

PHYTOLACCACEAE

by

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Herbs, shrubs or trees, usually glabrous. Leaves alternate, entire, petiolate or sessile. Stipules minute, aculeolate or wanting. Inflorescence consisting of simple or compound, terminal or axillary racemes or panicles. Flowers hermaphrodite or unisexual. Perianth membranaceous or coriaceous, consisting of 4—5 tepals; the latter subequal or unequal. Stamens 3 to numerous, inserted on a hypogynous disc, irregular or biseriate, the outer cycle alternating with the tepals, the inner one epitepalous; filaments free or basically connate, filiform or subulate; anthers innate or versatile, bi-celled. Ovary superior, consisting of 1 to numerous, free or connate carpels; styles as many as the carpels, free or sometimes united; the ovules solitary in each carpel, campylo-tropous. Fruits 1- to many carpellary, samaroid, crustaceous or baccate; seeds erect, subglobose or subreniform; endosperm amylaceous.

About 110 species in 22 genera, in tropical and subtropical regions, mostly in America.

Key to the genera:

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|---|---------------------|
| 1. Perianth-segments 5 | 2 |
| Perianth-segments 4 | 3 |
| 2. Stamens 5, ovary unicarpellary | <i>Microtea</i> |
| Stamens 10—∞, ovary 5—16 carpellary | <i>Phytolacca</i> |
| 3. Fruit a berry | 4 |
| Fruit achene-like, with hooked bristles at the apex | <i>Petiveria</i> |
| 4. Stamens 4; style elongate, stigma capitate | <i>Rivina</i> |
| Stamens 8—16; style wanting, stigma penicillate | <i>Trichostigma</i> |

Phytolacca Linnaeus, Spec. Plant. 441. 1753

Herbs, shrubs or trees, erect or climbing, glabrous or minutely pubescent.

Leaves petiolate or sometimes sessile. Stipules wanting. Inflorescence consisting of terminal and pseudo-lateral, erect or nodding racemes or panicles. Flowers pedicellate or sessile, hermaphrodite or unisexual. Perianth 5-partite, with the stamens inserted on the disc. Tepals subequal. Stamens 6—33, biseriate; filaments subulate or filiform; anthers dorsifixed, oblong or elliptic. Ovary consisting of 5—16 carpels, apocarpous, coenocarpous or the carpels basically connate, provided with as many cylindrical or subulate, erect or recurved styles; ovules basifixed, campylotropous. Fruit a berry; seeds subreniform; embryo curved.

About 25 species in tropical and subtropical America, Africa, eastern Asia, Himalaya, and the Mediterranean region.

***Phytolacca rivinoides* Kunth & Bouché**

KUNTH & BOUCHÉ, Index Sem. Hort. Berol. 15. 1848; WALTER in ENGLER, Pflanzenreich 4(83): 55. 1909; FAWCETT & RENDLE, Fl. Jamaica 3(1): 159. 1914; URBAN, Symb. Ant. 8: 215. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 293. 1924; LEON & ALAIN, Fl. Cuba 2: 140. 1951; ADAMS, Flowering plants of Jamaica 264. 1972; — *Phytolacca icosandra* AUCT. non LINNAEUS; WRIGHT, Mem. 268. 1928; MOQUIN-TANDON in DECANDOLLE, Prodr. 13(2): 33. 1849; GRISEBACH, Fl. Br. W. Ind. Isl. 58. 1859; BOLDINGH, Fl. D.W. Ind. Isl. 1: 64. 1909; Fl. Ned. W. Ind. Eil. 185. 1913.

Shrub, up to 5 m tall, erect or climbing; branches herbaceous, glabrous, angular. Leaves petiolate, glabrous; petioles angular, canaliculate above, 4—5 cm long; blades ovate or elliptic-ovate, 10—15 × 5—7.5 cm, acute at the apex, acute or rounded at the base. Racemes suberect, many-flowered, up to 40 × 2.5 cm; peduncle 5—7 cm long; the common axis angular and glabrous; pedicels 1—1.5 cm long; bracts lanceolate, about 2 mm long; the two bracteoles inserted near the middle of the pedicel, about 0.8 mm long. Tepals glabrous, elliptic, concave, about 2 × 1.5 mm, apically rounded, with immature fruits reflexed, afterwards deciduous. Stamens 10—20; filaments subulate, about 2 mm long; anthers elliptic, 0.8 mm long, with cordate apex and base. Ovary coenocarpous, 1—1.5 mm long, consisting of 10—16 carpels, with as many cylindrical, 1—1.5 mm long, apically recurved styles. Berry black, diam. about 7 mm; seeds subreniform, about 2 mm long.

Tropical continental America and West Indies.

SABA: The Mountain, 800 m (Boldingh 2214, fl. & fr. July).

***Rivina* Linnaeus, Spec. Plant. 121. 1753**

Herbs or undershrubs, erect, glabrous or pubescent. Leaves petiolate, membranaceous. Stipules wanting. Inflorescence consisting of terminal and pseudo-terminal, slender, erect, suberect or flexuous racemes. Flowers pedicellate, hermaphrodite. Perianth petaloid, 4-partite. Tepals subequal, elliptic or obovate-

oblong, rounded or somewhat acute at the apex, sparingly pubescent or glabrous, with immature fruits becoming pergamentaceous, greenish and recurved. Stamens 4, alternating with the tepals; filaments cylindric-filiform; anthers dorsifixed, glabrous, with lateral dehiscence. Ovary ovoid, compressed, unicellular; style subterminal, somewhat curved; stigma papillous. Ovule basifixed. Fruit a globose berry; seed erect; embryo curved.

Species 3, in tropical and subtropical America; introduced into tropical Asia, Australia, and the African Islands.

Rivina humilis L.

LINNAEUS, *Spec. Plant.* 121. 1753; URBAN, *Symb. Ant.* 4: 228. 1905; WALTER in ENGLER, *Pflanzenreich* 4(83): 102, fig. 30. 1909; BOLDINGH, *Fl. D.W. Ind. Isl.* 1: 63. 1909; JOHNSTON, *Proc. Bost. Soc. Nat. Hist.* 34(7): 209. 1909; BOLDINGH, *Fl. Ned. W. Ind. Eil.* 185. 1913; *Fl. D.W. Ind. Isl.* 2: 28. 1914; FAWCETT & RENDLE, *Fl. Jamaica* 3(1): 156, fig. 53. 1914; URBAN, *Symb. Ant.* 8: 213. 1920; BRITTON & MILLSAUGH, *Bahama Fl.* 134. 1920; BRITTON & WILSON, *Sci. Surv. Porto Rico & Virgin Isl.* 5: 290. 1924; QUESTEL, *Fl. Isl. St. Bartholomew* 104. 1941; LEON & ALAIN, *Fl. Cuba* 2: 135, fig. 52. 1951; ARNOLDO, *Zakflora* 139, fig. 143. 1954; *Zakflora* 176, fig. 143. 1964; GOODING *et al.*, *Fl. Barbados* 147. 1965; ADAMS, *Flowering plants of Jamaica* 265. — *Rivina lanceolata* WILLDENOW, *Enum. Hort. Berol. Suppl.* 8. 1813; — *Rivina puberula* H.B.K., *Nov. Gen. & Spec.* 2: 184. 1817; — *Rivina humilis* L. var. *puberula* MOQUIN-TANDON in DECANDOLLE, *Prodr.* 13(2): 13. 1849; — *Rivina laevis* L. var. *pubescens* GRISEBACH, *Fl. Br. W. Ind. Isl.* 59. 1859.

Erect undershrub, up to 1 m tall; branchlets slender, striate, angular, the younger parts pubescent, glabrous afterwards. Leaves petiolate; petioles pubescent, subterete, somewhat canaliculate; blades ovate to oblong-lanceolate, up to 11 × 5 cm, undulate or entire, acuminate or acute at the apex, rounded, obtuse or subcordate at the base. Racemes pedunculate, suberect, several- to many-flowered, up to 15 cm long and 1.5 cm wide; axis angulate, pubescent; pedicels 4 mm long, subangulate, pubescent; bracts minute, lanceolate, 1.2 mm long; bracteoles triangular, 0.2 mm long. Tepals 4, oblong-elliptic, about 2 × 1 mm, rounded or somewhat acute at the apex, white, with mature fruits enlarged up to 3.5 × 1.3 mm, and recurved. Stamens 4; filaments about 1.3 mm long; anthers 0.5–0.7 mm long. Ovary about 1 mm long; style 0.5 mm long. Berry red, 4 mm in diam.; seed 3–3.5 mm long, glabrous or hispid.

Tropical and subtropical America.

A weed of light, open woodlands but also common in shaded places.

Vernacular names: stakamahachi (Leeward Group).

jumby pepper (Windward Group).

ARUBA: calcareous hills near Savaneta (Boldingh 6523a, fl. & fr. Jan.); Fontein (Suringar s.n., fl. & fr. Feb. [L]); without loc. (Arnoldo 425, fl. & fr. Feb.).

BONAIRE: Fontein (Stoffers 540, fl. & fr. Nov.; Suringar s.n., fl. & fr. Feb. [L]); Brandaris (Stoffers 978, fl. & fr. Dec.); Dos Pos (Stoffers 570, fl. & fr. Nov.); Hobau (Stoffers 1014, fl. & fr. Dec.); calcareous hills near Rincón (Boldingh 7047, fl. & fr. Feb.; 7045, fl. Feb.); Joewa Hills (Boldingh 7210, fl. & fr. Feb.; 7214; fl. & fr. Feb.).

CURAÇAO: Seroe Christoffel (Boldingh 5016, fr. Nov.; Suringar s.n., fl. & fr. Jan. [L]; de Wilde 149a, fl. & fr. Jan. [L]; Stoffers 241, fl. & fr. Oct.; 1218, fl. & fr. Dec.); Museumtuin (Arnoldo 1994, fl. & fr. March); Cas Cora (Stoffers 421, fl. & fr. Oct.); Santa Barbara, Hofje (Stoffers 394, fl. & fr. Oct); Klein St. Michiel (Stoffers 5065, fl. Nov.); Hato (Suringar s.n., fl. & fr. Jan. [L]).

SABA: Ladder Gut, 100—200 m (Stoffers 2762, fl. & fr. Ap.; 3180, fl. & fr. May; Boldingh 1993, fl. July); Fort Bay Gut, 100—200 m (Stoffers 2866, fl. Ap.); between The Bottom and Crispine (Stoffers 3023, fl. & fr. Ap.); Hellsgate (Stoffers 3380, fl. & fr. May); Booby Hill, 400 m (Stoffers 4302, fl. & fr. Aug.); The Bottom (Suringar s.n., fl. & fr. Ap. [L]); Peperpot (Suringar s.n., fl. & fr. Ap. [L]).

ST. EUSTATIUS: hills N.W. of Zeelandia (Stoffers 3827, fl. & fr. July); slope of The Quill near Bengalen (Stoffers 3773, fl. & fr. July); Oranjestad (Stoffers 3889, fl. & fr. July; Suringar s.n., fl. & fr. Ap. [L]).

ST. MARTIN: hills along northern side of Cul de Sac (Stoffers 2616, fl. & fr. March); mountain between Mont des Accords and Sentry Hill, 200—300 m (Boldingh 2904, fl. & fr. Aug.); Cul de Sac (Boldingh 2997, fl. & fr. Aug.).

Trichostigma A. Richard, Pl. vasc. Cub. 1: 627. 1845

Erect or climbing shrubs. Leaves alternate or subopposite. Stipules minute, deciduous. Inflorescence consisting of terminal and axillary, slender, many-flowered, suberect or decumbent racemes; pedicels slender; bracts deciduous, adnate to the middle or the base of the pedicels; bracteoles subterminal, persistent. Flowers hermaphrodite. Perianth herbaceous, 4-partite. Tepals subequal, free, ovate or elliptic, rounded at the apex, concave, spreading or reflexed in fruit. Stamens 8—25, inserted on the hypogynous disc; filaments cylindrical-filiform; anthers dorsifixed, linear. Ovary superior, unilocular, unilocarpellary, subglobose; style present or wanting; stigma sessile, penicillate. Ovule campylotropous, basifixed. Fruit a globose berry. Seeds erect. Embryo annular.

Three species in tropical America.

Trichostigma octandrum (L.) H. Walter

WALTER in ENGLER, Pflanzenreich 4(83): 109, fig. 31. 1909; FAWCETT & RENDLE, Fl. Jamaica 3(1): 156, fig. 54. 1914; URBAN, Symb. Ant. 8: 214. 1920; BRITTON & MILLSPAUGH, Bahama Fl. 134. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 291. 1924; QUESTEL, Fl. Isl. St. Bartholomew 104. 1941; LEON & ALAIN, Fl. Cuba 2: 136, fig. 53. 1951; GOODING *et al.*, Fl. Barbados 148. 1965; ADAMS, Flowering plants of Jamaica 265. 1972; — *Rivina octandra* LINNAEUS, Cent. Pl. 2: 9. 1756; GRISEBACH, Fl. Br. W. Ind. Isl. 59. 1859; DUSS, Fl. phan. Ant. franç. 50. 1897; — *Villamilla octandra*

(L.) HOOKER f. in BENTHAM & HOOKER, Gen. Plant. 3: 81. 1880; URBAN, Symb. Ant. 4: 228. 1905; BOLDINGH, Fl. D.W. Ind. Isl. 1: 63. 1909; Fl. Ned. W. Ind. Eil. 185. 1913; — *Rivina octandra* L. var. *obtusifolia* Moq. in DECANDOLLE, Prodr. 13(2): 11. 1849; — *Rivina dodecandra* JACQUIN, Obs. Bot. 1: 6, t. 2. 1764; — *Rivina scandens* MILLER, Gard. Dict. ed. 8, n. 2. 1768.

Shrub; branches climbing up to 10 m high, slender, subterete, glabrous. Leaves petiolate; petiole 0.5—3.5 cm long, canaliculate, angular; blade elliptic, elliptic-lanceolate or ovate, acute to acuminate at the apex, narrowed or rounded at the base, 4—15 × 2—6 cm, membranaceous when young, becoming chartaceous afterwards, glabrous. Racemes up to 11 cm long and 1—1.5 cm wide; the axis pubescent or glabrate; pedicels subterete, dilated at top and base, slightly pubescent or glabrous, about 6 mm long; bracts lanceolate, adnate to the middle of the pedicels, about 1.5 mm long; bracteoles terminal, triangular, 0.5 mm long. Tepals herbaceous, ovate, rounded at the top, concave, greenish-white or white, 4 × 2.5 mm, coriaceous, reflexed and turning red in fruit. Stamens 8—12, of which 4 epitepalous; the filaments cylindric-filiform, about 2 mm long; the anthers dorsifixed, linear, about 2 mm long. Ovary ovoid, somewhat compressed, about 1.5 mm long; style short; stigma penicillate. Fruit a berry, purple-black to black, 6 mm in diam. Seeds compressed, 4 mm long, black, shining.

Tropical continental America, Florida, and the West Indies.

Vernacular name: white hoop (Windward Group).

SABA: Windwardside (Arnoldo 639, fl. Aug.; 3374, fl. & fr. Jan.); The Bottom (Arnoldo 570, fl. Aug.; 3359, fr. Jan.); gut between Hellsgate and Mastic Gut, 300—400 m (Boldingh 2053, fr. Aug.); Hellsgate (Boldingh 1698, fr. Aug.; Suringar s.n., fl. & fr. Ap. [L]); Ladder Gut (Stoffers 2752, fl. & fr. Ap.); Booby Hill (Stoffers 3166, fr. May); between The Bottom and Middle Island (Stoffers 3478, fr. June).

St. EUSTATIUS: deserted plantation near Tumble Down Dick Bay (Boldingh 169, fl. May); bottom of The Quill (Stoffers 3645, fl. July).

St. MARTIN: along roads in Cul de Sac (Boldingh 2966, fl. & fr. Aug.); Mount Paradise, 300—400 m (Boldingh 3211, fl. Sept.); Cultuurtuin (Arnoldo n. 1322, fl. March); hills along western side of Cul de Sac (Stoffers 2594, fl. & fr. March; 2581, fr. March).

Petiveria Linnaeus, Spec. Plant. 342. 1753

Erect, slender undershrubs. Leaves petiolate, membranaceous. Stipules minute, caducous. Inflorescence consisting of terminal and axillary, erect or nodding racemes. Flowers hermaphrodite, pedicellate. Perianth herbaceous, 4-partite. Tepals free, subequal, glabrous. Stamens 4, inserted on the base of the perianth or alternating with the tepals, or 5—8 stamens and then irregularly inserted; filaments filiform, unequal, shorter than the tepals; anthers dorsifixed, linear, apically and basally incised. Ovary unilocular, oblong, compressed, pilose,

provided with 4—6 hooklike processes at the top; style absent; stigma penicillate on the ventral side. Fruit achene-like, elongate-cuneate, covered in the lower half by the persistent perianth and apically provided with 2 lobes and 4—6 hooked bristles. Seed erect, linear. Testa membranaceous. Embryo erect.

Two species, from Florida and Mexico southward to Brazil and Argentine, Antilles; introduced into Java.

Petiveria alliacea L.

LINNAEUS, Spec. Plant. 342. 1753; GRISEBACH, Fl. Br. W. Ind. Isl. 59. 1859; DUSS, Fl. phan. Ant. franç. 50. 1897; URBAN, Symb. Ant. 4: 229. 1905; WALTER in ENGLER, Pflanzenreich 4(83): 118, fig. 34. 1909; BOLDINGH, Fl. D.W. Ind. Isl. 1: 64. 1909; JOHNSTON, Proc. Bost. Soc. Nat. Hist. 34(7): 208. 1909; BOLDINGH, Fl. Ned. W. Ind. Eil. 185. 1913; FAWCETT & RENDLE, Fl. Jamaica 3(1): 157, fig. 55. 1914; URBAN, Symb. Ant. 8: 214. 1920; BRITTON & MILLSAUGH, Bahama Fl. 135. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 291. 1924; QUESTEL, Fl. Isl. St. Bartholomew 105. 1941; LEON & ALAIN, Fl. Cuba 2: 137, fig. 55. 1951; GOODING *et al.*, Fl. Barbados 147. 1965; ADAMS, Flowering plants of Jamaica 264. 1972; — *Petiveria octandra* LINNAEUS, Spec. Plant. ed. 2. 486. 1762; — *Petiveria alliacea* L. var. *grandiflora* MOQUIN-TANDON in DECANDOLLE, Prodr. 13(2): 9. 1849; — *Petiveria alliacea* L. var. *octandra* MOQ. in DECANDOLLE, Prodr. 13(2): 9. 1849; — *Petiveria ochroleuca* Moq. in DECANDOLLE, Prodr. 13(2): 9. 1849.

Undershrub, up to 1 m tall, erect. Branchlets slender, striate, angular, the younger parts puberulent and green, afterwards becoming glabrous and ochraceous. Leaves petiolate; petioles 0.5—1 cm long, canaliculate, glabrate; blades elliptic or ovate, acuminate or acute at the apex, up to 14 × 5 cm, glabrous or sparingly pubescent. Stipules narrow, 2 mm long. Racemes slender, up to 30 cm long and 5 mm wide; axis puberulent, subterete to angular; pedicels about 1 mm long, puberulent, angular; bracts 1.5 mm long; bracteoles persistent, 1 mm long. Tepals linear, white or pink, 4 × 0.8 mm. Stamens 4—8; filaments about 2 mm long; anthers 1.8 mm long. Ovary 1—1.5 mm long, pilose. Fruit 8 mm long, provided with 4, rarely 5, 3 mm long hooked bristles at the top.

Distribution as the genus.

Rather common road-side weed.

SABA: Windwardside (Boldingh 1591, fl. & fr. July); Ladder Gut (Boldingh 2001, fl. & fr. July; Stoffers 2767, fl. Ap.; 3179, fl. May); road to The Mountain (Arnoldo 1355, fl. March); The Bottom (Arnoldo 553, fl. & fr. Aug.); Fort Bay Gut, 100—200 m (Stoffers 2867, fl. & fr. Ap.); Booby Hill, 600 m (Arnoldo 3298, fl. & fr. Dec.); Great Rendez Vous (Stoffers 3077, fl. & fr. Ap.); The Saddle, 350—450 m (Stoffers 3399, fl. & fr. May); without loc. (Lionarons 328, fl. & fr.).

St. EUSTATIUS: near Tumble Down Dick Bay (Boldingh 139, fl. May); without loc. (Boldingh s.n., fl.; v. Groll-Meyer s.n., fl. & fr.; 260, fl.).

St. MARTIN: Gut from Bethlehem to Cul de Sac (Boldingh 3422, fl. & fr. Sept.); Marigot Hill (Boldingh 2615, fl. Aug.); without loc. (Boldingh s.n., fl.).

Microtea Swartz, Prodr. Veg. Ind. Occ. 53. 1788

Annual herbs, erect or reclining, glabrous or minutely pubescent; stems slender. Flowers hermaphrodite, minute, subsessile or on slender pedicels, with bracts and 2—0 bracteoles. Perianth herbaceous or membranaceous, consisting of 5, or rarely 4, free, after anthesis erect or slightly spreading tepals. Stamens (3—)5, alternating with the tepals, or 6—9 with 1—4 epitepalous ones; filaments subulate-linear or linear; anthers dorsifixed, globose, with lateral dehiscence. Ovary unilocular, stipitate; the style with two linear, triangular-lanceolate or tripartite stigmas; ovule basifixed. Achene subglobose, glochidiate, echinate, tuberculate or smooth; seeds erect with crustaceous testa and curved embryo.

About 10 species in tropical America.

Microtea debilis Sw.

SWARTZ, Prodr. Veg. Ind. Occ. 53. 1788; Fl. Ind. Occ. 1: 543. 1797; MOQUIN-TANDON in DECANDOLLE, Prodr. 13(2): 17. 1849; GRISEBACH, Fl. Br. W. Ind. Isl. 59. 1859; DUSS, Fl. phan. Ant. franç. 49. 1897; WALTER in ENGLER, Pflanzenreich 4(83): 128. 1909; BOLDINGH, Fl. D.W. Ind. Isl. 1: 64. 1909; Fl. Ned. W. Ind. Eil. 185. 1913; FAWCETT & RENDLE, Fl. Jamaica 3(1): 162, fig. 58. 1914; URBAN, Symb. Ant. 8: 216. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 292. 1924; LEON & ALAIN, Fl. Cuba 2: 138. 1951; ADAMS, Flowering plants of Jamaica 264. 1972; — *Microtea debilis* SWARTZ var. *ovata* MOQUIN-TANDON in DECANDOLLE, Prodr. 13(2): 17. 1849; — *Microtea debilis* SWARTZ var. *rhombifolia* MOQ. in DECANDOLLE, Prodr. 13(2): 17. 1849.

Annual herb; stem prostrate or ascending, angular, glabrous, up to 0.5 m long. Leaves petiolate, glabrous; petioles 0.5—2 cm long, widened near the blade; the latter broadly elliptic, ovate, obovate or obovate-spathulate, rarely lanceolate, up to 6 × 2.5 cm, acute at the apex, acuminate, cuneate or acute at the base. Racemes shortly pedunculate, 10—25-flowered, about 1.5 cm long and 2.5 mm wide, with mature fruits up to 3 cm long; axis angular, glabrous; pedicels about 1 mm long; bracts subulate-linear, as long as the pedicels; bracteoles wanting. Tepals 5, ovate, subacute, about 0.6 × 0.3 mm, white, greenish after anthesis. Stamens 5; filaments subulate-linear, about 0.5 mm long; anthers minute. Ovary glochidiate, about 0.5 mm long; style with two triangular-lanceolate stigmas. Achene exceeding the tepals, subreticulate-scribulate, echinate, greenish, 1—1.5 mm in diam.

Continental tropical America, and West Indies.

Weed. Rare.

SABA: The Bottom (Arnoldo 713, fl. & fr. Aug.; 892, fl. & fr. Aug.).

St. EUSTATIUS: Oranjestad (Boldingh 569, fl. & fr. June; 1086, fl. & fr. June; 89, fl. May; Suringar s.n., fl. & fr. Ap. [L]); without loc. (v. Groll-Meyer 43, fl. & fr.).

St. MARTIN: from Philipsburg to Belvedere (Boldingh 2588, fl. & fr. Aug.).