

Alstonia boonei

De Wild.

Apocynaceae

stool wood, pattern wood, mujwa, emien, cheese wood, alstonia

LOCAL NAMES

English (stool wood,cheesewood,pattern wood,alstonia); Igbo (egbu); Luganda (mujua,mubajangalabi,mukoge,musoga); Trade name (stool wood,mujwa,pattern wood,cheese wood,alstonia,emien); Yoruba (awun)

BOTANIC DESCRIPTION

Alstonia boonei is a large deciduous tree, up to 45 m tall and 1.2 m in diameter; bole often deeply fluted to 7 m, small buttresses present; bark greyish-green or grey, rough; slash rough-granular, ochre-yellow, exuding a copious milky latex; branches in whorls.

Leaves in whorls of 5-8, simple, subsessile to petiolate, stipules absent; petiole 2-10 (max. 15) mm long, stout; blade oblanceolate to obovate, rarely elliptic, 7-26 x 3-9.3 cm; apex acute to rounded or sometimes emarginate; base narrowly cuneate; margins entire, sub-coriaceous to coriaceous, dark shiny green top surface, light green on under surface; midrib more prominent below.

Inflorescence terminal, compound with 2-3 tiers of pseudo-umbels; primary peduncles 0.5-7 cm long, greyish pubescent; bracts ovate-triangular, 1-1.5 mm long, pubescent; pedicels about 5 mm long. Flowers regular, hermaphrodite, pentamerous; calyx cupular tube about 1 mm long; lobes ovate, about 1.5 mm long, spreading; corolla pale green tube up to 14 mm long; lobes slightly obliquely ovate, up to 6 mm long and wide, pubescent outside.

Fruit formed by 2 pendent green follicles up to 60 cm long, longitudinally striate, dehiscent lengthways while on the tree; seeds numerous, flat, about 4 x 2 mm, with tufts of hair at each end 10 mm long.

'*Alstonia*' is named after Dr C. Alston (1685-1760), a professor of botany at Edinburgh University.

BIOLOGY

Records of flowering and fruiting are few, even in areas of its natural range. In Sierra Leone, it would appear that the tree sheds its leaves at the end of the rainy season and flowers immediately in October and November, after which new leaves grow. Fruits mature in January and February. The seeds have hairs on both ends, which facilitates wind dispersal.

Alstonia boonei

De Wild.

Apocynaceae

stool wood, pattern wood, mujwa, emien, cheese wood, alstonia

ECOLOGY

Found in dry, peripheral, semi-evergreen Guineo-Congolian forest and transitional rainforest. Elsewhere it occurs in similar habitats and in swamp and riverine forests. *A. boonei* requires large amounts of light and colonizes gaps in the forest. It has plenty of natural regeneration in young secondary forest.

In Nigeria, *A. boonei* occurs in moist lowland forest but may extend into drier types, including gentle to steep, rocky hillsites in Liberia, but most commonly found scattered or in small groups in wet or marshy places that are occasionally inundated. A tree of the swampy high forest in West Africa.

It can tolerate a wide range of sites, from rocky hillsides to seasonal swamps. In general it prefers damp situations, but it grows satisfactorily on well-drained slopes.

BIOPHYSICAL LIMITS

Altitude: 550-1000 m, Mean annual rainfall: 1500-2000 mm

Soil type: Moist to well-drained soils.

DOCUMENTED SPECIES DISTRIBUTION

Native: Angola, Benin, Cameroon, Central African Republic, Congo, Cote d'Ivoire, Democratic Republic of Congo, Equatorial Guinea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Nigeria, Senegal, Sierra Leone, Sudan, Togo, Uganda

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.

stool wood, pattern wood, mujwa, emien, cheese wood, alstonia

PRODUCTS

Fuel: This species provides firewood.

Timber: The sapwood, which is not differentiated from the heartwood, is very wide, up to 200 mm, soft, and light in weight when dried. The wood weighs about 400 kg/cubic m. Nearly yellowish-white when freshly cut, the timber darkens on exposure. It has a low lustre and no characteristic odour or taste. The grain is generally straight, and the texture is fine to medium, but the appearance of the wood is often marred by latex canals (slitlike holes about 6 mm across), which often occur at regular intervals. The wood is also liable to staining. It works easily with hand and machine tools, but because of its softness, it is essential to use tools with sharp cutting edges. The wood can be glued, stained and polished satisfactorily. Export prospects are doubtful, although it has a local potential for stools, carvings, domestic utensils, toys, masks, canoes, horns, light carpentry, boxes and wood wool for packing bananas. The well-known Asante stools of Ghana are made from it.

Latex or rubber: The latex gives an inferior resinous coagulate, which has been used to adulterate better rubbers. It has been used as birdlime.

Poison: The latex is dangerous to the eyes and can cause blindness.

Medicine: The bark of *A. boonei* contains echitamine (main alkaloid), 2 echitamidine derivatives and a lactone boonein. The triterpenes beta-amyrin and lupenol are also found in the bark, and ursolic acid in the leaves. The 2 alkaloids have diuretic, spasmolytic and hypotensive properties.

An infusion in cold water of the stem bark is drunk as a cure for venereal diseases, worms, snakebite and rheumatic pains and to relax muscles. It is also taken internally or used as a bath as a remedy for dizziness. An infusion of root and stem bark is drunk as a remedy for asthma; a liquid made from the stem bark and fruit is drunk once daily to treat impotence.

In Ghana, a decoction of the bark is given after childbirth to help the delivery of the placenta. It is used from Cote d'Ivoire through to Burkina Faso as a decoction to cleanse suppurating sores and exposed fractures; in Nigeria for sores and ulcers, and in Cameroon and Liberia for snakebite and arrow poison. The bark has widespread use in Ghana to assuage toothache; in Sierra Leone it is used as an anthelmintic. The latex is said to be an antidote for *Strophanthus* poison. In Cote d'Ivoire the leaves, pulped to a mash, are applied topically to reduce oedema, and leaf sap is used to cleanse sores.

SERVICES

Shade or shelter: A good shade for coffee, tea and banana plantations.

Alstonia boonei

De Wild.

Apocynaceae

stool wood, pattern wood, mujwa, emien, cheese wood, alstonia

TREE MANAGEMENT

Growth is rapid, and it is not uncommon for an annual increment of 1.8 m to occur in the sapling stage. It grows in a succession of crowns and should not be pruned but left to develop secondary crowns, which will later kill off the lower ones. Mature trees are often damaged by wind and decay but are fast growing and coppice readily from the base. The tree snaps easily in strong wind and therefore should not be planted near buildings.

GERMPLASM MANAGEMENT

Store seeds in envelopes in a cool dry place. There are about 33 000 seeds/kg.

PESTS AND DISEASES

The collar stump of *A. boonei* is attacked by the fungus *Irpex flavens*.

Alstonia boonei

De Wild.

Apocynaceae

stool wood, pattern wood, mujwa, emien, cheese wood, alstonia

FURTHER READING

Brown WH. 1968. *Timbers of the world*.

Burkill HM. 1994. *Useful plants of West Tropical Africa*. Vol. 2. Families E-I. Royal Botanical Gardens, Kew.

Chudnoff M. 1984. *Tropical timbers of the world*. Agricultural Handbook 607. USDA Forest Service, Washington, DC. 464 pp.

Eggeling. 1940. *Indigenous trees of Uganda*. Govt. of Uganda.

FAO. 1986. *Some medicinal plants of Africa and Latin America*. FAO Forestry Paper. 67. Rome.

Friis I. 1992. *Forests and forest trees of northeast tropical Africa*. Her Majesty's Stationery Office, London.

Hamilton A.C. 1981. *A field guide to Uganda forest trees*.

Katende AB et al. 1995. *Useful trees and shrubs for Uganda*. Identification, Propagation and Management for Agricultural and Pastoral Communities. Regional Soil Conservation Unit (RSCU), Swedish International Development Authority (SIDA).

Oliver-Beyer B. 1986. *Medicinal plants in tropical West Africa*. Cambridge University Press. Cambridge.

Savill PS, Fox JED. 1967. *Trees of Sierra Leone*. Forest Department, Freetown.

Taylor CJ. 1960. *Synecology and silviculture in Ghana*. CJ Taylor.

SUGGESTED CITATION

Orwa C, Mutua A, Kindt R, Jamnadass R, Simons A. 2009. *Agroforestry Database: a tree reference and selection guide version 4.0* (<http://www.worldagroforestry.org/af/treedb/>)