

CLUSIACEAE

by

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Trees or shrubs, containing a resinous sap, sometimes epiphytic. Leaves opposite, generally decussate, rarely alternate or whorled. Stipules wanting. Flowers dioecious, polygamous or hermaphrodite, actinomorphic or nearly so, terminal or axillary, sometimes solitary or clustered, sometimes in few-flowered cymes. Sepals 2—10. Petals 2—6, rarely indefinite, contorted or overlapping. Male flowers: stamens numerous, rarely definite; filaments free or connate in various degree, sometimes united into a fleshy mass; anthers varying in form, number and dehiscence, the connective often produced beyond the anthers and sometimes glandular; ovary rudimentary or wanting. Female and hermaphrodite flowers: staminodes and stamens surrounding the ovary; number of stamens and staminodes smaller than in the corresponding male flower; ovary superior, one- to many-celled; ovules one to many in each cell on axile or rarely parietal placentas; styles usually connate or wanting; stigmas large, as many as the cells of the ovary; fruit usually fleshy-leathery, a capsule with septicidal or loculicidal dehiscence or a berry; seeds often with a fleshy aril or strophiole; endosperm wanting.

About 400 species in 35 genera in the tropics.

Key to the genera:

1. Calyx splitting in two valves; fruit a berry *Mammea*
Sepals free; fruit capsular 2
2. Flowers in axillary racemes; petioles without marginal pits at base
Marila
Flowers terminal, in cymes or solitary; petioles with a marginal pit at
the base *Clusia*

Marila Swartz, Prodr. Veg. Ind. Occ. 84. 1788

Evergreen trees or shrubs. Leaves opposite, penniveined; the veins anastomosing at the margins; petioles without margined pits at their base. Inflorescence

consisting of axillary racemes. Flowers hermaphrodite. Sepals 4—5. Petals 4—5, soon deciduous. Stamens numerous; filaments linear, free or nearly so; anthers with longitudinal dehiscence; connective ending in a glandular process. Ovary 4—5-celled; style simple; stigma subentire; ovules numerous in each cell, attached to a simple or longitudinally split placenta. Fruit a capsule. Seeds comose at both ends.

Six species in the West Indies and tropical South-America.

***Marila racemosa* Sw.**

SWARTZ, Prodr. Veg. Ind. Occ. 84. 1788; GRISEBACH, Fl. Br. W. Ind. Isl. 111. 1859; Duss, Fl. phan. Ant. franç. 97. 1897; BOLDINGH, Fl. D. W. Ind. Isl. 1: 134. 1909; Fl. Ned. W. Ind. Eil. 286. 1913; WILLIAMS, Fl. Trinidad & Tobago 1(1): 59. 1929.

Glabrous shrub, up to 7 m tall. Leaves coriaceous, lanceolate-oblong, 7—20 × 1—6 cm, acute at the apex, cuneate at the base; the midvein very prominent beneath, the lateral veins about 17 at each side, anastomosing at the margins. Racemes simple, usually up to 12 cm long. Sepals 5, elliptic, acute, about 7 × 4 mm. Petals 5, broadly obovate, rounded at the apex, about 7—8 × 5—6 mm, greenish-white. Filaments up to 4 mm long; anthers oblong, about 1 mm long; stigma capitate. Capsule about 1.5 cm long and 0.4 cm in diam. Seeds comose, chiefly at both ends.

Saba to St. Vincent.

SABA: The Mountain, 800 m (Boldigh 1829, fl. July); id., 825 m (Stoffers 4213a, fl. Aug.).

***Mammea* Linnaeus, Spec. Plant. 512. 1753**

Trees with resinous sap. Leaves opposite, coriaceous, finely veined with prominent reticulation. Stipules wanting. Flowers polygamous, pedicellate, solitary or clustered. Calyx splitting up into two valves. Petals 4—6. Stamens numerous; filaments thread-like, free or united at the base; anthers erect, linear-oblong, 2-celled, with longitudinal dehiscence. Ovary 2- or 4-celled; style short, thick; stigma peltate, 2- or 4-parted. Ovules two in each cell of a 2-celled ovary or solitary in a 4-celled ovary. Fruit berry-like.

One species in tropical America, but cultivated throughout the tropics, and 3 species in tropical Africa.

***Mammea americana* L.**

LINNAEUS, Spec. Plant. 512. 1753; JACQUIN, Sel. Stirp. Am. 268, t. 181, f. 82. 1763; GRISEBACH, Fl. Br. W. Ind. Isl. 108. 1859; Duss, Fl. phan. Ant. franç. 102. 1897; URBAN, Symb. Ant. 4: 412. 1910; BOLDINGH, Fl. D. W. Ind. Isl. 1: 134. 1909; Fl. Ned. W. Ind. Eil. 286. 1913; Fl. D. W. Ind. Isl. 2: 68. 1914; URBAN, Symb. Ant. 8: 438. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 583. 1924; FAWCETT & RENDLE, Fl. Jamaica 5(3): 201, fig. 78. 1926; WILLIAMS, Fl. Trinidad & Tobago 1(1): 62. 1929; STEHLÉ & QUENTIN, Fl. Guadeloupe et Dep. 2: 130. 1937; LEON & ALAIN, Fl. Cuba 3: 308, fig. 137. 1959; ARNOLDO, Gekw. en nutt. Planten Ned. Ant. 87. 1954.

Glabrous evergreen tree, up to 20 m tall. Leaves petiolate; the petiole stout, 1—1.5 cm long; blade elliptic, elliptic-oblong or obovate-elliptic, obtuse or rounded at the apex, obtuse, rounded or cuneate at the base, 10—20 × 5—10 cm, punctulate with pellucid glands beneath, the midvein flat at the upper side, very prominent beneath; lateral veins prominent on both sides, arcuately connected at about 0.5 cm from the margin, strongly reticulate by a number of lesser veins and veinlets. Flowers white, solitary or clustered; pedicels 1—1.5 cm long. Sepals thick, concave, about 1.5 cm long. Petals 4—6, oblong to obovate, about 2 × 1 cm. Stamens numerous; filaments about 7 mm long; anthers 1.5 mm long. Fruit subglobose, up to 15 cm in diam., apiculate; exocarp 5 mm thick; mesocarp thick and yellow. Seeds 2—4, with reddish, rough, fibrous surface, about 7 × 5 cm.

Central America, northern South America, and West Indies; cultivated throughout tropical America and in some parts of the Old World tropics. Cultivated in Aruba, Bonaire, Curaçao, Saba, St. Eustatius and St. Martin.

SABA: road to the Mountain (Arnoldo 859, fr. Aug.).

ST. EUSTATIUS: inner slope of The Quill, 330 m (Boldingh 461, st. June); slope of The Quill near Bengalen (Boldingh 651, st. June); lower part of Signal Hill (Boldingh 120, st. May); without loc. (v. Groll-Meyer 184, st.).

Vernacular names: mamaya (Leeward Group).
mammie (Windward Group).

Clusia Linnaeus, Spec. Plant. 509. 1753

Glabrous, evergreen trees or shrubs, often climbing or epiphitic, and then strangling their host with their aerial roots, the bark containing a viscid, resinous, yellowish sap. Leaves coriaceous, opposite; petioles with a pit at the base which encloses the terminal bud when young; the midvein very prominent; primary veins pinnate, often scarcely visible, becoming more distinct when dry. Stipules wanting. Inflorescence terminal, consisting of cymes, or flowers solitary. Flowers unisexual, polygamous or hermaphrodite. Bracts 2—6. Bracteoles 2—14, decussate in pairs, sepal-like, immediately below the flower and often falling together with the flower or the fruit. Sepals 4—6, roundish, decussate in pairs or imbricate. Petals 4—10, free or connate at the base. Male flowers: stamens usually numerous, free or connate, very variable with regard to their number, form, dehiscence, insertion and staminodes; rudiment of ovary present or wanting. Female flowers: staminodes very variable; ovary 5—10-celled; style wanting or very short; stigmas radiating, ovate or nearly triangular; ovules numerous in each cell, anatropous, attached at or near the inner angle, usually more or less horizontal. Capsule thick, woody, leathery or fleshy, opening at length septicidally; the axis angular winged. Seeds enclosed in a fleshy aril. Embryo thick-fleshy.

About 250 species in tropical and subtropical America.

Key to the species:

1. Lateral veins almost straight under 60—70° with the midvein; petals pale yellowish *C. major*
Lateral veins under 20—45° with the midvein, inconspicuous above; petals white with pink 2
2. Lateral veins under 30—45°, mainly straight to the very faint marginal vein; petals 3—4 cm long; upper surface of the blade not fissuring in drying *C. rosea*
Lateral veins under 20—45°, the largest angles in the middle, slightly bent towards the marginal vein; upper surface of the blade with small fissures when dry; petals 2.5 cm long *Clusia spec.*

Clusia major L.

LINNAEUS, Spec. Plant. 509. 1753; HOWARD, J. Arn. Arb. 43: 389. 1962; — *Clusia alba* JACQUIN, Enum. Plant. Carib. 34. 1760; GRISEBACH, Fl. Br. W. Ind. Isl. 107. 1859; BOLDINGH, Fl. D. W. Ind. Isl. 1: 135. 1909; Fl. Ned. W. Ind. Eil. 287. 1913.

Tree or shrub, often epiphytic. Leaves opposite, decussate, often more or less congested at the apex; petiole 0.5—2 cm long; blade obovate, rounded at the apex, cuneate at the base and slightly decurrent on the petiole, 10—15 × 8—10 cm; midvein flat above, very prominent beneath, but disappearing near the apex; veins rather conspicuous when dry, under 60—70° with the midvein, almost straight to a marginal vein at 0.5—1 mm from the margin; veins 1.5—3.5 mm from each other. Flowers terminal, solitary or in a dichasium. Bracteoles ovate, coriaceous, 5 mm long, folded along the keel. Sepals orbicular, concave, the outer pair about 7 mm long, the inner ones 5, about 15 mm long. Petals 5, obovate, about 2.5 cm long, pale yellowish. Stamens in a globular mass; anthers glued together, surrounded at base by an irregular, corona-like staminodial ring. Stigmas 5, forming an umbrella-like, loose cap. Fruit a thick, fleshy, ovoid capsule tapering to the stigmas.

Lesser Antilles.

Vernacular name: wild mammie, wild balsum tree (Windward Group).

SABA: slope of The Mountain near Hellsgate (Boldingh 1705, fr. July; 2288, fl. July); between The Bottom and Mary's Point, 350 m (Boldingh 1489, st. July); road to The Mountain (Arnoldo 819, male fl. Aug.).

St. EUSTATIUS: top of The Quill, 400 m (Boldingh 193, st. June; 376, st. June); without loc. (v. Groll-Meyer 185, st.).

Clusia rosea Jacq.

JACQUIN, Enum. 34. 1760; GRISEBACH, Fl. Br. W. Ind. Isl. 107. 1859; Duss, Fl. phan. Ant. franç. 99. 1897; BOLDINGH, Fl. D. W. Ind. Isl. 1: 135. 1909; URBAN, Symb. Ant. 4: 414. 1910; BOLDINGH, Fl. Ned. W. Ind. Eil. 287. 1913 p.p.; URBAN, Symb. Ant. 8: 439. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 586. 1924; FAWCETT & RENDLE, Fl. Jamaica 5(3): 192, fig. 74. 1926; WILLIAMS, Fl. Trinidad & Tobago 1: 58. 1929; STEHLÉ & QUENTIN, Fl. Guadeloupe et Dep. 2: 128. 1937; LEON & ALAIN, Fl. Cuba 3: 313, fig. 140. 1953.

Tree, up to 20 m tall, growing on rocks or on other trees. Leaves thick coriaceous, petiolate; petiole 1–2 cm long, stout; the blade broadly obovate, rounded or slightly retuse at the apex, inequilateral rounded or contracted at the base, 9–18 × 6–12 cm, the margin recurved; midvein disappearing towards the apex, slightly prominent beneath; lateral veins inconspicuous above, slightly prominent beneath, under 30–45°, mainly straight to the very faint marginal vein. Flowers terminal and solitary or in a dichasium. Bracteoles ovate, coriaceous, boat-shaped and keeled, about 0.5 cm long. Flowers polygamous. Sepals 6–8, orbicular, the outer two 6–7 mm long, the other ones 1.5–2 cm long. Petals 6–8, obovate or obcordate, 3–4 cm long, pink and white. Male flowers: outer stamens fertile, in several series, more or less connate at the base; inner ones sterile, glued together into a solid resinous mass. Female flowers: staminodes united and forming a cup; stigmas 6–9, appressed to the ovary. Fruit globose, 5–8 cm in diam.

Southern Florida, Bahamas, Greater Antilles, St. Thomas, St. Martin, St. John, and Anguilla.

ST. MARTIN: Naked Boy Hill, 200-265 m (Boldingh 2718, st. Aug.).

Clusia spec.

Tree, up to 15 m tall, often growing on other trees or on rocks. Leaves petiolate; 1–1.5 cm long, stout; the blade obovate, rounded at the apex, cuneate or somewhat contracted at the base, 8–20 × 5–12 cm, with recurved margin; upper surface with small fissures when dry; midvein prominent beneath, disappearing near the apex, on the upper side slightly prominent excepted to the apex; lateral veins usually invisible above, prominent beneath, under 20–45°, the largest angles in the middle, slightly bent to the marginal vein at 1 mm from the margin. Flowers polygamous, terminal and solitary or in a dichasium. Bracteoles ovate, coriaceous, boat-shaped and keeled, about 0.5 cm long. Sepals 6–8, orbicular, the outer two 7–8 mm, the other ones 15 mm long. Petals 6–8, obovate or obcordate, 2.5 cm long and 1.5 cm wide, white with rosa. Male flowers: fertile stamens in several series, more or less connate at the base into a thick ring, the inner ones sterile, glued together. Female flowers: staminodes united and forming a cup; stigmas about 7, almost foliaceous, obovate, 6–7 mm long. Fruit globose, 5–8 cm in diam.

Known from Aruba, Bonaire, and Curaçao.

Vernacular names: dam machu, tam machu, cuchíú, kopijk (Leeward Group).

ARUBA: without loc. (Boldingh s.n., st.).

BONAIRE: calcareous hills near Fontein (Boldingh 7336, st. Feb.; 7338, st. Feb.; 7343, male fl. Feb.).

CURAÇAO: Seroe Christoffel (Boldingh 5018, fr. Nov.); near Seroe Mulina (Arnoldo 2031, fr. Apr.).

All specimens named *Clusia rosea* by BOLDINGH, Fl. Ned. W. Ind. Eil. 287. 1913; Fl. D. W. Ind. Isl. 2: 68. 1909 and by ARNOLDO, Zakflora 29, fig. 23, 24. 1954; Zakflora 108, fig. 23, 24. 1964.