



Københavns Universitet

Dovyalis abyssinica (A. Rich) Warb

Kiamba, John K; Schmidt, Lars Holger; Mbora, Anna

Published in:
Seed Leaflet

Publication date:
2009

Document Version
Publisher's PDF, also known as Version of record

Citation for published version (APA):
Kiamba, J. K., Schmidt, L. H., & Mbora, A. (2009). *Dovyalis abyssinica* (A. Rich) Warb.



SEED LEAFLET

No. 144 October 2009



Dovyalis abyssinica (A. Rich) Warb

Taxonomy and nomenclature

Family: Flacourtiaceae

Synonym: *Aberia abyssinica* Clos

Vernacular/Common names

Mukambua, Ngambua (fruit) (Kamba), Mukambura, Ngambura (fruit), (Kikuyu), Akutho, Songola (Luo), Olmarogi, Olmorogi (Maasai).

Distribution and habitat

Dovyalis abyssinica is a shrubby tree occurring naturally from Ethiopia, Eritrea and Somalia in the north through Kenya and Tanzania to Malawi in the south. In Kenya it is found on Mt. Kulal, Nyambene Hills, Taita Hills, the central highlands, and Loita Hills highlands in Rift valley province. It is found up to 2,700 masl. It grows in upland rainforest, dry evergreen forest, on riverbanks and sometimes in more open woodland. Sometimes it is found as a remnant tree or shrub in coffee plantations. It is common on red soils.

Uses

The fruit is edible (eaten raw), but very acidic. It is used for making jam, and added to porridge as a flavouring. Roots and stem are good for making soup. The roots also have medical properties with alleged effect on gonorrhoea, bilharzias, stomach-ache and fever. The leaves provide fodder for livestock, primarily goats and sheep. Flowers attract bees and the plant is often used as a live fence.

Botanical description

Dovyalis abyssinica is a spiny evergreen shrub or tree, up to 5m height, with a rounded crown. The bark is ash grey, almost always supporting lichens. Branches armed with stout spines, up to 1½ cm long. The branchlets are covered with numerous dotted pores (lenticels). Leaves are oval to obovate, up to 5-7 cm long and 3 cm wide with a rounded tip, edges unevenly rounded. Shiny, dark green, with reddish stalks and veins. Flowers are unisexual, yellow-green or greenish without petals, 5-7 mm long. Female flowers single or in 2-3 flowered fascicles. Male flowers in clusters, with 40-60 stamens.



Photo: Paul Juma

Dovyalis abyssinica leaves and inflorescence (female flowers)

Fruit and Seed description

Fruit: The fruit is a round globose berry, about 2 cm diameter with persistent calyx, green and hairy when young turning smooth and orange-yellow at maturity. Pulp edible sweet-sour. 4-5 seeds.



Photo: J.K. Kiamba

Dovyalis abyssinica fruits

Seed: Light brown, laterally flat, disc-shaped, flat about 0.5 cm diameter, rough surface and soft seed coat. There are 30,000-40,000 seeds in a kilogramme; seed weight depends on provenance and the climatic conditions during the ripening period.



Dovyalis abyssinica seed

Flowering and fruiting habit

The tree is dioecious. The flowering season occurs during the beginning of the long rainy season between March and April while fruits mature between August and September. Pollination is by insects e.g. bees. Fruit development from pollination to maturity takes about 4 months.

Harvest

The mature yellow-orange fruits are collected by hand picking or shaking branches to release fruits.

Processing and handling

Ripe fruits can be squeezed by hand, otherwise fruits are rubbed gently on fine wire mesh/screen, then washed in running water to remove mucilage. Seeds are dried under controlled conditions.

Storage and viability

The seed exhibit orthodox to intermediate storage behaviour. Freshly extracted seeds often have a moisture content of up to 40-50 %. Seeds should be dried to moisture content of <10%. Initial drying under shade and regularly turning to avoid overheating. Dry seed

can be stored in airtight containers (plastic or glass jars, or aluminium packets) in a cool dry place for short to medium term storage. For long-term storage, e.g. conservation, seeds can be stored at sub-zero temperature for many years with no significant loss of viability.

Dormancy and pretreatment

Fruit pulp presumably has chemical inhibitors and thorough washing is recommended during processing in order to remove possible remnant inhibitors. The seed has a soft seed coat and therefore needs no pre-sowing treatment.

Sowing and germination

The seeds can be sown in seed beds or containers. Under optimal conditions they attain germination in 9-30 days. A test with fresh seed with moisture content of 53% showed 92% germination.

Selected readings

Beentje, H.J., 1994. *Kenya Trees, Shrubs and Lianas* pg105. National Museums of Kenya, Nairobi, Kenya. 722p.

IPGRI/DFSC, 1999. *The Project on handling and storage of recalcitrant and intermediate tropical forest tree seeds.* Danida Forest Seed Centre. Newsletter 5: 23-39.

ISTA, 1993. *International rules for seed testing.* Seed Sci. Technol. 21(Suppl.): 183.

Maundu, P., Ngugi, G.W. and Kabuye, C.H.S., 1999. *Traditional food plants of Kenya.* National Museums of Kenya. Nairobi, Kenya: 288 p.)

Sacandè, M.D. Jøker, D. and Thomsen, K.A., 2004. *Comparative Storage Biology of Tropical Trees.* International Plant Genetic Resources Institute, Rome, Italy.

This note was prepared in collaboration with the Kenya Forest Research Institute

Authors: John K. Kiamba, Lars Schmidt, Anna Mbora