

Cojoba arborea (L.) Britton & Rose

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FABACEAE (BEAN FAMILY)

Mimosa arborea L. (Species Plantarum 1: 519; 1753); *Mimosa filicifolia* Lam. (Encyclopédie Méthodique, Botanique 1 [1]: 13; 1783); *Mimosa divaricata* Jacq. (Plantarum Rariorum Horti Caesarei Schoenbrunnensis 3: 76; 1798); *Acacia arborea* (L.) Willd. (Species Plantarum. Editio quarta 4 [2]: 1064; 1806); *Pithecellobium filicifolium* (Lam.) Benth. (London Journal of Botany 3: 205; 1844); *Feuillea filicifolia* (Lam.) Kuntze (Revisio Generum Plantarum 1: 187; 1891); *Pithecellobium arboreum* (L.) Urban (Symbolae Antillarum 2 [2]: 259; 1900); *Samanea arborea* (L.) Ricker (Stand. Cycl. Hort. 6: 3066; 1917); *Pithecellobium austrinum* Standl. and L.O. Williams (Ceiba 3 [2]: 114-115; 1952); *Cojoba austrina* (Standl. & L. O. Williams) L. Rico (Kew Bulletin 46 [3]: 507; 1991)

Aguijote, ardilla, ardillo, Bahama sabicú, barba de jolote, barba jolote, black tamarind, cañamazo, cojoba, cojobana, cola de marrano, cola de mico, collier, conchudo, coralillo, frijol de mico, frijolillo, iguano, John crow, John crow bead, lorito, moco de chompipe, moruro rojo, plumillo, poison lasinette, quebracho, quebracho blanco, red tamarind, sabicú, sabicú moruno, tamarindo, turkey gill, wild tamarind, zopilote (Record and Hess 1949)

The geographic range of *Cojoba arborea* extends from southern Mexico, along the East Coast of Central America, to all the West Indies except the Bahamas (Britton and Rose 1928, Record and Hess 1949, Rico-Arce 1991).

Cojoba arborea is a fast-growing tree that reaches more than 40 m in height and 50 to 80 cm in d.b.h. in the natural forest, although it is not a common constitutive element. It is an unarmed tree. The bole is usually short, thick, cylindrical, and straight (forest) or twisted (open places), with buttresses. The crown is spreading, and the foliage is shiny. In open places, the tree is usually less than 20 m tall, with a spreading top and a stout bole, sometimes more than 60 cm in diameter. The bark is brown or grayish brown and smooth or coarse and sometimes has small, longitudinal fissures; it exfoliates small, irregular scales. The inner bark is pinkish and has a bitter taste. When damaged, the bark exudes a watery, sticky, orange sap; it turns darker when exposed to air and light. The average thickness is 1.2 cm (range 1.0 to 1.8 cm). Phyllotaxy is spiral. The feathery leaves are compound, bipinnate, with 10 to 18 pairs of pinnae, opposite or semiopposite, each with 20 to 40 pairs of opposite, sessile pinnules, asymmetric, falcate-linear, acute apex, asymmetrical base, margin entire, shiny dark green adaxially and pale green abaxially. The tree is typical of the

humid and very humid tropical forests of the coastal lowlands with clay or sandy alluvial soils, but it grows well at elevations up to 1200 m.

Sapwood is light orange or grayish orange in green condition, while heartwood is reddish brown with dark reddish-brown or grayish-orange stripes. The dry sapwood is light grayish brown and the heartwood is orange-gray or orange-reddish gray with conspicuous stripes. Growth rings are not well demarcated. The grain is straight or interlocked (roey), texture medium to coarse, luster medium, figure attractive radially and tangentially due to the stripes of deeper color in the heartwood (González and others 1973). The wood is odorless and tasteless. It is hard and heavy (green weight is 1100 to 1120 kg per m³ with 86 to 90 percent moisture content; basic specific gravity is 0.58 to 0.62), similar to bur oak (*Quercus macrocarpa* Michx.) and pin oak (*Q. palustris* Münchh.), and heavier than *Samanea saman* (Jacq.) Merr. and *Balizia elegans*. The volumetric contraction is normal for its density; the radial and tangential contractions are low, and the radial-tangential shrinkage ratio is good. The mechanical properties are comparable to those of *Quercus* and superior to *S. saman* (González and others 1973, Record and Hess 1949). Working properties are good. Air-drying is moderately fast (24 weeks) and may

produce undulations or small twistings. It saws and cuts well and takes a fine polish. Natural durability is high; resistance to termite and fungal attacks is moderate or high depending on the entry. Sapwood preservation is easy, complete, and uniform; heartwood impregnation is difficult, incomplete, and irregular (González and others 1973). It can be used for flooring, ceilings, ornamental work, furniture, wheel hubs, rollers, brush backs, mills, and railroad ties (Record and Hess 1949). The Runkel factor is 0.70 (group III: good for making paper), and the Peteri's coefficient of flexibility is 50. The species is also planted as an ornamental and shade tree.

Blooming occurs from October to June. Flowers are in pedunculate axillary heads in the upper leaf axils. They are uniform in size and actinomorphic. The calyx is greenish, tubular, triangular, and toothed distally; the corolla is whitish or creamy, and tubular. The stamens are numerous. Pollination is entomophilous. The floral calyx is apically expanded and has five lobules. The corolla lobes are triangular or ovate; valvate, and glabrous. The stamens are glabrous, basally fused forming a tube; the free filaments and anthers are white. The style is narrow, longer than the stamens; the stigma is small (Pennington and Sarukhán 1968). The ovary is monocarpellar, superior, and multiovular. Ovules are anatropous, bitegmic, and crasinucellate.

Fruit ripening occurs from April to October. Pods are moniliform without pulp, slightly curved, coriaceous, septate, margins constricted, round to short tapered to apex, short tapered to stipe, and terete; valves dehisce along the ventral margin and twist. The exocarp is dull, bright red outside, and glabrous; the endocarp is whitish or creamy in the inner surface. The mesocarp is missing (Gunn 1984, Nilsen 1981). The fruit contains 8 to 12 seeds in one series and is 1 to 2 cm long.

The seed is ovoid without aril; has a black, glossy thin testa; is without pleurogram; and has a long, whitish, thick

funiculus. The seeds hang when the pod dehisces. Seed dispersal is ornithochorous. Parrots and parakeets are commensals and dispersers; however, gravity causes most seeds to fall. Rain helps seed removal from the pod. Seed behavior is absolutely recalcitrant. They do not resist desiccation and must be sown immediately.

Germination is 90 to 95 percent if seeds are soaked for 24 hours before sowing. Germination is hypogeal and seedlings are cryptocotylar (Flores and Mora 1984). Seed sowing must be superficial; buried seeds do not germinate well. Root protrusion starts 2 to 3 days after sowing.

Small plantations have been established near rivers and creeks with some success. The species can be used in natural forest regeneration or planted in forest gaps and clearings. Competition with other trees intensifies longitudinal growth and produces a straight, taller bole.

ADDITIONAL INFORMATION

Leaf rachis is pubescent. A cupuliform gland is present between each pair of pinnae; a pair of glandular protuberances is in the base of each pinnule. Foliar buds are well developed.

The hilum is irregular, concealed by funicular tissues; endosperm and perisperm are lacking. Embryos are massive. The cotyledons are large, fleshy, convex outside, and slightly concave adaxially; a groined split over the radicle conceals it. Embryos are large, green, with axis straight, and have a well-developed plumule with several leaf primordia.

After root protrusion, the cotyledons open and move backward, splitting the testa along the cotyledon margins. The cotyledons grow after germination and develop small petioles, which help in cotyledon opening. The axillary buds of the cotyledons are well developed and may replace the plumule if it is damaged. The epicotyl is ferruginous.

