

AMARANTHACEAE

by

A. L. STOFFERS

(Instituut voor Systematische Plantkunde, Utrecht)

Herbs, rarely shrubs, vines or trees. Leaves alternate or opposite, sessile or petiolate, simple, mostly entire. Stipules wanting. Inflorescence consisting of various clusters, terminal spikes or axillary heads. Flowers hermaphrodite or unisexual, actinomorphic, bracteate and bibracteolate. Tepals 5(—1), free or partly united, equal or the inner ones smaller, scarious, persistent. Stamens as many as the tepals and epitepalous; filaments free or united into a lobed tube; anthers 2- or 4-celled, with longitudinal dehiscence; staminodes present or wanting. Ovary superior, free or adnate to the base of the perianth, uni-locular, ovoid, ellipsoid or globose; styles 1—2 or wanting; stigma capitate, penicillate or the stigmatic branches 2—3, short or elongate. Ovules solitary or numerous, campylotropous, erect or suspended from the apex of an elongate basal funicle. Fruit a 1-seeded utricle, indehiscent, bursting irregularly or circumscissile or a 1- to several-seeded capsule. Seeds lenticular, oblong or reniform, orbicular, with or without an aril; testa crustaceous, smooth, punctulate or granulate. Endosperm copious, farinaceous. Embryo annular or horseshoe-shaped.

About 800 species in 64 genera, widely distributed, most abundant in the tropical regions, especially in tropical America and Africa.

Key to the genera:

1. Leaves alternate 2
Leaves opposite 4
2. Fruit a several-seeded capsule; style simple; stigmas very short . *Celosia*
Fruit a 1-seeded utricle; style shorter than the stigmas or wanting 3
3. Scrambling shrub or vine; flowers hermaphrodite *Chamissoa*
Erect or prostrate-branched herbs; flowers unisexual . . . *Amaranthus*
4. Inflorescence an elongated spike or raceme with the flowers deflexed in fruit; anthers 4-celled *Achyranthes*

- Inflorescence or partial inflorescence of short spikes or heads; flowers not deflexed in fruit; anthers 2-celled 5
5. Flowers in slender paniced spikes or large terminal panicles, hermaphrodite or unisexual; stigmas 2(—3) *Iresine*
Flowers in short spikes or heads, not paniced, hermaphrodite 6
6. Leaf-bases amplexicaul with a tuft of hairs around the node; leaf-blades linear, glabrous or nearly so 7
Leaf-bases not or hardly amplexicaul; leaves not linear, not fleshy; pseudo-staminodes present *Alternanthera*
7. Prostrate-branched or bushy herb; stamens 5; pseudo-staminodes wanting; flower-heads mostly pedunculate; leaves fleshy, spread along the stem *Philoxerus*
Small perennial tufted herb; stamens 2; pseudo-staminodes 3; flower-heads usually sessile, leaves linear-oblongate, the longest clustered in basal rosettes *Lithophila*

Chamissoa Kunth in Humboldt, Bonpland & Kunth, Nov. Gen. & Spec. ed. fol. 2: 158. 1818 ["1817"]

Perennial herbaceous or shrubby vines. Leaves alternate, entire, petiolate. Inflorescence consisting of few to many, axillary or terminal, simple or paniculate, loosely or densely flowered spikes. Bracts 3, persistent. Flowers white or greenish, hermaphrodite or polygamous. Tepals 5, scarious, persistent. Stamens 5; filaments subulate and united below into a cup; anthers 2-celled; pseudo-staminodes wanting. Ovary 1-locular; style filiform, short or elongate; stigmas 2. Ovules 1. Utricle circumscissile at or below the middle. Seed reniform-lenticular or globose, arillate. Embryo annular.

About 5 species, natives of tropical America and subtropical South America.

Chamissoa altissima (Jacq.) Kunth

KUNTH in HUMBOLDT, BONPLAND & KUNTH, Nov. Gen. & Spec. 2: 197. 1818 ["1817"] and ed. fol. 2: 158, tab. 125. 1818 ["1817"]; GRISEBACH, Fl. Br. W. Ind. Isl. 62. 1859; DUSS, Fl. phan. Ant. franç. 53. 1897; URBAN, Symb. Ant. 4: 218. 1905; BOLDINGH, Fl. Ned. W. Ind. Eil. 176. 1913; FAWCETT & RENDLE, Fl. Jamaica 3(1): 128, fig. 39. 1914; URBAN, Symb. Ant. 8: 201. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 275. 1924; LEON & ALAIN, Fl. Cuba 2: 108. 1951; SIMMONDS in Fl. Trinidad & Tobago 2(7): 451. 1964; ADAMS, Flowering plants of Jamaica 254. 1972; FOURNET, Fl. Guadeloupe & Martinique 993, fig. 477. 1978; — *Achyranthes altissima* JACQUIN, Enum. Syst. Plant. 17. 1760; Select. Stirp. Amer. Hist. 81. 1763; SWARTZ, Flora Ind. Occ. 1: 522. 1797.

Shrubby plant, usually climbing over trees and shrubs; stems up to 4 m long, stout, suffrutescent at the base, older branches terete, younger ones somewhat

angled, glabrous or nearly so. Leaves alternate, petiolate; blades thin, ovate, ovate-oblong, lanceolate or oval, acute or acuminate at the apex, acute, truncate or broadly cuneate at the base, up to 16 × 6 cm, the margin wavy-entire, glabrous or sparsely pilose beneath, nerves prominent beneath. Inflorescence consisting of large, up to 50 cm long, terminal and axillary, naked or leafy panicles, composed of numerous stout or slender, loosely or densely flowered spikes, the minor branches hairy. Bracts small, about half as long as the tepals, ovate, carinate, with excurrent midrib. Tepals oblong to oval or ovate, acute or acuminate at the apex and sometimes mucronate, 3—4 mm long, 3-nerved, the inner ones 1-nerved, spreading. Stamens shorter than or nearly as long as the tepals, erect; anthers oblong. Style short, bilobed. Utricle longer than the tepals, ovoid, truncate, coronulate, with unequal incassate margin. Arillus white, shining, membranaceous, bivalvate, enclosing the seed. Seed lenticular-reniform with sharp margin, 2—2.5 mm, minutely reticulate, black, polished.

West Indies and continental tropical America.

Climber of forest and second growth.

SABA: near Windwardside, 500 m (Stoffers 3321A, fl. & fr. May).

Celosia Linnaeus, Spec. Plant. 205. 1753

Annual or perennial herbs or shrubs; stems simple or branched, erect or rarely scandent, terete or angular. Leaves alternate, petiolate or subsessile, linear, ovate or obovate, entire or subentire. Inflorescence consisting of simple or branched, dense or interrupted, terminal or axillary spikes. Flowers hermaphrodite, bracteate and bibracteolate, sessile or pedicellate. Tepals 5, scarious, striate-veined, white, greenish or coloured. Stamens 5; filaments united into a cup at the base; anthers 4-celled. Ovary subglobose, ovoid or cylindrical; style present or wanting; stigmas 2—3, subulate or capitate. Ovules 2 or more on elongate funicles. Capsule exerted or included in the perianth, circumscissile or rupturing irregularly. Seeds 2 to many, erect, lenticular; testa smooth, shining. Embryo annular. Endosperm farinose.

Species about 60, especially in subtropical and temperate regions of America and Africa.

Key to the species:

1. Annual herb; inflorescence consisting of simple, stout spikes; flowers bright white or pink, red or purple-coloured; tepals 6—9 mm long *C. argentea*
 Perennial herb; inflorescence consisting of panicles, which are composed of slender spikes; flowers brown; tepals 5—6 mm long 2
2. Leaf-blades ovate to lanceolate, decurrent to nearly the base of the petiole; bracts and bracteoles aristate; seeds 5—9 *C. virgata*
 Leaf-blades deltoid to triangular-lanceolate or rhombic-ovate, asymmetric, shortly decurrent; bracts and bracteoles not aristate; seeds about 20
 *C. nitida*

Celosia argentea L.

LINNAEUS, Spec. Plant. 205. 1753; GRISEBACH, Fl. Br. W. Ind. Isl. 62. 1759; URBAN, Symb. Ant. 4: 217. 1905; BOLDINGH, Fl. D.W. Ind. Isl. 1: 56. 1909; Fl. Ned. W. Ind. Eil. 176. 1913; FAWCETT & RENDLE, Fl. Jamaica 3(1): 128, fig. 38. 1914; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 275. 1924; URBAN, Symb. Ant. 8: 201. 1920; LEON & ALAIN, Fl. Cuba 2: 106, fig. 38. 1951; ARNOLDO, Gekw. en nutt. pl. Ned. Ant. 41, fig. 70. 1954; GOODING *et al.*, Fl. Barbados 141. 1965; ARNOLDO, Gekw. en nutt. pl. Ned. Ant. 66. 1971; ADAMS, Flowering plants of Jamaica 255. 1972.

Erect, glabrous, annual herb; stems stout, up to 1.5 m tall, simple or much branched. Leaves petiolate; blade linear to lanceolate, ovate or rounded-ovate, acute-acuminate or acuminate at the apex, rounded, acute or attenuate, usually decurrent at the base, up to 20 × 4 cm; petioles about 3 cm long; upper leaves smaller. Inflorescence consisting of terminal and axillary, solitary or rarely paired, oblong or elongate, dense spikes, 2—20 × 1.5—2 cm. Flowers with 6—10 mm long, thin, transparent, 3-ribbed tepals, shining white with pink tip, or almost entirely pink, red or purple, becoming white again in age. Style filiform with 2 or 3 minute stigmas. Capsule subglobose. Seeds 2 or more, shining, black, about 1 mm in diam.

Tropical regions; often cultivated and sometimes escaped. Cultivated in Curaçao and St. Eustatius.

Vernacular name: rabu di pushi (Leeward Group).

ST. EUSTATIUS: without loc. (v. Groll-Meyer 296, fl. & fr.).

Celosia virgata Jacq.

JACQUIN, Coll. Bot. 2: 279. 1788; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 275. 1924; LEON & ALAIN, Fl. Cuba 2: 107. 1951; ARNOLDO, Zakflora 150, fig. 137. 1954; Zakflora 79, fig. 137. 1964.

Perennial, glabrous herb; stems erect, simple or little-branched, slightly woody below, up to 1 m tall. Leaves alternate; blade ovate to lanceolate or elliptic, acuminate or acute at the apex, acute or abruptly acuminate at the base, decurrent, entire, thin, glabrous or sparingly pubescent along the veins beneath, 4—15 × 1.5—9 cm; petioles shorter than the blades, winged nearly or quite to the base; small, petiolate, falcate leaves often present in the axils on short-shoots. Inflorescence consisting of terminal or axillary panicles which are composed of few, sessile or pedunculate, dense-flowered, 1—5 cm long and about 7 mm thick spikes. Bracts lanceolate or ovate, aristate; bracteoles as the bracts, 3.5—4 mm long, keeled and often ciliate, 3 mm long. Tepals lanceolate-elliptic, acuminate, conspicuously longitudinally striate, dark-brown, 5—6 × 2 mm. Stamens 5; filaments filiform, 2 mm long, united into a cup at the base; anthers about 0.5 mm long, oblong, versatile. Ovary globose-ovoid; style 1—1.5 mm long; stigmas 3, shorter than the style. Capsule globose-ovoid, shorter than the tepals. Seeds 5—9, black, smooth, lustrous, 0.6 mm in diam.

Mexico, northern South America, Cuba, Puerto Rico, and Curaçao.

In deciduous seasonal forests.

CURAÇAO: Seroe Christoffel (Arnoldo 1207, fl. & fr. Jan.; s.n., fl. & fr. March); id., 320—375 m (Arnoldo 1962, fl. & fr. Feb.; 1785, fl. & fr. Dec.; Stoffers 1212, fl. & fr. Dec.); id., near Pedra Moelina (Stoffers 8270, fl. & fr. Jan.); hills near Knip (Stoffers 1150, fl. & fr. Dec.).

***Celosia nitida* Vahl**

VAHL, *Symb. Bot.* 3: 44. 1794; GRISEBACH, *Fl. Br. W. Ind. Isl.* 62. 1859; BOLDINGH, *Fl. D.W. Ind. Isl.* 1: 56. 1909; *Fl. Ned. W. Ind. Eil.* 176. 1913; FAWCETT & RENDLE, *Fl. Jamaica* 3(1): 128. 1914; URBAN, *Symb. Ant.* 8: 201. 1920; BRITTON & MILLSAUGH, *Bahama Fl.* 123. 1920; BRITTON & WILSON, *Sci. Surv. Porto Rico & Virgin Isl.* 5: 274. 1924; LEON & ALAIN, *Fl. Cuba* 2: 107. 1951; ADAMS, *Flowering plants of Jamaica* 255. 1972.

Perennial, glabrous herb; stems slender, erect or vine-like, slightly woody below, up to 1.5 m long. Leaves petiolate; blade ovate to deltoid, rhombic-ovate or triangular-lanceolate, asymmetric, obtuse to acuminate at the apex, obtuse, truncate or oblique at the base, somewhat decurrent, glabrous and lustrous; prominently veined beneath, 2—7 × 1—4 cm; petioles slender, 0.5—2 cm long, with small, asymmetric, often falcate leaves in the axils on short-shoots. Inflorescence consisting of terminal and axillary panicles, composed of few, loose- to dense-flowered, sessile or pedunculate spikes, 1—5 cm long. Bracts and bracteoles orbicular-ovate, obtuse or acutish, often ciliolate, 1.5—2.5 mm long. Tepals oblong or elliptic-lanceolate, acute or acutish, mucronulate, dark-brown or yellowish, prominently parallel-veined, 5 × 2.5—3 mm long. Stamens 5; filaments filiform, 2 mm long, united into a small cup; anthers linear-oblong, 1 mm long, versatile. Ovary ovoid to globose-ovoid, 2 mm long; style stout, trifid. Capsule ovoid or globose-ovoid, shorter than the tepals. Seeds about 20, black, 1 mm in diam.; testa smooth or obscurely punctiolate, lustrous.

West Indies, Florida, south-western Texas to Mexico, Yucatan, and along the coast of South America.

Waste places and roadsides.

ST. MARTIN: near Bethlehem (Boldingh 2666, fr. Aug.); Marigotroad (Boldingh 2803A, fl. & fr. Aug.); Kay Bay Hill (Arnoldo 1292, fl. & fr. March); without loc. (Boldingh s.n., fl. & fr.).

***Amaranthus* Linnaeus, *Spec. Plant.* 989. 1753**

Annual, branched herbs; stems erect or diffusely spreading, glabrous or pubescent, green, whitish or reddish. Leaves alternate, petiolate; side-veins prominent beneath. Inflorescence consisting of axillary spikes or clusters and

sometimes a long, terminal spike. Flowers monoecious, dioecious or polygamous, bracteate and bibracteolate. Tepals 5—3(—1), membranaceous, equal or subequal, sometimes indurate at the base after anthesis. Stamens 5—3(—1); filaments free, filiform or subulate; anthers 4-celled, with longitudinal dehiscence. Ovary ovoid, globose or oblong, compressed; style short or wanting; stigmas 2—3, subulate or filiform. Ovule solitary, erect, subsessile. Utricle compressed, included in the perianth, membranaceous or coriaceous, indehiscent, circumscissile or bursting irregularly, entire or 2—3-dentate at the apex. Seed 1, lenticular; testa smooth, usually black and shining. Embryo annular. Endosperm farinaceous.

Species about 50, in temperate and tropical regions of the whole world, chiefly in the non-tropical regions of America, Asia, Africa, and Australia.

Key to the species:

1. Plants with spines near the leaf-bases *A. spinosus*
 Plants without spines 2
2. Flowers in usually elongated terminal spikes as well as axillary spikes or clusters 3
 Flowers in axillary clusters or very short spikes; perianth-segments 5 4
3. Female flowers with 5 perianth-segments; male flowers with 4(—5) stamens; utricule smooth, circumscissile *A. dubius*
 Female flowers with 3 perianth-segments; male flowers with (2—)3 stamens; utricule wrinkled, indehiscent *A. viridis*
4. Female flowers with short, thick peduncles deciduous with the fruit; plant entirely green *A. crassipes*
 Female flowers sessile; perianth urceolate, white; stems usually pinkish, glaucous *A. polygonoides*

Amaranthus crassipes Schlecht.

SCHLECHTENDAL, *Linnaea* 6: 757. 1831; JOHNSTON, *Proc. Bost. Soc. Nat. Hist.* 34(7): 206. 1909; BOLDINGH, *Fl. Ned. W. Ind. Eil.* 177. 1913; *Fl. D.W. Ind. Isl.* 2: 23. 1914; FAWCETT & RENDLE, *Fl. Jamaica* 3(1): 132. 1914; URBAN, *Symb. Ant.* 8: 202. 1920; BRITTON & MILLSPAUGH, *Bahama Fl.* 124. 1920; BRITTON & WILSON, *Sci. Surv. Porto Rico & Virgin Isl.* 5: 276. 1924; LEON & ALAIN, *Fl. Cuba* 2: 109. 1951; GOODING *et al.*, *Fl. Barbados* 139. 1965; ADAMS, *Flowering plants of Jamaica* 255. 1972.

Glabrous, annual herb; stems prostrate, ascending, rather succulent, up to 60 cm long. Leaves alternate, petiolate; blade oblong to spatulate, ovate or obovate, rounded or slightly emarginate and mucronate at the apex, decurrent at the base, 0.5—3.5 × 0.5—2.5 cm, green with prominent white veins; petiole 0.5—4 cm long. Inflorescence consisting of small, dense, axillary clusters;

peduncles short, thickened and indurate. Flowers unisexual, monoecious. Bracts and bracteoles small, inconspicuous, green, ovate, acutish at the apex, margins scarious, indurate in age. Male flowers: tepals 4—5, oblong, 1.2—1.4 mm long; stamens 3. Female flowers: tepals 4—5, spatulate, obtuse or emarginate at the apex, scarious, 1.2—1.5 × 1 mm; ovary ovoid; stigmas 2, filiform, papillose on the innerside. Utricle obovoid, compressed, coriaceous, finely tuberculate, indehiscent. Seeds dark-brown or black, smooth, about 1 mm in diam.

Waste and cultivated grounds in dry regions at lower altitudes.

Florida, West Indies, and northern South America.

ARUBA: Hooiberg (Arnoldo 135, fl. & fr. Dec.); plantation near Washington (Stoffers 1521, fl. & fr. Jan.); near Savaneta (Stoffers 1769, fl. & fr. Jan.); Paloe Marca (Stoffers 1747, fl. & fr. Jan.); without loc. (Koolwijk s.n. sub Suringar s.n., fl. & fr. [L]).

BONAIRE: Kralendijk (Stoffers 1003, fl. & fr. Dec.; Arnoldo 531, fr. July); behind a dam, west of Jatoe Bacoe (Stoffers 647, fl. & fr. Nov.).

CURAÇAO: Hofje of Barber (Boldingh 5234, fl. & fr. Nov.); Santa Cruz (Stoffers 1177, fl. & fr. Dec.); Piscadera Baai (de Wilde 62a, fl. & fr. Jan.); Coppermines near Savonet (Suringar s.n., fl. & fr. Jan. [L]); Savonet (Suringar s.n., fl. & fr. Jan. [L]); Hato (Suringar s.n., fl. & fr. Jan. [L]); Veeris (Suringar s.n., fl. & fr. [L]); without loc. (Boldingh 5737, fl. & fr.).

St. MARTIN: from Philipsburg to Guana Bay (Boldingh 2406, fl. & fr. Aug.); Experimental Garden, Cul de Sac (Stoffers 2358, fl. & fr. March; 2342, fl. & fr. March); in orchard near Bellevue (Boldingh 2839, fl. & fr. Aug.).

Amaranthus polygonoides L.

LINNAEUS, Fl. Jam. Pugill. 27. 1759, emend. HEMSLEY, Biol. Centr. Am. Bot. 3: 14. 1882; BOLDINGH, Fl. D.W. Ind. Isl. 1: 56. 1909; Fl. Ned. W. Ind. Eil. 178. 1913; Fl. D.W. Ind. Isl. 2: 24. 1914; FAWCETT & RENDLE, Fl. Jamaica 3(1): 132. 1914; URBAN, Symb. Ant. 8: 202. 1920; BRITTON & MILLSAUGH, Bahama Fl. 124. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 276. 1924; LEON & ALAIN, Fl. Cuba 2: 109. 1951; ARNOLDO, Zakflora 150, fig. 80. 1954; Zakflora 79, fig. 80. 1964; ADAMS, Flowering plants of Jamaica 254. 1972; — *Amblogyne polygonoides* RAFINESQUE, Fl. Tellur. 3: 42. 1836; GRISEBACH, Fl. Br. W. Ind. Isl. 68. 1859.

Annual herb, much branched from the base; stems spreading or ascending, up to 50 cm long, villous about the inflorescence. Leaves alternate, petiolate, not crowded; blades obovate to rhombic-ovate, obtuse, usually emarginate at the apex, the central vein ending in a mucro at the lower side, narrowed or cuneate and decurrent at the base, 0.5—2 × 0.3—1.5 cm, pale green with a white blotch on the upper side, glabrous or sparingly pubescent beneath; petioles slender, 0.5—6 cm long. Inflorescence consisting of dense, sessile, axillary clusters. Bracts lanceolate, acuminate at the apex, $\frac{1}{2}$ — $\frac{2}{3}$ as long as the tepals. Male flowers: tepals 5 or sometimes 3, oblong, acute at the apex, 1-veined, about 1 mm long; stamens 2—3; filaments filiform, nearly 1 mm long; anthers

oblong, 2-celled, 0.5 mm long. Female flowers: tepals 5, spathulate, connate at the base for half their length, obtuse or rounded and often apiculate at the apex, erect, 3-veined, scarious, 2—3 mm long; ovary with 2—3 stigmas. Utricle ovoid or turbinate, circumscissile, 3-fid at the top, included by the persistent perianth, 3 mm long. Seeds black or dark-brown, shining, smooth, 0.5—0.8 mm in diam.

Florida, West Indies, and continental America from Texas and Mexico to northern South America.

Waste and cultivated grounds in dry regions at lower altitudes.

ssp. polygonoides

Amaranthus polygonoides L. ssp. *eu-polygonoides* THELLUNG in ASCHERSON & GRAEBNER, Syn. 5(1): 351. 1914.

Somewhat fleshy. Leaves rhombic-ovate or obovate, up to 4 × 2 cm, 1.5 to nearly twice as long as wide. Tepals of female flowers conspicuously spathulate, 0.75—1 mm wide, truncate or slightly emarginate at the apex.

Tropical and subtropical America; as the species.

Vernacular names: kalalu di porco (Leeward Group).
white polly (Windward Group).

ARUBA: calcareous hills near Savaneta (Boldingh 6542, fl. & fr. Jan.); plantation near Washington (Stoffers 1512, fl. & fr. Jan.; 1519, fl. & fr. Jan.); along road near Oranjestad (Stoffers 2123, fl. & fr. Feb.).

CURAÇAO: calcareous hills near Hato (Boldingh 5082, fl. & fr. Nov.); Malpais (Britton & Shafer 3123, fl. & fr. March); Museumtuin, Mundo Nobo (Arnoldo 1985, fl. & fr. Feb.); Klein Santa Marta (Stoffers 112, fl. & fr. Sept.); near Willemstad (de Wilde 78A, fl. & fr. Dec.); without loc. (Aschenberg s.n., fl. & fr.).

SABA: road to Mary's Point (Arnoldo 847, fl. & fr. Aug.).

St. EUSTATIUS: near Mary Glory, 150 m (Boldingh 1135, fl. & fr. June); without loc. (v. Groll-Meyer 19, fl. & fr.).

St. MARTIN: Tintamarre (Boldingh 3393, fl. & fr. Sept.; 3389A, fl. & fr. Sept.); between Mont Vernon and Orient Bay (Boldingh 2931, fl. & fr. Aug.); Philipsburg (Stoffers 2308, fl. & fr. March).

Amaranthus dubius Mart.

MARTIUS, Pl. Hort. Erlang. 197. 1814; BRITTON & MILLSPAUGH, Bahama Fl. 125. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 277. 1924; LEON & ALAIN, Fl. Cuba 2: 111, fig. 40. 1951; ARNOLDO, Zakflora 150, fig. 114. 1954; Gekw. en nutt. pl. Ned. Ant. 17, fig. 10. 1954; Zakflora 78, fig. 114. 1964; GOODING *et al.*, Fl. Barbados 139. 1965; ARNOLDO, Gekw. en nutt. pl. Ned. Ant. 65, fig. 10. 1971; ADAMS, Flowering

plants of Jamaica 254. 1972; — *Amaranthus tristis* AUCT. non LINNAEUS; GRISEBACH, Fl. Br. W. Ind. Isl. 69. 1859; JOHNSTON, Proc. Bost. Soc. Nat. Hist. 34(7): 206. 1909; FAWCETT & RENDLE, Fl. Jamaica 3(1): 130. 1914; URBAN, Symb. Ant. 8: 202. 1920.

Annual, branched herb; stems slender, erect, somewhat succulent, green, glabrous, but often pubescent about the inflorescence. Leaves alternate, long-petiolate; blades rhombic-ovate or ovate, obtuse to acute, slightly emarginate and mucronate at the apex, rounded, acutish or obtuse at the base, glabrous or pubescent when young, 2—12 × 1.5—8 cm, about 1.5 times as long as wide; petioles slender, up to 10 cm long. Inflorescence consisting of terminal and axillary, simple or paniculate, slender, dense or in the lower part interrupted, drooping spikes, 5—25 cm long; small and dense, axillary clusters often present. Bracts and bracteoles ovate or oval, acute at the apex, scarious except for the mid-vein and the tip, equalling or slightly exceeding the tepals in length. Male flowers: tepals 5, ovate-oblong, acute or acutish, mucronate, 1-veined, scarious; stamens 5. Female flowers: tepals 5, free, erect, oblong to spatulate, obtuse or acutish, emarginate and mucronate at the apex, scarious, 1-veined; stigmas 3, long and slender. Utricle subglobose, not compressed, circumscissile at about the middle. Seed 1, circular, sharp-edged, black or dark reddish-brown, lustrous, 1 mm in diam.

West Indies, Central- and tropical South America; introduced into Europe.

Waste and cultivated grounds.

Vernacular name: kalalu (Leeward Group).

ARUBA: Sivi-Sivi (Boldingh 6310, fl. & fr.); foot of Hooiberg (Arnoldo 134, fl. Dec.); along road near Noord (Stoffers 1568, fl. & fr. Jan.; 1582, fl. & fr. Jan.); along road in Oranjestad (Stoffers 2141, fl. & fr. Feb.); Washington Plantation (Stoffers 1520, fl. & fr. Jan.); Jamanota (Stoffers 1652, fl. & fr. Jan.); Fontein Plantation (Stoffers 1709, fl. & fr. Jan.; 1728, fl. & fr. Jan.); near Savaneta (Stoffers 1761, fl. & fr. Jan.).

BONAIRE: neighbourhood of Rincón (Boldingh 7164, fl. & fr. Feb.); Fontein (Stoffers 547, fl. & fr. Nov.); along seacoast in Kralendijk (Stoffers 942, fl. & fr. Dec.); Kralendijk (Stoffers 999, fl. Dec.); behind a dam, west of Jatoe Bacoe (Stoffers 651, fl. Nov.).

CURAÇAO: Piscadera Baai (Britton & Shafer 3136, fl. & fr. March); along road from Barber to Santa Cruz (Boldingh 5434B, fl. & fr. Nov.); hofje of Siberië (Boldingh 4964, fl. & fr. Dec.); Santa Cruz (Britton & Shafer 2983, fl. & fr. March); Hato (Stoffers 53, fl. & fr. Sept.; 54, fl. & fr. Sept.); Noordkant Plantation (Stoffers 143, fl. & fr. Oct.; 163, fl. Oct.; 164, fl. Oct.); Klein St. Michiel (Stoffers 280, fl. & fr. Oct.); Choloma (Stoffers 11, fl. & fr. Sept.); Klein Santa Marta (Stoffers 82, fl. & fr. Sept.); Cas Corá (Burgers 79, fl. & fr. Jan.); without loc. (Boldingh 4793, fl. & fr.).

SABA: between The Bottom and Mary's Point, 100—200 m (Boldingh 1462, fl. & fr. July); The Bottom (Arnoldo 742, fl. & fr. Aug.); between The Bottom and Crispine (Stoffers 3027, fl. & fr. Ap.); Hellsgate (Stoffers 3381, fl. & fr. May).

St. EUSTATIUS: along road in Oranjestad (Boldingh 551, fl. & fr. July; Stoffers 3870, fl. & fr. July); along road in Cultuurvlakte (Stoffers 3815, fl. & fr. July); without loc. (v. Groll-Meyer 17, fl. & fr.).

St. MARTIN: lower part of Milldrum Hill (Boldingh 3163, fl. & fr. Sept.); Experimental garden, Cul de Sac (Stoffers 2341, fl. & fr. March).

Amaranthus spinosus L.

LINNAEUS, Spec. Plant. 991. 1753; GRISEBACH, Fl. Br. W. Ind. Isl. 68. 1859; JOHNSTON, Proc. Bost. Soc. Nat. Hist. 34(7): 206. 1909; BOLDINGH, Fl. Ned. W. Ind. Eil. 178. 1913; FAWCETT & RENDLE, Fl. Jamaica 3(1): 130. 1914; URBAN, Symb. Ant. 8: 202. 1920; BRITTON & MILLSAUGH, Bahama Fl. 125. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 277. 1924; LEON & ALAIN, Fl. Cuba 2: 109. 1951; GOODING *et al.*, Fl. Barbados 140. 1965; ARNOLDO, Gekw. en nutt. pl. Ned. Ant. 65. 1971; ADAMS, Flowering plants of Jamaica 254. 1972.

Annual, branched herb; stems erect or ascending, glabrous below, more or less pubescent above, green or somewhat purplish, striate or sulcate, 15—100 cm long. Leaves long-petiolate; blade ovate to rhombic-ovate or lanceolate, narrowed towards the apex but the tip obtuse, rounded or slightly retuse, often shortly mucronate, acute at the base, glabrous or slightly pubescent on the veins when young, 1.5—11 × 1—4.5 cm; petioles slender, up to 9 cm long, provided with 2 axillary, rigid, sharp pointed spines, 0.2—2.5 cm long. Inflorescence consisting of slender, erect or drooping, terminal, male spikes, 3—18 cm long and dense, globose, axillary, female clusters. Bracts often modified into thin, sharp, 0.5—2 cm long spines; bracteoles mucronate from a broad base, as long as or shorter than the perianth. Male flowers: tepals 5, ovate-oblong, shortly mucronulate, 2—2.5 mm long, convex, with green or purple medium band and scarious margins; stamens 5, filaments about as long as the tepals. Female flowers: tepals 5, oblong-spathulate, obtuse or acute at the apex, 1.5 mm long, enlarged in fruit; ovary oblong; styles 3—2, recurved in age. Utricle oblong or ovoid, equalling the tepals in length, irregularly and imperfectly circumscissile. Seeds with thin margin, smooth, black or brownish-black, shining, about 1 mm in diam.

Temperate and tropical regions; probably of American origine.

Common weed of waste and cultivated grounds.

SABA: Windwardside (Boldingh 1918, fl. & fr. July; 2327A, fl. & fr.); The Bottom (Arnoldo 741, fl. & fr. Aug.; Boldingh 1454, fl. & fr. July); along road between The Bottom and Windwardside (Boldingh 1323, fl. & fr. July); Ladder Gut, 100—200 m (Stoffers 2785, fl. & fr. Ap.); Hellsgate (Stoffers 3382, fl. & fr. May); between The Bottom and St. John's (Stoffers 3275, fl. & fr. May).

St. EUSTATIUS: along road in Oranjestad (Boldingh 1066, fl. & fr. June); without loc. (v. Groll-Meyer 18, fl. & fr.; Boldingh s.n., fl. & fr. June).

St. MARTIN: Mount Paradise, 100—200 m (Boldingh 3295, fl. & fr. Sept.); foot of Experiment (Arnoldo 1263, fl. & fr. March); Philipsburg (Arnoldo 3141, fl. & fr. Dec.); west of Great Salt Pond (Stoffers 2415, fl. & fr. March).

Amaranthus viridis L.

LINNAEUS, Spec. Plant. ed. 2. 1405. 1763; FAWCETT & RENDLE, Fl. Jamaica 3(1): 131, fig. 40. 1914; URBAN, Symb. Ant. 8: 203. 1920; BRITTON & MILLSAUGH, Bahama Fl. 124. 1920; LEON & ALAIN, Fl. Cuba 2: 111. 1951; ARNOLDO, Zakflora 150. 1954; Zakflora 79, fig. 137. 1964; GOODING *et al.*, Fl. Barbados 140, fig. 5. 1965; ADAMS, Flowering plants of Jamaica 254. 1972; — *Amaranthus gracilis* DESFONTAINES, Tabl. Ec. Bot. 43. 1804; BOLDINGH, Fl. Ned. W. Ind. Eil. 177. 1913; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 277. 1924; — *Euxolus caudatus* (JACQ.) MOQUIN in DECANDOLLE, Prodr. 13(2): 274. 1849; GRISEBACH, Fl. Br. W. Ind. Isl. 68. 1859.

Annual, erect, ascending or prostrate, much branched herb; branches terete or obtuse-angular, ascending, glabrous, up to 75 cm long. Leaves long-petiolate; blades ovate or rhombic-ovate, acute, obtuse or rounded, emarginate and mucronate at the apex, obtuse or cuneate at the base, 2—8 × 1—6 cm, strongly veined, glabrous or sparingly pubescent on the veins; petioles slender, 1—8 cm long. Inflorescence consisting of slender, dense or interrupted (axillary and) terminal, paniculate spikes, 4—12 cm long and usually short, axillary clusters. Bracts and bracteoles ovate to lanceolate, acute and often mucronate at the apex, $\frac{1}{3}$ — $\frac{1}{2}$ as long as the tepals, scarious, 1-veined. Male flowers: tepals 3, oblong-linear, 1.5 mm long, convex, acute or obtuse; stamens 3; rudiment of ovary often present, filiform. Female flowers: tepals 3, narrowly oblong-spathulate, acute or obtuse, cuspidate, up to 1 mm long, enlarging in fruit; ovary oblong; stigmas (2—)3. Utricle globose, strongly rugose, as long as the tepals, the short beak emerging, indehiscent or opening irregularly. Seed with blunt margin; black or dark-brown, dull.

Southern United States; tropical and subtropical continental America, West Indies, and tropics of the Old World.

Common weed on cultivated and waste grounds.

BONAIRE: along coast in Kralendijk (Stoffers 941, fl. & fr. Dec.).

CURAÇAO: Museum garden, Mundo Nobo (Arnoldo 1187, fr. Oct.; 2010, fl. & fr. Ap.); Anthonyberg (Boldingh 5154, fl. & fr. Nov.); Pietermaai (Arnoldo 1010, fl. & fr. Feb.); Piscadera Baai (de Wilde 127A, fl. & fr. Jan.).

SABA: Windwardside (Boldingh 1919, fl. & fr. July).

ST. EUSTATIUS: in garden in Oranjestad (Boldingh 84, fl. & fr. May).

ST. MARTIN: near airfield (Arnoldo 1239, fl. & fr. March); along road in Philipsburg (Stoffers 2318, fl. & fr. March); between Mont Chambord and The Saline (Boldingh 2939, fr. Aug.).

Achyranthes Linnaeus, Spec. Plant. 20. 1753

Erect or ascending herbs, woody below. Leaves opposite, entire. Inflorescence consisting of terminal or axillary, many-flowered, elongated spikes; bracts persistent, membranaceous, aristate; bracteoles 2, persistent, aristate. Flowers

hermaphrodite. Tepals 4—5, spreading during anthesis, membranaceous or herbaceous-coriaceous, 1- or more veined. Stamens (2—)5; filaments connate into a short cup at the base, alternating with pseudo-staminodes; anthers oblong, 2-celled. Ovary glabrous; style filiform, persistent; stigma terminal. Ovule 1, pendulous from a long funicle. Utricle falling off together with perianth and bracteoles, indehiscent. Seed erect. Embryo annular. Endosperm farinaceous.

Species 3—5, in tropical and subtropical regions, chiefly in the Old World.

Achyranthes indica Mill.

MILLER, Gard. Dict. ed. 8. no. 2. 1768; FAWCETT & RENDLE, Fl. Jamaica 3(1): 136, fig. 43. 1914; QUESTEL, Fl. Isl. St. Bartholomew 100. 1941; LEON & ALAIN, Fl. Cuba 2: 113. 1951; GOODING *et al.*, Fl. Barbados 136. 1965; ADAMS, Flowering plants of Jamaica 255. 1972; — *Achyranthes aspera* LINNAEUS var. *indica* LINNAEUS, Spec. Plant. 204. 1753; URBAN, Symb. Ant. 4: 219. 1905; Symb. Ant. 8: 203. 1920; ALAIN, Fl. Cuba, Suplemento 60. 1969; — *Centrostachys indica* (LINNAEUS) STANDLEY, Journ. Wash. Acad. Sci. 5: 75. 1915; BRITTON & MILLSPAUGH, Bahama Fl. 126. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 278. 1924; — *Achyranthes obtusifolia* LAMARCK, Encycl. 1: 545. 1783; BOLDINGH, Fl. D.W. Ind. Isl. 1: 57. 1909; Fl. Ned. W. Ind. Eil. 178. 1913; Fl. D.W. Ind. Isl. 2: 24. 1914; — *Achyranthes aspera* LAMARCK var. *obtusifolia* CRISEBACH, Fl. Br. W. Ind. Isl. 62. 1859; — *Achyranthes aspera* AUCT. non L.; ARNOLDO, Zakflora 118, fig. 112. 1954; Zakflora 77, fig. 112. 1964.

Annual or perennial herb, branching from the base; branches erect, decumbent or ascending, thickened at the nodes, pilose, up to about 1 m long. Leaves petiolate; blade suborbicular to obovate, rounded and abruptly acute at the apex, rounded to cuneate at the base, pubescent, glabrous or glabrescent on both sides, up to 10 × 7 cm; petiole 1—3 mm long. Inflorescence consisting of terminal and axillary, elongated spikes up to 40 cm long, densely flowered at the apex, and flowers scattered below; rhachis more or less villous; peduncle stout, about 15 cm long, more or less villous. Flowers deflexed in age. Bracts broadly ovate to orbicular, long-aristate, shorter than the tepals. Bracteoles ovate, long-aristate, shorter than the tepals. Tepals 5, lanceolate, acute at the apex, green with pale margins, 3—4 mm long, enlarging afterwards to 6.5 mm length, glabrous. Stamens 5; filaments united into a cup, elongate; anthers small. Pseudo-staminodes shorter than the filaments, truncate or crenulate, with a dorsal long-fringed scale, much exceeding the pseudo-staminode itself. Ovary turbinate; style 0.5—1 mm long. Utricle oblong, truncate at the apex, glabrous, 2.5—3 mm long. Seed narrowly oblong, 2—2.5 mm long, dull, pale brown.

Tropical and subtropical regions.

Waste and cultivated grounds.

Vernacular names: coriente (Leeward Group).
man better man (Windward Group).

CURAÇAO: Pattattentuin (Burgers 55, fl. & fr. Jan.); Klein Santa Marta (Stoffers 73, fl. & fr. Sept.); Piscadera Baai (de Wilde 65a, fl. & fr. Dec.); near Jan Thiel (Nagelkerken 333, fl. & fr. Jan.); hofje near Weis Afo (Nagelkerken 131, fl. & fr. Feb.); hofje St. Michiel (Stoffers 5064, fl. & fr. Nov.); without loc. (Boldingh 5562, fl. & fr.).

SABA: along road from Windwardside to Hellsgate (Boldingh 1671, fl. & fr. July); Windwardside (Arnoldo 764, fl. & fr. Aug.; Boldingh 1885, fl. & fr. July).

ST. EUSTATIUS: along roads in Oranjestad (Boldingh 560, fr. May; Stoffers 3875, fl. & fr. July; Boldingh 1067, fl. & fr. June); in garden in Oranjestad (Boldingh 82, fr. May); without loc. (Boldingh 40a, fr.; v. Groll-Meyer 93, fl. & fr.).

ST. MARTIN: from Philipsburg to Belvedere (Boldingh 2583, fl. Aug.); along road in Cul de Sac (Stoffers 2446, fl. & fr. March); Experimental Garden, Cul de Sac (Stoffers 2357, fl. & fr. March); Kanaal Rolandus (Stoffers 2246, fl. & fr. March; 2258, fl. & fr. March; 2274, fl. & fr. March).

Philoxerus R.Br., Prodr. 416. 1810

Perennial, prostrate or procumbent herbs, usually somewhat fleshy, glabrous or pubescent. Leaves opposite, entire, narrow. Inflorescence consisting of axillary and terminal, dense, sessile or pedunculate, short or elongate spikes; bract one; bracteoles two. Flowers hermaphrodite. Perianth 5-parted, dorsally compressed, thickened at the base; pedicels short, spongy. Stamens 5; filaments subulate, united into a cup at the base; anthers oblong, 2-celled. Staminodes wanting. Ovary ovoid, compressed; style short; stigmas 2, subulate. Ovule one, attached to a long funicle. Utricle broadly ovoid, compressed, indehiscent. Seeds lenticular, smooth, Embryo annular. Endosperm starchy.

Four species, chiefly on seashores of tropical and subtropical America, Africa, and Australia.

Philoxerus vermicularis (L.) Beauv.

P. DE BEAUVOIS, Fl. Oware & Benin 2: 65, t. 98, f. 1. 1818; NUTTAL, Gen. North Am. Pl. 2: 78. 1818; GRISEBACH, Fl. Br. W. Ind. Isl. 65. 1859; DUSS, Fl. phan. Ant. franç. 56. 1897; URBAN, Symb. Ant. 4: 223. 1905; JOHNSTON, Proc. Bost. Soc. Nat. Hist. 34(7): 207. 1909; BOLDINGH, Fl. D.W. Ind. Isl. 1: 59. 1909; Fl. Ned. W. Ind. Eil. 180. 1913; Fl. D.W. Ind. Isl. 2: 25. 1914; FAWCETT & RENDLE, Fl. Jamaica 3(1): 141, fig. 46. 1914; URBAN, Symb. Ant. 8: 207. 1920; BRITTON & MILLSAUGH, Bahama Fl. 128. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 284. 1924; QUESTEL, Fl. Isl. St. Bartholomew 101. 1941; LEON & ALAIN, Fl. Cuba 2: 122, fig. 46. 1951; ARNOLDO, Zakflora 111, 120. 1954; Zakflora 80. 1964; GOODING *et al.*, Fl. Barbados 142. 1965; ADAMS, Flowering plants of Jamaica 256. 1972; — *Gomphrena vermicularis* LINNAEUS, Spec. Plant. 224. 1753; — *Iresine vermicularis* MOQUIN, in DECANDOLLE, Prodr. 13(2): 340. 1849; — *Lithophila vermiculata* ULINE, Field Mus. Nat. Hist. Bot. Ser. 2: 39. 1900.

Much-branched, succulent herb; stems short, rooting at the nodes, glabrous except in the leaf-axils, 30—75 cm long. Leaves opposite, sessile, linear to oblanceolate, fleshy, 1.5—5 cm long and 2—12 mm wide, obtuse or acute at

the apex, attenuate at the base. Spikes solitary or glomerate, subglobose to cylindrical, sessile or short-pedunculate, 1—3 × 0.5—1 cm. Bract broadly ovate, 1-veined, acute or obtuse at the apex, about 2 mm long; bracteoles ovate-oblong, slightly shorter than the tepals, glabrous, acute at the apex, about 3 mm long. Tepals white, oblong, subequal, 3—4 mm long, the outer ones glabrous, obtuse at the apex, the inner ones narrowed and acute, woolly near the base. Stamens about 2.5 mm long. Seed 1 mm broad, dark-brown, lustrous.

Florida, West Indies, continental tropical America, tropical West-Africa.

On saline soil along the sea coast.

CURAÇAO: Willemstad (Britton & Shafer 2923, fl. & fr. March; Went 1103, fl. Nov.); Rif (Suringar s.n., fl. & fr. Jan. [L]); Stoffers 434, fl. & fr. Oct.); road to Fort Nassau (Suringar s.n., fl. & fr. Jan. [L]).

ST. MARTIN: Great Salt Pond (Stoffers 2422, fl. & fr. March); Philipsburg (Stoffers 2313, fl. & fr. March); Oyster Pond (Suringar s.n., fl. & fr. May [L]); without loc. (Boldingh 2523, fl. & fr.).

Alternanthera Forskål, Fl. Aeg. Arab. 28. 1775

Herbs or shrubs, erect, prostrate or scandent. Leaves opposite, sessile or petio- late. Inflorescence consisting of terminal or axillary, sessile or pedunculate heads or spikes. Flowers sessile or pedicellate, bracteate and bibracteolate, hermaphrodite. Tepals 5, unequal, glabrous or pubescent. Stamens 5(—3—2); filaments at the base united into a short or elongate tube; anthers short or elongate, 2-celled. Pseudo-staminodes short or elongate, entire or variously laciniate or dentate, or reduced to scales, rarely wanting. Ovary globose, ovoid or obovoid, often compressed; style short or elongate; stigma capitate, rarely bi-lobed. Ovule 1, pendulous from an elongate funicle. Utricle membranaceous, indehiscent. Seeds smooth. Embryo annular.

About 170 species in tropical and subtropical regions, chiefly in America.

Key to the species:

1. Inflorescence of loosely flowered, terminal and axillary spikes up to 7.5 cm long *A. olivacea*
 Inflorescence of densely flowered globose or ovoid heads or spikes up to 1.5 cm long 2
2. Flower-heads up to 10 cm long pedunculate; peduncles simple or bifurcate, sometimes 2—3 together *A. brasiliiana*
 Flower-heads sessile in the leaf-axils 3
3. Leaves of a pair unequal *A. caracasana*
 Leaves of a pair more or less equal 4
4. Leaf-blades ovate to suborbicular or elliptic, subtruncate at the base and decurrent into the petiole, up to 2.5 × 1.5 cm *A. crucis*

- Not this combination of characters 5
5. Tepals densely yellowish-hirtellous; leaf-blades up to 6×2 cm . . .
 *A. halimifolia*
- Tepals hairy at the base; leaf-blades up to 3×1 cm *A. paronychioides*

Alternanthera olivacea (Urb.) Urb.

URBAN, Symb. Ant. 5: 340. 1907; SIMMONDS in Fl. Trinidad & Tobago 2(7): 465. 1964; — *Telanthera olivacea* URBAN, Symb. Ant. 1: 302. 1899; — *Achyranthes olivacea* (URBAN) STANDLEY, Journ. Wash. Acad. Sci. 5: 74. 1915; — *Alternanthera arnoldiana* STOFFERS, Acta Bot. Neerl. 12: 73. 1963.

Herb; stems more or less woody and decumbent below, ascending above to 30 cm, striate, the younger parts sericeous-strigose, the older ones glabrous or nearly so; nodes and leaf-scars prominent. Leaves simple, opposite, petiolate; blades ovate-lanceolate to lanceolate, up to 5×1.5 cm, entire, acute at the apex, acute or cuneate at the base, the margin often undulate; younger blades sericeous-strigose, the older ones glabrous or nearly so, the midrib beneath nearly always provided with scattered hairs; petioles 1—3 mm long, canalliculate above, sericeous-strigose. Inflorescence consisting of loosely flowered, terminal and axillary spikes up to 7.5 cm long and 1.5 cm wide, several-flowered. Flowers hermaphrodite, sessile, solitary in the axil of a bract and subtended by 2 bracteoles. Bract persistent, concave, ovate to broadly ovate, long-acuminate to cuspidate, $1-1.5 \times 0.7-1$ mm; bracteoles slightly unequal, broadly triangular-ovate to suborbicular, cuspidate at the apex, strongly concave, $1.5-2 \times 1.4-1.7$ mm, membranaceous, shining, glabrous to sparsely strigose at the very base. Tepals 5, subequal, lanceolate, acute at the apex, $3-3.5 \times 1$ mm, striate, shining, pilose outside. Stamens 5, epipetalous; filaments subulate, united into a cup-like tube of c. 0.5 mm length, the free parts c. 1 mm long; anthers versatile, 2-celled, oblong, c. 0.5 mm long; pseudo-staminodes broadly ovate, laciniate, equaling or sometimes exceeding the stamens in length. Ovary subglobose, glabrous, 1-locular; style terminal, more or less conical; stigma slightly capitate, papillous. Ovule 1. Utricle 2.5 mm long and 2 mm wide. Seed subglobose with crustaceous testa.

St. Vincent to Grenada, Tobago, and Curaçao.

In deciduous seasonal forest.

CURAÇAO: Slope of Seroe Christoffel at the side of Knip Plantation near Seroe Gracia (Stoffers 1157, fl. & fr. Dec., type of *A. arnoldiana*; 8117, 8140, 8411, fl. & fr. Jan.; Arnoldo 1014, fl. & fr. Jan.; de Wilde 108a, fl. & fr. Feb.).

Alternanthera brasiliiana (L.) Kuntze

KUNTZE, Rev. Gen. 2: 537. 1891 p.p.; BOLDINGH, Fl. Ned. W. Ind. Eil. 179. 1913; Fl. D.W. Ind. Isl. 2: 24. 1914; URBAN, Symb. Ant. 4: 221. 1905; ARNOLDO, Zakflora 120 1954; Zakflora 78. 1964; FOURNET, Fl. Guadeloupe & Martinique 1004. 1978; — *Gomphrena brasiliiana* LINNAEUS, Cent. Pl. 2: 13. 1756.

Perennial herb, decumbent at the base, branches ascending, erect or clambering, striate, thickened and articulate above the nodes, pilose with ascending or spreading hairs, sometimes glabrate. Leaves petiolate; blades ovate to lanceolate, 3—10 × 0.5—4 cm, acuminate or acute at the apex, rounded to cuneate at the base, pilose or pilose-sericeous on both surfaces; petioles slender, 2—10 mm long. Inflorescence consisting of terminal heads; peduncles simple or bifurcate, sometimes 2—3 together; heads globose-ovoid, about 8 mm in diam. when young, increasing in size afterwards; peduncle up to 10 cm long, pilose. Bracts nearly as long as the bracteoles, ovate, long-acuminate, 2—2.5 mm long. Bracteoles ovate, acuminate, 1-nerved, 2—2.5 mm long. Flowers pedicellate; pedicels 0.5—1 mm long, 5-ribbed, thick. Tepals oblong-lanceolate to ovate-lanceolate, acute, 3.5—5 mm long, short pilose, glabrescent. Stamens 5; filaments united into a tube at the base, 2—2.5 mm long; anthers linear, 1—1.5 mm long. Pseudo-staminodes slightly longer than the stamens, laciniate at the apex. Ovary obovoid, compressed; style short. Utricle areolate at the apex, 2.5 mm long. Seed about 1 mm in diam., reddish-brown.

Southern Florida, Grenada, Guadeloupe, Martinique, Trinidad, Aruba, Bonaire, and Curaçao; continental tropical America.

Common weed.

ARUBA: calcareous hills and plateau near Belashi (Boldingh 6434, fl. & fr. Jan.); slope of Mirlamar (Boldingh 6453, fl. & fr. Jan., Stoffers 2184, fl. Feb.); Belashi (Arnoldo 282, fl. & fr. Dec.; 312, fl. & fr. Dec.); Seroe Largo (Stoffers 1870, fl. Jan.); near Savaneta (Stoffers 1768, fl. & fr. Jan.); Jamanota (Stoffers 1626, fl. Jan.).

BONAIRE: near Fontein (Arnoldo 451, fl. & fr. Feb.; 461, fl. Jan.; Stoffers 564, fl. & fr. Nov.); Dos Pos (Arnoldo 1144, fl. & fr. Dec.); seashore near Spelonk (Stoffers 698, fl. Jan.); Seroe Grandi (Arnoldo 500, fl. Dec.); neighbourhood of Rincón (Boldingh 7186, fl. & fr. Feb.); without loc. (Boldingh s.n., fl. & fr.).

***Alternanthera caracasana* Kunth**

KUNTH in HUMBOLDT, BONPLAND & KUNTH, *Nov. Gen. & Spec.* 2: 205. 1817; PEDERSEN, *Darwiniana* 14: 431. 1967; — *Alternanthera peploides* (HUMBOLDT & BONPLAND) URBAN, in FEDDE, *Repert. Spec. Nov.* 15: 168. 1918; URBAN, *Symb. Ant.* 8: 205. 1920; LEON & ALAIN, *Fl. Cuba* 2: 116. 1951; SIMMONDS in *Fl. Trinidad & Tobago* 2(7): 464. 1964; GOODING *et al.*, *Fl. Barbados* 138. 1965; ADAMS, *Flowering plants of Jamaica* 257. 1972; — *Illecebrum peploides* HUMBOLDT & BONPLAND ex ROEMER & SCHULTES, *Syst. Veg.* 5: 517. 1819; — *Achyranthes peploides* (H. & B.) BRITTON in BRITTON & WILSON, *Sci. Surv. Porto Rico & Virgin Isl.* 5: 279. 1924; — *Alternanthera repens* AUCT. non KUNTZE; BOLDINGH, *Fl. Ned. W. Ind. Eil.* 179. 1913 p.p.; *Fl. D.W. Ind. Isl.* 2: 58. 1914 p.p.; QUESTEL, *Fl. Isl. St. Bartholomew* 100. 1941.

Perennial branched herb; stems prostrate, villous, up to 50 cm long. Leaves opposite or crowded, those of a pair unequal; blades obovate, spatulate, oval or suborbicular, up to 2 × 1 cm, obtuse and mucronate at the apex, narrowed

at the base, sparingly pubescent or glabrate; petiole slender, up to 1 cm long. Inflorescence consisting of axillary, dense, sessile, globose or oblong heads. Bracts ovate with spiny apex, glabrous, 2.5—3 mm long; bracteoles equalling or shorter than the bracts. Tepals unequal, mucronate, whitish, densely villous with jointed and glochidiate hairs at the outside, 3—3.5 mm long. Stamens 5; filaments about 1 mm long, at the base united into a short cup; anthers minute. Pseudo-staminodes entire or toothed below, subulate, slightly shorter than the filaments. Ovary ovoid, less than 1 mm long; style short. Utricle nearly 2 mm long. Seeds ovate-roundish, compressed, reddish-brown, about 1.3 mm long.

West Indies, tropical and subtropical continental America, Atlantic Islands and Spain.

Waste and cultivated grounds.

SABA: Windwardside (Boldingh 1892, fl. & fr. June; 1897, fl. & fr. June); The Bottom, 200 m (Arnoldo 3330, fl. & fr. Jan.; Suringar s.n., fl. & fr. May [L]); between The Bottom and Mary's Point, 100—200 m (Boldingh 1458, fl. & fr. June).

ST. EUSTATIUS: Oranjestad (Boldingh 83, fl. & fr. May; Suringar s.n., fl. & fr. May [L]); Cultuurvlakte (Suringar s.n., fl. & fr. May [L]); without loc. (Suringar s.n., fl. & fr. Ap. [L]).

ST. MARTIN: Cole Bay Hill (Suringar s.n., fl. & fr. Aug. [L]); along road from Cole Bay to Simson Bay (Boldingh 3246, fl. & fr. Sept.).

***Alternanthera paronychioides* St. Hil.**

ST. HILAIRE, Voy. Brés. 439. 1833; PEDERSEN, Darwiniana 14: 437. 1967; Duss, Fl. phan. Ant. franç. 57. 1897; URBAN, Symb. Ant. 4: 220. 1905; FAWCETT & RENDLE, Fl. Jamaica 3(1): 140. 1914; URBAN, Symb. Ant. 8: 205. 1920; GOODING *et al.*, Fl. Barbados 137. 1965; ADAMS, Flowering plants of Jamaica 258. 1972; — *Achyranthes polygonoides* (L.) LAMARCK, Encycl. 1: 547. 1785; BRITTON & MILLSPAUGH, Bahama Fl. 126. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 279. 1924; — *Alternanthera repens* AUCT. non KUNTZE; BOLDINGH, Fl. Ned. W. Ind. Eil. 179. 1913 p.p.; Fl. D.W. Ind. Isl. 2: 58. 1914 p.p.

var. *paronychioides*

Prostrate herb, branched; stems up to 60 cm long, angular or striate, rooting at the nodes, white-villous when young, glabrescent in age, hairs dentate. Leaves opposite or crowded, those of a pair more or less equal, petiolate; blades obovate, spatulate-oblong to lanceolate or oblanceolate to elliptical, 1—3 cm long and 5—10 mm wide, acute or obtuse at the apex, never mucronate, cuneate at the base and tapering into the petiole, densely villous when young but soon glabrate; petiole 4—8 mm long. Inflorescence consisting of axillary, sessile, solitary or glomerate, subglobose to short-cylindric dense heads, 5—10 mm long. Bracts and bracteoles scarious, ovate, acute and slightly mucronate, glabrous, the bracts about half as long as the tepals, bracteoles shorter than the bracts and more or less falcately folded along the midrib. Tepals white,

oblong to lanceolate, acute to mucronulate, 3-nerved in the lower half, sparsely pilose or glabrate, slightly unequal, 3—4 mm long. Stamens 5; filaments subulate, less than 1 mm long, united into a short cup at the base; anthers minute. Pseudo-staminodes much shorter than the filaments, ovate, denticulate. Ovary obcordate to broadly obcordate; style short, thick; stigma capitate, papillose. Utricle obcordate, narrowly winged, nearly half as long as the tepals. Seeds orbicular, compressed, dark-brown, shiny, 1 mm.

A native of tropical America; introduced into Europe and southern Asia.

Low lying damp pastures and in mud at pond margins.

St. MARTIN: Kanaal Rolandus (Stoffers 2248, fl. & fr. March; 2263, fl. & fr. March); Pointe Blanche? (Boldingh 4246, fl. & fr. Sept.).

***Alternanthera crucis* (Moq.) Boldingh**

BOLDINGH, Fl. D.W. Ind. Isl. 1: 58. 1909; Fl. Ned. W. Ind. Eil. 179. 1913; FOURNET, Fl. Guadeloupe & Martinique 1002. 1978; — *Telanthera crucis* MOQUIN, in DECANDOLLE, Prodr. 13(2): 362. 1849.

Simple or sparsely branched, prostrate herb; branches slender, striate and tetragonous, white villous when young, glabrescent in age. Leaves opposite, those of a pair equal, petiolate; blades ovate to suborbicular or elliptic, rounded or obtuse at the apex, mucronate, subtruncate at the base and decurrent on the petiole, up to 2.5 × 1.5 cm, glabrous to sparsely strigose, the veins dense-strigose and more or less glabrate; petiole 2—5 mm long. Inflorescence consisting of axillary, sessile to short-pedunculate, solitary, globose to ovoid, few-flowered heads or short spikes, 5—7 mm long. Bracts broadly ovate, acuminate, 1.5 × 1 mm; bracteoles lanceolate, nearly 1 mm long. Tepals ovate-lanceolate, slightly unequal, 3—3.5 mm long, 3-nerved, the outer ones densely villous outside in the lower part. Stamens 5; filaments filiform, short, at the base united into a small cup; anthers oblong, minute. Pseudo-staminodes slightly exceeding the stamens in length, ligulate, fimbriate at the apex. Ovary ovoid, gradually passing into the short style; stigma capitate, papillose. Utricle subovoid, included by the perianth. Seeds sublenticular, dark brown, nearly 1 mm.

St. Croix, St. Martin, and Martinique.

St. MARTIN: Pointe Blanche (Boldingh 3407, fl. & fr. Sept.); near Orient Bay (Boldingh 3360, fl. & fr. Aug.); without loc. (Boldingh 2423, fl.).

***Alternanthera halimifolia* (Lam.) Standl.**

STANDLEY in PITTIER, Plant. Usual. Venez. 145. 1926; LEON & ALAIN, Fl. Cuba 2: 116. 1951; ARNOLDO, Zakflora 78. 1964; ADAMS, Flowering plants of Jamaica 257. 1972; — *Achyranthes halimifolia* LAMARCK, Encycl. 1: 547. 1785; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 281. 1924; ARNOLDO, Zakflora 112. 1954.

Perennial herb, often suffrutescent at the base; stems prostrate or decumbent, simple or branched, up to 1 m long, pubescent with short closely appressed, greyish, branched or hispidulous hairs, usually glabrate in age. Leaves opposite; blade oblong to oval, elliptic-oblong or obovate-oblong, rounded or acutish at the apex, acute or acuminate at the base, 1.5—6 × 1—2 cm, densely pubescent beneath with short, hispidulous hairs or glabrate in age, upper surface soon glabrate; petioles stout, up to 1 cm long. Inflorescence consisting of axillary, sessile, solitary or glomerate, ovoid or short-cylindric heads, up to 15 mm long. Flowers stramineous. Bracts and bracteoles ovate, acuminate and long-mucronate, 1.5—2 mm long, appressed pubescent. Tepals 5, ovate-oblong, acute at the apex, 3—5-veined, densely pubescent with short, hispidulous hairs. Stamens 5; filaments linear, at the base united into a short tube; anthers small. Pseudo-staminodes ligulate, exceeding the filaments in length, lacinate at the apex. Ovary subglobose; style short. Utricle subglobose. Seed reddish-brown, shining, 1 mm long.

Mexico to Chile, Cuba, Grenada, Curaçao, Aruba, and Bonaire.

Common in open places near the sea, but also inland.

ARUBA: Sivi-Sivi (Boldingh 6308, fl. & fr.); Companashi (Arnoldo 163, fl. & fr. Dec.); along road in Oranjestad (Stoffers 2149, fl. & fr. Feb.; 2129, fl. & fr. Feb.).

BONAIRE: Fontein (Stoffers 555, fl. Nov.).

CURAÇAO: Plantation Ronde Klip near the landhouse (Stoffers 1259, fl. & fr. Dec.); Plantation Noordkant (Stoffers 168, fl. Oct.; 156, fl. & fr. Oct.); Hato (Stoffers 61, fl. & fr. Sept.); Malpais (Stoffers 292, fr. Oct.); Klein St. Michiel (Stoffers 270, fl. & fr. Oct.); Cholome (Stoffers 7, fl. & fr. Sept.; Arnoldo 2047, fr. Apr.); St. Patrick (Britton & Shafer 3067, fr. March); Hofje Klein Piscadera (Boldingh 4834, fr. Oct.); Ascension (Boldingh 5295, fr.); Road to Fort Nassau (Boldingh 4684, fr. Oct.); Perret Gentil (Burgers 108, fl. & fr. Jan.); near Willemstad (de Wilde 43A, fl. & fr. Dec.); Hofje near Montancia (Nagelkerken 505, fl. & fr. Jan.; id. 117, fl. & fr. Feb.); Hofje Jan Thiel (Nagelkerken 326, fl. & fr. Nov.).

ST. MARTIN: Pointe Blanche (Boldingh 3407, fl. Sept.).

Lithophila Swartz, Prodr. 14. 1788

Perennial, more or less villous herbs; stems erect or decumbent. Leaves mostly basal and rosulate. Inflorescence consisting of dense, subglobose, axillary or terminal, sessile or pedunculate spikes or heads. Flowers small, dorsally compressed, hermaphrodite, bracteate and bibracteolate. Tepals 5, the two interior ones narrowed. Stamens 2; filaments at the base united into a small cup; anthers 2-celled. Staminodes 3. Ovary ovoid; style short; stigmas 2, slender. Ovule one, pendulous from the top of an elongate funicle. Utricle ovoid, compressed. Seeds lenticular, smooth. Embryo annular. Endosperm farinaceous.

Four species in the West Indies and Galápagos Islands.

Lithophila muscoides Sw.

SWARTZ, Prodr. 14. 1788; GRISEBACH, Fl. Br. W. Ind. Isl. 66. 1859; Duss, Fl. phan. Ant. franç. 56. 1897; URBAN, Symb. Ant. 5: 338. 1907; BOLDINGH, Fl. D.W. Ind. Isl. 1: 59. 1909; Fl. Ned. W. Ind. Eil. 180. 1913; Fl. D.W. Ind. Isl. 2: 25. 1914; BRITTON & MILLSPAUGH, Bahama Fl. 127. 1920; URBAN, Symb. Ant. 8: 207. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 283. 1924; QUESTEL, Fl. Isl. St. Bartholomew 101. 1941; LEON & ALAIN, Fl. Cuba 2: 121, fig. 45. 1951; ARNOLDO, Zakflora 111. 1954; Zakflora 79. 1964; GOODING *et al.*, Fl. Barbados 142. 1965.

Small perennial herb, usually somewhat woody; stems slender, few, prostrate or ascending, up to 20 cm long, villous, especially about the nodes, or glabrate. Basal leaves many, crowded, filiform to oblong-spathulate or linear, obtuse at the apex, 1.5—5 cm long and 0.5—5 mm wide, villous near the base; stem-leaves linear to obovate, rounded at the apex, cuneate or attenuate at the base, 3—10(—14) × 0.5—4 mm, glabrous. Inflorescence consisting of terminal and axillary, solitary or glomerate, sessile or subsessile spikes, 3—15 mm long and 5 mm thick. Bracts membranaceous, ovate to triangular-ovate, acute or acuminate at the apex, about half as long as the tepals, white; bracteoles similar as the bracts but equalling the tepals in length. Tepals oblong to oblong-lanceolate, the outer ones obtuse, villous at the base, white, membranaceous, the inner ones narrowed, acute at the apex, villous along the vein. Seeds orbicular, lenticular, 0.5 mm broad, brown, shining.

West Indies, except Jamaica and Hispaniola.

Open places, especially on rocky coasts.

Vernacular names: yerba di kusinchi, polet di piedra, mata comblés (Leeward Group).

ARUBA: Playa (Arnoldo 194, fl. & fr. Dec.); Rooi Taki (Arnoldo 216, st. Dec.); near Fontein (Boldingh 6471, st. Jan.; 6566, st. Jan.; Suringar s.n., fl. & fr. Feb. [L]); Paloe Marca (Stoffers 1958, fr. Jan.); near Boca Mahos (Stoffers 1489, fl. & fr. Jan.); calcareous plateau near Belashi (Boldingh 6421B, st. Jan.); hills near Savaneta (Boldingh 6525, fl. Jan.); Hudishibana (Hummelinck s.n., fl. Dec.); Kudarebe (Stoffers 1359, fl. & fr. Jan.); calcareous hills near Baicuri (Boldingh 6338, fl.; 6339, fr.); calcareous seashore near Manchebo (Boldingh 6282, fl. Dec.; 6276, fl. & fr. Dec.); Westpunt (Suringar s.n., fl. Feb. [L]); Seroe Blancoe (Boldingh 6513, fl. Jan.); without loc. (Koolwijk s.n. sub Suringar s.n., fl. & fr. [L]).

BONAIRE: Manparia Goetoe (Stoffers 985, fl. Feb.); seashore near saltpans (Boldingh 7499, fl. Feb.); Playa Grandi (Boldingh 7173, fl. Feb.; 7174, fl. Feb.); calcareous soil near Piedra Cruz (Boldingh 7346, fr.); Lac (Boldingh 7477, st. Feb.); Stoffers 928, fr. Dec.); vicinity of Rincón (Boldingh 7180, fl. & fr. Feb.); Pekelmeer (Stoffers 719, fl. & fr. Nov.); west of Lima Plantation (Stoffers 713, fl. Nov.); Blauwe Pan (Burgers 523, fl. March); Boca Onima (Suringar s.n., fl. & fr. Feb. [L]); Slagbaai (Suringar s.n., fl. Feb. [L]).

CURAÇAO: saltpans near St. Willebrordus (Stoffers 352, fl. Oct.; 362, fl. & fr. Oct.); calcareous soil near Knip (Boldingh 5567, fl. Dec.); Veerisberg (Boldingh 4736, fl. Oct.); calcareous soil near St. Patrick (Boldingh 5483, fl. Dec.); near Willemstad (Britton & Shafer 2925, fl. March; Suringar s.n., fl. & fr. Jan. [L]); Piscadera Baai (de Wilde 95A, fl. & fr. Jan.); Klein Curaçao (Arnoldo 1147, fl. & fr. Oct.); Fort Nassau (Suringar s.n., fl. & fr. Jan. [L]); Fuik Plantation (Suringar s.n., fl. & fr. Feb. [L]); Savonet (Suringar s.n., fl. & fr. Jan. [L]).

SABA: seashore near Flat Point (Boldingh 2136, fl. & fr. July); Ladder Gut, 50 m (Boldingh 1977, fl. July; Suringar s.n., fl. & fr. Ap. [L]); Fort Bay, seashore (Boldingh 1645, fl. July; 893, fl. & fr. Aug.; Stoffers 2902, fl. & fr. Ap.).

ST. EUSTATIUS: seashore near Oranjestad (Boldingh 20, fl. & fr. May); near Tumble Down Dick Bay (Boldingh 167, fr. Aug.); seashore near Bengalen (Boldingh 586A, fl. June); Concordia Bay (Suringar s.n., fl. & fr. Ap. [L]); cliff near Fort Amsterdam (Suringar s.n., fl. & fr. Ap. [L]); beach west side (Suringar s.n., fl. & fr. Ap. [L]).

ST. MARTIN: from Philipsburg to Guana Bay (Boldingh 2376, fr. Aug.); Guana Bay (Suringar s.n., fr. [L]); Green Key (Boldingh 3368, fl. & fr. Sept.); along saltpond near Philipsburg (Boldingh 2449, fl. & fr. Sept.); road from Philipsburg to Amsterdam Fort (Suringar s.n., fl. Feb. [L]).

Iresine P. Browne, Hist. Jamaic. 358. 1756. Nom. conserv. n. 2339

Herbs. Leaves opposite, entire, petiolate. Inflorescence consisting of terminal paniculate heads or spikes. Flowers hermaphrodite, polygamous or dioecious, bracteate and bibracteolate. Tepals 5, usually pilose or woolly. Stamens 5; filaments united into a cup at the base; anthers oblong, 2-celled. Staminodes present or wanting. Ovary compressed; style short or wanting; stigmas 2—3, filiform or subulate. Ovule one, attached to a long funicle. Utricle compressed-globose, indehiscent. Seed smooth. Embryo annular.

About 70 species in tropical and subtropical continental America, West Indies, Australia, Africa, and Galápagos Islands.

1. Spikes sessile, golden yellow or white; plants dioecious . . . *I. diffusa*
 Spikes shortly stalked, umber-buff coloured; flowers hermaphrodite or plants polygamo-monoecious *I. angustifolia*

Iresine angustifolia Euphras.

EUPHRASEN, Beskr. Svensk. Vestind. 165. 1795; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 282. 1924; QUESTEL, Fl. Isl. St. Bartholomew 101. 1941; LEON & ALAIN, Fl. Cuba 2: 121. 1951; ADAMS, Flowering plants of Jamaica 259. 1972; — *Iresine elatior* L. C. RICHARD ex WILLDENOW, Spec. Plant. ed. 4. 4(2): 766. 1806; GRISEBACH, Fl. Br. W. Ind. Isl. 64. 1859; DUSS, Fl. phan. Ant. franç. 55. 1897; JOHNSTON, Proc. Bost. Soc. Nat. Hist. 34(7): 207. 1909; BOLDINGH, Fl. D.W. Ind. Isl. 1: 58. 1909; Fl. Ned. W. Ind. Eil. 180. 1913; FAWCETT & RENDLE, Fl. Jamaica 3(1): 145, fig. 48. 1914; URBAN, Symb. Ant. 8: 206. 1920.

Perennial, erect, branched herb, woody at the base, up to 1.5 m high; stems glabrate. Leaves petiolate; blade ovate-lanceolate to linear-lanceolate, acuminate to long attenuate at the apex, narrowed at the base, 5—10 × 1—4 cm, glabrous or sparsely villous along the veins beneath; petioles slender up to 2.5 cm long. Inflorescence consisting of loosely paniculate spikes, up to 40 cm long, leafy below; rhachis woolly; spikes subglobose to subcylindric, brownish, 5—12 mm long. Bracts broadly ovate, acute at the apex; bracteoles ovate, cuspidate-acuminate, twice as long as the bract and equalling the tepals, brown or brownish. Flowers hermaphrodite or the plant polygamo-monoecious. Tepals oblong, acute and mucronate, 1.5—2 mm long, villous, exterior ones slightly obtuse and mucronate with 1 green vein, interior ones narrowed, acute. Stamens 5; filaments subulate, 0.75 mm long, at the base united into a small cup; anthers oblong, 0.1—0.2 mm long. Staminodes minute. Ovary subglobose, compressed; style short; stigmas 2, filiform. Utricle orbicular, compressed. Seed orbicular, 0.7—0.9 mm broad, dark reddish-brown, shining.

Tropical continental America and West Indies.

In thickets and on roadside banks.

Vernacular name: white snow plant (Windward Group).

ST. EUSTATIUS; from Signal Hill to Tumble Down Dick Bay, 200 m (Boldingh 125, fl. & fr. May).

ST. MARTIN: hills along northern side of Cul de Sac (Stoffers 2642, fl. & fr. Ap.); hills along western side of Cul de Sac, north of Sentry Hill (Stoffers 2593, fl. March); hills along eastern side of Cul de Sac (Stoffers 2657, fl. Ap.); lower part of Milldrum Hill (Boldingh 3176, fl. Sept.); Kay Bay Hill (Arnoldo 1294, fl. & fr. May); from Philipsburg to Guana Bay (Boldingh 2396, fl. & fr. Aug.); Marigotroad near Marigot (Boldingh 2817, fl. Aug.); without loc. (Boldingh s.n., fr.).

***Iresine diffusa* H. & B. ex Willd.**

HUMBOLDT & BONPLAND ex WILLDENOW, Spec. Plant. ed. 4. 4(2): 765. 1806; SHINNERS, Taxon 11: 142. 1962; ADAMS, Flowering plants of Jamaica 259. 1972; — *Iresine celosia* LINNAEUS, Syst. Nat. ed. 10. 1291. 1759; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 283. 1924; LEON & ALAIN, Fl. Cuba 2: 120, fig. 44. 1952; — *Celosia paniculata* LINNAEUS, Spec. Plant. 206. 1753; — *Iresine paniculata* (L.) KUNTZE, Rev. Gen. 2: 542. 1891; URBAN, Symb. Ant. 4: 222. 1905; BOLDINGH, Fl. D.W. Ind. Isl. 1: 58. 1909; Fl. Ned. W. Ind. Eil. 180. 1913; FAWCETT & RENDLE, Fl. Jamaica 3(1): 145. 1914; URBAN, Symb. Ant. 8: 207. 1920; QUESTEL, Fl. Isl. St. Bartholomew 101. 1941; — *Iresine celosoides* LINNAEUS, Spec. Plant. ed. 2. 1456. 1763; GRISEBACH, Fl. Br. W. Ind. Isl. 64. 1859; — *Iresine elongata* HUMBOLDT & BONPLAND ex WILLDENOW, Spec. Plant. ed. 4. 4(2): 765. 1806.

Annual or perennial, dioecious herb; stems usually branched, ascending or clambering, often woody below, glabrous or sparingly pilose at the nodes, up

to 3 m long. Leaves petiolate; blade ovate to ovate-lanceolate, the upper ones lanceolate, acute or acuminate at the apex, rounded or broadly cuneate at the base, 5—15 × 2—7 cm, becoming smaller in the upper portion, glabrous or slightly villous; petioles slender, 1—6 cm long. Inflorescence consisting of contracted or elongate panicles, up to 30 cm long, more or less villous, with or without leaves. Spikes densely flowered 0.5—2.5 cm long, golden yellow to white; rhachis pubescent. Bracts and bracteoles broadly ovate, the latter not keeled and longer than the bracts, but smaller than the tepals. Flowers white to stramineous. Tepals 5, oblong, obtuse or rounded at the apex, 1—1.5 mm long. Male flowers: tepals not 3-veined; stamens 5; filaments subulate, 0.5—1 mm long; anthers small; staminodes minute. Female flowers: long white woolly at the base; tepals conspicuously 3-veined; ovary subglobose, compressed; style very short; stigmas 2, filiform. Utricle shorter than the tepals. Seed broadly obovoid or suborbicular, 0.5 mm in diam., dark red, shining.

West Indies, continental America from the United States to Argentine.

In thickets and common on roadsides.

SABA: The Bottom (Boldingh 1455, st. July); between The Bottom and Mary's Point, 100—200 m (Boldingh 1532, fem., fl. & fr. July); Booby Hill, 300 m (Boldingh 1577, male, fl. July); Hellsgate (Boldingh 1693, fem., fl. July); Ladder-gut (Boldingh 1976, male fl. July); Rendez Vous Hill, 600 m (Burgers 513, fem., fl. March); road to Windwardside (Arnoldo 593, fem., fl. & fr. Aug.); Windward-side (Arnoldo 3379, fem., fl. & fr. Jan.); without loc. (Lionarons 146, male, fl.; Burgers 504, st. Feb.).

ST. EUSTATIUS: slope of the lower part of The Quill near Bengalen (Boldingh 729, fem., fl. June); near Mary Glory, 150 m (Boldingh 1164, fem., fl. & fr. June); in deserted plantation near Tumble Down Dick Bay (Boldingh 51, fem., fl. & fr. May); along roads in Oranjestad (Boldingh 1118, male, fl. June); without loc. (v. Groll-Meyer 236, male, fl.; 275, fem., fl. & fr.).

ST. MARTIN: Colombier (Arnoldo 1347, fem., fl. & fr. March).