

GUIDE TO THE GENERA OF LIANAS AND CLIMBING PLANTS IN THE NEOTROPICS

ICACINACEAE

By Pedro Acevedo-Rodríguez and Greg Stull (14 Feb 2022)



Leretia cordata, photo by J. Gonzalez (OTS)

A pantropical family of 23 genera and about 160 species of shrubs, trees and lianas. In the Neotropics, the family is represented by 4 genera and about 20 species, of which 3 genera and 11 species are known as twining or scrambling lianas. For the most part, they are found in humid or wet lowland forests.

Diagnosics: Twining or scrambling lianas with simple, alternate, chartaceous leaves, lacking stipules; pubescence of stellate, hispid or malpighiaceus hairs; flowers minute or small, white or cream; exudate mucilaginous; stem cross sections often with successive, alternate, concentric rings or asymmetrical bands of xylem and phloem.

General Characters

1. STEMS. Flexible or rigid in early non-climbing stages. Moderately woody, developing nearly cylindrical, asymmetrical or flattened (fig. 1), attaining 5 to 15 m in length and 3-5+ cm in diam.; cross sections in *Pleurisanthes* with **successive cambia** producing continuous concentric rings (fig. 1b) or arcs (fig. 1c) of xylem and phloem, or discontinuous arcs of xylem and phloem (fig. 1a); xylem rings sinuate along the peripheral border, and dissected by very wide rays that seemingly divide the xylem into rectangular units (fig. 1), vessels commonly very wide; some species of *Pleurisanthes* with very large medulla (fig. 1c).
2. EXUDATES. Mucilaginous or watery in *Pleurisanthes* (fig. 1b), not visible in *Leretia*.
3. CLIMBING MECHANISMS. **Twining** in *Pleurisanthes* and *Leretia*, **scrambling** in *Casimirella*.
4. LEAVES. Alternate, exstipulate; blades chartaceous to subcoriaceous, glandless, venation penninerved, intersecondaries common, tertiary venation clathrate or reticulate, commonly abaxially prominent in *Pleurisanthes*, margins entire, serrulate or dentate; petioles short, commonly grooved and twisted.
5. INFLORESCENCE. Axillary or terminal (on short branches), panicles of spikes or racemes in *Pleurisanthes*; dichasial paniculate cymes in *Casimirella*, much-branched cymes in *Leretia*.
6. PEDICELS. Commonly short to very short or lacking, commonly articulate.
7. FLOWERS. Bisexual, actinomorphic, 4- or 5-merous; calyx campanulate, sepals connate to various degrees; corolla white, cream or light yellow, of distinct petals; stamens 4 or 5, alternating with petals, the filaments free, the anthers opening along longitudinal slits, the connective occasionally with a prominent extension beyond anther sacs; ovary superior, sessile, unilocular, with 2 pendent ovules, style 1 or rarely 2 or 3, the stigma capitate.
8. FRUIT. A pyriform, ovoid, oblong or globose drupe, with woody or thin endocarp, inner endocarp surface with sparse hairs (in *Leretia* and *Casimirella*); seed one, with abundant endosperm.

USES

Species of *Casimirella* in central Amazonia produce a very large (up to 200 kg), subterranean tuber, locally known as *batata mairá* which contains abundant starch that is edible after a toxic, bitter substance is removed by repeated washing (Howard 1990; Ribeiro 2018).

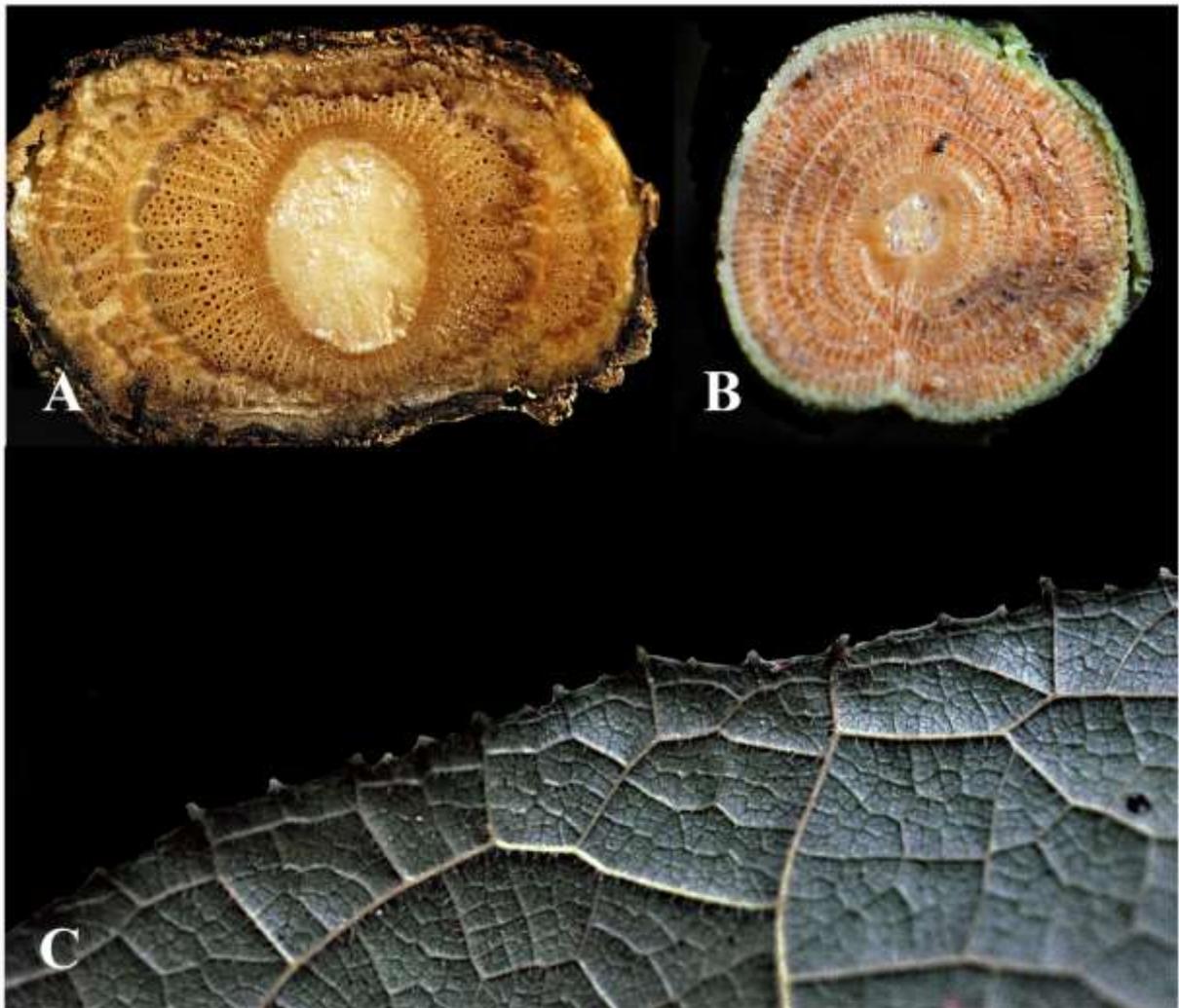


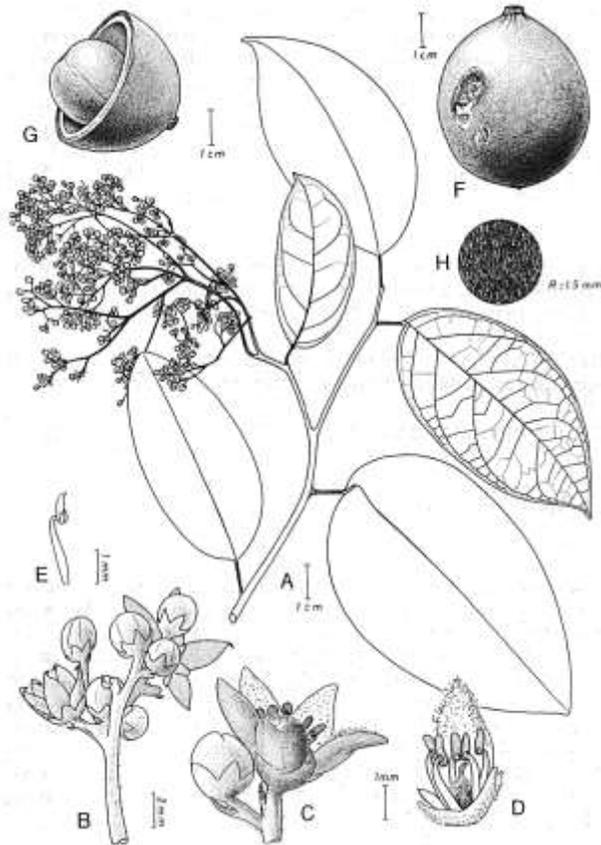
Figure 1. A. Stem cross section of *Pleurisanthes* sp. with asymmetrical, concentric bands of xylem & phloem. (14773) B. Stem cross section of *Pleurisanthes artocarpifolia*, with symmetrical, concentric rings of xylem and phloem. (16106) C. Glandular-dentate leaf margin in *Pleurisanthes emarginata*. (7942) Photos by P. Acevedo.

KEY TO THE GENERA

- 1. Plant with Malpighiaceae pubescence*Lereticia*
- 1. Plant lacking Malpighiaceae hairs2
- 2. Plant with hispid pubescence; inflorescence of axillary or terminal panicles of spikes or racemes, often with the flowers restricted to one face of the flattened inflorescence axis*Pleurisanthes*
- 2. Plant variously pubescent but not hispid; inflorescences terminal or extra axillary dichasial cymes *Casimirella*

GENERIC DESCRIPTIONS

CASIMIRELLA Hassler, Feddes Repert. Spec. Nov. Regni Veg. 12: 249. 1913.



Casimirella ampla, from Flora of the Guianas

Lianas or less often shrubs or small trees with often massive subterranean tubers that can weigh up to 200 kg. Shoots sometimes developing from large tubes. Pubescence densely stellate, glabrescent. Stems asymmetrical, furrowed, with smooth gray bark, reaching up to 15 m in length, with scanty watery exudate; cross section with successive cambia producing asymmetrical, concentric bands of xylem & phloem. Leaves alternate, simple with entire margins. Inflorescences terminal or supra axillary, umbelliform, paniculate dichasial cymes. Flowers bisexual, 5(6)-merous; pedicels articulated at the base. Sepals nearly free; petals cream or light yellow, fleshy, free, adaxially tomentose, abaxially sericeous-hirsute; stamens 5, filaments free,

glabrous, anthers dorsifixed, connectives with distinct apical protrusion; disk absent; ovary ovoid or conical, sessile with terminal short, filiform style (rarely 2 or 3) with capitate stigma. Drupe ovoid, with woody endocarp, that is internally pubescent; seed solitary.

Distinctive features: Scrambling lianas with massive underground tubers; branches stellate pubescent; leaves simple, alternate; staminal connectives with distinct apical protrusion; endocarps pubescent on inner surface.

Distribution: A South American genus of seven species; northern South America south to Bolivia, Paraguay and SE Brazil; moist and wet forests; 200-500 m.

LERETIA Vellozo, Fl. Flumin. 99. 1829 ['1825'].



L. cordata, photo by E. Salicetti (from La Selva, florula digital)

Twining lianas or less often erect shrubs; pubescence of malpighiaceus hairs. Stems with no visible sap, reaching 10-12 m in length. Leaves alternate with entire margins; petiole with a distinct abscission line at the base. Inflorescences hanging, axillary, of paniculate cymes. Flowers bisexual, 5-merous, pedicles articulate below the calyx. Sepals free

nearly to the base; petals light yellow, fleshy, strongly revolute, adaxially pilose; stamens free, filaments glabrous, connectives with minute apical tip; disc absent; ovary conical, pilose, the style glabrous, as long as the stamens, the stigma capitate, obliquely umbonate at the apex. Drupe depressed-ovoid-ellipsoidal; inner endocarp surface lined with sparse hairs.

Distinctive features: Twining lianas covered throughout by malpighiaceae pubescence; leaves simple, with entire margins; petioles canaliculate with abscission line at base; inner endocarp surface sparsely pubescent.

Distribution: A neotropical genus of two species; Panama, northern South America to Ecuador, Peru and Brazil; moist or wet, terra firme forests; 200-500 m.

PLEURISANTHES Baillon, *Adansonia* 11: 201. 1874.



P. artocarpus Baill., photo by P. Acevedo

Twining lianas with pubescence of hispid hairs, climbing by means of a sympodial succession of twining stems with determinate growth that behave like tendrils; stems cylindrical or flattened, attaining up to 5 cm in diam.

and 10-12 m in length; exudate watery or mucilaginous, especially at the periphery of the medulla; cross section with successive cambia producing symmetrical, concentric rings or bands of xylem and phloem (fig. 1b & c). Leaves alternate, distichous, simple with entire or dentate margins; venation penninerved, tertiary veins commonly clathrate and abaxially prominent, sometimes bullate or abaxially sericeous-tomentose; domatia absent. Inflorescences terminal or supra axillary panicles of spikes or racemes, flowers often restricted to one side of the inflorescence axis; pedicels non-articulated. Flowers bisexual, 4-5(6)-merous. Calyx cupulate, sepals nearly free, much shorter than the petals; petals free or connate at base, fleshy, commonly with prominent midvein, adaxially glabrous; stamens 4-5, free, filaments filiform; disc absent;

ovary conical, pilose; style short to as long as ovary, the stigma capitate, minute. Drupe ellipsoid to obovoid, orange when mature.

Distinctive features: Twining lianas; stems with successive cambia; older branches strap-shaped; leaves simple, alternate, with tertiary clathrate venation, secondary veins often protruding beyond margin and forming small teeth.

Distribution: A South American genus of six or seven species of lianas; northern South America to Ecuador, Peru and Brazil; moist to wet forests; 200-500 m.

RELEVANT LITERATURE

- Amorim, B.S., A. Alves-Araújo, R. Duno de Stefano and M. Alves. 2013. Icacinaceae s.l. da Mata Atlântica do Nordeste, Brasil. *Rodriguesia* 64: 21-27. <http://rodriguesia.jbrj.gov.br>
- Amorim, B.S., N.D. Cardozo¹, P.M. Albuquerque and F.N. Cabral. 2020. Flora da Reserva Duce, Amazonas, Brasil: Icacinaceae. *Rodriguesia* 71: e00712018. <http://rodriguesia.jbrj.gov.br>; <http://dx.doi.org/10.1590/2175-7860202071009>
- Howard, R. A. 1942. Studies of the Icacinaceae, II. *Humirianthera*, *Leretia*, *Mappia*, and *Nothapodytes*, valid genera of the Icacinaceae. *Journal of the Arnold Arboretum* 23: 55-78.
- Howard, R. A. 1942. Studies of the Icacinaceae IV: Considerations of the New World Genera. *Contributions from the Gray Herbarium of Harvard University* 142: 3-60.
- Howard, R.A. 1992. A Revision of *Casimirella*, including *Humirianthera* (Icacinaceae). *Brittonia* 44: 166-172.
- Potgieter, M.J. and R. Duno. 2016. Icacinaceae. In: Kubitzki K. (eds) *Flowering Plants. Eudicots. The Families and Genera of Vascular Plants*, vol 14. Springer, Berlin, Heidelberg.
- Ribeiro, R.G. 2018. Estudo etnobotânico e físico-químico da batata-mairá (*Casimirella* spp. – Icacinaceae). M.Sc. Thesis, INPA, Manaus, Brazil.

PICTURE VOUCHERS

Figure 1.

- A. *Casimirella* sp. (Acevedo 17056).
- B. *Pleurisanthes artocarp*i Baill. (Acevedo 16106).
- C. *Pleurisanthes* sp. (Acevedo 14773).