MYCOTAXON

ISSN (print) 0093-4666 (online) 2154-8889 Mycotaxon, Ltd. ©2018

April–June 2018—Volume 133, pp. 315–322

https://doi.org/10.5248/133.315

Craspedodidymum guatemalense sp. nov. from Guatemala

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Abstract—*Craspedodidymum guatemalense,* a new species collected from decaying bark of *Quercus*, is described and illustrated. The fungus is characterized by its allantoid to fabiform, unicellular, smooth, brown conidia. Illustrations and a key to accepted species of *Craspedodidymum* are provided.

Key words—asexual fungi, neotropic, systematics

Introduction

Craspedodidymum Hol.-Jech. was introduced by Holubová-Jechová (1972) with *C. elatum* Hol.-Jech. as type species. Another 13 species were added by Lunghini & Onofri (1980), Rao & Hoog (1986), Subramanian & Bhat (1989), Mercado Sierra & Mena Portales (1992), Bhat & Kendrick (1993), Yanna & al. (2000), Pinruan & al. (2004), Ma & al. (2011) and Mel'nik & al. (2014). Subsequently, however, *C. hyalosporum* was recombined into the new genus *Anacraspedodidymum* (Silva & al. 2014). *Craspedodidymum* is distinguished by macronematous, unbranched or dichotomously branched, multiseptate, brown conidiophores with monophialidic integrated, determinate, terminal conidiogenous cells that may (but only rarely) extend sympodially. The conidiophores very often regenerate with several enteroblastic percurrent extensions through the conidiogenous loci, which are flaring, funnel-shaped collarettes. The conidia are globose, ellipsoid, pyriform, obovoid or variably shaped, unicellular or septate, brown or dark brown, sometimes accumulating in dark pigmented masses.

During a mycological survey of microfungi associated with plant materials in a Guatemalan forest, a conspicuous fungus was collected that is described here as a new *Craspedodidymum* species.

Materials & methods

Individual collections were placed in plastic bags, taken to the laboratory, and treated according to Castañeda-Ruiz & al. (2016). Mounts were prepared in polyvinyl alcohol-glycerol (8 g PVA in 100 ml of water, plus 5 ml of glycerol) and lactofuchsin (0.1 g acid fuchsin, 100 ml 85% lactic acid, following Carmichael 1955) or in lactic acid (90%). Measurements were made at a magnification of ×1000 under a Leica DM750 microscope with bright field optics, and photomicrographs were taken using a Leica ICC50 E camera. The holotype was deposited in the Fungal Dried Reference Collection of the Universidad de San Carlos de Guatemala, Ciudad de Guatemala, Guatemala (MICG).

Taxonomy

Craspedodidymum guatemalense Figueroa, Bran, O. Morales & R.F. Castañeda, **sp. nov.** Fig. 1

Index Fungorum IF 554791

Differs from *Craspedodidymum siamense* by its allantoid to fabiform conidia.

Type: Guatemala, Senderos de Alux ecological park, San Lucas Sacatepéquez, Sacatepéquez, 14°36′N 90°38′W, on decaying bark of *Quercus* sp., 21.VII.2017, coll. R. Figueroa (**Holotype**, MICG 5551).

Etymology: Latin, *guatemalense*, in reference to Guatemala.

Colonies on the natural substratum effuse, hairy, brown. Mycelium superficial and immersed, composed of septate, branched, brown, smooth-walled hyphae, 2–3 µm diam. Conidiophores macronematous, mononematous, unbranched, erect, straight, with 1–7 enteroblastic percurrent extensions, cylindrical, 5–8-septate, brown below, pale brown toward the apex, smooth, 110–170 × 3.5–5 µm, Conidiogenous cells monophialidic, integrated, terminal, determinate or enteroblastic percurrent extended, pale brown, 8–16 × 4–5 µm, with a funnel-shaped collarette, 1.5–2.5 µm deep, 2–2.5 µm diam at the opening. Conidia solitary, acrogenous, allantoid to fabiform, unicellular, smooth-walled, brown, 8.5–12.5 × 4–5 µm, sometimes accumulating in brown to dark brown masses.

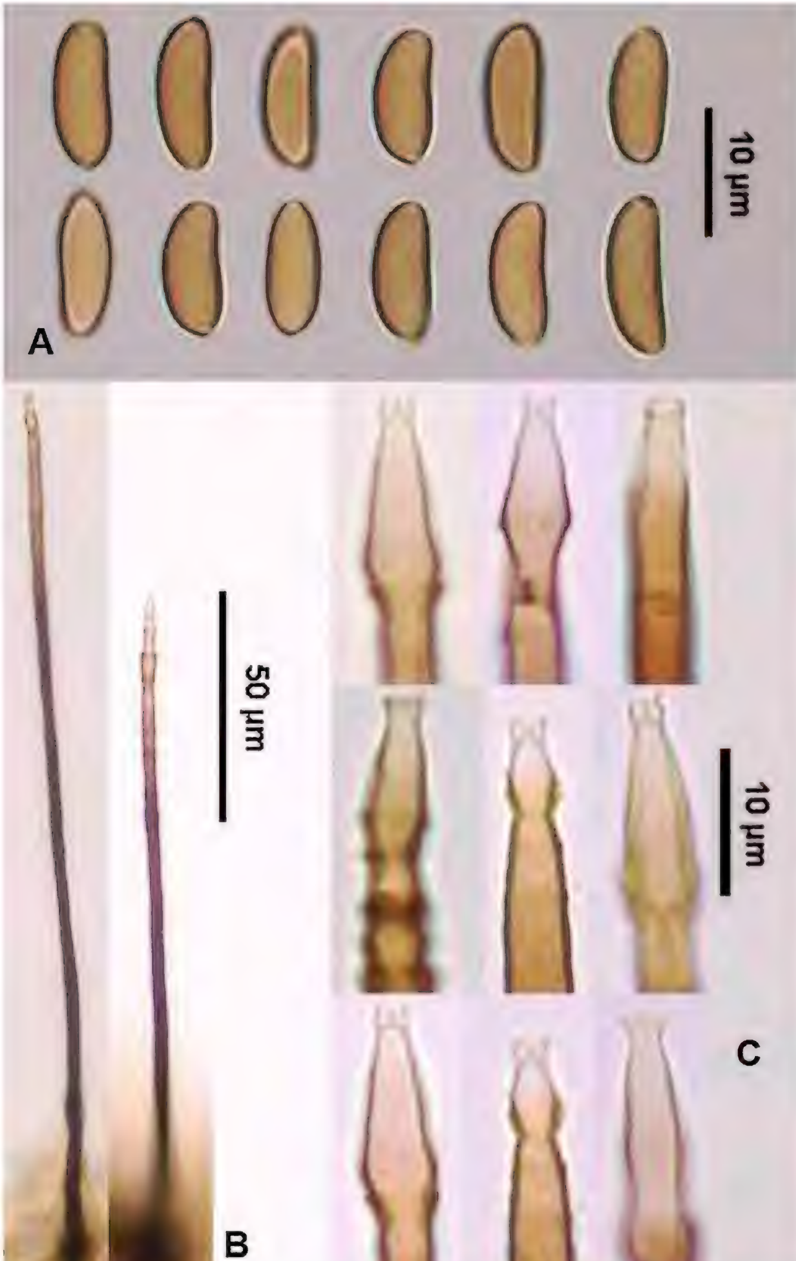

FIG. 1. *Craspedodidymum guatemalense* (ex holotype, MICG 5551).
A. Conidia; B. Conidiophores; C. Conidiogenous cells.

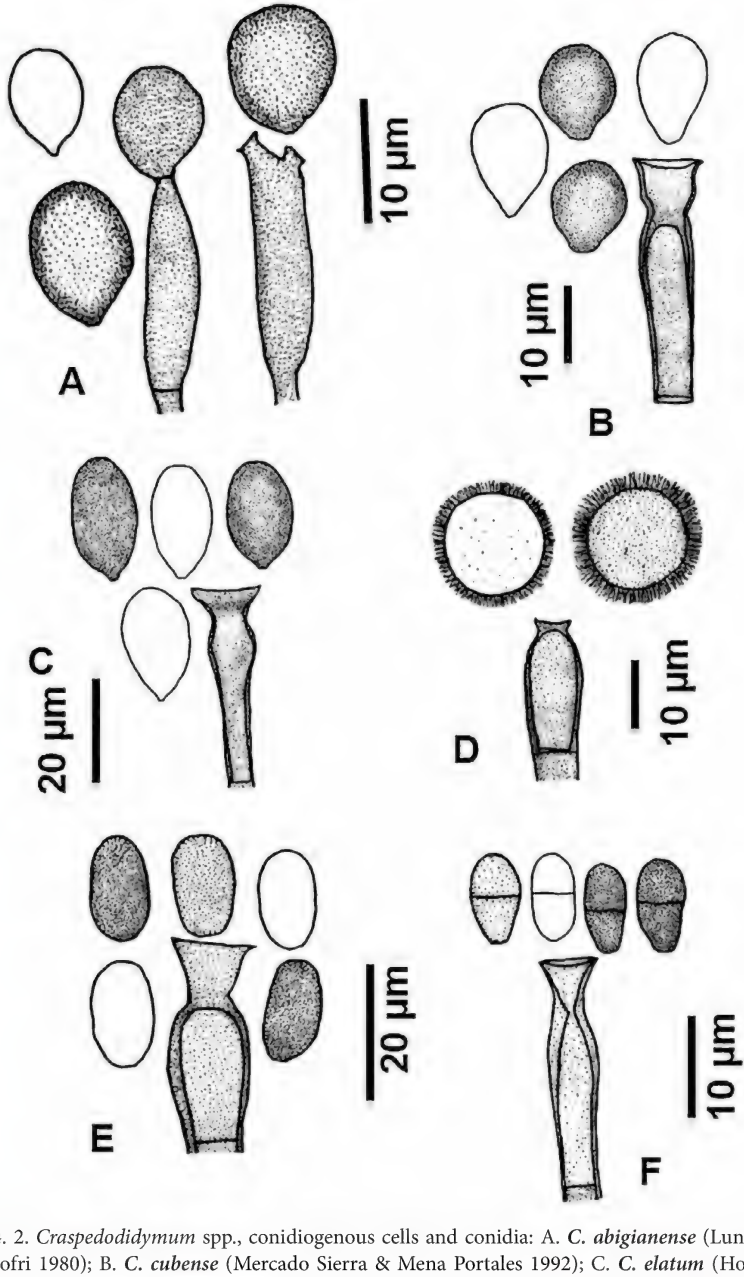

Fig. 2. *Craspedodidymum* spp., conidiogenous cells and conidia: A. ***C. abigianense*** (Lunghini & Onofri 1980); B. ***C. cubense*** (Mercado Sierra & Mena Portales 1992); C. ***C. elatum*** (Holubová-Jechová 1972); D. ***C. fimbriatum*** (Bhat & Kendrick 1993); E. ***C. fujianense*** (Ma & al. 2011); F. ***C. keniense*** (Kirk 1985, as *Dischloridium keniense*).

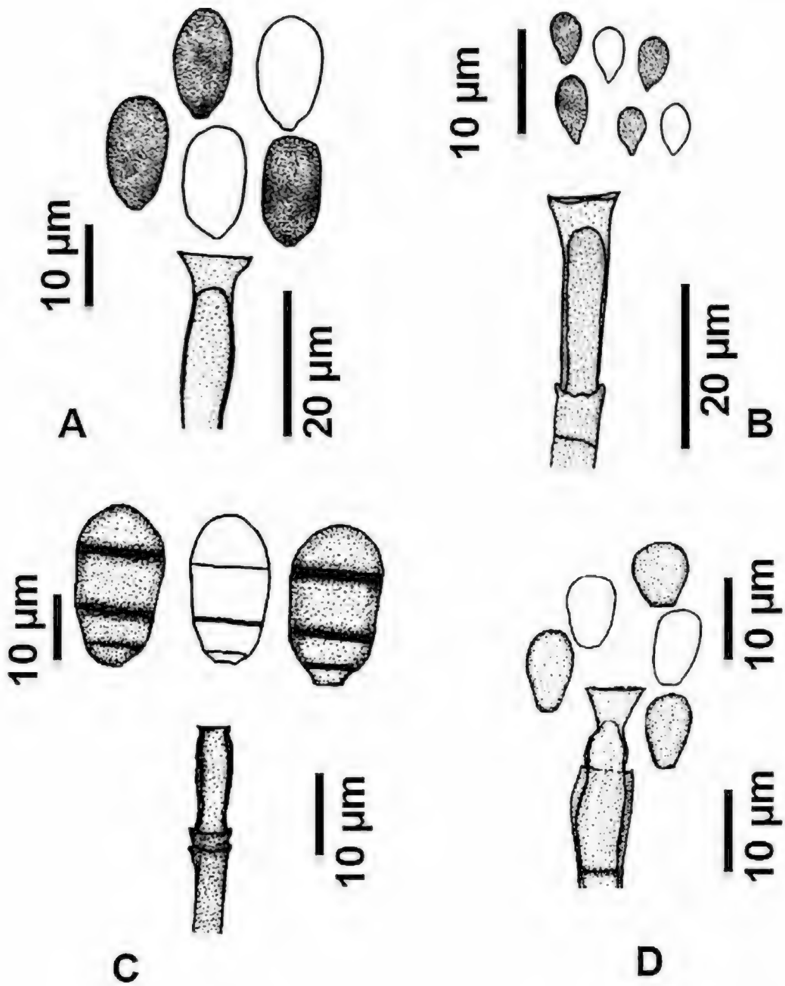

Fig. 3. *Craspedodidymum* spp., conidiogenous cells and conidia: A. ***C. licualae*** (Pinruan & al. 2004); B. ***C. microsporum*** (Pinruan & al. 2004); C. ***C. nigroseptatum*** (Yanna & al. 2000); D. *C. proliferans* (Rao & Hoog 1986).

Notes: There are 13 previously accepted species of *Craspedodidymum*: *C. abigianense*, *C. cubense*, *C. elatum*, *C. fimbriatum*, *C. fujianense*, *C. keniense*, *C. licualae*, *C. microsporum*, *C. nigroseptatum*, *C. proliferans*, *C. pulneyense*, *C. seifertii*, and *C. siamense* (Index Fungorum 2017) (Figs 2–3). Of these only *C. siamense* Pinruan is superficially similar to *C. guatemalense* in producing unicellular (not globose or near globose conidia); *C. siamense* differs in larger

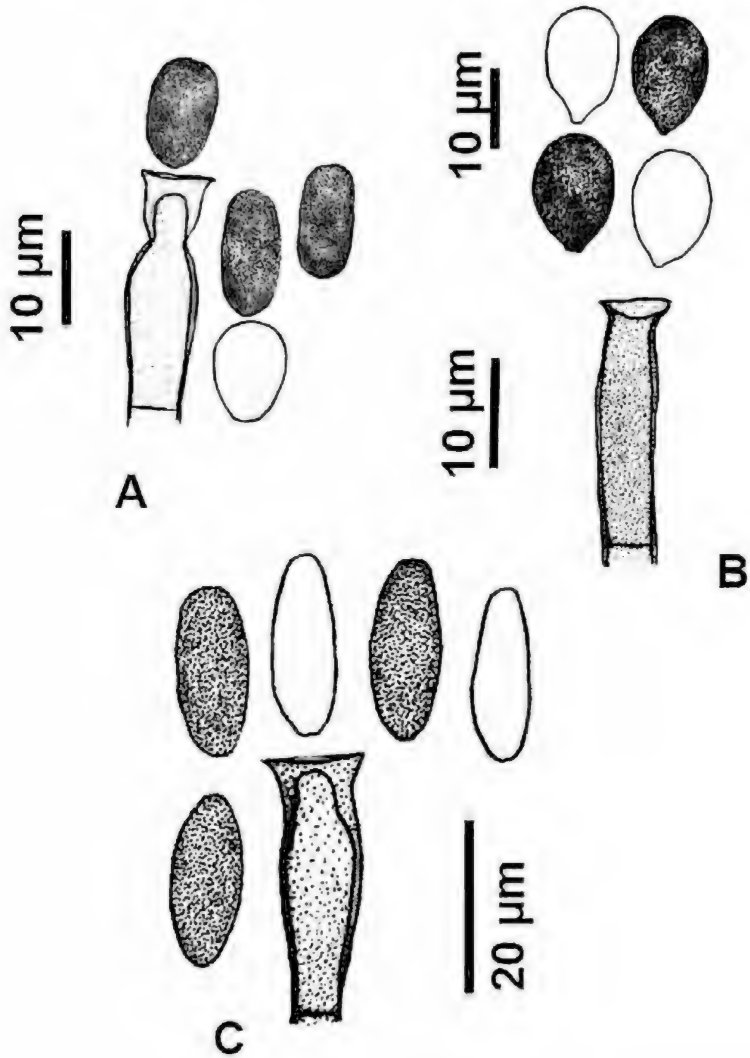

Fig. 4. *Craspedodidymum* spp., conidiogenous cells and conidia: A. ***C. pulneyense*** (Subramanian & Bhat 1989); B. ***C. seifertii*** Mel'nik & al. 2014); C. ***C. siamense*** (Pinruan & al. 2004).

funnel-shaped collarettes (12.5–15 µm diam at the opening) and ellipsoid to somewhat fusiform, medium brown, larger conidia (15–20 × 6.2–7.5 µm; Pinruan & al. 2004).

Key to accepted species of *Craspedodidymum*

1. Conidia unicellular 2
   Conidia septate 13
2. Conidiogenous cells mono- or rarely polyphialidic, conidia globose or obovoid, papillate at the base, brown, 13.5–14.5 × 14.5–16.5 µm . . . . *C. abigianense*
   Conidiogenous cells always monophialidic 3
3. Conidia globose or subglobose to broadly obovoid 4
   Conidia not as above 7
4. Conidia fibrillose with numerous acellular curved appendages forming a pile or coat on the surface, mid brown, 18–24 µm diam . . . . *C. fimbriatum*
   Conidia not fibrillose 5
5. Conidia ≤5 µm wide, papillate at the base, pale brown, 5–6.2 × 3.5–4 µm . . . . *C. microsporum*
   Conidia >5 µm wide 6
6. Conidia solitary, sometimes pyriform, dark brown, 11.5–15 × 10.5–13 µm . . . . *C. cubense*
   Conidia arranged in false chains, brown to dark brown, 18–22 × 13.2–19 µm . . . . *C. seifertii*
7. Conidia obovoid to cuneiform 8
   Conidia not as above 9
8. Conidia not papillate, brown, 10–14 × 8–11 µm . . . . *C. proliferans*
   Conidia papillate, brown, 13.7–17.5 × 7.5–10 µm . . . . *C. licualae*
9. Conidia mostly oblong or cylindrical 10
   Conidia not as above 11
10. Conidia brown, 13–15.5 × 7.5–10 µm . . . . *C. fujianense*
    Conidia brown, 11–17 × 7–8.5 µm . . . . *C. pulneyense*
11. Conidia fabiform to allantoid, brown, 8.5–12.5 × 4–5 µm . . . . *C. guatemalense*
    Conidia ellipsoid 12
12. Conidia papillate at the base, dark brown, 13.5–20 × 7.5–11.5 µm . . . . *C. elatum*
    Conidia not papillate at the base, medium brown, 15–20 × 6.2–7.5 µm . . . . *C. siamense*
13. Conidia 1-septate, broadly ellipsoid to obovate, truncate at the base, brown, flattened, 11–18 × 6–9 µm . . . . *C. keniense*
    Conidia 3- (to 4-) septate, with two dark brown distal cells, broadly ellipsoidal to obovoid, truncate at the base, 24–30 × 13–19 µm . . . . *C. nigroseptatum*

Acknowledgments

The authors express their sincere gratitude to Dr. Xiu-Guo Zhang and Dr. De-Wei Li for their critical review of the manuscript. This study was supported by the Universidad de San Carlos de Guatemala through the research project DIGI-USAC-4.8.63.6.03. RFCR is grateful to the Cuban Ministry of Agriculture and Programa de Salud Animal y Vegetal (project P131LH003033) for facilities. DWM and RFCR are grateful to the International Society for Fungal Conservation for facilities. We acknowledge the facilities provided by Dr. P.M. Kirk and Dr. V. Robert through the Index Fungorum and MycoBank websites. Dr. Lorelei Norvell's editorial review and Dr. Shaun Pennycook's nomenclature review are greatly appreciated.

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