

Dalbergia melanoxylon

Guill. et Perrott.

Fabaceae - Papilionoideae

poyi, mugembe, grenadillo, cape damson, African ebony, African t

LOCAL NAMES

Afrikaans (swartdriedoring,driedoring ebbehout,sebrahout); Amharic (zobbi); Arabic (babanus,kelto,babanous); English (African blackwood,Mozambique ebony,Javanese palisander,ebony,blackwood,Senegal ebony,African ironwood,African ebony,zebra wood,blackwood dalbergia); French (Ebenier du Senegal); Hausa (tabum); Lozi (mukelete); Luganda (motangu); Lunda (kafundula); Ndebele (umbambangwe); Nyanja (mfwankomo,kasalusalu,mkumudwe,msalu,pulupulu,mkelete); Shona (murwiti); Swahili (kikwaju,mpingo,poyi); Tigrigna (zebe); Tongan (chinsale,musonkomo,mukelete); Trade name (poyi,grenadillo,African ebony,mugembe,African blackwood,cape damson); Tswana (mokelete); Zulu (umPhingo)

BOTANIC DESCRIPTION

Dalbergia melanoxylon is a small, heavily branched tree, typically 4.5-7.5 m tall but occasionally reaching 15 m. The bole is fluted with high narrow ribs separated by deep indentations. Bole length occasionally reaches 3.6 m but normally ranges within .2-1.8 m. Average dbh at maturity is less than 38 cm, although trees have been found with a dbh of more than 60 cm. Bark pale grey to greyish-brown, papery, fairly smooth, and flaking in long, narrow strips. Stems often crooked. Branchlets clustered at the nodes, some growing out, others short and spine tipped; covered at first with short crisp hairs, usually glabrous.

Leaves have a slender, common stalk 5-10 cm long; 8-13 leaflets sometimes nearly opposite, increasing in size upwards but all much the same shape; terminal leaflet 12-36 mm long by 12-18 mm broad, obovate, broadly notched at the apex, or almost flat, with midrib projecting, more or less rounded at the base; leaflet stalks slender, about 2 mm long.

Flowers white, fragrant 6-9 cm long, occurring in dense clusters. Stamens usually 9, united or variously divided.

Pods elliptic oblong or irregularly oblong, bluntly pointed, flat and thin, 3-7 cm long and 0.5-1.5 cm wide. They tend to be papery, glabrous, laxly and rather diffusely veined, with 1-2 seeds.

The generic name *Dalbergia* honours the Swedish brothers Nils and Carl Dalberg, who lived in the 18th century. The former was a botanist and the latter explored Surinam. The specific name is Greek and means dark wood.

BIOLOGY

Dalbergia species are visited by bees. Like most members of the Papilionoideae subfamily, its flowers are closed with a tripping mechanism that requires specialized manipulation, excluding all but bees as pollinators. Wind pollination seems very minor due to the tree's enclosed anthers and limited pollen production. All members of the tribe Dalbergiae that have been tested are found to be self-incompatible.

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ECOLOGY

D. melanoxylon grows under a wide range of conditions including semi-arid, subhumid and tropical lowland areas. It is often found on dry, rocky sites but is most frequent in the mixed deciduous forests and savannahs of the coastal region. This species demands water and light and therefore is common near water and will not regenerate under heavy cover. Mature trees are fire tolerant.

BIOPHYSICAL LIMITS

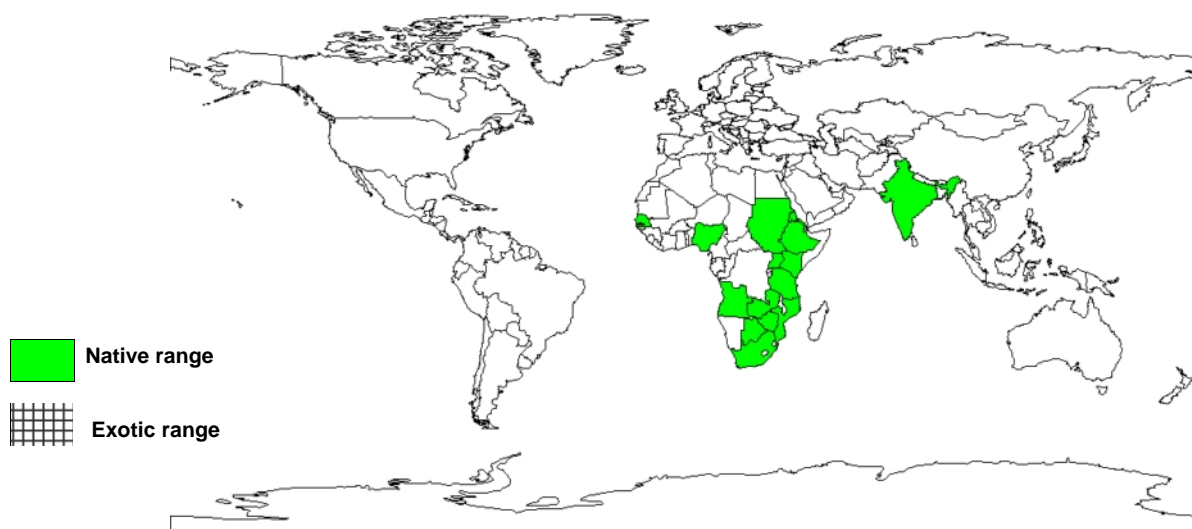
Altitude: 0-1200 m, Mean annual temperature: 18-35 deg. C, Mean annual rainfall: 700-1200 mm

Soil type: Soils vary from loamy sands to clayey Vertisols (black cotton soils).

DOCUMENTED SPECIES DISTRIBUTION

Native: Angola, Botswana, Eritrea, Ethiopia, India, Kenya, Mozambique, Nigeria, Senegal, South Africa, Sudan, Tanzania, Uganda, Zambia, Zimbabwe

Exotic:



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.

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PRODUCTS

Fodder: The pods and leaves can be used as animal fodder.

Apiculture: Like other members of the genus *Dalbergia*, its honey is dark amber and strong flavoured.

Fuel: The calorific value of the wood is more than 49 000 kcal/kg. Heat generation is so high that fires of *D. melanoxylon* have been reported to melt cooking utensils.

Timber: The sapwood is white or yellowish-white, often 12 cm wide, and sharply differentiated. The heartwood is purplish black, sometimes darker towards the outside, with light streaks and not always uniform in colour. The timber is slightly oily, exceptionally hard and very heavy (1314 kg/cu. m), brittle and somewhat fissile. The heartwood is extremely durable and resistant to all forms of biological deterioration. The sapwood, however, is susceptible to fungal or insect attack. The dry wood is difficult to saw or plane. It blunts saws and cutters and cannot be nailed or screwed without drilling. It is, however, among the finest of all turnery timbers, cutting exactly and finishing to a brilliantly polished, lustrous surface, dry and cold to the touch. Other products made from the timber include carvings, turnery and marquetry to produce sculptures, musical instruments, ornaments, inlays, chess pieces, walking sticks, bearings and many other products. The main industrial use, long supporting an export trade from East Africa and Mozambique, is the manufacture of musical instruments, especially woodwinds. With its high density and fine texture, *D. melanoxylon* wood produces a beautiful musical tone. It is stable, stands up to metalwork processes, and takes an excellent finish.

Medicine: The roots are used in traditional medicines to treat abdominal pain, diarrhoea and syphilis; the wood smoke is inhaled to treat headaches and bronchitis.

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TREE MANAGEMENT

Field trials are currently exploring suitable spacing for *D. melanoxylon* plantations. An initial spacing of 2 x 2 m results in good branching characteristics, while later thinning improves growth. Stem form is improved by raising the trees under medium shade provided by *Pinus caribaea*. Thorough weeding is important at the initial phase of establishment. After 5-7 years, trees planted early in the rainy season on thoroughly weeded plots averaged about 30% taller than trees planted at the same time but only lightly weeded. Trees planted in the middle of the rainy season and thoroughly weeded were about 45% taller than those planted at the beginning of the rains and lightly weeded. Intensive weeding is crucial until the tree's root-collar diameter measures about 5 cm. Alternatively, the area around the tree should be slashed until its root-collar diameter measures 8-10 cm. The species is extremely slow growing; trees attain timber size in 70-100 years.

GERMPLASM MANAGEMENT

Seed storage behaviour is orthodox; viability can be maintained for several years in hermetic storage at 3 deg. C with 9-12% mc. There are about 42 000 seeds/kg.

PESTS AND DISEASES

Heart rot has been observed on some logs, apparently associated with fungal infection following fire damage. Small game may feed on young shoots and leaves.

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SUGGESTED CITATION

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