

**LOCAL NAMES**

Arabic (shagara al muknet, moheb, makhei, kursan, hemmet, bokkhelli); Bambara (bere); Bislama (hamta); Hausa (hansa, dilo, anza); Wolof (diendoum)

**BOTANIC DESCRIPTION**

*Boscia senegalensis* is an evergreen undershrub or more rarely a shrub, usually 1-2 m tall, but sometimes up to 4 m, particularly in good conditions; stem darkish.

Leaves of a greenish mat hue, coriaceous, spread or erect, elliptic, or ovate-elliptic, obtuse or mucronate, reaching 12 cm x 4 cm, with 5-6 lateral veins arranged in arcs ending at the tip of the following vein and linked together by a network of smaller veins producing a polygonal pattern on the lower side of the leaf. Veins protruding on the lower face; white veins very conspicuous on the upper side, contrasting with the green of the leaf blade.

Flowers have a tiny pedicel, they are hairy, greenish-white with four valvular, hairy sepals, no petals, 6-20 free stamens inserted at the base of a short gynophorum inside a thick disc sometimes somewhat fringed. Ovary ovoid with very short style and only one loculum with many ovules.

Fruit a spherical berry, 1.5 (1.2) cm in diameter, yellow when mature, shortly sessile, clustered in small bunches (with usually 2-3 fruits only). Slightly but not always hairy. The epicarp is crustaceous; the pulp is translucent, of jelly-like texture, slightly sweet but otherwise tasteless. It contains 1-2 (1-4) ventrally flattened seeds, greenish when mature.

**BIOLOGY**

The tree is evergreen and the young leaves start to grow before the rains. It flowers in the cool dry season (October to January) in most parts of its natural range and the fruits ripen at the beginning of the rainy season. The flowers have a sweet penetrating odour suggesting insect pollination.

**ECOLOGY**

*B. senegalensis* is often a common tree in open scrub or savanna woodland, but can also form a thick understorey in woodland and dry forest. It occurs in *Pteleopsis*, *Acacia-Ziziphus*, *Anogeissus* and *Acacia-commiphora* woodlands. This is a sahelo-saharan species which, in Mauritania and the Sudan, occurs below the 20th parallel, while its southern limit runs from Dakar to northern Burkina Faso, the Niger-Nigerian border, the southern bank of lake Chad and southern Kordofan. It may also exist in south-east Egypt. It is mainly found under rainfalls of 100-300 mm. The type *B. octandra* is reckoned to be more xerophytic and therefore better adapted to very arid sites.

**BIOPHYSICAL LIMITS**

Altitude: 60-1450 m

Mean annual temperature: 22-30 deg C.

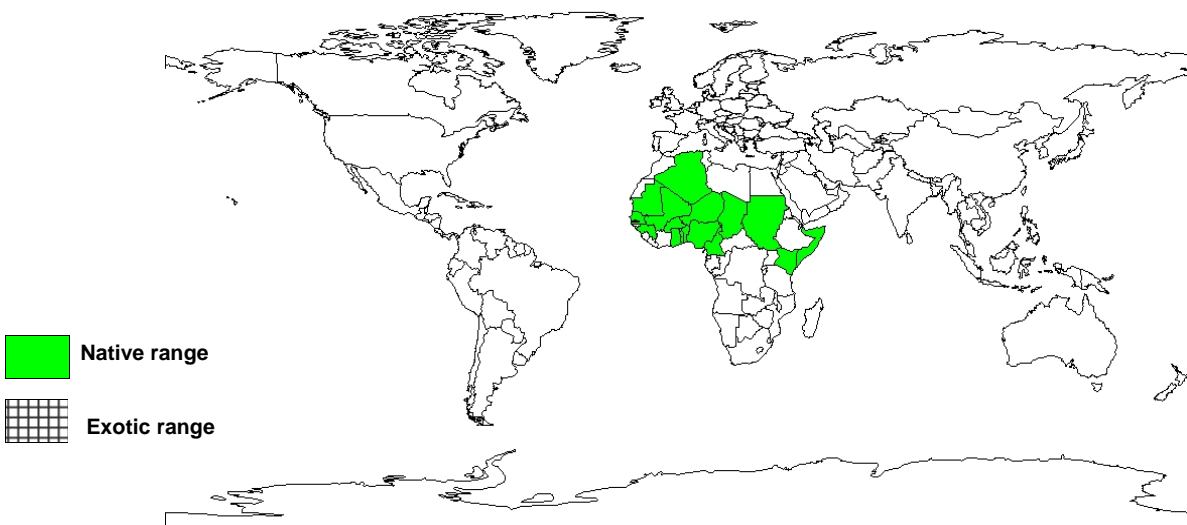
Mean annual rainfall: 100-500 mm

Soil type: It occupies the most arid sites and soils; rocky, lateritic, clay stony hills, stabilized sand dunes, sand-clay plains. It is also often found associated with termite mounds-very often on compact soils (more or less covered with sand vail) and in slight depressions where soils have been enriched with fine particles.

**DOCUMENTED SPECIES DISTRIBUTION**

Native: Algeria, Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Ghana, Guinea, Kenya, Mali, Mauritania, Niger, Nigeria, Senegal, Somalia, Sudan, Togo

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:** The fruit is often gathered for human consumption; usually very acid, it becomes edible after soaking in water for about a week. In the eastern Sudan for instance, men and women may spend up to 8 hours a day searching for *B. senegalensis*. The fruits are frequently sold in the markets for food. It is a regular item of diet in saharo-sahelian zone and sahel, further south, they are mainly supplementary, but their main value is as an emergency food. Seeds are a staple food of the Peuhls of Senegal, but also an important famine food.

**Fodder:** It is generally not valued for forage; but has potential if leaves could be debittered and prepared as a powder or granules and made appetizing to livestock. The leaves are little sought after by camels, at least in Niger and in the Sudan. Small livestock occasionally consume them during the bridging period.

**Fuel:** As firewood, it burns making much smoke.

**Timber:** Wood is soft and workable when boiled and in Mauritania, when large enough, is used in house construction.

**Alcohol:** The fruit is fermented into a beer in the Sudan.

**Poison:** The leaves are used to protect stored food against parasites in granary. Leafless twigs contain glucosinates, which can hydrolyze to mustard oils, which are highly toxic and irritant to mucous membranes.

**Medicine:** In Niger, an infusion of leaves is used to remove intestinal parasites from camels. Leaves contain the alkaloids L-stachydrine and hydroxy-3 stachydrine. Stachydrine affects aggregation of thrombocytes and shortens the bleeding time. Roots are vermifuge and leaves mixed with millet flour taken each morning on an empty stomach is anthelmintic; draught from leaves or dried bark taken for schistosomiasis. Infusion of the leaves used as an eyewash in Sudan and for pruritus of the eye due to syphilis in Senegal.

**Other products:** Bark, twigs, leaves and roots used as natural coagulants for water purification in the Sudan, Niger and Nigeria. Used as coagulants without agitation, clay settles to the bottom of vessels and clean water remains on the surface. For faster clarification, branches are twirled in the water.

**SERVICES**

**Boundary or barrier or support:** In some areas of the Sudan, the tree is being cut increasingly for dead hedging. It is however unsuitable for this purpose and live hedging using other species should be encouraged.

**Boscia senegalensis**

Pers.

Capparaceae

---

GERMPLASM MANAGEMENT

There are 2 500-3 500 seeds/kg.

**FURTHER READING**

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

Becker B. 1983. The contribution of wild plants to human nutrition in the Ferlo (north Senegal). *Agroforestry Systems*. 1:257-267.

Booth FEM, Wickens GE. 1988. Non-timber uses of selected arid zone trees and shrubs in Africa. FAO Conservation Guide. No. 19. Rome.

Burkill HM. 1994. Useful plants of West Tropical Africa. Vol. 2. Families E-I. Royal Botanical Gardens, Kew.

ICRAF. 1991. Multipurpose Trees and Shrubs database. Nairobi, Kenya.

Vogt K. 1995. A field guide to the identification, propagation and uses of common trees and shrubs of dryland Sudan. SOS Sahel International (UK).

von Maydell HJ. 1986. Trees and shrubs of the Sahel - their characteristics and uses. GTZ 6MBH, Eschborn.

**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/>)