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THREE NEW SPECIES OF WOOD-ROTTING FUNGI IN THE CORTICIACEAE [1]

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SUMMARY

Three new species of wood-rotting fungi in the Corticiaceae are described. *Byssocorticium neomexicanum* is known from New Mexico on ponderosa pine. *Resinicium chiricahuaensis* occurs on conifer wood in the Southwest, and *Trechispora pallidoaurantiaca* is widely distributed on conifers and angiosperms in North America.

Our recent studies on fungi associated with decay of ponderosa pine (*Pinus ponderosa* Laws.) in the Southwest have yielded three species morphologically distinct from any previously described fungi known to us. These are described as new in this paper.

Capitalized color names are from Ridgway (**1912**). Data on microscopic characters were obtained from sections or crushed tissue in 2% KOH with phloxine and also in Melzer's reagent. Drawings were made with a camera lucida. Type specimens are deposited in the National Fungus Collections, Beltsville, Maryland (BPI). Isotypes and paratypes are also deposited in the University of Arizona herbarium (ARIZ).

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Byssocorticium neomexicanum Gilbertson & Budington, sp. nov.

Fructificatio effusa, byssoidea, violaceo-grisea; subiculum arachnoideum; hyphae septatae, afibulatae, 2–8 μ diam; basidia clavata, 12–14 × 4–5 μ, 4-sterigmata gerentia; cystidia nulla; basidiosporae cylindricae, 5–7 × 2.5–3.5 μ, tunicis hyalinis, levibus, non-amyloideis. Specimen typicum in herb. National Fungus Collections, Beltsville, Md., U. S. A. conservatum; Bandelier Nat. Monument, Sandoval County, New Mexico, R. L. Gilbertson No. 8035.

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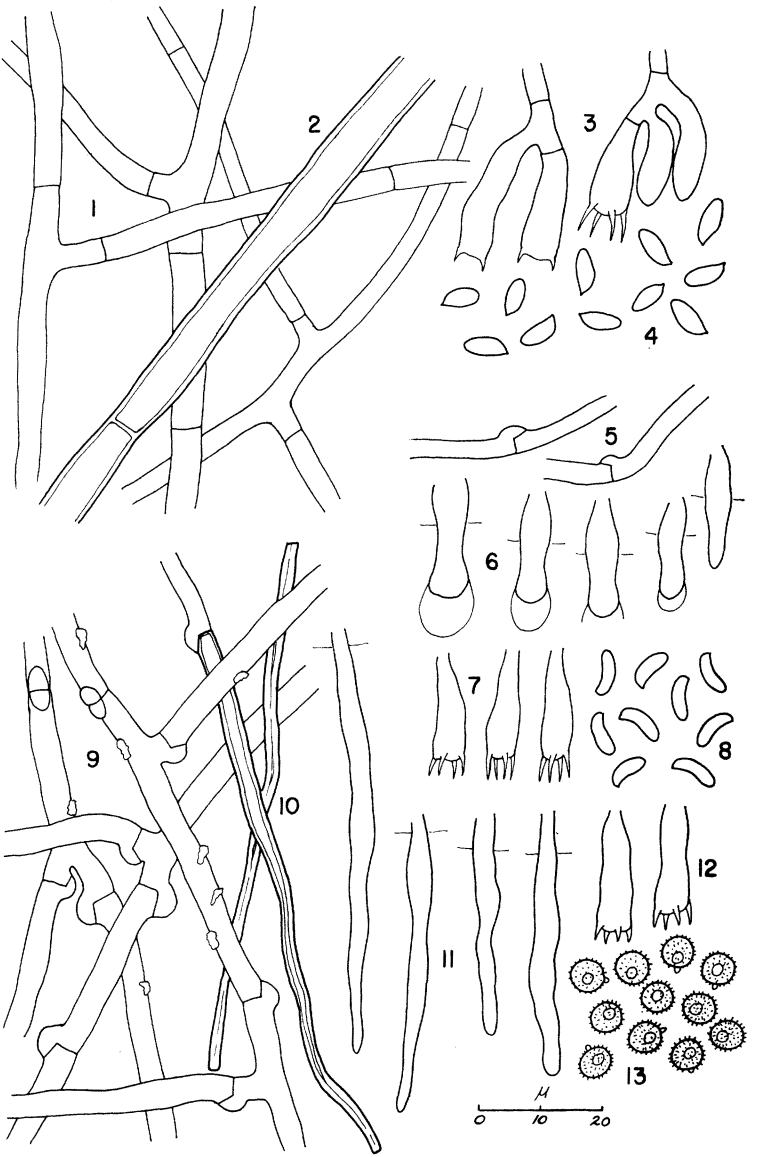

FIGS. 1–4, microscopic characters of *Byssocorticium neomexicanum* (TYPE): 1, thin-walled subicular hyphae; 2, larger, moderately thick-walled subicular hypha; 3, basidia; 4, basidiospores. FIGS. 5–8, microscopic characters of *Resinicium chiricahuaensis* (TYPE): 5, subicular hyphae; 6, cystidioles; 7, basidia; 8, basidiospores. FIGS. 9–13, microscopic characters of *Trechispora pallidoaurantiaca* (TYPE): 9, subicular generative hyphae; 10, subicular skeletal hyphae; 11, cystidia; 12, basidia; 13, basidiospores.

Basidiocarps annual, resupinate, occurring as small, separate patches or confluent up to several centimeters; hymenial surface grayish lavender when fresh, Light Violet-Gray, Deep Plumbeous, Lilac-Gray, or Pearl Gray on dried specimens, smooth; hymenium appearing as a thin, discontinuous, farinaceous layer over an arachnoid, pale purplish gray subiculum visible through the thin hymenium; margin fertile, abrupt, or with a very thin arachnoid sterile portion; subiculum soft, delicate, easily separated from substratum.

Subiculum monomitic; subicular hyphae simple-septate, mostly thin-walled, with frequent branching, 2–5 μ in diam, hyaline in KOH solution, bluish in water and in Melzer's reagent (FIG. 1), some larger, moderately thick-walled hyphae in lower subiculum, these up to 8 μ in diam (FIG. 2); cystidia none; basidia clavate, 4-sterigmate, with a basal septum, 12–14 × 4–5 μ, in candelabrums (FIG. 3); basidiospores cylindric, tapering slightly at both ends, with a short apiculus, hyaline, smooth, nonamyloid, 5–7 × 2.5–3.5 μ (FIG. 4).

Specimens examined: On *Pinus ponderosa* Laws., Bandelier Nat. Monument, Sandoval County, N. Mex., R. L. Gilbertson No. 8035, Aug. 20, 1968, TYPE (BPI); on *P. ponderosa,* Mescalero Apache Indian Reservation, Otero County, N. Mex., RLG 7449, Sept. 6, 1967 (ARIZ); on *P. ponderosa,* Los Alamos, Los Alamos County, N. Mex., RLG 7374, Sept. 13, 1967 (ARIZ).

The diagnostic characters of *B. neomexicanum* are the grayish violaceous hymenial surface and the cylindric basidiospores. *Byssocorticium atrovirens* (Fr.) Bond. et Sing. is similar but has a distinctly different greenish blue color, subglobose basidiospores, and clamp connections in the hymenium. *B. pulchrum* (Lundell) M. P. Chris. (Christiansen, **1960**) also differs in color and has subglobose spores.

Resinicium chiricahuaensis Gilbertson & Budington, sp. nov.

Fructificatio effusa, crustosa, hydnacea, flava vel cremea; aculei conici, 0.5–1 mm longi; subiculum compactum; hyphae nodosae-septatae, 2–4 μ diam; cystidiolae capitatae vel fusiformae, 2–3 μ diam, interdum ad apicem halonatae; basidia clavata, 4-sterigmata gerentia, 3.5–4 μ diam; basidiosporae allantoidae, 4–6 × 1.5–2 μ, tunicis hyalinis, levibus, non-amyloideis. Specimen typicum in herb. National Fungus Collections, Beltsville, Md., U. S. A. conservatum; Rustler Park, Chiricahua Mts., Cochise County, Arizona, R. L. Gilbertson No. 7573.

Basidiocarps annual, resupinate, effused up to 20 cm, not readily separable from substratum; hymenial surface strongly hydnaceous, bright lemon-yellow to creamy yellow when fresh, drying Maize Yellow, Cream Color, or Ivory Yellow; teeth narrowly conical, terete to flattened, simple or confluent at the base, fimbriate at the apex, 0.5–1 mm long;

margin concolorous, finely pubescent, thinning out; subiculum concolorous, very thin, compact; green algae often present in lower portion; hymenial surface slowly giving positive oxidase test in gum guaiac reagent; tissue not changing color in KOH solution.

Subicular hyphae compactly arranged, partially gelatinizing and difficult to discern, nodose-septate, 2–4 μ in diam (FIG. 5); cystidioles slender, apically swollen or fusiform, 2–3 μ in diam and barely projecting from hymenium, some apically swollen ones with a terminal bubble or halo structure, more numerous at apices of teeth (FIG. 6); basidia narrowly clavate, 4-sterigmate, 3.5–4 μ in diam (FIG. 7); basidiospores allantoid, hyaline, smooth, non-amyloid, 4–6 × 1.5–2 μ (FIG. 8).

Specimens examined: On *Pinus ponderosa* Laws., Rustler Park, Chiricahua Mts., Coronado Nat. Forest, Cochise County, Ariz., RLG 7573, Oct. 5, 1967, TYPE (BPI); on *P. ponderosa,* Mt. Lemmon, Santa Catalina Mts., Coronado Nat. Forest, Pima County, Ariz., RLG 7098, Aug. 16, 1967 (ARIZ); on *P. ponderosa,* Mescalero Apache Indian Reservation, Otero County, N. Mex., RLG 7463, Sept. 17, 1967 (ARIZ); on *P. ponderosa,* Long Park, Chiricahua Mts., Coronado Nat. Forest, Cochise County, Ariz., RLG 7933, July 25, 1968 (ARIZ); 16 Springs, Sacramento Mts., Lincoln Nat. Forest, Otero County, N. Mex., on *P. ponderosa,* RLG 8087, 8089, and 8105, and on *Pseudotsuga menziesii* (Mirb.) Franco, RLG 8095, Aug. 23, 1968 (ARIZ).

The distinguishing characteristics of *R. chiricahuaensis* are the yellow color of the hymenial surface, the small, allantoid basidiospores, the inconspicuous cystidioles with an apical bubble or halo and the compact, gelatinizing subiculum. It is associated with a white rot.

Other North American species of *Resinicium* are *R. bicolor* (Fr.) Parm. and *R. furfuraceum* (Bres.) Parm. Basidiocarps of *R. bicolor* are slightly to moderately hydnaceous but are not yellow and have abundant slender hymenial cystidia capped with stellate masses of crystals. Basidiocarps of *R. furfuraceum* are not hydnaceous. Neither of these species has distinctly allantoid spores like those of *R. chiricahuaensis.*

Macroscopically, *R. chiricahuaensis* resembles some members of the closely related genus *Mycoacia* Donk. *Mycoacia pinicola* J. Eriksss. (**1949**), described from Sweden, also is strongly hydnaceous, has a compact gelatinizing subiculum and occurs on coniferous wood. Eriksson's description and illustrations indicate that it differs from *R. chiricahuaensis* in lacking haloed cystidioles and having straight, cylindrical spores and a grayish white hymenial surface. *Mycoacia uda* (Fr.) Donk and *Mycoacia stenodon* (Pers.) Donk also have yellowish fruiting bodies. The tissue of *M. uda* turns purplish in KOH and its spores are not

allantoid. *M. stenodon* has teeth that are typically entire and occurs on angiosperm wood. These latter two species of *Mycoacia* also lack the haloed cystidioles. *Sphaerobasidium minutum* (J. Erikss.) Oberw. has capitate cystidioles but differs markedly in its extremely thin and inconspicuous basidiocarp and spherical basidia.

Trechispora pallidoaurantiaca Gilbertson & Budington, sp. nov.

Fructificatio effusa, delicata, pallido-aurantiaca vel ochracea; subiculum pallidum aurantiaco-fulvum, dimiticum; hyphae generaticae tenuitunicatae, nodoso-septatae, 2–5 μ diam, raro ampullatae; hyphae skeleticae crassitunicatae, aseptatae, 2–2.5 μ diam; cystidia tenuitunicata, cylindracea, 30–65 × 2–4 μ; basidia clavata, 4-sterigmata gerentia, 25–36 × 5–5.5 μ; basidiosporae globosae vel subglobosae, 4–6 (–6.5) × 3.5–5 (–6) μ, tunicis hyalinis, echinulatis, non-amyloideis. Specimen typicum in herb. Nat. Fungus Collections, Beltsville, Md., U. S. A. conservatum; Pack Forest, Warrensburg, Warren County, New York, R. L. Gilbertson No. 4182.

Basidiocarps annual, resupinate, effused up to 10 cm but more commonly in small scattered to confluent patches, hymenial surface pale orange-buff when fresh, Light Pinkish Cinnamon, Light Ochraceous-Salmon, or Pale Pinkish Buff on dried specimens, smooth to grandinioid, at 20 × appearing as a thin, farinaceous layer over a soft, loosely constructed, pale orange-brown subiculum; cordons visible in subiculum at 20 ×; orange-brown subiculum extending beyond hymenial area at margins, thinning out.

Subiculum dimitic; generative hyphae thin-walled, nodose-septate, rarely ampullate, 2–5 μ in diam, with frequent branching, smooth to lightly incrusted, hyaline in KOH solution (FIG. 9); skeletal hyphae traceable to generative type, thick-walled, aseptate, 2–2.5 μ in diam (FIG. 10), especially conspicuous in cordons, faintly yellowish to hyaline in KOH solution; cordons up to 400 μ in diam, abundant in lower subiculum, composed of generative and skeletal hyphae; cystidia hyphoid, thin-walled, tapering to the apex, smooth, 2–4 μ in diam, projecting to 65μ (FIG. 11); basidia clavate, 4-sterigmate, 25–36 × 5–5.5 μ, sterigmata slender, up to 5 μ long (FIG. 12); basidiospores hyaline, echinulate, non-amyloid, globose to subglobose, usually 1-guttulate, with a conspicuous apiculus, 4–6(–6.5) × 3.5–5(–6) μ (FIG. 13).

Specimens examined: On *Pinus sylvestris* L., Pack Forest, Warren County, Warrensburg, N. Y., RLG 4182, TYPE (BPI) and 4181, Sept. 9, 1963 (ARIZ); on *Pinus banksiana* Lamb., Enterprise Junction, District of MacKenzie, N.W.T., Canada, RLG 3428, July 19, 1962 (ARIZ); on *Populus tremuloides* Michx., Whitecourt, Alta., Canada, RLG 6661, Aug. 20, 1966 (ARIZ); on *Picea mariana* (Mill.) B. S. P., Whitecourt, Alta., Canada, RLG 6700, Aug. 4, 1966 (ARIZ); on *Pinus*

ponderosa, Bandelier Nat. Monument, Sandoval County, N. Mex., RLG 8025, Aug. 20, 1968 (ARIZ).

Trechispora pallidoaurantiaca is distinguished by its globose, echinulate spores, orange to buff grandinioid hymenial surface, and dimitic hyphal system. The latter character and the infrequence of ampullate hyphae are not typical of species of *Trechispora* as defined by Liberta (**1966**). However, no other appropriate generic assignment appears to be available. *Tomentella* Pat. would perhaps be the only other possibility but basidiospores and hyphae of species in that genus are typically distinctly pigmented. All of the species of *Tomentella* with a dimitic hyphal system recognized by Larsen (**1968**) differ distinctly from *Trechispora pallidoaurantiaca.*

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