

Cassia grandis L.f.

ANÍBAL NIEMBRO ROCAS

Instituto de Ecología, A.C.

Xalapa, Veracruz, México

FABACEAE (BEAN FAMILY)

No synonyms

Bacul, beef-feed, bocot, cañadonga, cañafistola burrero, cañafistula, cañafistula cimarrona, cañafistula de Castilla, carago, caragua, carámano, carao, casse espangnole, chácara, coral shower, gigantón, horse cassia, liquorice tree, macut, marimari, marimari preto, pink shower cassia, quauhuayo, stinking-toe, sandal, sándalo

Cassia grandis is native to tropical regions of America. Apparently originating in the Amazon, the species' natural distribution cannot be accurately described. The tree is found in Cuba, Puerto Rico, and Jamaica. It is also found in Hawaii.

Cassia grandis is a deciduous or semideciduous tree that grows up to 18 m in height and 50 cm d.b.h. The trunk is straight and the spreading crown is high, irregular, and made up of dangling branches. The leaves are paripinnate and made up of 10 to 20 pairs of oblong leaflets that are 3 to 6 cm long and rounded or obtuse at the apex and base. The species grows well in clayey soils and generally establishes itself near river banks. It prospers in places with average annual temperatures of 22 to 26 °C and average annual precipitation of 1000 to 1300 mm. The species grows spontaneously on the banks of rivers and streams, forming gallery forests. *Cassia grandis* also grows in estuaries and soils subject to periodic flooding. Common in clearings of semideciduous tropical forests, pastures, and savannas, the tree grows at elevations between 3 and 1200 m (Hoyos 1979, Irwin and Barneby 1982, Little and others 1974, Little and others 1988, Witsberger and others 1982).

Cassia grandis is used as an ornamental to beautify streets, avenues, parks, and gardens. The sweet tasting and bad smelling pulp of the fruit is edible and is used as a laxative. The wood is hard and heavy; it is used in rural areas for home construction, sheds, and structures for roofs and in cabinet-making (Little and others 1974, Little and others 1988, Witsberger and others 1982).

The pink to purple flowers turn salmon-color with time and are arranged in racemes. The species blooms in spring, and fruits (legumes) ripen in summer (Little and others 1988). The dark brown to black legumes are big and heavy, dangling,

linear to linear-oblong, cylindrical, about 40 to 60 cm long, and 3 to 5 cm wide. Sometimes laterally flattened, the tips of the fruits are short and sharply pointed on both ends, rugose with thickened sutures, internally septate, and indehiscent when ripe. Inside each septum one seed is surrounded by pulp which is sweet tasting, liquid or viscous, and brown. Each fruit contains numerous seeds (Holdridge and Poveda 1975, Irwing and Barneby 1982, Isely 1975, Little and others 1974, Little and others 1988, Shyam and Vartak 1985, Standley and Steyermark 1946a, Witsberger and others 1982). The seeds are elliptic, obovate, obovoid-ellipsoid to oblong-obovate with the base slightly emerginate, biconvex in cross section, ventrally flattened, 13.4 to 16.6 mm long, 9.2 to 10.2 mm wide, and 4.0 to 5.0 mm thick. The seedcoat is light brown, smooth, opaque, and cartaceous, with inconspicuous fracture lines.

Poles with metal hooks are used to collect the ripe fruits from the trees. The fruits are ground in wood mortars as the first step to extracting the seeds. One of three processes can be used to separate seeds from legume residues. To remove impurities the seeds are submerged in containers of water. The good seeds will sink. On the surface, the pieces of fruit will float and can be gathered with a strainer. If the impurities are smaller, they can be separated using sieves. They can also be eliminated using a vertical column blower. The seeds are washed vigorously with running water to remove remnants of pulp and pericarp that adhere to them. The cleaned seeds are placed in the sun to dry.

Dry seeds are stored in plastic containers. Not many studies have been done on the storage of seeds of this species. Frequently, they are stored in cold chambers at a temperature of 5 to 6 °C. It has been observed that after 1 year, the seeds

stored in a cold chamber still germinate. However, there have been no accurate assessments of this practice.

ADDITIONAL INFORMATION

The vascular bundle is visible as a dark line that runs longitudinally to the seed through the middle part of its lateral surfaces. The hilum is subbasal, circular, sometimes covered by remnants of funicular tissue, and set deep in a small depression. The micropyle is indiscernible. The lens is discernible, on

the opposite side of the micropyle, subbasal, near the hilum, elliptic or linear, and set deep in a depression. The endosperm is abundant, whole, more abundant on the lateral surfaces of the embryo, corneous, whitish, translucent, and gelatinous when it comes in contact with water. The yellow embryo has a straight axis and is almost bilaterally symmetrical. The cotyledons are shaped like the seed, expanded, flat and thin, twisted in the shape of an S, are independent of one another, and have an auriculate base. The plumule is moderately developed in pinnae. The radicle is conical and not covered by the cotyledons.

