differs with the altitude of cultivation. Generally the plants in alpine areas complete their reproductive phase in the last week of October or first of November while the plants cultivated at lower altitude complete their reproductive phase in the first half of October. Plants raised from tuber cuttings completed their vegetative and reproductive phase within three years. The harvesting period for this species is 3-4 years.

YIELD

Per acre production from mature strands in natural pockets is estimated as 440 kg.

ECONOMICS

The rate for a kg. of dried tuberous root ranges from Rs. 90-100. (YEAR-2001)

NOTE: MARKET FOR MEDICINAL PLANTS IS VOLATILE AND THE ECONOMICS MAY VARY.

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