Ascomycetes of New Zealand
1. *Ohleria brasiliensis* and its *Monodictys* anamorph, with notes on taxonomy and systematics of *Ohleria* and *Monodictys*

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Abstract The ascomycetous genus *Ohleria* Fuckel is limited to three saprobic, lignicolous species—*O. brasiliensis* Starbäck, *O. modesta* Fuckel, and *O. rugulosa* Fuckel—which are redescribed. The anamorph of *O. brasiliensis* is proven to be *Monodictys* sp. *Ohleria brasiliensis* was originally described from southern Brazil; with this paper the distribution of the species is broadened for the first time to New Zealand and eastern North America. Relationships of *Ohleria* and *Monodictys* are discussed, as are taxonomy and systematics of some genera of dematiaceous hyphomycetes having *Monodictys*-like conidia.

Keywords *Ohleria brasiliensis; Monodictys;* taxonomy; systematics; New Zealand; fungi; Ascomycetes; Hyphomycetes; teleomorphs; anamorphs

TAXONOMY AND SYSTEMATICS OF OHLERIA

Ohleria Fuckel is a genus of the Pleosporaceae (*sensu* Arx & Müller 1975). It has black, leathery, hemispheric to conic, non-stromatic ascomata which are emergent through the surface of old, dead and decorticated wood. The brown, phragmosporous ascospores separate at the median septum into two parts.

Although generally believed to have been published by Fuckel in 1870 for the two species *O. modesta* Fuckel, and *O. rugulosa* Fuckel, *Ohleria* was actually published in 1868 (Fungi rhenani 2173; *in sched.*) for the single species *O. modesta*. The selection of *O. modesta* as lectotype by Clements & Shear (1931) is therefore superfluous. *Ohleria brasiliensis* Starbäck is a good species of the genus. The isotype specimen of *O. obducens* Winter (B!) is *O. modesta*. From their original descriptions, *O. adjecta* Passerini (the type specimen was not found at PARMA), *O. quercicola* Fabre, and *O. ulmi* Fabre (the type specimens of *O. quercicola* and *O. ulmi* were not found at PC, AVIGNON or Harmas de Fabre, Serignan-du-Comtat, Vaucluse) appear to be *O. modesta*. The isotype specimen of *O. clematidis* Fautrey (C. Roumeguere, Fungi selecti exsiccati 5531, NY!) is a species of *Passeriniella* Berlese. Höhnel (1913) transferred *O. aemulans* to *Sporormia* de Notaris as *S. leporina* Niessl var. *aemulans* (Rehm) Höhnel. *Ohleria haloxyli* Kravtzev, *O. silicata* Kravtzev, and *O. kravtzevii* Schwarzman may belong to *Preussia* Fuckel or *Sporormia* because their dark, 3-septate ascospores are described as being surrounded by a gelatinous sheath and disarticulating at the septa; *O. silicata* and *O. kravtzevii* are probably synonymous. *Ohleria* is therefore limited to the three species *O. modesta, O. rugulosa*, and *O. brasiliensis* (Table 1.)

The only species of *Ohleria* known for New Zealand is *O. brasiliensis*, which is common on hardwood trees in Auckland. This species was previously known only from southern Brazil. Examination of North American collections of *Ohleria* in Ellis' herbarium (NY!) shows that *O. brasiliensis* is widely distributed in eastern United States. Ellis & Everhart's (1892) concept of *O. rugulosa* was based in part on specimens of both *O. modesta* and *O. brasiliensis*. There are no specimens of *O. rugulosa* in Ellis' herbarium. I have not seen a specimen of *O. rugulosa* from North America and the only European specimens seen were those of Fuckel. Petrak (1953) reported *O. rugulosa* from Louisiana but the description matches that of *O. brasiliensis*.

Ohleria is most closely related to *Melanomma* Nitschke ex Fuckel and *Trematosphaeria* Fuckel, both of which genera occupy habitats similar to those of *Ohleria*. *Ohleria* and *Ohleriella* Earle were originally thought to be closely related, and Clements & Shear (1931) regarded the genera as synonyms. More recently, Petrak (1951) and Arx & Müller (1975) treated *Ohleriella* as a synonym of *Sporormia* or *Preussia* respectively. *Spororima* and *Preussia* are similar to each other and are unrelated to *Ohleria*.

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Table 1 Redisposition of the species of *Ohleria*.

O. modesta Fuckel 1868	Type species
O. rugulosa Fuckel 1870	
O. quercicola Fabre 1878	= *O. modesta*
O. ulmi Fabre 1878	= *O. modesta*
O. adjecta Passerini 1887	= *O. modesta*
O. obducens Winter 1887	= *O. modesta*
O. clematidis Fautrey 1891	= *Passeriniella* sp.
O. brasiliensis Starbäck 1899	
O. aemulans Rehm 1912	= *Sporormia leporina* var. *aemulans*
O. haloxyli Kravtzev 1955	= *Preussia* or *Sporormia*
O. silicata Kravtzev 1955	= *Preussia* or *Sporormia*
O. kravtzevii Schwarzman	= *Preussia* or *Sporormia*

Although the relationship of *Ohleria* to *Melanomma* and *Trematosphaeria* seems clear when the ascomata and habitats are compared, it is difficult to reconcile their diverse anamorphs with this relationship. Of the five anamorphs known for *Melanomma* and *Trematosphaeria*, four can be assigned to the pycnidial genus *Aposphaeria* Saccardo (Samuels & Müller 1978b) whereas *M. subdispersum* (Karsten) Berlese et Voglino is reported to have a *Helminthosporium*-like state. Winter (1887) reported a pycnidial state in association with *O. rugulosa* but the species has never been cultured. *Ohleria brasiliensis* produced no anamorph other than *Monodictys* in culture.

The connection between *O. brasiliensis* and *Monodictys* is surprising in that the only other known teleomorphs of *Monodictys* are two species of *Tubeufia* Penzig et Saccardo (Samuels *et al.* 1978), a usually lignicolous, pleosporaceous genus not thought to be closely allied to *Ohleria*. The large, black dictyoconidia of *O. brasiliensis*, *T. amazonensis* Samuels, Rossman et Müller, and *T.* cf. *paludosa* (Crouan et Crouan) Rossman (collected once in New Zealand) arise in the same way, through successive divisions of a single hyphal cell. A pycnidial locule with *Asteromella*-like phialides and unicellular conidia often forms in the tips of the *Monodictys* conidia of *T. amazonensis*.

DISCUSSION OF MONODICTYS AND MONODICTYS-LIKE HYPHOMYCETES

Monodictys is a genus of about 18 species. The type species is *M. putredinis* (Wallroth) S. J. Hughes, and the *Monodictys* anamorph of *Ohleria brasiliensis* matches the description for the species given by Ellis (1971).

Most species of *Monodictys* are lignicolous or are found on plant debris, and *Monodictys* sp. was one of several soft rot fungi found by Eslyn *et al.* (1975) and Eslyn & Highley (1976) to cause considerable loss of wood substance and structural components in, especially, sapwood of deciduous trees, and in piles of hardwood chips. *Monodictys putredinis* and *Monodictys* sp. have been isolated from submerged wood of water cooling towers in power stations (Eaton & Jones 1971 a,b). *Monodictys pelagica* (Johnson) Jones is one of the first species of fungi to colonise hardwood immersed in sea water and is one of the major elements of the lignicolous fungal biota in northern waters (Jones 1968, G. C. Hughes 1968).

Monodictys is one of several genera that have in common solitary, acrogenous, simple, brown muriform conidia that often have a protuberant basal hilum. The coindia are borne on integrated, terminal, monoblastic, determinate or—less frequently—percurrent usually cylindrical conidiogenous cells.

In these genera the muriform conidia arise when the conidiogenous cell divides successively in more than one plane to form a variously shaped, pseudoparenchymatous mass or conidium. The conidium is liberated through rupture of the conidiogenous cell and, depending on how close to the conidial base the rupture occurs, the free conidium has more or less of a basal hilum. Development of the conidium up to the time of dehiscence is completely analogous to pycnidial development in genera such as *Phoma* or *Asteromella*, and possibly also to the development of chlamydospores in *Phoma* or *Verticillium*. These dictyoconidia may represent arrested development of pycnidia or ascomata. This idea is supported by the fact that the apices of dictyoconidia of *Tubeufia amazonensis*, discussed above, may become transformed into pycnidia, and that individual cells of *Septosporium* Corda may undergo similar metamorphosis. The plasticity of such pseudoparenchymatous balls is also seen in some *Leptosphaeria* species which have *Phoma* anamorphs. Ascomatal initials are pseudo-parenchymatous balls within which gametangia form; if fertilisation is interrupted, conidia may form in the aborted fruit bodies (E. Müller, pers. comm.).

Monodictys, the simplest genus in the group, has free, micronematous conidiophores. Variations on the *Monodictys* theme have yielded genera characterised by their conidia, conidiophores, and/or degree of aggregation of conidiophores. Each of these derivatives is the centre of a small circle of variants which are of greater or lesser taxonomic utility. If these genera are critically compared, it is possible that some will be found to be taxonomically superfluous.

Monodictys is directly linked to the phragmosporous *Pithomyces* Berkeley et Broome through the secondarily dictyosporous species *P. chartarum* (Berkeley et Curtis) M. B. Ellis. The micronematous genera *Chuppia* Deighton and *Sarcinella* Saccardo resemble *Monodictys* in their general aspect but are probably not closely related; the teleomorph of *S. heterospora* (Saccardo) Petrak is the asterinaceous Ascomycete *Schiffnerula pulchra* (Saccardo) Petrak

which is not related to *Tubeufia* or *Ohleria*. *Tetracoccosporium* Szabo with its cruciately septate conidia is doubtfully distinct from *Monodictys*. *Berkleasmium* Zobel has a hyphal sporodochium and can hardly be distinguished from *Monodictys; M. paradoxa* (Corda) S. J. Hughes and *B. leonense* M. B. Ellis are anomalous species. *Epicoccum* Link ex Schlechtendal is the stromatic counterpart of *Monodictys*, and *Cerebella* Cesati (see Schol-Schwarz 1959) and *Petrakia* are spurious derivatives. (*Petrakia* illustrates our lack of consistency in evaluating taxonomic utility of characters. It is distinguished from *Epicoccum* through conidia that bear superficial, subhyaline elongations. The ability to produce cellular elongations is common in the hyphomycetes. In large genera such as *Alternaria* Nees ex Wallroth the elongations are species determinants, whereas in other, smaller, genera (e.g., *Petrakia, Dictyodesmium* S. J. Hughes, *Bioconiosporium* Batista et Bezerra) they are given generic significance). *Acrodictys* M. B. Ellis is the macronematous counterpart of *Monodictys*. The two are joined through species such as *A. furcata* M. B. Ellis. *Xenosporium* Penzig et Saccardo, and *Septosporium* which in turn is not far from *Berkeleasmium*, are also related to *Acrodictys*.

COMMENTS ON RELATIONSHIPS BETWEEN TELEOMORPHS AND ANAMORPHS

The kinds of relations between sexual and asexual phases of Ascomycetes are often significant in systematics. At the specific level there are often striking homologies in form between ascospores and conidia (e.g., the brown, phragmosporous, porose ascospores and conidia of *Porosphaeria sporoschismophora* Samuels et Müller, Samuels & Müller 1978a); there are correspondences between genera of teleomorphs and anamorphs (e.g., *Diaporthe* Nitschke with *Phomopsis* (Saccardo) Saccardo; *Aspergillus* Micheli ex Fries with *Eurotium* Link ex Fries, *Emericella* Berkeley, *Sartorya* Vuillemin, etc.). Well delimited families often have a characteristic mode of conidiogenesis (e.g., Xylariaceae with holoblastic, sympodially produced conidia and the conidiogenous cells having thickened scars or denticles; Rogers 1979).

The relationship between teleomorph and anamorph may, however, be predictive in only one direction and widely separated groups of Ascomycetes may have the same type of anamorph. For example, *Diplodia*-like conidia are produced in pycnidia by *Otthia* Nitschke, *Botryosphaeria* Cesati et de Notaris, and *Rhytidhysteron* Spegazzini (Samuels & Müller 1979), which are currently disposed in three different families. The significance of a *Diplodia*-like anamorph in systematics is reduced since the only apparent relationships between these teleomorphs are bitunicate asci and growth on diseased or recently killed woody tissue. Similarly, *Tubeufia* and *Ohleria* bear no close relationship. The limits of *Tubeufia* are as yet poorly defined and there are non-lignicolous species whose anamorphs are helicosporous. However, *Tubeufia* cf. *paludosa* from New Zealand and *T. amazonensis* are both found on well-rotted wood and both have *Monodictys* anamorphs, as does *O. brasiliensis*. The only apparent similarities between these three pleosporaceous species are their anamorphs and their habitats.

Thus, both *Monodictys* and *Diplodia*-like fungi are associated with taxonomically diverse teleomorphs and may be adaptations that have arisen several times in response to environmental conditions. It will come as no surprise to find these and other "substrate-related" anamorphs in the life-cycles of an even wider range of Ascomycetes.

DESCRIPTIONS OF THE SPECIES

Redescriptions of the three species known to belong to *Ohleria* follow. Ascospores of *O. brasiliensis* germinated within 12 hr at *c.* 20°c on Difco cornmeal dextrose agar (CMD). Characteristics in culture were taken from colonies grown on CMD at *c.* 20°c under a mixture of near-ultraviolet and fluorescent light, 12 hr light and 12 hr darkness.

1. **Ohleria modesta** Fuckel, Fungi rhenani exsiccati 2173 (*in sched.*). Fig. 1A, B

= *O. obducens* Winter, Hedwigia 10: 162. 1871.
= *O. quercicola* Fabre, Ann. Sci. Nat. Bot. 6 sér., 9: 93. 1878.
= *O. ulmi* Fabre, Ann. Sci. Nat. Bot. 6 sér., 9: 93. 1878.
= *O. adjecta* Passerini, Rendiconti Reale Accad. Lincei 1887: 10. 1887.

ANAMORPH: Unknown.

TELEOMORPH: Ascomata conical, 280–310 μm high × 270–310 μm wide basally, smooth; erumpent through the surface of wood, bases remaining immersed, non-stromatic; solitary to caespitose, often appearing to be joined in an effused stroma with conical papillose protuberances; not collapsing when dry.

Ascomatal wall *c.* 50 μm wide, leathery when moist, heavily pigmented throughout, not divided into regions although cells of the upper half are *textura angularis*, *c.* 5 μm across, whereas those of the lower flanks of the wall tend to be tangentially elongated; walls 0.5–1 μm thick; ascomatal base remaining immersed in the wood, narrower than lateral wall and composed of both fungal tissue and invaded cells of wood.

Ostiolar opening round, with a canal *c.* 75 μm long, cells lining ostiolar canal attached to sterile, interascal filaments.

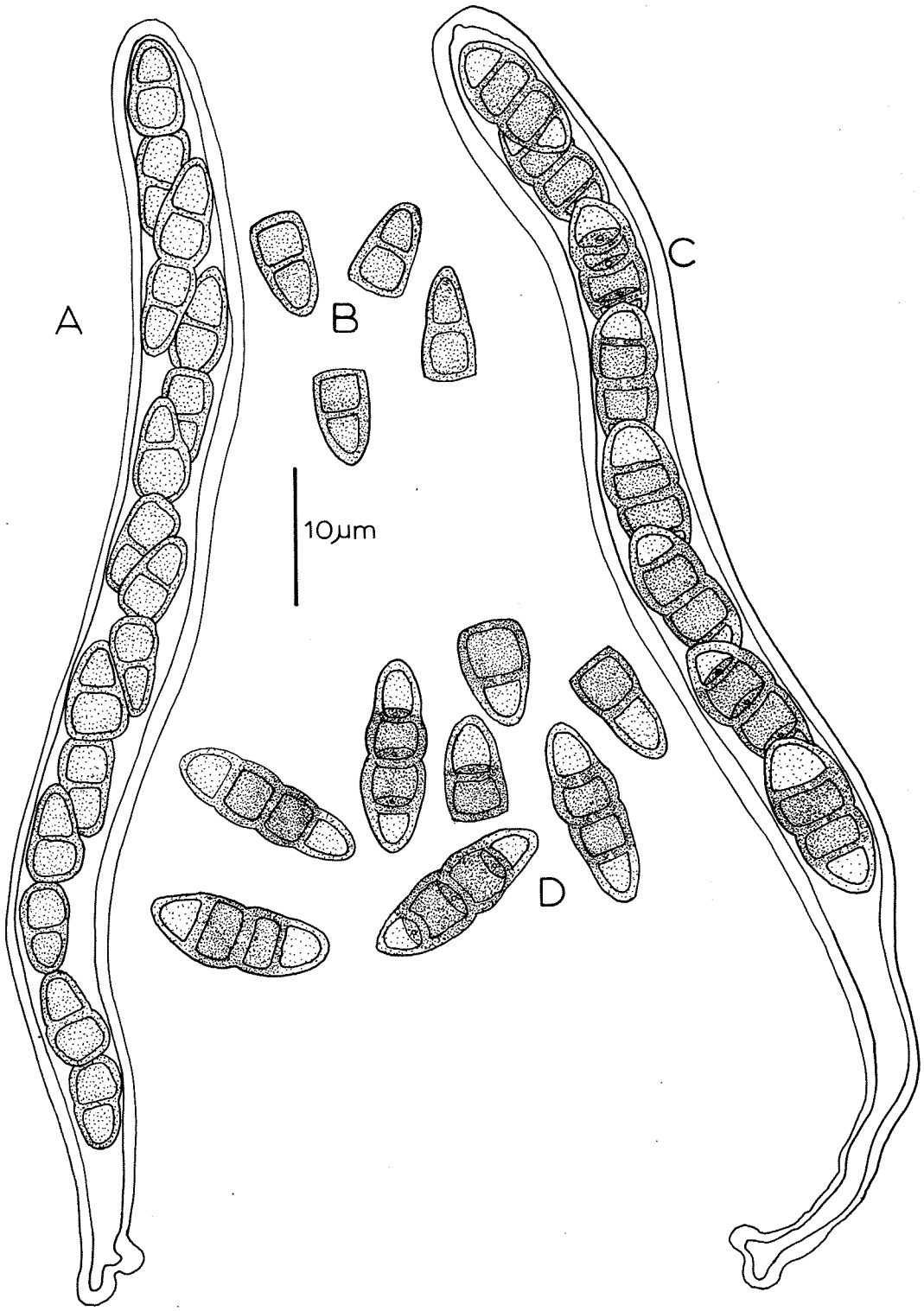
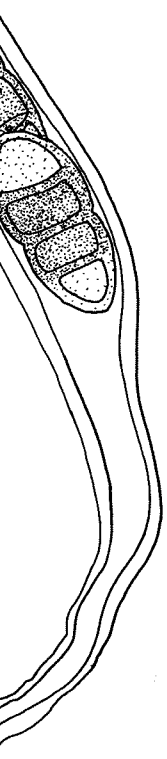


Fig. 1 A, B: *Ohleria modesta:* A, ascus; B, discharged halves of ascospores (Fungi rhenani 2173). C, D: *Ohleria rugulosa:* C, ascus; D, discharged ascospores ("Nassau's Flora").



173). C, D: *Ohleria*

Asci narrowly clavate, 90–120 × 8–10 μm, bitunicate, 8-spored; apices broadly rounded and wall visibly double, "nasse apicale" apparent only in young asci; base pedicellate; arranged in a hymenium which is the top layer of a cushion (35 μm deep in one ascoma) of disintegrating, hyaline, thin-walled, ill-defined, presumably ascogenous cells; ascospores biseriate above, uniseriate below.

Ascospores fusiform, (14–)16–18(–21.5) × 4.5–5.5(–6) μm, 3-septate, septa lacking a pore, uniformly brown; separating into two conical parts at the median septum early in development.

Interascal sterile filaments numerous, hyaline, septate, infrequently branched, 2–3 μm wide, connected to cells of the upper half of the ascomatal wall, including the ostiolar region, and to cells of the hymenium.

HABITAT: On decorticated, well rotted wood of dicotyledons.

HOLOTYPE: Ad *Fagi silvaticae* radices vetustas, decorticatas, putridas, rarissime, Autumno, in silva Hostrichiensi (G, Fungi rhenani 2173!).

ADDITIONAL SPECIMENS EXAMINED: ENGLAND: Shrewsbury, on rotten elm, *W. Phillips*, 1874 [Plowright, Sphaeriacei Britannici III, 66 as *Sphaeria (Ohleria) obducens*]. GERMANY: near Leipzig, in silva "Harth", ad lignum vetustum tiliaceum (ut videtur), *G. Winter*, Aestate (Rabenhorst, Fungi europaei 1524, B; Isotype *Ohleria obducens*). ITALY: near Parma, Vigeffio, su legno nudo ed indurato di olmo, *G. Passerini*, Autumno 1871 (Erb. Critt. Ital Ser. II, 886 as *Ohleria obducens* Winter, NY). USA: specimen without collecting data, as "*Ohleria rugulosa* Fckl.?" (NY); Ellis, North American Fungi 694 (b) (as *Sphaeria (Ohleria) rugulosa* Fuckel var. *nigerrima* Ellis, Underwood collection, NY); New Jersey, Newfield, on old, dry, hard oak stump, September 1880 (as *Sphaeria (Ohleria) rugulosa* Fuckel var. *nigerrima* Ellis, Ellis collection, NY); same data, Ellis, North American Fungi 694 (b) (NY); Newfield, on a dead place on the trunk of a living maple as *Sphaeria (Ohleria) rugulosa* Fckl., NY; Newfield, on a dead place in trunk of a white oak sapling, Nov. 6, 1877 (as *Ohleria rugulosa*, NY); Newfield, on old blackened maple wood lying on the ground, October 1878 (as *O. rugulosa*, NY); ? Ohio, Berlin, in wood of elm, *A.P.M. (organ)* 1025 (NY).

NOTES: Ascomatal wall structure of *O. modesta* and *O. rugulosa* is essentially identical. *Ohleria rugulosa* var. *nigerrima* Ellis was invalidly published by Ellis in North American Fungi 694 (b) since no diagnosis was included on the printed label, and no published description has been found. Both specimens in NY are *O. modesta* but the surface of the wood is blackened and the ascomata are much more crowded than is usual for the species.

The description of *O. modesta* provided by Ellis & Everhart (1892) is misleading in that the species does not produce a subiculum.

I have seen two isotypes of *O. obducens* (Rabenhorst, Fungi europaei 1524). The portion in ZT is a *Zignoella* Saccardo. The portion in B agrees with the protologue of *O. obducens* and is *O. modesta;* this portion is herewith designated the lectotype of *O. obducens*.

Ohleria modesta and *O. rugulosa* can be easily distinguished even though the measurements of their ascospores overlap. Ascomata of *O. modesta* are conical whereas those of *O. rugulosa* (only two specimens have been examined) are hemispherical. Ascospores of *O. modesta* separate into halves very early in their development whereas ascospores of *O. rugulosa* remain entire. Even after discharge from asci in the type specimen of *O. rugulosa*, only a few ascospores have become divided. Ascosporal septa of *O. modesta* are complete, they do not possess a visible pore; ascospores of *O. rugulosa* show a small pore in the centre of each septum.

2. **Ohleria rugulosa** Fuckel, Jahrb. Nassau. Ver. Naturk. 23/24: 164. 1870. Figs 1C, D; 2

ANAMORPH: Unknown.

TELEOMORPH: Ascomata black, globose to hemispherical, 350–400 μm diam., non-papillate, smooth or slightly roughened, shining; erumpent through surface of wood, bases remaining immersed, non-stromatic, densely gregarious, adjacent ascomata with confluent walls, surface of wood may be blackened; not collapsing when dry.

Ascomatal wall 50–60 μm wide laterally, leathery when moist, heavily pigmented throughout, not divided into regions, cells oval in outline, *c.* 5 μm across or somewhat elongated, walls 0.5–1 μm thick; ascomatal base narrower than lateral wall, composed of both fungal tissue and invaded cells of the wood.

Ostiolar opening round, apparently forming through disintegration of hyaline cells in the apical region; cells lining ostiolar canal attached to sterile, interascal filaments.

Asci narrowly clavate, 90–125 × 8–10 μm, bitunicate, 8-spored; apex broadly rounded and wall visibly double, "nasse apicale" apparent only in young asci; base pedicellate; arranged in a hymenium which is the top layer of a deep (150–200 μm) cushion of hyaline, thin-walled, ill-defined, presumably ascogenous cells; ascospores biseriate above, uniseriate below.

Ascospores elliptic to fusiform, 13–16(–20) × 4.0–5.5 μm, 3-septate with a pore in the middle of each septum; septa appearing as broad, dark bands; brown, middle cells darker than the distal cells; often separating into two conical parts at the median septum after discharge.

Interascal sterile filaments numerous, hyaline, septate, infrequently branched, 1.5–2 μm wide, connected to cells of the upper half of the ascomatal wall, including the ostiolar region, and to cells of the hymenium.

HABITAT: Decorticated, well-rotted, dicotyledonous wood.

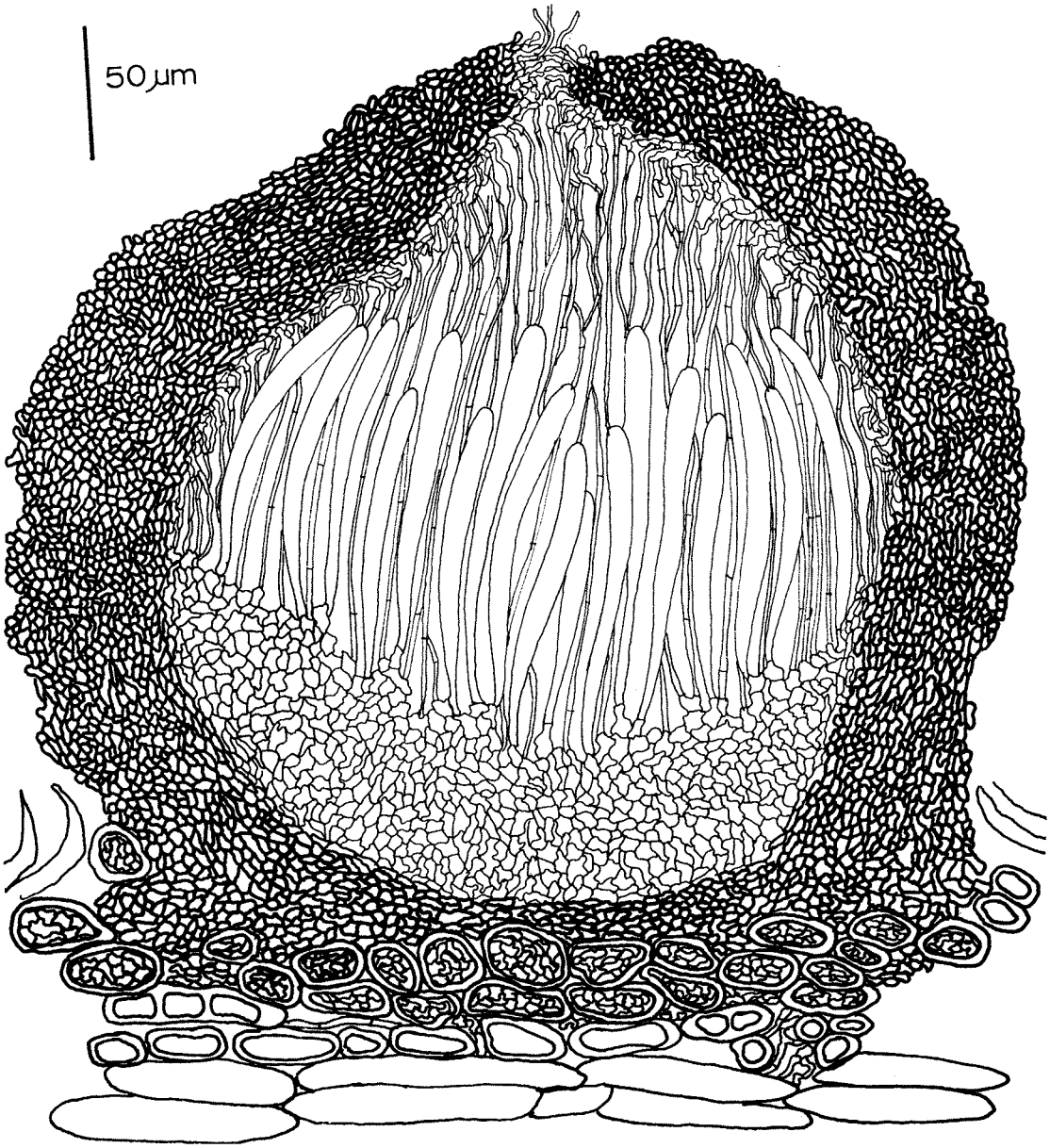


Fig. 2 *Ohleria rugulosa:* median, longitudinal section through a mature ascoma ("Nassau's Flora").

HOLOTYPE: An faulem Holz von *Carpinus* sehr selten, im Fruhling, Oestricher Wald, leg. *Fuckel* (G, Herb. Barbey-Boissier 528!)

ADDITIONAL SPECIMEN EXAMINED: AUSTRIA: "Nassau's Flora", leg. *Fuckel* (G, the remaining data on the label were handwritten and illegible but were not the same as for the holotype).

NOTE: See *O. modesta* for the distinction between *O. modesta* and *O. rugulosa*.

3. **Ohleria brasiliensis** Starbäck, Bih. Kongl. Svenska Vetensk.–Akad. Handl. 25 (3:1): 55. 11 Jan 1899. Figs 3,4

ANAMORPH: *Monodictys* cf. *putredinis* (Wallroth) Hughes, Canad. Jour. Bot. 36: 785. 1958.
≡ *Melanconium putredinis* Wallroth, Fl. Crypt. German., 2: 181. 1833.

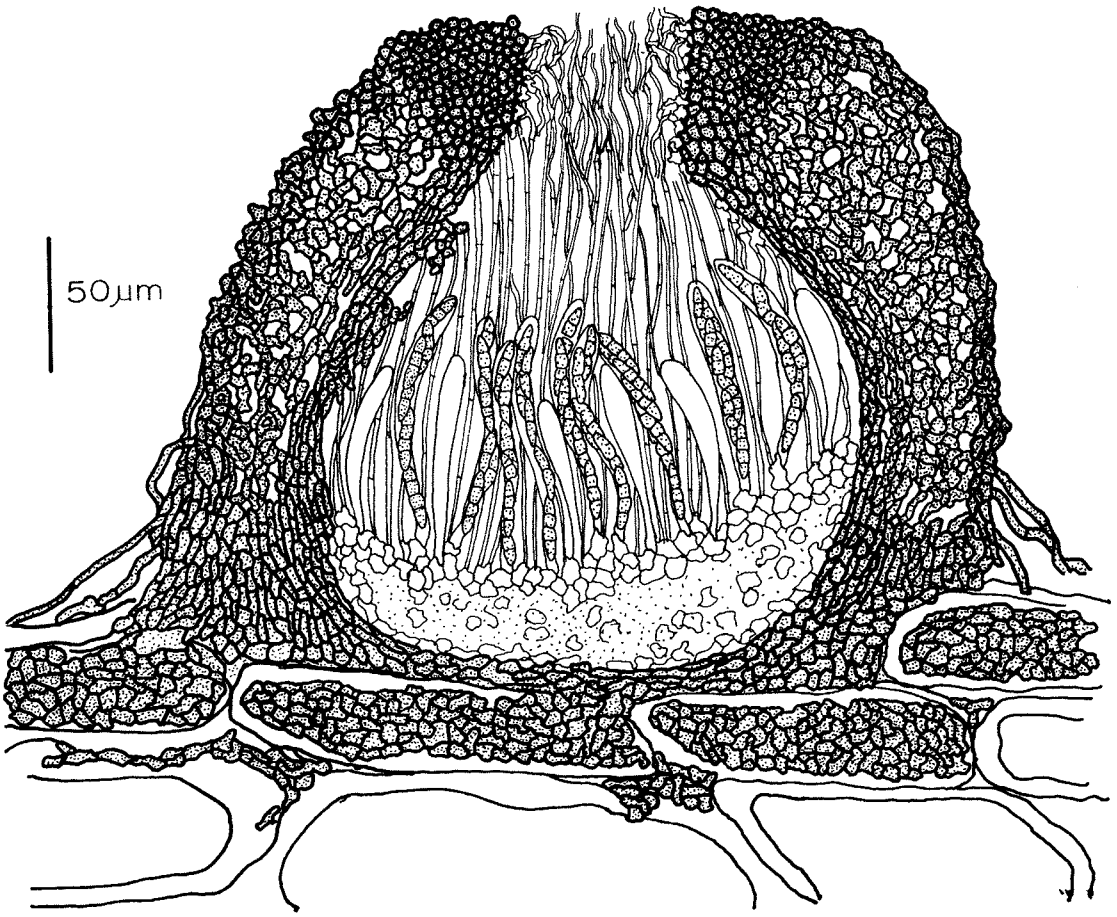


Fig. 3 *Ohleria brasiliensis:* median, longitudinal section through a mature ascoma (PDD 36623).

TELEOMORPH: Ascomata globose, *c.* 300 μm diam, smooth, non-papillate, shining to dull; erumpent through the surface of wood, bases remaining immersed, non-stromatic; gregarious; not collapsing when dry.

Ascomatal wall leathery when moist, 55–65 μm wide laterally, heavily pigmented throughout, comprised of three regions. Outer region *c.* 15 μm wide, formed of tightly bound, heavily pigmented *textura epidermoidea*, cells not as heavily pigmented as those of the inner and outer regions. Inner region *c.* 25 μm wide, elongated *textura angularis*, cells 8–10 × 4–5 μm, heavily pigmented; cells of the ascomatal apex angular, 4–7 μm diam., very heavily pigmented; ascomatal base narrower than the lateral wall, composed of both fungal tissue and invaded cells of wood.

Ostiolar opening round, apparently formed by disintegration of cells in the apical region, cells lining ostiolar canal attached to sterile, interascal filaments.

Asci narrowly clavate, 80–115 × 9–12 μm, bitunicate, 8-spored; apex broadly rounded and wall visibly double, "nasse apicale" most obvious in immature asci; base pedicellate; arranged in a hymenium which is the top layer of a cushion (*c.* 25 μm deep in one ascoma) of disintegrating, hyaline, thin-walled, ill-defined, presumably ascogenous cells; ascospores biseriate above, uniseriate below.

Ascospores fusiform, abruptly enlarged on either side of the median septum and gradually narrowing to the distal septa, (17–)21–25(–26) × 4–5 μm, at first 1-septate, slowly becoming 3-sepate, septa lacking a pore; 3-septate ascospores uniformly brown, 1-septate ascospores with a darker brown band at a position corresponding to the positions of the two new septa; separating into two conical parts at the median septum before discharge.

Interascal sterile filaments numerous, hyaline, septate, infrequently branched, 1–2 μm wide, connected to cells of the upper half of the ascomatal

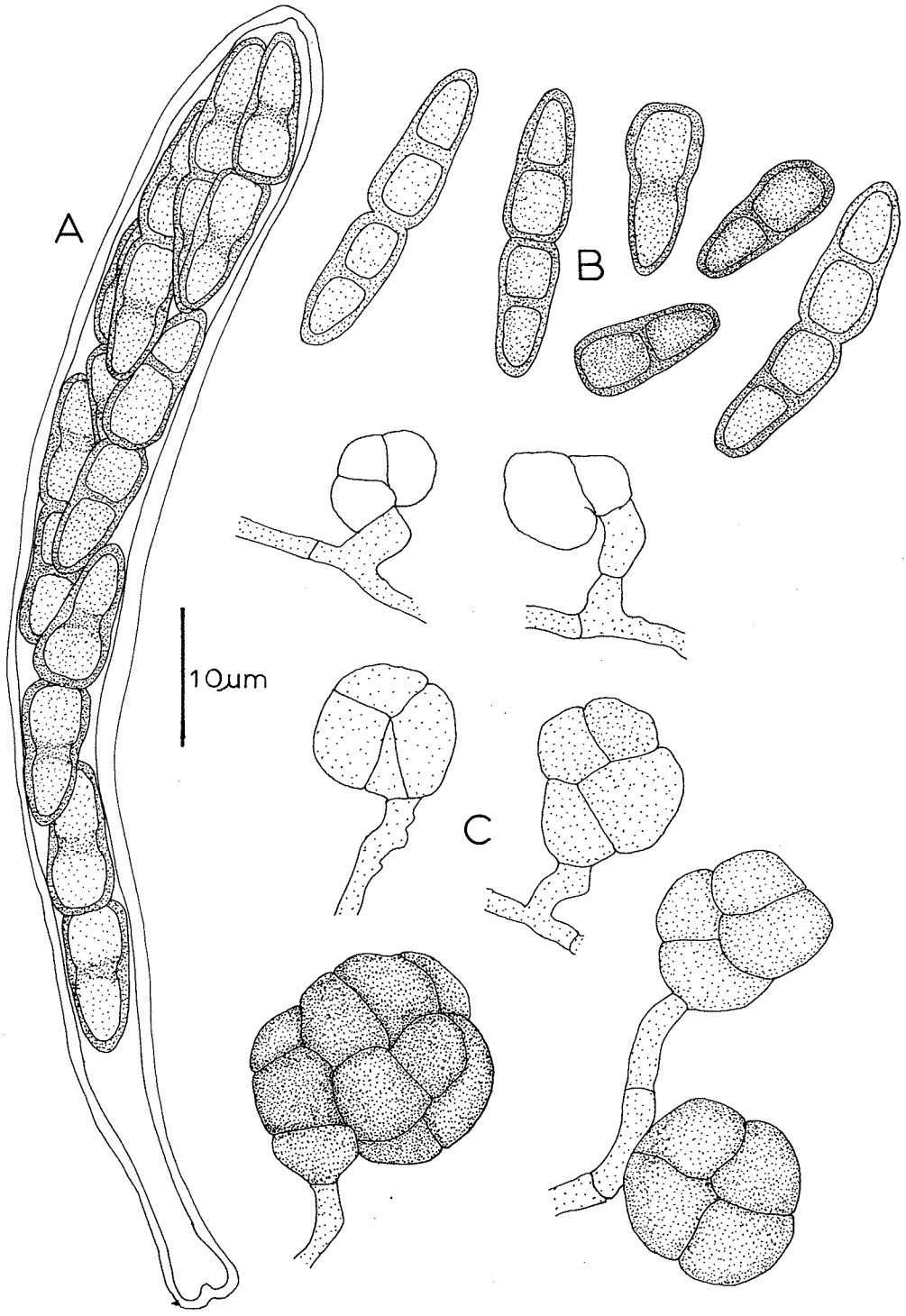
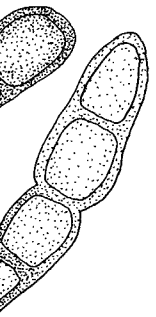


Fig. 4 *Ohleria brasiliensis:* A, ascus; B, discharged ascospores (PDD 36621); C, stages in conidial development (PDD 36623).



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wall, including the ostiolar region, and cells of the hymenium.

CHARACTERISTICS OF CULTURES: Colonies on cornmeal dextrose agar in 1 month 15–20 mm diam., dark green and flat; aerial mycelium scant, white; margin entire. Conidia arising from hyphae within the agar, on the surface of the agar and in the aerial mycelium. Conidia form through repeated divisions of a single, terminal or intercalary, hyphal cell. Mature conidia are nearly globose, 15–20 μm diam., dictyosporous, smooth, black, sessile or with a short stalk.

HOLOTYPE: BRAZIL: Rio Grande do Sul, Santo Angelo near Cachoeira, on decorticated wood, *Malme 124*, 18 Apr 1893 (S!).

ADDITIONAL SPECIMENS EXAMINED: NEW ZEALAND: Auckland, Waitakere Ranges, Destruction Gulley, on *Leptospermum* sp., *G. J. Samuels 75–110 & E. H. C. McKenzie*, 8 May 1975 (PDD 36621); Auckland, Titirangi, Clarke's Bush, on decorticated wood, *G. J. Samuels 79–39, Y. Joe, P. Johnston, W. Versluys*, Apr 1979 (PDD 36621, NY); Auckland, Little Barrier Island, Awaroa Stream, on decorticated wood, *G. J. Samuels 76–13*, 7 Feb 1976 (PDD 36623); Northland, Te Paki Coastal Reserve, South Pandora, on decorticated wood, *G. J. Samuels 75–43*, 7 Feb 1975 (PDD 36622). USA: Specimen lacking data, Ellis herb. (NY); Alabama, Auburn, on decorticated wood, *F. S. Earle & L. M. Underwood*, Feb 1896 (NY); Illinois, on decorticated wood, *Calkins 694* (NY); New Jersey, Newfield, on rotten oak stumps, *151* (NY), same data, Ellis North American Fungi 694 (NY), same data, on rotten wood, Nov 1887 (NY), Mar 1881 (NY), on an old stump, May 1878 (NY).

NOTES: The *Monodictys* state is present on the Alabama specimen cited above. It agrees well with the description of *M. putredinis* given by Ellis (1971).

Ohleria brasiliensis is easily distinguished from *O. modesta* and *O. rugulosa* in its longer ascospores that remain bicellular for a long time. The two distal septa form slowly by inwardly directed growth of the wall. While these septa develop, the area is visibly thickened and pigmented, appearing as a broad, brown band across the spore.

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