



Trees For Tummy: 7 Useful Tanzanian Plants - Jan J. de Boer – October 2009

## 7 Useful Tanzanian Plants

The mini-posters present 7 Useful Tanzanian Plants, which grow as wild plants, but are known to be eaten by Tanzanians.

From these plants the best items should be selected from the wild, propagated and brought to the homes of the people.

There, they can be domesticated and grown as crops.

All of these useful plants bear great potential as healthy and tasty foods and possess the capability of evolving into successful market crops.

The 7 Plants are:

- *Garcinia livingstonei*
- *Parinari curatellifolia*
- *Sclerocarya birrea*
- *Strychnos spinosa*
- *Tylosema fassoglense*
- *Uapaca kirkiana*
- *Vatovaea pseudolablab*





Garcinia livingstonei



# Garcinia livingstonei

## Name

African mangosteen (E), Imbe, Himbi (S), Munhinzwa (S), livingstonei: named after the legendary Scottish explorer David Livingstone (1813-1873).

## Description

*Garcinia livingstonei* is a small tree reaching 18 m in East Africa, pyramidal when young but later spreading, with thick, woody young branches and yellow to red resin. Leaves usually 3 in a whorl, variable in shape but usually egg- or lance-shaped. Flowers in groups of 5-15 in leaf axils on old wood, greenish, whitish or yellow, scented, male and bisexual flowers of different structure. Fruit an orange berry, 10-40 mm in diameter, with yellowish orange, sticky juice.

## Distribution and habitat

The African mangosteen is widespread in the warmer parts of Africa, from just north of Durban as far as Somalia and Guinea. In this range it encounters widely varying rainfall (from about 200 to 1000 mm a year) and soil types. These trees are notably sensitive to cold, though quite hardy to both drought and heavy rain.

## Uses and cultural aspects

Mangosteens are known for their delicious fruits, and the African mangosteen is no exception to this. Despite the sticky yellow juice, the fruits of this tree are well worth seeking out. The tree is used in traditional medicine, and in particular the powdered root is used as an aphrodisiac. Fruits are about two inches across, bright orange in color with a thin skin and usually two large seeds. A layer of orange pulp surrounds the seeds and tastes somewhat like apricots. Besides fresh eating the pulp makes an excellent jelly or jam and can be used for fruit leathers, milkshakes and ice cream.

## Growing *Garcinia livingstonei*

Trees are easily propagated by seed, but because of the slow growth often are less than a foot high even after one year's growth. It usually takes five to six years to reach fruiting age. There are no named varieties or selections available at local nurseries. Superior varieties can be grafted onto seedling rootstocks and this method can be used to get earlier fruiting. Once it is established, the African mangosteen will need almost no maintenance. Established trees are considered drought-tolerant, but for optimum fruit production some irrigation may be necessary during the spring dry season. A traditional food plant in Africa, this little-known fruit has potential to improve nutrition, boost food security, foster rural development and support sustainable land care.

Both a male and female plant are needed in order to obtain fruit, although both sexes can be grafted onto the same plant to achieve the same effect.



# Parinari curatellifolia



# Parinari curatellifolia

## Name

Mobola plum (Eng.); Grysappel (Afrikaans); Mbula (Kinyamwezi, Kibende, Kizaramo); Munanzi (Kihaya); Mbura (Kiswahili).

## Description

The Mobola is an evergreen spreading tree, 10-13 m high, although heights of 23-26 m have been recorded in certain regions. The sweetly scented inflorescences are usually visible from July to November. The fruit is a drupe, and is yellow-orange with grey speckles when ripe.

These plum-like fruits are  $\pm$  50 mm long with a yellow edible flesh. The fruits taste pleasant when completely ripe and tend to ripen on the ground in the months of October to January.

## Distribution and habitat

*Parinari curatellifolia* is very widespread, ranging from South Africa into central Africa. It grows singly but usually when one is found, it is not uncommon to find others occurring nearby. It is found in Uganda in grasslands, as well as on the western shores of Lake Victoria occurring at 1 000-1 300 m. This tree occurs primarily on well-drained, fairly sour and sandy soils.

## Uses

A traditional food plant in Africa, this little-known fruit has potential to improve nutrition, boost food security, foster rural development and support sustainable land care. The fruit, which appears early in the dry season can be harvested over 3 or more months and 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 also make a passable substitute for almonds.

## Growing Mobola

The species regenerates naturally from seed, coppice and suckers; most of the trees and young regeneration seen in the field originate from root suckers.

Fresh seeds should be collected from the trees. The seeds of Mobola rarely germinate artificially even with pre-treatment, due most likely to its hard seed coat. If immersed in boiling water for 15 minutes, allowed to cool and then soaked for 24 hours the seed could still take up to 6 months to germinate.

Potted stock raised in the nursery could be planted in the field where partial clearing has been carried out. Regeneration inducement from root suckers could be a feasible technique in areas where the species is semi-cultivated on farmland.



# Sclerocarya birrea



# Sclerocarya birrea

## Name

Boran (Kenya) - didissa; English - marula, Maasai (Kenya) - ol-mangwai; Meru (Kenya) - mura; Swahili – mngongo, mufuna, mupfura, mushomo.

## Description

Marula is a large dioecious deciduous tree. The tree is highly prized by local people for its fruits. Female trees bear plum-sized stone fruits with a thick yellow peel and a translucent, white, highly aromatic, sweet-sour flesh which is eaten fresh, or used to prepare juices and alcoholic beverages. The seeds inside the stone are also eaten they have a delicate nutty taste and a high nutritive value and high (up to 56%) oil content.

## Distribution and Habitat

The marula is widespread in Africa from Ethiopia in the north to KwaZulu-Natal in the south. It occurs naturally in various types of woodland, on sandy soil or occasionally sandy loam.

## Ecology

Insects pollinate the flowers. Elephants, antelope, giraffe, zebra and many others browse the leaves. The tree bears a wealth of fruit for other living organisms, including humans.

## Economic Value

The wood is used for furniture, panelling, flooring, carvings and household utensils like spoons. Boats are also made from the trunk. Red-brown dye can be produced from the fresh skin of the bark. The gum, which is rich in tannin, is mixed with soot and used as ink.

The fruit is edible, eaten either fresh or made into a delicious jelly. It also makes alcoholic beer known as Mukumbi by the Vhavenda people. A marula liqueur is available commercially. The white nut is highly nutritious and is eaten as it is or mixed with vegetables. Fruit-farming communities prefer planting a couple of these trees to attract pollinators to their farm in early spring.

The Marula has huge potential as a commercial fruit and besides being grown commercially in Southern Africa, it has been experimentally planted in the Negev Desert of Israel.

## Growing *Sclerocarya birrea*

This tree grows easily from seed sown in washed river sand in spring. It can also grow from a truncheon planted in the early spring. It is fast-growing, with a growth rate of up to 1.5 m per year.



Strychnos spinosa





# Strychnos spinosa

## Name

Mutamba-mun'ono (S) Spiny monkey-orange (E) Umhahli (N) Umngono (N).

## Description

Small to medium sized, spiny deciduous tree with leaves turning yellow in autumn. Produces small greenish-white flowers in dense heads at the ends of branches (Sep-Feb/Spring - Summer). It produces juicy, sweet-sour, yellow fruits, containing numerous hard brown seeds. The fruits tend to appear only after good rains. The smooth, hard fruits are large and green, ripening to yellow. They take a long time to ripen.

## Distribution

*Strychnos spinosa* is a tree indigenous to tropical and subtropical Africa. It can be found growing singly in well-drained soils. Occurs in savannah forests all over tropical Africa and grows in open woodland and riverine fringes. Native in Ethiopia, Kenya, Madagascar, Mali, Mauritius, Seychelles, Sudan, Tanzania, Uganda, Zambia.

## Uses and cultural aspects

A traditional food plant in Africa, this little-known fruit has potential to improve nutrition, boost food security, foster rural development and support sustainable land care. The species has recently been introduced into Israel as a potential new commercial crop.

The fruit may be used as a supplementary source of food by rural people during times of shortage.

The fruit is often sun dried as a food preserve. The seeds must be avoided though as they are poisonous or could have purgative effects. The dried fruits, after the seeds are removed, are often used as sounding-boxes for musical instruments such as the marimba. They are also carved and sold as curios.

## Propagation and management

Natural and artificial regeneration by seedlings, root suckers and coppice. Seeds are soaked in hot water or the hard coat is burned to facilitate germination.

There are about 1800 seeds/kg.

*S. spinosa* roots are pruned to produce root suckers. This tree prefers sandy soils and can also grow in rocky areas. It should be planted in full sun, but can tolerate some shade.

It grows relatively fast from seed and does well in cultivation.

No significant damage by any pest organisms has been documented.



Tylosema fassoglense



# Tylosema fassoglense

## Names

Creeping bauhinia (E) Gwangwandiza (S) Marama bean (E) Mubopo (S)  
Mudamura (S) Mutukutupasi (S) Tamani berry (E) Umbama (N) Umdabule (N)

## The Plant

Large creeper, which sometimes scrambles over other vegetation. The radiating stems reach up to 6 m long and grow from a large underground tuber.

Flowering time: September-October

## Uses

The seeds of *Tylosema fassoglense* are frequently eaten, for instance in DR Congo, Ethiopia, Tanzania, Malawi and South Africa. Immature and mature seeds can be eaten raw, but they are usually cooked or roasted. The pods are also eaten raw or cooked. The seeds are a coffee substitute.

## Properties

The composition of seeds of *Tylosema fassoglense* per 100 g edible portion is:

Water	7.5 g
Energy	1888 kJ (451 kcal)
Protein	43.5 g
Fat	32.6 g
Carbohydrate	14.6 g
Fibre	4.2 g
Ca	80 mg
P	200 mg
Fe	40 mg



*Tylosema fassoglense* occurs up to 2100 m altitude in woodland and grassland, sometimes in cultivated areas. It grows well on poor, sandy soils, but is also found on rocky or clay soils. It is moderately tolerant to flooding and drought.

*Tylosema fassoglense* is collected from the wild. Fresh tuber weights up to 78 kg have been recorded. To prepare porridge from the tuber, it is scraped clean, then grated, crushed or pounded, and ground into a fine meal which is cooked.

*Tylosema fassoglense* has interesting properties, such as tolerance of low soil fertility and drought, seeds with high levels of protein and fat, and tuberous roots storing water. Therefore, research into the potential of this plant and its possible cultivation is certainly justified.



Uapaca kirkiana



# Uapaca kirkiana

## Name

Mahobohobo (E) Mushuku (S) Mutongoro (S) Muzhanje (S) Umhobohobo (N)

## Description

*Uapaca kirkiana* or sugar plum is a species of in the Phyllanthaceae family. This is one of the most popular wild fruits in the zone where eastern Africa meets southern Africa. Small evergreen tree with large, brittle, ovate leaves. Flowers unisexual, often, but not always, sexes on different trees. Fruits orange-yellow. Reportedly, certain trees have exceptionally sweet fruits. Still a traditional food plant in Africa, this little-known fruit has the potential to improve nutrition, boost food security, foster rural development and support sustainable land care.

## Distribution

The tree is found in lowland forest, secondary Miombo woodland such as clearings and gaps, open woodland, and amongst rocks at medium altitudes with good rainfall.

## Uses

*U. kirkiana* is highly regarded for its fruit. The ripe edible part is especially high in vitamin C (1.8 mg per g of pulp)—higher even than guava. Trees are generally retained for the fruit, which are eaten by children and adults. It is an important famine food in the drier areas of Tanzania. There is considerable potential for domestication of this species considering its popularity with farmers. Flowers are valuable for honey production. The wood is fairly durable, straight-grained with white sap wood and red-brown figured heartwood. It is termite resistant.

## Growing Uapaca kirkiana

These valuable trees could be useful components of several cultivation systems, including backyard gardens, as well as in agroforestry operations. They are ideal tools for projects proposing to protect soil and/or conserve habitats and native biodiversity. They are promising for food security and poverty reduction enterprises. They seem suitable for public health initiatives aimed at balancing diets and reducing malnutrition.

## Propagation

Seed, cuttings, wildlings, root suckers, and coppice. Natural regeneration may be the most reliable method. Pretreatment of the seed is not necessary. Seed does not store well.

Seed does not remain viable long so it must be sown fresh. Germination is good and natural regeneration is adequate.



*Vatovaea pseudolablab*



## Vatovaea pseudolablab

### Local name(s)

Kullayya (Konsogna)



### General description

A deciduous climbing leguminous plant often found covering shrubs in dry country. The stems are greenish purple. The roots are long, some horizontal, swollen in some parts, juicy and fibrous. The leaves have three leaflets and the flowers are purple to blue and green in colour. The fruits are a softly hairy, slightly curved pod with up to 6 seeds that are usually greyish black when dry. The plant has been semi-domesticated by Konso-farmers who keep them in their fields intercropped with other edible food plants.

### Edible part(s), preparation methods and palatability

Tubers are edible and seem to be similar to cassava. The tubers can either be consumed raw or boiled in water after having removed the skin. Tubers have a pleasant taste even when eaten raw. Also the seeds can be consumed either raw or cooked. Immature pods, flowers and leaves can be cooked and consumed like a vegetable. Out of the roots flour can be produced by peeling the tuber, chopping them up, drying and grinding them. This flour is then normally mixed with sorghum flour and used to prepare stiff porridge. It is normally stored and used in lean periods.

### Agroecology

*V. pseudolablab* is found in Ethiopia, Kenya, Uganda, Tanzania, Sudan, and Somalia. The species commonly grows along dry watercourses in dry bushland in loose red soil or sandy clay in lowlands and midlands (450 - 1,400m).

### Propagation method(s)

By seeds.

### Remarks

Root fibres can be used to make ropes or for making hats and fly whisks. In the opinion of people who know these plants, the potential available in this species is eminently worthy of exploitation.

The species is found wild in the dry parts of Tanzania, Kenya, Ethiopia, Uganda, Sudan, Somali, Yemen and Oman. People commonly collect the species from the wild but it is barely cultivated. It is now becoming rare in the Arabian Peninsula and becoming scarcer in East Africa because it is a favourite of people and livestock alike. If no action is taken, the genetic pool of this valuable species is likely to shrink fast.