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## 90. PORTULACACEAE

Descripción de la familia y clave genérica por M.C. Tebbs y B.B. Klitgaard.

Annual or perennial herbs, sometimes low shrubs, rarely small trees. Stems usually succulent, sometimes short, thickened, woody. Leaves opposite, alternate or in basal rosettes, glabrous or with glandular barbulate or simple hairs, venation pinnate or reticulate, margin entire; stipules sometimes replaced by axillary hairs or scales. Inflorescences axillary or terminal, cymose or rarely racemose, or the flowers solitary; bracts leafy or membranous. Flowers bisexual, actinomorphic. Sepals 2, persistent or deciduous. Petals (3-)4-6(-8), sometimes connate near the base. Stamens 1-many, free from each other, but sometimes adnate to the petals at the base. Ovary superior or partly (or wholly) inferior; carpels 2-5; styles 2-20-lobed. Fruit a capsule, dehiscing circumscissily or by 3-5(-8) valves. Seeds 3-many, reniform, lenticular to ovoid, compressed or globular, the testa smooth or ornamented, without an aril. Approx. 25-30 gen., 400-500 spp.

This is largely a southern hemisphere family that extends into North America, and it is poorly represented in Eurasia.

There are differing opinions on subfamilial classification. McNeill (1975) recognized 7 tribes. Carolin (1993) suggested 4 tribes. The delimitations of several genera are also subject to discussions and further studies are needed. This is particularly true for *Calandrina*, *Claytonia*, *Montia* and related genera.

Literature: Applequist, W. L. & Wallace, R. S. *Syst. Bot.* 26: 406-419 (2001). Carolin, R. C., *Fam. Gen. Vasc. Pl.* 2: 544-555 (1993). Eliasson, U.H., *Fl. Ecuador* 55: 28-53 (1996). Ford, D.I., *Fl. Veracruz* 51: 1-38 (1986). Hershkovitz, M. A. *Ann. Missouri Bot. Gard.* 80: 333-365 (1993); *Phytologia* 84: 98-106 (1998); Hershkovitz, M. A. y

Zimmer, E. A. *Molec. Phylogenet. Evol.* 15: 419-439 (2000). McNeill, J. *Taxon* 23: 725-728 (1974). Standley, P.C. & Steyermark, J.A., *Fieldiana, Bot.* 24(4): 207-214 (1946).

1. Leaf axils and/or inflorescences with tufts of hairs (scanty in some species); ovary inferior or semi-inferior; capsules opening by a circumscissile operculum. **4. Portulaca**

1. Leaf axils lacking hairs or scales; ovary superior; capsules splitting lengthwise by 3 or more valves.

2. Plants 30-70(-100) cm; sepals (and sometimes also petals) caducous after flowering. **5. Talinum**

2. Plants matforming, or 4-20 cm; sepals and petals persistent after flowering.

3. Leaves alternate or in basal rosettes, and then the flowers solitary. **1. Calandrinia**

3. Leaves opposite or in basal rosettes, and then the flowers in several-flowered terminal cymes.

4. Erect plants with leaves in basal rosettes and each stem with one opposite pair of leaves; leaves 1-5 x 0.5-3.0 cm, rhombic or obovate. **2. Claytonia**

4. Mat-forming plants with opposite leaves; leaves 1-2.5 cm x 0.2-0.6 cm, linear or oblanceolate. **3. Crunocallis**

**1. Calandrinia** Kunth, *nom. cons.*

Por M.C. Tebbs y B.B. Klitgaard.

Annual or perennial herbs. Stems elongate to absent. Leaves alternate or in basal rosettes, succulent, glabrous or with papillate trichomes. Inflorescences of solitary flowers, or terminal or axillary racemes or panicles. Flowers with the sepals persistent, often unequal in size, the size increasing with age; petals (3-)5(-7), persistent, free, twisting after anthesis; stamens (3-)5-15, shorter than the petals; ovary superior, the style 2-5-lobed. Capsules membranaceous, variable in shape from globular to pyriform, 3(-7)-valvate;

seeds many, lenticular or rounded-reniform, the testa ornamented. 12-15 spp. Western North America to Chile and Argentina.

Most of the species are found in the Andes.

In its widest circumscription the genus comprises about 150 species in the Americas and Australia. Carolin (1993) and Hershkovitz (1993) suggested that the genus be segregated into 3-5 genera. The narrower circumscription proposed by Hershkovitz (1993) is adopted here.

Literature: Hershkovitz, M. A. *Ann. Missouri Bot. Gard.* 80: 333-365 (1993); *Phytologia* 84: 98-106 (1998). Hershkovitz, M.A. & Ford, D.I. *Phytologia* 74: 279-283 (1993). Hershkovitz, M. A. & Zimmer, E. A. *Molec. Phylogenet. Evol.* 15: 419-439 (2000). Kelley, W.A. & Swanson, J.R. *Brittonia* 37: 56-57 (1985).

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|---|----------------------|
| 1. Perennial herbs with basal leaf rosette and tap root | <b>1. C. acaulis</b> |
| 1. Adscending annual herbs with leafy arial stems       | <b>2. C. ciliata</b> |

**1. Calandrinia acaulis** Kunth, *Nov. Gen. Sp.* 6: 78 (1823). Type: Ecuador, Humboldt y Bonpland s.n. (P n.v.). Illustr.: Ford, *Fl. Veracruz* 51: 13, t. 3 (1986) (as *Lewisia megarhiza* (Hemsl.) D. Macbryde)

*Calandrinia megarhiza* Hemsl., *Claytonia megarhiza* (Hemsl.) Kuntze (*non Claytonia megarhiza* (A. Gray) Parry ex S. Watson), *Lewisia megarhiza* (Hemsl.) D. Macbryde, *Oreobroma megarhizum* (Hemsl.) Standl. & Steyer., *Calandrinia mexicana* (Rydb.) Pax & K. Hoffm., *Lewisia mexicana* (Rydb.) S. Clay, *Oreobroma mexicanum* Rydb.

Perennial herbs to 10 cm. Stems rosette-forming with taproot, sometimes branched with several leaf rosettes. Leaves 15-40(-70) x (1-)3-7 mm, usually linear, sometimes narrowly oblanceolate; margin not ciliate; all leaves sessile. Flowers solitary, partly hidden by the leaves; pedicels 10-40 mm; sepals to 6-9 mm, unequal in shape and size, oblong-lanceolate or oblong-spathulate, the margins not ciliate the apex acute; petals 5-6, 9-10 mm, narrowly obovate, white; stamens 5(-6-10). Capsules 4-8 mm, oblong to ovoid, the exocarp membranaceous, thin, brown; seeds 1.0-1.5 mm, ovoid, black. *In high altitude meadows, in damp conditions.* G (Steyermark 50123, F); CR (Alfaro 1726 INB).

3500-4000 m. (Mexico, Mesoamerica, Colombia, Venezuela, Ecuador, Peru, Bolivia, Argentina, Chile.)

The species is likely to also occur in Panama.

**2. *Calandrinia ciliata*** (Ruiz & Pav.) DC., *Prodr.* 3: 359. 1828. *Talinum ciliatum* Ruiz & Pav., *Syst. Veg. Fl. Peruv. Chil.* 1: 116 (1798). Type: Peru, Pavón s.n. (G-DC!). Illustr.: Ford, *Fl. Veracruz* 51: 5, t. 1 (1986) (as *Calandrinia micrantha* Schltld.). N.v.: Berros, G; Barba de San Nicolás, G; Excacahue, G.

*Calandrinia caulescens* Kunth, *Talinum caulescens* (Kunth) Spreng., *Calandrinia micrantha* Schltld.

Annual herbs to 30 cm, succulent, branching from the base. Stems ascending, densely leafy, glabrous. Leaves 15-40 x (1-)3-5 mm, usually narrowly oblanceolate, sometimes linear; margins often ciliate; lower leaves shortly petiolate, the upper leaves sessile. Flowers solitary in the leaf axils; pedicels 2-10 mm; sepals to 5-6 mm, unequal in shape and size, suborbicular or ovate, the margins ciliate, the apex acute; petals 3-5, 4-6 mm, oblong or obovate, pale pink, blue, fading to whitish; stamens 3-6(-12). Capsules 4-8 mm, oblong to ovoid, the exocarp thick, hard, yellowish brown; seeds 1.2-1.4 mm, lenticular, black. *Weed of cultivated fields, banks, often on limestone or sand.* Ch (*Breedlove 40430*, MEXU); G (*Standley 60021*, MO); ES (*Montalvo 4805*, MO). 1500-3500 m. (Mexico, Mesoamerica, Colombia, Ecuador, Peru, Bolivia.)

## 2. *Claytonia* L.

Por M. J. Tebbs y B. B. Klitgaard.

Annual or perennial herbs. Stems succulent, glabrous. Leaves mostly in basal rosettes and/or the stem with 1 pair of opposite leaves, glabrous. Inflorescences terminal cymes often only with one basal bract. Flowers with the sepals persistent, ovate; petals 5 or fewer, persistent, shortly connate at the base; stamens 5, shorter than and adnate to the petals at the base; ovary superior, style 3-lobed. Capsules membranaceous, globose or ovoid with 3 longitudinal, reflexing valves; seeds rounded or reniform, exarillate, the testa smooth or alveolate. 24 spp. North America, Mesoamerica, Siberia.

Literature: Miller, J. M. *Syst. Bot.* 3: 322-341 (1978). Miller, J. M. & Chambers, K. L. *Novon* 3: 268-273 (1993).

**1. *Claytonia perfoliata*** Donn ex Willd., *Sp. Pl.* 1: 1186 (1798). Lectotype (designated by Miller & Chambers (1993)): Cultivated, *Anon* (B-W-4984). Illustr.: Ford, *Fl. Veracruz* 51: 9, t. 2 (1986).

*Claytonia perfoliata* Donn ex Willd. subsp. *mexicana* (Rydb.) John M. Miller & K.L. Chambers, *Limnia mexicana* Rydb., *L. perfoliata* (Donn ex Willd.) Haw., *Montia mexicana* (Rydb.) Pax & K. Hoffm., *M. perfoliata* (Donn ex Willd.) Howell.

Annual herbs 4-20 cm. Stems erect, with rosette-forming leaves, and each stem with one opposite pair of leaves. Leaves 1-5 x 0.5-3 cm, rhombic or elliptic-obovate, succulent, the margins of leaf-pair connate at base; petioles of rosette leaves 3-15 cm. Flowers in up to 19-flowered umbels; pedicels 2-10 mm; sepals 1.5-4 mm, longer in fruit, unequal in size and shape, orbicular to ovate; petals 4-6 mm, spatulate, white to pale pink. Capsules 1.5-4 mm; seeds 1-3 per fruit, 1-2.2 mm. *High altitude meadows or in Juniperus forests.* Ch (*Breedlove* 29324, MO); G (*Williams et al.* 22908, BM); ES (*Molina R. et al.* 16599, BM). 2600-3800 m. (Western Canada, western United States, Mexico, Guatemala; introduced into Europe.)

Only subspecies *mexicana* occurs in Mesoamerica according to Miller & Chambers (1993).

### 3. *Crunocallis* Rydb.

Por M.C. Tebbs y B.B. Klitgaard.

Perennial, stoloniferous, succulent herbs, often subaquatic. Stems mat-forming, decumbent to ascending, rooting at the nodes. Leaves opposite, succulent, glabrous. Inflorescences terminal monochasial cymes, subtended by a bract. Flowers with sepals persistent, equal; petals 5, persistent, shortly connate at the base; stamens 5, free from each other, but shortly adnate to the petals at the base; ovary superior, the style as long as the ovary, 3-lobed. Capsules membranaceous, globular to pyriform, with 3 reflexing valves; seeds (1-)3(-4), lenticular, the testa minutely reticulate. 2 spp. 1 spp. in North America from the Aleutian Islands and Alaska to southern California, and 1 spp. Is endemic to Guatemala.

*Crunocallis* is similar to *Montia* and *Claytonia*. Rydberg (1906) wrote: “it has the flowers of *Claytonia* and the habit of *Montia*”. *Crunocallis* differs from *Montia* in e.g. perennial habit, mode of vegetative propagation by stolons, type of branching with one branch per node, stomata on both sides of the leaf, and the presence of a style (Nilsson, 1970).

Literature: Rydberg, P. A., *Bull. Torrey Bot. Club* 33: 137 – 161 (1906). Nilsson, Ö., *Bot. Not.* 123: 119 – 148 (1970).

**1. *Crunocallis calcicola*** (Standl. & Steyererm.) Ö. Nilsson, *Grana Palynol.* 7: 359 (1967). *Montia calcicola* Standl. & Steyererm., *Publ. Field. Mus. Nat. Hist., Bot. Ser.* 23: 48 (1944). Holotype: Guatemala, *Steyermark 50308* (F). Illustr.: Nilsson, *Bot. Not.* 123: 141 fig. 6 (1970).

Low creeping, loose mat-forming herbs. Stems up to 10 cm, branching from the base. Leaves 1-2.5 x 0.2-0.6 cm, linear to oblanceolate, sessile, in 2-6 pairs per stem, somewhat succulent; margins entire. Flowers 1-3 in the leaf axils; pedicels 3-7 mm at anthesis; sepals 1-1.5 mm, rounded-obovate; petals 2-3 mm long, obovate, bright pink; stamens 1.5-1.7 mm. Capsules 1.5-2 mm, subglobose; seeds 1-1.2 mm, dark reddish-

brown, shining, minutely reticulate. *Limestone areas in high mountains. G (Steyrermark 50127, F, US). 3700-3800 m. (Endemic).*

#### 4. *Portulaca* L.

Por M.C. Tebbs y B.B. Klitgaard.

Annual and perennial herbs, rarely low shrubs. Stems branched, prostrate to ascending, succulent, pubescent or glabrous, mostly with tuberous roots. Leaves opposite or alternate, succulent, flat to terete, usually with axillary hairs, often deciduous after flowering. Inflorescences of solitary flowers or in condensed, head-like cymes. Flowers with the sepals persistent, often united at the base; petals (4-)5(-6), persistent free or connate at the base; stamens few to many; ovary semi-inferior or inferior, the style 2-18-lobed. Capsules 1-celled, circumscissile at the hypanthium, rarely rimmed with membranaceous wing; seeds reniform or chockleate, the testa smooth to tuberculate. 40 spp. (Geesink, 1969) to 150 spp. (Eliasson, 1996). Tropics and subtropics, some ornamentals, some almost cosmopolitan weeds.

Bibliography: Danin, A., Baker, I. & Baker, H.G., *Israel J. Bot.* 27: 177-211 (1978). Geesink, R., *Blumea* 17: 275-301 (1969). Legrand, C.D., *Anales Mus. Nac. Montevideo*, ser. 2, 7(3): 1-147, t. 1-29 (1962). Matthews, J.F. & Levins, P.A., *Castanea* 50: 96-104 (1985). Matthews, J.F., Ketron, D.W. & Zane, S.F., *Rhodora* 95: 166-183 (1993); *Castanea* 57: 202-208 (1992). Ocampo A., G., *Acta. Bot. Mex.* 63: 59-66 (2003).

1. Plants glabrous or with short, inconspicuous hairs in the leaf and/or inflorescence axils; leaves up to 3 times as long as wide, spatulate or broadly oblanceolate.

2. Petals 3-5(-7) mm; stamens 6-10(-15) per flowers; capsule without wing; seeds black.

#### 4. *P. oleracea*

2. Petals 3-10 long; stamens 7-25 per flower; capsule rimmed with 1 mm high membranaceous wing; seeds grey.

#### 7. *P. umbraticola*

2. Plants with tufts of long hairs in the leaf and/or inflorescence axils; leaves 4-10 times as long as wide, linear to narrowly lanceolate.

3. Corolla rose, pink, margenta or red.

4. Petals 15-25 mm; stamens 40-75 per flower; seed testa distinctly tuberculate.

#### 2. *P. grandiflora*



4. Petals 3-6 mm; stamens 10-35 per flower; seed testa shortly tuberculate and obscurely stellate, but sometimes stellate lacking tubercles      **5. P. pilosa**

3. Corolla yellow or white.

5. Petals 2.5-3 mm, yellow or white; stamens 4-12(-15); seeds 0.4 mm in diameter, testa with low, broad-based papillae, these irregular to stellate at the base.

**3. P. halimoides**

5. Petals 5-8 mm, yellow or orange; stamens 12-30; seeds 0.6-0.8 mm in diameter, testa tuberculate, sometimes stellate at the base.

6. Annual herbs; stems to 30 cm, prostrate to decumbent, diffusely branched.

**1. P. conzattii**

6. Perennial herbs; stems 10-20 cm, erect, most branches ascending from near the base.

**6. P. rubricaulis**

**1. Portulaca conzattii** P. Wilson, *Torreyia* 28: 28 (1928). Holotype: Mexico, Oaxaca, *Conzatti 1425* (NY). Illustr.: not found

Erect annual, herbs. Stems to 30 cm, branched, glabrous. Leaves 15-30 x 3-7 mm, alternate, flat, linear to oblanceolate, with conspicuous tufts of long white hairs, 2-3 mm, in the leaf axils. Flowers 2-4, terminal, subtended by 6-8 foliaceous, involucre bracts and by long white hairs, 6-8 mm; sepals 5-6 x 4-6 mm, triangular-orbicular; petals 7-8 x 3-3.5 mm, elliptic to obovate, yellow or orange; stamens 20-25; style 4-7-lobed. Capsules 4-5 mm in diameter, ovoid to globose; seeds 0.8 mm in diameter, black, the testa rounded-tuberculate. *Dry rocky mountains ridges, roadside, banks. G (Standley 77421, F); H (Williams & Molina R. 14176, BM); N (Standley 10147, F). 900-1300 m. (Oaxaca, Mesoamerica.)*

**2. Portulaca grandiflora** Hook., *Bot. Mag.* 56: t. 2885 (1829). Lectotype (designated by Eliasson, 1996): Hooker, *Bot. Mag.* 56: t. 2885 (1829). Illustr.: Legrand, *Anales Mus. Nac. Montevideo*, ser. 2, 7(3): t. XVIIIa, XVIIIb (1962).

*Portulaca caryophylloides* hort. ex Vilm., *P. gilliesii* Engelm., *P. hilaireana* G. Don, *P. immersostellulata* Poelln., *P. megalantha* Steud., *P. mendocinensis* Gill. ex

Rohrb., *P. multistaminata* Poelln., *P. pilosa* subsp. *grandiflora* (Hook.) R. Geesink, *P. pilosa* var. *grandiflora* Kuntze.

Annual herbs. Stems to 40 cm, prostrate to decumbent, diffusely branched, slightly succulent, glabrous. Leaves 2-25(-30) x 1-5 mm, alternate, flattened to almost terete, linear to lanceolate, with tufts of white hairs, 2-3 mm, in the leaf axils. Flowers (1-)5-10(-12) together in terminal capitulae, subtended by 6-10 foliaceous, involucre bracts and long hairs, 6-10 mm; sepals (1-)4-8 x 2.5-6 mm, triangular-ovate to ovate; petals 15-25 x 10-17 mm, broadly obovate, rose pink, magenta or red; stamens 40-75; style 2-20-lobed. Capsules 3-5 mm in diameter, ovate to obovate; seeds 0.8 mm in diameter, black, the testa minutely tuberculate. *Gravelly margins of lakes and rivers, waste ground, savannas, and other sandy places.* B (Arnason & Lambert 17508, MO); P (La Clezio 115, MO). 0-2000 m. (Native to Argentina (type from the Mendoza province), but widespread as an ornamental throughout South and Central America.)

The species is very likely cultivated in other Mesoamerican countries. Cultivated forms exhibit a wide range of habits, sizes and shapes of leaves, colours of petals, and seed characters. See Ford (1986), Geesink (1969), and Legrand (1962) for extensive lists of synonyms and infraspecific division.

**3. *Portulaca halimoides* L., *Sp. Pl. ed. 2*, 639 (1762).** Lectotype (designated by Eliasson, 1996): Sloane, H., *Voyage Isl.*: t. 129, f. 3 (1707). Illustr.: Eliasson, *Fl. Ecuador* 55: 41 t. 6F-H, 43 t. 7F (1996).

*Portulaca haughtii* J.F. Macbr.

Annual herbs, with weak fibrous roots. Stems 5-40 cm, erect, with weak fibrous roots, branched, glabrous. Leaves 5-15 x 1.5-2.5 mm, alternate, flattened to almost terete, linear-lanceolate or linear-oblong, with tufts of long white to pale brown hairs, 5-10(-15) mm, in the leaf axils. Flowers 3-6 together in terminal capitulae, subtended by 6-8 foliaceous, involucre bracts and long hairs, 6-10 mm; sepals (2.0-)2.5-3.5 x 1.5-2.5 mm, triangular-ovate to oblong-ovate; petals 2.5-3.0 x 1.2-1.5 mm, oblong-lanceolate to ovate-elliptic, yellow or whitish with yellow base; stamens 4-12(-15); style 4-lobed. Capsules 1.5-2.5(-3.5) mm in diameter, subglobose to ellipsoid; seeds 0.4 mm in diameter, black, the testa with low, broad-based papillae, these irregular to stellate at the base. *Savannas,*

*dunes, and other sandy places.* Y (Cabrera & de Cabrera 9344, MO). No records found with altitudinal range within Mesoamerica, but the species occurs at 0-50 m in South America. (S United States, Mexico, Mesoamerica, Colombia, Venezuela, Ecuador, Peru, Brazil, West Indies).

**4. *Portulaca oleracea* L., *Sp. Pl.* 445 (1753).** Lectotype (designated by Geesink, 1969): *Loefling s.n.* (LINN-625.1 !). Illustr.: Ford, *Fl. Veracruz* 51: 23, t. 4 (1986). Nv.: Verdolaga, G; Paxlac, G; Graviol, G.

*Portulaca consanguinea* Schltldl., *P. intermedia* Link ex Schltldl., *P. marginata* Kunth, *P. neglecta* Mack. & Bush, *P. pusilla* Kunth.

Annual, prostrate herbs with ascending branches, occasionally with a well-developed tap-root and potentially perennial. Stems to 5-45 cm long, succulent, branching from the base, glabrous. Leaves 6-30(-50) x 2-12(-20) mm, alternate or the upper leaves frequently opposite or almost so, flat, obovate to spatulate, sessile, with inconspicuous axillary hairs. Flowers solitary or up to 10 in more or less dense capitulae, subtended by a whorl of 4 (occasionally 1-3) foliaceous bracts and short hairs; sepals 3-5 x 3-4 mm, ovate to orbicular-ovate, united at the base; petals 3-5(-7) x 1.5-3 mm, obovate, yellow; stamens 6-10(-15); style 4-6-lobed. Capsules 3-9 mm in diameter, ovoid, not rimmed with membranaceous wing; seeds 0.5-1.0 mm in diameter, black, the testa tuberculate. *Tracks, fields, disturbed ground, sandy shores, including splash zone.* T (Rovirosa 511, K); Ch (Ventura & López 1936, BM); Y (Gaumer 517, BM); C (Alvarez M. 305, MO); QR (Cabrera y Cabrera 9201A, MO); B (Stoddart 110, BM); G (Palmer 343, BM); H (Chorley 423, BM); ES (González & Villacorta 53, K); N (Seymour s.n., F); CR (Garwood et al. 552, BM); P (Whitefoord & Eddy 392, BM). 0-2500 m. (Almost cosmopolitan.)

*Portulaca oleracea* is a highly variable species. It has long been used as a vegetable and a fodder plant, and is a very aggressive weed with a centre of diversity in Mexico. Danin & Baker (1978) recognize nine subspecies of *P. oleracea* several of which are recorded from Mesoamerica: subsp. *nicaraguense* Danin & H.G. Baker, subsp. *granulato-stellulata* (Poell.) Danin & H.G. Baker, subsp. *papillato-stellulata* Danin H.G. Baker. The main diagnostic characters used to distinguish the subspecies are seed size,

seed coat cell morphology and chromosome number. Legrand (1962) similarly recognized several varieties. Matthews & Levins (1985) and Matthews et al. (1993) did, however, not recognize any of these infraspecific divisions.

**5. *Portulaca pilosa* L., *Sp. Pl.* 445 (1753).** Lectotype (designated by Geesink, 1969): (LINN-625.2). Illustr.: Eliasson, *Fl. Ecuador* 55: 41, t. 6E, 43, t. 7E (1996). N.v.: tsotsilts'ayoch, Y; mañanita, T; Colchón de niño, G; Anisillo, G.

*Portulaca ehrenbergii* Poelln., *P. gagatosperma* Millsp., *P. karwinskii* Fisch. & Mey., *P. mexicana* P. Wilson, *P. mundula* I.M. Johnst., *P. papulosa* Schldtl. ex Poelln., *P. parvula* A. Gray, *P. pilosa* L. var. *mexicana* D. Legrand, *P. teretifolia* Kunth.

Annual prostrate herbs, occasionally with well-developed lignified root-system and potentially perennial. Stems to 30 cm, branched, ascending to erect. Leaves 2-15 x 1.5-2.5 mm, alternate, flat, linear to narrowly lanceolate or linear-oblongate. Flowers single or 5-10(-12) in terminal capitulae surrounded by copious brownish pubescence and subtended by an involucre of 6-10 leaves; sepals (1-)2-5(-8) x 2.0-2.5 mm, slightly hooded or keeled, triangular-ovate to ovate; petals 3-6 x 2.5-4.5 mm, obovate or oblong-obovate, rose pink, magenta, red; stamens 10-35; style 4-5(-6)-lobed. Capsules 3-4 mm in diameter, subglobose, with an apical projection; seeds 0.4-0.6 mm in diameter, dull black, the testa usually shortly tuberculate and obscurely stellate, but sometimes clearly stellate lacking tubercles. *Gravelly margins of lakes and rivers, dunes, other sandy places.* 0-2500 m. T (*Barlow* 32/21, BM); Ch (*Burnham* 122, BM); Y (*Ortega* 253, K); C (*Ramírez B. & Méndez D.* 36, MEXU); QR (*Lewis* 6880, MO); B (*Whitefoord* 2340, BM); G (*Martínez S. et al.* 23204, MO); H (*MacDougal et al.* 3451, BM); ES (*Standley & Padilla* 2513, F); N (*Nelson* 7805, BM); CR (*Khan et al.* 270, BM); P (*Croat* 22125, MO). (Southern United States, Mexico, Mesoamerica, Colombia, Venezuela, Guayanas, Ecuador, Peru, Bolivia, Brazil, Paraguay, Argentina, Chile, West Indies, and widely introduced into the Old World.)

**6. *Portulaca rubricaulis* Kunth in Humb., Bonpl. et Kunth, *Nov. Gen. Sp.* 6: 73 (1823).** Holotype: Venezuela, *Humboldt y Bonpland s.n.* (P). Illustr.: Eliasson, *Fl. Ecuador* 55: 41, t. 6J, 43, t. 7B (1996).

*Portulaca phaeosperma* Urb.

Perennial herbs, occasionally with a well-developed tuberous root. Stems 10-20 cm, thick and succulent, most branches ascending from near the base. Leaves 10-20(-30) x 2-4(-6) mm, alternate, flat, broadly linear to narrowly lanceolate, succulent, glabrous, with tufts of long hairs 2-5(-10) mm in the leaf-axils. Flowers 3-5 in capitulae subtended by an involucre of 3-6 leaves with axillary tufts of hair; sepals 5-8 mm long, unequal, slightly hooded or keeled, triangular-ovate to ovate; petals 5-7 mm long, obovate-orbicular, yellow; stamens 12-30; style 5-7-lobed. Capsules 3-5 mm in diameter, subglobose or subconical; seeds 0.6-0.7 mm in diameter, reddish brown almost black, the testa tuberculate with small basally connected tubercles. *Dunes and other sandy places*. Y (Gaumer 603, F); QR (Cabrera y Cabrera 9758, MO). 0-100 m. (Florida, Mexico, Venezuela, the Guayanas, Colombia, Ecuador, West Indies.)

**7. *Portulaca umbraticola*** Kunth in Humb., Bonpl. et Kunth, *Nov. Gen. Sp.* 6: 72 (1823). Holotype: Venezuela, *Humboldt y Bonpland s.n.* (P). Illustr.: Eliasson, *Fl. Ecuador* 55: 41, t. 6A, 43, t. 7C (1996).

*Portulaca coronata* Small, *P. denudata* Poelln., *P. lanceolata* Engelm., *P. planooperculata* Kuntze

Annual, prostrate herbs with ascending to erect branches. Stems 10-40 cm, branched. Leaves 12-27 x 3-13 mm, alternate, flat, at the base of the stem spatulate or obovate, at the apex oblanceolate, the leaf-axils without tufts of hair or with inconspicuous hairs to 1.5 mm. Flowers 3-5 in terminal capitulate, subtended by an involucre of 3-5 leaves; sepals 3-5(-8) x 1.5-2.0 mm, unequal, keeled, triangular-ovate; petals 3-10 mm long, obovate, yellow to orange; stamens 7-25; style 3-8-lobed. Capsules 3-4 mm in diameter, obconical, rimmed with a 1 mm high membranaceous wing; seeds 0.8-1.0 mm in diameter, dull grey, with broadly conical tubercles stellate at base. *In open areas, deciduous forest, on sandy soil*. QR (Cabrera et al. 9825, MO); H (Molina R. 2541, F); ES (Berendsohn y Berendsohn WB0215, MO); N (Moreno 9445, MO); CR (Liesner y Lockwood 2687, MO). 50-1300 m. (United States, Mexico, Mesoamerica, Colombia, Venezuela, Guyana, Ecuador, Peru, Brazil, Paraguay, Argentina, West Indies.)

**5. *Talinum*** Adans. *nom. cons.*

*Chromanthus* Phil., *Helianthemoides* Medik., *Litanum* Nieuwl.

Por M.C. Tebbs y B.B. Klitgaard.

Herbs or shrubs, often with succulent, tuberous roots. Stems to 100 cm, often weakly branched, short, glabrous. Leaves alternate, sometimes opposite near the base, succulent, flat, glabrous. Inflorescences of solitary flowers in the leaf axils or in terminal cymes. Flowers with the sepals caducous, equal in size; petals usually 5, free, caduceus; stamens 5-many; ovary superior, style usually 3-lobed. Capsules 3-valved, splitting downwards from the apex, the valves caduceus; seeds numerous, ovoid-reniform, compressed or nearly globular, the testa smooth to ornamented with papillae and/or ridges. Approx. 15 spp. North America, Mesoamerica, South America, and Africa, only 2 spp. in the New World.

Carolin (1993) recognized two sections: *Talinum* and *Phemeranthus*. Molecular and morphological evidence supported reinstating the genus *Phemeranthus* (Kiger, 2001; Herschkovitz & Zimmer, 2000; Applequist & Wallace, 2001), leaving 15 species in *Talinum* s.s.

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1. Flowers in a 2-5-branched panicle, to 20 cm; petals 7-11 mm; stamens 20-40; capsules 5-7 mm in diameter, yellow; seed testa with papillae visible in profile along the seed margin.

**1. *T. fruticosum***

1. Flowers in a cymose inflorescences in turn forming a terminal loose panicle, 20-40 cm; petals 4-5 mm; stamens 10-20; capsules 3-4 mm

in diameter, green; seed testa without papillae visible in profile along the seed margin.

**2. *T. paniculatum***

**1. *Talinum fruticosum* (L.) Juss., *Gen. Pl.*: 312 (1789). *Portulaca fruticosa* L., *Syst. Nat.*, ed. 10,2: 1045 (1759). Neotype: (designated as lectotype by Wijnands & Westphal-Stevels, *Taxon* 1985): Plumier (In: J. Burman ed.), *Pl. Amer.* 6: 142, t. 150, f. 2 (1757). Illustr.: Plumier (In: J. Burman ed.), *Pl. Amer.* 6: 142, t. 150, f. 2 (1757). N.v.: *Espinaca*, H.**

*Portulaca racemosa* L., *P. panicula* L., *P. triangularis* Jacq., *Talinum racemosum* (L.) Rohrb., *T. triangulare* (Jacq.) Willd.

Perennial herbs to semi-shrubs. Stems to 30-100 cm, erect, with slender, branched tap-root. Leaves 4-6(-10) x 1.5-3.5 cm, elliptic to obovate: midnerve prominent. Flowers in a 2-5-branched panicle to 20 cm, with up to 28 flowers; bracts 2-4 mm, narrowly triangular; sepals 4-6 mm, broadly ovate to orbicular; petals 7-11 mm, obovate, yellow or pink fading to whitish; stamens 20-40. Capsules 5-7 mm in diameter, subglobose to ellipsoid, yellowish; seeds 1.0-1.2 mm in diameter, dark reddish brown to black, the testa with distinct papillae arranged in concentric rows, the papillae visible in profile along the margin of the seed. *Waste places, fields, tracks, forest edges, associated with cacti.* T (*Spellman et al.* 143, MO); Ch (*Breedlove* 30571, MEXU); Y (*Calzada et al.* 6503, MEXU); C (*Chan* 4232, MO); CR (*Gaumer* 1550, F); G (*Harmon & Dwyer* 3528, MO); H (*Davidse et al.* 35508, MO); ES (*Rosales* 925, BM); N (*Hall & Bockus* 7878, BM); CR (*Khan et al.* 841, BM); P (*Sutton Hayes s.n.*, BM). 0-700 m. (Florida, Mexico, Mesoamerica, Colombia, Venezuela, Guyana, Surinam, Ecuador, Peru, Brazil, West Indies, tropical Africa).

The Spermatophyte Committee claim that lectotypifying *Portulaca fruticosum* L. (Linneus, 1759) (= *T. fruticosum* (L.)Juss.) on Plumier's plate in Burman (1757) is based too much on assumption to be valid. It is therefore corrected here to a neotypification, which would be a valid statement.

**2. *Talinum paniculatum* (Jacq.) Gaertn., *Fruct. Sem. Pl.* 2: 219 (1791).**  
*Portulaca paniculata* Jacq., *Enum. Syst. Pl.* 22 (1760). Lectotype: p. 71, Tab. 151 in Jacq., *Hort. Bot. Vind.* (1760) (designated here). Illustr.: Ford, *Fl. Veracruz* 51: 33, t. 5 (1986). N.v.: lechugilla, ES; saioch, Y; Dzum-yail, Y.

*Portulaca patens* L., *Talinum patens* (L.) Willd.

Perennial herbs or semi-shrubs. Stems up to 70 cm, erect, with articulate or frequently branched taproot. Leaves 4-8(-12) x 1.5-3.5(-6) cm, those on lower part of plant elliptic to obovate, the upper leaves narrower, lanceolate to oblanceolate, midnerve prominent. Flowers in cymose partial inflorescences in turn forming a terminal loose panicle 20-40 cm, with up to 30 flowers; bracts 1.5-3 mm, narrowly triangular; sepals 2.5-3.0 mm long, broadly elliptic to orbicular; petals 4-5 mm, obovate to elliptic, pink or reddish; stamens 10-20. Capsules 3-4 mm in diameter, subglobose, geyish green to greenish brown; seeds 0.9-1.2 mm in diameter, dark reddish brown to black, the testa shallowly sculptured with low radially elongate papillae arranged in concentric rows, the outer margin of seed mostly even when seen in profile. *Deciduous forest, secondary vegetation*. Ch (Ventura & López 194, BM); Y (Gaumer 2028, MO); B (Monro et al. 2929, BM); G (Donnell Smith 2520, K); H (Molina R. 23229, BM); ES (Harmon & Fuentes 5939, MO); N (Nelson 7600, BM); CR (Grayum & Sleeper 3880, BM); P (Woodson et al. 1491, MO). 0-2500 m. (United States, Mexico, Mesoamerica, Colombia, Venezuela, Guyana, French Guiana, Ecuador, Peru, Bolivia, Argentina, Brazil, Paraguay, West Indies, tropical Africa.)