

Chandan

**SANTALUM ALBUM LINN FAMILY - SANTALACEAE**

Chandan is a small evergreen tree, a partial root parasite, attaining a height of 12-13m. and girth of 1to 2.4m. with slender druping as well as erect branching. The tree starts flowering at an early age of 2 to 3 years. Fruit is drupe, purplish when fully matured and single seeded.

**COMMON NAMES:** Sandal wood, Safed Chandan , Sandal , Chandana

**DISTRIBUTION:** It is distributed in the dry scrub forest of Salem, Mysore, Coorg, Coimbatore, Nilgiris up to 900 m. altitude. It is also found in Andhra Pradesh, Bihar, Gujarat, Karnataka, Madhya Pradesh, Maharashtra and Tamil Nadu.

**PART USED:** Heart Wood

**CULTIVATION:**

**SOIL AND CLIMATE**

It grows well in red sandy loam soil. Crop requires humid & hot climate.

**NURSERY RAISING AND PLANTING**

Two type of seed beds are used to raise sandal seedlings: sunken and raised beds. Both of them perform equally well under different climatic conditions.

Seed beds are formed with only sand and red earth in the ratio 3:1 and are thoroughly mixed with nematicides ( Ekalux or Theimet at 500gm. per bed of 10mx 1m.) Around 2.5 kg seed is spread uniformly over the bed, covered with straw, which should be removed when the leaves start appearing on the seedlings. Sandal suffers from a very virulent disease caused by combined fungal and nematode infection. Seedbeds are to be sprayed with fungicide Dithane Z-78 (0.25%) once in 15 days to avoid fungal attack and 0.02% Ekalux solution once in a month to avoid nematode attack.

When seedlings have reached 4 to 6 leaf stage they are transplanted to poly bags along with a seed of "tur dal" (*Cajanus cajan*), the primary host for better growth of sandal. Seedlings are carefully removed from beds with all roots intact; roots should not be allowed to dry. Shade can be provided for a week immediately after transplantation. Watering is to be done once a day, but excess moisture is to be avoided. Host plants are to be pruned frequently, so that they do not over grow sandal and hamper its growth. Poly bags should contain soil mixture of ratio 2:1:1 (Sand: Red earth: Farmyard manure). It has been found that poly bags of 30 x 14cm size are the best.

Plantable seedlings of about 30cm height can be raised in 6-8 months' time. A well-branched seedling with a brown stem is ideal for planting in the field.

## **THINNING AND WEEDING**

Weeding is to be done at regular intervals.

## **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**

It is a rainfed crop. Young plant require watering in summer months at 15-20 days interval till they are fully established.

## **HARVESTING/POST HARVESTING OPERATION**

Sandal wood trees are harvested at the age of 30-60 years. The soft wood is first removed; the hard wood is chipped and then converted into powder in a mill. The powder is soaked in water for 48 hours and then distilled. Distillation takes place in 48 hours. The oil is rectified by re-distillation and filtration.

## **YIELD**

Sandal is considered to be a slow growing tree. It grows at the rate of 5 cm. of girth or more per year under favourable soil and moisture conditions. The heartwood formation starts around ten years of age. The following table gives an idea of growth and development:

### **Average heartwood formation per tree**

<b>Age (year)</b>	<b>Girth at breast height cm.</b>	<b>Yield of heartwood in kg.</b>
10	10	1
20	22	4
30	33	10
40	44	20
50	55	30

## **ECONOMICS**

The retail rate of heartwood at the Government emporium is Rs. 350/- per kg. (YEAR-2001)

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

