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NEW SPECIES OF COELOMYCETES FROM ARGENTINA

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ABSTRACT

Two new species of coelomycetes, *Microsphaeropsis diffisa* and *Placodiplodia hilata* are described and illustrated from twigs and rhytidomes of *Geoffroea decorticans* from Argentina.

Key words: Mitosporic fungi, *Geoffroea decorticans*, *Microsphaeropsis diffisa*, *Placodiplodia hilata*.

INTRODUCTION

During a survey of microscopic fungi associated with xerophytic plant species of Argentina, one species of *Placodiplodia* Bubák and other of *Microsphaeropsis* Höhn. were found growing on twigs and on the inner surface of rhytidomes of *Geoffroea decorticans* (Fabaceae). Neither of the two collections proved assignable to a current known species, so they are accordingly described and illustrated here.

MATERIAL AND METHODS

Free-hand thin sections of conidiomata were prepared for microscopic studies. For observations and measurements 3% KOH or water were used as mounting media. For describing conidiogenesis the terminology proposed by Hennebert and Sutton (1994) was used. Specimens are lodged at BBB (Bahía Blanca Biología) Herbarium.

Microsphaeropsis diffissa Bianchin., sp. nov.

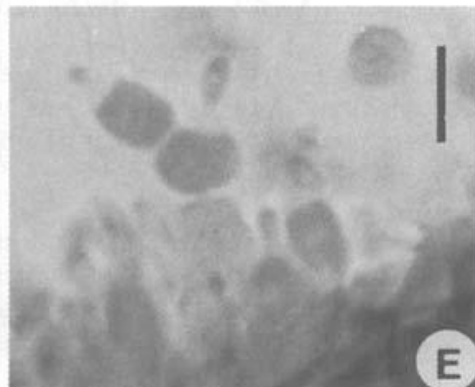
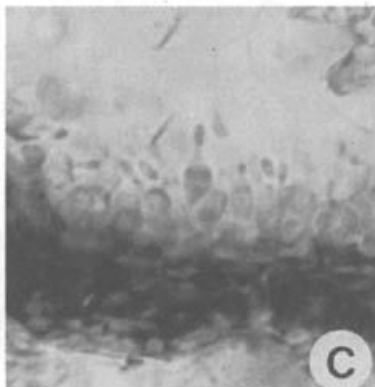
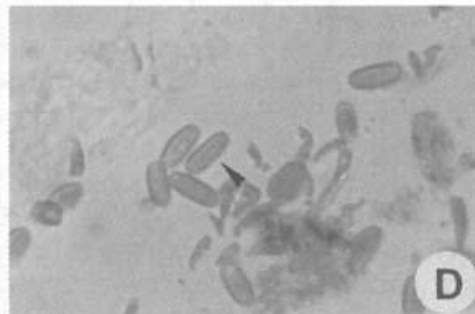
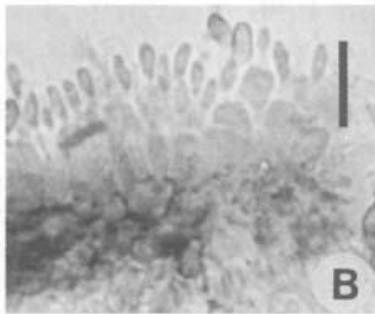
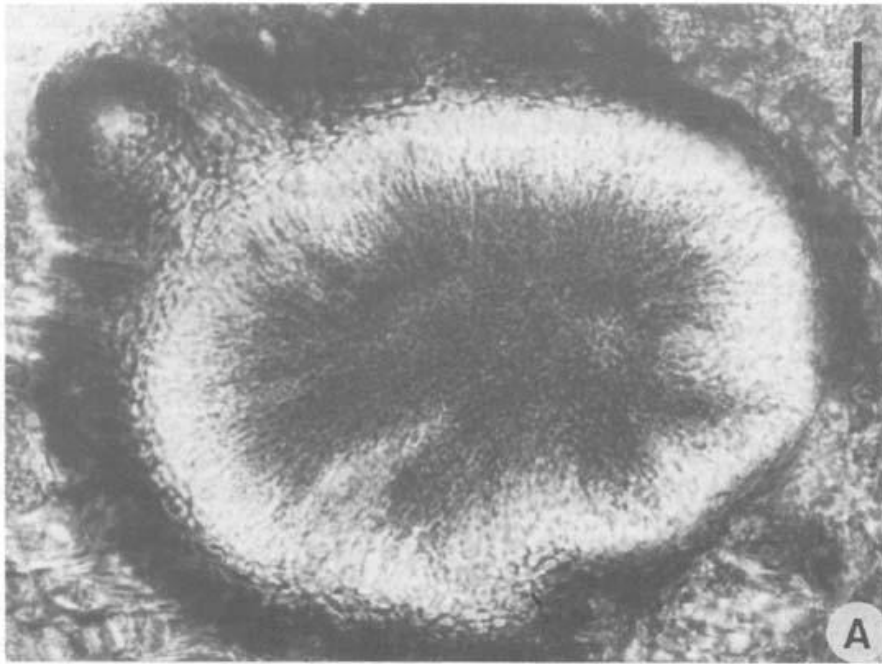
Etymology: from Latin *diffindo* (fissure), referring to the longitudinal raphe present on the conidia.

Conidiomata pycnidialia, brunnea, immersa vel errumpentia, globosa, unilocularia, ca. 150 μm diam. Parietes crassi 4-6 cellulis ex textura angulari. Ostiolum papillatum. Conidiophora hyalina, septata, non ramosa. Cellulae conidiogenae discretas vel integratas, hyalinae, laeves, ampulliformes vel cylindricae, 3-6,5 x 2-3 μm . Conidia blastica, enterogena, pallide ferruginea, aseptata, elliptica vel irregularia, laevia, sparse guttulate, raphe longitudinali, 3,5-5(-6) x 1,5-2 μm . In cortice *Geoffroea decorticantis* (Hook. & Arn) Burk. Argentina. Typus BBB 150.

Mycelium dark brown, immersed, ramified, septate. *Conidiomata* pycnidial, globose, immersed to errumpent, scattered to gregarious, unilocular, dark brown, ca. 150 μm diam., wall formed by 4-6 cell layers of *textura angularis*. Ostiole single, central, circular, papillate. *Conidiophores* hyaline, septated, unbranched. *Conidiogenous cells* hyaline, discrete or integrated, globose, doliiform to cylindrical, determinate, loci apical, or lateral below septa, channel and periclinal wall thickening prominent, 3-6.5 x 2-3 μm . *Conidia* blastic, enterogenous, aseptate, thin-walled, irregularly guttulate, ellipsoidal, straight or slightly curved, apex and base obtuse, smooth, with a longitudinal raphe, in mass pale rusty, individually subhyaline to pale brown, 3.5-5(-6) x 1.5-2 μm . *Teleomorph* not known.

Specimens examined: Argentina. Prov. Buenos Aires: Pdo. Cnel. Rosales, Arroyo Parejas, rhytidome of *Geoffroea decorticans* (Fabaceae), April 1987, Bianchinotti 151 (BBB) (holotype). Prov. Buenos Aires, Pdo. Bahía Blanca, Campo Tarantino, twigs of *G. decorticans*, April 1986, Bianchinotti 150 (BBB).

Fig. 1. *Microsphaeropsis diffissa*. A- Pycnidial conidioma in cross section. B- Conidiogenous cells. C- Peridium. D- Aseptate conidia with longitudinal raphe (arrow). E- Details of integrated conidiogenous cells. Bars: A= 20 μm , B-D= 10 μm , E= 5 μm .



Discussion: This collection was identified as a species of *Microsphaeropsis* as it has pycnidial conidiomata, conidiogenous cells with determinate loci and blastic, enterogenous, aseptate, brown conidia (Sutton 1980). Morphological features of *M. diffisa* do not match with any of the described species of *Microsphaeropsis* (Morgan-Jones, 1974; Sutton 1971, 1974, 1980). This new species can be easily differentiated from the other species of the genus with smooth conidia by having terminal and lateral conidiogenous cells and minute conidia with a longitudinal raphe.

Microsphaeropsis concentrica (Desm.) Morgan-Jones has previously been recorded on the same host (Bianchinotti, 1998), but this species possesses larger, spherical, rough-walled conidia (Morgan-Jones & White, 1987).

Other species of *Microsphaeropsis* recorded from Argentina are *M. callista* (Syd.) B. Sutton from living leaves of *Eucalyptus viminalis* Labill. (Cabral, 1982), *M. olivacea* (Bonord.) Höhn. from living leaves of *Pinus tadea* L. and *M. pseudaspera* B. Sutton from bark of *E. viminalis* (Romero, 1998).

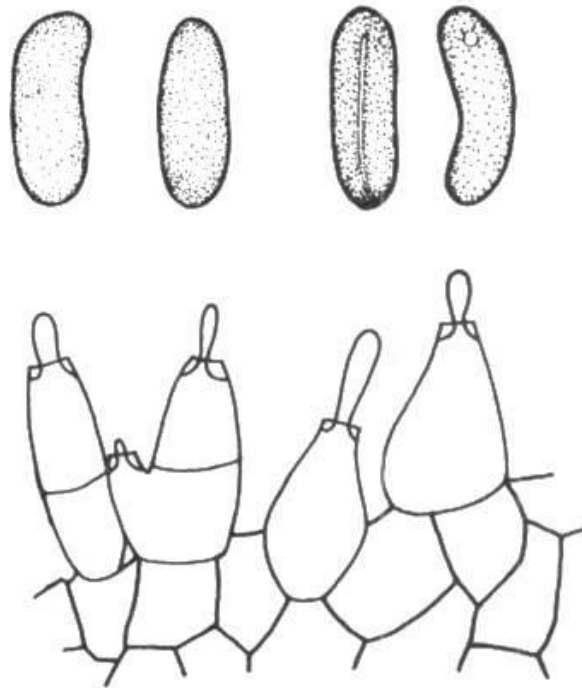


Fig. 2. *Microsphaeropsis diffisa*. Conidia and conidiogenous cells. Bar= 5 μ m.

Placodiplodia hilata Bianchin., sp. nov.

Etymology: from the Latin *hilum*, denoting this prominent feature on conidia.

Conidiomata stromatica, pycnidialia, sparsa vel gregaria, interdum linearia confluentia, innato-errumpentia, brunnea vel nigra, ambitu ellipsoideo vel irregulari, in sectione transversali lattissime ovata vel globosa applanata, loculo simplici, glabra, per rimam lineari in pariete apicali dehiscentia, 100-180(-200) μm lata x (35-)50-75(-85) μm diam. Parietes 3-4 cellulis crassis ex textura angulari, tenuitunicatis et hyalinis in basibus. Conidiophora ad cellulas conidiogenas contracta. Cellulae conidiogenae ampulliformes, hyalinae vel pallide olivaceae, laeves, determinatae vel percurrentes, cum dilute annellationibus apicalibus, bases 5-6 μm diam., longitudine varia. Conidia blastica, enterogena, perpallide aeruginosa vel pallide brunnea, late ellipsoidea, utrinque obtusa, bases cum hilo magne protruso, recta vel curvata, bifariam irregulariter compressa, laevia, tenuitunicata, uniseptata, euseptata, ad septa haud vel profunde constricta, (7-)8,5-10,5(-11) x 4,5-5,5 μm . In ramiis *Geoffroea decorticantis*. Typus BBB 152.

Conidiomata stromatic, pycnidial, scattered to gregarious, sometimes linearly confluent, immersed-erumpent, dark brown to black, navicular to irregular in outline, subglobose to depressed ovate in transverse section, unilocular, true ostiole absent, dehiscence by a longitudinal fissure of the upper wall, 100-180(-200) μm long x (35-) 50-75(-85) μm diam. Peridium comprising a stratum of 3-4 layers of thick-walled, brown *textura angularis*, becoming paler and thinner-walled basally. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* peripheral, discrete, hyaline to very pale olivaceous, broadly ampulliform, determinate, holoblastic or indeterminate with monopodial, enterogenous, percurrent proliferation producing inconspicuous annellations, neck 2-5 μm diam., base 4-6 μm diam., up to 12 μm long. *Conidia* blastic, enterogenous, solitary, broadly ellipsoidal, with obtuse ends, straight to slightly curved, irregularly compressed, base with a protuberant centric or somewhat eccentric hilum, thin-walled, smooth, gray to pale brown, 1-euseptate, not to strongly constricted at the septum, (7-)8.5-10.5(-11) x 4.5-5.5 μm . *Teleomorph* not known.

Specimens examined: Argentina, prov. Buenos Aires: Pdo. Bahía Blanca, Campo Tarantino, April 1986, twigs of *Geoffroea decorticans* (Fabaceae), M.V. Bianchinotti 152 (holotype) (BBB); *ibid.*, Dec.1987, Bianchinotti 51, 153, 154 (BBB).

Discussion. This collection was identified as *Placodiplodia* Bubák as it has navicular, linearly confluent, longitudinally fissured conidiomata, blastic conidiogenous cells and pale, 1-euseptate conidia (Sutton, 1980). Although conidiogenous cells have been described as determinate, Sutton (1980)

acknowledges that the holotype was too old for elucidate full details of conidiogenesis and that only one "phialide" was found.

Zambettakis (1955a) lists 11 species in this genus that except for two, *P. copelandii* Bubák and *P. parinari* Zambett., all were transfers from existing genera. From these, *P. yuccae* (Speg.) Zambett. (bas. *Diplodia yuccae* Speg.) has plurilocular conidiomata with larger conidia (20-25 x 10-13 μm , *vide* Zambettakis, 1955b) and *P. agropyri* (Speg.) Zambett. (bas. *Paradiplodia agropyri* Speg.) is considered an error by Farr (1973), perhaps referable to *Paradiplodia agropyri* (Murashk.) Lavrov, the type species of *Dothideodiplodia* Murashk., a genus with plurilocular conidiomata originating from an immersed hypostroma.

With the exception of *P. copelandii*, none of the other species accepted by Zambettakis has been recently revised, but according to the most recent interpretation by Sutton (1977, 1980), they should be relocated to other genera.

Placodiplodia hilata can be distinguished from the type species by having coloured, larger conidiogenous cells and shorter, wider conidia with distinct hila (12-15 x 4 μm in *P. copelandii*, *vide* Zambettakis, 1955b).

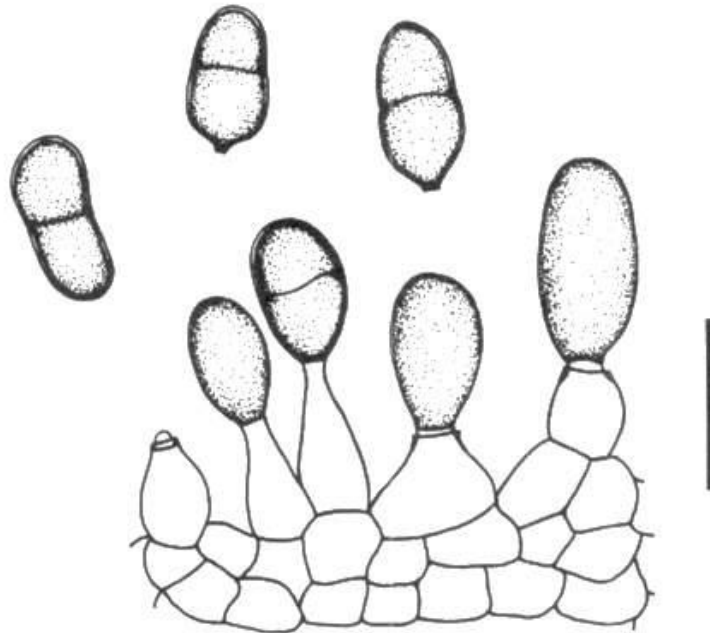


Fig. 3. *Placodiplodia hilata*. Conidia and conidiogenous cells.
Bar= 10 μm .

Of the many genera which have pycnidial conidiomata and percurrently proliferating conidiogenous cells, this specimen was also compared with *Macrohilum* H. J. Swart, a genus proposed by Swart in 1988 to accommodate a single species, *M. eucalypti* H. J. Swart, found growing immersed in dead mesophyll tissues of *Eucalyptus polyanthemus* Schauer. leaves. It differs from *P. hilata* as the conidiomata are single, thin-walled, globose with a fairly wide ostiole, conidiogenous cells are described as holoblastic with flared annellations and although conidia possess a large hilum, they are differently shaped (Swart, 1988).

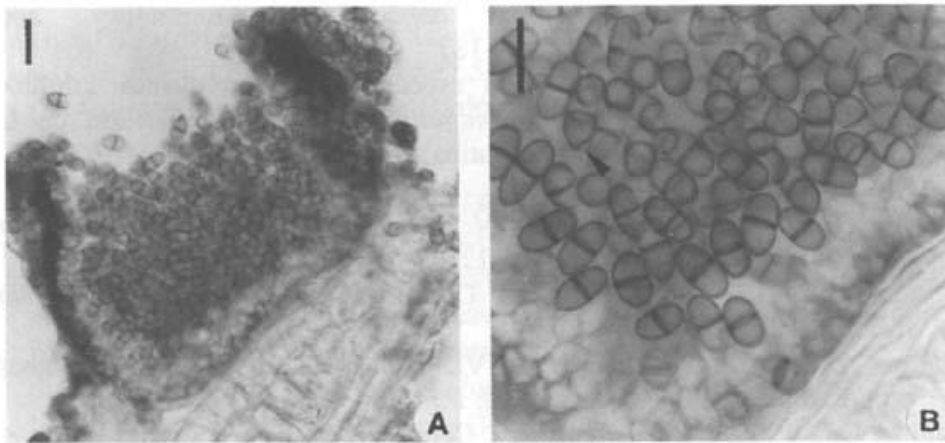


Fig. 4. *Placodiopodia hilata*. A- Conidioma in cross section. B- One-septate conidia with protuberant hila (arrow).
Bars: A= 20 μ m, B= 10 μ m.

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