

Crucispora rhombisperma newly recorded in Taiwan

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ABSTRACT

Crucispora rhombisperma (Agaricaceae, Agaricales, Basidiomycota) was collected from a soil pot of *Bacopa monnieri*. The species, with a known distribution in Japan and India, is herein newly recorded in Taiwan. It is characterized mainly by forming brown cruciform-rhomboid basidiospores.

Key words: ammonia fungi, *Bacopa monnieri*, cruciform spores, *Panaeolus*

Introduction

The genus *Crucispora* E. Horak is assignable to the family Agaricaceae and contains only two species: *C. naucorioides* E. Horak from New Zealand (Horak 1971) and *C. rhombisperma* (Hongo) E. Horak from Japan and India (Imazeki and Hongo 1987, Noordeloos et al. 2007). The generic name *Crucispora* denotes the cruciform basidiospores. Other salient characteristics of *Crucispora* include brown to dark brown, mottled gills, and brown basidiospores. *Crucispora* species are sometimes placed within the genus *Panaeolus* (Copriniaceae), which differs from the former by smooth basidiospores and black or grey gills. Species of *Crucispora* have not been reported in Taiwan (Wang et al. 1999), and *C. rhombisperma* is here recorded for the first time in Taiwan.

Materials and Methods

Material was mounted in water for examination by bright field microscopy. Amplification of the Internal Transcribed Spacer (ITS) regions of fungal ribosomal DNA (rDNA) was described in Hsieh et al. (2009). The sequence was then subjected to NCBI BLAST queries.

Taxonomy

Crucispora rhombisperma (Hongo) E. Horak, Sydowia 33: 57. 1980. Fig. 1

≡ *Panaeolina rhombisperma* Hongo, Memoirs of Shiga University 23: 38. 1973.

Pileus 2–3 cm diam, hemispherical, campanulate to convex, smooth, dark brown to black-brown on surface, finely striate at margin. Lamellae and lamellulae dark brown, with white mottles, adnate, smooth on edges; lamellulae with four unequal lengths. Stipe 4–6 × 0.18–0.2 cm, cylindrical, white-brown with black-brown warts, Flesh thin, whitish. Spore print black. Basidiospores

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Fig. 1. *Crucispora rhombisperma*. A. Fruiting bodies. B. Lamellae. C. Fruiting bodies on culture (MEA medium). D. Basidiospores. E. Basidia. F. Cheilocystidia. Bars: A=2 cm; B–C =1cm; D–F = 10 μ m.

8.5–10.5 \times 6.5–9.5 μ m, dark red-brown, rhomboid to cruciform, thick-walled, with a small but distinct germ pore. Basidia clavate, 15–20 \times 6–8 μ m, with 4 sterigmata. Cheilocystidia 20–36 \times 5–6 μ m, cylindrical to slightly clavate, often with a swollen base and a subcapitate apex. Pileipellis composed of subglobose to pyriform hyphal cells.

Septa with clamps.

Habitat. On pond sludge near *Bacopa monnieri*, scattered.

Specimen examined. Taiwan, Taichung: National Museum of Natural Science, *Chou, W.-N.*, CWN11502, Nov. 25. 2020 (TNM), sequence of

ITS and 28S ribosomal RNA gene deposited at GenBank as MZ782082 and MZ781504, respectively.

Notes. *Crucispora rhombisperma* has brown to dark brown mottled gills, brown basidiospores and black spore prints. *Crucispora* may be confused with *Panaeolus* by macromorphology, but its rhomboid to cruciform basidiospores distinguish it from *Panaeolus* (Horak, E. 1971). *Crucispora rhombisperma* has been reported as an ammonia fungus (Imazeki and Hongo 1987, Fukiharu & Hongo 1995) or from elephant dung (Noordeloos, et al 2007). This specimen was collected from pond sludge growing with *Bacopa monnieri* plant pot, which may imply it is a nitrophilic fungus. The other species of *Crucispora*, *C. naucorioides* Horak, has brown spore prints, larger basidiospores 12–15 × 11–14 µm with a smooth, thin wall and lacking a germ pore (Horak, 1971). The ITS sequence shared a 87.48 % similarity with that of *Panaeolus acuminatus* and LR7 sequence shared a 97.71 % similarity with that of *Panaeolus cyanescens*, but *P. acuminatus* has smooth, lemon-shaped basidiospores while *P. cyanescens* has smooth, elliptical basidiospores.

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十字孢菇 (傘菌科, 擔子菌) 的臺灣新紀錄種

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摘 要

本文描述及圖示一種十字孢菇屬的臺灣新紀錄種，它生長在假馬齒莧 (*Bacopa monnieri*) 盆栽上。其主要特徵是具有褐色、十字形或菱形的孢子。菇體的外觀非常類似鬼傘科班褶菇屬 (*Panaeolus*)。

關鍵詞：班褶菇屬、十字形孢子、喜氮真菌、假馬齒莧