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Hyaloscyphaceae in Japan (4)*: New records of the genus *Lachnum*

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Six species of the genus *Lachnum*, Hyaloscyphaceae are described: *Lachnum longispinum* and *L. radiatum* spp. nov.; *L. fuscescens*, *L. palmae*, *L. pulverulentum*, and *L. rhytismatis*, new to Japan.

Key Words——discomycetes; Hyaloscyphaceae; Japan; new species; tribe Lachneae

Members of the genus *Lachnum* Retz. is one of the most popular and remarkable inoperculate discomycetes not only in Japan but also in the world. The genus is known to embrace some 150 species (Hawksworth et al., 1995), and yet more members has been being added to science (Cantrell and Haines, 1997; Zhuang, 1998, 2000; Zhuang and Wang, 1998). It is Otani (1967) who first reviewed and described the members of the genus *Dasyscyphus* Gray (currently regarded as a synonym of *Lachnum*) in Japan. In his compilation of the Japanese discomycete flora, 12 species of *Lachnum* including members to be transferred from *Dasyscyphus* were listed (Otani, 1989). Nagao (1996a, 1996b) and Nagao and Doi (1996) added four more species to Japanese flora of *Lachnum*.

In the course of our continuous research on the family Hyaloscyphaceae, more members of the genus *Lachnum* hitherto undescribed in Japan were collected. In the present paper, we describe 6 species of the genus *Lachnum* (2 new species and 4 new to Japan).

Materials and Methods

Collection, isolation, and microscopic observation procedures followed Hosoya and Otani (1997). Color names and codes followed Kornerup and Wanscher (1978). The specimens examined in the present study were collected by the junior author unless otherwise stated.

Descriptions

1. *Lachnum fuscescens* (Pers.: Fr.) P. Karst., Acta Soc. Faun. Flor. Fennica **2**: 134. 1885. Figs. 1, 2

Peziza fuscescens Pers.: Fr., Syst. mycol. **2**: 95. 1822.

Dasyscyphus fuscescens (Pers.: Fr.) Gray, Nat. Arr. Brit. Pl. **1**: 671. 1821.

Dasyscypha fuscescens (Pers.: Fr.) Rehm, Ascomyceten Nr. 457, 1878.

Lachnella fuscescens (Pers.: Fr.) W. Phillips, Brit. Discom. p. 235, 1887.

Brunnipila fuscescens (Pers.: Fr.) Baral & Krieglst., Beih. Mykol. **6**: 50. 1985.

Peziza brunneola Desm., Ann. Sci. nat. Bot. **17**: 96. 1842.

Lachnum brunneolum (Desm.) P. Karst., Mycol. Fenn. **1**: 180. 1871.

Lachnella brunneola (Desm.) Sacc., Michelia **1**: 66. 1877.

Lachnea brunneola (Desm.) Gillet, Champ. de France, Discomycètes p. 67. 1879.

Dasyscypha brunneola (Desm.) Sacc., Syll. Fung. **8**: 460. 1889.

Apothecia gregarious, stipitate, up to 0.8 mm high; disc flat to deep cupulate with incurving margin, buff yellow, up to 1.2 mm in diam when fresh, white when dry; receptacle funnel shaped, pale brown, furnished by brown hairs; stipe cylindrical, stout, up to 0.6 mm long, 100 μm wide, composed of thin-walled, elongate cells, 11.5–40 × 3.5–5 μm. Ectal excipulum "textura prismatica", a few cell-layered, composed of rather thick-walled cells, 6–13 × 6–10 μm. Hairs cylindrical, obtuse at the apex, straight to flexuous, multiseptate, granulate all over, brown, up to 150 μm long, 4.5–5.5 μm wide; apex crowned with amorphous resinous material, paler and thinner-walled. Asci 40–50 × 4–5 μm, cylindrical-clavate, arising from inconspicuous croziers; apex conical, with slightly flattened top, MLZ+ without KOH pretreatment. Ascospores 8–11 × 2 μm, ellipsoid to fusiform, nonseptate, rarely one-septate at the middle, hyaline. Paraphyses lanceolate, up to 4–5 μm at the widest point, aseptate or occasionally one-septate at the middle, exceeding the asci for 10–15 μm.

Colony of SANK 12797 on PDA 13–18 mm in diam (23°C, 3 wk), low and dense, plane, floccose at the

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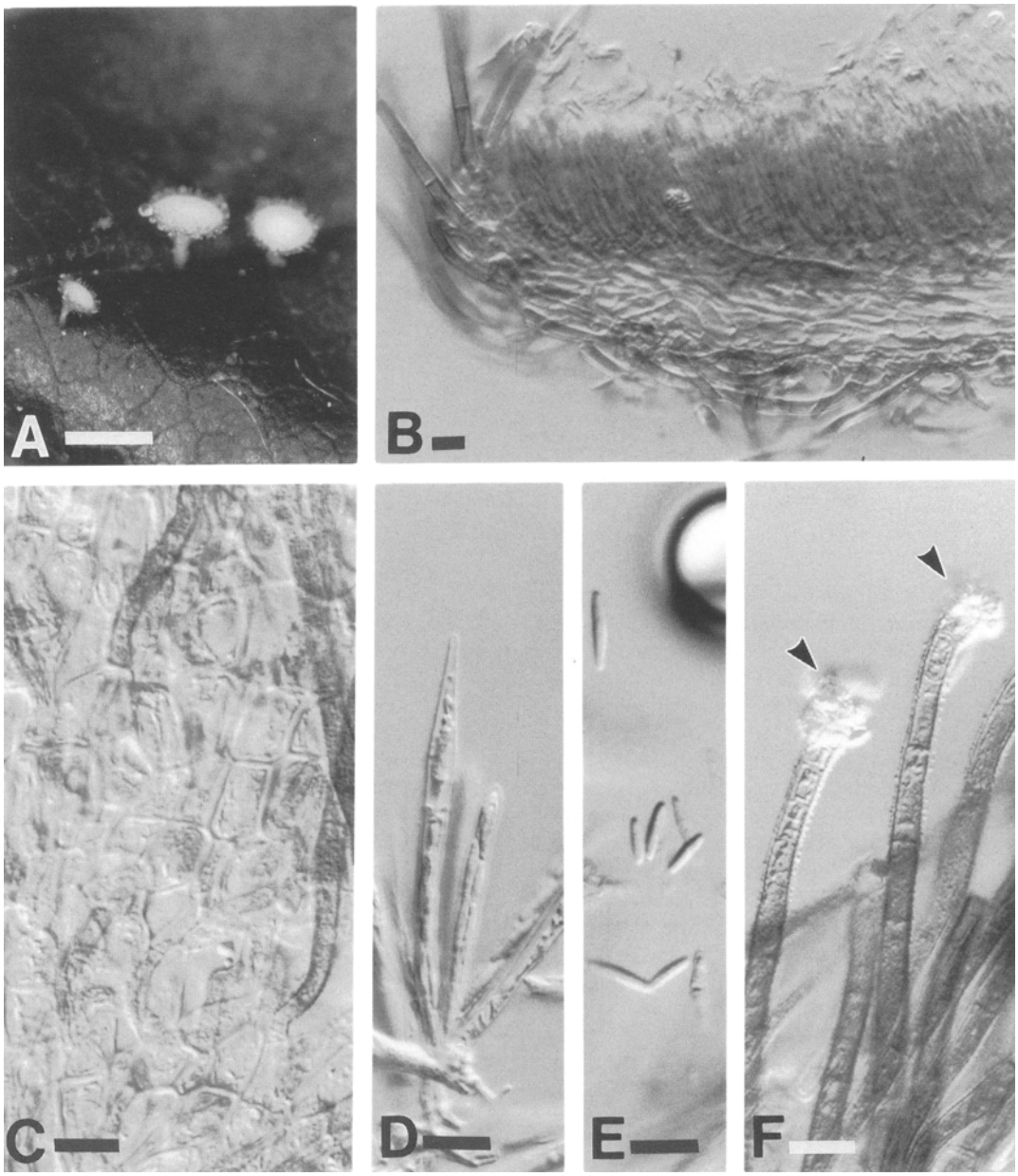

Fig. 1. *Lachnum fuscescens* (A, TRL-1037; B, TRL-1126; C–F, TRL-1276).
A. Fresh apothecia. B. Vertical section of apothecium showing the ectal cells and the margin. C. Ectal cells in squash mount. D. Paraphyses and the asci. Note the paraphyses long exceeding the asci. E. Ascospores. F. Hairs. Note their apices capped with resinous material (arrowheads), becoming paler and thin-walled toward the apices.
Scale bars: A = 1 mm; B–F = 10 μm.

center, funiculous to smooth, slimy elsewhere, Pale Yellow (4A1) to Light Yellow (4A5); reverse concolorous. Context tough and glutinous to soft and fleshy. Aerial mycelium well-developed, but only at the center, white. Sectors and zonations absent. Margin distinct, almost entire, superficial.

Specimens examined. On leaves of *Fagus crenata* Blume. HONSHU: Natsuigawa ravine, Fukushima Pref., 23-V-93, TRL-728; San-no-sawa, Mt. Daisen, Tottori Pref., 28-V-94, TRL-1037 (culture SANK 12797); Hutatsumori, Hachimori-machi, Akita Pref., V-95, TRL-1220 (culture SANK 15097); Kuromoriyama, Aomori Pref., 12-VI-95, TRL-1264; Akaishi river, Aomori Pref., 10-VI-95, TRL-1276. On leaves of *Quercus serrata* Thumb. ex Murray. HONSHU: Kenmin-no-mori, Naka, Ibaraki Pref., 15-IV-95, TRL-1126 (culture SANK 12897).

Notes. *Lachnum fuscescens* is locally abundant, and it shows strong host preference (Breitenbach and Kränzlin, 1984). It occurs on very wet *Fagus* and *Quercus* leaves.

2. *Lachnum longispineum* Hosoya et Issh. Tanaka, sp.

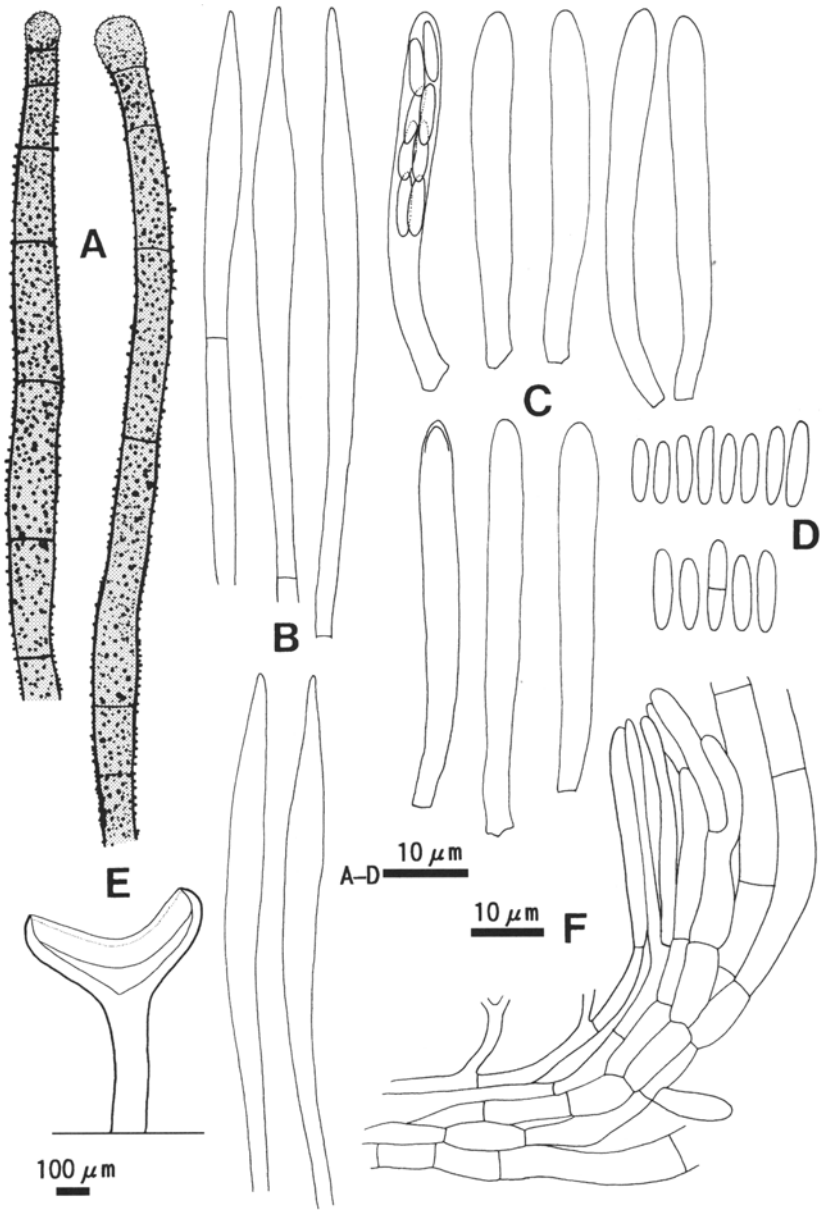

Fig. 2. *Lachnum fuscescens* (A–D, F, TRL-1276; E, TRL-1126).
A. Hairs. B. Paraphyses. C. Asci. One at the top left showing ascospores. D. Ascospores. E. Schematic drawing of the apothecium showing the outline of the structure. Hairs not drawn. F. Vertical section showing the margin.

nov. Figs. 3, 4

Apothecia gregaria, minuta, cylindracea vel cupuliformia, ad exterius marginemque eximie longe pilosa, 1 mm alta (pili excl.), albida; stipes cylindraceus, usque 0.5 mm longus. Excipulum ectale bistratosum; stratum exterius "textura prismatica", ex cellulis 8–29 × 6–14 μm crassitunicatis usque 2 μm crassis compositum; stratum internius "textura prismatica", ex cellulis tenuitunucatis parallele ordinatis compositum. Pili eximie crassitunicati, usque 400 μm longi et 20 μm lati, attenuati, hyalini, vitrei, ascendentes vel verticaliter porrecti, multiseptati, in totum minute granulati, apice obtusi et crystallis obtegentes. Asci 42.5–51.5 × 5–6 μm, cylindraceo-clavati, poro iodo non vel plus aut inconspicue coerulescenti praediti, ex hamulis surgentes. Ascosporae 8.5–15 × 1.5–3.5 μm, fusiformes, rectae vel leviter curvatae, aseptatae. Paraphyses anguste lanceolatae, ad 1.5 μm latae, aseptatae, basi ramosae, ascos non superantes.

Holotypus. HONSHU: TNS-F-7101, Kakuma, Sanada, Nagano Pref., on leaves of *Lyonia ovalifolia* (Wall.) Drunde var. *elliptica* (Siebold et Zucc.) Hand.-Mazz., 28-VI-92, *TRL-591* (culture SANK 13897).

Etymology. Latin, "*longus*" + "*spineum*", from the impression of the hairs in fresh specimens.

Apothecia gregarious, minute, cylindrical with hairy

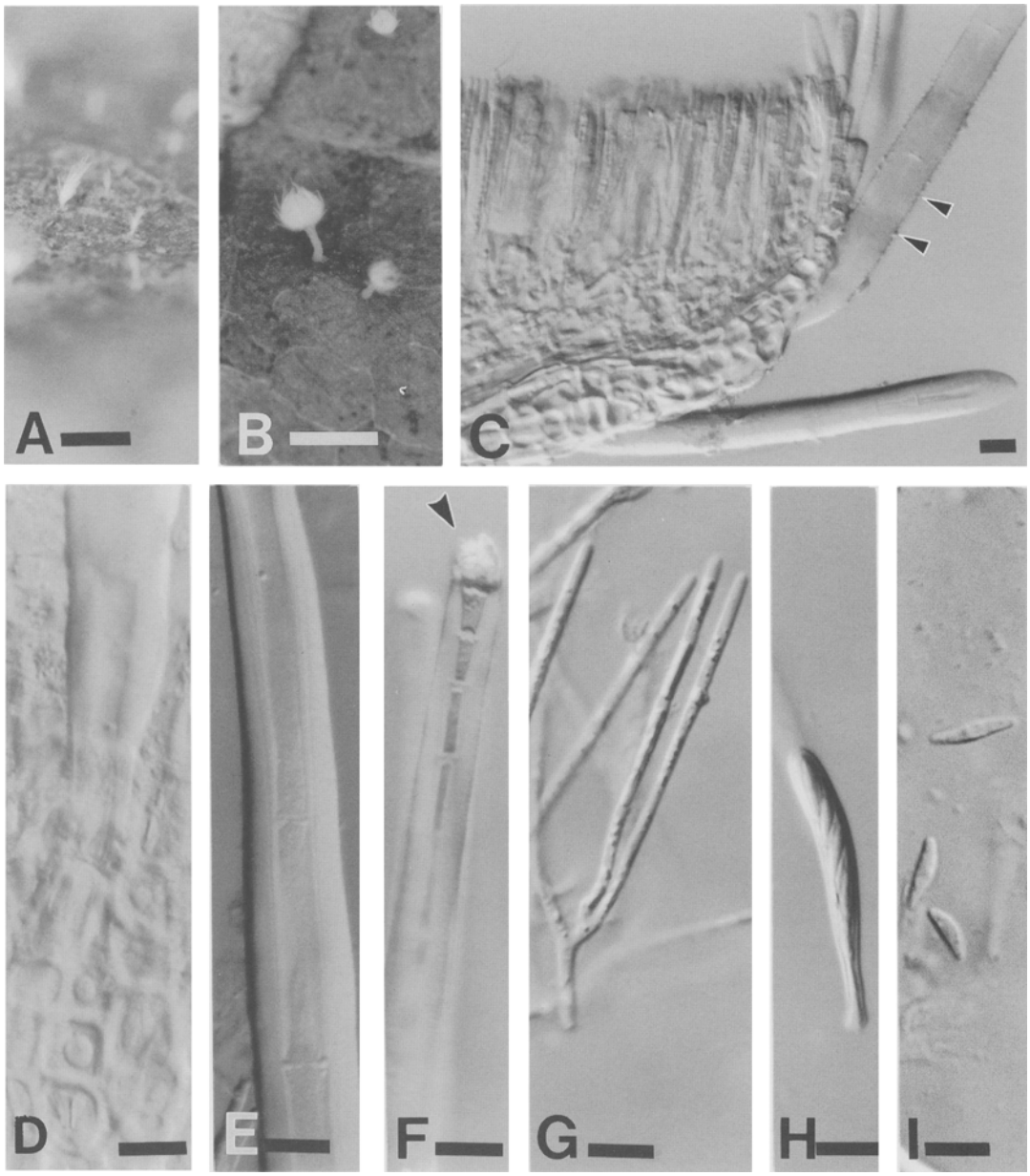

Fig. 3. *Lachnum longispineum* (TRL-383).
A. Apothecial initials with well-developed hairs; in dry condition. B. Dry apothecia. C. Vertical section showing the hairs and the margin. Arrowheads show the granulation on the hair. D. Surface view of the ectal cells in squash mount. Note hair with narrow base arising from cuboid ectal cells. E. Close up of a hair at the middle in phloxin. Note wide lumen preserved through glassy, thick walls. F. Hair apex capped with crystal (arrowhead) in phloxin. G. Paraphyses. Note their narrowly lanceolate shape and straightness. H. Ascus. I. Ascospores.
Scale bars: A=0.5 mm; B=1 mm; C–I=10 μm.

edge when young, goblet-shaped to nail-shaped, 1 mm high (hairs excluded), clothed with conspicuous, spike-like hairs when mature; disc 0.2 mm in diam, flat to shallow cupulate, white when fresh, Yellowish White (3A2) when dry; receptacle white when fresh, concolorous with the disc when dry; stipe cylindrical, up to 0.5 mm in length, stout, concolorous with the receptacle, composed of thick-walled cells, 11.5–17.5 × 6.5–8 μm. Ectal excipulum two-layered; outer layer "textura prismatica", 2-3-cell-layered, composed of cells 8–29 × 6–14 μm with up to 2 μm thick wall; inner layer "textura prismatica", of thin-walled prismatic cells arranged parallel to the outside. Medullary excipulum "textura intricata", composed of relatively narrow hyphae, 1.5–2 μm wide. Hairs cylindrical, ascending to vertically extending, mostly 200–300 μm long, up to 400 × 20 μm, remarkable even at the naked eyes, straight, gradually narrowed to the apex, with 3–10 μm thick wall, hyaline, glassy in

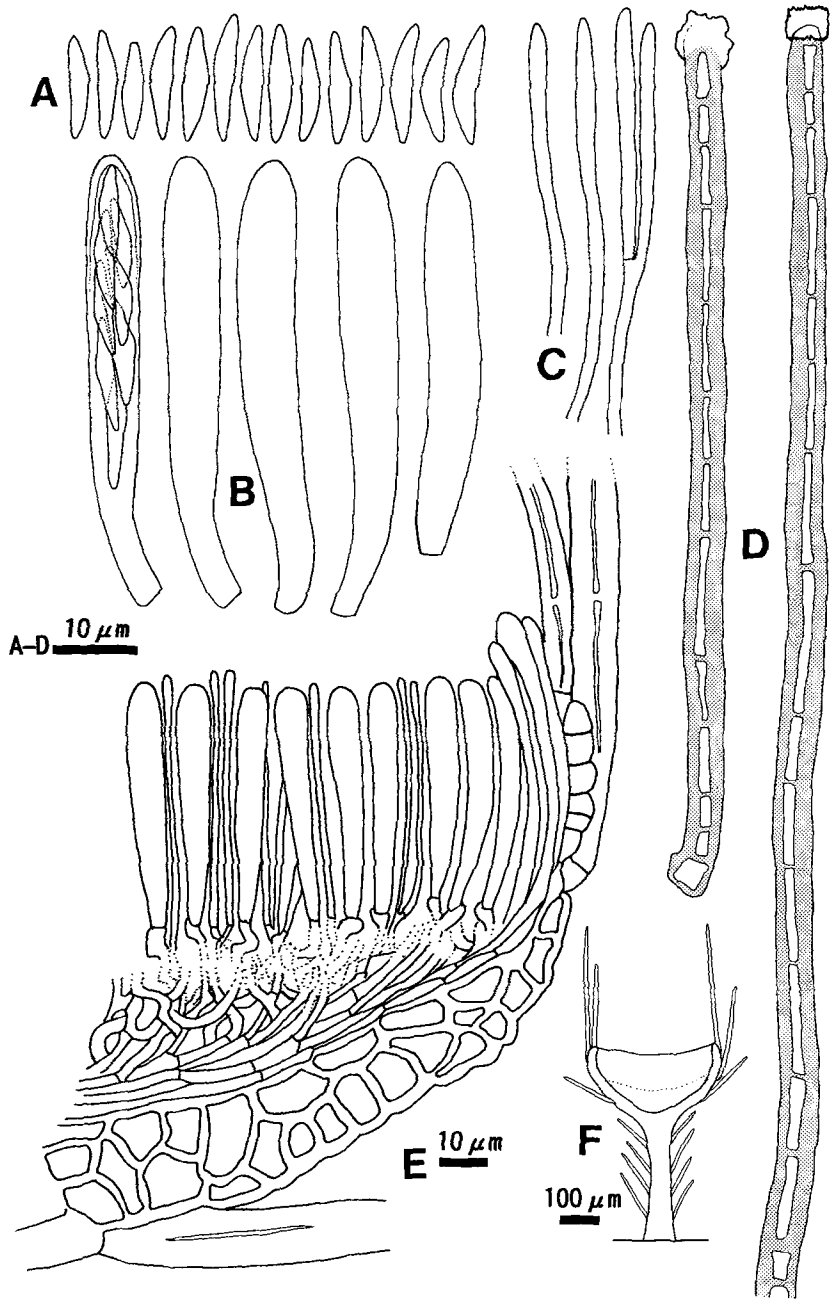

Fig. 4. *Lachnum longispineum* (TRL-383).
A. Ascospores. B. Asci. One at the left showing ascospores. C. Paraphyses. D. Hairs. Glassy portion showed by grey tone. E. Vertical section showing the ectal and medullary excipulum. F. Schematic drawing of the apothecium showing the outline of the structure. Some representative hairs are drawn.

appearance, finely granulate all over, thin-septate; wall not stained by MLZ, congo red, or phloxin; apex crowned with amorphous crystals; lumen 1–5 μm wide, thin-septate. Asci 42.5–51.5×5–6 μm, cylindrical-clavate, arising from croziers; apex MLZ−, IKI−with/without KOH pretreatment. Ascospores 8.5–15×1.5–3.5 μm, fusiform, sometimes slightly curved, non-septate. Paraphyses straight, narrowly lanceolate, up to 1.5 μm at the widest point, branched at the base, non-septate, slightly enlarged below the apex, as long as asci.

Colony of SANK 13897 on PDA 25 mm in diam (23°C, 3 wk), low and dense, floccose, Reddish Yellow (4B8), paler toward the margin; reverse Dark Brown (7F7), paler toward the margin. Hyaline to golden yellow exudate formed on the surface. Context tough and glutinous. Aerial mycelium well-developed, white to brownish. Sectors and zonations absent. Margin distinct, entire, superficial.

Specimens examined. On leaves of *Lyonia ovalifolia* (Wall.) Drude var. *elliptica* (Siebold et Zucc.) Hand.-Mazz.

HONSHU: Shitokigawa ravine, Fukushima Pref., 29-VII-91, TRL-390; Yamatsuri ravine, Fukushima Pref., 30-VII-91, TRL-383, 384; Yatsugatake, Nagano Pref, 29-VII-92, TRL-595; Ohmura, Shizukuishi-cho, Iwate Pref., 10-V-94, TRL-1005.

Notes. *Lachnum longispineum* shows strong host preference, abundantly appearing on fallen leaves of *L. ovalifolia* var. *elliptica* but not on leaves of other trees even they were in contact.

Lachnum longispineum resembles *L. virtembergense* (Matheis) Raitv., also confined to Ericaceae leaves. However, *L. longispineum* differs in having much longer and wider hairs, and the presence of croziers at the ascal base. Hair ornamentation in *L. longispineum* is finely granulate while warted in *L. virtembergense* (Baral, pers. com.). *Lachnum longispineum* is also similar to some extent to *L. ciliare* (Schrad.: Fr.) Rehm in hair morphology, ascospore shape, and excipular structure, but easily distinguished by smaller ascospores, and much thicker-walled hairs.

3. *Lachnum palmae* (Kanouse) Spooner, Bibl. Mycol.

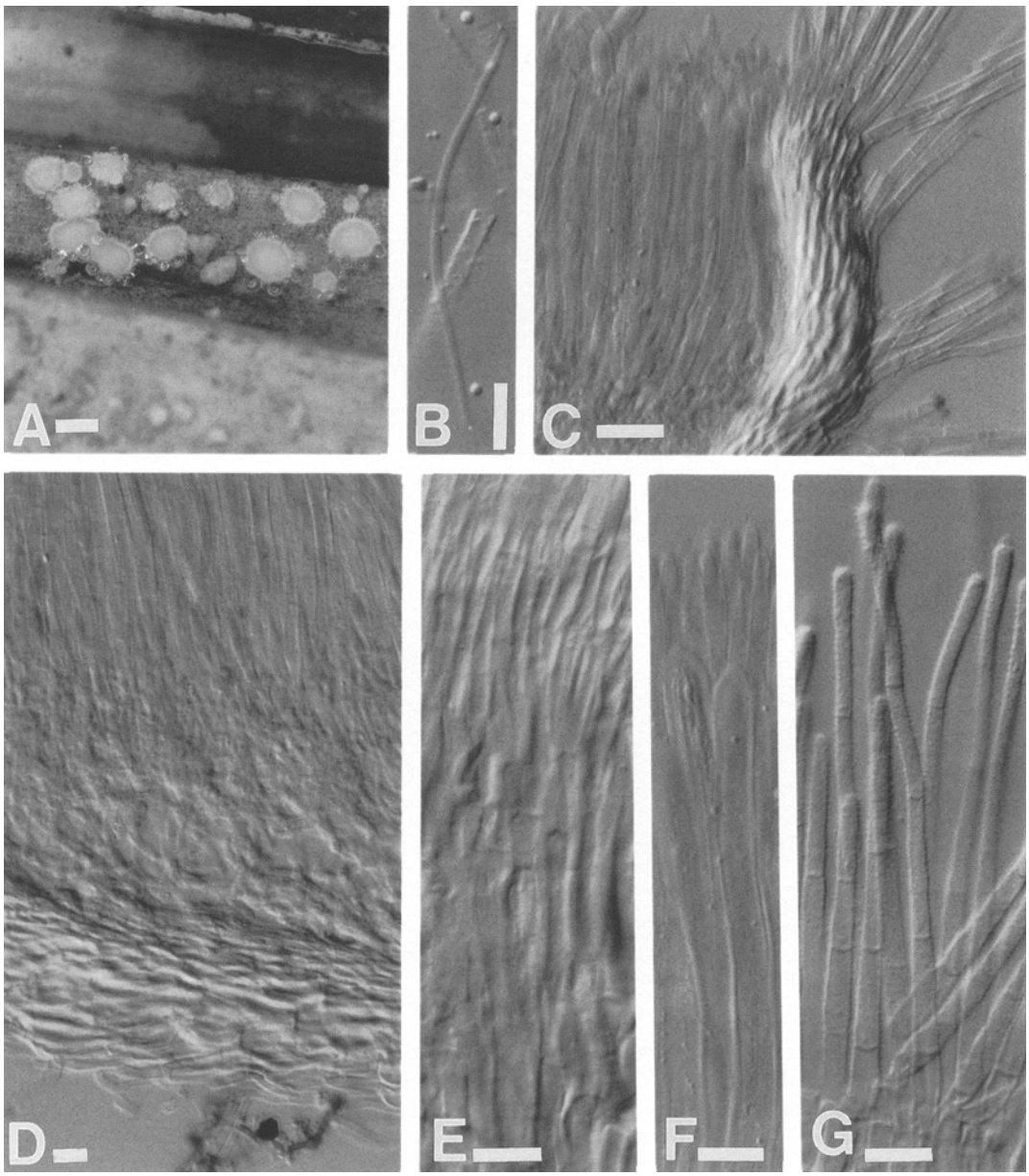

Fig. 5. *Lachnum palmae* (TRL-900).
A. Fresh apothecia. Note water drops formed at the hair apex. B. Ascospore. C. Vertical section showing the margin. D. Close up of the ectal and medullary excipulum from the middle of the receptacle in vertical section. E. Ectal excipular cells with thick, gelatinous walls in squash mount. F. Asci. Note they are somewhat thick-walled. G. Hairs.
Scale bars: A = 1 mm; B–G = 10 μm.

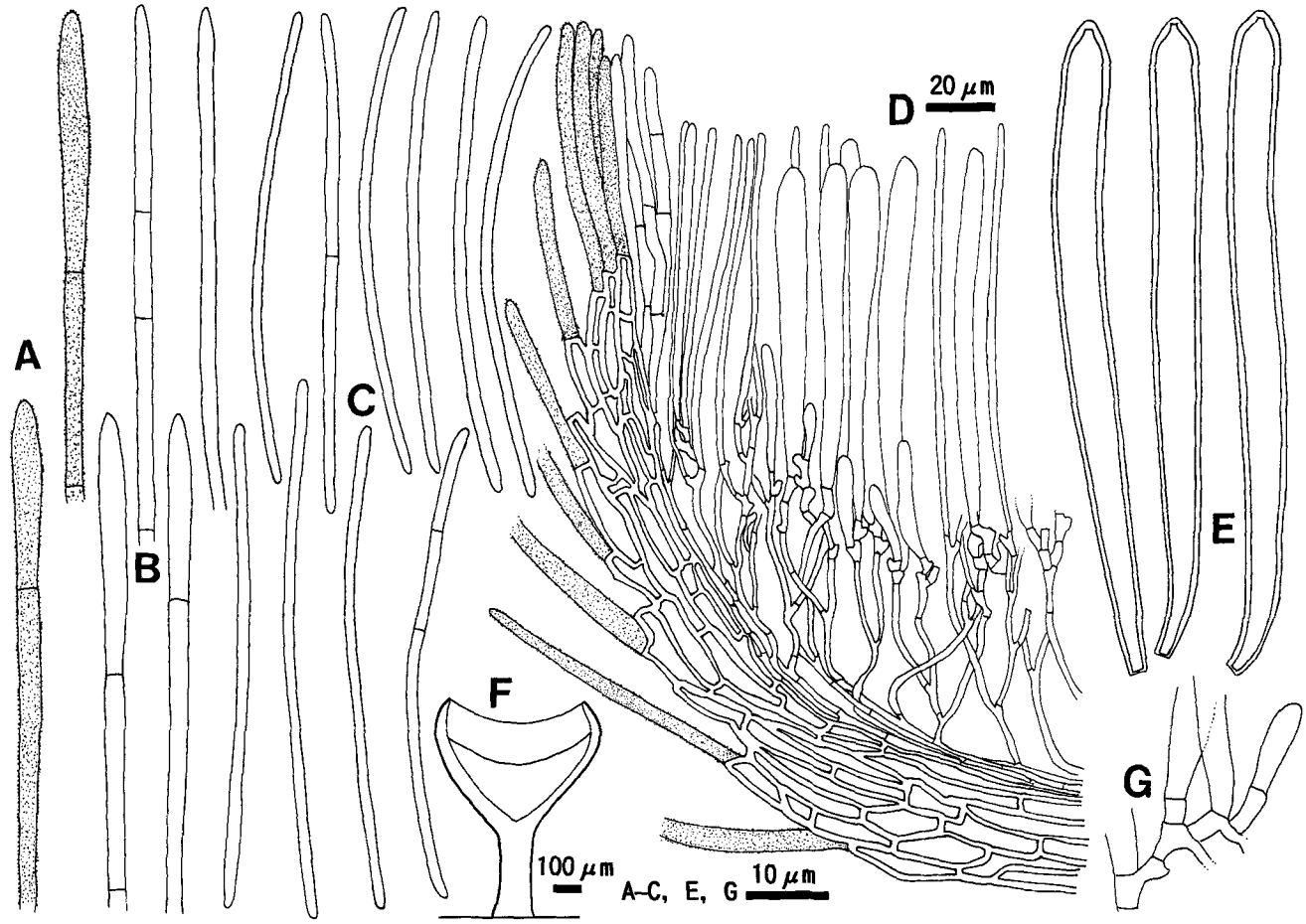

Fig. 6. *Lachnum palmae* (TRL-900).
A. Hairs. B. Paraphyses. C. Ascospores. D. Vertical section showing the margin. E. Asci. Note rather thick side walls. F. Schematic drawing of the apothecium showing the outline of the structure. Hairs not drawn. G. Ascal base with simple septa.

116: 484. 1987. Figs. 5, 6

Dasyscyphella palmae Kanouse, Mycologia **33**: 464. 1941.

Dasyscyphus palmae (Kanouse) Dennis, Persoonia **2**: 180. 1962.

Apothecia scattered, stipitate, up to 1 mm high; disc pure white, up to 1.6 mm in diam when fresh, Greyish Red (7B6) when dry, with elevated, incurving margin; receptacle white when fresh, buff white when dry; stipe stout, shearing 1/2–2/3 of the height, composed of elongate cells, 15–25 × 3.5–5 μm. Ectal excipulum two layered; outer layer "textura prismatica" of thick-walled, agglutinated prismatic cells, 19.5–34 × 4.5–9 μm; inner layer thin-walled, non-agglutinated hyphae of 1.5–2 μm wide, running parallel to the outside, poorly developed near the margin. Medullary excipulum "textura intricata", of vertically developing hyphae arising from inner ectal excipulum. Hairs cylindrical, thin-walled, multi-septate, granulate all over, up to 150 μm long, 3–3.5 μm wide. Asci 89–95 × 6–7 μm, uniform in shape, cylindrical clavate, thick-walled, arising from simple septa; apex conical with flattened top, MLZ+ without KOH pretreatment. Ascospores 60–74 × 1.5 μm, filiform, flexuous, borne in one fascicles in the asci, non-septate, very rarely (about one out of 50) septate; septation irregular, 2- to 3-septate near the end. Paraphyses narrowly lanceolate to cylindrical with pointed apex, straight, 2–3 μm wide at the widest point, septate, not exceeding the asci.

Colonies on PDA 15–18 mm in diam (23°C, 3 wk), low and dense, plane, funiculous, smooth at the margin, slimy, Light Yellow (4A4) to Brownish Orange (5C3); reverse concolorous. Context tough and glutinous. Aerial mycelium little to not developed, forming fascicles. Sectors and zonations absent. Margin distinct, entire, superficial or immersed.

Specimens examined. On leaves of *Livistona chinensis* (Jacq.) R. Br. var. *subglobosa* (Hassk.) Becc. KYUSHU: Hiuga cape, Oita Pref., 24-IX-92, TRL-663 (culture SANK 10195); Itokina, Tokunoshima Isl., Kagoshima Pref., 9-XI-93, TRL-900. OKINAWA: Minami-daitojima Isl., collection date not recorded, TRL-714 (culture SANK 15697). BONIN ISL.: Chichi-jima Isl., 1-VII-96, TRL-1430.

Notes. There is another species of *Lachnum* on *Livistona* leaves with filiform ascospores: *L. pritzelianum* (Henn.) Spooner. *Lachnum palmae* has agglutinated

tissue in the ectal excipulum. This is a remarkable characteristic in the genus *Lachnum*, which distinguishes *L. palmae* from *L. pritzelianum*. Nagao (1996a) collected *L. pritzelianum* from the same substrate in Bonin Isl.

4. *Lachnum pulverulentum* (Lib.) P. Karst., Mycol. fenn. **1**: 175. 1871. Figs. 7, 8

Peziza pulverulenta Lib., Plantae cryptogamicae p. 125. 1832.

Trichopeziza pulverulenta (Lib.) Fuckel, Symb. mycol. **1**: 297. 1870.

Lachnella pulverulenta (Lib.) Quél., Enchirid. fung., p. 316. 1886.

Dasyscypha pulverulenta (Lib.) Sacc., Syll. Fung. **8**: 463. 1889.

Cyathicula pulverulenta (Lib.) De Not. apud Rehm, Rabenh. Kryptogamenfl., **1**: 850. 1893.

Dasyscyphella pulverulenta (Lib.) Baral, Z. Mykol. **59**: 6. 1993.

Peziza solfatera Cooke & Ellis, Grevillea **7**: 7. 1878.

Lachnella solfatera (Cooke & Ellis) Sacc., Syll. Fung. **8**: 463. 1889.

Apotheica gregarious, sessile or subsessile; disc flat

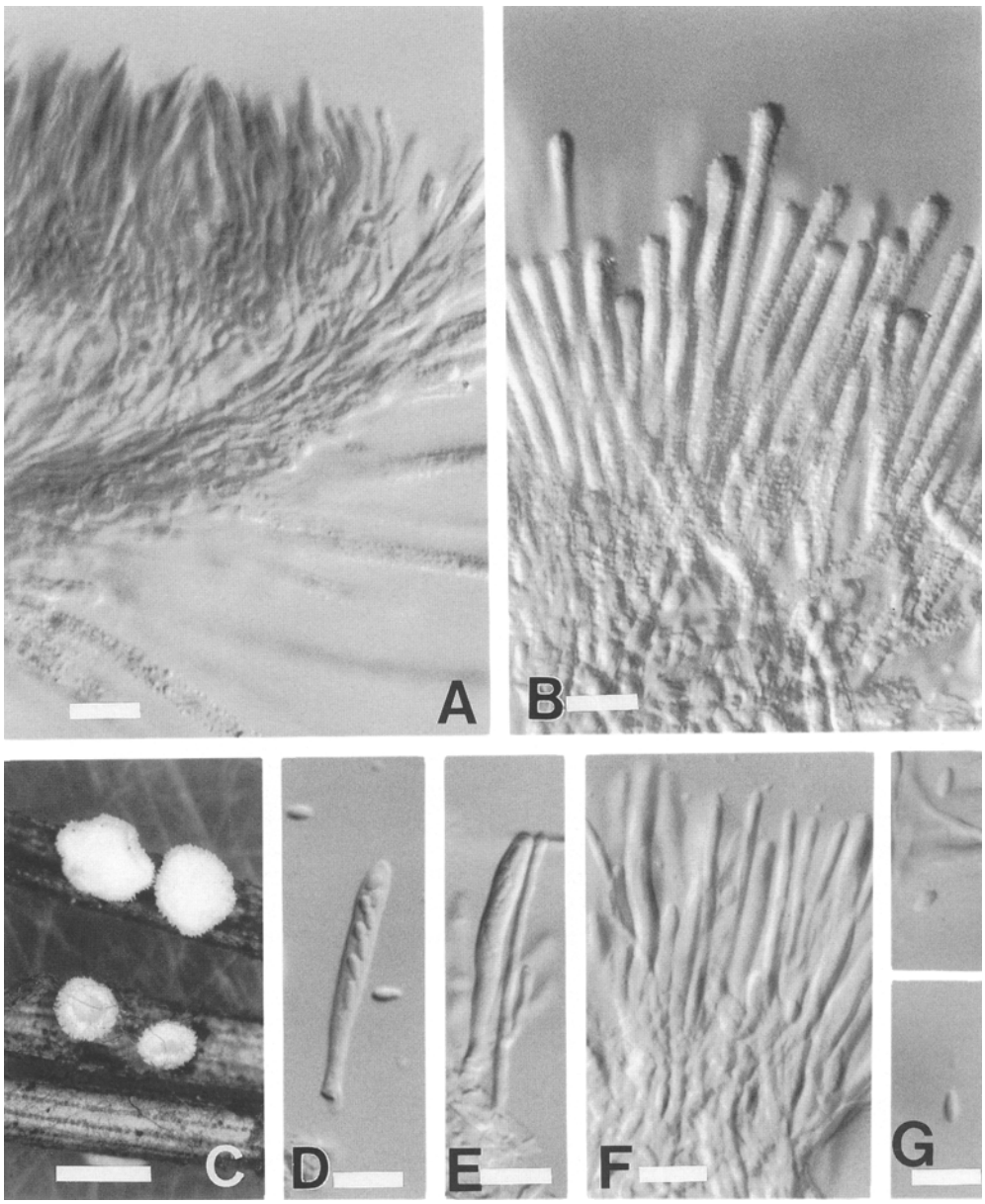

Fig. 7. *Lachnum pulverulentum* (TRL-1471)
A. Vertical section showing the margin. B. Hairs. C. Fresh apothecia. D. Ascus. E. Paraphyses with young ascus. F. Close-up of hymenium showing paraphyses among asci. G. Ascospores.
Scale bars: A, B, D–G = 10 μm; C = 1 mm.

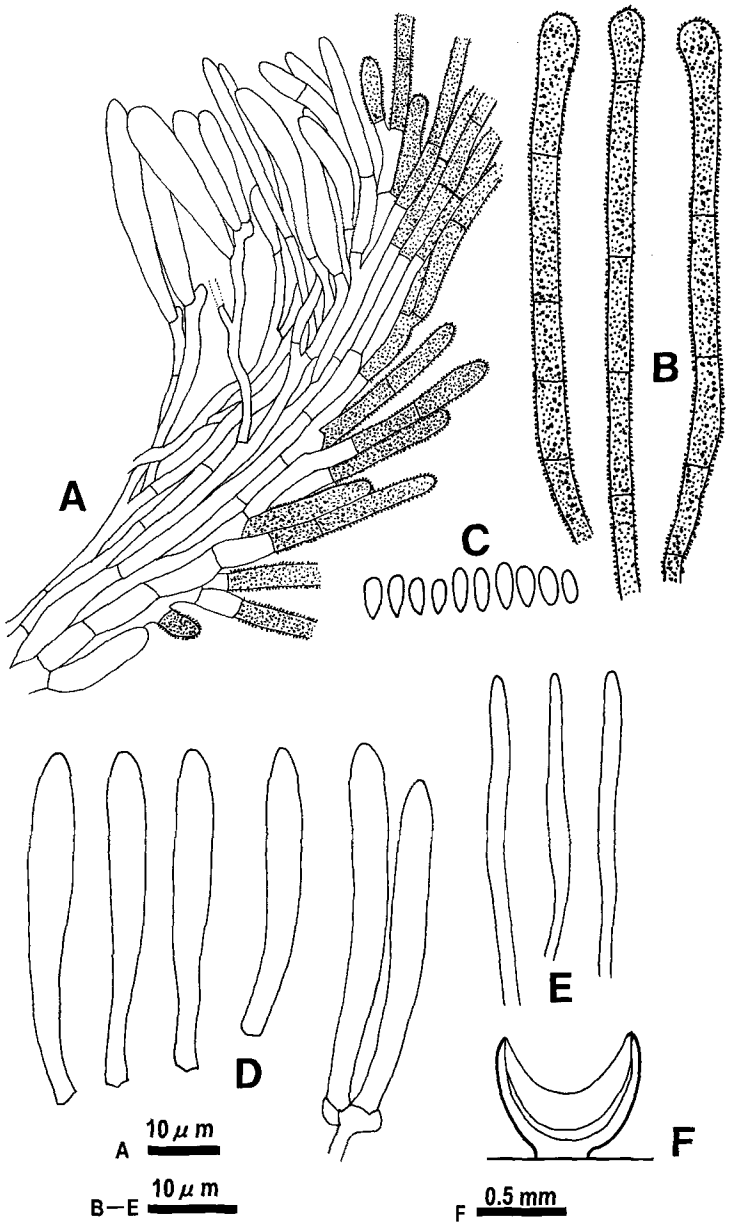

Fig. 8. *Lachnum pulverulentum* (TRL-1471)
A. Vertical section showing the margin. B. Hairs. C. Ascospores. D. Asci. One at the right showing the croziers at the base. E. Paraphyses. F. Schematic drawing of the apothecium showing the outline of the structure. Hairs not drawn.

to shallow, yellowish, up to 1 mm in diam when fresh, becoming Pale Orange (5A3) when dry; receptacle off white, becoming Pale Yellow (4A3) when dry, covered with fine hairs bearing Brownish Red (8C7) resinous material. Ectal excipulum "textura prismatica", composed of thin-walled elongate cells not quite differentiated with hyphae, lined by hyphae of c. 2 μm wide, running along the outside. Hairs cylindrical, thin-walled, multiseptate, thin-septate, granulate all over, up to 80 μm long, 2–3 μm wide; apex often expanded up to 4.5 μm, bearing resinous material. Asci 33–40 × 4–5 μm, cylindrical clavate, arising from croziers; apex conical, with somewhat flattened top, MLZ+ without KOH pretreatment. Ascospores 4.5–5 × 1.5–2 μm, typically cuneiform with pointed base and rounded head, sometimes elliptic, non-septate. Paraphyses simple or branched at the base, narrowly lanceolate to cylindrical or slightly expanded at the apex, as long as asci.

Colony of SANK 31100 on PDA 18 mm in diam (23°C, 3 wk), low and dense, plane, velvety, Pale Orange (5A3); reverse concolorous. Context soft and fleshy, short aerial hyphae developed to give velvety appearance. Margin distinct, entire, superficial.

Specimens examined. On decaying leaves of *Pinus sylvestris* L. HONSHU: Sugadaira, Sanada-machi, Nagano Pref., 24-IV-97, TRL-1471 (culture SANK

31100), 14-VI-99, TRL-1642.

Notes. *Lachnum pulverulentum* is featured by subsessile apothecia, narrow paraphyses, and cuneiform ascospores. Based on the morphological similarity in gross morphology, ectal structure, spore shape, and the presence of resinous material, Baral (1993) transferred *L. pulverulentum* to *Dasyscyphella* Tranzschel. The authors also recognize these similarity between *L. pulverulentum* and *Dasyscyphella* spp., but disagree to treat the present fungus in *Dasyscyphella* because the two genera are clearly distinguished by the hair morphology.

5. *Lachnum radiatum* Issh. Tanaka et Hosoya, sp. nov.
Figs. 9, 10

Apothecia sparsa, stipitata, usque 0.5 mm alta, plana, 0.5 mm in diametro, pallideaurantiaca, cum pilis simplicibus longis; stipes gracilis, 0.4 mm longus. Excipulum ectale "textura prismatica", ex cellulis cuboideis tenuitunicatis 10–16 × 5–10 μm, tunica 1–1.5 μm crassa extrinsecus subtiliter granulatis compositum. Pili tenuitunicati, usque 600 μm longi, ascendentes vel

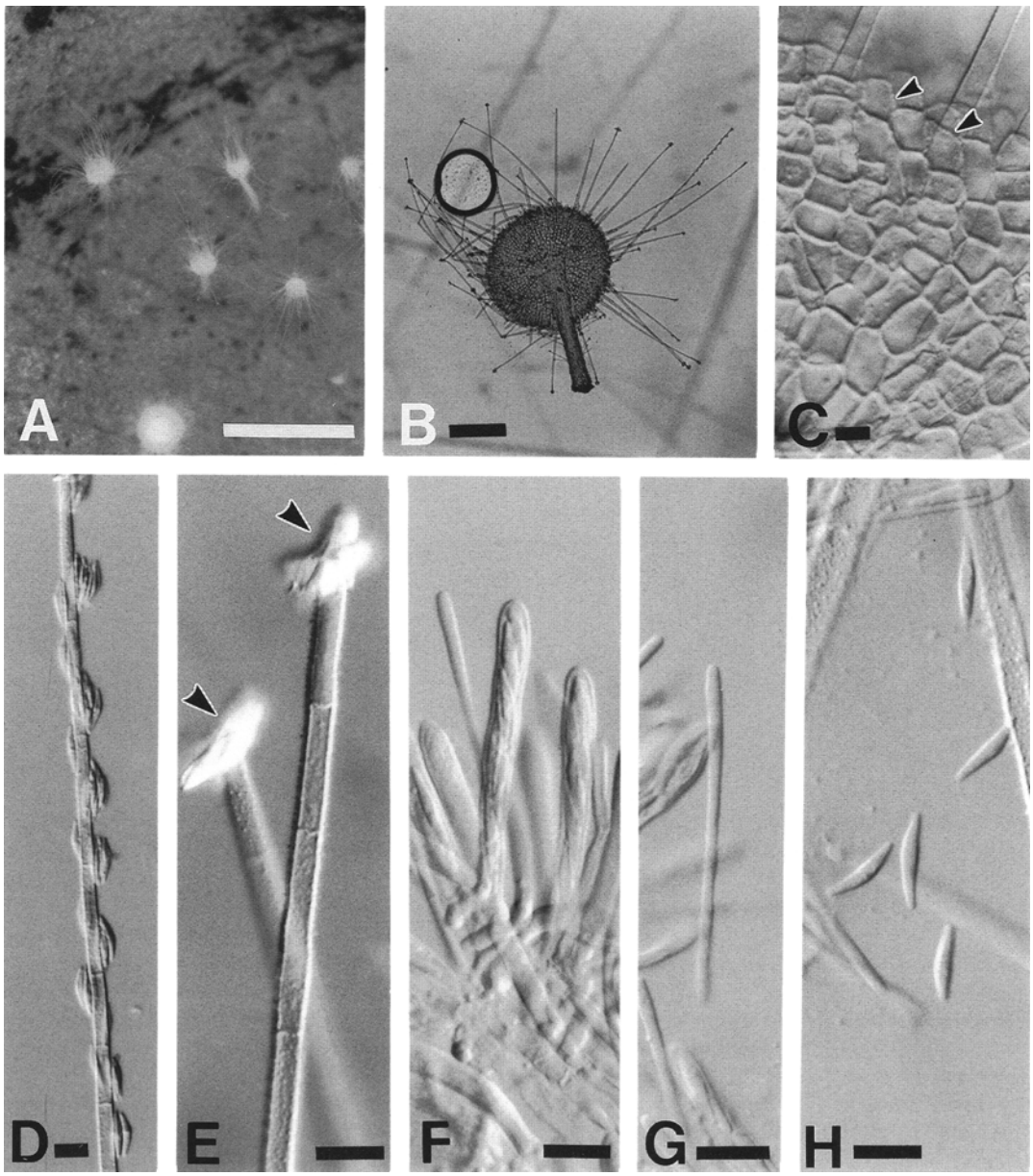

Fig. 9. *Lachnum radiatum* (TRL-1325).
A. Dry apothecia. Note radiating hairs. B. Apothecia rehydrated in water. C. Surface view of the ectal cells in squash mount. Arrowheads showing the granulation. D. Hair with discharged ascospores attached to the surface. E. Hairs with crystals (arrowheads) at their apices. F. Asci. G. Paraphyses. H. Ascospores.
Scale bars: A = 1 mm; B = 0.2 mm; C–H = 10 μm.

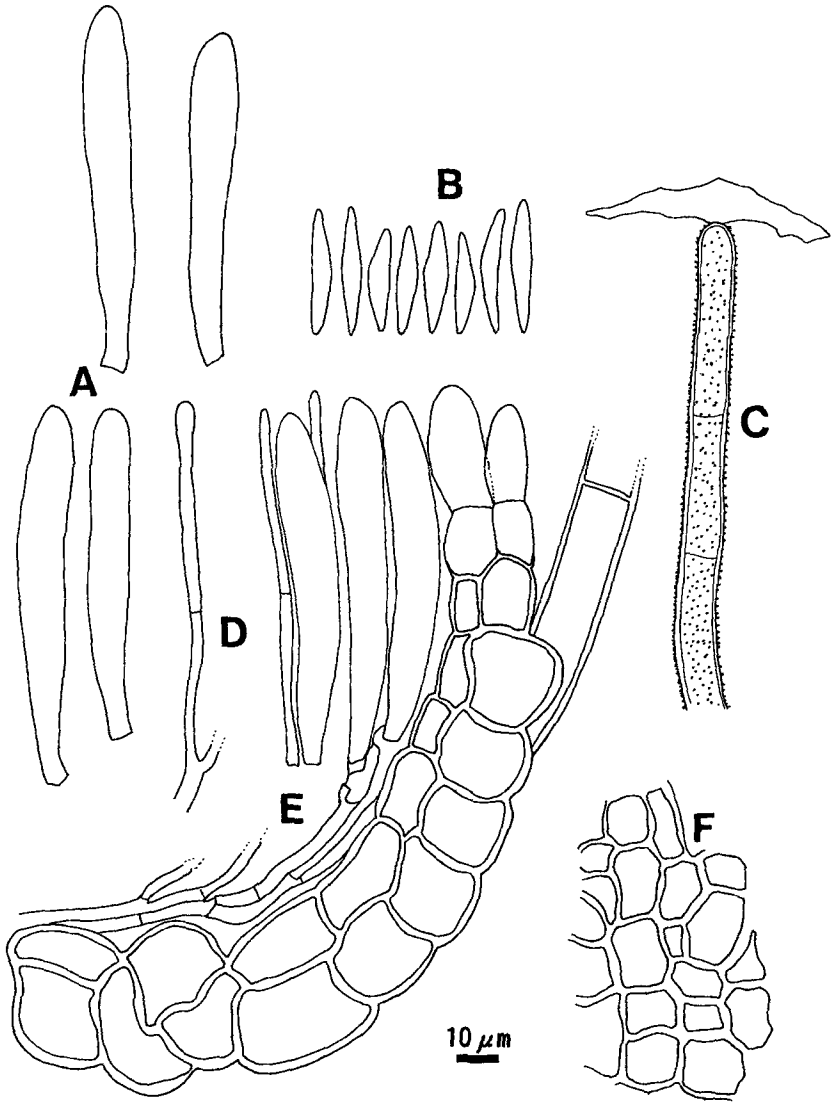

Fig. 10. *Lachnum radiatum* (TRL-1325).
A. Asci. B. Ascospores. C. Hair with crystal at the apex. D. Paraphyses. E. Vertical section showing the margin. F. Surface view of ectal cells.

horizontaliter porrecti, multi-septati, in totum granulati, obtusi, apice crystallis obtegentes. Asci 39–45× 4.5–5.5 μm, clavati, poro iodo non vel inconspicue coerulescenti, ex hamulis surgentes. Ascosporae 12.5–16× 2–3 μm, fusiformes, rectae vel leviter curvatae, aseptatae. Paraphyses cylindricae, 1.5–2 μm latae, apice aliquando leviter expansae, septatae, basi ramosae, ascos non superantes.

Holotypus. HONSHU: TNS-F-7097, Tokura-kogen, Katashina-mura, Gunnma Pref., on leaves of *Fagus crenata*, 17-IX-99, *TRL-1698*, culture SANK 27099.

Etymology. Latin, "*radiatum*", from the extending manner of hairs in fresh specimens.

Apothecia scattered, stipitate, up to 0.5 mm high; disc flat, Pale Yellow (4A3), 0.5 mm in diam when fresh, concolorous when dry; receptacle concolorous, floccose, strangely featured by long-extending, tentacle-like hairs; stipe 0.4 mm long, "textura porrecta", composed of elongate prismatic cells, 14.5–40× 4.5–6.5 μm, externally granulate. Ectal excipulum "textura prismatica", composed of cuboid cells with 1–1.5 μm thick wall, 10–16× 5–10 μm, more rounded toward the base, 2-3-layered at the margin, arranged parallel to the outside surface, externally finely granulate. Medullary excipulum of "textura intricata", composed of thin hyphae of 1–1.5 μm wide. Hairs cylindrical, gradually tapered to the apex, multiseptate, totally granulate, thin-walled, mostly 200–300 μm, up to 600 μm long, 4.5–10 μm wide at the base, ascending or extending horizontally; apex blunt, capped with large crystals insoluble in MLZ. Asci 39–45× 4.5–5.5 μm, clavate, filled with spores from the base to the apex, arising from croziers; apex MLZ− with or without KOH pretreatment. Ascospores 12.5–16× 2–3 μm, fusiform, straight or slightly curved, aseptate, biseriate in the asci. Paraphyses cylindrical, basically narrowly lanceolate, occasionally slightly expanded with

blunt apex, straight, somewhat flexuous, 1.5–2 μm wide, septate, branched at the base, not exceeding the asci.

Colony of SANK 27099 on PDA 22 mm in diam (23°C, 3 wk), low and dense, plane, velvety, Brownish Beige (6E3); reverse darker (Greyish Brown 6F3), lighter toward the margin. Context tough and glutinous; short aerial hyphae developed to give velvety appearance. Margin indistinct, entire, superficial.

Specimens examined. On leaves of *Fagus crenata*. HONSHU: Sugadaira, Sanada-machi, Nagano Pref., 23-VIII-95, TRL-1325, col. I. Tanaka; Suigen-no-mori, Okutone, Gunnma Pref., 18-IX-99, TRL-1716 (culture SANK 27199).

Notes. Foliicolous habitat and long, gradually tapered hairs in *L. radiatum* show similarity to *Zoellneria* Velen. or *Trichodiscus* Kirschst. Members of *Zoellneria* and *Trichodiscus*, however, have dark hairs (Dennis, 1958, 1963; Beaton and Weste, 1977). The granulation of hairs are not reported in either genera.

Lachnum radiatum shares some common characteristics with other foliicolous *Lachnum*, such as *L. ciliare*, *L. virtembergense*: fusiform ascospores, narrowly lanceolate to nearly cylindrical paraphyses, well-defined, straight stout stipe. *Lachnum radiatum* is also morphologically similar to *L. ciliare* and *L. virtembergense* in having few-layered ectal excipulum composed of thick-walled cells. However, *Lachnum radiatum* is easily distinguished by the extraordinarily long, radiating hairs from the species mentioned above.

6. *Lachnum rhytismatis* (W. Phillips) Nannf., Trans. Br.

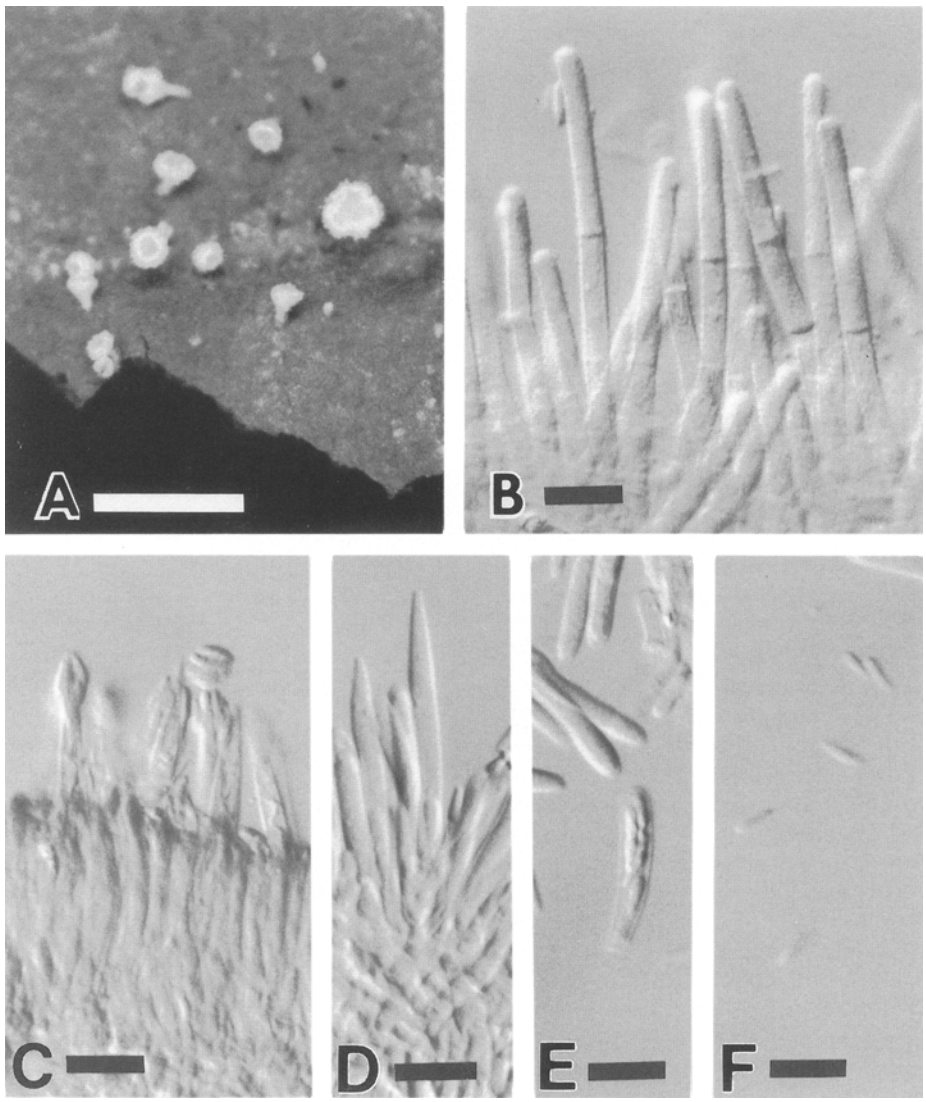

Fig. 11. *Lachnum rhytismatis* (TRL-567).
A. Dry apothecia. B. Hairs. C. Close up of the hymenium showing paraphyses exceeding than the level of the asci.. D. Paraphyses. E. Asci. F. Ascospores. Scale bars: A=1 mm; B–G=10 μm.

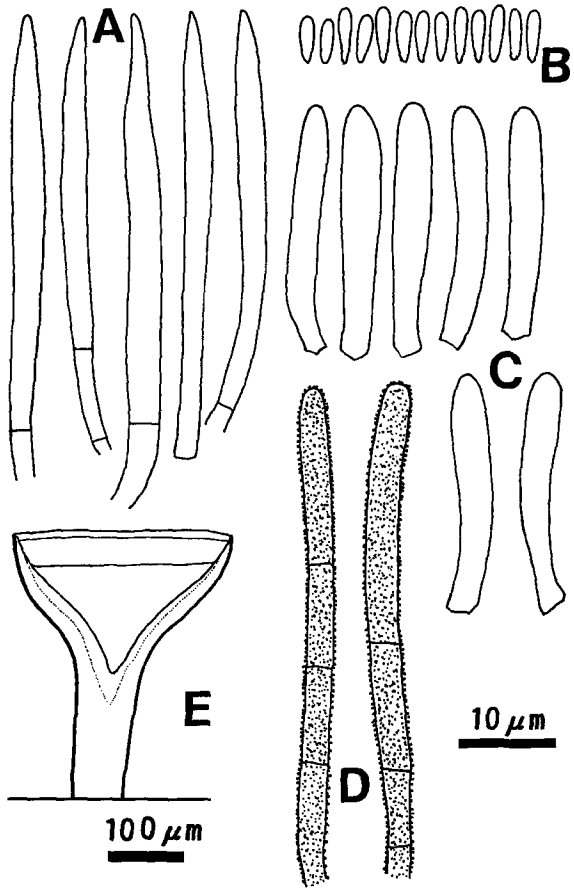

Fig. 12. *Lachnum rhytismatis* (TRL-567).
A. Paraphyses. B. Ascospores. C. Asci. D. Hairs. E. Schematic drawing of the apothecium showing the outline of the structure. Hairs not drawn.

mycol. Soc. **23**: 242. 1939. Figs. 11, 12

Peziza (*Dasyscypha*) *rhytismatis* W. Phillips, Grevillea **8**: 101. 1889. (ut "*rhytismae*")

Lachnella rhytismatis W. Phillips, Brit. Discom. p. 250. 1887.

Dasyscypha rhytismatis (W. Phillips) Sacc., Syll. Fung. **8**: 453. 1889.

Trichopeziza echinulata Rehm, Ber. Nat. Ver. Augsburg **26**: 65. 1881.

Lachnum echinulatum (Rehm) Rehm, Rabenh. Kryptogamenfl. **1**: 876. 1893.

Apothecia scattered, stipitate, up to 0.4 mm high; disc flat to shallow cupulate, Pale Yellow (4A3), up to 400 μm in diam when dry; receptacle funnel-shaped, concolorous when dry; stipe 100 μm wide, composed of elongate cells, 13–16 × 3.5–5 μm. Ectal excipulum "textura prismatica", composed of thin-walled cells, 11.5–15 × 3.5–5 μm. Hairs cylindrical, firm but thin-walled, granulate all over, 1–2-septate, slightly swollen at the apex, bearing a more or less globular to amorphous mass of small crystals, up to 80 μm long, 3–3.5 μm wide. Asci 24–26 × 3–4 μm, cylindrical clavate, arising from croziers, narrowed below; apex conical with slightly flattened top, pore MLZ+ without KOH pretreatment. Ascospores 4–6 × 1–1.5 μm, straight, rod-shaped or obtuse at one end, narrowed to the other, more or less biseriate. Paraphyses lanceolate, 2–3 μm at the widest point, numerous and very conspicuous, 25–30 μm exceeding the asci.

Colony of SANK 13994 on PDA 11 mm in diam (23°C, 3 wk), low and dense, plane, pruinose to tuberculate, somewhat convoluted marginally, Yellowish Brown (5D5); reverse Brownish Orange (5C5). Context tough and glutinous. Aerial mycelium little developed, Sectors and zonations absent. Margin distinct, entire, superficial.

Specimen examined. On leaves of *Quercus dentata*. HONSHU: Sugadaira, Sanada-machi, Nagano Pref., 27-VI-92, TRL-567 (culture SANK 13994).

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