

Dimelaena Norman
(PHYSCIACEAE)

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Thallus crustose with radiate-plicate marginal lobes, areolate toward the center.
Hypothallus lacking. Algae Trebouxia.

Apothecia adnate, single in older areolae; thalloid exciple with paraplectenchymatous cortex, not evident in species with innate apothecia; proper exciple hyaline; hypothecium hyaline or brown; asci clavate; spores 8, dark brown, 1-septate, thin-walled.

On rock.

1. Thallus whitish to light gray or brown, without usnic acid. 2
1. Thallus yellow or greenish yellow, KC+ yellow, with usnic acid in the cortex. 5
 2. Thallus usually light gray, weakly to strongly pruinose, K-, P- (divaricatic and 3-chlorodivaricatic acids). California, Baja California (Sur & Norte), Sinaloa, Sonora. Rather heterogeneous as presently treated, and including several chemical strains. D. radiata
 2. Thallus brown. 3
3. Thallus K-, P-, with sphaerophorin. Hypothecium hyaline. Arid mountains. Arizona, Baja California Norte, California. D. thysanota
3. Thallus K+ yellow or orange, P+ or P-. Coastal. 4
 4. Hypothecium brown. Thallus rather thin and dark, K+ and P+ (yellow to orange), with stictic and possibly norstictic acids. Areoles and apothecia rather small. Cortex N+ blue-green. California, Baja California Norte. D. californica
 4. Hypothecium hyaline. Thallus thicker, paler, K+ yellow, P-, with atranorin. Areoles and apothecia larger. Cortex N- or N+ red. Baja California Norte. D. weberi
5. Thallus greenish yellow; outer layer of cortex C+ red (gyrophoric, \pm lecanoric acids), surface pruinose, plane, irregularly cracked; lobes well developed (ca. 2-3 x 1 mm); edges pale. Arizona, Sonora. D. suboreina
5. Thallus paler, more whiter yellow, without distinct greenish tinge. 6
 6. Thallus composed of numerous convex areoles, usually with minute lobes (ca. 1 x 0.5 mm) around the periphery, mostly epruinose; edges of areoles often blackened. Several chemical variations not yet clarified. Arizona, Chihuahua, Sonora. D. oreina
 6. Thallus composed of coarse, flat areoles, without distinct lobes, or lobes \pm isodiametric; edges pale. Often sterile. Outer layer of cortex C-. 7
7. Thallus mostly epruinose, thin. Inner layer of cortex C+ red. Desert areas. D. cf. novomexicana (Note: eventually this may prove to be a Buellia species)
7. Thallus rather densely pruinose, thickish, entirely C-. Mountains of California. [D. "tehachapiensis" Ryan ined.]

Descriptions of Species

D. californica

Thallus thick (or rather thin?), areolate; areoles to 0.6-0.8 mm wide, plane to slightly convex; dark brown, epruinose, centers of areoles often silvery gray, especially around periphery of pycnidia; margin with poorly developed radiate-plicate lobes 0.5-0.6 mm wide.

Apothecia frequent, usually 1/areole, adnate, to 0.3-0.6 mm diam.; disk black, persistently plane; margin concolorous with thallus, scarcely raised, 0.05-0.10 mm wide; hypothecium brown; spores (11.2-)11.8(-12.3) x (6.3-)6.6(-6.9) μ m.

Thallus K⁺ and P⁺ (yellow to orange), with stictic and occasionally (including the type) norstictic acid; cortex C \pm green, KC \pm blue-green., N \pm green or blue-green.

Coastal California and Baja California.

D. oreina

(Description after Sheard, who lumped all variants, including D. suboreina, under D. oreina):

Thallus thick or thin, areolate at center; areoles plane or convex, 0.5-1.6 mm wide, radiate-plicate at margin; lobes 0.7-1.2 mm wide, usually darkened around the very tips.

Apothecia innate or more usually adnate, frequent but rarely contiguous, to 0.4-0.9 mm diam.; discs \pm persistently plane; margin, when present, concolorous with thallus, 0.05-0.1 mm wide, entire and persistent; spores (8.1-)9.7-10.3(-11.8) x 5.7-5.9(-6.7) μ m, becoming "waisted" (i.e., constricted at septum?)..

Cortex with usnic acid; otherwise chemistry variable (see key to strains; some of these strains may correlate with morphology and distribution and eventually be recognized as distinct taxa). Zeorin has also been reported.

On rocks in inland areas, in a wide variety of habitats, Arctic-alpine to temperate.

(Description based on Nash's more restricted concept)

Thallus areoles small, convex; lobes usually minute (ca. 1 x 0.5 mm), poorly developed, contiguous; upper surface whitish yellow, mostly epruinose; edges of areoles often blackened.

Apothecia discs (usually?) epruinose.

1. Thallus K⁻, P⁻, C⁻ (no medullary substances). Western, less common in the East. chemotype III

1. Thallus with at least one spot test positive. 2

2. Thallus P⁻, K⁻, C⁺ red (gyrophoric, \pm lecanoric, and unknowns). Eastern and Western. chemotype II (also see D. suboreina)

2. Thallus P⁺ yellow, orange, or red. 3

3. Thallus K⁻, P⁺ red (fumarprotocetraric, \pm protocetraric), C⁻ or occasionally C⁺ red (gyrophoric in addition to fumarprotocetraric). Eastern. chemotype I

3. Thallus K⁺ yellow, P⁺ orange (stictic, \pm unknowns, constictic, and norstictic).

Western. chemotype V (= D. oreina s. str.; also D. cf. novomexicana, pr. p.)

D. radiata

Thallus margin radiate-plicate; lobes to 0.55-0.8 mm wide, becoming rimose and finally areolate towards thallus center; areoles 0.5-1.4 mm wide, plane, or slightly convex in well-

developed specimens, gray and pruinose (appearing whitish or pale gray), or gray-brown and epruinose except often around periphery.

Apothecia adnate but frequently innate, to 0.35-0.75 mm diam.; disc black but often with a white pruina, plane or becoming \pm convex; margin concolorous with thallus, 0.05-0.10 mm wide, or absent when apothecia innate; hypothecium brown; spores (9.8-)10.0(-10.2) x (5.8-)6.0(-6.2) μ m.

Thallus K-, P- (divaricatic and 3-chlorodivaricatic acids). Cortex C \pm green, KC \pm blue-green, N \pm green or blue-green.

Coastal California and Baja California.

D. suboreina

Thallus plane, irregularly cracked; lobes well developed (ca. 2-3 x 1 mm); surface greenish yellow, pruinose; edges pale.

Apothecial discs pruinose.

Thallus K-, P-; outer layer of cortex C+ red (gyrophoric, \pm lecanoric).

Southwestern.

D. "tehachapiensis" Ryan ined.

Thallus thick, composed of coarse, flat areoles, without distinct lobes, or lobes \pm isodiametric; upper surface whitish yellow, rather densely pruinose; edges pale.

Often sterile.

Cortex entirely C-.

Forests and oak woodlands, mountains of California.

D. thysanota

Thallus center areolate; areoles to 0.4-0.8 mm wide, plane or convex; radiate-plicate at margins, thick, dark brown, epruinose; lobes to 0.5-0.6 mm wide.

Apothecia frequent but rarely contiguous, adnate or often sessile, to 0.5 (?) mm diam.; disc black, persistently plane; margin concolorous with thallus, ca. 0.1 mm wide, entire and persistent; hypothecium hyaline; spores (8.8-)10.2-10.8(-12.1) x (5.3-)6.1-6.5(-7.3) μ m.

Thallus K-, P-, with sphaerophorin; cortex C \pm green, KC \pm blue-green, N \pm green.

Arid mountains from central Arizona to Washington.

D. weberi

Thallus determinate, thick, only rarely with lobate margin when very young, composed of discrete, convex to globose verrucae, or with contiguous, plane or rugose areoles; margins sometimes upturned and subsquamulose, 0.6-1.6 mm wide, upper surface shiny, rather pale brown.

Apothecia at first innate, remaining broadly attached, frequent and often contiguous, 0.5-0.9 mm diam.; disc black, concave becoming plane; margin concolorous with thallus, 0.10-0.15 mm wide, entire and persistent; hypothecium hyaline; spores (10.3-)12.2-13.0(-14.9) x (6.2-)7.3-7.8(-8.9) μ m.

Thallus cortex K+ yellow (atranorin), P- or + yellowish, C-, KC-, N- or sometimes with blue-green, N+ red pigment. Coastal, Guadalupe Island, Baja California Norte, and Channel Islands of California.

D. sp. ("cf. novomexicana")

Thallus thin, with prominent lobes, which become divergent towards the tips; upper surface whitish yellow, mostly epruinose. .

Thallus K-, P-; inner layer of cortex C+ red..

Desert areas, southwestern.

The type of D. novomexicana is apparently lost; according to the diagnosis it differs from D. oreina in having immergent apothecia, large convex and pruinose areoles and non-pruinose discs; however, according to Sheard most specimens otherwise agreeing with the diagnosis have pruinose discs and appear to intergrade with D. suboreina.