

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

CANNABACEAE

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Celtis iguanaea, photo by P. Acevedo

As currently circumscribed, a nearly cosmopolitan family of trees, shrubs or very rarely scrambling lianas, with 10 genera and about 117 species. Climbers are found in 2 genera, with only one species of liana (*Celtis iguanaea* (Jacq.) Sarg.) naturally represented in the Neotropics, occurring in diverse habitats including dry to seasonally dry forest and scrubs of low elevations.

Diagnostics: Scrambling lianas with recurved or straight axillary thorns usually in pairs, leaves alternate, simple, 3-veined and entire to serrate margins; stem cross sections simple with confluent bands of parenchyma in the xylem and stone cells in the region of the dilated rays in the phloem. Vegetatively similar to *Sageretia* (Rhamnaceae) but distinguished by the axillary, often paired thorns, leaves with 3 main veins from base, and phloem with conspicuous stone cells.

General Characters

1. **STEMS.** Woody with moderate secondary growth, cylindrical (fig. 1a & b), 10-20 m long and up to 10 cm in diam.; although *Celtis* has cross sections with **regular** vascular anatomy, the following features are distinctive and useful in the recognition of the genus.

Medulla angled or trigonous, vascular tissues with moderately conspicuous rays, xylem with conspicuous wide vessels (fig. 1a & b) and often with short-confluent bands of vasicentric to alliform parenchyma (fig. 1c & d), the phloem is stratified, with alternation of fiber bands, and contains very large stone cells (bulky dark round spots, fig. 1e) formed in the dilated rays of the non-conducting region of the phloem (Pace, pers. comm.); bark smooth, grayish, lenticellate (fig. 1e).

2. EXUDATES. Watery or no visible exudates.
3. CLIMBING MECHANISMS. *Scramblers* aided by recurved or straight thorns that are born axillary to the leaves and commonly produced in pairs.
4. LEAVES. Alternate, simple, 3-veined from base and serrate margins, chartaceous to coriaceous; stipulate; petioles short, glandless, adaxially canaliculate.
5. INFLORESCENCE. Axillary, branched or simple cymes.
6. FLOWERS. Unisexual, actinomorphic; calyx of 5 free sepals; corolla absent; stamens 5, of similar length; ovary superior, unilocular, with a single pendent ovule, the style short, divided into two stigmatic branches that are bifurcate at the apex.
7. FRUIT. A fleshy ellipsoid to globose, yellow to orange drupe.

GENERIC DESCRIPTION

CELTIS Linnaeus, Sp. Pl. 1043. 1753.

Trees, or scrambling liana with short plagiotropic branches with paired, recurved or straight axillary thorns, reaching 5-10(20) m in length. Stems glabrous or puberulent, cylindrical, reaching 8-10 cm in diam.; bark grayish or light brown, with numerous lenticels. Leaves alternate 4-15 × 2.5-8.7 cm, chartaceous to coriaceous, ovate, oblong, or sometimes obovate, the apex short-acuminate or sometimes obtuse, the base rounded, cordiform, or truncate, the margins serrate to entire, crenate, the upper surface yellowish green, dull, glabrous or puberulent, punctate, with three main veins from base, the lower surface yellowish green, dull, glabrous, the venation prominent; petioles 2-15 mm long, adaxially canaliculate. Flowers light green,

unisexual or less often bisexual, the staminate flowers in branched axillary cymes, the pistillate or bisexual flowers in simple axillary cymes. Calyx of free sepals, oblong, concave, ciliate, 1-2 mm long; stamens 5, ascendent; ovary ovoid, with two pubescent stigma. Drupe fleshy, ovoid or almost globose, 6-10(14) mm long, yellow or orange, with persistent stigmas.

Distinctive features: Scrambling vines with axillary thorns often in pairs; leaves alternate, stipulate, simple, with serrate margins and 3-veined from base.

Distribution: A genus of about 65 species with nearly cosmopolitan distribution, all of which are trees with the exception of *Celtis iguanaea* (Jacq.) Sarg. a species widely distributed from Mexico to northern Argentina, and the West Indies; dry to seasonally dry forests.

Note: A highly variable species complex often recognized as a single species, but may include at least two species reconizable by the indument and the leaf texture and shape.

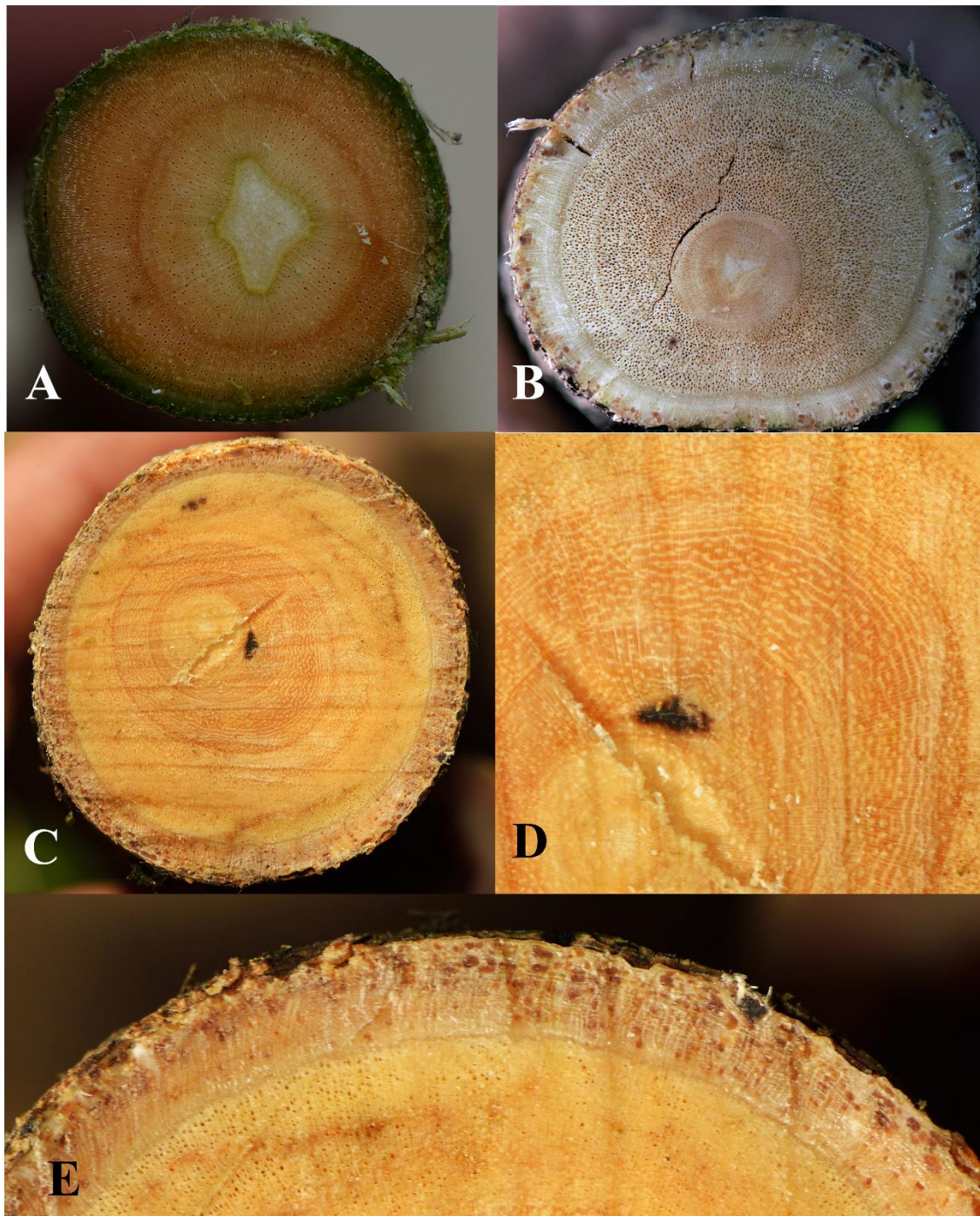


Figure 1. Stem cross sections of *Celtis iguanaea*. **A** Young stems showing angled medulla, wide vessels and rays. **B.** Mature stem with ring-porous growth, medulla trigonous, cortex with dark stone cells. **C.** Mature stem, xylem with bands of confluent parenchyma. **D.** Detail on bands of confluent parenchyma. **E.** Detail of cortex showing stone cells. Photos by P. Acevedo.



Figure 2. Stems of *Celtis iguanaea*. **A** Bark smooth and lenticellate. **B.** Stem with lateral spinescent branch with recurved axillary thorns. Photos by P. Acevedo.



Figure 3. Branches of *Celtis iguanaea*. **A** Axillary spine and infructescence. **B.** Fertile branch. Photos: A by J. Amith; B by S. Carrington.



Figure 3. Branches of *Celtis iguanaea*. **A** Leaves chartaceous. **B.** Leaves coriaceous. Photos by P. Acevedo.

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.
- Berg, C.C. and S.V. Dahlberg. 2001. A revision of *Celtis* subg. *Mertensia* (Ulmaceae). Brittonia 53: 66-81.
- Hoffman, B. and S. Ruyschaert. 2017. Lianas of the Guianas. A guide to woody climbers in the tropical forests of Guyana, Suriname and French Guiana. L.M. Publisher, The Netherlands. 623 pages.

PICTURE VOUCHERS

Figure 1.

- A. *Celtis iguanaea* (Jacq.) Sarg. (Acevedo 16359).
B. *Celtis iguanaea* (Jacq.) Sarg. (Acevedo 16955).
C-E. *Celtis iguanaea* (Jacq.) Sarg. (no voucher).

Figure 2.

- A. *Celtis iguanaea* (Jacq.) Sarg. (no voucher).
B. *Celtis iguanaea* (Jacq.) Sarg. (Acevedo 16955).

Figure 3.

- A. *Celtis iguanaea* (Jacq.) Sarg. (Amith 80232).
B. *Celtis iguanaea* (Jacq.) Sarg. (Carrington s.n.).

Figure 4.

- A. *Celtis iguanaea* (Jacq.) Sarg. (no voucher).
B. *Celtis iguanaea* (Jacq.) Sarg. (no voucher).