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RAUWOLFIA: PACKAGES OF PRACTICES AND ITS USES

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Sarpagandha is an important medicinal plant distributed in the foot-hills of Himalayan range, up to the elevation of 1300-1400 m. and almost throughout all over the country. It is an erect evergreen, perennial under-shrub, 75 cm to 1 m. in height. Root is prominent, tuberous, usually branched, 0.5 to 2.5 cm in diameter. Up to 40 to 60 cm deep into soil. The root possess high alkaloid concentration.

Synonyms and Vernacular Name: Bengali – sarpagandha; Tamil –Chinanmdpodi; Sans Chhota-chand; Hindi – Chandrika; Bihar- Paglakidawa

Botanical Name: *Rauwolfia serpentine* Benth., **Family:** Apocynaceae, **Parts Used:** Roots

Geographical Source: It is widely distributed in West land and in shady forests in Punjab eastward to Nepal, Sikkim, and Assam in India, Bhutan, Pakistan, Java and Thailand etc.

Uses:

1. Rauwolfia is used as hypotensive and tranquillizer.
2. Reserpine being the main alkaloid is responsible for the activity and is used in anxiety condition and other neuropsychiatric diseases.
3. Sedative – calm down activities and excitement (reserpine group).
4. Stimulates the central of peripheral nervous systems (Ajmaline group).
5. The decoction of root is used to increase uterine contraction in difficult cases.
6. The extract is used for intestinal disorders and as anthelmintic bitter tonic and febrifuge.

Climate:

It can be grown under wide range of climate conditions. It flourishes in hot, humid conditions and can be grown both in the sun and in partial shade. It prefers a tropical or subtropical belt, having the benefit of monsoon rains. A climate with temperature range of 10-30 ^{0}c seems to be well suited for this plant .The best area for its growth are those which combine high rainfall with properly drained soil. It is sensitive to water logging with severe winters.

Soil:

Rauwolfia is grows in wide variety of soils alluvial loam to red lateritic loam or stiff dark loam. In its natural habitat it prefers clay or clayey loam with a large percentage of humus and it does not grow well in soil having ph 8 or above. The ideal ph for this crop is from 4.6-6.2. Ploughing must be deep for facilitating the development of the roots.

Propagation:

Crop can be grown either by seed or vegetative propagation. Seed propagation gives better yield of root inspite of the fact some seeds are weak in germination. Therefore cultivation of rauwolfia is usually carried out by seed propagation.

Immersing them in saline eliminates sterile seeds. Sterile seeds are light, float and are separated. Fertile seeds sink and are utilized. Fresh seeds germinate more and preferably fresh seeds are used. The collection of mature seeds is usually done from September-February. Fruits mature between July-November. The germination gradual and growth of the seedling is slow. Germination starts after 15-20 days and continuous up to 40-50 days after sowing .the nursery should be kept moist throughout the germination period.

Transplanting:

Seedlings of 40-50 days which have 4-6 leaves are ready for transplanting. The seedlings are carefully dug out and tap root should be cut. Then these are dipped in a 0.1% solution of emisan fungicide before planting, to protect them against soil-borne fungus causing damping off disease. The field is then divided in small plots for irrigation. The seedlings are transplanted in to the furrows, by making holes large enough to receive the seedlings along the accompanying clump of earth. A spacing of 30cm between the plants should be maintained.

Vegetative Propagation:

By root cutting: Nearly 5 cm long root cutting are planted during spring season closely in nursery beds containing well matured FYM, sand and saw-dust. The beds are kept moist through watering. The cuttings begin to sprout within 3 weeks. These can be planted in field during rainy season after 8 to 10 cm rains are received; the seedlings are transplanted at 45 cm row to row and 30 cm plant to plant distance. In this manner, an estimated 100 kg of root cuttings are found sufficient for planting one hectare area.

By stem cuttings: Hard wooded stem cutting measuring 15 to 22 cm are closely planted during June in the nursery beds where continuous moisture is maintained. After sprouting and giving out roots, these plants are transplanted in the main field at given spacing.

By root stumps: About 5 cm of roots, intact with a portion of stem above the collar, are directly transplanted in the field having irrigation facilities.

In vegetative propagation especially in root-cuttings, development of roots is better if growth hormones are used.

Spacing: 45 x 30 cm

Manures and Fertilizers:

Well rotten FYM @ 25-30 tones/ha during land preparations.10 kg N 60 kg P205 before transplanting and followed by irrigation. Two equal doses of nitrogen each 20 kg/ha mixed in soil after 50 to 70 days of plantings

Irrigation:

The crop is irrigated fortnightly in the hot dry season and about once a month in winter. The crop is cultivated under rain fed conditions also but yield is considerably poorer.

Weeding**:**

About 2 weeding are necessary during the monsoon and one hoeing at the end of growing season or December.

Harvesting and Processing:

The roots of exploitable size are generally collected 2-3 years after planting i.e from 18 months on ward. The root s dug out in winter, when the plants have shed their leaves are richer in total alkaloid content than the roots harvested in August. A light irrigation is given

in advance to facilitate easy digging of roots. The roots are freed from adhering soil, washed and air dried till they become brittle and packed in gunny bags. They are stored in cool, dry place to prevent mould.

Yield:

The optimum yield of roots is obtained by propagation through seeds. The yield of fresh roots per plant varies widely from .1-4 kg .the total yield of roots in the case of plants raised from seeds is about 1175 kg/ha on air dried bases as compare to 175 kg/ha in case of plants raised from stem cuttings and 345 kg/ha in case of root cuttings.

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