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Historical cultures provide insights into the taxonomy of *Stictis sensu lato*

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Abstract: Species morphologically typical of the genus *Stictis* are phylogenetically diverse, spread throughout *Stictidaceae*. Phylogenetic studies based on DNA sequences have revealed the polyphyletic nature of the morphologically defined genus, the type species *Stictis radiata* forming a clade phylogenetically distinct from all other sequenced species that had been placed in the genus. Some of the phylogenetic clades containing *Stictis sensu lato* species can be distinguished on the basis of their asexual morphs. Here we accept as the genus *Ebollia* a monophyletic clade that forms two monophyletic subclades, both of which contain species that form both a stictis-like sexual morph and an *Ebollia* asexual morph. One of these clades contains the type species of *Fitzroyomyces*, *F. cyperacearum*, here treated as a synonym of *Ebollia carnea* (= *Stictis carnea*). Three unnamed species with a stictis-like sexual morph, fall into a clade with the type species of *Eriospora* (*E. leucostoma*) and *Neofitzroyomyces* (*N. nerii*), two species known only from their asexual morphs. Morphologically these stictis-like sexual morphs differ from that previously reported for another *Eriospora* species, *E. juncicola*. The mode of conidiogenesis distinguishes *Eriospora* and *Neofitzroyomyces* from *Ebollia*. A group of species traditionally included in *Stictis* but that differ from *S. radiata* in having dark ascomatal walls, are accepted here as *Cyclostoma*, using this name at the generic rather than subgeneric level. Two of these species are described as new, *Cyclostoma macroarundinacea* and *C. oleariae*. In addition, DNA sequences are provided for the genus *Delpontia* for the first time.

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INTRODUCTION

In a series of impressive papers on the ostropalean fungi Sherwood (1977a, b, 1979) monographed and revised *Stictis* and its relatives, based almost solely on morphology of the sexual morph. Johnston (1983, 1985) described asexual morphs from culture for some ostropalean species within *Stictis*, *Schizoxylon* and *Acarosporina*. Within *Stictis*, of the taxa studied by Johnston (1983), those species with dark-walled apothecia had asexual morphs morphologically distinct from those with pale-walled apothecia. The asexual morphs of the dark-walled *Stictis* species were accepted by Johnston (1983) as coleophoma-like and those of the pale-walled species as *Ebollia*. Cultures of the type species of *Stictis*, *S. radiata*, remained sterile (Johnston 1983).

A molecular phylogenetic survey of *Ostropales* (Baloch *et al.* 2010) showed that *Stictis*, in the sense that Sherwood and Johnston had accepted the genus, was polyphyletic. This has been confirmed in more recent studies, where the type species of *Stictis* appears to be phylogenetically unique (*e.g*. Thiyagaraja *et al*. 2021, Xu *et al.* 2022).

One of the monophyletic clades in the analyses presented by Thiyagaraja *et al.* (2021) includes type specimens of the recently described genera *Fitzroyomyces* and *Neofitzroyomyces*, along with specimens identified as the type species of *Eriospora*, a genus first described by Berkeley & Broome (1850). *Eriospora*, *Fitzroyomyces* and *Neofitzroyomyces* were originally described from asexual morphs only (Berkeley & Broome 1850, Crous *et al.* 2017, 2018b), but based on DNA sequence matches *Fitzroyomyces* was later linked to a sexual morph by Ekanayaka *et al.* (2019) and Phukhamsakda *et al*. (2020). Although not noted by these authors, the sexual morph they illustrated was morphologically typical of *Stictis sensu* Sherwood (1977a).

Here we incorporate DNA sequences recently obtained from the cultures cited in the studies of Johnston (1983, 1985) into the data sets of Thiyagaraja *et al.* (2021) and Xu *et al.* (2022). We use these combined data to reconsider the taxonomy of some of the clades that include species morphologically matching *Stictis sensu* Sherwood (1977a, 1977b).

MATERIALS AND METHODS

This paper is based on DNA sequences obtained from cultures grown from specimens studied by Johnston (1983, 1985). Note that only a selection of the specimens on which the Johnston (1983) study was based were cited in that paper, but most have morphological notes that had been prepared for the 1983 paper and these are provided through the Manaaki Whenua – Landcare Research specimen database, https://scd.landcareresearch.co.nz.

Cultures obtained by Johnston (1983) were originally grown from ascospores released into streptomycin solution from

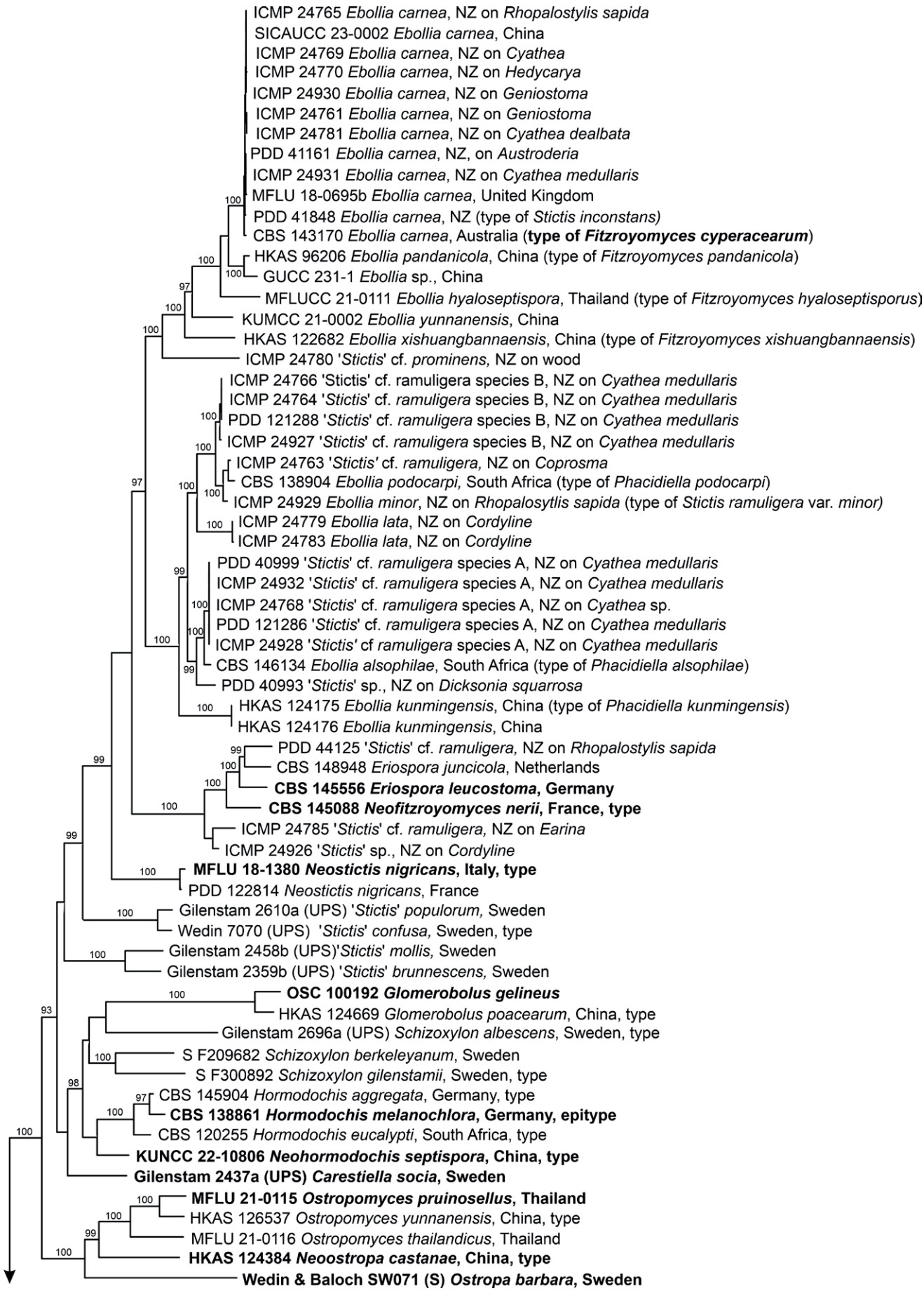

Fig. 1. Maximum likelihood phylogeny based on concatenated ITS, LSU and mtSSU sequences. Taxa included were those with newly generated sequences from specimens in the PDD fungarium and ICMP culture collection, together with those from the datasets of Thiyagaraja *et al*. (2021) and Xu *et al*. (2022) representing the phylogenetic breadth of *Stictidaceae* (Table 1). Type species of genera are indicated in **bold** text. Species in the genera *Orceolina*, *Placopsis* and *Trapelia* (all *Trapeliaceae*) were used as the outgroup. Bootstrap support values are shown where > 90 %.

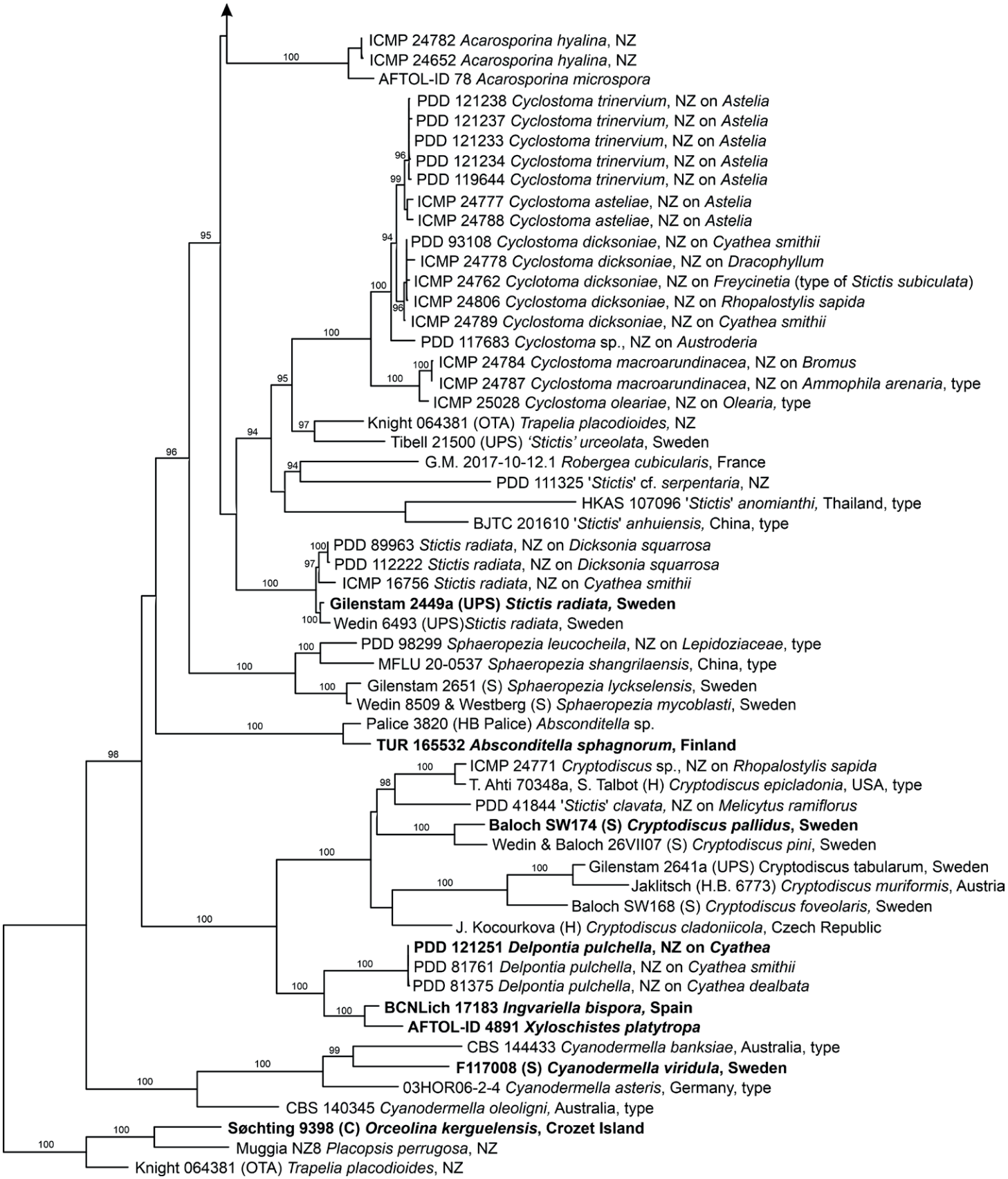

Fig. 1 (Continued).

gently crushed living ascomata and streaked across agar plates. Germinating ascospores were transferred to fresh agar plates and following sufficient growth were stored on agar slopes at 4 °C. In 1990 the cultures were transferred to a -80 °C freezer as agar plugs in 10 % glycerol solution. The cultures were recently taken from the -80 °C storage and grown on agar plates. Small pieces of mycelium were taken from the fresh culture plates for DNA extraction and at the same time the cultures were accessioned into the ICMP culture collection (https://www.landcareresearch.co.nz/tools-and-resources/collections/icmp-culture-collection/), stored as agar plugs in 10 % glycerol over liquid N. There was no growth from some of the -80 °C culture tubes and from these DNA was extracted directly from the dead mycelium.

The mycelium was added to 50 µL of Extraction Solution from the REDxtract-N-Amp Plant PCR kit (Sigma-Aldrch, USA)

and incubated at 95 °C for 10 min and the supernatant was used for PCR. The primers ITSF/ITS4 (Gardes & Bruns 1993, White *et al.* 1990), LR0R/LR5 (Rehner & Samuels 1994), mtSSU1/mtSSU3R (Zoller *et al.* 1999) were used for PCR of ITS, LSU and mtSSU respectively. The DNA sequences have been deposited in GenBank.

The ITS, LSU and mtSSU sequences were incorporated into the datasets of Thiyagaraja *et al.* (2021) and Xu *et al.* (2022), together with some more recently named taxa such as *Neohormodochis*, *Neoostropa*, *Stictis anomianthi*, *Stictis maggiana*, *Ostropomyces yunnanensis* and *Glomerobolus poacearum* (Table 1). Each gene was aligned using MAFFT v. 7.450 (Katoh & Standley 2013) and the ends trimmed. The alignments were concatenated using Geneious v. 10.2.6 (https://www.geneious.com). Relationships were inferred by maximum likelihood analysis, using IQ-TREE v. 1.6.12 (Nguyen *et al*. 2015; Chernomor *et al*. 2016) with models selected by ModelFinder (Kalyaanamoorthy *et al*. 2017) for each partitioned gene (SYM+R4 for ITS; TIM3e+I+G4 for LSU; TVM+F+I+G4 for mtSSU), and branch support estimated using ultrafast bootstrapping with 1 000 replicates (Hoang *et al.*, 2018).

RESULTS AND DISCUSSION

The monophyletic clade containing the type species of *Fitzroyomyces* and three species referred to *Phacidiella*, is accepted here as *Ebollia* (Fig. 1). Fungi with a sexual morph morphologically typical of *Stictis sensu* Sherwood (1977a, b) are scattered through this clade, including *Phacidiella kunmingensis* (= *Ebollia kunmingenmsis*), *Stictis cf*. *ramuligera*, *S. lata* (= *E. lata*), *S. ramuligera* var. *minor* (=*E. minor*), *S. carnea* (=*E. carnea*), and *S. inconstans* (= *E. carnea*) (Johnston 1983, Wei *et al*. 2022a). They also share morphologically similar asexual morphs, based on the descriptions of *Ebollia* (Minter & Caine 1980, Nag Raj & Di Cosmo 1982, see also images and notes in BiotaNZ, https://biotanz.landcareresearch.co.nz/scientific-names/b74bb068-1187-478d-a288-e644dbb91e30), of *Fitzroyomyces* (Crous *et al*. 2017), and the descriptions of the asexual morphs of species accepted as pale-walled *Stictis* in Johnston (1983). Their asexual morphs have filiform, septate conidia forming on percurrently proliferating, holoblastic conidiogenous cells held on a short, branching conidiophore, sometimes with small frills at the base of the conidium and at the conidiogenous locus (Fig. 2). Although the type species of *Ebollia*, *E. valdiviensis*, has no DNA sequence data available, we consider the consistent and distinctive morphology across the clade sufficient to support this taxonomy.

There are two monophyletic subclades within *Ebollia* in the sense we accept it here, and an alternative classification could treat these as two distinct genera. One of these clades includes the type species of *Fitzroyomyces* (*F. cyperacearum*), but the other would need a new genus. We rejected this alternative because there are no clear morphological or ecological differences between the species in each of the two clades. There is no practical reason to split the monophyletic *Ebollia* clade, and the phylogenetic diversity across the clade is similar to that of other genus-level clades within Fig. 1, such as *Cyclostoma*, *Cryptodiscus* and *Sphaeropezia*.

One of the clades making up *Ebollia* includes the type specimens of *Phacidiella podocarpi* and *P. alsophilae*. Both of these species are known only from their asexual morph, both with long-cylindric, septate conidia described as forming on sympodially proliferating conidiogenous cells, the conidia later irregularly disarticulating into part-spores (Crous *et al*. 2014, 2020). Also in this clade are specimens identified by Johnston (1983) as *Stictis ramuligera*, *S. ramuligera* var. *minor* and *S. lata*. Many of these latter specimens are known from both their stictis-like sexual morph and an asexual morph treated by Johnston (1983) as *Ebollia*. Although proliferation of the conidiogenous cell in the species placed in *Phacidiella* is described (but not clearly illustrated) as sympodial by Crous *et al*. (2014, 2020), in contrast to the percurrent apical proliferation described by Johnston (1983), the overall morphology of the asexual morphs described by these authors is very similar. We do not accept species in this clade as *Phacidiella*. The type species of *Phacidiella*, *P. salicina*, is morphologically distinct, having conidia forming through arthric disintegration of the conidiogenous cell, producing long chains of aseptate conidia (Sutton 1980). *Phacidiella salicina* has no DNA sequence data available. Crous *et al*. (2014) and Crous *et al*. (2020c) note that the conidia of *Phacidiella podocarpi* and *P. alsophilae* disarticulate following release. This is not unusual for *Ebollia*, species with disarticulating conidia are present in both of the *Ebollia* clades, being present for example in some of the specimens of *E. carnea*, *E. lata*, and '*Stictis*' *cf*. *ramuligera* (*e.g*. PDD 40994, PDD 40977, ICMP 24779, PDD 121288) (see Fig. 2B). Another species accepted here as *Ebollia*, *Phacidiella kunmingensis*, was placed in *Phacidiella* because of its genetic similarity to *P. podocarpi* and *P. alsophilae* (Wei *et al*. 2022a). *Phacidiella kunmingensis* is known only from its sexual morph and, based on the description of Wei *et al*. (2022a), is morphologically typical of *Stictis sensu* Sherwood (1980).

The *Ebollia* clade includes specimens accepted as *Stictis carnea* by Johnston (1983). The *S. carnea* specimens match *Fitzroyomyces cyperacearum* phylogenetically and the sexual morph described for this species by Ekanayaka *et al*. (2019) and Phukhamsakda *et al*. (2020) match *S. carnea* morphologically. *Stictis carnea* and *F. cyperacearum* are here accepted as synonyms and a new combination is provided for *Stictis carnea* in *Ebollia*. *Stictis inconstans* was described by Johnston (1983) from a single specimen with distinctive muriform ascospores but, based on matching ITS sequences, it appears to be a morphologically atypical specimen of *E. carnea*. The two species are accepted here as synonyms.

Based on sequencing of New Zealand specimens, *Stictis ramuligera* probably also belongs in *Ebollia*. However, this taxonomic change is not made here because *S. ramuligera sensu* Johnston (1983) is phylogenetically polyphyletic across the clades accepted here as *Eriospora* and *Ebollia*. *Stictis ramuligera* was described from herbaceous stems from South America (Sherwood 1977a). In New Zealand, many specimens identified as *S. ramuligera* by Johnston (1983) were found on the tree fern *Cyathea medullaris*. Based on DNA sequencing, the specimens from *C. medullaris* represent two species and morphologically they can be distinguished by size of the conidia of the asexual morph in culture: those labelled '*S. cf*. *ramuligera* Species A' in Fig. 1 have conidia that are (90–)100–150 × 2–3 µm with cells 3.5–5 µm long; those labelled '*S. cf*. *ramuligera* Species B' in Fig. 1 have conidia that are 50–75(–100) × 1.5–2 µm with cells 5.5–7 µm long. Whether any of the specimens identified as *S. ramuligera* by Johnston (1983) have been correctly identified remains uncertain. Images and notes on specimens referred to both of these unnamed *Cyathea*-inhabiting species are provided through https://scd.landcareresearch.co.nz/.

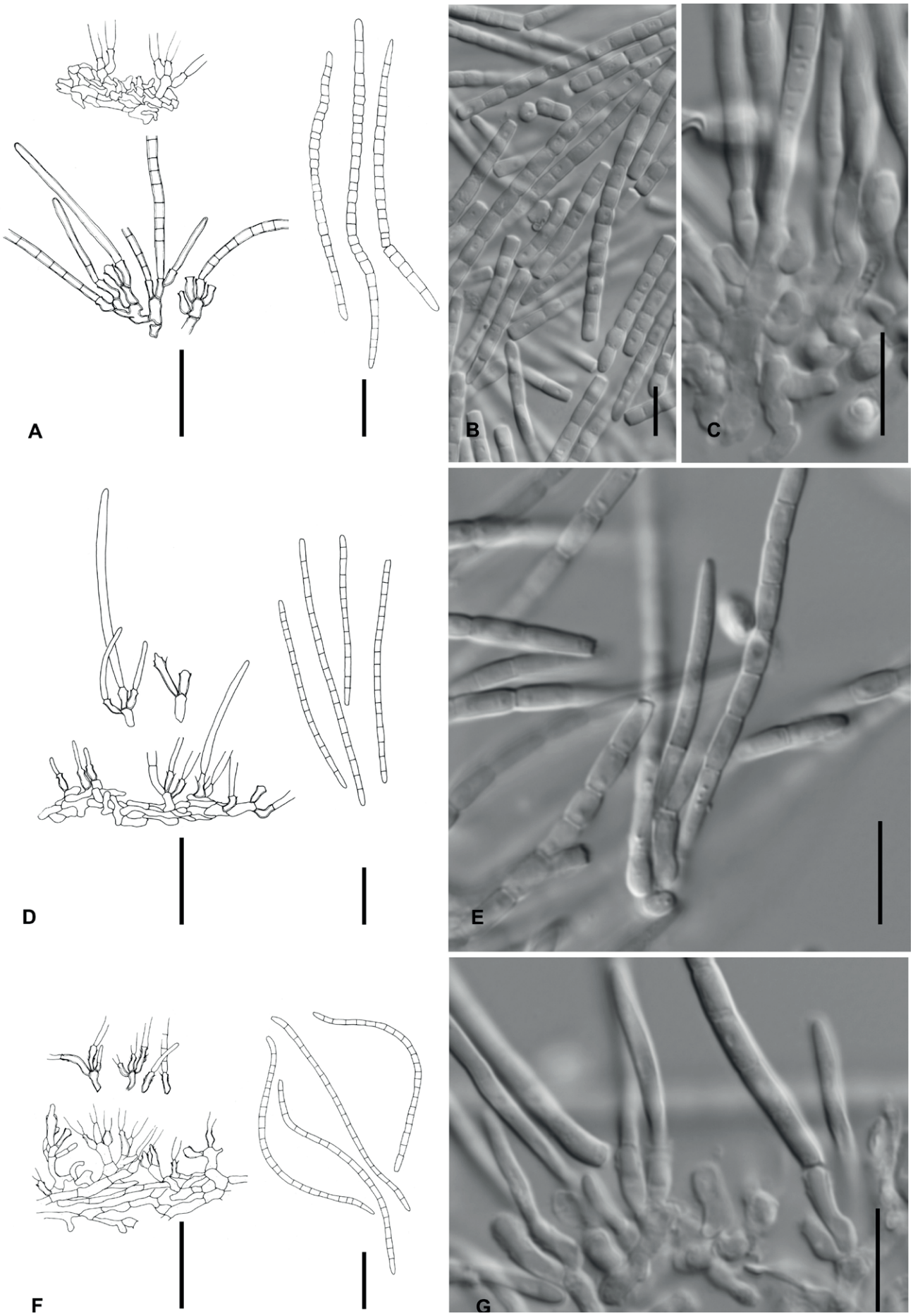

Fig. 2. Conidiogenous cells and conidia (some disarticulating) of specimens representing the two *Ebollia* clades in Fig. 1. **A, B, C**. *Ebollia carnea*. **D.** *Ebollia minor*. **E**, **F.** '*Stictis*' *cf*. *ramuligera* Species A. **G**. '*Stictis*' sp. ICMP 24763, sister to '*Phacidiella*' *podocarpi* in Fig. 1. A, D, F. Images based on Johnston (1983). B, C, E, G. From tissue from dried cultures rehydrated in 3 % KOH. B, C. PDD 40997 (ICMP 24781). E. PDD 41053 (ICMP 24932). G. PDD 40997 (ICMP 24763). Scale bars = 10 µm.

Sister to *Ebollia* is a clade containing a specimen identified as the type species of *Eriospora*, *E. leucostoma* (Fig. 1). *Eriospora* differs from *Ebollia* in having conidiogenous cells with sympodial proliferation and characteristically with several conidia remaining attached to the conidiogenous cell, giving the conidiogenous locus the appearance of having branched conidia (Sutton 1980, Crous *et al*. 2020). Also in this clade is the type specimen of *Neofitzroyomyces*, differing morphologically from *Eriospora leucostoma* in that the conidiogenous cells retain a single conidium. Crous *et al*. (2022) described *Eriospora juncicola* with an asexual morph similar to *E. leucostoma* and a sexual morph. However, based on this description, *E. juncicola* has a sexual morphology quite distinct from other *Stictidaceae*, and distant from the ascomata of the stictis-like specimens that fall in this clade in Fig. 1 (PDD 44125, PDD 46203, ICMP 24926, see https://scd.landcareresearch.co.nz/). The illustrations of the sexual morph attributed to *E. juncicola* by Crous *et al*. (2022) recall *Dothideales* rather than *Ostropales*, the top left image of the asci appearing to show fissitunicate, 'jack in the box', ascus dehiscence. Known only from the type, additional specimens of *E. juncicola* are needed to confirm its sexual morphology. Unfortunately, asexual morphs have not been observed for the three PDD and ICMP specimens in the *Eriospora* clade. All of the species and specimens in the *Eriospora* clade in Fig. 1 are on leaves rather woody tissue or fern fronds, substrates that are more common for species and specimens in the *Ebollia* clade.

Based on GenBank accessions, *Stictis radiata* appears to be a species complex. Although data is limited, within New Zealand this may be related to host species, specimens on *Cyathea* and *Dicksonia* having ITS sequences with only a 96 % match.

The four dark-walled *Stictis* species treated by Johnston (1983) that have DNA sequences available form a distinct monophyletic clade within *Stictidaceae* (Fig. 1). This clade is accepted here as *Cyclostoma*, following Sherwood (1977, as *Stictis* sect. *Cyclostoma*), but using the name at the generic rather than subgeneric level. The dark-walled species placed here in *Cyclostoma* form a coleophoma-like asexual morph in culture (Johnston 1983), another feature distinguishing them from the pale-walled species treated here as *Ebollia*. Included in this clade are *Cyclostoma dicksoniae* (= *Stictis dicksoniae* and S. *subiculata*), *C. asteliae* (= *S. asteliae*), *C. trinervium* (= *S. trinervia*), together with two species described here as new, the grass-inhabiting *Cyclostoma macroarundinacea* and the *Olearia*-inhabiting *C. oleariae*. *Cyclostoma macroarundinacea* is similar to the type species of *Cyclostoma* designated by Sherwood (1977a), *Stictis arundinacea* (≡ *Cyclostoma arundinacea*), in developing on grasses and having dark-walled ascomata, but differs in having larger asci and ascospores. Also in this clade is another probably unnamed species collected from the grass *Austroderia*, but it is not formally named here as it is known from only a single, small specimen (PDD 117683).

Johnston (1983) treated *S. dicksoniae* (a species common in New Zealand on dead fronds of the tree fern *Cyathea*) and *S. subiculata* (a species described from large leafed monocotyledons) as separate species but DNA sequences show them to be the same fungus, accepted here as *Cyclostoma dicksoniae*. The two species were distinguished morphologically by differences in the degree of development of side walls of ascomata, along with host preference (Johnston 1983). Perhaps ascomatal wall development is a host-related feature, as the specimens on tree ferns have ascomata developing in an essentially empty space inside the dead fern frond, whereas those on leafy substrates are closely surrounded by host tissue.

The first DNA sequences available for the genus *Delpontia*, obtained from specimens morphologically and ecologically typical of the fern-inhabiting type species *Delpontia pulchella*, place the genus close to *Cryptodiscus* and lichenised species in *Xyloschistes* and *Ingvariella* (Fig. 1).

Phylogenetic relationships within *Stictidaceae* remain poorly resolved, some of the larger genera such *Stictis* and *Schizoxylon* are still polyphyletic, and there is little understanding of the morphological features that consistently characterise generic-level clades as resolved in DNA-based phylogenies. A better understanding of asexual morphs may provide some answers. For example, shared asexual morphs bind together the two subclades within *Ebollia* as accepted here. In another example are specimens identified as *Hormodochis*, *Neohormodochis* and *Schizoxylon* that show a weakly supported relationship in Fig. 1. *Hormodochis* and *Neohormodochis* are known only from their asexual morphs, while Johnston (1985) described an asexual morph for a specimen identified as *Schizoxylon lividum*. Based on the descriptions of Johnston (1985), Crous *et al*. (2020a) and Wei *et al*. (2022b), the asexual morphs of *Hormodochis*, *Neohormodochis* and *Schizoxylon* are morphologically rather similar. The taxonomic relationship between these genera remains uncertain as there are no DNA sequence data available for the type species of *Schizoxylon*, *S. sepincola*, making the phylogenetic position of this genus uncertain. Figure 1 also shows a poorly resolved relationship between these three genera and the morphologically distinctive *Glomerobolus*. As Wei *et al*. (2022a) discussed, in addition to more complete taxon sampling, one of the keys to better understanding phylogenetic relationships across *Stictidaceae* may be more complete sampling of protein coding genes.

Taxonomy

This section provides the formal nomenclatural changes discussed and proposed in the Discussion above and formally names the two new species.

Cyclostoma P. Crouan & H. Crouan, *Florule de Finistère, Contenant des Descriptions de 360 Espèces Nouvelles de Sporogames, des Nombreuses Observations*: 30. 1867.
Synonym: *Stictis* sect. *Cyclostoma* (P. Crouan & H. Crouan) Sherwood, *Mycotaxon* **5**: 47. 1977.

Cyclostoma asteliae (P.R. Johnst.) P.R. Johnst., ***comb. nov.*** MycoBank MB 852776.
Basionym: *Stictis asteliae* P.R. Johnst., *New Zealand J. Bot*. **21**: 252. 1983.

Cyclostoma dicksoniae (Sherwood) P.R. Johnst., ***comb. nov.*** MycoBank MB 852777.
Basionym: *Stictis dicksoniae* Sherwood, *Mycotaxon* **5**: 171. 1977.
Synonym: *Stictis subiculata* P.R. Johnst., *New Zealand J. Bot.* **21**: 271. 1983.

Cyclostoma macroarundinacea P.R. Johnst., ***sp. nov.*** MycoBank MB 852781. Fig. 3.

Etymology: Referring to the grass-inhabiting *C. arundinacea*, but with larger asci and ascospores.

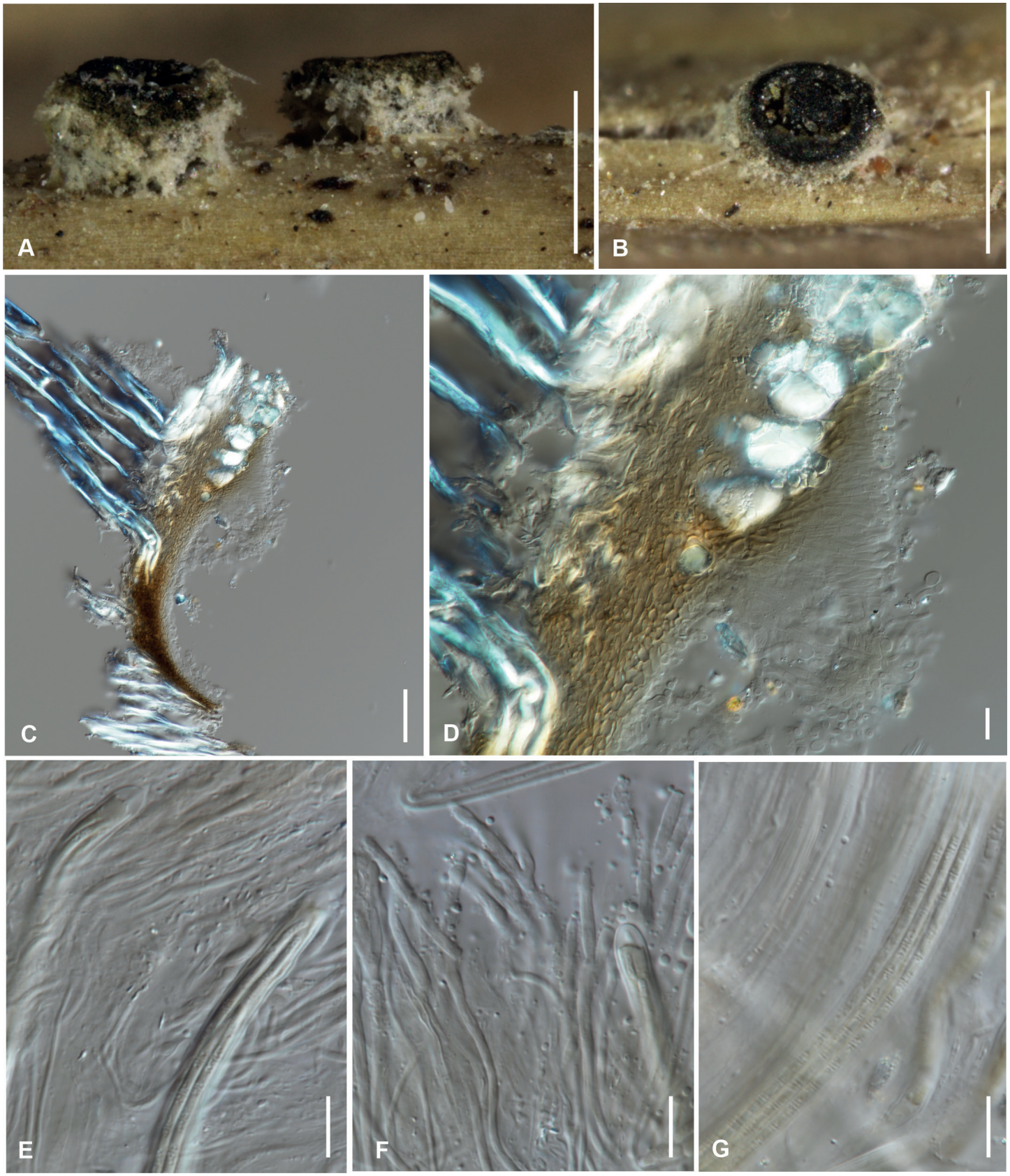

Fig. 3. *Cyclostoma macroarundinacea* (PDD 61812). **A.** Dry ascomata, showing semi-erumpent position. **B.** Dry ascoma, showing dark hymenium. **C.** One side of ascoma in vertical section. **D.** Detail of top part of ascomatal upper wall and periphyses in vertical section. **E.** Ascus apex, squash mount. **F.** Ascus apex and paraphyses, squash mount. **G.** Ascospores showing septa. Scale bars: A, B = 0.5 mm; C = 50 µm; D–G = 10 µm.

Typus: **New Zealand**, Chatham Islands, Rekohu, Port Hutt Road, Lake Tennant, on dead leaves of *Ammophila arenaria*, 23 Nov. 1992, *P.R. Johnston* (A173) *& E.H.C. McKenzie* (**holotype** PDD 61812, ex-type culture ICMP 24787).

Ascomata deeply immersed, urceolate, 0.25–0.3 mm diam., becoming semi-erumpent often with only base still immersed in host tissue, margin entire, dark grey, pruinose, hymenium dark

grey, splitting away from margin when dry. Upper wall of ascoma in cross section 70–80 µm wide at sides of ascomata, outer layers comprising 3–4 µm diam hyphae, walls thin, brown to dark brown, intermixed with partially broken-down host cells in outer part of wall, with a 30–40 µm wide, wedge-shaped group of crystals near top of ascomatal wall. Lower wall of ascoma 10–20 µm thick, comprising tangled hyphae with walls thin, brown. *Periphyses* 20–50 × 2–3 µm, not branching. *Paraphyses* 1–1.5 µm diam, irregularly swollen up to 2–2.5 µm near rounded apex, extending about 20–30 µm beyond asci. *Asci* 300–450 × 5–7 µm, apex rounded, apical cap 4–7.5 µm thick with narrow central pore, non-amyloid, 8-spored. *Ascospores* (300–)360–430 × 1–2 µm, septa 6–8 µm apart.

Additional specimens examined: **New Zealand**, Stewart Island, Lee Bay, Garden Mound Track, on dead leaves of *Bromus* sp., 4 May 1984, *P.R. Johnston* (A152) (PDD 119632, culture ICMP 24784); Taupo, Napier-Taupo Road, vic. Te Haroto, Turangakumu Reserve, on dead leaves of *Holcus lanatus*, 26 Mar. 1984, *P.R. Johnston* (A150) (PDD 46218).

Notes: Based on the description of Sherwood (1977), the north temperate, grass-inhabiting *Stictis arundinacea* is morphologically similar to *C. macroarundinacea* in having dark-walled ascomata and more or less undifferentiated paraphyses, but it has shorter asci and ascospores.

Cyclostoma oleariae P.R. Johnst., ***sp. nov.*** MycoBank MB 852782. Fig. 4.

Etymology: Referring to the host genus.

Typus: **New Zealand**, Auckland, Waitakere Ranges, Kaitarakihi, on fallen leaves *Olearia furfuracea,* 9 Nov. 1990, *P.R. Johnston* (A170) (**holotype** PDD 58105, ex-type culture ICMP 25028).

Ascomata developing in groups on slightly bleached areas of fallen leaves. Ascomata deeply immersed, urceolate, 0.3–0.5 mm diam, becoming semi-erumpent, margin entire, dark grey, pruinose with scattered crystals on outside of wall, hymenium dark grey, splitting away from margin when dry. Ascomatal wall in cross section 70–80 µm wide, outer layer 30–40 um wide, of tightly packed hyphae or pseudoparenchymatous cells 3–6 µm diam, walls thin, dark brown, outermost parts of the ascomatal wall comprising tangled hyphae with walls thin, brown, intermixed with partially broken-down host cells; inner layer up to 40–50 um wide, of loose, tangled hyphae 2–4 µm diam. with walls thin, hyaline. Crystals scattered along outside of upper part of the ascomatal wall, not forming a well-defined layer. *Periphyses* 30–40 × 2–3 µm, unbranched, those near margin encrusted with yellow, granular material. Lower wall of ascoma up to 40 µm thick, of tightly packed, tangled hyphae with dark brown slightly thickened walls. Subhymenium 20 µm thick, of tangled, hyaline, thin-walled hyphae. *Paraphyses* 1.5–2 µm wide, increasing in width suddenly to 3–5 µm when they extend beyond the asci, swollen apical part embedded in brown material with granular appearance, extending 40–50 um beyond asci, forming an epithecium-like layer. *Asci* 360–410 × 4–6 µm, apex rounded, apical cap 4–7.5 µm thick with narrow central pore, non-amyloid, 8-spored. *Ascospores* 360–410 × 1–2 µm, septa 6–8 µm apart.

Additional specimens examined: **New Zealand**, Auckland, Waitakere Ranges, Kaitarakihi, on fallen leaves *Olearia furfuracea,* 8 Mar. 1983, *P.R. Johnston* (A137) (PDD 43277); Auckland, Clevedon, near Kawakawa Bay, on fallen leaves *Olearia furfuracea,* 18 Oct. 1983, *P.R. Johnston* (A144)*, G.J. Samuels & S.L. Parkes* (PDD 44232); Auckland, Waitakere Ranges, Opanuku Road, Taumata Track, on fallen leaves *Olearia rani,* 23 Sep. 1987, *P.R. Johnston* (A164) (PDD 53879); Coromandel, Little Barrier Island, Summit Track, on fallen leaves *Olearia rani,* 7 Apr. 1988, *P.R. Johnston* (PDD 54865); Northland, North Kaipara Heads, vic. Pouto, Pretty Bush, on fallen leaves *Olearia furfuracea,* 24 May 1991, *P.R. Johnston* (PDD 59102).

Notes: Based on descriptions in Sherwood (1977a), *S. gigantea* (known from *Costus* from Africa) is similar to *C. oleariae* macroscopically (ascomata becoming erumpent, no well-developed layer of crystals) but *S. gigantea* lacks the distinctive hyaline layer in the inner part of the upper wall and lacks the swollen paraphyses embedded in brown material.

Cyclostoma trinervium (P.R. Johnst.) P.R. Johnst., ***comb. nov.*** MycoBank MB 852783.
Basionym: *Stictis trinervia* P.R. Johnst., *New Zealand J. Bot.* **21**: 274. 1983.

Ebollia Minter & Caine, *Trans. Brit. Mycol. Soc.* **74**: 436. 1980.
Synonym: *Fitzroyomyces* Crous, *Persoonia* **39**: 389. 2017.

Ebollia carnea (Seaver & Waterston) P.R. Johnst., ***comb. nov.*** MycoBank MB 852784.
Basionym: *Stictis carnea* Seaver & Waterston, *Mycologia* **33**: 311. 1941.
Synonyms: *Stictis inconstans* P.R. Johnst., *New Zealand J. Bot.* **21**: 261. 1983.
Fitzroyomyces cyperacearum Crous, *Persoonia* **39**: 389. 2017.

Ebollia hyaloseptispora (D.P. Wei & K.D. Hyde) P.R. Johnst., ***comb. nov.*** MycoBank MB 852785.
Basionym: *Fitzroyomyces hyaloseptisporus* D.P. Wei & K.D. Hyde, *J. Fungi* **7**: 9. 2021.

Ebollia kunmingensis (D.P. Wei & K.D. Hyde) P.R. Johnst., ***comb. nov.*** MycoBank MB 852787.
Basionym: *Phacidiella kunmingensis* D.P. Wei & K.D. Hyde, *Phytotaxa* **573**: 78. 2022.

Ebollia lata (P.R. Johnst.) P.R. Johnst., ***comb. nov.*** MycoBank MB 852788.
Basionym: *Stictis lata* P.R. Johnst., *New Zealand J. Bot.* **21**: 264. 1983.

Ebollia minor (P.R. Johnst.) P.R. Johnst., ***comb. et stat. nov.*** MycoBank MB 852789.
Basionym: *Stictis ramuligera* var. *minor* P.R. Johnst., *New Zealand J. Bot.* **21**: 268. 1983.

Ebollia pandanicola **(**Tibpromma & K.D. Hyde) P.R. Johnst., ***comb. nov.*** MycoBank MB 852790.
Basionym: *Stictis pandanicola* Tibpromma & K.D. Hyde, *Fungal Diversity* **93**: 78. 2018.
Synonym: *Fitzroyomyces pandanicola* (Tibpromma & K.D. Hyde) D.P. Wei & K.D. Hyde, *J. Fungi* **7**: 11. 2021.

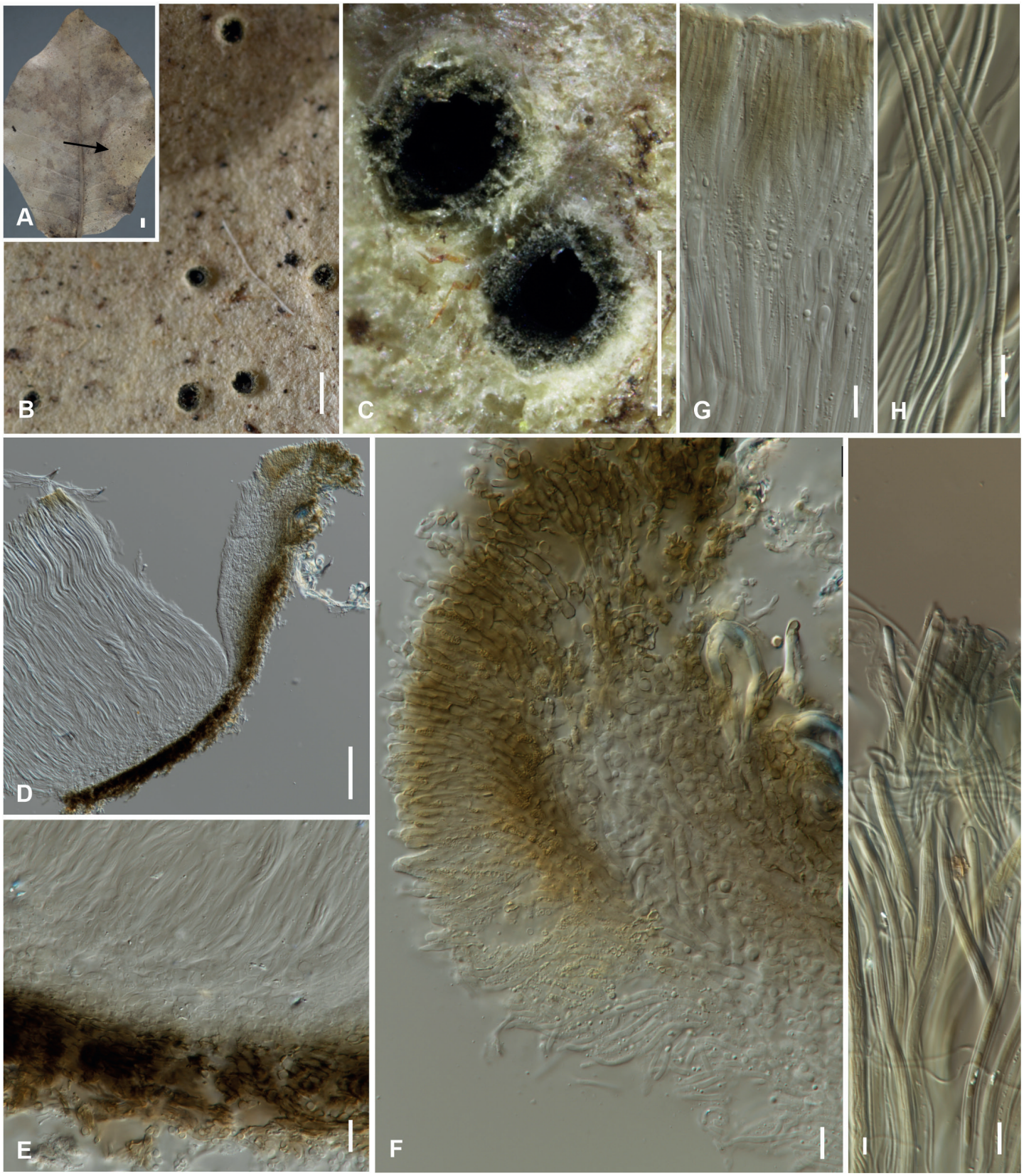

Fig. 4. *Cyclostoma oleariae* (PDD 58105). **A.** Infected leaf, arrow indicates bleached part of leaf infected by the fungus. **B.** Detail of infected part of leaf showing ascomata. **C.** Detail of ascomata. **D.** Ascoma in vertical section. **E.** Detail of lower wall in vertical section. **F.** Detail of top part of upper wall and periphyses in vertical section. **G.** Detail of top of hymenium with swollen paraphyses embedded in grown material, in vertical section. **H.** Ascospores showing septa. **I.** Asci and paraphyses, squash mount. Scale bars: A, B = 1 mm; C = 50 µm; D = 100 µm; E–I = 10 µm.

Ebollia xishuangbannaensis (R.F. Xu & Tibpromma) P.R. Johnst., ***comb. nov.*** MycoBank MB 852791.
Basionym: *Fitzroyomyces xishuangbannaensis* R.F. Xu & Tibpromma, *Phytotaxa* **548**: 260. 2022.

Ebollia yunnanensis (L. Lu, K.D. Hyde & Tibpromma) P.R. Johnst., ***comb. nov.*** MycoBank MB 852792.
Basionym: *Fitzroyomyces yunnanensis* L. Lu, K.D. Hyde & Tibpromma, *Phytotaxa* **528**: 118. 2021.

Table 1. Taxa included in the phylogeny in Fig. 1 and GenBank accession numbers for ITS, LSU and mtSSU sequences. Table ordered using the name accepted in this paper, also included are the names originally applied to the specimens, and where a specimen represents the type for one of those names, this is indicated. Entries in **bold** indicate sequences generated for this paper. We also indicate which of these specimens were cited in Johnston (1983), and others that have images and notes provided through the Manaaki Whenua specimen database, searchable from https://scd.landcareresearch.co.nz.

Accepted name	Original Name	Host substrate	Voucher/Culture	Country	Collected by	Reference	ITS	LSU	mtSSU
Absconditella sp.	*Absconditella* sp.	n/a	Palice 3820 (HB Palice)	n/a	Z. Palice	Stenroos *et al.* (2010)	—	AY300825	AY300873
Absconditella sphagnorum	*Absconditella sphagnorum*	*Sphagnum* spp.	TUR 165532	Finland	T. Laukka	Stenroos *et al.* (2010)	—	EU940095	EU940247
Acarosporina hyalina	***Acarosporina hyalina***	**dead wood**	**ICMP 24652, PDD 119591**	**New Zealand**	**P.R. Johnston**	**this paper [SCD]**	OR608589	—	—
	***Acarosporina hyalina* TYPE**	***Actinidia chinensis*, dead wood**	**ICMP 24782, PDD 45045**	**New Zealand**	**P.R. Johnston**	**this paper, Johnston (1985)**	**OR608588**	**OR608551**	**OR608633**
Acarosporina microspora	*Acarosporina microspora*	n/a	AFTOL-ID 78	n/a	n/a	James *et al.* (2006)	DQ782834	AY584643	AY584612
Carestiella socia	*Carestiella socia*	n/a	Gilenstam 2437a (UPS)	Sweden	G. Gilenstam	Wedin *et al.* (2005)	AY661682	AY661682	AY661678
Cryptodiscus cladoniicola	*Cryptodiscus cladoniicola*	*Cladonia furcata*	J. Kocourkova (H)	Czech Republic	J. Kocourkova	Pino-Bodas *et al.* (2017)	KY661619	KY661652	KY661674
Cryptodiscus epicladonia	*Cryptodiscus epicladonia* TYPE	*Cladonia mitis*	T. Ahti 70348a, S. Talbot (H)	USA: Alaska	T. Ahti, S. Talbot	Pino-Bodas *et al.* (2017)	KY661628	—	KY661680
Cryptodiscus foveolaris	*Cryptodiscus foveolaris*	n/a	Baloch SW168 (S)	Sweden	E. Baloch	Baloch *et al.* (2009)	FJ904673	—	FJ904695
Cryptodiscus muriformis	*Cryptodiscus muriformis*	*Picea abies*, decorticated branches	Jaklitsch (H.B. 6773)	Austria	H.O. Baral	Fernandez-Brime *et al.* (2018)	MG281963	MG281963	MG281973
Cryptodiscus pallidus	*Cryptodiscus pallidus*	n/a	Baloch SW174 (S)	Sweden	E. Baloch	Baloch *et al.* (2009)	FJ904680	FJ904680	FJ904702
Cryptodiscus pini	*Cryptodiscus pini*	*Pinus*, wood	Wedin & Baloch 26VII07 (S)	Sweden	M. Wedin, E. Baloch	Baloch *et al.* (2009)	FJ904683	FJ904683	FJ904705
***Cryptodiscus* sp.**	***Schizoxylon* sp.**	***Rhopalostylis sapida*, dead frond**	**ICMP 24771, PDD 119643**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	**OR608611**	—	—
Cryptodiscus tabularum	*Cryptodiscus tabularum*	*Pinus*, wood	Gilenstam 2641a (UPS)	Sweden	G. Gilenstam	Baloch *et al.* (2009)	FJ904690	FJ904690	FJ904712
Cyanodermella asteris	*Cyanodermella asteris*	*Aster tataricus*	03HOR06-2-4	Germany	n/a	Jahn *et al.* (2017)	KT758843	—	KT758843
Cyanodermella banksiae	*Cyanodermella banksiae* TYPE	*Banksia ericifolia* subsp. *macrantha*, dead leaves	CBS 144433	Australia	P.W. Crous	Crous *et al.* (2018a)	NR_159835	NG_064548	—
Cyanodermella oleoligni	*Cyanodermella oleoligni* TYPE	*Pinus sylvestris*	CBS 140345	Australia	E.J. van Nieuwenhuijzen	van Nieuwenhuijzen *et al.* (2016)	NR_153930	NG_058973	KX999144
Cyanodermella viridula	*Cyanodermella viridula*	n/a	F117008 (S)	Sweden	E. & C. Baloch	Baloch *et al.* (2010)	MG281964	HM244763	HM244739

Table 1. (Continued).

Accepted name	Original Name	Host substrate	Voucher/Culture	Country	Collected by	Reference	ITS	LSU	mtSSU
Cyclostoma asteliae	*Stictis asteliae* (and *Coleophoma*-like anamorph)	*Cyathea*	ICMP 24777, PDD 41862	New Zealand	P.R. Johnston	this paper, Johnston (1983)	OR608575	OR608549	OR608631
	Stictis asteliae (and *Coleophoma*-like anamorph)	*Astelia* sp., dead leaf	ICMP 24788, PDD 41860	New Zealand	P.R. Johnston	this paper, Johnston (1983)	**OR608581**	**OR608567**	**OR608645**
Cyclostoma dicksoniae	*Stictis dicksoniae*	*Cyathea smithii*, dead frond	PDD 93108	New Zealand	P.R. Johnston	this paper	OR608583	—	—
	Stictis dicksoniae (and *Coleophoma*-like anamorph)	*Cyathea smithii*, dead frond	ICMP 24789, PDD 40954	New Zealand	P.R. Johnston	this paper, SCD	**OR608584**	**OR608566**	**OR608646**
	Stictis subiculata (and *Coleophoma*-like anamorph)	*Rhopalostylis sapida*, dead frond	ICMP 24806, PDD 44124	New Zealand	P.R. Johnston	this paper	OR608582	OR608553	OR608635
	Stictis subiculata (and *Coleophoma*-like anamorph)	*Dracophyllum* sp., dead leaf	ICMP 24778	New Zealand	P.R. Johnston	this paper	**OR608532**	**OR608571**	—
	Stictis subiculata	*Freycinetia baueriana*	ICMP 24762, PDD 41899	New Zealand	P.R. Johnston	this paper, Johnston (1983)	**OR608574**	**OR608538**	**OR608620**
Cyclostoma macroarundinacea	*Stictis* sp.	*Bromus* sp., dead leaf	ICMP 24784, PDD 119632	New Zealand	P.R. Johnston	this paper	**OR608585**	**OR608554**	—
	Stictis sp. (TYPE)	*Ammophila arenaria*, dead leaf	ICMP 24787, PDD 61812	New Zealand	P.R. Johnston	this paper	**OR608586**	**OR608557**	**OR608638**
Cyclostoma oleariae TYPE	*Stictis* sp.	*Olearia ilicifolia*, dead leaf	ICMP 25028, PDD 58105	New Zealand	P.R. Johnston	this paper	**OR608587**	**OR608556**	**OR608637**
Cyclostoma	*Stictis* sp.	*Austroderia* sp., dead leaf	PDD 117683	New Zealand	P.R. Johnston	this paper, SCD	**OM987298**	—	**OR608626**
Cyclostoma trinervium	*Stictis trinervia*	*Astelia* sp., dead leaf	PDD 121234	New Zealand	P.R. Johnston	this paper	**OR608576**	**OR608560**	**OR608640**
	Stictis trinervia	*Astelia* sp., dead leaf	PDD 121233	New Zealand	P.R. Johnston	this paper	OR608577	OR608559	OR608639
	Stictis trinervia	*Astelia* sp., dead leaf	PDD 119644	New Zealand	P.R. Johnston	this paper, SCD	**OR608578**	**OR608558**	—
	Stictis trinervia	*Astelia* sp., dead leaf	PDD 121238	New Zealand	P.R. Johnston	this paper	OR608579	OR608562	OR608642
	Stictis trinervia	*Astelia* sp., dead leaf	PDD 121237	New Zealand	P.R. Johnston	this paper, SCD	**OR608580**	**OR608561**	**OR608641**
Delpontia pulchella	*Delpontia* sp.	*Cyathea dealbata*	PDD 121251	New Zealand	P.R. Johnston	this paper, SCD	OR608612	OR608546	OR608629
	Delpontia sp.	*Cyathea smithii*, dead frond	PDD 81761	New Zealand	P.R. Johnston	this paper	**OR608613**	—	—

Table 1. (Continued).

Accepted name	Original Name	Host substrate	Voucher/Culture	Country	Collected by	Reference	ITS	LSU	mtSSU
	***Delpontia* sp.**	***Cyathea dealbata***	**PDD 81375**	**New Zealand**	**P.R. Johnston**	**this paper**	**OR608614**	**—**	**—**
Ebollia alsophilae	*Phacidiella alsophilae* TYPE	*Alsophila capensis*, leaves	CBS 146134	South Africa	M.J. Wingfield	Crous *et al.* (2020c)	MT373361	MT373344	—
Ebollia carnea	*Fitzroyomyces cyperacearum*	n/a	MFLU 18-0695b	United Kingdom	E.B.G. Jones	Ekanayaka *et al.* (2019)	MK499349	MK499361	—
	Fitzroyomyces cyperacearum TYPE	*Cyperaceae*, dead leaves	CBS 143170	Australia	P.W. Crous	Crous *et al.* (2017)	NR_156387	NG_058513	—
	Fitzroyomyces sp.	n/a	SICAUCC 23-0002	China	n/a	unpublished	OR134759	OR134750	OR162603
	Stictis carnea	***Cyathea***	**ICMP 24769**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	**OR608531**	**OR608570**	**—**
	Stictis carnea	***Hedycarya arborea***	**ICMP 24770, PDD 40975**	**New Zealand**	**P.R. Johnston**	**this paper**	OR608606	OR608547	—
	Stictis carnea	***Geniostoma***	**ICMP 24761**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	**OR608535**	**OR608568**	**-**
	Stictis carnea	***Cyathea dealbata***	**ICMP 24781, PDD 40977**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	OR608607	OR608550	OR608632
	Stictis carnea	***Rhopalostylis sapida*, dead frond**	**ICMP 24765, PDD 40983**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	**OR608604**	**OR608541**	**OR608623**
	Stictis carnea	***Geniostoma***	**ICMP 24930, PDD 42978**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	OR608605	—	—
	Stictis carnea	***Austroderia toetoe***	**PDD 41161**	**New Zealand**	**P.R. Johnston**	**this paper, Johnston (1983)**	**OR608602**	**—**	**—**
	Stictis carnea	***Cyathea medullaris***	**ICMP 24931, PDD 40988**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	OR608603	—	—
	Stictis inconstans	***Ripogonum scandens*,**	**PDD 41848**	**New Zealand**	**P.R. Johnston**	**this paper, Johnston (1983)**	**OR608608**	**—**	**OR608621**
Ebollia hyaloseptispora	*Fitzroyomyces hyaloseptisporus* TYPE	dead stem	MFLUCC 21-0111	Thailand	De-Ping Wei	Wei *et al.* (2021)	MZ868916	MZ868921	MZ868911
Ebollia kunmingensis	*Phacidiella kunmingensis*	dead twig	HKAS 124176	China	De-Ping Wei	Wei *et al*. (2022)	ON854234	ON854245	ON854238
	Phacidiella kunmingensis TYPE	dead twig	HKAS 124175	China	De-Ping Wei	Wei *et al*. (2022)	NR_185434	NG_228983	ON854237
Ebollia lata	***Stictis lata (and Ebollia anamorph)***	***Cordyline* sp., dead leaf**	**ICMP 24779**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	**OR608533**	**OR608572**	**—**
	***Stictis lata* (and *Ebollia* anamorph)**	***Cordyline* sp., dead leaf**	**ICMP 24783, PDD 42784**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	**OR608601**	**OR608552**	**OR608634**
Ebollia minor	***Stictis ramuligera* var. *minor* TYPE (and *Ebollia* anamorph)**	***Rhopalostylis sapida*, dead frond**	**ICMP 24929, PDD 41004**	**New Zealand**	**P.R. Johnston**	**this paper, Johnston (1983)**	**OR608591**	**OR608548**	**OR608630**

Table 1. (Continued).

Accepted name	Original Name	Host substrate	Voucher/Culture	Country	Collected by	Reference	ITS	LSU	mtSSU
Ebollia pandanicola	*Fitzroyomyces pandanicola* TYPE	*Pandanaceae*	HKAS 96206	China	S. Tibpromma	Tibpromma *et al.* (2018)	MH275085	MH260319	MH260359
Ebollia podocarpi	*Phacidiella podocarpi* TYPE	*Podocarpus latifolius*, leaves	CBS 138904	South Africa	A.R. Wood	Crous *et al.* (2014)	NR_137934	NG_058118	—
Ebollia sp.	*Fitzroyomyces* sp.	dead stem	GUCC 231-1	China	n/a	unpublished	OP766417	OP766419	—
Ebollia xishuangbannaensis	*Fitzroyomyces xishuangbannaensis* TYPE	*Hevea brasiliensis*, wood	HKAS 122682	China	Ruifang Xu	Xu *et al*. (2022)	NR_182576	NG_149047	ON496479
Ebollia yunnanensis	*Fitzroyomyces yunnanensis*	*Coffea*, dead wood	KUMCC 21-0002	China	S. Tibpromma	Lu *et al.* (2021)	MZ781316	MZ781317	MZ781329
Eriospora juncicola	*Eriospora juncicola* TYPE	*Juncus* sp., dead culm	CBS 148948	Netherlands	E.R. Osieck	Crous *et al.* (2022)	NR_182503	NG_149081	—
Eriospora leucostoma	*Eriospora leucostoma*	*Typha* sp., leaves	CBS 145556	Germany	R.K. Schumacher	Crous *et al.* (2020b)	MT223795	MT223890	—
Glomerobolus gelineus	*Glomerobolus gelineus*	*Juncus roemerianus*, dead leaves	OSC 100192	n/a	n/a	Schoch *et al.* (2006)	DQ247782	DQ247803	DQ247784
Glomerobolus poacearum	*Glomerobolus poacearum* TYPE	*Poaceae*, dead stem	HKAS 124669	China	Ying Gao	Gao *et al.* (2024)	OR524073	OR524075	OR524077
Hormodochis aggregata	*Hormodochis aggregata* TYPE	*Sorbus aucuparia*, twigs	CBS 145904	Germany	R.K. Schumacher	Crous *et al.* (2020a)	NR_166307	NG_070476	—
Hormodochis eucalypti	*Hormodochis eucalypti* TYPE	*Eucalyptus* sp.	CBS 120255	South Africa	M.J. Wingfield	Crous *et al.* (2020c)	EF110617	EF110617	—
Hormodochis melanochlora	*Hormodochis melanochlora* EPITYPE	*Cytisus scoparius*, dead twigs	CBS 138861	Germany	R.K. Schumacher	Crous *et al.* (2014)	NR_165507	NG_070381	—
Ingvariella bispora	*Ingvariella bispora*	rock inhabiting lichen	BCNLich 17183	Spain	X. LLimona	Fernández-Brime *et al.* (2011)	—	HQ659185	HQ659174
Neofitzroyomyces nerii	*Neofitzroyomyces nerii* TYPE	*Nerium oleander*	CBS 145088	France	P.W. Crous	Crous *et al.* (2018)	MK047454	MK047504	—
Neohormodochis septispora	*Neohormodochis septispora* TYPE	dead twig	HKAS 124171	China	Jin-Yi Licui	Wei *et al.* (2022)	ON705260	NG_228982	ON854229
Neoostropa castanae	*Neoostropa castanae* TYPE	*Castanea henryi*, dead stem	HKAS 124384	China	Yanyan Yang	Yang et al. (2023)	OP739482	OP739476	OP739478
Neostictis nigricans	***Neostictis nigricans***	***Clematis vitalba*, wood**	**PDD 122814 (= LUX MNHNL111102)**	**France**	**G. Marson**	**this paper**	PP262628	PP262631	PP239691
	Neostictis nigricans TYPE	*Clematis vitalba*, dead wood	MFLU 18-1380	Italy	E. Camporesi	Phukhamsakda *et al.* (2020)	MT310654	MT214610	—
Orceolina kerguelensis	*Orceolina kerguelensis*	n/a	Søchting 9398(C)	Crozet Island	U. Søchting	Schmitt *et al*. (2003)	AY212814	AY212830	AY212853

Table 1. (Continued).

Accepted name	Original Name	Host substrate	Voucher/Culture	Country	Collected by	Reference	ITS	LSU	mtSSU
Ostropa barbara	*Ostropa barbara*	n/a	Wedin & Baloch SW071 (S)	Sweden	M. Wedin, E. Baloch	Baloch *et al.* (2010)	HM244773	HM244773	HM244752
Ostropomyces pruinosellus	*Ostropomyces pruinosellus*	dead stem	MFUL 21_0115	Thailand	De-Ping Wei	Wei *et al.*(2021)	MZ868913	MZ868918	MZ868908
Ostropomyces thailandicus	*Ostropomyces thailandicus*	dead stem	MFUL 21_0116	Thailand	De-Ping Wei	Wei *et al.* (2021)	MZ868915	MZ868920	MZ868910
Ostropomyces yunnanensis	*Ostropomyces yunnanensis* TYPE	dead stem	HKAS 126537, KUNCC 22-12678	China	Ying Gao	Gao *et al.* (2024)	OR512624	OR512646	OR519875
Placopsis perrugosa	*Placopsis perrugosa*	n/a	Muggia NZ8	New Zealand	n/a	Schneider *et al.* (2016)	KU844737	KU844613	KU844549
Robergea cubicularis	*Robergea cubicularis*	*Salix* sp. dead branches	G.M. 2017-10-12.1	France	G. Marson	unpublished	MN833317	MN833317	—
Schizoxylon albescens	*Schizoxylon albescens* TYPE	*Populus tremula*, dead twigs	Gilenstam 2696a (UPS)	Sweden	G. Gilenstam	Wedin *et al.* (2006)	DQ401144	DQ401144	DQ401142
Schizoxylon berkeleyanum	*Schizoxylon berkeleyanum*	herbacous plant material	F209682 (S)	Sweden	Hansen & Olariaga	Fernandez-Brime *et al.* (2018)	MG281966	MG281975	MG281966
Schizoxylon gilenstamii	*Schizoxylon gilenstamii* TYPE	*Globularia vulgaris*, dead flowers	F300892 (S)	Sweden	M. Wedin	Fernandez-Brime *et al.* (2018)	MG281968	MG281968	MG281977
Sphaeropezia leucocheila	*Sphaeropezia leucocheila* TYPE	*Lepidoziaceae*, living thallus	PDD 98299	New Zealand	M. Renner	Johnston *et al.* (2019)	NR_184358	MK547099	MK547101
Sphaeropezia lyckselensis	*Sphaeropezia lyckselensis*	*Melittosporiella pulchella*, old ascomata	Gilenstam 2651 (S)	Sweden	G. Gilenstam	Baloch *et al.* (2013)	—	JX266158	JX266156
Sphaeropezia mycoblasti	*Sphaeropezia mycoblasti* TYPE	*Mycoblastus* thallus and apothecia	Wedin 8509 & Westberg (S)	Sweden	M. Wedin	Baloch *et al.* (2013)	—	JX266159	JX266157
Sphaeropezia shangrilaensis	*Sphaeropezia shangrilaensis* TYPE	dead bark	MFLU 20-0537	China	V. Thiyagaraja	Thiyagaraja *et al.* (2021)	MW400955	MW400965	MW400962
'Stictis' anhuiensis	*Stictis anhuiensis*	*Cunninghamia lanceolata*, dead needles	BJTC 201610	China	C.L. Hou	Li & Hou (2016)	—	KX447622	KX447624
'Stictis' anomianthi	*Stictis anomianthi* TYPE	*Anomianthus dulcis*, dead twigs	HKAS 107096	Thailand	N.I. de Silva	Senanayake *et al.* (2023)	OQ980248	OQ975316	—
'Stictis' brunnescens	*Stictis brunnescens*	n/a	Gilenstam 2359b (UPS)	Sweden	G. Gilenstam	Wedin *et al.* (2005)	AY661688	AY661688	AY661679
'Stictis' cf. prominens	***Stictis cf. prominens***	**dead wood**	**ICMP 24780**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	**OR608534**	**OR608573**	**OR608618**
***'Stictis' cf. ramuligera* species A**	***Stictis ramuligera***	***Cyathea***	**ICMP 24768**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	OR608530	OR608569	—

Table 1. (Continued).

Accepted name	Original Name	Host substrate	Voucher/Culture	Country	Collected by	Reference	ITS	LSU	mtSSU
	Stictis ramuligera **(and *Ebollia* anamorph)**	***Cyathea medullaris***	**PDD 121286**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	**OR608597**	**OR608542**	**OR608624**
	Stictis ramuligera **(and *Ebollia* anamorph)**	***Cyathea medullaris***	**PDD 40999**	**New Zealand**	**P.R. Johnston**	**this paper, Johnston (1983)**	OR608598	—	—
	Stictis ramuligera **(and *Ebollia* anamorph)**	***Cyathea medullaris***	**ICMP 24932, PDD 41053**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	**OR608596**	**—**	**—**
	Stictis ramuligera **(and *Ebollia* anamorph)**	***Cyathea medullaris***	**ICMP 24928, PDD 41000**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	**OR608599**	**OR608544**	**OR608627**
'*Stictis*' *cf. ramuligera* species B	***Stictis ramuligera*** **(and *Ebollia* anamorph)**	***Cyathea medullaris***	**ICMP 24766, PDD 40994**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	**OR608594**	**OR608543**	**OR608625**
	Stictis ramuligera **(and *Ebollia* anamorph)**	***Cyathea medullaris***	**PDD 121288**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	OR608593	—	—
	Stictis ramuligera **(and *Ebollia* anamorph)**	***Coprosma*** **sp., dead twigs**	**ICMP 24764, PDD 40995**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	**OR608595**	**OR608564**	**—**
	Stictis ramuligera **(and *Ebollia* anamorph)**	***Cyathea medullaris***	**ICMP 24927, PDD 40994**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	**OR608592**	**—**	**—**
'*Stictis*' *cf. serpentaria*	***Stictis serpentaria***	**dead twig**	**PDD 111325**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	**OR608615**	**OR608563**	**OR608643**
'*Stictis*' *clavata*	***Stictis clavata***	***Melicytus*** **sp., dead twigs**	**PDD 41844**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	**OR608610**	**OR608545**	**OR608628**
'Stictis' confusa	*Stictis confusa* TYPE	*Populus*	Wedin 7070 (UPS)	Sweden	M. Wedin	Wedin *et al.*(2006)	DQ401143	DQ401143	DQ401141
'Stictis' maggiana	*Stictis maggiana* TYPE	*Fraxinus*	MARSSJ (C. Roux 27026)	France	F. Maggi	Roux & Ertz (2021)	MW969762	—	—
'Stictis' mollis	*Stictis mollis*	n/a	Gilenstam 2458b (UPS)	Sweden	G. Gilenstam	Wedin *et al. (*2005)	AY527316	AY527316	AY527345
'Stictis' populorum	*Stictis populorum*	n/a	Gilenstam 2610a (UPS)	Sweden	G. Gilenstam	Wedin *et al.* (2005)	AY527327	AY527327	AY527356
Stictis radiata	*Stictis radiata*	n/a	Gilenstam 2449a (UPS)	Sweden	G. Gilenstam	Wedin *et al.* (2004)	AY527308	AY527308	AY340532
	Stictis radiata	n/a	Wedin 6493 (UPS)	Sweden	M. Wedin	Wedin *et al.* (2004)	AY527309	AY527309	AY527338
	Stictis radiata	*Dicksonia squarrosa*, dead fronds	PDD 112222	New Zealand	P.R. Johnston	unpublished	MH578520	—	—

Table 1. (Continued).

Accepted name	Original Name	Host substrate	Voucher/Culture	Country	Collected by	Reference	ITS	LSU	mtSSU
	Stictis radiata	*Cyathea smithii*, dead frond	ICMP 16756	New Zealand	P.R. Johnston	unpublished	MK547089	MK599207	—
	Stictis radiata	***Dicksonia* sp., dead fronds**	**PDD 89963**	**New Zealand**	**P.R. Johnston**	**this paper**	**OR608609**	**OR608565**	**OR608644**
'Stictis' sp.	***Stictis ramuligera***	***Cordyline*, dead leaf**	**ICMP 24926**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	OR608536	—	—
	***Stictis ramuligera* (and microconidial state)**	***Earina mucronata*, dead leaf**	**ICMP 24785, PDD 46203**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	**OR608617**	**OR608555**	**OR608636**
	Stictis ramuligera* var. *minor	***Coprosma* sp., dead twigs**	**ICMP 24763, PDD 40997**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	OR608590	OR608539	—
	Stictis ramuligera* var. *minor	***Rhopalostylis sapida*, dead frond**	**ICMP 24767, PDD 44125**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	**OR608616**	**OR608537**	**OR608619**
	***Stictis* ramuligera var. *minor* (and *Ebollia* anamorph)**	***Dicksonia squarrosa*, dead fronds**	**PDD 40993**	**New Zealand**	**P.R. Johnston**	**this paper, SCD**	**OR608600**	**OR608540**	**OR608622**
'Stictis' urceolata	*Stictis urceolata*	n/a	Tibell 21500 (UPS)	Sweden	S. Tibell	Wedin *et al.* (2005)	AY661686	AY661686	AY661676
Trapelia placodioides	*Trapelia placodioides*	n/a	Knight 064381 (OTA)	New Zealand	n/a	Schneider *et al.* (2016)	KU844758	KU844623	KU844568
Xyloschistes platytropa	*Xyloschistes platytropa*	n/a	Bjork 05-242 (H)	n/a	n/a	Miadlikowska *et al.* (2014)	—	KJ766680	KJ766517

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