CAOBA (PACIFIC MAHOGANY)

Common names

(English): dry zone mahogany, Pacific mahogany
(Spanish): caoba del Pacifico, coabilla, cobano, gateado, venadillo, zapaton, zopilote

Botanic description

Swietenia humilis is a small to medium-sized deciduous tree 15-20 m tall. Bole short, often crooked, unbuttressed, from 30-50 cm in diameter and with a dark-grey or brownish-black, longitudinally fissured bark and in older specimens rough and flaking. Young branches glabrous, slender with small roundish, brown lenticels. Leaves clustered at ends of branch lets, usually paripinnate rarely imparipinnate, sometimes with an abortive terminal leaflet, 12-30 cm long; rachis glabrous, pulvinus swollen. Leaflets opposite or sub-opposite, sessile or sub-sessile, 2-7 pairs, usually ovate to elliptic-ovate sometimes ovate-lanceolate, apex caudate or long acuminate, extended into a slender filiform thread, base rounded or acute, slightly asymmetric chartaceous, waxy, 4.5-14 cm long, 1.75-4.5 cm broad, upper and lower surfaces glabrous. Venation reticulate, secondary venation raised and prominent on both surfaces. Flowers unisexual, but the male and female flowers are very similar. Inflorescence usually axillary sometimes sub-terminal, 4-18 cm long, erect or spreading, much shorter than leaves, terminal thyrses often densely clustered, glabrous. Calyx 5-lobed, lobes obtuse, deltate to sub-orbicular, 0.5-1 mm long, margin ciliolate. Numerous small nectaries are found on the petiole, rachis, petiolules and both surfaces of all leaflets of the pinnate compound leaves. They are circular to elongate with a smooth secretory surface. Petals 5, free, slightly contorted in bud, 5.5-7.5 mm long, 2.5-3 mm broad, lingulate to obovate, glabrous, margin ciliolate. Staminal tube cylindrical or urceolate, slightly constricted at throat, 3-5.5 mm long, terminated by 10 short acuminate or narrowly deltate appendages, glabrous inside and out; anthers or antherodes 10, sessile contained within mouth of tube. Ovary 4-5 locular with 10-16 ovules, style very short and glandular, 1-1.5 mm long with a discoid style-head. Pistillode in male flower more slender, narrowly cylindrical with well-developed loculi but rudimentary ovules. Style 2-3 mm long, with a thin head. Fruit an erect capsule, ovoid, sometimes elongate-ovoid with a short umbo, pale grayish brown, smooth or indistinctly pitted, 8-20 cm long, 10-12 cm in diameter, 4-5 valved, outer valves very woody, 5-7 mm thick, inner valves much thinner, mottled pale brown and white. Seeds pale straw-

brown, 6-9 cm long including wing. The specific epithet 'humilis' literally describes its low height in comparison to other mahogany species. S. humilis is listed as an endangered species in need of conservation in Appendix II of CITES.

Ecology and distribution

History of cultivation

It is sometimes planted in hedges along roadsides and near homesteads but also found preserved in cultivated fields and pastures. S. humilis was introduced to Haiti in 1989.

Natural Habitat

S. humilis is fairly common in tropical dry deciduous forest and savanna, in rough scrub, on rocky hillsides and in cultivated fields from 0-1 200 m altitude.

Geographic distribution

Native: Costa Rica, El Salvador, Guatemala, Mexico
Exotic: Haiti

Biophysical limits

Altitude: 0-1 200 m

Reproductive Biology

S. humilis hybridizes with S.macrophylla and S. mahagoni. Hybridization has been confirmed by cytological studies. The flowers are unisexual. All the hybrids show intermediate characters. Flowering occurs in April and May and the fruits take almost a year to mature.

Propagation and management

Propagation methods

Direct seeding is a popular method. Stumps of 5 cm of stem, 15 cm of root can be used to raise S. humilis, increasing stump diameter seems a critical factor for survival.

Tree Management

Planting in the rains is favorable for S. humilis and initial survival of S. humilis, is higher under shade.

Germplasm Management

Seeds storage is orthodox, S. humilis seeds are predicted to survive well for 266 years under optimal storage conditions.

Functional uses

Products

Apiculture: The faintly fragrant flowers are visited by bees. Timber: The heavy

timber is used in local carpentry. Gum or resin: A colorless gum exudes from the branches and trunk of the dry zone mahogany. Poison: The bark and seeds possess a stringent alkaloid, reputed to be very poisonous. The extracts significantly inhibited the growth and feeding of third instar larvae of Tenebrio molitor. Medicine: The seeds of S. humilis are used in traditional medicine to treat chest pains, coughs, cancer and amoebiasis, and for their anthelmintic properties. The tetranortriterpenoids humilinolide A from the S. humilis seeds induces smooth muscle (ileal and uterine) contraction. Other products: The tetranortriterpenoids, humilinolides A-D are obtained from S. humilis.

Services

Erosion control: The tree can be planted along valleys to prevent soil erosion. Shade or shelter: Zopilote is a good shade provider. Reclamation: Dry zone mahogany is a suitable candidate for dry land forestation programs. Soil improver: Leaf litter from S. humilis enhances soil fertility. Ornamental: The tree is aesthetically enhancing. Intercropping: Can be planted in farm systems or plantations as an agro forestry tree. Allelopathic effects are noted for humilinolide A and C (from the seeds), they significantly inhibited radical elongation in Amaranthus hypochondriacus and Echinochloa crus-galli.