

Zizyphus spina-christi

(L.) Willd.

Rhamnaceae

LOCAL NAMES

Arabic (sidr,siddir,nubak,nabdag,nabbak,nabak,kurna); English (jujube,Christ thorn); French (epine du Christ)

BOTANIC DESCRIPTION

Zizyphus spina-christi is a shrub, sometimes a tall tree, reaching a height of 20 m and a diameter of 60 cm; bark light-grey, very cracked, scaly; trunk twisted; very branched, crown thick; shoots whitish, flexible, drooping; thorns in pairs, one straight, the other curved.

Leaves glabrous on upper surface, finely pubescent below, ovate-lanceolate or ellipsoid, apex acute or obtuse, margins almost entire, lateral veins conspicuous.

Flowers in cymes, subsessile, peduncle 1-3 mm.

Fruit about 1 cm in diameter.

There are 2 varieties: var. *spina-christi* is a tree with white branches, leaves larger, ovate-lanceolate with an acute or obtuse apex, 2.5-8.5 cm long and 1-3.5 cm wide, margins slightly crenate, 3 strong veins from the base, lateral veins inconspicuous; flowers many per cyme, peduncle up to 1.5 cm; fruit 2 cm in diameter; var. *microphylla* Hochst ex A. Rich. is a very bushy shrub, leaves are widely ellipsoid or ovate-ellipsoid, rounded at the tip, 1-3 cm long and just as wide, margins almost entire, basal veins not reaching the apex, 1-2 strong lateral veins on each side of the central vein; branches brown-reddish; fruits up to 1 cm in diameter.

The name 'Zizyphus' is often erroneously written as Zizyphus. The generic name is derived from the latinized version of the Arabic vernacular name 'zizouf' for *Z. jujuba*. The specific name is derived from its common name Christ thorn.



leaves (TopTropicals.com)



fruits (TopTropicals.com)



Fruits and flowers (TopTropicals.com)

ECOLOGY

Z. spina-christi is native to a vast area of Africa stretching from Mauritania through the Sahara and Sahelian zones of west Africa to the Red Sea. It is drought hardy, very resistant to heat and can be found in desert areas with even 100 mm rainfall annually. It prefers edges of ponds, river and wadi banks where groundwater is available. The tree is frost tender, can withstand water logging for up to 2 months and 8-10 months of dry season. It is an aggressive colonizer, forming spiny, impenetrable thickets.

BIOPHYSICAL LIMITS

Altitude: 0-2 000 m

Mean annual temperature: 19-28 deg C

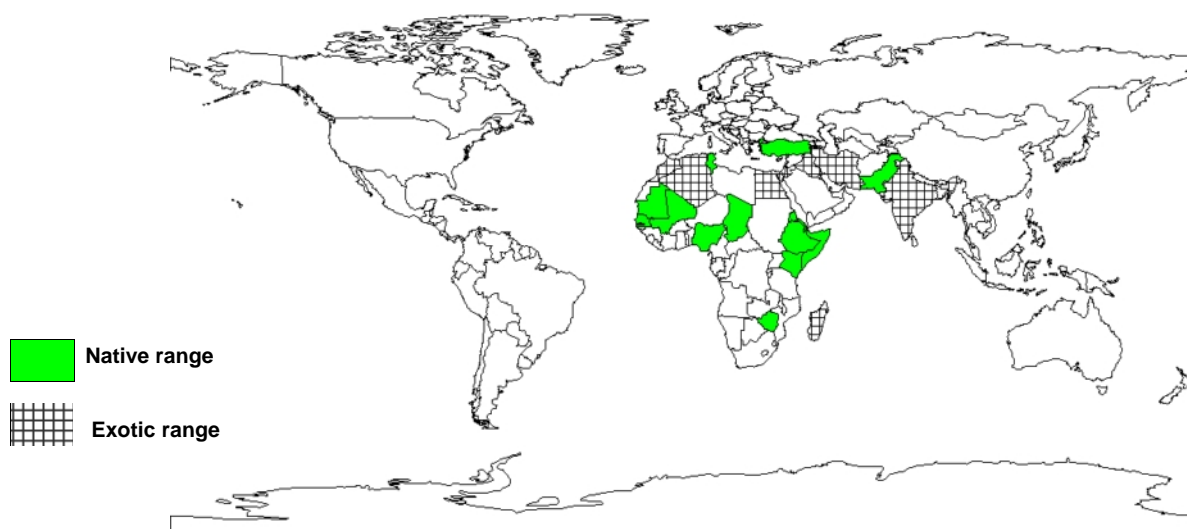
Mean annual rainfall: 100-500 mm

Soil type: *Z. spina-christi* prefers alluvial plains with deep soils but it can also grow on clay where water is available and saline soils.

DOCUMENTED SPECIES DISTRIBUTION

Native: Chad, Djibouti, Eritrea, Ethiopia, Kenya, Libyan Arab Jamahiriya, Mali, Mauritania, Nigeria, Pakistan, Senegal, Somalia, Tunisia, Turkey, Zimbabwe

Exotic: Algeria, Comoros, Egypt, India, Iran, Iraq, Israel, Jordan, Madagascar, Morocco, Netherlands, Saudi Arabia, Syrian Arab Republic, United Arab Emirates, Zanzibar



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: The fruit is edible and occasionally sweet, but the flavour and texture are inferior to other *Zizyphus* spp. which have been domesticated in Africa and especially in northern India. Average size is about 50 g, with a single large seed. The fruits contain 14.16% sugar and about 1.6% vitamin C.

Fodder: The leaves provide valuable animal forage and fodder under open grazing conditions, but the nutritional value is apparently not high for most domestic livestock.

The fruits are eaten by sheep and goats and the foliage by camels.

Fuel: Its wood yields an excellent charcoal, but given the current status of the species, and its slow growth rate, this usage is certainly to be discouraged.

Timber: The termite resistant red or dark brown wood is hard and heavy, used for spear shafts, posts, roofing beams, utensils and cabinet making.

Alcohol: An alcoholic drink is made from the fruits.

Medicine: The leaves contain various alkaloids, including ziziphine, jubanine and amphibine, alpha terpinol, linalol and diverse saponins. In the Sahel region, the roots are used to treat headaches, while the spines or ashes of this species are applied to snake bites. Boiled leaves are applied to various surface wounds, and also have antihelminthic and anti-diarrhetic properties. In Egypt and the southern Sahara, a narcotic beverage is made from the fruits and which is considered to be a tranquilliser and sedative. In Morocco, the fruits are used as an emollient and astringent agent. It also is reputed to reduce abscesses and boils while a cataplasm of young leaves is also used to reduce eye inflammations.

Poison: It has been reported that applying Christ thorn bark in larger doses reduces nematode activity in cereal fields and leads to significant increase in the yield of sunflowers (Ismail, 1998).

SERVICES

Erosion control: Because it develops a very deep taproot and spreading lateral roots, it is used for stabilizing sand dunes and other unstable soils.

Shade or shelter: Christ thorn is planted around towns and villages for shade. It makes useful windbreaks and shelterbelts.

Soil improver: The tree improves soil quality by increasing available Phosphorus.

Boundary or barrier or support: The thorny branches are used for fencing. It can also be grown to form a stock-proof living fence.

Intercropping: *Z. spina-christi* is intercropped with millet in West Africa.

TREE MANAGEMENT

The tree develops an extremely deep taproot and has extraordinary regenerative power. It is an aggressive colonizer, coppices well and is long lived, forming spiny, impenetrable thickets.

GERMPLASM MANAGEMENT

There are 15 000 seeds/kg. Seed storage behaviour is orthodox. Viability is maintained in hermitic air-dry storage and cool temperatures. The hard, woody shells of the seeds should be cracked with a hammer and the shelled seeds soaked overnight in lukewarm water or scarified in concentrated sulphuric acid for 2 hours then cold stratified before planting.

FURTHER READING

Baumer M. 1983. Notes on trees and shrubs in arid and semi-arid regions. Rome FAO. Forestry Division.

CABI. 2000. Global Forestry Compendium. CD-ROM. CABI

Ismail AE, 1998. Effect of soil amendments with some hardwood barks on reproduction of *Rotylenchulus reniformis* and growth of sunflower. *Pakistan Journal of Nematology*.16(2):137-144.

National Academy of Sciences. 1980. Firewood crops. National Academy Press. Washington D.C.

SUGGESTED CITATION

Orwa C, A Mutua, Kindt R , Jamnadass R, S Anthony. 2009 *Agroforestry Database: a tree reference and selection guide* version 4.0 (<http://www.worldagroforestry.org/sites/treedbs/treedatabases.asp>)