

## ASCLEPIADACEAE

by

**F. VAN DER AA en A. L. STOFFERS**

(Instituut voor Systematische Plantkunde, Utrecht)

Perennial herbs, undershrubs or lianas, mostly with milky or watery juice. Leaves opposite or whorled, membranaceous, coriaceous or fleshy. Stipules wanting, very small or rudimentary. Flowers actinomorphic, usually 5-merous, rarely very large. Inflorescence consisting of extra-axillary or terminal panicles, racemes, umbels or cymes or flowers solitary. Calyx persistent, 5-lobed, the segments imbricate or separate in the bud, the tube short. Corolla sympetalous, shortly or deeply 5-fid, rotate, campanulate, infundibuliform, hypocrateriform or tubular; the segments commonly reflexed; aestivation imbricate, contorted or rarely valvate. Corona usually present, taking various forms and formed either wholly or partly by appendages to the corolla or the staminal filaments, distinct or joined to each other, membranaceous or fleshy, sometimes also joined to the corolla. Stamens 5, distinct or more usually connate around the gynaeceum and adherent to the stigma; filaments short and broad and connate at their bases or throughout into a staminal column; anthers 2- or rarely 4-celled, attached by their bases to the filaments, usually united with each other and with the style to form a complex organ, the gynostemium. Pollen in tetrads, associated with 5 spoon-shaped translators, or the grains of each anther cell united in one or two waxy masses (pollinia), the latter attached by means of arm like processes (caudicles) to 5 small various shaped bodies, inserted on the style top and alternating with the anthers: the corpuscles or pollen carriers; a corpuscle and the caudicles of the adjacent anthers forming together the translator, an apparatus for the removal of the pollinia. Ovaries 2, superior; styles 2, free below but linked above by a single massive 5-lobed stigma. Ovules numerous, mostly anatropous, pendulous. Fruit a pair of follicles, or sometimes only one developing, deshiscent adaxially, the placenta becoming free as a replum. Seeds ovate, oblong or elliptic, compressed, usually appendaged by a long coma. Embryo nearly as long as the seed; cotyledons flat. Endosperm cartilaginous.

About 250 genera and 2,000 species; cosmopolitan but chiefly in tropical and subtropical regions.

Key to the genera:

1. Flowers large, up to  $8 \times 5$  cm; pollen granular . . . . *Cryptostegia*  
 Flowers smaller; pollen in each pollen sac agglutinated into a waxy  
 pollinium . . . . . 2
2. Erect herbs or shrubs . . . . . 3  
 Twining vines . . . . . 4
3. Leaves cordate,  $10-20 \times 5-15$  cm; corona segments spurred *Calotropis*  
 Leaves not cordate,  $4-13 \times 1.5-4$  cm; corona segments of 5 cucullate,  
 calceolate or clavate hoods . . . . . *Asclepias*
4. Flowers small, corolla lobes usually 1—2 mm long; follicles smooth  
*Cynanchum*  
 Flowers larger, corolla lobes 4—7.5 mm long; follicles with papillate  
 processes . . . . . *Matelea*

**Cryptostegia** R. Brown, Bot. Reg. 5: 435. 1819

Perennial, glabrous, high-climbing vines with milky juice. Leaves opposite. Flowers large, hermaphrodite, actinomorphic, often in terminal dichotomous or trichotomous cymes. Calyx large, with 5 lanceolate lobes. Corolla funnellform, the throat campanulate, the limb 5-lobed, the lobes dextrorsely twisted. Corona-scales 5, entire or divided into 2 parts, attached to the tube of the corolla. Stamens with short distinct filaments; anthers 2-celled and granular solitary pollen-masses. Styles 2; stigmas 2, united. Follicles paired, at the top and at the base connected, costate and winged. Seeds with coma.

Two species, native of Madagascar.

**Cryptostegia grandiflora** R. Br.

R. BROWN, in EDWARDS, Bot. Reg. 5: 435. 1819; URBAN, Symb. Ant. 1: 239. 1899; BOLDINGH, Fl. D.W. Ind. Isl. 1: 158. 1909; Fl. Ned. W. Ind. Eil. 322. 1913; Fl. D.W. Ind. Isl. 2: 86. 1914; BRITTON & MILLSPAUGH, Bahama Fl. 340. 1920; URBAN, Symb. Ant. 8: 549. 1921; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 6: 101. 1925; ARNOLDO, Zakflora 55. 1954; Zakflora 83. 1964; Gekw. en nutt. pl. Ned. Ant. 97. 1971; ADAMS, Flowering plants of Jamaica 595. 1972; FOURNET, Fl. Guadeloupe & Martinique 1243. 1978; — *Nerium grandiflorum* ROXBURGH, Hort. beng. 19. 1814, nomen nudum.

A stout twiner with abundant milky juice; stems to 6 m or more long, often branching, glabrous, sulcate. Leaves opposite, short-petiolate; petioles rather stout, 1.3 cm long, pilosiusculous to glabrous; blade leathery, glabrous on both sides, elliptic to ovate,  $4-10 \times 2-2.5$  cm; margin entire, prominent, apex acuminate, base rounded to cuneate; penniveined, midrib prominent, veins inconspicuous. Lateral buds pilose. Bracts opposite, lanceolate,  $6 \times 2$  mm.

Flowers very large, in terminal, often dichotomous, cymes. Peduncles up to 1.5 cm long, pilosellous. Calyx large, the lobes imbricate, lanceolate,  $1.5 \times 0.5$  cm, pilosellous. Corolla funnellform, the throat campanulate, pink-purple outside, white within, up to 7 cm long and 5 cm wide. Corolla-lobes dextrorsely contorted, ovate, 4.5 cm long and 2.5 cm wide. Corona formed by 5 scales, up to 1.5 cm long, attached to the tube of the corolla immediately above the stamens, each divided into 2 long filiform spearshaped, coloured segments. Staminal filaments, about 0.5 mm long, filiform; anthers 2-celled, 3 mm long, incurved over the 2 mm long, divergent, stigma, which is firmly attached to the inside of the anthers near their base. Ovules large. Follicles paired, divergent, large, 11.5 cm long and 4.5 cm wide at the base, woody, sulcate and winged. Seeds brown, small, about  $7 \times 2$  mm, lanceolate, with coma to about 3 cm long.

Native of Madagascar; naturalized in the Greater Antilles, Barbados, Grand Cayman, and Florida; in the Netherlands Antilles escaped from cultivation and now a noxious weed especially in the Leeward Group.

Vernacular names: Palu di lechi, conformales, cordon di San Francisco, cordon di San José (Leeward Group).

ARUBA: Franse Pas (Stoffers 1998, fl. Jan.); near Spaans Lagoen (Stoffers 1461, fl. Jan.); foot of Hooiberg (Arnoldo 138, fl. Dec.).

BONAIRE: along Z. Nikibokoweg (Stoffers 902, fl. Dec.); Sabana (Stoffers 961, fl. Dec.).

CURAÇAO: Brakkeput Mei Mei (Stoffers 189, fl. Oct.); Rif (Britton & Shafer 3090, fl. March); abandoned Hofje near Jan Thiel (Nagelkerken 315, fl. March); Domi (Stoffers 316, fl. Oct.); Hato (Stoffers 304, fl. Oct.); south of Willemstad (De Wilde 154A, fl. Jan. [L]); without loc. (Boldingh 4917, fl.; 5278, fl.).

SABA: Promised Land, 220 m (Stoffers 3414, fl. May); The Bottom (Boldingh 1985, fl. July; Arnoldo 722, fl. Aug.).

**Calotropis** R. Brown, On the Asclepiadeae. 28. 1810; Mem. Wern. Nat. Hist. Soc. 1: 39. 1811

Herbs, shrubs or trees, erect, glabrous or often downy. Leaves opposite, large and broad, sessile or short-petiolate. Stipules wanting. Inflorescence of terminal or axillary, many-flowered umbelliform cymes. Flowers bisexual, actinomorphic, 5-merous. Calyx 5-parted, the lobes alternating with a group of glands within. Corolla sympetalous, campanulate-rotate, rather leathery, 5-lobed. Corona segments 5, fleshy, spurred at the base and winged at the apex. Corona formed by the corolla and the filaments. Stamens 5, connate with the corona, borne at the base of the corolla and alternating with the corolla-lobes. Anthers 2-celled, pollen agglutinated in each pollen-sac as a pollinium; pollinia hanging solitary in each sac and linked with the adjacent anthers by translators joined at a gland. Gynostemium stipitate. Follicles large, thick, ventricose and smooth. Seeds many with a tuft of silky hairs.

Five species in tropical Asia and Africa.

***Calotropis procera* (Ait.) Ait. f.**

AITON f., in AITON, Hort. Kew. ed. 2: 78. 1811; GRISEBACH, Fl. Br. W. Ind. Isl. 420. 1862 [1864]; DUSS, Fl. phan. Ant. franç. 399. 1897; URBAN, Symb. Ant. 1: 244. 1899; BOLDINGH, Fl. D.W. Ind. Isl. 1: 158. 1909; URBAN, Symb. Ant. 4: 498. 1910; BOLDINGH, Fl. Ned. W. Ind. Eil. 323. 1913; Fl. D.W. Ind. Isl. 2: 86. 1914; BRITTON & MILLSAUGH, Bahama Fl. 341. 1920; URBAN, Symb. Ant. 8: 550. 1912; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 6: 96. 1925; CHEESMAN, in Fl. Trinidad & Tobago 2: 164. 1947; ARNOLDO, Zakflora 63. 1954; LEON & ALAIN, Fl. Cuba 4: 202. 1957; ARNOLDO, Zakflora 83. 1964; GOODING *et al.*, Fl. Barbados 331. 1965; ADAMS, Flowering plants of Jamaica 595. 1972; FOURNET, Fl. Guadeloupe & Martinique 1241. 1978; — *Asclepias procera* Ait., Hort. Kew. ed. 1: 1: 305. 1789.

Shrub or arboreous plant, up to 5 m or more tall, with poisonous milky juice, erect or sometimes tortuous, usually very branched at the top. Stems woody, the lower part glabrous, the upper part downy. Lateral buds tomentose. Leaves opposite, subsessile, glabrous when old, and both sides downy and hairy when young; blade coriaceous, elliptic or obovate-oblong, cordate at the base with lobes often nearly amplexicaulous, 10–20 × 5–15 cm, the upper side a little puberulous to glabrous, tomentellous beneath, the apex acuminate to cuspidate, margin entire incrassate; a number of brown filiform glands to about 1 mm long on the upper side near the base on the midrib, penni-veined; the midrib at the base up to 5 mm wide, and, like the lateral veins, prominent; the lateral veins at the margin curving to the apex. Inflorescence of many flowered, terminal or extra-axillary, umbelliform cymes, 5–10 cm wide. Peduncles stout, tomentose to glabrous, 4–9 cm long and up to 5 mm wide. Pedicels 1–3 cm long, tomentose. Flowers rather large, subcampanulate, white outside, purple within. Calyx lobes ovate to elliptic, acute, 5–6 mm long, purplish within. Corolla 1.5 cm long, rotate, nearly campanulate with a short tube; lobes rather coriaceous, glabrous, ovate to elliptic, 1 cm long and 8 mm wide, greenish-white outside, purplish within. Gynostemium stipitate, the column about 5 mm long. Corona-scales fleshy, 5 mm long, 3.5 mm wide and 1 mm thick, with a short curved basal spur, curled upwards for about 3 mm, at the apex 2 lateral wings. Stamens connate with the corona, borne at the base of the corolla; filaments forming a short tube. Pollinia 1.5 mm long, 0.6 mm wide, obovate, compressed, hanging in the pollensacs. Corpuscles 0.1 mm wide, 0.4 mm long, caudicles 0.35 mm long. Stigma 5-angular, with a membranaceous curtain hanging over the tip. Follicles large, inflated, grey, ventricose, smooth, 3–9 cm long, up to 6 cm wide. Seeds with a tuft of silky hairs.

Native of the Old World tropics, introduced and naturalized elsewhere; West Indies, continental tropical America.

Vernacular names: Katuna di seda, zijkatoen (Leeward Group).

ARUBA: foot of Hooiberg (Arnoldo 270, fl. Dec.); near San Nicolas (Boldingh 6488, fl.); near Matoguera (Stoffers 1426, fl. & fr. Jan.); without loc. (Koolwijk s.n., sub Suringar s.n., fl. Jan. [L]).

BONAIRE: near Angola (Stoffers 811, st. Nov.).

CURAÇAO: Hofje near Weis Afo (Nagelkerken 179, fl. & fr. March); Gasparito (Lens s.n., sub Boldingh 835, fl. Jan.).

SABA: along the seashore near Fort Bay (Boldingh 1646, fl. July).

ST. EUSTATIUS: in deserted plantations near English Quarter (Boldingh 998, fl.); without loc. (v. Groll-Meyer 54, fl.).

ST. MARTIN: near Simsonbay village (Boldingh 3255, fl. Sept.).

**Asclepias** Linnaeus, Spec. Plant 215. 1753

Perennial, erect or decumbent herbs or shrubs with milky juice. Leaves usually opposite. Flowers in umbels, bisexual, actinomorphic, middle-sized or small, 5-merous. Calyx-lobes 5, the tube short, often glandular within. Corolla with rotate, reflexed lobes; on the radius of each corolla-lobe a gland. Gynostemium stipitate to subsessile. Corona formed by appendages of the corolla or filaments. Corona-column generally present. Corona of 5 cucullate, calceolate or clavate hoods, usually with an internal horn or crest. The hoods attached to the column, usually more or less substipitate, the basal attachment shallow, conduplicate but not deeply saccate. Anthers 2-celled. Pollen agglutinated in each pollen-sac as a pollinium and these linked laterally in pairs between adjacent anthers by translators joined at a gland. Pollinia strictly pendulous, their faces uniformly flattened, uniformly fertile to the attachment of the translators. Ovary 2-carpellary, apocarpous; styles 2, free; stigmas 2, united, nearly flat, 5-angled or 5-lobed. Ovules numerous. Follicles acuminate, fusiform. Seeds with a tuft of long hairs.

About 100 species, mostly natives of America, a few in Africa.

**Key to the species:**

1. Column length 2.0 mm; horns slightly arching over the top of the anther; width of the horn 0.5 to 1.0 mm; most often corolla red, corona yellow, or both white. . . . . *A. curassavica*  
Column length 1.0 mm; horns gradually incurved over the top of the anther; width of the horn less than 0.5 mm; corolla greenish-white, corona white . . . . . *A. nivea*

**Asclepias curassavica** L.

LINNAEUS, Spec. Plant. 215. 1753; GRISEBACH, Fl. Br. W. Ind. Isl. 419. 1862 ['1864']; DUSS, Fl. phan. Ant. franç. 398. 1897; URBAN, Symb. Ant. 4: 497. 1910; BRITTON & MILLSPAUGH, Bahama Fl. 341. 1920; URBAN, Symb. Ant. 8: 550. 1921; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 6: 95. 1925; CHEESMAN, in Fl. Trinidad & Tobago 2: 165. 1943; LEON & ALAIN, Fl. Cuba 4: 201. 1957; GOODING *et al.*, Fl. Barbados. 330. 1965; BOLLWINKEL, A revision of South American species of *Asclepias* 121. 1969; ARNOLDO, Gekw. en nutt. planten Ned. Ant. 96. 1971; ADAMS, Flowering plants of Jamaica. 596. 1972; FOURNET, Fl. Guadeloupe & Martinique 1241. 1978.

Perennial, erect herb, to 1.50 m tall, often branching from the base and becoming suffrutescent toward the base; stem becoming stout, up to a diam. of 5 mm at the base, sulcate, pilose in the upper, glabrous in the lower part. Leaves opposite; petioles sulcate, up to 13 mm long, tomentose to glabrous; blade elliptic-lanceolate to oblong-lanceolate, 4—13 × 1.5—4 cm, acuminate at the apex, cuneate at the base, margin thickened, penni-veined, veins prominent, lateral veins diverging from the midrib at angles of between 35° and 59° and anastomosing near the margin. Flowers in extra-axillary and terminal umbels up to 11-flowered; umbels with a ring of bracts; peduncles tomentose to glabrous up to 33 mm long; pedicels tomentose up to 14 mm long. Calyx deeply 5-fid; the lobes lanceolate, tomentose, to 3.5 mm long, 1 mm wide, acute, and at the base a number of filiform glands within, alternating with the lobes. Corolla-lobes reflexed, lanceolate, crimson, up to 7.5 mm long. Corona-lobes yellow or white, about 3.5 mm long. Gynostemium stipitate, column 2.0 mm long, hoods not fleshy, oblong-ovate with tip not tending to flare, auricles not present on the margin, horns slightly arching over the top of the anther. Length of the horn 3 mm above the point of adnation to the hood, 0.5—1.0 mm wide; pollinia ca. 1 mm long, obovate. Corpuscle 0.2 mm wide, 0.4 mm long, caudicle 0.5 mm long. Follicles erect on erect pedicels, fusiform, lanceolate, up to 8 cm long, 1.6 cm thick, smooth, glabrous. Seeds ovate, compressed, 5 mm long, 3.5 mm wide, with a tuft of white silky hairs.

Southern United States, West Indies, tropical America; grown in all tropical and subtropical countries as a garden plant.

Vernacular names: comchi cu skottel (Leeward Group),  
ipecacuanha (Windward Group).

CURAÇAO: without loc. (Aschenberg s.n., fl.).

SABA: Small Rendez-Vous, 350—380 m (Stoffers 3355, fl. May); 450 m (Stoffers 2931, fl. Ap.); between Crispine and Small Rendez-Vous, 375—450 m (Stoffers 2938, fl. Ap.); Laddergut, 100—200 m (Stoffers 2783, fl. & fr. Ap.); slope of The Mountain, 700 m (Arnoldo 3318, fl. & fr. Dec.); slope of The Mountain above Rendez-Vous, 600—680 m (Stoffers 3267, fl. & fr. May); Castle Hill, seaside, 300—350 m (Stoffers 4195, fl. Aug.); Rendez-Vous hill, 500 m (Burgers 514, fl. March); The Bottom (Arnoldo 615, fl. Aug.); Parish Hill 200—400 m (Suringar s.n., fl. Ap. [L]).

ST. EUSTATIUS: northern slope of The Quill (Stoffers 3987, fl. July); slope of The Quill, 0—200 m (Suringar s.n., fl. Ap. [L.]); without loc. (v. Groll-Meyer 134, fl.).

ST. MARTIN: Mount Paradise, 300—400 m (Boldingh 3329, fl. Sept.); Mary's Fancy (Suringar s.n., fl. May [L]).

BOLLWINKEL, A Revision of South American species of *Asclepias* (1969), distinguishes two forms of *Asclepias curassavica*:

**f. curassavica**

with crimson petals known from Trinidad, Tobago, St. Eustatius, Saba, and Cuba.

SABA: Small Rendez-Vous, 450 m (Stoffers 2931, fl. & fr. Ap.).

St. EUSTATIUS: northern slope of The Quill (Stoffers 3987, fl. July).

**f. concolor**

with yellow petals, known from Colombia, Suriname, and Argentina.

**Asclepias nivea L.**

LINNAEUS, Spec. Plant. 215. 1753; GRISEBACH, Fl. Br. W. Ind. Isl. 419. 1862 [1864]; URBAN, Symb. Ant. 1: 243. 1899; 388. 1900; BOLDINGH, Fl. D.W. Ind. Isl. 1: 158. 1909; Fl. Ned. W. Ind. Eil. 323. 1913; Fl. D.W. Ind. Isl. 2: 86. 1914; URBAN, Symb. Ant. 8: 549. 1921; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 6: 95. 1925; URBAN, Symb. Ant. 9: 420. 1925; LEON & ALAIN, Fl. Cuba 4: 201. 1957; BOLLWINKEL, A revision of S. Am. species of *Asclepias* 136. 1969; ADAMS, Flowering plants of Jamaica 596. 1972.

Erect, perennial herb to 1.50 m tall, often branching from the base, only slightly suffrutescent towards the base; stems rather slender, up to a diameter of 5 mm at the base, sulcate, glabrescent to glabrous. Leaves opposite; petioles to 15 mm long, sulcate, tomentose; blade lanceolate to ovate, 4.5—10.5 cm long, 1.5—3.0 cm wide, herbaceous, tomentellous to pilosulous, margin entire, flat, penni-veined, lateral veins not very prominent, diverging from the midrib at angles of between 29° and 49° and branching near the margin with the veinlets anastomosing. Flowers in extra-axillary and terminal umbels with up to about 10 flowers; umbels with a ring of bracts; peduncle tomentose, up to 3 cm long; pedicels tomentose up to 12 mm long. Flowers rather small, calyx deeply 5-fid, the lobes ovate-lanceolate, 3 mm long, 1 mm wide, acute, tomentellous, at the base within a number of filiform glands, alternating with the calyx-lobes. Corolla-lobes reflexed, greenish-white, glabrous, lanceolate, 5.6 mm long, 2 mm wide, acute. Gynostemium stipitate, the column 1.0 mm long, hoods of the corona not fleshy, white, oblong-ovate, about 3.5 mm long, with tip not tending to flare, auricles not present on the margin, horns gradually incurved over the top of the anther; horns to 2.5 mm long, 0.2 mm wide. Pollinia 1.0 mm long, 0.3 mm wide, obovate; corpuscle 0.4 mm long, 0.2 mm wide; caudicle 0.5 mm long. Follicles erect, lanceolate, fusiform, smooth and glabrous on erect pedicels, to about 6 cm long and 7 mm thick. Seeds ovate, compressed with a tuft of white silky hairs.

Greater Antilles, Virgin Island, Martinique.

Vernacular names: comchi cu skottel (Leeward Group)  
ipecauanha (Windward Group)

SABA: between The Bottom and Mary's Point, 100—200 m (Boldingh 1517, fl. & fr. July).

St. EUSTATIUS: without loc. (Boldingh s.n., fl.).

St. MARTIN: Milldrum Hill, 200—300 m (Boldingh 3120, fl. Sept.).

**Cynanchum** Linnaeus, Spec. Plant. 212. 1753

Perennial, slender lianas or twining undershrubs. Leaves opposite, coriaceous or herbaceous. Inflorescence cymose or umbelliform. Flowers bisexual, actinomorphic. Calyx 5-fid, the lobes often alternating with single glands. Corolla sympetalous, campanulate or subrotate, deeply 5-lobed. Corona simple, of 5 separate or united, laminate to filiform scales, occasionally compound or with internal processes, rarely wanting. Anthers 2-celled. Pollen agglutinated in each pollen-sac as a pollinium and these linked laterally in pairs between adjacent anthers by translators joined at a gland. Arms of translators not conspicuously thickened. Pollinia strictly pendulous, their faces uniformly flattened or rounded, uniformly fertile to the attachment of the translators, broadly rounded or only slightly compressed. Gynostemium sessile or stipitate. Follicles thin, terete to clavate, smooth. Seeds with a tuft of hairs.

Species about 150 or more in the southern United States, West Indies, Central- and tropical South-America.

Key to the species:

1. Leaves 2—7 cm long, 0.25—0.8 cm wide, base tapering into the petiole  
*C. boldinghii*  
Leaves 1.5—4.0 cm long, 1—2.5 cm wide, rounded at the base . . . 2
2. Gynostemium long-stipitate . . . . . *C. parviflorum*  
Gynostemium sessile . . . . . *C. albiflorum*

**Cynanchum boldinghii** (Schlechter in Urban) Van der Aa & Stoffers

VAN DER AA & STOFFERS, Proc. Kon. Ned. Akad. Wet. Amsterdam C84: 309. 1981; — *Metastelma boldinghii* SCHLECHTER, in URBAN, Symb. Ant. 7: 338. 1912; BOLDINGH, Fl. Ned. W. Ind. Eil. 323. 1913; Fl. D.W. Ind. Isl. 2: 86. 1914; ARNOLDO, Zakflora 106. 1954; Zakflora 84. 1964.

Woody, slender vine. Stems cylindric, glabrous. Leaves herbaceous, opposite, petiolate; petioles terete, pilose to glabrescent, 1—2 mm long; blade lanceolate, 2—7 cm long, 2.5—8 mm wide, acute at the apex, tapering into the petiole at the base, glabrous on both sides, margin entire, flat; penni-veined, midrib and lateral veins prominent. Flowers small, up to 1.5 mm long, up to 0.35 mm wide, campanulate, corolla-lobes wide spreading, in axillary sessile umbelliform cymes; pedicels up to 1.5 mm long. Calyx small, 5-lobed, lobes ciliate, ovate, 0.8 mm long, obtuse with a large hyaline margin; between the lobes 1 filiform gland. Corolla sympetalous, with a short tube, 5-lobed, lobes puberulous within, glabrous outside, with a reddish margin, ovate, up to 1.5 mm long, 0.8 mm wide, broad canaliculate, obtuse, with a flat margin. Corona-lobes simple, linear, up to 1 mm long, 0.2 mm wide, about 0.3 mm rising above the gynostemium, alternating with the corolla-lobes, inserted at the margin at the tube of the corolla, with a rib across the bottom of the tube linked with the column, slightly

incurved over the stigma. Column about 0.3 mm long. Stigma flat, about 0.8 mm wide. Anthers 2-celled, connective with a triangular membranaceous apical appendage, slightly incurved over the stigma; pollinia 0.2 mm long, light-yellow; corpuscles reddish, 0.15 mm long. Follicles smooth, 3—5 cm long. Seeds with a tuft of silky hairs.

Endemic.

Vernacular name: marie palu (Leeward Group).

BONAIRE: Hobau (Stoffers 1013, fl. Jan.); Pos Bronswinkel (Stoffers 815, st. Nov.); north-west of Goto-meer (Stoffers 578, fl. Jan.); hills near Fontein (Boldingh 7249, fl. Feb., Typus).

CURAÇAO: Porte Marie (Went 1326, fl. Dec.); near Mahoema (Boldingh 4831, st.); near Siberië (Boldingh 5258, fl.); Pos Kajoeda (Arnoldo 1101, fl. Sept.).

### **Cynanchum parviflorum Sw.**

SWARTZ, Nov. Gen. & Spec. 53. 1788; WILLIAMS, in Fl. Trinidad & Tobago 2: 166. 1947; FOURNET, Fl. Guadeloupe & Martinique 1245. 1978; — *Metastelma parviflorum* R. BROWN, Mem. Wern. Nat. Hist. Soc. 1: 52. 1811; GRISEBACH, Fl. Br. W. Ind. Isl. 417. 1862 [1864]; DUSS, Fl. phan. Ant. franç. 398. 1897; BOLDINGH, Fl. D.W. Ind. Isl. 1: 159. 1909; URBAN, Symb. Ant. 4: 498. 1910; BOLDINGH, Fl. Ned. W. Ind. Eil. 323. 1913; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 6: 97. 1925; QUESTEL, Fl. Isl. St. Bartholomew 168, 1941; — *Metastelma schlechtendalii* GRISEBACH, Fl. Br. W. Ind. Isl. 417. 1862 [1864].

Perennial vine to 4 m long or longer; stems slender, woody, glabrous. Leaves opposite, petiolate; petioles terete, 0.3—1 cm long, glabrous; blade ovate to lanceolate, acuminate to cuspidate at the apex, rounded at the base, 1.5—4.0 × 1—2.5 cm, on both sides glabrous, margin entire, flat; penni-veined, midrib and lateral veins prominent. Flowers small, greenish-white, 3 mm long, 6 mm wide, campanulate, vesicular, in axillary subsessile or peduncled umbelliform cymes; peduncles glabrous; pedicels glabrous, up to 2 mm long. Calyx small, 5-lobed; the lobes ovate, 1 mm long, 0.3 mm wide, obtuse, pilosiusculous outside, glabrous within, margin large, flat, hyaline, between the lobes a number of bud-shaped glands. Corolla sympetalous, the tube 1.5 mm long, 5-lobed, lobes white, puberulous within, glabrous without, ovate, 2 mm long, 1 mm wide, obtuse, margin flat; the lobes canaliculate. Corona-lobes simple, spatulate, dilated above, 1.5 mm long, 0.2 mm wide at the base, 0.5 mm wide below the apex, inserted at the margin of the corolla-tube, with a rib across the bottom of the tube linked with the column. Column 1.5 mm long; stigma, flat, about 1 mm wide, rising above the corolla- and corona-lobes. Anthers 2-celled, connective with a triangular membranaceous apical appendage, slightly incurved over the stigma; pollinia flat, 0.3 mm long, ovate, light-yellow; corpuscles ovate, reddish, about 0.15 mm long, 0.1 mm wide, rising up above the stigma; caudicles reddish, 0.1 mm long. Follicles smooth, 3—5 cm long.

West Indies, Bahamas.

ST. MARTIN: Middle Region, 100 m (Arnoldo 3395, fl. & fr. Jan.).

**Cynanchum albiflorum** (Gris.) Stearn

STEARNS, *Phytologia* 21: 138. 1971; — *Metastelma albiflorum* GRISEBACH, *Fl. Br. W. Ind. Isl.* 417. 1862 [1864]; URBAN, *Symb. Ant.* 1: 250. 1900; *Symb. Ant.* 5: 468. 1908; WILLIAMS, *Fl. Trinidad & Tobago* 2: 168. 1947; ADAMS, *Flowering plants of Jamaica* 599. 1972.

Perennial, woody vine; stems slender, glabrous, to 4 m long or longer. Leaves opposite, petiolate; petioles terete, 3—5 mm long; blade herbaceous, elliptic to lanceolate, 2—3.5 × 1—2 cm, acute to acuminate at the apex, rounded at the base, glabrous on both sides, margin entire, flat; penni-veined, midrib and lateral veins prominent. Flowers small, yellowish, 3 mm long, 4 mm wide, in axillary, peduncled or sessile, umbelliform cymes, campanulate; peduncles glabrous, up to 2 mm long, pedicels glabrous, up to 2 mm long. Calyx small, 5-lobed, ovate, obtuse, 1 mm long, 0.7 mm wide, pilosulous outside, glabrous within, margin large, flat, hyaline; between the lobes a single filiform gland. Corolla 5-lobed, sympetalous, with a short tube, the lobes ovate, obtuse, puberulous within, glabrous outside, margin flat, the lobes somewhat canaliculate. Corona-lobes simple, linear or dilated, 1 mm long, up to 0.4 mm wide, alternating with the corolla-lobes, inserted at the margin of the tube, with a rib across the bottom of the corolla-tube linked with the column, exceeding the gynostemium about 0.6 mm. Gynostemium sessile. Stigma flat, 0.7 mm wide. Anthers 2-celled, connective with a triangular membranaceous apical appendage, slightly incurved over anther head; pollinia 0.1 mm long, flat, ovate; corpuscles ovate, reddish, about 0.15 mm long, 0.1 mm wide; caudicles 0.15 mm long. Follicles smooth, 3—5 cm long. Seeds with a tuft of silky hairs.

Curaçao, Jamaica, St. Eustatius.

CURAÇAO: Seroe Christoffel, 210 m (Burgers 38, fl. Dec.); id., eastern slope, 300 m (De Wilde 128, fl. Feb. [L]); Knip hills (Arnoldo 1021, fl. Jan.); near Pos Kajoeda (Arnoldo 1101, fl. Sept.); without loc. (Boldingh 4986, fl.).

ST. MARTIN: Low Lands (Boldingh 3267a, st. Sept.).

**Matelea** Aublet, *Pl. Gui.* 1: 277. 1775

Perennial vines with milky juice. Leaves opposite, cordate. Inflorescence consisting of axillary, sessile cymes. Corolla sympetalous, rotate, the lobes dextrorsely contorted. Corona inserted to the corolla and the column; scales connate. Gynostemium stipitate or sessile; stigma flat. Anthers relatively simple, 2-celled, pollen agglutinated in each pollen-sac as a pollinium. Pollinia horizontal, occasionally ascending or descending, elliptic or elliptic-ovate, one or both faces more or less excavated, and with a sterile hyaline margin or

indentation near the attachment of the translators. Follicles ventricose, ovate, with stipitate processes, hairy. Seeds with a tuft of white hairs.

About 175 species or more in tropical America.

Key to the species:

1. Corolla-lobes up to 4 mm long, 2 mm wide; apex not curved inside.  
Corona denticulate . . . . . *M. maritima*  
Corolla-lobes up to 7.5 mm long, 3 mm wide; apex curved inside.  
Corona tongue-shaped . . . . . *M. rubra*

**Matelea maritima** (Jacq.) Woods.

WOODSON, Ann. Miss. Bot. Gard. 28: 222. 1941; CHEESMAN, in Fl. Trinidad & Tobago 2: 171. 1947; LEON & ALAIN, Fl. Cuba 4: 210. 1957; FOURNET, Fl. Guadeloupe & Martinique 1244. 1978; — *Ibatia maritima* (JACQUIN) DECAISNE, in DECANDOLLE, Prodr. 7: 599. 1844; BOLDINGH, Fl. D.W. Ind. Isl. 1: 159. 1909; JOHNSTON, Proc. Bost. Soc. Nat. Hist. 34(7): 248. 1909; URBAN, Symb. Ant. 4: 500. 1910; BOLDINGH, Fl. Ned. W. Ind. Eil. 324. 1913; URBAN, Symb. Ant. 8: 555. 1921; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 6: 99. 1925; QUESTEL, Fl. Isl. St. Bartholomew 169. 1941; — *Asclepias maritima* JACQUIN, Enum. Syst. Plant. 17. 1760; — *Ibatia muricata* GRISEBACH, Fl. Br. W. Ind. Isl. 421. 1862 [1864]; Duss, Fl. phan. Ant. franç. 400. 1897.

Twining vine, stem woody, 2—6 m long, whitish, pilose, branching. Leaves opposite, petiolate; petioles slender, sulcate, terete, pilose, up to 4.5 cm long; blade herbaceous, broadly ovate, acuminate to cuspidate at the apex, cordate at base, 4.5—9 × 3.5—7.5 cm, palmately veined, tomentose below, hispidulous above, margin entire. Inflorescence consisting of few-flowered, axillary cymes. Flowers small, 8 mm wide; pedicels up to 2 mm long, pilose. Calyx small, tube short, 5-lobed; lobes lanceolate to ovate, 3 mm long, 1 mm wide, apex obtuse, hispidulous and alternating with a triangular c. 0.3 mm long gland. Corolla subcampanulate-rotate, white, corolla-tube large, lobes 5, ovate, obtuse, 4 mm long and c. 2 mm wide at the base, pilose to the middle, glabrous in the lower half, the limb merely continuing the dilation and much longer than the throat. Corona annular, simple, hairy beneath, with 15 small teeth, 5 teeth opposite the anthers, curved up and ciliate, the other 10 not ciliate; corona inserted to the base of the gynostemium and corolla. Gynostemium short, sessile. Stigma flat, pentagonal, 2 mm wide, with a star-shaped depression in the middle, and in the centre of this depression a papillate, about 1 mm long appendage. Anthers 2-celled; connective with large membranaceous appendages; pollinia horizontal, hanging, ovate, 0.7 mm long, 0.4 mm wide; corpuscles 0.2 mm long, 0.1 mm wide; the part of the pollinia near the corpuscles compressed, the other part ventricose, one face excavated; caudicles triangular. Follicles ventricose, ovate, 4—7 cm long, 2.5—3 cm wide, glabrescent with many papillate processes.

Antilles and northern South-America.

Vernacular name: maripompun (Windward Group).

SABA: without loc. (Boldingh s.n., fr. July).

ST. EUSTATIUS: near Boven, 200 m (Boldingh 1232, fr. June); Bengalen (Boldingh 634, fr. June); without loc. (van Groll-Meyer 277, fl.).

ST. MARTIN: from Philipsburg to Guana Bay (Boldingh 2400, fl. Aug.); near Fort William, 50 m (Boldingh 2789, fl. Aug.); mountain between Mont des Accords and Sentry Hill, 200—300 m (Boldingh 2861, st.).

**Matelea rubra** (Karst.) Van der Aa & Stoffers

VAN DER AA & STOFFERS, Proc. Kon. Ned. Akad. Wet. Amsterdam C84: 309. 1981; — *Omphalophthalmum ruber* KARSTEN, Fl. Columb. 2: 119. 1865; BOLDINGH, Fl. Ned. W. Ind. Eil. 324. 1914; Fl. D.W. Ind. Isl. 2. 86. 1914; ARNOLDO, Zakflora 56, fig. 49. 1954; Zakflora 84, fig. 49. 1964; Gekw. en nutt. pl. Ned. Ant. 98, fig. 165. 1971 as 'rubrum'.

Perennial vine with milky juice; stems whitish, lignose, cylindric, sulcate, twining, the younger parts pilose, pilose to glabrous in age. Stipules wanting. Leaves opposite, herbaceous; petioles slender, sulcate, terete, slightly hairy, up to 6.5 cm long; blade ovate, cuspidate to acuminate at the apex, cordate at the base, 3—9.5 × 2—7.5 cm, palmately veined, pilose on both sides, young leaves a little downy, margin entire. Inflorescence consisting of up to 10-flowered, axillary clusters about 1 cm across, and flowers in pseudo-spikes at the end of the twigs; pedicels 1—4 mm long, pilose. Flowers small, red. Calyx with a short tube, the lobes lanceolate, acute, 5 mm long, 1 mm wide, pilose, a short triangular, c. 0.3 mm long gland at the base between the lobes inside. Corolla rotate, the lobes whitish, with dark red-brown lines, oblong-lanceolate, 7.5 × 3 mm, glabrescent to glabrous outside; apex of the corolla-lobes curved inwards and hairy within. Corona-scales whitish, tongue-shaped, connate at the base, up to 4.5 × 1—2 mm, divided at the middle into 2 lobes, 1—2 mm long, rising high above the gynostemium. Hood fleshy, about 2 mm wide. Column up to 1.5 mm long. Anthers 2-celled; pollinia hanging, with a sterile hyaline margin near the attachment of the translators, elliptic, 0.7 × 0.6 mm; caudicles small, triangular; corpuscles brown, 0.3 mm long, rising above the hood. Follicles ovate to obovate with spiny processes which are flattened near the top. Seeds with a tuft of long, silky hairs.

Aruba, Bonaire, Curaçao, and Novo Granata.

Vernacular names: cabez di maricu, maripompun (Leeward Group).

ARUBA: Companashi (Arnoldo 90, fl. Dec.); along the road near Seroe Pretoe (Stoffers 1676, fl. Jan.); Seroe Alejandro (Stoffers 1969, st. Jan.); along the road from Noord to Westpunt (Stoffers 1774, fl. Dec.); along the road near Noord (Stoffers 1573, fl. Dec.); without loc. (Boldingh 6212, fl.).

BONAIRE: north-west of Goto-meer (Stoffers 579, fl., Jan.); without loc. (Boldingh 7098, fl. & fr.).

CURAÇAO: foot of Seroe Christoffel (Arnoldo 1827, fl. & fr. Jan.); hills near Wacao (Boldingh 5254, fl. Nov.).

ST. MARTIN: near Grote Zoutpan (Arnoldo 1249, fl. & fr. March).