

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

## MORACEAE

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*Ficus citrifolia* Mill., photo by P. Acevedo

A tropical to warm temperate family of about 40 genera and about 1,140 species of trees or herbs, and very rarely scrambling or root-climbing lianas. In the Neotropics, the family is represented by 28 genera and about 360 species, of which only 2 genera and 5 (2 exotics) species are lianas or facultative lianas. For the most part, they are found in dry to moist lowland forest.

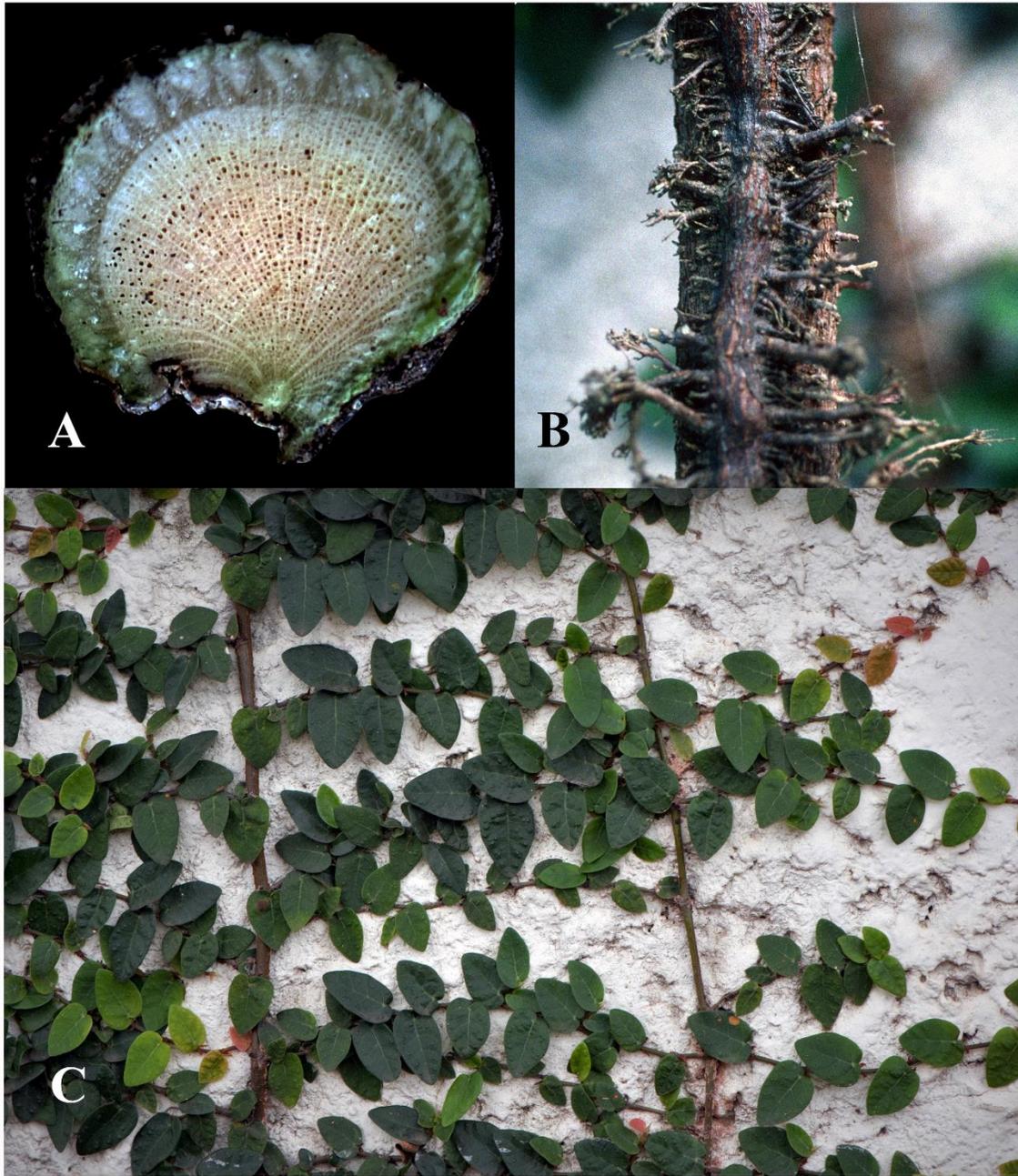
**Diagnostics:** Scrambling or root-climbing lianas, stem cross section with regular anatomy, plant producing abundant white or cream-yellow latex. Members of this family are distinguished by the large, conical caducous stipules that cover the tip of the branches; fruit a syconium or a syncarp.

## General Characters

1. STEMS. Woody with substantial secondary growth, developing cylindrical or less often slightly flattened, reaching 5-15 m in length and 10-15 cm in diam. Cross sections with **regular anatomy** in most genera, however in *Ficus pumila* L. the stems (especially the root-climbing portion) are **asymmetrical** with the medulla in the periphery of the stem.
2. EXUDATES. Commonly white, sometimes cream yellowish.
3. CLIMBING MECHANISMS. Most neotropical climbing Moraceae are **scramblers**, sometimes aided by spines [e.g., *Maclura brasiliensis* (Mart.) Endl.]. The commonly cultivated *Ficus pumila* L. climbs through the aid of adventitious roots (fig. 1b) that adhere to the supporting structures.
4. LEAVES. Alternate, coriaceous to chartaceous, simple, short- to long-petioled, with glandless blades and commonly entire margins; stipules commonly conical and caducous, large, covering the apical meristem of young branches.
5. INFLORESCENCE. Axillary or terminal, condensed inflorescences, whose axes form a common receptacle or sometimes completely enclose the flowers into a syconium.
6. FLOWERS. Minute, actinomorphic, unisexual; calyx of 4-5 distinct sepals, or these connate at base, petals absent; stamens usually as many as the sepals, the filaments free; ovary superior, bilocular or unilocular, with one apical ovule per carpel and 2 styles.
7. FRUIT. Fruit a syconium or a syncarp (fig. 2b).

### KEY TO THE GENERA

1. Plants unarmed, monoecious; inflorescence a syconium (flowers enclosed in a receptacle)..... ***Ficus***
1. Plants armed with straight, simple, axillary spines, dioecious; inflorescence a spike (♂) or a globose head (♀), not enclosed by a receptacle..... ***Maclura***



**Figure 1.** Juvenile phase of *Ficus pumila*. **A.** Cross section of fresh stem showing asymmetrical growth. **B.** Stem with adventitious roots. **C.** Root climbing stems with juvenile morph leaves. Photos by P. Acevedo.



**Figure 2.** *Ficus pumila*. **A.** Branch of adult phase. **B.** Syconia showing cavity. Photos by: A, P. Acevedo; B, Magha García.

## GENERIC DESCRIPTIONS

**FICUS** Linnaeus, Sp. Pl. 1059. 1753.



*F. pumila*, photo by P. Acevedo

Monoecious trees or shrubs, free-standing, climbers or stranglers (hemi epiphytes), producing copious milky sap. Lianas are scramblers, the commonly cultivated *F. pumila* L. contains two dimorphic growing phases, a juvenile phase with flattened stems (fig 1b), small leaves (fig. 1c) and abundant adventitious roots, and an adult phase with virgate branches, and fully developed leaves (fig. 2a). Leaves alternate, simple to lobed, usually long-petiolate; stipules deciduous, contorted into a cone-shaped hood that protects the apical meristem, often brightly colored. Flowers minute, borne in the interior of globose to pear-shaped, axillary inflorescences formed by an enlarged receptacle (syconium); calyx reduced, membranous; stamens 2; ovary unilocular with an apical

ovule. Fruit a syconium, formed by a globose receptacle containing numerous minute achenes, the apex containing an aperture or operculum.

**Distinctive features:** Lianas with abundant milky white latex; leaves alternate with large conical, often colored stipules covering the apical meristems; fruit a syconium.

**Distribution:** A pantropical genus of 875 species, most of which are trees. In the Neotropics there are about 175 species, of which only 3 (*F. citrifolia* Mill., *F. paraensis* (Miq.) Miq. and *F. schippii* Standl.) are known to sometimes grow as lianas. In addition, *F. pumila*, a species native to China, Viet Nam and Japan, is commonly cultivated throughout the Neotropics; lowland, dry to wet forests; 100-2600 m.

**MACLURA** Nuttall, Gen. 2: 233. 1818 (nom. cons.).



*M. brasiliensis*, from Nee 45025 (US)

Dioecious, trees or scrambling lianas, with simple, straight axillary spines. Stems terete; bark rough, longitudinally fissured. Leaves alternate, simple with entire or sinuate margins, long petioled; stipules lateral, paired, caducous. Inflorescences axillary, the staminate elongated spikes, the pistillate peduncled or sessile globose heads. Flowers unisexual; perianth 4-merous; stamens 4, exerted at anthesis; ovary superior, oblique, with lateral, filiform, exerted style. Fruit a globose syncarp of fleshy, compressed achenes.

**Distinctive features:** Scrambling lianas with axillary, simple, straight spines, leaves alternate, simple; producing cream-yellow sap.

**Distribution:** A genus of about 10 species with disjunct distribution within the tropics extending to subtemperate

zones. Two species are native to the Neotropics, one of which [*Maclura brasiliensis* (Mart.) Endl.] is often collected as a liana in Peru and Bolivia; evergreen forests; 400–1350 m.

## RELEVANT LITERATURE

Acevedo-Rodríguez, P. 2005. Vines and climbing plants of Puerto Rico and the Virgin Islands.

Contrib. United States National Herbarium 51: 1–483.

Pederneiras, L.C., A.F. da Costa, D.S.D de Araujo and J.P.P. Carauta. 2011. Moraceae das restingas do estado do Rio de Janeiro. Rodriguesia 62: 77-92.

## PICTURE VOUCHERS

Figure 1.

A–C. *Ficus pumila* L. (no voucher)

Figure 2.

A–B. *Ficus pumila* L. (no voucher)