

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

GENTIANACEAE

By Pedro Acevedo-Rodríguez (Feb 2021)



Purseanthus pulcher, drawing from
Curtis Bot. Mag. 75. t. 4424. 1849.

A pantropical, although mostly temperate family of herbs, shrubs and sometimes trees, saprophytic herbs or vines. The family contains 103 genera and 1,750 species; in the Neotropics the family is represented by 53 genera and 630 species, of which only 6 species in 4 genera are vines. These are distributed in northern South America, Cuba and Hispaniola, in wet forests or scrubs.

Diagnosics: Opposite leaves simple, opposite, entire with pinnate venation; stems often square or winged square, terete in *Bisgoeppertia*; corolla tubular or large and funnel-shaped, often long, pale yellow or orange-red. Fruit capsular.

General Characters

1. **STEMS.** Young stems commonly tetragonous, winged or cylindrical, sometimes slightly enlarged at the nodes; cross section with *regular* vascular anatomy where xylem forms a

closed cylinder; phloem (in climbing species) is external and made of a few layers of parenchymatous tissue, rays inconspicuous (Metcalf & Chalk 1957), *intraxylary phloem* present in the periphery of the medulla.

2. EXUDATES. No information has been reported on the color and nature of exudates, as a result it seems fair to conclude that they are odorless and *colorless*; in general, exudates in the family are said to be bitter.
3. CLIMBING MECHANISM. *Bisgoeppertia* and *Lehmanniella* are *twiners*, while the climbing species of *Chorisepalum* and *Purdieanthus* are *scramblers*.
4. LEAVES. Leaves are simple, glandless, opposite, decussate, with pinnate venation and entire margins; petioles short, sometimes with adaxial colleters; stipules absent but interpetiolar flange present.
5. INFLORESCENCES. Axillary or terminal, few-flowered racemes or cymes, sometimes solitary; bracts and bracteoles commonly minute.
6. FLOWERS. *Actinomorphic* or slightly *zygomorphic*, bisexual; short- or long-pedicelled. Sepals 5, connate or free; corolla light yellow, white, greenish, orange, red or crimson, gamopetalous, tubular to funnel-shaped, 5-merous, with short lobes; stamens 5, inserted on the corolla tube, the filaments commonly as long as the corolla, anthers sometimes exerted; gynoecium superior, syncarpous, 2-carpellate, with numerous axial ovules per carpel, the style terminal, elongated with 2 stigmatic branches.
7. FRUITS. Oblong-elliptic, woody, dehiscent capsules.

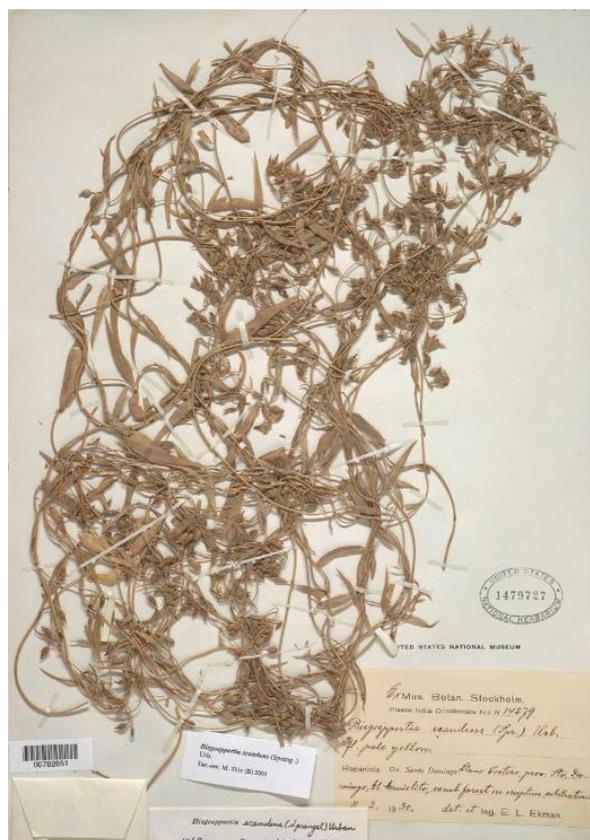
KEY TO THE GENERA

1. Twining vines2
1. Scrambling shrubs or vines3
2. Plants herbaceous twiners; corolla < 1 cm long, white or pale yellow*Bisgoeppertia*
2. Plant subwoody; corollas 4-5 cm long, crimson or orange *Lehmanniella*
3. Leaves fleshy, midvein abaxially prominent, secondary veins inconspicuous; flowers light green, 6-7.5 cm long. *Chorisepalum*

3. Leaves coriaceous, with conspicuous pinnate venation; corolla orange or red-orange, yellow at the mouth, 3.5-4 cm long. *Purdieanthus*

GENERIC DESCRIPTIONS

BISGOEPPERTIA O. Kuntze, Rev. Gen. 2: 426. 1891.



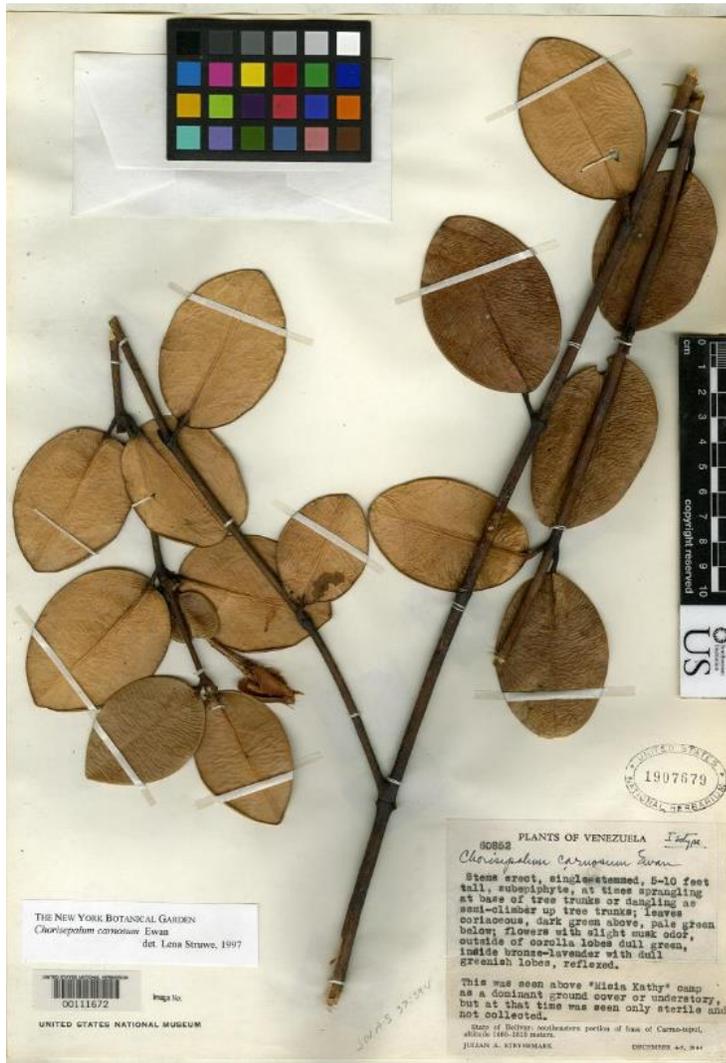
B. scandens, from Ekman H14279 (US)

Herbaceous twining vines. Stems cylindrical, 3-4 mm wide and 1.5-2 m long. Leaves simple, opposite, decussate, with entire margins and pinnate venation; petioles short; stipules represented by an interpetiolar ochrea-like ridge. Inflorescence axillary and racemose or distal on short axillary branches and paniculate; bracts acicular, as long as the calyx. Flowers bisexual, actinomorphic, 5-merous; sepals lanceolate, free; corolla pale yellow or white, < 1 cm long, tubular, with contorted lobes; ovary subbilocular with numerous ovules per locule, style filiform. Capsule septicidal, 2-valved, with numerous, minute ovoid or fusiform seeds.

Distinctive features: Twining herbaceous vines; leaves narrow-lanceolate or lineate, opposite, simple, entire, with pinnate venation; corollas minute, light yellow or white.

Distribution: A West Indian genus of 3 species, two endemic to Cuba (*B. gracilis* (Griseb.) Kuntze & *B. robustior* Greuter & R. Rankin) and one to Hispaniola (*B. scandens* (Spreng.) Urb.); in woods, pine forests, dry open areas on serpentine or limestone substrates; 200-450 m.

CHORISEPALUM Gleason & Wodehouse, Bull. Torrey Bot. Club 58: 451. 1931.



C. carnosum, photo from Steyermark 60852 (US)

Erect shrubs or scrambling vines. Stems cylindrical or quadrangular, sometimes slightly swollen at nodes, reaching 3.5 m in length, with pedant branches. Leaves simple, opposite, decussate, ovate, elliptic to orbicular, fleshy (in climbing species), with entire margins and inconspicuous secondary venation; petioles short, with a faint interpetiolar ridge. Flowers bisexual, 5-merous, terminal and solitary or in 3-5-flowered, dichasial cymes; pedicel elongated; calyx ovoid, with free lanceolate or narrowly oblong sepals, 2 of which are longer than the other 3; corolla light green, 6-7 cm long, tubular or narrowly campanulate, with 5(6) elliptic or aristate lobes; stamens inserted at base of corolla tube, slightly exserted, with linear anthers;

ovary bi-ocular, style as long as the stamens, distally with 2 narrowly elliptic stigmatic branches. Capsules splitting nearly to the base into 3-5 cartilaginous, long-persistent valves.

Distinctive features: Scrambling shrubs or vines; leaves fleshy, opposite, simple, entire, midvein abaxially prominent, secondary veins inconspicuous; flowers light green, 6-7.5 cm long.

Distribution: A genus of 5 species, endemic to Venezuela, Guyana and Suriname. Only two species recorded as climbers (*C. carnosum* Ewan and *C. ovatum* Gleason), these endemic to Venezuela; slopes of sandstone plateau, 1400-1700 m.

LEHMANNIELLA Gilg in Engler & Prantl, Nat. Pflanzenfam. 4(2): 95, 101. 1895.



Herbs or twining vines. Stems cylindrical, longitudinally ridged, ca. 5 mm wide and 1.5-2 m long. Leaves simple, opposite, decussate, with entire margins; venation pinnate with few basal secondary veins; petioles short; stipules represented by an interpetiolar ochrea-like ridge. Inflorescence distal, umbellate; pedicels as long as the flowers. Flowers bisexual, actinomorphic, pendant; calyx green, cupular to funnel-shaped, < 1 cm long, with 5 rounded, short lobes, imbricate; corolla crimson or orange, 4-5 cm long, long-urceolate to funnel-shaped, narrowly tubular at base, lobes round, short, spreading; stamens inserted near the base or the corolla, the anthers sagittate with a small sterile appendage at apex; ovary bilocular, long-conical, style as long as the stamens, 2-branched. Capsule woody, 2-valved.

L. splendens, from London J. Bot. 6: t. 8. 1847.

Distinctive features: Twining lianas, stems cylindrical, with 4 faint longitudinal ridges;

corolla crimson or orange, urceolate-funnel-shaped, hanging.

Distribution: A Neotropical genus of 2 species endemic to NW South America (Colombia & Peru), with *L. splendens* (Hook.) Ewan, from Colombia as the only species reported as sometimes growing as a vine; wet and rain forests; 400-3500 m.

PURDIEANTHUS Gilg in Engler & Prantl, Nat. Pflanzenfam. 4(2): 99. 1895.



P. pulcher, photo by Veronica VH.

Erect shrubs or scrambling vines. Stems tetragonous, with faint longitudinal ridges, 3–4 mm wide and 1–3 m long, slightly enlarged at the nodes. Leaves simple, opposite, decussate, with entire margins and pinnate venation; petioles short, with a prominent interpetiolar ridge. Inflorescence axillary or terminal, dichasial cymes;

bracts and bracteoles minute. Flowers bisexual, slightly zygomorphic, 5-merous, nodding; calyx green, campanulate, sepals imbricate, shorter than the tubular portion, rounded; corolla red orange or red, yellow at the mouth, 3.5–4 cm long, tubular-funnel-shaped, slightly curved, with short, round lobes; stamens exserted, anthers apiculate; disc fleshy, bilobed; ovary conical, style as long or longer than the stamens, 2-branched. Capsules dry.

Distinctive features: Scrambling vines; stems tetragonous; branches hanging; leaves opposite, simple, entire, coriaceous, ovate, with pinnate venation; corolla orange or red-orange, yellow at the mouth, tubular-funnel-shaped.

Distribution: A Neotropical genus of a single species (*P. pulcher* (Hook.) Gilg) endemic to Colombia and Venezuela; cloud forests and paramos; 2500–4000 m.

RELEVANT LITERATURE

Struwe, L. et al. 2002 onwards. Classification of Gentianaceae. - List of tribes and subtribes <http://gentian.rutgers.edu/classABC.htm>