NOTE

Newly Recorded *Pseudombrophila* (Pyronemataceae) Species in Taiwan

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ABSTRACT: Two species of *Pseudombrophila* are described and illustrated in this paper. *Pseudombrophila equina* was collected from dung samples of Formosan Reeve's muntjac, and *P. petrakii* was found on soil with dead twigs of *Abies kawakamii*. Species of this genus are reported from high-elevation areas of Taiwan for the first time.

KEY WORDS: Discomycetes, *Pseudombrophila*, Pyronemataceae, Taiwan.

INTRODUCTION

In the world-monograph of the genus *Pseudombrophila* (Pyronemataceae), Brummelen (1995) merged *Fimaria* and *Nannfeldtiella* into *Pseudombrophila* and subdivided this genus into two sections. Species of *Fimaria*, characterized by glabrous or downy apothecia and smooth ascospores, together with those *Pseudombrophila* species characterized by brown hairy apothecia and smooth ascospores, were placed under the *Pseudombrophila* section. Species with two types of apothecial hairs and ornamented ascospores, were assigned to the *Nannfeldtiella* section. Since then, two new species were added to it (Wang and Wang, 2000; Dougoud, 2001). This paper describes and illustrates two *Pseudombrophila* species collected from Taiwan. These are new records to the Taiwanese fungal flora.

Moist-chamber cultures were prepared by placing dung samples collected from fields in sterilized glass Petri dishes. Morphological characteristics of fresh materials were examined and photographed by stereomicroscopy (Leica Wild M10) and light microscopy (Zeiss Axioskop). Scanning electron microscopic (SEM) photographs of ascospores are also provided. Specimens are deposited at the herbarium of the National Museum of Natural Science, Taichung, Taiwan (TNM).

Pseudombrophila equina (Graddon) Brumm., Libri Botanici 14: 32. 1995. Figs. 1, 3A-E

Apothecia scattered, superficial, sessile or substipitate, membranous-fleshy, 0.6-1.1 mm in diam., at first closed and subglobular, then opening more or less scutellate, with a short stalk-like base; disc pale-pink, flat, smooth; margin dark reddish-brown, prominent, glabrous, entire, with a raised rim. Subhymenium made up of small, polygonal cells, 1.5-2.5 µm in diam. Medullary excipulum composed of cylindrical, twisted, thin-walled, hyaline, irregular hyphae, 4.5-9 × 1-2.5 µm. Ectal- excipulum pale-brown, layer thin, cells subglobose, angular or slightly elongated, 17.5-25 × 12.5-17.5 µm. Asci 8-spored, J-, narrowly cylindrical, 60-78 × 6-8 µm, apex truncate, with a long stalk. Ascospores obliquely or vertically uniseriate, oblong-ellipsoid, 7-8 × 3-4 µm (length/width ratio 2-2.5, average 2.2), thick-walled, smooth, rounded at ends, hyaline, without a de Bary bubble, with irregular reticulation under SEM. Paraphyses filiform, 1.5-2 µm wide, septate, hyaline, simple, unbranched, not inflated at apices.

Specimen examined: Nantou County: Hohuanshan, on Formosan Reeve's muntjac dung, elevation 3200 m. Coll. J.-H. Chang, Jong 103, Nov. 10, 2007 (TNM F22547).

This species is rarely collected and is characterized by having very small ascospores (Graddon, 1980; Brummelen, 1995). The ascospores of this Taiwanese collection are even smaller than those in the literatures cited (8.0-10.3 × 3.5-4.9 µm, in Brummelen, 1995, and 8.5-9.2 × 4.5-4.7 µm, in Dougoud, 2002).

Pseudombrophila petrakii (Sacc.) Brumm., Libri Botanici 14: 53. 1995. Figs. 2, 3F-H

Apothecia scattered, superficial, sessile, fleshy, 1-6 mm in diam., disc-shaped; disc reddish-brown, concave. Receptacle paler, tomentose, covered with hairs. Margin entire, undulate. Hairs very abundant, of two types, both originating from outer-layer of excipulum. Marginal hairs brown-walled, sometime forming fascicles, septate, 5-7 µm wide, 50-100 µm long with blunt ends. Hyphoid hairs, hyaline, smooth, sparsely septate, undulate, 2-4 µm wide. Hymenium 122-147 µm thick, pale yellowish-brown. Subhymenium with compactly arranged small globose to angular cells, layer 40-50 µm thick. Medullary excipulum of *textura intricata*, hyphae, 5-10 µm wide. Ectal- excipulum pale-brown, layer thin, of *textura angularis*, cells subglobose to angular, 10-20 ×

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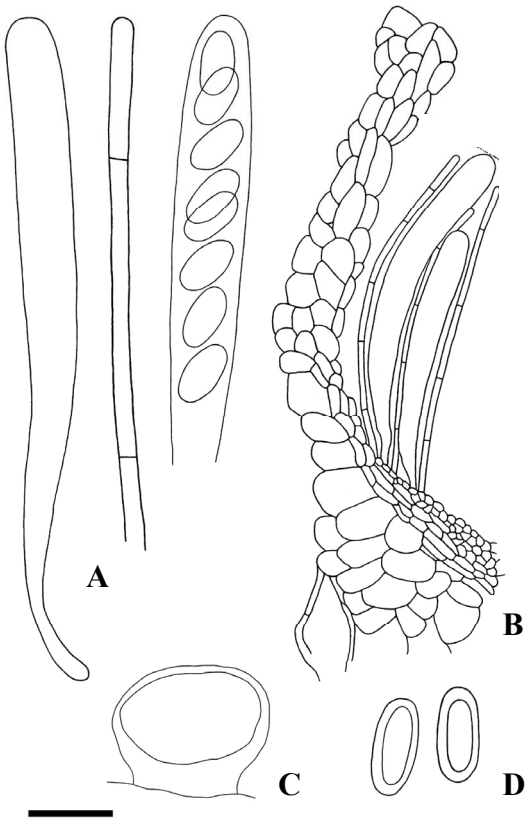


Fig. 1. *Pseudombrophila equina*. A: Asci and paraphysis. B: Section of apothecium. showing three layers of excipulum. C: An apothecium. D: Ascospores. Scale bar: A = 9 µm, B = 20 µm, C = 500 µm, D = 7 µm.

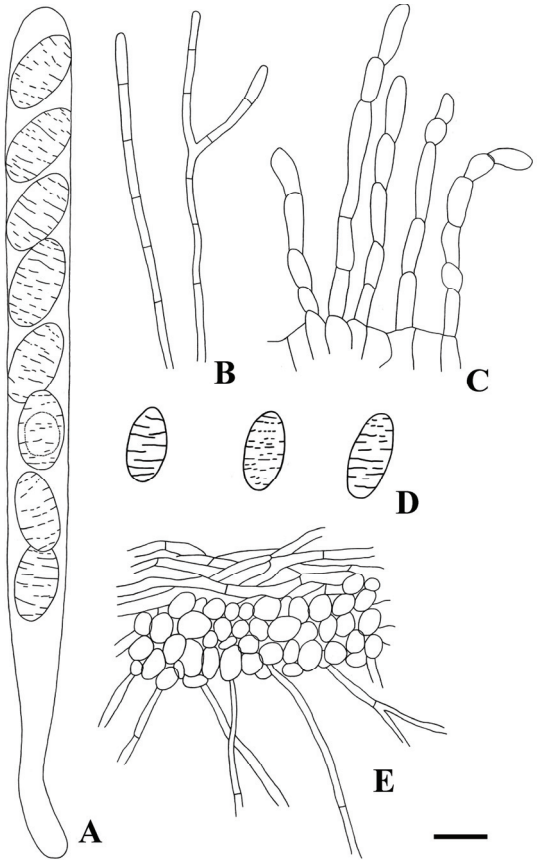


Fig. 2. *Pseudombrophila petrakii*. A: An ascus. B: Tips of paraphyses. C: Marginal hairs. D: Ascospores. E: A part of receptacle. Scale bar: A, B, & D = 8 µm, C & E = 20 µm.

7-12 µm. Asci 8-spored, J-, narrowly cylindrical, 120-127 × 7-10 µm, apex truncate. Ascospores uniseriate, ellipsoid, 11-12 × 6-7 µm, thick-walled, smooth when young, ornamented with subparallel lines when mature, sometimes with a de Bary bubble, with transversely arranged ridges under SEM. Paraphyses filiform, 2-3 µm wide, septate, hyaline, simple or branched, tips not enlarged, with intercellular yellowish-brown pigment.

Specimen examined: Hualien County: Tayuling, on soil with dead twigs of *Abies kawakamii,* elevation 2800 m. Coll. W.-N. Chou & Y.-Z. Wang; *WAN 120*, Apr. 12, 1995 (TNM F3077).

The spore ornamentation of this specimen can be observed under oil immersion without staining. *Pseudombrophila merdaria* is close to it by its brown apothecia and striate ascospores; however, in *P. merdaria*, the ornamentation of the ascospores is less prominent, and the apothecia have only a single type of hairs (Brummelen, 1995).

This genus is mainly distributed in temperate areas, and most species were collected and reported from Europe (Brumelen, 1995; Calonge and Rodriguez, 1985), with only one species *P. xiangchengensis* found in southwestern China (Wang and Wang, 2000). These new records thus extend the range of this genus to the subtropics.

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LITERATURE CITED

Brummelen, van J. 1995. A world-monograph of the genus *Pseudombrophila* (Pezizales, Ascomycotina). Libri. Botanici. **14**: 1-117.

Calonge, F. D. and N. B. Rodriguez. 1985. *Pseudombrophila* Boud. (Discomycetes), a new genus for Spain. Anales Jard. Bot. Madrid. **42**: 33-37.

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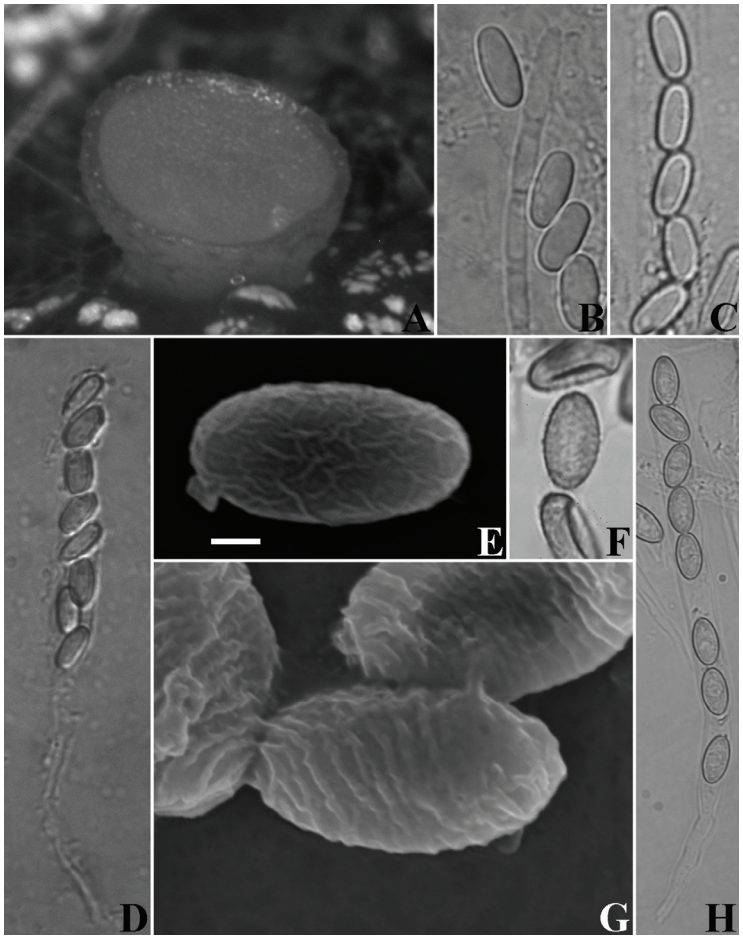


Fig. 3. A-E: *Pseudombrophila equina*. A: An apothecium. B: Paraphysis and ascospores. C: Thick-walled ascospores. D: An ascus. E: SEM of an ascospore. F-H. *Pseudombrophila petrakii*. F: Ascospores. G: SEM of ascospores. H: An ascus. Scale bar: A = 200 µm, B-C = 5 µm, D & F = 6 µm, E = 1.3 µm, G = 2 µm, H = 12 µm.

Dougoud, R. 2001. *Pseudombrophila stercofringilla* sp. nov. Mycol. Helv. **11**: 145-151.

Dougoud, R. 2002. *Contribution* à la connaissance de quelques Discomycètes operculés rares ou méconnus. Fungi Delineati. **18**: 1-70.

Wang, Z. and Y.-Z. Wang. 2000. Note on coprophilous discomycetes from southwestern China. Fung. Sci. **15**: 125-134.

臺灣新紀錄假雨盤菌屬

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摘要：本文描述兩種假雨盤菌，*Pseudombrophila equina* 採自臺灣山羌的排遺，*P. petrakii* 採自臺灣冷杉樹下的土壤，此兩種均為臺灣新紀錄的盤菌。

關鍵詞：盤菌類、假雨盤菌、火絲菌科、臺灣。

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