Brosimum alicastrum Sw.

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MORACEAE (MULBERRY FAMILY)

No synonyms

Bread nut, maseco, mo, ojite, ojoche, ox, ramón, ramón blanco, talcoíte, tillo, tzoltzax, ujushe blanco

Brosimum alicastrum is native to America. It is distributed naturally from Mexico across Central America to northern South America and in the West Indies. The plant is an important component of hot-humid and subhumid tropical forests, where it forms groupings of different sizes (Little and Dixon 1983).

Brosimum alicastrum is a fast-growing, evergreen, monoecious tree with latex, of up to 40 m in height and 150 cm d.b.h. The trunk is straight, cylindrical, and grooved with well-developed spurs and a pyramidal crown made up of rising, and then hanging, branches with a dense foliage. The leaves are simple, alternate, ovate-lanceolate, elliptic to ovate, and 4 to 18 cm long by 2 to 7.5 cm wide. In the Yucatan Peninsula, the tree grows in calcareous soils with outcropping rocks, forming part of the tropical forest. The regions where the tree is found have an average annual temperature of 26 °C, with a maximum temperature of 36.7 °C and a minimum of 14.9 °C. The maximum temperatures correspond to the months of April and May, the minimum ones to the months of December and January. Average annual precipitation is approximately 1288 mm, ranging between 900 and 1800 mm. The tree grows from sea level to 1000 m.

Brosimum alicastrum has multiple uses, although its potential is unknown outside its perimeter of natural distribution. Anthropological research indicates that *B. alicastrum* was one of the main means of support of the ancient Mayas, who cultivated it intensely. One of the most outstanding characteristics of this plant is that it remains green during the dry season, thus being the only existing source of forage in many places. The branches, leaves, fruits, and seeds are used to feed cattle. They also serve as a nutritional supplement for pigs and chickens. From 7 to 8 tons of fruits and from 35 to 40 tons of foliage can be harvested from 125 trees per hectare (Pardo-Tejeda and others 1976). The seeds are rich in starch, proteins, and vitamins A and C. In some places, they are eaten boiled and are said to taste like chestnuts. Toasted and ground, they are used as a coffee substitute. Specific gravity of the wood is 0.69. The wood is white or yellowish, and it is used for firewood, railroad ties, veneer, floors, tool handles, packing boxes, inexpensive furniture and cabinets, and bee honeycombs, as well as rural construction and handicrafts. The tree is cultivated in numerous backyards, and it is planted as a shade and ornamental tree in streets, parks, and gardens (Barrera 1981, Cabrera and others 1982, Chavelas and González 1985, Chudnoff 1979, Echenique-Manrique 1970, Flores 1993a, Lozano and others 1978, Miranda 1976, National Academy of Sciences 1975, Pardo-Tejeda and Sánchez 1980, Pardo-Tejeda and others 1976, Rico-Gray and others 1991).

The tree begins to yield flowers and fruits at 4 or 5 years of age. Because its geographic distribution is extensive, *B. alicastrum* blooms at different times, but especially January to June. Its fruits ripen between April and September, depending on geographic locations (Chavelas and Duvall 1988b). In southeastern Mexico, the plant blooms precociously and abundantly from April to July, and fruits from June to October (Juárez and others 1989). The flowers are cream in color and arranged in a capitula. In July through August the abundant fruits ripen and begin to fall to the ground. The fruits are globose berries, 2 to 2.5 cm in diameter, pulpy, sweet, and yellow or orange when ripe. Each fruit contains one seed (Cabrera and others 1982, Pennington and Sarukhan 1968). Seeds range in shape from globose to subglobose, are slightly depressed, and are 1 to 2 cm in diameter. The seedcoat is yellowish-brown, smooth, opaque, and membranous-papyritious. A vascularized thickening in the hilar region is strongly attached to the embryo in fresh seeds, but is brittle and easily released in old seeds.

The fruits are easily collected from the ground due to their size. They also can be gathered from trees using poles with metal hooks. The peel is removed by hand, and the seeds are washed vigorously with cool water to clean off mucilage and impurities. The seeds are dried where it is cool and well ventilated. One tree can yield approximately 29 kg of seeds; seeds average 300 to 350 per kg. Seeds remain viable for approximately 3 months when stored under ambient conditions (24 to 30 °C). With longer storage, seed viability diminishes quickly because of loss of moisture (Vega and others 1981).

The germination of the seeds is cryptocotylar (del Amo 1979). Under humid conditions the fresh seeds germinate at 88 percent without pretreatment. Big seeds germinate more quickly than small seeds, and they produce bigger and more vigorous plantules (Niembro 1996). A heterogeneous sample of seeds germinated approximately 28 days after sowing (Vega and others 1981).

The growth medium used in the containers is a mixture of soil and sand, with proportions varying among nurseries. In nurseries, seeds are usually planted in black polyethylene containers, 10 cm wide by 20 cm long. They are watered every 1 to 3 days, depending on the permeability of the substrate used. Two or three months after sowing, the plantules are 30 to 50 cm tall and can be outplanted (Chavelas and Duvall 1988).

ADDITIONAL INFORMATION

The seed hilum is basal, puntiform, pale, and surrounded by a pale, vaguely circular spot. The micropyle is indiscernible. The embryo has a curved, asymmetric, green axis, with latex. Two massive, pulpy, unequal cotyledons are sinuous on their contact surfaces, one on top of the other. The plumule is undifferentiated. The radicle is curved, elongated, and partially visible, with a yellowish apex (Berg 1972, Berg and Dewolf 1975, Burger 1977, Hutchinson 1967, Pennington and Sarukhan 1968, Standley and Steyermark 1946c).


1cm
1cm
1cm