

# Type studies on *Coltricia* and *Coltriciella* described by E. J. H. Corner from Southeast Asia

Yu-Cheng Dai · Hai-Jiao Li

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**Abstract** Type specimens or original specimens of 15 taxa in *Coltricia* and *Coltriciella* described by Corner from Southeast Asia were examined. Among these taxa, ten names were published invalidly because no type was designated in the original publication. The following two names are accepted in the original genus: *Coltricia hirtipes* and *C. strigosipes*. Two new species, *Inonotus parvulus* and *I. magnus*, are described. Validating descriptions are given for the following five species: *Coltricia albidipes*, *C. arenicola*, *C. kinabaluensis*, *C. progressus*, and *Coltriciella corticicola*. The original materials of *C. grandis*, *C. gracilipes*, and *C. hirtipes* var. *pleuropodalis* are, respectively, identical to *Coltricia crassa*, *C. pyrophila*, and *C. minor*. In addition, *C. subfastosa* seems to be *Pyrhoderma adamantinum*, although no basidiospores were found in the type specimen. Illustrated descriptions of eight species are given.

**Keywords** Hymenochaetaceae · Taxonomy · Type specimens

## Introduction

Polypores are very rich in tropical Asia, and 283 new species and 118 new varieties were described from Southeast Asia by E.J.H. Corner during the 1980s and 1990s (Hattori 2000). Although Corner's descriptions were detailed, as mentioned by Hattori (2000), his concepts of many species and genera are not easy to grasp. Type

studies of most of the polypores described by Corner were made by Hattori (2000, 2001a, b, 2002, 2003a, b, 2005), and the present paper deals with species in *Coltricia* Gray and *Coltriciella* Murrill described by Corner (1991). Many taxa in these two genera proposed by Corner were published invalidly because no type was designated in the original publication, and they are validated in the present paper.

## Materials and methods

Type specimens or original material of *Coltricia* Gray and *Coltriciella* described by Corner are deposited at the Herbarium of the Royal Botanical Garden Edinburgh (E), and they were examined macro- and microscopically. In our description, some macro-morphological characters refer to the original descriptions given by Corner (1991), but all the microscopical characters are based on our examinations. The materials were examined under a Nikon Eclipse E80i microscope (Nikon, Tokyo, Japan). Drawings were made with the aid of a drawing tube. The measurements and drawings were made from slide preparations stained with Cotton Blue (0.1 mg aniline blue dissolved in 60 g pure lactic acid), Melzer's reagent (1.5 g potassium iodide, 0.5 g crystalline iodine, 22 g chloral hydrate, distilled water 20 ml), and 5% potassium hydroxide. Spores were measured from sections cut from the tubes, and in presenting spore size data 5% of the measurements excluded from each end of the range are shown in parentheses. Abbreviations include IKI (Melzer's reagent, with IKI— = inamyloid), KOH (5% potassium hydroxide), and CB (Cotton Blue, with CB— = acyanophilous). Additional abbreviations include *L* (mean spore length; arithmetic average of all spores), *W* (mean spore width; arithmetic

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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). Color terms follow Anonymous (1969) and Petersen (1996). The abbreviations for authors of scientific names follow the recent edition of Authors of Fungal Names (available at: <http://www.indexfungorum.org/Names/Names.asp>).

## Taxonomy

The taxa are alphabetically arranged according to the original taxon name by Corner.

*Coltricia albidipes* Corner ex Y.C. Dai & Hai J. Li, sp. nov. Fig. 1

Mycobank: MB 563890

Holotype: MALAYSIA, Negri Sembilan, Angsi Forest Reserve, on the ground in forest, 800 m alt., 30.VI.1930 Corner (E 439134).

*Coltricia albidipes* Corner (nom. inval.), Beih. Nova Hedwigia 101: 53, 1991. This name was published invalidly because no type was designated.

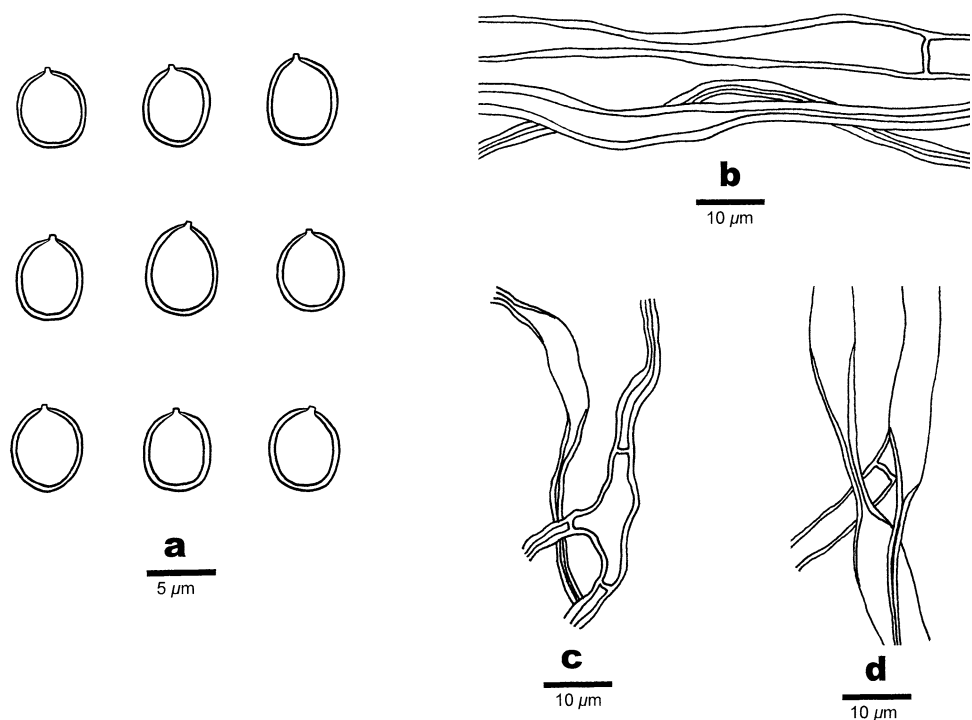
Basidiocarps annual, centrally stipitate, corky to leathery when dry. Pilei more or less circular, infundibuliform, up to 3.5 cm in diameter, 3 mm thick at center. Pileal surface pale yellowish, with indistinctly concentric zones, glabrous. Pore surface pale yellowish to buff; pores round,

4–6 per mm; dissepiments thin, entire. Context yellowish-brown, up to 1.5 mm thick. Tubes concolorous with pore surface, up to 1.5 mm long. Stipe pale yellowish, glabrous and wrinkled, up to 2.2 cm long, 9 mm thick.

Hyphal system monomitic, generative hyphae simple septate, tissue darkening but otherwise unchanged in KOH. Contextual hyphae pale yellowish-brown, thick-walled with a wide lumen, rarely branched, mostly collapsed, loosely interwoven, up to 10  $\mu\text{m}$  in diameter. Hyphae in the stipe pale yellowish, thin- to slightly thick-walled with a wide lumen, rarely branched, mostly collapsed, more or less parallel along the stipe, 4–8  $\mu\text{m}$  in diameter. Tramal hyphae pale yellowish to yellowish-brown, thin- to fairly thick-walled with a wide lumen, frequently septate, moderately branched, loosely interwoven, 4–5  $\mu\text{m}$  in diameter. Hymenium collapsed, basidia and basidioles not seen. Basidiospores subglobose to globose, very pale yellowish, fairly thick-walled, smooth, IKI–, CB–,  $(4.8\text{--}5.6\text{--}(6.8) \times (4.3\text{--}4.7\text{--}5.2\text{--}(5.9)) \mu\text{m}$ ,  $L = 5.15 \mu\text{m}$ ,  $W = 4.95 \mu\text{m}$ ,  $Q = 1.04$  ( $n = 30/1$ ).

*Coltricia sideroides* (Lév.) Teng has subglobose basidiospores and occurs in southeast Asia, but it differs from *C. albidipes* in having a darker basidiocarp, lacerate dissepiments, and larger spores,  $(5.5\text{--}5.6\text{--}7 \times (4.5\text{--}4.8\text{--}(6.2)) \mu\text{m}$ ,  $L = 6.24 \mu\text{m}$ ,  $W = 5.32 \mu\text{m}$ ,  $Q = 1.22\text{--}1.23$  ( $n = 60/2$ , Dai 2010). *Coltricia velutina* Baltazar & Gibertoni was recently described from Brazil, and it has pores and spores (5–7 per mm and  $5.5\text{--}6.5\text{--}(7) \times (4\text{--}4.5\text{--}5.5\text{--}(6)) \mu\text{m}$ ) similar to those of *C. albidipes*, but its basidiospores are

**Fig. 1** *Coltricia albidipes* (from holotype). **a** Basidiospores. **b** Hyphae from context. **c** Hyphae from trama. **d** Hyphae from stipe



dextrinoid (Baltazar et al. 2010). *C. globispora* Gomes-Silva, Ryvar den & Gibertoni has globose spores, too, but it has smaller pores (7–8 per mm) and its spores are weakly dextrinoid (Gomes-Silva et al. 2009). *Coltricia barbata* Ryvar den & de Meijer resembles *C. albidipes* by having similar pores and spores (4–9 per mm and 5–6 µm in diameter, Ryvar den and de Meijer 2002), and the latter name has priority if both represent a single species.

***Coltricia arenicola*** Corner ex Y.C. Dai & Hai J. Li, sp. nov. Fig. 2

Mycobank: MB 563892

Holotype: MALAYSIA, Johore, Kuala Sedili Kechil, on bare shining very hot sand in bare open coastal scrub of *Rhodom yrtus* (Myrtaceae), 16.VI.1934 Corner (E 439138).

*Coltricia arenicola* Corner (nom. inval.), Beih. Nova Hedwigia 101: 57, 1991. This name was published invalidly because no type was designated.

Basidiocarps annual, centrally stipitate, fragile when dry. Pilei more or less circular, infundibuliform, up to 3.7 cm in diameter, 5 mm thick at center. Pileal surface pale fuscous to almost black, concentrically zonate and sulcate, glabrous. Pore surface yellowish-brown to cinnamon; pores angular, about 3 per mm; dissepiments thin, entire to slightly lacerate. Context brown to fuscous, up to 0.5 mm thick. Tubes concolorous with pore surface, up to 4.5 mm long. Stipe brown to fuscous, bearing fine and dense villi, up to 3 cm long, 3 mm thick.

Hyphal system monomitic, generative hyphae simple septate, tissue darkening but otherwise unchanged in KOH. Contextual hyphae yellowish to yellowish-brown, thick-

walled with a wide to narrow lumen, occasionally branched, mostly collapsed, more or less regularly arranged, up to 6 µm in diameter. Hyphae in the stipe yellowish-brown, slightly to distinctly thick-walled with a wide lumen, rarely branched, often collapsed, more or less parallel along the stipe, 4–7.5 µm in diameter. Tramal hyphae yellowish to yellowish-brown, distinctly thick-walled, unbranched, some collapsed, loosely interwoven, sometimes covered with fine crystals, up to 5 µm in diameter. Hymenium collapsed, basidia and basidioles not seen. Basidiospores cylindrical, pale yellowish, fairly thick-walled, smooth, IKI–, CB–, (10–)10.2–13 × 4–5.1 µm,  $L = 11.52$  µm,  $W = 4.5$  µm,  $Q = 2.56$  ( $n = 30/1$ ).

*Coltricia arenicola* is characterized by its black pileus and cylindrical basidiospores. *Coltricia cylindrospora* Ryvar den has cylindrical spores which, however, are distinctly smaller (5–7 × 2.8–3.2 µm, Ryvar den 2007) than those of *C. arenicola*. In addition, the spores of *C. cylindrospora* are hyaline and thin-walled (Ryvar den 2007).

***Inonotus parvulus*** Y.C. Dai & Hai J. Li, sp. nov. Fig. 3

Mycobank: MB 561898

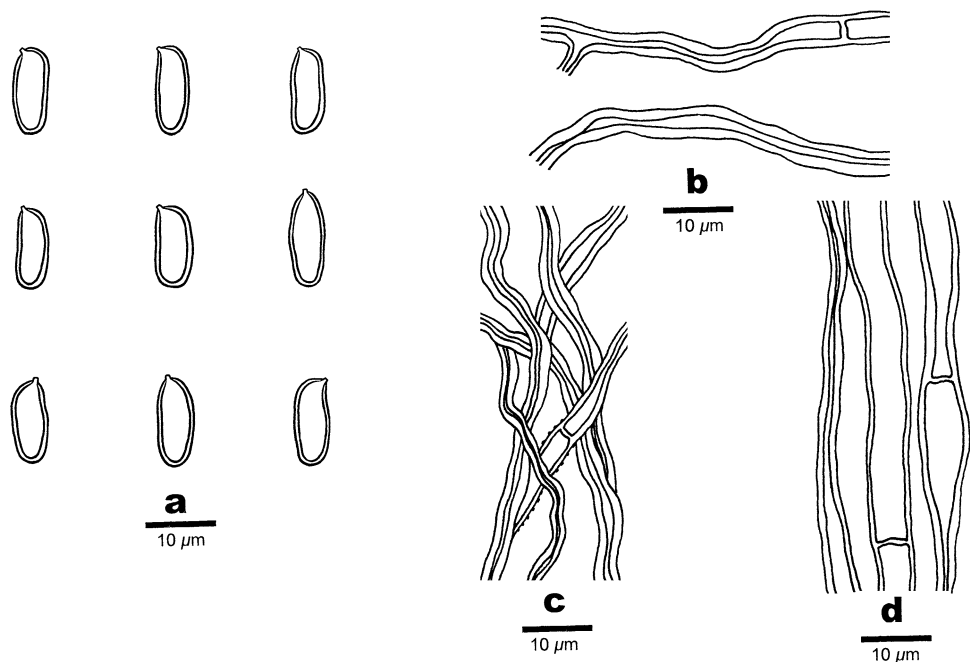
Holotype: MALAYSIA, Trengganu, Kemaman, Bukit Kajang, at the base of a dead tree in the forest, 28.VI.1932 Corner (E 439170).

*Coltricia duostratosa* var. *parvula* Corner (nom. inval.), Beih. Nova Hedwigia 101: 80, 1991. This name was published invalidly because no type was designated.

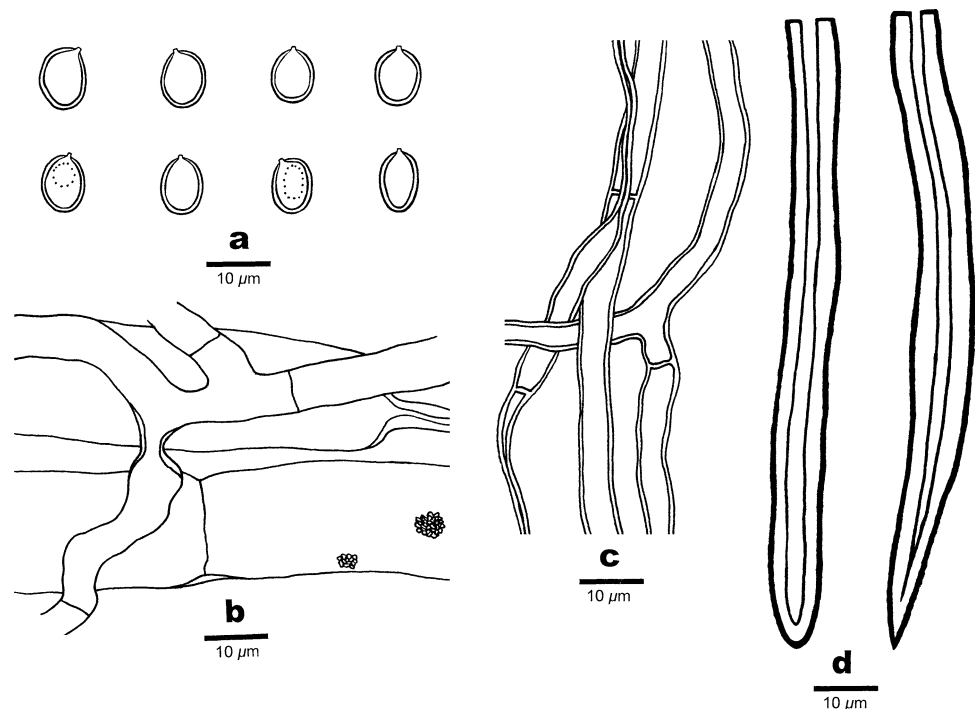
Basidiocarps annual, laterally stipitate, leathery when dry. Pilei more or less flabelliform, up to 5.5 cm long, 9 cm wide, and 8.5 mm thick at the base. Pileal surface

**Fig. 2** *Coltricia arenicola* (from holotype).

**a** Basidiospores. **b** Hyphae from context. **c** Hyphae from trama. **d** Hyphae from stipe



**Fig. 3** *Inonotus parvulus* (from holotype). **a** Basidiospores. **b** Hyphae from context. **c** Hyphae from trama. **d** Hyphoid setae



yellowish-brown to cinnamon, velutinate. Pore surface cinnamon to fuscous; pores angular, 3–4 per mm; dissepiments thin, lacerate. Context yellowish-brown to cinnamon, up to 5 mm thick. Tubes yellowish-brown, up to 3.5 mm long. Stipe yellowish-brown, short, velutinate to almost glabrous, up to 9 mm long, 7 mm thick.

Hyphal system monomitic, generative hyphae simple septate, tissue darkening but otherwise unchanged in KOH. Two different kinds of generative hyphae present in the context; the dominant hyphae hyaline to pale yellowish-brown, thin-walled, rarely branched, sometimes covered with crystals, loosely interwoven, 12–19 µm in diameter, some collapsed; another kind of hyphae hyaline to pale yellowish-brown, thin- to slightly thick-walled, frequently branched, tortuous, interwoven, 4–8 µm in diameter. Tramal hyphae hyaline to pale yellowish-brown, slightly thick-walled with a wide lumen, occasionally branched, often collapsed, more or less parallel along the tubes, 4–6 µm in diameter. Hyphoid setae abundant in trama, dark brown, over 200 µm long, 6–9 µm in diameter, and swollen up to 14 µm in diameter in 5% KOH. Hymenium collapsed, basidia and basidioles not seen. Basidiospores ellipsoid to broadly ellipsoid and sometimes collapsed, yellowish, thick-walled, smooth, IKI–, CB–,  $8\text{--}9.5\text{--}(9.6) \times (6\text{--})6.1\text{--}7.1\text{--}(8) \mu\text{m}$ ,  $L = 8.75 \mu\text{m}$ ,  $W = 6.71 \mu\text{m}$ ,  $Q = 1.3$  ( $n = 30/1$ ).

*Inonotus parvulus* is characterized by its laterally stipitate basidiocarps, lacerate pores, ellipsoid basidiospores, and presence of hyphoid setae in trama. Macroscopically, *Inonotus dentiporus* Ryvarden is similar to *I. parvulus*, but

the former has thin contextual hyphae (4–6 µm in diameter) and its basidiospores are smaller ( $5.5\text{--}6 \times 4\text{--}5 \mu\text{m}$ , Ryvarden 2002). *Coltricia duostratos* (Lloyd) Ryvarden was transferred to *Inonotus* P. Karst. by Buchanan and Ryvarden (1988), and its pores and spores are larger ( $1\text{--}2$  per mm,  $9\text{--}12 \times 7\text{--}9 \mu\text{m}$ , Buchanan and Ryvarden 1988) than those of *Inonotus parvulus* is distinct from *I. duostratos* (Lloyd) P.K. Buchanan & Ryvarden.

*Coltricia gracilipes* Corner (nom. inval.), Beih. Nova Hedwigia 101: 93, 1991. This name was published invalidly because no type was designated.

Original material: MALAYSIA, Fraser's Hill, 1300 m alt., on a sandy bank in the forest, 3.XI.1932 Corner (E 439188).

= *Coltricia pyrophila* (Wakef.) Ryvarden.

The tiny specimen of the original material of *C. gracilipes* seems to be a juvenile specimen of *C. pyrophila*, because it has the same pores, spores, and hyphae as those in *C. pyrophila*.

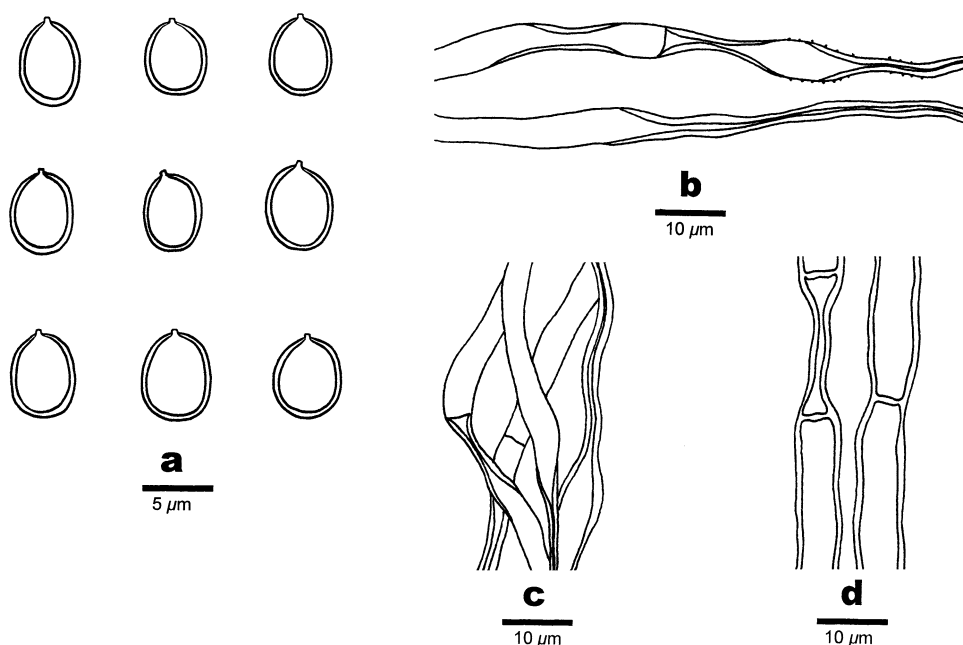
*Coltricia grandis* Corner (nom. inval.), Beih. Nova Hedwigia 101: 94, 1991. This name was published invalidly because no type was designated.

Original material: MALAYSIA, Gunong Pant, parasitic at the base of a large living tree, 16.VIII.1931, E 439140.

= *Coltricia crassa* Y.C. Dai.

The recently described species *C. crassa* from southern China (Dai 2010) is in fact the same as *C. grandis*, and the detailed description was published in Dai (2010).

**Fig. 4** *Coltricia hirtipes* (from holotype). **a** Basidiospores. **b** Hyphae from context. **c** Hyphae from trama. **d** Hyphae from stipe



*Coltricia hirtipes* Corner, Beih. Nova Hedwigia 101: 98, 1991

Fig. 4

Holotype: SINGAPORE, Bukit Timah, from dead rootlets on burnt ground and on bare soil in the forest, 21.XII.1930 Corner (E 428583).

Accepted as *C. hirtipes*.

Basidiocarps annual, centrally stipitate, solitary to subcaespitose, leathery when dry. Pilei more or less circular, up to 11 mm in diameter, 2 mm thick at center. Pileal surface cinnamon to fuscous, coarsely fibrillose, indistinctly concentrically zonate. Pore surface yellowish-brown to cinnamon; pores angular, about 4 per mm; dissepiments thin, entire. Context brown to dark brown, up to 0.5 mm thick. Tubes concolorous with pore surface, up to 1.5 mm long. Stipe branched, cinnamon to brown, villose to hirsute, up to 7 cm long, 1.5 mm thick.

Hyphal system monomitic, generative hyphae simple septate, tissue darkening but otherwise unchanged in KOH. Contextual hyphae pale yellow to yellowish-brown, thin- to slightly thick-walled, rarely branched, some encrusted with fine crystals, often collapsed, more or less regularly arranged, up to 8 µm in diameter. Hyphae in the stipe pale yellowish to yellowish-brown, thick-walled, frequently septate, unbranched, sometimes collapsed, more or less parallel along the stipe, up to 8 µm in diameter. Tramal hyphae pale yellow to yellowish-brown, thin- to fairly thick-walled, rarely branched, often collapsed, loosely interwoven, up to 5 µm in diameter. Hymenium collapsed, basidia and basidioles not seen. Basidiospores broadly ellipsoid to subglobose, often collapsed, yellowish, thick-walled, smooth, IKI–, CB–, (5–)5.2–6.2(–6.7) × (4.6–)

4.7–5.5(–5.8) µm,  $L = 5.74$  µm,  $W = 5.02$  µm,  $Q = 1.14$  ( $n = 30/1$ ).

*Coltricia hirtipes* is characterized by a coarsely fibrillose upper surface, branched stipe, and ellipsoid to subglobose spores. *C. albidipes* has almost the same size of spores as *C. hirtipes*, but its upper surface is glabrous, its stipe is not branched, and its spores are subglobose to globose.

*Coltricia hirtipes* var. *pleuropodalis* Corner (nom. inval.), Beih. Nova Hedwigia 101: 99, 1991. This name was published invalidly because no type was designated.

Original material: MALAYSIA, Pahang, Cameron Highlands, 1700 m alt., 28.VII.1934 Corner (E 428586).

= *Coltricia minor* Y.C. Dai.

The original material of *Coltricia hirtipes* var. *pleuropodalis* has narrowly ellipsoid spores, (3.6–)6–7.4(–7.4) × (3.6–)3.8–4.8(–5) µm,  $L = 6.35$  µm,  $W = 4.17$  µm,  $Q = 1.52$  ( $n = 30/1$ ), and its pores are 3–4 per mm, so it is identical to *C. minor*, which was recently described from subtropical China (Dai et al. 2010).

*Coltricia kinabaluensis* Corner ex Y.C. Dai & Hai J. Li, sp. nov.

Fig. 5

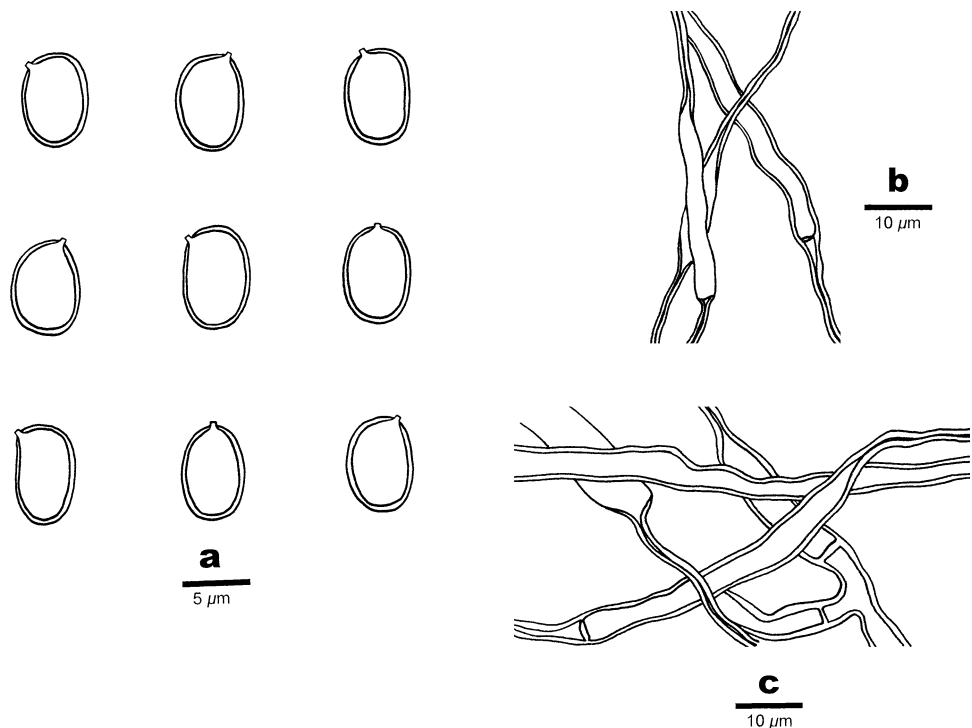
MycoBank: MB 563894

Holotype: MALAYSIA, Borneo, Kinabalu, Bembangan River, on fallen wood in montane forest, 25.II.1964 Corner (E 439145).

*Coltricia kinabaluensis* Corner (nom. inval.), Beih. Nova Hedwigia 101: 106, 1991. This name was published invalidly because no type was designated.



**Fig. 5** *Coltricia kinabaluensis* (from holotype). **a** Basidiospores. **b** Hyphae from trama. **c** Hyphae from context



Basidiocarps annual, laterally stipitate, leathery when dry. Pilei more or less flabelliform, up to 5 cm long, 3 cm wide, and 18 mm thick at base. Pileal surface buff to cinnamon, glabrous, concentrically zonate. Pore surface buff-yellow to yellowish-brown; pores angular, 2–3 per mm; dissepiments thin, entire. Context yellowish-brown to cinnamon, up to 5 mm thick. Tubes concolorous with pore surface, up to 13 mm long. Stipe yellowish-brown to cinnamon, up to 3 cm long, 2 cm thick.

Hyphal system monomitic, generative hyphae simple septate, tissue darkening but otherwise unchanged in KOH. Contextual hyphae pale yellowish to yellowish-brown, thin- to slightly thick-walled, occasionally branched, often collapsed, loosely interwoven, up to 7 µm in diameter. Hyphae in the stipe pale yellowish to yellowish-brown, thick-walled, rarely branched, often collapsed, more or less parallel along the stipe, up to 8 µm in diameter. Tramal hyphae pale yellowish to yellowish-brown, thin- to fairly thick-walled, occasionally branched, often collapsed, loosely interwoven, up to 5 µm in diameter. Hymenium collapsed, basidia and basidioles not seen. Basidiospores ellipsoid, pale yellowish, thick-walled, smooth, IKI–, CB–,  $6\text{--}7.8\text{--}(8) \times 4\text{--}4.9\text{--}(5)$  µm,  $L = 6.85$  µm,  $W = 4.53$  µm,  $Q = 1.51$  ( $n = 30/1$ ).

*Coltricia kinabaluensis* is characterized by its wood-inhabiting habit, laterally stipitate basidiocarps and ellipsoid basidiospores. *Coltricia weii* Y.C. Dai is similar to *C. kinabaluensis* by macro-morphology, but its spores are broadly ellipsoid,  $(5.2\text{--})5.6\text{--}7.2\text{--}(7.6) \times (3.9\text{--})4.3\text{--}5.5\text{--}(6)$

µm,  $L = 6.36$  µm,  $W = 4.98$  µm,  $Q = 1.22\text{--}1.35$  ( $n = 180/6$ ), and it has a terrestrial habit (Dai et al. 2010).

***Inonotus magnus*** Y.C. Dai & Hai J. Li, sp. nov. Fig. 6

MycoBank: MB 561899

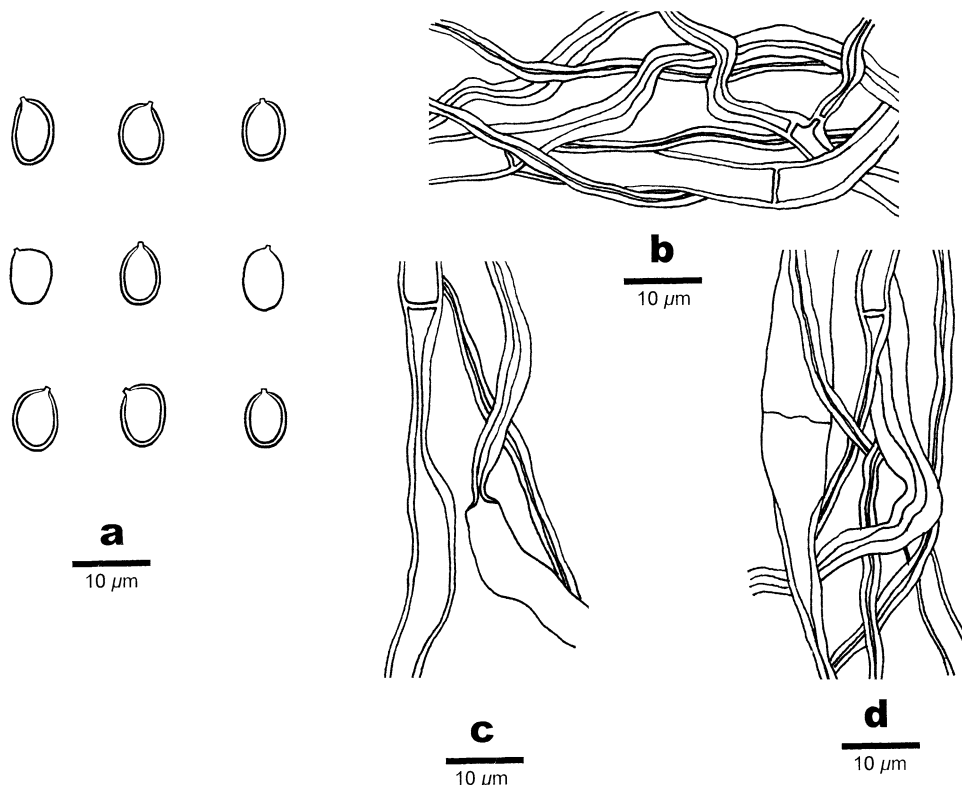
Holotype: MALAYSIA, Pahang, Fraser's Hill, on a sandy bank in montane forest, 24.V.1930 Corner (E 439149).

*Coltricia magna* Corner (nom. inval.), Beih. Nova Hedwigia 101: 109, 1991. This name was published invalidly because no type was designated.

Basidiocarps annual, centrally stipitate, corky when dry. Pilei more or less circular, up to 12 cm in diameter and 13 mm thick at center. Pileal surface cinnamon to fuscous, velutinate, azonate. Pore surface yellowish-brown to cinnamon; pores angular, variable in size, 1–2 per mm; dissepiments thin, entire. Context cinnamon to fuscous, up to 10 mm thick. Tubes concolorous with pore surface, up to 3 mm long. Stipe yellowish-brown to cinnamon, velutinate, up to 5 cm long, 1.8 cm thick, swollen at base, up to 4 cm in diameter.

Hyphal system monomitic, generative hyphae simple septate, tissue darkening but otherwise unchanged in KOH. Contextual hyphae pale yellowish to yellowish-brown, thick-walled, occasionally branched, flexuous, often collapsed, loosely interwoven, up to 11 µm in diameter. Hyphae in the stipe pale yellowish to yellowish-brown, thin- to thick-walled, rarely branched, often collapsed, loosely interwoven, up to 10 µm in diameter. Tramal hyphae pale

**Fig. 6** *Inonotus magnus* (from holotype). **a** Basidiospores. **b** Hyphae from context. **c** Hyphae from trama. **d** Hyphae from stipe



yellowish to yellow, thin- to fairly thick-walled, rarely branched, often collapsed, loosely interwoven, up to 8 µm in diameter. Hymenium collapsed, basidia and basidioles not seen. Basidiospores ellipsoid, hyaline, slightly thick-walled smooth, IKI–, CB–,  $6\text{--}8.9\text{--}(9) \times (4.5\text{--})4.9\text{--}6\text{--}(6.5)$  µm,  $L = 8.19$  µm,  $W = 5.49$  µm,  $Q = 1.49$  ( $n = 30/1$ ).

The basidiospores of the species were described as “not thickened” in its original description (Corner 1991), but, according to our examination of the type, they are slightly thick-walled and hyaline. Because all the accepted species of *Coltricia* have colored basidiospores, and *Inonotus* has both hyaline and colored spores, for the time being above name *Inonotus magnus* is proposed. The species is unique by having a stipitate basidiocarp and hyaline spores, and it may be related to *Onnia* P. Karst. However, *Onnia* has duplex context and hymenial setae. Macromorphologically *Inonotus magnus* is similar to *Phaeolus schweinitzii* (Fr.) Pat., but the latter has smaller spores ( $5.5\text{--}8.5 \times 4\text{--}5$  µm) and is a brown rot fungus on gymnosperm trees.

***Coltricia progressus*** Corner ex Y.C. Dai & Hai J. Li, sp. nov. Fig. 7

Mycobank: MB 563895

Holotype: MALAYSIA, Negri Sembilan, Angsi Forest Reserve, on a sandy bank in the forest, 15.VI.1930 (E 439154).

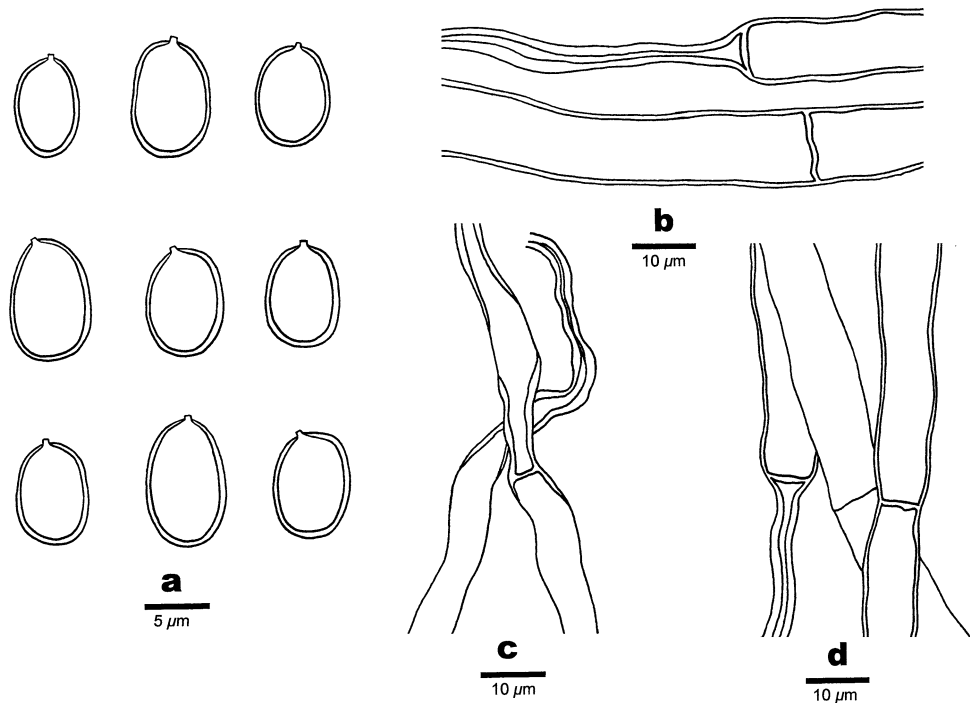
*Coltricia progressus* Corner (nom. inval.), Beih. Nova Hedwigia 101: 127, 1991. This name was published invalidly because no type was designated.

Basidiocarps annual, eccentrically or laterally stipitate, imbricate, corky when dry. Pilei more or less circular, up to 10 cm in diameter and 24 mm thick at center. Pileal surface cinnamon to fuscous, velutinate, azonate. Pore surface yellowish-brown to cinnamon; pores angular, variable, 0.5–2 per mm; dissepiments thin, entire. Context cinnamon to fuscous, up to 11 mm thick. Tubes concolorous with pore surface, up to 13 mm long. Stipe yellowish-brown to cinnamon, velutinate, up to 6 cm long, 3 cm thick.

Hyphal system monomitic, generative hyphae simple septate, tissue darkening but otherwise unchanged in KOH. Contextual hyphae pale yellowish to yellowish-brown, thick-walled, rarely branched, straight, often collapsed, more or less regularly arranged, up to 12 µm in diameter. Hyphae in the stipe pale yellow to yellowish-brown, thin- to thick-walled, rarely branched, frequently septate, some collapsed, loosely interwoven, up to 11 µm in diameter. Tramal hyphae pale yellowish to yellowish-brown, thin- to slightly thick-walled, rarely branched, some collapsed, loosely interwoven, up to 8 µm in diameter. Hymenium collapsed, basidia and basidioles not seen. Basidiospores ellipsoid, yellowish, thick-walled, and often collapsed, smooth, IKI–, CB–,  $(7.8\text{--})8\text{--}9.8\text{--}(10) \times (4.7\text{--})5\text{--}6.5\text{--}(7)$  µm,  $L = 8.86$  µm,  $W = 5.66$  µm,  $Q = 1.57$  ( $n = 30/1$ ).

**Fig. 7** *Coltricia progressus* (from holotype).

**a** Basidiospores. **b** Hyphae from context. **c** Hyphae from trama. **d** Hyphae from stipe



*Coltricia progressus* is characterized by its thick and imbricate pilei, centric to lateral stipe, and large and ellipsoid basidiospores. *Coltricia macropora* Y.C. Dai is similar to *C. progressus*, both of which have large, eccentrically stipitate and imbricate basidiocarps, but the former has shorter basidiospores ( $7.2\text{--}8.5 \times 5.1\text{--}6\text{ }\mu\text{m}$ ,  $L = 7.92\text{ }\mu\text{m}$ ,  $W = 5.6\text{ }\mu\text{m}$ ,  $Q = 1.41\text{--}1.42$  ( $n = 60/2$ ), Dai 2010). In addition, *C. macropora* has a distinctly concentrically zonate and sulcate pileal surface and thinner context (2 mm thick), while *C. progressus* has a uniform and smooth pileal surface and thicker context (11 mm thick).

***Coltricia salpincta* var. *latipora*** Corner, Beih. Nova Hedwigia 101: 138, 1991

Holotype: MALAYSIA, Pahang, Cameron Highlands, 6.VIII.1934 (E 428609).

= *Coltricia salpincta* (Cooke) G. Cunn.

***Coltricia salpincta* var. *tenuis*** Corner, Beih. Nova Hedwigia 101: 138, 1991

Holotype: MALAYSIA, Pahang, Cameron Highlands, 6.VIII.1934 (E 428612).

= *C. salpincta*.

Both *Coltricia salpincta* var. *latipora* and var. *tenuis* have centrally stipitate and leathery basidiocarps and similar basidiospores ( $5\text{--}6 \times 4\text{--}5$  and  $5.3\text{--}6.5 \times 4.3\text{--}5.3\text{ }\mu\text{m}$ , respectively); the only difference is the size of their pores, and based on our study, pores are 3–4 per mm in the former, while they are 5–7 per mm in the latter. However, pores are

3–5 per mm (Cunningham 1965) in *C. salpincta*. So we treat these two varieties as synonyms of *C. salpincta*.

***Coltricia strigosipes*** Corner, Beih. Nova Hedwigia 101: 151, 1991

Holotype: MALAYSIA, Pahang, Cameron Highlands, on a sandy bank in the montane forest, 29.VI.1934 (E 439159).

Accepted as *C. strigosipes*.

The recently described species *Coltricia spina* Y. C. Dai from southern China (Dai 2010) is in fact the same as *C. strigosipes*. *Coltricia spina* is a synonym of the latter, and a detailed description and a color photo were provided by Dai (2010).

***Coltricia subfastosa*** Corner, Beih. Nova Hedwigia 101: 152, 1991

Holotype: MALAYSIA, Borneo, Kinabalu, Dallas, 1000 m alt., growing at the base of a stump in the forest, 10.XII.1931 (E 439181).

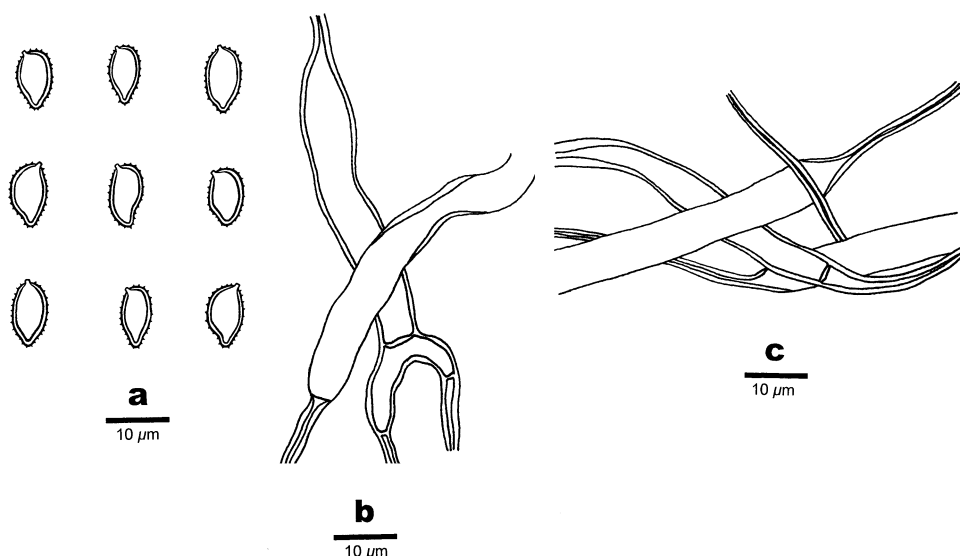
The type specimen is sterile, but it is characterized by encrusted cuticle at the pileal surface, a monomitic hyphal structure, and lack of setae. The cuticle consists of two distinct layers, and hyphae in the upper layer make up a palisade. Because of these characters the species seems to be *Pyrrhoderma adamantinum* (Berk.) Imazeki, which is fairly common in subtropical and tropical China (Dai 2010).

***Coltriciella corticicola*** Corner ex Y.C. Dai & Hai J. Li, sp. nov.

Fig. 8



**Fig. 8** *Coltriciella corticicola* (from holotype). **a** Basidiospores. **b** Hyphae from trama. **c** Hyphae from context



MycoBank: MB 563896

Holotype: MALAYSIA, Pahang, Fraser's Hill, on a sandy bank in the forest, 15.V.1930 Corner (E 439175).

*Coltriciella corticicola* Corner (nom. inval.), Beih. Nova Hedwigia 101: 43, 1991. This name was published invalidly because no type was designated.

Basidiocarps annual, sessile, effused-reflexed, corky to fragile when dry. Pilei more or less circular, up to 16 mm in diameter, and 4.5 mm thick at center. Pileal surface yellowish-brown to cinnamon, velutinate, azonate. Pore surface yellowish-brown to cinnamon; pores angular, 2–3 per mm; dissepiments thin, entire. Context cinnamon to fuscous, up to 1.5 mm thick. Tubes concolorous with pore surface, up to 3 mm long.

Hyphal system monomitic, generative hyphae simple septate, tissue darkening but otherwise unchanged in KOH. Contextual hyphae pale yellowish, thin- to thick-walled, rarely branched, often collapsed, loosely interwoven, up to 11 µm in diameter. Tramal hyphae pale yellowish to yellowish-brown, thin- to slightly thick-walled, occasionally branched, some collapsed, loosely interwoven, up to 8 µm in diameter. Hymenium collapsed, basidia and basidioles not seen. Basidiospores narrowly ellipsoid to mango-shaped, tapering at the apex, golden-yellowish, thick-walled, finely verrucose, IKI–, CB–,  $(7.8\text{--}8\text{--}10\text{--}10.5) \times (4.5\text{--}4.8\text{--}5.8\text{--}6)$  µm,  $L = 9.07$  µm,  $W = 5.12$  µm,  $Q = 1.77$  ( $n = 30/1$ ).

*Coltriciella corticicola* is distinct from other species in the genus by its sessile basidiocarps and mango-shaped basidiospores, which are tapering at the apex.

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