

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

LOGANIACEAE

By Pedro Acevedo-Rodríguez (May 2020)



Strychnos guianensis, photo by P. Acevedo

A pantropical to subtropical family of herbs, shrubs, and tendrilled lianas. The family contains 12 genera and about 400 species; in the Neotropics the family is represented by 5 genera and about 179 species, of which 72 are lianas, all belonging to the genus *Strychnos*. The genus is found between 100 to 1300

m elevation, predominantly in wet forests, including gallery forests, seasonally flooded formations such as igapó and varzea, and in non-flooded forests.

Diagnosics: *Strychnos* is easily recognized by the simple opposite leaves with 3-11 main arcuate, parallel veins and the presence of axillary circinate tendrils that often become woody; cross sections of the wood with islands of included phloem.

General Characters

1. **STEMS.** Young stems are cylindrical or occasionally quadrangular (fig. 2a); mature stems are cylindrical, commonly with a rough bark (fig. 1c), or less often the bark papery scaly (fig. 1b); some species may have opposite short spines of axillary origin (fig. 2a). Cross section with scattered *interxylary phloem islands* (fig. 1a).
2. **EXUDATES.** Exudates are odorless and *colorless*.
3. **CLIMBING MECHANISM.** Most climbing species of *Strychnos* climb by means of axillary circinate *tendrils* of shoot origin. These are either paired (fig. 3a) or single (figs. 3b & c) and commonly become enlarged and woody (fig. 3b). *Strychnos brasiliensis* (Spreng.) Mart., on the other hand is a *scrambler* and has short, curved, axillary spines that help the plant to hold on to host plants.
4. **LEAVES.** Leaves are simple, opposite, with 3-7 main, arcuate veins that radiate from the base or near the base of the lamina; tertiary veins are often perpendicular to the main veins; petioles short to very short.
5. **INFLORESCENCES.** Axillary or terminal, racemose, paniculate or sub-umbellate thyrses with flowers often grouped in dichasia.
6. **FLOWERS.** *Actinomorphic*, bisexual; sessile or pedicelled. Sepals 4 or 5, connate at the base; corolla white, light yellow or greenish yellow, gamopetalous, 4- or 5-merous, the tube often longer than the lobes; stamens 4 or 5, inserted on the corolla tube, and alternating with the corolla lobes, the filaments short, the anthers inserted or projected beyond the corolla tube; gynoecium superior or partly inferior, syncarpous, 2-carpellate, with numerous axial ovules per carpel, the style terminal, elongated, the stigma usually capitate.
7. **FRUITS.** Globose, to turbinate leathery berries, small to very large (1-10 cm diam.), green, orange, or yellow.
8. **SEEDS.** Seeds numerous, prismatic to discoid, embedded in a white fleshy pulp (fig. 5b); endosperm abundant.

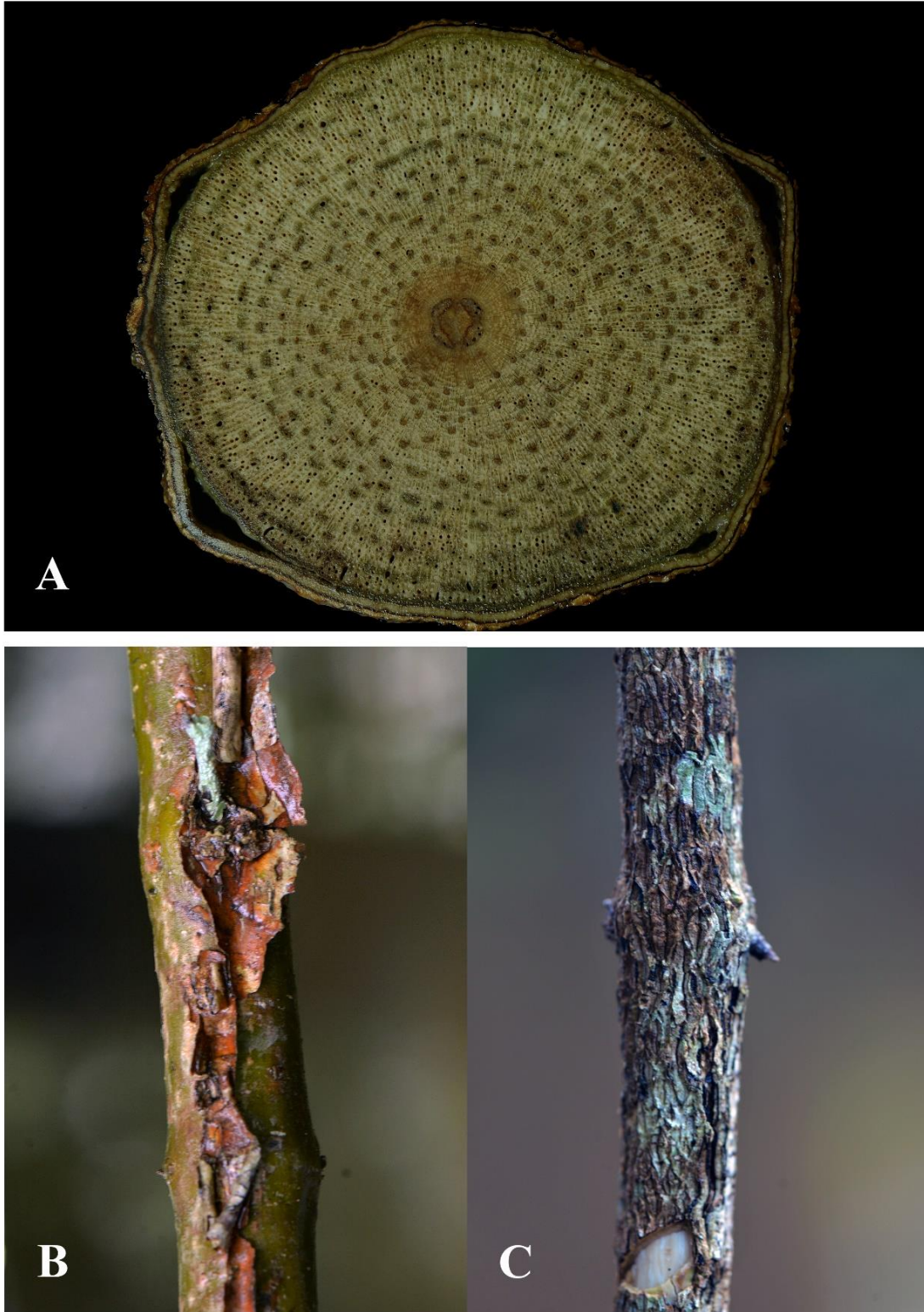


Figure 1. Stems in *Strychnos*. **A.** Cross section of *S. guianensis* showing scattered interxylary islands of phloem. **B.** Papery flaky bark of *Strychnos* sp. **C.** Rough bark of *Strychnos* sp. Photos by P. Acevedo.



Figure 2. *Strychnos* sp. **A.** Young shoot with quadrangular stems and axillary, opposite spines. **B.** Young plant with short, lateral, alternate branches. Photos by J. Amith.

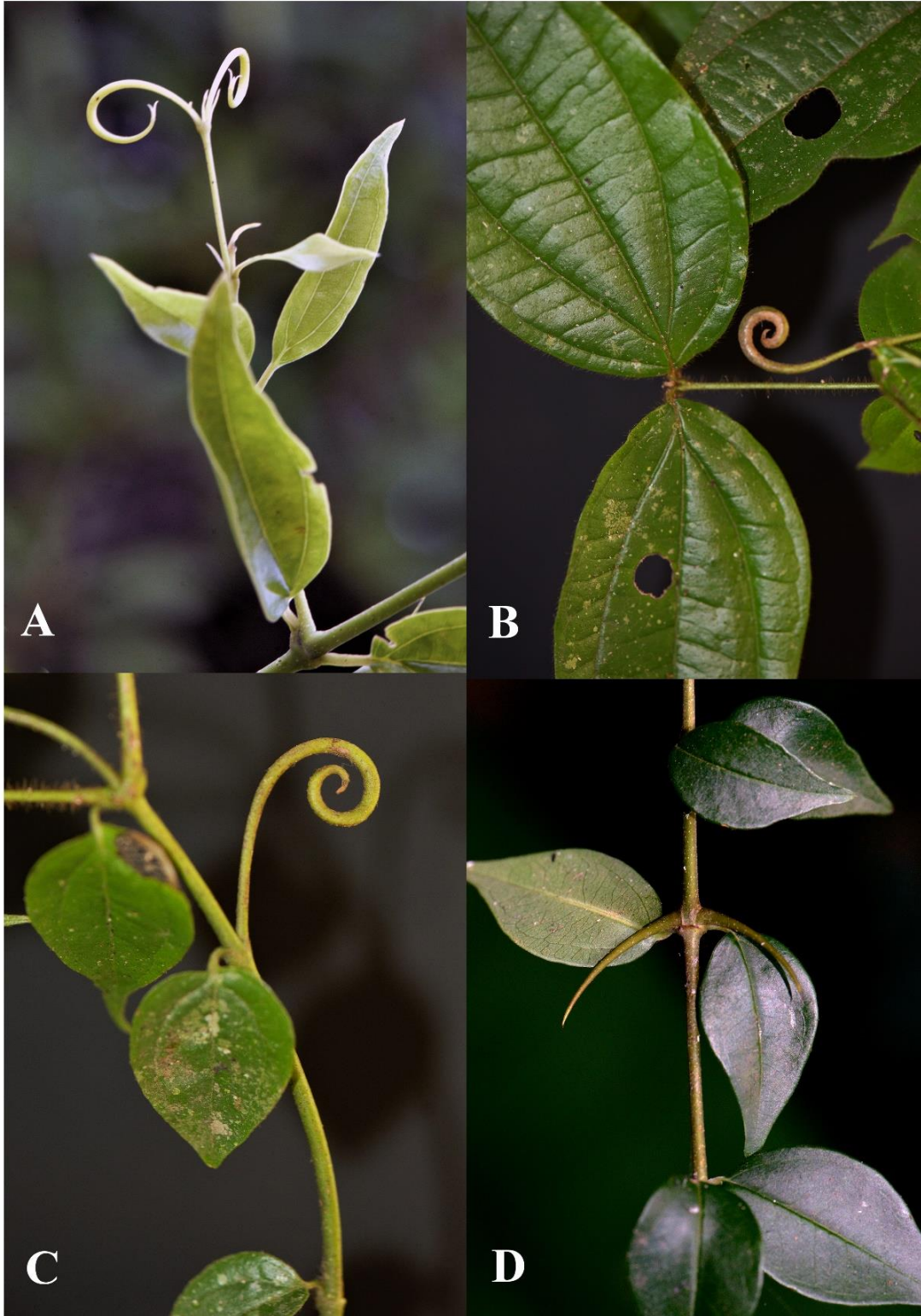


Figure 3. Climbing mechanisms in *Strychnos*. **A.** Young paired tendrils of shoot origin. **B. & C.** Singular, “leaf-opposite”, woody tendril. **D.** Opposite, axillary, curved spines of *Strychnos brasiliensis*. Photos by P. Acevedo.



Figure 4. Inflorescences in *Strychnos*. **A.** *Strychnos sp.* **B.** *Strychnos rondeletoides*. Photos: A by J. Amith; B by P. Acevedo.



Figure 5. Fruit of *Strychnos panamensis*. **A.** Entire mature, fruit. **B.** Split open fruit, showing seeds and fruit pulp. Photos by P. Acevedo.

GENERIC DESCRIPTION

STRYCHNOS Linnaeus, Sp. Pl. 189. 1753.



Strychnos sp., photo by P. Acevedo

Tendrilled lianas, scrambling or erect shrubs or less often trees. Branches often short, opposite and divaricate. Stems cylindrical or quadrangular when young, smooth or less often with slightly curved opposite spines, reaching up to 10 cm in diam. and 20 to 25 m in length. Leaves

simple, opposite, with entire margins

with acrodromous venation of 3 to 7 arcuate main veins that are borne at or near the base, in many species tertiary venation perpendicular to the main veins; petioles often short; stipules represented by an interpetiolar ochrea-like ridge. Inflorescence axillary or distal on short branches, racemiform, paniculate or sub-umbellate thyrses, with flowers in dichasia. Flowers 1-3 cm long; corolla white, yellowish or greenish white.

Distinctive features: Stems with scattered interxylary islands of phloem; leaves opposite, simple with acrodromous venation.

Distribution: A pantropical genus of about 190 species, 133 of which are found in the lowlands of the Neotropics. Of these 72 species have been reported as lianas that are distributed from Mexico south to southern Brazil, in moist, flooded and non-flooded forests.

USES

The pulp contained in the fruits is said to be edible, although the stems of many species are known to contain toxic alkaloids, used in the preparation of arrow poisons and fish stupefactants. Alkaloids extracted from various species of *Strychnos* have shown antiplasmodial activity and promising in the control and eradication of chloroquine resistant plasmodial malaria.

RELEVANT LITERATURE

Krukoff, B.A. & R.C. Barneby. 1974. El género *Strychnos* en Venezuela. *Acta Botánica Venezuélica* 9: 63-113.

Quentin-Leclercq, J., L. Angenot and N.G. Bisset. 1990. South American *Strychnos* species. Ethnobotany (except curare) and alkaloid screening. *Journal of Pharmacology*. 28: 1-52.

Frédérich, M, M.J. Jacquier, P. Thépenier, P. De Mol, M. Tits, G. Philippe, C. Delaude, L. Angenot, and M.Zèches-Hanrot. 2002. Antiplasmodial Activity of Alkaloids from various *Strychnos* species. *Journal of Natural Products* 65(10):1381-1386.

PICTURE VOUCHERS

Figure 1.

- A. *Strychnos guianensis* (Aubl.) Mart. (Acevedo 16108)
- B. *Strychnos* sp. (Acevedo 17105)
- C. *Strychnos* sp. (Acevedo 17092)

Figure 2.

- A. & B. *Strychnos* sp. (no voucher)

Figure 3.

- A. *Strychnos* sp. (no voucher)
- B. *Strychnos* sp. (no voucher)
- C. *Strychnos* sp. (no voucher)
- D. *Strychnos brasiliensis* (Spreng.) Mart. (no voucher)

Figure 4.

- A. *Strychnos* sp. (Amith 40345)

B. *Strychnos rondeletiioides* Benth. (Acevedo 14765)

Figure 5.

A & B. *Strychnos panamensis* Seem. (Acevedo 15092)