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Dalbergia trichocarpa Baker

Protologue

Journ. Linn. Soc., Bot. 25: 311 (1890).

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Family

Papilionaceae (Leguminosae - Papilionoideae, Fabaceae)

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Synonyms

Dalbergia perrieri Drake (1903), *Dalbergia boinensis* Jum. (1905).

[show more data \(1\)](#) [comments \(0\)](#)

Vernacular names

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Origin and geographic distribution

Dalbergia trichocarpa is endemic to western Madagascar, where it occurs from Analalava in the north southwards to Morondava.

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Uses

The wood is one of the so-called rosewoods ('Madagascar rosewood', 'palisander') much in demand for cabinet making, furniture, marquetry and parquet flooring. It is local poles in house construction and for paddles, and also as preferred firewood for cooking. A bark infusion is used in local medicine to treat diarrhoea, a leaf decoction to treat malaria and the gum to treat laryngitis. The blackish gum has also been used to prepare a red varnish. The flowers produce copious nectar collected by honey bees.

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Production and international trade

The wood is probably traded on the international market at high prices for special applications such as musical instruments, but in small amounts and mixed with the wood of other species from Madagascar.

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Properties

The heartwood is reddish brown to dark brown, with darker streaks.

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Adulterations and substitutes

The wood of several other *Dalbergia* species from Madagascar is traded as Madagascar rosewood or palisander.

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Description

Deciduous small to medium-sized tree up to 15(–25) m tall; bark whitish to greyish, smooth but becoming slightly rough; young branches reddish brown hairy. Leaves imparipinnately compound with 15–19(–23) leaflets; stipules small, caducous; petiole and rachis densely reddish brown hairy; petiolules c. 1 mm long; leaflets alternate, some opposite, elliptical to oblong or obovate, 0.5–2.5 cm × 0.5–1.5 cm, papery to thinly leathery, short-hairy on both sides. Inflorescence a terminal panicle 15–30(–50) cm long with several coiled final divisions, densely reddish brown hairy. Flowers bisexual, papilionaceous, 3.5–4.5 mm long, sessile; calyx campanulate, 2–3 mm long, purple at base with yellowish as long as tube, lower lobe slightly longer, upper lobes fused; corolla whitish to creamy-yellow, with broadly obovate to violin-shaped standard and slightly clawed wings and 10, fused into a tube, but free in upper part; ovary superior, reddish brown hairy, with short stipe at base, style short. Fruit a flat, obovate to oblong pod 3–7.5 cm × 1–1.5 cm, stipe 2–5 mm long, densely reddish to yellowish brown hairy, indehiscent, 1–2(–3)-seeded. Seeds kidney-shaped, c. 10 mm × 6 mm, brown.

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Other botanical information

Dalbergia is a large pantropical genus comprising about 250 species. Tropical Asia and tropical America have about 70 species each, continental Africa about 50 and Madagascar about 40.

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Anatomy

Wood-anatomical description (IAWA hardwood codes):

Growth rings: (1: growth ring boundaries distinct); (2: growth ring boundaries indistinct or absent). Vessels: 5: wood diffuse-porous; 13: simple perforation plates; 22: intervessel alternate; (23: shape of alternate pits polygonal); 26: intervessel pits medium (7–10 μm); (27: intervessel pits large (≥ 10 μm)); 29: vested pits; 30: vessel-ray pits with distinct similar to intervessel pits in size and shape throughout the ray cell; 42: mean tangential diameter of vessel lumina 100–200 μm; (45: vessels of two distinct diameter classes, wide porous); (46: ≤ 5 vessels per square millimetre); 47: 5–20 vessels per square millimetre; 58: gums and other deposits in heartwood vessels. Tracheids and fibres: 61: fibres with minutely bordered pits; 66: non-septate fibres present; (69: fibres thin- to thick-walled); 70: fibres very thick-walled. Axial parenchyma: 76: axial parenchyma diffuse; 77: axial parenchyma diffuse-in-aggregates; 80: axial parenchyma aliform; 82: axial parenchyma winged-aliform; 83: axial parenchyma confluent; 86: axial parenchyma in narrow bands or lines up to 2 wide; (89: axial parenchyma in marginal or in seemingly marginal bands); 90: fusiform parenchyma cells; 91: two cells per parenchyma strand. Rays: (96: rays exclusively uniseriate width 1–3 cells); 104: all ray cells procumbent; 106: body ray cells procumbent with one row of upright and/or square marginal cells; 115: 4–12 rays per mm; 116: ≥ 12 rays per mm. Storied structure: 118: all rays storied; 120: axial parenchyma and/or vessel elements storied. Mineral inclusions: 136: prismatic crystals present; 142: prismatic crystals in chamber cells.

(E. Ebanyenle, A.A. Oteng-Amoako, P. Baas & P. Détienne)

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Growth and development

Dalbergia trichocarpa flowers from January to April, sometimes to August. The flowers are pollinated by insects, probably mainly bees. *Dalbergia trichocarpa* is effective *Bradyrhizobium* bacteria.

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Ecology

Dalbergia trichocarpa occurs in deciduous, seasonally dry forest and woodland up to 600(–1000) m altitude, but also may persist as a small tree in grassland, even when the occasional fire. It grows on various substrates including sandy, rocky and basalt- or limestone-derived soils.

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Propagation and planting

On an experimental scale, in-vitro propagation of *Dalbergia trichocarpa* was successful by culturing stem fragments including a node in the presence of growth hormones. A the shoots growing from the node developed roots.

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Management

Dalbergia trichocarpa trees can be managed by coppicing.

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Genetic resources and breeding

Dalbergia trichocarpa is included in the IUCN Red list of threatened species (lower risk - least concern) because it is selectively felled and large trees have become rare, but threatened than other *Dalbergia* spp. in Madagascar. This is due to the fact that unlike other *Dalbergia* spp. it can also be found in disturbed vegetation types.

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Prospects

Dalbergia trichocarpa may have good prospects as a timber plantation tree. It has excellent wood properties, shows some resistance to occasional fire, can be managed by can be propagated in vitro. Research on possibilities of using this species in plantation forestry or agroforestry systems is therefore warranted.

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Major references

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- du Puy, D.J., Labat, J.N., Rabevohitra, R., Villiers, J.-F., Bossier, J. & Moat, J., 2002. The Leguminosae of Madagascar. Royal Botanic Gardens, Kew, Richmond, United Kingdom. pp.

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Other references

- Decary, R., 1946. Plantes et animaux utiles de Madagascar. Annales du Musée Colonial de Marseille, 54e année, 6e série, 4e volume, 1er et dernier fascicule. 234 pp.
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Sources of illustration

- du Puy, D.J., Labat, J.N., Rabevohitra, R., Villiers, J.-F., Bossier, J. & Moat, J., 2002. The Leguminosae of Madagascar. Royal Botanic Gardens, Kew, Richmond, United Kingdom. pp.

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