

## Protothelenella Räsänen

After Mayrhofer & Poelt, 1985, and Purvis & James, 1992

Rev. 5/94

Thallus not or distinctly lichenized and then crustose, granular to cracked-areolate, the margin effuse; surface usually bright green when fresh, whitish to gray-brown when dry,  $\pm$  gelatinous when wet, anatomically hardly differentiated. Photobiont Elliptochloris.

Perithecia mostly solitary and scattered, immersed, globose to pear-shaped, dark brown to blackish, upright. Involucrellum absent; true exciple mostly colorless towards the base, brown to greenish blue in upper part, of strongly anastomosing, to 1  $\mu$ m wide, conglutinate hyphae with narrow lumina. Periphysoids lacking. Paraphysoids persistent, thin and filamentous, simple to mostly strongly branched and netlike. Asci  $\pm$  cylindrical, thick-walled (2-5  $\mu$ m), with two functional wall layers, the outer wall layer I+ [relatively light] blue, the tips with a  $\pm$  layered, strongly I+ blue apical cushion or plug, resembling that of the non-lichenized ascomycete Xylaria. Spores (6-)8, colorless, transversely multiseptate, submuriform to strongly muriform, the walls or at least the septa thin, the outer wall distinctly thicker than the septa.

On various acidic substrates including rocks, soil, mosses and plant detritus, or on rotten wood in moist situations, mostly common in cooler regions.

One of several genera formerly treated under Microglæna. Differs from Polyblastia by the persistent paraphysoids and the structure of the asci.

**1. On dry rocks; perithecia embedded in thallus or covered by a thalloid layer; spores broadly ellipsoid, muriform, 18-32 x 10-15  $\mu$ m.** Spores broadly ellipsoid or ovoid, muriform. Thallus smooth to granular-uneven, warted, rarely  $\pm$  continuously scurfy-rugose, often in  $\pm$  dispersed areoles surrounding single or several ascocarps, or disappearing, dirty yellowish, greenish or brownish white, often C+ red. Perithecia 0.2-0.4 mm diam.,  $\pm$  immersed, scattered, rarely 2-3 contiguous, expose part blackish,  $\pm$  shiny; true exciple dark brown, opaque above,  $\pm$  colorless or pale below. On rather moist, shaded or sheltered siliceous rocks (rarely hard granite), often semi-inundated at streamsides. Canada. ....P. corrosa (Körber) Mayrh. & Poelt

**1. On soil, moss, or other lichens, or humus; perithecium lacking thalloid covering. .... 2**

**2. Spores 40-50 x 10-15  $\mu$ m, very muriform; exciple brown; perithecium  $\pm$  immersed.** Thallus on soil, plant remains, mosses or lichens, on acid soils or over schistose or granitic rocks; non-parasitic. Spores strongly muriform, ellipsoid to broadly fusiform, with to 4 longitudinal walls in middle part of spore. Thallus thin, film-like to finely warted, evanescent, dirty white when dry, greenish or pale brown, at times gelatinous when wet. Perithecia 0.4-0.6 mm diam., 1/2 to  $\pm$  entirely immersed, rounded or  $\pm$  pyriform, scattered, blackish brown, paler when wet; true exciple red-brown, opaque above,  $\pm$  colorless below; ostiole occasionally somewhat depressed. On rotting moss and sandy soil in very moist places in late snowmelt areas. Arctic-alpine. Greenland; U.S. ....P. sphinctrinoides (Nyl.) Mayrh. & Poelt

**2. Spores 22-33 x 7-10  $\mu$ m, submuriform; exciple brown above, pale below; perithecium usually adnate.** Thallus indistinct to thin, green when fresh, whitish to pale

gray when dry. Perithecia dispersed, seldom grouped, 0.1-0.3 mm broad, spherical to slightly pear-shaped, adnate to slightly immersed; exciple brown above, hyaline below; paraphysoids slender, branched below and only slightly anamorphosing; asci cylindrical; spores submuriform, usually with only 1 longitudinal and 7-10 cross walls, elongate to elongate-ellipsoid, 22-33 x 7-10  $\mu$ m. On acid to weakly basic soils over moss and lichens, seldom directly on soil. Arctic-alpine. .... P. sphinctrinoidella (Nyl.) H. Mayrh. & Poelt

ADD:

P. santessonii H. Mayrh. (See Mayrhofer 1987)

### **Literature**

Mayrhofer, H. and J. Poelt. 1985. Die Flechtengattung Microglaena sensu Zahlbruckner in Europa. Herzogia 7: 13-79.

Purvis, O. W. and P. W. James. 1992. Protothelenella. In: Purvis, et al., Lichen Flora of Great Britain and Ireland.

Thomson, J. W. 1997. American Arctic Lichens. II. The Microlichens.