Wood-inhabiting fungi in southern China. 4. Polypores from Hainan Province

Yu-Cheng Dai¹*, Bao-Kai Cui², Hai-Sheng Yuan¹, Shuang-Hui He², Yu-Lian Wei¹, Wen-Min Qin¹, Li-Wei Zhou¹,³ & Hai-Jiao Li²

¹) Institute of Applied Ecology, Chinese Academy of Sciences, Shenyang 110016, China (*corresponding author’s e-mail: yuchengd@yahoo.com)
²) Institute of Microbiology, P.O. Box 61, Beijing Forestry University, Beijing 100083, China
³) Graduate University of the Chinese Academy of Sciences, Beijing 100049, China

Received 12 Feb. 2010, revised version received 13 Apr. 2010, accepted 13 Apr. 2010


Extensive surveys on wood-rotting fungi were recently carried out in Hainan Province, southern China. Around 2500 specimens of poroid wood-inhabiting fungi were collected during ten field trips, and 235 polypores were identified. Four species, Grampothelopsis asiatica Y.C. Dai & B.K. Cui, Inonotus latemarginatus Y.C. Dai, Perenniporia hattorii Y.C. Dai & B.K. Cui and Wrightoporia austrosinensis Y.C. Dai, are described and illustrated as new. Of the 235 species, 99 were found from the province for the first time.

Introduction

Hainan Province, located between 18°10’–20°10’N and 108°37’–111°05’E, is an island in southern China. It has both lowland area in the northeast and mountainous terrain in the central and southwestern regions, and the highest altitude is 1867 m a.s.l. in the central area. The annual mean temperature is 19.7 °C, and the annual precipitation is 2650 mm. Most parts of the island have a subtropical to tropical vegetation. The plant flora is well known, and 3324 seed plants, belonging to 1237 genera and 206 families, are reported (Wu 1994). However, the fungal flora is poorly known; 305 agarics were recorded previously from the province (Bi et al. 1997), and 136 polypores were found mostly during more or less recent inventories (Zhao 1989, Zhao & Zhang 1992, Dai et al. 2004, 2009a, 2009b, Yuan & Dai 2008, Xiong & Dai 2008, Yu & Dai 2009, Zhou et al. 2009, Cui et al. 2010, 2011a, 2011b, Dai 2010). Considering the abundance of woody species in the study area, the polypore flora is far from completely known.

Several mycological investigations dealing with many new species from Hainan were published recently (Zhang et al. 2008a, 2008b, 2009, Ma et al. 2008a, 2008b). The present paper belongs to a series of studies devoted to the fungal diversity of the Hainan Province. By support from the National Natural Science Foundation of China and the Ministry Science and Technology of China, ten field investigations on wood-decaying fungi were made in the Hainan Province during 2002–2009, and around 2500 specimens of poroid wood-inhabiting fungi
were collected from 25 localities (Fig. 1). 235 polypores were identified after laboratory analysis, including four new species, and the present paper is a summary of these inventories.

**Material and methods**

The present study is based mostly on materials collected by the authors, and the studied specimens are deposited in the herbaria of the Beijing Forestry University (BJFC) and the Institute of Applied Ecology of the Chinese Academy of Sciences (IFP). A few specimens previously collected from the province and deposited in the herbarium of the Institute of Microbiology, the Chinese Academy of Sciences (HMAS), were also studied. All the materials were examined under the microscope Nikon 80i. The drawings were made with the aid of a drawing tube. Microscopic features, measurements, and drawings were made from slide preparations stained with Cotton Blue and Melzer’s reagent. Spores were measured from sections cut from the tubes; in presenting spore size data 5% of the measurements were excluded from each end of the range, and these are shown in parentheses. The abbreviations include IKI (Melzer’s reagent, with IKI– = inamyloid), KOH (5% potassium hydroxide), and CB (Cotton Blue; CB+ = cyanophilous; CB(+) = weakly cyanophilous; CB– = acyanophilous). Additional abbreviations include 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 a given number of specimens). The special color terms follow Petersen (1996).

**New taxa**

**Grammothelopsis asiatica** Y.C. Dai & B.K. Cui, sp. nova (Fig. 2)

MycoBank no.: MB 518961.

*Carpophorum, resupinatum. Facies pororum cremea; pori angulati vel rotundi, 3–4 per mm. Systema hypharum dimiticum, hyphae generatioriae fibulatae, hyphae skeletales IKI–, hyphae skeletales subiculi 2–4.5 µm in diam. Sporae ellipsoideae, IKI–, CB– vel CB(+), 10.5–13 × 5.4–6 µm.*

**Type**: China. Yunnan Province, Mengla County, Xishuangbanna Botanical Garden, on fallen bamboo, 31.X.2009 Cui 8336 (holotype BJFC; isotype IFP).

**Etymology**: *asiatica* (Lat.), referring to Asia.

**Fruitbody.** Basidiocarps annual, resupinate, adnate, corky, without odour or taste when fresh, becoming corky upon drying, up to 9 cm long, 1 cm wide, and 0.6 mm thick at centre. Sterile margin narrow, cream, less than 1 mm wide. Pore surface cream; pores round to angular, 3–4 per mm; dissepiments thin, entire to slightly lacerate. Subiculum very thin, cream, corky, azonate, less than 0.1 mm thick. Tubes concolorous with the pore surface, corky, less than 0.5 mm long.

**Hyphal structure.** Hyphal system dimitic; generative hyphae with clamp connections; skeletal hyphae IKI–, CB– to CB(+), tissue unchanged in KOH.

**Subiculum.** Generative hyphae infrequent, hyaline, thin-walled, rarely branched, 1.6–3.2 µm in diam; skeletal hyphae dominant, hyaline, thick-walled with a narrow lumen, unbranched, interwoven, 2–4.5 µm in diam.

**Tubes.** Generative hyphae infrequent, hyaline, thin-walled, rarely branched, 1.4–3 µm in diam; skeletal hyphae dominant, hyaline, thick-
walled with a narrow lumen to subsolid, rarely branched, interwoven, 1.8–4.2 µm in diam. Cystidia absent, cystidioles present, fusoid to subulate, 18–25 × 6–9 µm; basidia clavate, with four sterigmata and a basal clamp connection at the base, 22–34 × 6–10 µm; basidioles in shape similar to basidia, but distinctly smaller.

**Spores.** Basidiospores ellipsoid to oblong ellipsoid, hyaline, thick-walled, smooth, IKI–, CB(+), (9–)10.5–13(–15) × (5–)5.4–6(–6.7) µm, \( L = 12.14 \) µm, \( W = 5.72 \) µm, \( Q = 2.1–2.2 \) (\( n = 60/2 \)).

**Additional specimens examined** (paratypes). China.
A total of five species in Grammothelopsis have been reported, four of them, *G. bambusicola*, *G. incrustata*, *G. neotropica* and *G. puiggarii*, were found in Central and South America (David & Rajchenberg 1985, Rajchenberg & Wright 1987, Ryvarden & de Meijer 2002, Robledo & Ryvarden 2007), and *G. macrospora* was recorded in tropical Africa (Ryvarden & Johansen 1980). *Grammothelopsis asiatica* represents the first record of the genus in Asia.

*Grammothelopsis asiatica* is similar to *G. bambusicola*, which also was found on bamboo (Ryvarden & de Meijer 2002). The type material of *G. bambusicola* was studied, its skeletal hyphae and spores are strongly dextrinoid, and it has dendothyphidia at dissepiment edge. In addition, its basidiospores are broadly ellipsoid, strongly cyanophilous, (11–)11–13.5(–15) × (7–)7.8–9(–10) µm, \(L = 12.56\) µm, \(W = 8.32\) µm, \(Q = 1.51\) (\(n = 30/1\)). In contrast, *G. asiatica* has indextrinoid skeletals and spores, dendothyphidia are absent at dissepiment edges, and the spores are ellipsoid to oblong ellipsoid, weakly cyanophilous.

*Grammothelopsis incrustata* and *G. neotropica* have indextrinoid basidiospores, but both have distinctly larger basidiospores (16–22 × 6–8 µm and 18–20 × 7–8 µm, Robledo & Ryvarden 2007). *Grammothelopsis macrospora* differs from *G. asiatica* by having large pores (1–2 per mm), abundant dendothyphidia, broadly ellipsoid and strongly dextrinoid basidiospores (15–20 × 7.5–11 µm; Robledo & Ryvarden 2007). *Grammothelopsis puiggarii* is distinguished from *G. asiatica* by larger pores (1–2 per mm), broadly ellipsoid and strongly dextrinoid basidiospores (17–20 × 10–12 µm; Robledo & Ryvarden 2007).

**Other specimen studied.** *Grammothelopsis bambusicola*. Brazil. Parana State, Colombo, on rotten bamboo (O 70521).

**Inonotus latemarginatus** Y.C. Dai, sp. nova (Fig. 3)

MycoBank no.: MB 518962.

Carpophorum annuum, applanatum, solitaria. Facies pororum electrumin vel luteolum; pori rotundi, 4–6 per mm. Systema hypharum monomiticum, hyphae septatae sine fibulis, hyphae contextae 4–8 µm in diam. Hyphae setoideaee crassitunicatae, acutae, 8–15 µm in diam. Sporae subglobosae, IKI–, CB(+), 7.1–8.7 × 6.2–7.8 µm.

**Type:** China. Hainan Province, Baoting County, Qixianling National Park, on rotten angiosperm wood, 28.V.2008 Dai 9758 (IFP).

**Etymology:** *latemarginatus* (Lat.), referring to the wide sterile margin.

**Frutibody.** Basidiocarps annual, pileate, single, soft corky and without odour or taste when fresh, becoming corky to brittle and very light when dry. Pileus applanate, semicircular, projecting up to 8 cm long, 10 cm wide, and 1 cm thick at base; margin obtuse. Pileal surface matted-tomentose to velutinate, indistinctly concentrically zonate, fuscous to brick from base toward to margin when fresh, becoming fuscous and shrunken when dry; margin curry-yellow when fresh, becoming date-brown when dry. Pore surface curry-yellow to buff-yellowish from base towards margin when fresh, becoming snuff-brown when bruised, cinnamon-buff when dry, sterile margin distinct, up to 5 mm wide; pores round, 4–6 per mm; dissepiments thin, matted, slightly lacerate. Context soft and spongy when fresh, becoming brittle to fibrous, shrunken and yellowish brown when dry, up to 5 mm thick, upper layer with a distinct fuscous crust; tube layer concolorous to context, tubes hard corky to brittle, up to 5 mm long.

**Hypal structure.** Hyphal system monomitic; all septa without clamp connections, IKI–, CB–; tissue darkening but otherwise unchanged in KOH.

**Context.** Generative hyphae hyaline to yellowish brown, thin- to slightly thick-walled with a wide lumen, more or less straight, occasionally branched, 4–8 µm in diam, hyphae at upper crust reddish brown, thick-walled, strongly agglutinated, 4–6 µm in diam. Hyphoid setae absent.

**Tubes.** Generative hyphae hyaline to yellowish, thin- to fairly thick-walled with a wide lumen, straight, rarely branched, more or less subparallel along the tubes, 3–5 µm in diam.
Hyphoid setae occasionally present, conspicuous, thick-walled with a wide to narrow lumen, nonseptate, tapering to a point, more or less parallel along the tubes, up to 200 µm long, 8–15 µm in diam in widest part \( (n = 10/1) \). Hymenial setae very rarely present, ventricose to hooked, 16–18 × 6–9 µm. Cystidia and cystidioles absent; basidia barrel-shaped, 10–12 × 7–9 µm, and basidioles similar to basidia.

**Spores.** Basidiospores subglobose, pale yellowish, fairly thick-walled, smooth, IKI−, CB(+), (7–)7.1– 8.7(–9.3) × (5.9–)6.2–7.8(–8.8) µm, \( L = 7.85 \mu m, \( W = 7.05 \mu m, \( Q = 1.11 \ (n = 32/1) \).

*Inonotus latemarginatus* is similar to *I. quercustris*, which was originally described from Louisiana (Blackwell & Gilbertson 1985), and later found in Argentina (Urcelay & Rajchenberg 1999). However, *I. quercustris* differs from *I. latemarginatus* by ungulate basidiocarps (20 × 16 × 10 cm), larger pores (3–5 per mm in USA, 2 per mm in Argentina), abundant hyphoid setae in trama, distinctly longer basidia (18–23 ×

---

**Fig. 3.** Microscopic structures of *Inonotus latemarginatus* (drawn from the holotype). — a: Basidiospores. — b: Basidia and basidioles. — c: Hymenial setae. — d: Hyphae from trama. — e: Hyphae from context.
9–11 µm), and especially ellipsoid basidiospores (9–10 × 6–8 µm in USA, 8–10 × 6–7 µm in Argentina).

*Inonotus hemmesii*, *I. ochroporus* and *I. rodwayi* are pileate species with broadly ellipsoidal to subglobose basidiospores and presence of hyphoid setae in tube trama, so they may be confused with *I. latemarginatus*. However, *I. hemmesii* has ungulate basidiocarps (30 × 20 × 15 cm), its hyphoid setae are narrower (7–10 µm wide), and its basidiospores are ellipsoid to ovoid (7–9 × 5.5–7 µm; Gilbertson & Ryvarden 2002). *Inonotus ochroporus* has ungulate basidiocarps (40 × 30 × 30 cm) with duplex context, and its basidiospores are smaller (5.8–7 × 4.9–6.2 µm; Cui *et al.* 2007). *Inonotus rodwayi* has larger pores (2–4 per mm), its basidiospores are ellipsoid and narrower (7–8.5 × 5.2–6.5 µm; Dai & Wu 2002), and its hyphoid setae project into tubes.

*Perenniporia hattorii* Y.C. Dai & B.K. Cui, sp. nova (Fig. 4)

MycoBank no.: MB 518963.

*Carpophorum annuum*, resupinatum vel effusus-reflexum. Facies pororum cremea vel buffula; pori rotundi vel angulati, 3–5 per mm. Systema hypharum dimiticum; generative hyphae with clamp connections; skeletal hyphae weakly amyloid, CB+, tissue unchanged in KOH.

**HypAl Structure.** Hyphal system dimitic; generative hyphae with clamp connections; skeletal hyphae weakly amyloid, CB+, tissue unchanged in KOH.

**Subiculum.** Generative hyphae infrequent, hyaline, thin-walled, rarely branched, 1.5–3.4 µm in diam; skeletal hyphae dominant, hyaline, thick-walled with a narrow lumen to subsolid, occasionally branched, interwoven, 2.5–4.8 µm in diam.

**Tubes.** Generative hyphae infrequent, hyaline, thin-walled, rarely branched, 1.4–3.2 µm in diam; skeletal hyphae dominant, hyaline, thick-walled with a narrow lumen to subsolid, occasionally branched, interwoven, 2.2–4.5 µm in diam. Cystidia absent; fusoid cystidioles present, 18–25 × 6–9 µm; basidia barrel-shaped, with four sterigmata and a basal clamp connection at the base, 20–32 × 10–15 µm; basidioles pyriform, distinctly smaller than basidia.

**Spores.** Basidiospores ellipsoid, truncate, hyaline, thick-walled, smooth, weakly amyloid, CB+, (9–)9.8–12.7(–14) × (4.5–)5.8–7.2(–8) µm, L = 11.3 µm, W = 6.48 µm, Q = 1.74–1.75 (n = 90/3).

**Additional specimens examined (paratypes).** China. Hainan Province, Ledong County, Jianfengling Nature Reserve, on fallen angiosperm trunk, 4.IX.2008 Dai 10315 & 10318 (BJFC & IFP).

*Perenniporia hattorii* is characterized by an annual growth habit, amyloid and cyanophilous skeletal hyphae, ellipsoid, truncate and amyloid basidiospores.

*Perenniporia narymica* is a common species in the northern hemisphere (Gilbertson & Ryvarden 1987, Ryvarden & Gilbertson 1994, Núñez & Ryvarden 2001). It also has an annual growth habit, cream to pale yellowish pores, amyloid skeletal hyphae, so it may be confused with *P. hattorii*. However, *P. narymica* has acyanophilous skeletal hyphae, smaller and non truncate, inamyloid basidiospores (4.3–5.5 × 3–3.6 µm; Dai *et al.* 2002), and the hyphae dissolve in KOH.

*Perenniporia amyloextrinoidea* resembles *P. hattorii* by the resupinate basidiocarps, cream to buff pore surface with pores 3–5 per mm. amyloid skeletal hyphae. However, its basid-
Iosposes are dextrinoid and distinctly smaller (4.5–5.5 × 3–3.5 µm; Gilbertson & Ryvarden 1987).

**Wrightoporia austrosinensis** Y.C. Dai, sp. nova (Fig. 5)

MycoBank no.: MB 518964.

*Carpophorum, resupinatum, contextum cre- meum. Facies pororum alba vel cremea; pori angulati vel rotundi, 1–3 per mm. Systema hypharum dimiticum, hyphae generatoriae fibulatae, hyphae skeletaes non dextrinoideae, hyphae skeletaes subiculi 1.7–2 µm in diam. Cystidia hymenii abundantia. Sporae ellipsoi- deae, hyalinae, asperae, amyloideae, 3–3.2 × 2–2.4 µm.*


**Etymology:** *austrosinensis* (Lat.), referring to southern China.
FRUITBODY. Basidiocarps annual, resupinate, soft and cottony when fresh, very difficult to separate from substrate, without odour or taste, cottony when dry, up to 30 cm long, 10 cm wide, 2 mm thick at centre. Pore surface white to cream when fresh, becoming cream to pale brownish upon drying; sterile margin distinct, white, cottony, up to 4 mm wide; pores round to angular, 1–3 per mm, dissepiments thin, entire to slightly lacerate. Context white, very thin. Tubes cream, cottony, up to 2 mm long.

HYPHAL STRUCTURE. Hyphal system dimitic; generative hyphae with clamp connections; skeletal hyphae IKI–, CB–, tissue unchanged in KOH.

CONTEXT. Generative hyphae hyaline, thin-walled, frequently branched, 1.9–2 µm in diam; skeletal hyphae dominant, hyaline, thick-walled with a narrow lumen to subsolid, rarely branched, interwoven, 1.7–2 µm in diam.

TUBES. Generative hyphae frequent, hyaline, thin-walled, rarely branched, 1.8–2.6 µm in diam; skeletal hyphae dominant, hyaline, thick-walled with a narrow lumen to subsolid, rarely branched, flexuous, loosely interwoven, 1.8–2.1 µm in diam. Cystidia clavate to tubular, thinto slightly thick-walled, originated from trama, embedded or projecting into hymenium, 35–90 × 4–11 µm; gloeocystidia clavate, thin-walled, 17–27 × 5–8 µm; basidia subclavate, with a

---

**Fig. 5.** Microscopic structures of *Wrightoporia austrosinensis* (drawn from the holotype). — a: Basidiospores. — b: Cystidia and gloeocystidia. — c: Basidia and basidioles. — d: Hyphae from trama. — e: Hyphae from context.
basal clamp connection and four sterigmata, 8.5–10 × 2.9–3.5 μm; basidioles in shape similar to basidia, but slightly smaller.

**Spores.** Basidiospores ellipsoid, hyaline, thin-walled, echinulate, amyloid, CB–, (2.9–)3–3.2(–3.7) × 2–2.4(–2.5) μm, L = 3.11 μm, W = 2.2 μm, Q = 1.41 (n = 35/1).

**Wrighttoporia straminea** and **W. tropicalis** both have thick-walled cystidia. The former species is distinguished from **W. austrosinensis** by resupinate to effused-reflexed basidiocarps with grayish orange pore surface, smaller pores (6–8 per mm), and lack of gloeocystidia (Hatori 2008). **Wrighttoporia tropicalis** differs from **W. austrosinensis** by perennial and woody hard basidiocarps, smaller pores (6–8 per mm), and dextrinoid skeletalts (Cui & Dai 2006).

### Checklist

In the following an alphabetical list (according to genera) of the polyposes is given, and the authors of the scientific names are according to the Authors of Fungal Names (http://www.indexfungorum.org/AuthorsOfFungalNames.htm). Substrates are omitted because most species were collected on unnamed angiosperm wood. The concept of polyposes circumscribed here is in a wide sense, including poroid wood-decaying fungi in Basidiomycota.

*Abortiporus biennis* (Bull.) Singer, Dai 10026.
*Abundisporus roseolalus* (Jungh.) Ryvarden, Dai 9334, 9534, 9624, 10834.
*Amauroderma elmerianum* Murrill, Dai 4345.
*Amauroderma perplexum* Corner, Dai 10811.
*Amauroderma preussii* (Henn.) Steyaert, Dai 9552, 9553, 9554, 9557, 9566, 9571.
*Amauroderma rude* (Berk.) Torrend, Dai 7896.
*Amauroderma rugosum* (Blume & T. Nees) Torrend, Cui 5275, 6185, Dai 7862, 7872, 7972.
*Amauroderma subresinosum* (Murrill) Corner, Cui 6189, Dai 7801, 9522, 10307.
*Amylostereum campbellii* (Berk.) Ryvarden, Dai 7802, 7803.
*Antrodia sordida* Ryvarden & Gilb., Dai 10827, 10830.
*Antrodiella duracina* (Pat.) I. Lindblad & Ryvarden, Cui 5158, 6391, Dai 9693.
*Antrodiella liebmannii* (Fr.) Ryvarden, Cui 5166, Dai 9270A, 9821.
*Antrodiella zonata* (Berk.) Ryvarden, Dai 4360, 4481, 7821, 9939.
*Auricularia indica* (Massee) D.A. Reid, Cui 6473.
*Bjerkandera adusta* (Willd.) P. Karst., Dai 5198, 5376, Dai 10328.
*Bondarzewia podocarpi* Y.C. Dai & Sheng H. Wu, Cui 5243.
*Ceriporia crassitunicata* N. Maek., Cui 5230, 5231, Dai 9995, 10833.
*Ceriporia mellita* (Bourdot) Bondartsev & Singer, Dai 9667.
*Ceriporia reticulata* (Hoffm.) Donki, Dai 9453.
*Ceriporia spissa* (Schwein. ex Fr.) Rajchenb., Dai 2913, 6984, 7000, 7878.
*Ceriporia viridans* (Berk. & Broome) Donk, Cui 5230, 5231, Dai 9995, 10833.
*Cerioporia mucida* (Pers.) Gilb. & Ryvarden, Cui 5183.
*Cerioporia resinascens* (Romell) Donki, Cui 6589, 6594, Dai 9264.
*Cineremoecies vulgaris* (Fr) Spiran, Dai 4497, 7830, 7831, 9376, 9650, 9658, 9677, 9797, 9807, 9888, 9985.
*Coltricia sideroides* (Lév.) Teng, Dai 9238, 9239, 9240.
*Coltriciella dependens* (Berk. & M.A. Curtis) Murrill, Cui 6526, Dai 4440, 7938.
*Coltriciella subglobosa* Y.C. Dai, Wei 5020.
*Coltriciella tasmanica* (Cleland & Rodway) D.A. Reid, Dai 11589.
*Coriolopsis aspera* (Jungh.) Teng, Cui 6256, Dai 9333, 9448, 9472, 9496, 9515, 9516, 9541, 9575, 9669, 10737, 10786, 10789, 10799.
*Coriolopsis byrsina* (Mont.) Ryvarden, Dai 10788.
*Coriolopsis caperata* (Berk.) Murrill, Dai 9575, 9500.
*Coriolopsis glabro-rigens* (Lloyd) Núñez & Ryvarden, Dai 7894.
*Coriolopsis polypora* (Pers.) Ryvarden, Cui 6231, Dai 7798, 9468, 9486, 9495, 9514, 9573, 10816.
*Coriolopsis retropecta* (Lloyd) Teng, Dai 9870.
*Coriolopsis sanguinaria* (Klotzsch) Teng, Dai 4590, 7954, 9314, 9350, 9362, 9943, 9980, 9990, 10303.
*Coriolopsis stramosa* (Fr.) Ryvarden, Dai 4582.
*Coriolopsis telfarii* (Klotzsch) Ryvarden, HMAS 30136.
*Cyclomyces fuscus* Fr., Dai 9975, 10016.
*Cyclomyces setiporus* (Berk.) Pat., Cui 6243, 6249, Dai 9252, 9255, 9865.
*Cyclomyces tabacinus* (Mont.) Pat., Dai 4365, 4455, 4460, 4480, 4509, 9837, 9845, 9958, 9963, 10309, 10317.
*Daedalea incana* (P. Karst.) Sacc. & D. Sacc., Cui 6422, Dai 9343.
*Daedaleopsis purpurea* (Cooke) Imazeki & Aoshima, Cui 6481, 6514, Dai 9872.
*Datronia mollis* (Sommerf.) Donk, Dai 10772.
Haploporus papyraceus (Schwein.) Y.C. Dai & Niemelä, Dai 9962.
Hexagonia apiaria (Pers.) Fr., Cui 6447, 6467; Dai 9714, 9732, 10364, 10784.
Hexagonia glabra (P. Beauv.) Ryvarden, Dai 10991.
Hexagonia tenuis (Hook) Fr., Cui 6200, 6248, 6258, Dai 4567, 7843, 7879, 9513, 9540, 9618, 9952, 10350, 10801.
Humphreya coffeea (Berk.) Steyaert, HMAS 37912.
Hyphodontia flavporosa ( Cooke) Sheng H. Wu, Dai 4448, 4522, 4523, 4545, 4611, 7880, 7886, 7891, 7911, 9637, 9651, 10002, 10762.
Hyphodontia laitans (Bourdot & Galzin) Giims & M.N.L. Lefebvre, Dai 9499, 9499, 9662, 9664, 9649, 9655, 9659, 9661, 9662, 9663, 9664, 10743, 10749.
Hyphodontia taiwaniana Sheng H. Wu, Wu 0809-172.
Hyphodontia tropica Sheng H. Wu, Dai 7942, 9279, 9449, 9704, 9705, 9712, 9844, 9849, 10802.
Inonotus acutus B.K. Cui & Y.C. Dai, Dai 5400.
Inonotus chrysosyngangatus B.K. Cui & Y.C. Dai, Dai 6689.
Inonotus hainanensis H.X. Xiong & Y.C. Dai, Dai 9259.
Inonotus latemarginatus Y.C. Dai, Dai 9758.
Inonotus patouillardii (Rick) Imazeki, Dai 4608.
Inonotus percholocactus Corner, Dai 7939.
Inonotus rickii (Pat.) D.A. Reid, Dai 10359.
Irplex lacteus (Fr.) Fr. s. lato, Cui 6436, Dai 4504, 9684.
Irplex vellereus Berk. & Broome, Dai 7832, 9833.
Junghuhnia nitida (Pers.) Ryvarden, Dai 5443.
Junghuhnia pseudominuta H.S. Yuan & Y.C. Dai, Dai 9360, Yuan 4105.
Laccoccephalum hartmannii ( Cooke) Núñez & Ryvarden, HMAS 54101.
Laetiporus sulphureus (Bull.) Murrill, Dai 5442, 5448, 5488.
Lenzites acuta Berk., Dai 10358, 10832.
Lenzites vespacea (Pers.) Pat., Cui 5447, Dai 7916, 9839, 9874, 10287.
Leucophellins hobsonii ( Cooke) Ryvarden, Dai 10733, 10790.
Lignosus hainanensis B.K. Cui & Y.C. Dai, Dai 10670.
Lignosus rhinocerotis ( Cooke) Ryvarden, HMAS 30036.
Lindneria flava Parmasto, Dai 10800.
Lindneria trachyspora (Bourot & Galzin) Pilát, Dai 7819.
Megasporoporia cystidiophora B.K. Cui & Y.C. Dai, Dai 9906.
Megasporoporia hexagonoides (Speg.) J.E. Wright & Rajchben., Cui 5179, Dai 7834, 9281.
Megasporoporia major (G.Y. Zheng & Z.S. Bi) Y.C. Dai, Cui 6592, Dai 9915, 9933, 10779.
Megasporoporia setulosa (Henn.) Rajchben., Dai 4373, 9783, 9785.
Microporus affinis (Blume & Nees) Kuntze, Dai 4350, 4371, 7826, 7858, 9603, 9751, 9829.
Microporus vernicipes (Berk.) Kuntze, Dai 4374, 4410.
Microporus xanthopus (F.) Pat., Cui 5488, Dai 7833, 7897, 9283.
Nigrofomes melanoedorus (Mont.) Murrill, Dai 4396, 4403,
Phellinus senex
Phellinus rhabarbarinus
Phellinus lloydii
Phellinus pullus
Phellinus merrillii
Phellinus ferruginosus
Phellinus durissimus
Phaeolus schweinitzii
ochroleuca
(Pilát) Pouzar,
(Z.S. Bi & G.Y. Zheng) Y.C. Dai,
Perenniporia subadusta
(B.K. Cui & Y.C. Dai,
Phellinus discipes
Perenniporia medulla-panis
(Maire) Pouzar,
Oxyporus subulatus
(Y.C. Dai,
Nigroporus vinosus
(Berk.) Murrill,
Phellinus torulosus
Rigidoporus vinctus
Rigidoporus minutus
Rigidoporus hypobrunneus
(Petch) Corner,
Polyporus arcularius
(Schumach.) Ryvarden,
Pycnoporus sanguineus
(L.) Murrill,
Pseudofavolus cucullatus
(Ellis & Dearn.) Vampola,
Phellinus umbrinellus
Polyporus dictyopus
Mont.,
Polyporus mori (Polinii) Fr.,
Polyporus philippinensis
(Berk.,
Phellinus umbrinellus
Polyporus arcularius
(Schumach.) Ryvarden,
Pycnoporus sanguineus
(L.) Murrill,
Pseudofavolus cucullatus
(Ellis & Dearn.) Vampola,
Phellinus umbrinellus
Polyporus dictyopus
Mont.,
Polyporus mori (Polinii) Fr.,
Polyporus philippinensis
(Berk.,
Phellinus umbrinellus
Phellinus torulosus
Oxyporus subulatus
(Y.C. Dai,
Nigroporus vinosus
(Berk.) Murrill,
Phellinus torulosus
Rigidoporus vinctus
(Berk.) Murrill,
Phellinus torulosus
Oxyporus subulatus
(Y.C. Dai,
Nigroporus vinosus
(Berk.) Murrill,
Phellinus torulosus
Rigidoporus vinctus
(Berk.) Murrill,
Phellinus torulosus
Oxyporus subulatus
(Y.C. Dai,
Nigroporus vinosus
(Berk.) Murrill,
9801, 9850, 9860, 9955, 9994, 10848.
Skeletocitus alatacea (J. Lowe) Jean Keller, Dai 9285, 9307, 9884.
Skeletocitus luteolus B.K. Cui & Y.C. Dai, Dai 9529, 9542, 10322, 10742.
Skeletocitus nivea (Jungh.) Jean Keller, Dai 7829, 7858, 7881, 7932, 9598, 9822, 9825, 9977.
Skeletocitus stellae (Pilát) Jean Keller, Dai 10822, 10825.
Skeletocitus subvulgaris Y.C. Dai, Dai 11590.
Sparisitubus nelumbiformis L.W. Xu & J.D. Zhao, Cui 5182, 5217, Dai 4417, 9244.
Theleporus calcicolor (Sacc. & P. Syd.) Ryvarden, Cui 5226, Dai 7921, 7969.
Tinctoporellus epimitinus (Berk. & Broome) Ryvarden, Dai 4457, 9347, 9993, 10305.
Trametes elegans (Spreng.) Fr., Cui 6217, Dai 4576, 9457, 9546, 9553, 9558, 9539, 9569, 9730, 9788, 10745, 10748, 10812, 10855.
Trametes hirsuta (Wulfen) Teng, Cui 6239, 6241, Dai 4566, 4593, 7908, 9477, 9533, 9550, 9561, 9578, 9581.
Trametes manilaeësis (Lloyd) Teng, Cui 6212, 6240, Dai 10477.
Trametes membranacea (Sw.) Kreisel, Dai 10983.
Trametes modesta (Kunze ex Fr.) Ryvarden, Cui 6229, Dai 4350, 4351, 4450, 7815, 9290, 9492, 10844, 10873.
Trametes orientalis (Yasuda) Imazeki, Cui 6184, Dai 4570, 7882, 9445, 9454, 9458, 9461, 9467, 9475, 9478, 9481, 9713, 10735, 10736.
Trametes pocas (Berk.) Ryvarden, Dai 11577.
Trametes pubescens (Schumach.) Pilát, Dai 7846.
Trametes versicolor (L.) Lloyd, Cui 6440, Dai 9485.
Trichaptum abietinum (Pers.) Ryvarden, Cui 5415, 6561, Dai 7903.
Trichaptum brastagogi (Corner) T. Hatt., Dai 4376, 4515, 4552, 10773.
Trichaptum byssogenum (Jungh.) Ryvarden, Dai 4587, 4595, 9537, 9594, 9668, 9689, 9962, 10752.
Trichaptum durum (Jungh.) Corner, Dai 4400, 4470, 4514, 7875, 9843, 10320.
Trichaptum imbricatum Y.C. Dai & B.K. Cui, Cui 5175, 9254.
Trichaptum perenne Y.C. Dai & H.S. Yuan, Yang 885.
Trichaptum podocarpici Y.C. Dai, Dai 4529, 9356, 9534.
Tyromyces chioneus (Fr.) P. Karst., Dai 9302.
Whitfordia scopulosa (Berk.) Núñez & Ryvarden, Cui 6209, Dai 10739.
Wrightioporia aurantipora T. Hatt., Dai 9671.
Wrightioporia astrosisisensis Y.C. Dai, Dai 11579.
Wrightioporia avellanea (Bres.) Pouzar, Dai 10826.
Wrightioporia luteola B.K. Cui & Y.C. Dai, Cui 5200, 5229, Dai 9297.
Wrightioporia tropicalis (Cooke) Ryvarden, Dai 4382, 4409, 4490.

Acknowledgements

We wish to thank Dr. Tsutomu Hattori (TFM, Japan) for his valuable help in the identification of some difficult specimens, and Prof. Leif Ryvarden and Dr. Karl-Henrik Larsson (O, Norway) for loans of specimens. Y. C. Dai is deeply indebted to Dr. Tuomo Niemelä (H, Finland) for his friendly support of Dai’s work at the Botanical Museum of the University of Helsinki. The research was financed by the Ministry Science and Technology of China (Project no. 2006FY110500-5) and the National Natural Science Foundation of China (Project nos. 30910130907, 31070022, 30900006).

References

Cui, B. K., Tang, L. P. & Dai, Y. C. 2011b: Morphological and molecular evidences of a new species of Lignosus (Polyporales, Basidiomycota) from tropical China. — Mycological Progress. [In press].
Mycotaxon 81: 91–94.

Hattori, T. 2008: *Wrightoporia* (Basidiomycota, Hericiaceae) species and their allies collected from Japan. — Myco-


Petersen, J. H. 1996: *Farvekort. The Danish Mycological Society's colour-chart.* — Foreningen til Svampekund-
skabens Fremme, Greve.

Rajchenberg, M. & Wright, J. E. 1987: Type studies of Corticiaceae and Polyporaceae (Aphyllophorales) described

Robledo, G. & Ryvarden, L. 2007: The genus *Grammoth-
elopsis* (Basidiomycota, aphyllophoroid fungi). — Syn-
opsis Fungorum 23: 7–12.

Ryvarden, L. & de Meijer, A. A. R. 2002: Studies in neotrop-
ic polypores 14. New species from the state of Parana,
Brazil. — Synopsis Fungorum 15: 34–69.


flora of East Africa. — Fungi flora, Oslo.

Urcelay, C. & Rajchenberg, M. 1999: Two North American *Inonotus* (Hymenochaetaceae, Aphyllophorales) found

Wu, T. L. 1994: *A checklist of flowering plants of Islands
and reefs of Hainan and Guangdong Province.* — Science Press, Beijing. [In Chinese].


Zhao, J. D. 1989: The Ganodermataceae in China. — Biblio-
theca Mycologica 132: 1–176.

Zhao, J. D. & Zhang, X. Q. 1992: The polypores of China. — Biblio-
theca Mycologica 145: 1–524.