

**LOCAL NAMES**

Afrikaans (goewernewspruim); Bengali (tambat,benchi,katai,baichi); English (Madagascar plum,batoka plum,flacourtia,governor's plum,Indian plum,Mauritius plum); Hindi (bilangra,kakein,katai,kukai); Ndebele (umthunduluka); Shona (munhunguru); Swahili (mchongoma,mgo,mkingii,mkingila,mkingili,mugovigovi,ngovigovi); Tamil (mulanninchil,cholhakilai,sottaikala,kutukali)

**BOTANIC DESCRIPTION**

Flacourtia indica is a tree or shrub usually 3-5 m tall, sometimes 10 m. Bark is usually pale, grey, powdery, may become brown to dark grey and flaking, revealing pale orange patches. Vegetative parts vary from glabrous to densely pubescent.

Leaves red or pink when young, variable in size, oval to round, to 12 cm, edge toothed, becoming leathery; 4-7 pairs of veins clear on both surfaces; stalk to 2 cm.

Flowers unisexual or occasionally bisexual (1 or several branches of a female specimen with perfect flowers, which, however, bear fewer stamens than the males). Male flowers in axillary racemes 0.5-2 cm long; pedicels slender, may be pubescent, up to 1 cm long, the basal bracts minute and caducous. Sepals (min. 4) 5-6 (max. 7), broadly ovate, apex acute to rounded, pubescent on both sides, 1.5-2.5 mm long and broad. Filaments 2-2.5 mm long; anthers 0.5 mm long. Disk lobulate. Female flowers in short racemes or solitary; pedicels up to 5 mm. Disk lobulate, clasping the base of the ovoid ovary; styles 4-8, central, connate at the base, spreading, up to 1.5 mm long; stigmas truncate.

Fruit globular, reddish to reddish-black or purple when ripe, fleshy, up to 2.5 cm across, with persistent styles, up to 10-seeded. Seeds 5-8, 8-10 x 4-7 mm; testa rugose, pale brown.

The botanical name is of particular historical and geographical interest in South Africa. 'Flacourtia' honours E. de Flacourt (1607-60), a governor of Madagascar, who knew the Cape before van Riebeeck, and indica indicates that the east is equally the home of this little tree of the Transvaal bushveld.

**BIOLOGY**

The tree is usually leafless just before flowering. In India, the flowers appear from December to April together with the new leaves, which are a very beautiful fresh green colour. Fruits ripen from March to July. They are eaten by birds, thus the seeds are widely dispersed, accounting for the very wide distribution of the species.



Flacourtia indica (Patrick Maundu)



Flacourtia indica (Anthony Njenga)

**ECOLOGY**

*F. indica* is common in tropical dry deciduous and thorn forests, though more abundant in the former. It also occurs in seasonally dry forest, woodland, bushland, thickets, wooded grassland, and often in riparian vegetation. The species is drought resistant though somewhat frost tender.

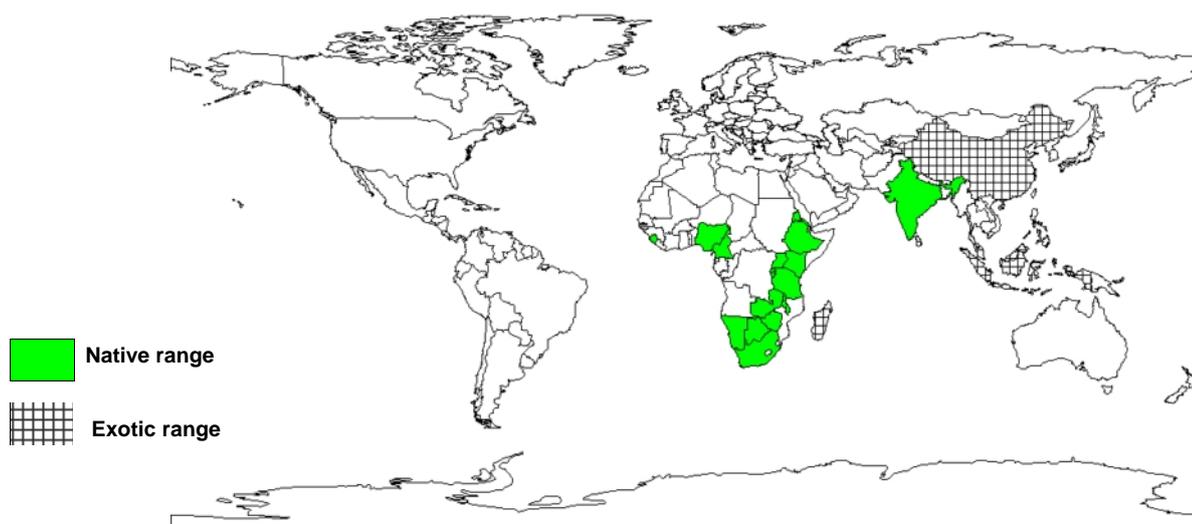
**BIOPHYSICAL LIMITS**

Altitude: 0-2 400 m, Mean annual temperature: 4-10 -41-48 deg. C, Mean annual rainfall: 500-2 000 mm

Soil type: Grows on variety of soils including limestone, clayey and sandy soils.

**DOCUMENTED SPECIES DISTRIBUTION**

- Native:** Botswana, Burundi, Cameroon, Democratic Republic of Congo, Eritrea, Ethiopia, India, Kenya, Malawi, Namibia, Nigeria, Rwanda, Sierra Leone, South Africa, Tanzania, Uganda, Zambia, Zanzibar, Zimbabwe
- Exotic:** Antigua and Barbuda, Barbados, China, Cuba, Dominica, Dominican Republic, Grenada, Indonesia, Jamaica, Madagascar, Malaysia, Puerto Rico, Seychelles, Sri Lanka, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Trinidad and Tobago, Virgin Islands (US)



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:** Fruit are edible and can be eaten raw or stewed. They have high potential for processing into jams and jellies. Ripe fruits are often dried and stored as food.

**Fodder:** Browsed by game. Branches and leaves lopped for cattle in India.

**Fuel:** Wood used for firewood and charcoal.

**Timber:** The sapwood is light brown, gradually merging into the chocolate-brown heartwood. It is very hard, heavy to very heavy (850 kg/m<sup>3</sup>), straight grained and durable, though liable to splitting. It has a fine even texture. Used for agricultural implements such as ploughs, posts, building poles, rough beams, walking sticks and the manufacture of turnery articles. The small size of the wood limits its usefulness.

**Tannin or dyestuff:** Bark is used as a tanning material.

**Alcohol:** The fruit can be fermented to produce wine.

**Medicine:** The leaf is carminative, astringent and used as a tonic, an expectorant and for asthma, pain relief, gynaecological complaints and as an antihelmintic, and treatment for hydrocele, pneumonia and intestinal worms. The Lobedu tribe of southern Africa take a decoction of the root for the relief of body pains. In India, an infusion of the bark is used as a gargle for hoarseness. In Madagascar, the bark, triturated in oil, is used as an anti-rheumatic liniment. The root and ash have been used as a remedy for kidney complaints.

**SERVICES**

**Ornamental:** The glistening leaves of *F. indica* can be very attractive when the tree is planted as an ornamental.

**Boundary/barrier/support:** When closely planted, it forms a close impenetrable barrier that serves as a hedge; it tolerates frequent trimming.

**TREE MANAGEMENT**

*F. indica* is a slow-growing tree. In Tamil Nadu, India, coppice shoots reached 3.4 m in height and 9.4 cm in girth in 15 years, corresponding to a mean annual increment of only 0.63 cm. It coppices very well. Seedlings need weeding until they are well developed.

**GERMPLASM MANAGEMENT**

Seed storage behaviour is orthodox; viability can be maintained for over 1 year in air-dry hermetic storage at 5 deg. C.

**PESTS AND DISEASES**

Beetles and larvae of some insects are known to defoliate the tree, feed on the sap or damage dead wood.

**FURTHER READNG**

- Beentje HJ. 1994. Kenya trees, shrubs and lianas. National Museums of Kenya.
- Bekele-Tesemma A, Birnie A, Tengnas B. 1993. Useful trees and shrubs for Ethiopia. Regional Soil Conservation Unit (RSCU), Swedish International Development Authority (SIDA).
- Booth FEM, Wickens GE. 1988. Non-timber uses of selected arid zone trees and shrubs in Africa. FAO Conservation Guide. No. 19. Rome.
- Coates-Palgrave K. 1988. Trees of southern Africa. C.S. Struik Publishers Cape Town.
- Dassanayake MD & Fosberg FR (eds). 1983. A Revised handbook to the Flora of Ceylon. 4:196-487. Amerind Publishing Co. Pvt. Ltd., New Delhi.
- Drummond BR. 1981. Common trees of the Central Watershed Woodlands of Zimbabwe. National Resources Board.
- Eggeling. 1940. Indigenous trees of Uganda. Govt. of Uganda.
- Hamilton A.C. 1981. A field guide to Uganda forest trees.
- Hines DA, Eckman K. 1993. Indigenous multipurpose trees for Tanzania: uses and economic benefits to the people. Cultural survival Canada and Development Services Foundation of Tanzania.
- Hong TD, Linington S, Ellis RH. 1996. Seed storage behaviour: a compendium. Handbooks for Genebanks: No. 4. IPGRI.
- ICRAF. 1992. A selection of useful trees and shrubs for Kenya: Notes on their identification, propagation and management for use by farming and pastoral communities. ICRAF.
- 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).
- Mbuya LP et al. 1994. Useful trees and shrubs for Tanzania: Identification, Propagation and Management for Agricultural and Pastoral Communities. Regional Soil Conservation Unit (RSCU), Swedish International Development Authority (SIDA).
- Perry LM. 1980. Medicinal plants of East and South East Asia : attributed properties and uses. MIT Press. South East Asia.
- Singh RV. 1982. Fodder trees of India. Oxford & IBH Co. New Delhi, India.
- Troup RS. 1975. The silviculture of Indian trees. ed. 2, vol. 1. Government of India.
- Watt JM, Breyer-Brandwijk. 1962. Medicinal and poisonous plants of southern and eastern Africa. E & S Livingstone Ltd.
- 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>)