

## Trichilia emetica

mafura nut

### LOCAL NAMES

Afrikaans (basteressenhout, rooi-essenhout); Amharic (mahogani); Arabic (umshara, um hagi, safsafa); Bemba (mushikishi); Bislama (kota); English (Natal mahogany, woodland mahogany, christmas bells, red ash, thunder tree, Cape mahogany); Hausa (jan saiwa); Lozi (musikili); Nyanja (msikizi); Portuguese (m'chekeri, mafurreia); Somali (gor-mas); Swahili (mafura, mkungwina, mnwamaji, mtimai, mtimaji, musikili, muwamaji); Tigrigna (gumeh); Tongan (musikili); Trade name (mafura nut); Tswana (mosikiri); Yoruba (ashapa); Zulu (iGwolo, uMathunzini, umKhuhlu)

### BOTANIC DESCRIPTION

*Trichilia emetica* is an evergreen tree, usually up to 21 m tall but occasionally reaching 30 m, trunk swollen at the base, sometimes becoming fluted with age. Bark grey-brown or red-brown with fine, shallow striations and smallish scales. Branches erect or partly spreading, producing a pyramid-shaped crown when young, oval to rounded and dense when mature with a diameter sometimes exceeding 15 m. The tree has a non-aggressive root system.

Leaves up to 50 cm long, unevenly compound with 3-5 pairs of leaflets plus a terminal one, dark green and glossy above, covered with short brownish hairs below, margins entire, veins prominent on lower surface.

Flowers creamy to pale yellow-green, produced on short, congested axillary panicles, fragrant, with 5 thick petals, about 2 cm, surrounding a hairy centre of stamens.

Fruit rounded, furry, red-brown capsules to 3 cm across, split into 3 or 4 parts to reveal 3-6 shiny black seeds 14-18 mm in length, each with a fleshy scarlet or orange-red aril almost covering the seed. A clear neck to 1 cm long connects the capsule to the fruit stalk.

The name 'Trichilia' is Greek for 'in 3 parts', referring to the 3-lobed fruit, and 'emetica' means with emetic properties.

### BIOLOGY

Seeds are too heavy to be spread by wind, and they fall to the ground; no animal or bird is known to disperse them. In South Africa, flowering occurs from August to November and fruiting from December to April.

Vahl

Meliaceae



*Trichilia emetica* slash (Joris de Wolf, Patrick Van Damme, Diego Van Meersschaut)



*Trichilia emetica* foliage (Joris de Wolf, Patrick Van Damme, Diego Van Meersschaut)



(Joris de Wolf, Patrick Van Damme, Diego Van Meersschaut)

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### ECOLOGY

*T. emetica* is locally frequent in riparian forest and in some types of munga woodland, and can be found occasionally in swamp forest, montane forest, savannah or alluvial lowland rainforest and escarpment miombo. It is regarded as an indicator of areas with palatable grass species. It grows naturally through sub-Saharan Africa from Senegal to the Red Sea, throughout East and Central Africa to Congo and South Africa.

### BIOPHYSICAL LIMITS

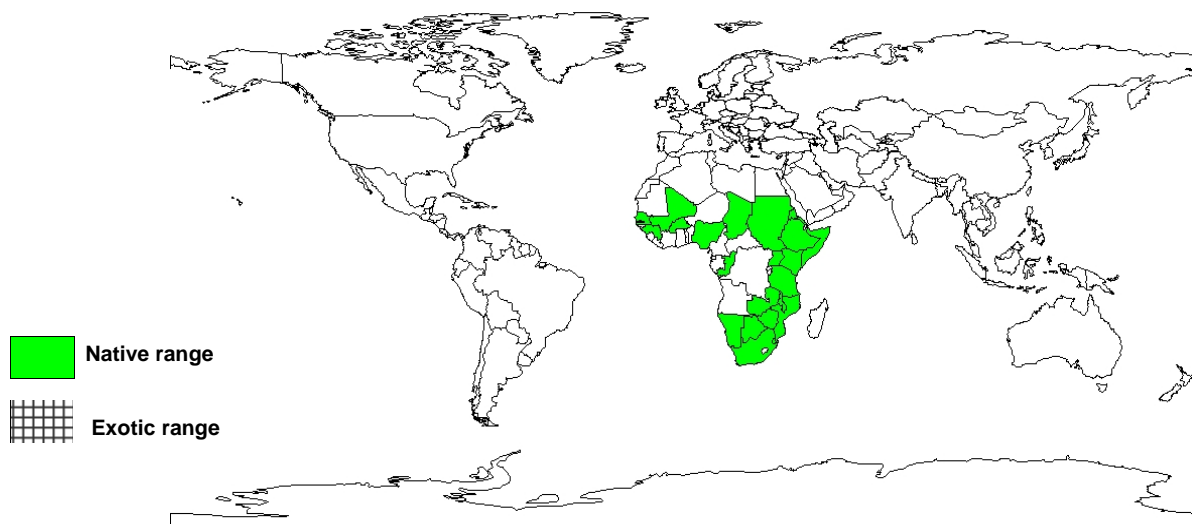
Altitude: 0-1300 m, Mean annual temperature: 19-31 deg. C, Mean annual rainfall: 600-2300 mm

Soil type: Prefers well-drained, rich alluvial or sandy soil and a high water table.

### DOCUMENTED SPECIES DISTRIBUTION

Native: Botswana, Burkina Faso, Chad, Congo, Eritrea, Ethiopia, Guinea, Guinea-Bissau, Kenya, Malawi, Mali, Mozambique, Namibia, Nigeria, Senegal, Somalia, South Africa, Sudan, Swaziland, Tanzania, Uganda, Yemen, Republic of, Zambia, Zimbabwe

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:** A sweet, milky, potable liquid is extracted from the arils. The skinned seeds are also edible and are eaten raw or soaked in water and ground, the resultant liquid mixed with spinach dishes.

**Fodder:** Domestic animals feed on its leaves.

**Apiculture:** The tree is occasionally used for bee forage. Sunbirds visit the nectar-rich flowers.

**Fuel:** A fuelwood species, *T. emetica* is commonly used for firewood.

**Timber:** Wood is soft yet firm and works well. There is no real distinction between sapwood and heartwood, usually pinkish in colour and light (560-597 kg/m<sup>3</sup>), vulnerable to borers and should be treated accordingly. The wood produces beautiful furniture, which darkens with the application of furniture oil. It is also good quality for shelving, and is popular for carvings, musical instruments and various household articles. Trees with long, straight trunks are cut and used for dugout canoes. Owing to its flexibility and good turning properties, it is also good for tool handles and spears.

**Lipids:** *Trichilia* oil produces a good finish on wood surfaces and could compete successfully with other commercial wood oils. The seed contains high oil concentrations as most oil-rich dicotyledonous seeds. Fresh seed yield approximately 64.7 ml oil/kg, using a simple ram press (yield from the whole seed is 58-68%, the seed coat contains 14-51%, and the kernel 68% oil).

**Wax:** Seed oil (mafurra or mafurreira tallow) is used for candle making.

**Poison:** The seed coat is extremely poisonous.

**Medicine:** The leaves can be used as an antidote for the irritation caused by the buffalo bean, whilst the bark is used in the treatment of skin complaints. Pieces of bark or powdered bark are soaked in warm water and used as an emetic or enema. Roots and the oil from the seed also have medicinal qualities; a bitter-tasting medicinal oil, obtained by boiling the ground seed in water, is taken orally to relieve rheumatism.

**Other products:** The kernels and husks of the nut produce a very good soap-making oil, which is sometimes used as a cosmetic and can also be used for preserving foodstuffs. For example, in eastern and southern Africa, oil is extracted on a small industrial scale and used in soap manufacture. The leaves have some soapy properties as well. Seed used to be exported from Mozambique under the name 'mafura' or 'mafurreira nut'.

**SERVICES**

**Erosion control:** Planting *T. emetica* greatly assists in soil conservation.

**Shade or shelter:** A worthwhile tree to provide shade and protection for livestock, and an excellent tree for the garden with its fast growth and wide crown. Widely planted as a windbreak in urban and rural areas.

**Soil improver:** The pressed seedcake left after oil has been extracted, with an approximate protein content of 16%, is suitable as a fertilizer.

**Ornamental:** *T. emetica* has been widely planted as a street or garden tree. Ideal for car-parking areas as it never grows very high and has an evergreen, spreading crown.

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Meliaceae

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### **TREE MANAGEMENT**

*T. emetica* is a fast-growing species; up to 1 m/year in colder areas and 2 m in warmer areas. It should be planted in groups near water in shade or full sun. Not resistant to frost and is therefore more suited to warmer areas, but can survive long periods of drought.

### **GERMPLASM MANAGEMENT**

Seed storage behaviour is recalcitrant; seeds are sensitive to desiccation and cannot be stored because they lose viability within a short time. There are approximately 200-300 seeds/kg.

### **PESTS AND DISEASES**

The pink-grey-brown timber is very susceptible to insect attack. The larvae of the whitebarred charaxes butterfly (*Charaxes brutus natalensis*) feed on the leaves of the tree.

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