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Camposporium chinense sp. nov. from Jiangxi, China

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Abstract—A new species, *Camposporium chinense,* is described and illustrated from a specimen collected on dead branches of an unidentified broadleaf tree in Jiangxi, China. The fungus is characterized by its fusiform, 9–12-septate, versicolored conidia with an unbranched, aseptate apical appendage. A key to *Camposporium* species is provided.

Key words—asexual fungi, hyphomycetes, saprobes, taxonomy

Introduction

Camposporium Harkn. was established by Harkness (1884) for a single species, *C. antennatum* Harkn., and is mainly characterized by solitary acropleurogenous euseptate conidia that secede rhexolytically from polyblastic integrated terminal sympodial extended denticulate conidiogenous cells. The conidia are generally cylindrical or fusiform, smooth, rounded at either or both ends and with one or more unbranched or branched appendages, the base usually bearing a frill (Harkness 1884, Hughes 1951, Ellis 1971, Whitton & al. 2002, Seifert & al. 2011). Of the twenty epithets listed in *Camposporium* by

Index Fungorum (January 2020), sixteen represent accepted *Camposporium* species, distinguished primarily by conidial shape, size, septation, pigmentation, presence or absence of apical appendages, and the characters of apical appendages including branched or unbranched and septate or aseptate. Whitton & al. (2002), who provided a synoptic table of morphological features that distinguish the then-accepted *Camposporium* species, provided a key to 15 species. Adamčík & al. (2015) provided an expanded synoptic table that includes one additional species.

China has an extensive territory with complex ecological environments and abundant plant resources, which provide rich habitats for survival and multiplication of various microbial species. Several mycological investigations dealing with many new genera or species from southern China were published recently (e.g. Xia & al. 2015, 2016, Ma & al. 2016, Ai & al. 2019, Xu & al. 2019). During ongoing mycological surveys in southern China, an interesting hyphomycete with morphological features of *Camposporium* was collected on dead branches. It differs remarkably from previously described taxa, and is proposed here as a new species, *C. chinense*.

Materials & methods

Samples of dead branches were collected from humid environments or waterside in the forests of southern China and taken to the laboratory in Ziploc™ plastic bags, where they were processed and examined as described by Ma & al. (2011). Conidia and conidiophores were measured and photographed using a Nikon Eclipse E200 microscope and a SmartV550Dc digital camera, with a 100× (oil immersion) objective. Adobe Photoshop 7.0 was used for image processing to assemble photographs into a plate, with backgrounds replaced for esthetic reasons. The specimen was deposited in the Herbarium of Jiangxi Agricultural University, Plant Pathology, Nanchang, China (HJAUP).

Taxonomy

Camposporium chinense Z.H. Xu, Jian Ma, X.G. Zhang & R.F. Castañeda, **sp. nov.** Fig. 1

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Differs from *Camposporium fusisporum* by its longer and narrower conidia with a single, aseptate apical appendage; and from *C. laundonii* by its distinctly longer and wider conidiophores and its fusiform conidia with more eusepta and a single, aseptate apical appendage.

Type: China, Jiangxi Province, Jinggangshan Mountain, on dead branches of an unidentified broadleaf tree, 6 November 2014, J. Ma (**Holotype**, HJAUP M0298).

Etymology: refers to the country in which the fungus was collected.

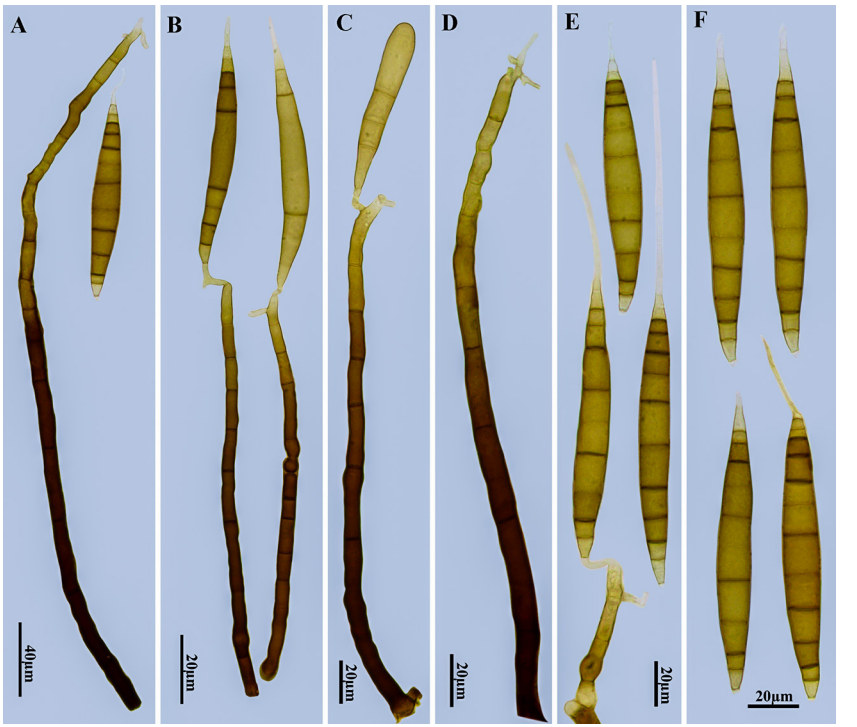

Fig. 1. *Camposporium chinense* (holotype, HJAUP M0298).
A–C. Conidiophores, conidiogenous cells, conidia; D. Conidiophore and conidiogenous cell; E. Conidiogenous cell and conidia; F. Conidia.

Colonies on natural substratum effuse, minute, brown. Mycelium partly superficial, partly immersed, composed of branched, septate, smooth, subhyaline to pale brown hyphae. Conidiophores macronematous, mononematous, unbranched, erect, straight or flexuous, cylindrical, brown to dark brown, paler toward the apex, smooth, 8–16-septate, 220–400 × 7–9.5 μm. Conidiogenous cells polyblastic, terminal, integrated, sympodial extended, denticulate, pale brown to subhyaline, smooth, 18.5–26 × 5–7 μm, with narrowly cylindrical, pale brown, smooth denticles at the conidiogenous loci. Conidial secession rhexolytic. Conidia solitary, acropleurogenous, elongate fusiform, brown or pale brown, the end cells paler than the other 9–12-euseptate, 110–160 × 12.5–16 μm (appendage excluded), truncate at the base, with a distinct basal

frill, 0.5–1.5 µm in length and with an unbranched, continuous, pale brown to subhyaline, smooth apical appendage, ≤100 µm length, 2–3 µm diam.

Comments – Among the known species of *Camposporium*, only *C. fusisporum* Whitton & al. (Whitton & al. 2002) is similar to *C. chinense* in producing typically fusiform conidia, but *C. fusisporum* has shorter and wider conidia (86–115 × 13.5–19 µm) with 2–3 apical appendages (17–40 µm long). Also *C. laundonii* M.B. Ellis (Ellis 1976) bears some resemblance to *C. chinense* in conidial shape, but *C. laundonii* has distinctly shorter and narrower conidiophores (<40 × 5–8 µm), and cylindrical to fusiform, 4–9-euseptate, shorter conidia (50–150 µm long) with 1–2 hyaline, septate apical appendages, ≤60 µm long.

Key to *Camposporium* species

1. Conidia without apical appendages 2
1. Conidia with apical appendages 4
2. Conidia subuliform, hyaline, 48–108 × 3–4 µm, 6–12-euseptate ..... *C. scolecosporium*
2. Conidia cylindrical 3
3. Conidia pale brown, 20–35 × 8–12 µm, (3–)7-euseptate ..... *C. ontariense*
3. Conidia dark brown, paler end cells, 21.6–72 × 3.6–7.2µm, 3–14-euseptate ..... *C. indicum*
4. Conidial appendage branched 5
4. Conidial appendage unbranched 6
5. Conidia pale brown, 40–70 × 6–8 µm, 7–11-euseptate ..... *C. japonicum*
5. Conidia brown, paler end cells, 80–112 × 6.4–9.6 µm, 8–15-euseptate .. *C. ramosum*
6. Conidia concolorous 7
6. Conidia versicolorous 10
7. Conidia with a single, unbranched appendages 8
7. Conidia with 1–2 or 1–4 independent apical appendages 9
8. Conidia cylindrical to fusiform, 20–75 × 3–5 µm, 2–4(–6)-euseptate ..... *C. hyalinum*
8. Conidia cylindrical to cylindric-fusoid, (24.7–)33(–44) × (4.5–)4.7(–6.5) µm, 5–10-euseptate ..... *C. marylandicum*
9. Conidia cylindric-fusoid, 25.8–36 × 7.2–9 µm, 2–6-euseptate, with 1–2 apical appendages ..... *C. microsporum*
9. Conidia cylindrical, 32.4–54 × 3.6–7.2 µm, 5–9-euseptate, with 1–4 apical appendages ..... *C. hyderabadense*
10. Conidia fusiform 11
10. Conidia cylindrical or cylindrical to fusiform 12

11. Conidia 86–115 × 13.5–19 µm, 8–11(mostly 9)-euseptate, with 2–3 apical appendages ..... *C. fusisporum*
11. Conidia 110–160 × 12.5–16 µm, 9–12-euseptate, with a single, continuous apical appendage ..... *C. chinense*
12. Conidia with a single appendage 13
12. Conidia with more than one apical appendage 15
13. Conidia 75.4–85.7 × 7–9µm, 7–10-euseptate, with 0–1 apical, aseptate conidial appendage ..... *C. himalayanum*
13. Conidial appendages septate 14
14. Conidia 62–115 × 8–10 µm, 9–15-euseptate ..... *C. cambrense*
14. Conidia 78–140 × 7.5–12µm, 7–16-euseptate ..... *C. pellucidum*
15. Conidia cylindrical to fusiform, 50–150 × 13–17 µm, 4–9-euseptate ..... *C. laundonii*
15. Conidia cylindrical, not exceeding 78 × 9 µm 16
16. Conidia 42–78 × 7.5–9 µm, 4–14-euseptate ..... *C. antennatum*
16. Conidia 28–45 × 3.5–4.5 µm, 5–9-euseptate ..... *C. quercicola*

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