

Sarpgandha

**RAUVOLFIA SERPENTINA BENTH. EX.KURZ FAMILY - APOCYNACEAE**

Sarpgandha 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.

**COMMON NAMES:** Candrabhaga, Chota chand, Serpentina root & Chandrika.

**LOCATION:** Lowers Hills of Himachal Pradesh, Uttaranchal, Uttar Pradesh, Jammu & Kashmir etc.

**PARTS USED:** Root

**CULTIVATION:**

**SOIL AND CLIMATE**

The plant requires slightly acidic to neutral soils for good growth with medium to deep well drained fertile soils. Clay-loam to silt-loam soils, rich in organic content are suitable for its commercial cultivation. It grows well in frost-free tropical to sub-tropical situations under irrigation.

**NURSERY RAISING & PLANTING**

The crop can be propagated by seed, stem cutting and root cuttings. Seed propagation is the best method for raising commercial plantation.

**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.

**By seed:** Seed germination in Rauvolfia is highly variable. It is reported to vary from 5 to 30 percent even when only heavy seeds are chosen for sowing purpose. Light

and heavy seeds can easily be separated by simple water flotation. Germination of heavy seeds during May-June after soaking them in water for 24 hours was 20-40 percent and 62.77 percent germination was recorded in freshly collected heavy seed lot. In all, 6 kg of seeds are sufficient to raise one-hectare plantation.

In Maharashtra and Madhya Pradesh, April end, in West Bengal first week of May or little later, and in Jammu & Dehradun during third week of May are found to be most suitable time for sowing seed in the nursery. The nursery is prepared by raised beds of 10x10 m. dimension under partial shade made up of one-third of well matured FYM and leaf mould, and two-thirds amount medium of silt-loam soil. About 500 sq m. seed bed area is sufficient for raising seedlings enough for planting one hectare land. The seeds sown, 2-3 cm apart in rows in shallow furrows during April end. The furrows are then covered with a fine mixture of soil and FYM. Keep the beds just moist by light watering. Germination starts after 15-20 days and continues up to 30 to 40 days. Seedlings are ready by mid-July for transplanting. The seedlings are transplanted at 30 cm distance within the rows spaced at 45 cm. If rains are not received during or immediately after transplantation irrigation is necessary for better stand. Rauvolfia is long duration (18 months) and slow growing crop particularly in the initial stage; thus different intercrops have been tried.

### **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**

Rauvolfia, if grown in areas which receive rainfall of 150 cm or above well distributed throughout the growing season such as in Assam and Kerala, can be raised and rainfed crop under subtropical conditions. It need regular irrigation where temperature rise high combined with low rain fall during rainy season. It is suggested that 15 to 16 irrigations, amounts to irrigation at 20 days interval in summer and at 30 days interval in winter.

### **WEEDING**

The Rauvolfia field should be kept relatively weed-free in the initial period of growth. This means giving two to three weeding and two hoeings in the first year where sole Rauvolfia crop is taken or 5-6 weeding where intercrops in Rauvolfia are practised.

### **HARVESTING/POST-HARVESTING**

Root yields at different age and season have showed that 18 months duration crop produce maximum root yield. Transplanting is done in July, the harvesting period coincides with the shedding of leaves during early autumn season next year. At this stage, the roots contain maximum concretion of total alkaloids. At harvest the root may be found to go up to 40 cm deep in the soil. Harvesting is done by digging up the roots and thin roots are also collected.

After digging the roots are cleaned, washed and cut into 12 to 15 cm pieces for convenience in drying and storage. The dry roots possess upto 8-10 per cent of moisture. The dried roots are stored in polythene lined gunny bags in cool dry place to protect it from mould.

### **YIELD**

On an average, root yield vary from 15 to 25 q/ha of dry weight under irrigation depending upon soil fertility, crop stand and management.

### **ECONOMICS**

Expenditure per ha. Rs.19,000/-

Return per ha. Rs.60,000/-

Net income Rs.41,000/- (YEAR-2001)

Note: Market for medicinal plants is volatile and the economics may vary.

### **INSTITUTE TO BE CONTACTED:**

**Regional Research Laboratory  
CANAL ROAD, Jammu Tawi (J&K)**

**CIMAP,  
PO CIMAP, KUKRAIL PICNIC SPOT,  
Lucknow (UP)**

**Tropical Forest Research Institute,  
Mandlar Road,  
Jabalpur (MP)**