

LAO TREE SEED PROJECT



SPECIES MONOGRAPH NO. 46



Toona ciliata

Surian, Toon Tree, Australian Red Cedar,
Burma Cedar, Indian Cedar, Moulmein Cedar,
Queensland Red Cedar or Red Cedar

(Meliaceae)

Mai Nhom hom

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Published species monographs

1. *Acacia auriculiformis*
2. *Acacia crassicarpa*
3. *Acacia mangium*
4. *Azadirachta indica*
5. *Ailanthus triphysa*
6. *Albizia lebbek*
7. *Albizia procera*
8. *Alstonia rostrata*
9. *Alstonia scholaris*
10. *Anisoptera costata*
11. *Anthocephalus chinensis*
12. *Aquillaria crassna*
13. *Azadirachta indica*
14. *Bauhinia variegata*
15. *Betula alnoides*
16. *Bischofia javanica*
17. *Carpinus poilanei*
18. *Castanopsis echinocarpa*,
C. hystrix and *C. ceracantha*
19. *Castanopsis tribuloides*
20. *Chukrasia tabularis*
21. *Dalbergia cochinchinensis*
22. *Dalbergia cultrata*
23. *Dipterocarpus alatus*
24. *Eucalyptus camaldulensis*
25. *Gliricidia sepium*
26. *Gmelina arborea*
27. *Hopea odorata*
28. *Keteleeria evelyniana*
29. *Leucaena leucocephala*
30. *Melia toosendan*
31. *Nyssa javanica*
32. *Ormosia semicastrata*
33. *Paramichelia baillonii*
34. *Peltophorum dasyrhachis*
35. *Pinus kesiya*
36. *Pterocarpus macrocarpus*
37. *Quercus griffithii*
38. *Quercus serrata*
39. *Sapindus rarak*
40. *Schima wallichii*
41. *Sindora siamensis*
42. *Spondias axillaris*
43. *Swietenia mahagoni*
44. *Toxicodendron (Rhus)*
succedanea
45. *Tectona grandis*
46. *Toona ciliata*
47. *Vatica harmandii*
48. *Wrightia arborea*
49. *Xylia xylocarpa*
50. *Zanthoxylum rhetsa*

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Design by: Chongkham Phonekeo

Description

Remark

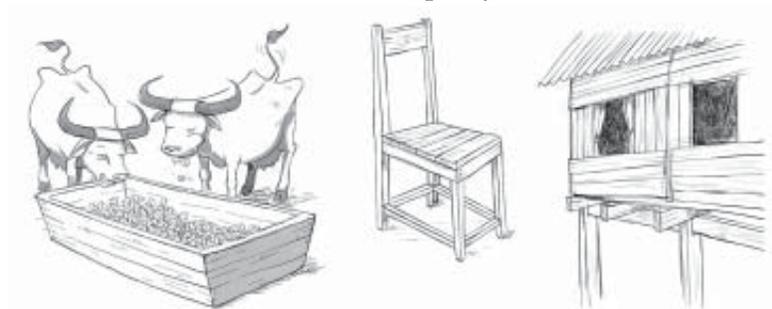
The name 'Cedar' is given because of the scented, sweet onion-like wood and bark.

Nhom Hom is a large tree up to 40 m tall and up to 1 m in diameter. The medium fast growing species sheds its leaves in the dry season, and can be found in open areas and secondary mixed deciduous or dry evergreen forests in moist localities such as ravines, banks of streams and even swamps. Natural regeneration can be very abundant.

Flowering is in December-February and fruiting is in April-June.

Use

The wood is used for furniture, construction, musical instruments, carving, boat building, cigar boxes, decorative plywood, veneer and for shiitake mushroom culture. Leaves are edible or used as a fodder for cattle. Flowers are used for making a dye. Bark is used to make



Leaves of Nhom Hom are used for fodder for cattle, wood is good for furniture and construction.

twines, which can be used to weave string bags. The bark also produces tannin, and a tonic used as a medicine and insect repellent. The fruits produce an aromatic oil.

Nhom Hom are also planted in firebreaks, in reforestation of degraded land and ornamentally.

Site requirements

Climate

Nhom Hom grows up to an altitude of 2,000 m in a sub-tropical climate. Mean annual rainfall ranges from 800-4,000 mm, and tolerates up to 6 dry months. Mean annual temperature is from 13-33 degrees Celsius. It is capable of growing in dry areas, with maximum temperatures as high as 49 degrees Celsius. Nhom Hom is a frost hardy tree. Seedlings are sensitive to fire and cannot withstand severe drought.

Soil

Nhom Hom prefers well-drained, deep, fertile soils and does not tolerate wet, compacted or poor sandy soils.

Establishment of plantation

Nhom Hom grows best in fire-protected savannah, abandoned cultivation and in small gaps in forest, and does not grow well on dry hill slopes.

The planting site is cleared and ploughed in March–April and planting holes are prepared before planting in May–July. A firebreak is made with 4–6 m wide strips, by

ploughing, digging and controlled burning.

Fencing is required to protect the seedlings against cattle which eat them.

During transportation to the planting site the seedlings should be covered by a shade-net to prevent overheating or drying out. Planting of 6 months old seedlings which are 0.25-0.30 m tall is appropriate.

Artificial or natural fertiliser should both be used, depending on the soil conditions. In a circle of 0.30-0.50 m around each seedling, 10 gram of fertiliser NPK 15-15-15, 16-20-00 or 46-00-00 is applied after 1 month. A second and third application of 50 and 100 gram is given after 3 and 5 months. In the second year 1-2 applications of 50-100 gram are given. For plantings intended for seed production an application of 150-200 gram in the second year in July or August is given. In case of planting on slopes, dig a 2-3 holes 0.20-0.30 m above the seedling and apply the fertiliser.

Seedlings are prone to suppression by weeds and weeding is necessary to carry out as often as 2-3 times per year. Weeding should be carried out at the same time as applying fertiliser. It involves clearing all vegetation surrounding the seedling in a diameter of 1 m. Weeded material can later be used as mulch around the seedlings.

Nhom Hom is a moderate light demander; but the young plants require some protection from direct sun. Good drainage is also necessary for optimum development of the seedlings, with too much moisture restricting the root development.

Replacement planting can be done after 2-4 weeks.

Thinning is needed when the canopy closes, often every 5 years in rotation periods of 15-40 years.

Coppicing of this species is very strong and produces many root suckers.

Because of the danger of shoot boring insects, it is recommended to plant Nhom Hom in a mixture of other species other than Meliaceae members.

Seed handling

Basic data

About 280,000-425,000 seed per kg. The rate of germination is 50-90%.

Seed collection

The seed are light and wind dispersed and should be collected by tree climbing. Collect seed from April to June when the fruits start to open up. The fruits can also be collected with a long bamboo pole by shaking the fruiting branches. Collected fruits are then dried in the sun, after which seed is shaken out and cleaned by winnowing.

Nhom Hom often to bear ripe fruit throughout the year and the seed are released from the capsules at intervals.

Storage

Fresh seed has a germination rate of 90%. Seed is stored in airtight containers in a cool and dark place and can be kept for 3-12 months, but germination decreases very fast to 30-50%.

Pre-treatment of seed

No pre-treatment is necessary, but to speed up germination Nhom Hom seed is soaked in water for 6-8 hours to improve germination.

Nursery techniques

Seed sowing

Seed germinate faster and better under shade and should be broadcast thinly on shaded nursery beds soon after collection. Nhom Hom seed is sown in December in a seed bed and covered with 0.5-1 cm sand.

Container

Polythene bags 4 x 6 inches are used for raising Nhom Hom seedlings.

Soil

The soil in the sowing beds and polythene bags should consist of 1 part forest topsoil and 2 parts sand. About 10% coconut husk can be added to the mix to improve the root growth of the seedlings.

Transplanting

After 7-15 days seedlings are 5-10 cm tall or have developed 2 leaves with roots of 1-3 cm long, they can be transplanted into polythene bags.



Transplant the Nhom Hom seedlings into the polythene bags.

Fertiliser

To stimulate seedling growth fertiliser NPK 15-15-15 or 16-20-00 is applied twice per month.

Weed control

Manual weeding is done twice per month to decrease competition for the Nhom Hom seedlings.

Root pruning

Root pruning should be done after the seedlings are 3 months in the nursery. Cut with seccateurs the roots growing out of the polythene bags.



*Root pruning of
Nhom Hom
seedlings.*

Hardening off

Hardening off can be done by removing the shade net after 3 months in the nursery, to prepare the seedlings for out planting.

Shade and shelter

Around 50-70% of sunlight is required for Nhom Hom seedlings. The leaves are fragile and receive protecting from the shade net against heavy rain is necessary.

Insects and fungi

When insects attack plants remove them manually and destroy them at regular intervals.

LAO TREE SEED PROJECT



Copies of the species monographs can be obtained from:

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