

## Barringtonia racemosa

(L.) Spreng

Lecythidaceae

### LOCAL NAMES

Afrikaans (poeierkwasboom); Burmese (kyi,kye-bin); English (hippo apple,barringtonia,brack-water mangrove,common putat,freshwater mangrove,powder-puff tree,wild guava); Filipino (apalang); Indonesian (penggung,putat sungai,butun darat,butan darat); Lao (Sino-Tibetan) (som pawng); Malay (putat ayam,putat ayer,putat aying,putat kampong); Sanskrit (samudraphala); Swahili (mtomondo); Thai (chik suan,chik ban)

### BOTANIC DESCRIPTION

*Barringtonia racemosa* is usually a small tree, 4-8 m in height but occasionally reaching 15 m; bark grey, yellow or brown, mottled, rather smooth to fissured; no aboveground roots but may have spreading surface roots.

Leaves alternate, simple, crowded at the ends of the branches, large, obovate-oblong to oblanceolate, 8-35 x 4-13 cm; apex deep green, broadly tapering; base narrowly tapering, running into the petiole; margin entire or very shallowly toothed or scalloped; petiole very short, without hairs.

Flowers attractive, white to pale pink, in many-flowered pendulous sprays; up to 60 cm in length or even more; bisexual; all floral parts in 4s; sepals joined at the base, separating in 3-4 lobes, green flushed with pink, about 10 x 7.5 mm; petal elliptic, up to 3 x 1 cm, attached to the staminal tube; stamens many, long, white or pinkish, forming a large central mass 3.5 cm in diameter; ovary 2 to 4 chambered; style red.

Fruit conical to ovate, about 3 x 2 cm, crowned by the remains of the persistent calyx; style fleshy at first, later becoming hard, fibrous and yellowish-brown when mature. Seeds aromatic.

The genus is named after the Hon. Daines Barrington, 1727-1800, an English nobleman, lawyer, antiquary and naturalist who wrote a book on English trees. The specific name 'racemosa' means 'having racemes'; a raceme being a string-like arrangement of stalked flowers.

### BIOLOGY

Half the flowers bloom simultaneously. Pollination of the fragrant flowers is generally by bats or insects (mainly moths), which are attracted to the copious nectar. After shedding the flowers, the inflorescences are often crowded with ants attracted by the nectar. A comparatively high percentage of the fruit is seedless. As the fibrous coat makes the fruit buoyant in water, it may be carried great distances.



Flowers (Ellis RP)



Foliage (Ellis RP)



Petals 4, white tinged with deep pink with a mass of stamens, up to 35mm in diameter. Flowers open at night and fall the following morning. Flowers with unpleasant scent. (Ellis RP)

**ECOLOGY**

*B. racemosa*, which is considered a mangrove associate, can also be found in tropical rainforest areas, open lowlands and thickets. Occurring always near water: along riverbanks and in freshwater swamps, and occasionally in the less saline areas of mangrove swamps, where it may develop pneumatophores. The species cannot tolerate even light frost. It favours the wet tropical, moist tropical and wet subtropical climatic zones. It is distributed from eastern Africa and Madagascar to Sri Lanka, India, Myanmar, southern China, Taiwan, the Ryukyu Islands (Japan), Thailand, the Andaman and Nicobar Islands (India), throughout the Malesian region towards Micronesia, Polynesia (east to Fiji and Samoa) and northern Australia.

**BIOPHYSICAL LIMITS**

Altitude: 0-300 m, Mean annual rainfall: About 500 mm

**DOCUMENTED SPECIES DISTRIBUTION**

Native: Philippines

Exotic: Australia, Brunei, Cambodia, China, Djibouti, Eritrea, Ethiopia, Fiji, India, Indonesia, Japan, Kenya, Laos, Madagascar, Malaysia, Mozambique, Myanmar, New Zealand, Papua New Guinea, Samoa, Solomon Islands, Somalia, South Africa, Sri Lanka, Taiwan, Province of China, Tanzania, Thailand, Tonga, Uganda, Vanuatu, Vietnam, Zanzibar



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.

**PRODUCTS**

**Food:** Young leaves are eaten as a vegetable; seeds are pounded to extract the starchy content, which is made into cakes.

**Fuel:** Provides suitable firewood.

**Fibre:** It has been applied in various kinds of wood-based panels such as hardboard, particleboard and blockboard, and has been used for the production of pulp. In Kenya, the bark is utilized as cordage.

**Timber:** *B. racemosa* yields a medium-weight hardwood with a density of 480-815 kg/m<sup>3</sup> at 15% mc. Heartwood is pale yellow-brown, sometimes with reddish tinge, not differentiated from the sapwood; grain is straight to interlocked; texture moderately fine and even. The wood is not durable; sapwood is permeable, heartwood moderately resistant to pressure impregnation.

The wood is light and soft and is used for light work that does not require great strength. Utilized for temporary construction, local house building (posts and beams), general planking, flooring, boat building, mouldings, interior finish, handles of non-striking tools, household utensils, agricultural implements, boxes and crates and wooden pallets. It is suitable for veneer and plywood manufacturing. In India, it is used additionally for carts, rice pounders and cabinetwork. In the Philippines, it has been reported that when treated with preservatives, the timber can be used to make good ties and paving blocks. In the Pacific region, the wood has additionally been used for carving and turnery.

**Tannin or dyestuff:** The bark yields tannin.

**Poison:** Seeds of the species contain saponins, which are used as a fish poison; the whole fruit, bark, wood and root can be used. Extracts of the plant have proved effective against Citrus aphid; in Bengal the seed is used as an insecticide, and to poison people; coconut is said to be the antidote.

**Medicine:** Root, bark and juice are used medicinally in the East; the Zulu tribe of South Africa uses the fruit to remedy malaria. The fruit is used to treat cough, asthma and diarrhoea; pulverized fruit is used as snuff. Seeds are used to treat eye inflammation and by midwives for parturition. In Malaysia, the leaves traditionally are used to treat high blood pressure and as a depurative. Pounded leaves are said to treat chicken pox.

**SERVICES**

**Ornamental:** *B. racemosa* is a most decorative tree, which grows easily and rapidly.

**TREE MANAGEMENT**

As the trees are often not large enough to be converted in saw mills and supplies are small, use of the timber is limited and it is not sold on the international market.

**GERMPLASM MANAGEMENT**

Seeds exhibit a recalcitrant storage behaviour.

**PESTS AND DISEASES**

The wood is liable to sap-stain, termite and marine borer attack. The sapwood is susceptible to Lyctus borers.

**FURTHER READNG**

- Anon. 1986. The useful plants of India. Publications & Information Directorate, CSIR, New Delhi, India.
- Beentje HJ. 1994. Kenya trees, shrubs and lianas. National Museums of Kenya.
- Coates-Palgrave K. 1988. Trees of southern Africa. C.S. Struik Publishers Cape Town.
- Dale IR, Greenway PJ. 1961. Kenya trees and shrubs. Buchanan's Kenya Estates Ltd.
- FAO. 1983. Food and fruit bearing forest species. 2: Examples from South-Eastern Asia. FAO Forestry Paper. 44/2. Rome.
- Hong TD, Linington S, Ellis RH. 1996. Seed storage behaviour: a compendium. Handbooks for Genebanks: No. 4. IPGRI.
- Palmer E, Pitman N. 1972. Trees of Southern Africa Vol. 2. A.A. Balkema Cape Town.
- Perry LM. 1980. Medicinal plants of East and South East Asia : attributed properties and uses. MIT Press. South East Asia.
- Raynor B. 1991. Agroforestry systems in Pohnpei. Practices and strategies for development. Forestry Development Programme.
- Sosef MSM, Hong LT, Prawirohatmodjo S. (eds.). 1998. PROSEA 5(3) Timber trees: lesser known species. Backhuys Publishers, Leiden.
- Williams R.O & OBE. 1949. The useful and ornamental plants in Zanzibar and Pemba. Zanzibar Protectorate.

**SUGGESTED CITATION**

Orwa C, A Mutua, Kindt R , Jamnadass R, S Anthony. 2009 Agroforestry Database:a tree reference and selection guide version 4.0 (<http://www.worldagroforestry.org/sites/treedbs/treedatabases.asp>)