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Schinziophyton rautanenii (Schinz) Radcl.-Sm.

Taxonomy and nomenclature

Family: Euphorbiaceae
Synonyms: *Ricinodendron rautanenii* Schinz; *Ricinodendron viticoides* Mildbr.
Vernacular/common names: featherweight tree, manketti, mankettiboom, mongongo nut, mugongo, wild akkerneut.

Distribution and habitat

Native to southern Africa where it is found between latitudes 5°S and 23°S. It is indigenous to Angola, Botswana, Democratic Republic of Congo, Malawi, Mozambique, Namibia, Transvaal in South Africa, Tanzania, Zambia and Zimbabwe. The species is mainly found as scattered trees or in small localized stands. It grows on wooded hills, in bush veld, on sandy ridge tops, sometimes on alluvial margins of major rivers and limestone outcrops. It needs well-drained soils and is not found on compacted clay soils or areas subject to flooding. It grows at altitudes ranging from 50-1500m with annual rainfall between 150-1000mm. It tolerates drought and light frost.

Uses

The pale yellow wood is very soft and light (210kg/m^3) but comparatively strong in relation to its weight and can be used as a substitute for balsa wood. It is used for floats, canoes, notice boards, boxes, tools and carvings but it is susceptible to insect and fungal attack (*Ceratocystis moniliformis*). Cuttings have been used in Angola for live fences and the tree has potential in desert encroachment prevention.
The fruit is eaten fresh, dried or cooked and is a stable food for the San Bushmen. Pulp beer and alcohol can be made from the fruit. It is a good source of carbohydrates, potassium and thiamine. The oil rich kernels (50-60%) are eaten roasted or fresh or the oil is extracted. The oil is used locally for cooking and commercially for soaps, cosmetics, paints and varnishes. The oil deteriorates rapidly, but nut and fruit can remain edible for up to 8 months.

Botanical description

Deciduous tree, up to 25m tall with a rounded or spreading crown. Trunk up to one metre in diameter. Bark is pale grey to light golden-brown, smooth first later becoming reticulate and flaky. Young branchlets, leaf buds and stalks have reddish brown furry hairs. The branches and stems exude a white gum. Leaves are compound with 5-7 large stalked leaflets. Flowers yellowish, about 1cm in diameter and gathered in loose sprays or panicled cymes, up to 12cm long. The species is dioecious, i.e. male and female flowers are on separate trees.

Tree habit. Hwange district, Zimbabwe.
Photo: C. Rønne

Fruit and seed description

Fruit: the fruit is an egg-shaped drupe. It is 3-5 x 2-3.5cm when dry, up to 7 x 5cm when fresh and weighing 8-10g. The fleshy pulp is covered by a thin and leathery skin. Inside the fruit is a single, very hard, woody stone with numerous small pits on the surface. The endocarp is 3-7mm thick. The stone contains 1, occasionally 2, kernels.
Seed: the kernel is compressed-ellipsoid, 1.8-2.5 x 1.6-2cm, covered by a 1 mm thick seed coat. The kernel is similar to that of a hazelnut in size and shape. There are normally around 80 seeds per kg, or TSW of 12.500g.

Flowering and fruiting habit

The trees flower from October to November, just before the summer rain, and set fruit from February and onwards. The trees bear fruit after 15-25 years but with irrigation they may start as early as after 4 years. The fruits begin to fall to the ground in April and May where they continue to ripen. The trees produce large quantities of fruits, especially after a good rain season. Elephants and other game eat and

disperse the seeds. The fruits are parasited by a moth larvae when lying on the ground.

Harvest

The seeds are mature when the fruits have turned brown and soft. They are shed while they are still green and are normally harvested from the ground. One has to be aware of the prevalence of empty seeds. If collecting seeds from the ground in the period from November to March the skin will have been eaten by insects, leaving the seeds clean.

Manketti nuts collected for oil pressing, Hwange district, Zimbabwe. Photo: C. Rønne

Processing and handling

The thick endocarp makes extraction of the kernels difficult. Extraction is normally done manually by using a stone or hammer or mechanically with simple machinery that still has to be developed to obtain better results.

Storage and viability

Seed is orthodox and should be stored at low moisture content in air-tight containers. Seeds remain viable for up to 2 years if stored at 10°C. In the seed bank at RBG Kew, seed has been stored for 6 years at -20°C, maintaining a viability of 80%.

Dormancy and pretreatment

A large number of the seeds remain dormant for a year or more.

The woody endocarp makes germination difficult and therefore needs to be removed or the end cut off to expose kernel before sowing. After shelling the seeds can be soaked in water for a week followed by storage under high temperature and humidity for two days in order to reach better germination. Alternatively, treatment of the kernels with either ethephon, ethylene or phosfonic acid can be done in order to speed up the germination process and rate.

Sowing and germination

Germination is erratic and takes place over an extended period. Without pretreatment a germination rate of 26% has been obtained. If the shell is removed prior to sowing and the kernel is treated with ethylene the germination rate can reach 80% or more within 6 days.

The rate of non-surviving seedlings is high but once a seedling has been established it needs little attention. The seeds should be sown in sandy soil in half shade and the temperature kept above 7 degrees. The seedlings very quickly develop deep roots.

Selected readings

Booth, F.E.M. and G.E. Wickens 1988. *Non-timber uses of selected arid zone trees and shrubs in Africa.* FAO conservation guide, Vol. 19. FAO, Rome.

ICRAF AgroForestryTree Database. *A tree species reference and selection guide. Schinziophyton rautanenii. http://www.worldagroforestry.org/sea/Products/AFDbases/AF/asp/SpeciesInfo.asp?SpID=17950.*

Graz, F.P. 2002. *Description and ecology of Schinziophyton rautanenii (Schinz) Radcl.-Sm in Namibia*. DINTERIA No. 27, pp. 19-35.

Palgrave, C.K. 1977. *Trees of Southern Africa.* Struik publishers, Cape Town, South Africa.

Radcliffe-Smith, A. 1996. *Euphorbiaceae. Flora Zambesiaca*. Vol. 9 part 4. 337p.

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