

**Polychidium** (Ach.) S. Gray  
(PELTIGERACEAE)

After Henssen (1963), and others

Rev. 4/96

Thallus minutely shrubby; filaments  $\pm$  dichotomously branched, dendroid and often complex,  $\pm$  terete, forming small interwoven domed or straggling masses; thicker secondary branches towards base, thinner, anastomosing branches at apices; heteromerous; surface dark, greenish blue to brownish, often shiny towards lobe tips. Cortex well developed, cellular, 1-several cells thick, surrounding a central medullary strand of hyphae. Photobiont Nostoc or Scytonema.

Apothecia mostly lateral, brown or red-brown, with a sunken disk; thalline exciple absent; true exciple present. Paraphyses unbranched, septate; apices capitate. Asci broadly cylindrical; apices thickened, 1+ blue. Spores 8, colorless, polymorphic, ellipsoid to spindle-shaped, simple to 1- or 2-septate, thin- or thick-walled.

Pycnidia brown, lateral; conidiogenous cells generally short; conidia bacilliform. No substances. On bark or moss.

Note: the foliose species, Leptochidium albociliatum, with conspicuous white hairs on the thallus, was formerly treated under Polychidium. The genus "Dendriscoaulon" may not be a good genus, since (at least in D. umhausense) the fruticose thalli are apparently derived from outgrowths on the foliose genera Sticta and Lobaria that break off and grow on their own.

Also see Dictyonema moorei.

**1. On moss (or soil), usually over rock. Photobiont Nostoc, with bluegreen or green cells. Spores 2-celled, 8/ascus, uniseriate or biseriate, fusiform, 19-25.5(-29) x (4-)4.5-6.5(-7)  $\mu$ m, hyaline, sometimes becoming pale red-brown. Thallus minutely fruticose, forming small, loosely interwoven, decumbent to cushion-like masses and strands; chestnut brown, dark brown, or blackish (sometimes grayish in shade), sparsely to richly and divergently branched; branches dichotomous or palmate, not coralloid; lateral axes of similar size or with a main axis and smaller side branches, to 4 mm tall; lobes 950-)60-125(-200)  $\mu$ m thick, progressively narrower toward apices; tips terete, often nodulose, shiny; cortex 1-2(-3) cells thick, with short cilia which toward the base become rhizines; cells rounded or  $\pm$  angular, 4-7  $\mu$ m diam., the wall somewhat thickened, colorless or  $\pm$  brown; interior hyphae loosely interwoven, more or less parallel to the surface, toward the base forming a paraplectenchyma. Apothecia often common, to 2 mm broad, lateral; disk red-brown, brighter when wet; exciple paler, concolorous with thallus. Subhymenium 70-100  $\mu$ m; hymenium 90-100  $\mu$ m; paraphyses**

septate, unbranched, 1-2 um thick, with a swollen apical cell to 4.5 um wide; asci clavate, 45-62 x 4.5-6.5 um. Pycnospores 1.5-3.5 x 1 um, bacilliform. Photobiont not in obvious chains. Usually in moist situations and over acidic rocks, often in and near streams (but also in quite exposed and open areas away from water), occasionally on the ground, sometimes also at the bases of mossy trees. Alaska to Greenland, south to New England, Colorado, and California. Resembles Ephebe, but is more red-brown, not olive-black, of a firmer texture, forming a coarser, more ascending, thallus. .... P. muscicola

**1. On bark, or moss over bark. Photobiont Scytonema or Nostoc. Spores, where known, 1-celled. ....2**

**2. Algae Nostoc (cells rounded, 3-6(-7) um wide). .... see "Dendroica"**

**2. Algae Scytonema (cells oval, (5-)9-15(-17) um long). .... 3**

**3. Without jigsaw puzzle-like cortical cells. Photobiont filaments not spiralled and twisted. Apothecia rare.** Thallus of short, slender, richly and intricately dichotomously branched filaments, (30-)40-70(-75) um wide, smooth or somewhat nodulose, forming shining blue-green, blue-gray or pale brown cushions in which gray colors predominate when dry; branch tips not widened. Filaments with a single-layered cortex; cells 8-15(-18) x 6-11 um, with  $\pm$  thickened walls. Medullary hyphae forming a continuous tissue, with at most 8 cell rows. Photobiont in distinct bluish green chains in strands of 2-5 cells; chains straight in the branch tips, forming two layers in longitudinal section. Apothecia rare, to 2 mm wide, orange-brown to red-brown; hymenium 80-150 um; true exciple with pitted, thick-walled cells; spores 11-14.5 x 5-7 um, simple, ellipsoid. Pycnidia occasional; conidia 1.5-3 um. Associated with mosses and leafy liverworts, particularly Frullania, on shaded, sheltered trunks of various hardwood plants and on stems of low shrubs in well-lit, boggy, undisturbed situations, often close to the ground. Superficially resembles some filamentous cyanobacteria. .... P. dendroica

**3. Jigsaw puzzle-like cortical cells present, seen especially near the branch tips. Photobiont filaments spiralled and twisted. Apothecia frequent.** Thallus fruticose, in felt-like clumps on bark or twigs, to 3 cm diam., falcid and  $\pm$  spongy when wet, brittle when dry. Branches terete, rather fragile, very fine at apices, stouter (to 0.2 mm wide) below, branching  $\pm$  dichotomous, but densely tangled and complex in older parts. Surface of branches smooth or slightly wrinkled, blue-green or blackish at apices, bluish-brown or tan below. Apothecia frequent, lateral, to 1.5 mm diam.; disc reddish-brown, subconvex, immarginate. Spores polymorphic, 9-13 x 1.5-7 um. No substances. In moist areas in fairly open, well lighted conditions, although mostly on the undersuface of the twigs and branches, on Picea or Pinus, Queen Charlotte Islands, British Columbia. .... P. contortum

Henssen

### **Literature**

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