

Albizia gummifera (J.F. Gmel.) C.A.Sm.

Taxonomy and nomenclature

Family: Leguminosae (Fabaceae), subfam. Mimosoideae

Synonyms: *Albizzia mearnsi* De Wild. *Albizzia sassa* (Willd) Chiov. *Inga sassa* Willd. *Sassa gummifera* J.F. Gmel.

Distribution and habitat

Albizia gummifera is a species of humid or seasonal humid central and eastern Africa, from humid areas of the south western Sudan and Ethiopia in the north to Mozambique and Madagascar in the south, and stretching westwards through the Congo basin from Angola through the Congos to Camaroon and Nigeria. In the relative drier areas it often occurs as riverine forest. In dense rain forest it occurs typically in the more open patches. Its altitude range is between 600 and 2300 masl. In Kenya, *Albizia gummifera* is widespread and can be found on the slopes of the coastal hills, the higher mountains of the central and Western highlands (Mt Kenya, Aberdares, Mau), the northern isolated mountains (Marsabit, Maralal, Kullal), the Kakamega forests.

Uses

The wood is medium dense, fairly strong, straight-grained, and does not warp. It works easily but is not termite and water resistant. It is useful as a general purpose timber, traditionally used to make beehives, mortars, water troughs, and boats. The species is a good nectar species for domestic bees. Extraction from bark and pods have been used in traditional medicine, e.g. against malaria and infectious diseases.

A. gummifera is nitrogen fixing and can be used for soil improvement and stabilization. Its leaves form good mulch and it is a good shade tree. It is recommended for alley farming systems, mixed cropping, and for plantation crop plantings with for example coffee and bananas.

Botanical description

Deciduous flat topped or umbrella-formed tree; under optimal conditions growing up to 35 meters. Bark grey to yellowish-brown and rough (rarely smooth in Kenya). Young branchlets densely, rather coarsely and persistently rusty- to fulvous-pubescent.

Leaves: pinnae 5–8 pairs (rarely only 3 on occasional reduced leaves), each pinna more or less narrowing



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upwards; leaflets of 2 distal pairs of pinnae 9–17 pairs, obliquely rhombic-quadrate or -oblong, mostly about 7–17 (–20) mm. long and 4–9 (–11) mm. wide; proximal margin at base usually more or less rounded into the pulvinus but not auriculate; apex of leaflet usually obtuse and mucronate, sometimes subacute, surface of leaflet thinly pubescent above, rather plentifully pubescent all over beneath, raised venation beneath close. Stipules and bracts at base of peduncles ovate, about 5–12 mm. long and 3–6 (–8) mm. wide. Peduncles clothed as the young branchlets; bracteoles variably persistent, linear-spathulate to oblanceolate, 5–8 mm. long, exceeding the flower-buds. Flowers sessile; pedicels pubescent, 0.5–1 mm. long. Calyx 2.5–4 (rarely only 2) mm. long, pubescent outside. Corolla 6–11 mm. long, pubescent outside, white or greenish-white. Staminal tube exerted about 1.3–2 cm. beyond corolla, red to wholly greenish or pink.

Fruit and Seed description

Fruit: Oblong pod, flat or slightly transversely plicate, 9–19 (–21) cm. long, 1.9–3.2 (–4) cm. wide, usually densely and persistently pubescent, not glossy, prominently venose, usually pale brown. Pods normally contain 8–14 seed.

Seed: Seeds 7–9.5 mm. long, 6.5–8.5 mm. wide, flattened. There are 10,000-15,000 seeds /kg.

Flowering and fruiting habit

Flowers are bisexual and borne in numerous fascicles or corymbose heads. Pollination by insects. Flowering and fruiting dependent on location, typically seed maturity is at the beginning of the rainy season, in Kenya, e.g. Jan-Feb. In Kenya hybridization with *A. grandibrachteata* has been reported. Development from flower to fruits 3-6 months. Fresh pods are eaten by monkeys which may contribute to long distance dispersal. Otherwise dispersal is mainly by wind with seeds remaining attached to half of the dehiscent pod.

Harvest

A cutting test should be carried out prior to harvesting because the pods are frequently empty. Harvesting is done by climbing and shaking the branches with a hook in order to release the pods on canvas spread on the ground. Seeds should be collected from the crown of the tree to minimize insect damage. It is recommended to harvest seed soon after maturity because late crops tend to be infested by insects.

Processing and handling

Pods should be dried in the sun for a few days, and then threshed in a gunny bag by using a stick. After extraction, the seeds are cleaned by sieving, winnowing or using a mechanical blower. The cleaned seeds are dried to a moisture content between 6 and 10 % prior to storage.

Storage and viability

Seeds exhibit an orthodox storage behaviour; viability can be maintained for several years in hermetic storage at 10°C. Seed can also be stored for at least a year at ambient temperature if kept dry and insect free, e.g. through addition of ash.

Dormancy and pretreatment

Fresh seeds need no pretreatment. Stored seeds are soaked in warm water at 80°C and left to cool to room temperature. The seed coat may be nicked at the cotyledon (distal) end to hasten germination. Seed germination is good, 70-80 %, within 10 days.

Sowing and germination

Germination is epigeal. The radicle appears from the germinating seed approximately 5 days after sowing. The germination is considered completed when seeds have two unfolded permanent leaves. Germination rate of 40 % after 15 days and 75 % after 25 days may be reached.

Selected readings

Beentje, H.J. (1994): *Kenya Trees, Shrubs and Lianas* pg. National Museums of Kenya, Nairobi, Kenya. 722p.

Dale, I.R. and Greenway, P.J. 1961. Kenya trees and shrubs. Buchanan's Kenya Estates Ltd.

FAO Corporate document. Indigenous Multipurpose trees of Tanzania, uses and economic benefits for people.

J. Albrecht (ed), Tree Seed Handbook of Kenya

P. Maundu and B Tengnäs, (eds), Useful trees and shrubs for Kenya

World Agroforestry Tree Database

Authors: Lars Schmidt and Lucy Mwaura

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