

santa maria, jacareuba

LOCAL NAMES

English (false mamery, Brazil beauty-leaf); Portuguese (guanande); Spanish (santa maría, palo de maría, ocuje colorado, leche de maría, lagargo caspi, calaba, bari, alfaró, aceite maría); Trade name (santa maria, jacareuba)

BOTANIC DESCRIPTION

Calophyllum brasiliense is a medium-sized, evergreen tree 12-20 m tall and 0.5 m or more in diameter, with a dense crown. Under favorable conditions the tree grows 30-45 m tall with long, straight clear trunk 1-1.8 m in diameter and no buttresses. The dense crown, abundant white flowers, brown fruits, and whitish latex can recognize María. The bark is light grey and smooth or slightly fissured, with numerous protuberances on large trunks; inner bark whitish and bitter.

Twigs green, 4-angled, minutely hairy when young, becoming grey. The leaves are opposite, stiff, elliptic, 6.3-12.5 cm long and 3.2-6.3 cm wide, dark green and shiny on the upper surface, with many straight parallel lateral veins at nearly right angles with the midrib. Petioles are 0.6-1.9 cm long, blades rounded or minutely notched at the apex, short pointed at the base, slightly leathery.

Flowers are numerous, small fragrant, white 1-1.3 cm wide in lateral branched racemes 2.5-5 cm long, male and bisexual on the same tree. There are 4 white rounded and concave sepals, 2 about 0.6 cm long and 2 about half as long, widely spreading and turned back. Petals commonly absent or 1-4, smaller than the largest sepals, white; male flowers with 4-50 stamens in a prominent orange cluster more than 0.6 cm across and often a rudimentary pistil. Sexual flowers with 8-12 stamens and pistils consisting of a round, green ovary 0.3 inches in diameter, one-celled with one ovule, short bent style and flattened whitish stigma.

The fruit is a 1-seeded brown drupe 2.5 cm in diameter.

The generic name comes from the Greek words 'kalos'-beautiful and 'phullon'-leaf, meaning beautiful-leafed and the specific epithet means 'of Brazil'.

BIOLOGY

María is monoecious, with male and bisexual flowers on the same tree. In Puerto Rico, flowering occurs in spring and summer, and fruit matures in the fall. In Trinidad & Tobago, maría flowers in September and October, as well as other times, and fruits ripen in May or June. Some trees bear fruit when only 3 years old. The fruits are presumably distributed by bats; dense clumps of seedlings sometimes grow under coconut palms along the coast of Puerto Rico. In Costa Rica, concentrations of maría seeds are found under trees of different species used as feeding roosts by bats. Many of the seeds fall below the parent, where they germinate. On steep slopes, some seeds are carried away after heavy rains. In Puerto Rico, birds, bats and rats disperse the seeds.

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ECOLOGY

María is widely distributed throughout the West Indies. In Puerto Rico, it grows in the sub-tropical moist forest with ucas (Budica buceras), roble blanco (Tabebuia heterophylla), algarrobo (Hymenea courbaril) etc. In Nicaragua, the species is found in lowland evergreen rain forest with Andira inermis, Carapa nicaraguensis, Dialium guianense etc. In the lower montane rain forests of the Chiapas, Mexico, maria is one of the canopy trees.

BIOPHYSICAL LIMITS

Mean annual temperature: Up to 25 deg C., Mean annual rainfall: 1 500-6 000 mm

Soil type: María occurs in nearly all the soil types. It seems to grow best on wet, humid, sites, but also grows well on pure sand and rock sandstone. In Puerto Rico, it occurs naturally on the north coast on sandy soils of the orders inceptisols, oxisols and alfisols. María has been planted on deep clays and serpentine soils in the mountains, and in shallow limestone soils near the coast. It does well on degraded sites, and is resistant to salt. In Jamaica, it occurs on volcanic and metamorphic shales.

DOCUMENTED SPECIES DISTRIBUTION

Native: Bolivia, Brazil, Costa Rica, Cuba, Guyana, Jamaica, Mexico, Nicaragua, Peru, Puerto Rico

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.

Calophyllum brasiliense

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Cambess

Clusiaceae

PRODUCTS

Fodder: The fruits are good food for hogs.

Timber: The heartwood is pink or yellowish pink to brick red or rich reddish brown. Sapwood is lighter in color but not always clearly differentiated from the heartwood. The wood is rather difficult to air-season, and drying rate varies substantially. The wood is rather easy to work and usually yields smooth surface if straight grained but usually tears and chips if the grain is interlocked. It is below average in planing, turning and boring. The attractive wood is similar to mahogany (*Swietenia macrophylla*) and has comparable uses.

Lipids: oil has been extracted from the seeds.

Medicine: The resin called balsámo de maría, has been used medicinally.

SERVICES

Shade or shelter: In West Indies, maría is planted as a shade tree for coffee and cacao and for windbreaks.

Soil improver: It has been used to stabilize soils and to relieve soil compaction in degraded pastures.

Ornamental: Its evergreen habit makes it suitable for use in ornamental and shade tree plantings.

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TREE MANAGEMENT

Close spacings of 1.8 x 1.8 m or 1.5x 1.5 m are used to speed crown closures and prevent lateral branching. Weeding may not be necessary in dry areas. In wet areas, circular weeding 1 m around the tree should be done at least annually. Thinnings should be done more timely before the trees have been suppressed for so many years.

GERMPLASM MANAGEMENT

In Puerto Rico, seeds store for 1 year in a dry room germinated fairly well. Fruits should not be stored at a temperature below 0 deg C., and the water content of the fruit should not be lower than 35%.

PESTS AND DISEASES

In Central America, maría is a subject to a fast-killing wilt caused by a species of Caphalosporium. Leaf curl is common on young trees in Trinidad, and a thread blight fungus was observed on one estate. At another location in Trinidad, a root fungus attacked a few trees. The heartwood of María is resistant to moderately resistant to decay, but it is very susceptible to attack by drywood termites and is not resistant to marine bores.

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FURTHER READNG

Burns RM, Mosquera MS and Whitmone JL (eds.). 1998. Useful trees of the tropical region of North America. North American Forestry Commission Publication Number 3. North American Forestry Commission.

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

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>)