

**Protoparmelia** M. Choisy  
(LECANORALES: LECANORACEAE)

After Coppins, 1992

Rev. 5/94

Thallus crustose, rimose, warted or areolate, corticate, rarely scurfyisiliate and not corticate, often glossy, pale gray brown to dark or chestnut brown. Cortex of branched, shortcelled, anticlinal hyphae, often terminated by brown pigmented "hoods", and usually overlain by a distinct, colorless epicortex; photobiont layer and medulla usually well defined. Medulla I. Photobiont trebouxoid, cells sometimes dividing internally to form autospores.

Apothecia arising from within areoles or warts, immersed to sessile, usually glossy. Disc brown, often darker than margin, epruinose. Thalline exciple  $\pm$  concolorous with thallus, 1230  $\mu$ m thick, with a medulla filled with algal cells and usually a welldefined cortex similar to that of thallus. True exciple colorless. Hymenium I+ blue. Hypothecium colorless. Paraphyses simple or occasionally forked, septate; apices sometimes slightly wider, but usually each covered by a swollen gelatinous "hood" which often contains a brown "cap". Asci clavate, Lecanoratype, with or without an ocular chamber, but always with a distinct, nonamyloid apical cushion. Spores 8, simple (sometimes a few 1septate when old), colorless, ellipsoid, or more usually fusiform or oblongellipsoid to oblong; lacking a distinct perispore.

Pycnidia immersed; wall colorless except for brown pigmentation around the ostiole; conidogenous cells arising on branched conidiophores or in chains,  $\pm$  cylindrical, enteroblastic, acrogenous or pleurogenous; conidia bacilliform, shortacicular or curved and threadlike, aseptate, colorless. Thaloconidia present in one species. Gyrophoric, lobaric, stictic, norstictic, zeorin, and unknowns (including fatty acids) may be present. On rock or sometimes bark.

Separated from Lecanora by the brown pigmentation, generally smaller (especially narrower) ascospores, straight conidia, and lack of atranorin. The genus does not seem to be very well defined or vary homogeneous.

**1. On rocks. .... 2**

**1. On bark, or rarekt wood, of conifers.** Thallus chestnut brown, of rounded,  $\pm$  globose areoles 0.060.26 mm diam., not isidiate or

sorediate. Apothecia 0.31.1 mm diam., sessile and constricted below, flat and exciple raised or sometimes becoming convex with reflexed thalline exciple; thalline exciple concolorous with thallus, smooth or crenulate; disc usually more reddish than thallus; hymenium 350 um. Spores (7)812 x 23.5 um, fusiform. Pycnidia rare; conidia 79 x ca. 0.7 um, shortly acicular, straight. Sections P, K, KC, C (no substances). Often in deep fissures of the bark. Often on Douglas fir in montane areas at least on west side of the Cascades in the Pacific NW, and probably elsewhere, western. .... P. ochrococca

**2. Spores ellipsoidfusiform with distinctly pointed apices.**

Thallus very variable, thin and rimoseareolate to warted, or coarsely warted, to 2.5 mm thick, pale fawngray to dark brown, sometimes faintly olivaceous, usually ± glossy, effuse or rarely delimited by a dark prothalline line. Apothecia 0.42.2 mm diam., usually numerous, immersed to sessile, usually glossy; thalline exciple concolorous with thallus, mostly persistent; disc flat to convex, usually darker than the exciple, dark brown or mottled; hymenium 5060 um tall. Spores 813 x 35 um Pycnidia often present, rarely abundant; conidia 811 x 0.71 um. Sections P, K, KC+ pink (especially cortex), C, usually UV+ white (lobaric acid, ± zeorin, and 3(5) unknowns. On hard (usually exposed) acid rocks in coastal and montane to alpine sites. Common and widely distributed, Arcticalpine, Alaska to California, Arizona and New Mexico in the west; to New England in the east. .... P. badia

**2. Spores ellipsoid or oblong with rounded ends. .... 3**

**3. Thallus forming patches mostly under 4 cm across; cortex of thallus and apothecia (in sections) K+ yellow to red.** Closely associated with Rhizocarpon geographicum agg. Thallus composed of loose clusters of discrete, hemispherical to ± globose, glossy, chestnutbrown areoles 0.20.6 mm diam., on black prothallus; small areoles sometimes arising from within the areoles of the Rhizocarpon. Apothecia 0.20.6(0.8) mm diam., concolorous with thallus, at first immersed and perithecialike, eventually ± sessile; hymenium 4550 um. Spores 813 x 3.75 um, oblongellipsoid to oblong. Pycnidia absnet. Sections (especially cortex) P+ yellow or orange, KC, UV (norstictic acid, traces of unknowns, including a fatty acid (rangiformic?); sometimes also with psoromic acid from the Rhizocarpon. On hard acid rocks. Reported from New Hampshire; perhaps also elsewhere. .... P. atriseda

**3. Thallus mostly over 4 cm across; cortex K; medulla sometimes K+.** Medulla C. Thallus composed of chestnut brown areoles on a

black prothallus, which at the thallus margin forms minute, radiating lobes; prothallus and margins of areoles sooty=black in places due to 2celled to submuriform, coarsely warted, greenblack thalloconidia 914(20) x 712 um. Apothecia rare, sessile, 0.30.8 mm diam.; margin concolorous with areoles; disc black. Spores ellipsoid to oblongellipsoid, 710 x 33.5 um. Pycnidia immersed; conidia curved, 1214 x 0.81 um. Medulla P+ orange, K+ yellow, KC. C, UV (stictic acid). On siliceous rock underhangs. Southwest?; probably also elsewhere. .... P. nephaea

### **Literature**

Coppins, B. J. 1992. Protoparmelia. In: Purvis, et al., Lichen Flora of Great Britain and Ireland.