

NOTE

Hideyuki Nagao

Discomycetes on decayed tree fern. (3) *Lachnum lanariceps* and *Lachnum oncospermatum* new to Japan

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Abstract Two species were newly identified in Japan. *Lachnum lanariceps* was characterized by a central and cylindrical stipe and hairs containing pale yellow pigment with red or garnet resinous matter. *Lachnum oncospermatum* was identified after comparison with the holotype of *Dasyscyphus oncospermatum*. This fungus has the characteristics of wrinkled apothecium and branched stipe.

Key words *Cyathea* spp. · Japan · *Lachnum* · Pteridicolous discomycetes · Tree fern

Ferns are known as good substrates for many fungi, not only for parasitic but also for saprophytic species (Bøhler 1974; Holm and Holm 1978). *Athyrium*, *Dryopteris*, *Equisetum*, *Osmunda*, and *Pteridium* are often excellent substrates for discomycetes (Ellis and Ellis 1985). On the tropical ferns *Alsophila*, *Cyathea*, *Dicksonia*, *Gleichenia*, and *Papuapteris*, several species of pteridicolous Hyaloscyphaceae have been reported from Taiwan (Wu et al. 1998; Wu and Wang 2000), Australasia (Dennis 1958; Spooner 1987) and Central and South America (Haines 1980, 1992).

In the southern part of Japan, two tree fern species, *Cyathea spinulosa* Wallich ex Hook. and *C. lepifera* (J. Sm. ex Hook.) Copel., are well distributed, and on these the author collected three species of *Lachnum* (Nagao 1996; Nagao and Doi 1996). Species of the pteridicolous *Lachnum* showed common features, having acute ascospores and pale yellow hairs with fine granules and bearing resinous matter. In this report, the author added two species of pteridicolous *Lachnum*, as new to Japan.

1. *Lachnum lanariceps* (Cooke & Phillips) Spooner, Bibliotheca Mycologica 116:474, 1987.

≡ *Peziza lanariceps* Cooke & Phillips, Grevillea 8: 62, 1879.

≡ *Dasyscypha lanariceps* (Cooke & Phillips) Sacc., Syll. Fung. 8: 465, 1889.

≡ *Atractobolus lanariceps* (Cooke & Phillips) O. Kuntze, Revisio Genera Plantarum 3: 446, 1898.

= *Dasyscypha javanica* Penz. & Sacc., Malpighia 15: 209, 1902.

= *Dasyscypha cyatheae* Rehm, Leafl. Philipp. Bot. 6: 2280, 1914.

The following description is based on the Japanese collections.

Apothecia minute, 0.1–0.3 mm diameter, gregarious, stipitate. Disk concave, pale ochraceous, shaded by the inrolled margin when dried. Receptacle cupulate, heavily covered with hairs. Stipe central, cylindrical, covered with hairs. Hairs 30–102 × 1.5–5 μm, and average diameter 3.95 μm around the receptacle, cylindrical, obtuse, pale buff due to pale yellow pigment or white, septate, finely granulated about two thirds from top and bearing red or garnet resinous matter, dissolved in Melzer's reagent; sometimes several hairs were gathered, adhering to each other. Asci 60–80 × 4–6 μm, 8-spored, cylindrical-clavate, gradually narrowed to the base, apex narrowed, obtusely conical, the apex broadly stained blue in Melzer's reagent. Ascospores (16–)18–26(–27) × 1.5–2.5 μm, hyaline, narrowly fusoid, acute at both ends, often pointed at one of the ends, straight or slightly curved, sometimes containing a row of guttules, nonseptate. Paraphyses 55–70 × 1.5–2 μm, narrowly lanceolate or subcylindrical, hyaline, exceeding the asci level. Subhymenium not clearly differentiated. Medullary excipulum composed of interwoven cells. Ectal excipulum composed of angular prismatic cells of 7.5–11.3 × 2.3–3.8 μm.

Specimens examined. On the rachis of decayed *Cyathea* sp., in Haha-jima Island, Tokyo Metrop., Japan, Nov. 19, 1976, Y. Doi (TNS-F-227451), on the rachis of decayed *Cyathea* sp., Mt. Yoake-yama–Mt. Chuoo-zan in Chichi-

H. Nagao (✉)
School of Biological Sciences, Universiti Sains Malaysia, 11800 Pulau Pinang, Malaysia
Tel. +604-653-3522; Fax +604-656-5125
e-mail: nagaoh@usm.my

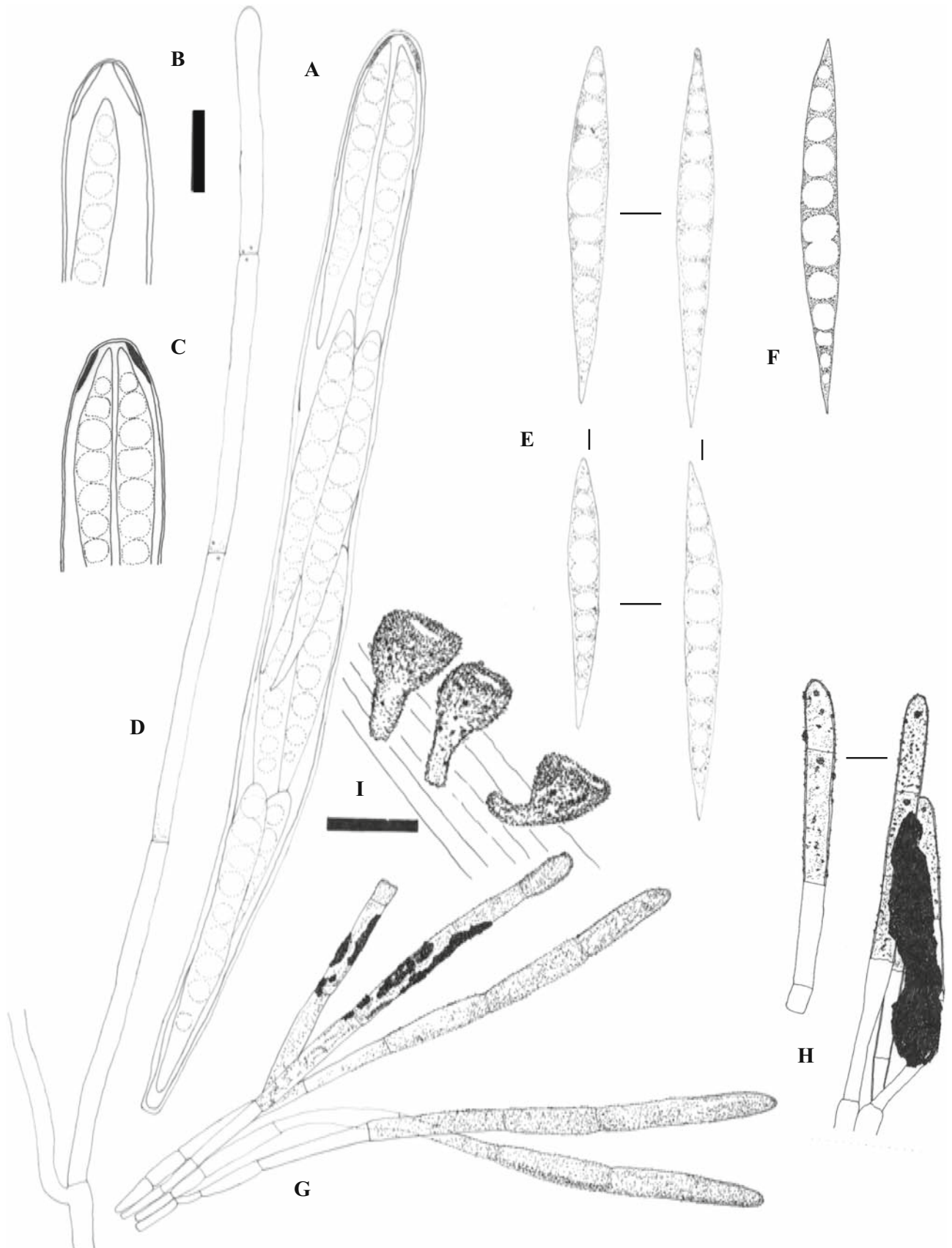


Fig. 1. *Lachnum lanariceps* TNS-F-232717 (**A, B, D, E, G, I**), TNS-F-227451 (**C, F, H**). **A** Ascus and ascospores. **B, C** Apex of ascus. **D** Paraphysis. **E, F** Ascospores. **G, H** Hairs with granulations and resinous matter. **I** Apothecia. Bars **A–H** 5 µm; **I** 1 mm

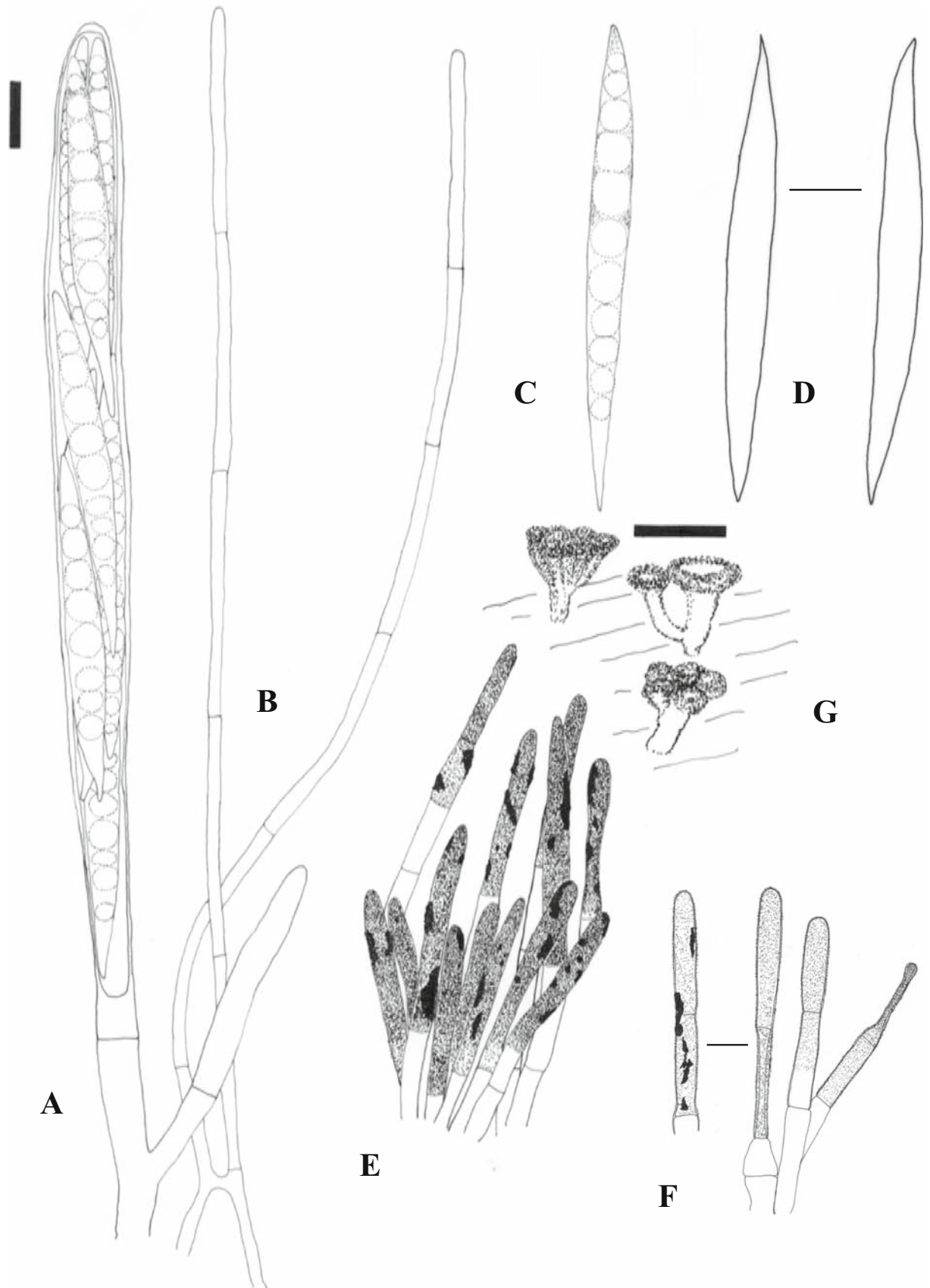


Fig. 2. *Lachnum oncospermatum* INM-2-51697 (A–C, E, G), K39137 (D, F). A Ascus and ascospores. B Paraphyses. C, D Ascospore. E, F Hairs. G Apothecia. Bars A–F 5 µm; G 1 mm

jima Island, Tokyo Metrop., Japan, Nov. 27, 1977, Y. Doi (TNS-F-232712; 232715; 232716; 232717), on the rachis of decayed *Cyathea* sp., in Sumiyoshi, Amami-oshima Island, Kagoshima Pref., Nov. 21, 1988, Y. Doi (TNS-F-180383), and on the rachis of decayed *C. lepifera*, in Komi, Iriomote-jima Island, Okinawa Pref., Japan, Nov. 18, 1995, H. Nagao (INM-2-51746).

Distribution. Australia, Philippine Islands, Taiwan.

Note. Cylindrical stipe and hairs containing pale yellow pigment and bearing red or garnet resinous particles on the hairs were prominent features of *L. lanariceps*. However, some of the apothecia were deeply lobed, resembling those of *L. oncospermatum* (Berk. & Broome) M.L. Wu & J.H. Haines. Coexistence of *L. lanariceps*, *L. oncospermatum*, and *L. pteridophyllum* (Rodway) Spooner on the same substrates was often observed on TNS-F-180383, -227451, and -232712. In my observations, these lobed apothecia were identified as *L. lanariceps* because of the size of ascospores and pale buff or whitish hairs bearing red or garnet resinous materials. Difficulty in the identification of *L. lanariceps* has been mentioned (Spooner 1987; Wu et al. 1998). The niche as well as the morphological similarity of the apothecia made its identification more complicated.

2. *Lachnum oncospermatum* (Berk. & Broome) M.L. Wu & J.H. Haines, Mycotaxon 67:346, 1998.

≡ *Peziza oncospermatis* Berk. & Broom, J. Linn. Soc. Bot. 14:105, 1875.

≡ *Dasyscyphus oncospermatis* Berk. & Broom, Syll. Fung. 8:465, 1889.

≡ *Atractobolus oncospermatis* (Berk. & Broom) O. Kuntze, Revis. Gen. Pl. 3(2): 446, 1898.

≡ *Aranea oncospermatis* (Berk. & Broom) Petch, Ann. R. Bot. Gard. Peradiniya 6: 164, 1917.

The following description is based on the Japanese collections.

Apothecia deeply lobed, stipitate, 0.3–0.7 mm diameter, gregarious, covered with hairs containing pale yellow to yellow pigment. Hairs bearing amber-colored resinous materials. Stipes branched, hairs 53–65 µm long and 3.5–4 µm diameter in the middle, pale yellow to yellow, septate, finely granulated entirely, and bearing amber resinous materials, dissolved in Melzer's reagent. Asci 75–90 × 5–8.8 µm, 8-spored, cylindric-clavate, the pore stained blue in Melzer's reagent. Ascospores 27.5–32.5 × 2.5–3 µm, hyaline, fusoid, acute at both ends, straight or slightly curved, nonseptate.

Specimens examined. On the rachis of decayed *Hemitelia walkerae*, in Hakgala, Ceylon, Jan. 1914, T. Petch (K(M)39137), on the rachis of decayed *Cyathea* spp., in

Haha-jima Island, Tokyo Metrop., Japan, Nov. 19, 1976, Y. Doi (TNS-F-227451); Nov. 20, 1976, Y. Doi (TNS-F-227478); Mt. Yoake-yama–Mt. Chuoo-zan in Chichi-jima Island, Tokyo Metrop., Japan, Nov. 27, 1977, Y. Doi (TNS-F-232712); on the rachis of decayed *Cyathea* sp., in Yaku-shima Island, Kagoshima Pref., Japan, Sept. 18, 1977, Y. Doi (TNS-F-232685), and on the rachis of decayed *C. spinulosa*, in Isso, Yaku-shima Island, Kagoshima Pref., Japan, Oct. 27, 1995, H. Nagao (INM-2-51677, 51681, 51692, 51697).

Distribution. Australia, Ceylon, Java, Philippine Islands, Taiwan.

Note. Although the author examined the holotype (K39137), its hymenium development was poor, and the ascus and paraphysis could not be fully observed. However, a few ascospores, 30–32.5 × 2.5 µm, and the hairs could be observed (Fig. 2). The species concept of *L. oncospermatum* has been discussed in comparison with *L. lanariceps* (Haines 1980; Spooner 1987; Wu et al. 1998). Morphology of ascospores, color of hairs, and also color of resinous materials on the hairs of *L. oncospermatum* differed from those of *L. lanariceps*, and that finding was confirmed in my examinations.

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