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Mycoacia angustata sp. nov. (*Basidiomycota*, *Meruliaceae*), the first Chinese hydnoid species

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Abstract — A new hydnoid basidiomycete, *Mycoacia angustata* sp. nov., is described and illustrated from the tropical and subtropical forest of Hainan and Hubei Province, southern China. It is the first new *Mycoacia* species described from China. The new species is characterized by ceraceous basidiocarps, an odontioid to hydnoid hymenophore with buff to cinnamon-buff surface, a monomitic hyphal system, and allantoid narrow hyaline basidiospores. Relationships between the new and closely related species are discussed.

Key words — *Polyporales*, wood-decaying fungi, taxonomy

Introduction

Mycoacia Donk was described by Donk based on the type species *Hydnum fuscoatrum* Fr. The genus is characterized by ceraceous fruitbodies with a hydnoid hymenophore with conical to cylindrical spines, monomitic hyphal system, and narrowly ellipsoid, cylindrical, or allantoid basidiospores (Eriksson & Ryvarden 1976). *Mycoacia* comprises species with a distinctly hydnoid hymenophore but is closely related to *Phlebia* Fr., which mostly comprises phlebioid species. Of the approximately 20 species encompassed in this genus at present, three have been reported from China (Dai 2011).

China is very rich in wood-decaying fungi. Species diversity, taxonomy, phylogeny, ecology and economically important wood-decaying species have been recently studied extensively (Dai 2010, 2011, 2012, Dai et al. 2009, Zhou & Dai 2012), and a number of new basidiomycetes in subtropical and tropical forests have been described (Cui & Dai 2008, Cui et al. 2011, Dai et al. 2010, Dai & Li 2010, Li et al. 2008, Wei & Dai 2008, Zhou & Dai 2008).

During the most recent surveys of the wood-decaying fungi in southern China, three specimens of *Mycoacia* were collected from fallen angiosperm

trunks. Here we describe and illustrate them as a new species. The relationships between the new species and its closely related species are discussed.

Materials & methods

The specimens are deposited at the biological herbarium of Institute of Applied Ecology, Chinese Academy of Sciences (IFP). The microscopic examinations followed Dai (2010) and were performed on sections mounted in Cotton Blue (CB): 0.1 mg aniline blue dissolved in 60 g pure lactic acid; CB+ = cyanophilic, CB– = acyanophilic. Amyloid and dextrinoid reactions were tested in Melzer's reagent (IKI): 1.5 g KI (potassium iodide), 0.5 g I (crystalline iodine), 22 g chloral hydrate, aq. dest. 20 ml; IKI– = neither amyloid nor dextrinoid reaction. 5% KOH was used as reagent. Sections were studied at magnifications up to ×1000 using a Nikon Eclipse E600 microscope and phase contrast illumination, and dimensions were estimated to an accuracy of 0.1 μm. The apiculus was excluded from the spore measurements, and 5% of the spore dimensions at each end of the range are shown in parentheses. Abbreviations include: L = mean spore length (arithmetical mean of all spores), W = mean spore width (arithmetical mean of all spores), Q = extreme values of the length/width ratios among the studied specimens, and n = the number of spores measured from a given number of specimens. Special color terms are from Petersen (1996).

Taxonomy

Mycoacia angustata H.S. Yuan, **sp. nov.** Figure 1

MycoBank MB 800172

Differs from *Mycoacia subconspersa* by its darker hymenophore color, its longer, more widely spaced spines, and its longer basidiospores.

Type — China. Hainan Province, Changjiang County, Bawangling Nature Reserve, on fallen angiosperm trunk, 12.XII.2007, Yuan 3963 (**holotype**, IFP).

Etymology — *angustata* (Lat.): referring to the narrow basidiospores.

Fruitbody — Basidiocarps annual, resupinate, adnate, ceraceous, without special odor or taste when fresh, brittle when dry, up to 18 cm long, 5 cm wide and 2 mm thick; sterile margin white, narrow or almost lacking. Hymenophore odontioid to hydnoid, buff when fresh, cinnamon-buff to yellowish brown upon drying; spines crowded, evenly distributed, 3–4 per mm, ceraceous when young, corneous when old, cylindrical, with obtuse or acute apices, mostly individual, occasionally confluent, up to 1 mm long. Subiculum homogenous, azonate, cream to buff, 0.5–1 mm thick.

Hyphal structure — Hyphal system monomitic; generative hyphae bearing clamp connections or simple septa, IKI–, CB–; tissue unchanged in KOH.

Subiculum — Generative hyphae hyaline, bearing clamp connections or simple septa, thin- to thick-walled, occasionally with short side-branches, frequently branched at right angles, loosely interwoven, mostly 3–6 μm diam, occasionally inflated up to 12 μm diam.

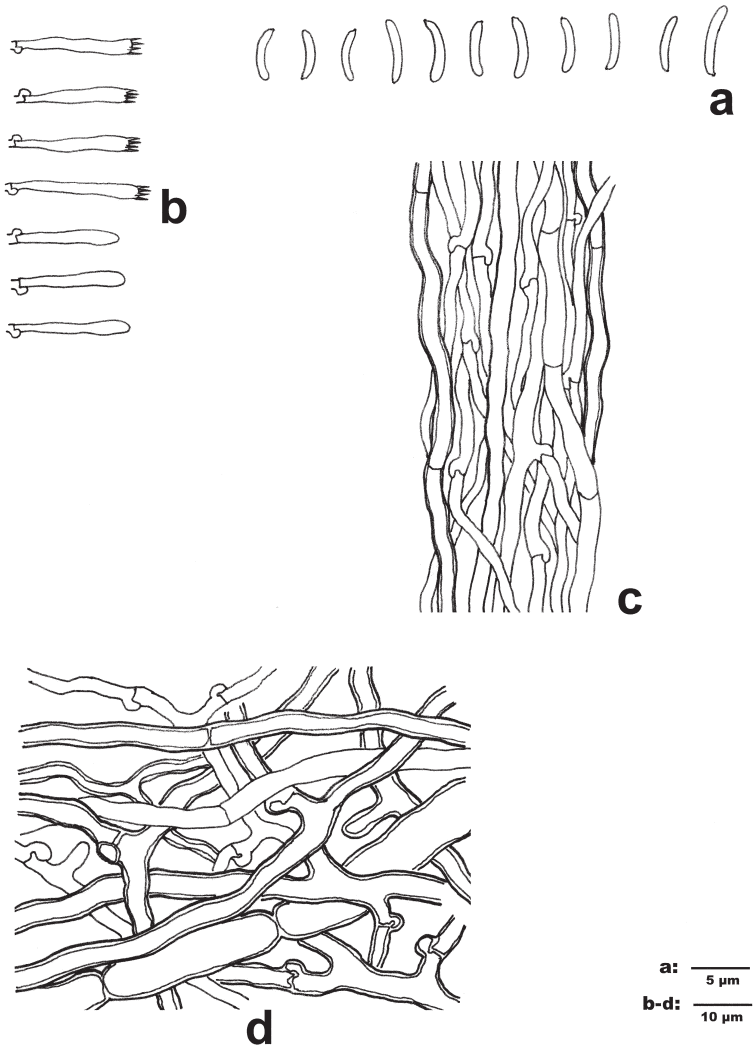

Figure 1. Microscopic structures of *Mycoacia angustata* (holotype).
a: Basidiospores. b: Basidia and basidioles.
c: Hyphae from spine trama. d: Hyphae from subiculum.

Tubes — Generative hyphae hyaline, bearing clamp connections or simple septa, thin- to slightly thick-walled, occasionally branched, subparallel to interwoven, 2–5 µm diam. Cystidia absent; basidia narrowly clavate, bearing four sterigmata and a clamp connection at the base, 16–23 × 2.7–3.1 µm; basidioles in shape similar to basidia, but slightly smaller.

Spores — Basidiospores, narrowly allantoid, hyaline, thin-walled, smooth, IKI–, CB–, (4.7–)4.8–6.5(–7.2) × (0.9–)1–1.2 μm, L = 5.52 μm, W = 1.07 μm, Q = 4.83–5.51 (n = 60/2).

Additional specimens examined — **CHINA**. **Hainan Province**, Changjiang County, Bawangling Nature Resever, on fallen angiosperm trunk, 13.XII.2007, Yuan 4001 (IFP); **Hubei Province**, Wufeng County, Houhe Nature Reserve, on fallen angiosperm trunk, 28.IX.2004, Wei 2273 (IFP).

Remarks — *Mycoacia angustata* is characterized by annual resupinate ceraceous basidiocarps, odontioid to hydnoid, buff, cinnamon-buff to yellowish brown hymenophore with white margin, presence of both clamp connections and simple septa, narrowly allantoid basidiospores, and absence of cystidia. It is closely related to *Mycoacia aurea* (Fr.) J. Erikss. & Ryvarden, *M. uda* (Fr.) Donk, and *M. subconspersa* (Rick) Hjortstam & Ryvarden.

Mycoacia aurea also is characterized by a yellow-ochraceous hymenophore surface, absence of cystidia, and allantoid to suballantoid basidiospores. However, it is distinguished from *M. angustata* by its longer spines (2–3 mm) and wider basidiospores (3.5–5.5 × 1.5–2 μm) (Eriksson & Ryvarden 1976).

Mycoacia uda resembles *M. angustata* in having sordidly yellow to ochraceous basidiocarps when old and conical to subcylindrical spines that are 1–2 mm long. However, *M. uda* can be differentiated by the presence of subfusiform cystidioles that are apically capped with non-crystalline matter, rod-like crystals in the spine trama, and narrowly ellipsoid basidiospores. Moreover, parts of the young basidiocarp turn deep red in KOH (Eriksson & Ryvarden 1976).

Mycoacia subconspersa also has similarly shaped basidiospores but differs from *M. angustata* by having more crowded (5–8 per mm) and shorter (0.25–0.4 mm long) spines, paler hymenophore color, and shorter basidiospores (4–4.5 × 1–1.25 μm) (Hjortstam & Ryvarden 1982).

Other specimens examined: ***Mycoacia aurea*** — **SPAIN**. **Navarra Province**, Lekunberri, about 30 km NW of Pamplona, on *Quercus*, 11.XI.1977, Ryvarden 15230 (O); **USA**. **Tennessee**, Great Smoky Mts. National Park, Sugarland primitive campground, substrate unknown, 6.IX.1977, Ryvarden 14096 (O).

M. subconspersa — **CHINA. Yunnan Province**, Mengla County, Xishuangbanna Botanic Garden, on fallen angiosperm trunk, 30.IX.1993, 48251 (HKAS).

M. uda — **ESTONIA**. **Pärnu**, Nigula Nature Reserve, on *Pinus*, 26.VIII.1989, Ryvarden 27103 (O).

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