Two new polypores (Basidiomycota) from central China

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Rigidoporopsis tegularis Juan Li & Y.C. Dai and Skeletocutis fimbriata Juan Li & Y.C. Dai are described as new from Hubei Province, central China. Rigidoporopsis tegularis is characterized by thick-walled, finely ornamented, amyloid and subglobose basidiospores, and monomitic hyphal structure without clamp connections. Skeletocutis fimbriata is distinguished from the other species in the genus by coarsely fimbriate margin basidiocarp and very narrow basidiospores.

Key words: Basidiomycetes, new species, taxonomy, wood-inhabiting fungi

In 2005 and 2006 field trips were made in order to study wood-inhabiting fungi in Hubei Prov., central China, a mycologically poorly investigated area. From those collections, two new species pertaining to Rigidoporopsis and Skeletocutis were found. Their illustrated descriptions are given in the present paper. The two new species grow on angiosperm trees in the warm temperate forests of the Shennongjia Nature Reserve (31°15´–31°75´N and 109°56´–110°58´E). Vegetation of the Reserve was described by Li et al. (unpubl. data). The forests are among the few near-virgin ones in Hubei Province, and the main gymnosperm trees are Abies fargesii, Cunninghamhamia lanceolata, Pinus armandii and P. massoniana, while the common angiosperm trees include Castanea seguinii, Betula albo-sinensis, Fagus engleriana, F. lucida, Populus davidiana, Quercus variabilis and several species of Acer, Carpinus, Cerasus and Coriaria.

The microscopic routine used in the study was presented by Dai et al. (2004). In the text the following abbreviations are used: IKI– = negative in Melzer’s reagent, CB– = acyanophilous in Cotton Blue, $L$ = mean spore length (arithmetical mean of all spores), $W$ = mean spore width (arithmetical mean of all spores), $Q$ = quotient of the mean spore length and the mean spore width ($L/W$).

**Rigidoporopsis tegularis** Juan Li & Y.C. Dai, sp. nova (Figs. 1 and 2)

*Carpophorum anuum, pileatum; facies pororum cremea; pori angulati, 4–6 per mm. Systema hypharum monomiticum, hyphae efibulatae, hyphae contexti 3–8 µm in diam. Sporae hyalinae, subglobose, asperae, amyloideae, 4.5–5 × 3.5–4 µm.*

*Type:* China, Hubei Prov., Shennongjia Nature Reserve, on stump of Carpinus, 6.IX.2005 Li 656 (holotype IFP; isotype H).

*Etymology.* *Tegula* (Lat.): roofing-tile; *tegularis:* imbricate like roofing-tiles.
FRUITBODY. Basidiocarps annual, pileate, imbricate, often forming a big cluster, soft, without odour or taste when fresh, becoming hard corky and fragile upon drying. Pileus semicircular to flabelliform, projecting up to 4 cm, 5 cm wide and 0.4 cm thick at base. Pileal surface cream coloured, pale buff towards margin with age, buff when dry, velutinate when juvenile, slightly warted with age, becoming radially wrinkled upon drying; margin acute, incurved when dry. Pore surface white to cream when fresh, pale buff upon drying; pores angular, 4–6 per mm; dissepiments thin, entire to slightly lacerate, cottony. Context buff when dry, corky, up to 0.1 cm thick. Tubes pale yellowish brown, darker than the pore surface, corky, up to 0.3 cm long.

HYPHAL STRUCTURE. Hyphal system monomitic; generative hyphae with simple septa, IKI–, CB–; all hyphae unchanged in KOH.

CONTEXT. Generative hyphae hyaline, thick-walled with a wide lumen, rarely branched, agglutinated, regularly arranged, sometimes bearing crystals, 3–8 µm in diam.

TUBES. Generative hyphae hyaline, thin-to thick-walled, moderately branched, subparallel along the tubes, 2.5–5 µm in diam. Cystidia absent; fusoid cystidioles hyaline, thin-walled, 15–18 × 5–7 µm. Basidia clavate, with four sterigmata and a simple septum at the base, 14–19 × 7–8 µm; basidioles in shape similar to basidia, but slightly smaller. Rhomboid crystals sometimes present among hymenium.

SPORES. Basidiospores subglobose, hyaline, slightly to fairly thick-walled, finely asperulate, distinctly amyloid, CB– to slightly cyanophilous, (4–4.5)–5 × (3.2–)3.5–4(–4.5) µm, L = 4.73 µm, W = 3.8 µm, Q = 1.23–1.25 (n = 90/3).

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Rigidoporopsis was established by Johanson and Ryvarden (1979). The genus is characterized by a monomitic hyphal structure with simple septa, and by asperulate, amyloid basidiospores. Its hyphal structure resembles that in Rigidoporus which, however, has smooth and inamyloid basidiospores. Rigidoporopsis may be related to Wrightoporia, because they share the ornamentation of spores and their amyloid reaction, asperulate, but the latter has distinctly dimitic hyphal structure with clamps connection in generative hyphae. In addition, skeletal are dextrinoid in Wrightoporia, and gloeoplerous hyphae are present in most species of the genus. Two species have been reported previously in Rigidoporopsis: R. amylospora (Johanson & Ryvarden 1979) and R. macrospora (Zheng & Bi 1987). The former has resupinate basidiocarps (Johanson & Ryvarden 1979), and its basidiospores are ellipsoid and thinner than in R. tegularis (4–5 × 2.5–3 µm vs. 4.5–5 × 3.5–4 µm). The type of R. macrospora was examined, and it is in fact a collection of Haploporus abalama (Dai & Yuan 2007).

Staplers (1996) merged Rigidoporopsis in Amylosporus, but the latter genus has a distinct dimitic hyphal structure with gloeoplerous hyphae, and we keep the two as independent genera.

Rigidoporopsis tegularis is characterized by imbricate basidiocarps, monomitic hyphal structure, simple septa, and asperulate and amyloid basidiospores. The species causes a white rot, and it is found on wood of Carpinus in the warm temperate forests so far in central China only.

Skeletocutis fimbriata Juan Li & Y.C. Dai, sp. nova (Figs. 3 and 4)

Carpophorum annuum, resupinatum; facies pororum cremea; pori angulati, 4–5 per mm. Systema hypharum dimiticum, hyphae generatoriae fibulatae, hyphae skeletalis subiculi 2.5–4.5 µm in diam. Sporae cylindricae, hyalinae, IKI–, CB–, 2.9–3.5 × 0.5–0.8 µm.

Type: China. Hubei Prov., Shennongjia Nature Reserve, on rotten angiosperm wood, 6.IX.2005 Li 644 (holotype IFP; isotype H).
ETYMOLOGY. *Fimbriatus* (Lat.): fimbriate, referring to the coarsely fimbriate to rhizomorphic basidiocarp margin.

FRUITBODY. Basidiocarps annual, resupinate, difficult to separate from the substrate, soft, without odour or taste when fresh, becoming corky upon drying; making up patches up to 15 cm long, 7 cm wide, and 0.2 cm thick. Pore surface translucently white to cream when fresh, buff to cinnamon-buff when bruised or upon drying; margin coarsely fimbriate or with distinct hyphal threads; hyphal threads white to cream when juvenile, becoming buff yellow with age, cream to yellowish brown when dry, up to 1 cm long. Pores angular, 4–5 per mm; dissepiements thin, entire to slightly lacerate. Subiculum cream, corky upon drying, up to 0.5 mm thick. Tubes concolorous with the pore surface, corky, up to 0.2 cm long.

HYPHAL STRUCTURE. Hyphal system dimitic; generative hyphae bearing clamp connections; skeletal hyphae thick-walled, dominant, IKI–, CB–; all hyphae unchanged in KOH.

SUBICULUM. Generative hyphae hyaline, thin-walled, rarely branched, 1.8–3.2 µm in diam.; skeletal hyphae thick-walled to subsolid, occasionally branched, tightly interwoven, 2.5–4.5 µm in diam.

TUBES. Generative hyphae hyaline, thin-walled, rarely branched, sometimes encrusted, 1.5–3 µm in diam.; skeletal hyphae thick-walled to subsolid, rarely branched, agglutinated, subparallel along the tubes, 2–4 µm in diam. Tube orifice with moderately encrusted generative hyphae. Cystidia absent; fusoid cystidioles abundant, hyaline, thin-walled, 9–12 × 3–4 µm. Basidia short clavate, with four sterigmata and a basal clamp connection, 8–11 × 3–4 µm; basidioles in shape similar to basidia, but slightly smaller.

SPORES. Basidiospores cylindric, slightly curved, hyaline, thin-walled, smooth, IKI–, CB–, (2.8–)2.9–3.5(–3.6) × 0.5–0.8 µm, L = 3.18 µm, W = 0.66 µm, Q = 4.78–4.89 (n = 90/3).


*Skeletocutis fimbriata* is characterized by resupinate, cream coloured basidiocarps, distinctly coarsely fimbriate margin and very narrow basidiospores (less than 1 µm in width). It grows on very rotten angiosperm wood in areas of warm temperate climate.

Two other species in *Skeletocutis* bear rhizomorphs: *S. alutacea* and *S. per candida*. The former differs from *S. fimbriata* by its smaller pores (9–10 per mm) and thicker basidiospores (2.9–3.8 × 1.6–1.9 µm, L = 3.29 µm, W = 1.73 µm; Niemelä 1998). *Skeletocutis per candida* is separated from *S. fimbriata* by its distinctly larger basidiospores (5.5–7.5 × 2.4–3 µm, L = 6.69 µm, W = 2.65 µm; Niemelä 1998).

A systematic study on the *Skeletocutis subincarnata* complex was made by Niemelä (1998), and six species were listed with very thin basidiospores (less than 1 µm in width): *S. chrysella*, *S. kuehneri*, *S. nivea*, *S. ochroalba*, *S. stellae* and *S. hymeniicola*. All these lack a rhizomorphic margin. In addition, the four last-mentioned species have smaller pores (7–10 per mm) than in our material. *Skeletocutis fimbriata* has similar pores and basidiospores as in *S. chrysella* and *S. kuehneri*, but they occur on coniferous trees, on wood decayed by other polypores, while *S. fimbriata* grows on angiosperm trees which were not occupied previously by other wood-inhabiting fungi.

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