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A New Species of Hawaiian Portulaca

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Portulaca cyanosperma, new species (figs. 1 and 2).

Perennis vel annua, prostrata vel suberecta, carnosa, herbacea, ramosa. Caules teretes, 2 usque 3 ϕ , saepe rubri, cum pilis axillaribus vel fere glabri. Folia alterna, subulata, teretes vel plana, 3-22 mm. longa. Flores apicibus ramorum conferti, sessiles vel fere sessiles, pilis multis cincti, folias subinvolucralibus cincti. Sepala 2, 2-3 mm. lata, 3 mm. longa, haud carinata. Petala rosea, 4-5, obovata vel obcordata, 5-6 mm. longa, 3-4 mm. lata, apice emarginata apiculataque. Stamina 6-17. Filamenta rubra, 2.5-3.0 mm. longa. Stylus ruber; stigmata 2-5, rubra, 1.5 mm. longa. Capsula medio vel infra medium circumscissa, macrachartacea, 3-5 mm. longa. Semina leviter nitida, caerulea metallica, 0.5 mm. longa, a latere compressa, suborbiculata, non lineis rugosis sed subtuberculatis.

A segregate from *Portulaca villosa* Chamisso, to which it is similar. Prostrate or semi-erect, fleshy, herbaceous, branching annual or perennial. Stems terete, 1.5-3.0 mm. in diameter; purplish red, or greenish on new shoots or where sheltered from light by overlying shoots. From almost glabrous to pilose, with long white axillary matted hairs about 5 mm. long. Pilosity variable on the same individual and probably variable at different seasons, under different conditions, and in different populations. Leaves alternate; awl-shaped; variable, narrowly lanceolate, elliptical, or oblanceolate; closing against the stem at night. Petiole 1-2 mm. long, pale green in color. Blades 3-22 mm. long, generally 10 mm.; 1-3 mm. wide, generally 2 mm.; and 0.5-1.0 mm. thick. Blades flattened or rounded in cross section; greenish or dark reddish in color; surface finely reticulate with darker lines. Inflorescence terminal; surrounded by a ring of terminal involucroid leaves, slightly larger than the cauline leaves. Copious white hairs, 1 cm. long, surrounding the flowers. Flowers ephemeral, opening in the morning, closing before noon; sessile or minutely stalked, about 7 mm. in diameter. Sepals keelless; 2-3 mm. wide, 3 mm. long; with thin scarious margins 0.5 mm. wide. Petals 4-5, usually 5; deep rose color; obovate or slightly obcordate; 5-6 mm. long, 3-4 mm. wide; minutely apiculate with a deltoidal point 0.2 mm. long. Stamens 6-17, varying in number on the same plant, with the extremes in number equally abundant. Filaments dark red; 2.5-3.0 mm. long, united at the base in a very short, pale green ring which is contracted over the ovary and surrounds the base of the style. Anthers yellow;

0.5 mm. long. *Stigmas* 2-5, usually 4; dark red; 1.5 mm. long; minutely papillose. *Style* dark red, 2.5-3.0 mm. long. *Ovary* one half to two thirds inferior; 1.5-2.5 mm. long; with 3-5 free central placentae; petals, sepals, and stamen ring arising at the place of dehiscence of the mature fruit. *Fruit* a broad-ellipsoid capsule; transversely circumscissile at or below the middle at the place of greatest diameter; readily dehiscing, leaving the cup characteristically attached. *Operculum* greenish-yellow; thin-chartaceous; flexible; 2-3 mm. long, 2-3 mm. wide; bluntly rounded in silhouette; tipped with minute base of the style and usually incased in the dry persistent floral parts. *Cup* thicker in texture than the operculum; light brownish; from saucer-shaped to short-obconical to short-stemmed goblet-shaped. Cup 2-3 mm. in height; with minute flaring rim. *Seeds* numerous; asymmetrically orbicular, compressed laterally; shining; 0.5 mm. in length; slightly variable in size; when seen in mass distinctly blue in color, under magnification with metallic lustre; margin appearing minutely tuberculate; surface with 4-5 concentric rows of slightly raised, stellate tubercles, more pronounced near the margin.

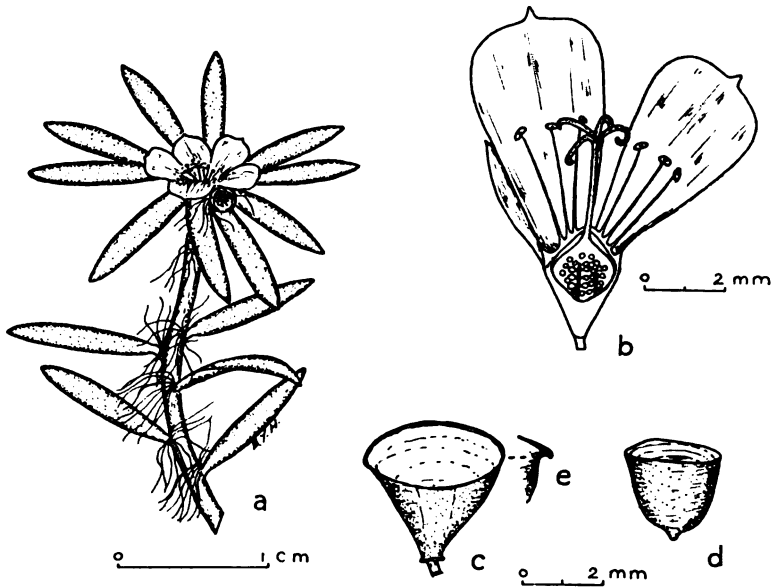


FIGURE 1.—*Portulaca cyanosperma*^{specimens}: a, flowering shoot; b, longitudinal section of the flower; c, base of capsule; d, operculum; e, section of rim of capsule base, enlarged.

Lehua: April 18, 1931, *Caum 1*; April 19, 1931, *Caum 12* (type, Bishop Museum).

Kauai: Barking Sands, Feb. 11, 1922, *Skottsberg 1062*; Kekaha, sandy flat, alt. 30 ft., Dec. 24, 1933, *St. John, Fosberg, and Oliveira*

13614; Barking Sands, on sand dunes and sand flat, alt. 15 ft., Dec. 31, 1935, *Fosberg 12735*; a collection by *Otto Degener*, considered by him a novelty, not seen by author, probably *P. cyanosperma*.

Oahu: Manoa Valley, June 30, 1937, *Egler 37-59*, cultivated plant of *Caum 12* (cotype).

Portulaca cyanosperma is presumably endemic to Kauai and the nearby islet of Lehua; *P. villosa* Chamisso is not known to occur on these islands.

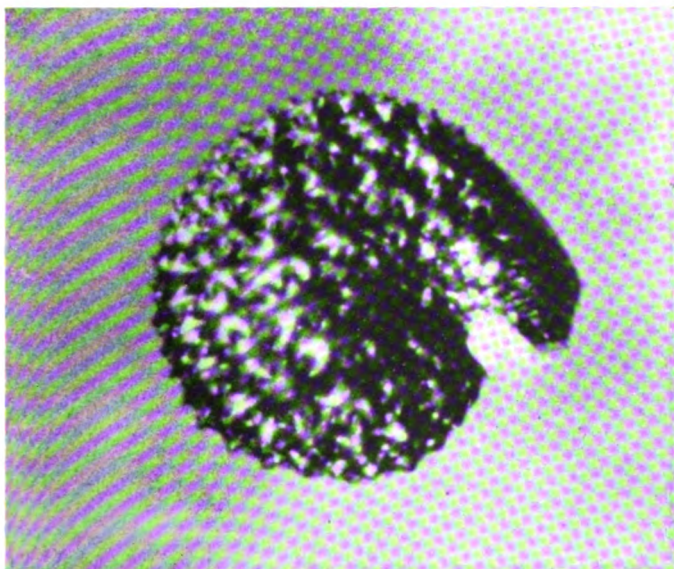


FIGURE 2.—Seed of *Portulaca cyanosperma*

Portulaca cyanosperma is closely related to *P. villosa* (as exemplified by *Egler 37-65*, Koko Head, Oahu, May 19, 1937). It differs in being regularly smaller in all proportions and in having red pigment consistently prominent in stems, leaves, and floral parts. The ovary is more inferior and due to the contraction of the filament ring, is invisible in the open flower, whereas the white or pink ovary of *P. villosa* is apparent. The filament ring of *P. cyanosperma* is pale green in color and loosely contracted over the ovary, not adaxially yellow and tightly appressed. Stamens are fewer in number, 6-17, not 26-44. Stigmas 2-5, not 5-7. Filaments, style, and stigmas are red,

not white; petals dark rose, not pale pink and white. The operculum is consistently smaller, thinner in texture, more flexible, rounded in silhouette, not angled and flat-topped. Seeds metallic blue, not black; slightly shiny and reflecting light, not dull; with tuberculate margin, not with entire margin; with slightly raised tubercles on the surface, not deeply rugose and not showing flat stellate bodies.

The species is described on the basis of the collections of *Portulaca* in Bishop Museum and of living material of the new species, grown in Honolulu by E. L. Caum of the Hawaiian Sugar Planters' Association Experiment Station, appreciation for the use of which is here extended. The photograph was taken by Mr. W. Twigg-Smith, through the courtesy of the Experiment Station.