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A new cultivar microspecies of the *Portulaca oleracea* aggregate from the E Mediterranean

Abstract

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A purslane cultivar from Cyprus, previously referred to as *Portulaca sativa,* is recognised as a separate microspecies and described as a species new to science, which is so far also known from Turkey, Lebanon and Sudan. It differs from *P. sativa* by its seed surface ornamentation and from the wild *P. rausii* by its larger seed size.

Additional key words: purslane, *Portulaca sativa, Portulaca rausii,* seed surface, micromorphology, taxonomy, Cyprus

When studying material of the *Portulaca oleracea* aggregate from Cyprus, differences between cultivated purslane plants from Cyprus and Switzerland were noted. Danin & al. (2008) determined the material from both provenance as *P. sativa* Haw., but indicated their differences in seed ornamentation. Both, in fact, have big seeds but different seed surface characters. Further investigations revealed that the cultivar from Cyprus also occurs in Turkey, Lebanon and N Sudan and apparently represents a previously unknown microspecies, which is described here as species new to science.

To ensure the application of the name *Portulaca sativa,* following the segregation of this new taxon, its lectotype and epitype have been designated by Uotila & al. (2012). The provenance of the designated epitype is Switzerland.

Portulaca edulis Danin & Bagella, **sp. nov.**
Holotype: Israel, Jerusalem, experimental garden of A. Danin, plants raised from seeds obtained from Cyprus, Deftera, cultivation, 22.9.2004, *Danin & Hadjikyriakou Cy2004-22a* [voucher at HUJ], 25.8.2011, *Danin* (HUJ; isotypes B, E, G, H, K, ME, PAL, SS) – Fig. 1A–D.

A *Portulaca sativa* Haw. papillis 10–15 (non 1–2) in cellulis epidermalibus seminum differt. A *P. rausii* Danin et *P. zaffranii* Danin seminis diametro majore 1.1–1.2 (non 0.7–1) mm differt.

Stems erect as in *Portulaca sativa,* 20–60 cm high, fleshy, reddish brown. *Leaves* mostly cuneiform with truncate tip, to 4–6 cm long and 3–4 cm wide in the dis-

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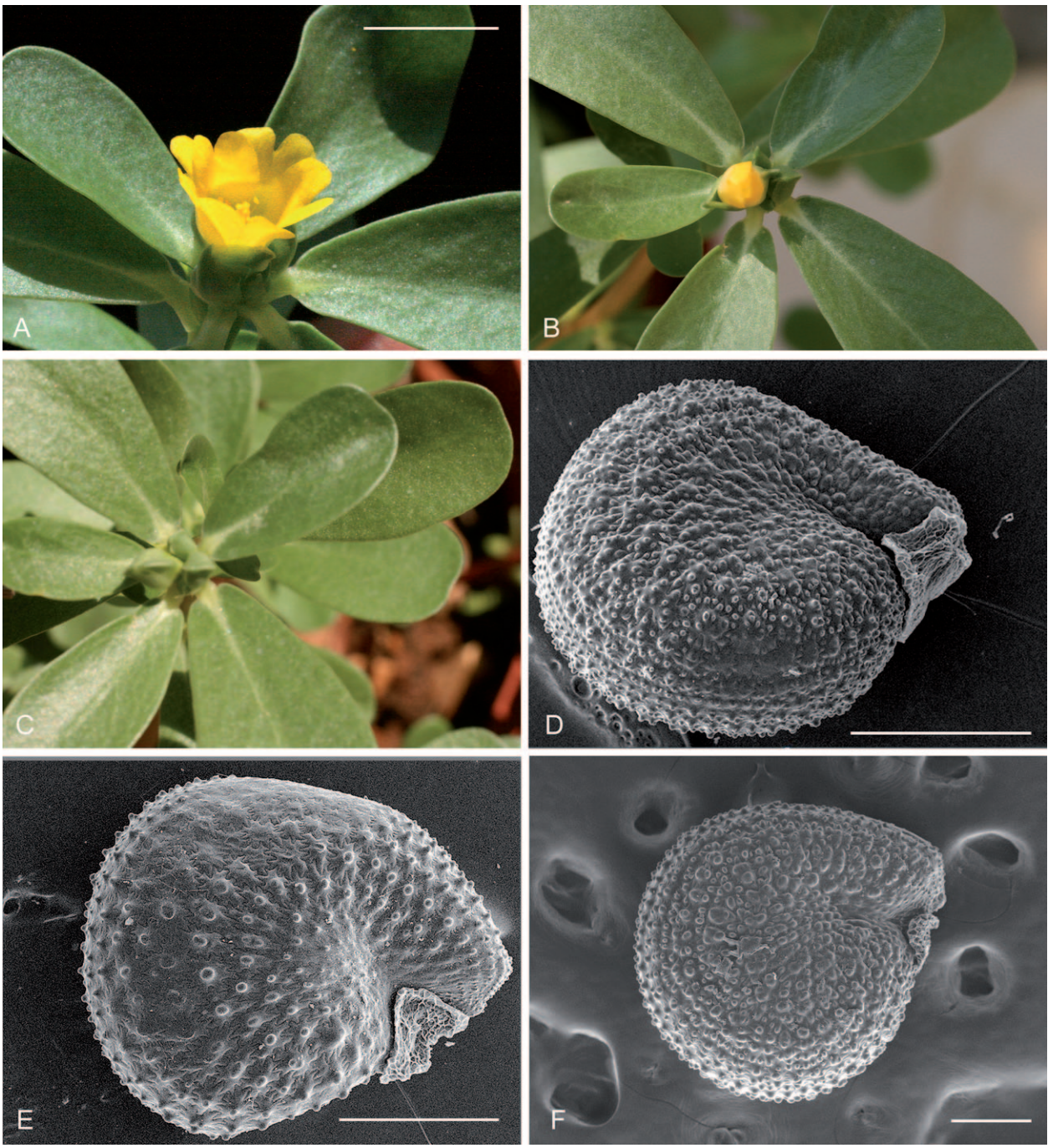

Fig. 1. A–D: *Portulaca edulis* – open flower, scale bar = 1 cm (A); cleistogamous flower at 10.20 a.m. (B) and 1:30 p.m. (C); SEM micrograph of seed (D); A–C from plants of the cultivated type population, D from *Danin & Hadjikyriakou Cy2004-22a*, HUJ, the source of the type collection, scale bar = 500 µm. – E: *P. sativa,* SEM micrograph of seed from Switzerland, Carouge, 8.1899, *Chenevard,* G, epitype of *P. sativa,* see Uotila & al. (2012), scale bar = 500 µm. – F: *P. rausii,* SEM micrograph of seed from Greece, Rhodos, Arhipoli, 2005, *A. Danin,* HUJ, scale bar = 200 µm.

tal portion, fleshy, green; rarely in addition with a few oblong-ovate leaves. *Flowers,* when open, 15–20 mm in diameter, corolla yellow, petals emarginate (Fig. 1A); most flowers cleistogamous. *Capsules* 10–12 × 7–8 mm. *Seeds* (0.9–)1.1–1.3 mm long, obovoid, of the same size and shape as *P. sativa*.

Delimitation. — In seed surface ornamentation *Portulaca edulis* clearly differs from *P. sativa* in the sense of its type (see Uotila & al. 2012). It has 10–15 papillae on each epidermal cell (Fig. 1D), whereas *P. sativa* has 1 or 2 bigger tubercles on each cell (Fig. 1E), resulting in a quite regular pattern on the seed surface, like in *P. cypria*. The more irregular and less pronounced surface pattern of *P. edulis* resembles *P. zaffranii* and, in particular, *P. rausii* (Fig. 1F), but seeds of *P. rausii* are somewhat smaller, 0.9–1 mm, and of *P. zaffranii* distinctly smaller (0.7 mm).

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Flowering behaviour. — In growing experiments of *Portulaca edulis* from seeds of the source from Cyprus it was observed that most of the flowers are cleistogamous. However, the very first flower of the blooming plant was not cleistogamous but fully opened (Fig. 1A). In cleistogamous flowers only a small part of the unopened corolla was visible for 2–4 hours in the morning (Fig. 1B), before it was covered by the calyx at about noon (Fig. 1C). Further investigations are needed to understand the role of cleistogamy in the entire *P. oleracea* aggregate.

Distribution and habitat. — So far, *Portulaca edulis* is known from Cyprus, Turkey, Lebanon and N Sudan. Possibly the species is not so clearly confined to cultivation as *P. sativa;* of the few specimens known, two are from probably uncultivated sources. Possibly *P. edulis* has a more southern and eastern distribution than *P. sativa,* but the latter species has been reported from Turkey and Israel as well.

Specimens seen. — Portulaca edulis: Cyprus: Deftera, cultivated, 22.9.2004, *Danin & Hadjikyriakou Cy2004-22a* (HUJ). — Lebanon: Tripoli, a local market, Jul. 2005, *Al-Shehbaz* (MO). — Sudan: Northern Province, Wadi Halfa district, Debeira, S of the station, cultivated, Oct. 1962, *Pettersson 62-99* (H 1078892). — Turkey: Mugla, Doric Peninsula, sand and gravel by the sea, 1966, *Schultz* (E); Adana, near see level, railway embankment, Aug. 1964, *Williams* (E).

Portulaca sativa: Germany: Auf sterilem Sandboden aus Samen erzielt [= on sterile sandy soil from seeds], 10.8.1858, Julius Schlickum, Apotheker in Winningen [an der Mosel] (WU). — Italy: Rome, culta, Jul. 1828, *Sanguinetti* (RO). — Switzerland: Près de Carouge (cult). Genève, Sep. 1881, *E. Huet du Pavillon* (G); Carouge, Aug. 1899, *Chenevard* (G, epitype of *P. sativa* Haw.).

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