

GUIDE TO THE GENERA OF LIANAS AND CLIMBING PLANTS IN THE NEOTROPICS

SMILACACEAE

By Pedro Acevedo-Rodríguez (March 2023)



Smilax sp., photo by P. Acevedo.

A widespread family with tropical to temperate distribution of rhizomatous, herbaceous to sub-woody, tendrilled vines. The family contains 3 genera and about 300 species, most of which belong to the genus *Smilax*, the only representative in the Neotropics with

115 species in this region. The genus is generally found below 1,500 m elevation with a few species reaching higher elevations and occurs in wet to dry forest and savannas.

Diagnosics: *Smilax* is easily recognized by the presence of two stipular tendrils at the junction of the petiole with the leaf sheath. Stems are wiry, and usually armed with prickles, the leaves are simple, with 3–11 main arcuate, parallel veins. Fruits are berries of various colors.

General Characters

1. STEMS. Stems are deep green, cylindrical, *wiry* (reaching up to 2.5 cm in diam.) and commonly provided with straight *prickles*. Cross-section with typical monocot configuration of scattered, discrete *bicollateral vascular bundles*.
2. EXUDATES. Exudates are odorless and *colorless*.
3. CLIMBING MECHANISM. All species of *Smilax* have a pair of long, simple, stipular *tendrils*, however, the leaves of fertile branches usually lack tendrils.
4. LEAVES. Leaves are simple, alternate, distichous, with entire or spiny margins, acrodromous venation (3–11 main arcuate veins), and short to long petioled.
5. INFLORESCENCES. Axillary or terminal in short branches, short to long-peduncled umbels; peduncle distally enlarged into a receptacle.
6. FLOWERS. *Actinomorphic*, unisexual (plant dioecious); pedicelled. Tepals 6, in two whorls, commonly white, cream or greenish, of similar size and shape, free, erect or reflexed at apex. Staminate flowers: stamens 6 in two whorls, the filaments free or less often connate into a tube; anthers opening by longitudinal slits; pistillode absent. Pistillate flowers: staminodes sometimes present; gynoecium superior, syncarpous, 3-carpellate, with 1 or 2 axial ovules per carpel, the style usually absent, the stigmas 3, reflexed.
7. FRUITS. Globose, fleshy berries, green, red, orange, or black, < 1 cm wide.
8. SEEDS. Seeds prismatic, 1–3 per fruit.

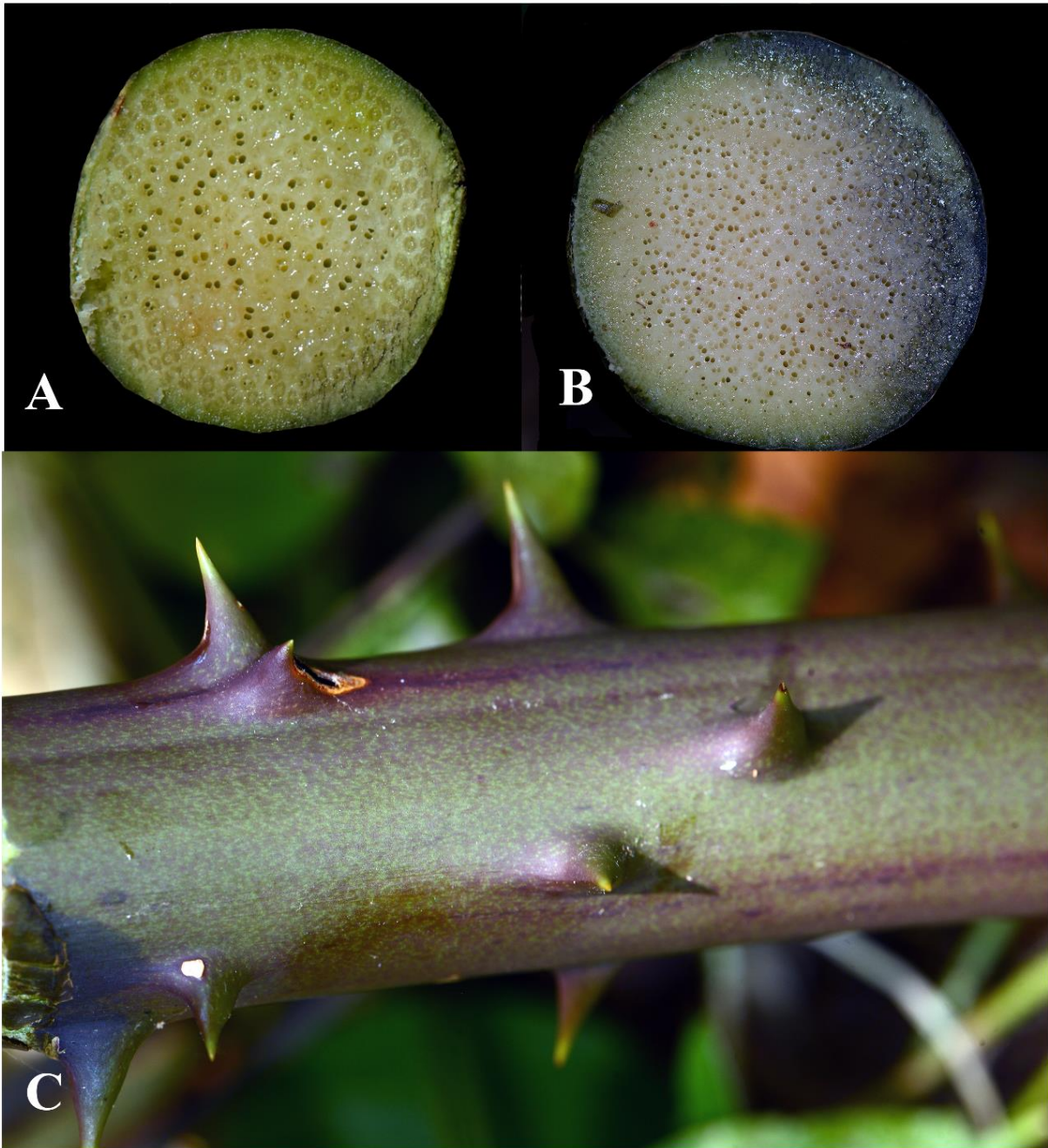


Figure 1. A & B. Stem cross-sections of two species of *Smilax*, showing wide, evenly scattered vessels. C. Armed stem of *Smilax* sp. Photos by P. Acevedo.



Figure 2. A. Young shoot of *Smilax sp.* showing precociously developed tendrils. B. *Smilax coriacea*, branch with pistillate inflorescences. C. Staminate inflorescences of *Smilax sp.* Photos by P. Acevedo.



Figure 3. A. Pistillate umbel of *Smilax* sp. B. Infructescence of *Smilax* sp. Photos by P. Acevedo.

GENERIC DESCRIPTION

SMILAX Linnaeus, Sp. Pl. 1028. 1753.

Dioecious, rhizomatous, tendrilled vines. Stems wiry, cylindrical, green, with straight



Smilax coriacea Spreng., photo by P. Acevedo.

prickles; 5–10(25) mm in diam. and 3–10(15) m long; cross section with discrete, evenly scattered vascular bundles. Leaves simple, alternate, distichous, with entire or spiny margins, and acrodromous venation (3–11 main arcuate veins); petioles short to long with a pair of

filamentous tendrils at their junction with the leaf sheath. Inflorescence of axillary, short to long-peduncled umbels. Flowers unisexual; long-pedicellate; tepals 6, in two whorls, free, of similar shape and size, yellowish, greenish white, sometimes reddish tinged; stamens six, opposite to the tepals, filaments free, anthers oblong to linear, basifixed; ovary superior, tricarpellate, trigonous-globose or trigonous-oblong, with 1 or 2 ovules per carpel; styles 3, free or connate at the base. Fruit a globose, fleshy berry; with 1–6, prismatic seeds.

Distinctive features: Stems wiry, green, often prickled, leaves alternate, with a pair of tendrils at the junction of petiole and sheath.

Distribution: A pantropical genus of ~260 species, some of which extends into temperate regions in North America, Europe and Eastern Asia. Represented in the Neotropics by 110 species, that are distributed from Mexico to Northern Argentina and Uruguay; found in diverse habitats in scrubs, and dry to humid forests; 0–3600 m.

USES

In some species, the young shoots and tendrils are used as salads or cooked vegetables, the leaves as a source of tee, and starchy rhizomes are eaten as potatoes. Local medicines such as stomach tonic are derived from the rhizomes of some species (Mitchell, 2004; Dahlgren et al. 1985). Since some species contain poisonous saponins it is advisable not to consume any of these unless they are confirmed to be safe.

RELEVANT LITERATURE

- Cáceres, A., S.M. Cruz, V. Martínez, I. Gaitan, A. Santizo, S. Gattuso and M. Gattuso. 2012. Ethnobotanical, pharmacognostical and phytochemical studies on *Smilax domingensis* in Guatemala. *Rev. Bras. Farmacogn.* 22(2): 239–248.
- Dahlgren, R.M.T., H.T. Clifford and P.F. Yeo. 1985. The families of Monocotyledons. Structure, evolution, and taxonomy. Springer-Verlag, Berlin.
- Mitchell, J.D. 2004. Smilacaceae. In: N. Smith, et al. (eds.). Flowering plants of the Neotropics. Princeton University Press. N.J., U.S.A.