Alstonia scholaris

R. Br.

Apocynaceae

white cheese wood, shaitan wood, pulai, chatiyan wood

Alstonia scholaris (Chongrak Wachrinrat)

LOCAL NAMES

Bengali (satiani,chattin,chatium); Burmese (lettok); English (white cheesewood,birrba,milkwood pine,milk wood,milky pine,black board tree,devil's tree,dita bark); Filipino (dita,dalipoen); Gujarati (satuparni); Hindi (chatian,satni,satwin,saitan-ki-jhad); Indonesian (rite,pulai,pule); Javanese (pule); Lao (Sino-Tibetan) (tinpet); Malay (pulai,pulai linlin); Nepali (chhatiwan,chhataun); Sanskrit (saptaparna); Tamil (elalaipalai,palegaruda,pala); Thai (sattaban,teenpet,teenpethasaban); Trade name (pulai,shaitan wood,chatiyan wood,white cheese wood); Urdu (chatiana); Vietnamese (caay suwxa,caay mof cua)

BOTANIC DESCRIPTION

Alstonia scholaris is a medium to large tree, to about 40 m high with a somewhat tessellated corky grey to grey-white bark. The boles of larger trees are strongly fluted to 10 m. The outer blaze is cream to yellowish in colour with abundant, milky latex that flows rapidly when cut.

Leaves in whorls of 4-8 in the upper axils; leaf stalks 1-1.5 cm long, the lamina obovate to elliptical or elliptical-lanceolate, glabrous or sparsely hairy, tapering towards the base, 11.5-23 x 4-7.5 cm. Upper surface is dark green, the lower green-white with 25-40 pairs of lateral veins on each side of the midrib and 2-6 mm apart. The tip of the leaf is rounded or shortly pointed, tapering towards the base.

The inflorescence is a much-branched terminal panicle, up to 120 cm long; flowers 7-10 mm long white, cream or green; the tube hairy; lobes sparsely or densely pubescent, 1.5-4 mm long, the left margins overlapping; strongly perfumed.

Fruit a pendulous, two-lobed, dehiscent follicle, brown or green, dry or woody, spindle-shaped, 15-32 cm long, 4-6 mm in diameter, containing numerous flat, oblong, brown seeds, 4-5 x 0.9-1.2 mm, with a tuft of hairs 7-13 mm long at each end. The seed does not taper to a point at either end.

Alstonia is named after Dr C. Alston (1685-1760), a professor of botany at Edinburgh University. The specific name scholaris is derived from the use of the wood for school boards in Myanmar.

BIOLOGY

The trees are often deciduous at irregular intervals. They do not flower at every leaf-change, but only after marked periods of dry weather. The large branches provide favourable nesting sites for wild bees. Pollination is by insects; when flowering, butterflies and bees often surround trees. The fruits open on the tree and the seeds, which have a tuft of silky hairs at each end, are dispersed by wind.

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ECOLOGY
In its natural range in Australia, it is a dominant canopy species found in coastal mesophyll vine forest with a canopy height of 35-42 m, in palm-dominated forests and in notophyll vine forests, associated with Argyrodendron peralatum, Castanospermum australe and Cerapetalum sucirubrum.

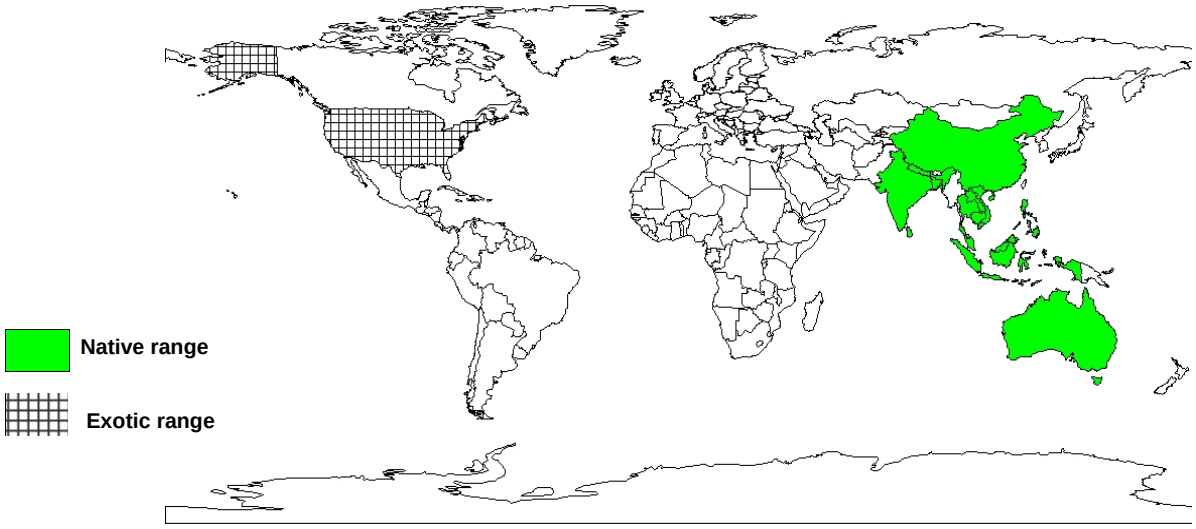
BIOPHYSICAL LIMITS
Altitude: 0-900 m, Mean annual temperature: 12-32 deg. C, Mean annual rainfall: 1 200-1 400 mm

Soil type: Favourable soils include alluvia, basaltic red earth, yellow earth with grey-brown topsoil, stony red earth on basic volcanic soils, sandy grey earth, brown earth from a volcanic mixture of rocks and soils derived from metamorphic rocks.

DOCUMENTED SPECIES DISTRIBUTION

Native: Australia, Bangladesh, Brunei, Cambodia, China, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Papua New Guinea, Philippines, Solomon Islands, Sri Lanka, Thailand, Vietnam

Exotic: Taiwan, Province of China, US



The map above shows countries where the species has been planted. It does neither suggest that the species can be planted in every ecological zone within that country, nor that the species can not be planted in other countries than those depicted. Since some tree species are invasive, you need to follow biosafety procedures that apply to your planting site.

PRODUCTS
Food: The latex provides a good quality chewing gum.

Fuel: A. scholaris has been recommended as a fuelwood species for the patana lands of Sri Lanka.

Fibre: Bark yields a fibre, and the wood is regarded as suitable for pulp and paper production.

Timber: A. scholaris is the most important source of pulai timber. The density of the wood is 270-490 kg/cubic m at 15% mc. Heartwood cream to pale yellow, sapwood wide and visually indistinct from the heartwood. Often has strong odour and a bitter taste. It is used for pattern making, corestock, plywood, carving and mouldings. The wood is also used for making coffins in Sri Lanka and school boards in Myanmar.

Essential oil: Flowers of A. scholaris yield an essential oil.

Medicine: Australian aborigines used the bark for treatment of abdominal pains and fevers, the latex for neuralgia and toothache. In India, the bark is used to treat bowel complaints and has proved a valuable remedy for chronic diarrhoea and the advanced stages of dysentery. Leaves used for treating beriberi, dropsy and congested liver.

Other products: Wood charcoal is used as gun powder.

SERVICES
Ornamental: The tree is sometimes planted as an ornamental.

Other services: In a study of the ethnobotany of the Nagas of Nagaland in northeast India, A. scholaris was amongst the native plants used in magico-religious beliefs.

TREE MANAGEMENT
Regular dry season watering is essential for good growth, and deep mulch has proved beneficial to young trees. It has been managed as a fuelwood species in Sri Lanka under a short coppice rotation of 6-8 years. In a social forestry planting in India, the species reached 3.6 m height and 10 cm diameter at 3.5 years in mixed species. In plantations in Taiwan, it reached an average of 23.5 m in height and 51 cm dbh in 18 years. A maximum of 35 m in height and 109 cm dbh was attained at 41 years of age.

GERMPLASM MANAGEMENT
Seeds can be stored in closed tins for 2 months, maintaining a germination rate of 90%. Based on the seed size, this species may show orthodox seed storage behaviour. There are approximately 357 000 seeds/kg.

PESTS AND DISEASES
A leaf skeletonizer, Parotis marginata, causes significant damage to nursery stock and young plantations. The timber is liable to termites, pinhole and marine borers, while the sapwood is highly susceptible to lyctid borers.

FURTHER READNG

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SUGGESTED CITATION

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