

LOCAL NAMES

Afrikaans (enkeldoring-noemnoem); Amharic (agam); Arabic (emir); English (simple-spined carissa, simple spined num-num, Arabian num-num); Luganda (muyonza); Swahili (mtanda-mboo); Tigrigna (agam)

BOTANIC DESCRIPTION

Carissa edulis is a spiny, much branched, small tree, shrub or scrambler, up to 5 m in height, with a milky sap. Bark grey, smooth, young branchlets with or without hairs; spines simple, straight, 2-5 cm long, usually single.

Leaves ovate to ovate-elliptic, opposite, occasionally almost circular, 2.5-6 x 1.8-3 cm, leathery, dark green above, paler green below, with or without short, soft hairs; lateral veins obscure; apex tapering, often with a bristlelike tip; base rounded to shallowly lobed; margin entire; petiole 1-4 mm long.

Flowers white tinged with purple, red or pink, up to 1.8 cm long, about 2 cm in diameter, slender, tubular, with corolla lobes overlapping to the right, sweetly scented, in terminal heads about 4 cm in diameter.

Fruits ovoid to almost spherical, up to 1.1 cm in diameter, red-black, ripening to purplish black, containing 2-4 flat seeds.

C. edulis closely resembles *C. bispinosa*, the obvious feature separating them being that *C. edulis* has straight thorns and those of *C. bispinosa* are Y-shaped. The name *Carissa* is probably derived from the Sanskrit 'corissa', a name for one of the Indian species of the genus. The specific name, *edulis*, means edible.

BIOLOGY

In southern Africa, for example, flowering occurs from September to December and fruiting from November to January. Insects pollinate the bisexual flowers. Fruits are animal dispersed.



Carissa edulis Foliage (Bob Bailis)



Carissa edulis, showing ripe fruits and foliage (Patrick Maundu)



Carissa edulis in flower (Patrick Maundu)

ECOLOGY

C. edulis is found in Arabia and reaches through tropical Africa to the Transvaal, Botswana and north and northeast Namibia, in warm bushveld and scrub. In the Transvaal it occurs in the lowveld of the north and northwest. In Uganda it is usually found on termite mounds in wooded grassland, especially in low-lying areas associated with *Grewia similis* and also in thickets in woodlands, forest edges and secondary scrub. It prefers dryish conditions. It is a tree of deciduous forest and coastal thickets, extending across the region from Senegal to Cameroon and throughout the drier parts of tropical Africa and across Asia to Indo-China. It has been reported as a parasite of henna plants in northern Nigeria.

BIOPHYSICAL LIMITS

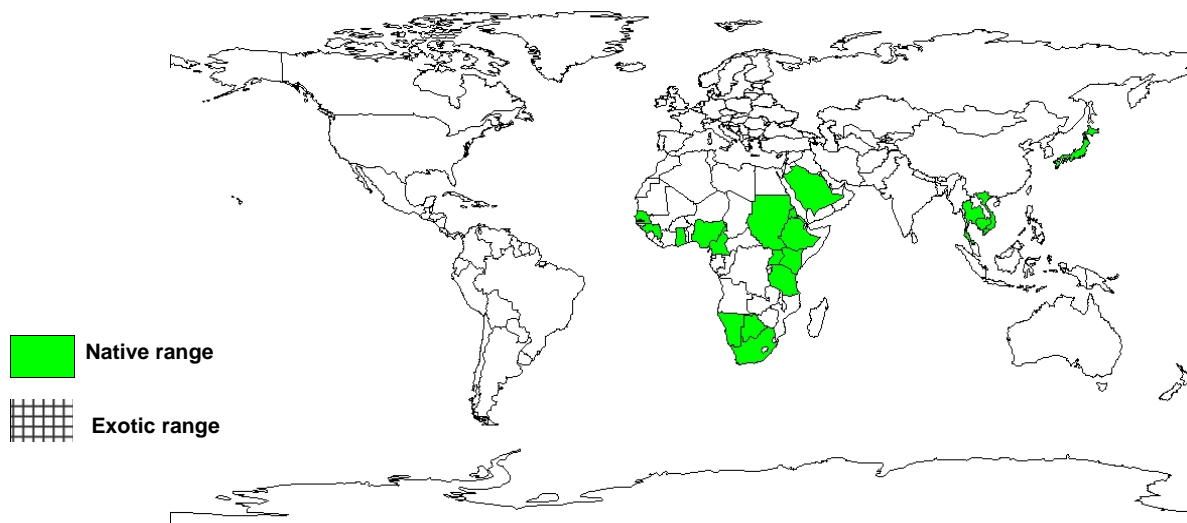
Altitude: 1 000-2 000 m, Mean annual rainfall: 1000-2100 mm, mean annual temperature: 19-30 deg.C

Soil type: Tolerates most soils including black cotton.

DOCUMENTED SPECIES DISTRIBUTION

Native: Botswana, Cambodia, Cameroon, Eritrea, Ethiopia, Ghana, Guinea, Japan, Kenya, Myanmar, Namibia, Nigeria, Saudi Arabia, Senegal, South Africa, Sudan, Tanzania, Thailand, Uganda, Vietnam, Yemen, Republic of

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: Fruits are sweet and pleasant to eat; in Ghana, they are normally added to the food of invalids as an appetizer. Vinegar can be made from them by fermentation; in Sudan and Kenya, they are made into a jam. The roots are put into water gourds to impart an agreeable taste and are added to soups and stews for the same reason.

Fodder: Goats and camels in the dry parts of Sudan browse on *C. edulis*.

Fuel: The species is a source of excellent firewood.

Poison: In Kenya, a piece of the root is fixed into a hut roof as a snake repellent.

Medicine: Roots contain an active ingredient, carissin, that may prove useful in the treatment of cancer. The twigs contain quebrachytol and cardioglycosides that are useful as an anthelmintic against tapeworm. In Guinea, the boiled leaves are applied as poultice to relieve toothache. Root bark is mixed with spices and used as an enema for lumbago and other pains in Ghana; root scrapings are used for glandular inflammation; ground-up roots are used as a remedy for venereal diseases, to restore virility, to treat gastric ulcers, cause abortion, and as an expectorant. An infusion of roots along with other medicinal plants is used for treating chest pains, and a root decoction is also used for treating malaria.

SERVICES

Ornamental: *C. edulis* is an attractive tree that is suitable for planting in amenity areas.

Boundary or barrier or support: The abundant branching habit and the presence of spines make the plant suitable for planting as a protective hedge.

TREE MANAGEMENT

The slow-growing trees respond well to pruning.

GERMPLASM MANAGEMENT

Seeds storage behaviour is orthodox, and their viability can be maintained for more than 12 months in dry air storage at 5 deg. C. There are about 28 000-30 000 seeds/kg.

FURTHER READNG

- Beentje HJ. 1994. Kenya trees, shrubs and lianas. National Museums of Kenya.
- Bein E. 1996. Useful trees and shrubs in Eritrea. Regional Soil Conservation Unit (RSCU), Nairobi, Kenya.
- Bekele-Tesemma A, Birnie A, Tengnas B. 1993. Useful trees and shrubs for Ethiopia. Regional Soil Conservation Unit (RSCU), Swedish International Development Authority (SIDA).
- Birnie A. 1997. What tree is that? A beginner's guide to 40 trees in Kenya. Jacaranda designs Ltd.
- Burkill HM. 1994. Useful plants of West Tropical Africa. Vol. 2. Families E-I. Royal Botanical Gardens, Kew.
- Coates-Palgrave K. 1988. Trees of southern Africa. C.S. Struik Publishers Cape Town.
- Dale IR, Greenway PJ. 1961. Kenya trees and shrubs. Buchanan's Kenya Estates Ltd.
- Hong TD, Linington S, Ellis RH. 1996. Seed storage behaviour: a compendium. Handbooks for Genebanks: No. 4. IPGRI.
- ICRAF. 1992. A selection of useful trees and shrubs for Kenya: Notes on their identification, propagation and management for use by farming and pastoral communities. ICRAF.
- Katende AB et al. 1995. Useful trees and shrubs for Uganda. Identification, Propagation and Management for Agricultural and Pastoral Communities. Regional Soil Conservation Unit (RSCU), Swedish International Development Authority (SIDA).
- Mbuya LP et al. 1994. Useful trees and shrubs for Tanzania: Identification, Propagation and Management for Agricultural and Pastoral Communities. Regional Soil Conservation Unit (RSCU), Swedish International Development Authority (SIDA).
- Noad T, Birnie A. 1989. Trees of Kenya. General Printers, Nairobi.
- Palmer E, Pitman N. 1972. Trees of Southern Africa Vol. 2. A.A. Balkema Cape Town.
- Venter F, Venter J-A. 1996. Making the most of Indigenous trees. Briza Publications.

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/>)