

## Vochysia guatemalensis

white mahogany

J.D. Smith

Vochysiaceae

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### LOCAL NAMES

Creole (yemeni, emeri); English (white yemeni, white mahogany); Spanish (san Juan peludo, san Juan, palo de agua, mayo blanco, chancho); Trade name (white mahogany)

### BOTANIC DESCRIPTION

*Vochysia guatemalensis* is a medium to large tree, 30-55 m tall with diameter of 0.5-1.5 m. The bole is cylindrical and sometimes bifurcate, with smooth and pale bark. The crown is rounded or depressed, the branchlets glabrous; stipules subulate, 3 mm long.

Leaves simple, 3-4 verticillate or the uppermost opposite, on petioles 2-3 cm long, oblong - lanceolate 9-15 cm long, 2.5-5.5 cm wide, dark and bright green, rather abruptly acuminate or long acuminate, acuminate at the base, coriaceous, glabrous.

Flowers terminal clusters, in erect inflorescences, bright yellow and fragrant, the thyrses terminal and axillary, forming large leafy panicles 10-18 cm long.

Fruit a thick, dehiscent capsule, narrowly oblong deeply 3-loculed each containing one seed; sulcate, somewhat verrucose, acutely angulate, about 4.5 cm long and 1.5 cm wide, yellowish-brown.

Seed laterally compressed, brown, winged and wind-dispersed. The size varies but is typically about 4.5 cm long, wing included. The embryo is large (1.8-2.4 cm long) and there is no endosperm.

### BIOLOGY

In Costa Rica, *V. guatemalensis* flowers during the March-June and mature seeds are collected in August-October. In some places there is a minor blooming season in October-November and sometimes in February and in general the seasonality and flowering and fruiting vary with alterations in rainfall pattern.

The anthers open before the flowers open and the species may be predominantly self pollinating. Flowering normally begins when the tree is 4-6 years old.

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## ECOLOGY

It inhabits the humid tropical forest and the very humid forest of the coastal plains, where it often grows in monospecific stands or in patches with other *Vochysia* spp. It is also associated with *Calophyllum brasiliense*, *Simphonia globulifera*, *Terminalia amazonia*, *Ferrule koschnyi*, *Dialium guianensis*, *Guarea grandifolia*, among others.

## BIOPHYSICAL LIMITS

Altitude: 350-1 500 m

Mean annual temperature: 24-30°C

Mean annual rainfall: 600-3 200 mm

Soil type: This species behaves equally well on alluvial and residual soils

## DOCUMENTED SPECIES DISTRIBUTION

Native: Belize, Colombia, Costa Rica, Guatemala, Honduras, Mexico, Nicaragua, Panama

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.

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### **PRODUCTS**

Timber: The wood is light but strong, with a density of 0.35-0.45 g/cubic cm. It is suitable for carpentry, posts, building poles, interior construction, boxes, tool handles, toys, furniture, canoes and veneer. The fibre quality is similar to that of *Gmelina arborea* and has potential use in production of paper pulp.

Lipids: The embryo has high concentrations of lipids (28.6%) and proteins (34%) but is low in carbohydrates (4.2%).

### **SERVICES**

Fungi of the genera *Fusarium* sp. and *Phoma* sp. Have been reported to infect the seeds.

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### **TREE MANAGEMENT**

Planting should not be delayed as the roots grow fast. If the bag is not deep enough, the roots are damaged, affecting seedling growth.

For monospecific plantations a planting distance of 4 x 4 m is recommended. The distance should not be less than this as the tree tops close very quickly. The species has a type of autopruning but it is convenient to prune the saplings 9-12 months after planting to eliminate ramifications.

### **GERMPLASM MANAGEMENT**

Seed collection normally begins two months after flowering and before the fruits begin to open. The fruits are collected from the trees when they change from light to dark green and lines of division between locules become marked. Seeds should never be collected from the ground as they are quickly infected by fungi.

On average, a mature tree can be expected to produce one kg of seed. The seeds do not mature at the same time and it may be necessary to collect several times from a seed source during the season. After collection the seeds are transported in jute sacks to the processing site, where they are dried in the shade for 2-3 days or until the capsules open. Fresh seeds have a moisture content of 45-55%. Sun drying of either fruits or seeds should be avoided as it may affect viability.

The seeds storage behavior is orthodox. There are 3500-4800 fresh seeds and 7000-8000 dry seeds/kg.

### **PESTS AND DISEASES**

Fungi of the genera *Fusarium* sp. and *Phoma* sp. Have been reported to infect the seeds.

**FURTHER READING**

Butterfield RP, Espinoza C M. 1995. Screening trial of 14 tropical hardwoods with an emphasis on species native to Costa Rica: fourth year results. *New Forests*. 9(2): 135-145.

Butterfield RP. 1996. Early species selection for tropical reforestation: a consideration of stability. *Forest Ecology and Management*. 81(1-3): 161-168.

Cornelius JP, Mesen JF. 1997. Provenance and family variation in growth rate, stem straightness, and foliar mineral concentration in *Vochysia guatemalensis*. *Canadian Journal of Forest Research*. 27(7): 1103-1109.

Dick JM, Zuniga G, Cornelius JP, Watt AD. 1998. Genetic variation in the number of cuttings harvestable and rooted from *Vochysia guatemalensis* coppiced stumps. *Forest Ecology and Management*. 111(2-3): 225-230.

Fisher RF. 1995. Amelioration of degraded rain forest soils by plantations of native trees. *Soil Science Society of America Journal*. 59(2): 544-549.

Flores EM. 1993. *Vochysia guatemalensis*. *Trees and Seeds from the Neotropics Vol. 2, no 2*. Museo Nacional de Costa Rica.

Mesen F, Trejos E. 1997. Vegetative propagation of san juan (*Vochysia guatemalensis* Donn. Smith) by rooting of juvenile cuttings. *Revista Forestal Centroamericana*. 6(21): 19-24.

Salazar R. 1997. *Vochysia guatemalensis*. *Nota Técnica sobre Manejo de Semillas Forestales no 6*. CATIE.

Stefano JF de, Fournier LA, Di Stefano JF. 1994. Initial growth of *Vochysia guatemalensis* in Tabarcia de Mora, Costa Rica. *Agronomia Costarricense*. 18(1): 41-46

**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/>)