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New species and a new record of *Solicorynespora* from southern China

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Abstract — Four species of *Solicorynespora* were collected on dead branches from tropical or subtropical forests in southern China. The new species *S. ligustri* on *Ligustrum quihoui*, *S. machili* on *Machilus chinensis*, and *S. cryptocaryae* on *Cryptocarya chinensis* are described, illustrated, and compared with closely related taxa. *Solicorynespora pseudolmediae* is recorded for the first time from China.

Key words — anamorphic fungi, taxonomy

Introduction

Solicorynespora R.F. Castañeda & W.B. Kendr., erected by Castañeda & Kendrick (1990) with *S. zapatensis* R.F. Castañeda & W.B. Kendr. as the type species, was mainly characterized by conspicuous, single, determinate or percurrently extending conidiophores and integrated, terminal, monotretic conidiogenous cells with solitary, obclavate or pyriform, euseptate phragmoconidia. These characters separate *Solicorynespora* from similar genera including *Corynespora* Güssow (Güssow 1906), *Corynesporella* Munjal & H.S. Gill (Munjal & Gill 1961), *Hemicorynespora* M.B. Ellis (Ellis 1972), and *Corynesporopsis* P.M. Kirk (Kirk 1981). Keys to *Solicorynespora* species have been given by Castañeda et al. (2004) and Ma et al. (2011b), based mainly on conidial morphology. Until now, 15 species have been included within *Solicorynespora,* with species circumscribed primarily based on conidial shape, size, septation, ornamentation, lateral appendage and presence or absence of a rostrum (Castañeda 1996, Castañeda et al. 2004, McKenzie 2010, Ma et al. 2011b).

The forests of southern China have a rich mycota, and many lignicolous fungi have been discovered there (Dai & Cui 2006, Yuan & Dai 2009, Zhang et al. 2009, Cui et al. 2011, Ma et al. 2011a). During ongoing surveys of conidial

fungi associated with woody debris in tropical or subtropical forests of southern China, several hyphomycete species were collected on dead branches. The present paper deals with four species clearly related to the genus *Solicorynespora*. Three are new to science while the fourth is a new record for China.

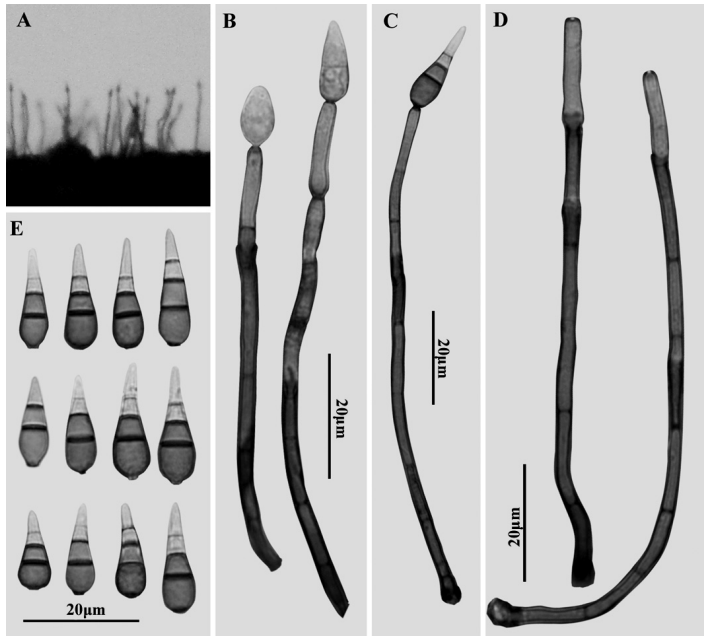

Fig. 1. *Solicorynespora ligustri*. A. Colonies on natural substratum. B. Conidiophores with developing conidia. C. Conidiophore with terminal conidium. D. Conidiophore apices showing conidiogenous cells and percurrent extensions. E. Conidia.

Solicorynespora ligustri Jian Ma & X.G. Zhang, **sp. nov.** Fig. 1

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Differs from *Solicorynespora zapatensis* and *S. calophylla* in smooth conidia that lack a constriction at the septa.

Type: China, Hainan Province: Natural Reserve of Liulianling, on dead branches of *Ligustrum quihoui* Carrière (*Oleaceae*), 5 Dec 2009, J. Ma, (**Holotype** HSAUP H5247; **isotype** HMAS 146078).

Etymology: in reference to the host genus, *Ligustrum*.

Conidial fungi. Colonies on natural substrate effuse, brown to dark brown, hairy. Mycelium partly superficial, partly immersed in the substratum, composed of branched, septate, pale brown to brown, smooth-walled hyphae, 1–2.5 µm thick. Conidiophores distinct, single or in groups, erect, straight or flexuous,

unbranched, smooth, septate, brown to dark brown, 52–97 µm long, 2.5–4.5 µm wide. Conidiogenous cells monotretic, integrated, terminal, cylindrical, brown, smooth, 11–17 µm long, 2–3.5 µm wide, with 0–2 cylindrical percurrent extensions. Conidia solitary, dry, acrogenous, obclavate or obpyriform, mostly 3-euseptate, rarely 2-euseptate, smooth, the lower two cells brown, other cells pale brown to subhyaline, 13–22 µm long, 4.5–6 µm wide in the widest part, tapering to 1.5–2.5 µm near the apex, 1.5–2.5 µm wide at the truncate base.

Comments – Among the known *Solicorynespora* species, *S. ligustri* bears some resemblances to *S. zapatensis* and *S. calophylli* (Hol.-Jech. & R.F. Castañeda) R.F. Castañeda & W.B. Kendr. (Castañeda & Kendrick 1990) in conidial shape, but the conidia of *S. ligustri* are smaller than in *S. zapatensis* (20–27 × 15–17 µm) and longer and with more septa than in *S. calophylli* (11–16 µm long, 2-septate). *Solicorynespora zapatensis* and *S. calophylli* are additionally distinguished by having roughened conidia with constrictions at the septa.

Solicorynespora machili Jian Ma & X.G. Zhang, **sp. nov.** Fig. 2

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Differs from *Solicorynespora zapatensis* in producing smaller conidia with pigmented lower cells, from *S. calophylli* in having larger conidia, and from *S. ligustri* by its wider conidia with verrucose wall.

Type: China, Guangdong Province: Mount Dinghu, collected on dead branches of *Machilus chinensis* (Benth.) Hemsl. (*Lauraceae*). 18 Oct 2010, J. Ma, (**Holotype** HSAUP H5427; **isotype** HMAS 146079).

Etymology: in reference to the host genus, *Machilus*.

Conidial fungi. Colonies on natural substrate effuse, brown to dark brown, hairy. Mycelium partly superficial, partly immersed in the substratum, composed of branched, septate, pale brown to brown, smooth-walled hyphae, 1–2.5 µm thick. Conidiophores distinct, singly or in groups, erect, straight or flexuous, unbranched, smooth, septate, brown to dark brown, 76–110 µm long, 3.5–4.5 µm wide. Conidiogenous cells monotretic, integrated, terminal, brown, smooth, 10–16 µm long, 3.5–4.5 µm wide, with 0–1 lageniform percurrent extension. Conidia solitary, dry, acrogenous, obclavate or obpyriform, 3-euseptate, the lower two cells verrucose, brown to dark brown, other cells smooth, pale brown to subhyaline, 16–24 µm long, 7–8.5 µm wide in the widest part, tapering to 1.5–2.5 µm near the apex, 2–2.5 µm wide at the truncate base.

Comments – *Solicorynespora machili* resembles *S. zapatensis*, *S. calophylli* and *S. ligustri* in conidial shape. However, *S. zapatensis* can be distinguished by its distinctly larger conidia (20–27 × 15–17 µm) with unpigmented lower two cells, while *S. calophylli* has smaller (11–16 × 5–7 µm) 2-euseptate conidia. *Solicorynespora ligustri* is differentiated by its wider (4.5–6 µm) conidia with verrucose walls.

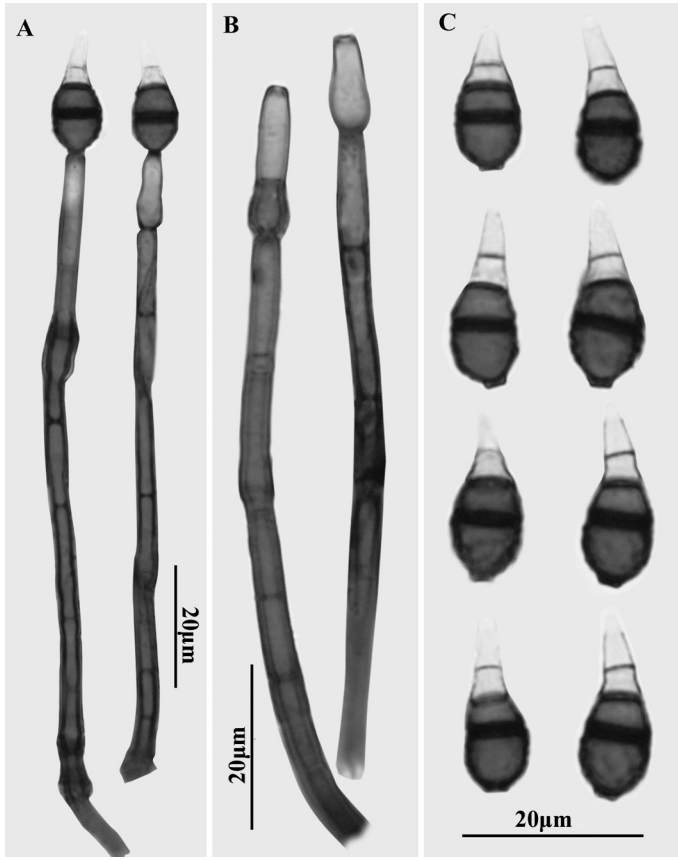

Fig. 2. *Solicorynespora machili*. A. Conidiophores with terminal conidia. B. Conidiophore apices showing conidiogenous cells and percurrent extension. C. Conidia.

Solicorynespora cryptocaryae Jian Ma & X.G. Zhang, **sp. nov.** Fig. 3

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Differs from *Solicorynespora mulanjeensis* and *S. pseudolmediae* in slightly wider conidia with more septa, and further differs from *S. mulanjeensis* and *S. pseudolmediae* in having shorter or longer conidia, respectively.

Type: China, Guangdong Province: Liuxihe National Forest Park, on dead branches of *Cryptocarya chinensis* Hemsl. (*Lauraceae*). 20 Oct 2010, J. Ma, (**Holotype** HSAUP H5367-2; **isotype** HMAS 146087).

Etymology: in reference to the host genus, *Cryptocarya*.

Conidial fungi. Colonies on natural substrate effuse, brown, hairy. Mycelium mostly immersed in the substratum, composed of branched, septate, pale brown

to brown, smooth-walled hyphae, 1.5–3 µm thick. Conidiophores distinct, single or in groups, erect, straight or flexuous, unbranched, smooth, septate, brown to dark brown, 86–140 µm long, 4.5–6.5 µm wide. Conidiogenous cells monotretic, integrated, terminal, brown, smooth, 13–21 µm long, 4–5.5 µm wide, with 0–1 cylindrical percurrent extension. Conidia solitary, dry, acrogenous, obclavate or ellipsoidal, gradually tapered to an obtuse paler apex, 6–12-euseptate, smooth, brown, 32–55 µm long, 10–13 µm wide in the widest part, 3.5–4 µm wide at the truncate base.

Comments – *Solicorynespora cryptocaryae* superficially resembles *S. mulanjeensis* (B. Sutton) R.F. Castañeda et al. (Castañeda et al. 2004) and *S. pseudolmediae* (Castañeda & Kendrick 1990). However, the conidia of *S. mulanjeensis* are longer (56–71 µm), and those of *S. pseudolmediae* are shorter (16–29 µm). Moreover, *S. mulanjeensis* (conidia 10–12.5 µm wide, 5–8-euseptate) and *S. pseudolmediae* (conidia 8.5–12 µm wide, 2–5-euseptate) are further distinguished by their slightly narrower conidia with fewer septa.

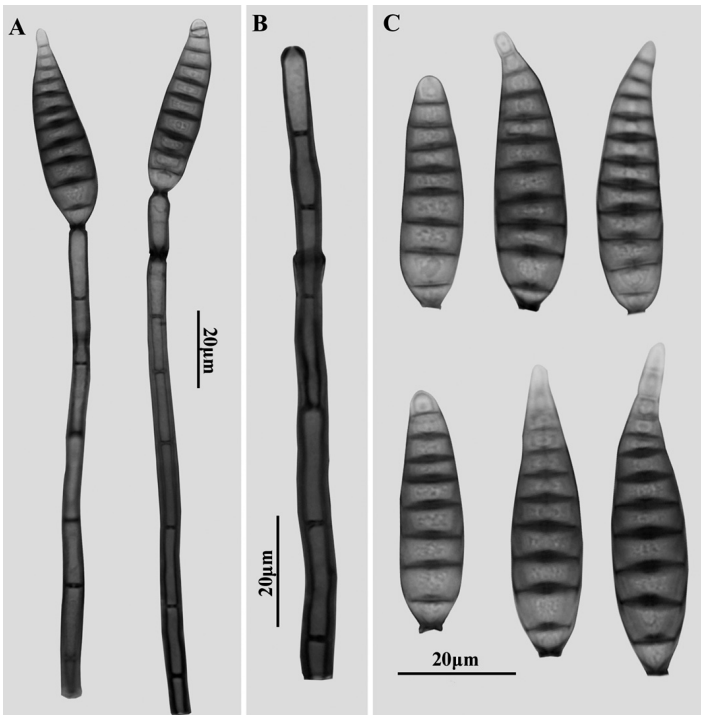

Fig. 3. *Solicorynespora cryptocaryae*. A. Conidiophores with terminal conidia, and conidiophore apices showing conidiogenous cells and percurrent extension. B. Conidiophore. C. Conidia.

Solicorynespora pseudolmediae (R.F. Castañeda) R.F. Castañeda & W.B. Kendr., Univ. Waterloo Biol. Ser. 33: 43, 1990. Fig. 4

≡ *Sporidesmium pseudolmediae* R.F. Castañeda, Rev. Jard. Bot. Nac. 5: 66. 1984.

≡ *Corynespora pseudolmediae* (R.F. Castañeda) Hol.-Jech., Česká Mykol. 40: 145. 1986.

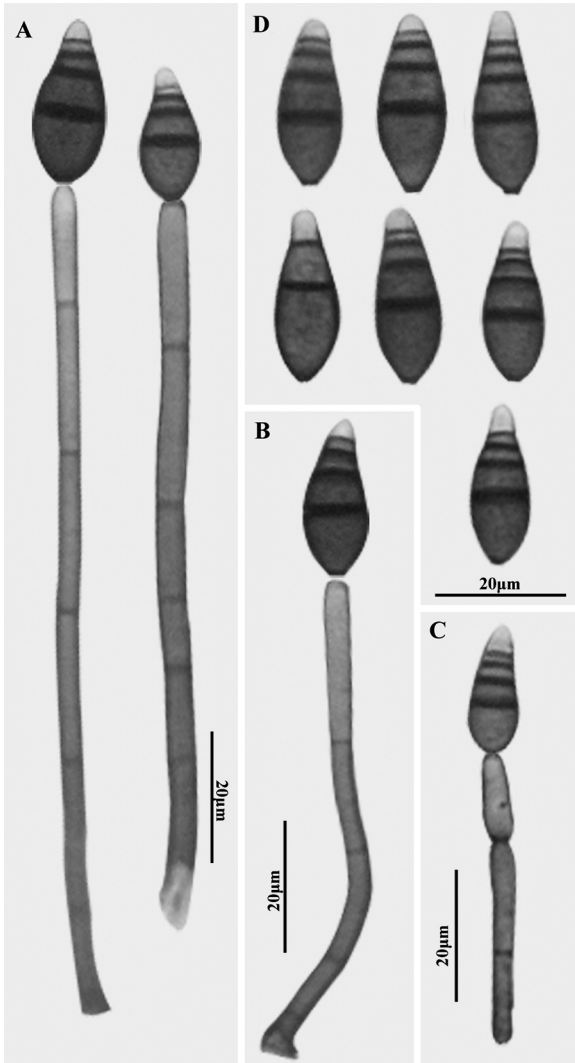

Fig. 4. *Solicorynespora pseudolmediae*. A. Conidiophores with terminal conidia. B. Conidiophore and conidium. C. Conidiophore with terminal conidium, and conidiophore apex showing conidiogenous cells and percurrent extension. D. Conidia.

Conidial fungi, hyphomycetes. Colonies on natural substrate effuse, dark brown, hairy. Mycelium partly superficial, partly immersed in the substratum, composed of branched, septate, pale brown to brown, smooth-walled hyphae, 1.5–3.5 µm thick. Conidiophores distinct, single or in groups, erect, straight or slightly flexuous, unbranched, smooth, brown, 40–170 µm long, 4–5.5 µm wide at the base, 4–5 µm wide in the middle, 3.5–4.5 µm wide at the apex, 2–5-septate, sometimes with 1–2 enteroblastic percurrent extensions. Conidiogenous cells monotretic, integrated, terminal, cylindrical, brown, smooth, 14–26 µm long, 3.5–5 µm wide. Conidial secession schizolytic. Conidia solitary, dry, acrogenous, obclavate or obpyriform, 2–5-euseptate (usually 4), sometimes slightly constricted at the speta, smooth, brown, with 1–2 upper cells pale brown or subhyaline, 22–32 µm long, 9–13 µm wide in the widest part, tapering to 3–4.5 µm wide near the apex, 2–3 µm wide at the truncate base.

Specimen examined: **CHINA**, **Yunnan Province**: Tropical Botanical Garden of Xishuangbanna, on dead branches of unidentified plant, 12 Oct 2007, J. Ma, (HSAUP H5286, HMAS 146088).

Comments –This species was originally assigned to *Sporidesmium* Link and subsequently transferred to *Corynespora* (Holubová-Jechová & Mercado 1986) due to its monotretic conidiogenous cells. Castañeda & Kendrick (1990) established the genus *Solicorynespora* and moved this species into the new genus based on its euseptate conidia. *Solicorynespora pseudolmediae* is morphologically similar to *S. zapatensi*s in conidial shape, but differs from the latter in conidial size, wall ornamentation, and the number of septa. Comparing our collection with the type material in Castañeda's description (Castañeda 1984), the conidia of our specimen are slightly larger (22–32 × 9–13 µm vs. 16–29 × 8.5–12 µm) and the conidiophores are shorter (40–170 µm vs. 50–275 µm). Despite these minor differences, we believe they are basically the same species.

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