

GENTIANACEAE

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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 six species in four 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 (Metcalfe & 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.

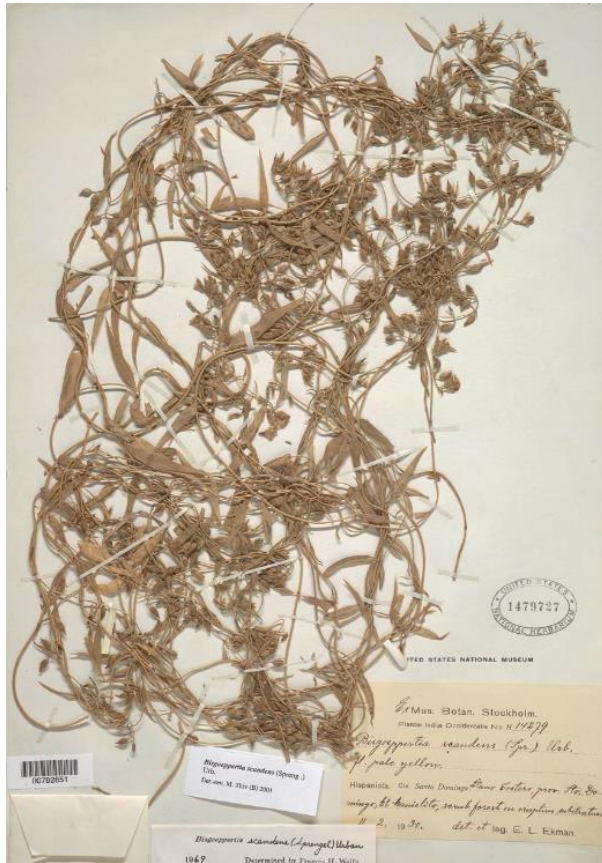
4. LEAVES. Leaves are simple, glandless, opposite, decussate, with pinnate venation and entire margins; petioles short, sometimes with adaxial colleters; stipules absent but interpetiolar flange present.
5. INFLORESCENCES. Axillary or terminal, few-flowered racemes or cymes, sometimes solitary; bracts 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 of climbing Gentianaceae

1. Twining vines.....2
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*

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

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 sub-bilocular with numerous ovules per locule, style filiform. Capsule septicidal, 2-valved, with numerous, minute ovoid or fusiform seeds.

Bisgoeperttia scandens, from Ekman H14279 (US).

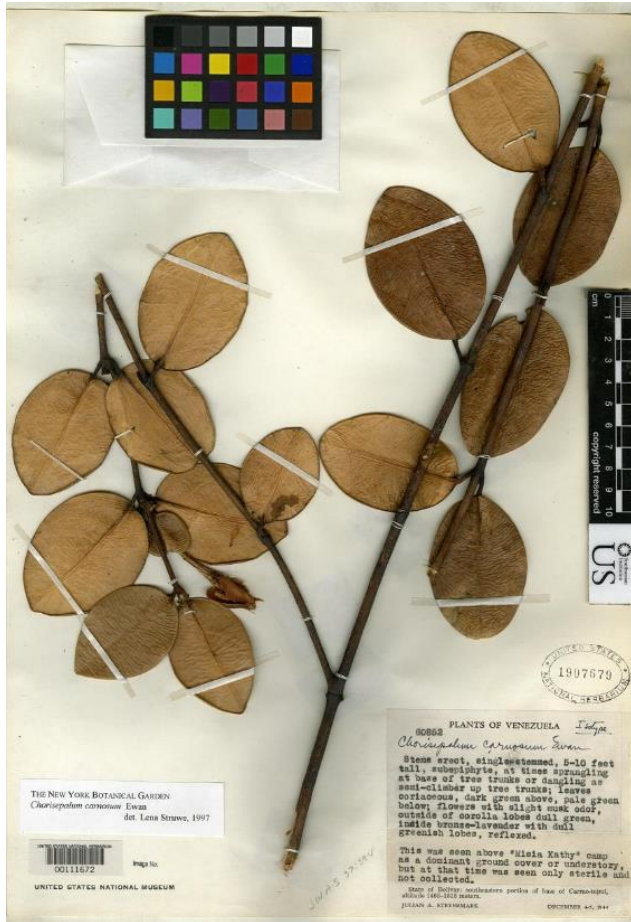
Distinctive features: Twining herbaceous

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

Distribution: A West Indian genus of three 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.

Erect shrubs or scrambling vines. Stems cylindrical or quadrangular, sometimes slightly



Chorisepalum carnosum, from Steyermark 60852 (US).

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

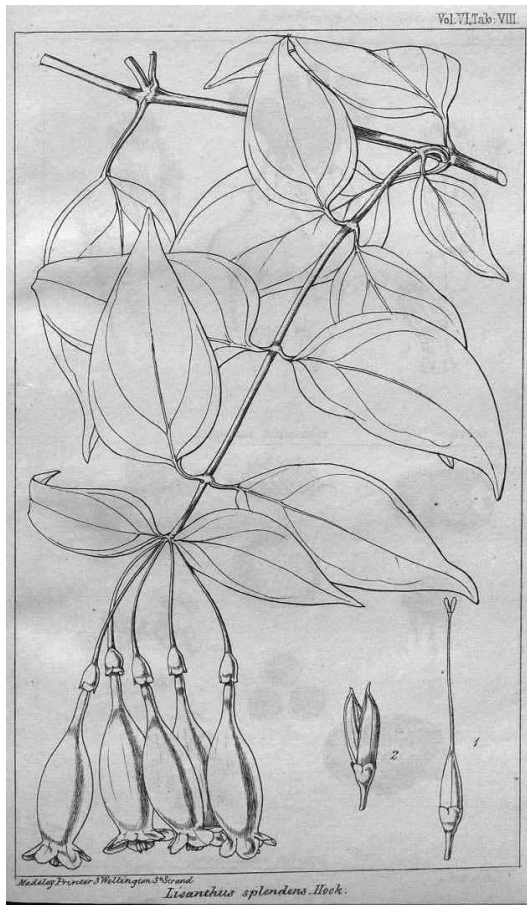
base of corolla tube, slightly exserted, with linear anthers; ovary bilocular, style as long as the stamens, distally with 2 narrowly elliptic stigmatic branches. Capsules splitting nearly to the base into 3-5 cartilaginous, long-persistent valves.

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 five 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, 1,400–1,700 m.

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

Herbs or twining vines. Stems cylindrical, longitudinally ridged, ~5 mm wide and 1.5–2



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

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, pendent; 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 of 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.

Distinctive features: Twining lianas, stems cylindrical, with 4 faint longitudinal ridges; corolla crimson or orange, urceolate-funnel-shaped, hanging.

Distribution: A neotropical genus of two species endemic to NW South America (Colombia and Peru), with *L. splendens* (Hook.) Ewan, from Colombia as the only species reported as sometimes growing as a vine; wet forest and rainforest; 400–3,500 m.

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

Erect shrubs or scrambling vines. Stems tetragonous, with faint longitudinal ridges, 3–4



Purdieanthus pulcher, photo by Veronica VH.

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 exerted, 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 paramo; 2,500–4,000 m.

