

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

## CAPPARACEAE

By Pedro Acevedo-Rodríguez (Apr 2020)



*Cynophalla flexuosa* Chodat, photo by P. Acevedo

A pantropical family of 16 to 29 genera and about 420 to 480 species of evergreen shrubs or trees, and exceptionally scrambling shrubs or lianas. In the Neotropics, the family is represented by 22 genera, all of which (except for *Crateva*) are endemic of the Western hemisphere. Of the approximately 105 species of Capparaceae in the Neotropics, only 7 species representing 5 genera are reported as scrambling shrubs or lianas. For the most part, they are found in dry or semi-deciduous lowland forest. The most widespread species, *Cynophalla flexuosa* (L.) J. Presl is found throughout the Neotropics.

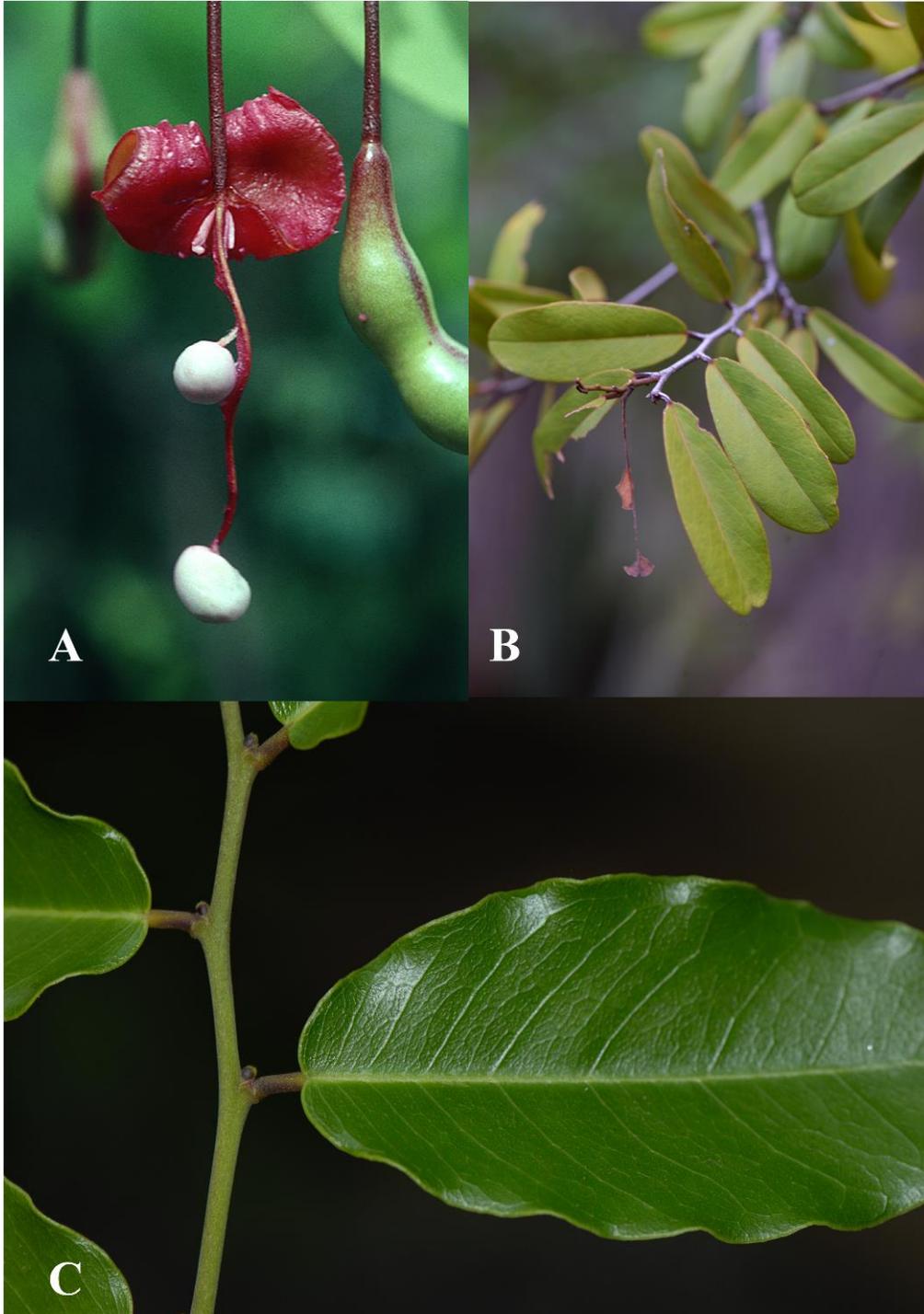
**Diagnosics:** Scrambling shrubs with, simple, alternate, coriaceous leaves, lacking stipules; flowers relatively large, always with a gynophore, and often with numerous stamens. Some members have stellate pubescence or lepidote scales covering vegetative and fertile parts.

## General Characters

1. **STEMS.** Smooth, glabrous, pubescent or stellate tomentose; woody with moderate secondary growth, developing cylindrical to slightly asymmetrical (fig. 1b), some species attaining up to 15 m in length and about 30 cm in diam., e.g., *Cynophalla flexuosa*; cross sections with **regular** vascular anatomy where the xylem is intruded by shallow **phloem wedges** at the periphery (fig. 1b). Axillary extrafloral nectaries present in *Cynophalla*.
2. **EXUDATES.** No visible exudate.
3. **CLIMBING MECHANISMS.** All neotropical climbing Capparaceae climb by **scrambling** over other plants, in addition, *Acanthocapparis* produce **cirri**-like branches with down pointing brachyblasts that help them to hold on to host plants.
4. **LEAVES.** Alternate, exstipulate, coriaceous to chartaceous, simple (Neotropics), short- to long-petioled, with gland-less blades and entire margins.
5. **INFLORESCENCE.** Axillary or terminal (on short branches), racemes that sometimes are corymbose, or subumbellate, or flowers solitary; bracteoles often caducous.
6. **PEDICELS.** Of variable lengths but usually elongate (1.5-8 cm).
7. **FLOWERS.** Bisexual, actinomorphic or zygomorphic; calyx of 4 distinct, decussate, imbricate or valvate, equal or unequal sepals or sometimes these connate into a tube (e.g., *Steriphoma*); corolla of 4 distinct petals, usually longer than the sepals; stamens 4-8 or numerous in *Cynophalla*, the filaments free or basally connate (e.g., *Mesocapparis*), the anthers opening along longitudinal slits; ovary superior, subtended by a long **gynophore**, 2-carpellate, with numerous axial ovules, the stigma terminal and sessile.
8. **FRUIT.** Commonly pendulous, capsular (fig. 2a), or indehiscent (*baccate*, *pepo* or *amphisarca*), elongated or globose; seeds numerous, with fleshy coat (fig. 2a) or embedded in fleshy pulp.



**Figure 1.** *Cynophalla flexuosa*. **A.** Habit, showing much-branched trunk with scandent branches. **B.** Cross section of stem showing regular vascular anatomy with shallow phloem wedges. Photos by P. Acevedo.



**Figure 2.** *Cynophalla flexuosa*. **A.** Dehiscent pendulous, capsular fruit, with pendulous seeds with white fleshy coat. **B.** Short lateral branches with distichous leaves. **C.** Axillary extrafloral nectaries. Photos by P. Acevedo.

## KEY TO THE GENERA

1. Plant glabrous or with simple pubescence; terminal branches with axillary extrafloral nectaries; stamens > 50..... *Cynophalla*
1. Plant with stellate pubescence, lacking axillary extrafloral nectaries; stamens 4-30 .....2
2. Plant with cirri-like branches with brachyblasts (usually spiny), that help the plant to hold on to host plants .....*Acanthocapparis*
2. Plant without cirri-like branches (not spiny) .....3
3. Calyx orangish or brownish cream, tubular, with 2 or 4 lobes at apex ..... *Steriphoma*
3. Calyx green, of 4 decussate or valvate, free sepals.....3
3. Leaves commonly as wide as long, with subpalmate venation; sepals valvate; stamens 4-8.....  
..... *Capparicordis*
3. Leaves longer than wide, with pinnate venation; sepals decussate; stamens 20-30 *Mesocapparis*

## GENERIC DESCRIPTIONS

**ACANTHOCAPPARIS** Cornejo, Harvard Papers in Botany 45: 43. 2020.



*A. yunckeri* (Standl.) Cornejo, photo by Paul House

Scrambling lianas several m long, densely stellate-tomentose throughout, glabrescent; clinging to surrounding vegetation through the aid of hook-like branches that are made of primary branches that bear down-pointing, sharp brachyblasts (turning into thorns). Leaves ovate, subcordate or lanceolate, coriaceous, pinnately veined, with revolute margins, densely stellate-tomentose throughout; petioles slender, short. Inflorescence distal on short lateral brachyblasts, racemose, 1-3-flowered. Calyx uniseriate, with valvate aestivation; sepals 4, of equal length, each bearing a green, nectariferous gland on lower half; petals 4, much longer than the sepals, white

or cream; stamens 20-25, the filaments white, much shorter than the petals; gynophore 2-4 mm long, stellate-tomentose; ovary stellate-tomentose, the stigma capitate, sessile. Fruit a pepo, dehiscent, obovoid to oblong, stellate-tomentose; seeds 20-25, cochleate-reniform with a fleshy, pubescent testa.

**Distinctive features:** Scrambling shrubs, covered throughout by stellate tomentose pubescence, with spinescent supra axillary flowering brachyblasts; inflorescences 1-3-flowered; sepals with nectariferous glands on abaxial lower half; petals white to cream, stellate-tomentose; fruits indehiscent on very short gynophore.

**Distribution:** A neotropical genus of a single species [*A. yunckeri* (Standl.) Cornejo] found in northern Honduras to the Mexican State of Campeche in the Yucatan Peninsula; thickets, woodlands and evergreen forests at low elevations.

**CAPPARICORDIS** Iltis & Cornejo, *Brittonia* 59: 246. 2007.



*C. tweedieana* (Standl.) Iltis & Cornejo,  
photo by P. Acevedo

Shrubs or small trees, sometimes clambering shrubs, densely grayish stellate-tomentose throughout; *C. yunckerii* (Standl.) Iltis & Cornejo clings to surrounding vegetation through the aid of hook-like branches that are made of primary branches that bear short, down-pointing, sharp, secondary branches. Leaves ovate-cordate to reniform, chartaceous to coriaceous, subpalmately veined from base; petioles slender, relatively short. Inflorescence distal on short lateral branches, corymbiform racemes or flowers solitary. Calyx quadrangular, with valvate aestivation; sepals 4, of similar length; petals 4, as long as the sepals, yellow or orange; stamens 4-8; staminodes 1-4

in *C. tweediana* (Kunth) Iltis & Cornejo; gynophore short to long, pubescent; ovary pubescent, 2-locular, the stigma sessile. Fruits baccate, dehiscent or indehiscent, ovoid to globose, the pericarp thin to leathery; seeds 2-25, cochleate-reniform or ovoid, with a white, yellowish or orange, fleshy, pubescent testa.

**Distinctive features:** Scrambling shrubs, covered throughout by stellate tomentose pubescence; leaves with palmate or subpalmate venation; fruits ovoid to globose, on a short to long gynophore.

**Distribution:** A neotropical genus of two species from South America, occurring in Bolivia, Mato Grosso do Sul (Brazil), and Paraguay, found in dry semideciduous forest or scrubs at low elevations.

**CYNOPHALLA** (de Candolle) J. Presl, Pirozenosti Rostlin 2: 755. 1825.



*C. flexuosa* (L.) J. Presl, photo by P. Acevedo

Small trees or shrubs, with only *C. flexuosa* often growing as a clambering shrub, with much branched trunk, 2-15 m in length; branches pendulous, glabrous, light brown, smooth, attaining 20 cm in diameter at the base; cross section slightly asymmetrical, with regular vascular anatomy, the xylem with shallow phloem intrusion (wedges) at the periphery; exudate none. Leaves alternate, oblong or linear, coriaceous, glabrous, rounded or emarginate at apex, rounded at base, the margins entire, revolute; upper surface yellowish green, shiny or dull; lower surface pale green, dull, with a prominent midvein; petioles 5-8 mm long, light brown. Flowers fragrant, nocturnal, actinomorphic, bisexual, clustered in terminal corymbs. Calyx yellowish green, of 4 imbricate sepals, rounded, fleshy, 6-10 mm long;

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petals 4, green or yellowish green, elliptical, 1.5-3 cm long, concave; stamens numerous, white, 4-6 cm long; ovary 2-carpellate on a long (as long as the stamens) gynophore, the ovules few or numerous, with parietal placentation, the stigma sessile. Fruits fleshy, cylindrical-torulose, 6-8 cm long, light brown, with longitudinal dehiscence, the inner walls red-orange; seeds several, pendulous from the parietal placenta (fig. 2a), oblong, ca. 1 cm long, with a white, pulp.

**Distinctive features:** Clambering shrub with simple, alternate, distichous leaves with a large axillary extrafloral nectary; flowers nocturnal with numerous long, white stamens, contorted in bud, and pendent cylindrical-torulose fruits on a long gynophore.

**Distribution:** A genus of about 15 species native to the Neotropics, with only one climbing species widely distributed from Mexico through Central America, South America and the West Indies; mostly in coastal, dry or semi-deciduous forests.

**MESOCAPPARIS** (Eichler) Cornejo & Iltis, *Harvard Papers in Botany*, 13: 110. 2008.



*M. linearis* Miers, photo by L.O.A. Teixeira

Lianas or clambering shrubs, covered throughout with stellate stalked trichomes; stem cylindrical, slender; distal lateral branches flexuose. Leaves alternate, distichous, elliptic to oblong, coriaceous, with pinnate venation, rounded to subcordate at base, acuminate at apex, with entire margins, abaxial surface stellate pubescent; petioles much shorter than the blade. Flowers axillary, solitary, ebracteate; long pedicelled; calyx ferruginous, stellate tomentose, with imbricate aestivation, sepals 4, of similar length; petals much longer than the sepals, cream or white, contorted in bud; stamens 20-30, with slender white, filaments; staminodes absent; gynophore as long as or longer than the stamens; ovary tomentose, 2-

locular, the stigma sessile. Fruit a pendulous, globose indehiscent pepo, sometimes cauliflorous; seeds numerous, embeded in a white pulp.

**Distinctive features:** Scrambling shrubs, covered throughout with stellate tomentose pubescence; leave with pinnate venation; petals cream; fruit globose indehiscent with white pulp.

**Distribution:** A genus of a single species endemic to Brazil found in the states of Acre, Amazonas, Bahia, Espírito Santo, Maranhão, Pará, and Rio de Janeiro; in open and semi-deciduous forests.

**STERIPHOMA** Sprengel, Syst. Veg. 4(2): 130, 139. 1827, (nom. cons.).



*S. paradoxum*, photo by Fritz Geller-Grimm / CC BY-SA

Lianas or scrambling shrubs (3-5 m long). Stems cylindrical, grayish, with scattered stellate pubescence. Leaves alternate, spiral, elliptic to lanceolate, or subcordate (in *S. menispermifolium* Cornejo), subcoriaceous, with pinnate venation subpalmate-pinnate in

*S. menispermifolium*), rounded to subcordate at base, acute at apex, with entire margins, abaxial surface stellate pubescent; petioles about half as long as the blade, pulvinate at both ends. Inflorescences distal, subcorymbose, with numerous flowers; pedicels elongated geniculate just below the calyx. Calyx orange, ferruginous, stellate tomentose, tubular-campanulate, bilabiate;

petals slightly longer than the calyx, yellow; stamens 6, free, much longer than the petals, anthers lineate; staminodes absent; gynophore longer than the stamens, stellate pubescent; ovary 2-locular, the stigma sessile, subcapitate. Fruit pendulous, oblong, torulose, dehiscent, endocarp orange; seeds numerous, embedded in a white pulp.

**Distinctive features:** Erect shrubs, sometimes scrambling; leaves alternate, simple, exstipulate; petioles long, pulvinate on both ends; blades slightly deflexed; flowers orange-yellow, geniculate at base, pointing down; fruits hanging, torulose, rusty brown, on long gynophore.

**Distribution:** A neotropical genus of 5 species, 2 of which (*S. paradoxum* (Jacq.) Engl. & *S. menispermifolium*) have been reported as lianas. The genus is distributed from southern Mexico to northern South America in Colombia, Venezuela, Trinidad, the Guianas, Ecuador, and Peru; in dry forests.

## RELEVANT LITERATURE

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## **ACKNOWLEDGMENTS**

Many thanks to Xavier Cornejo (GUAY) for his thorough review of the manuscript, and for providing a copy of the image of *Acanthocapparis* taken by the late Dr. Paul House from the Universidad Nacional Autónoma de Honduras.

## **PICTURE VOUCHERS**

Figure 1.

A-B. *Cynophalla flexuosa* (L.) J. Presl (Acevedo 17218).

Figure 2.

A. *Cynophalla flexuosa* (Acevedo 4687).

B. *Cynophalla flexuosa* (Acevedo 17091).

C. *Cynophalla flexuosa* (no voucher).