

TRIGONIACEAE

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With the exception of the monotypic genus *Huberti dendron* (endemic to Madagascar), the Trigonaceae is a small neotropical family of lianas or trees, consisting of four genera and ~32 species. In the Neotropics, the family is represented by three endemic genera, two of which are monotypic, and the genus *Trigonia* with a total of 29 species, 25 of which are twining vines or lianas. These are distributed from southern Mexico to southern Brazil; for the most part, they are found in lowland moist or wet forests in flooded or non-flooded habitats.

Diagnosics: Vegetatively similar to members of Malpighiaceae as they share twining stems and simple opposite leaves, however, *Trigonia* is distinguished by the lack of petiolar glands and the presence of interpetiolar stipules and 4 phloem wedges in old stems. Flowers and fruits in Trigonaceae are quite distinctive from those of Malpighiaceae. The stems of *Trigonia* could be confused with those of lianoid Bignoniaceae because of the presence of 4 phloem wedges, but the two families are vegetatively quite distinctive.

General Characters

1. **STEMS.** Smooth, glabrous or pubescence of simple hairs; cylindrical or sub-quadrangular, with moderate secondary growth, reaching 2–10 m in length and 1–1.5 cm in diam.; bark is moderately rough; cross sections commonly with a quadrangular medulla, conspicuously wide vessels, abundant narrow rays, and in older stems 4 phloem wedges with continuous or discontinuous cambium (Figure 234A, B).
2. **EXUDATES.** No visible exudate.
3. **CLIMBING MECHANISMS.** All climbing *Trigonia* have twining main shoots, often with short, opposite lateral branches.

4. LEAVES. Opposite, with conspicuous interpetiolar stipules (Figure 234D), chartaceous to sub-coriaceous, simple, with entire margins and pinnate venation, in some species abaxially villose or lanate; petioles short, glandless.
5. INFLORESCENCE. Axillary or distal, racemose or paniculate thyrses (Figure 234C), with flowers in lateral cincinni or simple dichasia (Figure 234E); bracts conspicuous and persistent.
6. PEDICELS. Short.
7. FLOWERS. Bisexual, zygomorphic; calyx of 5, free, unequal, imbricate sepals; petals 5 greenish yellow or light yellow, unequal, the anterior 2 forming a keel and often with distinctive coloration along medial portion, the 2 lateral free often longer than the remaining petals, the posterior petal saccate at the base, fleshy and bright yellow in the middle, the apex reflexed; stamens 5–8, unequal, the filaments partly connate forming a sheath around the pistil, the anthers opening along longitudinal slits; ovary superior, trigonous, 3-carpellate, subtended by a nectary on the posterior side, the placentation axile, ovules numerous per locule, the style elongate with cupular stigma.
8. FRUIT. A septicidal trigonous, elongated, woody capsule, often ferruginous-pubescent; seeds covered by long, wooly hairs, often remaining attached to the placenta tissue long after the valves have fallen away.

TRIGONIA Linnaeus, Sp. Pl. 173. 1753.

Twining vines or lianas or less often erect shrubs; stems cylindrical or nearly so, sub-quadrangular in some species, reaching up to 10 m in length and 1–1.5 cm in diam., the bark moderately rough; cross sections commonly with a quadrangular medulla, conspicuously wide

vessels, abundant narrow rays and in older stems 4 phloem wedges with continuous or discontinuous (Figures 5B; 234A, B) cambium, producing no exudate; branches opposite, decussate and short. Leaves simple, opposite; with conspicuous interpetiolar caducous stipules; petioles short, adaxially canaliculate. Inflorescences axillary or terminal, racemose or paniculate thyrses. Flowers bisexual, zygomorphic; calyx of 5, free, unequal, imbricate sepals; petals 5 greenish yellow or light yellow, unequal, the anterior 2 forming a keel and often with distinctive coloration along medial portion, the 2 lateral free often longer than the remaining petals, the posterior petal saccate at the base, fleshy and bright yellow in the middle, the apex reflexed; stamens 5–8, unequal, the filaments partly connate forming a sheath around the pistil, the anthers opening along longitudinal slits; ovary superior, trigonous, 3-carpellate, subtended by a nectary on the posterior side, the placentation axile, ovules numerous per locule, the style elongate with cupular stigma. Fruit a septicidal, trigonous, elongated, woody

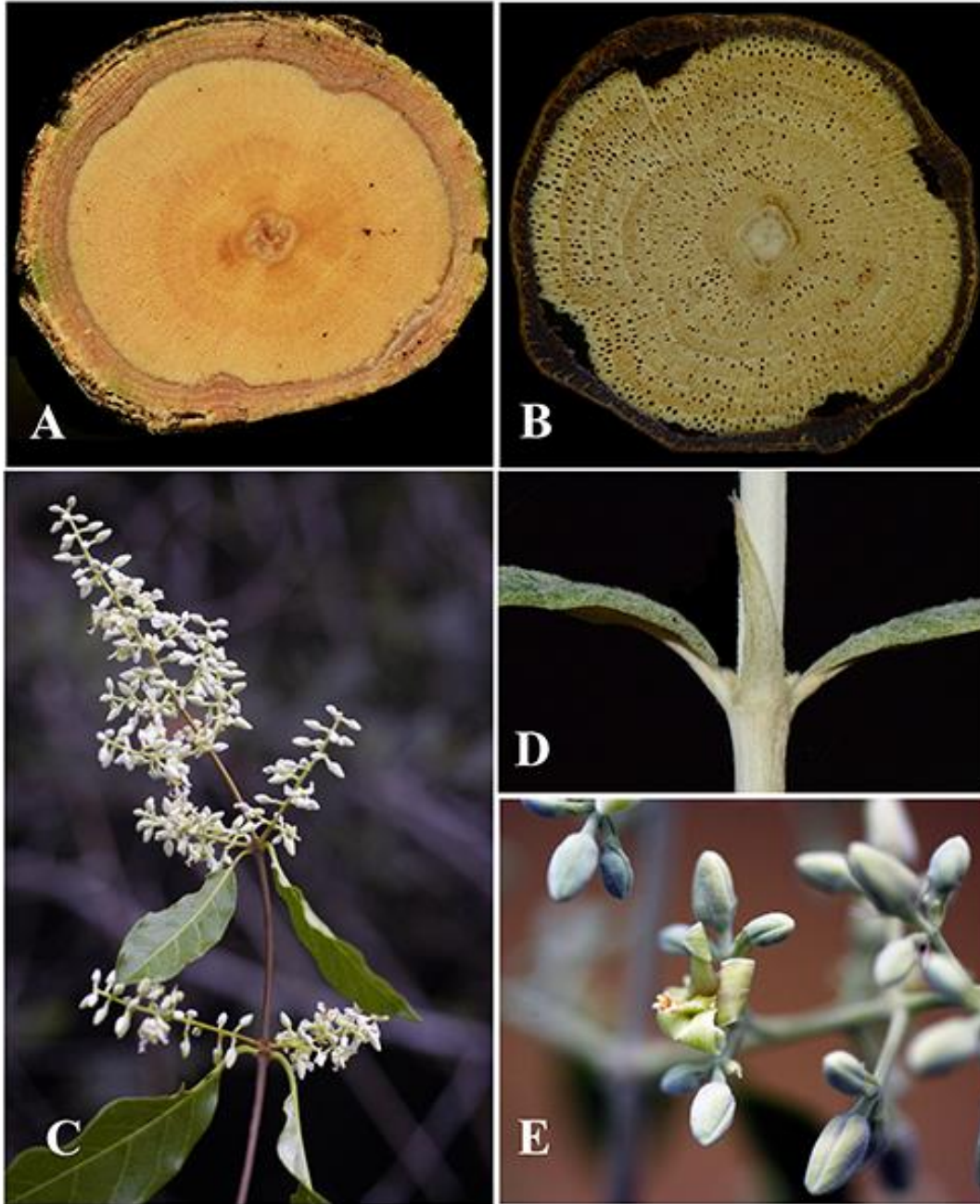


Figure 234. **A.** Stem cross section of *Trigonium rugosa* a nearly square-shaped medulla and 4 wavy areas in the periphery of the xylem where phloem wedges will later develop. **B.** Stem cross section of *Trigonium laevis* with square-shaped medulla and 4 phloem wedges with continuous cambium. **C.** Flowering branch of *Trigonium spruceana*. **D.** Flower clusters in *Trigonium* sp. Photos by P. Acevedo.

capsule, often ferruginous-pubescent; seeds covered by long, wooly hairs, often remaining attached to the placenta tissue long after the valves have fallen away.

Distinctive features: Twining lianas with simple opposite leaves and large interpetiolar, caducous stipules. Sterile material may be confused with members of Rubiaceae but distinguished by the appressed lanate pubescence on leaves and young parts in some species and by the cross sections of mature stems with a square medulla and 4 conspicuous phloem wedges.

Distribution: A genus of 29 species, 25 of which are twining vines or lianas, distributed from southern Mexico to southern Brazil; for the most part, found in lowland moist or wet forests in flooded or non-flooded habitats; 35–300 (1,580) m.