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# *Stilbella iwokramensis* (Ascomycotina, Hypocreales): A new entomopathogenic species from Guyana

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## INTRODUCTION

A new synnematous beetle pathogen species was found in Iwokrama Forest Preserve, Guyana. This species can be distinguished from other fungi of the genus *Stilbella* and its allies based on conidial size, host, and the presence of appendages along the synnemous stipe. A new species is established and described below.

## DESCRIPTION OF NEW SPECIES

***Stilbella iwokramensis*** J.F. Bischoff sp. nov. (Figs. 1A–E)

Mycelium brunneum ad partem aversam abdominis dispositum, hospitem coleopteraneum ad superficiem folii affingens. Synnemata capite hospitis corpore et cruribus ennata, in parte interiore mycelio brunneo ad substratum folii affixa, superiore sursum crescentia, ex hyphis parallelis composita, simplicia, 1–12 mm × 0.1–0.2 mm, brunnea vel atra, prope apicem pallescentia. Appendices 100–200 μm × 8–12 μm, septatae, atro-pigmentosae, secus longitudinem totum synnematum perpendiculares, prope caput synnematis magis densae. Phialides circum caput synnematis in stratum hymenioideum dispositae, cylindraceae, 10–20 μm × 2–4 μm. Conidia 6–10 μm × 2–3 μm, in massa sicca atque flava, unicellularia obclavata vel cylindracea, interdum subcurva.

Brown mycelium emerging from the underside of host abdomen adhering the host to leaf surface. Synnemata arising from head, body, and legs of host. Base of synnema has brown mycelium adhering it to the leaf substrate before growing upward. Synnemata are composed of parallel hyphae, unbranched, 1–12 mm × 0.1–0.2 mm, brown to black, becoming pallid near synnema apex. Appendages 100–200 μm × 8–12 μm, septate, cylindrical, darkly pigmented protruding perpendicularly along the entire length of the synnema, becoming more dense near the synnema apex. Synnemata apex terminates in a hymenium-like layer of conidiogenous cells. Phialides terminal, cylindrical, smooth, 10–20 μm × 2–4 μm. Conidia 6–10 μm × 2–3 μm, dry, yellow, smooth, single-celled, guttulate, obclavate to cylindrical, sometimes slightly curved.

From a weevil (Curculionoidea, Coleoptera) adhering to leaf surface, White Water Camp, Iwokrama Biosphere Preserve, Guyana, South America (04°43′N, 58°51′W). Collected by J.F. Bischoff and John LaPolla. Type: JB159, leg. J.F. Bischoff, lodged at the New York Botanical Gardens (NY).

*Etymology.* The specific epithet refers to the Iwokrama Biosphere Preserve in Guyana where the fungus was collected.

## DISCUSSION

*Stilbella iwokramensis* (Fig. 1a) shows considerable similarity to *Stilbella buquetii* var. *formicarum* (Cooke & Massee) Samson & Evans (Samson et al., 1981) but can be distinguished by its conspicuous synnemous appendages (Fig. 1c). In addition, *S. buquetii* var. *formicarum* was collected from an ant (*Crematogaster bequarti*) rather than a weevil. *Stilbella iwokramensis* also shares morphological features with entomopathogenic members of the genus *Tilachlidiopsis* Keissler. Like *S. iwokramensis*, species of *Tilachlidiopsis* produce darkly pigmented synnematous stipes that become pallid near the apex and cylindrical conidia produced from a hymenium-like layer of phialides. *Tilachlidiopsis nigra* is distinguished from *S. iwokrama* based on its larger synnemata (3–7 cm × 0.5–1.5 cm) and branched synnematous habit (Kobayasi, 1941; Mains, 1951). *Tilachlidiopsis scarabaei* has short (0.5–2.0 mm long), usually branched synnemata and small conidia (4.5–6.5 × 1.5–2.0 μm), distinguishing it from *S. iwokramensis* (Mains, 1951). *Tilachlidiopsis catenulate*, the only member of the genus found on ants (Formicidae, Hymenoptera), lacks synnematous appendages, and produces phiallidic conidia in chains (Papierok and Charpentie, 1982).

Seifert (1985) concluded that *Stilbella* was composed of synnematous anamorphs of the teleomorphic genus *Nectria* (Nectriaceae, Hypocreales). Because entomopathogenic members of *Tilachli-*



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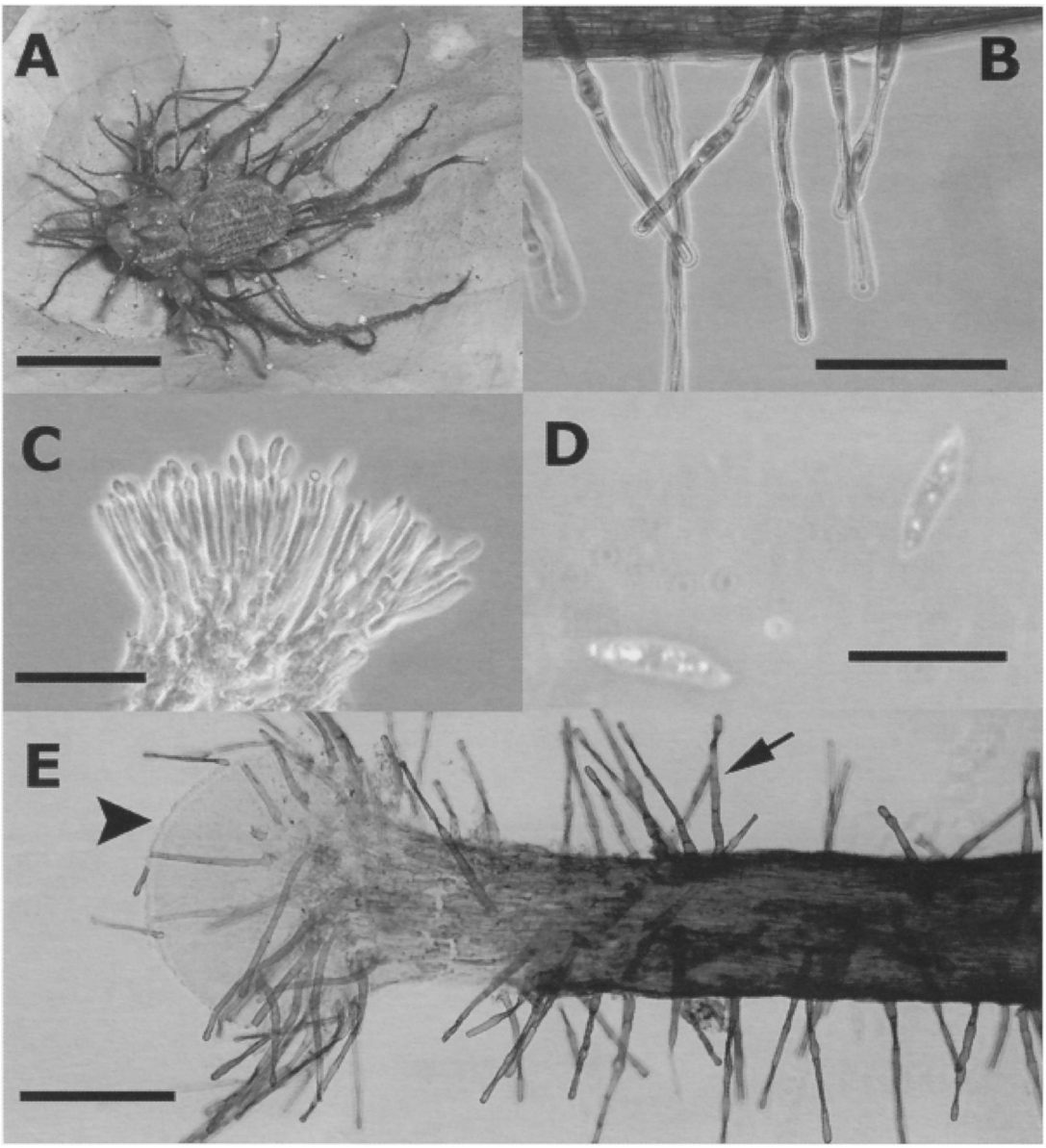


Fig. 1. *Stilbella iwokramensis* A: Synnemata protruding from beetle host, bar = 8 mm; B: Setae from synnema, bar = 100μm; C: Phialides with developing conidia, bar = 25 μm; D: Conidia, bar = 9 μm; E: Synnema with appendages (arrow with extension) and conidial hymenium (indented arrow), bar = 150 μm.

*diopsis* and *Stilbella* are believed to be linked to the teleomorphic genus *Cordyceps* (Clavicipitaceae, Hypocreales) he considered them doubtful members of *Stilbella*. However, until the taxonomy of *Stilbella*-like species is revised, *Stilbella* remains the most appropriate genus in which to classify the entomopathogenic species.

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