

Lithothelium

(Syn. Plagiocarpa)

After Harris, 1973 and Aptroot, 1991

Rev. 3/94; much more could be added

Lichenized. Ascocarps black, often with fused ostioles and/or walls, often with non-carbonized pseudostromatic tissues; wall carbonized; ostioles eccentric or lateral. Interthecial hyphae mostly unbranched. Hamathecium colorless, often I+ blue or partly blue, partly orange. Asci often with rounded or sagittiform ocular chamber. Spores colorless, brown or red-brown, with rounded, relatively large lumina; eusepta absent. Microconidia filiform. On bark or rock (limestone or lava), tropical.

1. Spores hyaline; walls thickened or not; lumina lenticular to subspherical or cylindrical.

Ascocarps not grouped in a pseudostroma.2

1. Spores some shade of brown; walls thickened; lumina lenticular to subspherical.

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2. Spores 10-12 x 4-4.5 um. Florida. L. microsporum

2. Spores larger. 3

3. Spores 18-27(-30) x 7-10(-12) um. Ascus Plagiocarpa-type, the apex thickened to form a cavity (inner wall indentation) that is often cruciform in optical section. Hymenium inspersed with numerous oil droplets. Thallus endophloeodal, pale gray or whitish, smooth. Trentepohlia usually abundant and well developed, forming short chains. Ascocarps scattered, dark brown, not shiny, subglobose, initially completely immersed in the bark but commonly almost completely superficial in age, 0.5-0.6 mm diam. Ostiole mostly displaced to one side, not vertical, and forming a short projecting neck. Involucrellum entire, dark brown, containing bark cells, ca. 80 um thick above, thinner below, 20-40 um. Exciple thin, ca. 10-20 um, pale brown to almost colorless, usually free from the involucrellum except at the ostiole, often shrinking away from the involucrellum upon drying. Hymenium I+ greenish blue (becoming red-orange in concentrated iodine). Interthecial hyphae ca. 1 um thick, septate, very rarely branched and apparently not anastomosed. Asci cylindric or somewhat obclavate, thickened at the tip, 65-90 x 20 um. Spores 8, roughly biseriate to irregularly arranged, colorless, ovoid, 3-septate, not constricted at the septa, endopore slightly thickened, lumina subspherical to almost cylindrical, without a gelatinous sheath. Widespread in eastern N. America (Ontario and Quebec to S. Carolina). L. hyalosporum (Nyl.) Aptroot

3. Spores 17-20 x 7.5-9 um. Ascus Pyrenula-type, the apex ± uniformly thickened. Hymenium not inspersed. Florida, Georgia, Louisiana, Mississippi. (See Tucker & Harris, 1980, under synonym Plagiocarpa langloisii). L. illotum (Nyl.) Aptroot

4. Spores to 7-septate. 5

4. Spores 3-septate, 30-40(-45) x (12-)14-16(18) um. Thallus endophloeodal, grayish, smooth. Trentepohlia abundant. Ascocarps scattered, dark brown, flask-shaped to subglobose, initially completely immersed but often almost completely superficial in age, 0.6-0.7 mm long (without neck), 0.5-0.6(-0.7) mm wide; ostiole usually forming a lateral neck, to 0.6 mm long. Involucrellum entire, brown, containing bark cells, ca. 50-100 um

thick, thinner below. Exciple brownish, thin, ca. 25 μ m thick, often separating from involucrellum. Hymenium I+ blue-green becoming orangish, heavily interspersed with oil. Interthelial hyphae ca. 1-2 μ m thick, septate, not obviously branched and anastomosed. Asci subcylindrical, slightly thickened at tip, inner surface with cross-shaped indentation, 125-150 x 25-35 μ m. Spores 8, biseriate to irregularly arranged, dark brown; end cells 1/4-1/6 as large as median ones, not constricted at septa, without gelatinous sheath. On Fraxinus, less often Ulmus, Ontario, Michigan, N. Carolina, Tennessee, Wisconsin. L. phaeosporum (R. C. Harris) Aptroot

5. Spores 55-80 x 20-26 μ m. Thallus endophloeal, pale gray, smooth. Trentepohlia present. Ascocarps scattered, dark brown, subglobose, initially immersed but finally ca. 1/2 exposed, 0.5-0.8 mm diam.; ostiole lateral or eccentric, often forming a short neck to 0.2 mm long; involucrellum entire, brown, 50-100 μ m thick. Exciple brownish, thin, indistinct, often pulling away from the involucrellum. Hymenium I+ blue green becoming orangish. Interthelial hyphae ca. 1-2 μ m, septate, not obviously branched and anastomosed. Asci subcylindrical to obclavate, slightly thickened at tip, inner surface with cross-shaped indentation, 180-220 x 50-60 μ m. Spores initially 8, occasionally 1-4 aborting, subbiseriate to irregularly arranged, dark brown, 7-septate, cells largest in center decreasing towards ends, not constricted at septa, without gelatinous sheath. Pycnidia ca. 0.1 mm diam., brown. Microconidia colorless, filiform, 12-18 x 1 μ m. On bark of deciduous trees. Ontario, Michigan, Virginia. Rather rare. P. macrosporum (R. C. Harris) Aptroot

5. Spores 30-42(-45) x 12-15 μ m. Thallus endophloeodal, grayish or not visible, smooth. Trentepohlia abundant. Ascocarps scattered, dark brown, flask-shaped to subglobose, initially completely immersed but becoming \pm superficial with age, 0.5-0.9 mm long (without neck), usually ca. 0.1 mm less in width. Ostiole eccentric to lateral, often forming neck, to 0.35 mm long. Involucrellum entire, brown, containing bark cells, 75-120 μ m thick, thinner below. Exciple brownish, thin, indistinct, often separating from involucrellum. Hymenium I+ blue-green becoming orangish, interspersed with oil. Asci obclavate to subcylindrical, thickened at tip, inner wall indentation cross-shaped, 100-140 x 30-40 μ m. Spores 8, subbiseriate to irregularly arranged, dark brown, 7-septate, median cells largest, decreasing toward the ends, not constricted at septa, without gelatinous sheath. Pycnidia brown, ca. 0.1 mm diam. Microconidia colorless, filiform, 12-28 x 1 μ m. On Fraxinus, less often on other trees. Ontario, Michigan, New York, Indiana, Tennessee, Kentucky, Maryland, N. Carolina, New York, Virginia, Maine. P. septemseptatum (R. C. Harris) Aptroot

L. microsporum R. C. Harris

Thallus greenish gray, matte. Trentepohlia present. Ascomata solitary, not compound, orbicular to obovoid, ca. 1/2-2/3 immersed, 0.4-0.5 x 0.3-0.4 mm. Ostiole eccentric. Hymenium not interspersed. Hymenial gel IKI+ dirty pinkish orange. Asci cylindrical with ascospores uniseriate to subbiseriate. Ascospores colorless, ovoid, 4-celled, 10-12 x 4-4.5 μ m.

Literature

Aptroot, A. 1991. Monograph of the Pyrenulaceae [etc.]. Bibl. Lich. 44. J. Cramer, Berlin.

Harris, R. C. 1973. Corticolous pyrenolichens of the Great Lakes region. Michigan Botanist.

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