

## Parinari curatellifolia

Planch. ex Benth.

Chrysobalanaceae

### LOCAL NAMES

Afrikaans (grysappel); Bemba (mupundu); Chichewa (muula); English (hissing tree, mbola plum, mobola plum, fever tree); French (pobéguin, Mendonça); Lozi (mubula); Luganda (munazi); Lunda (muchacha); Ndebele (umkhuna); Nyanja (mbula, mpundu); Portuguese (muchacha, mendonça, muhacha); Shona (muchacha, muhacha); Swahili (mbura); Tongan (mula)

### BOTANIC DESCRIPTION

*Parinari curatellifolia* is a large, evergreen, spreading tree up to 20 m tall with a single bare stem and a dense, roundish to mushroom-shaped crown; bark dark grey and rough; young shoots densely covered with yellow woolly hairs.

Leaves alternate, simple, elliptic to oblong, 3-8 x 2-4 cm, leathery, dark green on top, finely velvety when young but losing these hairs later, densely hairy and grey to yellow underside; apex broadly tapering, often notched; base square; margin entire; petiole short.

Flowers small, white and sweet scented, in short, branched heads or panicles, 4-6 cm in diameter, in leaf axils; stalks and calyces densely covered with yellowish, woolly hairs; bisexual; sepals 5; petals 5; stamens 7 or more, joined at the base in a short ring inserted in the mouth of the receptacle; ovary 2 chambered.

Fruit oval to round, up to 5 x 3.5 cm, russet-yellow to greyish, scaly and pitted, becoming orange-yellow when ripe.

*Parinari* is the vernacular name for a Brazilian species; the specific name means 'with leaves like those of *Curatella*', a West Indian and South American genus belonging to the Dilleniaceae family; often called the hissing tree because the bark makes a sort of hissing noise when cut with an axe.

### BIOLOGY

*P. curatellifolia* has long flowering and fruit ripening periods that often occur concurrently during the rainy and dry seasons. It takes 9-10 months from flower fertilization to fruit ripening.



*Parinari curatellifolia* slash (Joris de Wolf, Patrick Van Damme, Diego Van Meersschaut)



*Parinari curatellifolia* leaves (Joris de Wolf, Patrick Van Damme, Diego Van Meersschaut)



*Parinari curatellifolia* tree (Joris de Wolf, Patrick Van Damme, Diego Van Meersschaut)

## ECOLOGY

The sclerophyllous species is never truly gregarious; grows naturally in open, deciduous woodland, especially brachystegia woodland, extending to its upper limits and then scattered in upland grassland; often persisting in cultivated land and present in secondary bushland; Throughout the greater part of its range it is a species of woodland and wooded grassland, both edaphic and secondary; occurs in varying climatic regimes and is particularly common near rivers and in areas of poor drainage. It is sensitive to frost and cold wind. In Zambia it is often considered an indicator of a high watertable and is often left in fields. *P. curatellifolia* can tolerate small concentrations of copper in the soil.

## BIOPHYSICAL LIMITS

Altitude: 0-1900 m, Mean annual temperature: 10-30 deg. C, Mean annual rainfall: 0-2700 mm

Soil type: Light yellowish-brown to reddish-yellow, gritty, sandy clay loams and red to dark red friable clays with lateritic horizon.

## DOCUMENTED SPECIES DISTRIBUTION

- Native: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Congo, Cote d'Ivoire, Democratic Republic of Congo, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Liberia, Malawi, Mali, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Sudan, Swaziland, Tanzania, Togo, Uganda, Zambia, Zanzibar, Zimbabwe
- Exotic: Madagascar, Seychelles



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:** The fruit has a pleasant tasting, yellow flesh of which 88.2% is carbohydrate; it contains vitamin C. The fruit may be eaten raw or made into a porridge. A delicious syrup is prepared from it that provides the basis of a refreshing, non-alcoholic drink. Seeds are pounded and used for making soup; they can also be eaten and make a passable substitute for almonds.

**Fodder:** Game and cattle browse both leaves and fruits; the fruit is used as bait to trap animals such as antelopes.

**Apiculture:** The tree produces abundant nectar and pollen, which makes it popular with honey farmers.

**Fuel:** *P. curatellifolia* gives good charcoal.

**Timber:** The wood is pink-brown in colour, with a featureless grain scored by many narrow pores, which show up well on the flat or tangential surfaces. It is hard and moderately heavy (720 kg/m<sup>3</sup>). *P. curatellifolia* is borer proof and, although not durable if left exposed to weather, it has been used fairly extensively for rafters, beams, poles, benches, building mortars, railway sleepers, canoes and mine timber. However, it contains silica crystals that make it difficult to work, as they very rapidly blunt saw blades and other tools.

**Tannin or dyestuff:** An extract from the bark is used in tanning. A pink-brown dye used in basket work is extracted from the bark. Leaves are also used for dyeing.

**Lipids:** Seed kernel has a high oil content (37.75%); it is used for paints, varnishes and printing and engraving inks.

**Alcohol:** The fruits are made into an intoxicating liquor.

**Medicine:** A hot fomentation of the bark is used in the treatment of pneumonia. A leaf decoction is either drunk or used in a bath as a fever remedy. Crushed or pulped leaves are used in a dressing for fractures or dislocations, and for wounds, sores and cuts.

**Other products:** After being stripped, the twigs can be used as a toothbrush.

**SERVICES**

**Shade or shelter:** *P. curatellifolia* is a neat, compact shade tree for the average garden.

**Soil improver:** The high content of cellulose limits the use of the oil cake. However, it could be used as manure.

**Ornamental:** A good tree to grow in orchards or in homegardens.

**TREE MANAGEMENT**

Transplanted into the field or garden after 2 years; care needs to be taken when transferring the seedlings because the taproot damages easily; young plants can be planted in groups of 10 or more, as they occur in nature, and must be watered until they are established; plants grow quite fast; coppice shoots are produced on felled trees. *P. curatellifolia* does not have an invasive root system, and root suckers are produced after root wounding.

**GERMPLASM MANAGEMENT**

Seed storage behaviour is orthodox; viability can be retained for over 2 years. There are 250-350 seeds/kg.

**PESTS AND DISEASES**

Infestation by weevil larvae in stones of *P. curatellifolia* destroys the seed and induces premature leaf fall. The larvae of the striped policeman butterfly (*Coeliades forestan*) use this as a food plant.

**FURTHER READNG**

- 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.
- Drummond BR. 1981. Common trees of the Central Watershed Woodlands of Zimbabwe. National Resources Board.
- Eggeling. 1940. Indigenous trees of Uganda. Govt. of Uganda.
- FAO. 1982. Fruit-bearing forest trees: technical notes. FAO-Forestry-Paper. No. 34. 177 pp.
- FAO. 1983. Food and fruit bearing forest species. 1: Examples from Eastern Africa. FAO Forestry Paper. 44/1. Rome.
- 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.
- 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).
- Storrs AEG. 1995. Know your trees: some common trees found in Zambia. Regional Soil Conservation Unit (RSCU).
- Venter F, Venter J-A. 1996. Making the most of Indigenous trees. Briza Publications.
- White F, Verdcourt B. 1996. Ebenaceae. In: Flora of tropical East Africa. A. A. Balkema.
- 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>)