

Lichenothelia D. Hawksw.
(INCERTAE SEDIS)

After Hawksworth; need to get more info on his species

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Thallus crustose, dark brown to black, forming convex cushions or \pm areolate, sometimes placodioid at the margins, of \pm angular, thickwalled, pseudoparenchymatous cells in \pm vertical rows, especially below; some species with elongated stolons producing "microthallus" propagules; prothallus black. Photobiont absnet; coccoid green algae or, particularly, cyanobacteria sometimes fortuitously (?) present on thallus surface, not integrated into the thallus.

Ascomata at first cushionlike, finally \pm apothecialike with concave disc, sessile or \pm stalked, black; thalline exciple absent; true exciple and hypothecium recalling the thallus in structure. Hymenium I or I+ blue; epihymenium poorly differentiated. Hamathecium of pseudoparenchymatous cells or elongated cellular pseudoparaphyses, irregularly branched and anastomosed. Asci clavate to subcylindrical, thickwalled, especially at the apex, with an internal apical beak, fissitunicate; outer layer I+ blue; apex I; 8spored. Spores brown, ellipsoid to soleiform, thickwalled, smooth or verrucose, often with a conspicuous gelatinous persipore swelling in K, usually 1septate, with cells unequal (one round, the other \pm pointed), occasionally 3septate, rarely submuriform with 1 longitudinal septum.

Conidiomata either hyphomycetous, arising from the thallus surface, forming \pm stalked, brown and \pm verrucose, multicellular, subglobose macroconidia; or pycnidial, immersed, and bearing colorless, simple, bacilliform micronidia. No substances. On rock (mostly noncalcareous) or occasionally on lichens, mainly in exposed situations and extreme environments (e.g. hot and cold deserts).

According to Clauzade & Roux, this genus is distinctly lichenized, with Trentepohlia; however, according to Hawksworth, the genus is not lichenized, but may be "fortuitously?" associated with green coccoid algae or cyanobacteria. The term "microcolonial fungi" is applied both to species of Lichenothelia (sensu Hawksw.) and to other taxa of uncertain affinities (Dermatiaceae?) for which ascocarps are unknown; these fungi usually appear as numerous very tiny black dots, often resembling bits of the black hypothallus of a Lecidea or Rhizocarpon; in

many environments they are almost ubiquitous, and all are externally very similar.

Probably dozens of other species of this inconspicuous and obscure, but ubiquitous, genus in N. America.

1. Spores over 20 um long and 9 um wide, mainly 1septate. Asci separated by pseudoparaphyses. 2

1. Spores smaller, mainly 3septate or submuriform, rarely 1septate. 3

2. Asci broadly shortclavate, separated by pseudoparaphyses. Spores 2124.5 x 911 um, mainly 1septate, rarely 3septate or submuriform; asci with the outer layers turning deep blue in iodine; ascomata mainly 100150 um wide. On calcareous rock. L. metzleri (Lahm) D. Hawksw.

2. Asci saccate. Thallus black, lobate, forming rosettes to 4 mm diam.; lobes terete, ± adpressed to substrate, 400750 um long, 2030 um wide. Ascomata apothecioid, stipitate, to 150 um diam. Hymenium 100120 um high, nonamyloid; pseudoparaphyses copiously branched, 2.56 um thick; asci 6070 x 3035 um, 48spored; spores verrucose, brown, 2celled, (18)2024 x 914(16) um, becoming submuriform. Pycnidia stipitate, ca. 70 um diam.; conidia bacilliform, 4.567.5 x 0.8 um. On calcareous rocks. California. L. calcarea Henssen

3. Spores 1septate. Hamathecium pseudoparenchymatous. Thallus black, areolate; areoles dispersed to partly aggregated, 80160 um wide, often with stolons and microthalli. Macroconidia globose to ellipsoid, 9.510.5 um. Ascomata pulvinate, to 150 um wide; hamathecium amyloid; asci saccate, 3335 x 1618 um, 8spored; spores verrucose, pale then brown, 2celled, 1114.5 x 6.57.5 um. Pycnidia 4045 um wide; conidia 22.5 x 0.8 um. On rock (e.g., shady sandstone), sometimes overgrowing lichens. Colorado, Arizona, British Columbia. L. tenuissima Henssen

3. Spores mainly 23 septate, or submuriform. 4

4. Spores 1113.5(14.5) x 5.57(7.5) um, (1)23septate, verrucose. Thallus of scattered or aggregated areoles, 0.10.4 mm diam., black, ± convex; ± with stolons producing "microthalli". Ascomata cushionlike, to 0.2 mm diam. Hamathecium pseudoparenchymatous, I+ blue in parts. Asci 3035 x 1216 um. Macroconidia 1015(22) um diam. On rock and lichens on rock. California, Colorado. L. convexa Henssen

4. Spores mostly over 15 um long and 7 um wide, becoming

submuriform. 5

5. Ascomata to 80 um. Thallus black, dispersed areolate; areoles 4060 um wide, ± immersed, along stolons. Macroconidia globose, 711 um wide. asci saccate to clavate, 2834 x 1518 um, 48spored; spores becoming verrucose, pale to brown, 24celled to submuriform, 15.517 x 79 um. California. On calcareous rocks. L. intermixta Henssen

5. Ascomata mainly 125170 um wide. Spores (13)1418(21) x (5.5)79(11) um, mainly 3septate or submuriform, rarely 1septate; asci clavate to elongateclavate or almost subcylindrical, outer layers not turning blue in iodine. Hamathecium separated by pseudoparaphyses. On rock. L. scopularia

Literature

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