

**TWO NEW COPROPHILOUS DISCOMYCETES  
(PEZIZALES) FROM TAIWAN**

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## ABSTRACT

Two new species of coprophilous discomycetes (Pezizales) are described from Taiwan. *Coprotus uncinatus* is characterized by hooked paraphyses, and *Thecotheus formosanus* by verruculose and apiculate ascospores.

Keywords: Discomycetes, Pezizales, Taiwan.

## INTRODUCTION

During investigations of the coprophilous fungal flora of Taiwan, an undescribed species each of *Coprotus* Korf & Kimbr. and *Thecotheus* Boud. were collected. North American species of *Coprotus* was revised by Kimbrough et al. (1972). Subsequently, a number of species were added to this genus from various localities (Bell & Kimbrough 1973, Jeng & Krug 1977, Thind et al. 1978, Gibson & Kimbrough 1980, Gené et al. 1993). After the publication of North American species of *Thecotheus* (Kimbrough 1969), additional species of *Thecotheus* were described (Pfister 1972, 1981, Kaushal 1980, Krug & Khan 1987, Gené et al. 1993, Wang & Kimbrough 1993). Since these two recent collections appear to differ from all known species, they are described as new species.

*Coprotus uncinatus* Wang, sp. nov. Figs. 1, 3 & 4

Apothecia alba vel luteola, discoidea, 0.5-0.7 mm diam; margo fimbriatus. Excipulum ectale textura globosa vel angularis, cellulae 10-20 x 12.5-20  $\mu\text{m}$ ; excipulum medullare texturis globosa vel angularis, cellulae 5-10  $\mu\text{m}$  diam. Asci octospori, cylindranei, J-, 125-150 x 12.5-17.5  $\mu\text{m}$ . Ascospores ellipsoideae, laeves, 14-16 x 7.5-10  $\mu\text{m}$ , "de Bary bubble" praeditae. Paraphyses graciles, simplices vel ramosae, apices uncinatae, 2-3  $\mu\text{m}$  diam.

Holotypus: Taiwan. Pingtung: Kangtzu, on cow dung, June 3, 1993, Y.Z. Wang F0740 (National Museum of Natural Science, R.O.C.).

Etymology: Latinized from *uncinate*, referring to the hooked paraphyses.

Apothecia white to pale yellow, discoid, constricted below, 0.5-0.7 mm diam; margin fimbriate. Ectal excipulum of a *textura globulosa* to *angularis*, cells 10-20 x 12.5-20  $\mu\text{m}$ ; medullary excipulum composed of small polygonal cells, 5-10  $\mu\text{m}$  diam. Asci cylindrical, eight-spored, J-, 125-150 x 12.5-17.5  $\mu\text{m}$ . Ascospores ellipsoid, smooth, 14-16 x 7.5-10  $\mu\text{m}$ , each with a de Bary bubble when mature. Paraphyses slender, simple or branched, tips hooked, 2-3  $\mu\text{m}$  diam.

*Coprotus uncinatus* is characterized by slender, tip-hooked, and sometimes coiled paraphyses. It is similar to *C. ochraceus* (Cr. & Cr.) Larsen in having apothecia with raised margin, and similar sized asci and ascospores, but the apothecia of the latter are larger and the paraphyses tips are enlarged. *C. glaucellus* (Rehm) Kimbrough also has hooked paraphyses, however the asci and ascospores are smaller (7.5-9.0 x 4.5-5.5  $\mu\text{m}$ , Kimbrough et al. 1972).

Habitat: on cow dung.

Specimen examined: see type.

*Thecotheus formosanus* Wang, sp. nov. Figs. 2 & 5

Apothecia dispersa, primo subglobosa et alba, in maturitate cupuliformes et brunneola,

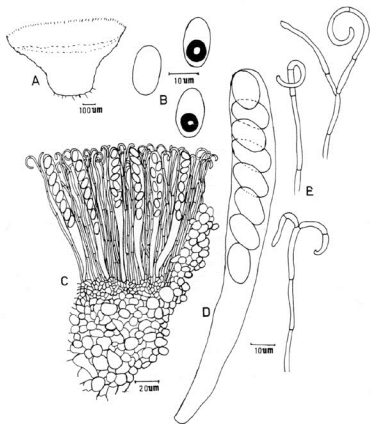


Fig. 1. *Coprotus uncinatus* A. An apothecium. B. Three ascospores. C. Cross section of an apothecium. D. An ascus. E. Three paraphyses tips.

0.5-1 X 0.2-1.2 mm. Excipulum ectale textura globosa vel angularis 10-45  $\mu\text{m}$  diam, ad marginem cellularum bulborum compositum, 10-15  $\mu\text{m}$  in diam; excipulum medullare cum tuxturis intricatis, hyphae 2-5  $\mu\text{m}$  diam, Asci octospori, cylindranei, J+, 150-250 x 12.5-17.5  $\mu\text{m}$ . Ascospores ellipsoideae, 18-20 x 7.5-9  $\mu\text{m}$  verruculosa, apiculatae, apiculi hemisphaerici, 1-1.5 x 2-3  $\mu\text{m}$ . Paraphyses, filiformes 2-3  $\mu\text{m}$  diam, vel apice leviter inflati, 4-7.5  $\mu\text{m}$  diam.

Holotypus: Taiwan. Pingtung Co., Kangtzu, on cow dung, May 11, 1993, Y.Z. Wang F0744 (National Museum of Natural Science R.O.C.).

Etymology: Latinized from *formosa*, referring to the old name of Taiwan.

Apothecia scattered, at first subglobose and white, becoming cupulate and tan, 0.5-1 X 0.2-1.2 mm, without margin. Ectal-excipulum of a textura globulosa to angularis, cells 10-45  $\mu\text{m}$  diam; marginal hyphae terminating into globose tips, 10-15  $\mu\text{m}$  diam; medullary excipulum of a textura intricata, hyphae 2-5  $\mu\text{m}$  diam. Asci cylindrical, 150-250 x 12.5-17.5  $\mu\text{m}$ , eight-spored, J+, operculum indistinct. Ascospores ellipsoid, 18-20 x 7.5-9  $\mu\text{m}$ , slightly asymmetrical, verruculosa; warts less than 0.5  $\mu\text{m}$  in diam, with or sometimes without apiculi at two ends of the spores, apiculi hemispherical, 1-1.5 x 2-3  $\mu\text{m}$ , surrounded with a gelatinous sheath. Paraphyses two types, one type filiform 2-3  $\mu\text{m}$ , the second type enlarged at the apex, 4-7.5  $\mu\text{m}$  diam.

*Thecotheus formosanus* is characterized by apiculate and verruculosa ascospores. *T. apiculatus* Kimbrough also has apiculate ascospores, but which are smooth and the apiculi are narrower. *T. harasisus* Gené et al has larger (23-28 x 12-13.5  $\mu\text{m}$ ) and warty (4.5-6.5  $\mu\text{m}$  diam.) ascospores.

Habitat: on cow dung.

Specimens examined: Taiwan. Pingtung Co: Kangtzu, on cow dung, June 8, 1993, Y.Z. Wang F0739 (N.M.N.S.) and holotype.

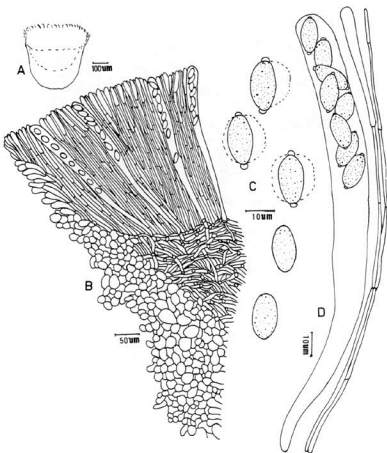


Fig. 2. *Thecotheus formosanus* A. An apothecium. B. Cross section of an apothecium. C. Five ascospores; upper three with apiculi and the other two without apiculi. D. An ascus and two paraphyses tips.

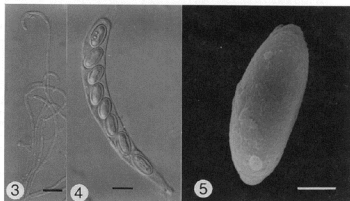


Fig. 3-4. *Coprotus uncinatus* (Holotype). 3. A paraphysis tip, scale bar = 10  $\mu\text{m}$ . 4. An ascus, scale bar = 10  $\mu\text{m}$ . Fig. 5. *Thecotheus formosanus* (Holotype). An ascospore (SEM), scale bar = 3  $\mu\text{m}$ .

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