

## CONNARACEAE

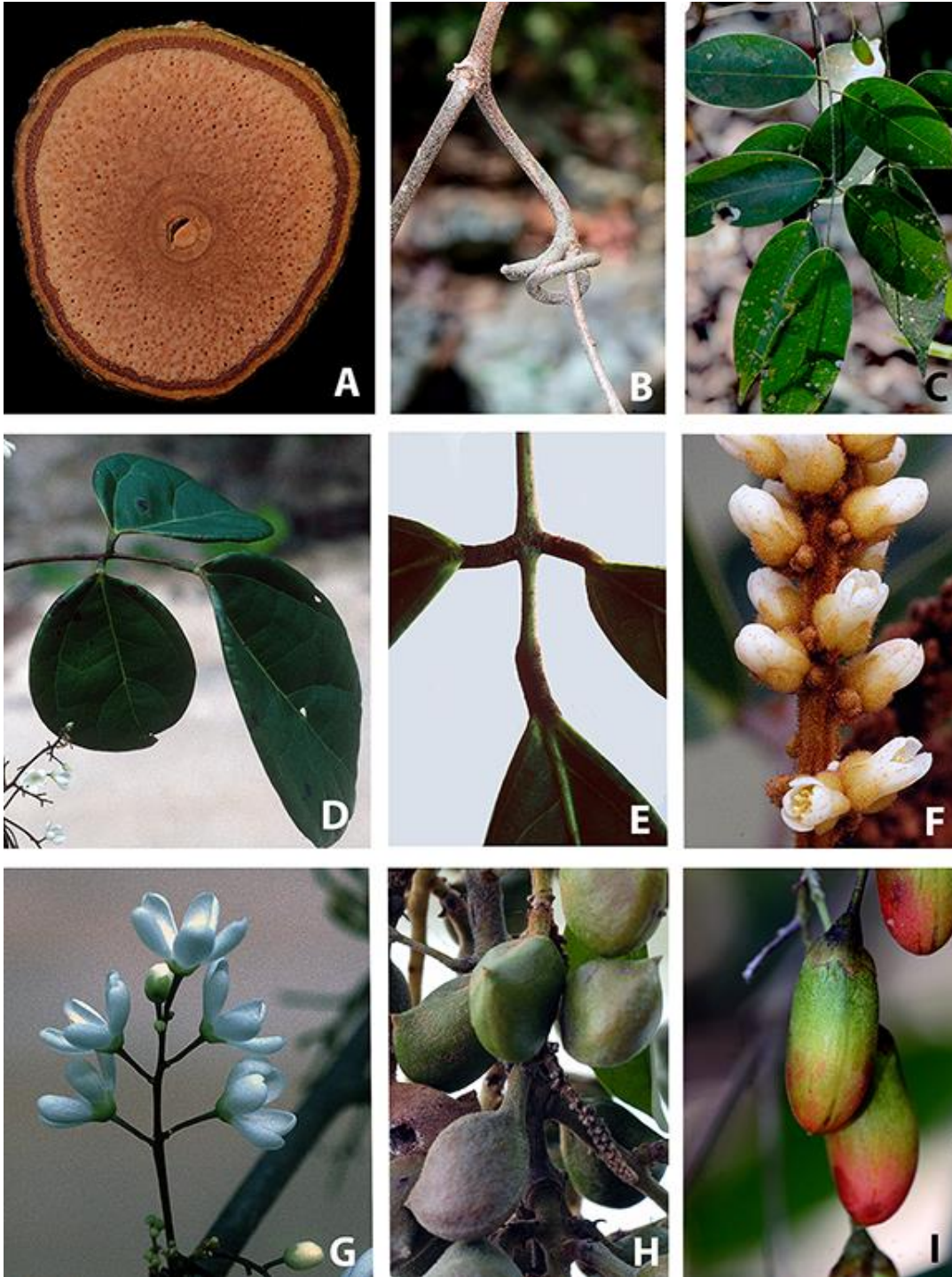
P. Acevedo-Rodríguez

A tropical family of trees, shrubs and lianas generally found below 1,000 m elevation with a few species reaching 1,500 m. Connaraceae is represented in the Neotropics by *Bernardinia*, *Cnestidium*, *Connarus*, *Pseudoconnarus*, and *Rourea*. The species of *Bernardinia*, *Cnestidium*, and *Pseudoconnarus* are all climbers but those in *Connarus* and *Rourea* can be shrubs or trees as well as lianas. ~81 out of a total 105 species of Connaraceae in the Neotropics are either lianas or facultative climbing shrubs found in lowland moist forests, savannas, gallery forests, premontane forests, and sometimes in dry forests.

**Diagnosics:** Climbing Connaraceae are distinguished vegetatively from climbers in other families by the presence of imparipinnate, trifoliolate or unifoliolate, alternate, exstipulate leaves with pulvinate leaflets; climbing through the aid of short, tendril-like lateral branches, or less often with twining or scrambling stems; stems are cylindrical with a regular vascular cylinder, producing watery sap, or very seldom a reddish sap. Often confused with members of the Fabaceae but distinguished by the exstipulate leaves, actinomorphic flowers with apocarpous gynoecia, and the absence of successive cambia in the stems.

### General Characters

1. **STEMS.** Woody and usually 1 to 5 cm in diameter and up to 15 m in length; cylindrical in cross section, regular, with inconspicuous rays (Figure 84A). Barks are smooth, rough, lenticellate or corky.
2. **EXUDATES.** Odorless and colorless in all genera (Figure 84), except for a few species (e.g., *Connarus coriaceus* G. Schellenb., *C. incomptus* Planch., and *C. panamensis* Griseb.) which sometimes produce a red exudate in the bark. (Figure 85A).

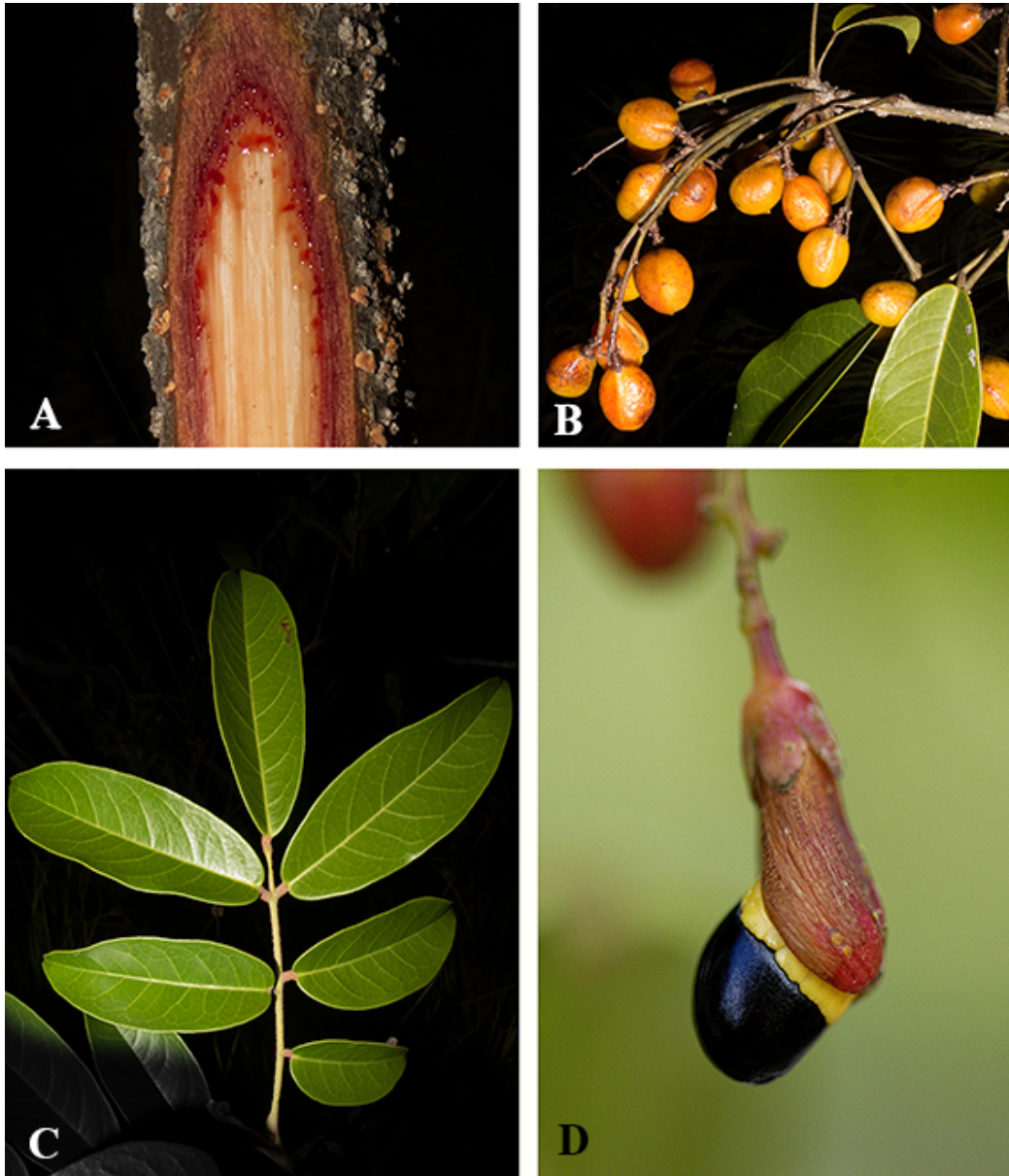


**Figure 84.** A–C. *Rourea glabra*. A. Cross section of stem. B. Prehensile branch. C. Leaf. D. Leaf in *Pseudoconnarus macrophyllus*. E. *Connarus* sp., trifoliolate leaf with pulvinuli. F. *Connarus panamensis*, inflorescence. G. *Pseudoconnarus macrophyllus*, inflorescence. H. *Connarus panamensis*, falcate fruits. I. *Rourea glabra*, sessile capsules. Photos by P. Acevedo.

3. CLIMBING MECHANISM. Most genera have short lateral prehensile branches with a few species reported as twiners or scramblers (Figure 84B).
4. LEAVES. Alternate, exstipulate, 5–13-pinnate (Figures 84C; 85C), less often trifoliolate in *Pseudoconnarus* and some species *Connarus* and *Rourea* (Figure 84D), or rarely unifoliolate (some *Connarus* and *Rourea*). Petioles and rachis nearly cylindrical (Figure 84E); petioles and petiolules pulvinate (Figures 84E; 85C). Leaflets opposite or alternate with entire margins; venation pinnate, except in *Pseudoconnarus* where they are triplinerved near the base of the blade (Figure 84D). *Pseudoconnarus* and some *Rourea* have papillate undersurface.
5. INFLORESCENCES. Ascending, hanging or spreading, axillary, pseudoterminal or cauliflorous, paniculate, racemose, spiciform or fasciculate (*Pseudoconnarus*, some *Rourea*) thyrses with flowers in lateral dichasia. Pseudoterminal inflorescences arise from the axil of reduced or ephemeron leaves at the end of branches giving the impression of distal panicles.
6. PEDICELS. Of variable lengths and articulate (i.e., have an abscission zone above the base).
7. FLOWERS. Actinomorphic, bisexual, pentamerous, heterostylous, usually < 1 cm long. Sepals distinct to completely connate, imbricate or seldom valvate (*Cnestidium*). Petals white (Figure 84F, G), light yellow or light pink, distinct or less often partly connate at base, glabrous or less often pubescent, glandular punctate in most *Connarus* (Figure 84F); stamens 10 in two series; gynoecium of 5 apocarpous carpels or a single carpel in *Connarus*, the style more or less elongated, the stigmas capitate or bilobed; placentation basal, ovules 2 per carpel.
8. FRUITS. One-seeded follicles, one to several per flower; red or less often orange or bicolorous; short to long stipitate in *Connarus* (Figure 84H) and *Pseudoconnarus*, sessile in

*Bernardinia*, and *Cnestidium* and *Rourea* (Figure 84I); coriaceous, falcate and usually slightly flattened in *Connarus* (Figures 84H; 85B), nearly ellipsoid in remaining genera (Figure 84I).

9. SEEDS. Nearly ellipsoid, black or orangish, shiny, with a basal arillode that can be orange, yellow or white, and crenate, undulate or lobed at margin (Figure 85D).



**Figure 85.** A–C. *Connarus incomptus*. A. Stem with reddish exudate. B. Fruiting branch. C. Imparipinnate leaf. D. *Rourea* sp., dihiscent fruit with crenate arillode. Photos: A–C by Ricardo Perdiz; D by P. Acevedo.

## USES

Three species of *Connarus* have been reported as being used for fish poisoning in the Neotropics (Acevedo-Rodríguez 1990). According to Forero (1983) several species of *Connarus*, *Rourea* and *Cnestidium* have been used in folkloric medicine for the treatment of various ailments. Pérez et al. (2015) report that seeds of *Connarus panamensis* are used as fish bait, and those of *Rourea glabra* Kunth to poison rats and other small mammals.

### Key to the genera of climbing Connaraceae

1. Leaves trifoliolate; leaflets triplinerved from base and papillate undersurface (South America)  
.....*Pseudoconnarus*
1. Leaves imparipinnate, trifoliolate or unifoliolate; leaflets with pinnate venation, not papillate underneath (except for some *Rourea*).....2
2. Follicles falcate, stipitate, usually slightly flattened; petals usually glandular punctate; flowers with a single carpel (Neotropics) ..... *Connarus*
2. Follicles ellipsoid or nearly so, sessile; petals not glandular punctate; flowers with 5 apocarpous carpels .....3
3. Sepals valvate; leaves 7–13 pinnate (Mexico to N South America, Cuba).....*Cnestidium*
3. Sepals imbricate; leaves variously compound (unifoliolate, trifoliolate, 5–33-pinnate) .....4
4. Sepals free nearly to the base, almost as long as the petals (Brazil) ..... *Bernardinia*
4. Sepals connate into a cupular or bell-shaped calyx, shorter than the petals (Neotropics)  
..... *Rourea*

**BERNARDINIA** Planchon, *Linnaea* 23: 412. 1850.

Small trees, erect or scrambling shrubs; stems cylindrical, lenticellate. Leaves 7–13-foliolate pinnate. Inflorescences axillary, paniculate. Flowers actinomorphic, bisexual, pentamerous, not glandular punctate; sepals imbricate, free nearly to the base, almost as long as the petals; petals glabrous; stamens 10, free, glabrous; gynoecium of 5 apocarpous, biovulate carpels. Follicles red, sessile, slightly fleshy, nearly ellipsoid, 1–2(–4) per flower.

**Distinctive features:** Sepals long, striate, free nearly to the base.

**Distribution:** A single species restricted to southeastern Brazil.

**CNESTIDIUM** Planchon, *Linnaea* 23: 439. 1850.

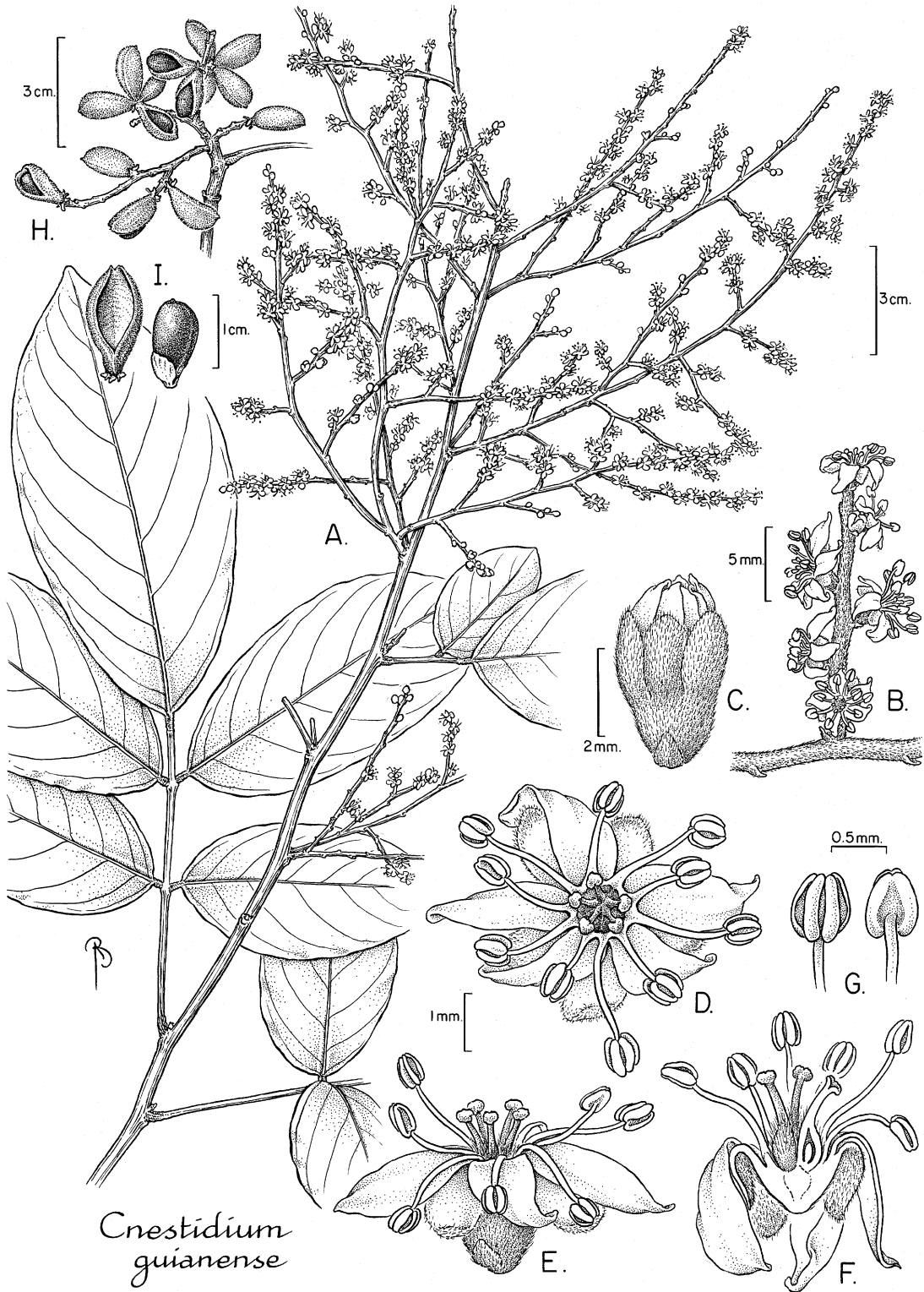
Lianas  $\geq 10$  m long, with prehensile branches (Figure 86); stems cylindrical, tomentose



*Cnestidium rufescens*, photo by A. Hernández.

when young. Leaves 5–9-foliolate pinnate. Inflorescences axillary, paniculate. Flowers actinomorphic, bisexual, pentamerous, not glandular punctate; sepals valvate or narrowly imbricate; petals white, glabrous; stamens 10, free or shortly connate at base; gynoecium

of 5 apocarpous, biovulate carpels. Follicles reddish brown, ellipsoid, slightly falcate, sessile, 1–2(–4) per flower; seed arillate.



**Figure 86.** *Cnestidium guianense*. **A.** Flowering branch. **B.** Detail of inflorescence. **C.** Flower bud. **D.** Flower, top view. **E.** Flower, lateral view. **F.** Flower, longitudinal section. **G.** Anthers, frontal & dorsal views. **H.** Infructescence. **I.** Dehisced fruit wall and arillate seed. Drawing courtesy of Bobbi Angell.

**Distinctive features:** Valvate or narrowly imbricate sepals; follicles rusty tomentose, usually one or two per flower.

**Distribution:** Two species, Mexico to northern South America and Cuba.

**CONNARUS** Linnaeus, Sp. Pl. 675. 1753.

Small trees, erect or scrambling liana with prehensile branches; stems cylindrical, usually



*Connarus panamensis*, photo by P. Acevedo.

lenticellate, rough, sometimes corky. Leaves 3–17 foliolate pinnate or less often unifoliate. Inflorescences axillary, paniculate. Flowers actinomorphic, bisexual, pentamerous, usually glandular punctate; sepals imbricate, connate at base; petals white or

yellow; stamens 10, connate at base to various degrees, glabrous or pubescent; gynoecium of a single, biovulate carpels. Follicles dry, yellow, orange or red, short to long stipitate, slightly flattened, and falcate; seed black, with a yellow or orange arillode at base.

**Distinctive features:** Flowers with a single carpel; perianth usually glandular punctate. Follicles one per flower, coriaceous, falcate, and stipitate.

**Distribution:** A pantropical genus with 80–100 species, represented in the Neotropics by 54 species, 36 of which are lianas or climbing shrubs. In Mexico, Central America, South America, Cuba, and Lesser Antilles.



**PSEUDOCONNARUS** Radlkofer, Sitzungsber. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss.

Münch. 16: 356. 1886.

Lianas with prehensile branches; stems cylindrical, lenticellate. Leaves trifoliolate;



*Pseudoconnarus macrophyllus*, photo by P. Acevedo.

leaflets triplinerved from the base. Inflorescences axillary, or cauliflorous, paniculate. Flowers actinomorphic, pentamerous, not glandular punctate; sepals imbricate; petals white; stamens 10, free, glabrous; gynoecium of 5 biovulate carpels. Follicles reddish, one to several per flower, sessile, slightly fleshy, nearly ellipsoid;

seed with basal arillode.

**Distinctive features:** Leaves trifoliolate; leaflets triplinerved; flowers unisexual.

**Distribution:** A South American genus with 5 species distributed in Colombia, Venezuela, Guyana, Suriname, Peru, and Brazil (Acre, Amazonas, Pará).

**ROUREA** Aublet, Hist. Pl. Guiane 1: 467. 1775.

Shrubs, trees or scrambling lianas sometimes with short, lateral prehensile branches; stem



*Rourea glabra*, photo by P. Acevedo.

cylindrical; cross section with regular anatomy (Figure 84A). Leaves 5–33 foliolate pinnate, trifoliolate or unifoliolate. Flowers 5-merous, not glandular, in terminal, subterminal, or axillary panicles; calyx cup-shaped of imbricate sepals that are connate at base; corolla of 5 white or pale yellow, free petals or partly connate at base; stamens connate at the base to form a short tube; ovary of 5 free carpels, stigma capitate. Follicles 1 or rarely 2 per flower, sessile, nearly ellipsoid (sometimes slightly curved), fleshy, with persistent (sometimes accrescent) calyx at the base; seed black, with a yellow or white

arillode at the base.

**Distinctive features:** Follicles ellipsoid, fleshy, sessile, usually bicolorous, sometimes the persistent calyx accrescent.

**Distribution:** A pantropical genus of ~85 species, 42 distributed throughout tropical America, 36 of which are lianas or climbing shrubs.