

LOASACEAE

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A primarily neotropical family of herbs, rarely subshrubs or lianas, with 20 genera and ~265 species. In the Neotropics there are 18 genera and ~200 species with five genera and 27 species recorded as climbers. Occurring in diverse tropical to subtropical habitats, including dry forest, deciduous forest, rainforest, montane or cloud forest, thickets, and secondary vegetation, from 0–2,500 (4,700) m elevation.

Diagnostics: Scrambling or twining vines with opposite or alternate leaves, distinguished vegetatively by the presence of splinter and or stinging hairs (except in *Klaprothia*); flowers actinomorphic with inferior or subinferior ovary.

General Characters

1. STEMS. Terete, rarely quadrangular often with a white pith.
2. PUBESCENCE. Foliage can have scabrid, glochidiate, scabrid-glochidiate, splinter, and stinging hairs or setae or combinations thereof.
3. LEAVES. Opposite or alternate depending on the genus, simple but often lobed; stipules absent.
4. CLIMBING MECHANISMS. All neotropical Loasaceae climbers are twiners, but *Gronovia* and *Klaprothia* can be scramblers during early growing stages.
5. INFLORESCENCES. Terminal and thyse-like, sometimes reduced to dichasia, monochasia, or monads, rarely racemes or capitate; bracteate, rarely ebracteate.
6. FLOWERS. Bisexual, actinomorphic or weakly zygomorphic, epigynous; hypanthium conical or long-conical, sometimes lobed, densely pubescent; sepals 4 or 5(–8), persistent and sometimes accrescent, rarely caducous; petals as many as the sepals, green, white,

yellow, orange or red, erect, spreading or reflexed, linear, spatulate, ovate or terete, plane or boat-shaped, the margin entire, irregularly serrate or lacinate, sometimes with filiform apical appendages or longitudinal lamelliform flaps; stamens as many, twice as many, or numerous, all fertile or some staminodial (petaloid or scale-like); filaments inserted basally or epipetalous; anthers basifixed; nectary annular, cup-shaped, lobed or absent; ovary inferior, commonly unilocular with parietal placentation; style filiform, included or exerted; stigma punctiform or with 2–5 lobes; ovules 1–many per placenta.

7. FRUITS. A dehiscent capsule with 3–5 apical valves or cypsela; seeds 1–numerous, globose, ovoid, or angular, sometimes winged.

USES

There are currently no Loasaceae cultivated for economic purposes. Plants used in folk medicine by indigenous people in South America include species of *Caiophora*, *Mentzelia* and *Nasa* which are used to treat disorders such as allergies, bronchial diseases, liver disorders, and stomach disorders. Historically, Native Americans in western North America used seeds of *Mentzelia* as an important food source and the seeds and other parts of the plants were used medicinally as well.

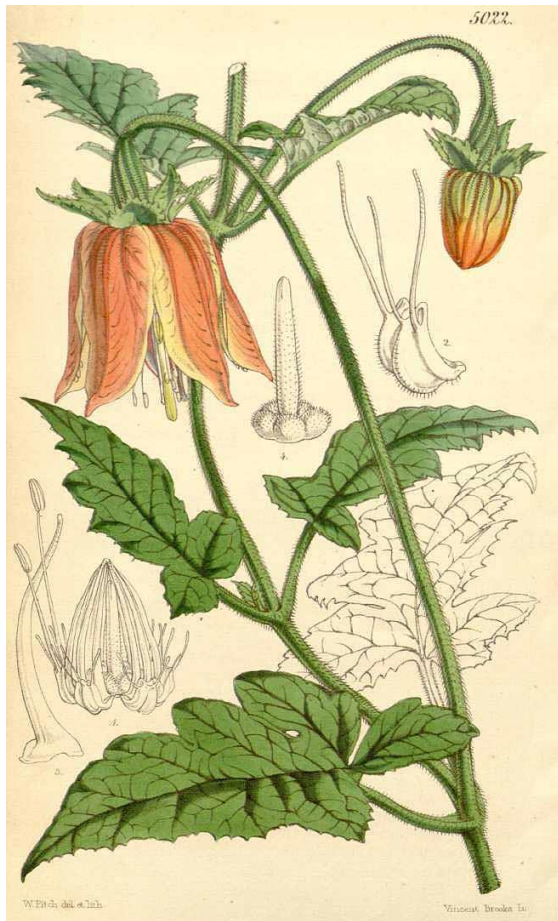
Key to the genera of climbing Loasaceae

1. Leaves alternate; fruit a cypsela2
1. Leaves opposite; fruit a capsule3
2. Subwoody vines with splinter-stinging hairs (specially on the hypanthium); leaves entire, coriaceous*Fuertesia*

- 2. Herbaceous vines densely covered with glandular-stinging hairs; leaves deeply sinuate-lobate with 3–4 lobes on each side of the blade..... *Gronovia*
- 3. Leaves serrate, not-lobed; plant lacking stinging hairs..... *Klaprothia*
- 3. Leaves lobed, pinnatifid or bipinnatisect; plant with stinging hairs *Caiophora*

CAIOPHORA C. Presl, Reliq. Haenk. 2: 41. 1831.

Perennial herbs, rarely annual, erect or twining, with stinging hairs. Leaves opposite; blades mostly ovate, lobed, pinnatifid or bipinnatisect, sometimes ternate. Inflorescence terminal,



thyrs-like or dichasia, rarely flowers axillary and solitary. Flowers mostly pendent, 5- to 8-merous; hypanthium conical, densely covered with stinging hairs; sepals triangular-lanceolate; petals deeply boat-shaped, green, white, yellow or red; nectar scale often with 3, white, red, yellow, or green, elongate, flag-shaped dorsal appendages with a double arch on back or sometimes wanting; stamens in antisepalous fascicles; free staminodia sometimes with basal appendages; ovary inferior, placenta Y-shaped, ovules numerous; stigma 3-lobed. Fruit a subglobose to narrowly cylindrical capsule with 10 prominent veins, straight or twisted

Caiophora canarinoides, from Curtis Magazine Vol 83. tab. 5022. 1857.

clockwise and anticlockwise alternating in the

inflorescence, usually opening with 3–5 longitudinal slits; seeds angular, the testa deeply pitted with fenestrate anticlinal walls.

Distinctive features: The capsule with coherent apex, opening with 3–5 longitudinal slits and testa of the seeds with fenestrated anticlinal walls distinguish this genus from other Loasaceae.

Distribution: A genus of ~50 species occurring in South America (Ecuador south to southern Argentina and SE Brazil). Twenty-one species are vines, most of which are found in Peru and Bolivia; cloud forest, montane forest, riverine forest, montane scrub, and disturbed habitats; 1,100–4,700 m.

FUERTESIA Urban, Ber. Deutsch. Bot. Ges. 28: 520. 1911.

Twining subwoody vine or liana > 10 m in length, with splinter-stinging hairs and



Fuertesia domingensis, flowering branch, photo by P. Acevedo.

glochidiate hairs bearing 2 hooks at the tip; stems cylindrical up to 1 cm in diam. Leaves alternate; blades simple, ovate or lanceolate, venation subtriplinerved to pinnate, obtuse, rounded or subcordate at base, acuminate to abruptly acuminate at apex, subulate- or bristle-tipped,

coriaceous, with entire margins; petioles $\sim\frac{1}{3}$ as long as the blade. Inflorescence terminal, thyrsoid, the branches dichasial. Hypanthium conical, distally 5-ribbed, densely covered with stinging hairs; sepals 5, oblong, thick coriaceous, free, greenish yellow, longer than the hypanthium and petals; petals thinly herbaceous, pale yellow, laciniate, included in the calyx;

stamens 5, staminodia absent; ovary unilocular and uniovulate, bearing a bowl-shaped nectary disk at apex; stigma 3- to 5-lobed. Fruit a cypsela, pentagonous in cross section, winged on ribs, the calyx persistent, enlarging and spreading-ascending; testa white or beige.

Distinctive features: Plant with pubescence of stinging hairs; stems woody but slender; leaves entire, coriaceous, with subtriplinerved venation; fruits indehiscent, with persistent, spreading, enlarged sepals at the top.

Distribution: A genus endemic to Hispaniola (Dominican Republic and Haiti), with a single species, *Fuertesia domingensis* Urb.; seasonally dry vegetation, on rocky and or limestone substrate, often in disturbed habitats; 30–510 m.

GRONOVIA Linnaeus, Sp. Pl. 202. 1753.

Annual herbaceous twining vines, with stinging hairs and glochidiate hairs which bear 2



Gronovia scandens, photo by P. Acevedo.

hooks at the tip. Leaves alternate; blades membranaceous, deeply sinuate-lobate with 3–4 lobes on each side, lobes ovate-lanceolate, bidentate, long acuminate, the base hastate. Inflorescence terminal or axillary, thyrselike, the

branches monochasial; hypanthium very short; sepals 5, free or nearly so, lanceolate, yellow or yellowish green, longer than petals; petals 5, spatulate, thinly membranaceous, orangish yellow,

erect (almost connivent around the stamens); stamens 5, as long as the petals, staminodia absent; ovary inferior, unilocular and uniovulate, bearing a bowl-shaped nectary disk at apex; stigma unlobed, bearing a tuft of 2-celled glandular trichomes at apex of style. Fruit a cypsela, pentagonous in cross section, winged on ribs, with accrescent persistent sepals; testa white or beige.

Distinctive features: Plant herbaceous, densely covered with glandular-tipped stinging hairs; stems twining; leaves deeply sinuate-lobed, bearing both stinging and 2-hooked glochidiate hairs. With general vegetative appearance of a Cucurbitaceae vine but distinguished by the twining stems (vs. tendrilled in Cucurbitaceae).

Distribution: A genus of two species occurring in Mexico, Costa Rica, Venezuela, Colombia, Ecuador, and Peru. *Gronovia longiflora* Rose is endemic to southern Mexico while *G. scandens* L. is distributed from northern Mexico to NW South America south to Peru; dry forest, deciduous forest, thickets, and disturbed habitats; 0–2,000 m.

KLAPROTHIA Kunth in Humboldt, Bonpland & Kunth, Nov. Gen. Sp. 6: ed. qu., 123. t. 537.
1823.

Annual or perennial herbs, sometimes twining vines ~2 m long, stinging hairs absent.



Klaprothia mentzelioides, photo by B. Hammel.

Leaves opposite;
blades simple,
bullate at maturity,
ovate, acute to
subrounded at base,
acuminate at apex,
the margin serrate.
Inflorescence
terminal, dichasia or
complex and thyrse-

like. Flowers 4-merous, erect; hypanthium conical, covered with long, gland-like hairs; sepals ovate; petals cucullate, white; stamens numerous, in clusters of 3–4, each opposite to a petal; staminodia shorter than the stamens and clustered between the stamens; nectary green, densely papillose-hairy; ovary inferior, placenta simple with numerous ovules. Fruit an ovoid, burr-like, straight to slightly twisted, tardily dehiscent, 4-valved, septicidal capsule; seeds narrowly ovoid; testa reticulate with equatorial striae.

Distinctive features: The 4-merous flowers and cucullate petals (lobed with 2 longitudinal lamellae) distinguish this genus from other Loasaceae.

Distribution: A genus of two species occurring from southern Mexico to Brazil and Bolivia, only *Klaprothia mentzelioides* Kunth represented as a climber occurring in a diversity of habitats

including cloud forest, wet montane forest, primary forest, forest trails, ravines, secondary forest, riverbanks, stream sides, roadsides, hillsides, and road banks from 600–3,500 m.

EXCLUDED TAXA.

Blumenbachia although reported as vines, is not treated by us because none of the climbing species reach two or more m in length.