

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

CACTACEAE

By Pedro Acevedo-Rodríguez (Aug 2020)



Selenicereus triangularis (L.) [D.R.](#) Hunt, photo by P. Acevedo

Primarily a neotropical family (except for a few species of *Rhipsalis* in Africa and Sri Lanka) with about 140 genera and 1,860 species of succulent herbs, shrubs, trees, terrestrial, epiphytic, erect, prostrate, hanging, or root-climbing vines. The family contains 3 genera and 13 species of vines that attain 2 or more m in length. For the most part, they are found in dry forests, arid areas or deserts from

low to high elevations.

Diagnosics: Succulent, root-climbing or scrambling vines, with green photosynthetic stems, bearing fascicles of spines.

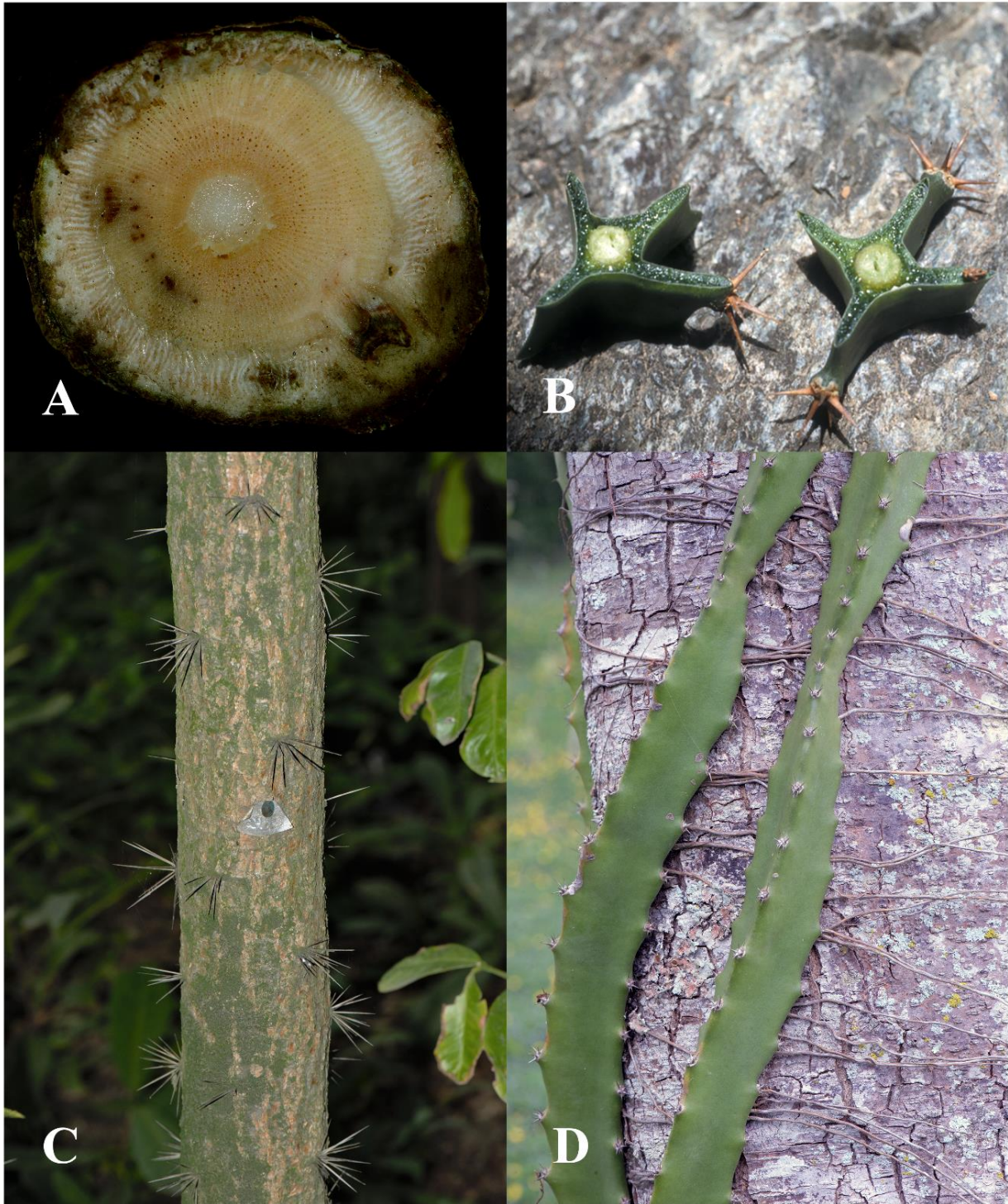


Figure 1. **A.** Stem cross section of *Pereskia aculeata*. **B.** Stem cross sections of *Selenicereus triangularis*. **C.** Main erect stem in *Pereskia aculeata*, with fascicles of spines. **D.** Root-climbing stems in *Selenicereus triangularis*. Photos by P. Acevedo.

General Characters

1. STEMS. Succulent or woody, asymmetrical and lobed, green and photosynthetic (in *Selenicereus* and *Weberocereus*; fig. 1d, 2b), or cylindrical and woody (in *Pereskia*, fig. 1c, 3b, d); with clusters of spines. Cross sections with scanty xylem (in *Selenicereus* and *Weberocereus*, fig. 1 b) or regular in *Pereskia* dissected by numerous narrow rays, and thick phloem region (fig. 1a)
2. EXUDATES. Scanty and watery.
3. CLIMBING MECHANISMS. **Root-climbers** (in *Selenicereus* and *Weberocereus*; fig. 1d) or **scrambling** with **twining** branches in *Pereskia* (fig. 2a, 3c).
4. LEAVES. Alternate, spiral, succulent, e.g. *Pereskia* (fig. 2a, 3a), or wanting in other genera.
5. INFLORESCENCE. Flowers are solitary at the areoles in *Selenicereus* and *Weberocereus*, and racemes in *Pereskia aculeata* Mill.
6. FLOWERS. Bisexual, actinomorphic, usually very large and fleshy; tepals numerous, united at the base to form a perianth tube; stamens numerous, the filaments adnate at the base to the perianth tube, the anthers opening by longitudinal slits; ovary inferior, forming a hypanthium, carpels numerous, united, with numerous ovules with parietal placentation, the style solitary, stigma as many as the number of carpels.
7. FRUIT. A berry with numerous seeds.

USES

Some species of *Selenicereus* (e.g. *S. triangularis* & *S. undatus* (Haw.) D.R. Hunt.) are commercially cultivated for their edible fruits, known as *pitahaya* or *dragon-fruit*; a few other species of *Selenicereus* are cultivated as garden plants due to their beautiful, fragrant flowers. The leaves of *Pereskia aculeata*, locally known in southern Brazil as *ora-pró-nobis*, are part of the local cuisine, where it is consumed in cooked dishes, with poultry, beef and other vegetables.



Figure 2. A. Habit in *Pereskia aculeata*, with short lateral branch. B. Scrambling habit of *Selenicereus triangularis*. Photos by P. Acevedo.

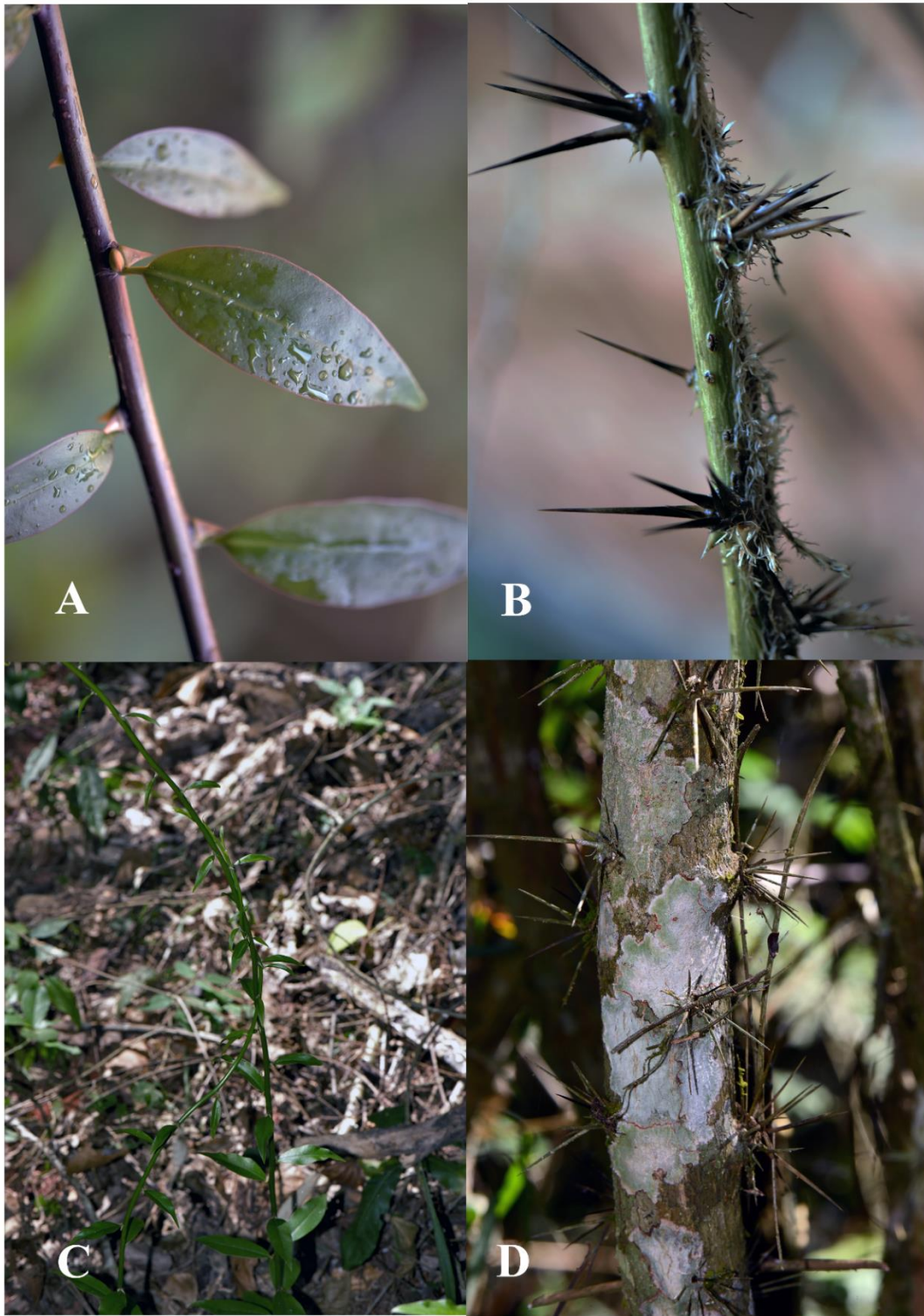


Figure 3. *Pereskia aculeata* **A.** Leaves with a pair of axillary thorns. **B.** Branch with fascicles of spines and adventitious roots. **C.** Twining ascending stems. **D.** Main trunk with fascicles of spines. Photos by P. Acevedo.

KEY TO THE GENERA

1. Stems dark brown, cylindrical, without ribs; leaves present; plants scramblers or twiners;
flowers in terminal inflorescences *Pereskia*
1. Stems green, angular, compressed, or cylindrical, but then with longitudinal ribs; leaves
absent; plants climbing through the aid of adventitious roots; flowers solitary 2
2. Areoles of perianth tube with scales or downy felt; flowers nocturnal *Selenicereus*
2. Areoles of perianth tube with tufts of black spines; flowers diurnal *Weberocereus*

GENERIC DESCRIPTION

PERESKIA Miller, Gard. Dict. Abr. ed. 4. 1754.



P. aculeata Mill., photo by P. Acevedo

Shrubs, trees or scrambling, sometimes twining lianas. Stems cylindrical, without ribs, with axial areoles surrounded by spines; glochids absent. Leaves alternate, persistent, succulent, petiolate; blades simple. Flowers actinomorphic, unisexual, solitary or in racemes, panicles, or

cymes; receptacle with areoles and bracteoles in 2 series; perianth of sepaloïd and petaloïd tepals; stamens numerous, the filaments usually unequal, shorter than the perianth; ovary inferior or half-inferior, the style thick, the stigmas numerous, digitiform, papillose. Fruit a berry with persistent bracts and areoles; seeds few, small.

Distinctive features: Scrambler or twining vine, with alternate, fleshy leaves

Distribution: A South American genus of approximately 17 species, of these, only two are known to be lianas, one of which (*P. aculeata*) has been introduced throughout the Neotropics; climbing species are found in dry to moist forests at low elevations.

SELENICEREUS (A. Berger) Britton & Rose, Contr. U.S. Natl. Herb. 12: 429. 1909.

Hylocereus (A. Berger) Britton & Rose



S. triangularis (L.) D.R. Hunt, photo by P. Acevedo.

Lianas, climbing by adventitious roots, unbranched or with numerous lateral branches. Stems green, angular with 3 or 4 prominent longitudinal ribs or cylindrical with 4-12 shallow angles or ribs. Leaves absent; areoles surrounded by conical spines along the margin of the ribs or forming a

small promontory that is densely covered with lanate hairs and acicular spines. Flowers bisexual, actinomorphic, solitary, nocturnal, sessile, usually at the ends of the branches; perianth elongate, infundibuliform; outer tepals scale-like, glabrous or the areoles densely covered with long, lanate hairs; inner tepals petaliferous; stamens numerous, the filaments shorter than the perianth, inserted on the perianth; ovary inferior, forming an elongate, infundibuliform hypanthium, the style elongate, not exerted, the stigmas numerous, filiform. Fruit a large berry with persistent tepals or covered by basal bracts and several spines; seeds numerous, minute.

Distinctive features: Root-climbing cacti, attaining 5-7 m long and forming large entanglements; flowers nocturnal, inner perianth white.

Distribution: A neotropical genus of about 26 species; in dry forest and scrubs at low elevations.

WEBEROCEREUS Britton & Rose, Contr. U.S. Natl. Herb. 12: 431. 1909.



W. tonduzii, photo by World_of_succulents.

Lianas, climbing by adventitious roots, with numerous basal branches. Stems green, triangular. Leaves absent; areoles small, felted, without spines, but sometimes with weak bristles along the margin of the ribs. Flowers bisexual, actinomorphic, solitary, diurnal, sessile, usually at the ends of the branches; perianth ca. 8

cm long, shortly infundibuliform; areoles of perianth tube and ovary bearing clusters of dark spines and short, black wool; outer tepals brownish, 1-2 cm long, oblong; inner tepals oblong, creamy white, 2.5 cm long; stamens numerous, exerted; style longer than the stamens. Berry globose, yellow, umbilicate at the apex, with a white pulp.

Distinctive features: Root-climbing vines, with triangular, unarmed stems; flowers large, diurnal, creamy white.

Distribution: A neotropical genus of 9 species, distributed from southeastern Mexico to Panama and Peru, with only one species [*W. tonduzii* (Weber) Rowley] of vine that reaches more than 2 m in length; distributed in Costa Rica and Panama, ca. 1300 m elevation.

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.

Britton N.L. & J.N. Rose. 1963. *The Cactaceae*. Vol I-IV. Dover Publications, Inc. New York. *Plants of the World*. (Continuously updated), Cactaceae. Royal Botanic Garden, Kew.

PICTURE VOUCHERS

Figure 1.

- A. *Pereskia aculeata* (Acevedo 16486).
- B. *Selenicereus triangularis* (Acevedo 2874).
- C. *Pereskia aculeata* (no voucher).
- D. *Selenicereus triangularis* (no voucher).

Figure 2.

- A. *Pereskia aculeata* (no voucher).
- B. *Selenicereus triangularis* (no voucher).

Figure 3.

- A-D. *Pereskia aculeata* (no voucher).