Studies on xylophilous fungi from Argentina. VI. Ascomycotina on *Eucalyptus viminalis* (Myrtaceae)

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Nine new species are proposed, viz. *Camarops rostratus, Delitschia corticola, Erostella minutissima, Gnomoniella dimorphospora, G. lignicola, Jattaea stachybotryoides, Moristroma polysporum, Nitschkia variabilis,* and *Porosphaerella setosa.* The new genus *Moristroma* is proposed in the Dacampiaceae. *Sphaeria avocetta* is combined in *Endoxyla.* These fungi were collected on wood and bark of *Eucalyptus viminalis* in Buenos Aires province of Argentina.

Keywords: wood-inhabiting fungi, ascomycetes, *Eucalyptus,* taxonomy.

This is the fifth in a series of reports of fungi found associated with stumps of *Eucalyptus viminalis.* Previous reports considered conidial fungi (Romero, 1983), general ascomycetes (Romero, 1987), heterobasidiomycetes (Lopez, 1987), and anamorphs of basidiomycetes (Romero & al., 1989). In the present work we describe or redescribe new or poorly known pyrenomycetous fungi.

Materials and methods are as described in Romero (1983). The classification followed is that of Barr (1987, 1990). The Habitat of all collections is bark and decorticated wood of *Eucalyptus viminalis* Labill.

Hymenoascomycetes

I. Xylariales

Boliniaceae

Camarops rostratus Romero & Samuels, sp. nov. – Pl. 1; Pl. 4, A-C.

Stromata erumpentia, nigra, protuberantia, crassa, cylindrica. Peritheciis nigris, ventribus globosis, immersis in ligno et collis longis per protuberationes. Asci cylindrici, 50–60 x 4–5(-6) µm, apice truncato et simplici vel annulo minuto, J-. Ascosporae ellipsoideae vel cylindricae, 6–7(-9) x 3–4 µm, unicellulares, castaneae pallide, laeves,

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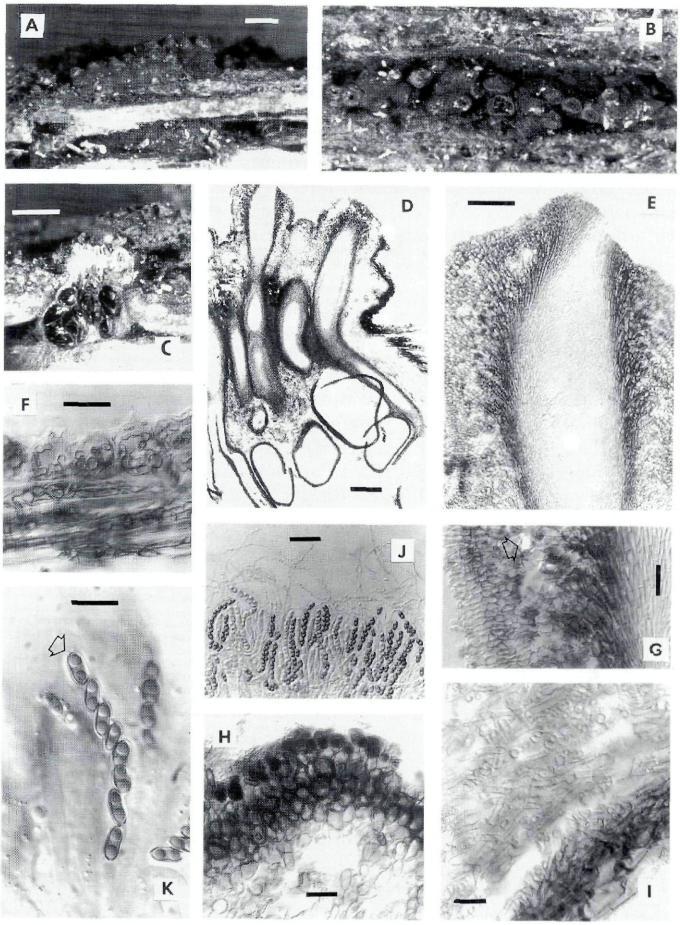


Pl. 1. – *Camarops rostratus*. – A. Lateral view of the stroma. – B. Top view of the stroma. – C. Vertical section showing immersed perithecia. – D. Vertical section of the stroma. – E. Apex of perithecial neck and periphysate ostiolar canal. – F. Wood of *Eucalyptus* showing hyphae of *Camarops*. – G. Outer layers of perithecial neck seen in vertical section; arrow indicates amorphous material. – H. *Textura angularis* of ectostroma; cells filled with pigment are at the exterior. – I. *Textura intricata* of endostroma. – J. Asci and paraphyses. – K. Ascus with apical ring (arrow). Scale bars: A-C= 1 mm; D = 200 µm; E = 50 µm; F, I, K = 10 µm; G, H, J = 20 µm.

poro inconspicuo basali praeditae. Paraphyses adsunt. Status anamorphicus ignotus. In ligno decorticato. Argentina. Typus BAFC 32012.

Etymology. – „rostratus" refers to the conspicuous, cylindrical beak-like attenuations of the stromal surface.

Anamorph. – None known.

Stromal morphology. – Stromata black, subglobose or ellipsoidal with long axis parallel to fibres of wood, deeply sunken, surface marked by 7–22 irregularly spaced, dark cylindrical protuberances each perforated by an ostiolar canal and lighter in color around the ostiolar opening than elsewhere.

Stromal anatomy. – Composed of ectostroma and endostroma. – Ectostroma 40–50 µm wide, extending above the surface of the wood and surrounding the ostiolar canal as cylindrical protuberances, cells 6–10 µm diam forming *textura angularis* at the stromal exterior around the ostiola and at the sides, disposed in a conspicuous palisade, with brown walls, occluded by dark brown pigment in the outermost layer except around the ostiolar opening where pigment is lacking; cells of the ectostroma within the wood less well organized, smaller and darker brown. – Endostroma of cells 2.5–3 µm diam, forming *textura intricata* with olive-brown walls, pockets of colorless amorphous material 7.5–30 x 10–40 µm scattered among the perithecial beaks; fragments of wood found within the endostroma among the perithecial venters. – Perithecia subglobose, 200–500 µm, deeply immersed in wood, perithecial wall membranous, 15–25 µm wide, of *textura angularis*, adjacent perithecia discharging into a common, periphysate ostiolar canal. – Asci cylindrical, 50–60 x 4–5(-6) µm, 8-spored, apex truncate, sometimes appearing to have a minute, inconspicuous ring. – Ascospores ellipsoidal to cylindrical, 6–7(-9) x 3–4 µm, unicellular, biguttulate, with an inconspicuous pore at the basal end, light brown. – Paraphyses exceeding the asci by 50–90 µm, 1.5–2.5 µm wide, septate, not constricted at septa, thin-walled, infrequently branched with tips plane or slightly clavate, abundant.

Habitat. – Decorticated wood.

Distribution. – Argentina (Buenos Aires), known only from the type collection.

Material examined. – ARGENTINA: Buenos Aires: San Pedro, Gobernador Castro, Feb 1982, leg. Romero 9/22–4 (BAFC 32012, isotype BPI).

Camarops rostratus resembles species of the *C. lutea* (Alb. & Schw.: Fr.) Nannf. group (Nannfeldt, 1972) because of the pulvinate shape of the stroma, and because of the polystichous perithecia. It differs from all other species of *Camarops* (Nannfeldt, 1972; Hilber

& HILBER, 1980) in its stout, cylindrical protuberances that are actually outgrowths of the stromal surface, and because of the colorless amorphous material and fragments of wood that are enclosed within fungal tissue around the beaks and among the perithecial venters respectively. Wood fragments are apparently more numerous in *C. lutea* than in *C. rostratus* because of NANNFELDT's (1972: 347) comment about the difficulty of making microtome sections of its stroma; we encountered no difficulty in making sections of *C. rostratus*. He also noted that young stromata are covered by „microscopical" crystals (NANNFELDT, 1972: 347). Instead of crystals in *C. rostratus* we found the amorphous material mentioned above. NANNFELDT's (1972: 349) description of *C. pugillus* (SCHW.) SHEAR is strongly suggestive of *C. rostratus*, but material that he cited at BPI (U.S.A., NEW YORK: Schroon Lake, 4 Aug 1927, C. L. SHEAR. U.S.A., VIRGINIA: Arlington Cemetery, 11 Feb 1939, C. L. SHEAR; U.S.A., TENNESSEE: Indian Gap Road, 18 Aug 1939, C. L. SHEAR) is not at all similar to our fungus. The stromata in these collections are almost completely immersed within the wood. The ectostroma is only slightly erumpent, and the perithecial necks are marked by rounded outgrowths of the ectostroma that, at first glance, appear like ascomata of a *Botryosphaeria* species.

Clypeosphaeriaceae

Endoxyla avocetta (COOKE & ELLIS) ROMERO & SAMUELS, comb. nov. – Pl. 3, M-P; Pl. 6, G-J.

Bas.: *Sphaeria avocetta* COOKE & ELLIS. – Grevillea 8: 15. 1879.

Syn.: *Ceratostoma avocetta* (COOKE & ELLIS) SACCARDO. – Syll. Fung. 1: 216. 1882.

Anamorph. – None known.

Perithecia globose to subglobose, 350–500 µm diam, black, solitary, venter immersed, surrounded by mycelium, hyphae 2.5–5 µm diam; neck cylindrical, 300–700 x 90–120 µm, central, bent, black. – Perithecial wall 25–40 µm wide, cells forming *textura prismatica* to *textura angularis*. – Asci cylindrical, 72 x 5–7.5 µm, with eight, uniseriate ascospores, floating free, apical ring J-. – Ascospores ellipsoidal, 9–12 x 3–4 µm, unicellular, 1–2-guttulate, smooth, brown, with an inconspicuous basal pore. – Paraphyses cylindrical, 3–6 µm diam, unbranched, exceeding the asci by 75–90 µm, thin walled, tapering to the tips, abundant.

Habitat. – Decorticated wood.

Distribution. – Argentina, USA (New Jersey).

Material examined. – ARGENTINA: Buenos Aires: San Pedro, Gobernador Castro, Aug 1981, ROMERO 6/22–8 (BAFC 37027); Feb 1982, ROMERO 9/22–4 (BAFC

32028); Feb 1982 Romero 38/22–4 (BAFC 32029); May 1982, Romero 19/22–4 (BAFC 32030); Aug 1982, Romero 10/22–4 (BAFC 32031). – USA. New Jersey: Newfield, host unknown, Jan 1876, J. B. Ellis (isotype; BPI, as *Ceratostoma avocetta*).

Our material agrees well with the specimen cited above that was from the Ellis collection and annotated by C. L. Shear as „app. part of type coll." We have no reason to doubt that this is an isotype.

According to Cannon & Hawksworth (1982) *Ceratostoma* Fr. is a later synonym of *Melanospora* Corda, while *Ceratostoma* Sacc. is synonymous with *Arxiomyces* Cannon & Hawksworth (Cannon & Hawksworth, 1983). *Sphaeria avocetta* is not melanosporaceous and thus cannot be accommodated in either *Melanospora* or *Arxiomyces*.

We were first attracted to the Gnomoniaceae Winter (Diaporthales) as a place for *Sphaeria avocetta* because the asci float free in microscope preparations, and because of the ascal apex, which has a more or less diaporthaceous ring. There is a strong morphological similarity of the ascomata to those of species of *Gnomoniella* Saccardo. However, the conspicuous, apically free paraphyses, and the unicellular brown ascospores are more characteristic of *Endoxyla* Fuckel, a genus of the Clypeosphaeriaceae Winter (*sensu* Barr, 1990). Although the pore in the ascospores of *E. avocetta* is distinctive and unusual, ascospores of some species of *Endoxyla* also have a single germ pore (Barr, 1990).

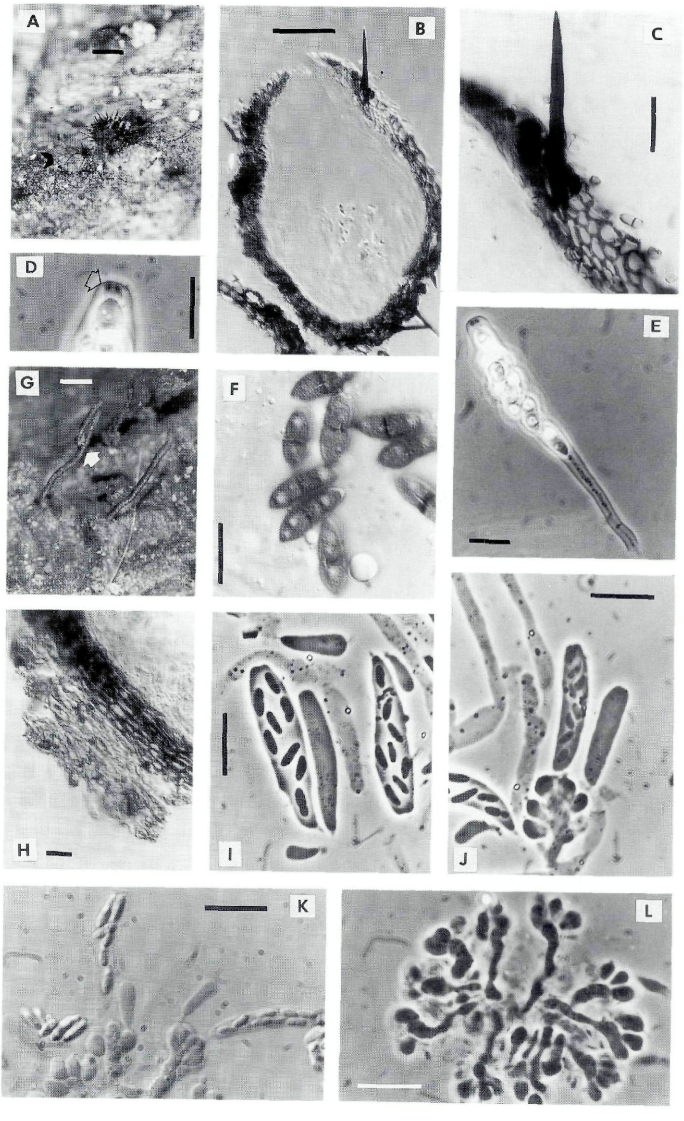
Trichosphaeriaceae

Porosphaerella setosa Romero & Samuels, sp. nov. – Pl. 2, A-F; Pl. 4, D-G.

Perithecia nigra, pyriformia vel conica, papillata, 340–500 x 200–300 µm, solitaria vel gregaria, superficialia, setosa. Setae rigidae, nigrae, aseptatae, non ramosae, apice acuto. Asci clavati, 90–120 x 10–15(-20) µm, annulo conspicuo, J- praediti. Ascosporae ellipsoideae, 10–15 x 4.5–5(-8) µm, bicellulares, septo mediano vel supramediano, pauloque constricta in medio, poro in polis, 1–2-guttulatae, castaneae, punctatae. Paraphyses non visae. Status anamorphicus ignotus. In ligno decorticato. Argentina. Typus BAFC 32013.

Etymology. – „setosa" refers to the conspicuous perithecial setae.

Pl. 2. – A-F. *Porosphaerella setosa*. – A. Macroscopic appearance of perithecia. – B. Median longitudinal section of a mature perithecium. – C. Median longitudinal section of perithecial apex showing wall anatomy and a seta. – D. Ascal apex with apical ring (arrow). – E. Ascus with ascospores. – F. Discharged ascospores showing ornamented walls. – G-L. *Jattaea stachybotryoides*. – G. Macroscopic appearance of two immersed perithecia with long necks. – H. Median longitudinal section of perithecium showing wall anatomy. – I. Asci floating free; note appendix at ascal base. – J, K. Asci in various stages of development attached to ascogenous hyphae. Paraphyses shown in J. – L. Ascogenous hyphae before the formation of asci. Scale bars: A = 300 µm; B = 100 µm; C = 25 µm; D = 10 µm; E, F, I-L = 10 µm; G = 50 µm; H = 2,5 µm.



Anamorph. – None known.

Perithecia pyriform to conical, 340–500 µm high, 200–300 µm wide, black, superficial on immersed mycelium, solitary or gregarious, papillate, setose; setae 48–90 µm long, 6 µm at base, stiff, black, aseptate, unbranched, ends acute. – Perithecial wall 25–35 µm wide, cells angular, walls thickened and dark brown. – Asci clavate, 90–120 x 10–15(-20) µm, with eight, biseriate ascospores, apical ring conspicuous, J-. – Ascospores ellipsoidal, 10–15 x 4.5–5(-6) µm, equally 2-celled or less frequently with the septum supramedian, slightly constricted at the septum, with a pore at each end, 1–2-guttulate, punctate, brown. – Paraphyses not observed.

Habitat. – Decorticated wood.

Distribution. – Argentina, known only from the type locality.

Material examined. – ARGENTINA: Buenos Aires: San Pedro, Gobernador Castro, on *Eucalyptus viminalis*, Feb 1982, Romero 21/22–4 (BAFC 32014), Aug 1982, Romero 21/22–8 (BAFC 32015), Romero 37/22–8 (BAFC 32016); May 1983, 30/22–8 (BAFC 32013, holotype), Romero 30/22–8 (BAFC 32017), Romero 34/22–4 (BAFC 32018).

As in *Porosphaerella cordanaphora* Müller & Samuels (Müller & Samuels, 1982) asci have a conspicuous apical ring and the ascospores are brown, bicellular, and have a pore at each end. Perithecia of *P. cordanaphora* are glabrous and ascospores of that species are not constricted at the septum. The anamorph of *P. cordanaphora* is conspicuous, a species of *Cordana*. Unfortunately no anamorph was found to be associated with perithecia of *P. setosa*.

II. **Calosphaeriales**

Two new species of the Calosphaeriales were encountered. Generic placement of these species was difficult because the combined characters of ascogenous hyphae and asci of each species seemed to exclude them from the genera of the order as it was recently defined by Barr (1985, 1990). This is yet another example of an order of unitunicate pyrenomycetes that will benefit from intensive study with special attention given to detailed description of the unusual ascogenous hyphae and of ascal formation.

Jattaea stachybotryoides Romero & Samuels, sp. nov. – Pl. 2, G-L; Pl. 4, O-S.

Perithecia immersa vel superficialia, solitaria vel gregaria, ventribus globosis, 130–180 µm diam, tomento castaneo flavido et collis longis, nigris, centralibus, rectis vel leviter flexuosis, raro ramosis. Ascogenae hyphae discretae, cellulis apicalibus vel in parvos greges dispositis, unde asci enascentes. Fibulae non visae. Asci oblongo-

clavati, 18–25 x 4–6 µm, apice crasso. Ascosporae cyulindricae-oblongae, 3–6 x 1.5–2 µm, unicellulares, biguttulatae, hyalinae, laeves. Paraphyses adsunt. In ligno decorticato et cortex. Argentina. Typus BAFC 32019.

Etymology. – „stachybotryoides" refers to the resemblance of an ascogenous hypha with its terminal cluster of ellipsoidal cells and immature asci, to the conidiophore and swollen phialides of species of the anamorph genus *Stachybotrys*.

Anamorph. – None known.

Perithecia globose, 180–350 µm diam, immersed or superficial, solitary or gregarious, black, each with a central, straight or slightly undulate, unbranched or rarely once branched, 200–350 µm long brown neck usually perpendicular to the substrate, rarely parallel; perithecial venter covered by a golden-brown tomentum, hyphae of tomentum extending beyond aggregated perithecia as a thin, loose stromatic layer of 2–4.5 µm wide, yellowish, thick-walled hyphae, releasing a yellow pigment in 3% KOH; perithecial neck glabrous. – Ascogenous hyphae discrete, aseptate, 9–17 µm long, 2–3 µm wide, proliferating, each sequentially and simultaneously producing several lateral and terminal, dehiscent, ellipsoidal, 3–5 x 2–3 µm cells from each of which one ascus arises as an outgrowth; croziers not seen. – Asci oblong-clavate, 18–25 x 4–6 µm, apex conspicuously thickened, with a short appendix remaining at base after ascal dehiscence from ascogenous hyphae. – Ascospores cylindric-oblong, 3–6 x 1.5–2 µm, unicellular, biguttulate, hyaline. – Paraphyses much longer than the asci, 2–6 µm wide at tip, septate, not constricted at septa, thin-walled, infrequently branched with cylindrical tips, abundant.

Habitat. – Bark and decorticated wood.

Distribution. – Argentina (Buenos Aires), known only from the type locality.

Material examined. – ARGENTINA: Buenos Aires: Ramallo, Ramallo, Nov 1981, Romero 38/4–13 (BAFC 32020), Nov 1982, Romero 6/4–13 (BAFC 32019, holotype; BPI isotype), Feb 1983, Romero 34/4–13 (BAFC 32021), May 1983, Romero 18/4–13 (BAFC 32022).

Asci in an isotype collection of *Jattaea microtheca* (Cke. & Ellis) Berlese (Ellis, North American Fungi 580; BPI, two portions), the type species of *Jattaea* Berlese, are similar to those of *J. stachybotryoides* in that they are distinctly clavate and arise from ellipsoidal cells from the tips of short ascogenous hyphae; croziers were conspicuous among the ellipsoidal cells in this collection. In the sense of Barr (1985) asci of *Jattaea* do not proliferate, but they appear to have proliferated in the material of both *J. microtheca* and *J. stachybotryoides* that we studied.

The golden-brown tomentum covering the perithecial venter and growing away from aggregated perithecia is distinctive. Below the surface, the hyphae have a decidedly yellow coloration. Other members of the Calosphaeriales have perithecial tomenta (e.g. *Calosphaeria ludens* BERLESE, *Jattaea microtheca*; BERLESE, 1900). The tomentum in *J. microtheca* is brown and inconspicuous, and its neck is short and papillate.

Erostella minutissima ROMERO & SAMUELS, sp. nov. – Pl. 3, A-C; Pl. 4, L-N.

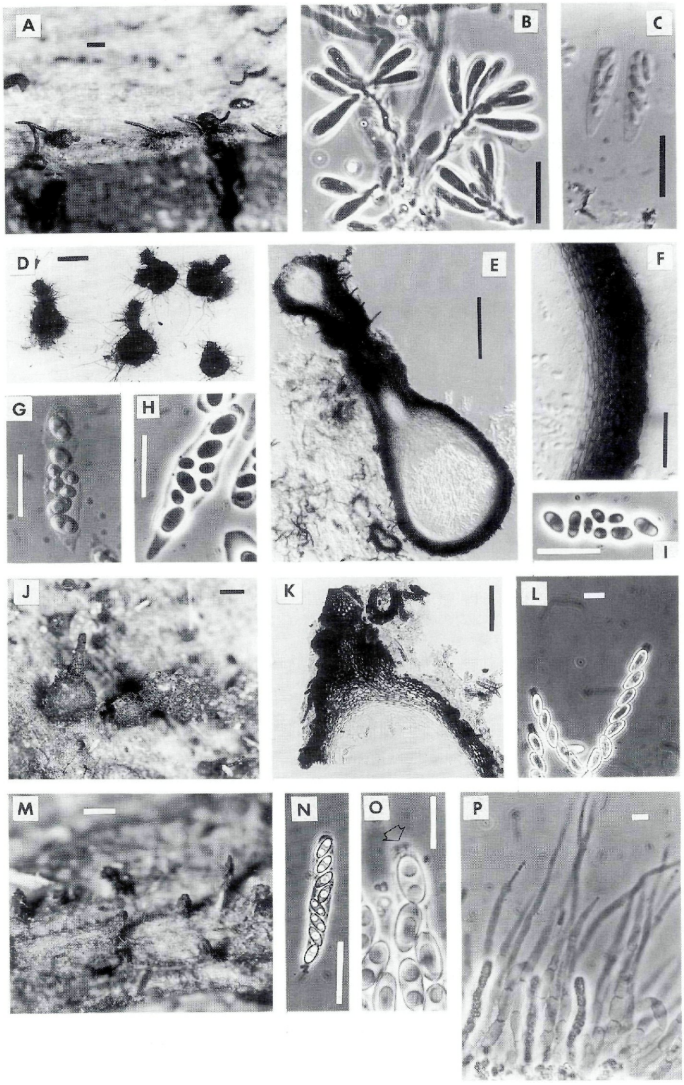
Perithecia nigra, immersa vel superficialia, solitaria vel gregaria, ventribus globosis, diam 150–250 µm et collis longis 200–250 µm, centralibus vel excentricis, rectis, glabrata. Ascogenae hyphae discretae, aseptatae, ascis terminalis et lateralis. Fibulae non visae. Asci oblongo-clavati, 15–18 x 4–5 µm, apice conspicuo crasso, puncto refractivo, J-. Ascosporae cylindricae-oblongae, 3–5 x 1.5–2 µm, unicellulares, eguttulatae, hyalinae, laeves. Paraphyses adsunt. Status anamorphicus ignotus. In ligno decorticato. Argentina. Typus BAFC 32023.

Etymology. – „minutissima" refers to the ascospores that are half the size of ascospores of *E. minima*.

Anamorph. – None known.

Perithecia globose, 150–200 µm diam, immersed or superficial, solitary or gregarious, black, each with a central to eccentric, straight, unbranched, 200–250 µm long black neck parallel or perpendicular to surface of substrate; perithecial venter and neck glabrous. – Ascogenous hyphae discrete, aseptate, 20–23 µm long, 2 µm wide, proliferating, each sequentially producing several lateral and terminal asci; croziers not seen. – Asci oblong-clavate, 15–18 x 4–5 µm, apex conspicuously thickened and with a single, refractive dot, J-. – Ascospores cylindric-oblong, 3–5 x 1.5–2 µm, unicellular, eguttulate, hyaline. – Paraphyses much longer than the asci, 3–5 µm wide at the tip, septate, not constricted at septa, thin-walled, infrequently branched with clavate tips, abundant.

Pl. 3. – A-C. *Erostella minutissima*. – A. Macroscopic appearance of perithecia with long necks. – B. Asci arising from ascogenous hyphae. – C. Two dehisced asci. – D-I. *Gnomoniella dimorphospora*. – D. Macroscopic appearance of five perithecia. – E. Median longitudinal section of a mature perithecium. – F. Median longitudinal section of a mature perithecium showing anatomy of lateral wall. – G-I. Asci with dimorphic ascospores. – J-L. *Gnomoniella lignicola*. – J. Macroscopic appearance of beaked perithecia. – K. Off median longitudinal section of a mature perithecium. – L. Asci and ascospores. – M-P. *Endoxyla avocetta*. – M. Macroscopic appearance of emergent papillae of immersed perithecia. – N. Ascus with ascospores. – O. Ascal apex (arrow) and ascospores. – P. Paraphyses interspersed among developing asci. Scale bars: A = 200 µm; B, C, G-I, L, O = 10 µm; D, J = 250 µm; E = 150 µm; F = 20 µm; K = 125 µm; M = 100 µm; N = 35 µm; P = 6 µm.



Habitat. – Decorticated wood.
Distribution. – Argentina (Buenos Aires).

Material examined. – ARGENTINA: Buenos Aires: Ramallo, Ramallo, Aug 1981, Romero 39/4–13 (BAFC 32023, holotype; BPI, isotype). Buenos Aires: San Pedro, Gobernador Castro, Aug 1982, Romero 15/22–4 (BAFC 32024).

Erostella minutissima differs from *Erostella minima* (Tul. & Tul.) Traverso, the type species of *Erostella* (Sacc.) Traverso (*sensu* Barr, 1990) in having smaller ascospores and a longer neck. Asci in *E. minutissima* dehisce from the ascogenous hyphae leaving the remains of the ascal base attached to the ascogenous hypha. Because of the small size of the asci, we could not discern any more structure in the ascal apex than a single, refractive dot.

III. **Diaporthales**

Gnomoniaceae

Two new species of *Gnomoniella* were encountered in this study. Both were unusual in the genus because of their lignicolous habit; the previously known species of the genus occur on herbaceous tissue, including petioles. The superficial perithecia with unicellular ascospores in asci that readily come free in the centrum are otherwise characteristic of *Gnomoniella* (Barr, 1978; Monod, 1983). The ascal apex of *G. dimorphospora* lacks a discharge mechanism whereas the apical ring in *G. lignicola* is conspicuous and typical of the Diaporthales.

Gnomoniella dimorphospora Romero & Samuels, sp. nov. – Pl. 3, D-I; Pl. 4, H-K.

Perithecia non in stromatibus, nigra, solitaria, semiimmersa, leviter lanata, hyphis undulatis, fuscis, septatis, ventribus globosis, diam 250–300 µm, et collis longis, rectis, centralibus. Asci cylindrico-clavati, 20–30 x 5–6(-8) µm, apice simplici,

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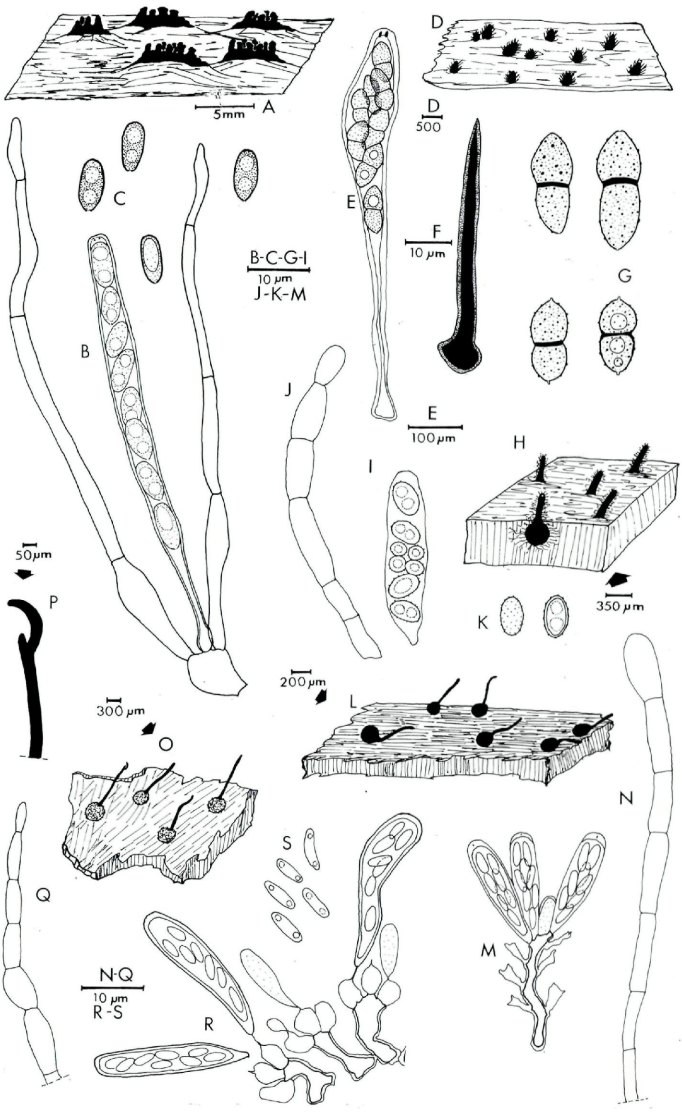
Pl. 4. – A-C. *Camarops rostratus*. – A. Macroscopic appearance of beaks emerging from ascomata immersed in wood. – B. Paraphyses and ascus with ascospores. – C. Four discharged ascospores. – D-G. *Porosphaerella setosa*. – D. Macroscopic appearance of ascomata on wood. – E. Ascus with ascospores. – F. A seta. -G. Four discharged ascospores. – H-K. *Gnomoniella dimorphospora*. – H. Macroscopic appearance of perithecia immersed in wood. – I. Ascus with ascospores. – J. Apical portion of a paraphysis. – K. Two discharged ascospores. – L-N. *Erostella minutissima*. – L. Macroscopic appearance of six superficial, beaked perithecia. – M. Asci attached to an ascogenous hypha. – N. One paraphysis. – O-S. *Jattaea stachybotryoides*. – O. Macroscopic appearance of four superficial, beaked perithecia. – P. One branched perithecial neck. – Q. One paraphysis. – R. Asci attached to ascogenous hyphae. – S. Five discharged ascospores.



tetrasporis magnis et tetrasporis parvis, raro octosporis similibus. Ascosporae magnae ellipsoideae, 4–6(-7)) x 2.5–3(-5) µm, ascosporae parvae subglobosae, diam. 1.8–2.5 µm, ambo unicellulares, 1-biguttulatae, tuberculatae, hyalinae. Paraphyses adsunt. Status anamorphicus ignotus. In ligno decorticato. Argentina. Typus BAFC 32025.

Etymology. – „dimorphospora" refers to two different sizes of ascospores.

Anamorph. – None known.

Perithecia globose, 250–350 µm diam, black, semi-immersed in tissue of substrate, solitary, nonstromatic; each with a central, straight, unbranched, cylindrical, 150–350 µm long, 75–80 µm diam, black neck; perithecial venter and neck covered by dark brown, undulate, septate, 2.5–3 µm hyphae; hyphae septate, unbranched, dark brown at base, lighter at tip, tapering to a subacute to round tip. – Perithecial wall 20–25 µm wide, cells forming small-celled *textura angularis*. – Asci cylindrical to clavate, 20–30 x 5–6(-8) µm, apex simple, forming in a hymenium over the entire inner surface of the perithecial wall and readily detached; with four large and four small ascospores in each ascus, rarely with eight ascospores of uniform large size. – Ascospores unicellular, biguttulate, tuberculate, hyaline; large ascospores ellipsoidal, 4–6(-7) x 2.5–3(-5) µm; small ascospores subglobose, 1.8–2.5 µm diam. – Paraphyses 50–70 x 3–4 µm, slightly constricted at septa, unbranched, thin-walled, tip sometimes clavate, abundant.

Habitat. – Decorticated wood.

Distribution. – Argentina, Buenos Aires, known only from the type locality.

Material examined. – ARGENTINA. Buenos Aires: Ramallo, Ramallo, Aug 1982, Romero 10/4–13 (BAFC 32025, holotype). Buenos Aires: San Pedro, Gobernador Castro, Aug 1981, Romero 37/22–8 (BAFC 32086); Feb 1982, Romero 23/22–4 (BAFC 32087), Romero 8/22–4 (BAFC 32088); May 1983, Romero 9/22–4 (BPI).

Gnomoniella dimorphospora is unusual because it is lignicolous in a primarily herbicolous family (Barr, 1978; Monod, 1983), because of the brown hyphae that arise from the surface of the perithecial wall, and because of the ornamented ascospores. *Gnomoniella abortiva* Monod (Monod, 1983) is similar to *G. dimorphospora* in that its asci contain dimorphic ascospores, but in *G. abortiva* four ascospores are fully-formed while the remaining four are clearly aborted. All ascospores in *G. dimorphospora* are apparently normal. Perithecia of *G. abortiva* are glabrous and form on stems and petioles of members of the Rosaceae.

One collection of *G. dimorphospora* was interesting, because perithecia formed within the basidiome of *Hyphoderma setigerum*

(Fr.) Donk. Although brown hyphae of the *Gnomoniella* grow throughout the basidiome, there is no indication of parasitism in either direction.

Gnomoniella lignicola Romero & Samuels, sp. nov. – Pl. 3, J-L; Pl. 6, D-F.

Perithecia non in stromatibus, nigra, glabrata, superficialia, ventribus globosis, diam 400–800 µm et collis longitudine 400–500 µm praedita, centralibus, rectis. Asci cylindrici, 75–95 x 7.5 µm, annulo apicali conspicuo, J-. Ascosporae asymmetricae, 9–12 x 4.5–5.5 µm, unicellulares, eguttulatae, laeves, hyalinae. Paraphyses adsunt. Status anamorphicus ignotus. In ligno decorticato. Argentina. Typus BAFC 32026.

Etymology. – „lignicolous" refers to the substrate.

Anamorph. – None known.

Perithecia globose, 400–800 µm diam, black, superficial, solitary, nonstromatic; each with a central, straight, unbranched, cylindrical, 400–500 µm long, 80 µm diam, black neck; perithecial venter and neck glabrous. – Perithecial wall 18–30 µm wide, cells forming small-celled *textura angularis*. – Asci cylindrical, 75–95 x 7.5 µm, forming in a hymenium over the entire inner surface of the perithecial wall and readily detached, with eight, uniseriate ascospores, apical ring conspicuous, J-. – Ascospores asymmetric with one side curved and one side flat, 9–12 x 4.5–5.2 µm, unicellular, eguttulate, smooth, hyaline. – Paraphyses ca. 100 x 9 µm, slightly constricted at septa, unbranched, thin-walled, tip narrowed and 4.5 µm wide, only few seen.

Habitat. – Decorticated wood.

Distribution. – Argentina, known only from the type specimen.

Holotype. – ARGENTINA: Buenos Aires: San Pedro, Gobernador Castro, Nov 1981, Romero 26/22–8 (BAFC 32026).

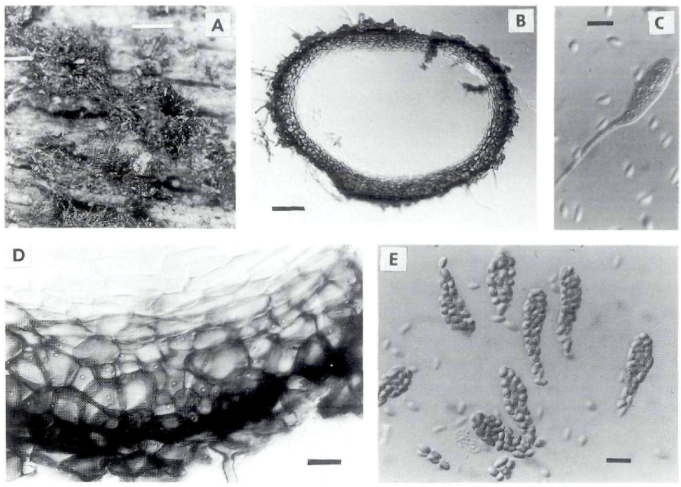
Gnomoniella lignicola is unusual in the genus because its ascospores are uniseriate in the ascus. Ascospores of the species discussed by Monod (1983) were biseriate.

IV. **Coronophorales**

Nitschkiaceae

Nitschkia variabilis Romero & Samuels, sp. nov. – Pl. 5; Pl. 6, A-C.

Perithecia subglobosa, diam 600–900 µm, superficialia, collabentia cum sicca, tomento castaneo iridescenti praedita. Asci clavati, 80–120 x 10–15 µm, 32-spori, pariete tenui, mox deliquescentes, apice simplici. Ascosporae praecipue ellipsoideae sed aliquando ellipticae, fusiformes, ovoideae, 6–10 x 3–5 µm, triseriatae, unicellulares, 1–2-guttulatae, laeves, hyalinae primo, castaneae postremo. In ligno decorticato. Argentina. Typus BAFC 32032.



Pl. 5. – *Nitschkia variabilis*. – A. Macroscopic appearance of perithecia on wood. – B. Median longitudinal section of a mature perithecium. – C. One immature ascus. – D. Longitudinal section of a perithecial wall showing Munk pores. – E. Mature asci with ascospores. Scale bars: A = 500 µm; B = 100 µm; D-E = 10 µm.

Etymology. – „variabilis" refers to the lack of uniformity in ascospore shape in this species.

Anamorph. – None known.

Perithecia subglobose, 600–900 µm diam., becoming cupulate, superficial, surrounded by an iridescent brown tomentum, hyphae of tomentum 2.5–4 µm diam., straight or undulate, light brown, with thick, dark brown septa. – Perithecial wall 50–100 µm wide, cells forming *textura angularis*, „Munk pores" conspic-

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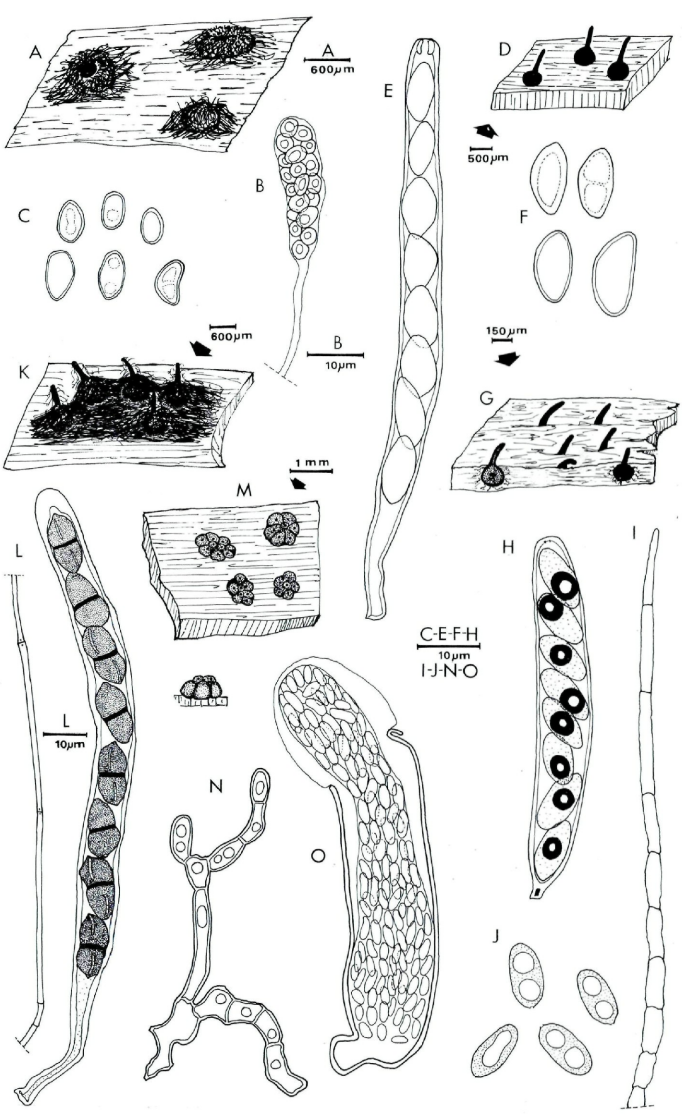
Pl. 6. – A-C. *Nitschkia variabilis*. – A. Macroscopic appearance of three perithecia. – B. Ascus with ascospores. – C. Six discharged ascospores. – D-F. *Gnomoniella lignicola*. – D. Macroscopic appearance of three beaked perithecia. – E. Ascus with ascospores. – F. Four discharged ascospores. – G-J. *Endoxyla avocetta*. – G. Macroscopic appearance of several immersed perithecia. – H. Ascus with ascospores. – I. One paraphysis. – J. Four discharged ascospores. – K, L. *Delitschia corticola*. – K. Macroscopic appearance of perithecia covered by a tomentum on wood. – L. One paraphysis (left) and one ascus with ascospores; ascospores have a slit in each cell. – M-O. *Moristroma polyspora*. – M. Macroscopic appearance of five ascostromata. – N. Branching filament of the hamathecium. – O. Ascus filled with ascospores; thick endotunica extending beyond the ectotunica.



uous. – Asci clavate, 80–120 x 10–15 µm, stipitate, with thirty-two, triseriate ascospores in each ascus; ascal wall thin, early deliquescent, apex simple. – Ascospores basically ellipsoidal but commonly elliptic-fusiform, or ovoidal, 6–10 x 3–4 µm, unicellular, 1–2 -guttulate, smooth, hyaline but becoming light brown.

Habitat. – Decorticated wood.

Distribution. – Argentina, known only from the type locality.

Material examined. – ARGENTINA: Buenos Aires: San Pedro, Gobernador Castro. on *Eucalyptus viminalis*, Feb 1982, Romero 28/22–8 (BAFC 32033); Aug 1982, Romero 6/22–4 (type, BAFC 32032); May 1983, Romero 7/22–4 (BAFC 32034).

Nitschkia variabilis is characterized by the extreme variability in the shape of its ascospores and by their brown coloration. Ascospores in most other species (Nannfeldt, 1975) have uniform morpology and are colorless. Ascospores in *N. confertula* (Schw.) Nannf. are variable in shape and become „smoky grey" (Nannfeldt, 1975), but asci in this North American species contain only eight spores. Perithecia of one collection of *N. confertula* that was cited by Nannfeldt (Ravenel, Fungi caroliniani 54, as *Sphaeria euomphala* Berk. & Curt, BPI) are seated on a scant subiculum and the perithecial wall is glabrous.

Loculoascomycetes

I. **Melanommatales**

Fenestellaceae

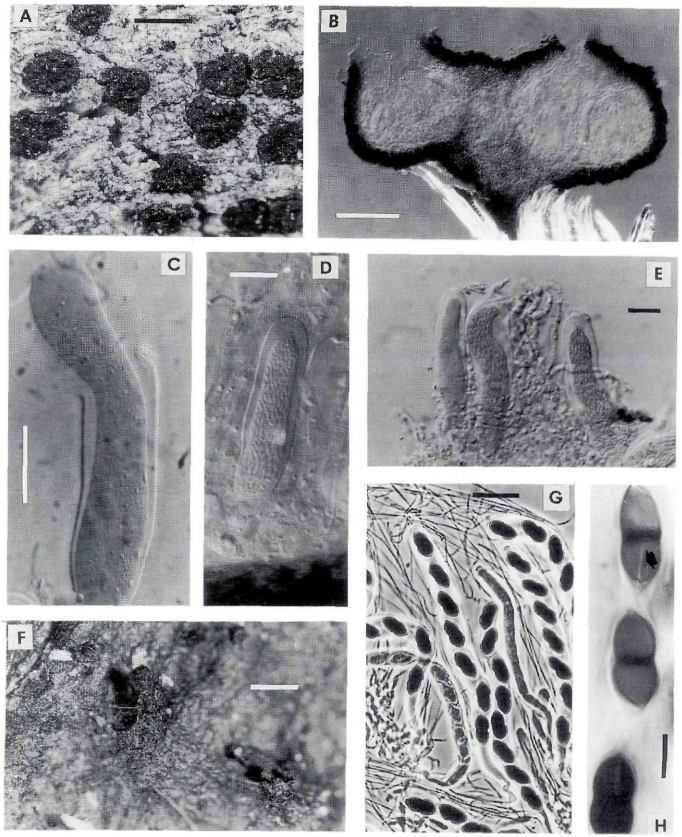
Delitschia corticola Romero & Samuels, sp. nov. – Pl. 6, K, L; Pl. 7, F-H.

Perithecia nigra, superficialia, ventribus globosis, diam 400–800 µm, tomento fusco iridescenti, et collis longitudine 400–700 µm, centralibus, rectis praedita. Asci cylindrici, 180–240 x 12–15 µm, bitunicati. Ascosporae ellipticae-fusiformes, 20–24 x 9–11 µm, bicellulares, fuscae, septo mediano nigro, constricta in medio, fissura germinali in 1 vel 2 cellula, laeves. Pseudoparaphyses filiformes, anastomosantibus. Status anamorphicus ignotus. In cortice. Argentina. Typus BAFC 32035.

Etymology. – „Corticola" refers to the substrate, bark.

Anamorph. – None known.

Perithecia globose, 400–800 µm diam, black, superficial, solitary, each with a central, straight, unbranched, cylindrical, 400–700 µm long, 100–130 µm diam, black neck; perithecial venter and neck covered by dark brown, iridescent tomentum, hyphae of tomentum 2–2,5 µm diam. – Perithecial wall 30–50 µm wide, cells forming small-celled *textura angularis*. – Asci cylindrical, 180–240 x 12–15 µm, bitunicate, with eight, uniseriate ascospores. –



Pl. 7. – A-E. *Moristroma polyspora*. – A. Macroscopic appearance of several ascostromata on wood. – B. Median longitudinal section of one ascostroma showing two locules. – C. Dehiscent, immature ascus. – D. Ascus with ascospores. – E. Asci with interspersed hamathecial filaments. – F-H. *Delitschia corticola*. – F. Macroscopic appearance of a superficial ascoma. – G. Asci with narrow hamathecial filaments. – H. Ascospores in an ascus; germ slit indicated by an arrow. Scale bars: A = 1 mm; B = 100 µm; C-E = 10 µm; F = 250 µm; G, H = 20 µm.

Ascospores elliptic-fusiform, 20–24 x 9–11 µm, equally 2-celled, constricted at the septum, each cell with a germ slit, germ slit the entire length of each part ascospore, smooth, very dark brown, near black. – Hamathecium of very thin, 0.6–1 µm, septate, branched and anastomosing filaments.

Habitat. – On bark.

Distribution. – Argentina, known only from the type specimen.

Material examined. – ARGENTINA: Buenos Aires: San Pedro, Gobernador Castro, on *Eucalyptus viminalis,* May 1982, Romero 21/22–8 (type, BAFC 32035).

Luck-Allen & Cain (1975) restricted *Delitschia* to coprophilous species, and excluded *D. gymnospora* Munk because it is found on rotten wood. They commented that ascospores in *D. gymnospora* have a germ-slit shorter than is usual in the genus, and lack a gelatinous sheath, while admitting that it is otherwise typical of *Delitschia.* The germ slit in the ascospores of *D. corticola* is typical of *Delitschia*, and we decline to exclude the species from the genus only on the basis of its admittedly unusual substrate. Using Luck-Allen & Cain's (1975) key to *Delitschia*, this new species is most comparable to *D. arestospora* Luck-Allen & Cain, a coprophilous species that has smaller ascospores that disarticulate while still in the asci. Perithecia of *D. xanthodera* Luck-Allen & Cain have a conspicuous beak and are covered by a deep orange tomentum.

II. **Pleosporales**

Dacampiaceae

Moristroma polysporum Romero & Samuels, gen. et sp. nov. – Pl. 6, M-O; Pl. 7, A-E.

Ascomata nigra, pulvinata, circularia, diam ad 1 mm, multiloculata. Asci obclavati, 40–66 x 12–13 µm, polyspori, pede brevi laterali basilari, bitunicati, fissitunicati. Ascosporae ellipticae, fusiformes, 3–4(-5) x 0.6–1.5 µm, unicellulares, eguttulatae, hyalinae, laeves. Contextus inter ascos compositus per filamentis septatis, guttulatis, ramosis. In ligno decorticato. Argentina. Typus BAFC 32036.

Etymology of the generic and specific epithets. – „Moristroma" refers to the external moruliform aspect of the ascostroma; „polysporum" refers to the large number of ascospores in each ascus.

Anamorph. – None known.

Ascomata cushion-like, black, circular in outline, superficial, to 1 mm diam, containing numerous locules, each locule 120–250 µm

diam, with numerous asci, with one opening; wall separating individual loculi poorly developed. – Ascomatal wall 18–25 µm wide, cells forming *textura angularis*. – Asci obclavate, 40–66 x 12–13 µm, polysporous, base with a short, laterally displaced, sometimes papillate foot-like stipe, apex very thick walled; bitunicate, dehiscence fissitunicate. – Ascospores fusiform, 3–4(-5) x 0.6–1.2 µm, unicellular, eguttulate, hyaline, smooth. – Hamathecium of cylindrical, 2.5–3 µm diam., septate, guttulate, branched filaments.

Habitat. – Decorticated wood.

Distribution. – Argentina, known only from the type locality.

Material examined. – ARGENTINA: Buenos Aires: Ramallo, Ramallo, on *Eucalyptus viminalis*, May 1982, Romero 27/4–13 (type, BAFC 32036; isotype BPI); Nov 1982, Romero 35/4–13 (BAFC 32037).

Moristroma is easily referred to the Pleosporales (*sensu* Barr, 1987) because of the numerous, distinctly cellular pseudoparaphyses among the bitunicate asci. It was more difficult to assign the genus to a family. We were unable to detect a three-layered perithecial wall, a key character of the Dacampiaceae in Barr's (1987) scheme, and were initially lead to the Lophiostomataceae, but we rejected that placement because paraphyses of *M. polysporum* are relatively broad and are not ensheathed in gel, and because the asci have a wide endotunica. Paraphysoids of the Lophiostomataceae (*sensu* Eriksson, 1981; Barr, 1987) are thin, embedded in gel and form a sheet-like complex above the asci, which have a thin endotunica. Ascospores in the Lophiostomataceae, following these authors, are hyaline or brown and multiseptate, the sequence of septum formation apparently precisely determined.

Paraphyses and asci of *M. polysporum* are strikingly similar to these structures in *Loculohypoxylon grandineum* (Berkeley & Ravenel) Barr (Ellis & Everhart, Fungi columbiani 324, BPI!; see Barr, 1976), which was included in the Dacampiaceae by Barr (1987). Like *Loculohypoxylon grandineum* and *Immotthia hypoxylon* (Ellis & Everhart) Barr, ascomata of *M. polysporum* are immersed in stromatic tissue. Adjacent locules of *M. polysporum* are separated by a thin layer of tissue whereas locules of *Loculohypoxylon grandineum* and *Immotthia hypoxylon* are unilocular; however, ascomata of *L. grandineum* can be connected (Barr, in litt. 5 Dec 1990). The polysporous asci are distinctive wherever they are found, but the feature is not indicative of higher relationships. *Plurisperma dalbergiae* Sivanesan (1970) also has polysporous asci, but its ascomata are immersed, nonstromatic, and have periphysoids in the ascomatal apex. *Plurisperma* was synonymized with *Muellerella* Hepp, a genus of uncertain position, by Arx & Müller (1975) and is possibly not a loculoascomycete.

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