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Notes on mostly neotropical fungi

M. L. Farr

Agricultural Research Center, Beltsville, MD 20705, USA

Zusammenfassung. – *Dimeriella maesae* wird zur Gattung *Lasiostemma* gestellt, da eine subkutikuläre Lage von Hyphen vorhanden ist. *Lasiostemma maesae* wird zum ersten Mal aus den Neotropen berichtet. *Dimerium asterinacearum* wird als eine neue, auf Asterinaceae schmarotzende Art beschrieben. *Echidnodella myrciae* und *Morenoina inaequalis* werden unter letzterem Namen vereinigt, und ihr wahrscheinlicher Anamorph als die neue Art *Acarella inaequalis* beschrieben. *Dimerosporium magnoliae* wird näher beschrieben und, wegen ihres Hypostromas und wegen ihres Myzels ohne Hyphopodien, aber mit Konidien, in *Dothidasteromella* eingereiht. Die Gattung wird zum ersten Mal aus Nordamerika und auf Magnoliaceae gemeldet. *Hysterostomella miconiae* wird auf Grund ihres hyphopodiertem Myzels zu *Lembosia* gestellt. Zwei Arten der Gattung *Lembosiopsis* (die Typusart *L. andromedae* und *L. eucalyptina*) werden diskutiert, und es wird empfohlen, die Gattung aufrecht zu erhalten. *Elattopycnis* ist ein *nomen dubium*.

1. ***Lasiostemma maesae*** (Hansf.) Farr, comb. nov. – Figs. 1–2

Bas.: Dimeriella maesae Hansford, Proc. Linn. Soc. London 157: 188. (for 1944–45) (1946).

Examination of isotype material from Uganda (Hansford 2799, BPI) confirmed Hansford's (loc. cit.) observations in the protologue concerning the presence of subcuticular mycelial plates (Fig. 1). The fungus therefore belongs in *Lasiostemma* Theissen & Sydow, as recently redefined (Farr, 1979). (The correct collection number of the type is 2799, not 1799 as cited in the published description).

My observations of this material digress slightly from the species diagnosis. Pseudoparaphyses are present, if scanty, among the asci (which were described as "aparaphysate"), as shown by 5 µm longitudinal sections as well as in crush mounts. The ripest ascospores, found on an Ecuadorian specimen (Dumont EC-692, NY; BPI), were pale brown and measured 14–16 × 6 µm rather than 16–18 × 4–5 µm as stated by Hansford. Young spores are hyaline, of about the same size as the brown ones, and contain a large guttule in each cell. Only one pale brown ascospore was seen in the type collection, and the perithecial setae were more abundant and generally longer than in the Ecuador material. The latter, gathered 19 July, 1975, in Prov. Pichincha on undet. host, to my knowledge represents the first record of *L. maesae* from the Neotropics.

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2. ***Dimerium asterinacearum*** FARR, sp. nov. – Figs. 3–5

Fungus epiphyllus, in plagulis *Asterinae* parasitans. Mycelium brunneum, ex hyphis ± sinuosis 2–4 µm diam constans. Perithecia glabra, ostiolata, olivaceobrunnea, 32–56 µm diam. Asci pyriformes, 8-spori, 22–30 × 10–16 µm; pseudoparaphysibus sparsis hyalinis filamentosis. Ascosporae phaeodidymae, clavulatae vel anguste ellipsoideae, 14–17 × 4–5 µm.

Holotype: COLOMBIA: Dpto. Cauca, Finca A. Castro between Popayan and El Tambo, on *Asterina ?melastomataceae* (P. HENN.) THEISSEN on leaves of *Miconia* sp., 14 July 1974, leg. DUMONT & al., DUMONT CO-1262, NY; isotype in BPI. Known only from the type.

Epiphyllous, hyperparasitic on *Asterina ?melastomataceae* (P. HENN.) THEISSEN. – Mycelium pale to medium brown, consisting of ± sinuous hyphae 2–4 µm thick, often forming strands of 2 or 3 parallel hyphae. – Perithecia smooth, ostiolate, olivebrown, 32–56 (mostly ca 48) µm in diam. – Asci pyriform, 8-spored, 22–30 × 10–16 µm; pseudoparaphyses scanty, hyaline, filamentous. – Ascospores 2-celled, light brown at maturity, hyaline and guttulate when young, clavulate or narrowly ellipsoid, (12–) 14–17 × 4–5 µm.

The host fungus conforms to the description of *Asterina melastomataceae* fairly well, but no material of the latter was available for comparison. The new species of *Dimerium* appears closest to *D. leptosporum* SPEG., *D. ramosii* (SYD.) SACC., and *D. saccardinulae* ARN. It has considerably smaller ascomata than the first two species, shorter asci than *D. leptosporum,* and wider spores than *D. ramosii.*

Dimerium asterinacearum differs from *D. saccardinulae* in that the latter has fusiform spores and grows on members of the Myriangiaceae.

3. *Echidnodella myrciae* RYAN (Mycologia 16: 195. 1924) and *Morenoina inaequalis* MAUBLANC ex ARNAUD (Ann. École Agric. Montpellier, n. s. 16: 139. 1918.)

Type material of these taxa was compared and found to be identical. The former taxon thus becomes a synonym of the latter. Both taxa are characterized by absence of external mycelium; linear to ellipsoid or branched ascomata (120–) 184–240 (–400 when branched) × 55–105 µm; eight-spored, aparaphysate ovoid, obovoid, or pyriform asci (18–) 22–28 (14–17, fide RYAN, loc. cit.) × 9–12 µm; and conglobate, phaeodidymous, ovoid to ellipsoid or subclavulate ascospores (8–) 10–12 × 4–6 µm. The size ranges of the two taxa coincide or overlap.

Some of the colonies on the type collection of *Echidnodella myrciae* are overrun by the brown mycelium of an *Asterinella*-like fungus. This undoubtedly accounts for RYAN's (loc. cit.) mention of superficial hyphae, and her generic choice of *Echidnodella* THEISSEN & SYDOW, a genus characterized by free mycelium.

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A detailed, handwritten description (with sketch) accompanies the type material of *Morenoina inaequalis,* and the fungus is excellently illustrated by ARNAUD (loc. cit., pl. XXII).

On both MAUBLANC's and RYAN's types, *Morenoina inaequalis* is associated with a pycnothyrial fungus which was recognized and pictured (but not named) by ARNAUD and probably represents a spermatial anamorph. It conforms to the genus *Acarella* SYDOW but does not fit either of the two known species, *A. costaricensis* SYDOW or *A. pernambucensis* BATISTA. Hence it is described here as a new species.

Acarella inaequalis FARR, sp. nov. – Figs. 6–9

Mycelium superficiale nullum. Pycnothyria brunnea, ± orbicularia, 56–104 (–152) µm diam; scutello texturae radiatae; membrana basali tenella, subhyalina. Conidiophora non visa. Conidia unicellularia, hyalina, cylindracea vel subclavulata, 6–8 × 2 µm.

Holotype: PUERTO RICO: Jajome Alto, on *Myrcia splendens* DC., 17 July 1915, leg. STEVENS 8431, assoc. with type material of *Echidnodella myrciae* RYAN, BPI. – Paratype: BRAZIL: Rio de Janeiro, Corcovado, on myrtaceous host, 8 Feb, 1914, leg. MAUBLANC 295 (cited as 296 by ARNAUD), assoc. with type material of *Morenoina inaequalis* MAUBL. EX ARN., PC; slides in BPI.

External mycelium absent. – Pycnothyria brown, ± orbicular, 56–104 (–152) µm in diam, rupturing ± stellately, sometimes with a small pore at maturity; scutellum of *textura radiata;* basal membrane delicate, subhyaline. – Conidiophores not observed. – Conidia one-celled, hyaline, cylindric to subclavulate, 6–8 × 2 µm, with apex rounded and base often slightly narrowed and flattened.

The new species differs from the other two by its longer conidia (2–3 µm in *A. costaricensis* and 4–6.5 µm in *A. pernambucensis*). Furthermore, the scutellum texture of *A. pernambucensis* is more irregular.

4. A new combination in *Dothidasteromella.* – Figs. 10–11

An examination of type material of *Dimerosporium magnoliae* TRACY & EARLE revealed that this asterinaceous fungus has a hypostroma, nonhyphopodiate mycelium, and mycelial conidia – a combination of features characteristic of *Dothidasteromella* v. HÖHNEL. The following new combination is therefore proposed:

Dothidasteromella magnoliae (TRACY & EARLE) FARR, comb. nov.

Bas.: *Dimerosporium magnoliae* TRACY & EARLE, Bull. Torrey Bot. Club 22: 175–176. (1895). Holotype: Mississippi: Ocean Springs, on living leaves of *Magnolia virginiana,* May 1894 (BPI). – Isotype: Missouri Bot. Garden Herb. 20924 (BPI).

The expanded description of *D. magnoliae* presented here disagrees with the original diagnosis in certain dimensions or other details. TRACY & EARLE's descriptions are given in parentheses.

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Colonies epiphyllous, black, ± rounded, up to 5 mm in diam, sometimes confluent. – Mycelium abundant, densely reticulate, consisting of dark brown hyphae 3–6 µm thick which bear occasional intercalary or terminal, darker, swollen or pyriform cells 18–26 × 10 (tapering to 5) µm, and conidia on darker, subglobose, ovoid, or pulvinate conidiogenous cells 6.5–8.5 µm wide and 5–7 µm high or on dark brown, nonseptate phialide-like hyphae 16–20 µm long. – Conidia dark brown, 4–5-septate at maturity, obclavulate (clavate), 40–50 (45–55) × 7–8 µm, with flat attachment scar that may be dark and thickened to 2 µm, and with striately sculptured walls. – Hypostroma between cuticle and epidermis, connected by brown hyphal plugs with the external mycelium, consisting of a layer of mostly brown cells 4–8 µm wide, 4–14 µm high. – Ascomata gregarious, black, depressed hemispherical, astomous, 120–160 (50–100) µm in diam, 25–55 µm high; scutellum carbonous, mostly 10–12 µm thick, sometimes becoming thinner toward the radiate margin; basal membrane light brown, ca 1 µm thick. – Asci broadly ovoid or obovoid, 8-spored, 25–30 × 22–28 (45–50 × 35–40) µm. – Ascospores 2-celled, dark brown at maturity, ± obovoid, constricted at the septum, 16–18 (20–23) × 9–10 µm.

Scattered portions of the hypostroma may be hyaline, especially near colony margins. In the brown sections the cells usually have delicate vertical walls, whereas the upper (horizontal) walls may be thickened up to one µm.

Many small bodies of the size given for ascocarps by Tracy & Earle (loc. cit.) were observed, but these had distinct round pores 10–15 µm in diam and were sterile. The ascomata appear to originate as variously shaped, pseudoparenchymatous to ± radiate plates 45–90 µm in diam, composed of one layer of ± isodiametric cells 3–6 µm in diam. The asci, called "paraphysate" in the diagnosis, are surrounded by interthecial hyphae with brownish tips as is common in asterinaceous fungi.

Before conidia are formed, the conidiogenous cells look very much like hyphopodia, but no perforations typical of the latter were found, and it is assumed that all such cells are at least potentially conidiogenous. The absence of hyphopodia and the presence of mycelial conidia distinguish *Dothidasteromella* from *Viegasia* Batista, while the presence of a well-developed subcuticular hypostroma separates it from *Eupelte* Sydow. The function of the dark swollen cells is unknown. Sometimes entire segments of hyphae near the ascomata are monilioid.

On both holotype and isotype the *Dothidasteromella* is mixed with a pycnothyrial coelomycete and with pale gray hyphae 4–6 µm thick, apparently attached to globose or irregular *Monodictys*-like bodies 24–50 µm in diam, with papillate cell walls. The fruiting

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bodies of the coelomycete measure 56–86 μm in diam, have a somewhat indistinct scutellum texture approaching *epidermoidea* or *reticulata,* and contain hyaline, bacillary conidia ca 3 × 0.5 μm. These characteristics place the fungus in or near *Plenotrichaius* BAT. & VITAL.

Dothidasteromella magnoliae represents the first record for the genus from North America, and for a magnoliaceous host. Of the half-dozen known species of *Dothidasteromella,* only the type species, *D. sepulta* (BERK. & CURTIS) v. HÖHNEL, ist reported to have mycelial conidia (v. HÖHNEL, 1909). *Dothidasteromella magnoliae* strongly resembles that species but has much smaller ascomata, darker ascospores, and striate conidia. It differs further by the presence of the distended cells on the subiculum, and most conspicuously by the more delicate hypostromata not forming dark radiating bands. The type specimen of *D. sepulta* also bears a scanty *Plenotrichaius*-like state, which apparently was not observed by previous investigators.

5. ***Lembosia miconiae*** (P. HENN.) FARR, comb. nov. – Figs. 12–15

Bas.: *Hysterostomella miconiae* P. HENNINGS, Hedwigia 36: 231. (1897). (Diagnosis repeated in SACCARDO, Syll. Fung. 14: 708. 1899).
≡ *Hysterostomina miconiae* (P. HENN) THEISSEN & SYDOW, Ann. Mycol. 13: 228. (1915).

This fungus is transferred to *Lembosia* LÉV. because it has hyphopodiate mycelium and, as far as I could observe, lacks stomatopodia or hypostromata. I was unable to confirm the presence of stomatal "hypostromata" mentioned by THEISSEN & SYDOW (loc. cit.). The fungus cannot be accommodated in any other *Lembosia* species on Melastomataceae.

In placing this fungus in the parmulariaceous genera *Hysterostomella* SPEG. and *Hysterostomina* THEISSEN & SYDOW, respectively, neither HENNINGS nor THEISSEN & SYDOW took note of the superficial mycelium, although the latter authors mention peripheral hyphae („am Rande in freie Hyphen auslaufend"). The mycelium (Fig. 15) is dark brown, reticulate, and composed of septate hyphae 4–6 μm thick, with irregular margins. The hyphopodia, which are more numerous away from the fruiting bodies, are unilateral or alternate, one-celled, concolorous with the mycelium, and variously shaped (from more or less pulvinate and wider than high to broadly subcylindric, irregularly ovoid or obclavate, 5–8 μm high, 7–9 μm wide, with crenulate to sublobate margin, the pulvinate ones sometimes indented at the apex.)

A celloidin mount revealed several ascospores, 16–18 × 8–9 μm, that had germinated by producing a hyphopodium from one cell (Fig. 15). None were observed germinating from both cells.

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A pycnothyrial (?spermatial) state (Figs. 13, 14) possibly referable to *Peltasteropsis* BATISTA & MAIA occurs on the same mycelium. The orbicular, radiate, more or less stellately dehiscent pycnothyria measure 120–160(–184) µm in diam and are located among the ascomata near the periphery of the colony. They are filled with hyaline, one-celled, subyclindric to subclavulate conidia 6–8.5 × 1–2 µm, of which many appeared shrivelled or misshapen.

Of the approximately seven species of *Lembosia* on Melastomataceae, the one most closely resembling *L. miconiae* seems to be *L. incisa* (SYDOW) THEISSEN which according to the original diagnosis (SYDOW & BUTLER, 1911) has similar dimensions but more complex, stellate ascomata, and hyphopodia characterized only as sparse. THEISSEN (1913) subsequently provided smaller measurements for hyphal thickness (3.5–4.5 µm) and ascospores (13–17 × 6–8 µm). Neither SYDOW and BUTLER nor THEISSEN mentioned an associated imperfect state. No material of *L. incisa* was available to me for comparison.

6. Classification of *Lembosiopsis* THEISSEN. – Figs. 16, 17

THEISSEN (1913) founded the genus *Lembosiopsis* upon *Lembosia andromedae* TR. & EARLE. The latter, together with three additional species, in his opinion, formed a homogeneous segregate from *Lembosia* by having hyaline rather than brown ascospores. He did not actually see material of *L. andromedae,* which the diagnosis (TRACY & EARLE, 1896) admitted to be probably immature. The following remarks, based on the examination of TRACY & EARLE's type, supplement the brief original description.

From the abundant reticulate, brown mycelium, hyphal plugs often extend into the stomata and substomatal cavity or sometimes

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Figs. 1, 2: *Lasiostemma maesae:* 1, longitudinal section showing hypostroma (points) and fertile ascocarp with light brown spores, 400× (DUMONT EC-692); 2, habit, 250× (isotype: HANSFORD 2799). – Figs. 3–5: *Dimerium asterinacearum:* isotype (DUMONT CO-1262). 3, habit on hyphopodiate asterinaceous mycelium, 400×; 4, 5, brown ascospores, 1000×. – Figs. 6–9: *Acarella inaequalis:* conidia stained in cotton blue; 6, 8, from MAUBLANC 295 (type of *Morenoina inaequalis);* 7, 9, from STEVENS 8431 (type of *Echidnodella myrciae*); 6, 7 phase, 1000×, 8–9, 1500×. – Figs. 10, 11: *Dothidasteromella magnoliae:* holotype. 10, longitudinal section showing hypostroma (points), 1000×; 11, mycelium with pulvinate conidiogenous cell (small point), elongate conidiophores (large points), and two conidia, one still attached (arrow), 400×. – Figs. 12–15: *Lembosia miconiae:* type (GLAZIOU 22725). 12–14, conidia of associated pycnothyrial state, stained in cotton blue; 12, 13, phase, 1000×; 14, 1500×; 15, hyphopodiate mycelium, showing two germinated ascospores producing hyphopodia (points), 400×. – Fig. 16: *Lembosiopsis eucalyptina:* isotype (PREM 17266), hypostroma (points), 1000×. – Fig. 17: *L. andromedae:* holotype, mycelial plug in stoma (points indicate guard cells), phase, 1000×.

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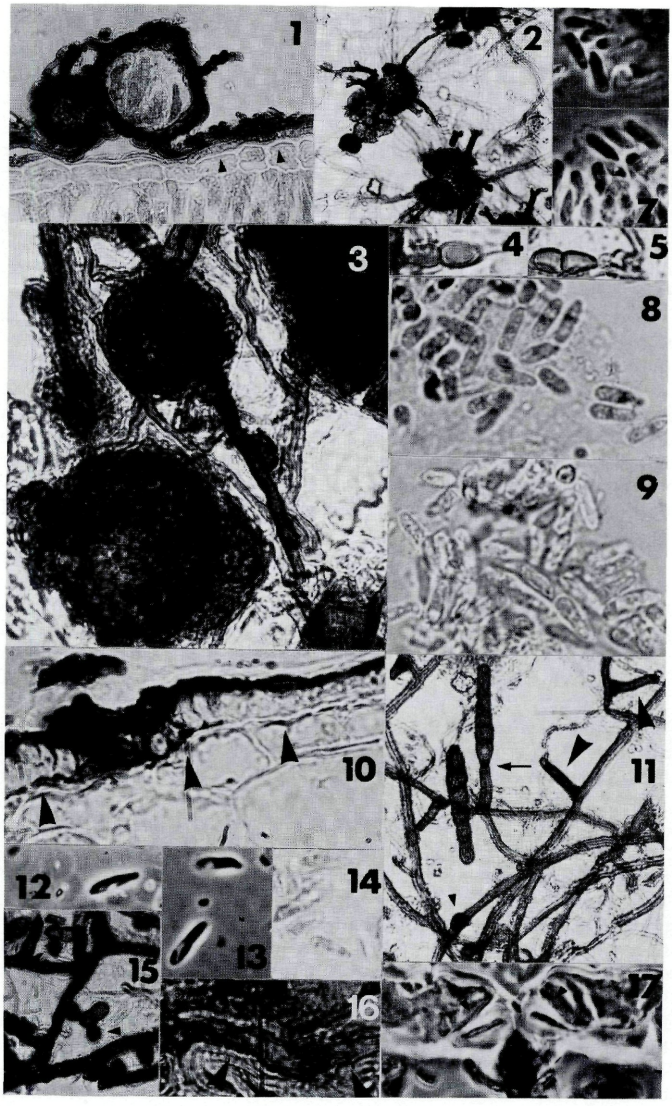

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penetrate the cuticle, but evidently no hypostroma is formed. The scutellum is very dark and of indistinct *textura epidermoidea* or *intricata,* with an irregular marginal fringe of somewhat radiately arranged hyphae. Mature asci were not found, but, judging from one or two groups of spores, probably measure ca. 28 × 11–12 µm; young asci are interspersed with numerous hyaline filaments. Mature ascospores, of which a few were seen in several ascomata, are phaeodidymous, ± fusiform to subclavulate, and 12–14 × 3.5–4 µm.

Interspersed with the ascomata are the orbicular pycnothyria of a *Thyrinula*-like (?spermatial) anamorph. These fruiting bodies are 56–104 mm in diam, ± stellately dehiscent, and filled with hyaline, bacillary conidia 3–4 × ca. 0.5 µm. No conidiophores were seen.

Despite its somewhat aberrant scutellum texture, the fungus under discussion appears most properly classified, at least provisionally, in the Asterinaceae, with retention of the genus *Lembosiopsis.* Keying this fungus (LUTTRELL in AINSWORTH & al., 1973; von ARX & MÜLLER, 1975) leads closest to *Echidnodella* and *Aulographina* von ARX & MÜLLER. Members of the former genus have a strictly radiate scutellum, and the ascomata develop under the mycelium (MÜLLER & von ARX, 1962), which does not seem to be the case in *L. andromedae. Aulographina* is characterized by a radiate scutellum and hyaline ascospores.

Lembosiopsis eucalyptina PETRAK & SYDOW differs from the type species by producing patches of well-developed hypostroma, sparse mycelium, a radiate scutellum texture, and ascospores hyaline even at maturity. Von ARX & MÜLLER (1960) placed *L. eucalyptina* in *Aulographina* (as syn. of *A. eucalypti* [COOKE & MASSEE] von ARX & MÜLLER), where it fits better in all respects except for the presence of hypostromata. The fungus and its associated pycnothyrial state, *Thyrinula eucalyptina* PETRAK & SYDOW, is described in detail by its authors, DOIDGE (1942, with illustrations of the perfect state), and MÜLLER & von ARX (1962).

7. A note on *Elathopycnis protii* BAT. & CAVALC.

While studying Amazonian foliicolous fungi I had the opportunity to examine the holotype of *E. protii,* the type and only species of *Elattopycnis* BATISTA & CAVALCANTI (An. XIV Congr. Soc. bot. Bras. (1963): 181. Fig. 3. 1964; also spelled *Elathopycnis* on p. 177). Despite a close perusal of all twelve leaves comprising the specimen, I could not find any fungus fitting the description. The only evident species with fruiting bodies even approaching the size range given for *E. protii* was *Peltaster fimbriatus* BAT. & CAVALC., with which the former fungus was said to be associated.

Judged from the illustrated diagnosis, *Elattopycnis protii* is certainly not conspecific with *Peltaster fimbriatus,* but probably

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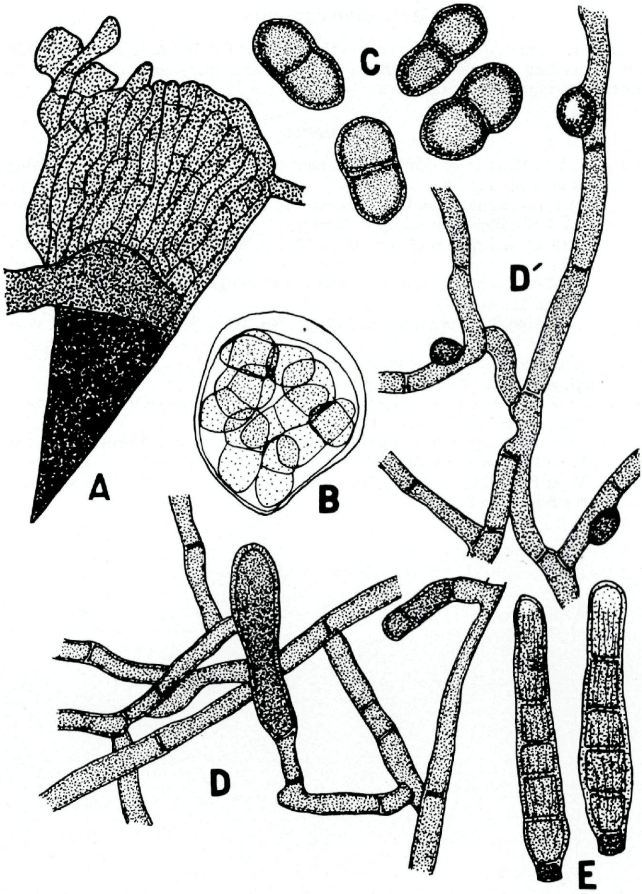

Fig. 18: *Dothidasteromella magnoliae:* from holotype, ca. 1000×. A, scutellum structure; B, slightly immature ascus; C, ripe ascospores; D, D′, mycelium, D bearing two swollen cells, D′ showing pulvinate conidiogenous cells; E, conidia.

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belongs in *Hymeniopeltis* BAT. Unless and until it is found again, however, *Elathopycnis* will have to be regarded as a *nomen dubium*.

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