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Studies on *Wrightoporia* from China 1. A new species from Hunan Province, South China

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Abstract — *Wrightoporia nigrolimitata* sp. nov. is described from Hunan Province, southern China. It is characterized by an annual growth habit, small pileate basidiocarps, a brown to black line between the tubes and context, a monomitic hyphal system with clamp connections, nondextrinoid hyphae, and finely asperulate amyloid basidiospores. A key to accepted Chinese *Wrightoporia* species is supplied.

Key words — *Bondarzewiaceae*, polypore, taxonomy, wood-inhabiting fungi

Introduction

Pouzar (1966) established *Wrightoporia* Pouzar for *W. lenta* (Overh. & J. Lowe) Pouzar, the type species. This genus is characterized by resupinate to pileate basidiocarps, annual to perennial growth habit, monomitic to trimitic hyphal system, and amyloid asperulate basidiospores (Pouzar 1966, Ryvarden 1982). Of the 39 species described in or transferred to the genus worldwide (Buchanan & Ryvarden 2000; David & Rajchenberg 1987; Hattori 2003, 2008; Johansen & Ryvarden 1979; Lindblad & Ryvarden 1999; Loguercio-Leite et al. 1998; Núñez & Ryvarden 2001; Rajchenberg & David 1990; Ryvarden 1975, 1987, 2000), 14 species have been found in China (Cui & Dai 2006; Dai 2012; Dai & Cui 2006; Dai et al. 2011).

Many new polypores have been recently described due to research on the diversity of wood-inhabiting fungi in southern China (Cui & Dai 2008, 2011; Cui et al. 2009, 2010, 2011abc; Dai et al. 2010, 2011; Du & Cui 2009; Jia & Cui 2011; Li & Cui 2010). During our study of wood-rotting fungi from Mangshan Forest Park, Hunan Province, we found one *Wrightoporia* species with a monomitic hyphal structure that cannot be identified to any known species. We describe it as a new species in this paper and provide an identification key to the 15 *Wrightoporia* species recorded in China.

Materials & methods

Sections were studied microscopically according to Dai (2010) at magnifications ≤ 1000× using a Nikon Eclipse E 80i microscope with phase contrast illumination. Drawings were made with the aid of a drawing tube. To present spore size variation, the 5% of measurements excluded from each end of the range are given in parentheses. Basidiospore spine lengths are not included in the measurements. Abbreviations include IKI = Melzer's reagent, IKI– = negative in Melzer's reagent, KOH = 5% potassium hydroxide, CB = Cotton Blue, CB– = acyanophilous, L = mean spore length (arithmetic average of all spores), W = mean spore width (arithmetic average of all spores), Q = variation in the L/W ratios between the specimens studied, and n = number of spores measured from given number of specimens. Special colour terms follow Petersen (1996). The studied specimens were deposited in herbaria as cited below.

Taxonomy

Wrightoporia nigrolimitata Jia J. Chen, **sp. nov.** Fig. 1

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Differs from other *Wrightoporia species* by its small pileate basidiocarps, presence of a black layer between tubes and context, a monomitic hyphal system, and generative hyphae that are nondextrinoid and dissolve in KOH.

Type — China. Hunan Province, Yizhang County, Mangshan Forest Park, on angiosperm stump, 25.VI.2007, Li 1697 (**holotype**, BJFC; **isotype**, IFP).

Etymology — *nigrolimitata* (Lat.): referring to the black line separating the tubes and context.

Fruitbody — Basidiocarps annual, pileate, hard corky upon drying, without odor or taste; pileus semi-circular to irregularly formed, projecting up to 1 cm long, 2 cm wide, 4 mm thick at base. Pileal surface straw-yellow to honey-yellow at base, buff-yellow towards the margin, azonate, slightly sulcate or not; margin obtuse. Pore surface cream-buff to pinkish buff when dry; pores round to angular, 4–7 per mm; dissepiments thin to slightly thick, entire. Context buff to cinnamon-buff, hard corky, up to 1 mm thick. Tubes concolourous with pore surface, fibrous-tough, up to 3 mm long; a brown to black line present between tubes and context.

Hyphal structure — Hyphal system monomitic; generative hyphae bearing clamp connections, IKI– or weakly dextrinoid in the black layer, CB–, hyphae in trama and context dissolved in KOH; hyphae in the black layer become reddish to dark brown in KOH.

Context — Generative hyphae hyaline, thin- to slightly thick-walled, frequently branched, regularly arranged, 1.5–8 μm in diam.

Tubes — Generative hyphae hyaline, thin- to slightly thick-walled, frequently branched, subparallel to parallel along the tubes, 2–7 μm in diam; cystidia absent, fusoid cystidioles present, hyaline, thin-walled, 13–19 × 3.5–5 μm; basidia clavate, bearing four sterigmata and a basal clamp connection,

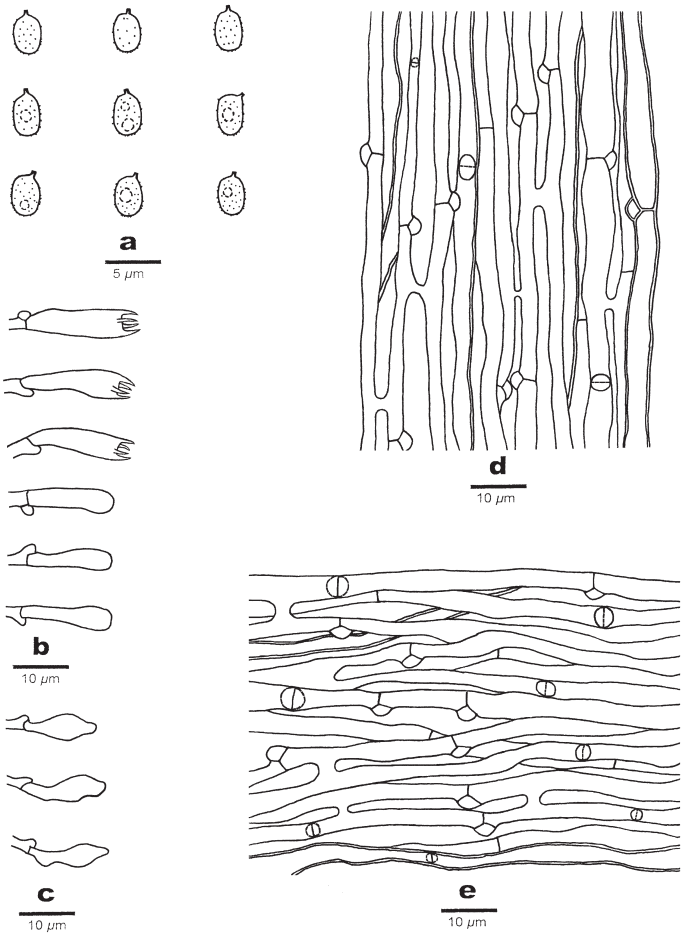

Fig. 1. Microscopic structure of *Wrightoporia nigrolimitata* (drawn from the holotype).
a: Basidiospores. b: Basidia and basidioles. c: Cystidioles.
d: Hyphae from trama. e: Hyphae from context.

13–25 × 4–6 μm; basidioles in shape similar to basidia, but slightly smaller.

Spores — Basidiospores ellipsoid, hyaline, thin-walled, mostly bearing one or two small guttules, finely asperulate**, amyloid,** CB–, 3–4 × 2–2.7(–2.9) μm, L = 3.43 μm, W = 2.42 μm, Q = 1.42 (n = 30/1).

Remarks — Although most *Wrightoporia* species possess a dimitic hyphal system, only three others have a monomitic hyphal system: *W. flava* (Ryvarden)

A. David & Rajchenb., *W. novae-zelandiae* Rajchenb. & A. David, and *W. porilacerata* Log.-Leite et al. (David & Rajchenberg 1987, Loguercio-Leite et al. 1998, Rajchenberg & David 1990, Ryvarden 1975).

Wrightoporia porilacerata also possesses pileate basidiocarps and similar sized (3–3.5 × 2–2.5 µm) basidiospores but is distinguished from *W. nigrolimitata* by distinctly larger basidiocarps (≤ 13.5 × 8.7 × 2.6 cm), larger pores (1–3 per mm), no black line between tubes and context, and interwoven tramal hyphae (Loguercio-Leite et al. 1998).

Like *W. nigrolimitata*, *W. flava* has pileate basidiocarps, nondextrinoid generative hyphae, and thin-walled asperulate amyloid basidiospores. However, *W. flava* is distinguished by possessing gloeoplerous hyphae, interwoven tramal hyphae, and lack of a black layer (David & Rajchenberg 1987, Ryvarden 1975).

Except for a monomitic hyphal system, *W. novae-zelandiae* is unique in *Wrightoporia* by combining a gossypine brittle resupinate basidiocarp with gloeoplerous hyphae (Rajchenberg & David 1990).

Other specimens examined — ***Wrightoporia flava***. **GABON**. Ogooué-Ivindo province, Makokou, Ipassa, XII.1974, LY 1733 (LY). **TANZANIA**. Tanga Province, Usambara Mts. Amani, Tanga distr., 18.II.1973, Ryvarden 10594 (O). **MALAWI**. Southern province, Makwawa, 16.XII.1981, B.M. 342 (O).

— ***W. novae-zelandiae***. **NEW ZEALAND**. Auckland, Waitakere Ranges, Kitekite Track, on *Leptospermum* sp., 19.IV.1989, P.K. Buchanan 89/114 (paratype, PDD 55206).

— ***W. porilacerata***. **BRAZIL**. Parana State, Parangua, Guaraguacu, fazenda Sambaqui, on decayed dicotyledon trunk, 22.VI.1993, A.A.R. De Meijer 2805 (O).

Key to species of *Wrightoporia* in China

1. Hyphal system monomitic ..... *W. nigrolimitata*
1. Hyphal system dimitic or trimitic 2

2. Generative hyphae without clamp connections 3
2. Generative hyphae with clamp connections 5

3. Basidiocarps pileate; basidiospores >7 µm long .... *W. radicata* G.Y. Zheng & Z.S. Bi
3. Basidiocarps resupinate to effused-reflexed; basidiospores <7 µm long 4

4. Basidiocarps without rhizomorphs ..... *W. casuarinicola* Y.C. Dai & B.K. Cui
4. Basidiocarps with rhizomorphs ..... *W. rubella* Y.C. Dai

5. Basidiospores >5.3 µm long ..... *W. lenta*
5. Basidiospores <5.3 µm long 6

6. Skeletal hyphae indextrinoid 7
6. Skeletal hyphae dextrinoid 8

7. Cystidia and gloeocystidia absent ..... *W. aurantipora* T. Hatt.
7. Cystidia and gloeocystidia present ..... *W. austrosinensis* Y.C. Dai

8. Gloeoplerous hyphae present 9
8. Gloeoplerous hyphae absent 10

9. Basidiocarps membranous; tramal skeletal hyphae 1–2 µm in diam ..... *W. avellanea* (Bres.) Pouzar
9. Basidiocarps tough; tramal skeletal hyphae 2–2.5 µm in diam .. *W. borealis* Y.C. Dai
10. Basidiospores >3.2 µm wide ..... *W. unguliformis* Y.C. Dai & B.K. Cui
10. Basidiospores <3.2 µm wide 11
11. Skeletal hyphae not encrusted 12
11. Skeletal hyphae encrusted 13
12. Basidiocarps annual; tramal skeletal hyphae 2–4 µm in diam ..... *W. africana* I. Johans. & Ryvarden
12. Basidiocarps perennial; tramal skeletal hyphae 4–8 µm in diam ..... *W. tropicalis* (Cooke) Ryvarden
13. Skeletal hyphae in the trama inflated, up to 6–9 µm . *W. luteola* B.K Cui & Y.C. Dai
13. Skeletal hyphae in the trama not inflated, up to 5 µm 14
14. Generative hyphae with both clamp connections and simple septa; cystidioles absent ..... *W. gillesii* A. David & Rajchenb.
14. Generative hyphae only with clamp connections; fusoid cystidioles present ..... *W. japonica* Núñez & Ryvarden

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