SEED LEAFLET

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Khaya anthotheca (Welw.) C.DC.

Taxonomy and nomenclature

Family: Meliaceae

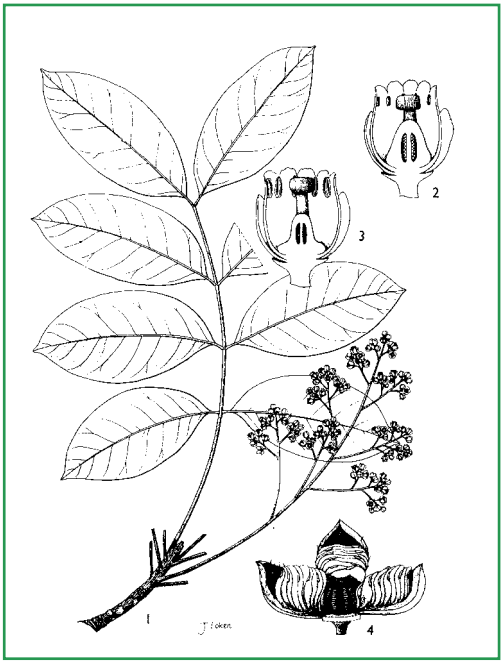
Synonyms: *Garretia anthotheca* Welw.; *Khaya nyasica* Stapf ex Baker f.; *K. agboensis* A. Chev.; *K. euryphylla* Harms.

Vernacular/common names: (East) African mahogany, Uganda mahogany, white mahogany, grand bassam mahogany (Eng.); acajou blanc, acajou d'Afrique (Fr.); krala (trade name).

Related species of interest: *Khaya anthotheca* is often confused with *K. grandifolia* and the two may not be specifically distinct. In some literature *K. nyasica* is kept apart from *K. anthotheca* but most taxonomists agree that it is the same species.

Distribution and habitat

Native to tropical Africa between 20°S and 10°N, from Sierra Leone eastwards to Uganda and Tanzania and southwards to Angola, Zambia, Malawi, Mozambique and Zimbabwe but absent from the wettest forests of Upper and Lower Guinea forest ecosystems where it is replaced by *Khaya ivoriensis*. It occurs in lowland rain-forests and riverine fringe forest at low to medium altitudes, up to ca. 1500 m, in areas with 600-1600 mm rain/year.



1, Flowering shoot; 2, female flower; 3, male flower; 4, dehisced fruit, one valve removed. From: Flora of Tropical East Africa. Drawn by Julia Loken.

Within the area of natural distribution it is widely grown in plantations and used in enrichment planting. It has been successfully introduced in South Africa, Cuba and Puerto Rico and on a limited scale in Indonesia and Peninsular Malaysia where it has been used in Tangya systems.

The species is heavily exploited, particularly in East and West Africa. In places where parent trees are scarce, regeneration is poor and serious genetic erosion is believed to have occurred. Various countries have now imposed felling limits and bans on the export of logs. On the 2002 IUCN Red List of Threatened Species it is listed as vulnerable.

Uses

One of the most important timber woods in Africa. It is used in high-class cabinet work and for production of veneers and any application where good quality, medium weight hardwood is needed. The density at 12% moisture content is 620 kg/m^3. It is reddish in colour with a handsome grain, hard, but works easily and takes a fine polish. It weathers well and is resistant to borers and termites. Infusions of the bark is used in medicine to relieve colds. The dense crown makes it suitable as a shade tree and it is also popular as an ornamental and in windbreaks.

Botanical description

Large tree, up to 60 m tall, with a straight bole that reaches a considerable height before branching. The bole is markedly buttressed, on large trees to a height of 6 m. Above the buttresses the trunk has a diameter of up to 4 m. Leaves are up to 40 cm long, compound, with 6-10 leathery leaflets, each up to 17 cm long.

Flowers are unisexual, sweet-scented and white, in up to 40 cm long inflorescences. Male and female flowers are on the same tree (monoecious), they closely resemble each other as both have well developed, but sterile, organs of the opposite sex.

Fruit and seed description

Fruit: the fruit is a creamy-brown, dry, woody capsule, 4-6 cm in diameter, dehiscing by 4-5 valves. There are up to 40 seeds per capsule. The seeds are arranged in rows around the central column.

Seed: the seeds are light brown, 1-2 x 1.5-3 cm, flat and surrounded by a narrow wing. There are 2000-4000 seeds per kg.

Flowering and fruiting habit

The trees flowers at end of the dry season or beginning of the rainy season, mainly in November, and the fruits mature from March to July or even later. The flowers are pollinated by insects and the winged seeds are dispersed by wind.

Harvest

When the seeds are mature the fruits will begin to split open. Unopened and partly opened fruits are collected directly from the tree. At the time of collection the seeds have a moisture content of 10-15%.

Processing and handling

The capsules are dried in the sun until they split and the seeds are taken out manually. The clean seeds are then further dried in the sun.

Germinated seeds of *K. anthotheca*. Photo: Kirsten Thomsen, DFSC

Storage and viability

The seeds are tolerant to desiccation and should be dried down to low moisture content (5-7%) and stored in airtight containers. Studies on optimal storage temperature indicate that the seeds may be chilling sensitive and that storage at 15°C is better than 5 or -18°C, but results are unclear. Even if the seeds are properly dried they retain high viability for no more than 6 months and after one year viability will normally have dropped to about half of the initial viability. The general recommendation is to sow seeds within one year after collection.

Dormancy and pretreatment

The seeds have no dormancy and pretreatment is not necessary.

Sowing and germination

Freshly harvested seeds will normally germinate 60-90%. Germination is hypogeal (cotyledons remain under ground), it attains about 20% after one week and is complete about three weeks after sowing.

In South Africa best results in the nursery have been obtained by sowing the seed in seedbeds in a mixture of half-decomposed pine bark and compost. Sowing in seedbeds has shown to give better germination than sowing in containers. The seedbeds must be slightly shaded and permanently moist. When the seedlings are 5 cm tall they are transferred to polypots and after one year, when they are about 30 cm tall, they are ready for planting in the field. Although containerised seedlings give better yield, bare-rooted stock and stumps have been used successfully. Propagation by wildings is also possible. Some seedlings develop crooked stems and they are normally discarded. So far, vegetative propagation techniques have not been developed.

After planting in the field, periodic weeding is necessary as young trees are sensitive to competition from weeds and grass. The species coppices poorly.

Selected readings

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