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PLEURODESMOSPORA, A NEW GENUS FOR THE ENTOMOGENOUS HYPHOMYCETE GONATORRHODIELLA COCCORUM

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The entomogenous fungus *Gonatorrhodiella coccorum* Petch is transferred to a new genus, *Pleurodesmospora*, which is characterized by erect or procumbent conidiophores with terminal and intercalary conidiogenous cells, bearing numerous minute, cylindrical conidiogenous pegs; dacryoid phialoconidia are produced in short, basipetal chains. The nomenclatural history of this fungus is reviewed and cultures isolated from spiders in Ghana are described.

When plating out *Verticillium (Cephalosporium) lecanii* during his studies on entomogenous fungi from Ceylon, Petch (*1925*) isolated an unusual contaminating fungus, which he also observed on black scale. He compared this fungus with *Gonatorrhodiella parasitica* Thaxt. and described it as *G. coccorum*. The genus *Gonatorrhodiella* Thaxt. (type species: *G. parasitica* Thaxt.) is not suited to accommodate this fungus and even Petch (l.c.) doubted about its affinity. Hughes (*1953*) synonymized *Gonatorrhodiella* with *Nematogonium* Desm. and transferred *G. parasitica* to that genus. In *Nematogonium* as circumscribed by Hughes (l.c.), Barron (*1968*) and Gams (*1976*) the holoblastic conidia are formed in acropetal sequence in chains arising synchronously from terminal and intercalary nodes of the conidiophores. The conidiogenous cells of *G. coccorum* are typically polyphialidic and the chains are basipetal.

Hansford (*1943*) observed this fungus on *Meliola* sp. in Uganda and described it in the illegitimate genus *Oospora* (Internat. Code bot. Nomencl., Art. 63) as *O. meliolae*. Gams (*1971*) transferred Hansford's fungus to *Aphanocladium* W. Gams which he then regarded as producing true phialides with several conidia on each opening. Gams (*1973*) corrected the diagnosis of *Aphanocladium* which he recognized as producing only solitary conidia on 'aphanophialides'. Hence, *A. meliolae* with catenate phialoconidia cannot be accommodated in that genus. De Hoog (*1972*) listed *G. coccorum* (syn.: *Beauveria coccorum*) amongst the species excluded from *Beauveria*.

From our recent collections, we can provide a more complete description of this fungus justifying the erection of a new genus.

Pleurodesmospora Samson, W. Gams & H. C. Evans, *gen. nov.*—Figs. 1, 2

Coloniae albae, subtiles, floccosae. Mycelium hyalinum, hyphae septatae. Conidiophora erecta vel procumbentia; rostella conidiifera numerosa in cellulis terminalibus et intercalaribus, saepe sub septis

verticillata; rostella conidiifera brevia, cylindrica, catenas breves phialoconidiorum proferunt. Conidia hyalina, continua, levia, ellipsoidea ad dacryoidea, basi truncata. Teleomorphosis ignota. Species typica: *Pleurodesmospora coccorum* (Petch) Samson, W. Gams & H. C. Evans.

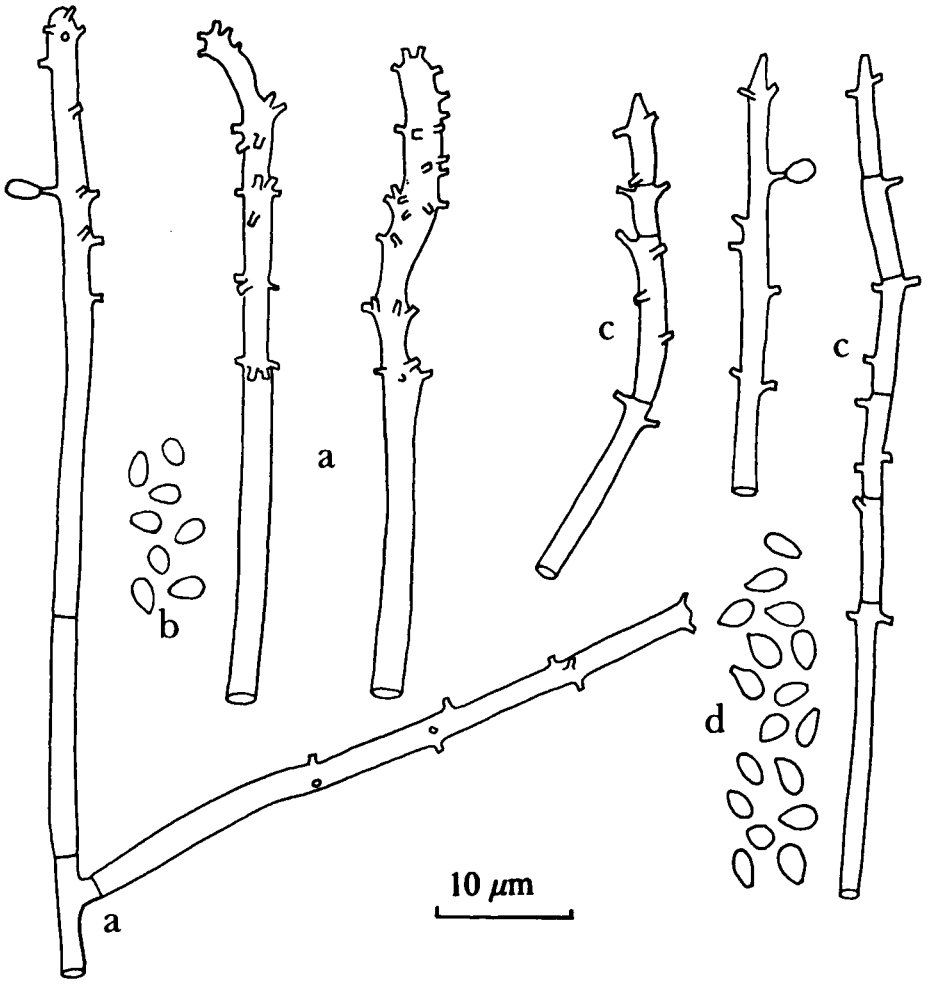
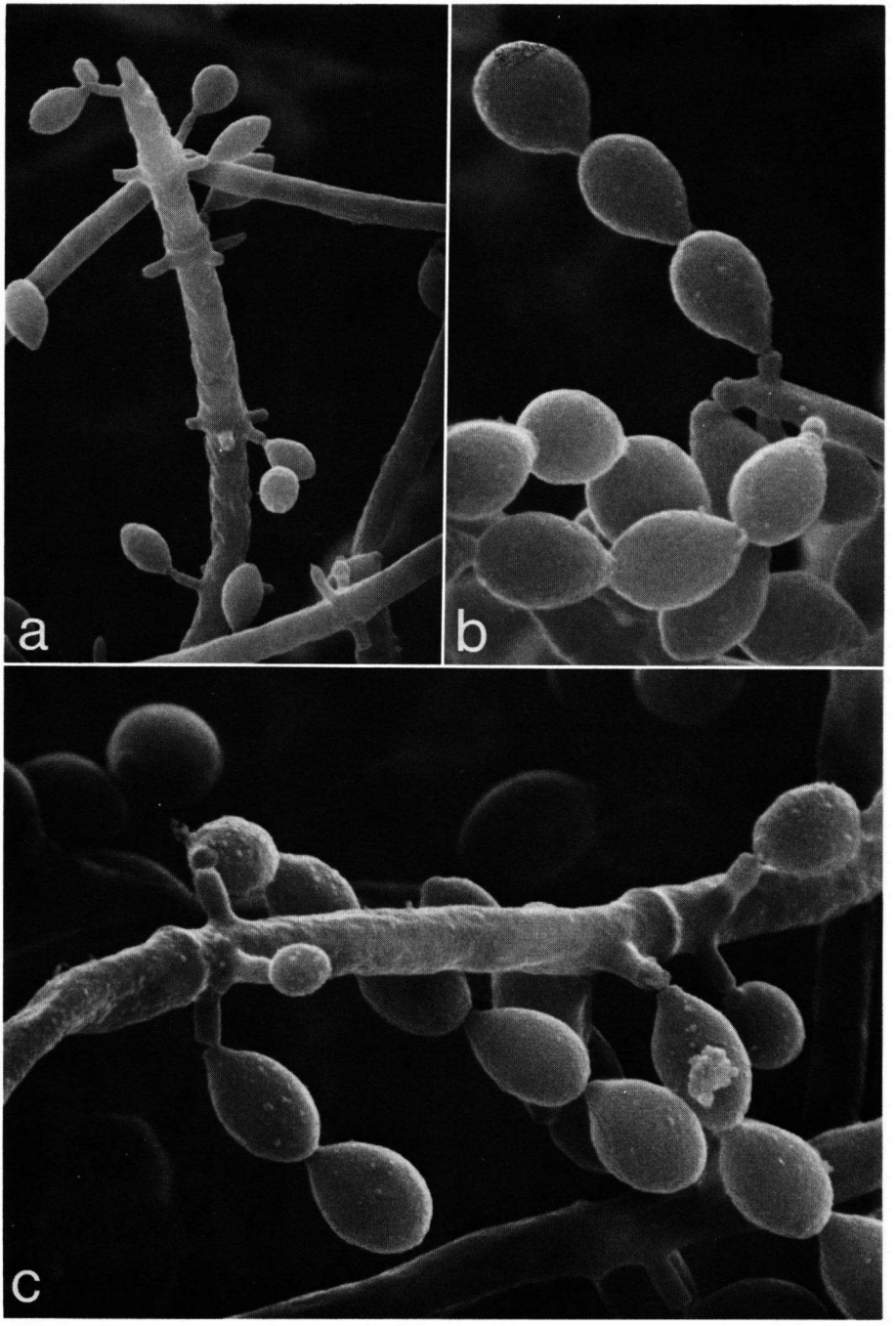


Fig. 1. *Pleurodesmospora coccorum*. — a, b. Conidiophores and conidia of type specimen. — c, d. Conidiophores and conidia of CBS 459.73 on oatmeal agar.

Fig. 2. Scanning electron micrographs of conidiogenous structures of *Pleurodesmospora coccorum*. — a. Conidiophore showing the conidiogenous pegs (× 4200). — b, c. Catenate conidia (× 8000).


a
b
c

Colonies white, thin, floccose. Mycelium hyaline, hyphae septate. Conidiophores erect or procumbent, bearing numerous minute phialidic conidiogenous pegs in terminal or mostly intercalary position, often in whorls below the septa. Conidiogenous pegs short-cylindrical, giving rise to short chains of conidia. Conidia hyaline, one-celled, smooth, ellipsoid to dacryoid with slightly truncate base. Teleomorph unknown.

Pleurodesmospora coccorum (Petch) Samson, W. Gams & H. C. Evans, *comb. nov.*

Gonatorrhodiella coccorum Petch *in* Trans. Br. mycol. Soc. **10**: 181. 1925 (basionym). — *Beauveria coccorum* (Petch) Linder *in* Lloydia **5**: 206. 1942.

Rhinotrichum album Petch *in* Trans. Br. mycol. Soc. **11**: 258. 1926.

Oospora meliolae Hansf. *in* Proc. Linn. Soc. Lond. **155**: 40. 1943. — *Aphanocladium meliolae* (Hansf.) W. Gams, *Cephalosporium*-artige Schimmelpilze: 198. 1971.

For a detailed description on insects see Petch (*1925*: 179).

Colonies on oatmeal agar attaining 4–6 cm diam. within 3 weeks at 25 °C, white, floccose, in sporulating areas becoming powdery due to the conidial masses. Vegetative hyphae smooth-walled, hyaline, 1.0–2.0 μm wide. Conidiophores erect or procumbent, hardly differentiated from the vegetative hyphae, usually branched, smooth- and thin-walled, 1.5–2.0 μm wide. Conidiogenous cells polyphialidic, terminal and intercalary, bearing numerous short-cylindrical, 1–3(–5) μm long and 0.5 μm wide conidiogenous pegs located mainly in the distal few cells of the conidiophores, in whorls often below the septa. Conidia form in disconnected short chains (3–10 conidia), one-celled, hyaline, smooth-walled, dacryoid with truncate base, 3–4 × 2.0–2.8 μm. Chlamydospores or teleomorph unknown.

HERBARIUM SPECIMENS EXAMINED.—CEYLON, on blak scale (*Aleyrodes* sp.) on mango (holotype of *Gonatorrhodiella coccorum* Petch; K). — UGANDA, on *Meliola* sp. (holotype of *Oospora meliolae* Hansf.; IMI 2693). — GHANA, on *Hemileia vastatrix* on *Coffea robusta*, *R. I. Leather*, 1958 (IMI 72340).

LIVING CULTURES EXAMINED.—CBS 458.73 and CBS 460.73, isolated from spiders on cocoa leaves, Tafo, Ghana; CBS 459.73, isolated from a spider, Begoro, Ghana, *H. C. Evans*, 1972. — CBS 471.80, isolated from scale insects on leaves of *Eugenia jambos*, Bellavista, Galapagos Islands, *H. C. Evans*, 1976.

Petch (*1931*) considered *G. coccorum* to be the same as *Rhinotrichum album* which he (*1926*) had described from a specimen of *Lecanium* sp. This synonymy was confirmed by de Hoog (*1972*) and ourselves after examination of the type material (K).

Pleurodesmospora coccorum seems to be a common fungus on arthropods. Petch (*1931*) observed it on *Lecanium*, *Aleyrodes*, aphids, and leaf-hoppers. In our studies on entomogenous fungi from Ghana it was observed on various hosts, but most often on Araneida. It was also found on scale insects from the Galapagos Islands. In a recent study on pathogens of mites in citrus grooves in Florida (Samson & McCoy, *1981*), *P. coccorum* was observed infecting the scavenger mite, *Tydeus gloveri* Ashmead. No studies have been carried out to clarify the pathogenicity of this fungus, but its occurrence on non-insect substrates (as *O. meliolae*) indicates that it may also be saprophytic or mycoparasitic.

Addendum

After this paper was submitted for publication, Dr. G. S. de Hoog drew our attention to a further synonym of *Pleurodesmospora coccorum*.—*Rhinotrichum depauperatum* Charles *in* Mycologia **32**: 540. 1940.

This fungus was observed on spider mites, *Paratetranychus yothersi* (McGregor), on *Eichhornia crassipes* in Florida. The conidia were indicated as measuring 2.5–3 × 1.5–2 μm, but on the type specimen (BPI 72565) we found them measuring 3.0–3.5(–4.0) × 2.0–2.5 μm, thus fitting well our circumscription of the species.

References

BARRON, G. (1968). The genera of Hyphomycetes from soil. Williams & Wilkins, Baltimore.

GAMS, W. (1971). *Cephalosporium*-artige Schimmelpilze (Hyphomycetes). G. Fischer, Stuttgart.

—— (1973). Phialides with solitary conidia? Remarks on conidium ontogeny in some hyphomycetes. *In* Persoonia **7**: 161–169.

—— (1976). *Nematogonium niveum*, a new hyperparasitic species of Hyphomycetes. *In* Revue Mycol. **39**: 273–278. '1974/75'.

HANSFORD, C. G. (1943). Contributions towards the Fungus Flora of Uganda. V. Fungi imperfecti. *In* Proc. Linn. Soc. Lond. **155**: 34–65.

HOOG, G. S. DE (1972). The genera *Beauveria*, *Isaria*, *Tritirachium* and *Acrodontium* gen. nov. *In* Stud. Mycol. **1**: 1–41.

HUGHES, S. J. (1953). Conidiophores, conidia and classification. *In* Can. J. Bot. **31**: 577–659.

PETCH, T. (1925). Studies in entomogenous fungi. VI. *Cephalosporium* and associated fungi. *In* Trans. Br. mycol. Soc. **10**: 152–183.

—— (1926). Entomogenous Fungi. Additions and Corrections, II. *In* Trans. Br. mycol. Soc. **11**: 258–266.

—— (1931). Notes on entomogenous fungi. *In* Trans. Br. mycol. Soc. **16**: 55–75.

SAMSON, R. A. & MCCOY, C. W. (1981). *Hirsutella tydeicola*, a new fungal pathogen of the scavenger mite. *In* J. Invertebr. Path. (in press).