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Toona sureni

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Toona sureni (Blume) Merr.

Taxonomy and nomenclature

Family: Meliaceae

Synonyms: *Cedrela febrifuga* Blume, *Toona febrifuga* (Blume) M.J. Roemer, *Cedrela sureni* (Blume) Burkill.

Vernacular/common names: suren (Indonesia general); surian amba (Sumatra); surian wangi (Malaysia); danupra (Philippines); ye tama (Myanmar); surian (Thailand); red cedar, toon, surian, limpaga (trade names).

Distribution and habitat

The area of natural distribution is Nepal, India, Bhutan, Myanmar, Indochina, Southern China, Thailand and throughout Malesia to western New Guinea. In Indonesia it is found in Sumatra, Java and Sulawesi. It is common in rural forest, often found on riparian hillsides and slopes, at 1.200-2.700 m altitude in areas with mean annual temperature around 22°C. It requires fertile soil. The species is rarely planted outside of its natural range.

Uses

The high-value wood is easy to saw and has good woodworking properties. It is used for high-class cabinet wood, furniture, interior finishing, decorative paneling, crafts, musical instruments, cigar boxes, veneers, boxes and for construction. The species is often planted in tea estates as a windbreak. It is also used in agroforestry, for shade and as roadside tree. Various parts of the tree, especially the bark and root, are used for medicinal purposes, e.g. to treat diarrhoea. Leaf extracts have antibiotic effect. The bark and fruits can be used for production of essential oils.

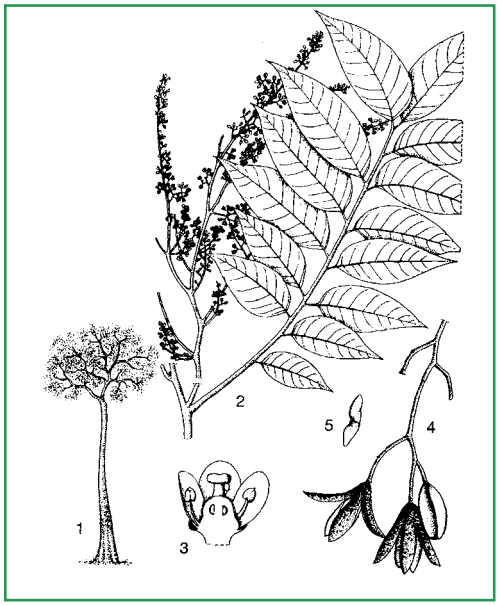
Botanical description

A medium to fairly large tree, up to 40 (60) m tall and with diameter up to 100 cm, in mountainous areas up to 300 cm. The bole is without branches for up to 25 m, and has buttresses up to 2 m high. Bark is usually fissured and flaky, whitish, greyish-brown or pale brown, with aromatic scent when cut. The wood is light, with pink sapwood and light red or brown heartwood. The leaves are large, arranged spirally, often clustered at the end of twigs, 10-15 cm long, with 8-30 pairs of leaflets. Leaflets entire, usually hairy on veins on upper side. Inflorescences at the end of branches, forked and hanging. Flowers are small, yellowish-white and with strong smell. Although both stamens and ovary are present the flowers are functionally unisexual.

Fruit and seed description

Fruit: the fruits are borne in terminal panicles up to one m long, each containing more than 100 fruits. The fruit is an oval capsule, it has a central axis (columella) and is divided in 5 sections from top to bottom. Each section contains 6-9 seeds. The mature fruit is dark brown, woody and opens as a star.

Seed: the seeds are brown, 3-6 mm long and 2-4 mm wide, winged at one or both ends. There are about 64,000 seeds per kg.



Toona sureni (Blume) Merr. 1, tree habit; 2, flowering twig; 3, sectioned flower; 4, fruits; 5, seed. Copyright: PROSEA Foundation.

Flowering and fruiting habit

The tree is deciduous, and the leaves are shed during the dry season February-March or September-October. Flowering and fruiting normally occur twice per year, in December-February and April-September, synchronized with the shedding of leaves. The fruits are shed after the leaves. Flowers are pollinated by a wide range of insects. Fruits are normally produced in large quantities.

Harvest

Seeds are collected when the colour of the fruits has turned brown, but before the fruits open. Fruits are collected by shaking the branches or by cutting the branches. If collection is late, many seeds are lost because the fruits have already opened. In Indonesia fruits are harvested in either March or October.

Processing and handling

Fruits are dried in the sun for one or two days until they open. After dewinging the seeds are separated from wings and other impurities by winnowing.

Storage and viability

Seed usually retains its viability for only 2-3 months, but cool storage can increase this period. In a study by Seed Technology Centre (Bogor), seed that was stored in air-conditioned room (18-20°C) for 5 months had a germination rate of 56 %.

Rural forest of *Toona sureni,* Cianjur, West Java, Indonesia. Photo: D.F. Djam'an, Seed Research Development and Technology Centre, Bogor

Sowing and germination

The seeds germinate easily, and need no pretreatment. Seeds are sown in seedbed under 60 % shading. Germination of up to 80 % occurs after 4-7 days. Germination is epigean (cotyledons emerge above ground). After one month, the seedlings can be transplanted to containers.

Selected readings

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