

SEED LEAFLET

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Swietenia humilis Zucc.

Taxonomy and nomenclature

Family: Meliaceae

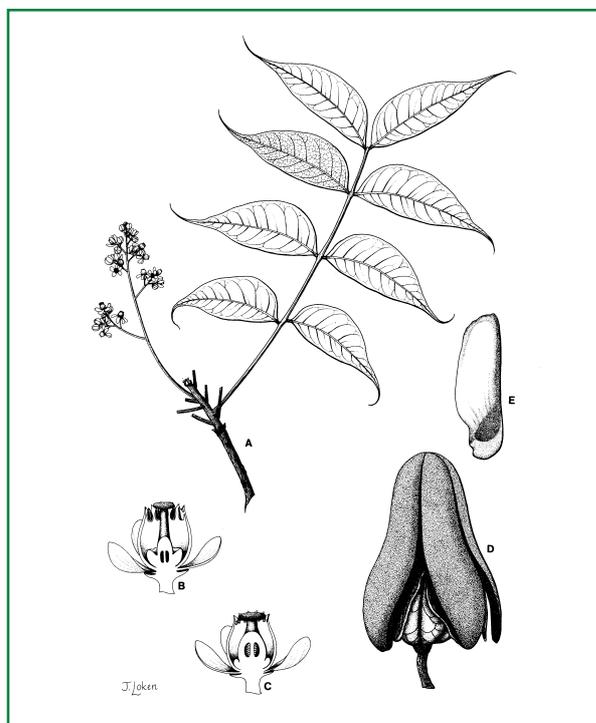
Synonyms: *Swietenia bijuga* Preuss., *Swietenia cirrhata* S. F. Blake.

Vernacular/common names: dry zone or Pacific Coast mahogany (Eng.), caoba (Sp.), cobano, zapaton (Guatemala), coabilla, gateado, venadillo, zopilote (Mexico).

Related species of interest: The genus consists of two other species, *S. macrophylla* and *S. mahogany*. The three species are poorly defined biologically, in part because they hybridise freely.

Distribution and habitat

The area of natural distribution is the dryer zones of the western Sierra Madre mountain range from Mexico through Guatemala, El Salvador, Nicaragua to Costa Rica, up to 1200 m. altitude. It is endangered in much of its natural area of distribution due to degradation of its habitat and is listed in Appendix II of CITES.



A, flowering branchlet; B, female flower; C, male flower; D, fruit; E, seed. Illustrations by J. Loken from Pennington, T. D., 1981. Meliaceae, Flora Neotropica, 28. Used with permission.

Uses

The Pacific Coast mahogany is the least commercially important of the three species as most natural stands have been destroyed and replanting has only been done on a small scale.

Little is known about its production potential but it is considered to be less productive than *S. macrophylla*.

Botanical description

Deciduous tree, up to 15-20 m. Bark grey and smooth when young, turning dark brown, ridged and flaky when old. Leaves alternate, 12 - 30 cm long, paripinnately compound with 4-6 pairs of leaflets. The leaflets are ovate to ovate-lanceolate with acuminate apex, sometimes extending into a thread, 7-14 cm long, 2.5-4.5 cm broad, upper surface glabrous. Flowers unisexual, small, white, in 8-18 cm long erect or spreading panicles.

Fruit and seed description

Fruit: dehiscent capsule, usually 5-celled, erect, 8-20 cm long, 10-12 cm in diameter. Outer valves woody, 5.7 mm thick, inner valves much thinner; surface smooth or indistinctly pitted when mature. The fruit splits open from the base or from the base and the apex simultaneously when dry. The centre of the fruit is a thick, woody 5-angled columella extending to the apex from which the seeds hang pendulous by their wing, leaving conspicuous scars after their release. There are usually 35-45 seeds per fruit.

Seed: 6-9 cm long, pale straw-brown, compressed, crested and extended into a wing at the attachment end; wind-dispersed. There are 1300-2000 seeds/kg.

Flowering and fruiting habit

Flowers are unisexual and the trees monoecious. The flowers are pollinated by insects. Usually only one flower in the inflorescence develops into a fruit, the other flowers being aborted, even if fertilisation has taken place. Development from flower to mature fruit takes 10-12 months. Some fruits remain on the tree while the new flowers appear.

Due to the long time it takes the fruit to develop, crop assessment can usually be undertaken several months before harvest.

S. humilis flowers in Central America in April-May and the fruits are mature in March-April. Flowering and fruiting are usually regular annual from 8-10 years of age.

Harvest

The fruits are preferably collected from the trees just before they split open. Green as well as brown fruits may contain ripe seed. The centre of the fruit stalk turns brown as the fruit matures. Seeds are mature when they turn dark brown. Fruits from smaller trees may be reached with extended pruners or flexible saws, larger trees must be climbed. 50 lt of fruits may yield 1.75-2 kg of pure seed.

Processing and handling

Mature dry fruits or dry seeds collected from the forest floor can be stored for some days in sacks without significant deterioration, but since the fruits are bulky, pre-processing in the field is often desirable. Depending on maturity, the fruits will split open after 1-4 days of drying. The seeds are easily released by raking or gently shaking the fruits. Fruit parts (valves and columella) are removed by hand. The bulk can be further reduced by manual dewinging. After extraction, the seeds should be dried to a moisture content of app. 6-7 % for short term storage, or down to 4% for long term cold storage.

Storage and viability

Seeds can be stored at ambient temperature for several months. Storage at 15°C prolongs viability to 3-6 months. Cold storage (2-5°C) with 4-5% moisture content extends viability several years. The seeds must be stored in air-tight containers.

Dormancy and pretreatment

Pretreatment is generally not necessary but if the seed has been stored at low moisture content soaking in water for 12 hours can improve germination.

Sowing and germination

For testing, the seed can be germinated under fluctuating temperatures of 30/20°C or 30/25°C. Light regime 12/12 h or 8/16 h light/ dark.

Under nursery conditions seeds are sown in a bed of light sand in 3-7 cm deep furrows or holes or directly in containers. Seeds will germinate in 10-21 days. Germination is hypogeal. Shades over nursery beds are removed and the seedlings hardened before outplanting.

Selected readings

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Salazar, R., 1998: *Swietenia humilis* Zucc. Nota Técnica sobre manejo de semillas forestales No 35. CATIE.

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