

POLEMONIACEAE

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Largely an extra-tropical family of herbs, shrubs or lianas, with 27 genera and ~350 species. Although the two largest genera are distributed across North America and temperate Asia, most genera are endemic to the New World, with highest diversity in North America-Mexico, with few genera extending to South America. *Cobaea* with 17 species is the only genus of climbers in the family and is distributed from Mexico to Bolivia through mid- to high-elevation habitats of Central and South America.

Diagnosics: Lianas and vines with compound, alternate leaves with distal leaflets modified into bifid tendrils; corollas funnel-shaped or campanulate, greenish, purplish or yellow; stem cross sections simple, with large vessels and inconspicuous rays. Sometimes confused with Bignoniaceae due to the gamopetalous corolla, but easily distinguished by the alternate leaves and trilocular ovaries.

General Characters

1. **STEMS.** Herbaceous to woody with moderate secondary growth, cylindrical, up to 25 m in length and 1–2(3) cm in diam.; cross sections simple, with regular vascular anatomy (wavy cambium) or with continuous phloem wedges, with numerous large vessels more or less radially disposed, inconspicuous medulla and inconspicuous rays (Figure 200A); bark smooth, greenish or beige.
2. **EXUDATES.** Watery or no visible exudates.
3. **CLIMBING MECHANISMS.** Distal leaflets modified into bifurcate tendrils.
4. **LEAVES.** Alternate, pari-pinnately compound, with 3–5 pairs of leaflets and distal portion (rachis and often more than one leaflet) modified into bifid tendrils (Figure 200B); leaflets

opposite, subopposite or seldom alternate, with pinnate venation and entire to undulate margins, chartaceous or less often coriaceous, petiolulate or less often sessile; petioles short or the leaves sessile; exstipulate.

5. INFLORESCENCE. Axillary, dichasial cymes, or flower solitary.
6. FLOWERS. Bisexual, actinomorphic, 5-merous; sepals free, large, green; corolla gamopetalous, funnel-shaped or campanulate, 5 lobed, green but sometimes purplish or pink tinged, purple, white or yellow; stamens 5, the filaments adnate to the corolla at the base, sometimes distally curved; disc 5-lobed, each lobe representing a nectary; ovary superior, trilocular, often with several axile ovules, the style elongated, with 3 stigmatic branches.
7. FRUIT. A septicidal, 3-valvate, ellipsoid, dry capsule, with a stout septal column in the center; seeds numerous, overlapping, winged.

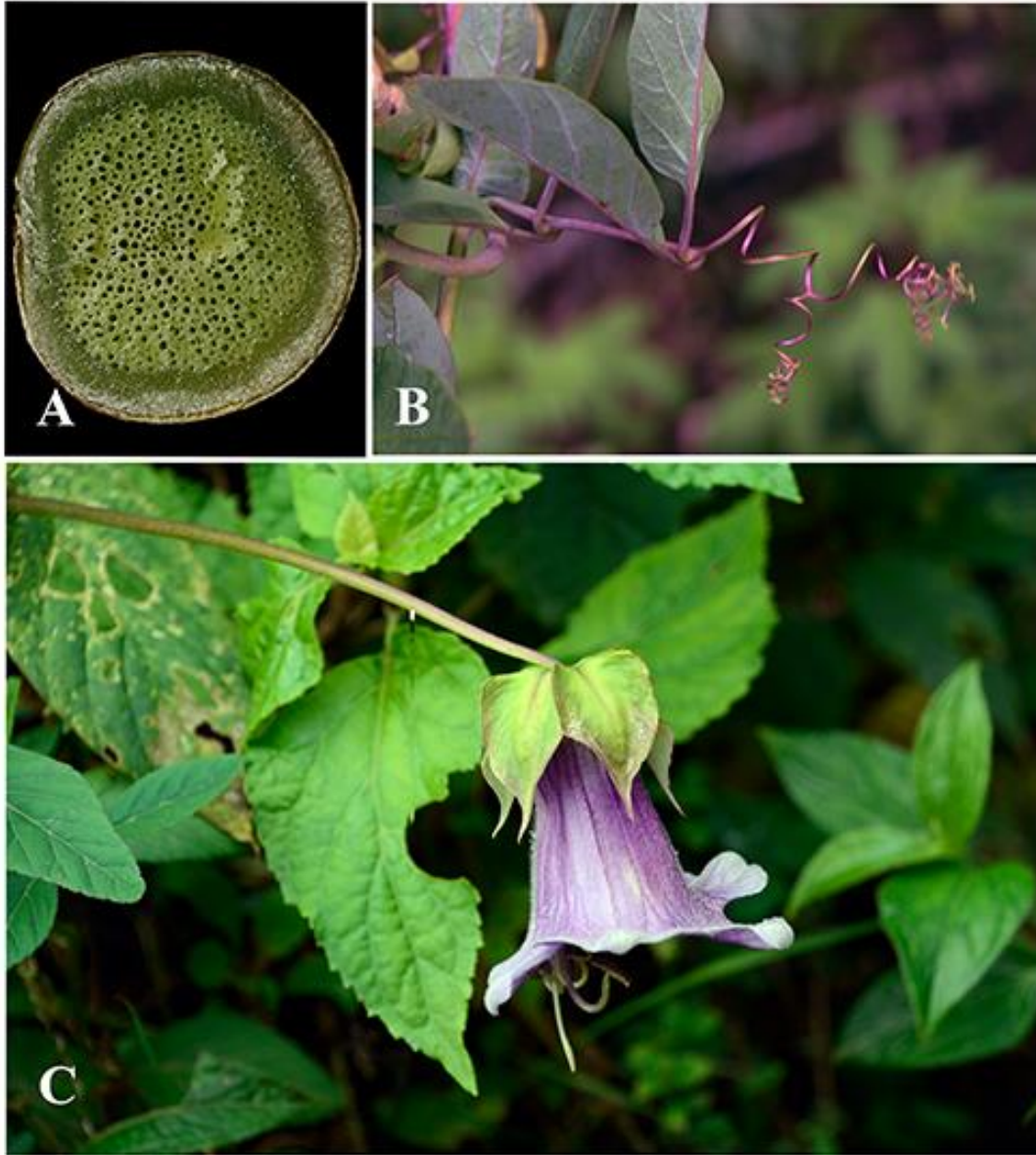


Figure 200. *Cobaea*. **A.** Stem cross section of *C. scandens*, with wavy cambium. **B.** Leaf of *C. scandens* showing distal tendril. **C.** Flower of *C. biaurita* at anthesis. Photos by P. Acevedo.

COBAEA Cavanilles, Icon. 1: 11. 1791.

Herbaceous to subwoody tendrilled vines, with short, laeral hanging branches, reaching 5–10(25) m in length. Stems mostly angled, glabrous or various indument of simple hairs, pubescent, unarmed, becoming cylindrical with age, reaching 1–2(3) cm in diam; cross section



Capsule of *Cobaea scandens*, photo by P. Acevedo.

with regular anatomy (Figure 200A) or with phloem wedges. Leaves alternate, pari-pinnately compound; leaflets 3–5 pairs, opposite, subopposite or less often alternate, chartaceous to coriaceous, pinnately veined, with undulate margins, commonly asymmetrical at base and petiolulate; rachis canaliculate, with distal portion along with distal leaflets modified into bifurcate tendrils that are either prehensile or act as hooks and help anchoring the plant to the host. Inflorescence axillary dichasial cymes, pendulous or erect, or flowers solitary; pedicels 10–28 cm long. Sepals free, large, green; corolla commonly yellow with purplish or pink

stripes, less often purple, light yellow or white; stamens shorter than the corolla or exerted.

Capsule ellipsoid, commonly maculate, 3–79 cm long, with persistent calyx and disc nectary at the base; seed numerous, small, flat and winged.

Distinctive features: *Cobaea* along with the Fabaceae genera *Lathyrus* and *Vicia*, are the only genera of vines in the Neotropics that have compound once-pinnate leaves with distal leaflets modified into tendrils. *Lathyrus* and *Vicia* are distinguished by the presence of stipules and the typical papilionaceous flower of legumes.

Distribution: A neotropical genus of 18 species distributed from Mexico south to Bolivia through high elevation habitats. The genus has two centers of distribution, one in the mountains of Mexico and another in the Andes from Venezuela to Bolivia. *Cobaea scandens* Cav. is widely

cultivated in parts of Mexico, Central America, South America, Europe, Asia, Africa, and New Zealand.