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Published in:
Seed Leaflet

Publication date:
2023

Document version
Publisher's PDF, also known as Version of record

Document license:
Other

Citation for published version (APA):
Schmidt, L. (Ed.), & Kundu, M. (2023). Lannea coromandelica (Houtt.) Merr. *Seed Leaflet*, (185).

Download date: 17. Nov. 2026

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No. 185, September 2023

Lannea coromandelica (Hutt.) Merr.

Taxonomy and Nomenclature

Species name: *Lannea coromandelica* (Houtt.) Merr.

Family name: Anacardiaceae

Synonyms: *Calesium grande* Kuntze, *Dialium coromandelicum* Houtt., *Haberlia grandis* Dennst., *Lannea grandis* Engl., *Odina gummifera* Blume, *Spondius oghigee* G. Don, *Tapirira wodier* Marchand, *Wirtgenia octandra* Jungh.

Vernacular (common name): Jeol, Jhingan, Gunja, Wodier, Indian ash tree

Distribution and habitat

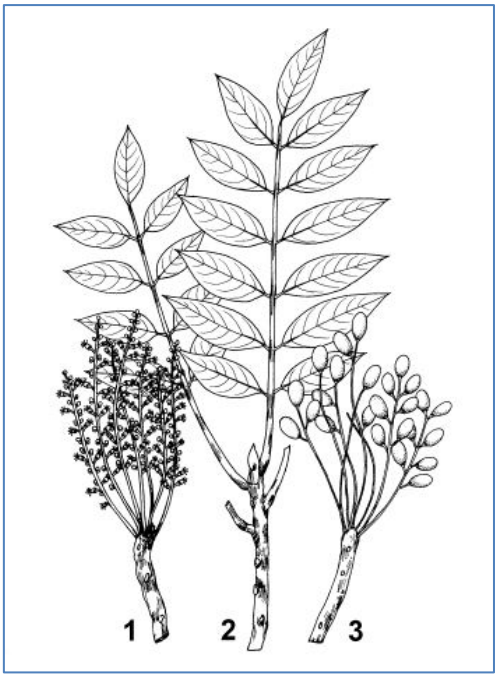
The tree is found in South and Southeast Asia, ranging from Sri Lanka to Southern China. In India, it is distributed throughout the hotter parts from north-western to eastern, southern states and Andamans up to an elevation of 1200m. It is generally found in moist and mixed dry deciduous forests. The absolute maximum shade temperature of its habitat ranges from 37.5°C to 48°C and the minimum from -1°C to 15°C. It prefers a mean annual rainfall of 1,200-2,000mm but can tolerate 600-3,800mm. The valuable heartwood is generally only formed in sufficient quantity from the trees grown in moister conditions. The undulating terrain of the lower hills is the most common place of its occurrence. It grows on a variety of soils derived from sandstone, limestone, metamorphic rocks, trap, and sometimes laterite, but its best growth is found in well-drained, deep alluvial soils. It does no do well in swampy and badly drained situations. Its root can pierce through rocks and eroded substratum. It is a strong light-demander species. It is resistant to fire and drought but sensitive to frost. It coppices and pollards well. The leaves and young shoots are readily browsed by cattle and goats.

Use

The wood is moderately hard, closely grained, and termite resistant. The timber is used for house-building, packing cases, furniture, combs, brush-backs, utensils, mine props, match-sticks, dug-outs, and boats. It is also used for carving and turnery. It is suitable for commercial plywood and tea chest, and railway sleeper after treatment. The tree yields a gum known as 'Jhingam' gum which is used in calico-printing, paper cloth sizing, preparation of varnishes, inks, plastering, and in confectionery. The bark also produces a tannin and dye used for textile printing and for dying silk and wool. It is a good fodder tree and low-grade firewood. Leaves, gum, and bark are used in local medicine. The plant is also cultivated as a hedge plant and a roadside tree. Young leaves and sprouts are eaten as a vegetable.

Botanical description

It is a deciduous tree with a spreading crown, up to 25m tall with a girth of up to 45cm, bark surface grey to dark brown, rough, exfoliating in small irregular flakes, fibrous; blaze crimson red or deep pink; exudation gummy, red; Young shoots with tiny star-shaped hairs. Leaves imparipinnate, alternate, clustered at the end of branchlets, estipulate; rachis 21-27 cm, stout, swollen at base, stellate-hairy pubescent when young; leaflets 7-11, opposite.



Petiolule 3-5 mm, slender, pubescent; lamina 5-12 x 3-8 cm, oblong, oblong-ovate, oblong-lanceolate or ovate, base oblique, acute or round, apex acuminate, margin entire, lower surface and part of the upper with scattered stellate pubescence, chartaceous; lateral nerves 10-16 pairs, parallel, prominent, puberulent beneath, intercostae reticulate, prominent.

Flowers unisexual, yellowish-green; male flowers in compound racemes, 8 mm across; calyx 4-lobed; lobes ovate, imbricate, persistent; petals 4, lanceolate, reflexed, imbricate; disc annular, 8-lobed; stamens 8, inserted below the disc.

Filaments unequal, subulate, ovary abortive; female flowers: in simple racemes; petals and sepals as in male flowers; stamens rudimentary, anthers sterile; ovary superior, ovule pendulous from near the top of the cell.; styles 4; stigma peltate.

Fruit and seed description

Fruit is a drupe, ovate, 0.6-1.5 cm long, 0.5-0.9 cm wide, pink turning dark red at maturity, slightly flattened lengthways, smooth, glabrous, crowned by persistent styles, with a thin fleshy epicarp, and a single hard stone. Stone is irregularly pitted. 6,000 to 10,000 seeds weigh one kg.

Flowering and fruiting habit

Flowering occurs in February-April and fruits ripen in May-July. The plant is monoecious, with unisexual (male or female) flowers on the same individual. A wide variety of insects act as pollinators. Seeds are dispersed by various fruit-eating birds and mammals.

Seed collection

The fruits are harvested from the tree by plucking or collected after lopping the small fruit-bearing branches. The optimum time of collection is when the color of the fruits turns reddish green. The moisture content of the seeds at this stage of maturity is 18-22% and the germination percentage is 80-100%. Delay in collection may impose dormancy and germination is reduced.

Processing and handling

After collection, fruits are rubbed on a wire mesh and pulp is removed in running water. These are then allowed to dry under the sun and cleaned by a seed blower or winnowing.

Dormancy and pretreatment

Freshly collected seeds from fully mature red fruits are dormant. Scarification or treatment with plant growth regulators does not improve germination. But dry storage at 3-5% moisture content for three months at ambient temperature (15ºC-35ºC) can remove dormancy.

Storage and viability

The seeds may be considered orthodox, as the viability of seeds is not lost after drying to moisture content of 3-5% or at freezing temperature. At ambient temperature (15°C-35°C), seeds remain viable for two years if stored at 3-5% moisture content. Long-term storage can be done by storing the seeds at subzero temperatures with 3-5% moisture content.

Sowing and germination

Seedlings are raised from seeds by direct sowing or planting entire seedlings. However, direct sowing has proven less successful. In the transplantation method, fresh seeds are sown in lines 20-30cm apart in May-June and lightly covered with soil. Germination is seen after 10-12 days. One-year-old seedlings, planted out in July-August in pits 0.6m apart, in lines 1.2m apart in the field showed satisfactory growth.

Pest and Diseases

A large number of insect pests and fungi are reported on the tree but none of them is serious.

The tree is subject to the attack of rust (*Phakospora odinae*), brown leaf rust (*Cerotelium lanneae*), and leaf spot (*Meliola geniculata*). *Aphis odinae, Lecanium oleae, Anoplocnemis phasiana* are sap-suckers of the tree. *Acrocercops* spp. are generally defoliators or leaf miners.

Selected readings

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