

Dendrothele griseocana (Corticiaceae) and related taxa with hyphal pegs

by

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With 7 figures

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Abstract: Four *Dendrothele* (Corticiaceae, Polyporales) species with hyphal pegs are described and illustrated. Type specimens of *Corticium griseocanum* and *Dendrothele papillosa* were examined and found to be conspecific. Two new taxa, *D. americana* and *D. tanzaniana*, are described and illustrated, and the new combination, *Dendrothele andina*, is proposed. A key to *D. griseocana* and similar taxa with hyphal pegs is provided.

Key words: *Odontia andina*, *Dendrothele*, hyphal pegs, Tanzania.

Resumen: Cuatro especies del género *Dendrothele* (Corticiaceae, Poliporales) con papilas o clavijas son descritas e ilustradas. Los especímenes tipo de *Corticium griseocanum* and *Dendrothele papillosa* fueron estudiados, y dos nuevos taxones, *D. americana* y *D. tanzaniana* son descritos e ilustrados. Se propone una nueva combinación para *Dendrothele andina*. Se incluye una clave para *D. griseocana* y taxones similares con papilas o clavijas.

Palabras clave: *Odontia andina*, *Dendrothele*, papilas o clavijas, Tanzania.

Introduction

Dendrothele Höhn. & Litsch. (1907) was erected nearly 100 years ago for a taxon with crust-like fruiting bodies and sterile papillae (hyphal pegs) composed of finely branched hyphae called dendrohyphidia. *Dendrothele papillosa* Höhn. & Litsch., the generic type, is a distinctive corticioid species with sterile hyphal pegs, simple septate hyphae, 2-spored basidia, and globose to subglobose basidiospores. Widespread

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in Europe, its preferred habitat is the bark of living hardwood trees. Rogers (1935) and Lemke (1964) applied the name *Dendrothele griseocana* (Bres.) Bourdot & Galzin to a similar taxon in North America with hyphal pegs, clamped hyphae, and 4-spored basidia. Although the discrepancy between the European and North American application of the name *D. griseocana* is widely recognized (Boidin et al. 1996; Ginns & Lefebvre 1993; Nakasone 1990; Thorn 1991), this species-complex remains unresolved.

In this study, the *D. griseocana* species-complex is resolved. The new species *D. americana* is described for the North American taxon with clamped hyphae and 4-spored basidia. The type specimens of *Corticium griseocanum* Bres. and *D. papillosa* were examined and found to be conspecific. Another new taxon, *Dendrothele tanzaniana* from Africa, is described, and a new combination, *Dendrothele andina*, is proposed. All four species of *Dendrothele* with hyphal pegs are described and illustrated. A key to the *Dendrothele* species with hyphal pegs is included.

Materials and Methods

Thin, freehand sections from each specimen were mounted in aqueous potassium hydroxide (2% weight/volume) and aqueous phloxine (1% w/v) or Melzer's reagent (Kirk et al. 2001) and examined under an Olympus BH2 compound microscope (Olympus America, Inc., Melville, NY). Line drawings were made with a camera lucida attachment. Cyanophily of the basidiospore walls was determined with cotton blue (0.1% w/v) in 60% lactic acid. The reaction of the gloeocystidial contents to sulfovanillin (1 g vanillin, 3 mL distilled water, 8 mL concentrated sulfuric acid) was tested. Color names are from Kornerup & Wanscher (1978), and herbarium designations follow those of Holmgren et al. (1990).

Results

Key to the *Dendrothele* species with hyphal pegs

- | | |
|--|----------------------|
| 1. Basidia with 2-sterigmata..... | 2 |
| 1. Basidia with 4-sterigmata..... | 3 |
| 2. Hyphae nodose-septate..... | <i>D. andina</i> |
| 2. Hyphae simple-septate..... | <i>D. griseocana</i> |
| 3. Basidiospores usually > 10 µm long..... | <i>D. tanzaniana</i> |
| 3. Basidiospores usually < 10 µm long..... | <i>D. americana</i> |

Species descriptions

Dendrothele americana Nakasone, sp. nov. Figs. 1-2

Differt a *Dendrothele griseocana* hyphis fibulis, basidiis tetrasporis, basidiosporis minoribus (7.5-)8-9(-10) × (6.5-)7-9 µm.

HOLOTYPE: U.S.A., Wisconsin, Dane County, Maromonic, Walking Iron County Park, on bark of *Juniperus* sp., 18 Sep 1984, legit K.K. Nakasone, FP101995 (holotype: BPI; isotype: CFMR).

Basidiocarps effuse, adnate, beginning as small circular or irregular patches, confluent, up to 20 × 10 mm, thin, 60-100(-350) µm thick, subceraceous, smooth to rugulose with scarce to numerous tiny hyphal pegs, yellowish white (4A2), orange white

(5A2), greyish yellow to yellowish grey [4B(2-3)], or greyish orange (5B3, 6C3), cracks lacking or scarce to numerous, shallow to deep, sometimes breaking into polygons: hyphal pegs cylindrical to conical, terete, $50-80 \times 11-30 \mu\text{m}$, hyaline to white, 6-10 pegs per mm; margin abrupt, distinct, concolorous with hymenium, rarely thinning out, with white, fibrillose edges.

Hyphal system monomitic with clamped generative hyphae. Hyphal pegs a dense aggregation of dendrohyphidia with numerous, short, fine branches. Subiculum and subhymenium indistinct, a compact, agglutinated tissue embedded with abundant hyaline crystalline material; hyphae $1.5-3 \mu\text{m}$, clamped, moderately branched, walls hyaline, thin to slightly thick, smooth. Cathymenium a dense, partially agglutinated, hyaline to yellowish brown tissue, sometimes obscured by crystalline materials, composed of hyphal pegs, dendrohyphidia, gloecystidia, and basidia. Dendrohyphidia scarce to abundant, filamentous, simple with short, lateral branches to elaborately branched at apex, $20-50 \times 0.5-3 \mu\text{m}$, with a basal clamp connection, walls hyaline, thin, smooth, rarely coated with brown, mucilaginous material. Gloecystidia embedded, cylindrical to clavate with constrictions, flexuous, occasionally vesiculose, sometimes with short, lateral knobs at base, $25-70 \times 7-10(-15) \mu\text{m}$, with a basal clamp connection, sometimes stalked, with dark yellow, resinous or light brown contents, occasionally encrusted with yellowish, mucilaginous material, contents negative in sulfovanillin, walls hyaline, thin to slightly thickened, smooth. Basidia at first obclavate to vesiculose, cylindrical to clavate with slight constrictions, $25-55(-75) \times 7-12 \mu\text{m}$, with a basal clamp connection, with or without a stalk, repetitive, walls hyaline, thin, smooth, 4-sterigmate, sterigmata up to $9 \times 2 \mu\text{m}$. Basidiospores subglobose to globose, $(7.5-)-8-9(-10) \times (6.5-)-7-9 \mu\text{m}$, often in clusters of 2-4, walls hyaline, thin to slightly thickened, smooth, cyanophilous, negative in Melzer's reagent.

HABITAT: bark of living angiosperms and gymnosperms

DISTRIBUTION: widely distributed in Canada (Manitoba, Ontario, Quebec) and the United States, from New York to Florida and westward to Minnesota and Arizona.

REPRESENTATIVE SPECIMENS EXAMINED. CANADA. Manitoba, Winnipeg, east of Manitoba Agricultural College, on (bark of) *Quercus macrocarpa* Michx., 9 Apr 1935, G.R. Bisby F6284 (DAOM). Ontario, York County, Nashville, on (bark of) *Ulmus* sp., 23 Sep 1961, R.F. Cain (NYBG 00520177: NY); on (bark of) *Salix* sp., 26 Sep 1953, R.F. Cain, TRTC 45869 (NY); Hogg's Hollow, north of Toronto, on *Salix* sp., 14 Nov 1936, H.S. Jackson, TRTC 9736 (US0284520: BPI, NY, DAOM); Don Valley, on (bark of) *Salix* sp., 3 Jul 1946, H.S. Jackson, TRTC 20525 (DAOM 30176: DAOM); Brant County, west of Burford, on bark of living *Pinus strobus* L., 3 Jun 1943, R.F. Cain, TRTC 20037 (DAOM 163961: DAOM). Quebec, Cantley, St. Elizabeth Road, on bark or living trunk of *Thuja occidentalis* L., 2 Jun 1991, J.H. Ginns 9523 (DAOM 213556: DAOM). U.S.A. Arizona, Cochise County, Coronado National Forest, Chiricahua Mountains, Turkey Creek, on bark of living *Juniperus deppeana* Steud., 22 Oct 1970, R.L. Gilbertson 10020 (US0285731: BPI). Florida, Wakulla County, 8 km west of Panacca, on (bark of) *Quercus alba* L., 8 Oct 1962, A.L. Welden 258 (NYBG 00520180: NY, US0284518: BPI). Illinois, Johnson County, Ferne Clyffe State Park, on (bark of) *J. virginiana* L., 20 Oct 1987, H.H. Burdsall, Jr. 12973 (CFMR). Iowa, West Okaboji, on (bark of) *Q. macrocarpa*, 9 Aug 1933, A.M. & D.P. Rogers 73, Reliquiae Farlowianae 788 (NY); Iowa City, on fallen corticated *Salix* sp., 3 Sep 1936, G.W. Martin (US0284521: BPI). Louisiana, Lafayette Parish, Lafayette, on (corticate branches of) *J. virginiana*, 30 Jan 1984, M. Blackwell 1630 (AN00713 I: ARIZ). Minnesota, Clearwater County, Lake Itasca State Park, Observation Tower intersection, on (bark of) *Acer saccharinum* L., 31 Jul 1981, H.H. Burdsall, Jr. 11241 (CFMR). New York, Onondaga County, St. Mary's Cemetery, on bark of living *T. occidentalis*, 21 Jul 1982, G.P. Chamuris 1208

(NY); Ithaca, near Forest Home, on trunk of living *Ulmus* sp., 7 Aug 1938, W.L. White (US0284522: BPI). Texas, Hardin County, Village Creek, 1.6 km below mouth of Beech Creek, on *Planera aquarica* J.F. Gmelin, 3 Aug 1982, M. Blackwell 816 (AN001056: ARIZ). Wisconsin, (Sauk County), Devil's Lake, near Madison, (on bark of angiospermous tree), 4 Sep 1953, D.P. Rogers *s.n.* (NY); (Dane County), Madison, Lakeshore Drive, on (bark of) *Salix* sp., Sep 1972, E.C. Setliff, FP 101039 (CFMR).

The new species *D. americana* is readily distinguished from other *Dendrothele* species by hyphal pegs, clamp connections, 4-sterigmate basidia, and subglobose basidiospores. Specimens lacking hyphal pegs can be mistaken for *D. microspora* (H.S. Jacks. & Lemke) Lemke, which has smaller basidiospores measuring 6-8 × 5.5-7 μm. *Dendrothele americana* has been confused with *D. griseocana*, but this species lacks clamp connections and has 2-sterigmate basidia. *Dendrothele americana* is widely distributed in North America, whereas *D. griseocana* has a more restricted distribution. Both species are known to occur in Manitoba, Ontario, Minnesota, Wisconsin, and Illinois.

The name *D. griseocana* was misapplied to specimens of *D. americana* in North America by Lemke (1964), Rogers (1935), and Gilbertson & Blackwell (1985). Cultural descriptions of *D. americana* are available in Nakasone (1990) as *Dendrothele* sp. and Thorn (1991) as *D. griseocana*.

Dendrothele andina (Pat.) Nakasone, comb. nov.

Fig. 3

= *Odontia andina* Pat. in Pat. & Lagerh., Bull. Herb. Boissier 3: 56. 1895.

Basidiocarps effuse, adnate, beginning as small, coalescing, orbicular patches, up to 20 × 7 mm, soft, finely spinose, pale orange (5A3) to greyish orange [5B(3-4)], rimose; hyphal pegs minute, numerous, dense, terete, 90-100 × 35-55 μm, 8-10 pegs per mm; margin abrupt, distinct.

Hyphal system monomitic with clamped generative hyphae. Hyphal pegs composed of hyaline, branched dendrohyphidia enclosing a column of coarse, hyaline crystals. Subiculum and subhymenium not observed. Catahymenium composed of crystals, dendrohyphidia and basidia. Dendrohyphidia numerous, filamentous, knobby or finely branched at apex, 20-35 × 1-2 μm, clamped at base, walls hyaline, thin, smooth. Basidia rare, collapsed at maturity, broadly clavate with a slight median constriction, 25-30 × 7-9 μm, tapering to 2-3.5 μm at base, clamped at base, 2-sterigmate. Basidiospores rare, subglobose to broadly ellipsoid, 9.5-12.5 × 7.5-9 μm, with a distinct apiculus, walls hyaline, thin to slightly thickened, smooth, negative in Melzer's reagent.

HABITAT: bark and wood of angiosperms.

DISTRIBUTION: known only from type locality, Ecuador.

TYPE SPECIMEN EXAMINED: ECUADOR, Pulumahua, (on wood and bark of a small branch), Mars 1892, leg. de Lagerheim, ut *Kneiffia andina* (holotype of *Odontia andina*: FH).

This description is slightly modified from Nakasone (2003). The holotype is a poor specimen with scattered basidia and basidiospores. Because of the rarity of basidiospores, cyanophily of the walls was not determined. The hyphal pegs and 2-sterigmate basidia of *D. andina* are similar to those of *D. griseocana*. *Dendrothele andina*, however, is

distinguished from *D. griseocana* by clamped hyphae and absence of gloeocystidia. A discrepancy was noted in the month as published in the protologue, “Février,” and on the holotype label, “Mars.”

Dendrothele griseocana (Bres.) Bourdot & Galzin, Bull. Trimenstriel Soc. Mycol. France 28: 354. 1913. Figs. 4-6

= *Corticium griseocanum* Bres., Fungi Tridentini 2: 58. 1898.

= *Aleurodiscus griseocanus* (Bres.) Höhn. & Litsch., Wiesner-Festschrift p. 76. 1908.

= *Aleurocorticium griseocanum* (Bres.) P.A. Lemke, Canad. J. Bot. 42: 736. 1964.

= *Dendrothele papillosa* Höhn. & Litsch., Sitzungsber. Kaiserl. Akad. Wiss. Math.-Naturwiss. Cl., Abt.1, 116: 820. 1907.

= *Corticium papillosum* (Höhn. & Litsch.) Sacc. & Trotter, Sylloge fung. 21: 404. 1912

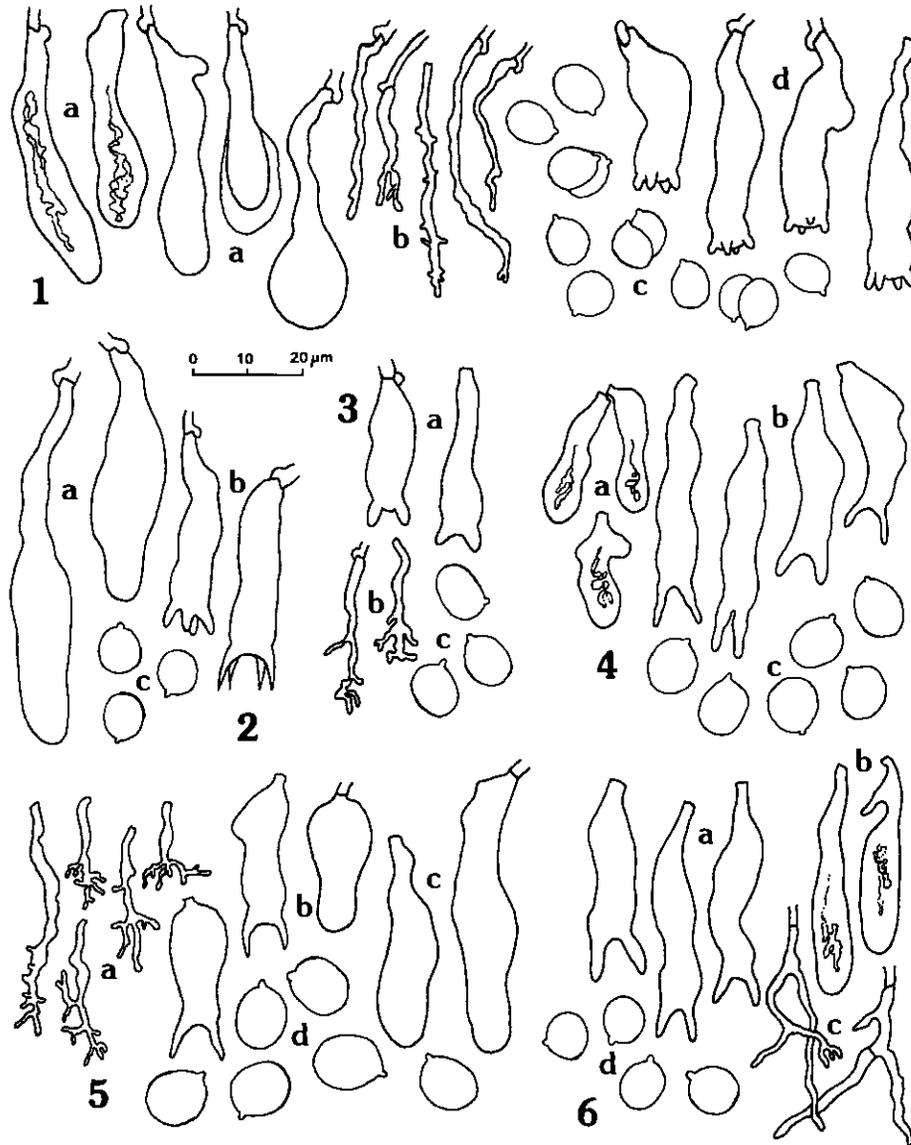
Basidiocarps effuse, adnate, beginning as small patches that coalesce, thin, up to 150 μm thick, subceraceous to soft, membranous, smooth with tiny sterile hyphal pegs, sometimes hyphal pegs lacking, yellowish white to yellowish grey [4(A-B)2], orange white (5A2), pale orange [5A(2-3)], orange grey (5B2), brownish grey (6C2), pale orange, greyish orange, or brownish orange [5(B-D)3], with a few scattered, sometimes deep, cracks; hyphal pegs absent or numerous, crowded, terete, white, 10-11 pegs per mm; margin distinct, greyish white or concolorous with hymenophore.

Hyphal system monomitic with simple-septate generative hyphae. Hyphal pegs comprised of dendrohyphidia in a compact fascicle. Subiculum indistinct, sometimes partially agglutinated, obscured by abundant, large, coarse hyaline crystals that persist in KOH; subicular hyphae few, 1-2 μm diam., simple septate, sparsely to moderately branched, walls thin, hyaline, smooth. Catahymenium composed of dendrohyphidia, gloeocystidia, and basidia hut obscured by crystals. Dendrohyphidia filiform with simple lateral knobs, sometimes highly branched at apex, 15-50 \times 1-3 μm , simple septate at base, walls hyaline, thin, smooth, or lightly encrusted with hyaline crystals. Gloeocystidia cylindrical to clavate, sometimes with lateral lobes near base, with or without median constrictions, 20-50 \times 6-10 μm , tapering to a short stalk, up to 2 μm diam., simple septate at base, terminal, often with dark yellow resinous material, rarely entirely brownish yellow, contents not reacting in sulfovanillin, walls hyaline, thin, smooth. Basidia pyriform to cylindrical, sometimes basally inflated or with a median constriction, often with a short stalk, 22-40 \times 6-10 μm , simple septate at base, walls hyaline, thin, smooth, with two stout, digitate sterigmata, sterigmata up to 15 \times 3 μm . Basidiospores subglobose to globose with a small, rounded apiculus, (8-)10-12 \times (7-) 8-10 μm , often filled with resinous materials, adhering in clusters of two, walls hyaline, thin to slightly thickened, smooth, cyanophilous, negative in Melzer's reagent.

HABITAT: on bark of various living angiospermous trees and shrubs, occasionally on gymnosperms.

DISTRIBUTION: Denmark (Eriksson & Ryvarden 1975), Czech Republic, Montenegro (Pilát 1926), Austria, France, Italy, Canada, United States.

TYPE SPECIMENS EXAMINED. AUSTRIA. Prater, an Rinden, 20 Sep 1903, v. Höhnel (lectotype of *Dendrothele papillosa*: FH, syntype K(M)121743: K). ITALY. Campo Trentino, in cortice Salicis, April 1896, leg. Bresadola (holotype of *Corticium griseocanum*: S).



Figs. 1-6. Microscopic elements of *Dendrothele* species.

Fig. 1. *Dendrothele americana* (FP 101995, holotype): a) gloeocystidia, b) dendrohyphidia, c) basidiospores, d) basidia. Fig 2. *Dendrothele americana* (Wisconsin, IX 4 1953): a) gloeocystidia, b) basidia, c) basidiospores. Fig. 3. *Dendrothele andina* (Mars 1892, Lagerheim, holotype): a) basidia, b) dendrohyphidia, c) basidiospores. Fig. 4. *Dendrothele griseocana* (FP101882): a) gloeocystidia, b) basidia, c) basidiospores Fig. 5. *Dendrothele griseocana* (April 1896, Bresadola, holotype): a) dendrohyphidia, b) basidia, c) gloeocystidia, d) basidiospores. Fig. 6. *Dendrothele papillosa* (lectotype, FH): a) basidia, b) gloeocystidia, c) dendrohyphidia, d) basidiospores.

SPECIMENS EXAMINED. CANADA. Manitoba, Winnipeg, E.M.A.C., on *Vitis* sp. (bark), 19 Sep 1932, G.R. Bisby and I. Mounce, F6373 (DAOM). Ontario, Bell's Corners, on bark of living *Thuja occidentalis*, 15 July 1962, R.J. Bandoni 2583 (DAOM 73061: DAOM); Brant County, New Durham, on *Ostrya virginiana* (Mill.) K. Koch (bark), 25 Jun 1937, R.F. Cain 10111 (DAOM 163976: DAOM); North of Toronto, Hogg's Hollow, on *Ulmus* sp. (bark), 14 Nov 1936, H.S. Jackson, TRTC 9740, F7271 (DAOM); Chalk River, Petawawa Forest Res., on *O. virginiana* bark, 5 Sep 1941, H.S. Jackson, TRTC 17361 (DAOM). FRANCE. Aveyron, sur saule, 6 Feb 1916, A. Galzin 19308, Bourdot 16073 (FH); Bouisson, sur *Salix viminalis* L., 25 Avril 1913, A. Galzin 12908, Bourdot 9363 (US0281322: BPI); on *Fraxinus* sp., Nov 1912, A. Galzin, Bourdot 31601 (FH); St. Sernia, on *Salix alba* L. (bark), April 1910, A. Galzin, Bourdot 7134 (NY), Bourdot 31621 (FH); Balaguier, on bark of *Salk* sp., 5 Sep 1912, A. Galzin 11703, Bourdot 13888 (K(M)121745: K), Jan 1915, A. Pilát (K(M)121744: K). U.S.A. Illinois, Fox Ridge State Park, 16 Nov 1963, A.M. & D.P. Rogers 3930 (US1106955: BPI). Minnesota, Clearwater County, Itasca State Park, Bohall Trail, on bark and wood of *T. occidentalis*, 11 Sep 1982, K.K. Nakasone, FP101822 (CFMR). Wisconsin, Calumet County, Calumet County Park, County EE, on living *Salix* sp. (bark), 17 Oct 1990, H.H. Burdsall, Jr. 13553 (CFMR).

Dendrothele griseocana is well characterized by hyphal pegs, simple septate hyphae, and 2-sterigmate basidia. This species occurs exclusively on angiosperms in Europe, especially *Salix*, whereas in North America it is found on *Thuja occidentalis* as well as angiosperms. Hyphal pegs are present in most of the specimens examined, especially in the thinner, younger areas of the basidiome. Mature basidia were difficult to find in some specimens, but in all cases they produced 2-sterigmata. Interestingly, Bresadola's (1898) illustration of *C. griseocanum* included a basidium with 4 sterigmata. Many of the specimens of *D. griseocana* from North America cited by Lemke (1964) and Rogers (1935) should be referred to *D. americana*. For additional descriptions and illustrations, see Boidin et al. (1996), Eriksson & Ryvarden (1975), and Pilát (1926). A report of *D. griseocana* from Venezuela could not be confirmed (Oberwinkler 1972), whereas the collection from Tanzania (Niemelä et al. 1998) represents a new taxon described below.

Minor differences in basidiospore size and shape were observed between the lectotype of *D. papillosa*, designated herein, and the holotype of *C. griseocanum*. Nevertheless, there is no doubt that they are conspecific as first indicated by Bourdot & Galzin (1913). The lectotype specimen of *D. papillosa* at FH consists of eight irregular pieces of bark bearing numerous small, discrete, white to grayish-orange basidiocarps with tiny hyphal pegs. Microscopically, the lectotype differs from the holotype of *C. griseocanum* in producing basidiospores slightly smaller than average, measuring $8.5\text{-}9.5 \times 7\text{-}8 \mu\text{m}$ (Fig. 6). The holotype specimen of *C. griseocanum* is composed of five large and several smaller pieces of bark with larger, effuse basidiomes, up to $10 \times 15 \text{ mm}$, bearing abundant hyphal pegs. The basidiospores in this specimen are typical, measuring $(8\text{-})10\text{-}12 \times (7.5\text{-})8\text{-}10 \mu\text{m}$ (Fig. 5).

***Dendrothele tanzaniana* Nakasone, sp. nov.**

Fig. 7

Dendrothele americanae affinis sed basidiosporis longioribus, $(10.5\text{-})11\text{-}12.5 \times 7.5\text{-}9(10) \mu\text{m}$ et gloeocystidiis angustioribus $25\text{-}50 \times 4\text{-}7 \mu\text{m}$,

HOLOTYPE: Tanzania, Arusha Province, Arusha District, western side of Mt. Meru, above Laikinoi, alt. 2850-3200 m, on bark of living *Hagenia abyssinica* J.F. Gmel., 14-15 Dec 1988, legit Pertii Renvall 1619 (KUO no. 018281).

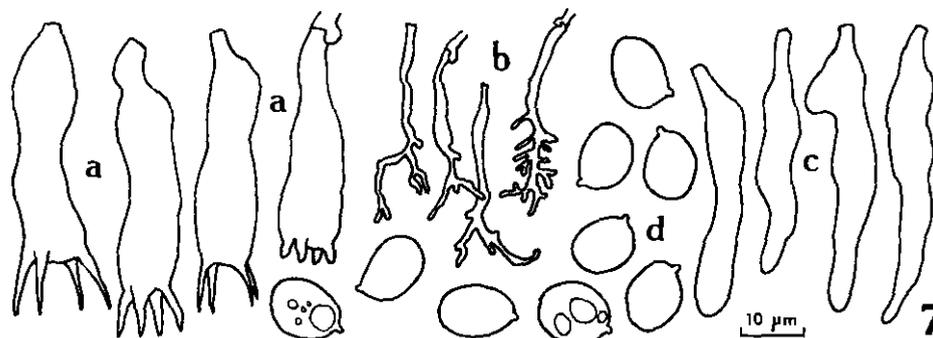


Fig. 7. Microscopic elements of *Dendrothele tanzaniana* (Renvall 1619, holotype): a) basidia, b) dendrohyphidia, c) gloecystidia, d) basidiospores.

Basidiocarp effuse, adnate, beginning as small, irregular patches, up to 45 × 15 mm, confluent, moderately thin, up to 350 μm thick, subceraceous, felty with tiny sterile hyphal pegs scattered about, yellowish white to pale yellow [4A(2-3)] to pale orange (5A3), moderately rimose, with deep cracks: hyphal pegs numerous, fragile, slender, white, up to 120 × 40 μm, 5-10 pegs per mm; margin distinct, abrupt or rapidly thinning out, concolorous with hymenophore.

Hyphal system monomitic with clamped generative hyphae. Hyphal pegs composed of dendrohyphidia in a compact fascicle. Subiculum obscured by abundant, coarse hyaline to yellow crystals, composed of agglutinated hyphae; subicular hyphae 1.5-2.5 μm diam., clamped, walls hyaline, thin to slightly thickened, smooth. Catahymenium obscured by crystals, composed of dendrohyphidia, gloecystidia, and basidia. Dendrohyphidia filiform, delicately branched at apex, 25-35 × 1.5-2 μm, clamped at base, walls hyaline, thin, smooth or lightly encrusted with hyaline crystals. Gloecystidia more or less cylindrical, often tapering slightly toward apex, occasionally with lateral lobes near base, sometimes slightly constricted, 25-50 × 4-7 μm, tapering to 1.5-2 μm diam. at base, clamped at base, contents negative in sulfovanillin, walls hyaline, thin, smooth. Basidia clavate to slightly ventricose, sometimes with a median constriction, 25-40 × 9-12 μm, clamped at base, walls hyaline, thin, smooth, with 4 sterigmata, sterigmata up to 10 × 2.5 μm. Basidiospores broadly ellipsoid, often slightly tapering toward apiculus, (105)11-12.5 × 7.5-9(-10) μm, usually filled with refractive globules, often adhering in groups of four, walls hyaline, thin to slightly thickened, smooth, cyanophilous, negative in Melzer's reagent.

HABITAT: on bark of living *Hagenia*.

DISTRIBUTION: known only from type locality, Tanzania.

Dendrothele tanzaniana, like *D. americana*, is characterized by hyphal pegs, clamped generative hyphae, and 4-sterigmate basidia. *Dendrothele tanzaniana*, however, has longer basidiospores and narrower gloecystidia than *D. americana*.

Discussion

Sterile hyphal pegs projecting from the hymenial surface are a distinctive feature that occur in a few, unrelated genera of resupinate basidiomycetes. In *Epithele* (Pat.) Pat., *Epithelopsis* Jülich, *Pteridomyces* Jülich, *Skeletohydnum* Jülich, *Heterochaete* Pat., and *Mycothele* Jülich, hyphal pegs are important traits that are found in all or most species in the genus. In contrast, hyphal pegs occur only in one or a few taxa of *Dendrothele*, *Cerinomyces* G.W. Martin, *Gloiothele* Bres., and *Veluticeps* (Cooke) Pat. *Dendrothele* is unique for its hyphal pegs are comprised solely of dendrohyphidia.

Dendrothele griseocana and the other taxa treated herein are morphologically similar and probably closely related; they represent true *Dendrothele* species. The simple structure and microscopic features of *Dendrothele* give little clue to its relationships. Recently, Goranova et al. (2003) revealed through molecular phylogenetic studies that *Dendrothele* is polyphyletic with eleven lineages dispersed in the hymenochaetoid, russuloid, corticioid, and euagaric clades. *Dendrothele griseocana*, the type of the genus *Dendrothele*, is embedded in the Agaricales clade and basal to a group of marine and terrestrial cyphelloid species that includes *Cyphellopsis*, *Nia*, *Lachnella* and *Flagelloscypha* (Goranova et al. 2003, Bodensteiner et al. 2004). This surprising result suggests that *Dendrothele* is a reduced form of mushroom-forming fungi. Additional morphological and molecular studies are needed, however, to clearly define *Dendrothele sensu stricto* and phenotypically similar genera.

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