

CHENOPODIACEAE

by

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Herbs, shrubs or rarely trees; stems terete, angled or striate, often articulate. Leaves alternate or opposite, sessile or petiolate, simple and sometimes reduced to scales. Stipules present or wanting. Flowers actinomorphic, hermaphrodite or unisexual, minute, greenish, often mono- or bi-bracteate, solitary or usually in dense cymose glomerules, these spicate, axillary, paniculate or cymose, or flowers arranged in a strobile and sunken in depression of the stems. Perianth simple, sometimes wanting in the pistillate flowers, made up of (2—)5 connate tepals, usually persisting in fruit. Stamens as many as or fewer than the tepals and epitepalous, hypogynous or adnate to a disk or to the base of the perianth; filaments free; anthers 4-celled, incurved in the bud, with longitudinal dehiscence. Ovary superior or rarely inferior, uni-locular, attenuate into the style or truncate at the apex; styles 1—3, terminal, short or elongate, stigma capitate or styles 2—3, introrsely papillose or stigmas 2—5, sessile and often filiform. Ovule solitary, campylotropous, erect or suspended from the apex of an elongate funiculus. Fruit an indehiscent nut or rarely circumscissile, membranaceous, coriaceous or fleshy, usually included in the perianth and deciduous with it. Seed with a coiled embryo, surrounding the endosperm, the latter farinaceous, fleshy, or nearly wanting.

About 1500 species in more than 100 genera, of world-wide distribution, often in dry and saline areas, in prairies or deserts.

Key to the genera:

1. Plant succulent; leaves reduced to scales *Salicornia*
Plant not succulent; leaves present 2
2. Female flowers subtended by 2 large foliaceous bracts *Atriplex*
Foliaceous bracts not present *Chenopodium*

Chenopodium Linnaeus, Spec. Plant. 218. 1753

Annual or perennial herbs, rarely suffrutescent, often strongly scented, usually glandular or covered with a farinose pubescence of white inflated hairs; stems angular. Leaves alternate, petiolate; blade entire, dentate or pinnatifid. Inflorescence consisting of glomerules, arranged in axillary, simple or branched spikes. Bracts wanting. Flowers small, greenish, hermaphrodite or unisexual. Tepals (3—)5, free or connate, herbaceous, often carinate or corniculate-appendaged. Stamens as many as the tepals; filaments filiform, free or at the base connate into a fleshy ring. Ovary superior, depressed-globose; style short or wanting; stigmas 2—3, subulate or filiform. Utricle partly or completely included in the perianth. Seed horizontal or vertical; testa crustaceous. Embryo annular or incompletely annular. Perisperm farinaceous, copious.

About 250 species, distributed throughout the whole world, mostly in temperate regions.

Key to the species:

1. Leaves rhombic-ovate to deltoid-ovate, petiole up to 10 cm long . . .
. *C. murale*
- Leaves lanceolate-oblong, petiole up to 1.5 cm long . . . *C. ambrosioides*

Chenopodium ambrosioides L.

LINNAEUS, Spec. Plant. 219. 1753; GRISEBACH, Fl. Br. W. Ind. Isl. 60. 1859; Duss, Fl. phan. Ant. franç. 51. 1897; URBAN, Symb. Ant. 4: 216. 1905; BOLDINGH, Fl. D.W. Ind. Isl. 1: 55. 1909; JOHNSTON, Proc. Bost. Soc. Nat. Hist. 34(7): 205. 1909; BOLDINGH, Fl. Ned. W. Ind. Eil. 174. 1913; Fl. D.W. Ind. Isl. 2: 23. 1914; FAWCETT & RENDLE, Fl. Jamaica 3(1): 124, fig. 35. 1914; URBAN, Symb. Ant. 8: 200. 1920; BRITTON & MILLSAUGH, Bahama Fl. 119. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 272. 1924; QUESTEL, Fl. Isl. St. Bartholomew 98. 1941; LEON & ALAIN, Fl. Cuba 2: 102. 1951; ARNOLDO, Zakflora 151. 1954; Zakflora 107. 1964; GOODING *et al.*, Fl. Barbados 135, fig. 4. 1965; ADAMS, Flowering plants of Jamaica 252. 1972; — *Chenopodium anthelminticum* LINNAEUS, Spec. Plant. 220. 1753.

Erect or ascending, strong-scented, annual or perennial herb, up to 1 m high; branches angular, ribbed, glabrous or finely pubescent, usually glandular-villous or tomentulose about the inflorescence and puberulent below, rarely glabrous. Leaves oblong to ovate or lanceolate, acute at the apex, attenuate at the base, 2—15 × 1—5 cm, underneath dotted with glands, subglabrous or sparingly beset with short white hairs, the margin irregularly sinuate-dentate or sinuate-pinnatifid; the lobes entire or dentate, acute or obtuse; upper leaves entire, bract-like, lanceolate, spatulate or linear, obtuse or acute at the apex; petioles of lower leaves up to 1.5 cm long, those of the upper ones obsolete. Inflorescence in the axils of the upper leaves, consisting of small clusters arranged in dense or interrupted, slender or stout, elongate spikes. Flowers unisexual or hermaphrodite. Tepals 3—5, ovate-triangular, concave, acute at the apex, about 1 mm

long, at the base connate and not or slightly keeled, glandular-dotted. Stamens 3—5, exerted; filaments flattened; anthers orbicular. Ovary subglobose with 2 or 3 short stigmas, long exerted in female flowers, depressed-globose and glandular at the apex. Utricle completely enclosed in the perianth. Seeds horizontal or vertical, smooth-blackish, 0.7 mm broad. Embryo horseshoe-shaped.

A native of Central America, South America, and the West Indies; cultivated and naturalized in the warmer regions of the world.

Hillsides, waste and cultivated grounds.

Vernacular names: pasota, yerba di vruminga, sagrado (Leeward Group).
wormbush (Windward Group).

ARUBA: along roads in Oranjestad (Stoffers 3866, fl. & fr. July); Seroe Colorado (Suringar s.n., fl. & fr. Feb. [L]); without loc. (Koolwijk s.n. sub Suringar s.n., fl. & fr. [L]).

BONAIRE: Fontein (Suringar s.n., fl. & fr. Feb. [L]).

CURAÇAO: Groot Kwartier (Suringar s.n., fl. & fr. Feb. [L]).

SABA: seashore near Fort Bay (Boldingh 2149, fl. & fr. July); Ladder Gut, 0—200 m (Boldingh 1955, fl. July); Windwardside (Arnoldo 586, fl. & fr. Aug.); along road between The Bottom and Windwardside, 200 m (Boldingh 1291, fl. & fr. July; 1301, fl. & fr. July); The Bottom (Boldingh 1846, fl. & fr. July); Hellsgate (Stoffers 3387, fl. & fr. May); Parish (Suringar s.n., fl. & fr. Ap. [L]).

St. EUSTATIUS: along roads in Oranjestad (Stoffers 3866, fl. & fr. July; Boldingh 938, fl. June); without loc. (v. Groll-Meyer 5, fl.).

St. MARTIN: along roads from Marigot to Grande Case (Boldingh 3355, fl. & fr. Sept.).

Chenopodium murale L.

LINNAEUS, Spec. Plant. 219. 1753; GRISEBACH, Fl. Br. W. Ind. Isl. 60. 1859; Duss, Fl. phan. Ant. franç. 51. 1897; URBAN, Symb. Ant. 4: 216. 1905; BOLDINGH, Fl. D.W. Ind. Isl. 1: 55. 1909; Fl. Ned. W. Ind. Eil. 174: 1913; Fl. D.W. Ind. Isl. 2: 23. 1914; FAWCETT & RENDLE, Fl. Jamaica 3(1): 123. 1914; BRITTON & MILLSPAUGH, Bahama Fl. 119. 1920; URBAN, Symb. Ant. 8: 199. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 271. 1924; QUESTEL, Fl. Isl. St. Bartholomew 98. 1941; LEON & ALAIN, Fl. Cuba 2: 101. 1951; ARNOLDO, Zakflora 152. 1954; Zakflora 108. 1964; ADAMS, Flowering plants of Jamaica 252. 1972.

Erect or ascending, simple or much-branched, annual herb, up to 80 cm high; stems stout, angular or ribbed, glabrous or sparingly farinose, somewhat scurfy when young. Leaves petiolate; blade ovate or rhombic-ovate to deltoid, acute or acuminate at the apex, cuneate or subtruncate at the base, 2—10 × 1—6 cm, irregularly sinuate-dentate to laciniate-serrate, with obtuse or acute teeth, glabrate or copiously farinose, at least beneath, lustrous on the upper surface; petioles slender, up to 10 cm long, those of the upper leaves gradually smaller.

Inflorescence consisting of small glomerules, arranged in dense or lax, axillary and terminal, mostly leafless panicles. Flowers sessile, more or less farinose, 5-merous, hermaphrodite. Tepals green, oval, rounded or very obtuse at the apex, connate at the base, concave, about 1.5 mm long. Stamens 5, exerted; filaments flattened; anthers orbicular. Ovary subglobose; style short, stigmas 2. Utricle depressed globose, about 1.5 mm in diam., partly enclosed in the perianth. Seeds lenticular-cochleate, 1.2—1.5 mm broad, dull reddish-brown, finely punctulate. Embryo annular, enclosing the endosperm.

A native of the Old World; introduced and widely naturalized in continental America and the West Indies.

Waste and cultivated grounds at lower elevations.

Vernacular name: sprainbush (Windward Group).

ARUBA: without loc. (Boldingh s.n., fl. & fr.; Koolwijk s.n. sub Suringar s.n., fl. & fr. [L]).

BONAIRE: along seashore south of Kralendijk (Stoffers 501, fl. & fr. Nov.); Kralendijk (Stoffers 1006, fl. & fr. Dec.; Arnolde 414, fl. & fr. Feb.).

CURAÇAO: near Willemstad (Britton & Shafer 3059, fl. & fr. March); Wishi (Arnolde 79, fl. & fr. March); Museumtuin (Arnolde 2006, fl. & fr. Ap.); Pietermaai (Suringar s.n., fl. & fr. Jan. [L]; s.n., fl. & fr. March [L]); Ronde Klip (Stoffers 1249, fl. & fr. Dec.; de Wilde 1, fl. & fr. May); without loc. (Aschenberg s.n., fl.).

ST. EUSTATIUS: along roads in Oranjestad (Boldingh 578, fl. & fr.; Suringar s.n., fl. & fr. Ap. [L]); in garden in Oranjestad (Boldingh 1085, fl. & fr. June); Beach (Suringar, s.n., fl. & fr. Ap. [L]); without loc. (v. Groll-Meyer 9, fl. & fr.).

ST. MARTIN: from Philipsburg to Guana Bay (Boldingh 578, fl. & fr. Aug.); near The Pond (Arnolde 3430, fl. & fr. Jan.).

Atriplex Linnaeus, Spec. Plant. 1052. 1753

Monoecious or dioecious herbs, shrubs or undershrubs, more or less furfuraeous, farinose or canescent with inflated hairs. Leaves alternate or rarely opposite, sessile or petiolate. Flowers glomerate or rarely solitary, the glomerules axillary or terminal, sessile or in simple or paniculate spikes, male and female flowers in the same or in separate glomerules, often intermixed with a few hermaphrodite ones. Male flowers ebracteate; tepals 3—5; stamens 3—5; filaments free or basally connate; pistillode sometimes present. Female flowers subtended by 2 bractlets; the latter free or usually united, enlarging in fruit; perianth wanting; stigmas 2, subulate or filiform. Utricle completely or partly enclosed by the bracteoles; pericarp membranaceous, usually free from the seed. Seed erect, rarely horizontal. Embryo annular, surrounding the mealy perisperm.

About 150 species, with world-wide distribution, but especially in Europe, Asia, and Australia.

Atriplex pentandra (Jacq.) Standl.

STANDLEY, in N. Am. Fl. 21: 54. 1916; URBAN, Symb. Ant. 8: 200. 1920; BRITTON & MILLSAUGH, Bahama Fl. 120. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 272. 1924; LEON & ALAIN, Fl. Cuba 2: 103. 1951; ADAMS, Flowering plants of Jamaica 252. 1972; — *Axyris pentandra* JACQUIN, Sel. Stirp. Am. 244. 1763; — *Atriplex cristata* HUMBOLDT & BONPLAND in WILLDENOW, Spec. Plant. 4: 959. 1806; URBAN, Symb. Ant. 4: 217. 1905; JOHNSTON, Proc. Bost. Soc. Nat. Hist. 34(7): 205. 1909; BOLDINGH, Fl. Ned. W. Ind. Eil. 174. 1913; Fl. D.W. Ind. Isl. 2: 23. 1914; FAWCETT & RENDLE, Fl. Jamaica 3(1): 124, fig. 36. 1914; ARNOLDO, Zakflora 152. 1954; Zakflora 107. 1964.

Monoecious, annual or perennial herb, branched and often woody below; branches procumbent or ascending, obtusely angled, scurfy when young, glabrescent in age, up to 70 cm long. Leaves alternate, sessile or short-petiolate; blade oblong to rhombic or obovate to spatulate, rounded to acute and mucronate at the apex, cuneate at the base, 1—3 × 0.3—1.5 cm; the margin repand-dentate, undulate or entire, white-scurfy beneath, green above. Male flowers in short, dense, terminal spikes. Tepals 5, connate, scarcely 1 mm long. Female flowers clustered in the leaf-axils. Fruiting bracts sessile, broadly cuneate-orbicular, 3 mm long and usually broader, united at the truncate or broadly cuneate base, margin deeply and acutely dentate, the sides with 2 dentate crests or covered with irregular conic, acute tubercles. Seed brown, 1.5 mm long, orbicular flattered.

Florida, Bermuda, Bahamas, Greater Antilles, St. Thomas, St. Croix, St. John, Curaçao, and South America from Venezuela and Colombia to Peru.

Roadside weed, often on saline soil.

ARUBA: Savaneta (Arnoldo 273, fl. & fr. Dec.).

CURAÇAO: seashore of Schottegat (Arnoldo 1, fl. & fr. Jan.); Habaai (Stoffers 313, fl. & fr. Oct.); coral sea beach near Willemstad (Britton & Shafer 2926, fl. & fr. March); Rif (Stoffers 431, fl. & fr. Oct.); Suringar s.n., fl. & fr. Jan. [L]; Piscadera Baai (de Wilde 7, fr. March); Hato (Suringar s.n., fl. & fr. Jan. [L]); Fuik (Suringar s.n., fl. & fr. Feb. [L]); Pietermaai (Suringar s.n., fl. & fr. March [L]).

Salicornia Linnaeus, Spec. Plant. 3. 1753

Succulent, glabrous, annual or perennial herbs or often suffrutescent; branches opposite, articulate, the joints dilated at the apex into a short sheath. Leaves reduced to scales. Flowers 3 or more together in clusters in the axils of the scales, forming terminal spikes, perfect or the lateral ones staminate, usually connate and adnate to the joints. Perianth obpyramidal or rhomboid, fleshy, truncate or 3—4-dentate, becoming spongy in fruit. Stamens 1 or 2, exerted; filaments short, cylindric; anthers oblong, large. Ovary ovoid, slightly laterally compressed; style lacerate above or ending in 2 subulate stigmas. Ovule on a short funicle. Utricle enclosed in the spongy perianth, ovoid or oblong. Seed

erect, oblong or ellipsoid, compressed, covered with hooked hairs. Embryo conduplicate. Perisperm wanting.

Along seashores (excepted cold regions) and on saline soil inland.

Key to the species:

1. Annual; branches winged *S. europaea*
Perennial; branches terete *S. perennis*

Salicornia europaea L.

LINNAEUS, Spec. Plant. 3. 1753; — *Salicornia herbacea* LINNAEUS, Spec. Plant. ed. 2. 5. 1762; URBAN, Symb. Ant. 4: 217. 1905; BOLDINGH, Fl. D.W. Ind. Isl. 1: 55. 1909; Fl. Ned. W. Ind. Eil. 175. 1913; — *Salicornia europaea* LINNAEUS var. *herbacea* LINNAEUS, Spec. Plant. 3. 1753.

Erect, annual herb, up to 50 cm high, often simple at the base and much branched above; branches slender, erect, with 5—25 × 1—2.5 mm joints, usually winged and often more or less red in age. Inflorescence consisting of 2.5—6 cm long and 1.5—4.5 mm wide spikes with 10 or more joints in each spike; the joints longer than thick. Flowers 3 in each cluster, the terminal one much higher than the others and reaching two thirds the distance to the apex of the joint. Seeds 1.5—2 mm long, brown, covered with short curved hairs.

Temperate and tropical regions of the world.

Along sea-beaches and salt marshes.

ST. MARTIN: Lowlands near Mullet Pond (Boldingh 2749, fr. Aug.).

Salicornia perennis Mill.

MILLER, Gard. Dict. ed. 8. *Salicornia* n. 2. 1768; BRITTON & MILLSAUGH, Bahama Fl. 122. 1920; LEON & ALAIN, Fl. Cuba 2: 104. 1951; ADAMS, Flowering plants of Jamaica 251. 1972; — *Salicornia ambigua* MICHAUX, Fl. Bor. Am. 1: 2. 1803; GRISEBACH, Fl. Br. W. Ind. Isl. 60. 1859; BOLDINGH, Fl. Ned. W. Ind. Eil. 175. 1913; Fl. D.W. Ind. Isl. 2: 23. 1914; FAWCETT & RENDLE, Fl. Jamaica 3(1): 126, fig. 37. 1914; ARNOLDO, Zakflora 84, fig. 48. 1954; Zakflora 108, fig. 48. 1964.

Perennial herb, with woody rootstock; main branches prostrate and frequently rooting, suffrutescent, forming clumps or dense mats; flowering branches ascending or erect, the joints 0.3—0.8(—2) cm long and 1—3 mm thick, the sheaths rounded or the lobes acutish. Inflorescence consisting of 1.5—5 cm long and 2—2.5 mm thick spikes with numerous joints, the latter as long as or longer than thick. Flowers 3 in each cluster, of about the same height, the terminal one larger than the lateral ones and reaching half way to the top of

the joint or farther. Seed about 1.2 mm long, a little longer than broad, densely covered with slender, curved hairs.

Both shores of the American continent, West Indies, western Europe, and Africa.

Along sea-beaches and salt marshes.

ARUBA: calcareous hill Seroe Blanco (Boldingh 6507, st. Jan.); Rif (Suringar s.n., st. Feb. [L]); s.n., fl. Jan. [L]).

BONAIRE: south of Blauwe Pan (Stoffers 730, fl. Nov.); calcareous soil near Lac (Boldingh 7478, st. Feb.); coast near Salt Pans (Suringar s.n., fl. Feb. [L]).

CURAÇAO: border of mangroves, Willemstad (Britton & Shafer 2929, st. March); Rif (Arnoldo 1989, st. March; Suringar s.n., fl. Jan. [L]).