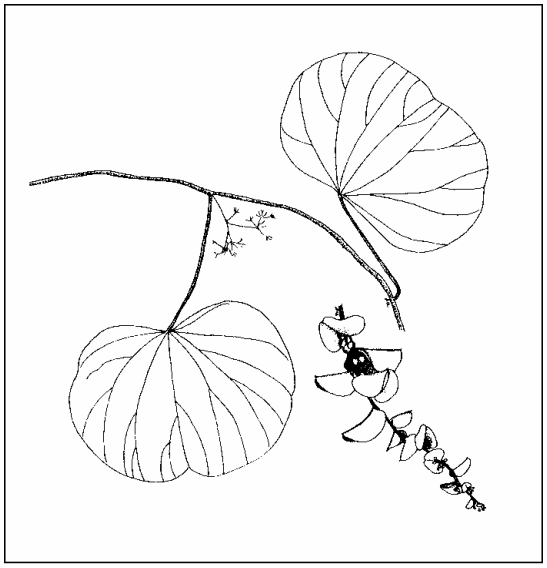
***Cissampelos pareira* L.** velvet leaf
MENISPERMACEAE

Synonyms: Cissampelos caapeba L.
Cissampelos microcarpa DC.



General Description.—Velvet leaf is also known as abuta, pareira, alcotá, bejuco de mona, oreja de raton, hierba de peso, curarina, liane amère, liane-cordé, and liane molle. It is a shrubby climber (or liana) that reaches 3 to 6 m along the ground or into the crowns of trees. The stem is woody, flexible, and slender (to 1 cm), and twines for support. The pith and rays of the stem cross section resemble a wagon wheel with spokes; annual rings are not visible. The root system consists of flexible, light-brown lateral roots with sinkers and moderately abundant fine roots. There are relatively few branches. Alternate leaves are usually softly pubescent on both surfaces. The petioles are 3 to 7 cm long. Venation is palmate in widely oval or nearly round 4- to 10-cm blades. The small staminate and pistillate inflorescences (cymes) are borne in leaf axils. The fruits are juicy red, red-orange, or yellow, hairy drupes 4 to 5 mm in diameter. Each fruit is partially covered by a rounded bract. The seeds have a croissant shape (Acevedo-Rodríguez 1985, Howard 1988, Liogier 1985, Stevens and others 2001). The species' chromosome number is 2n = 24 (Long and Lakela 1976).

Range.—Velvet leaf is native from Mexico to Argentina and Peru on the New World mainland and in the West Indies (Instituto Botánico Darwinian 2002, Secretaría de Medio Ambiente y Recursos Naturales 2002, Stevens and others 2001). It is native to Florida, although rare or possibly locally extinct (Nelson 1996). It is also found throughout tropical Asia and Africa (Long and Lakela 1976, Parrotta 2001), although it is not clear whether it is native or naturalized there.

Ecology.—Velvet leaf is a "good site" species. It usually does not grow on exposed clay subsoils, compacted soils, excessively drained, or very poorly drained soils. The species occurs on a wide variety of soil textures, pH levels, and on soils derived from most parent materials including limestone and ultramafic rocks (serpentine). In Puerto Rico, velvet leaf grows in areas that receive from 750 to about 2400 mm of annual precipitation at elevations from near sea level to about 1,500 m (Stevens and others 2001). Velvet leaf may be found on roadsides, fencerows, river banks, hammocks, brushy pastures, and secondary and remnant forests. It is moderately intolerant of shade and does not grow under the closed canopy of high forest. Openings, and therefore disturbance, appear necessary for the maintenance of the species.

Reproduction.—Velvet leaf flowers and fruits all year in the Americas (Acevedo-Rodríguez 1985, Stevens and others 2001). In India it flowers between July and October and fruits from October to December (Parrotta 2001). Fruits collected in Puerto Rico weighed an average of 0.1925 $\pm$ 0.0008 g/fruit. Seeds from them averaged 0.0109 g/fruit (air-dried). When planted in commercial potting mix without pretreatment, 26 percent of the seeds germinated between 28 and 61 days after sowing (author's observation). Birds presumably disperse the seeds. Fruit and seed production are generally moderate, and seedlings are rarely abundant. Stems layer (root) wherever they contact the soil.

Growth and Management.—No information is available on the growth rate of seedlings. Growth

of sprouts is rapid (at least 3 m in the first year). Individual stems are not long-lived, but by sprouting and layering, plants or clones may last many years. The creation of small forest openings and protection against heavy grazing are probably good strategies to promote natural establishment of new plants.

Benefits.—Velvet leaf adds to biodiversity and biomass, helps stabilize the soil, and furnishes food and cover for wildlife. A major interest in the species arises from the natural medicinal benefits of the plant's chemical contents. Known as the "midwife's herb," it has been used for centuries by native peoples of South America to treat menstrual cramps, prevent threatened miscarriage, control uterine hemorrhages, and ease childbirth and postpartum pain (Rain-tree 2002). The list of other natural medicinal applications to which the herb is applied is large: urinary infections, kidney stones, arthritis, snakebite, cough, dysentery, piles, ulcers, pain, indigestion, colic, skin irritations, stings, intestinal worms, and wounds (Parrotta 2001, Rain-tree 2002). Ground tissues and preparations of velvet leaf are sold throughout the world in markets, shops, and mail-order companies. The physiological effects are apparently derived from a number of alkaloids found in the tissues of the plant (International BioPark Foundation 2002, Morita and others 1993a, Morita and others 1993b).

References

Acevedo-Rodríguez, P. 1985. Los bejucos de Puerto Rico. Vol. 1. General Technical Report SO-58. U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station, New Orleans, LA. 331 p.

Howard R.A. 1988. Flora of the Lesser Antilles, Leeward and Windward Islands. Dicotyledoneae, Part 1. Vol. 4. Arnold Arboretum, Harvard University, Jamaica Plain, MA. 673 p.

Instituto de Botánica Darwinian. 2002. Catálogo de las plantas vasculares de la Argentina. http://www.darwin.edu.ar/Catalogo/indicevasculares.htm. [not paged].

International BioPark Foundation. 2002. Abuta, family Menispermaceae. http://www.biopark.org/peru/abuta.html. 3 p.

Liogier H.A. 1985. Descriptive flora of Puerto Rico and adjacent islands, Spermatophyta. Vol. 1. Editorial de la Universidad de Puerto Rico, Río Piedras, PR. 352 p.

Long, R.W. and O. Lakela. 1976. A flora of Tropical Florida. Banyan Books. Miami, FL. 962 p.

Morita, H., K. Matsumoto, K. Takeya, and H. Itokawa. 1993a. Azafluoranthene alkaloids from *Cissampelos pareira*. Chemical and Pharmaceutical Bulletin 41(7): 1,307-1,308.

Morita, H., K. Matsumoto, K. Takeya, H. Itokawa, and Y. Iitaka. 1993b. Structures and solid state tautomeric forms of two novel antileukemic tropoloisoquinoline alkaloids, pareirubrines A and B, from *Cissampelos pareira*. Chemical and Pharmaceutical Bulletin 41(8): 1,418-1,422.

Nelson, G. 1996. The shrubs and woody vines of Florida. Pineapple Press, Inc., Sarasota, FL. 391 p.

Parrotta, J.A. 2001. Healing plants of Peninsular India. CABI Publishing, Wallingford, UK and New York. 917 p.

Rain-tree. 2002. Abuta. http://www.rain-tree.com/abuta.htm. 7 p.

Secretaría de Medio Ambiente y Recursos Naturales. 2002. Especies con usos no maderables in bosques tropicales y subtropicales: *Cissampelos pareira* L. http://www.semarnat.gob.mx.pfnm2/fichas/cissampelos_pareira.htm. 2 p.

Stevens, W.D., C. Ulloa-U., A. Pool, and O.M. Montiel (eds.). 2001. Flora de Nicaragua. Monographs in Systematic Botany Vol. 85, No. 2. Missouri Botanical Garden, St. Louis, MO. p. 945-1,910.

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