



# SEED LEAFLET

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## *Khaya senegalensis* (Desr.) A. Juss.

### Taxonomy and nomenclature

**Family:** Meliaceae

**Synonyms:** *Swietenia senegalensis* Desr.

**Vernacular/common names:** African mahogany, dry-zone mahogany (Eng.); acajou d'Afrique, acajou du Senegal, cailcedrat (Fr.); homra, murraya (Arabic); zunzatin (Benin); dalehi (Cameroon); ogonwo (Ghana); jalo (Gambia); kpitili (Guinea); kaya (Indonesia); yala (Mali); ono (Nigeria); kail (Senegal); cailcedrat, African mahogany, khaya wood (trade names).

### Distribution and habitat

The area of natural distribution is from Senegal to Sudan and Uganda, south to the rainforest zone. It occurs in riverine forests and scattered in high-rainfall savannah woodland. It grows at 0-1800 m altitude in areas with 700-1750 mm rain/year and a dry season of 4-7 months. It is one of the most drought-tolerant *Khaya* species but prefers moist sites and this seems to be more important for growth than nutrient availability. Saplings are very sensitive to fire but adult trees are relatively resistant. Plantations have been successfully established in Asia and Latin America.

Conservation status: logging and local exploitation are largely uncontrolled and poorly monitored. In northern parts of the range, exploitation may be leading to genetic erosion. Natural regeneration from seed is poor but does occur from suckers. On the 2002 IUCN Red List of Threatened Species it is listed as vulnerable.

### Uses

The timber is rated as one of the best African mahogany woods. It is moderately hard and of medium density (0.6-0.8). The heartwood is deep red-brown with a purplish tinge and the attractive appearance makes it one of the most favoured timbers for furniture.

Besides timber, the species is valued for medicinal purposes, especially the bark is used to treat a number of diseases. The leaves are used for fodder at the end of the dry season but the forage value is low. In West Africa the seed oil is used for cooking. The seeds have an oil content of 67% and are rich in oleic acid. The wood ashes are used for storing millet seed. Because the wood is difficult to saw, only small logs and branches are used as firewood.

### Botanical description

A deciduous tree, 15-20 m tall, reaching up to 35 m on fertile soils; diameter up to 1.5 m and with 8-16 m clean bole; buttresses not prominent or absent. The bark is dark grey, the slash dark pink with red latex. Leaves are compound, up to 20 cm long, with 3-7 pairs of usually opposite leaflets; each leaflet is 7-12 cm long, 3-5 cm wide, underside grey.

The flowers are small, about 5 mm, with white petals; unisexual, but with well-developed vestiges of the opposite sex, making it difficult to distinguish between male and female flowers. Flowers are borne on up to 20 cm long, much branched inflorescences.

### Fruit and seed description

**Fruit:** the fruit is an upright, almost round, woody capsule, 4-10 cm long with 4 valves that open at maturity (a distinction from *K. ivoriensis*, that is closely related, but has 5 valves). Inside the valves the seeds are arranged in rows with 6-18 seeds per valve.

**Seed:** the seeds are brown and flattened, about 2 x 2.5 cm, with winged margins. There are 2500-7000 seeds per kg.



*Khaya senegalensis*. Cultivated, at Singapore Botanical Garden. Photo: Thomas Schöpke

## Flowering and fruiting habit

Leaves are shed in the dry season and are directly replaced. Flowering occurs shortly before or in the beginning of the rainy season and the flowers are pollinated by insects. In Burkina Faso flowering occurs from November to December, in Guinea from November to February, in the Sudan February to March and in Côte d'Ivoire twice a year, principally from August to December.

The fruits mature in Burkina Faso from February to May, in Guinea from February to July, in Côte d'Ivoire mostly from January to April, with a second fruiting period July to September and in Tanzania from January to March. The trees begin to produce seed when they are 15-25 years old. In most places fruiting is regular and the fruits remain on the tree for most of the dry season. The seeds are dispersed by wind and may be carried away as far as 100 m.

## Harvest

The seeds are mature when the fruit colour changes from grey to black. Mature capsules can be collected from the tree or from the ground after shaking the branches but it is not advisable to collect seeds that have been lying on the ground for some time.

At the time of maturity, the seeds have a very low moisture content.

## Processing and handling

After collection the fruits are left in the sun until they open and release the seeds. After extraction, the seeds are dried in the sun.

## Storage and viability

The seeds are orthodox and should be stored at low moisture content. In a recent study in Burkina Faso seeds were stored at -18, 3-5 and 25°C. The results showed that the seeds retain full viability regardless of storage temperature for at least two years. The seeds are sometimes heavily attacked by larvae and packing with CO<sub>2</sub> can be necessary.

## Dormancy and pretreatment

The seeds are not dormant and pretreatment is not necessary.

## Sowing and germination

Germination is epigeal; it is normally good, often close to 100%, and is completed after about two weeks.

To produce container plants, seeds are sown in sandy clay substrates under shading. Nursery costs are higher than for bare-rooted stock but plants are able to tolerate up to 10 days without rain. After 6-7 months the plants can be planted in the field but longer time in the nursery is preferable.

In areas with regular rainfall after planting, stump planting is possible but normally not preferable. The species also propagates well from coppice, shoots and root suckers.

The species is susceptible to attack by *Hypsipyla* shoot bores and it is recommended growing it in mixed stands.

## Selected readings

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Seeds of *Khaya senegalensis* from Burkino Faso (NB. grid has 1 cm divisions). Photo: Dorthe Jøker, DFSC

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