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NEW SPECIES OF CORTICIACEAE (BASIDIOMYCOTINA, APHYLLOPHORALES) FROM ARIZONA

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NEW SPECIES OF CORTICIACEAE
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SUMMARY

Five new species of Corticiaceae--Botryohypochnus verrucisporus,
Erythricium chaparralum, Laetisaria agavei, Trechispora sphaerocystis,
and T. variseptata--from southern Arizona are described and
illustrated.

INTRODUCTION

During the past 15 years, studies of fungi on trees and shrubs in Arizona have revealed a large number of indigenous species of resupinate Aphyllophorales (Burdall and Gilbertson 1974; Lindsey and Gilbertson 1975; Gilbertson et al. 1976). Herein we report five new species in the family Corticiaceae. These fungi were collected in Santa Cruz County and Cochise County in southern Arizona. Four of them are from Sycamore Canyon (L. N. Goodding Research Natural Area) of which the fungal flora has been the subject of two other reports (Gilbertson et al. 1972; Gilbertson and Burdall 1982).

^{1/} Maintained in cooperation with the University of Wisconsin.

BOTRYOHYPCHNUS VERRUCISPORUS sp. nov.

Figure 1.

Hyphis subicularis 5-8 μm diam, afibulatis, pallidolutis vel luteo-brunneis; basidiis cylindraceis, 25-30 x 7.5-9 μm ; basidiosporis globosis vel subglobosis, 6-8 x 5-5.5 μm , brunneis, asperis et inordinatus verruciformibus vel spinis.

HOLOTYPUS: HHB 8784, ad ligna Quercus arizonicus Sarg., Sycamore Canyon, Atascosa Mts., Coronado National Forest, Santa Cruz County, Arizona, legit H. H. Burdsall, Jr., Sept. 24, 1975, in herb. CFMR; isotypus in ARIZ.

Basidiocarp effuse in small patches, byssoid to hypochnoid, thin, easily separable, fertile area "pale grey" (near 1B1);^{2/} margin paler than fertile area to nearly white. Hyphal system monomitic. Subicular hyphae 5-8 μm diam, loosely interwoven, firm-walled in broadest basal hyphae, pale yellow to yellow brown, long-celled, simple septate, smooth or coated with a thin coating of hyaline to pale yellow brown granules; subhymenium of loosely interwoven hyphae like thin-walled ones in subiculum, smooth; cystidia absent; basidia often arising from horizontal hyphae, nearly cylindrical but with basal swelling, 25-30 x 7.5-9 μm , hyaline or pale yellow, thin-walled, simple-septate at base, 4-sterigmate, sterigmata up to 6 μm long; basidiospores broadly ellipsoid to subglobose, 6-8 x 5-5.5 μm , walls up to 1 μm thick, brown, coarsely and irregularly warted to spinose, with well developed apiculus, Melzer's-, strongly cyanophilic.

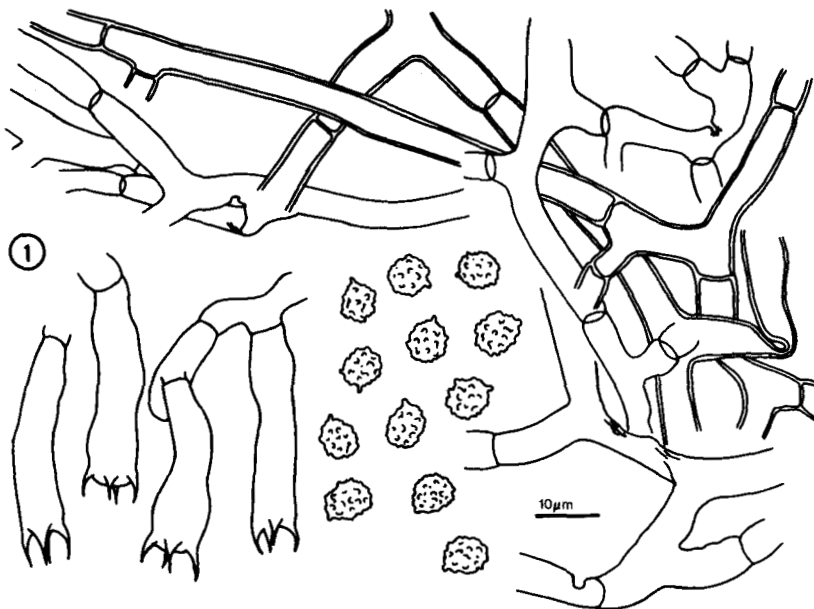


Figure 1.--Botryohypchnus verrucisporus. Line drawings of subicular hyphae, basidia, and basidiospores. (Holotype)

^{2/} Such color notations are from Kornerup and Wanscher (1967).

Etymology: From verrucosus (L., adj., warty or wart-like) + sporus (L., n., spore).
 Habitat: Known only on fallen dead branches of Quercus arizonicus
 Distribution: Known only from the type locality
 Specimen examined: Holotype, cited above.
 Remarks: This species is distinguished by its broad, pigmented, simple-septate hyphae; cylindrical 4-sterigmate basidia, and the dark brown, thick-walled, irregularly verrucose basidiospores.

ERYTHRICIUM CHAPARRALUM sp. nov.

Figure 2.

Distinctis basidiocarpo aurantiaco et basidiosporis 8-10 x 6-7.5 μ m, late ellipsoideis.
 HOLOTYPUS: J.L.L. 9208, ad mortuum pedunculum Yucca sp., Greenhouse Canyon, Coronado National Forest, Portal, Cochise County, Arizona, legit J. L. Lowe et R. L. Gilbertson, Aug. 24, 1958, in herb. CFMR; isotypi in ARIZ, SYRF.

Basidiocarp broadly effuse, membranous, adnate, smooth or appearing irregularly warty and furrowed because of substrate surface conformation, "greyish orange" (6B5) to "brown" (6E6) when dry, probably more pink when fresh; margin abrupt, not differentiated; subiculum not apparent through hymenium. Hyphal system nonmitic; subiculum of inter-

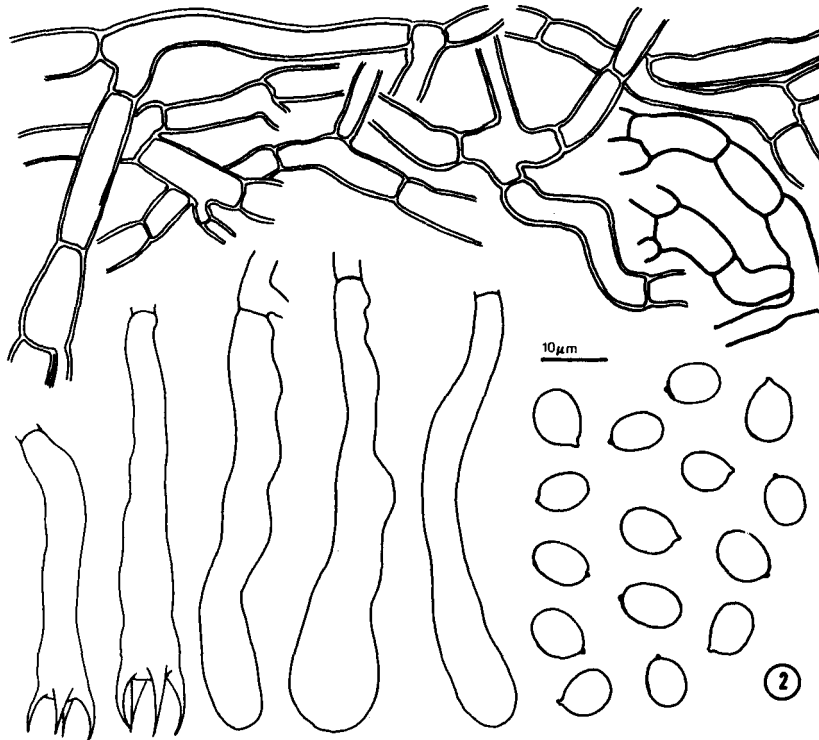


Figure 2.--Erythricium chaparralum. Line drawings of subicular hyphae, basidia, and basidiospores. (Holotype)

woven hyphae, 3.5-6 μm diam, irregularly swollen to 10 μm , firm-walled or walls up to 1 μm thick, smooth, hyaline or with pale yellow tint, simple septate; subhymenium of interwoven hyphae 5-6 μm diam, irregularly swollen to 7 μm diam, thin-walled, hyaline, much branched, short-celled; cystidia absent; basidia clavate, 50-80 x 8.5-12(-14) μm , hyaline, thin-walled, simple-septate at base, 4-sterigmate, sterigmata 7-10 μm long; basidiospores broadly ellipsoid, 8-10 x 6-7.5 μm , hyaline, firm-walled, smooth, Melzer's-, acyanophilous.

Etymology: From chaparral (the Southwestern oak woodland habitat) + um (L., suff., belonging to).

Habitat: Known only from dead flower stalks Yucca.

Distribution: Known only from the type locality.

Specimen examined: Holotype, cited above.

Remarks: Erythricium chaparralum is typical of the genus Erythricium in having large basidia and basidiospores, and broad simple-septate hyphae. It differs from E. laetum (Karst.) Erikss. et Hjorts. (basidiospores 11-13(-15) x 6-7.5 μm) in its smaller broadly ellipsoid basidiospores, its orange color, and in its restricted distribution.

LAETISARIA AGAVEI sp. nov.

Figure 3.

Basidiocarpis crassis, cartilagineis, persicinis vel aurantiacis, hyphis subculis ad 5 μm diam; basidiosporis 9-12 x 6-7.5 μm , ellipsoideis vel late ellipsoideis.

HOLOTYPUS: RLG 10805, ad mortuum folium basalum Agave parryi Engelm., Carr Canyon, Huachuca Mts., Coronado National Forest, Cochise County, Arizona, legit R. L. Gilbertson, Oct. 5, 1972, in herb. CFMR; isotypus in ARIZ.

Basidiocarp broadly effuse, fertile area phlebioid to cartilaginous, continuous, becoming hard and horny on drying, smooth to variously warty and ridged, sometimes with nearly cylindrical protrusions or spines, various shades of pink, orange, or salmon (Terra Cotta, Dragon's Blood Red, or Coral Red of Ridgway, 1912); margin white to pale pink, fimbriate to fibrillose, fibrils sometimes agglutinated into hard and horny spines on drying; subiculum white, appearing fibrous because of strands of agglutinated hyphae. Hyphal system monomitic; subiculum of much agglutinated hyphae, difficult to separate even in hot 2% KOH, hyphae 2-5 μm diam, some thin-walled, mostly with walls up to 1 μm thick, hyaline, simple-septate, smooth, with regular branching; subhymenium compact and agglutinated, hyphae 2-3 μm diam, hyaline, simple-septate, firm-walled, much branched; cataphymenium of hyphidia 2-3 μm diam, with finger-like protrusions near apex, hyaline, smooth, thin-walled; cystidia absent; basidia nearly cylindrical with probasidial swelling, flexuous, hyaline, thin-walled, 4-sterigmate, sterigmata 6-10 μm long, up to 2.5 μm diam at base; basidiospores ellipsoid to broadly ellipsoid, 9-12 x 6-7.5 μm , hyaline, thin-walled, smooth, with large apiculis, Melzer's -, acyanophilous.

Etymology: From Agave, the only substrate on which this species has been found.

Habitat: Known only from dead basal leaves of Agave spp.

Distribution: Southwestern oak woodland and upper Sonoran Desert of Arizona.

Specimens examined: Arizona--ABB 1468, on Agave chrysantha and RLG 10787, on Agave sp., Sycamore Canyon, Atascosa Mts., Santa Cruz County; HHB 7273, on Agave sp., Colossal Cave, Pima County (CFMR, ARIZ); RLC 10805 (holotype, cited above); RLG 10859 on Agave parryi Engelm., Molino Basin, Santa Catalina Mts., Coronado National Forest, Pima County (ARIZ).

Remarks: *Laetisaria agavei* differs from *L. fuciformis* (McAlpine) Burds. in its apparently restricted substrate preference (*Agave* sp.), in its thick hymenium, and in possessing narrow thick-walled hyphae and basidiospores, up to $7.5\ \mu\text{m}$ wide. In *L. fuciformis* the hymenium is thin and fragile, the subicular hyphae are $5\text{--}10\ \mu\text{m}$ in diameter, thin- to firm-walled, and the basidiospores are $5\text{--}6.5\ \mu\text{m}$ diam.

Although protruding spines may be found near the margin of some specimens of *L. agavei*, these are not as well developed as they are in *L. fuciformis*.

The life cycle of the agave terminates with the death of the plant after flowering. *Laetisaria agavei* was found on virtually every dead agave examined. The nature of this association, however, is unknown. It is assumed at this time to be a saprophyte. However, the possibility that it may be a parasite must be considered. If this should be the case, then its function would be consistent with that of *L. fuciformis*, a parasite on grasses.

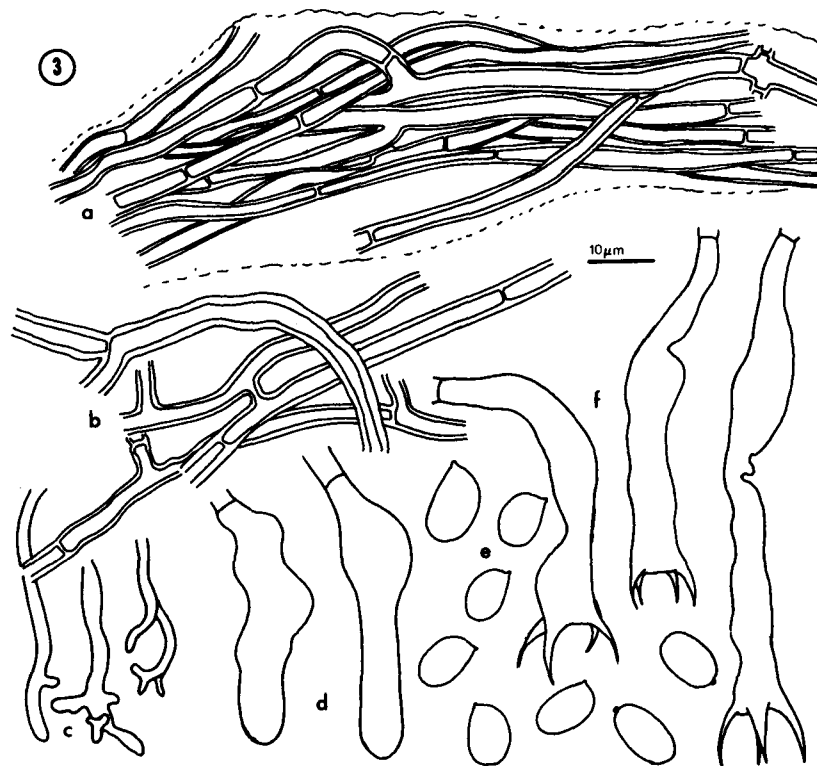


Figure 3.--*Laetisaria agavei*. Line drawings of subicular hyphae imbedded in hyaline matrix (a), unimbedded hyphae (b), hyphidia (c), immature basidia (d), basidiospores (e), mature basidia (f). (Holotype)

TRECHISPORASPHAEROCYSTIS sp. nov. Figure 4.
 A Trechispora mutabilis (Pers.) Liberta sphaerocystis subiculis
 9-18 mm diam differt.

HOLOTYPE: HHB 5985, ad lignum Juglans major (Torr.) Heller (Arizona black walnut), Sycamore Canyon, Atascosa Mts., Coronado National Forest, Santa Cruz County, Arizona, legit H. H. Burdsall, Jr., Aug. 12, 1971, in herb. CFMR; isotypus in ARIZ.

Basidiocarp broadly effuse, colliculose to grandinoid, Pale Buff to Ochraceous of Ridgway (1912), easily separable; **subiculum** byssoid, concolorous with hymenium; **margin** not well differentiated. **Hyphal system** monomitic; **subiculum** of interwoven hyphae 2.5-5.0 mm diam sometimes swollen to 7.5 mm at ampullate septa, hyaline, thin-walled, with

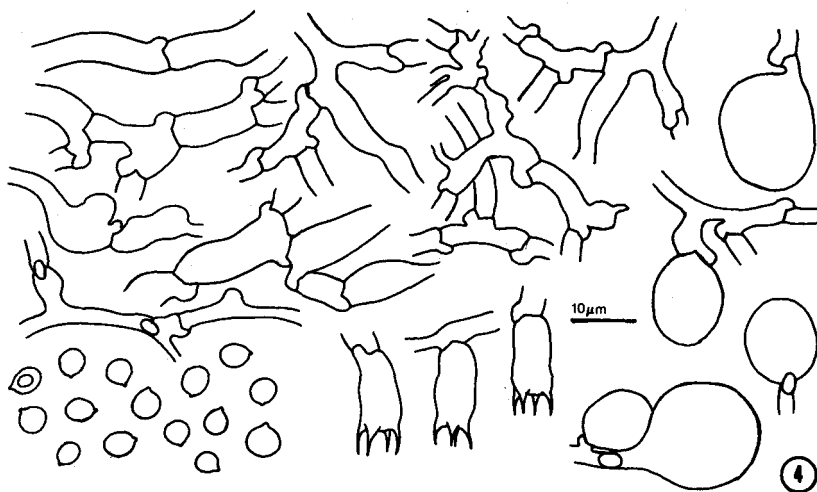


Figure 4.--Trechispora sphaerocystis. Line drawings of subicular hyphae, sphaerocysts, basidia, and basidiospores. (Holotype)

scattered encrustation, clamp connections present; **sphaerocysts** arising laterally or terminally on hyphae, subglobose to globose, 9-18 mm, diam hyaline, thin-walled, readily collapsing; **cystidia** absent; **basidia** short and stout, ovoid to broadly clavate, 12-20 x 5.0-7.5 mm, hyaline, thin-walled, 4-sterigmate, sterigmata nearly cylindrical, up to 6 mm long; **basidiospores** subglobose, 4.0-5.5 x 3.0-4.5 mm, hyaline, thin-walled, smooth, Melzer's-, acyanophilous.

Etymology: From **sphaera** (Gr. f., sphere) + **cystis** (Gr. f., bladder or cyst), referring to the swellings or sphaerocysts in the subiculum.

Habitat: Known only as associated with a white rot of woody debris of Arizona black walnut.

Distribution: Known only from the type locality.

Specimen examined: Holotype, cited above.

Remarks: Trechisporasphaerocystis is associated with a white rot of desert hardwoods. It is closely related to T. mutabilis (Pers.) Liberta but differs by possessing large sphaerocysts in the subiculum.

TRECHISPORA VARISEPTATA sp. nov.

Figure 5.

A Trechispora spp. hyphis subiculis septates numerosis afibulatis, hyphis subhymeniis septatis et basidiis septatis basilaribus afibulatis, et basidiosporis 3.5-5 x 4-5 μm differt.

HOLOTYPUS: RLG 9301, ad Fraxinus velutina Torr., Sycamore Canyon, Atascosa Mts., Coronado National Forest, Santa Cruz County, Arizona, legit R. L. Gilbertson, Oct. 3, 1969, in herb. CFMR.

Basidiocarp broadly effuse, loosely attached, fertile area grandinoid, yellowish white or grayish cream; margin thin, farinaceous; subiculum arachnoid, with scattered cordons, pale gray of Ridgway (1912). Hyphal system monomitic; subiculum loosely interwoven with

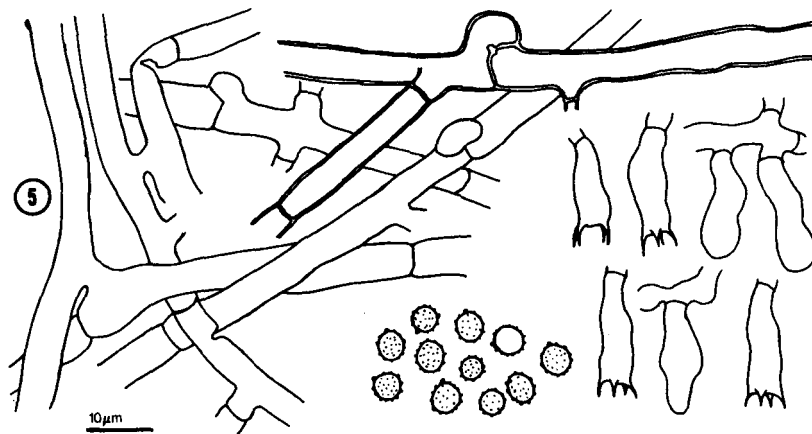


Figure 5.--Trechispora variseptata. Line drawings of subicular hyphae, basidia, and basidiospores. (Holotype)

scattered cordons, hyphae 3.5-6 μm diam, thin-walled to firm-walled, hyaline to pale yellow, smooth, mostly simple-septate, rarely nodose septate; cordons of aggregated hyphae like those of subiculum; cystidia absent; basidia clavate to suburniform, 12-18 x 5-6 μm , hyaline, thin-walled, simple-septate at base, 4-sterigmate, sterigmata up to 4 μm long; basidiospores subglobose to globose, echinulate, 4-5 x 3.5-5 μm , pale yellow, firm-walled, Melzer's-, acyanophilous.

Etymology: From varians (L., part., varying) + septatus (L., adj., septate), referring to the presence or absence of clamps on septa of the subicular hyphae.

Habitat: Associated with a white rot of woody hardwood debris.

Distribution: Known only from the type locality.

Specimen examined: Holotype, cited above.

Remarks: This species is unusual in the genus Trechispora because of the erratic occurrence of clamp connections and the lack of clamp connections in the hymenium. The genus Phanerochaete Karst. possesses such characters but the composition of the basidiocarp of T. variseptata, the size and shape of the basidia, and the basidiospore characters require its disposition in Trechispora.

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