

***Senna atomaria* (L.) Irwin & Barneby**
FABACEAE

flor de San José

Synonyms: *Cassia atomaria* L.
Cassia emarginata L.
Cassia arborescens Miller
Cassia triflora Vahl
Isandrina emarginata (L.) Britt. & Rose (and others: International Legume Database and Information Service 2002)



General Description.—Flor de San José is also known as yellow candlewood, senna-tree, palo de chivo, palo de burro, cañafístola cimarrona, carbonera, alcaparro, chile perro, palo de zorrillo, arguchoco, vainillo, chivato, carángano, platanillo, bois cabrite, casse marron, and petite casse. It is a flowering, drought-deciduous shrub or small tree 2 to 12 m in height that occasionally exceeds 20 cm in stem diameter. The plant may or may not have multiple stems but almost always supports stout branches relatively low to the ground. The branches are brittle. It is supported by a tap and extensive lateral root system that has slender fine roots. The roots are woody and flexible with a dark gray bark over a pale yellow interior. The crown may be described as spreading and branchy but not dense. The bark is light gray. Leaves, twigs, and other vegetative parts have an unpleasant odor and are covered with soft hairs. The alternate, pinnate leaves have petioles 2 to 5 cm long and two to five pairs of ovate to obovate entire leaflets, 2 to 11 cm long. The flower clusters are corymbose racemes that bear many flowers and arise from the bases of the upper leaves. The flowers have five unequal sepals and five unequal yellow petals 8 to 15 mm long. The fruits are flattened, linear, red-brown to black, legumes 12 to 35 cm long and 8 to 12 mm broad, and contain numerous brown seeds 4 to 5

mm long (Howard 1988, Liogier 1988, Little and others 1974, Secretaría de Medio Ambiente, Recursos Naturales y Pesca 2002, Stevens and others 2001).

Range.—Flor de San José is native to the Bahamas, the West Indies, Mexico, Central America, Colombia, Venezuela, and Guyana (Howard 1988, Little and others 1974). It has been planted in Hawaii and probably other areas outside the natural range as an ornamental (Neal 1965).

Ecology.—Flor de San José is common to rare in coastal and upland dry forests at elevations from near sea level to 1,100 m that receive annual rainfalls of about 600 to 1,000 mm. Soils, often rocky and excessively drained, developed from both igneous and sedimentary parent materials with a wide range of textures and with pH's that are mildly acid to mildly alkaline. Flor de San José is moderately intolerant of shade; it grows in the open, as a codominant in low forest, and in the understory of open forests. The species may be found in remnant and late secondary forests.

Reproduction.—Flor de San José flowers and fruits throughout the year in Nicaragua (Stevens and others 2001). Although flowers and fruits have been observed at every season of the year in Puerto Rico, individual trees normally flower and fruit once per year. Because of extended flowering, flowers and fruits may be present on the same tree. Seeds collected by the author from Puerto Rico weighed an average of 0.0238 ± 0.0004 g/seed. Sown on moist filter paper, 96 percent germinated between 3 and 15 days after sowing. Germination is epigeal. A test of percent germination of sowings throughout the year in Mexico resulted in emergence varying from 1.2 to 44 percent over 45 day periods depending on ambient temperature and precipitation (Vera and Sánchez 1995). Reproduction may be common in areas overgrazed by cattle. Seeds germinate after pods rot on the

ground under mother trees (Stevens and others 2001) and may be dispersed to a limited degree by ruminants.

Growth and Management.—Flor de San José has a moderate growth rate. Although planted as an ornamental, the author is not aware of any reports of wildland plantings. Management and protection of existing stands are recommended (Secretaría de Medio Ambiente, Recursos Naturales y Pesca 2002).

Benefits.—Flor de San José is planted widely but not abundantly as an ornamental for its beautiful floral display and moderate size. The sapwood is yellow and hard, and the heartwood is brown and hard with a density of 0.57 to 0.85 g/cm³ (Timyan 1996). It is used for fuel and rude construction (Holdridge and Poveda 1975, Secretaría de Medio Ambiente, Recursos Naturales y Pesca 2002). Cows eat the pods but do not browse the leaves. Some of the common names imply that goats browse the species. Meal made from seed-free pods of flor de San José was eagerly consumed by lambs in an acceptance test (Palma and Román 2002b); the meal contained 6.5 percent crude protein, 6.8 percent fat, 4.5 percent ash, and 32.1 percent crude fiber (Palma and Román 2002a). It has been demonstrated that Baird's tapir (*Tapirus bairdii*) kills 100 percent of the flor de San José seeds when it consumes the pods, apparently because they germinate within the gut (Olmos 1997). Flor de San José is the principal or a key larval host for the yellow angled-sulphur butterfly, *Anteos maerula* (Fabricius), and the large moth, *Sphingicampa montana* (Packard) (Northern Prairie Wildlife Research Center 2002, Savela 2002). A tea made from the leaves is used as a purgative (Secretaría de Medio Ambiente, Recursos Naturales y Pesca 2002).

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