

U L M A C E A E

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Trees or shrubs. Leaves alternate, distichous, simple, entire to serrate, often inequilateral at the base. Stipules small, deciduous, free or united. Inflorescence consisting of small cymes or racemes or the female flowers solitary in the leaf-axils. Flowers small, hermaphrodite, unisexual or polygamous, often zygomorphic. Tepals 3—8, free or more or less connate, imbricate or valvate. Stamens as many as the tepals, epitepalous; filaments distinct, not incurved in the bud; anthers 2-celled with longitudinal dehiscence. Ovary superior, usually 1-locular; styles 1 or 2, linear, stigmatic along the inner surface of the upper part. Ovule solitary, pendulous from the top of the cell, anatropous or amphitropous. Fruit a samara, nut or drupe. Embryo straight or curved. Endosperm scanty or wanting. Cotyledons usually flat.

About 150 species in 15 genera in tropical and temperate regions, especially in the northern hemisphere.

Key to the genera:

1. Plants armed with recurved spines *Celtis*
Plants unarmed *Trema*

Celtis Linnaeus, Spec. Plant. 1043. 1753

Trees or shrubs, sometimes armed with spines. Leaves entire or serrate, pinnately veined or palmately 3—5-veined from the base. Stipules free, lateral. Flowers polygamous, greenish, in small cymes; the latter staminate or androgynous, lax and open or sometimes small and congested, the fertile flowers usually long-pedicellate. Tepals deciduous, united and slightly or deeply 4—5-lobed; lobes imbricate. Stamens 4 or 5; filaments erect or nearly so, exerted at length; anthers extrorse, ovate. Ovary sessile; style 1, 2-cleft, its branches stigmatic, divergent or recurved. Fruit a drupe, globose or ovoid, the

bony endocarp at length splitting into 2 valves. Embryo curved. Endosperm scanty or wanting.

About 70 species in tropical and temperate regions, especially in the northern hemisphere.

***Celtis iguanaea* (Jacq.) Sarg.**

SARGENT, *Sylva N. Amer.* 7: 64. 1895; URBAN, *Symb. Ant.* 4: 194. 1905; BOLDINGH, *Fl. D.W. Ind. Isl.* 1: 47. 1909; JOHNSTON, *Proc. Bost. Soc. Nat. Hist.* 34(7): 203. 1909; BOLDINGH, *Fl. Ned. W. Ind. Eil.* 164. 1913; *Fl. D.W. Ind. Isl.* 2: 19. 1914; FAWCETT & RENDLE, *Fl. Jamaica* 3(1): 38, fig. 8B, C, D. 1914; URBAN, *Symb. Ant.* 8: 163. 1920; QUESTEL, *Fl. Isl. St. Bartholomew* 95. 1941; LEON & ALAIN, *Fl. Cuba* 2: 41, fig. 12, 1951; ARNOLDO, *Zakflora* 50. 1954; *Zakflora* 205. 1964; GOODING *et al.*, *Fl. Barbados* 120. 1965; ADAMS, *Flowering plants of Jamaica* 218. 1972; — *Rhamnus iguanaeus* JACQUIN, *Enum. Plant. Car.* 16. 1760; — *Momisia iguanaea* (JACQ.) ROSE & STANDLEY, *Contr. U.S. Nat. Herb.* 16: 8. 1912; BRITTON & WILSON, *Sci. Surv. Porto Rico & Virgin Isl.* 5: 234. 1924; — *Celtis aculeata* SWARTZ, *Prodr. Veg. Ind. Occ.* 53. 1788; *Fl. Ind. Occ.* 1: 545. 1797; GRISEBACH, *Fl. Br. W. Ind. Isl.* 149. 1859; DUSS, *Fl. phan. Ant. franç.* 152. 1897.

Shrub or woody vine; branches often climbing by means of its recurved, small, stout spines. Leaves petiolate; blade oblong, elliptic-ovate or oval, acute to short-acuminate at the apex, usually slightly cordate or rounded at the base, entire or serrate above the middle, sparsely pubescent or glabrous on both sides, 4—12 × 2.5—6 cm, about twice as long as wide, conspicuously 3-veined from the base; petiole 4—8 mm long. Inflorescence consisting of axillary, short or paniculate cymes. Bracts and bracteoles ovate. Flowers small, about 4 mm in diam. Tepals 5, unequal, obovate to spatulate, serrate or fimbriate near the apex; the 2 smaller ones about 1.5 × 0.5 mm, the 3 larger ones up to 2 × 1.5 mm. Stamens 5; filaments broadly filiform, exceeding the tepals in length; anthers 1 × 0.75 mm. Ovary in the male flowers rudimentary and hairy, in the female and hermaphrodite flowers globose-ovoid; style 2-cleft. Drupe ovoid, orange, yellow or red, 8—12 mm long.

Continental tropical America from Florida southward; Antilles.

In thickets.

Vernacular names: beshi di juana, yerba di juana, rambeshi (Leeward Group).
snaky (Windward Group).

ARUBA: calcareous hills and plateau near Belashi (Boldingh 7055, fr. Jan.; 6432, st. Jan.).

BONAIRE: near Put Bronswinkel (Stoffers 676, fl. & fr. Nov.); Playa Foenchi (Stoffers 997, fr. Dec.); Columbia Plantation (Stoffers 527, fl. & fr. Nov.); calcareous plateau of Klein Bonaire (Boldingh 7492, st. Feb.).

CURAÇAO: Rooi Beru (Stoffers 208, fl. Oct.; 210, fl. Oct.); hills near Savonet (Boldingh 4970, fr. Nov.); between Anthony Berg and the northern seashore

(Boldingh 5113, fl. & fr. Nov.); near Hato (Britton & Shafer 3104, st. March); Santa Barbara Plantation (Stoffers 400, fl. Oct.).

SABA: road to Mary's Point (Arnoldo 828, fl. & fr. Aug.); Windwardside (Boldingh 1950, fl. July); between The Bottom and Mary's Point, 300 m (Boldingh 1476, st. July); Spring Bay Gut (Boldingh 2116, fl. July).

ST. EUSTATIUS: Solitude, 100 m (Stoffers 3704, fl. July); hill north-west of Zeelandia (Stoffers 3823, st. July); slope of The Quill near Bengalen (Stoffers 3760, st. July); between Venus and Little Mountains (Stoffers 4025, fl. July); top of The Quill, 400 m (Boldingh 219, st. June); top of Signal Hill, 225 m (Boldingh 1029, fl. June); bottom of The Quill (Boldingh 895, st. June); slope of The Quill, between Glass Bottle and White Wall, 100—200 m (Stoffers 4084, st. Aug.); without loc. (Boldingh s.n.).

ST. MARTIN: from Philipsburg to Guana Bay (Boldingh 2399, st. Aug.; 2389, st. Aug.); Mount Paradise, 100—200 m (Boldingh 3293, fl. & fr. Sept.); Naked Boy Hill, 50—200 m (Boldingh 2680, st. Aug.); from Philipsburg to Belvedere (Boldingh 2572, fl. & fr. Aug.); between Belvedere and Oyster Pond (Boldingh 3079, fl. Aug.).

Trema Loureiro, Fl. Coch. 562. 1790

Monoecious, dioecious or polygamous shrubs or trees, unarmed, usually with rough pubescence. Leaves entire or serrate, 3-veined from the base and pinniveined, short-petiolate. Stipules small, free, caducous. Inflorescence consisting of axillary, cymose clusters. Flowers small, greenish or whitish. Male flowers: tepals 5, connate, the lobes induplicate-valvate; stamens 5; filaments short, erect; ovary rudimentary. Hermaphrodite flowers: tepals 5, persistent, the lobes slightly imbricate; stamens 5, ovary sessile, 1-celled; style central, deeply 2-partite. Ovule solitary, pendulous. Receptacle pilose. Fruit a small drupe, ovoid or subglobose, surrounded by the persistent perianth and usually terminated by the branches of the persistent style. Embryo curved or almost involute; cotyledons narrow. Endosperm scanty, fleshy.

About 30 species in tropical and subtropical regions.

Key to the species:

1. Leaves acute, 2—6 cm long and 0.5—2.5 cm wide, veins prominent . . .
. *T. lamarckiana*
Leaves acuminate, 6—15 cm long and 2.5—5 cm wide, veins not prominent
beneath *T. micrantha*

Trema micrantha (L.) Blume

BLUME, Mus. Bot. Lugd. Bat. 2: 58. 1853; URBAN, Symb. Ant. 4: 194. 1905; BOLDINGH, Fl. D.W. Ind. Isl. 1: 48. 1909; JOHNSTON, Proc. Bost. Soc. Nat. Hist. 34(7): 203. 1909; BOLDINGH, Fl. Ned. W. Ind. Eil. 165. 1913; FAWCETT & RENDLE, Fl. Jamaica 3(1): 39, fig. 9. 1914; URBAN, Symb. Ant. 8: 164. 1920; BRITTON & MILLSAUGH, Bahama Fl. 104.

(1920); BRITTON & WILSON, *Sci. Surv. Porto Rico & Virgin Isl.* 5: 235. 1924; LEON & ALAIN, *Fl. Cuba* 2: 42. 1951; ADAMS, *Flowering plants of Jamaica* 218. 1972; — *Rhamnus micranthus* LINNAEUS, *Syst. Nat.* ed. 10. 937. 1759; — *Celtis micranthus* SWARTZ, *Prodr. Veg. Ind. Occ.* 53. 1788; *Fl. Ind. Occ.* 1: 547. 1797; — *Sponia micrantha* DECAISNE ex PLANCHON, *Ann. Sc. Nat.* 3. Ser. 10: 333. 1848; GRISEBACH, *Fl. Br. W. Ind. Isl.* 150. 1859.

A small or moderate-sized tree, usually not over 8 m high; branches pubescent with rather stiff, whitish hairs. Leaves petiolate; blade oblong-lanceolate to lanceolate-ovate, acuminate at the apex, often slightly inequilateral and cordate or rounded, rarely subtruncate at the base, 6–15 × 2–6 cm, usually about 3 times as long as wide, serrate, scabrous above, densely pubescent on the nerves or glabrescent beneath, trinerved from the base, not prominently reticulate-veined; petiole 5–8 mm long. Inflorescence consisting of 2 or 3 cymes in the leaf-axils, equalling or twice as long as the petioles; the axis hirtellous. Flowers greenish-yellow. Tepals connate at the base, ovate, acute at the apex, about 1 mm long, sparsely pubescent. Male flowers: stamens 5, erect, short; ovary rudimentary. Pistillate flowers; ovary glabrous. Drupe ovoid, 3 mm long, glabrous.

West Indies, continental tropical America.

In evergreen and seasonal woodlands.

SABA: Castle Hill, seaside, 300–350 m (Stoffers 4174, fl. & fr. Aug.); Gain Bay Gut (Suringar s.n., st. Ap. [L]); Ladder Gut (Suringar s.n., st. Ap. [L]).

ST. EUSTATIUS: western slope of The Quill, 250–300 m (Stoffers 4708, fl. Aug.; 4741, flbuds, Aug.); top of The Quill (Boldingh 186, st. June); *ibid.* 400 m (Boldingh 308, fl. June).

***Trema lamareckiana* (R. & S.) Blume**

BLUME, *Mus. Bot. Lugd. Bat.* 2: 58. 1853; URBAN, *Symb. Ant.* 4: 195. 1905; BOLDINGH, *Fl. D.W. Ind. Isl.* 1: 48. 1909; *Fl. Ned. W. Ind. Eil.* 164. 1913; URBAN, *Symb. Ant.* 8: 165. 1920; BRITTON & WILSON, *Sci. Surv. Porto Rico & Virgin Isl.* 5: 235. 1924; LEON & ALAIN, *Fl. Cuba* 2: 42, fig. 13. 1951; ADAMS, *Flowering plants of Jamaica* 219. 1972; — *Celtis lamareckiana* R. & S., *Syst. Veg.* 6: 311. 1820; — *Sponia lamareckiana* DECAISNE, *Nouv. Ann. Mus. Hist. Nat. Paris* 3: 498. 1834; — *Celtis lima* AUCT. non SWARTZ; LAMARCK, *Encycl.* 4: 140. 1797; — *Trema lima* AUCT. non BLUME; FAWCETT & RENDLE, *Fl. Jamaica* 3(1): 40. 1914.

Small tree or shrub, up to 10 m tall; branches slender, rough pubescent. Leaves petiolate; blade elliptic-lanceolate to ovate-lanceolate, acute at the apex, subequal to oblique and cuneate to somewhat rounded at the base, serrate, 1.5–6 × 0.5–2.5 cm or occasionally larger, about 3 times as long as wide, 3-veined from the base, very rough to tuberculous at the upper side, reticulate veined and finely tomentose beneath; petiole 2–4 mm long, densely pubescent. Inflorescence consisting of short cymes. Tepals united at the base, ovate, acute at the apex, about 2 mm long. Male flowers in sessile clusters; stamens 5, the

filaments small, the anthers oblong. Female flowers short-pedicellate; ovary ovoid; drupe ovoid, 2.5—3 mm long, glabrous, crowned by the persistent style.

Florida, Bahamas, Bermuda, Greater Antilles, and Lesser Antilles from Saba to St. Vincent.

In woodlands.

SABA: between Hellsgate and Mary's Point (Boldingh 2040, fl. & fr. July);
between The Bottom and The Saddle (Stoffers 3408, fl. & fr. May).