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Melanomma radicans sp. nov. and its *Aposphaeria* anamorph,
Trematosphaeria perrumpens sp. nov. and
Berlesiella fungicola sp. nov. and its *Ramichloridium* anamorph

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Abstract. *Melanomma radicans* sp. nov. (anamorph = *Aposphaeria* Saccardo), *Trematosphaeria perrumpens* sp. nov. and the hypersaprobic *Berlesiella fungicola* sp. nov. (anamorph = *Ramichloridium* and *Exophiala*) are described. The relationship of *Melanomma* Fuckel to *Trematosphaeria* Fuckel and of *Berlesiella* Saccardo to *Herpotrichiella* Petrak is discussed.

Introduction

It was difficult to place species discussed in this paper into the proper genus yet the characters presented by, in particuliar, *Melanomma radicans* sp. nov. and *Berlesiella fungicola* sp. nov. are not strong enough to warrant generic status. We have, therefore, assigned them to genera following the logic of the arguments given below. It is outside the scope of the present research to undertake revisions of the genera in question, *Melanomma* Fuckel, *Trematosphaeria* Fuckel, *Berlesiella* Saccardo and *Herpotrichiella* Petrak, but we hope this discussion will be useful in future work with these groups.

Relationship of *Melanomma* to *Trematosphaeria*

The original descriptions of *Melanomma* and *Trematosphaeria* (Fuckel 1870) do not give any clues as to how the genera can be distinguished. *Melanomma* was characterized as having mostly 2—3-septate, rarely aseptate, brown or hyaline ascospores produced in perithecioid ascomata that are small, hard and lignicolous. No type specimen was designated; the lectotype is *M. pulvis-pyrius* (Persoon) Fuckel (Winter 1887). In *Trematosphaeria* the lignicolous ascomata are non-stromatic, carbonaceous, hard, superficial to subsuperficial, globose-conic and have an apical pore. Asci contain eight, 1—3-septate,

[1]) Part 1 in Sydowia 31. Supported in part by Projecto Flora Amazonica—The New York Botanical Garden (NSF INT-77-17704) and by a grant from the American Philosophical Society to the senior author. The latin diagnoses were prepared by Dr. O. Petrini, ETH Zürich.

lightly colored ascospores. FUCKEL designated *T. pertusa* (PERSOON) FUCKEL as the type.

WINTER (1887) maintained *Melanomma* in the family Melanommeae and *Trematosphaeria* in the Amphisphaeriaceae. The chief difference between the families was that ascomata in the Melanommeae were superficial from the start and in the Amphisphaeriaceae they were at first immersed but later with only the base immersed. His descriptions of the genera *Melanomma* and *Trematosphaeria* differed little from those provided by FUCKEL. Although he treated the genera in different families, he commented that it would probably be better to join them into one genus and that even he could not decide the position of some species.

MUNK (1953, 1957) separated the two genera on the basis of their relationship to the surface of the substrate and, in 1957, concluded that *Trematosphaeria* was a "form-genus" whose true nature was yet to be elucidated. He also noted that the ascomatal wall of *M. pulvis-pyrius*, drawing on CHESTERS' (1938) study of that species, was cellular while the wall of *T. pertusa* was indistinctly cellular.

HOLM (1957) attributed to *Melanomma* superficial to immersed, subglobose to collabent ascomata whose hard, pigmented wall is of a small-celled textura angularis In his concept, *Trematosphaeria* included species whose slightly to deeply immersed, pyriform to conical, hard ascomata have a wall composed of several layers of thin-walled cells which are variable in size and outline and are irregularly pigmented. The ascospores of *Trematosphaeria* are lighter brown at their extremeties while those of *Melanomma* are uniformly colored. He maintained that *Melanomma* is closely related to *Leptosphaeria* CESATI & DE NOTARIS and has little relationship with *Trematosphaeria*, which is near *Didymosphaeria* FUCKEL and *Trichometasphaeria* MUNK.

It is interesting that, until recently, *Melanomma* and *Trematosphaeria* have not been included together in a key, which should be a true test of the distinctiveness of any genus. MUNK (1957) and DENNIS (1968) separated the genera on the basis of their relationship to the surface of the substrate. HEJAROUDE (1968) attributed a thick, hard ascomatal wall composed of thick-walled cells to *Melanomma* whereas *Trematosphaeria* has a similar wall composed of cells whose walls are medium thick or rather thin. No definition was given for the terms "thick" or "thin". LUTTRELL (1973) followed HOLM (1957) and used two differences to separate the genera. Ascomata of *Trematosphaeria* are partially to wholly immersed and the brown ascospores are fusoid, usually with paler tips while ascomata of *Melanomma* are rarely immersed and the brown ascospores are ellipsoidal to cuneiform or almost clavate. Although the wall of *Trematosphaeria* was described as being heavily and irregularly pigmented, no comment was made on pigmentation or consistency of the ascomatal wall of *Melanomma*.

Neither genus was described further. Von Arx and Müller (1975) separated *Trematosphaeria* from *Melanomma* through ascomatal size and thickness of the ascomatal wall, *Trematosphaeria* having large ascomata, up to 1 mm in diameter, with „thick" walls. The ascospores of both genera are fusiform with those of *Melanomma* being evenly pigmented while those of *Trematosphaeria* have lighter brown tips. Neither genus was described further.

Although there are many described species of both *Trematosphaeria* and *Melanomma*, anamorphs are reported for only five species. *Melanomma pulvis-pyrius* and *M. fuscidulum* Saccardo (Chesters 1938), *M. radicans* (presented herewith), and *T. heterospora* (De Notaris) Winter [*Leptosphaeria heterospora* (De Notaris) Niessl, Müller 1953] have *Aposphaeria* Saccardo anamorphs. Müller (1953) reported finding a *Phoma*-like anamorph in pure cultures of *L. heterospora*; upon reexamination of the dried cultures, we have found the pycnidia to be *Aposphaeria* in the sense of Chesters (1938). *Melanomma subdispersum* (Karsten) Berlese & Vogel (Hughes 1951) is anomalous in that it produces a *Helminthosporium*-like an amorph but no pycnidial state. In this regard, *M. subdispersum* is closer to *Setosphaeria* Leonard & Suggs or *Cochliobolus* Drechsler and may not be a true *Melanomma*.

Essentially, today's concepts of *Trematosphaeria* and *Melanomma* are derived from Winter (1887) through Holm (1957). Both genera have brown, phragmosporous, elliptic to fusiform ascospores. Ascomata of *Melanomma* are "smaller", globose to depressed and superficial to partially immersed while those of *Trematosphaeria* are "larger" pyriform to conical and partially to wholly immersed. Ascomata of both are hard and heavily carbonized: the wall in *Melanomma* is "thinner", composed of textura angularis and is evenly pigmented; in *Trematosphaeria* the wall is "thicker" and is composed of small cells having indistinct shapes.

These differences are not easily defined and, in order to test their mutual exclusivity, we choose two specimens, one of each species, at random from the herbarium (ZT). A group of ascomata that had all stages of development was selected from each collection and microtomed at a thickness of ca. 15 µm on a freezing microtome. Following are our observations. The ascomata of *M. pulvis-pyrius* (Kt. Wallis, Aletschwaldreservats, auf *Sorbus aucuparia*, leg. E. Müller, 22. 9. 1965) are at first immersed and later become superficial. The base is immersed and is either constricted or is flat depending upon the depth of immersion. In section the ascomata appear to be hemispherical. The lateral wall is 30—50 µm thick and is composed of small, indistinct cells in the upper ca. ¼ of the wall. These cells have walls 1—1.5 µm thick and are continuous with the sterile filaments that line the ostiolar opening above and that grow downwardly among the asci. There is a

gradation from the small, indistinct cells of the upper wall through distinctly elliptic cells in the middle of the wall, which are ca. 13× 4—5 µm, to elongated cells at the base which, toward the outside of the ascomatal wall, appear almost hyphal. The ascomatal wall at the middle of the base, in an exactly median section, is flat and ca. 25 µm thick; the cells are unpigmented and are arranged vertically. The lateral wall is irregularly pigmented and the cells at the surface are obscured by pigment. The term "bariolé", used by HOLM (1957) to describe the irregular pattern of pigmentation in *Trematosphaeria*, applies well here.

Ascomata of the specimen of *Trematosphaeria pertusa* [auf *Thymus vulgaris*, France, (Var) Massif de la Sta. Baume, Plan d'Aups, Hotel Miremonts, leg. E. MÜLLER, 2. 6. 1969] are mostly ½ immersed with a broad base; they appear hemispherical in longitudinal section. The lateral wall is 60—70 µm thick. Cells of the upper ⅓ of the ascomatal wall are small, less than 7 µm in greatest dimension, and are irregular in outline with walls 1—1.5 µm thick. Their aspect is identical to that found in ascomata of *M. pulvis-pyrius*. These cells are continuous with the sterile filaments that line the ostiolar canal and that grow downwardly between the asci. There is a transition from the small cells found in the top of the wall through larger, distinctly elliptical cells in the middle of the wall and in the ascomatal base. The ascomatal base is flat and the wall is ca. 20 µm wide; it is composed of pigmented, horizontally arranged, elliptical cells. The entire ascomatal wall is heavily pigmented at the exterior and the cells there are obscured. There are varying degrees of pigment deposits within the wall, as was described for the genus by HOLM (1957).

The two specimens studied here do not show great differences in ascomatal form or structure. The only major difference is seen in the width of the ascomatal base relative to that of the lateral wall. In the specimen of *T. pertusa* it is much thinner while in that of *M. pulvis-pyrius* the widths are about the same. Structurally, the two ascomatal bases also differed.

The illustrations provided by CHESTERS (1938) for *M. pulvis-pyrius* show a somewhat different cellular arrangement, the most striking differences being found also in the ascomatal base. The base of CHESTERS' example is not immersed but superficial, is not flattened but is rounded, is not of vertically oriented cells but of textura angularis. We are convinced that CHESTERS studied *M. pulvis-pyrius* just as we are confident that our identification was correct. It is therefore evident that, in wall structure, *M. pulvis-pyrius* is sufficiently variable to present a different aspect from collection to collection and it may not be justified to use ascomatal wall structure to separate *Trematosphaeria* and *Melanomma*, as they are exemplified by their type species.

The placement of *Trematosphaeria perrumpens*, described below, is made without difficulty. The species fits everybody's idea of what a *Trematosphaeria* "should" be; the ascomata are very large and immersed; the wall is very wide and hard; the ascospores are fusiform and have lighter ends. The placement of *M. radicans*, also described below, presents a problem. It shows similarities to both *Melanomma* and *Trematosphaeria* in size, consistency; wall structure, including pattern of pigmentation; and relation to the surface of the wood. It has an *Aposphaeria* anamorph that could be found in either genus. Using most taxonomic treatments one could not decide which genus to choose.

We believe that *Melanomma* (Fuckel 1870, p. 159) and *Trematosphaeria* (Fuckel 1870, p. 161) should be merged. While we are convinced that the type species are congeneric, we are not certain about the very large species such as *T. striaspora* E. Müller (Müller & Dennis 1965) and *T. perrumpens* whose aspect is quite different from that of *T. pertusa*. We do not know whether this difference is one of degree or is fundamental. None of the large species has ever been connected to an anamorph.

Relationship of *Berlesiella* to *Herpotrichiella*

Berlesiella Saccardo and *Herpotrichiella* Petrak are members of the small family Herpotrichiellaceae. This family includes five genera and approximately fifteen species. Genera are separated on the basis of ascosporal septation, number of spores in each ascus and the presence or absence of a stroma. *Berlesiella fungicola*, described below, fits very well into the family but is anomalous because it shares characters of both *Herpotrichiella*, which has astromatic ascomata and phragmosporous ascospores, and *Berlesiella*, which has stromatic ascomata and dictyosporous ascospores.

Barr (1972) separated *Herpotrichiella* and *Berlesiella* because short, apical pseudoparaphyses are present in *B. nigerrima* (Bloxam) Saccardo, the only species in the genus, but lacking in the type species of *Herpotrichiella*, *H. moravica* Petrak. She also found apical pseudoparaphyses in *H. setosa* Barr and concluded that this species should be transferred to another genus. Von Arx and Müller (1975) illustrated short, apical pseudoparaphyses in the locule of the type specimen of *H. moravica* thus confirming their presence in the genus. Pseudoparaphyses were also illustrated in the developing locule of *Pseudotrichia aurata* (Rehm) Wehmeyer (Wehmeyer 1941, fig. 11) which is apparently also a species of *Herpotrichiella*.

Microtomed sections of *H. fungicola* were not good enough to show clearly internal structure of the ascomal apex and fig. 4 B is, as regards the papillate cells shown at the top of the locule, an interpretation. However, in crush mounts numerous papillate cells were

always seen (fig. 4 D) which had the appearance of being either paraphysoidal or periphysoidal. They did not, however, line the ostiolar canal and were not a part of the ascogenous system which was seen clearly. There are only a few places within the locule where these cells could form and it seems logical to interpret them as being situated apically in the locule. They are very similar to the papillate cells illustrated by von ARX and MÜLLER (1975, fig. 63) for *H. moravica*.

Since *H. moravica* and *B. nigerrima* have the same ascomatal structure, the problem is once again one of deciding whether the genera can be separated through ascosporal septation and stromal development. Unfortunately, in this case anamorphs are of no help. Although we do not know the anamorphs of either of the type species, we do know that the anamorph of *Dictyotrichiella mansonii* SCHOL-SCHWARZ, the second species of a closely related genus, is a species of *Exophiala* (DE HOOG 1977) and that the *Ramichloridium* anamorph of *B. fungicola*, which is close to *R. anceps* (SACCARDO & ELLIS) DE HOOG (DE HOOG 1977), also has an *Exophiala* state. It is likely that all members of this family have "black yeasts" as anamorphs which will contribute little to delimitation of genera while indicating homogeneity at a higher level.

Berlesiella fungicola obviously holds an intermediate position between *Herpotrichiella* and *Berlesiella* by virtue of its stromatic ascomata and phragmosporous ascospores. We believe that it demonstrates the impossibility of basing genera on superficial characters as is now done in the Herpotrichiellaceae.

Descriptions of the species

1. *Melanomma radicans* SAMUELS & E. MÜLLER, sp. nov. — Figs. 1, 2.

Ascomata solitaria vel gregaria, primum immersa dein usque ad basim erumpentia, stromate ac papilla non praedita, nigra, ovata, (265—) 300—435 (—470) µm alta, 230—420 µm lata, laevia. Asci bitunicati, anguste clavati, 70—90 × 6—8 µm octospori. Ascosporae fusiformes, apice acuto vel rotundato, 13—17 (—20) × 2.5—4 (—5) µm, uniseptatae vel triseptatae, translucidae, brunneae. Paraphyses septatae, super hymenium ramificantes, rare inter ascos ramificantes. Ad lignum putridum. Status conidialis: *Aposphaeria* sp.

Holotypus: DUMONT-BR 259, NY. Isotypus: INPA, PDD, ZT.

ANAMORPH: *Aposphaeria* SACCARDO

TELEOMORPH: Mycelium not apparent on surface of substrate but growing within cells of wood below ascomata. Ascomata perithecioid, solitary and scattered or gregarious; at first completely immersed but at maturity only base remaining immersed, nonstromatic, hard, black, ovate, non-papillate, (265—) 300—435 (—470) µm high × 230—420 µm wide; wall smooth, short filaments

growing out of the ostiolar opening; not collapsing when dry, not changing color and no soluble pigment in 3% KOH or 100% lactic acid. Ascomatal wall 30—40 μm wide, composed of two regions. Outer region comprised of elongated or elliptic to nearly circular cells, 3.5—7 μm long × ca. 2 μm wide, walls 1—1.5 μm thick; cells heavily pigmented, outlines of cells of outermost layers obscure; cells toward

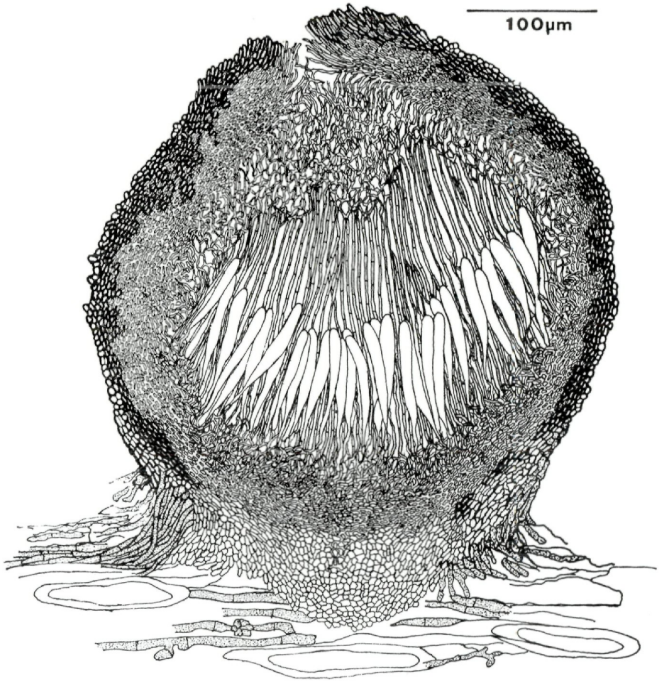

Fig. 1. *Melanomma radicans* (DUMONT-BR 138): longitudinal section of ascoma

the base tending to be more elongated to nearly rectangular in outline. Inner region 10—20 μm wide, cells identical to those of the outer region but lighter brown, becoming hyaline next to the locule; hyphae arising from the lower ¼ of the ascomatal wall and growing laterally into the subtending wood. Ostiolar region formed of ca. 2 μm wide hyphal elements; hyphal elements continuous with ascomatal wall below; ostiolar canal lined with filaments; filaments growing slightly

outwardly through ostiolar opening, continuous below with interascal filaments.

Asci bitunicate, narrowly clavate, 70—90 × 6—8 μm, 8-spored; apices broadly rounded, with an obvious "nasse apicale" when young,

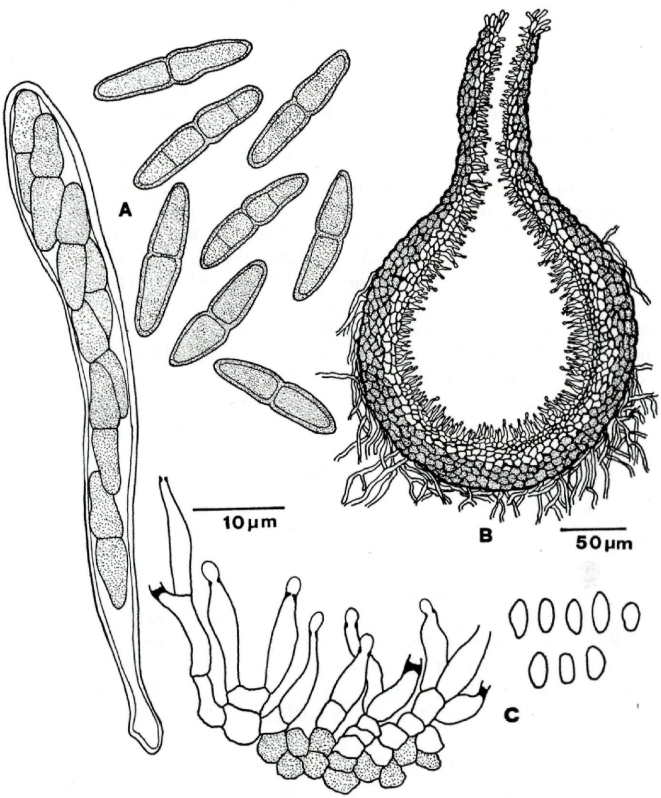

Fig. 2. *Melanomma radicans* (DUMONT-BR 138): A. Ascus and ascospores. B. Pycnidium. C. Phialides and conidia

apex thickened but apparently simple after spore formation; bases pedicellate; ascospores biseriate above, uniseriate below; the lower 10—20 μm of each ascus lacking spores; ascogenous system forming a ± deep cushion in ascomatal base; asci forming in hymenium over the

lower ½ of the ascomatal wall. Ascospores fusiform with rounded to slightly pointed ends, 13—17 (—20)×2.5—4 (—5) µm; 1—3-septate, remaining 1-septate with two additional septa forming later; spores 3-septate at germination; constricted at median septum, translucent brown even while in asci; germinating while still in asci; within 12 hrs on agar cells swelling, each producing a single, unbranched, 20—40 (—80) µm long germ-tube. Interascal filaments 1.5—2 µm wide, branching and anastomosing to form a dense reticulum at the periphery of the locule; filaments between asci rarely branched; filaments continuous with the entire inner ascomatal wall even before asci arise.

Characteristics in culture. Colonies on Weak ME, PDA and OA, in 2 weeks, 3—4 cm diam; colony raised, aerial mycelium densely compacted, pale grey-green, some hyphae on surface of colony yellow; long, acute fascicles of brown hyphae arising from surface of agar on PDA and OA; colony reverse of OA yellow; yellow coloration less pronounced, ivory to off white, on ME and PDA. Pycnidia completely to partially immersed, superficial or forming in the aerial mycelium, scattered or forming in well defined concentric rings on ME and PDA; amorphous, globose or obpyriform with a pronounced beak; up to 300 µm diam. Pycnidial wall 30—40 µm wide, composed of textura angularis, cells 8—13 µm across, thin-walled; cells of the outer region incrusted with black pigment and pigment deposits seen throughout the pycnidial wall. Phialides arising from all around the inner wall, nearly cylindrical, 6.5—10 µm long, opening 1—1.5 µm wide, collarette not flared but pronounced; base 1.5—2.5 µm wide; single or, rarely, in chains of 2 phialides. Conidia elliptic, without a protuberant basal abscission scar, 2—3.5×1.5—2 µm, hyaline; oozed from pycnidia in hyaline slime.

Habitat: On decorticated, angiospermous wood.

Holotype: Brazil: Territorio de Roraima, acampamento do 6°-BEC-Jundiá, on the Manaus-Caracaraí Rd at a point ca. 328 km from the intersection of the Manaus-Itacoatiara Rd; on decorticated wood; Dumont, Hosford, Samuels, Buck, Araujo, Souza, Bernardi; 16 Nov 1977 (Dumont-BR 259, NY; Isotypes: INPA, PDD, ZT).

Additional specimen examined. Brazil: Amazonas, Estacao Experimental de Silvacultura Tropical, on the Manaus-Caracaraí Rd at a point 45 km from the intersection of the Manaus-Itacoatiara Rd; on decorticated wood; Dumont, Freire, Hosford, Samuels, Steward, Buck; 6 Nov 1977 (Dumont-BR 138, INPA, NY).

Note: The sterile, interascal filaments of *M. radicata* present a curious aspect in that at the periphery they are continuous with the entire ascomatal wall and are much branched with no obvious orientation. Toward the center of the preascal locule they are verti-

cally oriented and are rarely branched. Without having seen earlier stages in ascomatal development, we cannot unequivocally say that these filaments are pseudoparaphyses that originate at the top of the locule and grow downwardly (LUTTRELL 1965). The arrangement of the sterile filaments in the locule of this species at least suggests that they may be derived from preexisting stromal cells in the manner described by CHESTERS (1938) for *M. pulvis-pyrius* wherein vertically arranged, preexisting cells in the young locule separate longitudinally and lengthen through intercalary growth to form the interascal filaments.

2. *Trematosphaeria perrumpens* SAMUELS & E. MÜLLER, sp. nov. Figs. 3—4 A.

Ascomata solitaria vel caespitosa, primo immersa dein erumpentia, superficie substrati partialiter ascomatis parieti adhaerenti, basi immersa, stromate non praedita, nigra, ad basim 1.5—2 mm lata, 1—1.5 mm alta, conica, apice truncato, 500—700 µm diametro. Asci bitunicati, cylindracei, (160—) 180—300×14—17 µm, octospori, Ascosporae fusiformes, acutis extremitatibus papillis praeditis, 45—55×(10—) 13—15 µm, triseptatae, brunneae, atrobrunneis striis et pallidioribus extremitatibus praeditae. Paraphyses stratu mucoso circumdatae. Ad lignum putridum.

Holotypus: DUMONT-BR 223, NY. Isotypus: INPA, ZT.

ANAMORPH: Unknown.

TELEOMORPH: Mycelium growing within cells of wood, not apparent on surface of substrate. Ascomata perithecioid, solitary or in caespitose groups of 2—3; at first completely immersed, becoming erumpent by lifting the overlying wood, a portion of the wood remaining attached to the ascomatal apex, base immersed; non-stromatic, very hard, glabrous, black, conical; 1.5—2 mm wide at the flat base, 1—1.5 mm high, 500—700 µm diam at the discoidal apex; apex with a short papilla seated in the middle; not collapsing when dry, no soluble pigment in 3% KOH or 100% lactic acid. Ascomatal wall 150—250 µm thick laterally, ca. 100 µm wide basally, fragmenting when sectioned, composed of at least two regions. Outer region comprising most of the wall, very heavily pigmented and hard, outlines of cells obscured in 12 µm thick sections, lumens of 2—5 µm in greatest dimension seen at the edge of sections where cells appear elongated. Outer wall easily chipped away to reveal an independent, membranous inner wall composed of very small, thin-walled, prosenchymatous cells. Ostiolar region pierced by a pore, structure not discernible.

Asci bitunicate, cylindrical, (160—) 180—300×14—17 µm, 8-spored; apices broadly rounded, with a pronouced „nasse apicale", bases pedicellate; ascospores uniseriate with overlapping ends, arising from a hymenium, completely enclosed within the mass of sterile filaments and only rarely floating free in crush mounts.

Ascospores fusiform with acute, papillate ends, (40—) 45—55× (10—) 13—15 µm; at first 1-septate, later 2 additional septa formin! not constricted at the median septum, wall composed of three layers, outermost layer continuous with the two, thin-walled, terminal papillae; spores translucent brown with lighter brown papillae and darker brown, broad, raised striations. Sterile filaments ca. 1.5 µm wide, hyaline, infrequently branched, enveloped in a J- gelatinous

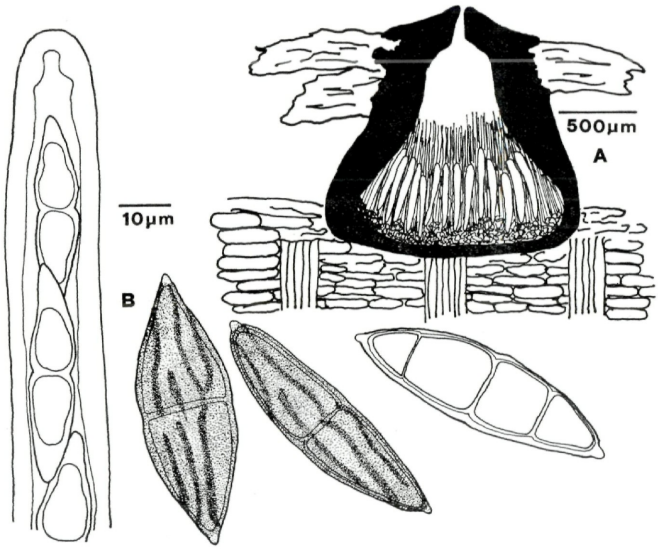

Fig. 3. *Trematosphaeria perrumpens* (holotype): A Longitudinal section of ascoma. B. Ascal apex and ascospores

sheath; the entire plexus of sterile filaments and asci remaining intact in crush mounts.

Habitat: On decorticated, angiospermous wood.

Holotype: Brazil: Amazonas, Reserva Forestal Ducke, km 26 on the Manaus-Itacoatiara Rd; on decorticated, angiospermous wood; Hosford & Samuels, 10 Nov 1977 (Dumont-BR 223, NY; Isotypes: INPA, ZT).

Additional specimen examined. Brazil: Amazonas, Reserva Forestal Ducke; on decorticated angiospermous wood; Freire, Hosford, Samuels, Buck; 1 Nov 1977 (Dumont-BR 24, INPA, NY).

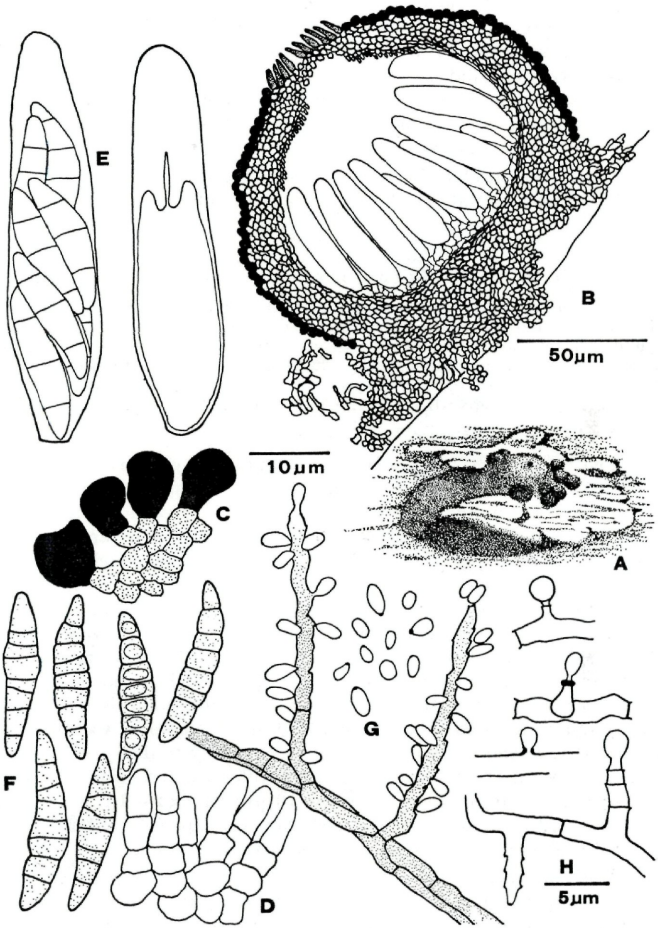

Fig. 4. *Berlesiella fungicola*. A. Sketch of ascomata seated on ascoma of *Trematosphaeria perrumpens*. B. Longitudinal section of ascoma (DUMONT-BR 24 A). C. Dacryoid cells from surface of ascomatal wall (holotype). D. Papillate cells found in crush mounts (DUMONT-BR 24 A). E. Asci, ascus at right immature (DUMONT-BR 24 A). F. Ascospores (DUMONT 223 A). G. *Ramichloridium* state (from holotype). H. Conidiogenous cells produced in hyphae (from holotype)

Notes: *Trematosphaeria perrumpens* is similar to *T. striaspora* MÜLLER & DENNIS 1965, fig. 12), described from grass in Venezuela, in that ascospores of both species have raised striations. The much smaller ascomata of *T. striaspora* also have a wide lateral wall and relatively thin and flat ascomal base. Although it was not possible to section the very hard ascomatal wall of *T. perrumpens*, from what we could see of the cells at the edges of wall fragments the structure is similar to that of *T. striaspora*.

The hypersaprobic *Berlesiella fungicola* SAMUELS & E. MÜLLER was found on ascomata of *T. perrumpens* in both of the above cited collections.

3. *Berlesiella fungicola* SAMUELS & E. MÜLLER, sp. nov. — Fig. 4.

Ascomata solitaria vel caespitosa, partialiter in stromate immersa, nigra, globosa, 130—180 µm, pariete dacryoideis opacis cellulis obtecta. Asci bitunicati, cylindracei vel clavati, 35—50×7—10 µm, octospori. Ascosporae fusiformes, 5—7-septatae, pallide brunneae, 17—22 (—25)×3—5 µm. In ascomatibus *Trematosphaeriae perrumpentis*. Status conidialis: *Ramichloridium* sp.

Holotypus: DUMONT-BR 223 A, NY. Isotypus: INPA, ZT.

ANAMORPH: *Ramichloridium* sp.

TELEOMORPH: Mycelium not apparent on surface of substrate. Ascomata perithecioid, solitary or in caespitose groups of up to 10, bases partially immersed in a stroma composed of elliptic to circular cells; cells ca. 3×2 µm, often appearing to be arranged in chains and loosely joined laterally; ascomata leathery, black, globose, non-papillate, 130—180 µm diam, smooth or slightly roughened, shining; not collapsing when dry, a violaceous pigment soluble in 3% KOH. Ascomatal wall ca. 20 µm wide, composed of two regions. Outer region composed of a single layer of opaque black dacryoid cells 4—7 µm diam, arising from cells of the inner region and forming a continuous layer over the ascoma. Inner region comprised of cells nearly square to circular in outline, 3—5 µm diam, thin-walled, light brown. Black coloration of ascomata due entirely to dacryoid cells at surface of wall. Ostiolar region not differentiated from the wall below; with acute, opaque setae, ca. 10 µm long×2—3 µm basally, surrounding the ostiolar opening. Ostiolar canal apparently formed by lysis; sterile filaments lining the ostiolar canal not seen.

Asci bitunicate, cylindrical to obclavate, 35—50×7—10 µm, 8-spored; apex rounded, with a barely perceptible "nasse apicale" when young, but not seen in mature asci; base truncate; ascospores multiseriate, forming in the lower end of each ascus; asci forming in a hymenium over the lower ⅓ of the ascomatal wall. Ascospores fusiform, often broadest in the two cells immediately above the center, straight or slightly curved, 17—22 (—25)×3—5 µm; 5—7-septate, slightly constricted at the septa, pale brown, smooth, with a drop in

each cell; germinating on cornmeal agar (Difco) within 12 hrs, producing several, less than 10 µm long germ-tubes from each spore. Sterile filaments not present, even amoung very young asci. Papillate cells 7—10×ca. 3.5 µm wide arising from hyaline, globose, thin-walled cells found in crush mounts, presumed to be short, apical pseudoparaphyses.

Characteristics in culture: Colonies on ME and PDA, in 1 week, barely growing away from the inoculum; aerial hyphae short, erect, arising from surface of the black, crustose colony; surface of colony slimy; no pigment spreading into medium.

Conidiophores arising as lateral branches of aerial hyphae, 25—50 µm long×1.5—2.5 µm wide, not tapering, pale brown, lighter at the tip, septate, unbranched, elongating sympodially from the tip. Conidiogenous denticles scattered along the length of each conidiophore, conspicuous apical scars not seen on denticles. Conidiophores in nature identical to those in culture. Conidia also arising directly from intercalary hyphal cells or from short, up to 10 µm long, lateral branches of hyphae; conidiogenesis apparently phialidic, annellidic and sympodial-denticulate; very few, globose, budding cells seen.

Conidia globose to elliptic to dacryoid with a small, protuberant, cicatrized, basal abscission scar, 2—4×1.5—2.5 µm, unicellular, hyaline, smooth.

Habitat: On ascomata of *Trematosphaeria perrumpens*.

Holotype: Brazil: Amazonas, Reserva Forestal Forestal Ducke, km 26 on the Manaus-Itacoatiara Rd; on ascomata of *Trematosphaeria perrumpens*, Hosford & Samuels, 10 Nov 1977 (Dumont-BR 223 A, NY; Isotypes: INPA, ZT).

Additional specimen examined: Brazil: Amazonas, Reserva Forestal Ducke, km 26 on the Manaus-Itacoatiara Rd; on ascomata of *Trematosphaeria perrumpens*; Freire, Hosford, Samuels, Buck; 1 Nov 1977 (Dumont-BR 24 A, INPA, NY).

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