

**LOCAL NAMES**

English (bitter bush mango)

**BOTANIC DESCRIPTION**

*Irvingia wombolu* is a tree to 25-30 m tall, buttressed up to 2 m. The stem is often leaning and glabrous. The first branches are usually at a height of 7-10 m. Foliage regular, not as dense as in the *Irvingia gabonensis*.

Leaves simple, alternate, entire, obovate, and less leathery, length 10.5-14 cm, width 4-8.5 cm, leaf apex rounded, often with a barely distinct blunt acumen, base obtuse to acute, occasionally very shortly cuneate. Leaf stipules leave an annular scar around the stem when they fall off.

Fruit with green skin which may turn yellow on ripening. Flesh of fruit yellow, soft, juicy and fibrous, extremely bitter and inedible. When the flesh rots away the fruit the shell may have some curly fibres attached to it. The shell wall is less than 7 mm thick and is easy to break open using a wooden club or a stone.

This tree closely resembles *Irvingia gabonensis*, genetic data indicates significant differences between the two, supporting (Harris 1996) conclusion that the taxa are distinct genetic entities.

The genus name commemorates E.G. Irving, 1816-1855, a Scottish botanist.

**BIOLOGY**

*I. wombolu* flowers at the end of the rainy season (October-November), but depending on conditions, flowering time overlaps in some years and regions. Fruiting is at the end of the dry season (February-April). The flowers, appearing 6-10 years after planting, are insect pollinated. There is no evidence of hybridization with the closely related *I. gabonensis*. There is a decrease in genetic similarity over distance. Results from RAPD analysis indicate marked (similarity estimates) differences between Cameroonian and Nigerian material. Southern Nigeria and southern Cameroon material harbour rare alleles and significantly high levels of genetic diversity. Fruits passed out in elephant dung show successful germination. Red forest pigs and squirrels open the pyrenes eating the seeds only.

**ECOLOGY**

The bitter bush mango shows a wider rainfall regime tolerance than the other Irvingia species. It occurs in dry land forest in areas with more than 1 500 mm rainfall across the southern half of the Central African Republic from Cameroon in the west to Sudan in the east. In some localities it is common in swamps and seasonally flooded forest than in adjacent dry land forest.

**BIOPHYSICAL LIMITS**

Mean annual rainfall: 1 500-2 500 mm

Soil type: Prefers dry or seasonally flooded soils.

**DOCUMENTED SPECIES DISTRIBUTION**

Native: Angola, Cameroon, Congo, Cote d'Ivoire, Democratic Republic of Congo, Ghana, Guinea, Liberia, Nigeria, Senegal, Sierra Leone, Sudan, 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.

**PRODUCTS**

Food: The seeds are collected and their cotyledons grilled or dried in the sun, pounded then used in preparation of a local dish 'gumbo'. The mesocarp is inedible. *I. wombolu* seeds give a more mucilaginous texture to food, this attribute makes the seeds command a higher market price. Overcooking causes the loss of sliminess. The sauce keeps for several days without refrigeration. The dried kernel can be stored for up to a year, as can the paste if it is thoroughly dried in the sun.

Apiculture: Insects visit the flowers for pollen.

Medicine: The fresh bark of the tree is considered to be a powerful antibiotic against scabies, a cure for diarrhoea when mixed with palm oil and a toothache remedy.

**SERVICES**

Shade or shelter: The bitter bush mango provides adequate shade.

Intercropping: *I. wombolu* has high agroforestry potential. In its native range it is found cultivated with other crops in farm systems.

**TREE MANAGEMENT**

The members of the genus *Irvingia* are fire tender.

**GERMPLASM MANAGEMENT**

Germination is epigeous and phanercotylar, beginning at about 1 month and occurring faster under the mother tree. The seeds of *I. wombolu* are recalcitrant and should be sown fresh.

**FURTHER READNG**

Harris D. 1994. Taxonomy and use of the genus *Irvingia* in Africa, In *Bush Mango, (Irvingia gabonensis) and close relatives*, Ladipo DO, Boland DJ. (Eds.) *Proceedings of a West African pre-germplasm collection workshop held in Ibadan, Nigeria*.

Harris D. 1996. A revision of the Irvingiaceae in Africa. *Bulletin du Jardin Botanique de Belgique*. 65: 143-196.

Harris DJ. 1993. A taxonomic revision and ethnobotanical survey of the Irvingiaceae in Africa. A thesis submitted for the degree of Doctor of Philosophy to the University of Oxford.

Lodoen D. 1998. Bush mango: propagating a high-value tree in Cameroon. *Agroforestry Today*. 10(4): 5-6.

Lowe AJ et al. (unpubl.). Conservation genetics of bush mango from central/west Africa. implications from RAPD analysis.

Whitmore TC (ed). 1983. *Tree Flora of Malaya: A manual for Foresters*. Vol. 2. Forest Department, Ministry of Primary Industries. Malaysia.

**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/>)