

## ***Camillea fusiformis* sp. nov. from Ecuador**

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A new species of *Camillea* from Cuyabeno, Ecuador is described. Illustrations of other new or interesting *Camillea* species are also presented.

Keywords: taxonomy, Xylariaceae.

The genus *Camillea* Fr. was erected by Fries (1849) to accommodate xylariaceous fungi with erect cylindrical, or short discoid black stromata with hard carbonaceous crusts. Læssøe & al. (1989), in what amounted to an almost complete revision of the genus, accepted this concept but also recognised the need to include applanate species of *Hypoxyylon* Bull. which possess light-coloured, ornamented ascospores without germ slits and have a bipartite stroma with its dehiscent ectostroma. In all species where an anamorph is known it can be assigned to the form genus *Xylocladium* Sydow (Læssøe & al., 1989; San Martín Gonzáles & Rogers, 1993). *Camillea* thus includes taxa with applanate, cylindrical or broadly conic-truncate stromata which are usually dark brown or black and are very carbonaceous. The stroma is bipartite with the outermost layer being shed to expose the ostiolar openings. Ostioles are variable in form and disposition and are highly diagnostic for many species. A single ostiolar canal connects one or several perithecia depending upon the species. In the asci a typical apical apparatus turns blue in Melzer's iodine reagent and is rhomboid in shape. Ascospores usually appear smooth by light microscopy but by scanning electron microscopy they are characteristically ornamented with warts, spines, pits, reticulations or are longitudinally ribbed (Læssøe & al., 1989; San Martín Gonzales & Rogers, 1993). *Camillea* is also a genus of the neotropics and by far the largest concentration of species occurs in the Amazon region. *Camillea tinctor* (Berk.) Læssøe & al. and *C. broomeiana* (Berk. & Curt.) Læssøe & al. are the only species known from outside of the Americas. In fact *C. tinctor* is widely known from Africa, Singapore, Malaysia, Thailand, and Papua New Guinea and

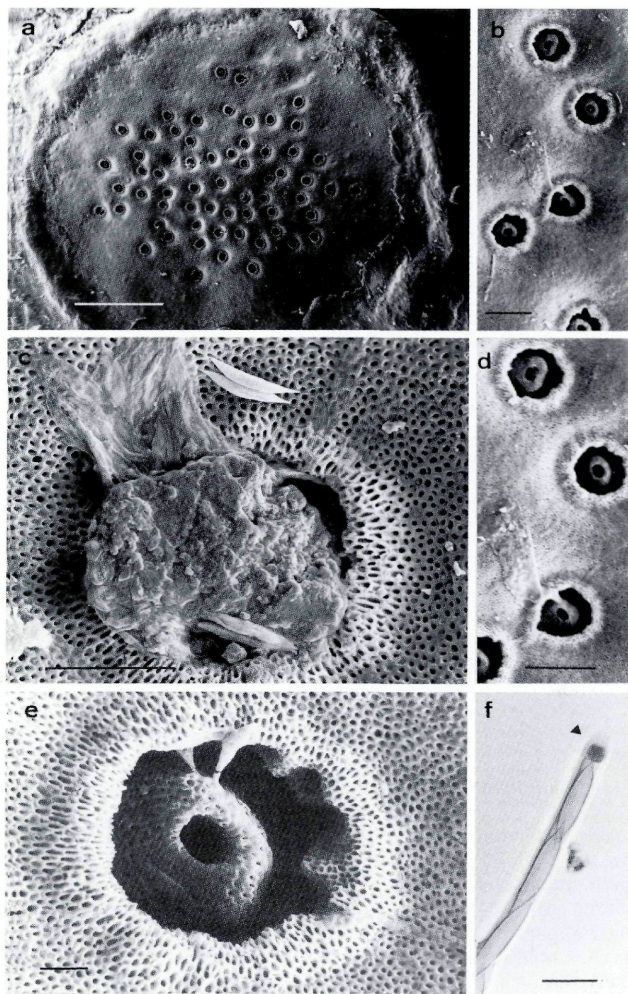


Fig. 1. *Camillea fusiformis* (holotype). – a. Stroma. Bar: 1 mm. – b. Ostiolar depressions. Bar 100 µm. – c. Ostiolar depression with exuding perithecial contents. Bar 100 µm. – d. Ostiolar depressions showing centrally situated ostioles. Bar 100 µm. – e. Ostiole. Bar 20 µm. – f. Ascus tip with apical apparatus (arrowed). Bar 10 µm.

also occurs in temperate North America (Læssøe et al., 1989, Miller, 1961; Van der Gucht, 1992; Whalley 1993, 1995).

During 1993 the British Mycological Society held an expedition to the Cuyabeno Reserve in Ecuador. The reserve has already been the focus of previous mycological surveys and is well known for its exceptionally rich xylariaceous flora (Hedger & Gitay, 1994). A number of new species of *Camillea* were recorded of which one is described here. Notes on the other new species for which the material was inadequate for formal description are given. Comments on *C. sulcata* (Starb.) Lloyd are also presented because there appear to be conceptual differences between the species as recognised by Miller (1961) and the views of Læssøe & al. (1989).

***Camillea fusiformis* M. A. Whalley sp. nov. – Figs 1–2.**

Stromata per corticem erumpentia, circularia, plana, atra, 5–7 mm diam. ca 1 mm crassa, ostiolis in centro depressionum circularium praedita. Perithecia in entostromate brunneonigro, fragilia, contigua, basim insidentia, cylindrica, collectim erumpentia, 0.3–0.4 mm diam. Asci 8-spori, 285–365  $\mu\text{m}$ , sp. p. 199–238  $\mu\text{m}$ , stipitibus 85–133  $\mu\text{m}$ ; apparatus apicalis atrocyaneus in Melzer, fere rhomboideus vel urniformis, 5–6.3  $\times$  5–6.3  $\mu\text{m}$ . Ascosporae oblique uniseriatae, dilute luteae, inaequilateraliter fusiformes, (28.8–)31.3–33.8  $\times$  5.6–6.6  $\mu\text{m}$ , sub LM laeves sed sub SEM ornamento distincto praeditae.

**H o l o t y p u s .** – Ecuador, Cuyabeno, Provincia Napo, in corticis putrescentibus truncorum; leg. M. A. Whalley, 5. VIII. 1993 (M. A. Whalley S21, IMI).

**E t y m o l o g y .** – *fusiformis* (Lat.) = spindle shaped, refers to the fusiform or spindle shaped ascospores.

**S t r o m a t a** erumpent through bark, gregarious, circular, plane, black, 5–7 mm in diameter, ca 1 mm thick, with wide sterile margin, surface plano-convex with 50 or more circular depressions, ca 1 mm in diameter, one ostiole per depression, located centrally on a small sunken projection. – **P e r i t h e c i a** packed in brownish black brittle entostroma, basally seated, cylindrical, collectively erumpent, 0.3–0.4 mm in diameter. – **A s c i** 8-spored, cylindrical, long stiped, total 285–365  $\mu\text{m}$ , 6.5–8  $\mu\text{m}$  wide, sp. p. 199–238  $\mu\text{m}$ , stipe 85–133  $\mu\text{m}$ , apical apparatus prominent, dark blue in Melzer's reagent, more or less rhomboid to urn shaped, 5.0–6.25  $\mu\text{m}$  tall and 5.0–6.25  $\mu\text{m}$  wide. – **P a r a p h y s e s** long, thread like, persistent. – **A s c o s p o r e s** obliquely uniseriate, dilute yellow, inequilaterally fusiform with strongly tapering ends, (28.8–)31.3–33.8  $\times$  5.6–6.3  $\mu\text{m}$  (av. 31  $\times$  5.8; n=20), appearing smooth but by SEM displaying a longitudinally ribbed ornamentation with a distinct cross-linked substructure.



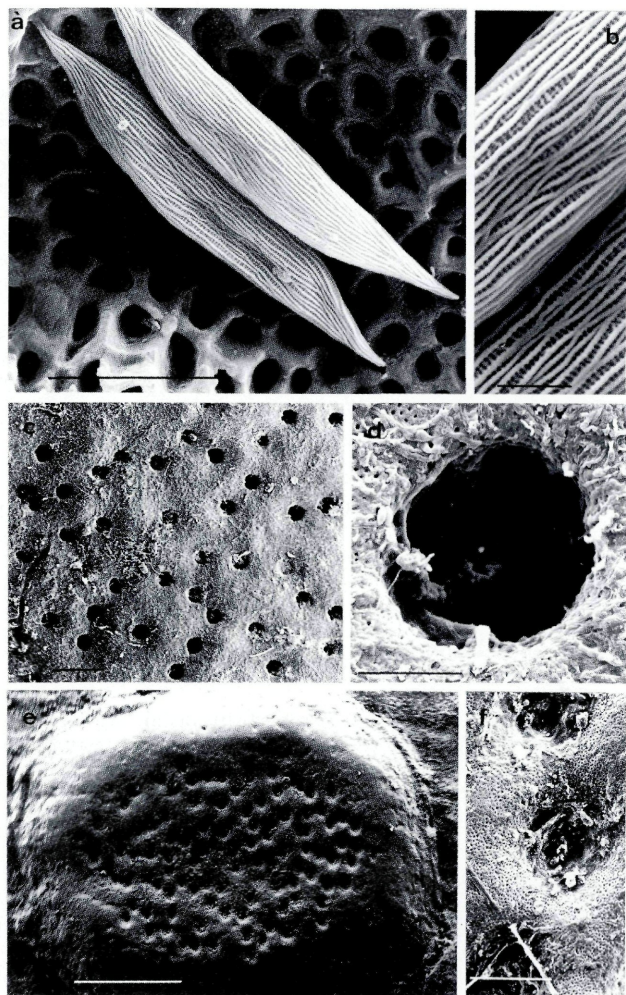


Fig. 2. a-b. *Camillea fusiformis*. - a. Ascospores. Bar 10  $\mu\text{m}$ . - b. Ascospore showing substructured ornamentation. Bar 2  $\mu\text{m}$ . - c-d. *Camillea* sp. A. c. Ostiolar depressions. Bar 100  $\mu\text{m}$ . - d. Ostiole. Bar 50  $\mu\text{m}$ . - e-f. *Camillea* sp. B. - e. Stroma. Bar 1 mm. - f. Ostiolar depressions. Bar 100  $\mu\text{m}$ .

**Distribution.** – Known from one locality in a tropical rain forest in Amazonian Ecuador.

This is a distinctive species with very clear circular depressions each with an ostiole centrally situated on a sunken projection (Figs 1a–1e). In the superficially similar *C. scriblita* (Mont.) Læssøe & al. the perithecia tend to be grouped, not evenly distributed and the ostiolar depressions are significantly shallow. The ascospores of *C. fusiformis* exhibit a characteristic straight longitudinal rib structure with an extensive ladder-like interconnecting substructure (Figs 2a, 2b). The strongly attenuated ascospore ends are reminiscent of those occurring in *C. leprieurii* Mont. and their general structure and ornamentation is suggestive of a link with *C. labellum* Mont., *C. venezuelensis* (J. H. Miller) Dennis, *C. stellata* Læssøe & al. as well as *C. leprieurii*. *C. fusiformis*, however, can easily be recognised by its distinctive ostioles with annulate rims, and by its ascospore dimensions.

***Camillea* sp. A.** – Figs 2c–d.

**Stromata** circular to orbicular, 6–7 mm in diameter, or 10–15 x 5–8 mm, plane with sterile margin, black, a large number of closely arranged ostiolar depressions (pits), one ostiole per pit, apparently centrally situated. – **Perithecia** almost cylindrical to elongate through compression. – **No asci or ascospores seen.**

**Specimen examined.** – ECUADOR: Prov. Napo, Cuyabeno Reserve, Neotropic Path, on fallen branch; leg. M. A. Whalley. 4. VIII. 1993 (MAW N6).

This species is instantly recognisable by its distinctive deep pitted ostiolar depressions. Unfortunately, in spite of a considerable collection, no asci or ascospores could be observed. This taxon will undoubtedly be formally described at some future date once fertile material has been obtained.

***Camillea* sp. B.** – Figs 2e–f.

**Stromata** ellipsoid, 4–6 mm long and 3–4 wide, dull black, plano-convex with a sterile margin, ca 100 ostiolar depressions, closely distributed. – **Perithecia** mainly cylindrical to slightly elongate. – **No asci or ascospores seen.**

**Specimen examined.** – ECUADOR: Prov. Napo, Cuyabeno Reserve, on Main Path below Botanical Hectare, on fallen branch; leg. M. A. Whalley, 30. VII. 1993 (MAW MP 14b)

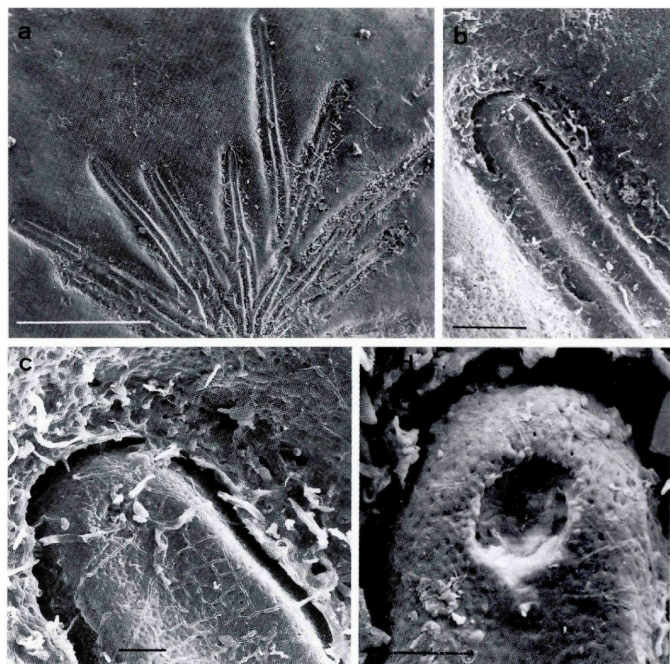


Fig. 3. *Camillea sulcata* (sensu Miller). – a. Stroma with radiating ostiolar furrows. Bar 1 mm. – b. Furrow. Bar 100 µm. – c. Tip of furrow. Bar 20 µm. – d. Tip of furrow with ostiolar depression. Bar 20 µm.

This species also appears to be new, but until fertile material is available it awaits description. Several ornamented ascospores assignable to *Camillea* were observed by SEM on the stromal surface but their precise origin could not be confirmed. The ornamentation of these spores was typical of that exhibited by members of the *Jongiella* subsection of *Camillea* (Læssøe & al., 1989).

*Camillea sulcata* (Starb.) Lloyd is remarkable for its elongated, radiating furrows. Material collected in Cuyabeno is in general appearance almost identical to the illustration given by Miller of the Rick specimen from Brazil (Miller, 1961) and deviates from the specimen illustrated by Læssøe & al. (1989). In view of the distinctive nature of the furrows (Fig. 3) it is suggested here that the *C. sulcata* of

Læssøe & al. (1993) might represent an undescribed species and that further examination of *Camillea* collections exhibiting furrowed ostiolar canals could be rewarding. Unfortunately the Cuyabeno collection is sterile.

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