

Punctelia Krog
(LECANORALES: PARMELIACEAE)

After Wilhelm & Ladd (1992) and Krog, 1982

Rev. 12/94

Thallus foliose, lobate, heteromerous; lobes rounded, 0.3-1.5 cm broad, rarely sublinear, canaliculate, and 0.2-0.3 cm broad; upper surface uniformly gray, gray-green or \pm olivaceous gray, or in one species distinctly brownish (but without olive tinge). Pseudocyphellae punctiform, suborbicular, laminal, scattered, not arranged in lines or forming a reticulate pattern. Cilia absent. Photobiont Trebouxia. Medulla white. Soredia or isidia present or absent. Lower surface pale tan or whitish, brown or black, rhizinate; rhizines simple, often not reaching lobe margins. Nonpored epicortex present. Upper cortex paraplectenchymatous. Cell walls containing isolichenan. Cortex with atranorin. Medulla C+ red or C-, K-, P-, with orcinol depsides (lecanoric or gyrophoric acids) or fatty acids.

Apothecia laminal or submarginal; disc entire, rarely perforate. Spores 8, ellipsoid, colorless, simple, 10-27 x (5-)8-18 μ m.

Pycnidia laminal or rarely marginal, immersed. Conidia unciform (4-7 x 1 μ m) to filiform (16 x 1 μ m) or (according to Galloway) bifusiform. On bark or rock. Temperate to tropical.

A segregate from Parmelia, distinguished from Parmelia s. str. by the \pm round and scattered punctiform pseudocyphellae, mostly unciform or filiform conidia, and different medullary chemistry.

1. Soralia or isidia absent; squamules or lobules sometimes present. Lobes often flat, rounded.2

1. Soralia or isidia present; lobules sometimes also present. 6

2. Underside black or darkening. 3

2. Underside tan or pale brown with concolorous rhizines. Apothecia and pycnidia common. 4

3. Medulla C- (fatty acids only). Eastern. Underside black. Medulla K-, P-, KC-, C- (protolichesterinic acid). Thallus adnate, 6-15 cm broad, rather brittle and fragile; upper surface whitish or pale greenish gray; upper surface wrinkled, becoming densely lobulate; lower surface sparsely rhizinate. Apothecia occasional. Common on oak trees in open woods in Appalachians. P. appalachensis

3. Medulla C+ rose (gyrophoric and sometimes an unknown). Texas. Thallus adnate, to 12 cm diam.; lobes broad, rounded, crenate, deeply divided, with ascending lateral margins; upper surface mineral gray or greenish gray, occasionally pruinose towards margins, rugose in central parts, sometimes becoming marginally lobulate. Rhizines slender, simple, black or pale brown. Apothecia common, often numerous; margin pseudocyphellate; spores 12-18 x 8-12 μ m. Conidia unciform, 5-6 μ m long. On bark. Texas; Mexico. P. subpraesignis

4. Medulla C- (protolichesterinic). Upper surface without isidia, but often becoming lobulate with age. Lower side moderately rhizinate. Thallus adnate, 6-12 cm broad; upper surface becoming quite wrinkled, greenish mineral gray; pseudocyphellae

inconspicuous. Pycnidia black. Common on tree trunks of exposed deciduous trees, especially in the prairie-forest border, or on sheltered acidic rocks. Temperate eastern N. America except coastal plain; SW to Arizona and Mexico.P. bolliana

4. Medulla C+ red (lecanoric). Pseudocyphellae small, not distinctly marginate.

..... 5

5. Conidia filiform, (8-)10-14 um long. Spores 16-18 x 12-15 um. Southwestern. Thallus adnate; lobes crenate with somewhat ascending margins; upper surface mineral gray to greenish gray, \pm rugose or reticulately ridged; pseudocyphellae punctiform or elongate. Apothecia to 1 cm diam.; margin pseudocyphellate; spores subglobose to broadly ellipsoid. Pycnidia numerous near lobe margins. Containing \pm traces of atranorin, lecanoric acid (major), \pm trace of evernic acid, accessory unidentified fatty acids, \pm pigment SV-1. On bark, or sometimes rock (especially sandstone). Southern Rocky Mountains of SE Arizona; Mexico.P. hypoleucites

5. Conidia rod-shaped, unciform, (4-)5(-8) um long. Spores (10-)13(-16) x (5-)8(-10) um.

Widespread. Thallus 5-7 cm broad; lobes to 5 mm wide; upper surface pale or whitish; lower surface light tan; rhizines concolorous; upper cortex prosoplectenchymatous, 25-35 um thick; medulla 130-200 um; lower cortex 13-16 um. Apothecia abundant, to 0.7-1 cm diam.; hymenium to 65 um, often extensively eaten away (by insects?); subhymenium to 50 um; spores 8, ovoid to ellipsoid. Pycnidia abundant, imbedded, 120-160 um diam.. Cortex K+ yellow; medulla K-, C+ red, P-. Containing \pm traces of atranorin, lecanoric acid (major), \pm trace of evernic acid, accessory unidentified fatty acids, \pm skyrin or pigment SV-1. On bark or rock. Central and southwestern U.S. (western Great Lakes area, south to Virginia, the Ozarks, and Alabama in the east, to Arizona, New Mexico, Texas, and Mexico in the west.P. semansiana

6. Lower surface prevailing dark to black; medulla C- (fatty acids only) or C+ rose (gyrophoric acid). 7

6. Lower surface pale to light tan; medulla C+ red (lecanoric acid). 9

7. Medulla C-, KC-, K-, P- (unknown fatty acids); pseudocyphellae large and easily distinguished as pore-like openings; soredia coarse and subsidiolate. Thallus adnate or more loosely attached; lobes to 1 cm broad, \pm crenate, deeply divided, with ascending margins; upper surface mineral gray or greenish gray, often wrinkled and ridged toward center; ridges occasionally extending to the margins; soralia partly marginal, linear to subcapitate, partly laminal, punctiform to \pm confluent; soredia subgranular; pseudocyphellae small, punctiform; underside black, towards the margins brown or white mottled; rhizines scattered, simple, pale brown, or black with white tips. Apothecia rare. On bark, rarely rock.P. reddenda

7. Medulla C+ rose; pseudocyphellae small, appearing as tiny white dots; soredia farinose. 8

8. Upper side lustrous, partly tinged with brown. On exposed rocks at high altitudes or along shorelines. Pseudocyphellae relatively large, conspicuous (even without lens), distinctly marginate. Medulla C+, KC+ rose, K-, P- (gyrophoric acid). Thallus closely adnate, 4-6 cm broad; upper surface light brown to brownish gray, shiny, wrinkled with age; soredia developing from pseudocyphellae toward center of thallus; lower surface black at center, dark brown at margins, moderately rhizinate. Apothecia lacking. On rocks, in exposed areas at higher elevation or along shorelines, or occasionally on coastal bluffs, apparently rare, with disjunct distribution, coast of Washington to California, Colorado, Great Lakes area; southern Appalachians.P. stictica

- 8. Upper side not notably lustrous, uniformly gray. Pseudocyphellae small, not distinctly marginate.** Mostly on bark. Eastern. Medulla C+ and KC+ rose, K-, P- (gyrophoric, sometimes also with unknown substance). Thallus adnate, to 10 cm diam.; lobes broad, rounded or irregularly somewhat dissected, often crowded; margins wavy, entire; upper surface mineral gray to gray green or darker, shiny, sometimes partly pruinose, \pm wrinkled towards center; pseudocyphellae becoming soralia back from lobe edges; soralia superficial, usually numerous towards center, partly laminal and punctiform to confluent, partly marginal and linear or subcapitate on short, ascending lateral lobes, sometimes almost entirely marginal; soredia farinose to subgranular; lower surface brown-black; rhizines simple, pale brown or black with white tips, numerous, mostly present to edge. Apothecia rare, saucer-shaped or urceolate; margin pseudocyphellate, non-sorediate, often radially striate or cracked. On bark almost exclusively. Ohio and W. Virginia. Rare. P. borteri
- 9. Soralia absent; isidia present.** Isidia coralloid or squamiform, with a glossy surface, or isidia absent but lobules present. Pseudocyphellae small, not distinctly marginate. Usually on bark. 10
- 9. Soralia present; isidia absent, but sometimes lobules present.** 11
- 10. Isidia fine and cylindrical, generally with a shiny well developed cortex; widespread on a variety of substrates.** Medulla C+ red (lecanoric). Upper surface becoming densely isidiate, the isidia variable, cylindrical to coarsely lobulate. Lower surface densely rhizinate to the margin. Apothecia not common. Thallus adnate, rather brittle, 4-15 cm broad; lobes (1-)3-5 mm broad, rounded, dissected, crowded; margins wavy, usually isidiate; upper surface greenish to bluish gray, often with a very narrow brown marginal zone, shiny, sometimes appearing white reticulate; center of thallus rugose and ridged; ridges usually extending to the peripheral lobes; transverse cracking common; pseudocyphellae \pm peripheral, easily seen and generally numerous, punctiform or elongate, often developing into effigurate fissures; isidia usually massed and crowded toward center, glossy, dark brown at tips, sometimes interspersed with flattened squamules or entirely squamiform; rhizines simple, long, slender, numerous, darkening, extending to margins of lobes, or more commonly with lobe edges bare. Apothecia usually uncommon, to 4 mm diam.; margin pseudocyphellate, often isidiate. Very common on trees (especially hardwoods) and rocks in open woods, throughout temperate eastern N. America, S to Florida, and in Arizona, New Mexico and Colorado. P. rudecta
- 10. Isidia pailliform, matt, with a poorly developed cortex; saxicolous in southern California.** Pseudocyphellae sometimes appearing incipiently erumpent, but not developing into aggregated groups of well-defined soredia. Isidia cylindrical to somewhat flattened, darkly apiculate, frequently coralloid-branched. P. punctilla
- 11. Soredia coarse, more granular to often lobuliform, sometimes partly corticate, occurring in small clusters of 10 or fewer per soralium; soralia almost always associated with pseudocyphellae or cracks in the upper cortex, small; flattened corticate lobules present.** Lobules infrequently simply-branched. Thallus typically 5 cm or more diam.; lobes mostly more than 1 mm wide; lower side pale to light tan; rhizines white to pale, mostly sparse and diminishing to incipient punctae near the lobe margins; upper surface sometimes lobulate, gray, lustrous, the margins often brunnescent and weakly reticulate; pseudocyphellae numerous, minutely punctate in the lobe areas, enlarging to soralia; soralia remaining discrete or coalescing.

Apothecia very rare. On bark or sometimes rock. Eastern U.S. (Missouri to Michigan). P. missouriensis

11. Soredia farinose to finely granulose, occurring in large numbers in each soralium; soralia well developed, often diffusely laminal and marginal as well as emanating from the pseudocyphellae; soralia large; flattened corticate lobules absent. 12

12. Upper surface foveolate or ridged. Lobes narrow (1-2 mm wide). Soralia laminal and marginal; soredia finely farinose. Medulla C+ red (lecanoric acid). Texas and adjacent states. P. perreticulata

12. Upper surface \pm smooth and even, or wrinkled or lobulate, but not foveolate or ridged. Lobes [mostly?] broader. Soredia marginal or laminal. Medulla C+, KC+ red (lecanoric). Thallus adnate to loosely attached, 5-10 cm broad; upper surface greenish minderal gray; soralia variable, laminal and/or marginal; lower surface rhizinate nearly to the margin. Apothecia very rare. Common on conifers and deciduous trees in open woods or along roadsides. Great Lakes to New England and Appalachians; British Columbia to California; Rocky Mountains S to Arizona and New Mexico. P. subrudecta

Literature

Culberson, W. L. and C. Culberson. 1980. Microconidial dimorphism in the lichen genus Parmelia. Mycologia 72: 127-135.

Elix, J. A. 1993. Genera of Parmeliaceae.

Galloway, D. 1985. Flora of New Zealand Lichens.

Hale, M. 1979. How to Know the Lichens.

Krog, H. 1982. Punctelia, a new lichen genus in the Parmeliaceae. Nord. J. Bot. 2: 287-292.

Wilhelm, G. and D. Ladd. 1987. Punctelia perreticulata, a distinct lichen species. Mycotaxon 28(1): 249-250.

Wilhelm, G. and D. Ladd. 1992. A new species of the lichen genus Punctelia from the midwestern United States. Mycotaxon 44(2): 495-504.