

## NOTES ON LACHNELLULA THEIODEA

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*Peziza theioidea* Cke. & Ell. was published based on an Ellis collection from New Jersey (Cooke & Ellis, 1878) and was later transferred to the genus *Lachnellula* by Saccardo (1889). Since then, the taxonomic situation of this interesting fungus has been discussed twice (Korf, 1962; Dennis, 1963), but the generic name has not been changed, even though both authors expressed doubt on the assignment of this species to *Lachnellula*.

Almost all known specimens collected in North America were examined carefully by Korf (1962), and the morphology of this species was described and illustrated in detail. He stated that "the ectal excipular layer of this discomycete is unlike that known to me in any other of the 'hairy inoperculate discomycetes,' and I suspect that the fungus may represent an as yet undescribed genus. ... The question of its placement in the classification on a natural basis remains doubtful." He indicated also that "For the time being, the fungus can be left to slumber in the genus *Lachnellula*, as natural classification of the Discomycetes progresses, it will surely need another generic name." (Korf, 1962). It is clear that Saccardo's transfer of the fungus to *Lachnellula* was based on the presence of granulate hairs and spherical ascospores. Little can be found in common in the anatomical structure of this discomycete and that of other *Lachnellula* species. The highly gelatinized, elongated, very thick-walled, interwoven excipular hyphae are not *Lachnellula*-like, and the shape of hairs is wrong for *Lachnellula*. This fungus is found associated with other fungi on decorticated wood of angiosperms while species of *Lachnellula* are typically found on the bark of conifers.

When Dennis studied the type specimen of this species, he noted "these are not the hairs of a typical *Lachnellula*. It may possibly be a *Pithyella*, but I have not studied the type species, *P. hypnorum* (Quél.) Boud., and prefer not to propose a transfer here" (Dennis, 1963). [He meant to write "*P. hypnina* (Quél.) Boud."] The type of the genus *Pithyella* has marked ascospores, smooth hyphal protrusions if any, and is moss-inhabiting (Korf & Zhuang, 1987). *Lachnellula theioidea* is neither a species of *Pithyella* nor of *Lachnellula*.

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neither a species of *Pithyella* nor of *Lachnellula*.

The specific epithet *theiodea* means sulphur-like and is a summary of part of the original description: "the sulphury powder which covers the cups is sprinkled over the matrix" (Cooke & Ellis, 1878). All the authors who studied this fungus were interested in the yellow powder covering the cups. I have seen it in some of the collections. They are crystals which dissolve in aqueous KOH and very possibly are secreted by the fungus.

When a photograph of the holotype of *Hyphodiscus gregarius* Kirschst., type species of the genus *Hyphodiscus* Kirschst. (1907), was found by me attached to a 1984 letter from Dr. Wolf-Rüdiger Arendholz to Prof. Korf came to my attention, the excipular structure and short, apically granulate hairs of this species attracted my interest. The photograph shows many characters of *Lachnellula theiodea*. The holotype of *H. gregarius* was therefore borrowed. My type examinations proved that *L. theiodea* and *H. gregarius* are synonyms. *Hyphodiscus* is the correct generic name for *L. theiodea*. The correct specific epithet for the fungus should be *theiodea*, and a transfer to *Hyphodiscus* is required.

Examination of type specimens also revealed that *Mollisiella austriaca* Höhnelt is another later synonym of *Lachnellula theiodea* (Cke. & Ell.) Sacc. *Mollisiella austriaca* was erected by Höhnelt (1903) based on a tiny discomycete which grew on an old thallus of *Peniophora cinerea* on decaying wood of *Fagus* sp. Only one collection was found under *M. austriaca* in the Höhnelt Herbarium of FH and the species appears to have been ignored by mycologists other than Saccardo (1906), who accepted the name and copied Höhnelt's original description in the *Sylloge Fungorum*. Three of the five known North American collections of *L. theiodea* are also on the fruit bodies of *Peniophora* sp., but the host fungus is too inconspicuous to have been noticed by any of the collectors. Korf (1962) illustrated a brown *Calycellina*-like basal ring of the apothecium of this fungus. My observation reveals that the brown cells do not belong to the discomycete, but to the host fungus instead. I checked each plant substrate of these collections very carefully and came to the conclusion that *L. theiodea* is a fungicolous or fungus-associated fungus, and its apothecia are often found on fruit bodies of *Peniophora* sp. or other fungi on the same substrate. This discomycete occurs mainly in the early spring, but it has been collected once in September.

One thing which needs to be clarified is the type of *Mollisiella austriaca*. The type specimen was sent from the Höhnelt Herbarium at FH. The label on the packet is full of information. The measurements of microscopic characters on the label match those in the original description well. The generic name was first put down as *Pulparia*, followed by the specific epithet *austriaca*. Then *Pulparia* was crossed out, and *Mollisiella* was substituted at the top. In his discussion, Höhnelt (1903) stated that "Die beschriebene Art steht der *Pulparia australis* Speg. (Sacc. Syll. X, p. 38) aus Brasilien nahe, ist aber von ihr gut zu unterscheiden." Later, *Mollisiella* was also crossed out and *Niesslella* was written down at margin of the label, but the combination in *Niesslella* was never published by Höhnelt. No questions can be raised on the locality and substrates when

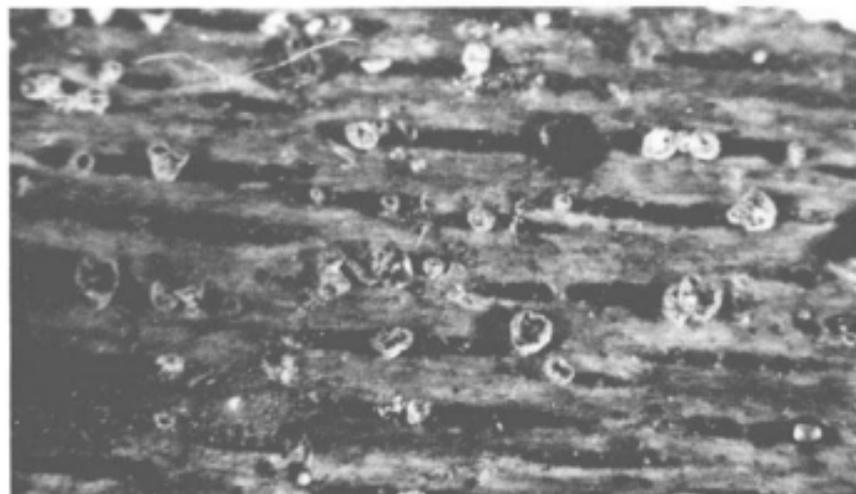


FIG. 1. Apothecia of *Hyphodiscus theiodeus* on substrate, from R.P.K. 3277, x 17.5.

comparing the information given on the label with that in the original description. The only problem is the collection date, which appears on the label as "27. 2. 1903" but was published as "March, 1902." Prof. Korf has suggested to me that this is merely a inversion of month and year. Prof. Pfister of FH indicates that this is the only specimen in FH under any of these names. I checked Höhnle's paper and found that the latest collection included in that paper was dated June, 1903. The collecting date, 27. 2. 1903, is not too late for publication in the paper. My conclusion is that this specimen is the type of *M. austriaca*.

Generic and specific descriptions are provided as follows:

*Hyphodiscus* Kirschst., Verh. Bot. Vereins Prov. Brandenburg 48: 44, 1907 (1906).

Apothecia solitary to gregarious, turbinate, discoid, or applanate, sessile; hymenium yellowish brown, receptacle concolorous, surface downy. Hairs short, nonseptate to 1-septate, with rod-like granules mostly on the apical cell, subhyaline to pigmented, more or less thick-walled. Ectal excipulum of *textura intricata*, with hyphae gelatinized, thick- and glassy-walled. Medullary excipulum of *textura intricata*, less gelatinized. Asci inoperculate, 8-spored, J+ in Melzer's reagent with or without aqueous KOH pretreatment. Ascospores unicellular, hyaline, smooth-walled, guttulate. Paraphyses filiform, septate.

On woody substrates, often associated with other fungi.

Type: *Hyphodiscus gregarius* Kirschst.

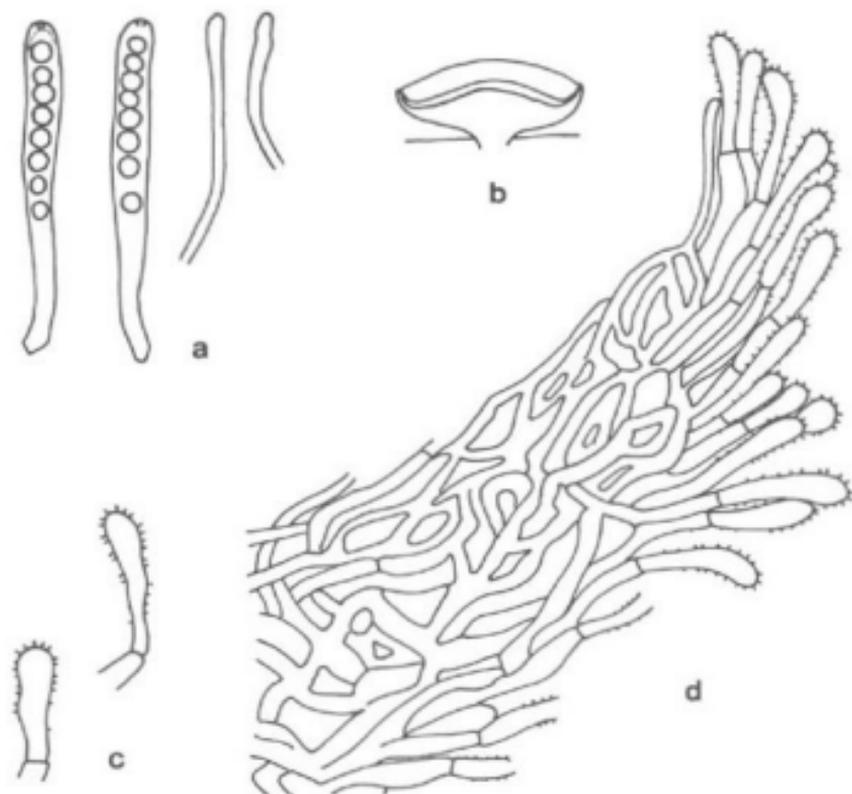


FIG. 2. *Hypodiscus theiodeus*: a. paraphysis apices and asci with ascospores (R.P.K. 3277), b. shape of apothecium, from top to bottom showing hymenium, medullary excipulum and ectal excipulum (R.P.K. 2943), c. granulate hairs (R.P.K. 3277), d. structure of excipulum (R.P.K. 2943); a x 50, b-d x 1000.

***Hypodiscus theiodeus* (Cooke & Ellis) Zhuang, comb. nov. (Figs. 1, 2)**

≡ *Peziza theiodea* Cke. & Ell., *Grevillea* 7: 7, 1878.

≡ *Lachnellula theiodea* (Cke. & Ell.) Sacc. ('*theiodea*'), *Syll. Fung.* 8: 391, 1889.

≡ *Lachnella theiodea* (Cke. & Ell.) Sacc. in Seymour ('*theiodea*'), *Host Index Fungi N. Am.* p. 469, 1929.

= *Mollisiella austriaca* Höhn., *Ann. Mycol.* 1: 396, 1903.

≡ *Pithyella austriaca* (Höhn.) Boud., *Hist. Classif. Discom. Europe* p. 125, 1907.

= *Hyphodiscus gregarius* Kirschst., Verh. Bot. Vereins Prov. Brandenburg 48: 44, 1907 (1906).

Apothecia turbinate to discoid when young, discoid to appanate at maturity, sessile, solitary to gregarious, 150-550  $\mu\text{m}$  in diam; hymenium yellowish brown, warm brown to dark brown when dry; receptacle concolorous with hymenium, surface downy; with yellow powder covering receptacle surface and part of hymenium in some collections. Hairs present mostly at margin and flanks; light brown, cylindrical, often slightly inflated at apex, non-gelatinized, with granules mostly on the apical cell of hairs or less commonly covering the entire length, more or less thick-walled, 0-1 septate, 8-25  $\mu\text{m}$  long, 2.7-4.0(-5.0)  $\mu\text{m}$  wide. Ectal excipulum of *textura intricata*, mixed with *textura angularis* at the base, 15-55(-75)  $\mu\text{m}$  thick; hyphae gelatinized, elongated, thick- and glassy-walled, subhyaline, slightly brownish towards the outside, 4.5-5.0  $\mu\text{m}$  wide; hyphal walls 1-2  $\mu\text{m}$  thick; many yellow crystals seen covering the receptacle surface when mounted in cotton blue-lactic acid or in water, crystals dissolved by 10% KOH. Medullary excipulum of *textura intricata*, less gelatinized, 13-20(-40)  $\mu\text{m}$  thick; hyphae slender, subhyaline to light brown. Subhymenium indistinguishable. Asci 8-spored, cylindrical with a tapered base, J+ in Melzer's reagent with or without 10% KOH pretreatment, walls somewhat thick at apex, 40-45  $\times$  3.0-4.8  $\mu\text{m}$ , with crozier at base. Ascospores uniseriate, spherical to subspherical, unicellular, hyaline, smooth-walled, uniguttulate, 2.2-3.3  $\mu\text{m}$  in diam. Paraphyses filiform, septate, unbranched or branched only at base, 1.5 (-2.0)  $\mu\text{m}$  wide, not exceeding asci.

HABITAT: On fruit bodies of, or associated with, *Peniophora* sp. and other fungi on decorticated branches.

ILLUSTRATIONS: Kirschstein, W., Verh. Bot. Vereins Prov. Brandenburg 48: 45, Fig. 1907 (1906). Korf, R.P., Trans. Mycol. Soc. Japan 3: 49, Fig. 1, 1962. Dennis, R.W.G., Kew Bull. 17: 370, Fig. 68, 1963. This paper Figs. 1, 2.

SPECIMENS EXAMINED: Austria: On fruit bodies of *Peniophora cinerea* on decaying wood of *Fagus*, Georgenberg b. Purkersdorf, v. Höhnel, 27. II. 1903, FH-Herb. Höhnel #d. 5056 (holotype of *Mollisiella austriaca*).

United States: On decorticated *Rhus venenata* [associated with other fungi], New Jersey, Ellis 2956, (no date), K (holotype of *Peziza theiodea*), CUP-D 3820 (90-133) (isotype); on *Rhus venenata* [associated with another fungus], Vineland, New Jersey, Ellis, 6. III. 1878, CUP-D 8757 (90-134); on beech (?) stick [or on fruit bodies of *Peniophora* sp. on the same substrate], Sylvan, Washtenaw Co., Michigan, A.H. Smith, 9. IV. 1929, MICH, NY-Cummins 69, R. P. Korf Personal Herbarium (R.P.K.) 3100; [on fruit bodies of *Peniophora* sp.] on *Platanus occidentalis* L., Rte. 261 near Ohio-Breckinridge city line, Kentucky, R.T. Pennoyer 2707, 2. IV. 1961, R.P.K. 2943; on wood [and associated with another fungus], High Bridge, Indiana, R.T.

Pennoyer 2852, 26. VIII. 1961, R.P.K. 3277.

**West Germany:** On rotten wood of *Rhamnus frangula*, Stadforst Rathenow a/H, W. Kirschstein, 19. III. 1905, B (holotype of *Hyphodiscus gregarius*).

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