NOTE

The Genus *Phillipsia* (Pezizales) in Taiwan

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ABSTRACT: Three species of *Phillipsia* were collected in Taiwan. *Phillipsia domingensis* is the most common species in this genus, and *P. carnicolor* and *P. chinensis* are new records for Taiwan. The characteristics of these species are described and discussed in this paper.

KEY WORDS: Discomycetes, Sarcoscyphaceae, taxonomy.

INTRODUCTION

The genus *Phillipsia* Berk. is characterized by small to large, sessile to substipitate apothecia, which consist of a tomentose external surface, a pink to purplish-red, orange or white hymenium, suboperculate asci, and commonly asymmetrical ascospores ornamented with longitudinal striations (Denison, 1969; Moravec, 1997; Zhuang, 2003). In Taiwan, only one species, *P. domingensis* was previously reported (Wang, 2001). In this paper two more species of this genus, *P. carnicolor* and *P. chinensis*, are added to Taiwan's mycobiota.

MATERIALS AND METHODS

Fresh or re-hydrated apothecia were sectioned by freehand. Measurements were made with material mounted in distilled water. Morphological characteristics were examined by stereomicroscopy (Leica Wild M10) and light microscopy (LM; Zeiss Axioskop). Photographs of ascospores were made by scanning electron microscopy (SEM; Hitachi SU-1500). Specimens are deposited in the herbarium of the National Museum of Natural Science (TNM).

TAXONOMIC TREATMENTS

Phillipsia carnicolor Le Gal, Prodr. Fl. Mycol. Madagascar 4: 281, 1953
肉色歪盤菌 Figs. 1, 3, 7, 8

Apothecia gregarious, discoid, 1-4 mm diam., with a short stalk 1-3 mm high; disc orange-yellow, yellowish brown when dry; receptacle creamy white, leathery. Ectal-excipulum of *textura porrecta*, hyphae 4-7 μm wide, 50-100 μm thick, with 1-2 layers of small hyphal protrusions on surface, 5-7 μm diam.; medullary excipulum of *textura intricata*, hyphae loosely arranged, 4-7 μm wide and of various thickness; hymenium layer orange brown, 250-275 μm thick. Asci 8-spored, suboperculate, cylindrical, 200-225 × 12-15 μm. Ascospores ellipsoid, slightly inequilateral, hyaline, 17-20 × 10-12 μm, containing 1or 2 guttules, smooth by LM (1000×) but showing irregular reticulations or 6-8 fine lines under SEM. Paraphyses filiform, filled with yellowish content, 3-5 μm wide at tips.

Specimen examined: TAIWAN, Taitung: Orchid Island, on rotten wood, Oct. 9, 2002, coll. *MF Lou*; WAN 947 (TNM F14657).

This species is characterized by small yellowish apothecia, and slightly inequilateral ascospores (Hansen et al., 1999; Zhuang, 2003). The ornamentation on the ascospore surface is variable. Le Gal (1953) described the ascospore surface as smooth or with very fine straight striations by LM. Hansen et al. (1999) and Zhuang (2003) showed it as broad longitudinal ridges by SEM. Moravec (1997) examined the type of *P. hartmannii* (Phill. apud Cooke) Rifai and described the ascospores as smooth by LM, but with subreticulate ornamentation consisting of amoeboid and irregularly arranged wrinkles by SEM. Either longitudinal striations or irregular reticulations were found in this Taiwan collection (Figs. 7, 8). Rifai (1968) and Denison (1969) tentatively listed *P. carnicolor* as being in synonymy with *P. hartmannii.*

Phillipsia chinensis W.Y. Zhuang, Mycotaxon 86: 292, 2003 中國歪盤菌 Figs. 2, 4, 9, 10

Apothecia gregarious, discoid, 1-2.5 cm diam., with a short stalk; disc orange-red with mosaic patches, purplish brown when dry; receptacle creamy white, corky. Ectal-excipulum of *textura porrecta*, hyphae 2-5 μm wide, light yellow, 50-60 μm thick, with short hyphal protrusions on surface; medullary excipulum of *textura intricata*, hyphae loosely arranged, 2-5 μm wide of various thicknesses; hymenium layer orange brown,

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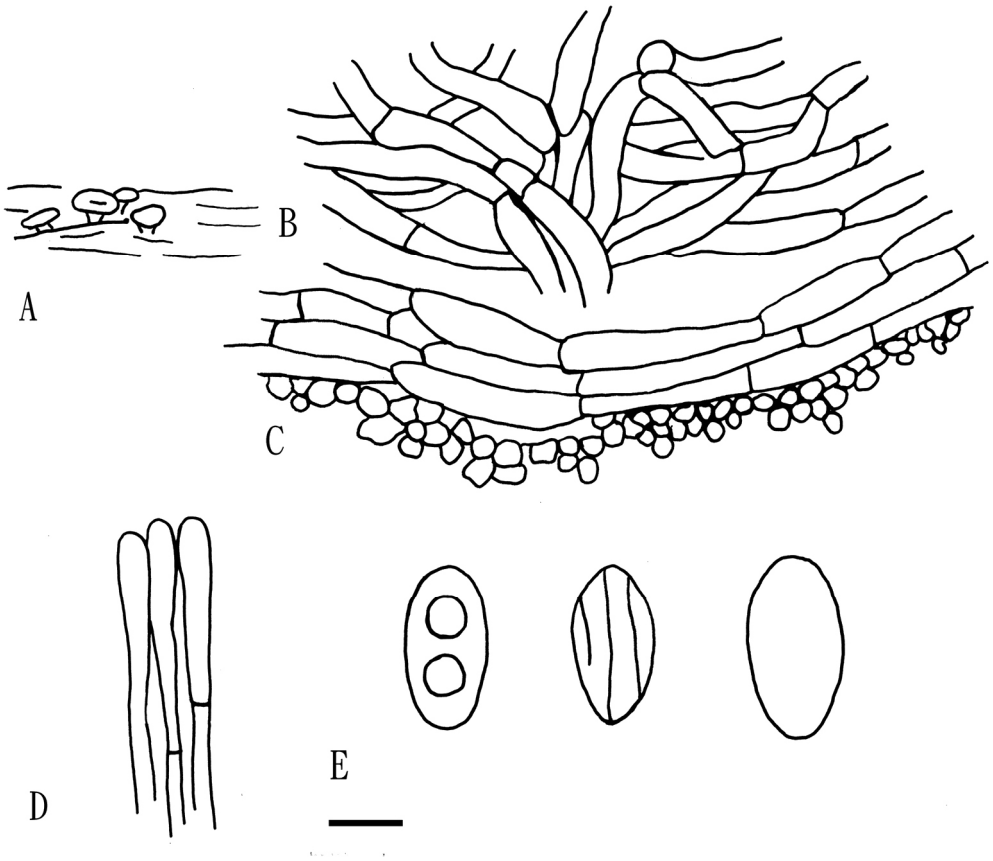


Fig. 1. *Phillipsia carnicolor*. A: Apothecia. B: Part of the medullary excipulum. C: Part of the ectal-excipulum. D: Paraphysis tips. E: Ascospores. Bar = 6 mm for A, 10 μm for B-E.

350-400 μm thick. Asci 8-spored, suboperculate, cylindrical, 14-16 μm wide. Ascospores ellipsoid, inequilateral, hyaline, (23-) 25-28 (-30) × 11-14 μm, slightly pointed at ends, containing 1or 2 guttules, surface with 7-12 straight lines. Paraphyses filiform, filled with reddish content, tips 3-5 μm wide.

Specimen examined: TAIWAN. Nantou: Meifeng, elev. 2150 m, on rotten wood, coll. *SL Yuan*, WAN 1227, Oct. 31, 2007 (TNM F21424).

Zhuang (2003) originally described this species from southern China and mentioned that the receptacle is very thick, up to 9 mm when dry. This Taiwan collection fits *P. chinensis* described by Zhuang (2003) except that the excipular tissue is only 2-5 mm thick.

Phillipsia domingensis (Berk.) Berk., J. Linn. Soc. Bot. Lond. 18: 388, 1881

多地歪盤菌 Figs. 5, 6, 11, 12

This is the most common species of this genus in Taiwan and has previously been reported by Wang (2001). Three more specimens were collected since then, and the distribution is broadened from the lowlands to higher elevations at Aowanta and the Huisun Forestry Station (both at 1200 m in elev.), Nantou County. It is characterized by large purplish red apothecia with a creamy white receptacle, and inequilateral ascospores with 3-6 coarse straight ridges on surface. Hansen et al. (1999) indicated that *P. domingensis* is a species complex, members of which have medium to large apothecia with various hymenium colors.

Specimens examined: TAIWAN. Nantou: Aowanta, on rotten wood, *YZ Wang* WAN 1024, June 16, 2004 (TNM F16859); Chiuchiufeng, on rotten wood, *CM Chen*, Aug. 23, 2001 (TNM F13923); Huisun Forestry Station, on rotten wood, *ML Wu*, WAN 1068, Aug. 22, 2005 (TNM F18649); Tungpu, on rotten wood, *SH Wu* 9285, Aug. 22, 1992 (TNM F0674); Wushe, Pihu, 870 m in elev., on dead wood, *WN Chou,* WAN 308, July 4, 1996 (TNM F5133); Pingtung: Kenting, on rotten wood, *WN Chou*, Aug. 6, 2008 (TNM

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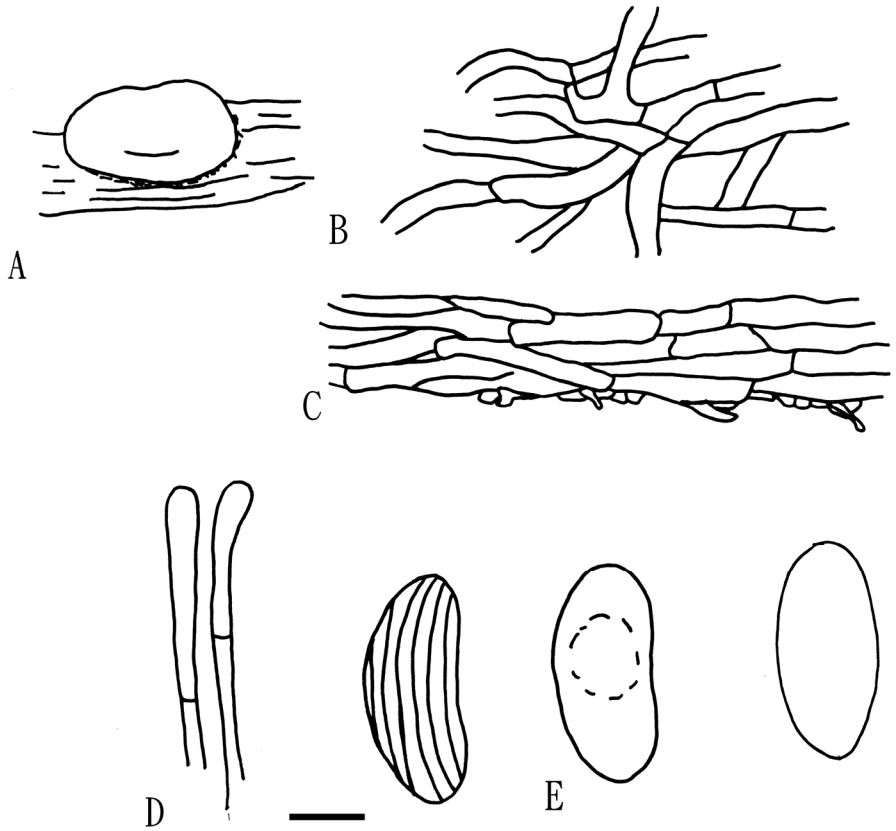


Fig. 2. ***Phillipsia chinensis.*** **A. An apothecium. B. Part of the medullary excipulum. C. Part of the ectal-excipulum. D. Paraphysis tips. E. Ascospores. Bar = 10 mm for A, 10 μm for B-E.**

F22039); Nanjenshan, 250 m in elev., on dead twigs, *WN Chou*, WAN 331, Sep. 6, 1996 (TNM F5156); on rotten wood, *CC Wen*, WAN 502, Oct. 8, 1997 (TNM F7686); Chufengshan, 300 m in elev., on rotten wood, *CC Wen*, WAN 496, Sep. 18, 1997 (TNM F7681). Taichung: Taiping, on rotten wood, *CC Yeh*, WAN 1357, Oct. 5, 2010 (TNM F 24060). Taitung: Orchid Island, Chungai Bridge, on rotten wood, *JY Tseng* and *SH Wu* 9704-84, Apr. 30, 1997 (TNM F7415); Hsiaotienchih, 100 m in elev., on rotten wood, *SZ Chen* 977, Oct. 25, 1999 (TNM F10183).

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Figs. 3-6. Apothecia of *Phillipsia* species. Fig. 3. *Phillipsia carnicolor*. Fig. 4. *Phillipsia chinensis*. Figs. 5 & 6. *Phillipsia domingensis*. The apothecium in Fig. 5 is dark red, while that in Fig. 6 is purplish red. Bar = 1.2 mm for Fig.3; 10 mm for Fig.4; 3 mm for Fig. 5 and 8 mm for Fig. 6.

台灣歪盤菌屬

王也珍

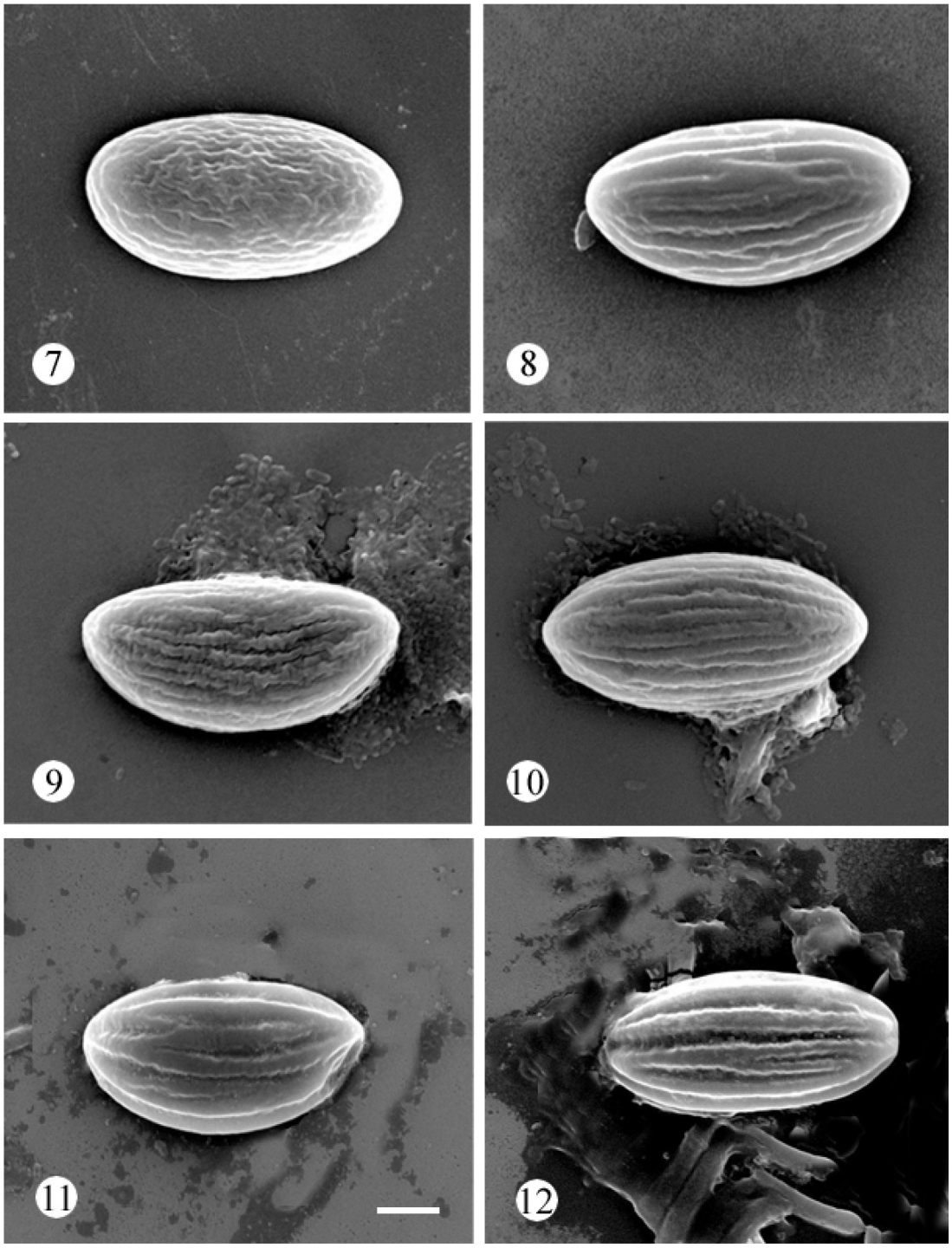
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摘要：本文紀錄3種台灣的歪盤菌屬 (*Phillipsia*) 盤菌，其中多地歪盤菌(*P. domingenensis*) 是此屬中最常見種，肉色歪盤菌 (*P. carnicolor*) 與中國歪盤菌 (*P. chinensis*) 為台灣的新紀錄種。

關鍵詞：盤菌，肉杯盤菌科，分類。

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Figs. 7-11. Ascospores of *Phillipsia* species by SEM. Figs. 7 & 8. *Phillipsia carnicolor;* ascospore in Fig. 7 has irregular reticulations, while that in Fig. 8 has longitudinal ridges. Figs. 9 & 10. *Phillipsia chinensis*; ascospore in Fig. 9 is in profile view, while that in Fig. 10 is in front view. Figs. 11 & 12. *Phillipsia domingensis*; the ascospore in Fig. 11 is in profile view, while that in Fig. 12 is in front view. Bar = 3.5 μm for Figs. 7-8, and 5 μm for Figs 9-12.

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