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Quintaria microsporum sp. nov., from a stream in France

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Abstract – *Quintaria microsporum* sp. nov., found on submerged wood of *Fraxinus excelsior* in the bed of a stream in Ariège, Rimont, Peyrau, France, is described, illustrated and compared with similar taxa. It is unique in *Quintaria* in having small ascospores and asci. A key to species of *Quintaria* is provided. This is the first record of a *Quintaria* species from a freshwater environment in Europe.

freshwater fungi / *Pleosporales* / taxonomy

INTRODUCTION

Quintaria was established by Kohlmeyer & Volkmann-Kohlmeyer (1991) to accommodate *Trematosphaeria lignatilis* Kohlm. *Quintaria* is characterized by immersed ascomata with short sometimes flattened ostioles, fissitunicate asci with a non-amyloid apical thickening**,** trabeculate pseudoparaphyses and hyaline septate ascospores (Kohlmeyer & Volkmann-Kohlmeyer, 1991). *Quintaria aquatica* K.D. Hyde & Goh and *Q. submersa* K.D. Hyde & Goh were added to the genus by Hyde and Goh (1999). *Quintaria* is usually found on decaying wood in marine or freshwater environments (Hyde & Goh, 1999; Kohlmeyer & Volkmann-Kohlmeyer, 1991; Vijaykrishna & Hyde, 2006;).

During our continuing studies on freshwater fungi associated with submerged wood in streams (Cai *et al*., 2003; Pinnoi *et al*., 2006; Pinruan *et al*., 2007; Zhang *et al*., 2008), a previously undescribed species of *Quintaria* was collected from submerged wood in a stream in France. This fungus is distinct from other *Quintaria* species in having smaller ascomata, asci and ascospores and is described here.

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MATERIALS AND METHODS

Submerged wood samples of *Fraxinus excelsior* were collected in 2006 from Ruisseau de Peyrau (400m), Rimont, Ariège, France, and returned to the laboratory in Zip lock plastic bags. Ascomata were identified directly on natural wood without incubation. The samples were processed and examined following the method described in Tsui *et al.* (2000). Type specimens were deposited in IFRD (holotype). Observations and photographs were prepared from material mounted in water, in Melzer's reagent, in Congo red, in Indian ink, and in Cotton blue.

Key to the species of *Quintaria*

1a. Ascospores lacking a sheath 2
1b. Ascospores with a sheath. 3

2a. Ascospores longer than 50 µm . . . . . *Q. lignatilis*
2b. Ascospores shorter than 35 µm. . . . . *Q. microsporum*

3a. Ascospores 42-52 µm long, (10-) 11-13 (-14)-septate. . . . . *Q. aquatica*
3b. Ascospores 50-68 µm long, (4-) 6-septate . . . . . *Q. submersa*

TAXONOMY

Quintaria microsporum Yin. Zhang, K.D. Hyde & J. Fourn. **sp. nov.** Figs 1-9

Etymology. – *microsporum*, referring to the small ascospores.

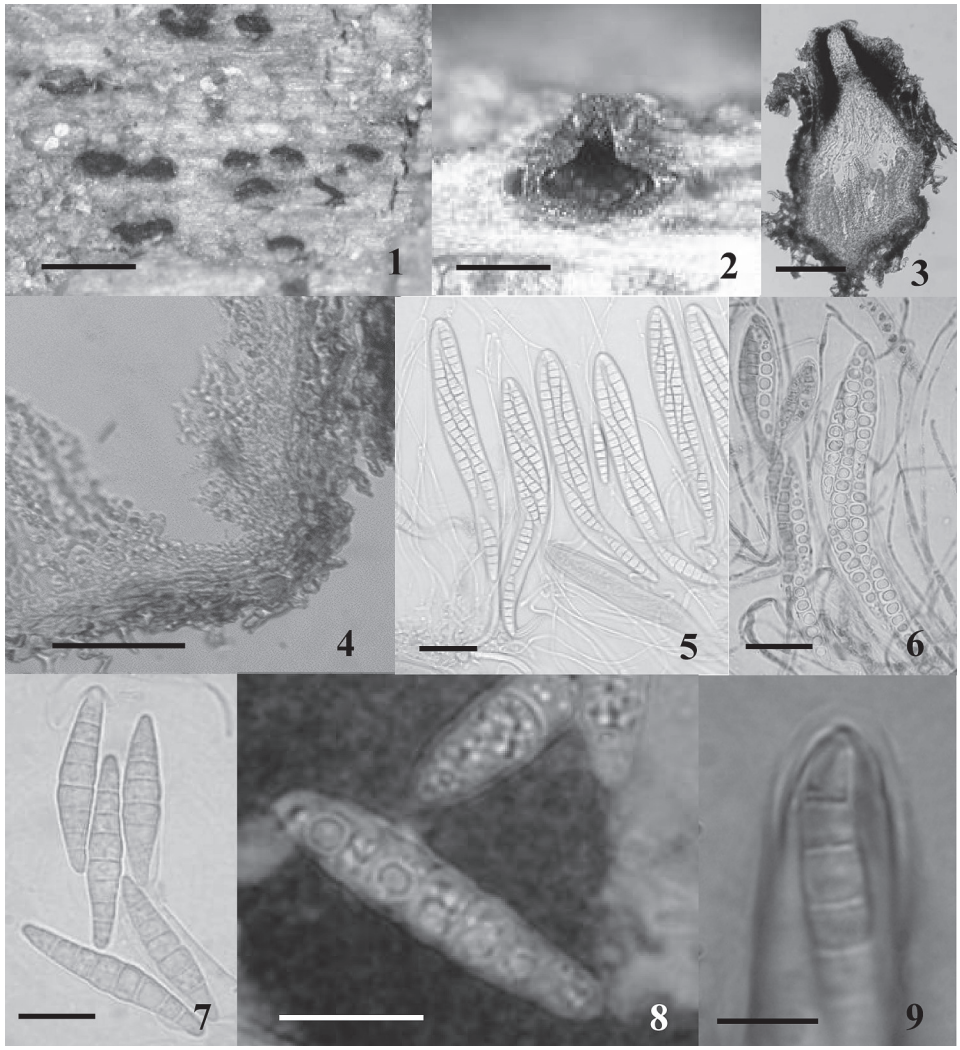
Ascomata (240-) 340-390 µm alta, 300-400 µm longa, 210-270 crassa, immersa, ostiolata, apex fissura, brunnea vel nigra. Trabeculae usque 0.8 µm latae. Asci 90-133 × 11.5-15.3 µm, 8-spori, cylindrico-clavati, fissitunicati. Ascosporae 26-31 × 5-5.5 µm, bi-triseriatae, fusiformes, 5-7-septatae, hyalinae.

Ascomata (240-) 340-390 µm high, 300-400 µm long, 210-270 wide, laterally compressed, subglobose to globose in frontal view, fusiform in sagittal section, loosely clustered, immersed, apex thickened, elongate in the axis of the wood fibres, 130-200 µm long, crest-like (Figs 1-3).

Peridium, 23-28 µm thick, up to 45 µm thick at the apex, composed of a few layers of small pseudoparenchymatous cells of *textura angularis* to compressed cells near the base, irregularly melanized, more heavily melanized at the apex (Fig. 4).

Hamathecium of dense, very long narrow trabeculate pseudoparaphyses 0.8 µm broad at apex, 2 µm at base, anastomosing between and above the asci, embedded in mucilage (Figs 5, 6). *Asci* 90-133 × 11.5-15.3 µm, 8-spored, clavate, with a narrowed, furcate pedicel, bitunicate but rather thin-walled, fissitunicate, with an inconspicuous ocular chamber, not bluing in Melzer's reagent (Fig. 9).

Ascospores 26-31 × 5-5.5 µm, 2-3-seriate, narrowly fusiform, hyaline, 5-7-septate, constricted at the medium septum, slightly constricted at other



Figs 1-9. ***Quintaria microsporum.*** **1.** Ascoma on the host surface. **2-3.** Section of an ascoma. **4.** Section of the peridium comprising a few layers of compressed cells (sagittal section). **5-6.** Asci in trabeculate pseudoparaphyses. **7-8.** Ascospores. **9.** Inconspicuous apical structure. Scale bars: **1** = 400 µm, **2, 3** = 100 µm, **4** = 50 µm, **5, 6, 7** = 20 µm. **8, 9** = 10 µm.

septa, smooth, containing a large globule in each cell, no sheath or appendages observed in India ink (Figs 7, 8).

Type here designated. – France, Ariège, Rimont, Peyrau, ruisseau de Peyrau stream, on submerged wood of *Fraxinus excelsior* in the bed of a stream, July 2006, leg. Jacques Fournier (IFRD 10050, holotype) Mycobank n° MB 511978.

Habitat. – Saprobic on submerged wood of *Fraxinus excelsior*.

Known distribution. – France.

DISCUSSION

Trematosphaeria lignatilis was first reported from driftwood in a tropical marine environment (Kohlmeyer, 1984) and later assigned to a new genus (*Quintaria*) (Kohlmeyer & Volkmann-Kohlmeyer, 1991). Two more species i.e. *Quintaria aquatica* and *Q. submersa* were added from freshwater environments of Australia by Hyde and Goh (1999). All taxa share similar characters of immersed ostiolate ascomata, anatomising and branching trabeculate pseudoparaphyses embedded in mucilage, cylindrical to clavate and pedicellate asci with conspicuous or inconspicuous IKI negative apical structures, and multiseptate hyaline ascospores with or without sheaths (Hyde & Goh, 1999; Kolhmeyer & Volkmann-Kohlmeyer, 1991). These characters are also shared by *Quintaria microsporum*. The laterally flattened ostiole and lack of clypeus in the new taxon might point towards *Lophiosphaera*, however, ascospores differ from the *Lophiostoma* type encountered in the latter genus (Hyde & Goh, 1999). Also *Lophiosphaera* may not be a valid genus (Hyde & Goh, 1999).

Quintaria microsporum is most similar to *Q. aquatica*. The immersed and compressed ascomata, long ostiole, thin peridium, clavate ascus, and fusiform ascospores are quite similar. However, the ascospores and asci of *Q. microsporum* are conspicuously smaller than any other *Quintaria* species (Hyde & Goh, 1999).

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