

***Picramnia pentandra* Sw.**
SIMAROUBACEAE

Florida bitterbush

Synonyms: *Tariri pentandra* (Sw.) Baill.
Picramnia antidesmoides Griseb.
Picramnia cubensis Turcz.
Picramnia micrantha Tulasne
Picramnia oblongifolia Turcz.



General Description.—Florida bitterbush is also known as bitterbush, doctor-bar, wild-coffee, guarema, hueso, aguedita, palo de peje, palo de paz, roble agalla, quina del país, bois poison, vaillant garcon, and bois montagne. It is an evergreen shrub or small tree usually less than 6 m in height and 10 cm in stem diameter. The plant usually has a single slender stem with smooth, gray bark and relatively few, slender branches. The inner bark is brown. The wood is light colored, hard, and heavy. The inner bark, roots, leaves, fruits, and seeds have a strongly bitter taste. The alternate, compound leaves are 10 to 30 cm long and contain five to nine, usually seven, 5- to 10-cm leaflets. The elliptic to ovate, papery leaflets have short stalks, smooth edges, and long points. The side leaflets are subopposite. The leaflets are green tinged with red, have a net-like structure of fine veins when viewed against the light, and are shiny when dried. Male and female flowers occur on different trees (dioecious) in branched terminal

clusters. The tiny flowers are five-parted, green with a reddish tinge. Fruits (berries) are scarlet to almost black when ripe, oblong to obovoid, 9 to 15 mm long, and contain one to three shiny brown seeds 6 to 10 mm long (Howard 1988, Liogier 1988, Little and Wadsworth 1964, Long and Lakela 1976).

Range.—Florida bitterbush is native to southern Florida, the Bahamas, the West Indian Islands, and Colombia and Venezuela in northern South America (Howard 1988, Little and Wadsworth 1964). It is not known to have naturalized outside its native range.

Ecology.—Florida bitterbush occurs in coastal hammocks in southern Florida and the Keys (Long and Lakela 1976). It grows in both remnant forests and secondary forests (logged, pastured, and abandoned fields) in Puerto Rico. During old-field or pasture succession, Florida bitterbush invades during the brushy stage. The species adapts to a wide variety of well-drained soils derived from most parent materials. It usually does not grow on the most fertile sites (where competition is severe) or on the worst, such as eroded, rocky ridge tops. Elevations vary from near sea level to 600 m or more, and mean annual precipitation ranges from 750 mm to about 2400 mm. Florida bitterbush is moderately intolerant to shade, being able to grow under the canopy of low basal-area forests as well as in openings. Seedlings are apparently more tolerant than adults and are able to progress from the understory into the canopy of low forests (Pascarella 1996).

Reproduction.—Florida bitterbush flowers and fruits nearly throughout the year in Puerto Rico (Little and Wadsworth 1964). It blooms March through July in Florida. Flowers of both sexes attract small, generalist insect pollinators with scent, pollen, and small amounts of nectar. Peak ripening occurs in November and December (Pascarella 1996). Fruit and seed production is

moderately abundant and consistent from year to year. Fresh fruits collected in Puerto Rico weighed an average of 0.231 ± 0.043 g/fruit. Air-dried seeds separated from them averaged 11,900 seeds/kg. Placed on moist filter paper without pretreatment, 100 percent germinated, beginning 14 days after sowing (Francis and Rodríguez 1993). Pascarella (1996) noted fruits collected in Florida weighed an average of 0.483 ± 0.034 g and that 85 to 90 percent of the fruits contained just one seed. Most seeds fall under the parent trees but some are dispersed by birds. Seedlings are relatively common in forests where the species grows.

Growth and Management.—Growth rate of Florida bitterbush is slow to moderate. Weaver (1979) followed the growth of two plants in a forest in Puerto Rico with characteristic slow growth and found diameter growth rates over the 24-year period of about 0.2 cm/year. Florida bitterbush in Puerto Rico live about 30 to 60 years (author's observation). Plants begin flowering and fruiting when they are about 1.5 to 2 m in height if sufficient light is available. Fruits are easily collected in quantity by hand and with short pruning poles. They may be cleaned by macerating or by working them against a screen under running water. Production of seedlings, at least to the pricking-out stage, is straightforward. Where a seed source is available in favorable habitat, natural reproduction is usually adequate. Florida bitterbush has not been reported to cause any problems in forests and therefore control measures are probably not needed.

Benefits.—Florida bitterbush helps protect the soil and contributes to the biodiversity and aesthetics of forest stands. A number of bird and animal species eat the fruits. It furnishes larval food for the bush sulphur butterfly, *Urema dina helios* (Institute of Food and Agricultural Sciences 2003). Florida bitterbush is a honey plant (Little and Wadsworth 1964). The wood is little used, except occasionally for fuel. Florida bitterbush is planted in Florida and Cuba as an ornamental (Little and Wadsworth 1964). A bitter tonic is made from tissues of the species in the Caribbean to treat fevers, anorexia, and stomach problems and as an enema to treat for worms (Liogier 1990). Qualitative tests indicated the presence of antioxidants, phenols, terpenoids, and alkaloids in ethanol extracts of tissues. A number of bacteria and fungi were treated with ethanol extracts of various tissues. Growth reductions of *Bacillus cereus*, *Bacillus subtilis*, and *Pseudomonas*

aeruginosa were observed which was enhanced by exposure to long-wave ultraviolet radiation (O'Neal and others 2002).

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