

ADDITIONAL NEW TAXA OF *LAETICORTICIUM* (APHYLLOPHORALES, CORTICIACEAE)

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ABSTRACT

Three new species of *Laeticorticium* from North America are proposed, *L. floridense* and *L. cremeo-albidum* from Florida, and *L. efibulatum* from Mississippi. Basidiocarp and cultural descriptions of each species supplemented by line drawings are presented.

Key Words: *Laeticorticium*, new species, percurrent proliferation, cultural characteristics, Basidiomycetes, wood decay.

The taxonomy and nomenclature of laeticorticoid fungi has received considerable attention recently (Eriksson and Ryvarden, 1976; Larsen and Gilbertson, 1974a, b, 1977, 1978; Jülich and Stalpers, 1980), but criteria for delimiting species and even genera are still disputed. In our continuing studies of this group of wood-inhabiting fungi, we have discovered three undescribed species of *Laeticorticium* Donk from southeastern North America.

MATERIALS AND METHODS

Freehand sections of basidiocarps were treated first with 95% ethanol (v/v), 10% KOH (w/v), and finally stained with an aqueous solution of 1% phloxine (w/v). Melzer's reagent (Melzer, 1924) was used for detection of amyloidity or dextrinoidity of fungal structures and cotton blue for cyanophily. Illustrations were prepared with the aid of a Zeiss drawing tube. Numerical-capital letter color expressions are from the Munsell system (1929-1942). Herbarium abbreviations are those of Holmgren *et al.* (1981).

All cultures are of polysporous origin. Cultures were grown on 1.5% Difco malt extract agar (MEA), 0.5% gallic acid agar (GAA) and 0.5% tannic acid agar (TAA) in the dark at 25 C (Davidson *et al.*, 1938). Cultures were checked at weekly intervals. Key patterns, describing 2-wk-old cultures, are based on the system of Davidson *et al.* (1942). The species codes, describing 6-wk-old cultures, are based on the system of Nobles (1965). Cultures are deposited and maintained in CFMR culture collection.

NEW SPECIES DIAGNOSES AND DESCRIPTIONS

***Laeticorticium cremeo-albidum* M. Larsen et Nakas., sp. nov. FIG. 1a-c**

Basidiocarpis effusis, cremeo-albidis: hyphis fibulatis, 2–2.5 μ m diam, probasidiis adsunt; basidiis 60–65(–80) \times 6–7(–7.5) μ m; basidiosporis 11–12 \times 6.5–8 μ m, late ellipsoideis.

Holotypus: U.S.A., Florida, ad lignum *Vitis* sp., Leon County, Tall Timbers Research Station, Gannet Pond Outlet, H. H. Burdsall 9616, 29-VII-1977(CFMR), et isotypus in herb. BPI.

Basidiocarps effuse, up to 0.3 mm thick, soft, firm arachnoid to byssoid; fertile areas nearly cream to mostly cream-white (near 10.0 YR 8/4); *hymenial surface* smooth and undulating and conforming to the substratum; margin abrupt or

¹ Maintained at Madison, Wisconsin, in cooperation with the University of Wisconsin.

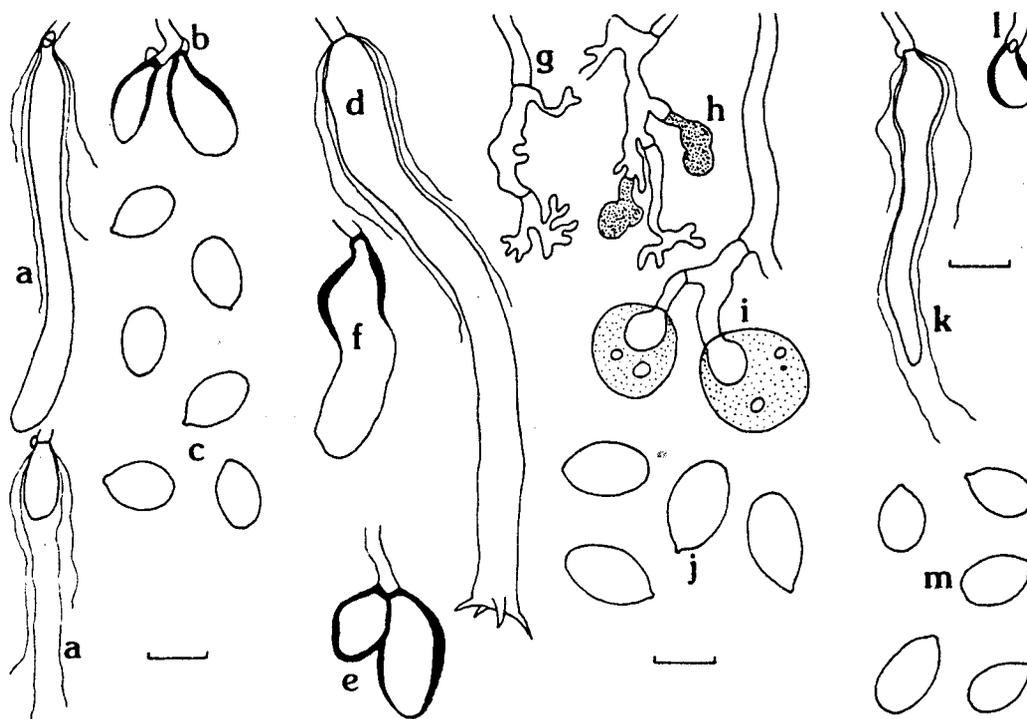


FIG. 1 a-c. *Laeticorticium cremeo-albidum*. a. Basidia proliferating percurrently. b. Probasidia. c. Basidiospores. FIG. 1d-j. *L. efibulatum*. d. Basidia proliferating percurrently. e. Probasidia. f. Probasidium undergoing metabasidial elongation. g. Dendrohyphidium. h. Dendrohyphidium with constricted terminal swellings. i. Dendrohyphidium with globoid terminal swellings enclosed in a larger vesicular structure. j. Basidiospores. FIG. 1 k-m. *L. floridense*. k. Percurrently proliferating basidia. l. Probasidium. m. Basidiospores (scale bars equal 10 μ m).

farinaceous and up to 3 mm wide, concolorous with the fertile areas; *subiculum* not discernible from overlying tissues, concolorous with the fertile areas.

Hyphal system monomitic. *Subicular hyphae* 2–2.5 μ m diam, clamped, hyaline, with noticeable wall thickening, arranged horizontally along the substratum, somewhat agglutinated and compact; *subhymenial hyphae* 2.5–3.5 μ m, clamped, hyaline, becoming intricately branched; *probasidia* broadly ovoid to ellipsoid, frequently originating near the subicular tissue but less numerous towards the hymenium, reaching a maximum width of 7–10 μ m before undergoing metabasidial elongation, walls 0.5–1 μ m thick; *basidia* 60–65(–80) \times 6–7(–7.5) μ m, proliferating percurrently, sinuous-clavate, clamped at the probasidial base, 4-sterigmate; *basidiospores* 11–12 \times 6.5–8 μ m, broadly ellipsoid and tapered slightly towards the distal end, hyaline, smooth, blunt-apiculate, negative in Melzer's reagent, acyanophilous; *dendrohyphidia* abundant, not forming a continuous and well-defined catahymenium, 2–3 μ m diam, often clamped along their length, sparingly branched, often encrusted with hyaline granular material, which is also abundant throughout basidiocarps.

Growth characters in culture. Growth on MEA moderately rapid, 72–80 mm diam at 1 wk, 90+ mm diam at 2 wk; mats white, appressed, thin, subfelty to short-downy at 2 wk, by 6 wk appressed, thin, subfelty around inoculum and central area, becoming slightly raised to raised, cottony to woolly toward margins. growing up plate sides, developing numerous, small, opaque, tough and leathery

hyphal aggregations on agar surface or in medium; margins bayed, appressed, fimbriate; odor none at 2 and 6 wk; agar discoloration none at 2 wk, partially bleached by 6 wk; not fruiting by 6 wk. Oxidase reactions after 1 wk on GAA strong, mat 0-tr mm diam, on TAA strong, mat 12-30 mm diam.

Microscopic characters in culture. Advancing zone hyphae 3-6 μm diam, thin-walled, clamped, sparingly branched. Submerged hyphae 1.5-6 μm diam, thin-walled at 2 wk, becoming slightly thick-walled at 6 wk, clamped, frequently branched, often with short, lateral, right-angled branches. Aerial hyphae 1.5-5 μm diam, thin-walled at 2 wk, becoming slightly thick- to thick-walled by 6 wk, clamped, moderately branched, sometimes moderately to heavily encrusted with hyaline crystals.

ETYMOLOGY: From *cremeus* (L., adj.) = cream colored + *albidus* (L., adj.) = somewhat white or whitish.

CULTURE STUDIED: HHB 9616 (from holotype).

KEY PATTERN: A-P-I-10-14. SPECIES CODE: 2.3.7.24.27.32.36.40.43.55.

Remarks. — *Laeticorticium cremeo-albidum* is readily identified by basidiocarp color and spore size. Oxidase reactions in culture indicate the fungus is associated with a white rot.

Laeticorticium efibulatum M. Larsen et Nakas., sp. nov.

FIG. Id-j

Species hyphis efibulatis; basidiosporis 13-15.5 \times 8-12 μm , late ellipsoideis.

Holotypus: U.S.A., Mississippi, ad corticem *Vaccinium* sp., Hamson Experimental Forest, Desoto National Forest, Hamson County, H. H. Burdsall 8824, 26-III-1976(CFMR), et isotypus in BPL.

Basidiocarps effuse, occurring in small patches which coalesce and become continuous up to 10 cm, up to 0.2 mm thick, soft, mucedinoid, adherent, visibly bi-layered with pale-colored subicular tissue; *hymenial surface* smooth, appearing pulverulent, pale chocolate-brown (near 5.0 YR 6/4); *subiculum* pale-colored to almost white; margin up to 2 mm wide, villose to pubescent, often uniformly radiate, very pale brown and frequently with a purple tint, sometimes white.

Hyphal system monomitic. *Subicular hyphae* 2-3 μm diam, septate, clamps absent, hyaline, wall thickening noticeable; *subhymenial hyphae* 3-4 μm diam, septate, clamps absent, frequently branched, hyaline; *probasidia* narrowly ovoid, thick-walled, hyaline, 8-10 \times 4-5 μm ; *basidia* 40-70(-80) \times 6-7-8 μm , proliferating percurrently, long-clavate, sinuous, frequently having their origin near the subiculum and less so towards the hymenium, 4-sterigmate; *basidiospores* 13-15.5 \times 8-12 μm , broadly ellipsoid, hyaline, smooth, blunt apiculate, negative in Melzer's reagent, acyanophilous; *dendrohyphidia* abundant and forming a noticeably defined catahymenium, form variable and of three recognizable kinds: FIG. 1g—of the typical kind found throughout the genus, FIG. 1h—appearing typical but with constricted terminal swellings 3-6 μm diam, and FIG. 1j—similar to FIG. 1g and h, but with globoid terminations enclosed in a larger vesicular structure up to 20 μm across.

Growth characters in culture. Growth on MEA moderately rapid, 54-70 mm diam at 1 wk, plates covered at 2 wk; mats white, thin, appressed to slightly raised, subfelty to downy throughout and growing up plate sides at 2 wk, by 6 wk mats slightly thicker, tough and leathery, otherwise unchanged; margins even, appressed; odor none; agar bleached at 2 and 6 wk, not fruiting by 6 wk. Oxidase reactions after 1 wk on GAA strong, mat 0-tr mm diam, on TAA strong, mat 23-32 mm diam. TAA mats at 2 wk white, moderately thick, appressed to slightly raised, downy to woolly around inoculum, becoming raised, cottony to woolly toward margins.

Microscopic characters in culture. Advancing zone hyphae 4–6 μ m diam, thin-walled, septate with clamps absent, sparingly branched, usually branches developing just below septa. Submerged hyphae 1.5–6 μ m diam, thin-walled, septate with clamps absent, moderately branched at 2 wk, by 6 wk becoming slightly thick-walled and developing numerous, short, tapering branches. Aerial hyphae 1.5–4(–6) μ m diam, thin-walled at first, becoming slightly thick-walled by 6 wk, septate with clamps absent, sparingly to moderately branched, heavily encrusted with coarse or small hyaline crystals.

ETYMOLOGY: From *e-* (L., pref.) = without, lacking + *fibulatus* (L., adj.) = referring to clamp connections of basidiomycetous hyphae.

CULTURE STUDIED: HHB 8824 (from holotype).

KEY PATTERN: A-P-I-10-14. SPECIES CODE: 2.6.7.32.36.40.43.54.

Remarks.—This is the only species of *Laeticorticium* other than *L. pilatii* Parm. that lacks clamp connections. Parmasto (1965) reported that the basidiospores of *L. pilatii* measured “(7.5–)8–10 \times 4–4.5 μ m,” considerably smaller than those of *L. efibulatum*. Oxidase reactions in culture indicate that the fungus is associated with a white rot.

Laeticorticium floridense M. Larsen et Nakas., sp. nov.

FIG. 1k–m

Basidiocarpis effusus, pallido-cremeis; hyphis fibulatis, 2.5–4 μ m diam; probasidiis adsunt; basidii 70–100 \times 6–8 μ m; basidiosporis 12–14 \times 6.5–8 μ m, ellipsoideis.

Holotypus: U.S.A., Florida, a lignum *Myrica* sp., Leon County, Tall Timbers Research Station, Sheep Island, H. H. Burdsall 9663, 31–VII–1977(CFMR), et isotypus in BPI.

Basidiocarps effuse, up to 350 μ m thick, occurring in patches, coalescing, firm, byssoid; fertile area pale cream to pale ochraceous (near 10.0 YR 8/4), cracking slightly, smooth; subiculum soft, concolorous with to paler than the fertile area; margin narrow and abrupt, villose, paler than the fertile area.

Hyphal system monomitic. Subicular hyphae 2.5–4 μ m diam, clamped, hyaline, with noticeable wall thickening, arranged parallel to the substratum, agglutinated and appearing compact; subhymenial hyphae 2–3 μ m diam, hyaline, thin-walled, intricately branched probasidia ellipsoid to subglobose, 8–10 μ m diam, reaching a maximum dimension of 15 μ m diam before undergoing metabasidial elongation; basidia 70–100 \times 6–8 μ m, proliferating percurrently, sinuous-clavate; clamped at probasidial base, 4-sterigmate, sterigmata up to 7 μ m long; basidiospores 12–14 \times 6.5–8 μ m, mostly ellipsoid (some broadly ellipsoid), hyaline, smooth, blunt apiculate, negative in Melzer's reagent, acyanophilous; *dendrohyphidia* abundant, not forming a continuous and well-defined catagymenium, 2–2.5 μ m diam, clamps infrequent, sparingly branched and often vermiform, smooth and not encrusted.

Growth characters in culture. Growth on MEA moderately rapid, 55–66 mm diam at 1 wk, plates covered at 2 wk; mats white, thin, appressed, subfelty around inoculum, becoming slightly raised, downy to felty toward margins, growing vigorously up plate sides at 2 wk, by 6 wk white, thin, appressed, subfelty throughout with scattered areas of raised, cottony mycelium especially at sides of dishes; margins even, appressed, fimbriate; odor none; agar discoloration none at 2 wk, bleached by 6 wk; not fruiting by 6 wk. Oxidase reactions after 1 wk on GAA strong, mat (0–)tr–22 mm diam, on TAA strong, mat 22–27 mm diam.

Microscopic characters in culture. Advancing zone hyphae 3.5–6 μ m diam, thin-walled, clamped, sparingly branched. Submerged hyphae (1.5–)2–6 μ m diam, thin- to slightly thick-walled, clamped, frequently branched. Aerial hyphae 1.5–4 μ m diam, thin- to slightly thick-walled, clamped, moderately branched, sometimes lightly encrusted with hyaline crystals.

ETYMOLOGY: From Florida + *-ense* (L., suffix indicating origin) = *floridense*.

CULTURE STUDIED: HHB 9663 (from holotype).

KEY PATTERN: A-P-I-1-10-14. SPECIES CODE: 2.3.21.32.36.38.(40).42-43.54.

Remarks. - This species is very similar in culture to *Laeticorticium appalachiense* Burds. & Larsen in Burds. However, *L. appalachiense* grows faster on MEA (66–82 mm diam at 1 wk) and TAA (26–47 mm diam at 1 wk) than *L. floridense*. Furthermore, *L. floridense* lacks the distinctive dendrohyphidia in the basidiocarps so prominent in *L. appalachiense*, which are frequently capitulate at the apex and appear cystidioid. Oxidase reactions in culture indicate that *L. floridense* is associated with a white rot.

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