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Two new anamorphic fungi from Cuba: *Endophragmiella profusa* sp. nov. and *Repetoblastiella olivacea* gen. & sp. nov.

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Abstract — *Endophragmiella profusa* sp. nov., on submerged decaying leaves of *Bucida palustris* and on bark of decaying nuts of *Couropita guianensis*, and *Repetoblastiella olivacea* anam. gen. & sp. nov., on bark of decaying nuts of *Couropita guianensis* from tropical forests in Cuba, are described and illustrated. *Endophragmiella profusa* is distinguished by obovoid, clavate, pyriform to slightly turbinate, 3–5-septate, mostly 5-septate, dark brown, and smooth conidia. *Repetoblastiella olivacea* is characterized by inconspicuous conidiophores and monoblastic, determinate conidiogenous cells that bear cylindrical, multi-septate, olivaceous to pale olivaceous brown conidia—repeatedly blastocatenate and forming several irregular chains from several indeterminate cells across the length of the conidial body.

Key words — freshwater fungi, hyphomycetes, systematics

Introduction

Over thirty anamorphic fungi were collected in Cuba during two mycological surveys of microfungi from tropical plant material (mainly *Bucida palustris*

leaf litter and bark of decaying nuts of *Couroupita guianensis*), in several undisturbed forests of Camagüey and Ciudad de La Habana provinces. Among them, two conspicuous fungi appeared to be new to science and therefore they are described and illustrated here.

Materials and methods

Samples of submerged plant material were collected during expeditions in 1999 to “Los Cangilones” pool along the Maximo River (Camagüey), and in 2001 to a forest in Santiago de Las Vegas (Ciudad de La Habana). Individual collections were placed in paper bags and taken to the laboratory as described by Castañeda (2005). They were incubated in Petri dishes at 25°C placed in a moist chamber composed of plastic containers (50 L capacity) with 200 ml of sterile water plus 2 ml of glycerol, and examined at regular intervals for the presence of microfungi. Mounts were prepared using polyvinyl alcohol-glycerol (8.0 g in 100 ml of water, plus 5 ml of glycerol). Measurements were made at a magnification of $\times 1000$. Micrographs were obtained with a Zeiss Axioskop 40 microscope.

Taxonomy

Endophragmiella profusa R.F. Castañeda, M. Stadler & Gené, sp. nov.

FIG. 1

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COLONIAE in substrato naturali effusae, pilosae, profusae, atrobrunneae, amphigenae. CONIDIOPHORA conspicua, mononemata, simplicia, erecta, recta, cylindrica, 3–7-septata, levia, brunnea, apice versus pallidiora vel subhyalina, 45–170 longa, plus minusve radiatim lobata ad basim, 5–10 μm lata, plerumque simplicia, interdum ad apicem ramosa cum ramis sessilibus, conidiophoris secundariis mutata. CELLULAE CONIDIOGENAE hologenosae, loco fertili uno quaeque indutae, terminales, indeterminatae, cum 2–8 proliferationibus percurrentibus, 9–24 \times 2.0–3.5 μm , pallide brunneae vel subhyalinae; in conidiophoris incorporatae. Secedentia conidiorum rhexolytica. CONIDIA solitaria, obovoidea, clavata, pyriformia usque ad turbinata, rotundata ad apicem, conico-truncata ad basim, (2–)3–5-septata, plerumque 5-septata, 22–35 \times 7–9 μm ; sicca, laevia, atrobrunnea, sed cum cellulis basalibus dilute brunneis vel subhyalinis, 5–10 \times 4–7 μm ; ad basim reliquiis ab partem superiorem cellulae conidiogenae, fimbriata, 1.5–4.0(–8.0) μm longis praedita. Teleomorphosis ignota.

TYPE: CUBA. CAMAGÜEY: LOS CANGILONES POOL ALONG THE MAXIMO RIVER, 21°35'N; 77°42'W, on submerged decaying leaves of *Bucida palustris* Borhidi & O. Muñiz (*Combretaceae*), 7.II.1999. R.F. Castañeda & J. Cano (Holotype: MUCL 41853).

ETYMOLOGY: Latin, *profusa*, meaning extended, spread out, and referring to the colony.

COLONIES on the natural substratum effuse, hairy, profuse, amphigenous, dark-brown. MYCELIUM superficial and immersed, composed of septate, branched, smooth-walled, brown hyphae, 1–2 μm diam. CONIDIOPHORES macronematous, mononematous, simple or rarely with a branch near the apex, erect, straight,

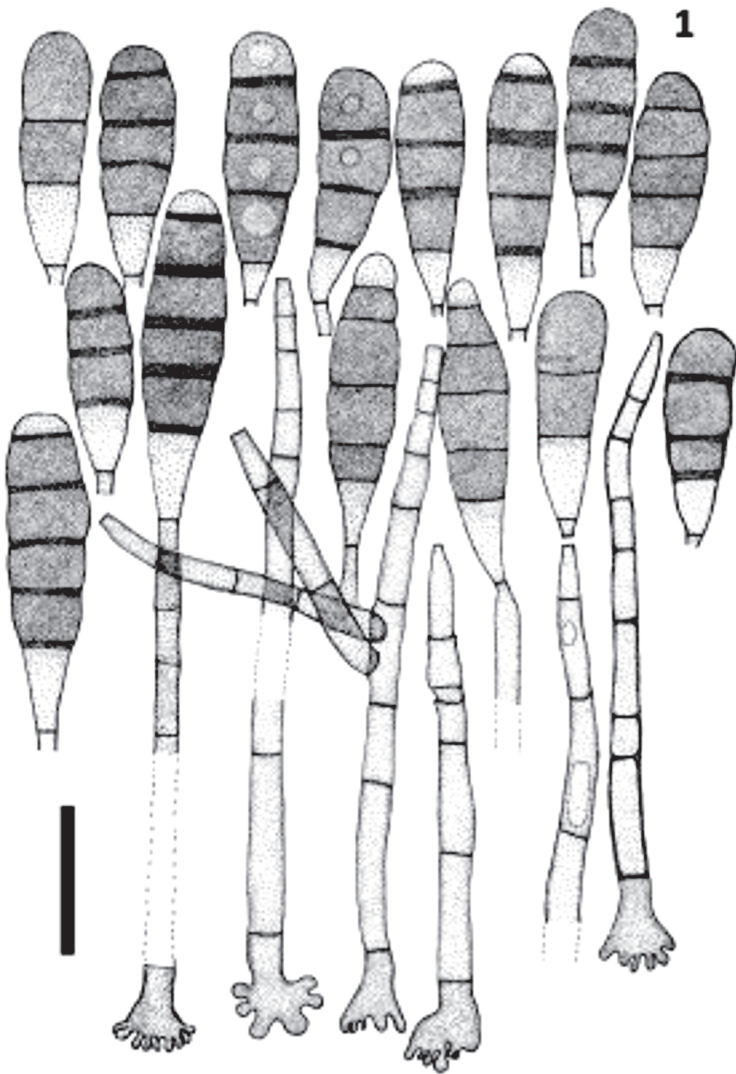


FIG. 1. *Endophragmiella profusa*, drawings from holotype (MUCL 41853).
Conidiophores, conidiogenous cells, and conidia. Scale bar = 10 μ m.

cylindrical, 3–7-septate, smooth, 45–170 μ m tall, basal cell radially lobed, 5–10 μ m wide, brown at the base, pale brown towards the apex. CONIDIAGENOUS CELLS monoblastic, integrated, terminal, cylindrical, indeterminate, pale brown, with 2–8 enteroblastic percurrent proliferations, 9–24 \times 2.0–3.5 μ m.

Conidial secession rhexolytic. CONIDIA solitary, acrogenous, obovoid, clavate, pyriform to turbinate, rounded at the apex, conical-truncate at the base, (2–)3–5-septate, mostly 5-septate, 22–35 × 7–9 µm, dry, smooth-walled, dark brown, with the basal cell pale brown or subhyaline, 5–10 × 4–7 µm, fimbriate, with a conspicuous basal fringe, 1.5–4.0(–8.0) µm long. Teleomorph unknown.

ADDITIONAL SPECIMENS EXAMINED: CUBA. CIUDAD DE LA HABANA: SANTIAGO DE LAS VEGAS, 22°58' N; 82°20' W, on bark of decaying nuts of *Couroupita guianensis* Aubl. (*Lecythidaceae*), 2.VII.2001. R.F. Castañeda, INIFAT C01/54-4.

NOTES. The genus *Endophragmiella* was erected by Sutton (1973) for *E. pallescens* B. Sutton, the type species, and is distinguished by macronematous, mononematous conidiophores usually unbranched or rarely with a few branches and conidiogenous cells with repeatedly conspicuous enteroblastic percurrent proliferations. Conidial secession is rhexolytic and the conidia mostly bear a very pale pigmented portion of the conidiogenous cell or basal frill (Hughes 1979, Kirk 1985, Wu & Zhuang 2005). *Endophragmiella profusa* slightly resembles *E. tenuis* R.F. Castañeda (Castañeda 1987), but the latter has clavate, obtuse to rounded apex, 37–50 × 5–6.5 µm, brown, (3–6)-septate, mostly 4-septate conidia with pale brown ends.

Repetoblastiella R.F. Castañeda, Minter & M. Stadler, *anam. gen. nov.*

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Fungus anamorphicus. COLONIAE in substrato naturali pilosae, caespitosae vel funiculosae usque ad arachnoides, effusae, atrovirides, olivaceae vel brunneae. Mycelium partim superficiale et partim in substrato immersum. CONIDIOPHORA micronematosa, mononematosa, simplicia vel ramosa, septata, brunnea vel olivacea, levia vel verrucosa, interdum ad cellulam conidiogenam reducta. CELLULAE CONIDIOGENAE monoblasticae, terminales, determinatae, nonnunquam polyblasticae sympodiales. CONIDIORUM SECESSIO schizolytica. CONIDIA blasto-catenulata, cylindrica, oblonga usque ad longa bacilliformia, multiseptata, olivacea vel brunnea, laevia vel verrucosa; conidia quaeque quaque in cellula facilitatem induta nova producere conidia in catenis.

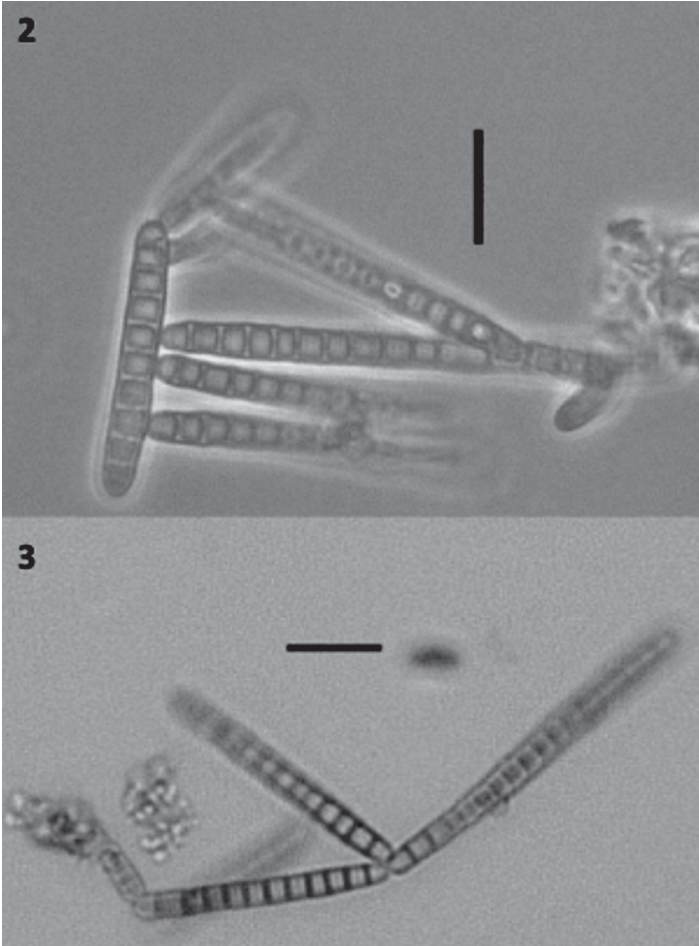
ETYMOLOGY: Latin, *repetite*, meaning repeatedly; *blastiella* referring to the blastic mode of conidium ontogeny.

SPECIES TYPICA: *Repetoblastiella olivacea* R.F. Castañeda, Minter & M. Stadler

Anamorphic fungi. COLONIES on the natural substratum hairy, caespitose, funiculose to arachnoid, effuse, dark green, olivaceous or brown. Mycelium superficial and immersed. CONIDIOPHORES micronematous, mononematous, simple or branched, septate, brown or olivaceous, smooth or verrucose, sometimes reduced to a single conidiogenous cell. CONIDIOGENOUS CELLS monoblastic, terminal, determinate; sometimes polyblastic with sympodial proliferations. CONIDIAL SECESSION schizolytic. CONIDIA cylindrical, oblong to bacilliform, multi-septate, olivaceous to pale olivaceous-brown or brown, repeatedly and randomly blastocatenate, forming several irregular chains from

several indeterminate cells across the length of the conidial body. Teleomorph unknown.

NOTES. Several previously described anamorphic genera commonly found in aquatic habitats form somewhat branched or blastocatenulate conidia which originate in a predictable fashion from identifiable cells of the conidial body, and the conidial chains are more or less predictable and stable for each species. Most of these fungi, such as *Dendrospora* Ingold and *Varicosporium* W. Kegel,



FIGS 2–3. *Repetoblastiella olivacea*, photographs from holotype (INIFAT C00/36–3). Conidiogenous cell and conidia forming repeatedly and randomly chains. Scale bars = 10 μm .

lack pigmentation. *Catenulostroma* Crous & U. Braun, *Lylea* Morgan-Jones, *Trimmatostroma* Corda, and *Xylomyces* Goos et al. have also micronematous or undifferentiated conidiophores, and conidia are formed in branched chains, sometimes from several cells across the body of each “ramoconidium” similarly to *Repetoblastiella*. In *Catenulostroma*, however, conidiogenous cells are holoblastic-thalloblastic, meristematic and conidial chains are basipetal, *Lylea* has distoseptate conidia forming chains from apical and subapical cells of each ramoconidium, and *Trimmatostroma* has thalloblastic conidial ontogeny with evident disarticulation during conidial secession and often dictyoseptate conidia. The conidial chains in *Xylomyces* show restricted growth in relation to the anastomosing process of the assimilative hyphae, but secondary and tertiary conidia originate only from one cell of the parent conidium. The conidial development in the present genus is enigmatic in the remarkable ability of each conidium cell to produce another conidium, resulting in colonies that are visually complex and net-like in appearance.

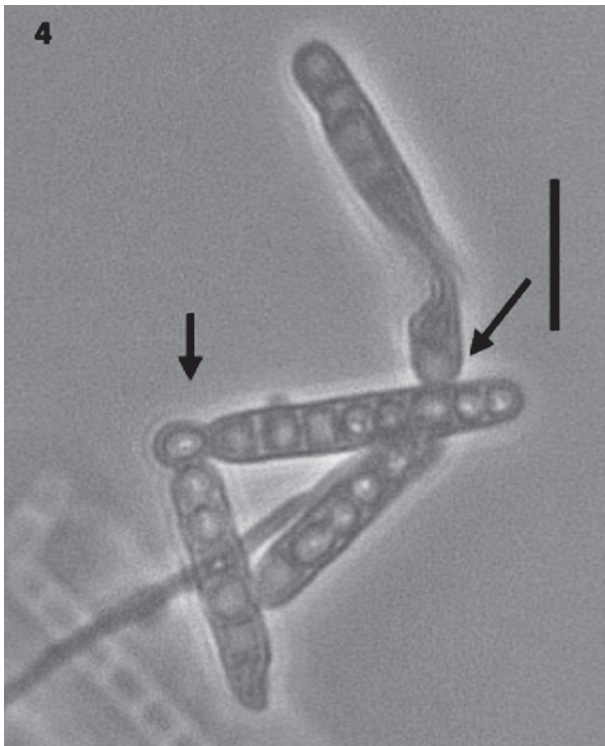


FIG. 4. *Repetoblastiella olivacea*, photograph from holotype (INIFAT C00/36-3). Blastocatenulate conidia. Scale bar = 10 μ m.

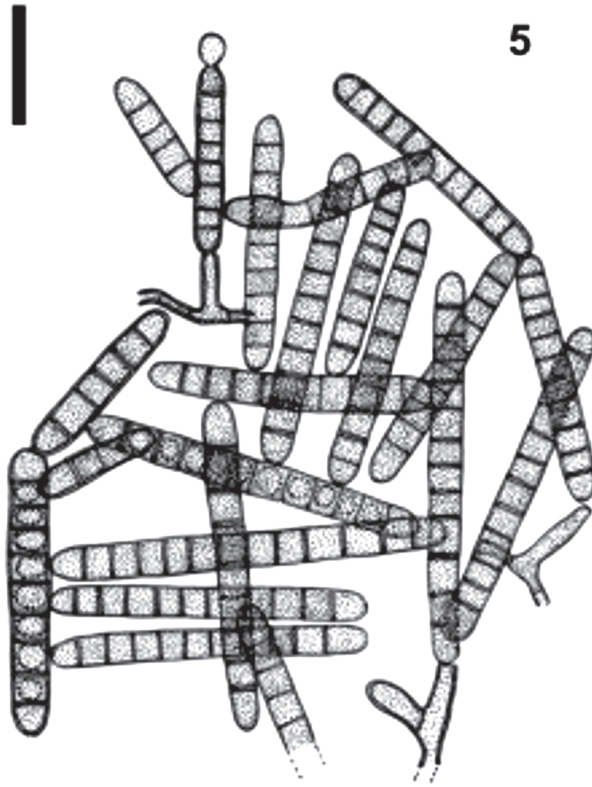


FIG. 5. *Repetoblastiella olivacea*, drawings from holotype (INIFAT C00/36-3). Conidiogenous cells and blastocatenulate conidia. Scale bar = 10 μ m.

***Repetoblastiella olivacea* R.F. Castañeda, Minter & M. Stadler, anam. sp. nov.**

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FIGS. 2-5

COLONIAE in substrato naturali pilosae, funiculosae, effusae, olivaceae. Mycelium partim superficiale et partim in substrato immersum. Hyphae septatae, ramosae, leves, dilute brunneae, 1-2 μ m diam. *CONIDIOPHORA* micronematosa, mononematosa, simplicia, septata, brunnea vel olivacea, levia plerumque ad cellulam conidiogenam reducta. *CELLULAE CONIDIOTENENTIAE* monoblasticae, terminales, determinatae, 5-10 \times 3-6 μ m, nonnunquam polyblasticae sympodiales. *CONIDIORUM SECESSIO* schizolytica. *CONIDIA* blastocatenulata, cylindrica, oblonga usque ad longa-bacilliformia (2-)-8-9(-16)-septata, levia, olivacea, atroviridia in massa, sicca, (15-)-25-10(-50) \times 3-7 μ m; conidia quaeque quaque in cellula facultatem induta nova producere conidia in catenis.

TYPE SPECIMEN: CUBA. CIUDAD DE LA HABANA: SANTIAGO DE LAS VEGAS, 22°58' N; 82°20' W, on bark of decaying nuts of *Couroupita guianensis* Aubl. (*Lecythydaceae*), 7.IV.2000. R.F. Castañeda, (*Holotype*: INIFAT C00/36-3).

COLONIES on the natural substratum hairy, funiculose, effuse, dark green, olivaceous, or brown. Mycelium superficial and immersed. Hyphae septate, branched, smooth, pale brown, 1–2 µm diam. CONIDIOPHORES micronematous, mononematous, simple or branched, septate, brown or olivaceous, smooth, sometimes reduced to a single conidiogenous cell. CONIDIOGENOUS CELLS monoblastic, terminal, determinate; sometimes polyblastic with sympodial proliferations, 5–10 × 3–6 µm. CONIDIAL SECESSION schizolytic. CONIDIA cylindrical, oblong to bacilliform, (2–)8–9(–16)-septate, olivaceous to pale olivaceous-brown or brown, (15–)25–10(–50) × 3–7 µm, repeatedly and randomly blastocatenate, forming several irregular chains from several indeterminate cells across the length of the conidial body. Teleomorph unknown.

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