Cryptogamie, Mycologie, 2008, 29 (3): 279-283

A new species of *Inonotus* (Basidiomycota, Hymenochaetaceae) from China

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Abstract – *Inonotus hainanensis sp. nov.,* collected in the tropical forests of southern China, is described and illustrated. It forms abundant, thin, and imbricate pileate basidiocarps. Microscopically, the species is characterized by lacking both setal hyphae and hymenial setae, and ellipsoid, thick-walled, yellowish brown basidiospores. It might be related to *I. tenuicarnis*, both species sharing similar basidiospores and absence of hymenial setae and setal hyphae. The latter has a reddish brown crust on pileal surface, and its basidiocarps become very hard when dry. In addition, *I. tenuicarnis* has a glancing pore surface and its pores are slightly smaller.

***Inonotus hainanensis* / lignicolous and poroid fungi / taxonomy**

Résumé – *Inonotus hainanensis sp. nov*., récolté dans les forêts tropicales de Chine, est décrit et illustré. Cette espèce forme de très nombreux basidiocarpes, très fins et imbriqués. Elle est caractérisée en microscopie par l'absence de soie, tant dans l'hyménium que dans la trame, et des basidiospores ellipsoïdes, à paroi épaissie, de couleur jaune brun. Elle est comparée à *I. tenuicarnis*, avec laquelle elle partage certaines caractéristiques microscopiques (basidiospores et absence de soies). *Inonotus tenuicarnis* développe cependant une croûte rouge brun sur le chapeau, qui devient très dur en séchant, la surface des pores présente des reflets variables suivant l'orientation, et les pores sont plus petits.

***Inonotus hainanensis* / lignivore / polypore / taxonomie**

INTRODUCTION

The genus *Inonotus* P. Karst. in China was monographed by Dai and Niemelä (2006). Fifteen species were recorded in the country (Dai and Niemelä, 2006; Li *et al.*, 2007), most of them occurring in temperate and boreal forests.

During a survey of the wood-inhabiting fungi from the tropical forests of Hainan Province, southern China, a species of *Inonotus* was found that could not be identified to any of the described species (Ryvarden, 2005). It is characterized by abundant basidiocarps with thin and imbricate pilei, lack of setal hyphae and hymenial setae, and ellipsoid, yellowish brown, and thick-walled basidiospores. These collections are described as *Inonotus hainanensis sp. nov.*

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MATERIALS AND METHODS

The studied specimens are deposited at the Herbarium of Institute of Applied Ecology, Chinese Academy of Sciences (IFP). The microscopic procedure follows Dai and Niemelä (2006). In presenting the variation in the size of the spores, 5% of measurements were excluded from each end of the range, and are given in parentheses. In the text the following abbreviations are used: IKI = Melzer's reagent, IKI– = negative in Melzer's reagent, KOH = 5% potassium hydroxide, CB = Cotton Blue, CB+ = cyanophilous, 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, n = number of spores measured from given number of specimens. Sections were studied at magnification up to × 1000 by using a Nikon Eclipse E600 microscope and phase contrast illumination. Drawings were made with the aid of a drawing tube. Special colour terms are from Petersen (1996).

DESCRIPTION

Inonotus hainanensis H.X. Xiong & Y.C. Dai, *sp. nov.* (Figs.1-2)

Carpophorum annuum, pileatum, imbricatum; facies pororum auratum vel brunneum; pori angulati, 3-4 per mm. Systema hypharum monomiticum, hyphae septatae sine fibulis, hyphae contexti 2-5 µm in diam. Sporae ellipsoideae, IKI–, CB(+), 6-7 × 3.9-4.9 µm

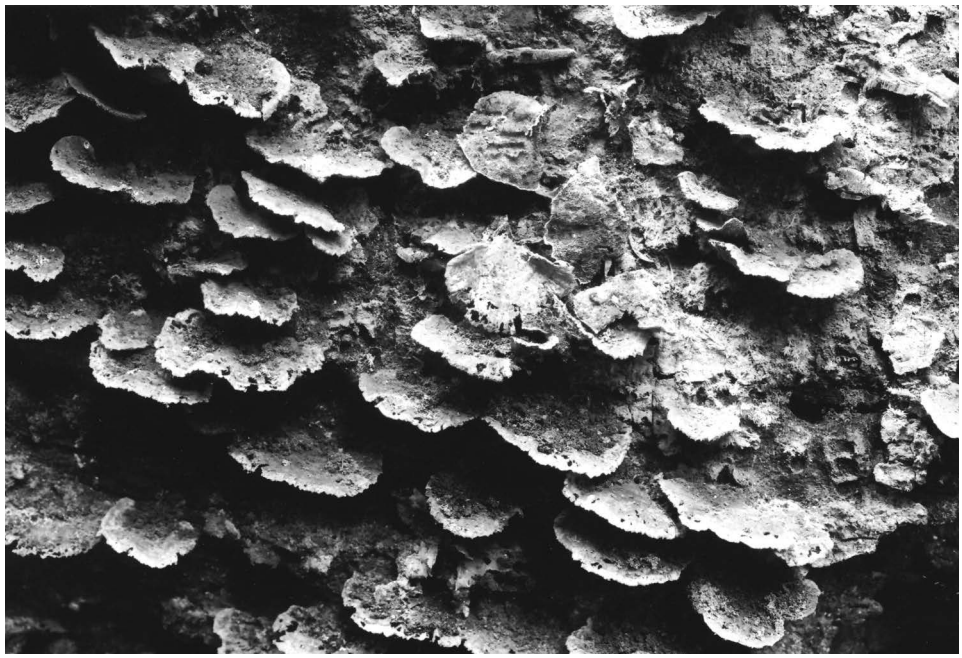

Fig. 1. Fresh basidiocarps of *Inonotus hainanensis* H.X. Xiong & Y.C. Dai.

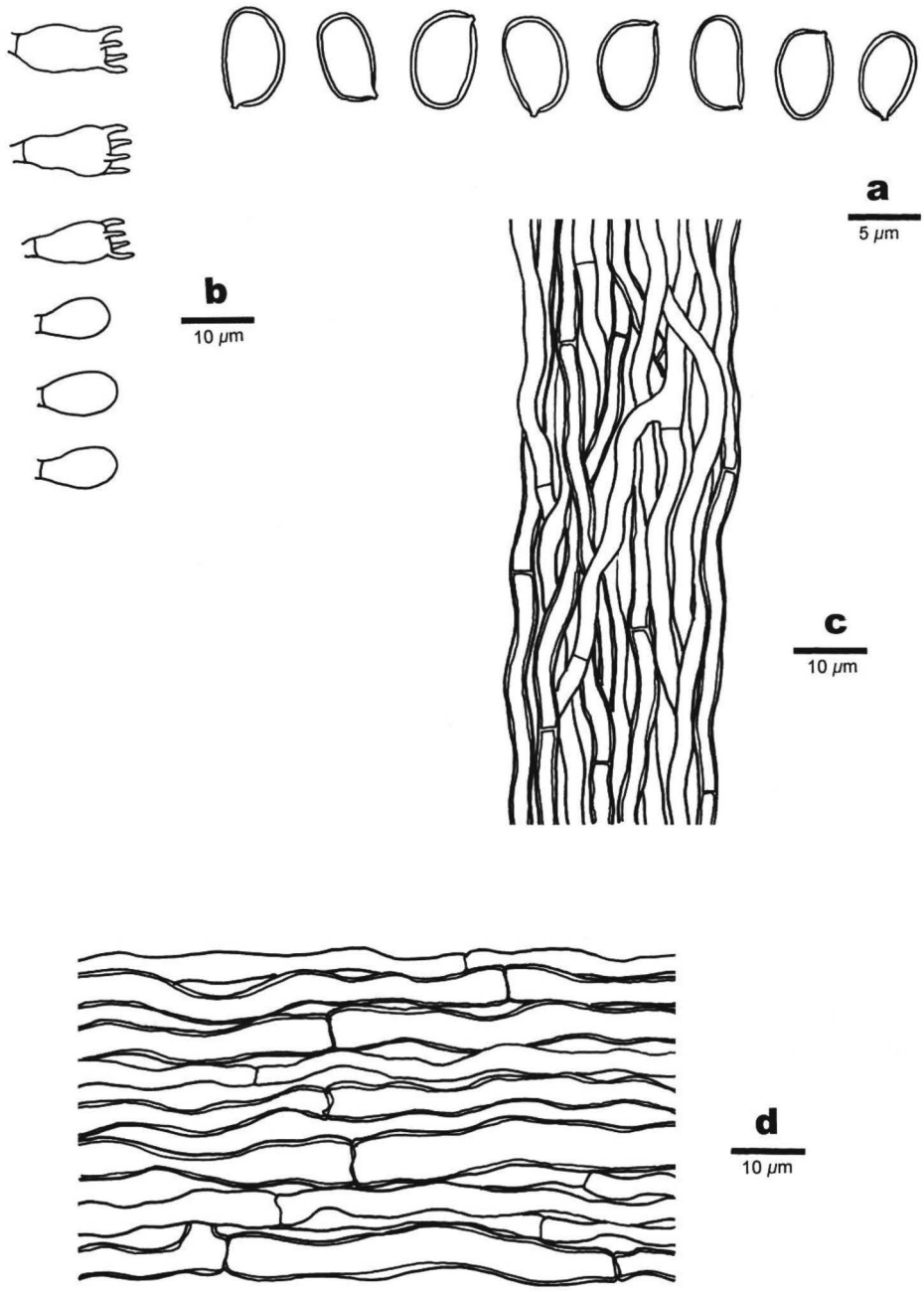

Fig. 2. Anatomical details of *Inonotus hainanensis* H.X. Xiong & Y.C. Dai (drawn from the holotype). **a.** Basidiospores. **b.** Basidia and basidioles. **c.** Hyphae from trama. **d.** Hyphae from context.

Type. — CHINA. Hainan Province, Ledong County, Jianfengling Nature Reserve, on rotten angiosperm trunk, 17.XI.2007 *Dai 9259* (holotype in IFP, isotype in BJFC).

Etymology. — *hainanensis* (L.): referring the province of Hainan in Southern China.

Fruitbody. — Basidiocarps annual, pileate, imbricate, numerous with about hundred pilei originating from the same log, soft corky and without odour or taste when fresh, becoming corky, brittle and light in weight upon drying. Pilei dimidiate, projecting up to 1.5 cm, 3 cm wide and 3 mm thick at base. Pileus surface yellowish brown at margin to dark brown towards base, umber brown to rusty brown when dry, matted to glabrous, with indistinctly concentric zones; margin sharp, becoming umber brown and incurved when dry. Pore surface yellowish to brownish; pores angular, 3-4 per mm, dissepiments thin, entire. Context dark brown, with a corky consistency, up to 1 mm thick. Tubes concolorous with the context, corky, up to 2 mm long.

Hyphal structure. — Hyphal system monomitic; all septa without clamp connections; tissues darkening but otherwise unchanged in KOH.

Context. — Contextual hyphae yellowish brown, thin- to slightly thick-walled with a wide lumen, occasionally branched, more or less constricted at septa, with more or less clear radial orientation, 3–5 μm in diam.

Tubes. — Tramal hyphae yellowish brown, thin- to slightly thick-walled with a wide lumen, occasionally branched, frequently septate, more or less parallel along the tubes, 2–4.5 μm in diam. Setal hyphae and hymenial setae absent. Basidia broadly clavate, with four sterigmata and a simple basal septum, 11-15 × 5-7 μm; basidioles in shape similar to basidia, but slightly smaller.

Spores. — Basidiospores ellipsoid, yellowish brown, thick-walled, smooth, IKI–, CB(+), 6-7(-7.8) × (3.5–)3.9-4.9(–5.8) μm, L = 6.55 μm, W = 4.19 μm, Q = 1.56 (n = 30/1).

DISCUSSIONS

Microscopically, the new species comes close to *Inonotus tenuicarnis* Pegler & D.A. Reid (Pegler, 1964), both taxa sharing pileate and imbricate basidiocarps, similar basidiospores and absence of hymenial setae and setal hyphae. However, *I. tenuicarnis* has a reddish brown crust on the pileus surface and its basidiocarps become very hard when dry. In addition, its pore surface is glancing. Ryvarden (2005) reported as 2-4 pores per mm in *I. tenuicarnis*, while Dai & Niemelä (2006) noted slightly smaller pores, 4-6 per mm. In addition, *I. tenuicarnis* has been so far recorded only from temperate area, on *Betula, Castanea* and *Quercus* (Sharma, 1996; Ryvarden, 2005; Dai & Niemelä, 2006).

Inonotus permixtus Corner, described from Malaya (Corner, 1991) was treated as a synonym of *I. tenuicarnis* by Ryvarden (2005). The type of *I. permixtus* was not studied; however, according to the original description, it has cystidioles and ellipsoid to subreniform basidiospores, slightly smaller than those in *I. hainanensis* (5-6.5 × 4-4.7 μm vs. 6–7.8 × 3.5-5.8 μm).

Inonotus dentatus Decock & Ryvarden and *I. pusillus* Murrill have pileate and thin basidiocarps, ellipsoid and thick-walled basidiospores, and lack hymenial setae and setal hyphae, in which features they are somehow similar to *I. hainanensis.* However, *I. dentatus* has larger pores (1-3 per mm) and smaller

basidiospores (4.5-5 × 3-3.5 μm, Ryvarden, 2004). In addition its basidiocarps become cherry red with KOH, while basidiocarp of *I. hainanensis* becomes black in KOH. *Inonotus pusillus* differs from *I. hainanensis* by its flabelliform, finely striate basidiocarps, smaller pore (4-6/mm), and shorter basidiospores (4.5–6 μm long, Ryvarden, 2004).

Acknowledgements. The study is supported by the National Nature Science Foundation of China (Project No. 30670009) and the Ministry Science and Technology of China (Project No. 2006FY110500-5).

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