

HELIOTROPIACEAE

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A tropical to warm temperate family with four genera and ~450 species of shrubs, trees, herbs, or less often twining or scrambling lianas. In the Neotropics, the Heliotropiaceae is represented by 198 species in four genera, but only two genera (*Heliotropium* & *Myriopus*) have a total of 35 species of twining lianas or vines, or less often scrambling shrubs. For the most part, they are found in the lowlands in seasonal to dry forests, woodlands and savanna-like formations.

Diagnosics: Predominantly twining lianas or scrambling; leaves simple, alternate with entire margins, exstipulate; inflorescences scorpioid cymes; flowers 5-merous, corollas gamopetalous, stamens inserted on the corolla tube, and ovary superior; fruits fleshy drupes.

General Characters

1. **STEMS.** Young stems cylindrical; mature stems woody with substantial secondary growth, cylindrical or sometimes slightly flattened (Figure 125A–C); commonly 3–5 m long, but some species (e.g., *Heliotropium funkiae* Feuillet (= *Tournefortia bicolor* Sw.), *Heliotropium verdcourtii* Craven. (= *T. hirsutissima* L.)) can reach 20 or more m in length, and commonly a few cm in diam. (up to ~10 cm in *Heliotropium funkiae*); bark beige and smooth with wart-like protuberances, smooth, or rough (Figures 125E; 126); cross sections with regular anatomy, showing a large medulla, wide vessels and numerous narrow rays (Figure 125A, C), some species with shallow to deep phloem wedges (Figure 125D) or sclereids bundles in secondary phloem or cortex (Figure 125B).
2. **EXUDATES.** Inconspicuous and clear exudates.
3. **CLIMBING MECHANISMS.** Climbing Heliotropiaceae are either twiners or scramblers.

4. LEAVES. Alternate, simple, chartaceous to coriaceous with entire margins; blades sometimes with punctate glands; veins pinnate; petioles short, sometimes geniculate, glandless; stipules absent.
5. INFLORESCENCE. Scorpioid cymes, terminal on main stem or on short lateral branches.
6. PEDICELS. Short or flowers sometimes sessile.
7. FLOWERS. Bisexual, actinomorphic, 5-merous; calyx 5 distinct equal sepals; corolla gamopetalous, campanulate or funnel-shaped; stamens 5, equal, the filaments inserted on the corolla tube, the anthers opening along longitudinal slits; ovary superior, of 2 connate carpels, bilocular; ovules 1 per locule, axile, the style 1, terminal, round pyramidal.
8. FRUIT. A fleshy drupe with 1–4 pyrenes.

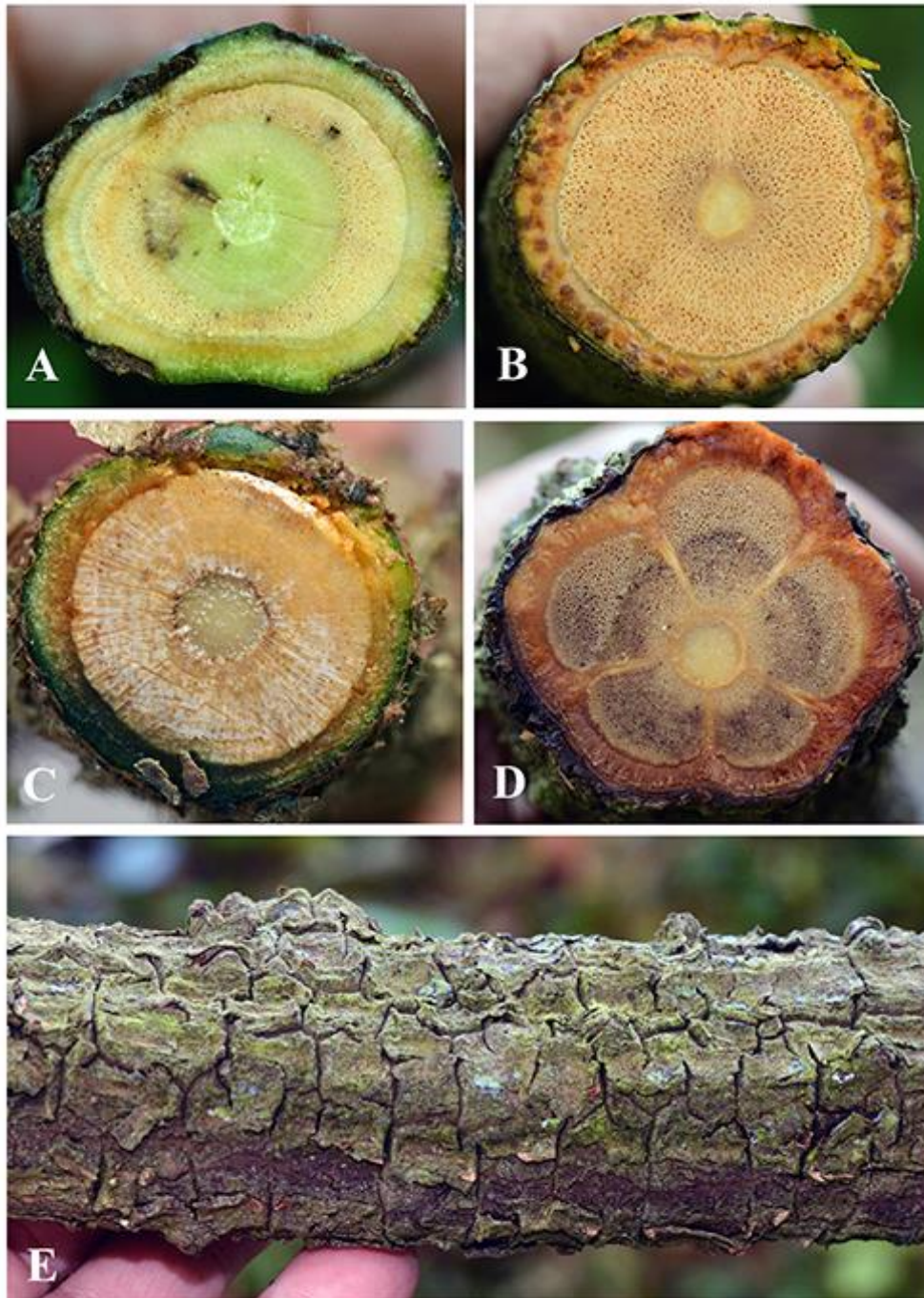


Figure 125. Mature stems in climbing Heliotropiaceae. A-D. Cross sections. **A.** *Myriopus maculatus*, regular anatomy with narrow rays. **B.** *Heliotropium funkiae*, sclereids bundles in secondary phloem or cortex. **C, D.** *Heliotropium verdcourtii*; C. Juvenile stem without phloem wedges; D. Old stem, xylem with deep phloem wedges and interrupted cambium. **E.** Rough bark in *H. verdcourtii*. Pictures by P. Acevedo

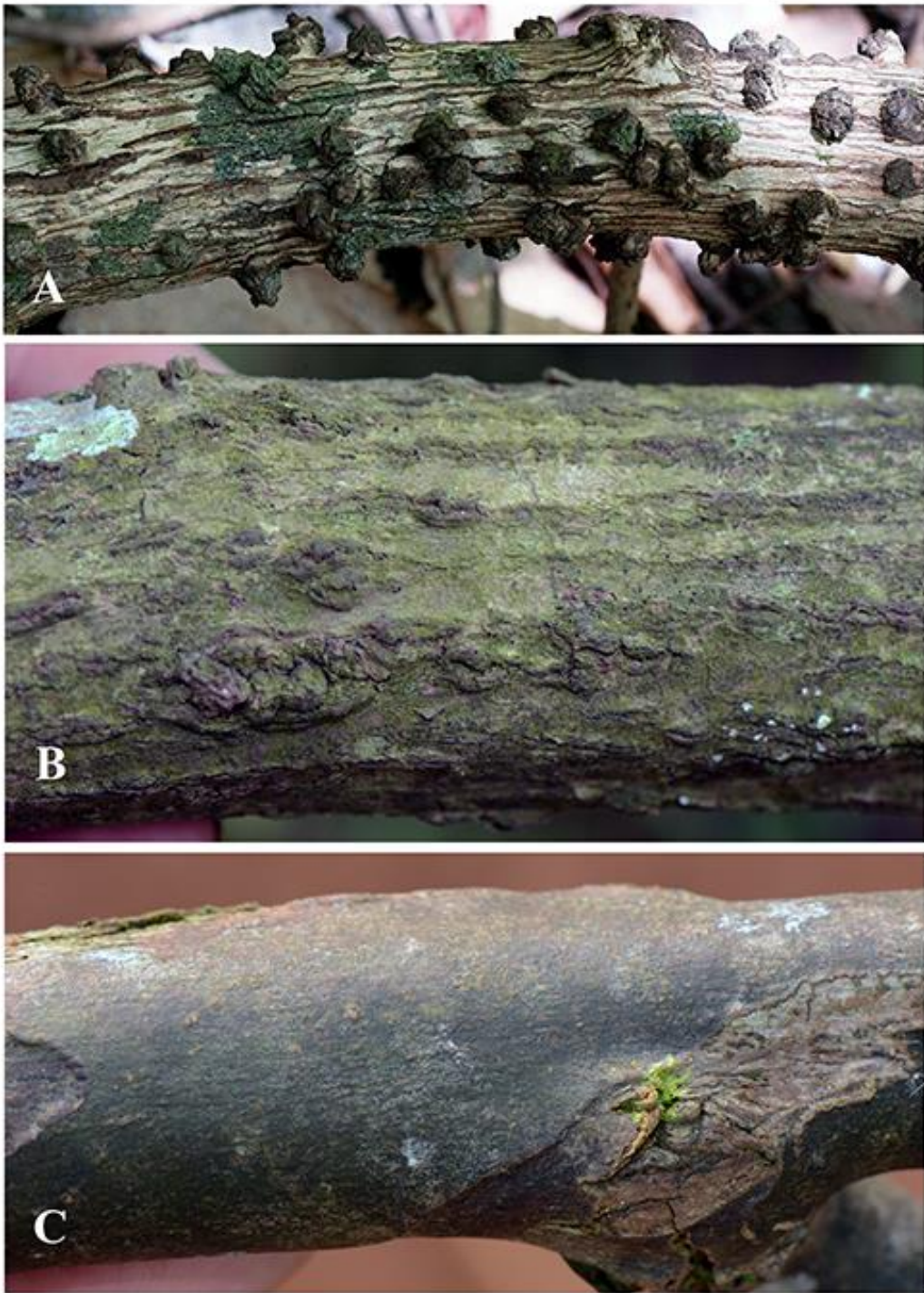


Figure 126. Barks in climbing Heliotropiaceae. **A.** Young stem in *Heliotropium verdcourtii* with wart-like protuberances. **B.** Rough bark in *H. funkiae*. **C.** Smooth bark in *Myriopus maculatus*. Pictures by P. Acevedo

Key to the genera of climbing Heliotropiaceae

- 1. Corolla lobes ovate, short, obtuse (sometimes apiculate) at apex; anthers free, glabrous; stigma round-pyramidal, rimmed at the base *Heliotropium*
- 1. Corolla lobes lanceolate, acute at apex; anthers connate, pubescent at the apex; stigma ovoid, with short stigmaphore above the basal rim *Myriopus*

HELIOTROPIUM Linnaeus, Sp. Pl. 130. 1753.

Tournefortia L. (1753).

Erect or prostrate herbs or shrubs and a few species of twining vines or lianas reaching



Heliotropium funkiae, photo by P. Acevedo.

15–20 m in length; stems cylindrical, or less often flattened, in some species reaching up to ~10 cm in diameter; bark beige and smooth with wart-like protuberances or rough (Figures 125E; 126A); cross sections with regular anatomy,

showing a large medulla, wide vessels and numerous narrow rays, old stems in some species with sclereids bundles in the secondary phloem or cortex (Figure 125B), others with deep phloem wedges (Figure 125D); exudate inconspicuous. Leaves alternate, simple, entire or undulate, with pinnate venation; petioles short; stipules absent. Inflorescences terminal, scorpioid cymes. Flowers bisexual, actinomorphic, 5-merous. Calyx crateriform, the sepals with valvate

aestivation; corolla funnel-shaped, the lobes ovate and obtuse at apex; stigma round-pyramidal, rimmed at the base. Drupes fleshy, subglobose, white, often with a sticky pulp.

Distinctive features: Vegetatively similar to *Myriopus* but distinguished by the floral characters.

Distribution: A nearly cosmopolitan genus of ~240 species, 18 of which are lianas or vines found in the Neotropics; in lowland, wet, moist, semideciduous or secondary forests.

MYRIOPUS Small, Manual Southeast. Fl. 1131. 1933.

Twining lianas, scrambling shrubs or less often erect shrubs. Stems more or less cylindrical;



Myriopus volubilis, photo by P. Acevedo.

cross section in examined species with regular anatomy (Figure 125A). Leaves alternate, chartaceous to coriaceous, simple, with entire or crenate margins; petioles short, without glands.

Inflorescences terminal, scorpioid cymes. Flowers

actinomorphic, bisexual, 5-

merous; calyx crateriform, with valvate aestivation; corolla funnel-shaped, white, yellow, light green, white, the lobes lanceolate; stigma ovoid, with short stigma-phore above the basal rim.

Drupes, orange, white, sometimes with 2–4 black spots, 2–4 lobed.

Distinctive features: Twining vines or scrambling shrubs with terminal helicoid cymes; stigma ovoid, with short stigma-phore above the basal rim.

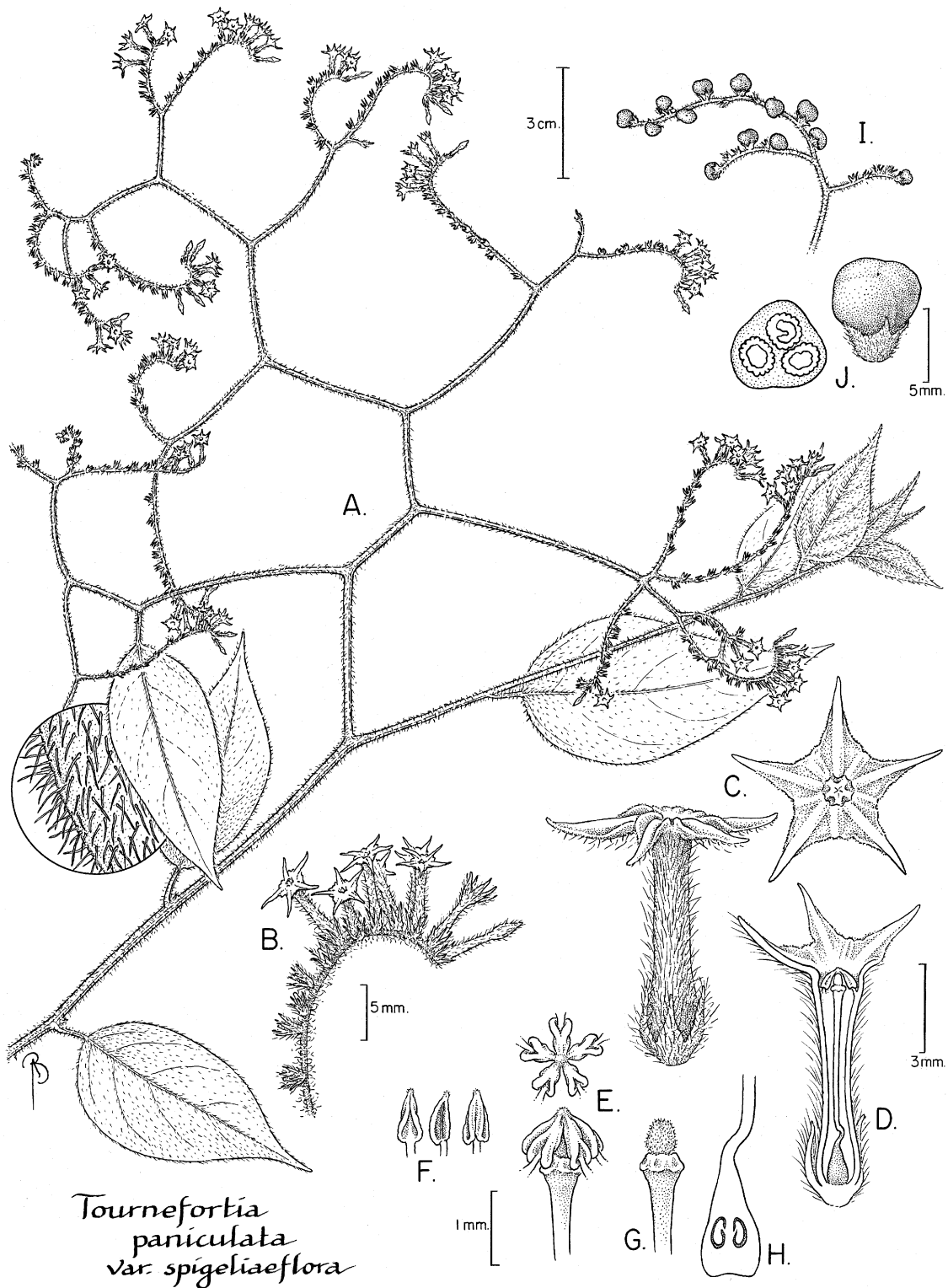


Figure 127. *Myriopus paniculatus*. **A.** Flowering branch. **B.** Detail of inflorescence. **C.** Flower, lateral and top views. **D.** Flower, longitudinal section. **F.** Anthers distally connate. **G.** Distal portion of style with stigma seating on a rim. **H.** Ovary, longitudinal section. Drawing courtesy of Bobbi Angell.

Distribution: A neotropical genus of 22 species, 17 of which are reported as lianas or climbing shrubs; distributed from Mexico, Central America, Venezuela, Colombia, Peru, Bolivia, the Guianas, Brazil, Paraguay, and the West Indies; often in wet or moist lowland forests.