

Taxonomy and phylogeny of dematiaceous coelomycetes

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Received: 11 January 2016 / Accepted: 2 March 2016 / Published online: 9 May 2016

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Abstract Coelomycetous fungi are an artificial taxonomic group which produce conidia inside a cavity i.e. conidiomata. Coelomycetes comprise about, 1000 genera and 7000 species, which can be endophytic, pathogenic or saprobic. Traditional classification of coelomycetes was previously based on morphology, such as the shape of conidiomata and mode of conidiogenesis, while it was treated as a distinct group i.e. *Deuteromycotina*. Sequence based taxonomic studies has been used to accommodate asexual fungi in a natural classification

system, resolve generic boundaries of polyphyletic genera and species complexes, as well as establish asexual-sexual links. Nevertheless, most of genera lack sequence data, thus, morphology based identification is still important when introducing new genera or species. In this paper we illustrate, describe, and provide taxonomic notes for 235 dematiaceous coelomycetous genera, including five new genera viz. *Apiculospora*, *Didymellocomarosporium*, *Melanocomarosporium*, *Melnikia* and *Paulkirkia*. Phylogenetic analyses of combined sequence

Electronic supplementary material The online version of this article (doi:10.1007/s13225-016-0360-2) contains supplementary material, which is available to authorized users.

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data are provided to show placements of dematiaceous coelomycetes in *Dothideomycetes*, *Leotiomycetes* and *Sordariomycetes*. One-hundred and fifty-two (65 %) of genera have sequence data, thus, their taxonomic placement in a natural classification system, is listed as an outline. However, 83 genera still lack sequence data, hence, they are treated as *Ascomycota*, genera *incertae sedis*. In addition, separate analyses are provided where better taxonomic resolution is needed.

Keywords Asexual fungi · Conidiogenesis · Morphology · Multi-gene analyses

Introduction

History

Grove (1919) introduced the term coelomycetes, i.e. ‘fungi with a coelom or a cavity’, to accommodate the genera *Phyllosticta*, *Phomopsis* and *Phloeospora*, as they produce conidia within a cavity (Sutton 1980). The initial concept was extended to embody all genera that produce conidia within a cavity or cushion-like fungal matrix (Grove 1935, 1937). Later mycologists realized that coelomycetes are an artificial group of fungi (e.g. Taylor 1995) and the term was used purely for convenience (Kendrick 2000). The conidiomata or fruitbodies range from an enclosed cavity such as a pycnidium to a cushion-like acervulus, with several intermediaries viz. sporodochium-like and stroma (Fig. 1) (Sutton 1980; Nag Raj 1993; Kirk et al. 2008; Wijayawardene et al. 2012b). Fungal tissues, host tissues or a combination of both, line the cavities of a conidioma (Sutton 1980). There are a large number of taxa now known in the literature (Sutton 1980; Nag Raj 1993; Kirk et al. 2008; Wijayawardene et al. 2012b) and new taxa are continuously being introduced (Dai et al. 2012; Wijayawardene et al. 2014d, 2015; Ariyawansa et al. 2015b; Liu et al. 2015).

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Living modes of coelomycetes

Coelomycetes inhabit a wide range of ecological niches and occur as pathogens of terrestrial plants (Cortinas et al. 2006; Wikee et al. 2011; Udayanga et al. 2011; Maharachchikumbura et al. 2011, 2013b; Hyde et al. 2014) or aquatic plants (Al-Saadoon and Al-Dossary 2014), as endophytes (Rajagopal et al. 2012), or saprobes (Wijayawardene et al. 2013a, 2014a, b; Dai et al. 2012, 2014a, b). Some are found on organic debris in soil (Someya et al. 1997), while others are lichenicolous (Diederich et al. 2001, 2012; Lawrey et al. 2011) or mycorrhizal (Oliveira et al. 2014). Some coelomycetous genera have been reported as pathogens of insects and vertebrates, including humans (de Hoog et al. 2000; El-Bassam et al. 2002; Cano et al. 2004; Krockenberger 2010).

Pathogenic coelomycetes

Several coelomycetous genera have been reported as pathogens of various plants including agricultural crops, ornamental plants and timber trees (Fig. 2). The impact of infection can extend to post-harvest losses and they may also be of quarantine concern (Hyde et al. 2014). Some genera are known to be seed pathogens causing discoloured areas, lesions on seed and seed mortality (Maden et al. 1975; Neergaard 1977). Because of their ubiquity and economic importance, much research effort has gone into their taxonomy, pathology, and detection methods, based on molecular techniques, as well as more traditional techniques. *Ascochyta*, *Colletotrichum*, *Diplodia*, *Harknessia*, *Lasiodiplodia*, *Pestalotiopsis*, *Phaeophleospora*, *Phoma*, *Phomopsis* and *Phyllosticta* are some well-known pathogenic genera, the species of which may cause considerable crop and post-harvest losses or reduce the aesthetic value in ornamental plants (Taylor and Crous 1999; Lee et al. 2004; Peever 2007; Peever et al. 2007; Udayanga et al. 2011, 2014; Wikee et al. 2011, 2013a, b; Damm et al. 2012, 2013, 2014; O’Connell et al. 2012; Phillips et al. 2012; Maharachchikumbura et al. 2011, 2013b, 2014; Hyde et al. 2014; Nilsson et al. 2014). Molecular techniques, in particular, have revealed that most pathogenic genera are actually ‘species complexes’ (Damm et al. 2012, 2013, 2014; Wikee et al. 2013a; Hyde et al. 2014).

Endophytic coelomycetes

The most accepted definition of plant endophytes was given by Petrini (1991), i.e. ‘All organisms inhabiting plant organs that at some time in their life, can colonize internal plant tissues without causing apparent harm to the host’. Endophytic taxa are important to host plants in various roles, such as being involved in mutualism, reducing herbivory, improving the ability of tolerance to drought conditions and diseases, plant health and eventually in decomposition after death (Frohlich et al. 2000; Sieber 2007; Hyde and Soyong 2008). Table 1 summarizes endophytic

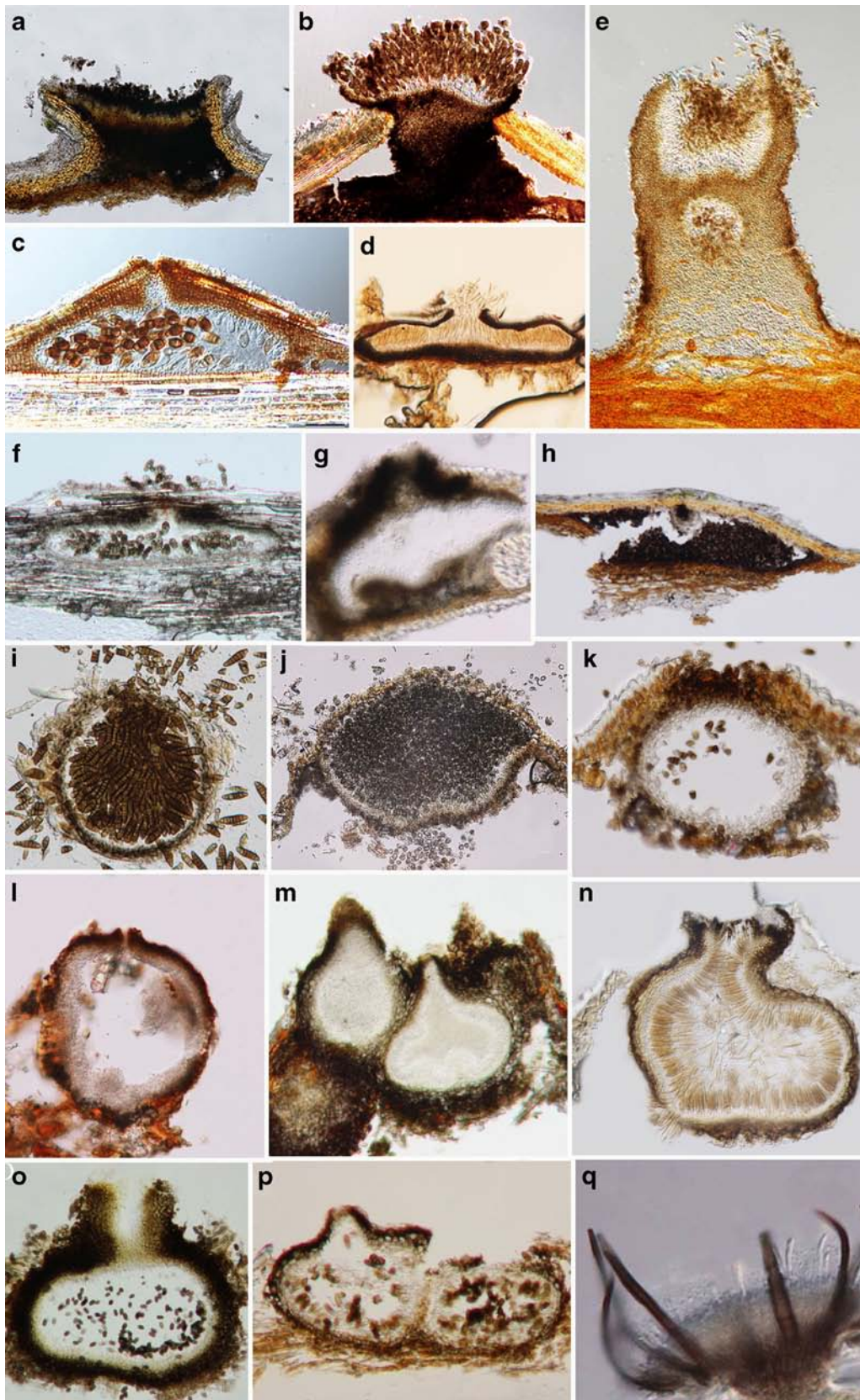


Fig. 1 Different shapes of conidiomata. **a, b, e** Sporodochium-like. **c, f, i–p** Pycnidia. **d, h, q** Acervuli. **g** Irregularly shaped conidiomata



Fig. 2 Diseases and leaf spots caused by *Colletotrichum* spp., *Diplodia* spp., *Phyllosticta* spp., phoma-like spp., *Phomopsis* spp. and *Pestalotiopsis* spp

coelomycetes, which have been documented in recent studies. Several recent research articles have reported taxa producing chemicals such as taxol, viz. *Seimatoantlerium* sp. (Strobel et al. 1999), *Bartalinia* (Gangadevi and Muthumary 2008), although this has been disputed by Heinig et al. (2013).

Lichen forming and lichenicolous coelomycetes

Lichen-forming ascomycetes differ from most non-lichenized ascomycetes in that the sexual state and the conidial state are usually present simultaneously in one thallus. Almost all

Table 1 Coelomycetous endophytic genera

Genera	References
<i>Bartalinia</i>	Gangadevi and Muthumary 2008; Senanayake et al. 2015
? <i>Botryodiplodia</i> (? <i>Lasiodiplodia</i>)	Kamalraj and Muthumary 2013
<i>Colletotrichum</i>	Suryanarayanan and Vijaykrishna 2001; Tayung et al. 2012; Kamalraj and Muthumary 2013
<i>Fusicoccum</i>	Suryanarayanan and Vijaykrishna 2001
<i>Lasiodiplodia</i>	Suryanarayanan and Vijaykrishna 2001
<i>Liberomyces</i>	Pazoutová et al. 2012
<i>Pestalotia</i>	Kamalraj and Muthumary 2013
<i>Pestalotiopsis</i>	Kamalraj and Muthumary 2013
<i>Phoma</i>	Vaz et al. 2012; Kamalraj and Muthumary 2013
<i>Phomopsis</i>	Udayanga et al. 2012; Vaz et al. 2012; Anitha et al. 2013; Kamalraj and Muthumary 2013
<i>Phyllosticta</i>	Suryanarayanan and Vijaykrishna 2001; Kamalraj and Muthumary 2013; Wikee et al. 2013a, b
<i>Seimatoantlerium</i>	Strobel et al. 1999

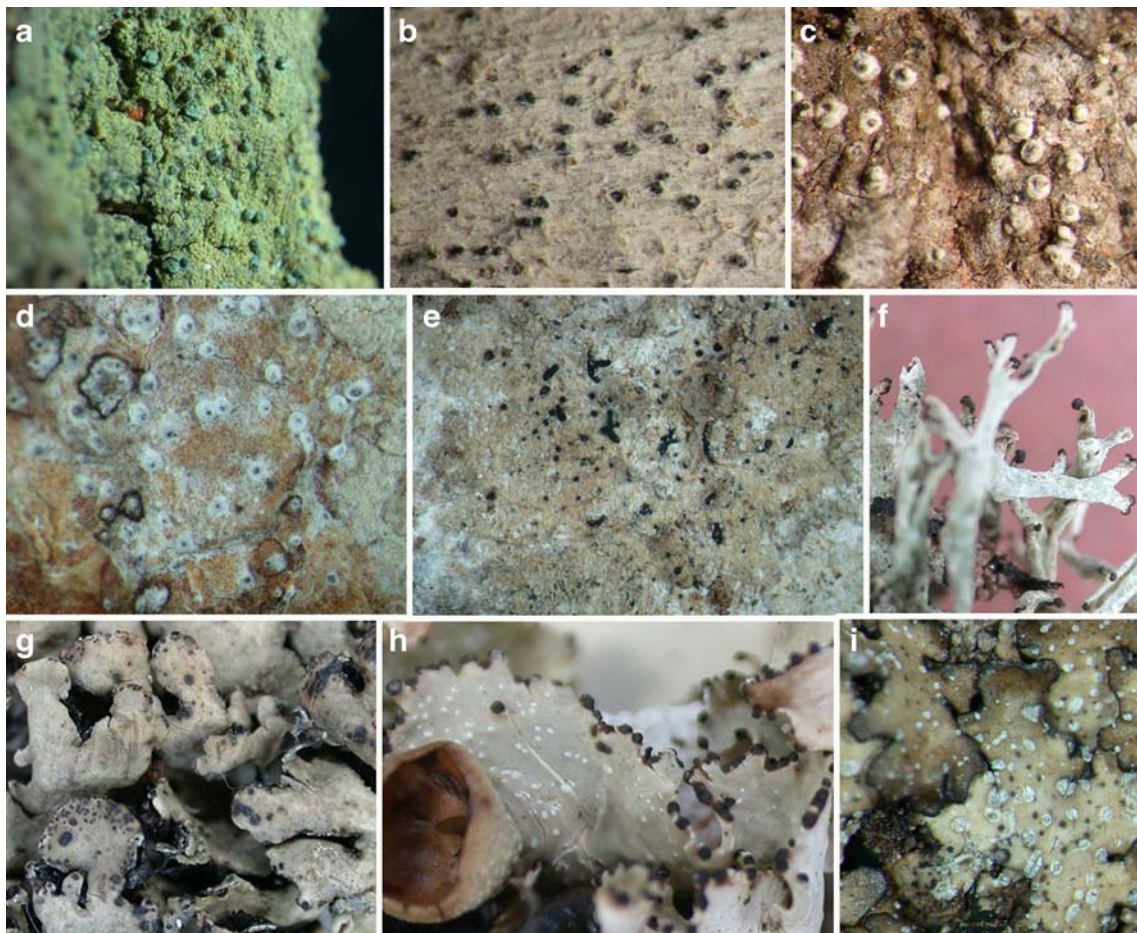


Fig. 3 Fertile lichens with pycnidia. **a** *Opegrapha flavocircularis*. **b** *Arthoniales* sp. **c** *Opegrapha conipycnidata*. **d** *Lecanactis subabietina*. **e** *Opegrapha subelevata*. **f** *Cladonia multififormis*. **g** *Anzia formosana*. **h** *Cetrrelia nuda*. **i** *Punctelia stictica*. (**d**, **e** photo credit to A. Aptroot)

fertile (ascoma-bearing) lichens may produce pycnidia on the same thallus (Fig. 3). Vobis and Hawksworth (1981) discussed four different types of conidiomata development in lichens; *Lecanactis*-type, *Lobaria*-type, *Roccella*-type and *Xanthoria*-type. They produce eight different morphological types of conidiophores (Fig. 4). There are no lichens that are strictly-speaking lichen-forming coelomycetes, since all genera reported as such (e.g. *Woessia*) have also turned out to possess occasionally also fertile apothecia. Some species (e.g. *Opegrapha* spp.) often initially produce only pycnidia, and develop apothecia only in a later stage.

Lichenicolous fungi ‘live exclusively on lichens, most commonly as host-specific parasites, but also as broad-spectrum pathogens, saprotrophs or commensals’ (Lawrey and Diederich 2015) (Fig. 5). Hawksworth (1981b) gave an overview of lichenicolous coelomycetes, accepting 22 genera and 42 species. Many species been added since, e.g. in the genera *Ascochyta* (Alstrup and Hawksworth 1990; Hawksworth and Kalb 1992), *Cladoniicola* (Diederich et al. 2001), *Lichenodiplis* (Diederich 2003; Atienza et al. 2009; Knudsen and Kocourkova 2009; Pérez-Vargas et al. 2013), *Licheniconium* (Sutton 1980; Diederich 2003; Cole and Hawksworth 2004;

Lawrey et al. 2011) and *Microsphaeropsis* (Etayo and Sancho 2008; Etayo and Yazici 2009; von Brackel 2014).

Fungicolous coelomycetes

Kirk et al. (2008) defined fungicolous fungi as ‘fungi growing on other fungi as parasites (‘mycoparasites’), commensals, or saprobes’. There are a few coelomycetes have been reported as fungicolous taxa, such as *Ampelomyces*, *Capitorostrum* and *Neoheteroceras* (Sutton 1980).

Mycorrhizal coelomycetes

Some species of coelomycetes have been reported from the rhizosphere of some plants. As an example, *Corniculariella brasiliensis* (Oliveira et al. 2014), *Phomopsis columnaris* and *Phoma schachtii* (Vaz et al. 2012) have been reported from the rhizosphere regions of *Caesalpinia echinata* and *Sorghum vulgare*, respectively, and may have a close, mutualistic relationship with the plant. However, the available information for mycorrhizal coelomycetes lacks comparison with other life modes.

Fig. 4 Different types of conidiogenesis in lichen forming coelomycetes (re-drawn from Vobis and Hawksworth 1981)

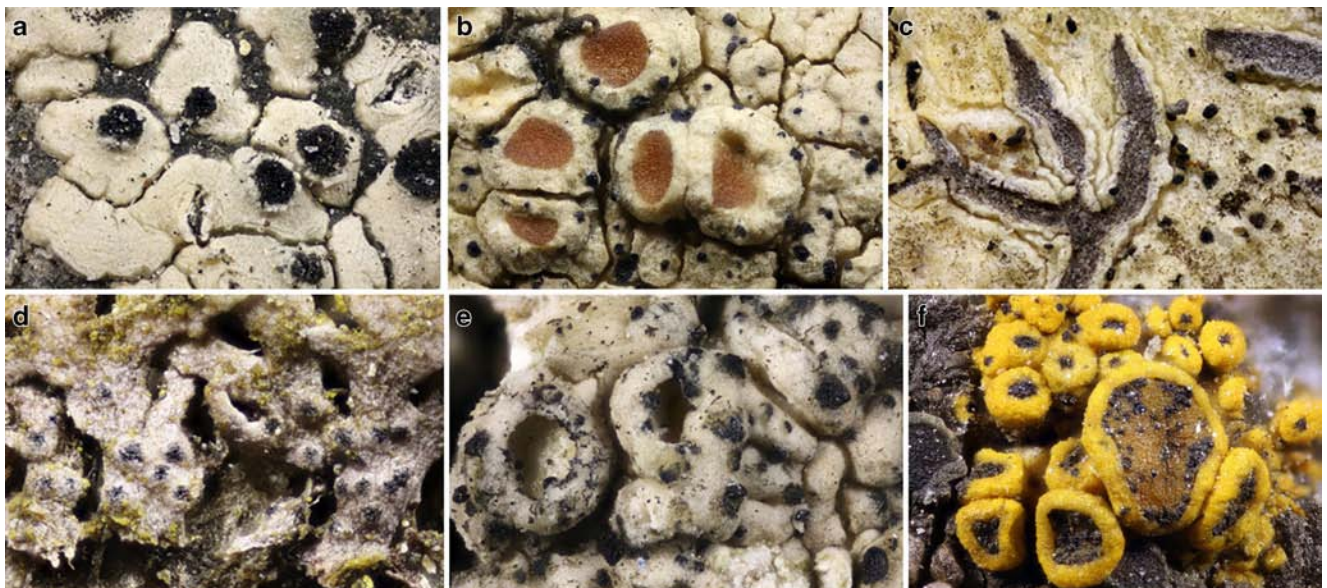
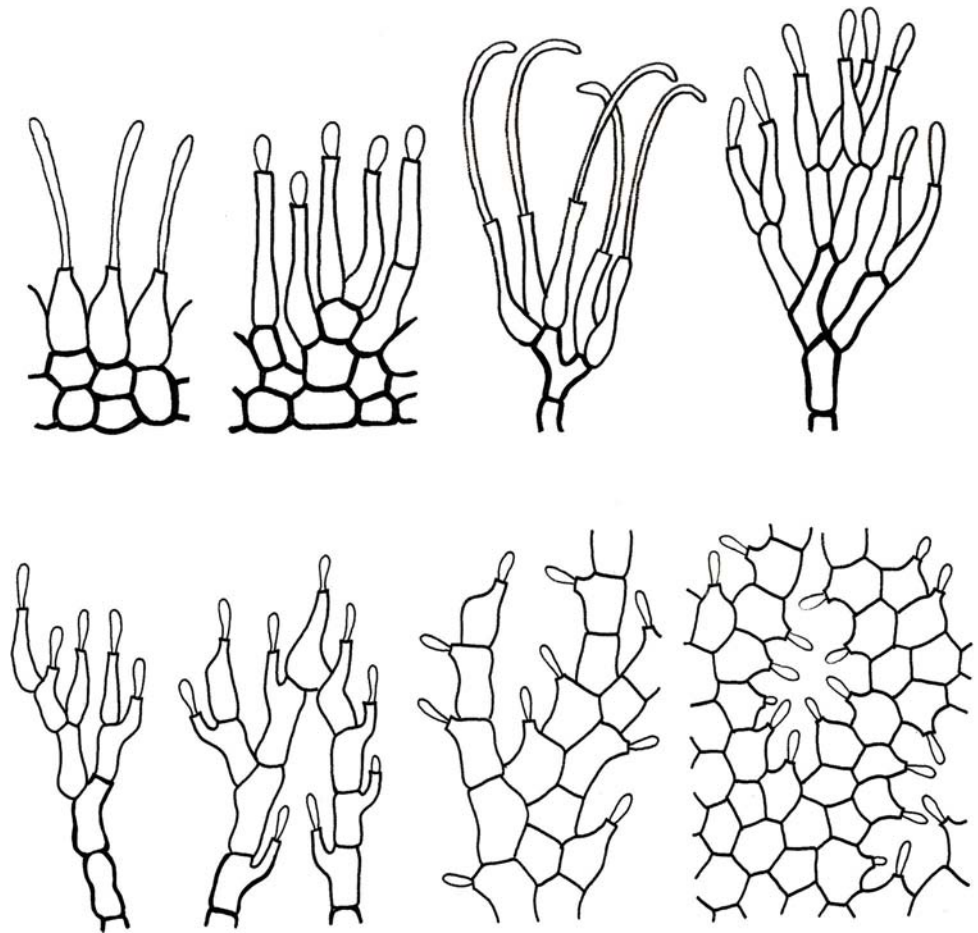


Fig. 5 Lichenicolous taxa on different lichen thalli. **a** *Nigropuncta rugulosa* on *Bellemeria cinereorufescens*. **b** *Vouauxiella lichenicola* on *Lecanora chlorotera*. **c** *Coniambigua phaeographidis* on *Leiorreuma*

lyellii. **d** *Lichenonium lichenicola* on *Physcia tenella*. **e** *Caeruleoconidia ochrolechia* on *Ochrolechia pseudopallescens*. **f** *Lichenodiplis lecanorae* on apothecia of *C. vitellinula*

Genera with intermediate conidiomatal morphologies

The major groups of asexual fungi, i.e. coelomycetes and hyphomycetes, are distinguished on the basis of their sporulating structures (Kendrick and Nag Raj 1979). Kendrick (2000) stated that ‘the production of conidia in enclosed structures or the absence of such enclosure’ could be the basic criterion to define a particular fungus as coelomycetous or hyphomycetous. Below we quote the most accepted definitions for coelomycetes and hyphomycetes and these are followed in this study.

Coelomycetes: ‘...conidia are formed within a cavity lined by either fungal tissue, host tissue, or a combination of both’ (Sutton 1980).

Hyphomycetes: ‘form their conidia on or from conidiophores that may be single or aggregated into synnemata (coremia) or sporodochia, but never develop under the shelter of any protective integument’ (Kendrick and Nag Raj 1979).

Placing genera with different types of conidiomata (viz. pycnidia, acervuli, sporodochia, synnemata and other intermediate forms) in coelomycetes or hyphomycetes has been thoroughly discussed (Kendrick and Nag Raj 1979; Sutton 1980; Nag Raj 1993; Kirk et al. 2008; Seifert et al. 2011). Kendrick and Nag Raj (1979), Kendrick (2000) and Seifert et al. (2011) clearly defined the boundaries and treated acervuli and

pycnidia as conidiomata of coelomycetes, while considering sporodochia and synnemata as hyphomycetous.

Kendrick and Nag Raj (1979) listed four criteria to qualify a conidioma as an acervulus:

1. The hymenium develops beneath an integument entirely of host origin
2. Conidiogenous cells are restricted to the floor of the cavity
3. At maturity, there is usually a split of the host integument, and considerable exposure of the relatively flat hymenium
4. The hymenium layer arises from a more or less well-developed pseudoparenchymatous stroma that forms at some level within the tissue of the host

(Adopted from Kendrick and Nag Raj 1979)

Seifert et al. (2011) defined sporodochia as, ‘cushion-like conidiomata with an open mass of conidia; usually with conidiophores arising from a basal mass of interwoven or stromatic hyphae. Sporodochia are ‘usually superficial on the host tissue, but can sometimes be subcuticular or semi-immersed, and are then difficult to distinguish from acervuli’ (Seifert et al. 2011). However, in cultures it is difficult to differentiate acervuli from sporodochia (Seifert et al. 2011).

Sutton’s (1980) treatment partially agreed with the above definitions, but he did regard a few genera with ‘erumpent and sporodochial conidiomata’ (e.g. *Phlyctema*) as coelomycetes,

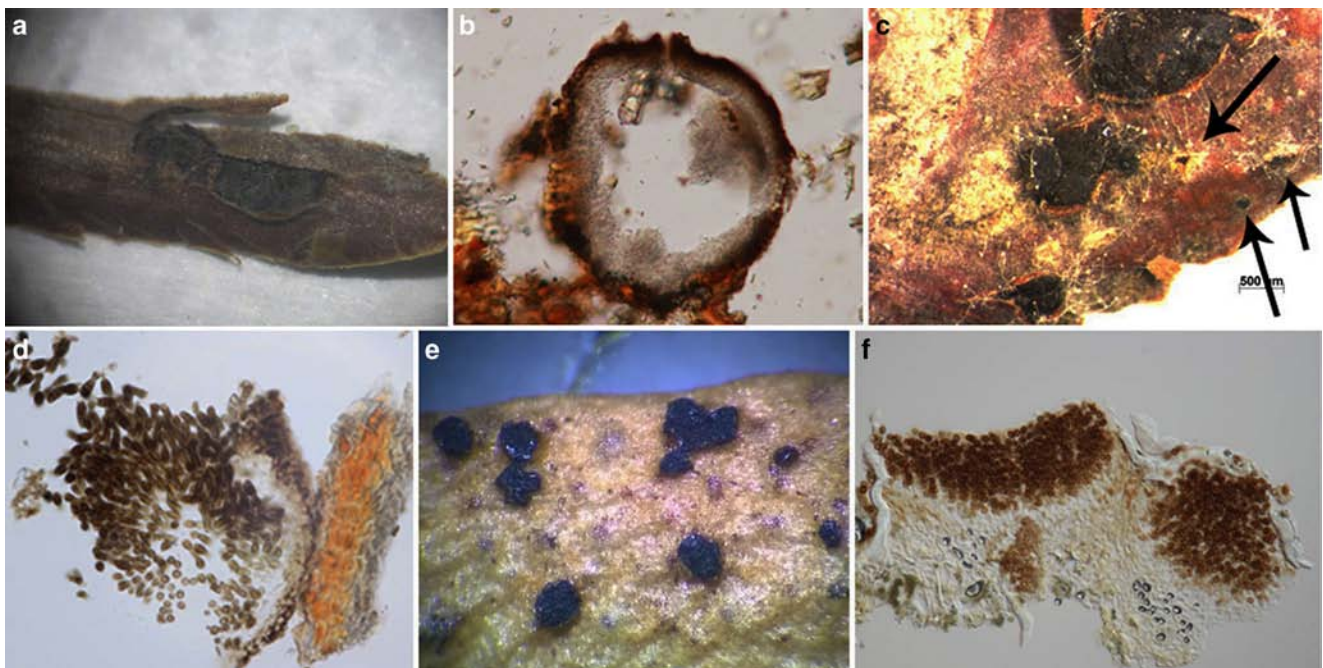


Fig. 6 Matured sporodochium-like conidiomata and their vertical sections when immature. **a** Mature, sporodochium-like conidiomata of *Scolicosporium minkeviciusii*. **b** Vertical section of immature conidioma. **c** Different stages of maturity of conidiomata of *Phragmotrichum platanoidis*. Arrow heads point to the immature

conidiomata beneath the host tissue. **d** Conidioma wall and host tissue. **e** Mature, sporodochium-like conidiomata of *Blastacervulus eucalypti*. **f** Vertical section of conidioma. Sporodochium-like mature conidioma on left and acervular closed conidioma on right side

thus accepting that in some fungi there is a transition between sporodochia and acervuli. Sutton (1980) further mentioned that there is no real generic distinction between acervular and sporodochial fungi. By accepting this statement, several species with acervular to sporodochial conidiomata (e.g. *Rhizosphaerina* fide Sutton 1985; *Lecanostictopsis* fide Sutton and Crous 1997) or with sporodochial-like conidiomata (*Minutoexcipula* fide Atienza and Hawksworth 1994; Atienza et al. 2009) have been described as coelomycetous. Thus, some species within a genus have been regarded as hyphomycetes with sporodochia, while others in the same genus are considered to be coelomycetes. Hence, we consider that it is important to observe a series of vertical sections of immature and mature conidiomata before they can be regarded as sporodochia or acervuli (Fig. 6).

Classification and taxonomy

Historical classification

Hughes' (1953) publication on conidiogenesis can be recognized as a significant landmark in traditional classification of asexual fungi that helped to develop a new understanding in the taxonomy of the conidial fungi. Even though Hughes (1953) introduced his findings based on hyphomycetes, Sutton (1971a, 1973) recognized similarities in conidium ontogeny with coelomycetous fungi. Hence, subsequent

publications in pycnidial fungi by Sutton (1980) and Nag Raj (1981) considered conidiogenesis as a primary taxonomic criterion in the classification of coelomycetes. Sutton (1980) introduced six suborders based on conidiogenesis and other important characters, such as types of conidiomata (Fig. 1), conidiogenous cells (Fig. 7), origin of conidium wall, conidial morphology (Fig. 8), conidial septation and behaviour of these fungi in culture. However, Sutton's (1980) classification is not accepted as a natural classification scheme as it does not show evolutionary relationships (de Gruyter et al. 2009; Aveskamp et al. 2010). For example, Sutton (1980) grouped *Lecanosticta* and *Stilbospora* together with 43 other genera (including several appendage bearing genera) in the suborder *Blastostromatineae*. Recent sequence based phylogenetic analyses have shown that these two genera have quite distinct lineages, viz. *Mycosphaerellaceae*, *Capnodiales* (Crous et al. 2009a; Quaedvlieg et al. 2014) and *Stilbosporaceae*, *Diaporthales* (Voglmayr and Jaklitsch 2014) respectively. Nevertheless, Sutton (1980) was correct in some cases such as with *Stilbospora* and *Stegonsporium*, which have been shown as close relatives in *Stilbosporaceae*, *Diaporthales* (Voglmayr and Jaklitsch 2014).

Plasticity in coelomycetous fungi resulted in poor delimitation and understanding of generic and species boundaries (Sutton 1977, 1980; Nag Raj 1981; Wijayawardene et al. 2012b). *Pilidiella* and *Coniella* are good examples of such a poor generic delimitation, where the former was treated as a synonym of the latter by Sutton (1980) and Nag Raj (1993).

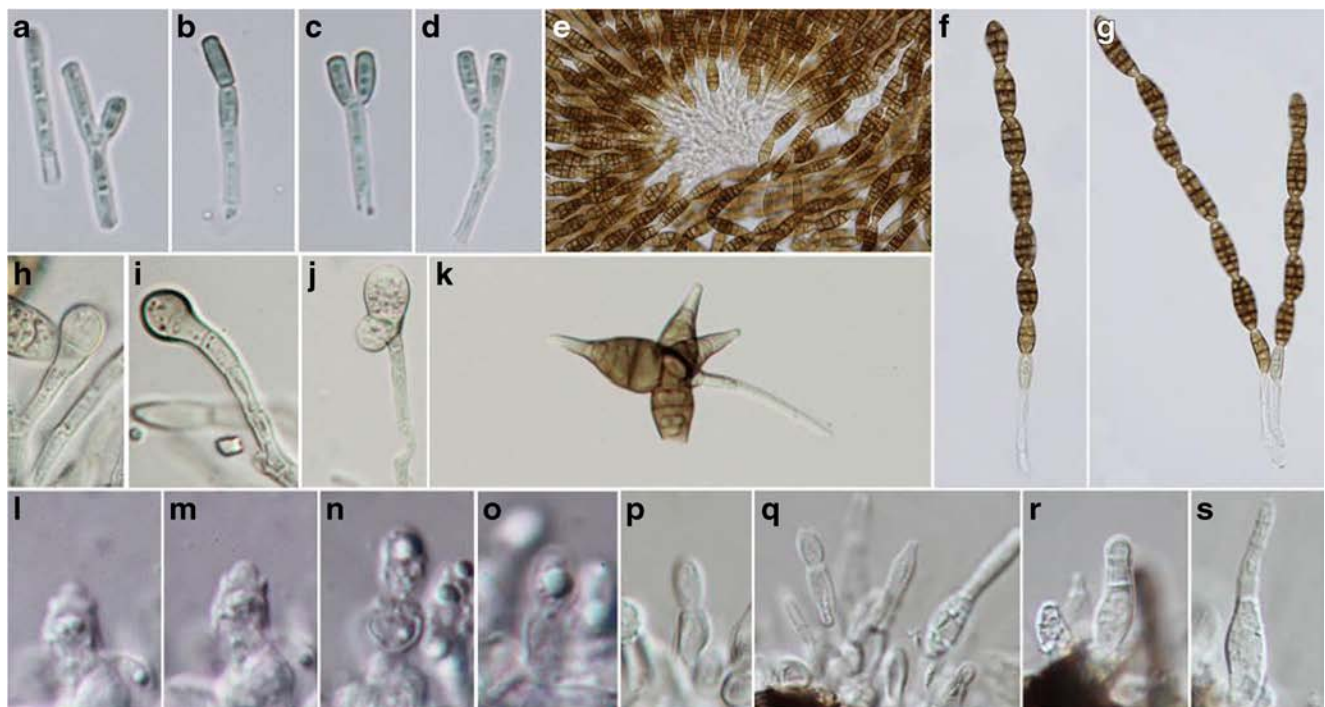


Fig. 7 Different modes of conidiogenesis. **a–d** Arthric conidiogenesis in *Trullula* sp. **e–g** Arthric conidiogenesis in *Phragmotrichum* with basipetal conidial chains. **h–k** Blastic conidiogenesis in *Asterosporium*

sp. **l–p** Phialidic conidiogenesis in *Pseudocamarosporium* sp. **p–s** Annellidic conidiogenesis in *Botryosphaeria* sp. (dichomera-like)

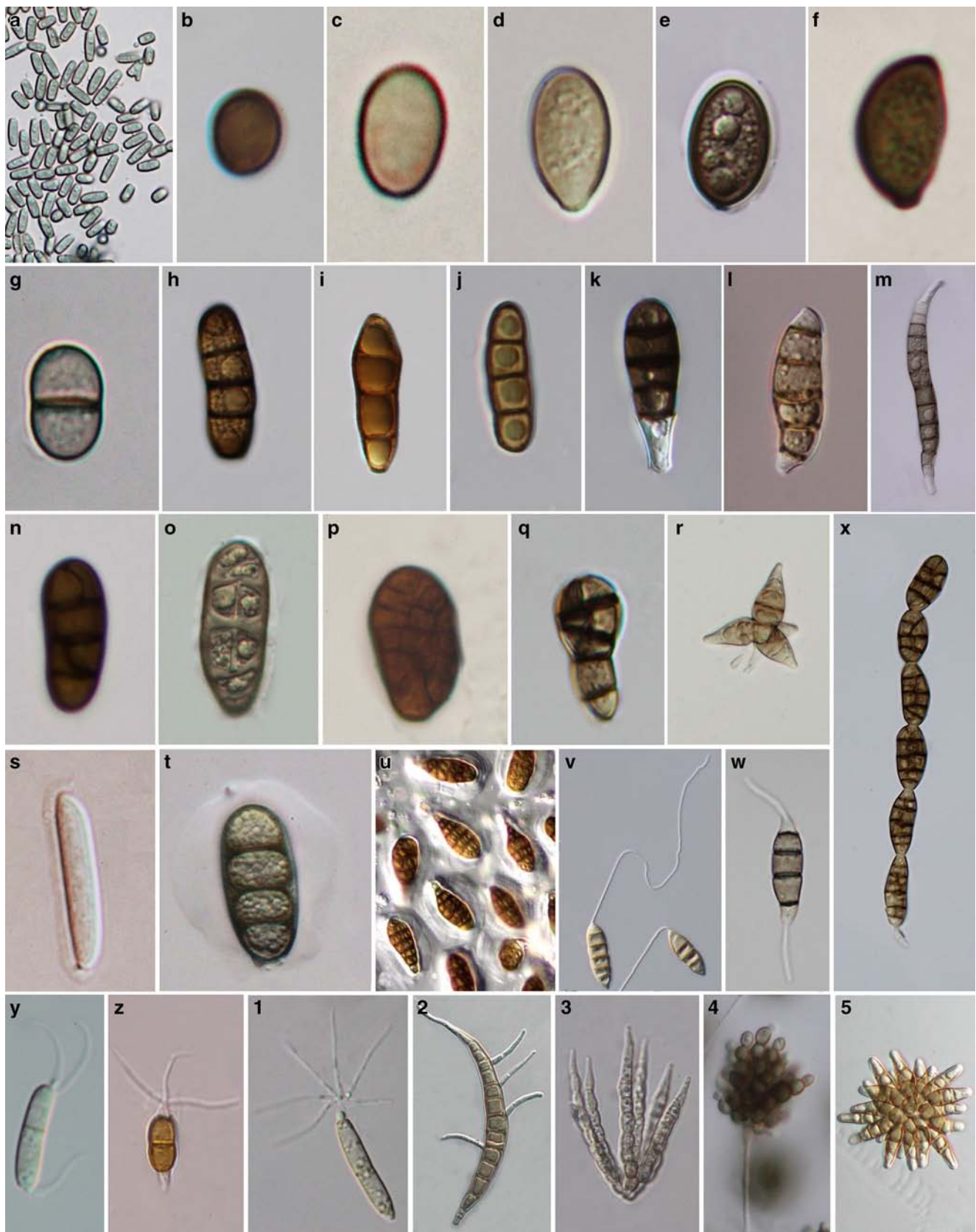


Fig. 8 Morphology of conidia. **a–f** Aseptate conidia. **g–m** Conidia with transverse septa (phragmosporous conidia). **n–r** Conidia with both transverse and longitudinal septa (muriform conidia). **s–u** Conidia with

sheaths. **v, w, y, z, 1, 2** Conidia with appendages. **3–5** Variously shaped conidia (3 Digitate conidia. 4 Cheiroid conidia. 5 Stellate conidia)

However, sequence based studies have clearly shown these to be phylogenetically distinct genera in *Schizoparmeaceae* (Castlebury et al. 2002; van Niekerk et al. 2004; Rossman et al. 2007). Coniothyrium-like and microsphaeropsis-like taxa are other examples of morphological plasticity among coelomycetes (Sutton 1980). Thus, early morphology-based identifications are questioned in recent studies (Verkley et al. 2004, 2014; de Gruyter et al. 2013). Besides Sutton's (1973, 1980) criteria for determining suprageneric and generic boundaries, Nag Raj (1993) considered the types of appendages as a key factor in establishing generic boundaries.

It has been a practice to delimit fungal taxa, based on conspicuous morphological characters. Swart and Williamson (1983) established *Vermisporium* to accommodate several *Seimatosporium* species with hyaline to sub-hyaline, uniformly thin-walled conidia and 10–20 times as long as they are wide. Nag Raj (1993) accepted *Vermisporium* as a distinct genus and recognised ten species. However, Barber et al. (2011) showed through sequence analyses that the type species of *Vermisporium*, *V. walkeri* H.J. Swart & M.A. Will. and several other species cluster with *Seimatosporium sensu stricto* and thus were treated as a synonym of *Seimatosporium*.

Pilidiella eucalyptorum is an example of confusion in a species. Although it has morphological characters similar to *Coniella*, sequence analyses show that it is closer to *Pilidiella sensu stricto* (van Niekerk et al. 2004). Thus, it is important to rely on sequence based taxonomic and phylogenetic analyses rather than solely on morphology. A polyphasic approach is more reliable in many disciplines such as quarantine and plant pathology (Cai et al. 2009; Aveskamp et al. 2010; Wang et al. 2012; Wijayawardene et al. 2012c; Hyde et al. 2014).

Coelomycetes and their sexual morphs

Ainsworth (1966) proposed to place asexual fungi in a separate subdivision, *Deuteromycotina* which has been subdivided into three classes, viz. Hyphomycetes, Coelomycetes and Agonomycetes (*Mycelia sterilia*) (Sutton 1980). However, Kendrick (1979) emphasised the importance of integrating conidial fungi into the natural classification and Kendrick (1989) considered *Deuteromycotina* to be a 'fungal chimera'. Kendrick (1989) emphasized that the whole fungus or holomorph can be 'teleomorph + anamorph' or 'teleomorph' or 'anamorph'. The last expression is an important phenomenon among taxonomists who study the conidial fungi and it clearly shows the importance of incorporating them in natural classification system (Kendrick 1989; Hyde et al. 2011, 2013; Wijayawardene et al. 2012b, c; Maharachchikumbura et al. 2015).

Currently, more than 1000 coelomycetous genera have been described and approximately 300 genera are linked with sexual morphs or placed in various families, orders or classes (Wijayawardene et al. 2012b). Thus, most of the known genera are treated as 'orphan genera' (Wijayawardene et al.

Fig. 9 The best scoring RAxML tree of species of *Dothideomycetes*, *Leotiomyces* and *Sordariomyces* generated from analyses of combined of LSU, SSU, RPB2 and TEF1- α sequence data. Bootstrap values greater than 50 % are given above the nodes. The original strain numbers are given after the species names. Classes are differentiated with alternative colours in the right justified column. The tree is rooted to *Saccharomyces cerevisiae*

2012b). Recent studies based on sequence analyses have facilitated taxonomic placement of some of these orphan genera (Wingfield et al. 2012; Wijayawardene et al. 2014d; Maharachchikumbura et al. 2015).

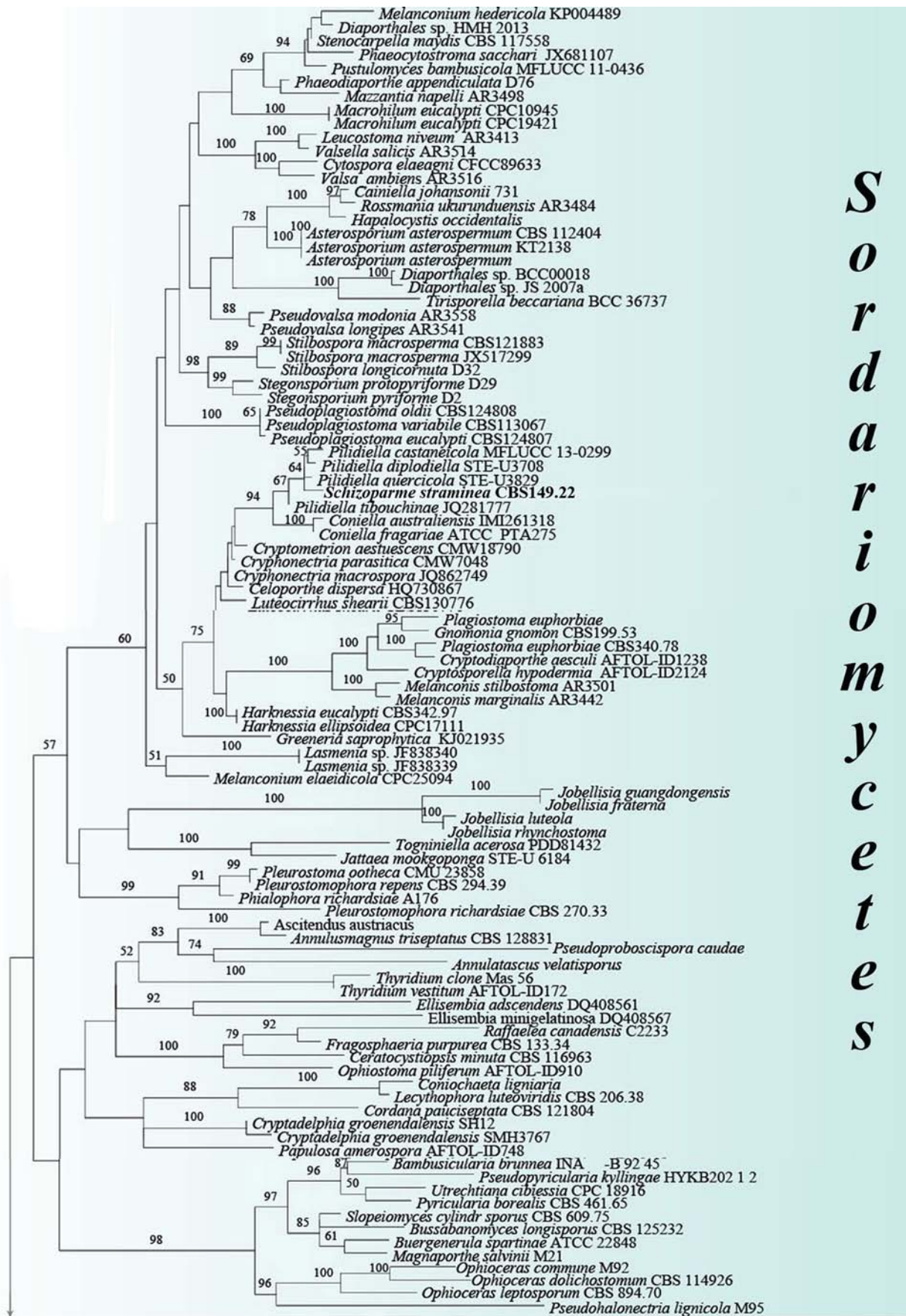
Polyphyletic genera, convergent evolution

Traditionally, taxonomists used culture-based methods or co-occurrence of different morphs on the same host to determine sexual/ asexual links (Wijayawardene et al. 2014d; Maharachchikumbura et al. 2015). However, due to the morphological plasticity of coelomycetes, some genera have been linked with several sexual morphs or assigned in different taxonomic groups and thus are called as 'polyphyletic genera' (Wijayawardene et al. 2012b). For example, *Camarosporium* was treated as an asexual genus in *Botryosphaerales* (Liu et al. 2012; Wijayawardene et al. 2012b), *Cucurbitariaceae* (Doilom et al. 2013) and *Leptosphaeriaceae* (Schoch et al. 2009). Based on sequence data analyses, Wijayawardene et al. (2014d) showed that *camarosporium*-like taxa are polyphyletic in *Pleosporales*, but *Camarosporium sensu stricto* resides as a distinct clade in *Pleosporineae*, *Pleosporales*. The genera such as *Coniothyrium*, and *Phoma* were also treated as polyphyletic and recent sequence based analyses have helped to demarcate generic boundaries and thus introduce several new genera (Verkley et al. 2004; de Gruyter et al. 2009, 2013; Crous et al. 2011b).

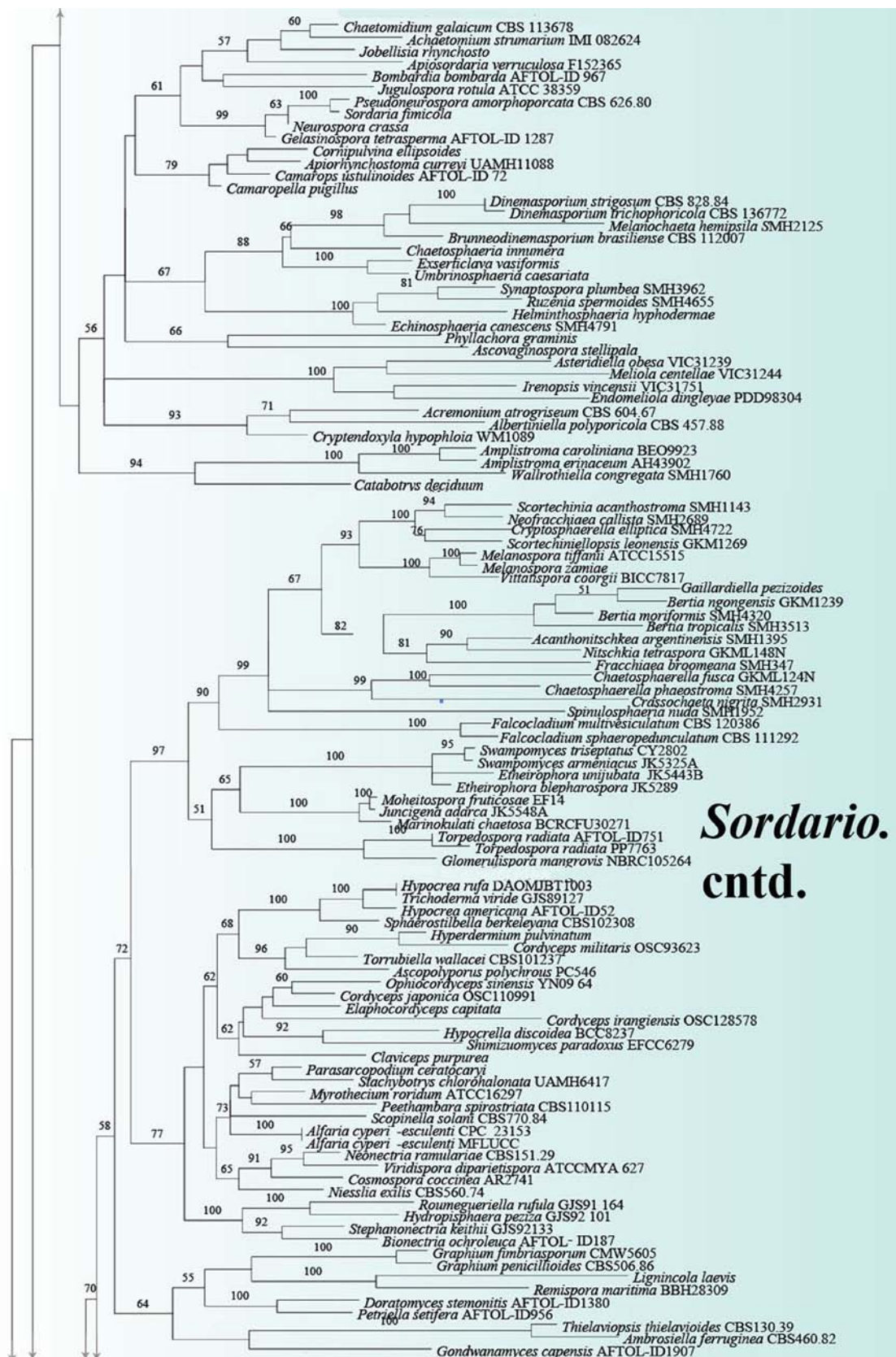
Molecular studies have also helped to understand convergent evolution, i.e. 'the independent origin of similar organismic forms, as tantamount to experimental replication in the history of life and indicative of the robust counterfactual resilience of macro evolutionary pattern in the fungi' (Powell 2008). Morphologically similar *Homortomyces* and *Stilbospora* are extraordinary examples of convergent evolution, where the former resides in class *Dothideomycetes*, while the latter is placed in class *Sordariomyces* (Crous et al. 2012b; Wijayawardene et al. 2014e).

Aim of the paper

Even though sequence analyses play an important role in the identification of fungi in modern-day fungal taxonomy, morphology is still a key factor. Therefore, it is essential to consider both molecular data and morphology when identifying fungi. As most of described fungal genera lack sequence data, we have to rely on morphological descriptions in the old literature before deciding to introduce new genera or species. In their outstanding



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Fig. 9 (continued)

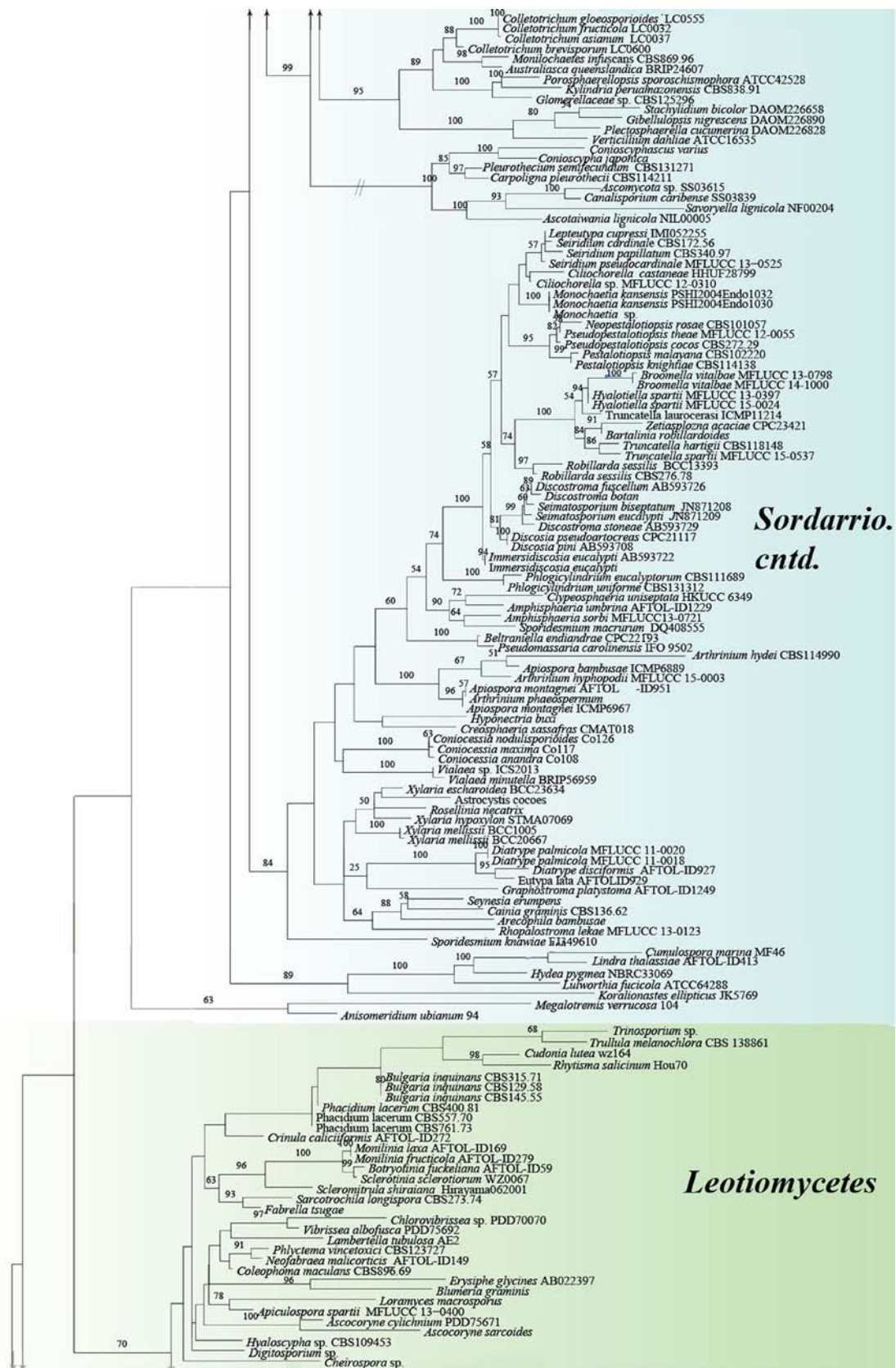


Fig. 9 (continued)

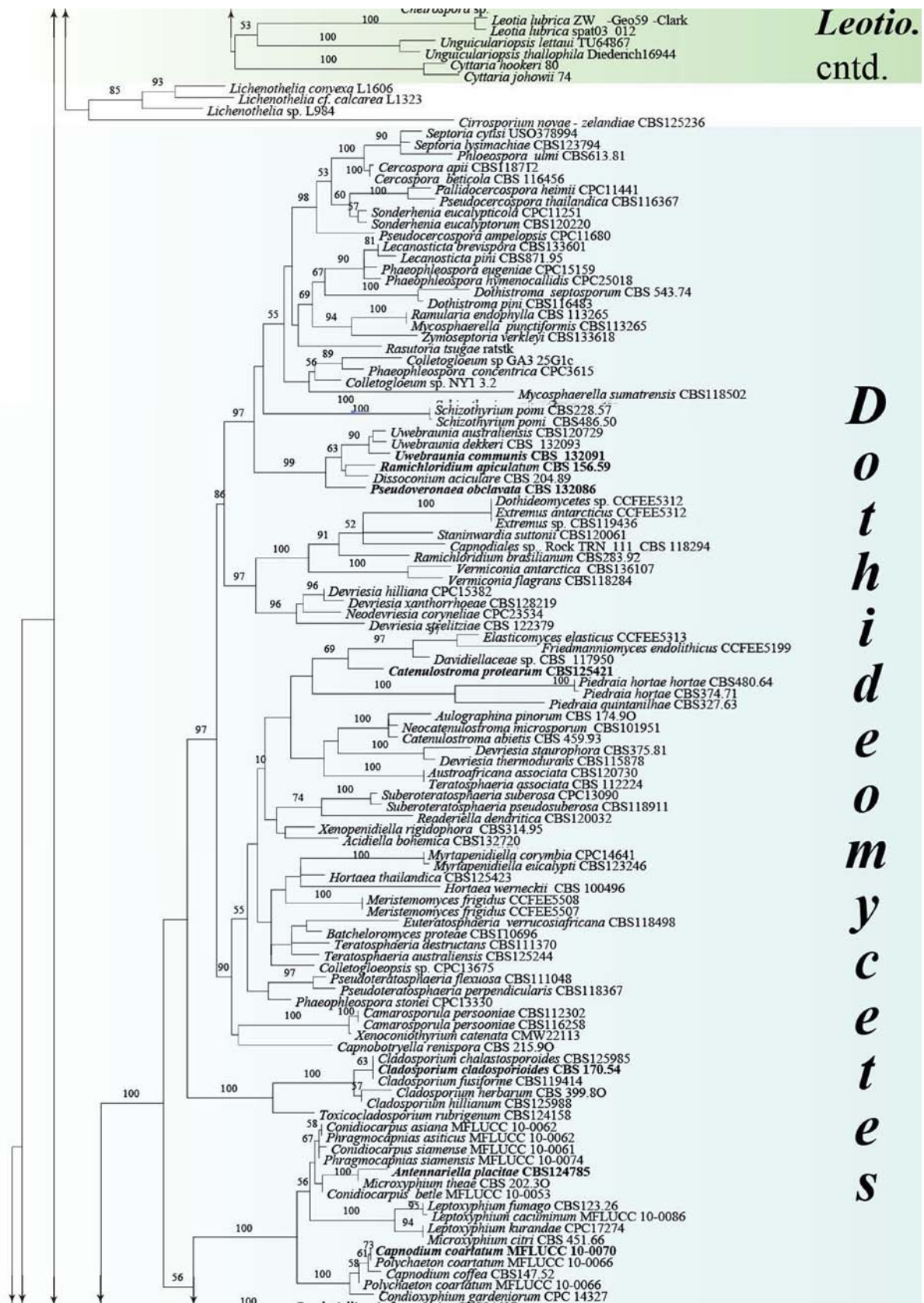


Fig. 9 (continued)

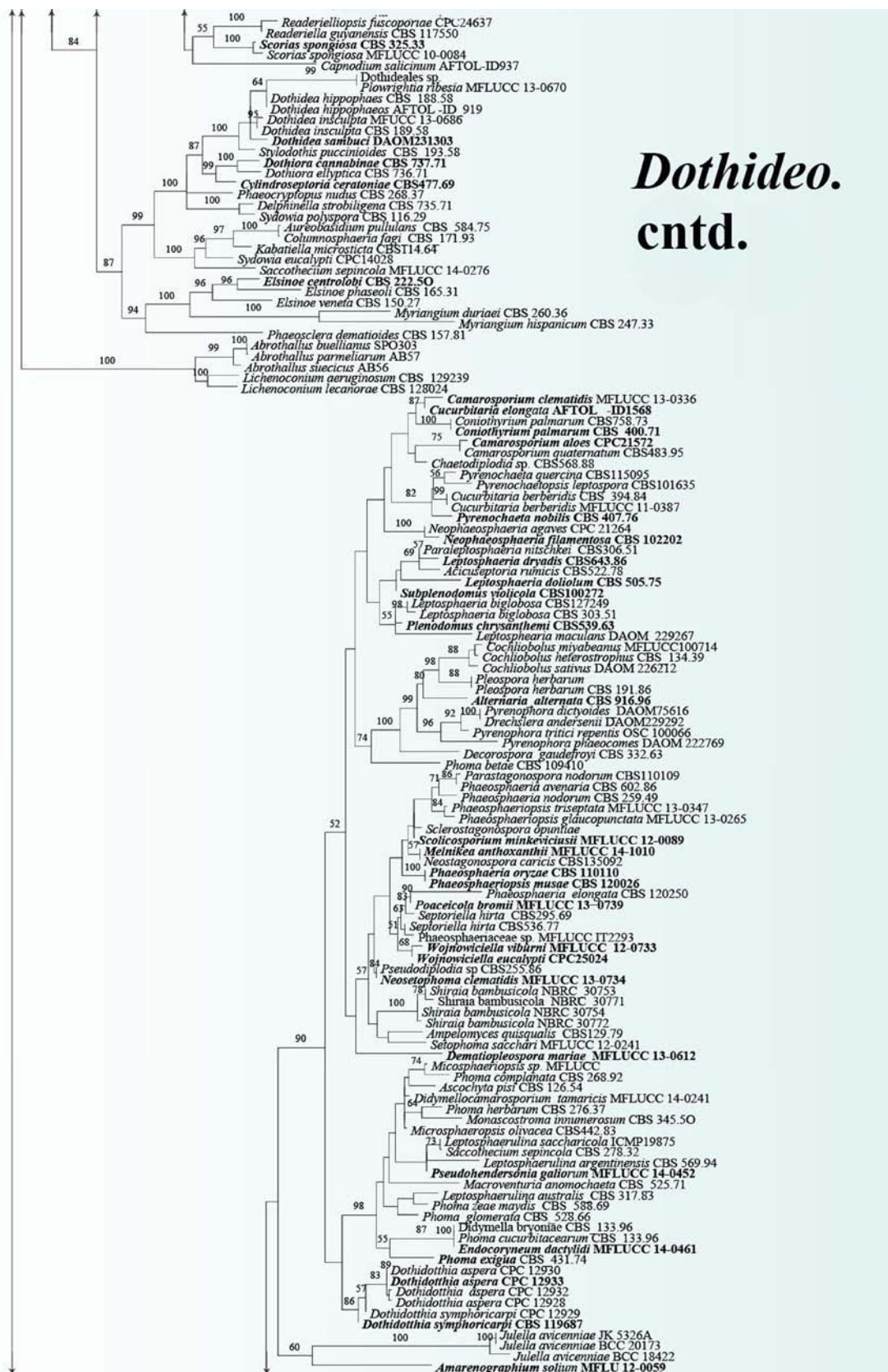


Fig. 9 (continued)

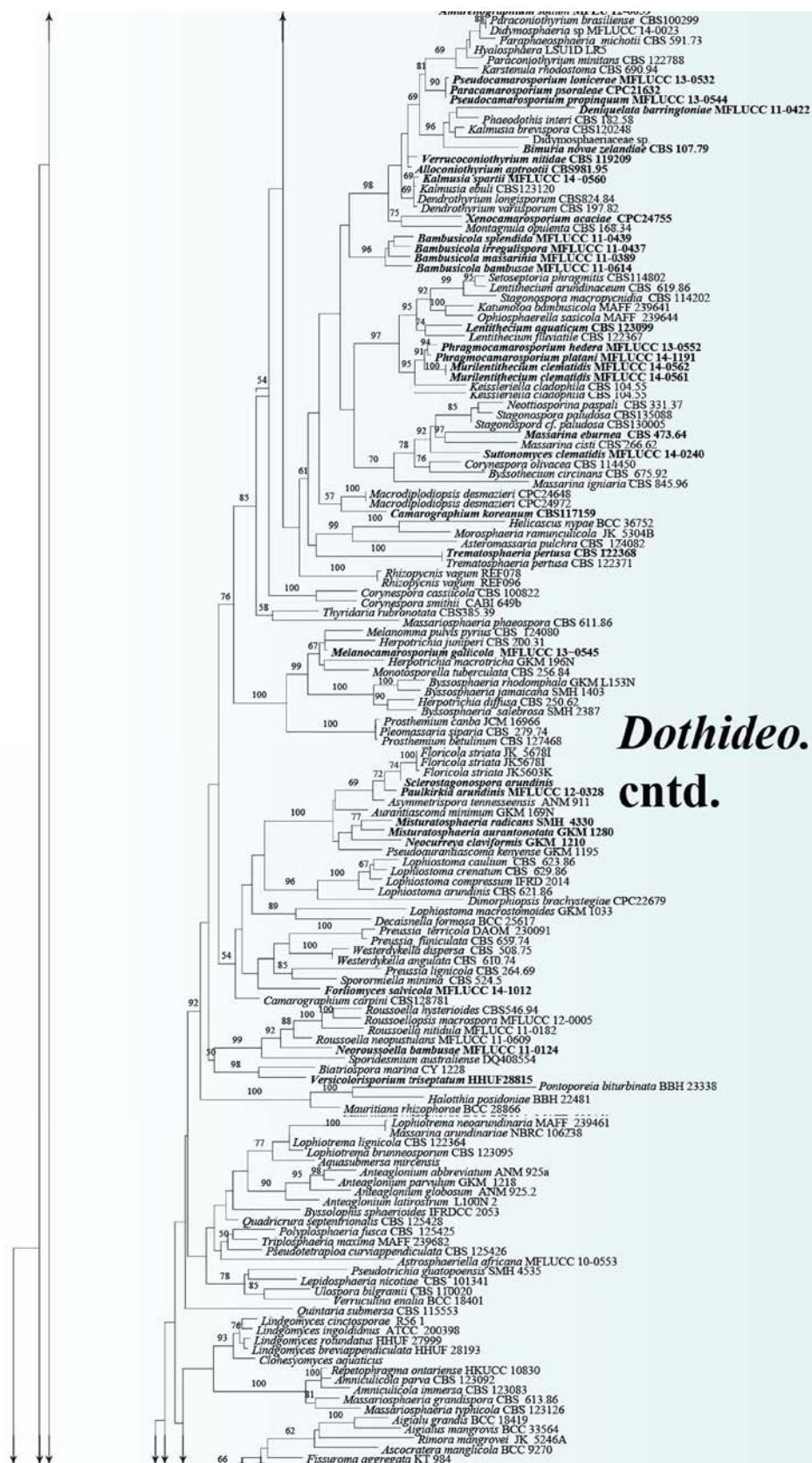


Fig. 9 (continued)

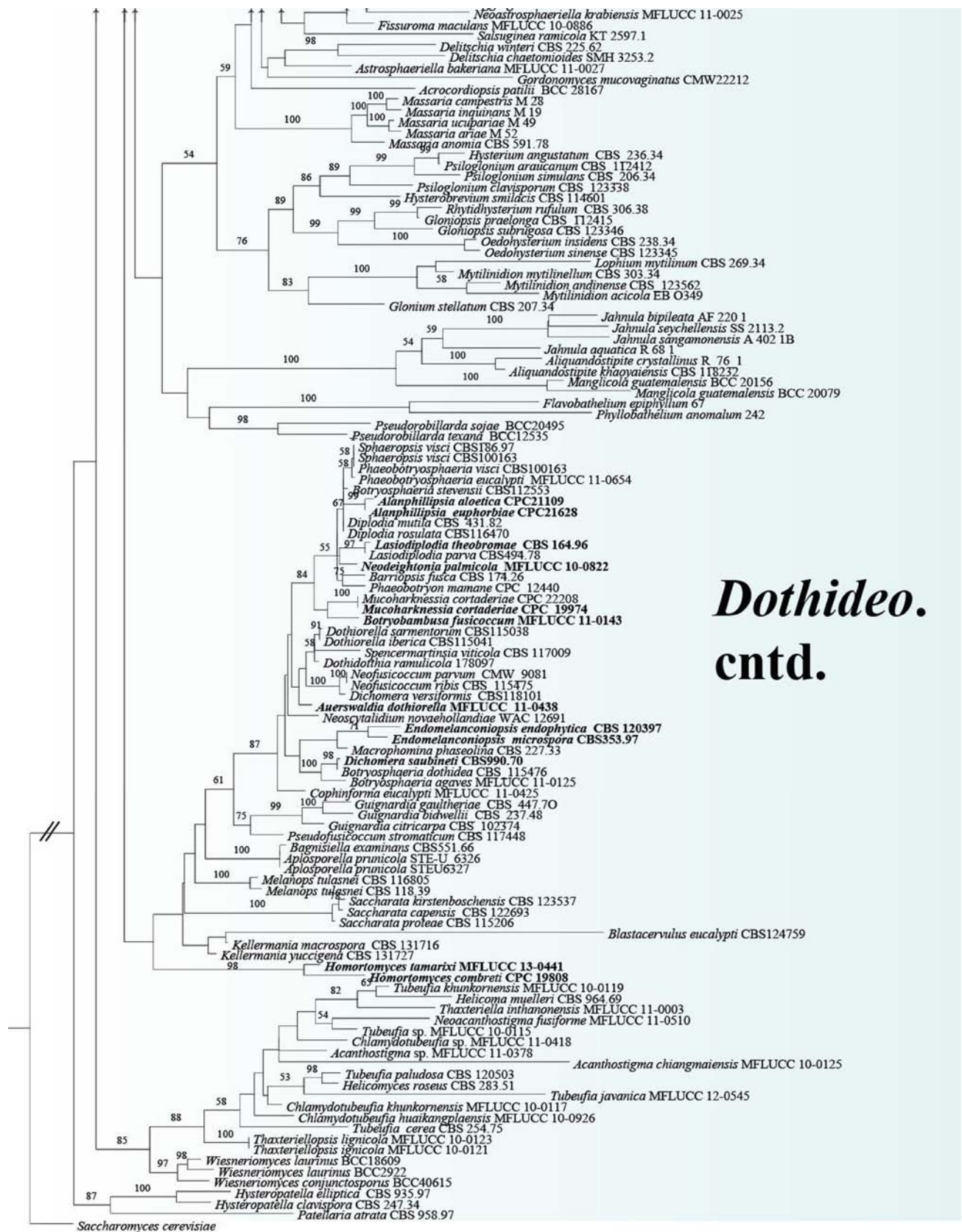


Fig. 9 (continued)

monograph, ‘The Genera of Hyphomycetes’, Seifert et al. (2011) present all available data on hyphomycetous fungi including illustrations, which helps to understand them at generic level.

There has been no overview of the coelomycetous fungi with a compilation of taxonomic notes and other details, since Sutton (1980). Nag Raj (1993) is useful for identification of appendage bearing coelomycete genera. Some of the content of both works needs to be revised, as both monographs are based only on morphology and used an artificial classification system. Thus, it is necessary to incorporate both morphological data and known sequence data to obtain a natural classification.

In this paper, we list all dematiaceous coelomycetous genera as an outline and provide generic descriptions. Moreover, illustrations and taxonomic notes are also provided. For the genera and species where sequence data are available, phylogenetic analyses were carried out to determine taxonomic placements in a natural classification system.

Materials and Methods

Literature and preparation of the list

Previous publications (including monographs, check lists, dictionaries) were divided in to two chronological groups for the convenience of collecting data:

1. Prior to Sutton (1977, 1980), i.e. ‘Coelomycetes VI. Nomenclature of generic names proposed for coelomycetes’ and ‘The coelomycetes. Fungi imperfecti with pycnidia, acervuli and stromata’ respectively.
2. Post Sutton (1980) until the end of 2015; including Nag Raj (1993), Kirk et al. (2008, 2013), Hyde et al. (2011); Wijayawardene et al. (2012a) and other publications introducing new genera or proving sexual-aseexual links.

We used Sutton (1977, 1980) and Kirk et al. (2008) as baseline data for selecting valid generic names (see outline), while eliminating synonyms from groups one and two respectively. Besides the non-pleomorphic genera, we used the recently accepted generic names for pleomorphic genera (that is, they occur as sexual and asexual states through their life history, but may be separated in time and space *vide* Kendrick 1979) based on Johnston et al. (2014), Stadler et al. (2014), Wijayawardene et al. (2014c) and Maharachchikumbura et al. (2015). For example, *Teratosphaeria* will be used instead of *Colletogloeopsis* and *Kirramyces*. Basionyms and (putative) synonyms of the genus are listed, except when there are more than three.

Layout of the paper

Each genus is provided with a generic description which is based on the protologue and subsequent publications. Notes include the

genus history, comparisons with other morphologically similar genera, sexual morph links, taxonomic placement and molecular phylogeny, when available. The type species is illustrated in most cases and taxonomic keys for species are provided where possible.

Glossary

We followed Sutton (1980) and Kirk et al. (2008) as baselines for terms used in this study.

Sample collection, specimen examination and isolation

Fresh collections were made in China, Germany, Italy and Thailand. The collected samples were examined with a Motic SMZ 168 stereo microscope and sterilized needles were used to remove conidiomata, which were mounted in water. Sections of conidiomata were made with a razor blade or freezing microtome. Photographs of micro characters (such as conidiomata wall, paraphyses, conidiophores, conidiogenous cells, conidia) were made from material mounted in water or lactophenol using ECLIPSE 80i light microscope with a Cannon 450D digital camera. Type and voucher specimens were deposited in the herbarium of Mae Fah Luang University (MFLU), Chiang Rai, Thailand, Kunming Institute of Botany (HKAS), China and Agriculture College, Guizhou University (HGUP), China.

Isolation of fungus was carried out by single spore isolation following the method of Chomnunti et al. (2014). Germinating spores were transferred to PDA and incubated at 18 °C. The cultural characteristics (e.g. colour, texture) were also determined. The living ex-type cultures and authentic cultures were deposited at the Mae Fah Luang University Culture Collection (MFLUCC) with duplicates at Kunming Institute of Botany Culture Collection (KUMCC) and Guizhou University Culture Collection (GUCC). Faces of Fungi numbers are provided as in Jayasiri et al. (2015) and Index Fungorum numbers as in Index Fungorum (2016). Type or representative specimens were studied from Queensland Department of Agriculture and Fisheries (BRIP), Australia, Landcare Research (PDD), New Zealand, Hirosaki University (HHUF), Kunming Institute of Botany Academia Sinica (HKAS), China, Research Institute of Resource Insects (IFRD), U.S. National Fungus Collections (BPI), U.S.A. Maryland and CABI Bioscience UK Centre (IMI), U.K. England.

DNA extraction, PCR amplification, sequencing

A modified protocol in BIOMIGA Fungus Genomic DNA Extraction Kit (GD2416) was used to extract DNA from fresh mycelium scraped from the colony margin of cultures grown on PDA for 2–3 weeks at 18 °C. PCR amplification and sequencing of LSU, SSU, ITS, TEF1- α and β -tubulin region using the primer pair LROR/LR5 (Vilgalys and Hester 1990), NS1/NS4,

Table 2 Summary of phylogenetic analyses carried out and used genes

Taxonomic group	Used genes	Reference
Dothideomycetes, Leotiomycetes and Sordariomycetes	LSU, SSU, TEF1- α , RPB2,	In this study
<i>Botryosphaeriaceae</i>	SSU, LSU, ITS, TEF1- α , β -tubulin	Phillips et al. 2013
<i>Capnodiales</i>	LSU, RPB2, ITS, β -tubulin, TEF1- α	Crous et al. 2009a; Chomnunti et al. 2014; Quaedvlieg et al. 2014
<i>Diaporthales</i>	LSU, ITS	Voglmayr and Jaklitsch 2014
dichomera-like taxa	ITS, TEF1- α	In this study
<i>Diplodia</i>	ITS, TEF1- α	Phillips et al. 2013
<i>Floricolaceae</i>	LSU, SSU, ITS	In this study
<i>Massariaceae</i>	LSU, SSU, ITS	Liu et al. 2015
<i>Seimatosporium</i>	LSU, ITS	Barber et al. 2011
<i>Seiridium</i>	ITS	In this study
<i>Xylariomycetidae</i>	LSU, ITS, SSU, β -tubulin, RPB2	Senanayake et al. 2015

ITS5/ITS4 (White et al. 1990), EF1-728 F/EF-2 (O'Donnell et al. 1998; Carbone and Kohn 1999) and T1/Bt-2b (Glass and Donaldson 1995; O'Donnell and Cigelnik 1997) respectively. Agarose electrophoresis gel (1 %) stained with ethidium bromide was used to visualize DNA products. Amplified genes were sequenced by SinoGenoMax Co., Beijing, China and the nucleotide sequences were deposited in GenBank.

Phylogenetic analyses

Additional sequences were downloaded from GenBank (Supplementary Table 1) based on blast searches and recently published data. Separate phylogenetic analyses were carried out for different nomenclature hierarchy (Kirk et al. 2008) with different genes following recently published literature (Table 2).

Sequences were initially aligned by MAFFT v. 7 (<http://mafft.cbrc.jp/alignment/server/index.html>) using the default settings and improved manually where necessary with MEGA v. 5.2.2 (Kumar et al. 2012) or BioEdit v. 7.0.5.2 (Hall 1999). Evolutionary models for phylogenetic analyses were selected independently for each locus using MrModeltest v. 3.7 (Posada and Crandall 1998) under the Akaike Information Criterion (AIC) implemented in both PAUP v. 4.0b10 and MrBayes v. 3. Phylogenetic reconstructions of combined gene trees were performed by Bayesian Inference (BI) and Maximum Likelihood (ML).

Maximum-likelihood (ML) analysis was performed in RAxML (Stamatakis 2006) implemented in raxmlGUI v.0.9b2 (Silvestro and Michalak 2010), employing mixed models of evolution settings of the program and bootstrap support was obtained by running 1000 pseudo replicates.

The online tool Findmodel was used to determine the best nucleotide substitution (<http://www.hiv.lanl.gov/content/sequence/findmodel/findmodel.html>) model for each partition. Maximum Likelihood bootstrap values (ML) equal to or greater than 70 % are given above each node.

Bayesian analyses was conducted with MrBayes v. 3.1.2 (Huelsenbeck and Ronquist 2001) to evaluate Posterior probabilities (PP) (Rannala and Yang 1996; Zhaxybayeva and Gogarten 2002) by Markov Chain Monte Carlo sampling (BMCMC). Two parallel runs were conducted, using the default settings, but with the following adjustments:

Six simultaneous Markov chains were run for 2,000,000 generations and trees were sampled every 100th generation and 20,000 trees were obtained. The first 4000 trees, representing the burn-in phase of the analyses and discarded. The remaining 16,000 trees were used for calculating PP in the majority rule consensus tree (Ariyawansa et al. 2015a). Branches with Bayesian posterior probabilities greater than 0.95 are given in bold.

Maximum-Parsimony (MP) analyses were carried out using PAUP v. 4.0b10 (Swofford 2002) using the heuristic search option with 1000 random taxa addition and tree bisection and reconnection (TBR) as the branch swapping algorithm. All characters were unordered and of equal weight. The gaps were treated as missing data. The Tree Length (TL), Consistency Indices (CI), Retention Indices (RI), Rescaled Consistency Indices (RC) and Homoplasy Index (HI) were calculated for each tree generated.

Phylograms were visualized with Treeview v. 1.6.6 (Page 1996) or FigTree v1.4.0 program (Rambaut 2012) and reorganized in Microsoft power point (2010) and Adobe Illustrator® CS5 (Version 15.0.0, Adobe®, San Jose, CA).

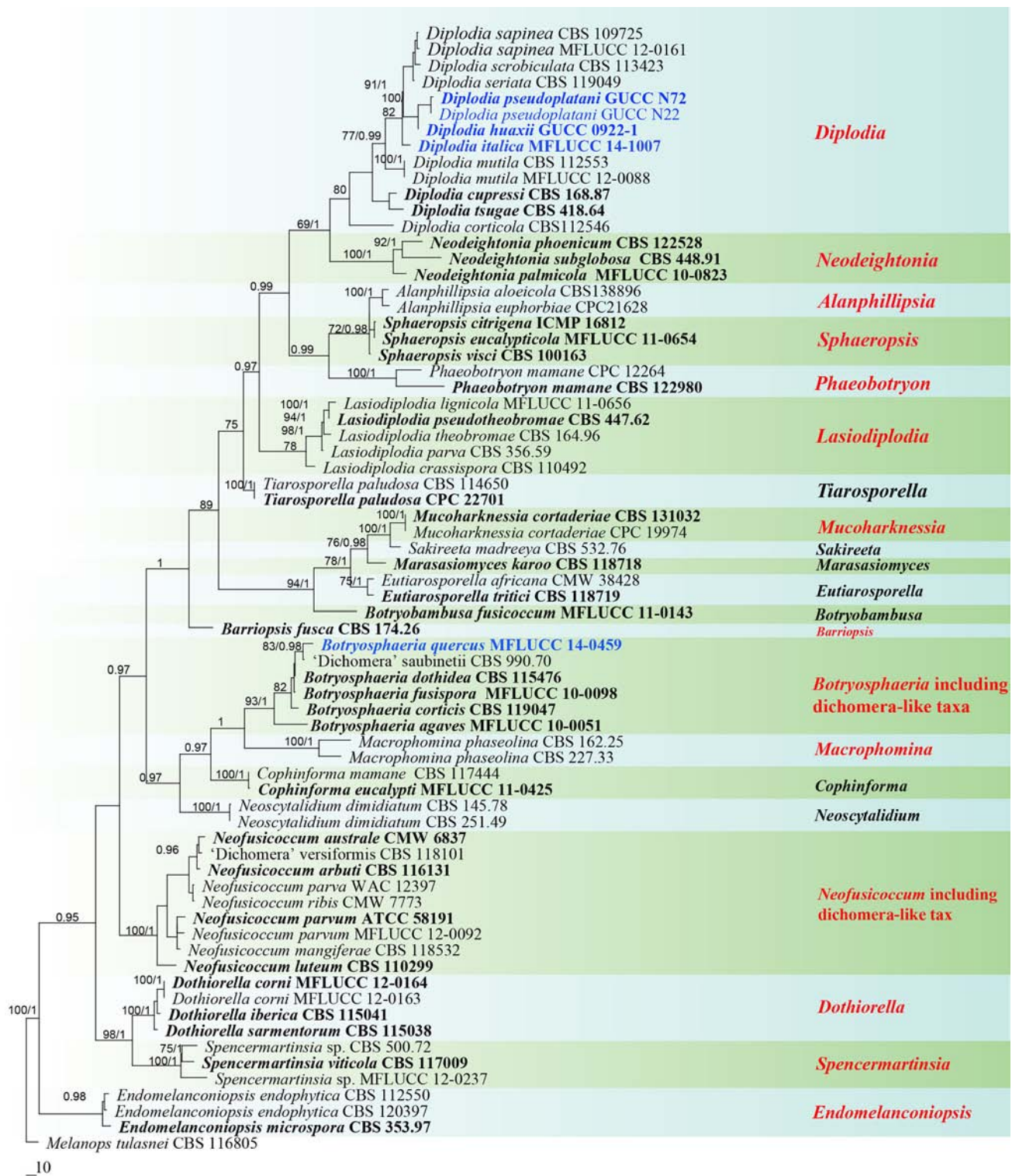


Fig. 10 One of the 16 equally most parsimonious trees obtained from the combined SSU, LSU, ITS, EF1- α and β -tubulin data set (CI=0.527, RI=0.751, RC=0.396, HI=0.473). MP values (>70 %) resulting from 1000 bootstrap replicates and Bayesian posterior probabilities above 0.95 are given at the nodes. The tree was rooted to *Melanops tulasnei* (CBS

116805). Ex-type strains are in bold and newly introduced species are in blue. Genera are indicated in different colours to the right of the tree and dematiaceous coelomycetous and holomorph with dematiaceous coelomycetous genera are in red

Results

Phylogenetic analyses

The classes Dothideomycetes, Leotiomycetes and Sordariomycetes based on analyses of LSU, SSU, RPB2, and TEF1- α sequence data

The combined LSU, SSU, RPB2, and TEF1- α data set consists of 903 strains with *Saccharomyces cerevisiae* as the out group taxon. The placements of dematiaceous coelomycetous genera are listed in the outline (Fig. 9).

Botryosphaeriaceae based on analyses of SSU, LSU, ITS, TEF1- α and β -tubulin sequence data

The combined SSU, LSU, ITS, TEF1- α and β -tubulin data set consisted of 70 strains with *Melanops tulasnei* (CBS 116805) as the outgroup taxon. The data set consisted of 3280 characters of which 2514 characters were constant, 179 variable parsimony-uninformative characters and 587 parsimony-informative characters. One of most parsimonious trees is shown in Fig. 10 (CI=0.527, RI=0.751, RC=0.396, HI=0.473). The tree comprises 21 genera viz. *Alanphillipsia*, *Barriopsis*, *Botryobambusa*, *Botryosphaeria*, *Cophinforma*, *Diplodia*, *Dothiorella*, *Endomelanconiopsis*, *Eutiarosporella*, *Lasiodiplodia*, *Macrophomina*, *Marasasiomyces*, *Mucoharknessia*, *Neodeightonia*, *Neofusicoccum*, *Neoscytalidium*, *Phaeobotryon*, *Sakireeta*, *Spencermartinsia*, *Sphaeropsis* and *Tiarosporella*. Our results agree with Phillips et al. (2013) and Crous et al. (2015b) but neither of those publications included *Alanphillipsia*. Based on our phylogenetic analyses (Fig. 10), we accept *Alanphillipsia* as a genus in *Botryosphaeriaceae*. Dichomera-like taxa group in both *Botryosphaeria* and *Neofusicoccum* clades. Hence, separate analyses were carried out using only dichomera-like species, *Botryosphaeria* species and *Neofusicoccum* species.

Capnodiales based on analyses of LSU, RPB2, ITS, β -tubulin and TEF1- α sequence data

The combined LSU, RPB2, ITS, β -tubulin and TEF1- α data set consists of 83 strains with *Parastagonospora nodorum* (CBS 110109) as the out group taxon. Our maximum-likelihood analyses (Fig. 11) agree with Wijayawardene et al. (2014c) in which *Capnodiales* comprises eight families viz. *Capnodiaceae*, *Cladosporiaceae*, *Dissoconiaceae*, *Extremaceae*, *Mycosphaerellaceae*, *Neodevriesiaceae*, *Schizothyriaceae* and *Teratosphaeriaceae*.

Teratosphaeriaceae comprises *Camarosporula*, *Readeriella sensu stricto*, *Leptomelanconium sensu lato* (current name *Teratosphaeria australiensis*) and *Teratosphaeria*

sensu stricto (including *Colletogloeopsis* and *Kirramyces*) and *Xenoconiothyrium*.

Phaeophleospora sensu stricto and *Lecanosticta sensu lato* group in *Mycosphaerellaceae*. However, *Phaeophleospora eugeniae*, the type species of *Phaeophleospora* separate with moderate bootstrap support (75 %) from other *Phaeophleospora* species which have hyaline conidia. *Readeriellipsoidis* does not group in any family and is thus treated as *Capnodiales*, genera *incertae sedis*. It could be a new phylogenetic lineage in *Capnodiales*.

Diaporthales based on analyses of LSU and ITS sequence data

The combined LSU and ITS data set consists of 73 strains with *Coniochaeta velutina* (UAMH 10912) as the out group taxon. The best scoring RAxML tree for species of *Diaporthales* is shown in Fig. 12.

Maharachchikumbura et al. (2015) accepted twelve families in *Diaporthales* viz. *Cryphonectriaceae*, *Diaporthaceae*, *Gnomoniaceae*, *Harknessiaceae*, *Melanconidaceae*, *Pseudoplagiostomataceae*, *Pseudovalsaceae*, *Schizoparmeaceae*, *Stilbosporaceae*, *Sydowiellaceae*, *Tirisporellaceae* and *Valsaceae*. Crous et al. (2015a) introduced *Macrohilaceae* to accommodate *Macrohilum*. Our DNA sequence analyses agree with both Crous et al. (2015a) and Maharachchikumbura et al. (2015) and confirm that *Diaporthales* comprises 13 families. *Apharknessia*, *Greeneria* and *Lasmenia* do not cluster in any family, thus, are treated as *Diaporthales*, genera *incertae sedis*.

Dichomera-like taxa in Botryosphaeriaceae based on combined analyses of ITS and TEF1- α sequence data

The combined ITS and TEF1- α data set consists of 55 strains with *Neoscytalidium dimidiatum* (CBS 145.78, PWQ2361) as the out group taxon. The data set consists of 856 characters of which 636 are characters are constant, 30 are variable parsimony-uninformative characters and 190 are parsimony-informative characters. One of the 12 equally most parsimonious trees is shown in Fig. 13.

Our new strain of dichomera-like taxon (MFLUCC 14–0459) and *Dichomera saubinetii* (CBS 990.70) cluster in *Botryosphaeria*, hence former strain introduce as *Botryosphaeria quercus*. The type species of *Dichomera*, *D. saubinetii* lacks an ex-type strain thus we do not treat *Dichomera* as a synonym of *Botryosphaeria*. *Dichomera versiformis* and *D. eucalypti* group with *Neofusicoccum*, hence, this confirms that dichomera-like taxa are paraphyletic in *Botryosphaeriaceae*.

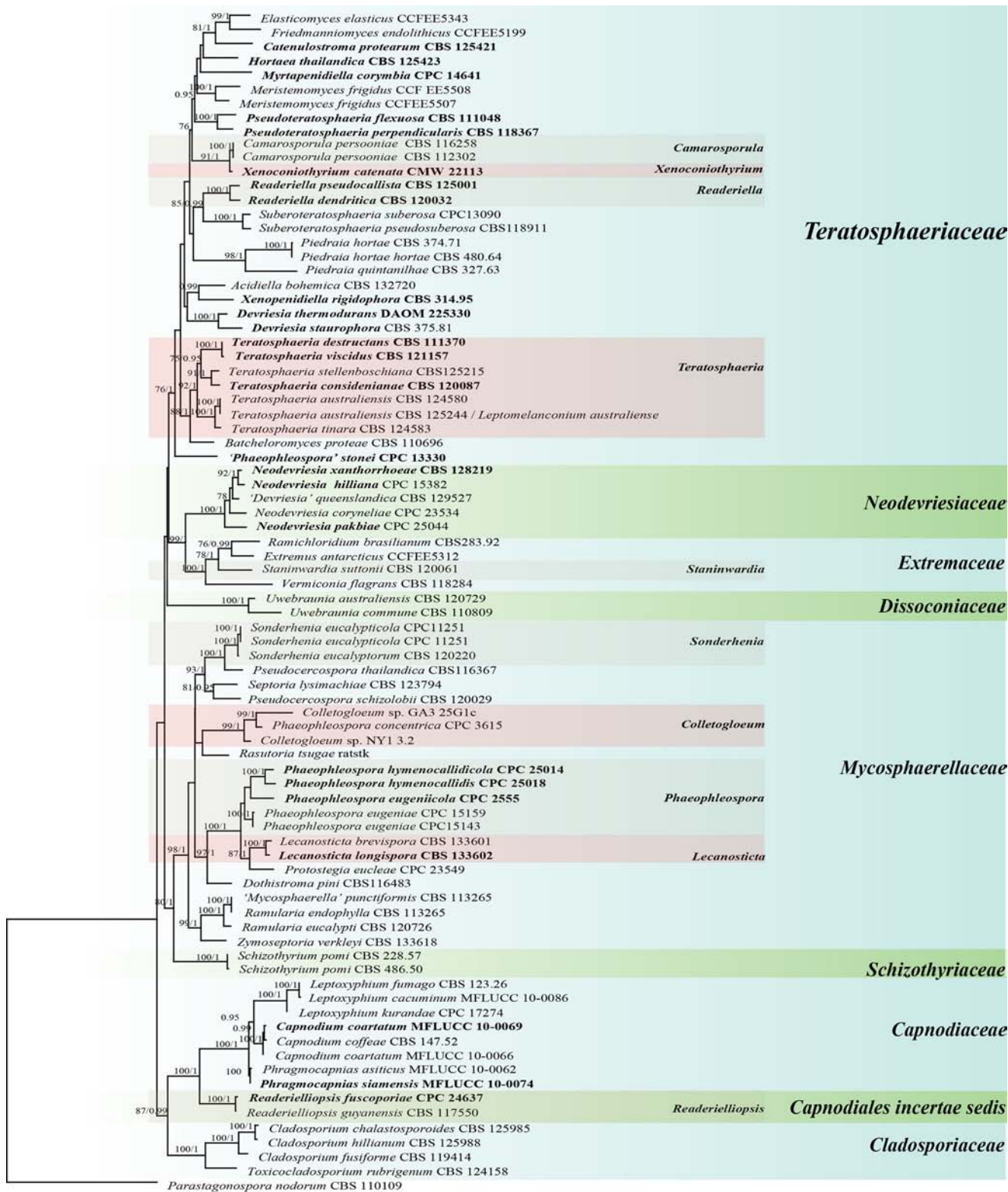


Fig. 11 The best scoring RAxML tree of species of *Capnodiales* generated from analyses of combined of LSU, RPB2, ITS, β -tubulin and TEF1- α sequence data. Bootstrap values greater than 70 % and Bayesian posterior probabilities above 0.95 are given above the nodes. The original strain numbers are given after the species names. Ex-type

strains are emphasized in bold. Families are differentiated with alternative colours in the right justified column. The dematiaceae coelomycetous genera are named in the column to the right of the main tree and indicated with different colours. The tree is rooted to *Parastagonospora nodorum* (CBS 110109)

Floricolaceae based on combined analyses of LSU, SSU and ITS sequence data

The combined LSU, SSU and ITS data set consists of 25 strains with *Platystomum scabridisporum* (BCC22835) as the out group taxon. The best scoring RAxML tree is shown in Fig. 14.

In their analyses, Thambugala et al. (2015) showed that *Floricolaceae* comprises nine genera i.e. *Asymmetrispora*, *Aurantiascoma*, *Floricola*, *Magnibotryascoma*, *Misturatosphaeria*, *Neocurreya*, *Pseudoaurantiascoma*, *Pseudomisturatosphaeria* and *Ramusculicola*. Our results agree with findings in Thambugala et al. (2015) and new strain of coniothyrium-like taxon (MFLUCC 12–0328) clusters as a distinct clade in *Floricolaceae*, thus *Paulkirkia* is introduced. *Curreya acacia* (CPC 24801) (Crous et al. 2015c) clusters in *Neocurreya sensu stricto* thus *Neocurreya acaciae* is introduced as a new combination.

Massarineae based on combined analyses of LSU, ITS and SSU sequence data

The combined LSU, SSU and ITS data set consists of 83 strains with *Pleospora herbarum* (CBS 191.86 and MFLUCC 13–0344) and *Pleospora tarda* (CBS 714.68) as the out group taxa. The best scoring RAxML tree is shown in Fig. 15. Our results agree with Tanaka et al. (2015) and *Massarineae* comprises 12 families i.e. *Bambusicolaceae*, *Dictyosporiaceae*, *Didymosphaeriaceae*, *Latoruaceae*, *Lentitheciaceae*, *Morosphaeriaceae*, *Macrodiplodiopsidaceae*, *Massarinaceae*, *Parabambusicolaceae*, *Periconiaceae*, *Sulcatissporaceae* and *Trematosphaeriaceae*.

Didymosphaeriaceae comprises *Alloconiothyrium*, *Paracamarosporium*, *Paraconiothyrium*, *Pseudocamarosporium*, *Verrucoconiothyrium* and *Xenocamarosporium* which have been reported as dematiaceous coelomycetes (Ariyawansa et al. 2014b; Wijayawardene et al. 2014c, d; Tanaka et al. 2015). Further, *Kalmusia* and *Paraphaeosphaeria* which were reported with brown spored coelomycetous morphs also clustered in *Didymosphaeriaceae* (Ariyawansa et al. 2014b; Liu et al. 2015).

Phragmocamarosporium and *Suttonomyces* group in *Massarinaceae* and *Lentitheciaceae* respectively and these results agree with Tanaka et al. (2015) and Wijayawardene et al. (2015). *Murilentithecium* also groups in *Lentitheciaceae* agreeing with Wanasinghe et al. (2014). *Magnicamarosporium* and *Sulcatisspora* cluster in *Sulcatissporaceae* while *Macrodiplodiopsis* and *Camargraphium koreanum* groups in *Macrodiplodiopsidaceae* as in Tanaka et al. (2015). *Fuscostagonospora* did not cluster in any family, thus, is treated as *Massarineae*, genus *incertae sedis*.

Xylariomycetidae based on combined analyses of LSU, ITS, SSU, β -tubulin and RPB2 sequence data

The combined analyses of LSU, ITS, SSU, β -tubulin and RPB2 dataset comprises 68 strains with *Dothidea hippophaeos* (AFTOL-ID 919) and *D. sambuci* (DAOM 231303) as the out group taxa. The best scoring RAxML tree is shown in Fig. 16. *Xylariomycetidae* comprises 16 families.

The clade of *Bartaliniaceae* is supported by high bootstrap value and PP values (100 % and 1.00) and comprises *Bartalinia*, *Broomella*, *Hyalotiella*, *Morinia*, *Truncatella* and *Zetiasplozna*. Senanayake et al. (2015) did not include *Morinia* as a genus in *Bartaliniaceae* but our analyses show it is a well-established genus.

Senanayake et al. (2015) accepted *Robillarda* in *Amphisphaeriales*, genera *incertae sedis* but Crous et al. (2015a) showed *Robillarda* has a distinct phylogenetic lineage in *Xylariales* thus introduced *Robillardaceae*. However, in our analyses, *Robillardaceae* clusters in *Amphisphaeriales*.

Taxonomy and outline for genera of dematiaceous coelomycetes

The section starts with an account of the various structures and terminology of coelomycetes which are illustrated with photomicrographs and/or line drawings. An outline of the coelomycetes and their placement in the natural classification is provided and is based on an update of recent publications on *Dothideomycetes* (Hyde et al. 2013; Wijayawardene et al. 2014c), *Leotiomycetes* (Johnston et al. 2014) and *Sordariomycetes* (Stadler et al. 2014; Maharachchikumbura et al. 2015; Senanayake et al. 2015). An account for each genus is provided with a generic description, and the illustration of one or more species.

Outline for dematiaceous coelomycetes

Phylum ASCOMYCOTA Caval-Sm.

Subphylum PEZIZOMYCOTINA O.E.

Erikss. & Winka

Class Dothideomycetes sensu O.E. Erikss. & Winka

Subclass Dothideomycetidae P.M. Kirk et al. ex C.L. Schoch et al.

Asterinales M.E. Barr ex D. Hawksw. & O.E. Erikss.

Asterinaceae Hansf.

Prillieuxina G. Arnaud (1918) [1917]

Capnodiales Woron.

Extremaceae Quaedvlieg & Crous
Staninwardia B. Sutton 1971

Mycosphaerellaceae Lindau
Colletogloeum Petr. 1953
Davisoniella H.J. Swart 1988
Lecanosticta Syd. 1922 (H)
Phaeophleospora Rangel 1916
Sonderhenia H.J. Swart & J. Walker
1988

Teratosphaeriaceae Crous & U. Braun
Camarosporula Petr. 1954 (H)
?Leptomelanconium Petr. 1923
Readeriella Syd. & P. Syd. 1908
Teratosphaeria Syd. & P. Syd. 1912
(H)
Xenoconiothyrium Crous & Marinc
2011

Capnodiales, genus *incertae sedis*
Readeriellipsoidis Crous & Decock 2015

Subclass Pleosporomycetidae C.L. Schoch
et al.

Pleosporales Luttrell ex M.E. Barr
Massarineae Ying Zhang et al.

Bambusicolaceae D.Q. Dai & K.D. Hyde
Bambusicola D.Q. Dai & K.D. Hyde
2012 (H)
Palmiascoma Phookamsak & K.D. Hyde
2015 (H)

Didymosphaeriaceae Munk
Alloconiothyrium Verkley et al. 2014
Kalmusia Niessl 1872 (H)
Paracamarosporium Wijayaw. et al.
2014
Paraconiothyrium Verkley 2004
Paraphaeosphaeria O.E. Erikss. 1967
Pseudocamarosporium Wijayaw. et al.
2014
Verrucoconiothyrium Crous 2015
Xenocamarosporium Crous & M.J.
Wingf. 2015

Lentitheciaceae Y. Zhang ter et al.
Murilentithecium Wanasinghe et al. 2014 (H)
Phragmocamarosporium Wijayaw. et al.
2015

Macrodiplodiopsidaceae Voglmayr et al.

Macrodiplodiopsis Petr. (1922) (H)

Massarinaceae Munk
Neottiosporina Subram. 1961
Suttonomyces Wijayaw. et al. 2015

Sulcatisporaceae Kaz. Tanaka & K. Hiray.
Magnicamarosporium Kaz. Tanaka &
K. Hiray. 2015
Sulcatispora Kaz. Tanaka & K. Hiray.
2015

Massarineae, genus *incertae sedis*
Fuscostagonospora Kaz. Tanaka & K.
Hiray. 2015

Pleosporineae M.E. Barr
Coniothyriaceae W.B. Cooke
Coniothyrium Corda 1840

Didymellaceae Gruyter et al.
Didymellocomarosporium Wijayaw. &
K.D. Hyde 2016
?Endocoryneum Petr. 1922[#]
Microsphaeropsis Höhn. 1917
?Pseudohendersonia Crous & M.E.
Palm 1999[#]

Leptosphaeriaceae M.E. Barr
Chaetoplea (Sacc.) Clem. 1931 (H)

Phaeosphaeriaceae M.E. Barr
?Amarenographium O.E. Erikss. 1982[#]
Ampelomyces Ces. ex Schltdl. 1852
Melnikia Wijayaw. et al. 2016
Neosetophoma Gruyter et al. 2010
Neosulcatispora Crous & M.J. Wingf.
2015
Phaeosphaeria I. Miyake 1909 (H)
Phaeosphaeriopsis M.P.S. Câmara et al.
2003
Phaeostagonospora A.W. Ramaley
1997
Pleoseptum A.W. Ramaley & M.E. Barr
1995 (H)
Poaceicola W.J. Li et al. 2015
?Scolicosporium Lib. ex Roum. 1880[#]
Septoriella Oudem. 1889
Tiarospora Sacc. & Marchal 1885
Wojnowiciella Crous et al. 2015

Pleosporineae, genus *incertae sedis*

Camarosporium Schulzer 1870

Pleosporales, family *incertae sedis*

Biatriosporaceae K.D. Hyde

Versicolorisporium Sat. Hatak. et al.
2008

Floricolaceae Thambug. et al.

Floricola Kohlm. & Volkm.-Kohlm.
2000

Neocurreya Thambug. & K.D. Hyde
2015 (H)

Paulkirkia Wijayaw. et al. 2016

Lophiostomataceae Sacc.

Coelodictyosporium Thambug. & K.D.
Hyde 2015 (H)

Dimorphiopsis 2013 Crous

Melanommataceae G. Winter

Melanocamarosporium Wijayaw. et al.
2016

Pleomassariaceae M.E. Barr

?*Myxocyclus* Riess 1852

Prosthemium Kunze 1817 (H)

Pleosporaceae Nitschke

Neocamarosporium Crous & M.J.
Wingf. 2014

Rousoellaceae J.K. Liu et al.

?*Cytoplea* Bizz. & Sacc. 1885

Rousoella Sacc. 1888

Rousoellopsis I. Hino & Katum. 1965

Sporormiaceae Munk

Forliomyces Phukhamsakda. et al. 2016

Pleosporales, genera *incertae sedis*

Camarographium Bubák 1916

Cyclothyrium Petr. 1923

Gordonomyces Crous & Marinc. 2011

Sclerostagonospora Höhn. 1917

Shearia Petr. 1924

Lichenoconiales Diederich et al.

Lichenoconiaceae Diederich & Lawrey

Lichenonium Petr. & Syd. 1927

Dothideomycetes, orders *incertae sedis*

Botryosphaeriales C.L. Schoch et al.

Aplosporellaceae Slippers et al.

Aplosporella Speg. 1880

Botryosphaeriaceae Theiss. & H. Syd.

Alanphillipsia Crous & M.J. Wingf.
2013

Barriopsis A.J.L. Phillips et al. 2008
(H)

Botryosphaeria Ces. & De Not. 1863
(dichomera-like)

Diplodia Fr. 1834 (H)

Dothiorella Sacc. 1880 (H)

Endomelanconiopsis E.I. Rojas &
Samuels 2008

Lasiodiplodia Ellis & Everh. 1896 (H)

Macrophomina Petr. 1923

Mucoharknessia Crous et al. 2015

Neodeightonia C. Booth 1970

Neofusicoccum Crous et al. 2006
(dichomera-like)

Phaeobotryon Theiss. & Syd. 1915

Spencermartinsia A.J.L. Phillips et al.
2008

Sphaeropsis Sacc. 1880

Planistromellaceae M.E. Barr

Blastacervulus H.J. Swart 1988

Venturiales Yin. Zhang et al.

Venturiaceae E. Müll. & Arx ex M.E. Barr

?*Piggotia* Berk. & Broome 1851

Dothideomycetes, family *incertae sedis*

Englerulaceae Henn.

Capnodiastrum Speg. 1886

Dothideomycetes, genera *incertae sedis*

Botryohypoxylon Samuels & J.D.

Rogers 1986

Homortomyces Crous & M.J. Wingf.

2012

Class Eurotiomycetes Tehler ex O.E.

Eriksson & K. Winka

Subclass Chaetothyriomycetidae Doweld

Chaetothyriales, genus *incertae sedis*

Lichenodiplis Dyko & D. Hawksw. 1979

Eurotiomycetes, genus *incertae sedis*

Cirrosporium S. Hughes 1980

Class Lecanoromycetes O.E. Erikss. &

Winka

Subclass *Ostropomycetidae* Reeb et al.
Agyriales Clem. & Shear
Trapeliaceae M. Choisy ex Hertel
Epithyrium (Sacc.) Trotter 1931

Class *Leotiomyces* O.E. Erikss. & Winka
Helotiales Nannf.
Helotiaceae Rehm
Crumenulopsis J.W. Groves 1969 (H)

Phacidiaceae Fr.
Coma Nag Raj & W.B. Kendr. 1972
(H)

Sclerotiniaceae Whetzel ex Whetzel
Amerosporium Speg. 1882

Helotiales, genera *incertae sedis*
Apiculospora Wijayaw. 2016
Cheirospora Moug. & Fr. 1825

Leotiomyces, genera *incertae sedis*
Trinosporium Crous & Decock 2012
Trullula Ces. 1852
Unguiculariopsis Rehm 1909

Class *Sordariomycetes sensu* O.E. Erikss. & Winka

Subclass *Hypocreomycetidae* O.E. Erikss. & Winka

Hypocreales Lindau
Stachybotriaceae L. Lombard & Crous
Alfaria Crous et al. 2014 (H)

Hypocreales, genus *incertae sedis*
? *Hymenopsis* Sacc. 1886

Subclass *Sordariomycetidae* O.E. Erikss. & Winka

Chaetosphaeriales Huhndorf et al.
Chaetosphaeriaceae Réblová et al.
Brunneodinemasporium Crous & R.F. Castañeda 2012
Dinemasporium Lév. 1846

Diaporthales Nannf.
Cryphonectriaceae Gryzenh. & M.J. Wingf.
Prosopidicola Crous & C.L. Lennox 2004

Diaporthaceae Höhn. ex Wehm.

Phaeocytostroma Petr. 1921
Pustulomyces D.Q. Dai et al. 2014
Stenocarpella Syd. & P. Syd. 1917

Harknessiaceae Crous
Harknessia Cooke 1881

Macrohilaceae Crous
Macrohilum H.J. Swart 1988

Melanconidaceae G. Winter
Melanconiopsis Ellis & Everh. 1900
Melanconium Link 1809

Pseudovalsaceae M.E. Barr
? *Coryneum* Nees 1816

Schizoparmeaceae Rossman
Coniella Höhn. 1918
Pilidiella Petr. & Syd. 1927

Stilbosporaceae Link
Stegosporium Corda 1827
Stilbospora Pers. 1794 (H)

Diaporthales, genera *incertae sedis*
Apotharknessia Crous & S.J. Lee 2004
Asterosporium Kunze 1819
Dwiroopa Subram. & Muthumary 1986
Greeneria Scribn. & Viala 1887
Lasmenia Speg. 1886

Subclass *Xylariomycetidae sensu* O.E. Erikss. & Winka

Amphisphaeriales D. Hawksw. & O.E. Erikss.

Bartalinaceae Wijayaw. et al.
Bartalinia Tassi 1900
Broomella Sacc 1883 (H)
Doliomyces Steyaert 1961
Hyalotiella Papendorf 1967
Morinia Berl. & Bres. 1889
Truncatella Steyaert 1949
? *Zetiasplozna* Nag Raj 1993[#]

Discosiaceae Maharachch. & K.D. Hyde
Annellolacinia B. Sutton 1964
Discosia Lib. 1837
Seimatosporium Corda 1833

Pestalotiopsisaceae Maharachch. & K.D. Hyde
Ciliochorella Syd. 1935

Monochaetia (Sacc.) Allesch. 1902
Neopestalotiopsis Maharachch. et al.
 2014
Pestalotiopsis Steyaert 1949
Pseudopestalotiopsis Maharachch. et al.
 2014
Seiridium Nees 1816

Robillardaceae Crous

Robillarda Sacc. 1880

Amphisphaeriales, genera *incertae sedis*

?*Bleptosporium* Steyaert 1961
Griphosphaerioma Höhn. (H)
Hyalotiopsis Punith. 1970 (H)
Monochaetinula Muthumary et al. 1986
 ?*Pestalotia* De Not. 1841

Xylariales Nannf.

Apiosporaceae K.D. Hyde et al.

Arthrimum Kunze 1817
Scyphospora L.A. Kantsch. 1928

Sordariomycetes, order *incertae sedis*

Phyllachorales M.E. Barr

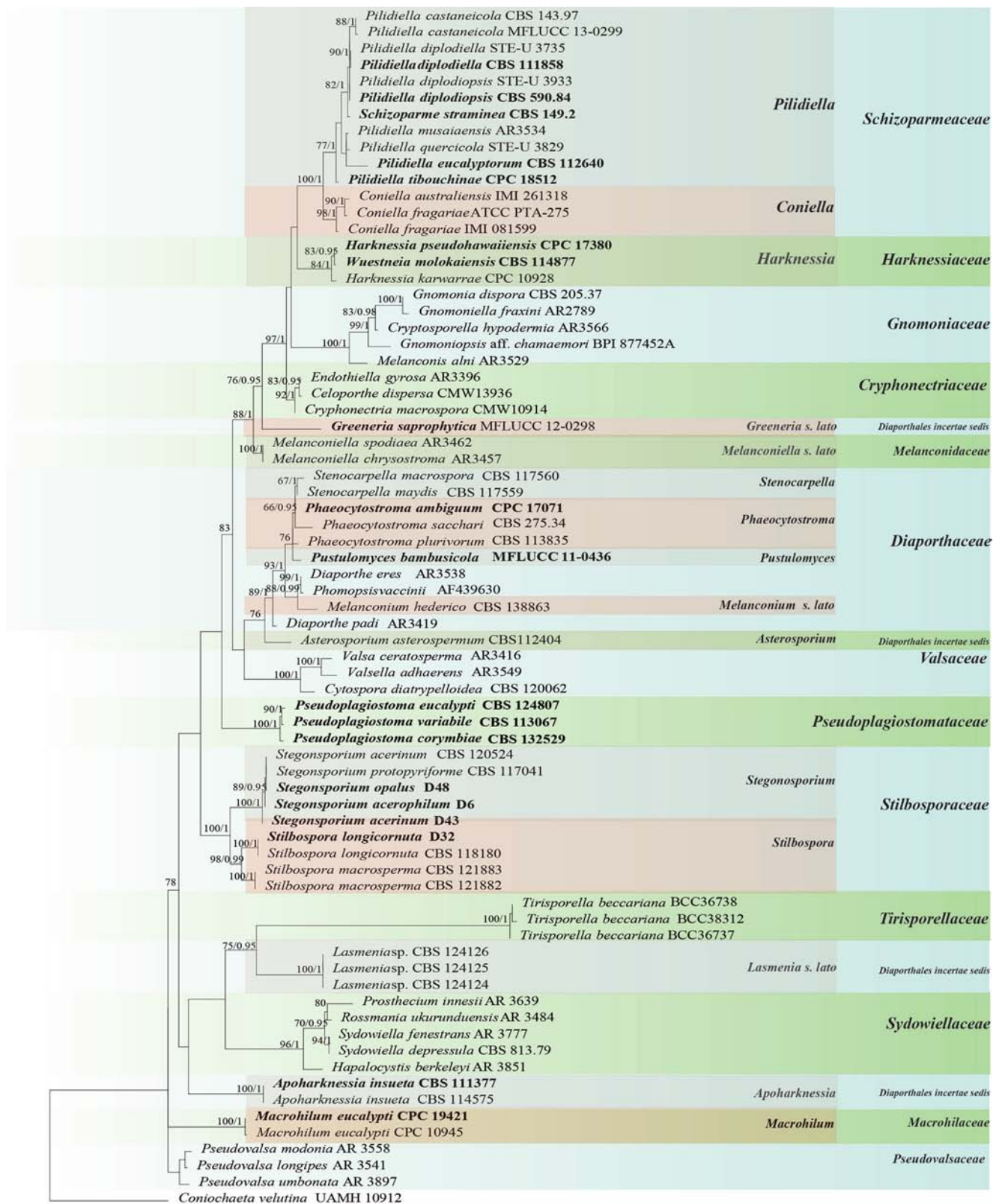
Phyllachoraceae Theiss. & H. Syd.

Mycohypallage B. Sutton 1963

ASCOMYCOTA, genera *incertae sedis*

Acaroconium Kocourk. & D. Hawksw.
 2008
Angiopomopsis Höhn. 1912
Ascochytulina Petr. 1922
Avettaea Petr. & Syd. 1927
Barnettella D. Rao & P.Rag. Rao 1964
Bellulicauda B. Sutton 1967
Brencklea Petrak 1923
Caeruleoconidia Zhurb. & Diederich
 2015
Callistospora Petr. 1955
Camarosporellum Tassi 1902
Camarosporiopsis Abbas et al. 2000
Capitrostrum Bat. 1957
Carnegieispora Etayo & F. Berger 2009
Ceratopycnis Höhn. 1915
Chaetodiplodia P. Karst. 1884
Chithramia Nag Raj 1988
Coniambigua Etayo & Diederich 1995
Didymosporina Höhn. 1916
Dothideodiplodia Murashk. 1927
Endobotrya Berk. & M.A. Curtis 1874
Endobotryella Höhn. 1909
Endomelanconium Petr. 1940

Enerthidium Syd. 1939
Fairmaniella Petr. & Syd. 1926
Gaubaea Petr. 1942
Gloeocoryneum Weindlm. 1964
Hendersonina E.J. Butler 1913
Hendersoniopsis Höhn. 1918
Hendersonula Speg. 1880
Hoehneliella Bres. & Sacc. 1902
Jubispora B. Sutton & H.J. Swart 1986
Kaleidosporium Van Warmelo & B.
 Sutton 1981
Kamatella Anahosur 1969
Laeviomycetes D. Hawksw. 1981
Lamproconium (Grove) Grove 1937
Lasmeniella Petr. & Syd. 1927
Lecanostictopsis B. Sutton & Crous
 1997
Lichenohendersonia Calat. & Etayo 2001
Linochorella Syd. & P. Syd. 1912
Massariothea Syd. 1939
Melanophoma Papendorf & J.W. du
 Toit 1967
Minutoexcipula V. Atienza & D.
 Hawksw. 1994
Myrotheciastrum Abbas & B. Sutton
 1988
Nagrajomyces Mel'nik 1984
Neohendersonia Petr. 1921
Neoheteroceras Nag Raj 1993
Neomelanconium Petr. 1940
Nigropuncta D. Hawksw. 1981
Nummospora E. Müll. & Shoemaker 1964
Obstipipilus B. Sutton 1968
Oncospora Kalchbr. 1880
Orphanocoela Nag Raj 1989
Paraaoria R.K. Verma & Kamal 1987
Parahyalotiopsis Nag Raj 1976
Peltistromella Höhn. 1907
Peltosoma Syd. 1925
Perizomella Syd. 1927
Phaeodomus Höhn. 1909
Phaeolabrella Speg. 1912
Phragmotrichum Kunze 1823
Placodiplodia Bubák 1916
Poropeltis Henn. 1904
Pseudodiplodia (P. Karst.) Sacc. 1884
Rhizosphaerina B. Sutton 1986
Rubikia H.C. Evans & Minter 1985
Schwarzmannia Pisareva 1968
Scolecosporella Petr. 1921
Seimatosporiopsis B. Sutton et al. 1972
Shawiella Hansf. 1957
Sirothecium P. Karst. 1887



◀ **Fig. 12** The best scoring RAxML tree for species of *Diaporthales* generated from analyses of combined LSU and ITS sequence data. Bootstrap values greater than 70 % and Bayesian posterior probabilities above 0.95 are given above the nodes. The original strain numbers are given after the species names. Ex-type strains are emphasized in bold. Families are differentiated with alternative colours in the right justified column. The dematiaceous coelomycetous genera are named in the column to the right of the main tree and indicated with different colours. The tree is rooted to *Coniochaeta velutina* (UAMH 10912)

Stegonsporiopsis Van Warmelo & B.

Sutton 1981

Stevensonula Petr. 1952

Stigmella Lév. 1842

Toxosporiella B. Sutton 1986

Toxosporiopsis B. Sutton & Sellar 1966

Tunicago B. Sutton & Pollack 1977

Uniseta Ciccar. 1948

Urohendersonia Speg. 1902

Urohendersoniella Petr. 1955

Vanderystiella Henn. 1908

Vouauxiella Petr. & Syd. 1927

Xepicula Nag Raj 1993

Xepiculopsis Nag Raj 1993

(H) indicates where genus shows holomorph

placement is based on sequence data of non-type species

Taxonomy

Acaroconium Kocourk. & D. Hawksw., Lichenologist 40(2): 105 (2008)

Facesoffungi number: FoF 01416; Fig. 17

Ascomycota, genus incertae sedis

Lichenicolous. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, single, or sometimes gregarious, immersed to partly erumpent, subglobose, black, ostiolate, with a distinctly thickened, ostiolar collar. *Conidiomata* wall composed of polyhedral *angular pseudoparenchymatous* cells. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, not proliferating and lacking annellations, broadly short-ampulliform, apex with a periclinal thickened collar, hyaline. *Conidia* single, ellipsoid, rounded at both ends, aseptate, hyaline at maturity, becoming pale brown at maturity while inside the pycnidial cavity, smooth-walled (description modified from Kocourková and Hawksworth 2008).

Type species: Acaroconium punctiforme Kocourk. & D. Hawksw., Lichenologist 40(2): 105 (2008); Fig. 17

Notes: Kocourková and Hawksworth (2008) introduced *Acaroconium* with *A. punctiforme* as the type species.

Acaroconium morphologically resembles *Phoma sensu lato* as both genera have ‘conidiomata with a deeply pigmented region around the well-defined ostiole’ (Kocourková and Hawksworth 2008). However, *Phoma* species have hyaline conidia (de Gruyter et al. 2009, 2013), while *Acaroconium* has brown conidia.

The comparison of *Acaroconium* with other lichenicolous genera and taxonomic keys are provided under notes in *Lichenocodium*. Sequence data is unavailable, thus the taxonomic status is unknown.

Alanphillipsia Crous & M.J. Wingf., Persoonia, Mol. Phyl. Evol. Fungi 31: 197 (2013)

Facesoffungi number: FoF 01417; Fig. 18

Dothideomycetes, order *incertae sedis*, *Botryosphaeriales*, *Botryosphaeriaceae*

Endophytic, saprobic or possibly *pathogenic*, associated with leaf lesions. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, immersed, globose, central, dark brown, ostiolate. *Conidiomata* wall composed of brown-walled cells of *textura angularis*. *Paraphyses* subcylindrical, unbranched or branched at base, aseptate or transversely septate, with obtuse to subobtuse apices, hyaline, smooth-walled. *Conidiophores* subcylindrical, flexuous or straight, septate, hyaline, smooth-walled. *Macroconidiogenous cells* proliferating percurrently, subcylindrical to lageniform, terminal, integrated, hyaline, smooth. *Macroconidia* ellipsoid to obclavate or subcylindrical with truncate scar on hyaline layer, solitary, hyaline when young, becoming golden-brown to medium brown, verruculose, granular to guttulate, surrounded by a persistent, hyaline outer layer (absent in some species, or reduced to a basal frill or basal and apical appendage). *Microconidiogenous cells* in the same conidioma, hyaline, smooth, subcylindrical, proliferating inconspicuously percurrently at apex. *Microconidia* subcylindrical to ellipsoid, apex obtuse, base truncate, hyaline, smooth-walled, granular, with a minute marginal frill (description modified from Crous et al. 2013, 2014c).

Type species: Alanphillipsia aloes Crous & M.J. Wingf., Persoonia, Mol. Phyl. Evol. Fungi 31: 197 (2013); Fig. 18

Notes: Crous et al. (2013) introduced the genus *Alanphillipsia* with *A. aloes* as the type species. In morphology, *Alanphillipsia* resembles *Aplosporella* (Sutton 1980; Slippers et al. 2013), but the former is somewhat distinct as it has a hyaline outer layer (Crous et al. 2013). Crous et al. (2013) compared *Alanphillipsia* with *Cytosphaera*, but the latter genus has erumpent to superficial stromatic conidiomata and hyaline conidia (Sutton 1980).

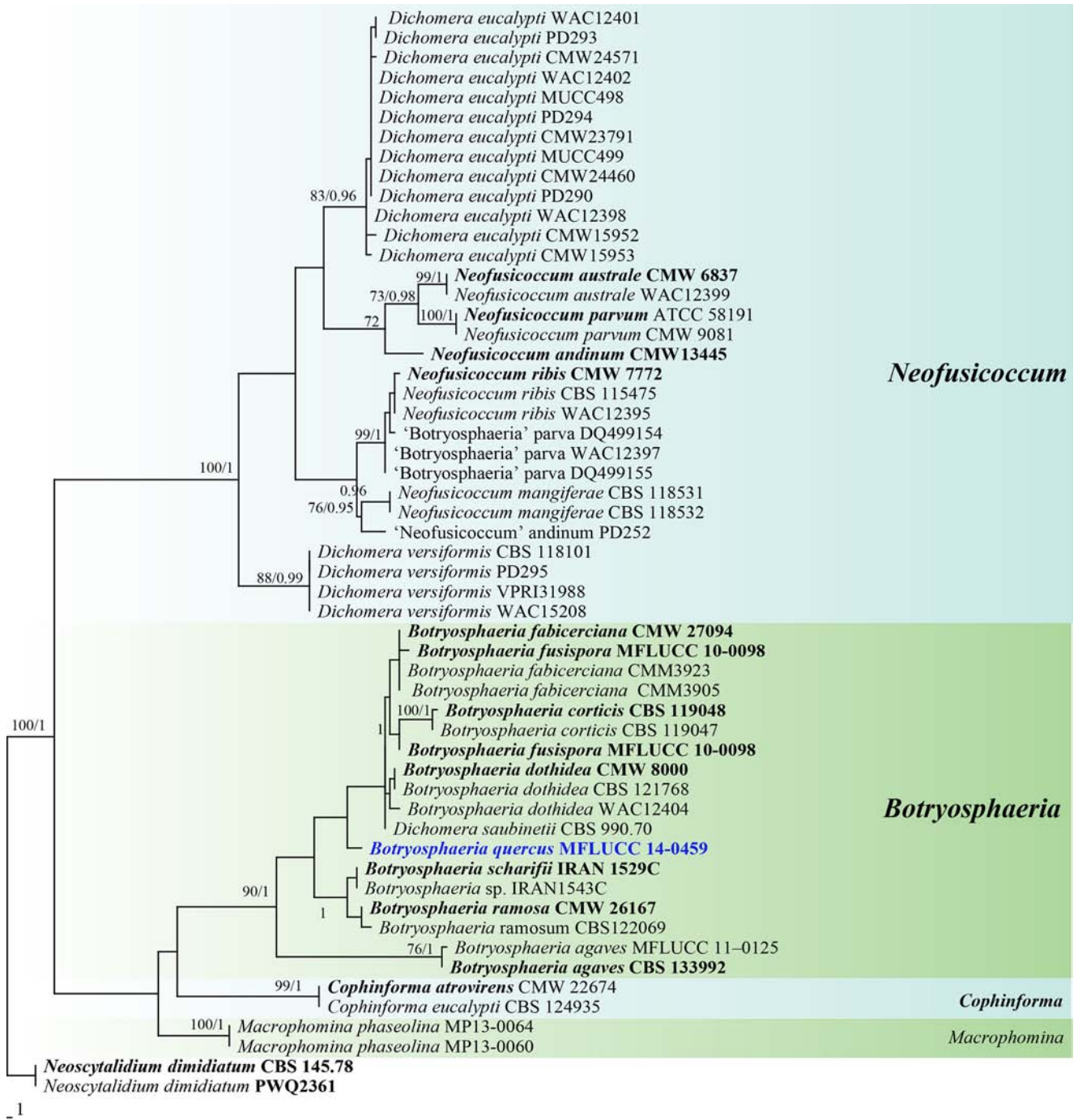


Fig. 13 One of the 12 equally most parsimonious trees obtained from combined analyses set of ITS and EF1- α sequence data. (CI=0.738, RI=0.941, RC=0.695, HI=0.262). MP values (>70 %) resulting from 1000 bootstrap replicates and Bayesian posterior probabilities above 0.95

are given at the nodes. The tree was rooted to *Neoscytalidium dimidiatum* (CBS 145.78, PWQ2361). Ex-type strains are in bold and newly introduced species are in blue

Based on a megablast search of NCBI's GenBank nucleotide database, Crous et al. (2013) concluded that *Alanphillipsia* belongs in *Botryosphaeriaceae*. Wijayawardene et al. (2014c) also listed *Alanphillipsia* under *Botryosphaeriaceae* and our sequence analyses agree with

this (Figs. 9 and 10).

Alfaria Crous et al. Persoonia, Mol. Phyl. Evol. Fungi 32: 239 (2014)

Facesoffungi number: FoF 01780; Fig. 19

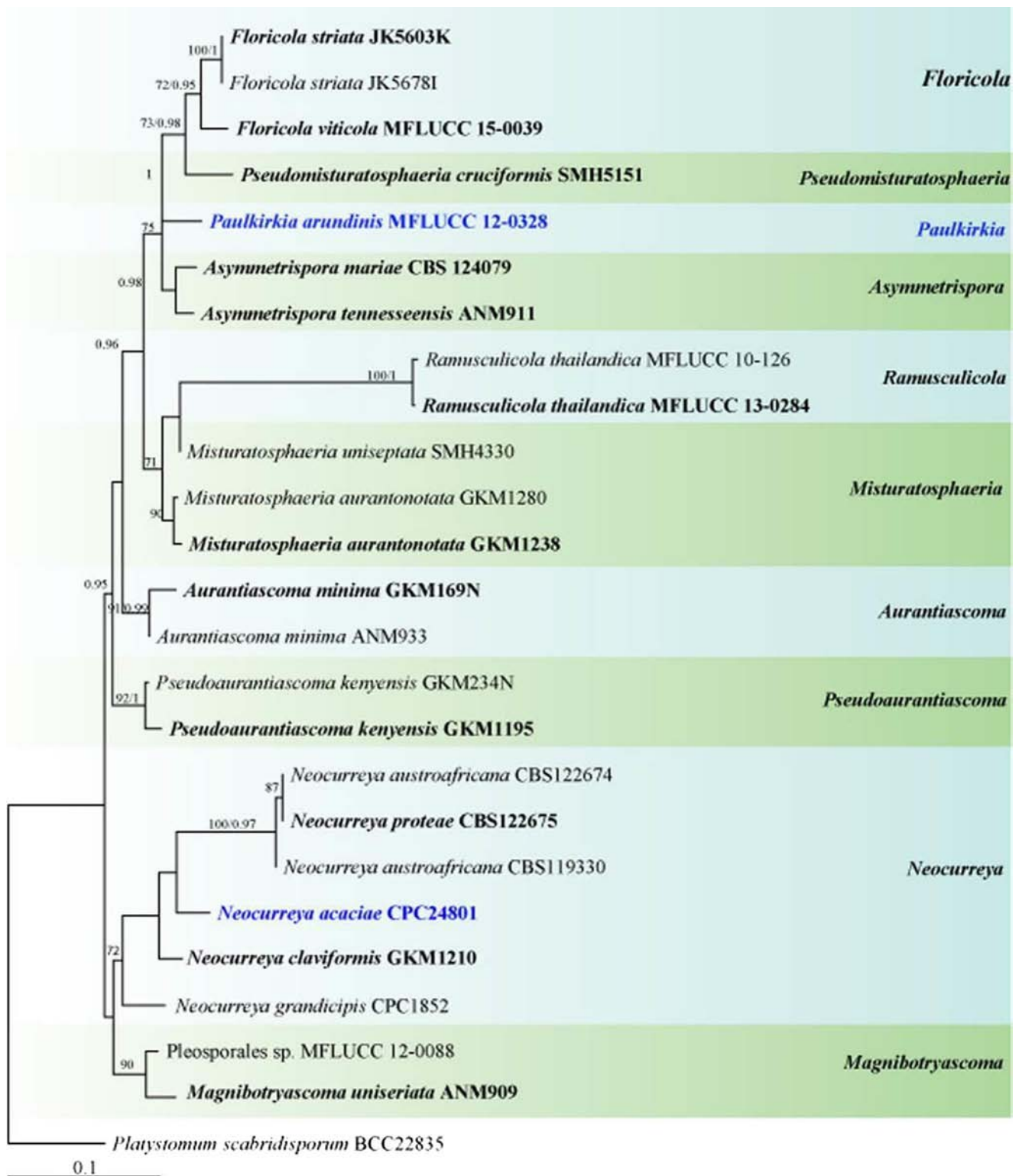
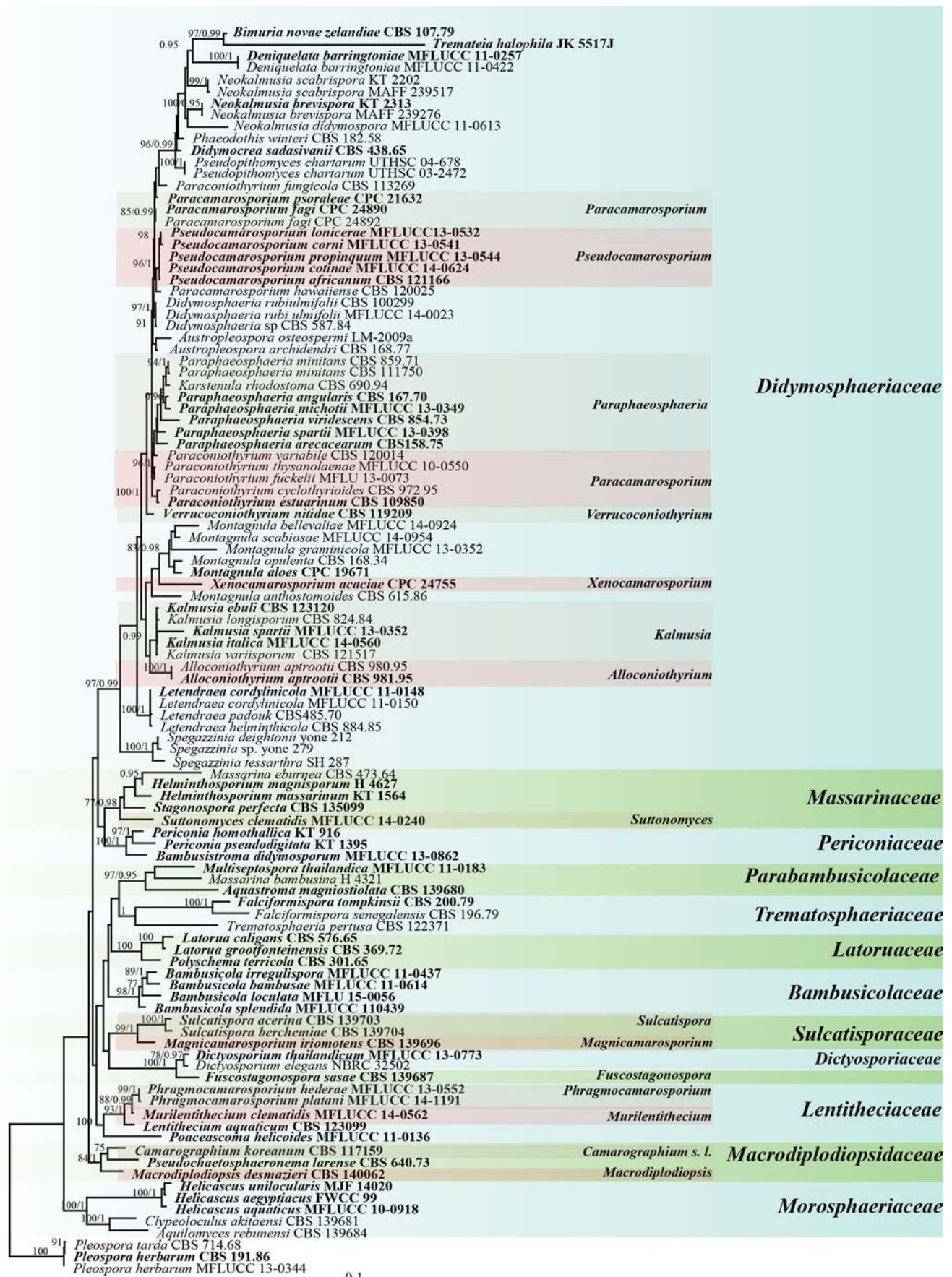


Fig. 14 The best scoring RAxML tree of Floricolaceae generated from the combined data set of LSU, SSU and ITS sequence data. Bootstrap values greater than 70 % and Bayesian posterior probabilities above 0.95 are given above the nodes. The original strain numbers are given after the

species names. Ex-type strains are emphasized in bold and newly introduced species and combinations are in blue. The tree is rooted to *Platystomum scabridisporum* (BCC 22835)



◀ **Fig. 15** The best scoring RAxML tree of *Massarineae* generated from the combined data set of LSU, SSU and ITS sequence data. Bootstrap values greater than 70 % and Bayesian posterior probabilities above 0.95 are given above the nodes. The original strain numbers are given after the species names. Ex-type strains are emphasized in bold and newly introduced species and combinations are in blue. The dematiaceous coelomycetous genera are named in the column to the right of the main tree and indicated with different colours. The tree is rooted to *Pleospora herbarum* (CBS 191.86 and MFLUCC 13–0344) and *Pleospora tarda* (CBS 714.68)

Sordariomycetes, *Hypocreomycetidae*, *Hypocreales*, *Stachybotriaceae*

Endophytic or *saprobic* on a range of host or *pathogenic* on spines of *Rosa canina* (*Rosaceae*). **Sexual morph:** see Crous et al. (2014b). **Asexual morph:** *Conidiomata* acervuli, solitary to gregarious, semi-immersed to immersed, slightly depressed, globose to subglobose, unilocular, greenish dark brown to black, with a centrally located ostiole. *Conidiomata* wall composed of thick-walled, brown to dark green cells of *textura angularis*. *Conidiophores* cylindrical, long, hyaline, aseptate, unbranched. *Conidiogenous cells* enteroblastic, phialidic, cylindrical, integrated, terminal, slightly tapering towards apex. *Conidia* ellipsoidal, truncate base, aseptate, pale brown when young, becoming dark brown at maturity, smooth and thick-walled, with an irregular mucilaginous appendages.

Type species: ***Alfaria cyperi-esculenti*** Crous et al., *Persoonia*, *Mol. Phyl. Evol. Fungi* 32: 239 (2014)

Notes: The genus *Alfaria* was introduced by Crous et al. (2014b) to accommodate a sexual taxon with ‘fusoid-ellipsoid, 0–3-septate, hyaline, ascospores with mucoid sheaths or mucoid caps’ (Crous et al. 2014b). In our sequence analyses (Figs. 9 and 20), a new collection from Italy also grouped with the type species of *Alfaria*, *A. cyperi-esculenti* with high bootstrap values (100 %) and high PP values (1.00). *Alfaria* clusters in *Stachybotriaceae*, *Hypocreales* (Fig. 20).

Alloconiothyrium Verkley et al., *Persoonia*, *Mol. Phyl. Evol. Fungi* 32: 33 (2014)

Facesoffungi number: FoF 01418; Fig. 21

Dothideomycetes, *Pleosporales*, *Massarineae*, *Didymosphaeriaceae*

Saprobe isolated from soil. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial or stromatic, uni- or multi-locular, black. *Conidiomatal* wall composed of an outer layer of thick-walled, brown cells of *textura angularis* and an inner layer composed of thick-walled, hyaline cells of *textura angularis* or *textura globulosa*. *Conidiogenous cells* enteroblastic, annellidic, broadly ampulliform, discrete, with several distinct percurrent proliferations. *Conidia* globose to irregularly ellipsoid, initially hyaline, after secession olivaceous-brown, orange-brown at maturity, aseptate, verruculose, with 1 large oil-droplet. *Chlamydospores* formed in the mycelium, terminal or intercalary, brown,

solitary, globose, with large droplets, smooth-walled (description modified from Verkley et al. 2014).

Type species: ***Alloconiothyrium aptrootii*** Verkley et al., *Persoonia*, *Mol. Phyl. Evol. Fungi* 32: 33 (2014); Fig. 21

Notes: Verkley et al. (2014) introduced *Alloconiothyrium* with *A. aptrootii* as the type species. In their sequence analyses, Verkley et al. (2014) showed that their coniothyrium-like collection from soil grouped in *Didymosphaeriaceae*, *Massarineae*. *Coniothyrium sensu stricto* grouped in *Coniothyriaceae*, *Pleosporineae* (de Gruyter et al. 2013; Verkley et al. 2014; Wijayawardene et al. 2014d) and is characterised by 1-septate conidia (Sutton 1980), thus the new collection is morphologically and phylogenetically distinct from *Coniothyrium sensu stricto*. *Paraconiothyrium* and *Verrucoconiothyrium* are also well-established genera in *Didymosphaeriaceae* (Verkley et al. 2004, 2014; Ariyawansa et al. 2014b; Wijayawardene et al. 2014d), but *Paraconiothyrium* and *Verrucoconiothyrium* are phylogenetically distinct from *Alloconiothyrium* (Figs. 9 and 15).

Amarenographium O.E. Erikss., *Mycotaxon* 15: 199 (1982)

Facesoffungi number: FoF 01419; Figs. 22 and 23

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, *Pleosporineae*, *Phaeosphaeriaceae*

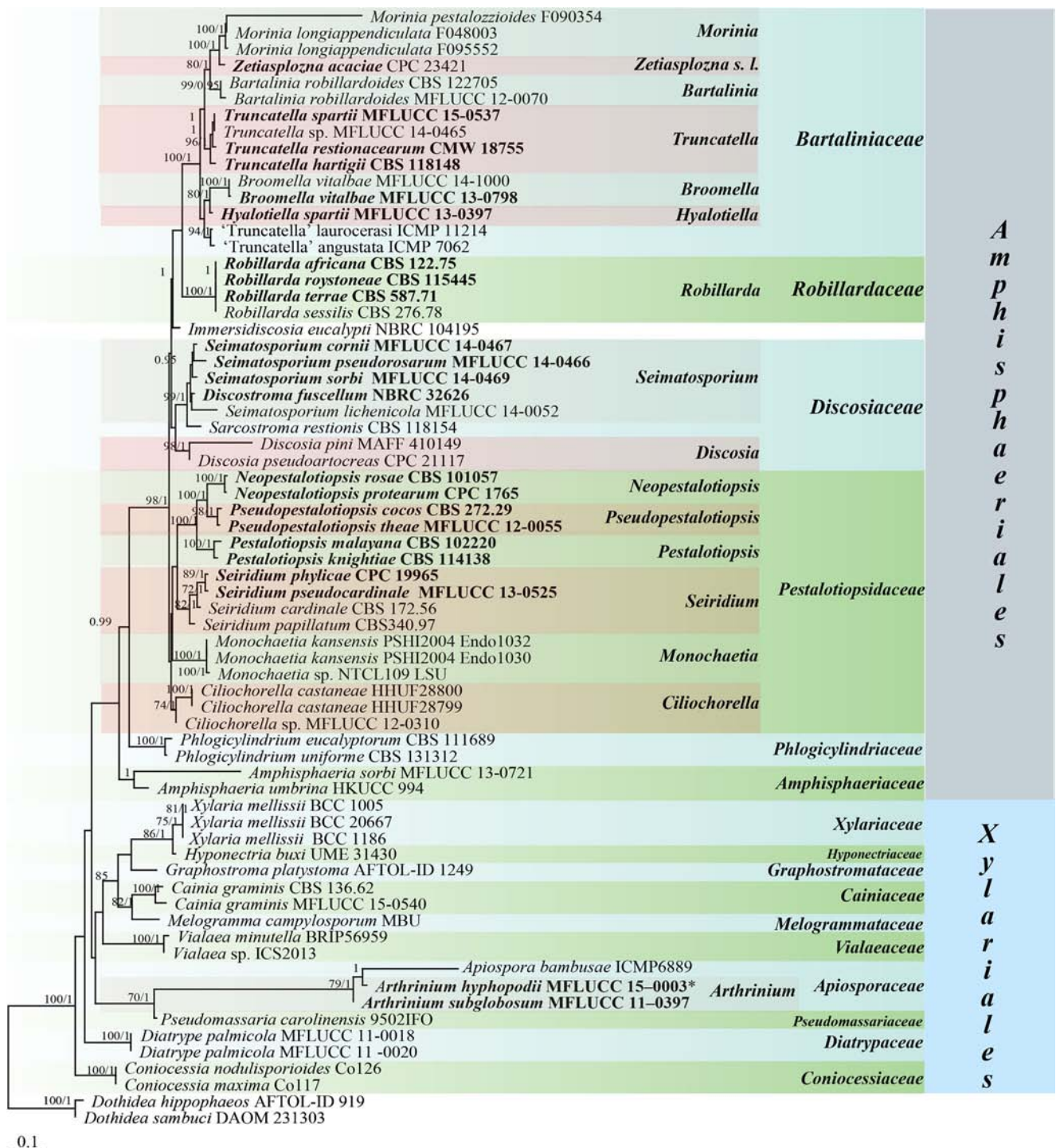
Saprobic on various substrates on a range of plant hosts. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, immersed, solitary, subglobose, brown to black, ostiolate. *Ostiole* central, circular. *Conidiomata* wall outer layer composed brown-walled cells of *textura angularis* or *textura epidermoidea*; inner layer hyaline, flattened, cells forming a *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, phialidic, ampulliform, branched, or rarely unbranched, determinate, hyaline. *Conidia* clavate, ellipsoid, ovoid or fusoid, apex rounded, base acute or truncate, muriform, with or without constrictions at septa, yellowish brown to brown, with apical gelatinous sheath, with or without gelatinous basal sheath. *Microconidia* present or absent, when present oval to ellipsoid, with broad rounded apex and truncate base, with minute marginal frill, aseptate, hyaline, smooth-walled (Eriksson 1982; Nag Raj 1989, 1993; Taylor and Hyde 2003; Abdel-Wahab et al. 2012).

Type species: ***Amarenographium metableticum*** (Trail) O.E. Erikss., *Mycotaxon* 15: 199 (1982)

≡ *Camarographium metableticum* (Trail) Grove, *British Stem- and Leaf-Fungi (Coelomycetes)* (Cambridge) 2: 108 (1937)

≡ *Camarosporium metableticum* Trail, *Scott. Natural., N.S.* 2 (‘8’): 267 (1886) [1885–1886]

Notes: Eriksson (1982) introduced *Amarenographium* to accommodate *Camarographium metableticum* (Trail) Grove, which is not congeneric with *C. stephensii*, the type species of



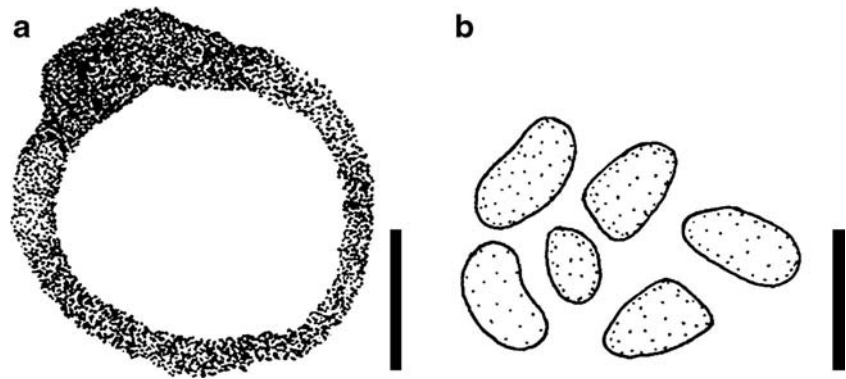
emphasized in bold. Families are indicated in different colours and named to the right of the tree. Dematiaceous coelomycetous genera are emphasized with an asterisk. The tree is rooted to *Dothidea hippophaeos* (AFTOL-ID 919) and *D. sambuci* (DAOM 231303)

(Eriksson 1982; Nag Raj 1993). Nag Raj (1993) stated that *Amarenographium metableticum* also has a microconidial stage.

Camarographium. *Amarenographium* shows distinct morphology from *Camarographium* with branched and long conidiogenous cells and appendage bearing conidia

(Eriksson 1982; Nag Raj 1993). Nag Raj (1993) stated that *Amarenographium metableticum* also has a microconidial stage.

Fig. 17 *Acaroconium punctiforme*. **a** Vertical section of conidioma. **b** Conidia. Scale bars: a = 20 μm , b = 10 μm (re-drawn from Kocourková and Hawksworth 2008)



Eriksson (1982) treated *Amarenomyces ammophilae* (Lasch) O.E. Erikss. as the sexual morph of *Amarenographium metableticum* as both species occur together and resemble each other in morphology. Nag Raj (1993) also mentioned *Amarenomyces* is the sexual morph of *Amarenographium*. However, this connection is not confirmed by molecular data or culture based methods, thus Phookamsak et al. (2014) and Wijayawardene et al. (2014c) treated *Amarenographium* and *Amarenomyces* as distinct genera in *Phaeosphaeriaceae*.

Amarenographium comprises three species viz. *A. metableticum*, *A. sinense* Joanne E. Taylor et al. (Taylor and Hyde 2003) and *A. solium* Abdel-Wahab et al. (Abdel-Wahab et al. 2012). Sequence data is available for *A. solium* and for the new species we introduce here. However, in our sequence analyses, *A. solium* groups as the sister clade to *Julella sensu stricto* with low bootstrap support (60 % in ML analysis) while our new strain groups in *Phaeosphaeriaceae*. The type species of *Amarenographium* lacks sequence data, hence, we treat *Amarenographium* as polyphyletic in *Pleosporales*.

Amarenographium ammophilae Wanasinghe, Camporesi, Wijayaw. & K.D. Hyde, *sp. nov.*

Index Fungorum number: IF551944; *Facesoffungi number*: FoF 01895; Fig. 23

Etymology: Named after the host genus

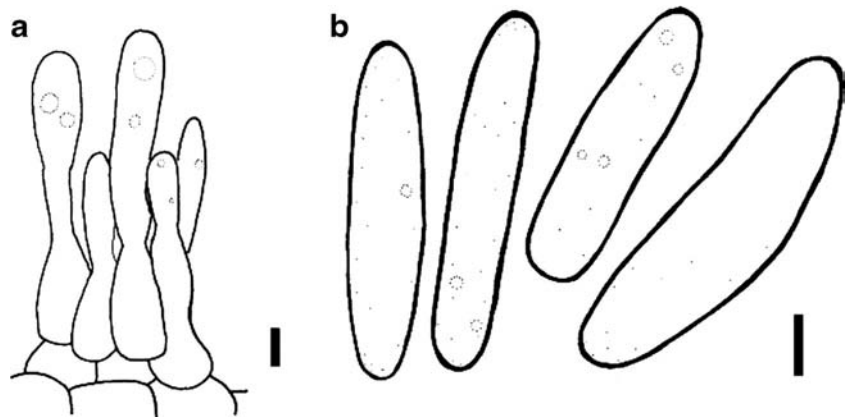
Holotype: MFLU 16–0240

Saprobic on various substrates on *Ammophila arenaria*.

Sexual morph: Undetermined. **Asexual morph**: *Conidiomata* 120–150 μm diam., 90–120 μm high, pycnidial, stromatic, solitary, immersed in the host, uni-loculate, globose to subglobose, dark brown to black, ostiolate, apapillate. *Conidiomata* wall composed of thin-walled, blackish to dark brown-walled cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, phialidic, ampulliform to cylindrical, unbranched, septate, hyaline, smooth. *Conidia* 30–50 \times 12–18 μm (\bar{x} = 39.9 \times 14.2 μm , n = 50), clavate, ellipsoid, ovoid or fusoid, apex rounded, base acute or truncate, muriform, constrictions at septa, yellowish brown to brown, with apical gelatinous sheath, and basal gelatinous sheath.

Culture characteristics: Culture on PDA: Colonies slow growing, reaching 30 mm diam., after three weeks, circular, olivaceous-grey, spreading, flattened, felt-like, sparse, aerial, surface, smooth with crenate edge, filamentous; reverse iron-grey. Sporulating after 4 weeks.

Fig. 18 *Alanphillipsia aloicola*. **a** Different stages of conidiogenesis. **b** Conidia. Scale bars: a, b = 10 μm (re-drawn from Crous et al. 2014c)



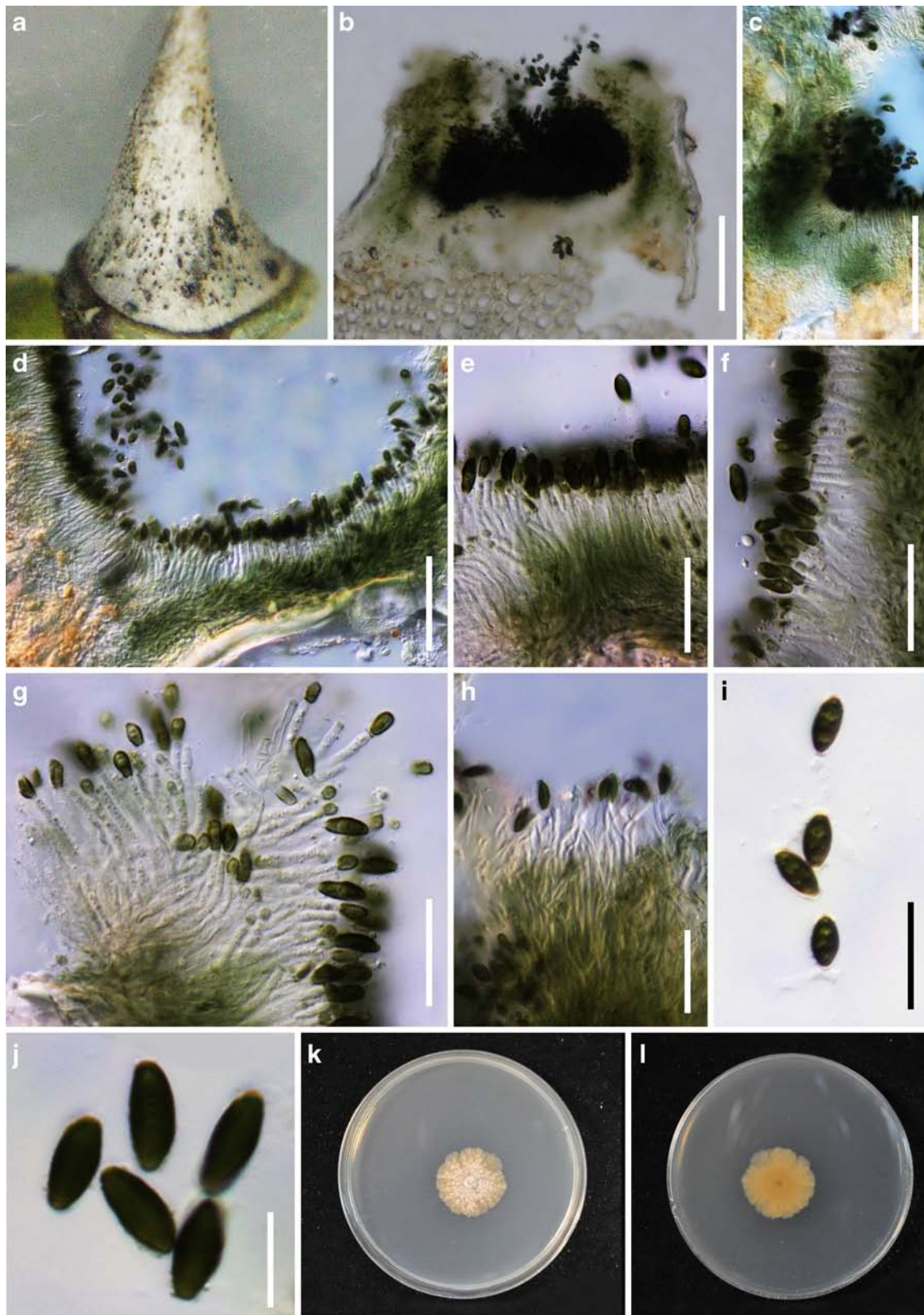


Fig. 19 Coelomycetous morph of *Alfaria cyperi-esculenti* (Material examined: Italy, Forli-Cesena [FC] Province, near Monte Pallareto – Meldola, on spines of *Rosa canina*, E. Camporesi, 10 December 2014, MFLU 15–3504). **a** Conidiomata on spine. **b** Vertical section of

conidioma. **c, d** Conidiomata walls. **e–h** Conidia attached to conidiophores. **i, j** Mature, dark brown conidia. **k, l** Colony characters on PDA medium (14 day old culture). Scale bars: **b, c** = 100 μ m, **d** = 50 μ m, **e–h** = 25 μ m, **i, j** = 10 μ m

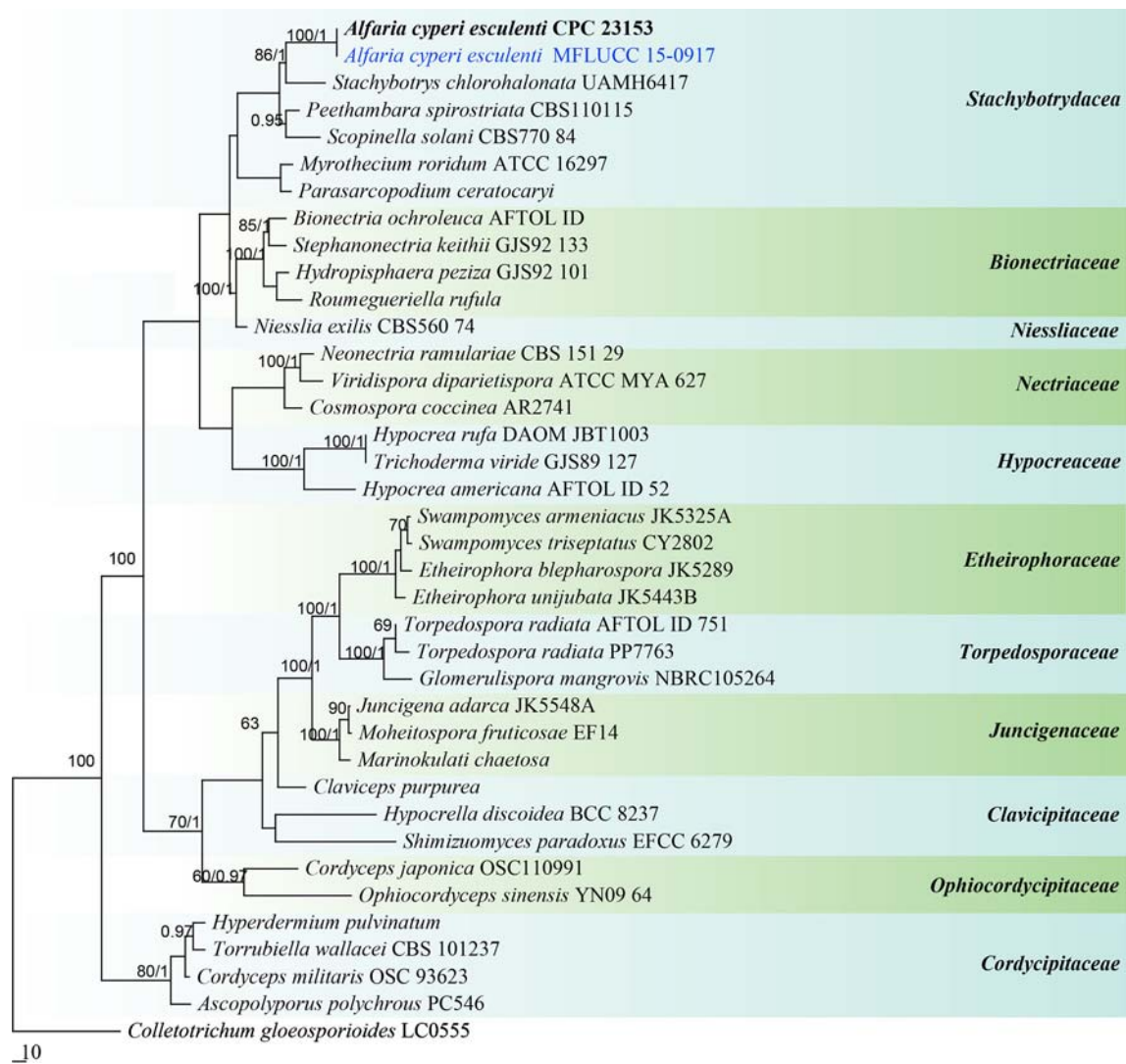


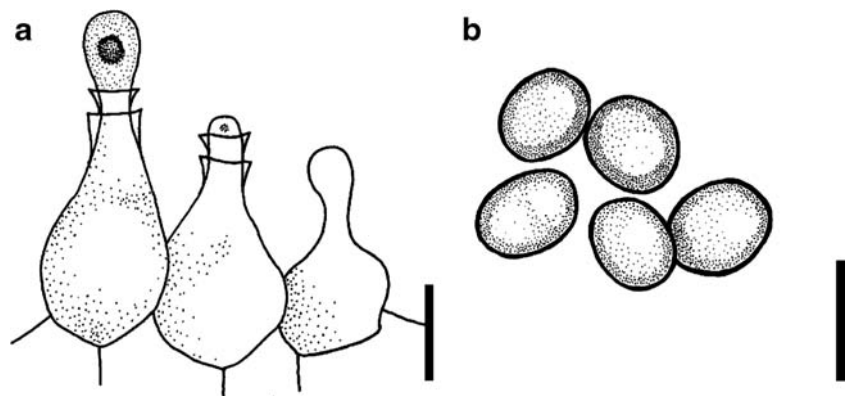
Fig. 20 The phylogram generated from parsimony analysis based on combined LSU and ITS sequence data of the order *Hypocreales*. Parsimony bootstrap support values greater than 50 % and PP values

greater than 0.95 are indicated above the nodes. Only ex-type (ex-epitype) and voucher strains are used and the new isolates are in blue. The tree is rooted with *Colletotrichum gloeosporioides* LC0555

Material examined: Italy, Ravenna [RA] Province, Lido di Dante, dead stems of *Ammophila arenaria* (*Poaceae*), 8

December 2014, Erio Camporesi, IT 2293 (MFLU 16–0240, **holotype**); ex-type living cultures MFLUCC 16–0296.

Fig. 21 *Alloconiothyrium aptrootii*. **a** Different stages of conidiogenesis. **b** Conidia. Scale bars: **a**, **b** = 10 μm (re-drawn from Verkley et al. 2014)



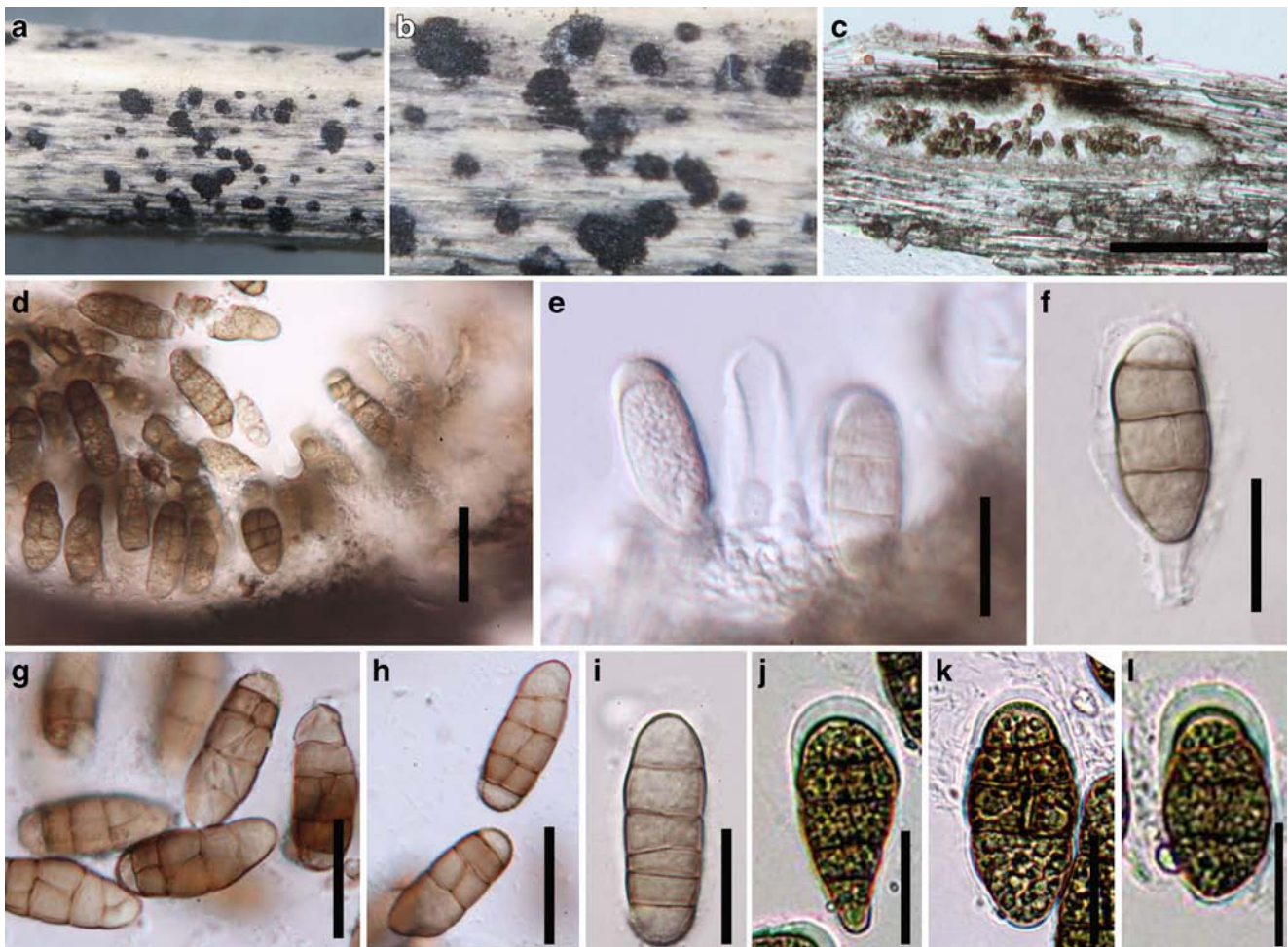


Fig. 22 *Amarenographium solium* (Material examined: SAUDI ARABIA, Yanbu, on decayed wood of *Avicennia marina* (Forsk.) Vierh., at mangrove stand on the Red Sea coast, 17 November 2011, M.A. Abdel-Wahab, MFLU 12-0059, holotype). **a** Host material with

conidiomata. **b** Conidiomata. **c** Vertical section of conidioma. **d** Conidia inside the conidioma. **e**, **f** Immature conidia attached to conidiogenous cells. **g–i** Immature conidia. **j–l** Mature conidia with apical gelatinous sheath. Scale bars: **c** = 120 μ m, **d** = 40 μ m, **e–l** = 25 μ m

Notes: Farr and Rossman (2016) reported *Amarenographium metableticum* from *Ammophila arenaria* (conidial dimensions: 22–30 \times 9–13 μ m *vide* Eriksson 1982). Our collection has larger conidia, thus we introduce a new species based on host association and morphology.

In phylogenetic analyses, *Amarenographium ammophilae* groups in *Phaeosphaeriaceae* (Fig. 9).

Amerosporium Speg., Anal. Soc. cient. argent. 13(1): 20 (1882)

See Index Fungorum for synonyms

Facesoffungi number: FoF 01420; Fig. 24

Leotiomyces, *Helotiales*, *Sclerotiniaceae*

Endophytic or *saprobic* on a range of plant hosts, associated with leaf spots of *Rosa alba* (*Rosaceae*). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* initially spherical, later collapsed irregularly, superficial, separate, unilocular, dark brown to black, occasionally

greenish black. *Conidiomata* wall pseudoparenchymatous, outer wall composed of thick-walled, dark brown cells of *textura angularis*; inner layer hyaline to pale brown. *Setae* sparse, irregularly inserted, straight, or slightly curved, unbranched, dark brown, verrucose, septate, thick-walled. *Paraphyses* restricted to the lateral wall, incurved, septate, hyaline. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, cylindrical, straight or slightly curved, determinate, discrete, hyaline, smooth. *Conidia* fusiform, apex conical, base often flattened, pale brown to olivaceous, aseptate, smooth-walled (Sutton 1980; Srivastava et al. 1981).

Type species: Amerosporium polynematoides Speg. [as ‘polinematoides’], Anal. Soc. cient. argent. 13(1): 21 (1882) = *Chaetomella cycadina* Ramachandra Rao & Baheker, Mycopath. Mycol. appl. 23: 266 (1964)

Notes: Spegazzini (1882) introduced *Amerosporium* with *A. polynematoides* as the type species. Sutton (1980) accepted

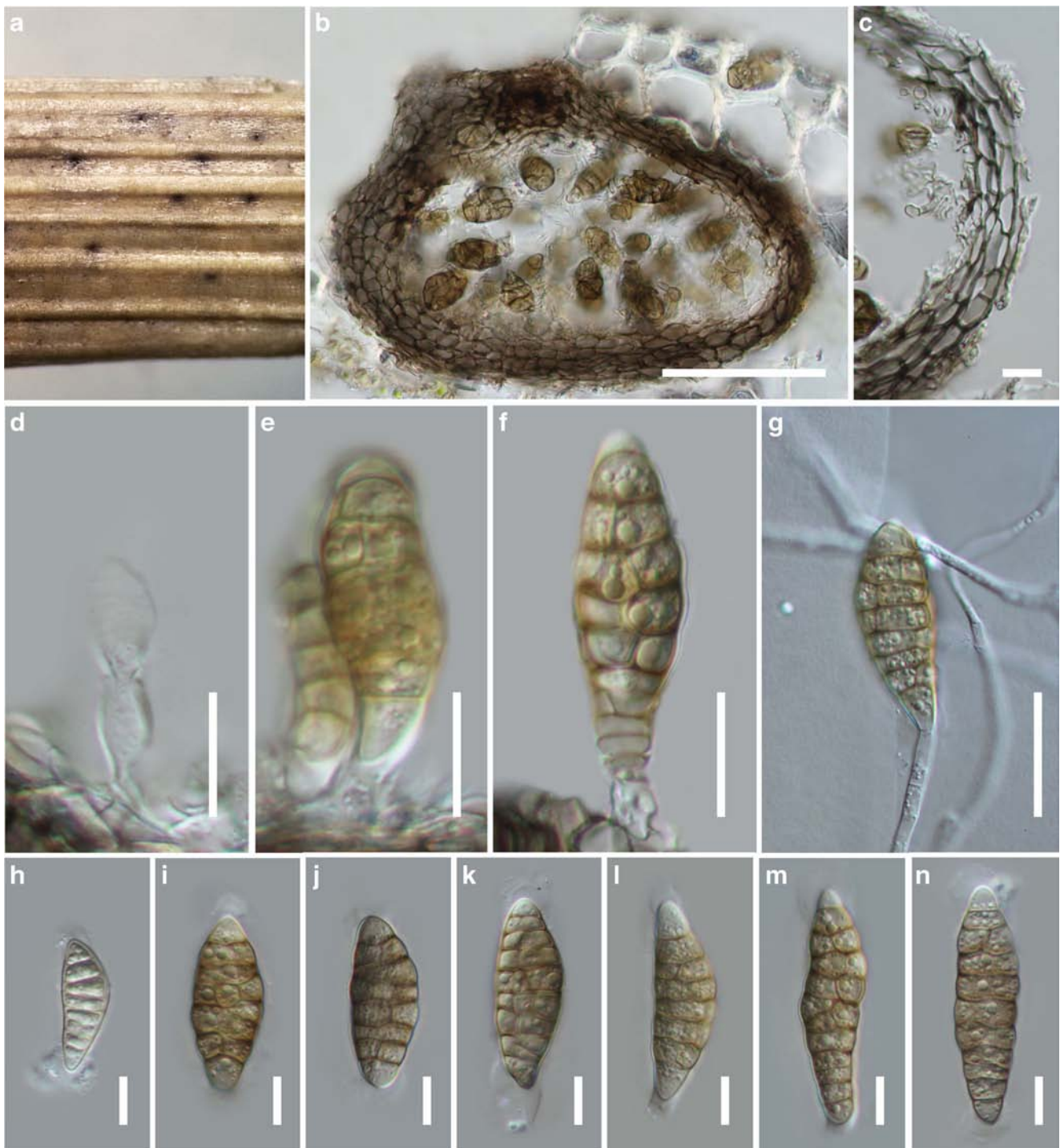


Fig. 23 *Amarenographium ammophilae* (holotype). **a** Conidiomata on host material. **b** Vertical section through a conidioma. **c** Conidioma wall. **d–f** Mature and immature conidia attached to conidiogenous cells. **g**

Germinated conidium. **h–n** Mature and immature conidia. Scale bars: **b** = 50 μm , **c–f**, **h–n** = 10 μm , **g** = 20 μm

only one other species, *A. caricum* Lib. ex Sacc., while Srivastava et al. (1981) introduced a third species, *A. circinatum* G. Srivast. et al. Johnston and Gamundi (2000) stated that *Amerosporium patellarioides* is the asexual morph of *Zoellneria* because of their close association on the one host.

Sutton (1977, 1980) and Kirk et al. (2008) accepted *Amerosporium* as a valid genus, but Kirk et al. (2013) did not treat it as a valid name. Nevertheless, we conclude that *Amerosporium* is a well established genus and should be treated as a legitimate name.

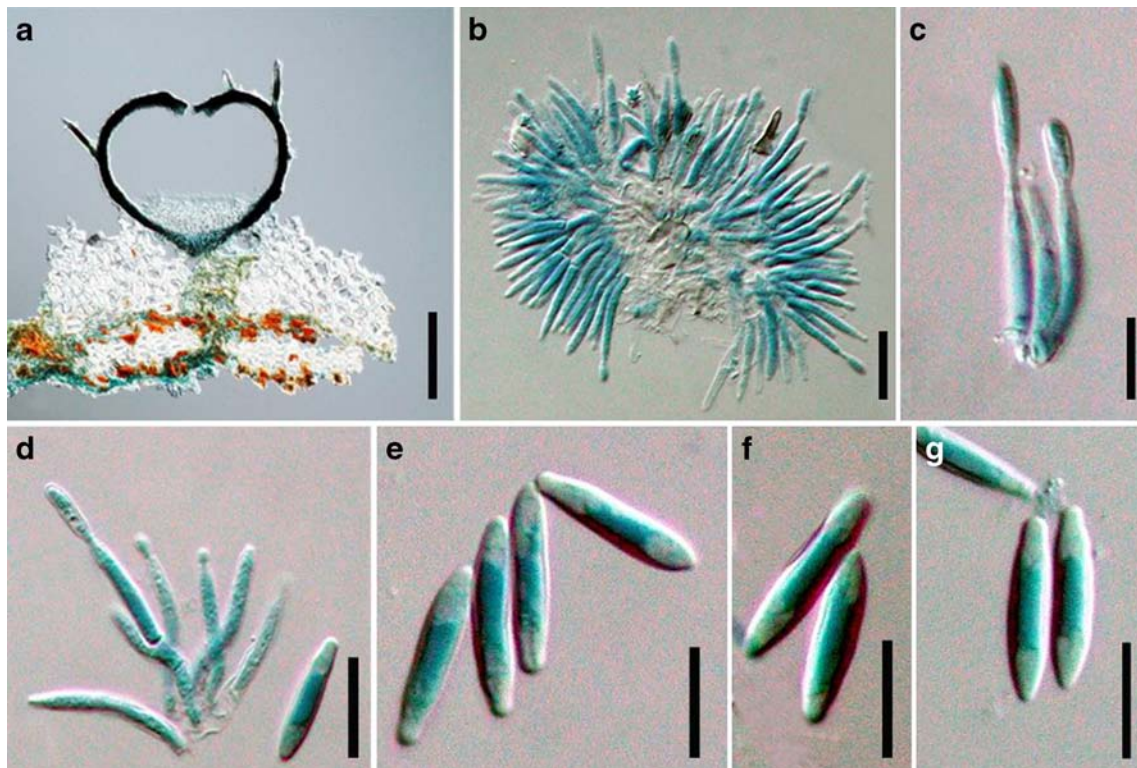


Fig. 24 *Amerosporium concinnum* (Material examined: Portugal, Oeiras, Quinta do Marquês, on dead cane of *Vitis vinifera*, January 1996, A.J.L. Phillips, LISE 94269). **a** Vertical section of conidioma. **b–**

d Different stages of conidiogenesis. **e–g** Conidia. (**b–g** stained by cotton blue in lactophenol). Scale bars: **a** = 500 μ m, **b–g** = 12 μ m

Ampelomyces Ces. ex Schltdl., Bot. Ztg. 10: 303 (1852)

= *Byssocystis* Riess, Hedwigia 1: 23 (1853)

= *Cicinobolus* Ehrenb., Bot. Ztg. 11: 16 (1853)

Facesoffungi number: FoF 01421; Fig. 25

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, *Pleosporineae*, *Phaeosphaeriaceae*

Hyperparasitic on *Erysiphales*. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, superficial, on or around hyphae of *Erysiphales*, solitary, globose to elongated, occasionally pyriform, unilocular, pale brown, occasionally papillate. *Conidiomata* wall composed of thick-walled, pale brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, doliiform to ampulliform, determinate, discrete, hyaline, smooth. *Conidia* cylindrical to fusiform, straight or curved, aseptate, pale brown, guttulate, thin and smooth-walled (Clare 1964; Sutton 1980).

Type species: *Ampelomyces quisqualis* Ces., Bot. Ztg. 10: 301 (1852); Fig. 25

Notes: Schlechtendal (1852) introduced *Ampelomyces* with *A. quisqualis* as the type species. This genus is well known as mycoparasites and used as biocontrol agents (Sztejnberg et al. 1989; Tsay and Tung 1991; Falk et al. 1995; Szentiványi and Kiss 2003).

In their sequence analyses, de Gruyter et al. (2009) and Aveskamp et al. (2010) showed *Ampelomyces quisqualis* grouped in *Phaeosphaeriaceae*. Phookamsak et al. (2014) and Wijayawardene et al. (2014c) also confirmed this familial placement and our sequence analyses also agree with their findings (Fig. 9).

Angiopomopsis Hohn, Sber. Akad. Wiss. Wien 121: 407 (1912)

Facesoffungi number: FoF 01422; Fig. 26

Ascomycota, genera *incertae sedis*

Endophytic or *saprobic* on dead leaves of *Poaceae* (Monocotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, immersed, subepidermal, separate, globose to subglobose, dark brown, ostiolate. *Ostiole* occasionally papillate, central. *Conidiomata* wall outer layer thick, composed of thick-walled, dark brown cells of *textura angularis*, inner layer thin-walled, hyaline cells of *textura angularis*. *Setae* ostiolar, straight or flexuous, unbranched, hyaline to subhyaline, 1–4-septate, smooth. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, doliiform or short cylindrical, indeterminate, discrete, hyaline, smooth. *Conidia* broadly cymbiform, apex obtuse, base truncate, straight or slightly curved, 3–

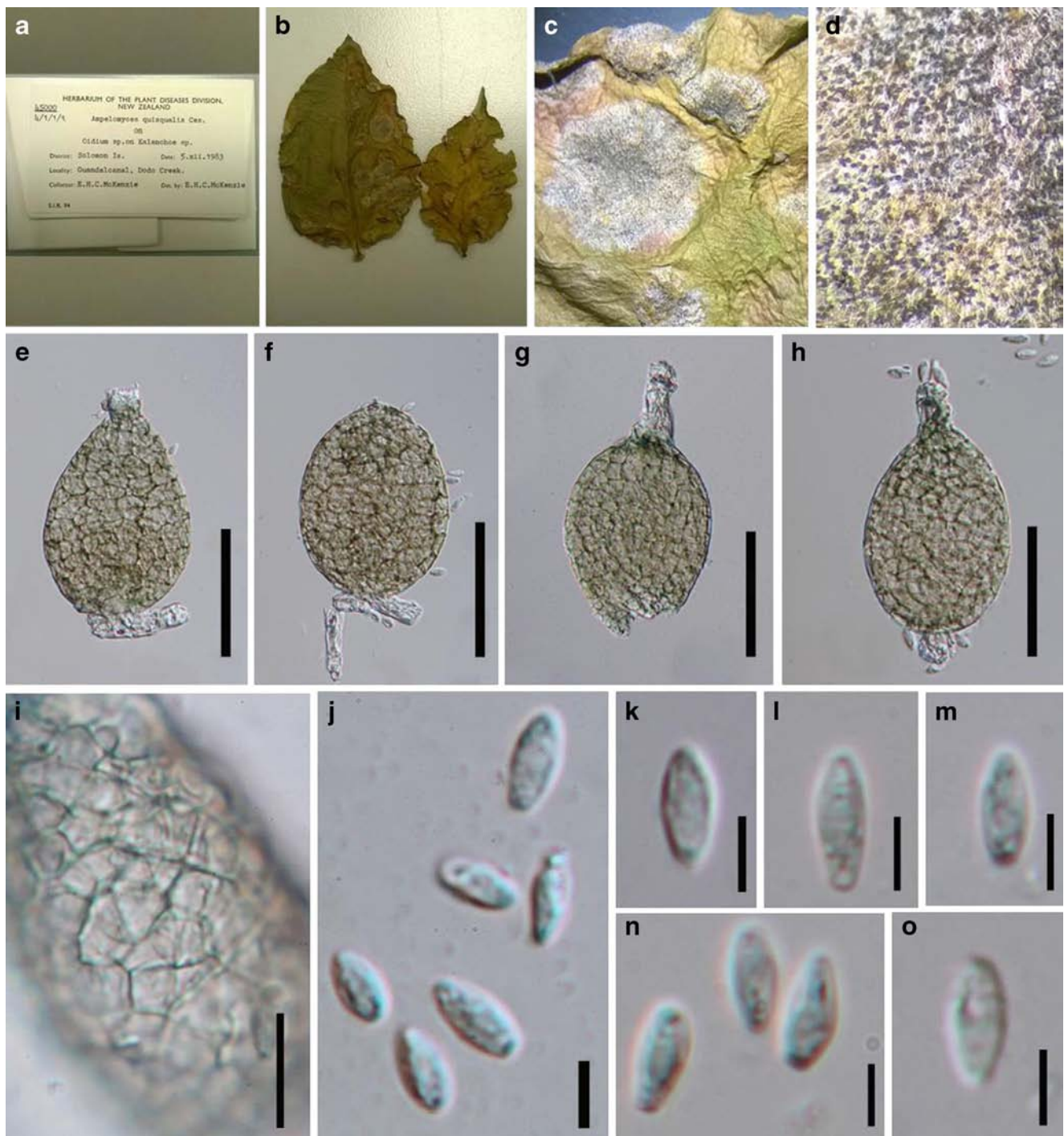


Fig. 25 *Ampelomyces quisqualis* (Material examined: New Zealand, Solman Island, Guandalcanal, Dodo Creek, on *Oidium* sp. occurring on *Kalanchoe* sp., 5 December 1983, E.H.C. McKenzie, PDD45000). **a** Label of herbarium material. **b** Herbarium materials. **c** Leaf spots

caused by *Oidium* sp. **d** Conidiomata of *Ampelomyces* on *Oidium* sp. **e–h** Squashed conidiomata. **i** Conidioma wall. **j–o** Conidia. Scale bars: **e–h** = 50 μ m, **i** = 25 μ m, **j–o** = 5 μ m

distoseptate, continuous, medium brown, thick-walled, verrucose (Sutton 1975c, 1980).

Type species: Angiopomopsis lophostoma Höhn., Sber. Akad. Wiss. Wien, Math.-naturw. Kl., Abt. 1 121: 407 (1912); Fig. 26

Notes: Von Höhnelt (1912) introduced *Angiopomopsis* with *A. lophostoma* as the type species. Saccardo and Trotter (1913) and Clements and Shear (1931) listed this genus as a synonym of *Wojnowicia* Sacc. however, Sutton (1975c) re-described the type species and treated it as a distinct genus. *Angiopomopsis* is a

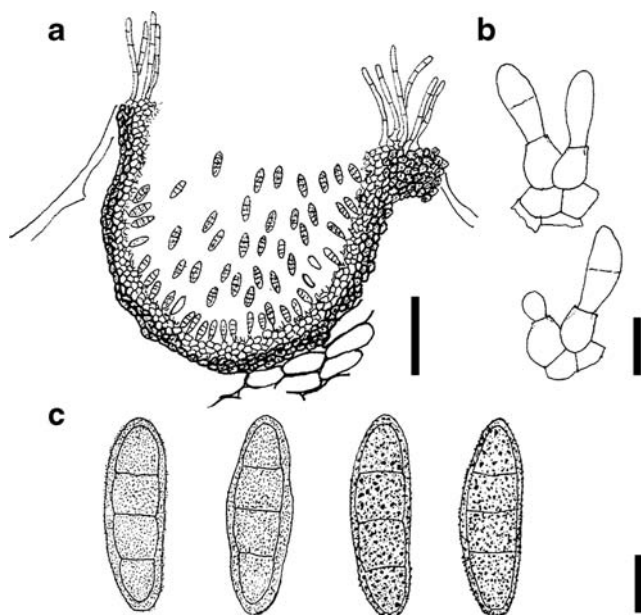


Fig. 26 *Angiopomopsis lophostoma*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a–d** = 5 μ m (re-drawn from Morgan-Jones 1977)

monotypic genus and sequences are not available; thus taxonomic placement is uncertain.

Annellolacinia B. Sutton, Mycol. Pap. 97: 31 (1964)

Facesoffungi number: FoF 01423; Fig. 27

Sordariomycetes, *Xylariomycetidae*, *Amphisphaeriales*, *Discosiaceae*

Pathogenic on leaves of *Bromeliaceae* (Monocotyledons).

Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* acervular, subcuticular, solitary. *Conidiomata* wall composed of thin-walled, pale brown cells of *textura angularis*. *Setae* mostly marginal, unbranched, straight, tapered to acute apices, thick-walled, septate at the base, smooth, dark brown. *Conidiophores* reduced to conidiogenous cells or branched, septate. *Conidiogenous cells* holoblastic, annellidic, discrete, indeterminate, cylindrical, hyaline to pale brown, smooth. *Conidia* falcate, fusiform, apex tapered into a single, cellular unbranched appendage, base truncate with a single, lateral, cellular, unbranched appendage, aseptate, pale brown, thin and smooth-walled, guttulate (Morgan-Jones et al. 1972b; Sutton 1980; Fröhlich et al. 1993; Nag Raj 1993).

Type species: *Annellolacinia dinemasporioides* B. Sutton, Mycol. Pap. 97: 33 (1964)

Notes: Sutton (1964) introduced *Annellolacinia* with *A. dinemasporioides* as the type species. Fröhlich et al. (1993) introduced *Annellolacinia pandanicola* J. Fröhl. et al. as the second species. Sequences data is unavailable in but we tentatively place it in *Discosiaceae* based on its appendaged conidia.

Apiculospora Wijayaw., Camporesi, A.J.L. Phillips & K.D. Hyde, *gen. nov.*

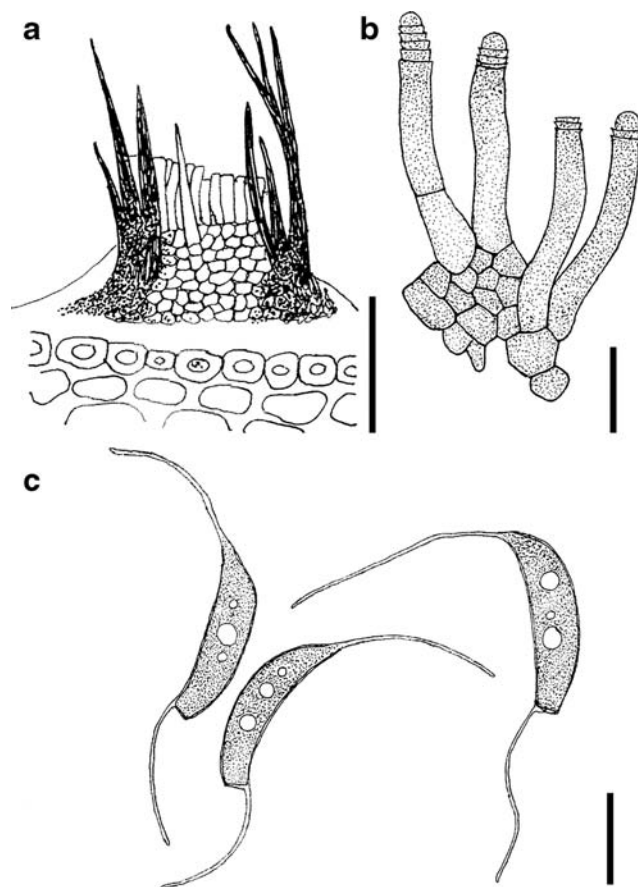


Fig. 27 *Annellolacinia dinemasporioides*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a, b** = 50 μ m, **c** = 10 μ m (re-drawn from Morgan-Jones et al. 1972b)

Index Fungorum number: IF551761; *Facesoffungi* number: FoF 01425

Etymology: Named after its conspicuous apiculus on the conidia

Leotiomycetes, *Helotiales*, genera *incertae sedis*

Saprobic on dead branches of *Spartium* sp. (*Leguminosae*, *Dicotyledons*). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, immersed, semi-erumpent at maturity, solitary, scattered, unilocular, globose, black. *Conidiomata* outer wall thin, composed of thick-walled, brown cells of *textura angularis*, inner wall thin, almost reduced to conidiogenesis region. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic with percurrent proliferation, subcylindrical to ovoid, discrete, indeterminate, hyaline, smooth. *Conidia* ellipsoid to subcylindrical, straight to slightly curved, base

Fig. 28 *Apiculospora spartii* (holotype). **a** Conidiomata on *Spartium junceum*. **b, c** Vertical sections of conidiomata. **d** Conidioma wall. **e–k** Different stages of conidiogenesis. **l–q** Conidia. Scale bars: **b, c** = 60 μ m, **d** = 20 μ m, **g–q** = 10 μ m



truncate, apex with apiculus, 1-septate, sometimes constricted at septum, pale brown to dark brown, guttulate, thick-walled, verruculose.

Type species: Apiculospora spartii Wijayaw., W.J. Li, Camporesi, A.J.L. Phillips & K.D. Hyde

Notes: In morphology, our new genus resembles *Placodiopodia* which also has enteroblastic, phialidic conidiogenesis and 1-septate, brown conidia (Sutton 1980). However, *Apiculospora* has a conspicuous apiculus and guttulate conidia, while *Placodiopodia* lacks these characters. In sequence analyses, *Apiculospora spartii* clusters in *Helotiales incertae sedis* (Fig. 9).

Apiculospora spartii Wijayaw., W.J. Li, Camporesi, A.J.L. Phillips & K.D. Hyde, *sp. nov.*

Index Fungorum number: IF551762; *Facesoffungi number:* FoF 01426; Fig. 28

Etymology: Named after the host genus

Holotype: MFLU 15–3556

Saprobic on dead branches of *Spartium junceum*. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* 160–220 μm diam., 120–140 μm high, pycnidial, immersed, semi-erumpent at maturity, solitary, scattered, unilocular, globose, black. *Conidiomata* outer wall 10–15 μm , composed of thin-walled, brown cells of *textura angularis*; inner wall thin, almost reduced to conidiogenesis region. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* 5–8 \times 2–4 μm , subcylindrical to ovoid, enteroblastic, phialidic with percurrent proliferation, discrete, indeterminate, hyaline, smooth. *Conidia* 17–25 \times 8–11 μm (\bar{x} = 21.3 \times 9.5 μm , n = 20), ellipsoid to subcylindrical, straight to slightly curved, base truncate, apex with apiculus, 1-septate, sometimes constricted at septum, pale brown to dark brown, guttulate, thick-walled, verruculose.

Culture characteristics: Culture on PDA: Colonies slow growing, reaching 10 mm diam., after one week, circular, whitened, spreading, flattened, felt-like, sparse, aerial, surface, smooth with crenate edge, filamentous; reverse yellowish in the central zone, whitened at the edge.

Material examined: Italy, Forli-Cesena [FC] Province, Castello di Corniolino - Santa Sofia, dead branch of *Spartium junceum* (*Leguminosae*), 25 October 2012, Erio Camporesi, IT 844 (MFLU 15–3556, **holotype**); (HKAS92537, **isotype**), ex-type living cultures MFLUCC 13–0400, *ibid.* IT844.

Notes: As far as we know, our taxon is morphologically distinct from other taxa recorded from *Spartium* spp. (Sutton 1980; Ellis and Ellis 1985; Nag Raj 1993; Farr and Rossman 2016). Hence, we introduced it as a new species.

Aplosporella Speg., Anal. Soc. cient. argent. 10(5–6): 157 (1880)

See Index Fungorum for synonyms

Fig. 29 *Aplosporella* spp. (Material examined: a-o-Pakistan, Changa Manga forest, on *Prosopis juliflora*, 18 November 1951, S. Ahmed, PDD 38013, as *Haplosporella prosopidina*). **a** Label of herbarium material. **b, c** Conidiomata on host. **d** Vertical section of conidioma. **e** Conidioma wall. **f–o** Conidia. (Material examined: p-3- New Zealand, Auckland, Wenderholm Regional park, Couldrey House track, on dead wood, 10 June 2008, S.M Hundorf and P.R. Johnston, PDD 94316). **p** Label of the herbarium material. **q** Host material. **r** Conidiomata on host. **s, t** Vertical sections of conidiomata. **u, v** Conidioma wall. **w** Paraphyses. **x–3** Conidia. Scale bars: **d** = 100 μm , **e** = 75 μm , **f–o**, **x–3** = 5 μm , **s**, **t** = 150 μm , **u** = 60 μm , **v** = 40 μm , **x** = 25 μm

Facesoffungi number: FoF 01427; Fig. 29

Dothideomycetes, order *incertae sedis*, *Botryosphaerales*, *Aplosporellaceae*

Saprobic or *endophytic* on various substrates on a range of plant hosts. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, immersed to semi-immersed, erumpent at maturity, solitary, often gregarious, pulvinate, rarely applanate, carbonous, dark brown, multilocular, ostiolate. *Ostiole* single, circular, central. *Conidiomata* wall thick walled, outer layer composed of thick-walled, dark brown cells of *textura angularis*, inner wall thin, hyaline. *Paraphyses* filiform, aseptate or septate, occasionally swollen at the apices, smooth, hyaline. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, filiform or cylindrical or doliiform, determinate, discrete, hyaline, smooth. *Conidia* ellipsoidal to subcylindrical, with rounded ends, aseptate, dark brown, occasionally guttulate, verrucose, thick-walled (Sutton 1980; Damm et al. 2007b; Slippers et al. 2013).

Type species: Aplosporella chlorostroma Speg., Anal. Soc. cient. argent. 10(5–6): 158 (1880)

Notes: The genus *Aplosporella* was introduced by Spegazzini (1880) with *A. chlorostroma* as the type species. Over 350 names are given in this genus in Index Fungorum (2016), but these names are mostly based on the host on which they occur (Damm et al. 2007b).

Crous et al. (2006a), Schoch et al. (2006), Damm et al. (2007b) and Liu et al. (2012) treated *Aplosporella* as a genus in *Botryosphaeriaceae*. However, Slippers et al. (2013) introduced a new family, *Aplosporellaceae* to accommodate *Aplosporella* and *Bagnisiella* as they group in a distinct clade in *Botryosphaerales*. Wijayawardene et al. (2014c) also confirmed this placement and accepted *Aplosporellaceae* as a distinct family in *Botryosphaerales*. Our sequence analyses (Fig. 9) also confirm the placement of *Aplosporellaceae* in *Botryosphaerales*.

Apharknessia Crous & S.J. Lee, Stud. Mycol. 50(1): 239 (2004)

Facesoffungi number: FoF 01428; Fig. 30

Sordariomycetes, *Sordariomycetidae*, *Diaporthales*, *Diaporthales*, genera *incertae sedis*



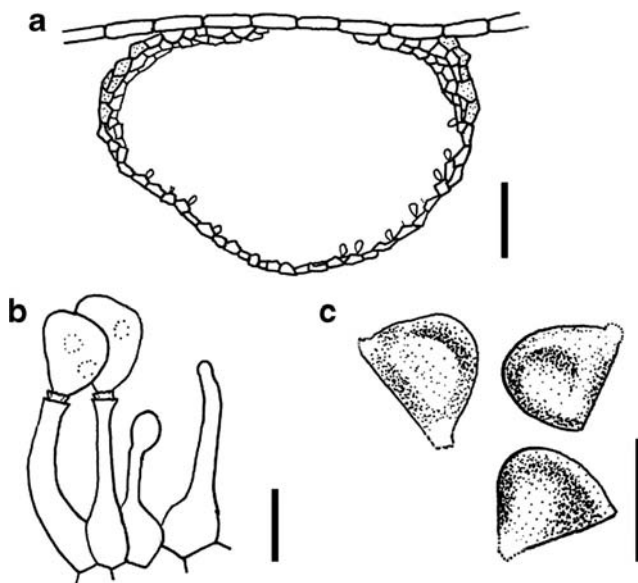


Fig. 30 *Apoharknessia insueta*. **a** Vertical section of conidioma. **b** Developing conidia attach to conidiogenous cells. **c** Conidia. Scale bars: **a** = 50 μm , **b**, **c** = 10 μm (re-drawn from Lee et al. 2004)

Endophytic or *saprobic* on *Myrtaceae* (Dicotyledons) or associated with leaf spots, ?*pathogenic*. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, sub-epidermal to immersed, solitary to gregarious, subglobose to irregular, unilocular, pale brown. *Conidiomata* wall outer layer composed of thin-walled, pale brown cells of *textura angularis*, inner layer pale yellow to hyaline. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* lageniform to ampulliform, hyaline, smooth, invested in mucus. *Conidia* conical, aseptate, brown, with a longitudinal band on the flat surface, thick and smooth-walled, guttulate, with short hyaline apiculus; with small globule of mucus on base (description modified from Nag Raj 1993 as *Harknessia insueta*).

Type species: *Apoharknessia insueta* (B. Sutton) Crous & S.J. Lee, Stud. Mycol. 50(1): 240 (2004); Fig. 30

\equiv *Harknessia insueta* B. Sutton, Mycol. Pap. 123: 20 (1971)

Notes: The genus *Apoharknessia* was introduced to accommodate *Harknessia insueta* as it clustered in a distinct phylogenetic lineage to *Harknessia sensu stricto* (Lee et al. 2004). In conidiogenesis and conidial morphology, *Apoharknessia* is similar to *Harknessia*, but it differs in culture characteristics and in phylogenetic analyses. In culture, *Apoharknessia* does not produce ‘fluffy aerial mycelium, but colonizes the agar by growing within the medium’ and sporulates much earlier than species of *Harknessia* (Lee et al. 2004). Lee et al. (2004) also observed that *Apoharknessia* forms conidia directly on hyphae, while *Harknessia* forms conidia in conidiomata.

Apoharknessia however, is phylogenetically distinct from *Harknessia sensu stricto* (Lee et al. 2004; Crous et al. 2012e).

Moreover, Crous et al. (2012e) showed both genera reside in *Diaporthales*, but *Apoharknessia* is placed between *Pseudovalsaceae* and *Diaporthaceae*. Our sequence analyses also show that *Apoharknessia* is phylogenetically distinct from *Harknessia sensu stricto* and resides as *Diaporthales*, genera *incertae sedis* (Fig. 12).

Arthrinium Kunze, Mykologische Hefte (Leipzig) 1: 9 (1817)
= *Apiospora* Sacc., Atti Soc. Veneto-Trent. Sci. Nat., Padova, Sér. 4: 85(1875)

Facesoffungi number: FoF 01781; Fig. 31

Sordariomycetes, *Xylariales*, *Apiosporaceae*

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** see Senanayake et al. (2015). **Asexual morph:** Coelomycetous or hyphomycetous. **Coelomycetous morph:** *Conidiomata* acervuli, solitary to gregarious, immersed, erumpent at maturity, irregular, black, carbonaceous, coriaceous. *Conidiomata* basal stroma composed of dark brown to hyaline-walled cells of *textura angularis*, with thick side walls, thin at upper and lower walls. *Setae* absent, or rarely present. *Conidiophores* cylindrical, 1–2-septate, verrucose, flexuous. *Conidiogenous cells* cylindrical, smooth or verrucose. *Conidia* globose to subglobose, dark brown, smooth-walled or with minute wall ornamentations, with a truncate basal scar (Crous and Groenewald 2013; Senanayake et al. 2015).

Type species: *Arthrinium caricicola* Kunze & J.C. Schmidt, Mykologische Hefte (Leipzig) 1: 9 (1817)

Notes: The genus *Arthrinium* was introduced by Schmidt and Kunze (1817) with *A. caricicola* as the type species, as a hyphomycetous genus (Kirk et al. 2008; Seifert et al. 2011). However, Senanayake et al. (2015) showed that a coelomycetous species, *A. hyphopodii* D.Q. Dai et al., with ‘globose to subglobose, dark brown conidia’ has phylogenetic lineage with *Arthrinium* in *Apiosporaceae* (Figs. 9 and 16).

Crous and Groenewald (2013) treated *Apiospora* as the sexual morph of *Arthrinium*. Further, Crous and Groenewald (2013) reduced younger sexual typified name i.e. *Apiospora* under the older asexual typified name.

Ascochytilina Petr., Anns mycol. 20(5/6): 342 (1922)

= *Clypeodiplodina* F. Stevens, Mycologia 19(5): 235 (1927)

Facesoffungi number: FoF 01429; Figs. 32 and 33

Ascomycota, genera *incertae sedis*

Endophytic or *saprobic* on dead stems of *Caprifoliaceae* (Dicotyledons), and associated with leaf lesions on *Pinaceae* (Gymnosperm). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, solitary or confluent, dark brown to black, globose or subglobose to irregular, to flattened and collabent, immersed, becoming erumpent at maturity,

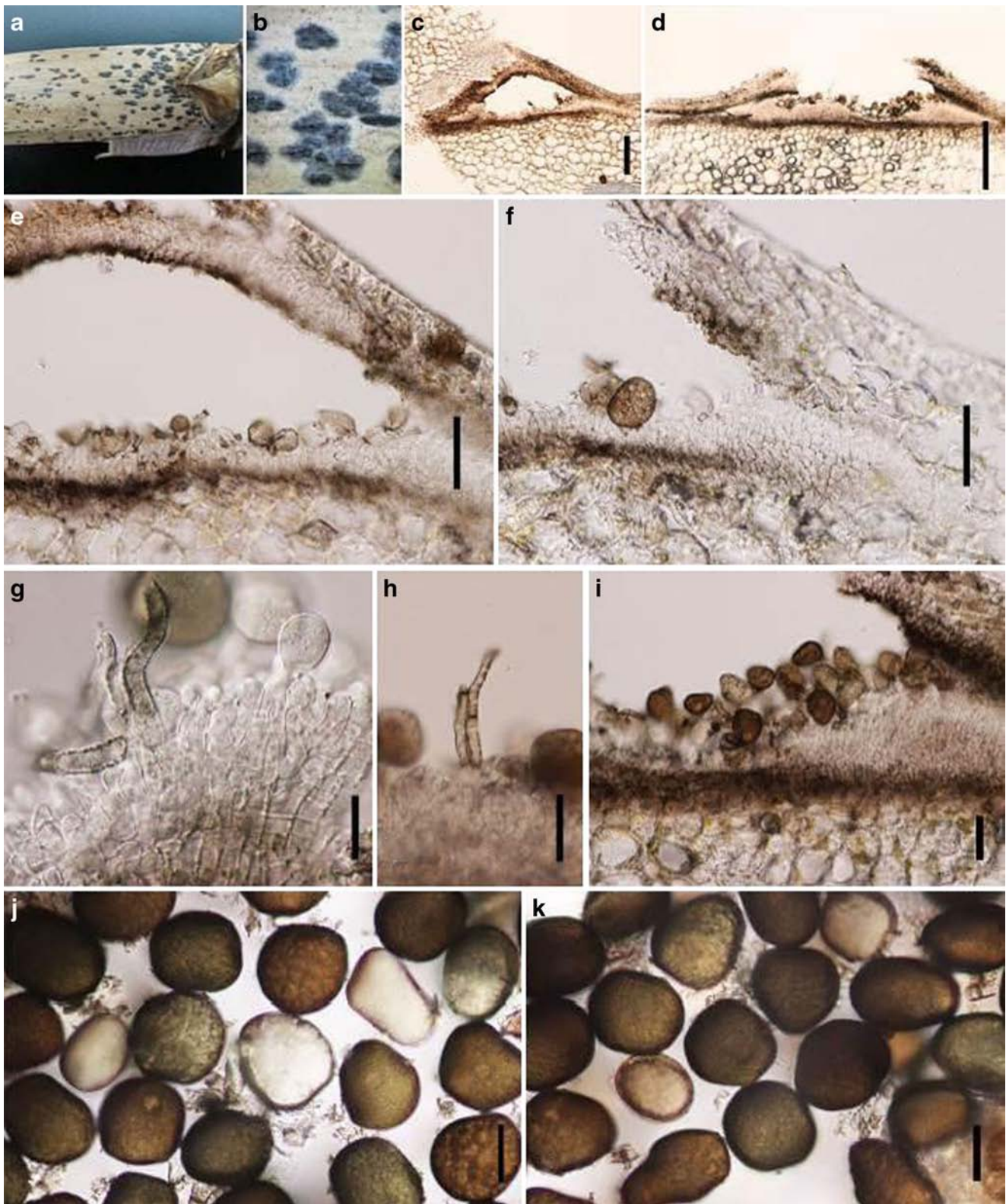
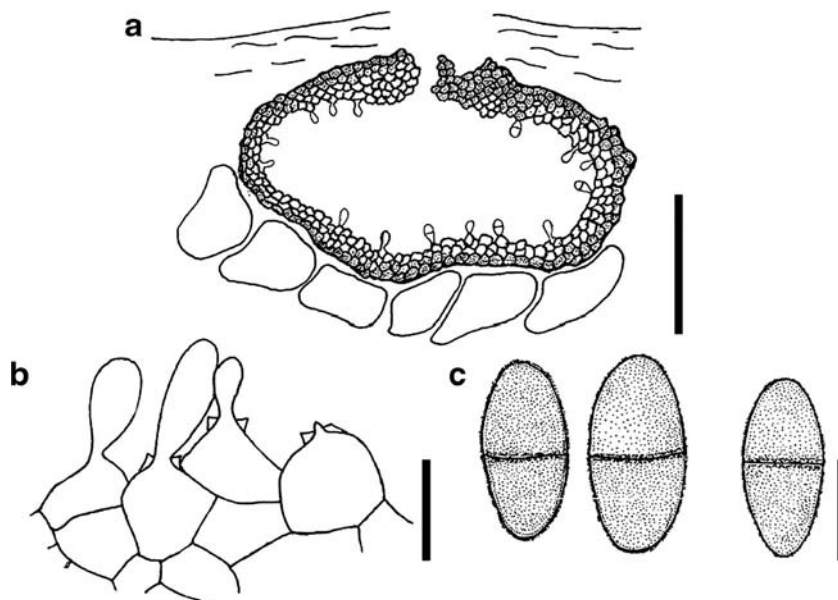


Fig. 31 *Arthrinium hyphopodii* (Material examined: CHINA, Kunming, Kunming Institute of Botany, Chinese Academy of Sciences, on dead culm of *Bambusa tuldooides*, 7 July 2014, D.Q. Dai, MFLU 15–0383, holotype). **a, b** Conidiomata on host. **c, d** Vertical sections of

conidiomata. **e, f** Conidiomata wall. **g, h** Conidiophores and conidiogenous cells. **i** Conidia attached to conidiogenous cells. **j, k** Conidia. Scale bars: **c, d** = 100 μ m, **e, f** = 50 μ m, **g–k** = 5 μ m

Fig. 32 *Ascochyulina deflectens*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 100 μm , **b**, **c** = 10 μm (re-drawn from Sutton 1980)



unilocular, clypeate, ostiolate. *Ostiole* papillate, central, circular. *Conidiomata* wall with two layers, outer wall composed of thick-walled, brown cells of *textura angularis*, inner layer composed of dark brown-walled cells of *textura intricata*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, doliiform to ampulliform, discrete, determinate, hyaline, smooth. *Conidia* ellipsoid, or cylindrical to oblong, base truncate, apex obtuse, 1-septate, continuous, pale green to pale brown, minutely verruculose (Sutton 1980; Evans and Punithalingam 1985; Punithalingam 1988).

Type species: Ascochyulina deflectens (P. Karst.) Petr., *Annls mycol.* 20(5/6): 342 (1922); Fig. 32

≡ *Diplodia deflectens* P. Karst., *Hedwigia* 23(1): 18 (1884)

Notes: Petrak (1922) introduced *Ascochyulina* with *A. deflectens* as the type species. Sutton (1980) accepted only the type species and treated it as a close member of *Pseudodiplodia* and *Stenocarpella*. Evans and Punithalingam (1985) introduced *A. pini-acicola* H.C. Evans & Punith. and discussed the similarities between *Ascochyulina* and *Pseudodiplodia*. Punithalingam (1988) introduced *A. smilacina* Punith. thus genus comprises 3 species. Sequence data is unavailable and taxonomic placement is uncertain.

The following key can be used to distinguish *Ascochyulina* from *Pseudodiplodia* and *Stenocarpella* species based on morphology.

Key to distinguish *Ascochyulina*, *Pseudodiplodia* and *Stenocarpella*

1. Conidia fusiform, 0–3-septate *Stenocarpella*

1. Conidia ellipsoid or cylindrical to oblong, 1-septate 2

2. Conidia pale green to pale brown, minutely verruculose *Ascochyulina*

2. Conidia pale brown, smooth *Pseudodiplodia*

Asterosporium Kunze, *Flora*, Regensburg 1: 225 (1819)

Facesoffungi number: FoF 01430; Figs. 34 and 35

Sordariomycetes, *Sordariomycetidae*, *Diaporthales*, genera *incertae sedis*

Endophytic, saprobic on *Betulaceae*, *Fagaceae*, *Juglandaceae* and *Sapindaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* acervular, subepidermal, erumpent at maturity, solitary, or occasionally confluent, unilocular, dark brown to black. *Conidiomata* wall composed of thin-walled, brown cells of *textura angularis*. *Conidiophores* cylindrical, branched at the base, septate, hyaline to pale brown. *Conidiogenous cells* holoblastic, cylindrical, unbranched, integrated, determinate, hyaline to pale brown, smooth. *Conidia* terminal, transversely distoseptate, consisting of four arms, lumina reduced, brown, smooth-walled.

Type species: Asterosporium asterospermum (Pers.) Hughes, *Can. J. Bot.* 36: 738(1958); Fig. 34

≡ *Stilbospora asterosperma* Pers. [as ‘asterospora’] 1801

= *Asterosporium hoffmannii* Kunze [as ‘hoffmannii’], *Flora*, Regensburg 1: 225 (1819)

Notes: Kunze (1819) introduced *Asterosporium* with *A. hoffmannii* as the type species. However, Hughes (1958) transferred the earlier named *Stilbospora asterosperma* Pers. to *Asterosporium* and thus Sutton (1980) recognized *Asterosporium asterospermum* as the accepted name for the type

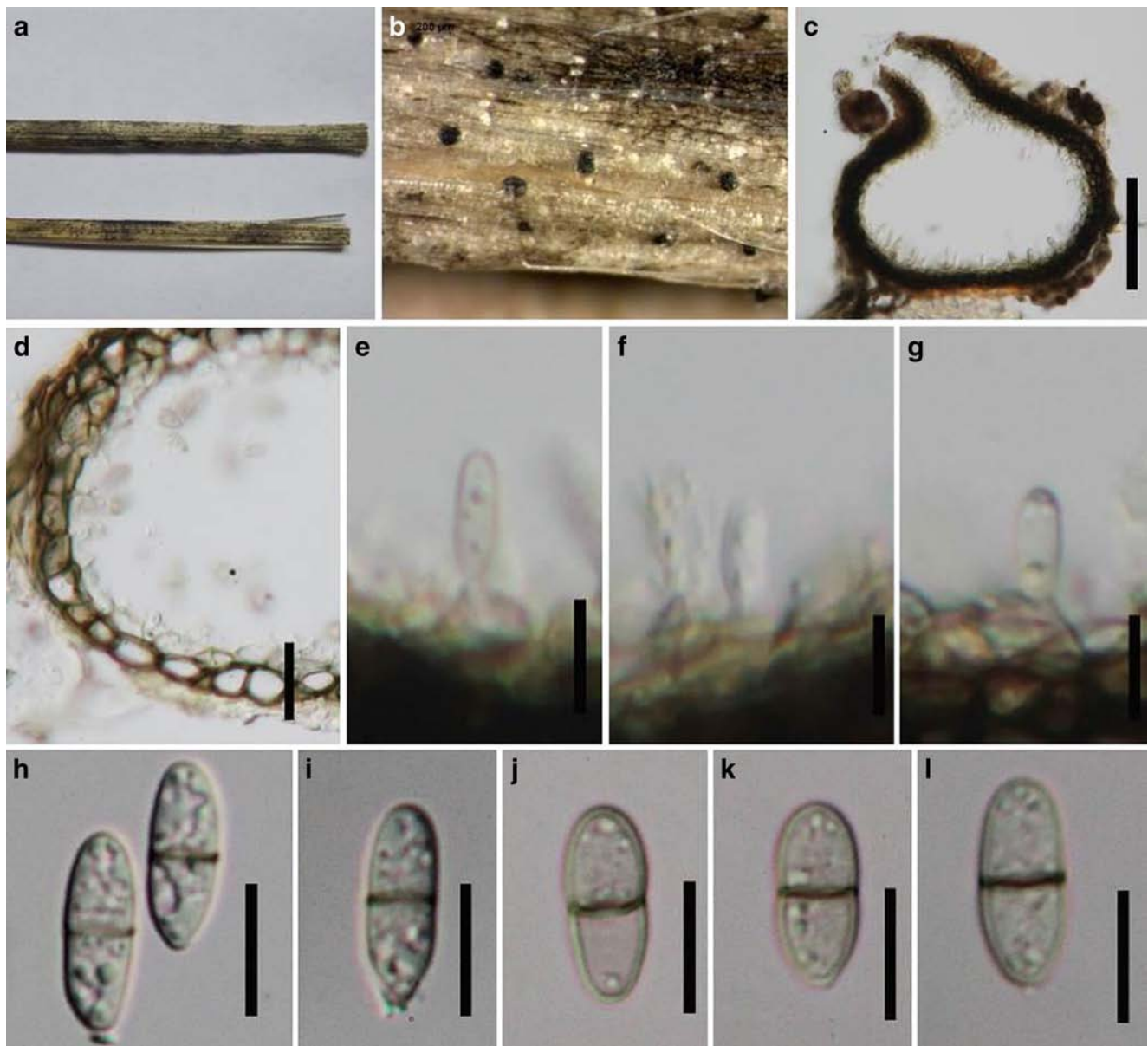


Fig. 33 *Ascochyulina* sp. (Material examined: Italy, Ravenna [RA] Province, on dead stems of *Salvia* sp., 30 December 2012, E. Camporesi, MFLU 16–0029). **a** Host material. **b** Conidiomata on host.

c Vertical section of conidioma. **d** Conidioma wall. **e–g** Different stages of conidiogenesis. **h–l** Conidia. Scale bars: **a** = 80 μ m, **d** = 25 μ m, **e–l** = 10 μ m

species. Members in this genus have mainly been recorded as endophytes from twigs of *Alnus* and *Betula* species in *Betulaceae* (Sutton 1980; Kowalski and Kehr 1996; Tanaka et al. 2010). Nine names are listed in Index Fungorum (2016) and eleven species epithets are listed in Robert et al. (2013). However, these records should be updated based on recent molecular results as *Asterosporium* shares close morphological features with *Prosthemium* (Kamiyama et al. 2009; Tanaka et al. 2010).

Sutton (1980) accepted two species, viz. *Asterosporium asterospermum* and *A. betulinum* Peck in the genus. Two species have since been introduced *A. attenuatum* Murvan. & Dekan. and *A. orientale* Mel'nik. *Asterosporium orientale* and *A. betulinum* were shown to belong in *Prosthemium*,

based on sequence analyses (Kamiyama et al. 2009; Tanaka et al. 2010). This confusion has occurred as both *Asterosporium* and *Prosthemium* share several morphological and ecological characters (Tanaka et al. 2010). Detailed taxonomic notes on *Asterosporium* and *Prosthemium* are provided under genus *Prosthemium*.

Tanaka et al. (2010) showed that *Asterosporium asterospermum* belongs to *Diaporthales*, genera *incertae sedis*, the sexual morph was not determined. Our sequence analyses also agree with Tanaka et al. (2010) (Figs. 9 and 12).

Asterosporium acerinum Wijayaw., Camporesi, McKenzie, Kaz. Tanaka & K.D. Hyde, *sp. nov.*

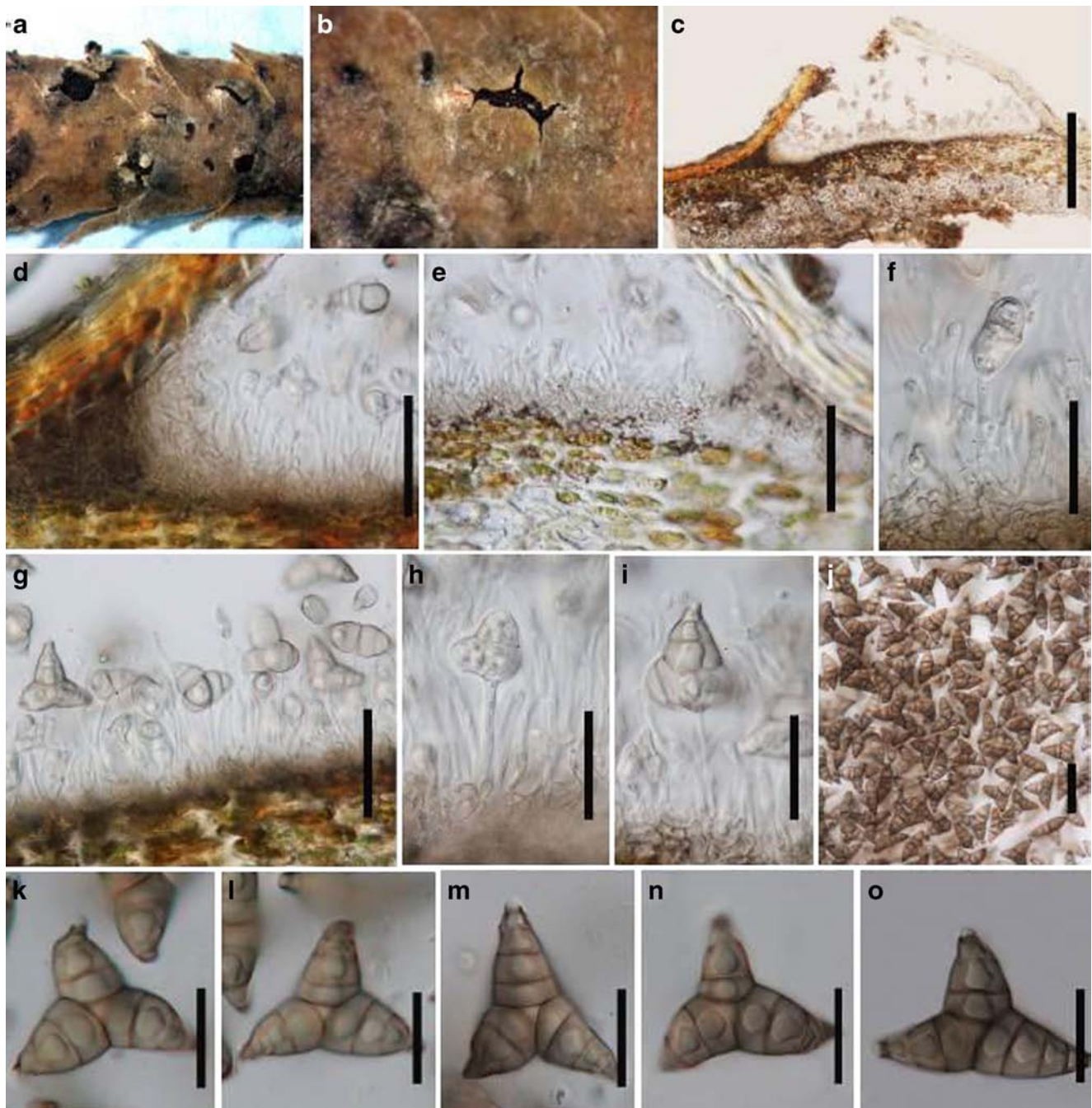


Fig. 34 *Asterosporium asterospermum*. (Material examined: Italy, Forlì-Cesena [FC] Province, near Passo la Calla - Santa Sofia, on dead branch of *Fagus sylvatica*, 29 September 2012, E. Camporesi, MFLU 15-3555 = HKAS92536). **a, b** Conidiomata on host plant. **c** Vertical

section of conidioma. **d, e** Conidiomata wall. **f-i** Different stages of conidiogenesis. **j-o** Conidia. Scale bars: **c** = 400 μm , **d, e** = 50 μm , **f, k-o** = 20 μm , **g-j** = 30 μm

Index Fungorum number: IF551763; *Facesoffungi* number: FoF 01431; Fig. 35

Etymology: Named after the host genus

Holotype: MFLU 15-3412

Saprobic on branches of *Acer opalus* (*Sapindaceae*). **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* 130–160 μm diam., 70–110 μm high, acervular, immersed, erumpent at maturity, solitary, subglobose, unilocular, dark brown.

Conidiomatal wall multi-layered, composed of thin-walled, brown cells of *textura angularis*, inner wall thin, hyaline. *Conidiophores* 15–35 \times 2–4 μm , cylindrical, septate, only branched at the base, hyaline to pale brown, formed from the upper pseudoparenchyma, smooth-walled. *Conidiogenous cells* holoblastic, lacking percurrent proliferation, integrated, determinate, cylindrical, simple, hyaline to pale brown, smooth-walled. *Conidia* 35–50 \times 42–50 μm (\bar{x} = 39.4 \times 45.4 μm ,

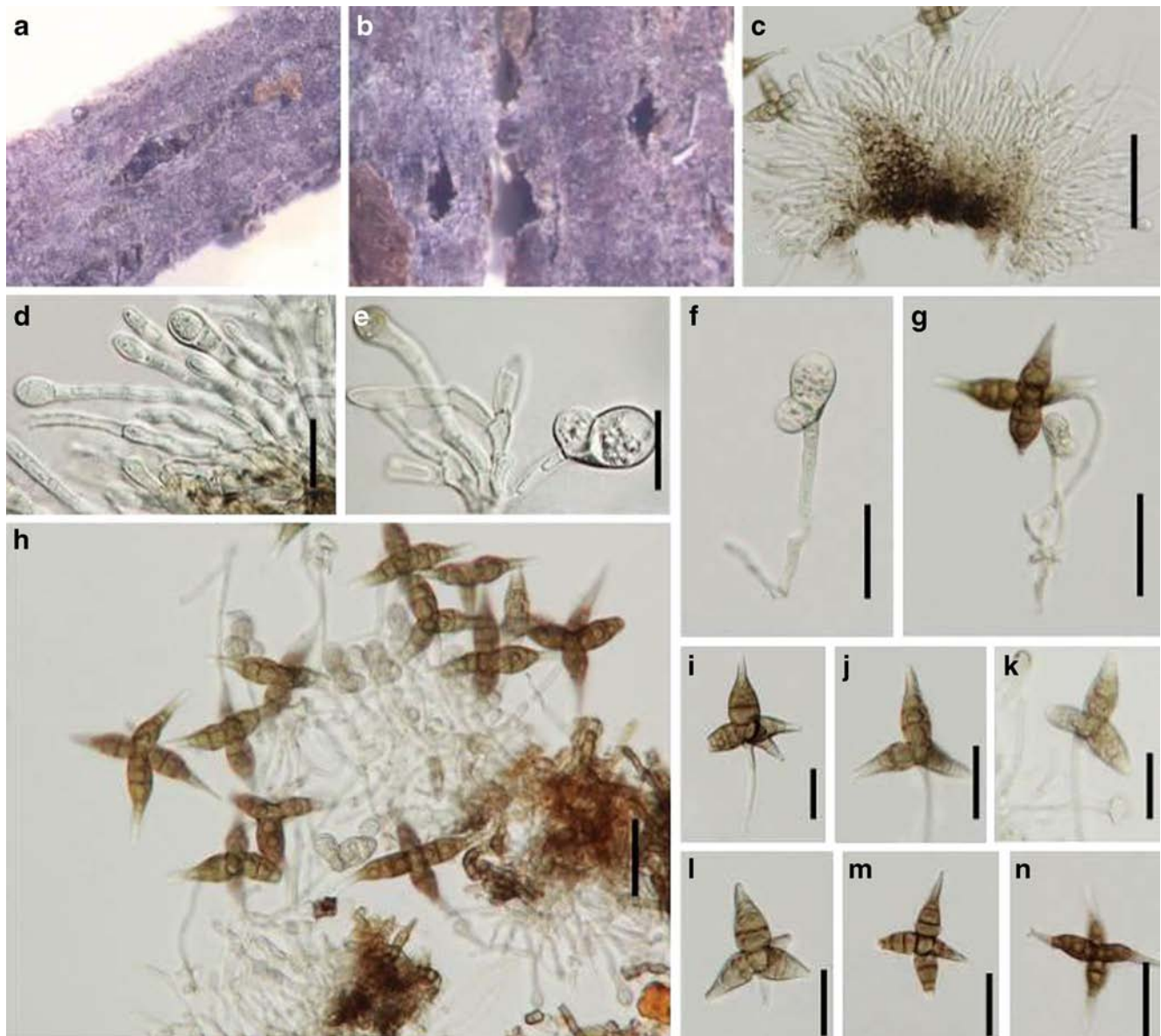


Fig. 35 *Asterosporium acerinum* (holotype). **a, b** Conidiomata on *Acer opalus*. **c** Vertical section of a conidioma. **d–g** Different stages of conidiogenesis. **h–n** Conidia. Scale bars: **c** = 50 μm , **d, e** = 10 μm , **f–k** = 20 μm

$n=20$) between the widest points, stellate, terminal, transversely distoseptate, constricted at the septa, lumina reduced, pale brown to brown, apical cell of each arm hyaline, consisting of 4 arms at 90° to each other, connected to the conidiogenous cell at the point where they meet, smooth-walled.

Material examined: Italy, Firenze [FI] Province, Vallombrosa, on dead branch of *Acer opalus* (*Sapindaceae*), 5 June 2012, Erio Camporesi, IT 406 (MFLU 15–3412, **holotype**); (HKAS 92542, **isotype**).

Notes: Only *Asterosporium attenuatum* has been recorded from *Acer* spp. (from *Acer campestre*) (Sutton 1980; Ellis and Ellis 1985; Murvanishvili and Dekanoidze 1992; Farr and Rossman 2016; Index Fungorum 2016). The

conidia of *A. acerinum* are similar in shape to those of *A. attenuatum*, but they are smaller ($35\text{--}50 \times 42\text{--}50 \mu\text{m}$ vs. $57\text{--}84 \times 21\text{--}24 \mu\text{m}$). The conidiophores of *A. acerinum* are also smaller, than those of *A. attenuatum* ($60\text{--}80 \times 5.6 \mu\text{m}$ vs. $15\text{--}35 \times 2\text{--}4 \mu\text{m}$).

Several attempts of single conidial isolation were not successful. Moreover, we carried out direct sequencing but the sequence data composed with several bands.

Avettaea Petr. & Syd., Beih. Reprim nov. Spec. Regni veg. 42: 299 (1927)

Facesoffungi number: FoF 01432; Fig. 36

Ascomycota, genera *incertae sedis*

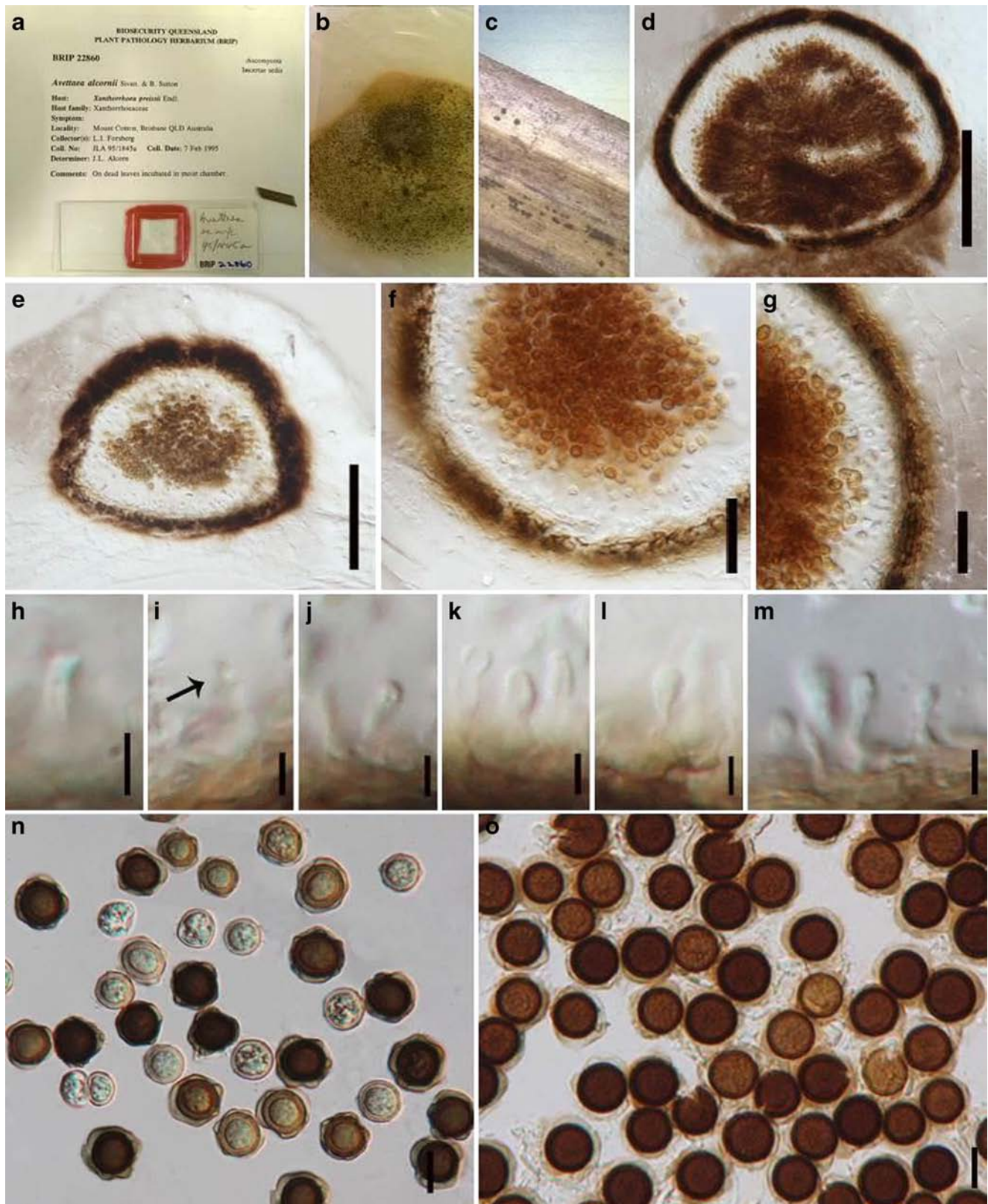


Fig. 36 *Avetiaea alcornii* (Material examined: Australia, Queensland, Brisbane, Mount Cotton, on stem of *Xanthorrhoea preissii*, 7 February 1995, L.I. Forsberg, BRIP 39816). **a, b** Herbarium label and material. **c** Dried culture with conidiomata. **d, e** Vertical sections of conidiomata. **f, g**

Conidiomata wall. **h** Conidiogenous cell. **i–m** Different stages of conidiogenesis. **n, o** Conidia. Scale bars: **d, e** = 50 μm , **f, g, n, o** = 10 μm , **h–m** = 5 μm

Endophytic or *saprobic* on a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial to stromatic, solitary to gregarious, unilocular, sphaerical to oblong, dark brown to black, occasionally ostiolate. *Ostiole* papillate, single, circular, central. *Conidiomata wall* composed of two layers, outer layer composed of thick-walled, brown cells of *textura angularis*, inner layer composed of thin-walled, hyaline cells of *textura angularis*. *Paraphyses* present or absent, when present cylindrical, straight to flexuous, hyaline. *Conidiophores* reduced to conidiogenous cells or rarely present, when present short, septate, hyaline, cylindrical, smooth. *Conidiogenous cells* holoblastic, with periclinal thickening, cylindrical, ampulliform to doliiform, discrete or rarely integrated, hyaline. *Conidia* globose, oblong to pyriform, truncate to obtuse base, aseptate, golden brown to dark brown, thick-walled, verruculose or smooth-walled, covered by flexible, irregular, convoluted outer wall when immature, becoming less conspicuous at maturity, with or without enclosed in mucilaginous sheath (Sivanesan and Sutton 1985; Abbas and Sutton 1988a).

Type species: Avettaea philippinensis Petr. & Syd., Beih. Rep. spec. nov. regn. veg. 42: 299 (1927)

Notes: Petrak and Sydow (1927) introduced *Avettaea* with *A. philippinensis* as the type species. In morphology, *Avettaea* resembles *Aplosporella* and *Sphaeropsis*. Taxonomic key is provided under *Sphaeropsis* to distinguish *Avettaea*, *Aplosporella* and *Sphaeropsis*. Besides the type species, the genus comprises i.e. *A. alcornii* Sivan. & B. Sutton and *A. salvadorae* (Petr.) Abbas & B. Sutton (Sivanesan and Sutton 1985; Abbas and Sutton 1988a). Sequence data is unavailable, thus taxonomic placement is uncertain.

Key to distinguish species of *Avettaea*

1. Paraphyses absent 2
1. Paraphyses present *A. salvadorae*
2. Conidia without mucilaginous sheath at maturity *A. philippinensis*
2. Conidia enclosed in mucilaginous sheath at maturity *A. alcornii*

Bambusicola D.Q. Dai & K.D. Hyde, Cryptog. Mycol. 33(3): 367 (2012)

Facesoffungi number: FoF 01433; Figs. 37 and 38

Dothideomycetes, Pleosporomycetidae, Pleosporales, Massarineae, Bambusicolaceae

Saprobic on decaying bamboo culms *Poaceae* (Monocotyledons). **Sexual morph:** see Dai et al. (2012); Hyde et al. (2013). **Asexual morph:** *Conidiomata* pycnothyrial, solitary, scattered, immersed to half-immersed, erumpent at maturity, acerose or subglobose, unilocular. *Conidiomata wall* multi layered, outer layer thick, composed of dark brown-

walled cells of *textura angularis*, inner layer thin, hyaline. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, annellidic, discrete, determinate, cylindrical, smooth-walled. *Conidia* cylindrical, straight or slightly curved, obtuse apex and base, 1–3-septate, continuous or rarely constricted at the septa, pale brown to dark brown, guttulate, thin and smooth-walled (Dai et al. 2012; Hyde et al. 2013).

Type species: Bambusicola massarinia D.Q. Dai & K.D. Hyde, Cryptog. Mycol. 33(3): 370 (2012); Fig. 37

Notes: Dai et al. (2012) introduced *Bambusicola* with *B. massarinia* as the type species. Currently the genus comprises four species (Dai et al. 2012; Index Fungorum 2016). Sequence analyses of the genus showed distinct phylogenetic lineage in *Pleosporales* (Dai et al. 2012), thus Hyde et al. (2013) introduced *Bambusicolaceae* to accommodate the members of *Bambusicola* (Fig. 9).

Key to species of *Bambusicola**

1. Conidia pale brown to brown, cylindrical, 1-septate.....***B. massarinia***
1. Conidia pale brown to brown, cylindrical, 3-septate.....2
2. Conidia 20–30 × 3.5–5 μm.....***B. splendida***
2. Conidia 15–18 × 1.5–3 μm.....***B. irregulispora***

**Bambusicola bambusae* D.Q. Dai & K.D. Hyde was described without an asexual morph and is thus not included in the key

Barnettella D. Rao & P. Rag. Rao, Mycopath. Mycol. appl. 22: 56 (1964)

= *Vinculum* R.Y. Roy et al., Trans. Br. mycol. Soc. 48(1): 113 (1965)

Facesoffungi number: FoF 01434; Fig. 39

Ascomycota, genus incertae sedis

Endophytic or *saprobic* on *Poaceae* (Monocotyledons).

Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* stromatic, acervuli, irregular, superficial or submerged, erumpent at maturity, brown. *Conidiomata wall* comprised of thin-walled, pale brown cells of *textura angularis*. *Conidiophores* meristematic, unbranched, straight, pale brown, smooth-walled. *Conidiogenous cells* holothallic, integrated, fragmenting. *Conidia* formed in long, unbranched, basipetal chains, muriform, globose, dark brown, smooth-walled (Rao and Rao 1964; Sutton 1980; Nag Raj and DiCosmo 1981b).

Type species: Barnettella speciosa D. Rao & P. Rag. Rao, Mycopath. Mycol. appl. 22: 56 (1964); Fig. 39

Notes: Rao and Rao (1964) introduced *Barnettella* with *B. speciosa* as the type species. Subsequent studies by Rao (1970), Rao and Rao (1973) added two more species. Sutton

(1977, 1980) accepted *Barnettella* as a coelomycetous genus and stated the conidiomata as ‘stromatic’, while the original descriptions noted them as ‘acervuli’. Further, Sutton (1980) stated, ‘the conidioma, is however, not typically acervular, for it is superficial, neither it really strictly sporodochial for there are certainly pseudolocular cavities in it’. Nag Raj and DiCosmo (1981) re-described the type species and accepted the conidiomata as stromatic.

Barnettella is listed in Kirk et al. (2008), but it is not included in Kirk et al. (2013). We suggest this as a well-established genus and should be included in protected list of names.

Barriopsis A.J.L. Phillips et al., Persoonia 21: 39 (2008)

Facesoffungi number: FoF 01679; Fig. 40

Dothideomycetes, order *incertae sedis*, *Botryosphaeriales*, *Botryosphaeriaceae*

Endophytic or *saprobic* on a range of host plants. **Sexual morph:** see Phillips et al. (2008, 2013); Doilom et al. (2015). **Asexual morph:** *Conidiomata* stromatic or pycnidial, solitary to gregarious, superficial to subepidermal, un- or multi-locular, dark brown to black, ostiolate. *Ostiole* apiculate, central, circular. *Paraphyses* present or absent, if present, arising from the conidiogenous layer, extending above the level of developing conidia, thin-walled, hyaline, mostly aseptate. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic to phialidic, or proliferating at the apex, cylindrical, hyaline, thin and smooth-walled, forming periclinal thickenings. *Conidia* oval or cylindrical, both ends broadly rounded, thick-walled, initially hyaline, pale brown to brown, 0–3-septate, with longitudinal striations at maturity, smooth-walled. *Chlamydospores* present or absent, catenate, intercalary, brown, smooth and thick-walled, formed within the agar medium (Phillips et al. 2008, 2013; Abdollahzadeh et al. 2009; Doilom et al. 2014).

Type species: *Barriopsis fusca* (N.E. Stevens) A.J.L. Phillips et al., Persoonia 21: 39 (2008)

Notes: Phillips et al. (2008) introduced *Barriopsis* with *B. fusca* as the type species. Abdollahzadeh et al. (2009) introduced the first coelomycetous species in *Barriopsis* i.e. *B. iraniana* Abdollahz. et al. Doilom et al. (2014) introduced *B. tectonae* Doilom et al. with both sexual and asexual morphs.

In morphology, *Barriopsis* resembles *Lasiodiplodia* as both genera has oval or cylindrical conidia with longitudinal striations. However, in *Barriopsis* the striations are visible on young, hyaline conidia, at least in *B. iraniana*. Nevertheless, both show distinct phylogenetic lineages in *Botryosphaeriaceae* (Phillips et al. 2008, 2013; Fig. 10).

Bartalinia Tassi, Bulletin Labor. Orto Bot. de R. Univ. Siena 3: 4 (1900)

Fig. 37 *Bambusicola massarinia* (Material examined: Thailand, Chiang Rai Province, Doi Fung, on decaying culm of bamboo, 4 May 2011, D.Q. Dai, MFLU 12–0405, holotype). **a** Bamboo culm with fruiting bodies. **b** Habit of immersed ascomata on host. **c, d** Section through ostiole with periphyses. **e** Section of peridium at side. **f** Section of ascoma. **g–i** Hyaline, 1-septate ascospores. **k** Ascospore with gelatinous sheath. **i** Germinating ascospore. **m** Pseudoparaphyses above asci. **n** Asci with ascospores. **o** Fissitunicate ascus. **p** Apex of asci. **q–s** Conidiomata surrounded by mycelium. **t, u, x** Conidiophores and conidiogenous cells producing conidia. **v, w** Conidiogenous cells with 1–5 annellations. **y–5** 1-septate conidia. Scale bars: **a** = 50 mm, **b, q–s** = 100 µm, **c–f** = 50 µm, **j–l, t–5** = 5 µm, **m–p** = 10 µm

= *Hyalotia* Guba, Monograph of *Monochaetia* and *Pestalotia*: 292 (1961)

= *Pestalozzina* P. Karst. & Roum., Revue mycol., Toulouse 12(no. 47): 126 (1890)

Facesoffungi number: FoF 01435; Fig. 41

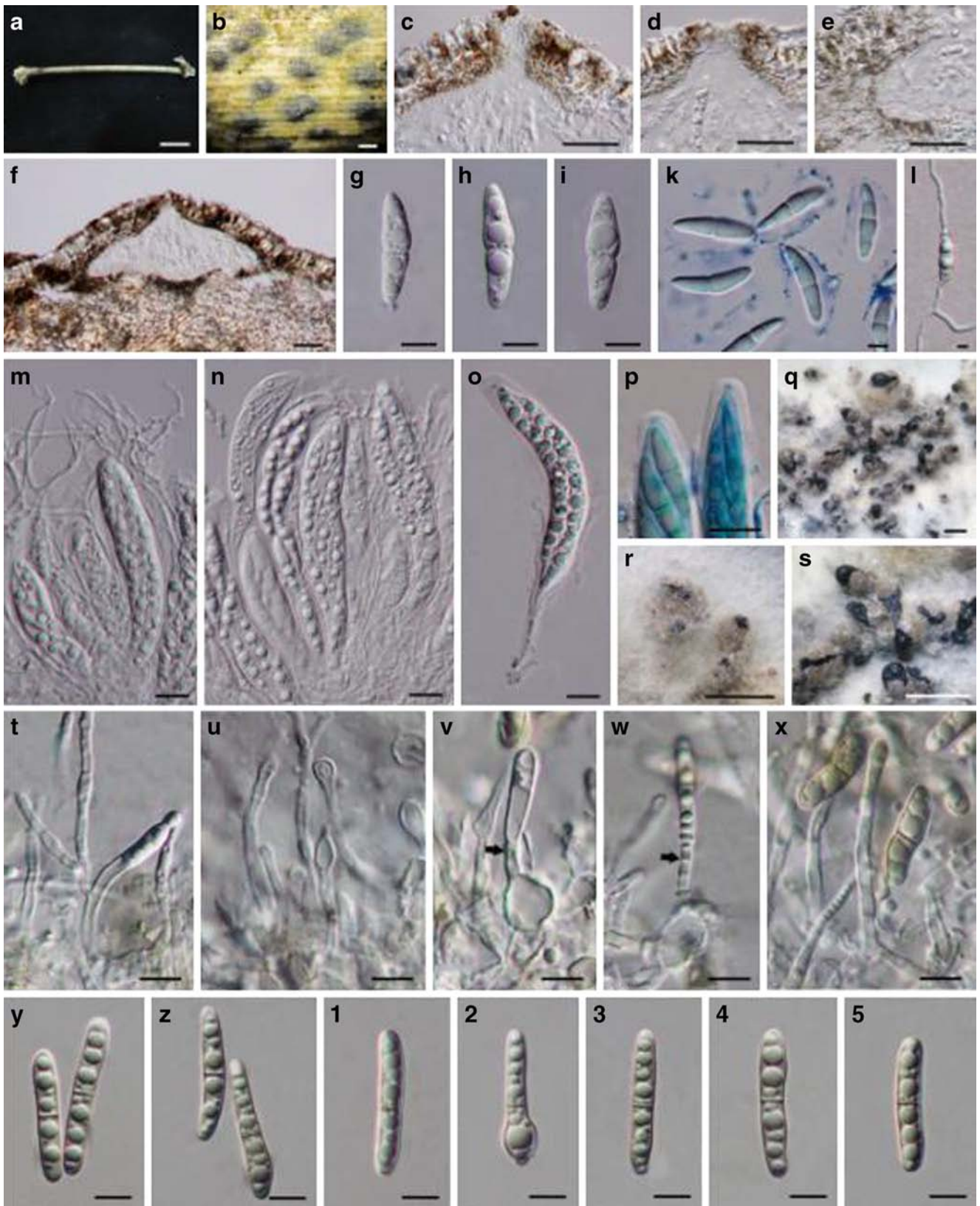
Sordariomycetes, *Xylariomycetidae*, *Amphisphaeriales*, *Bartalinia* *ceae*

Endophytic or *saprobic* on a range of plant hosts. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial or variable, solitary to gregarious, subepidermal origin, erumpent at maturity, globose, unilocular, brown to black, lacking an ostiole. *Conidiomata wall* outer layer composed of dark brown to black-walled cells of *textura angularis*, inner wall thin, hyaline. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* ampulliform, discrete, determinate, hyaline, smooth-walled, generated from inner layer of the pycnidium wall. *Conidia* subcylindrical, 4-septate, slightly constricted at the septa, smooth-walled, basal cell with truncate base, obconic, hyaline, bearing un-branched single appendage; 3 median cells subcylindrical, hyaline to pale brown; apical cell conical, almost hyaline, bearing appendage with 3 branches, attenuated, flexuous (Sutton 1980; Nag Raj 1993; Anderson and Bianchinotti 1996; Chi et al. 2002; Marincowitz et al. 2010; Senanayake et al. 2015).

Type species: *Bartalinia robillardoides* Tassi, Bulletin Labor. Orto Bot. de R. Univ. Siena 3: 4 (1900); Fig. 41

Notes: Tassi (1900) introduced *Bartalinia*, with *B. robillardoides* as the type species. The genus comprises 19 species epithets (Index Fungorum 2016). Morgan-Jones et al. (1972a) carried out a partial taxonomic revision for *Bartalinia* and accepted only nine species. Morgan-Jones et al. (1972a) stated that conidiogenesis of *Bartalinia* is annellidic. Sutton (1980) also agreed with Morgan-Jones et al. (1972a) and further stated that genus shows ‘holoblastic, annellidic conidiogenesis’. At the same time Sutton (1980) mentioned that the genus needs taxonomic revision and described species must also be revised.

Von Arx (1981) synonymized *Bartalinia* under *Seimatosporium* Corda but this redispotion was questioned and rejected by Nag Raj (1993). Furthermore, Nag Raj (1993) rejected the conidiogenesis process (i.e. annellidic) suggested



by Morgan-Jones et al. (1972a) and mentioned it as ‘holoblastic’. In his generic revision, Nag Raj (1993) accepted only six species including the type species viz. *Bartalinia bischoffiae*

Nag Raj, *B. lateripes* (Ellis & Everh.) Nag Raj, *B. laurina* (Mont.) Nag Raj, *B. pistacina* (J.L. Maas) Nag Raj and *B. tamarindi* Nag Raj. Nag Raj (1993) listed another nine

species which are not well described or with inadequate data and six species which have been described as *Hyalotia* Guba. (Nag Raj (1993) considered *Hyalotia* as a synonym of *Bartalinia*).

Since the generic revision by Nag Raj (1993), five additional species have been described viz. *Bartalinia ananatis* Li Zeng et al. (Chi et al. 2002), *B. dracaenae* P.G. Xi et al. (Xi et al. 2000), *B. goniolimonis* Andrian. & Minter (Andrianova and Minter 2007), *B. mellea* F. Anderson & Bianchin. (Anderson and Bianchinotti 1996) and *B. pondoensis* Marincowitz et al. (Marincowitz et al. 2010)

Based on morphological characters, Sutton (1980) grouped *Bartalinia* in the suborder *Blastopycnidiineae* (anellidic). However, this classification and not show a clear phylogenetic relationship and most other members of this suborder were not closely related to *Bartalinia* (Hyde et al. 2013; Wijayawardene et al. 2014d). Jeewon et al. (2003) and Jaklitsch and Voglmayr (2012) showed that *Bartalinia* has closer relationships with *Pestalotiopsis*, *Seimatosporium* and *Seiridium* which are accepted genera in *Amphisphaeriaceae* (Kirk et al. 2008; Wijayawardene et al. 2012a). However, Senanayake et al. (2015) found that *Bartalinia* showed a distinct phylogenetic lineage in *Xylariomycetidae*, *Amphisphaeriales*. Hence, *Bartalinaceae* was introduced with *Broomella*, *Hyalotiella* and *Truncatella* as other members of the family (Senanayake et al. 2015).

No sexual morphs are yet linked with *Bartalinia* (Sutton 1980; Nag Raj 1993; Wijayawardene et al. 2012a; Senanayake et al. 2015). Crous et al. (2014a) designated a lectotype and epitype of *B. robillardoides*.

Bellulicauda B. Sutton, Can. J. Bot. 45(8): 1254 (1967)

Facesoffungi number: FoF 01436; Fig. 42

Ascomycota, genera *incertae sedis*

Pathogenic on *Fabaceae*, *endophytic* or *saprobic* on *Rosaceae* sp. (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, solitary, scattered, superficial, black, globose, unilocular, dark brown to black. *Conidiomata* wall outer layer thick, composed of dark brown to black cells of *textura angularis*, inner layer composed of thin-walled, hyaline cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic to phialidic, long, cylindrical, discrete, determinate, hyaline, aseptate, smooth-walled. *Conidia* clavate to ellipsoid, guttulate when immature, occasionally guttulate at maturity, pale brown, with or without the remains of the conidiogenous cell attached, smooth-walled (Sutton 1980; Nag Raj 1993; Pereira et al. 2005).

Type species: ***Bellulicauda dialii*** (Syd.) B. Sutton, Can. J. Bot. 45(8): 1254 (1967)

≡ *Diachorella dialii* Syd., Anns mycol. 36(2/3): 193 (1938)

Notes: Sutton (1967) introduced *Bellulicauda* with *B. dialii* as the type species. Sutton (1980) and Nag Raj (1993)

Fig. 38 a–f. *Bambusicola irregulispora* (Material examined: Thailand, Chiang Rai Province, Jiew Santonkok, on dead stem on Bamboo, 11 August 2011, D.Q. Dai, MFLU 12–0407, holotype). **a** Vertical section of conidioma. **b, e, f** Different stages of conidiogenesis. **c** Mature conidium. **d** Germinating conidium. **g–m.** *Bambusicola splendida* (Material examined: Thailand, Chiang Rai Province, Doi Pui, on dead stem of Bamboo, 1 September 2011, D.Q. Dai, MFLU 12–0408, holotype). **g** Vertical section of conidioma. **h, i** Conidiogenesis. **j–l** Conidia. **m** Germinating conidium. Scale bars: **a** = 100 μ m, **b–f, h–m** = 5 μ m, **g** = 50 μ m

provided comprehensive descriptions and illustrations. Nag Raj (1993) treated *Bellulicauda* as an appendage-bearing genus, but Sutton (1980) stated only that ‘remains of the conidiogenous cell attached’. Pereira et al. (2005) also provided detailed taxonomic notes and stated that conidia are with ‘unbranched frill’.

Pereira et al. (2005) recorded *B. dialii* from Brazil and from Africa (Sierra Leone) and mentioned that the attempts to isolate the taxon were unsuccessful. Sequence data is unavailable thus taxonomic placement is uncertain.

Bellulicauda sanguisorbae Wijayaw., Camporesi, McKenzie & K.D. Hyde, *sp. nov.*

Index Fungorum number: IF551764; *Facesoffungi* number: FoF 01437; Fig. 42

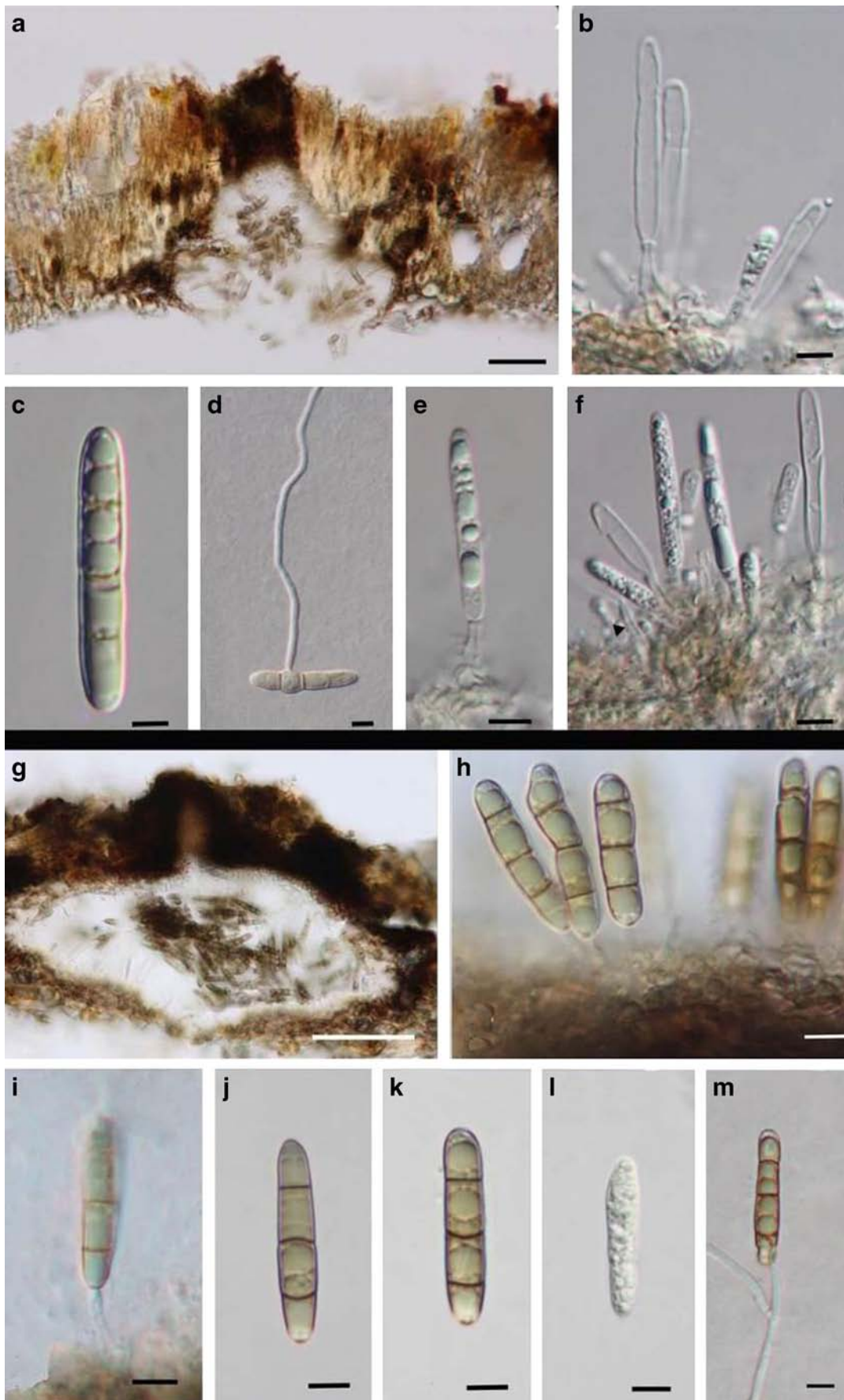
Etymology: Named after the host genus

Holotype: MFLU 15–2654

Saprobic on stems of *Sanguisorba minor*. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* 130–160 μ m diam., 120–150 μ m high, pycnidial, solitary, scattered, superficial, black, globose, unilocular, apapillate. *Conidiomata* wall outer layer thick, 7–8 layered, composed of thick-walled dark brown to black cells of *textura angularis*, innermost wall thin, 2–3 layered, becoming hyaline. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* 8–15 \times 1–2 μ m, phialidic, long cylindrical, integrated, hyaline, aseptate, smooth. *Conidia* 11–16 \times 6–9 μ m (\bar{x} = 13.82 \times 7.54 μ m, n = 20), clavate to ellipsoid, globose, straight, aseptate, guttulate when immature, occasionally guttulate at maturity, pale brown, thick and smooth-walled.

Material examined: Italy, Forli-Cesena [FC] Province, Passo delle Forche - Galeata, dead stem of *Sanguisorba minor* Scop. (*Rosaceae*), 23 April 2014, Erio Camporesi, IT 1831 (MFLU 15–2654, **holotype**).

Notes: *Bellulicauda sanguisorbae* has similar morphology to *Bellulicauda* in conidiogenesis and conidial characters although it does not have remains of the conidiogenous cell attached or an unbranched frill. Other conidial characters such as pigmentation, shape, lacking septa are similar to the type species. Thus, we introduce our collection as a new species in *Bellulicauda*.



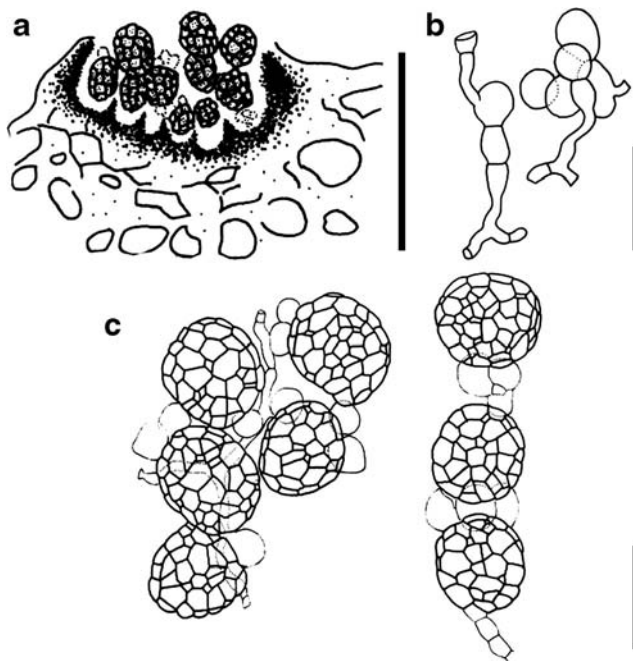


Fig. 39 *Barnettella speciosa*. **a** Vertical section of conidioma. **b** Conidiophores. **c, d** Basipetal conidial chain. Scale bars: **a** = 100 μm , **b–d** = 20 μm (re-drawn from Nag Raj and DiCosmo 1981b)

Key to species of *Bellulicauda*

1. Conidia clavate to ellipsoid, pale brown, 11–16 \times 6–9 μm , no basal appendage *B. sanguisorbae*
1. Conidia clavate to ellipsoid, pale brown, 9–13 \times 4.5 μm ; with basal appendage 6–10 μm long *B. dialii*

Blastacervulus H.J. Swart, Trans. Br. mycol. Soc. 90(2): 289 (1988)

Facesoffungi number: FoF 01438; Fig. 43

Dothideomycetes, order *incertae sedis*, *Botryosphaerales*, *Planistromellaceae*

Endophytic or *saprobic* or associated with necrotic areas of living leaves of *Myrtaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* acervular, subcuticular, becoming erumpent, circular to slightly oblong. *Conidiomata* wall composed of thin-walled, brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, mostly monoblastic, undifferentiated, determinate, short-subcylindrical to ampulliform or subglobose, pale brown to hyaline, verruculose, thin-walled. *Conidia* globose to elliptical, slightly obtuse to truncate at the base, bright brown or pale to medium brown, aseptate, thick-walled, forming branched chains of acropetal conidia (Swart 1988; Cheewangkoon et al. 2009).

Type species: Blastacervulus eucalypti H.J. Swart, Trans. Br. mycol. Soc. 90(2): 289 (1988); Fig. 43

Notes: Swart (1988) introduced *Blastacervulus* with *B. eucalypti* as the type species. In conidiomata shape, *Blastacervulus* resembles *Colletogloeopsis* (= *Teratosphaeria*) however, conidia of the latter genus are not in a chain. Cheewangkoon et al. (2009) re-described *B. eucalypti* based on fresh collections and sequence analysis showed *B. eucalypti* groups with *Alysiidiella parasitica*, *Heteroconium eucalypti* and *H. kleinziense*. However, Cheewangkoon et al. (2009) did not confirm a familial placement. In our phylogenetic analyses, *Blastacervulus eucalypti* clusters in *Planistromellaceae* (Fig. 9).

Bleptosporium Steyaert, Darwiniana 12: 171 (1961)

Facesoffungi number: FoF 01439; Fig. 44

Sordariomycetes, *Xylariomycetidae*, *Amphisphaerales*, genera *incertae sedis*

Endophytic or *saprobic* on dead twigs of *Plantaginaceae* (Dicotyledons). **Sexual morph:** ?*Amphisphaeria* fide Nag Raj (1977b, 1993). **Asexual morph:** stromatic, erumpent, globose, unilocular, dark brown to black. *Conidiomata* wall outer layer thick, composed of thick-walled, dark brown cells of *textura angularis*. *Conidiophores* branched or occasionally unbranched, sparsely septate, hyaline, invested in mucus, smooth-walled. *Conidiogenous cells* holoblastic, cylindrical, hyaline, smooth. *Conidia* fusiform, distoseptate, invested in mucus, smooth-walled; apical cell flattened, bearing unbranched, attenuated, single appendage; medium cells dark brown; basal cell hyaline to almost hyaline (Morgan-Jones 1974; Nag Raj 1977b, 1993).

Type species: Bleptosporium montteae Speg. ex Steyaert, Darwiniana 12: 172 (1961)

Notes: Steyaert (1961) introduced *Bleptosporium*, with *B. montteae* as the type species. Sutton (1963) introduced *Bleptosporium pleurochaetum* (Speg.) B. Sutton but Sutton (1980) and Nag Raj (1993) treated *Bleptosporium* as a monotypic genus. Von Arx (1981) listed *Bleptosporium* under *Seimatosporium* however, Nag Raj (1993) treated *Bleptosporium* as a distinct genus. Further, Nag Raj (1977b, 1993) stated *Bleptosporium* has an *Amphisphaeria* sexual morph (*A. argentinensis* Nag Raj) based on close association of both species. However, this link has not been proven by cultural or sequence studies. Moreover, the sequence data is unavailable thus, taxonomic placement is uncertain.

Botryohypoxylon Samuels & J.D. Rogers, Mycotaxon 25(2): 631 (1986)

= *Iledon* Samuels & J.D. Rogers, Mycotaxon 25(2): 633 (1986)

Facesoffungi number: FoF 01440; Fig. 45

Dothideomycetes, genera *incertae sedis*

Endophytic or *saprobic* on trunk of *Leguminosae* (Dicotyledons). **Sexual morph:** *Botryohypoxylon* fide

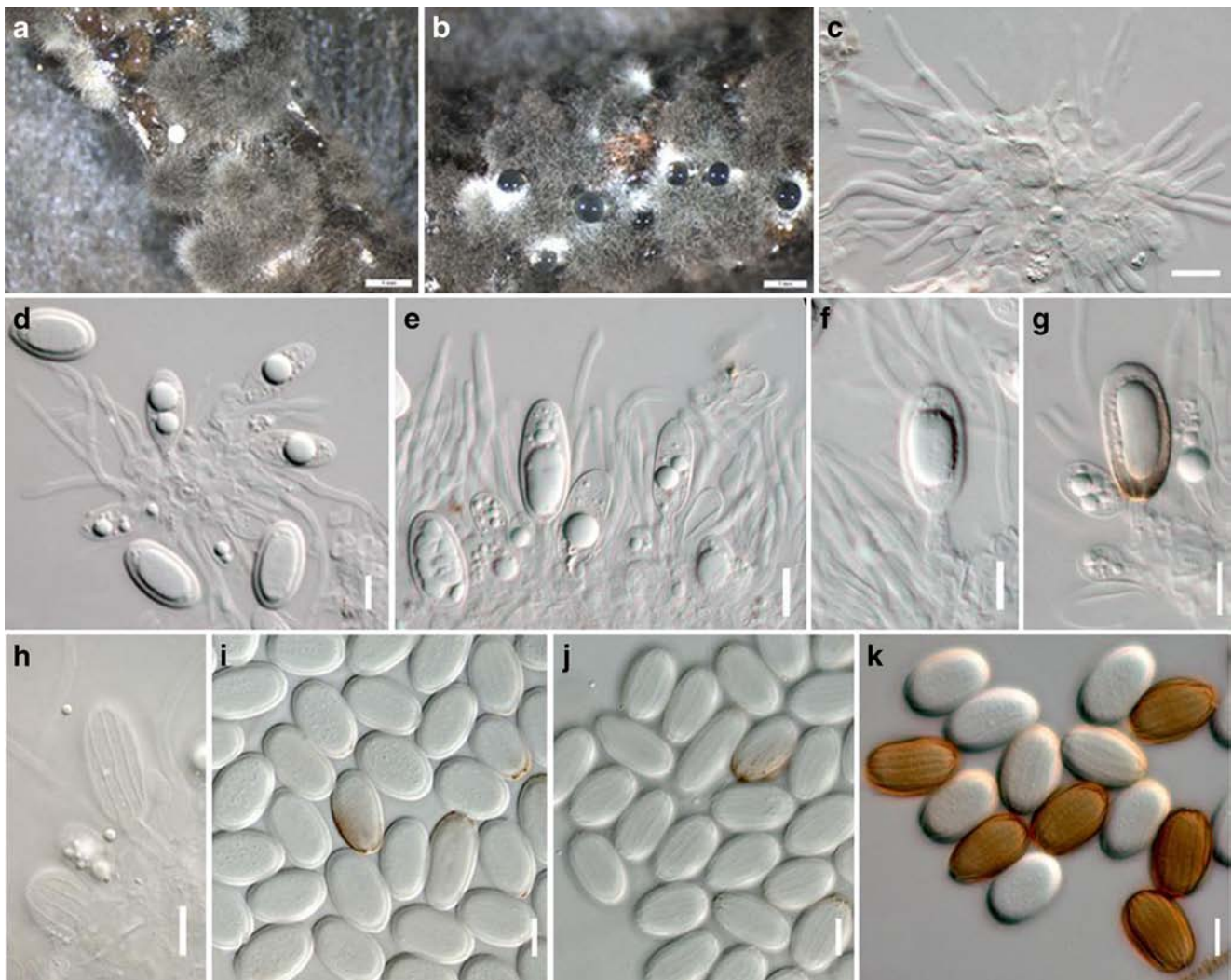


Fig. 40 *Botryopsis iraniana* (Material examined: Iran, Hormozgan Province, Minab, Hajikhademi, on twigs of *Mangifera indica*, 27 February 2007, J. Abdollahzadeh and A. Javadi, IRAN 13939 F). **a, b** Conidiomata on pine needles in culture. **c** Paraphyses. **d–h** Different

stages of conidiogenesis. **i–j** Conidia. Scale bars: **a, b** = 1 mm, **c–k** = 10 μ m. (Reproduced from Phillips et al. 2013 in *Studies in Mycology* 76)

Samuels and Rogers (1986). **Asexual morph:** *Conidiomata* stromatic, gregarious, unilocular, black. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* phialidic, directly arising from conidiomata wall. *Macroconidia* ellipsoidal, septate, intercalary cells brown, terminal cell hyaline. *Microconidia* unicellular, oblong, hyaline (description modified from Samuels and Rogers 1986).

Type species: *Botryohypoxylon amazonense* Samuels & J.D. Rogers, *Mycotaxon* 25 (2): 633 (1986); Fig. 45

= *Iledon versicolor* Samuels & J.D. Rogers, *Mycotaxon* 25 (2): 633 (1986)

Notes: Samuels and Rogers (1986) introduced *Botryohypoxylon amazonense* and observed a coelomycetous asexual morph in the culture; for this they introduced the new genus *Iledon*. Wijayawardene et al. (2014c) and Rossman et al. (2015) adopted the older sexual name, *Botryohypoxylon* over the younger asexual name, *Iledon*.

Botryosphaeria Ces. & De Not., *Comm. Soc. crittog. Ital.* 1(4): 211 (1863) (**dichomera-like asexual morphs**)

Facesoffungi number: FoF 01441; Figs. 46 and 47

Dothideomycetes, order *incertae sedis*, *Botryosphaeriales*, *Botryosphaeriaceae*

Endophytic or *saprobic* on twigs, stems and leaves of a range of host plants or *pathogenic*. **Sexual morph:** see Liu et al. (2012); Phillips et al. (2013). **Asexual morph:** fusicoccum-like *vide* Liu et al. (2012); Phillips et al. (2013) or dichomera-like. **Dichomera-like asexual morph:** *Conidiomata* stromatic, or pycnidial, immersed, erumpent at maturity, solitary to gregarious, globose, multi-locular or unilocular, dark brown to black. *Ostiole* papillate, central, single. *Conidiomata* wall outer layer thick-walled, composed of dark brown cells of *textura angularis*, inner layer thin, hyaline to subhyaline. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, annellidic, simple, integrated



Fig. 41 *Bartalinia robillardoides* (Material examined: Thailand, Chiang Rai Province, Mae Fah Luang University grounds, on leaves of *Eucalyptus* sp., 30 June 2012, N. Wijayawardene, MFLU 13–0084). **a** Conidiomata on leaf of *Eucalyptus* spp. **b, c** Vertical sections of

conidioma on leaf. **d, f** Developing conidia attach to conidiogenous cells. **e** Vertical section of conidioma on PDA. **g–i** Conidia. **j** Conidia grouped in a bunch. **k** Culture on PDA. **l** Germinating conidium. Scale bars: **b, c, e** = 150 μ m, **d, f** = 20 μ m, **g–j** = 25 μ m

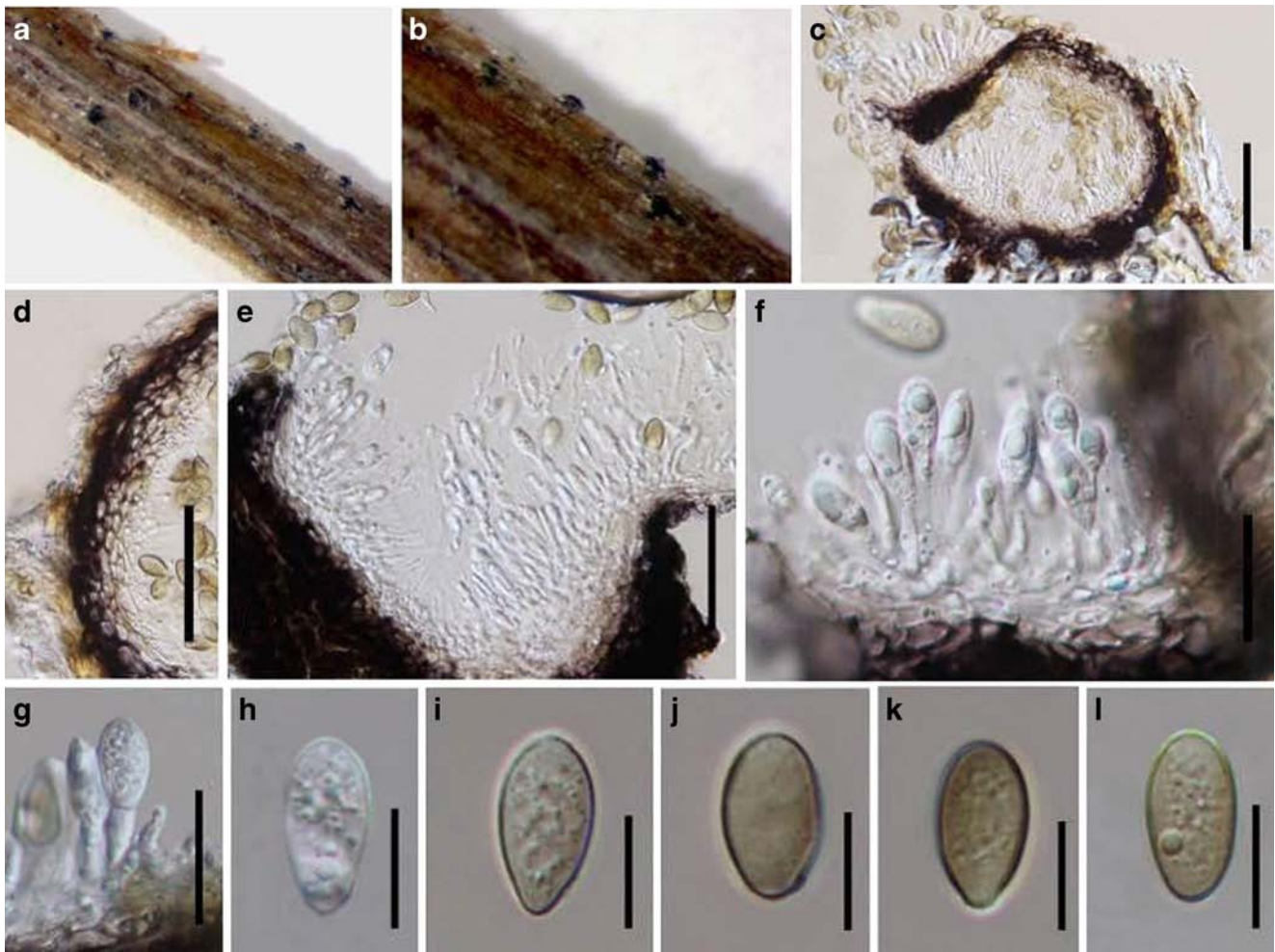


Fig. 42 *Bellulicauda sanguisorbae* (holotype). **a, b** Conidiomata on host material. **c** Vertical section of the conidioma. **d, e** Conidiomata walls. **f, g** Immature conidia attach to conidiogenous cells. **h–l** Immature and mature conidia. Scale bars: **c** = 100 μ m, **d, e** = 40 μ m, **f, g** = 20 μ m, **h–l** = 10 μ m

or discrete, determinate, hyaline, doliiform to cylindrical, smooth. *Conidia* pyriform or cylindrical, often variable and irregular in shape, truncate base, globose, muriform, continuous or constricted at the septa, brown, smooth-walled (Rao and Varghese 1980; Sutton 1980; Sutton and Dyko 1989; Yuan et al. 2000; Barber et al. 2005). (Phillips et al. (2005) reported brown conidia from some *Botryosphaeria* spp.)

Type species: Botryosphaeria dothidea (Moug.) Ces. & De Not., Comm. Soc. crittog. Ital. 1(4): 212 (1863)

= *Sphaeria dothidea* Moug., Syst. mycol. (Lundae) 2(2): 423 (1823)

Notes: Crous et al. (2006a) showed *Botryosphaeria* has *Fusicoccum* asexual morphs. In this study we concentrate only on *Dichomera* as *Fusicoccum* has hyaline spores (Liu et al. 2012; Phillips et al. 2013). (However, *Fusicoccum* Corda was treated as a synonym of *Botryosphaeria* by Phillips et al. 2013)

Cooke (1878) introduced *Dichomera* with *D. saubinetii* as the type species. There are 48 species epithets in Index

Fungorum (2016), but some have been transferred to other genera, such as *Camarosporium* (Saccardo 1884). Funk and Sutton (1972) and Sutton (1975a) provided taxonomic notes and illustrations for *Dichomera*. Sutton (1980) compared *Dichomera* with *Camarosporium* and stated that ‘*Dichomera*, which has usually been interpreted as the stromatic analogue of *Camarosporium* Schulz.’

Butin (1993) examined the relationships between *Camarosporium* and *Dichomera* based on their substrates and types of conidiomata and agreed with Sutton (1980), who treated *Dichomera* as a stromatic form of *Camarosporium*. Butin (1993) examined oak-inhabiting *Camarosporium* sp. (*C. oreades* (Durieu & Mont.) Sacc.) and *Dichomera* sp. (*D. saubinetii*) to support his assumption and concluded that the former species represents the pycnidial form of the latter species. Butin (1993) also examined another type of coelomycetous taxon adjacent to the stromata of *Dichomera saubinetii* on bark of oak, but with hyaline, fusi-form, one-celled conidia and identified it as *Fusicoccum*

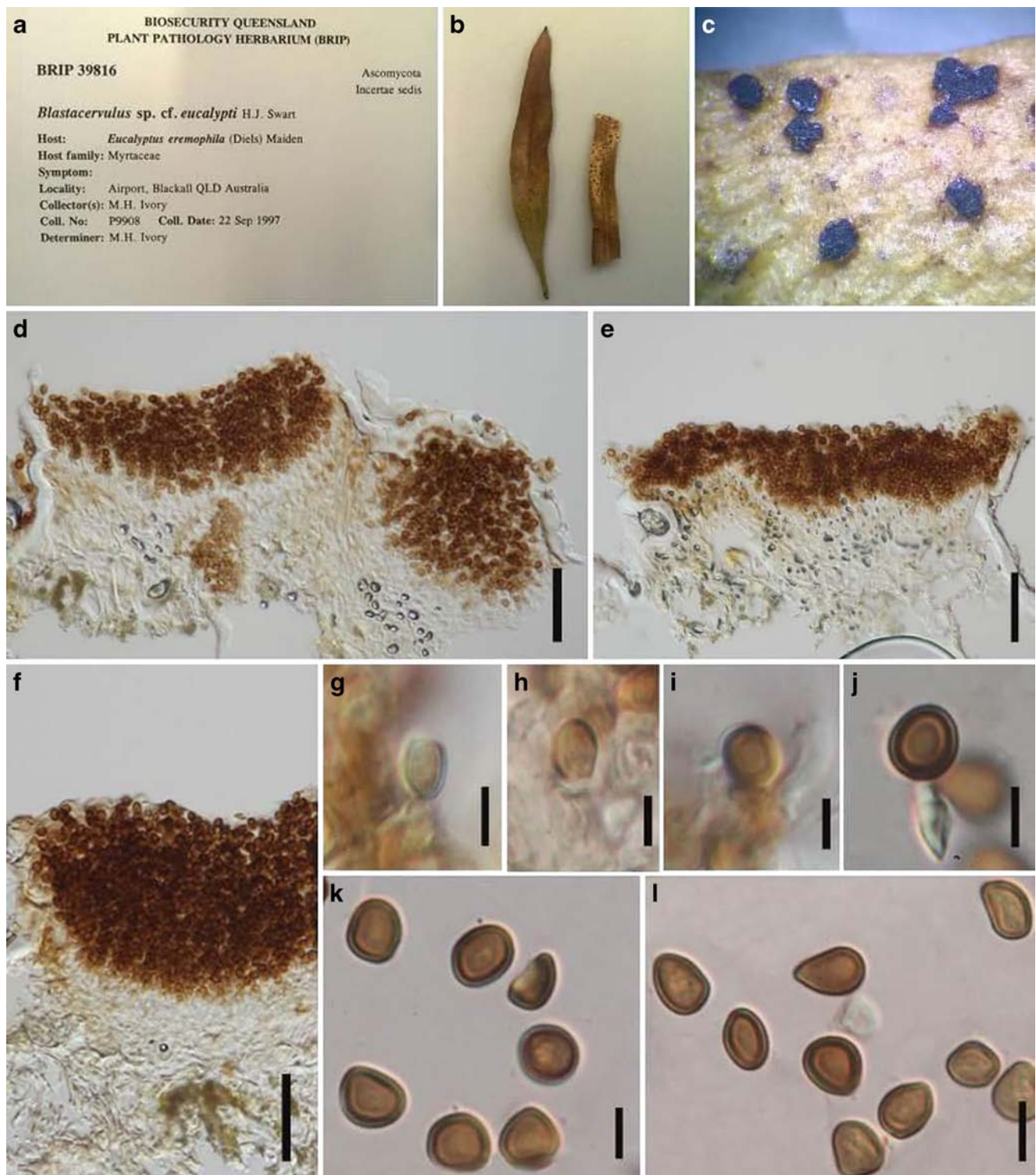


Fig. 43 *Blastacervulus eucalypti* (Material examined: Australia, Queensland, Blackall, Airport, on leaves of *Eucalyptus eremophila*, 22 September 1997, M.H. Ivory, BRIP 39816). **a** Label of herbarium

specimen. **b** Herbarium material. **c** Conidiomata on leaves. **d, e** Vertical sections of conidiomata. **f** Conidioma wall. **g–j** Different stages of conidiogenesis. **k, l** Conidia. Scale bars: **d–f** = 50 μ m, **g–l** = 5 μ m

aesculi Corda. Further, Butin (1993) observed some conidiomata of *Dichomera saubinetii* with hyaline, fusi-form conidia, which is similar to *Fusicoccum aesculi*. Hence Butin (1993) predicted a relationship between

fusicoccum-like taxa and dichomera-like taxa based on cultural techniques.

Barber et al. (2005) observed dichomera-like conidia in the cultures of several *Botryosphaeria* spp. and this was

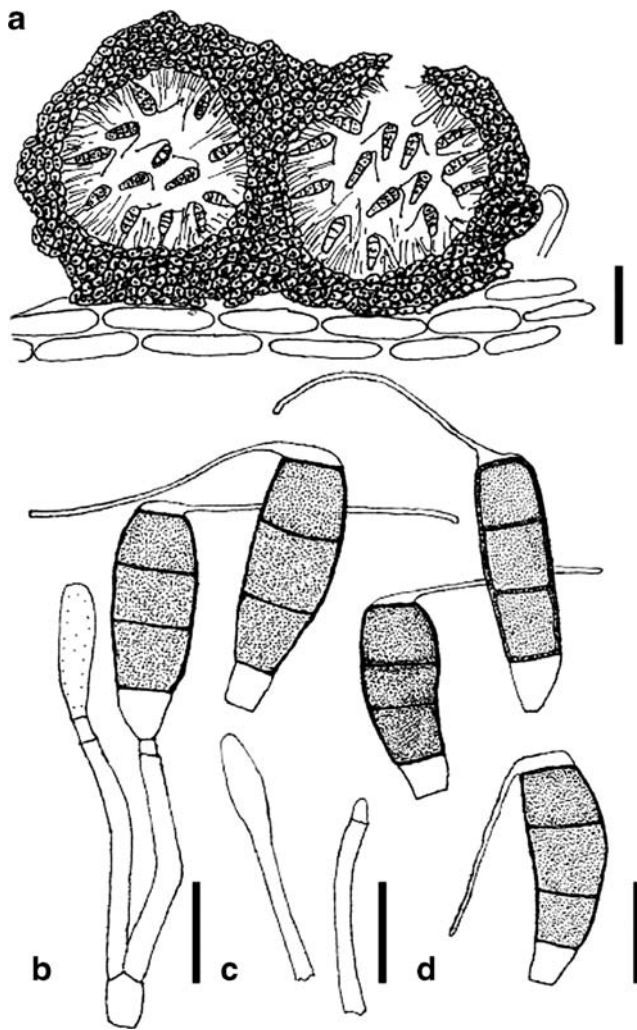


Fig. 44 *Bleptosporium pleurochaetum*. **a**. Vertical section of conidiomata. **b**, **c**. Different stages of conidiogenesis. **d**. Conidia. Scale bars: **a–d** = 10 μm (re-drawn from Morgan-Jones 1974)

phylogenetically confirmed by Slippers et al. (2013) who showed that *Dichomera saubinetii*, the type species of *Dichomera*, grouped with *Botryosphaeria*. However, Slippers et al. (2013) did not consider *Dichomera* to be a synonym of *Botryosphaeria* as ex-type strains were not available.

In our phylogenetic analyses (Figs. 10 and 13), dichomera-like taxa are scattered in the *Botryosphaeriaceae* and the type

species groups with *Botryosphaeria sensu stricto* (see under results of molecular data analyses).

Botryosphaeria quercus Wijayaw., A.J.L. Phillips, Camporesi & K.D. Hyde, *sp. nov.*

Index Fungorum number: IF551550; *Facesoffungi* number: FoF 01442; Fig. 47

Etymology: Named after the host genus

Holotype: MFLU 15–3444

Endophytic or *saprobic* on dead leaves of *Quercus* sp.

Sexual morph: Undetermined. **Asexual morph**: *Conidiomata* 160–200 μm diam., 170–220 μm high, pycnidial, immersed, erumpent at maturity, gregarious to solitary, dark brown to black, unilocular. *Ostiole* papillate, central. *Conidiomata* wall outer layer thick, comprising of dark brown cells of *textura angularis*, inner layer thin, hyaline to subhyaline. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* 10–35 \times 4–6 μm , holoblastic, annellidic, simple, determinate, hyaline, doliiiform to cylindrical. *Conidia* 10–24 \times 6–10 μm (\bar{x} = 13.54 \times 7.2 μm , n = 20), pyriform or cylindrical, truncate base, globose, muriform, with 1–5 transverse septa, 2–3 longitudinal septa, and with 1–2 oblique septa, constricted at the septa, brown, smooth-walled.

Culture characteristics: On PDA, slow growing, attaining 20 mm in 7 days at 18 $^{\circ}\text{C}$, with thin mycelium, margin uneven, no zonate, yellowish brown from above, greyish white from below.

Material examined: Italy, Forli-Cesena [FC] Province, Polenta - Bertinoro, dead and land leaf of *Quercus* sp. (*Fagaceae*), 30 December 2013, Erio Camporesi, IT 1615 (MFLU 15–3444, **holotype**); (HKAS92555, **isotype**), ex-type living cultures MFLUCC 14–0459, GUCC IT 1615.

Notes: Farr and Rossman (2016) reported *Dichomera saubinetii* (conidial dimensions 11–13 \times 7–10 μm *vide* Sutton 1980) from *Quercus* sp. However, our collection has longer conidia than *D. saubinetii*. Moreover, our new collection and the type species of *Dichomera*, *D. saubinetii* (CBS 990.70) group in *Botryosphaeria sensu stricto*. Hence our new collection is introduced as a new species in *Botryosphaeria*.

Brencklea Petrak, *Annl. mycol.* 21: 326 (1923)

Facesoffungi number: FoF 01443; Fig. 48

Fig. 45 *Botryohypoxylon amazonense*. **a**

Macroconidiogenous cells with immature macroconidia. **b**

Macroconidia. **c**

Microconidiogenous cells and microconidia. Scale bars: **a–**

c = 10 μm (re-drawn from Samuels and Rogers 1986)

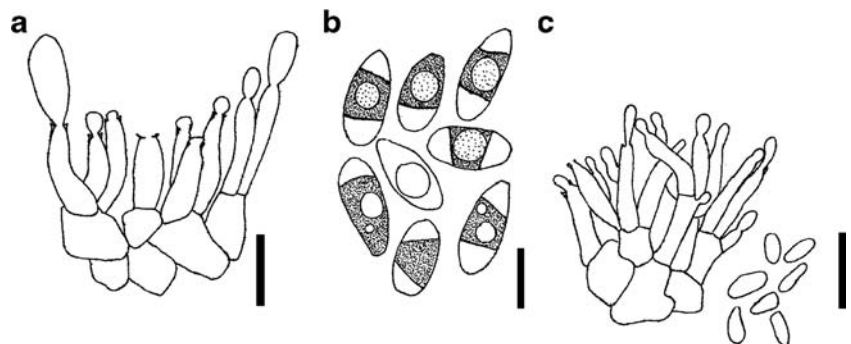




Fig. 46 *Botryosphaeria* sp. (Material examined: Italy, Forli-Cesena [FC] Province, Passo delle Forche – Galeata, on dead stem of *Sanguisorba mino*, E. Camporesi, MFLU 15–2655 = HKAS92558). **a** Host material.

b Conidiomata on stem. **c, d** Vertical sections of conidiomata. **e** Conidioma wall. **f, g** Different stages of conidiogenesis. **h–r** Conidia. Scale bars: **c, d** = 100 μm, **e** = 20 μm, **f–r** = 10 μm

Ascomycota, genera *incertae sedis*
Endophytic or *saprobic* on leaves or culms of *Iridaceae* (Monocotyledons). **Sexual morph**: Undetermined.

Asexual morph: *Conidiomata* pycnidial, immersed, unilocular, glabrous, with slightly papillate ostiole. *Conidiomata* wall composed of thin-walled, pale brown



Fig. 47 *Botryosphaeria quercus* (holotype). **a, b** Conidiomata on *Quercus* sp. **c** Vertical section of mature conidioma. **d** Different stages of conidiogenesis. **e–f** Conidiogenous cells. **g, i–m** Conidia. **h**

Conidiogenous cells branched at the base. Scale bars: **c** = 100 μm , **d–h** = 10 μm , **i–m** = 15 μm

to dark brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, ampulliform, hyaline, smooth, invested in mucus. *Macroconidia* fusiform to naviculate, septate, almost hyaline to pale brown, smooth-walled, bearing attenuated, broad, cellular, filiform, long apical appendage. *Microconidia* short, cylindrical, unicellular, hyaline,

smooth-walled (Sutton 1968 as *Scolecosporella sisyriinchii*; Nag Raj 1993).

Type species: Brencklea sisyriinchii (Ellis & Everh.) Petr., *Annales Mycologici* 21 (3–4): 326 (1923); Fig. 48

Notes: Petrak (1923) introduced *Brencklea* with *B. sisyriinchii* as the type species. Sutton (1968, 1977, 1980) placed *Brencklea* and *Urohendersoniella* under

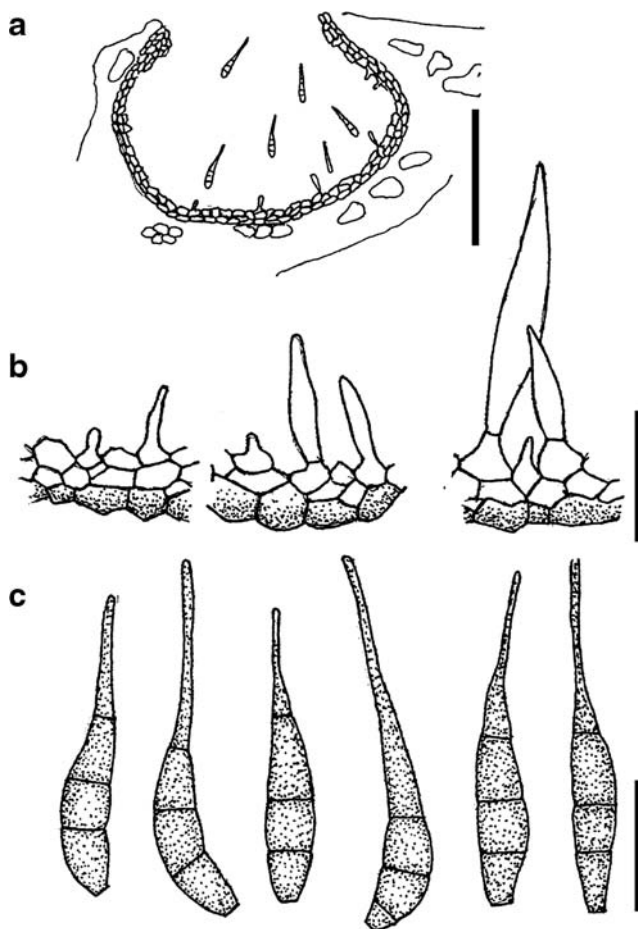


Fig. 48 *Brecklea sisyrynchii*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis and conidiogenous cells. **c** Conidia. Scale bars: **a** = 50 μ m, **b**, **c** = 20 μ m, (re-drawn from Sutton 1968 as *Scolecosporiella sisyrynchii*)

Scolecosporiella. However, Nag Raj (1993) rejected this generic concept and accepted both *Brecklea* and *Urohendersoniella* as distinct genera. We agree with Nag Raj (1993) and the taxonomic key below can be used to distinguish these three genera. However, it is essential to carry out sequence analyses and establish clear generic boundaries among the three genera.

Key to distinguish *Brecklea*, *Scolecosporiella* and *Urohendersoniella*

1. Microconidia present..... 2
1. Microconidia absent..... *Scolecosporiella*
2. Conidia narrowly fusiform, with mucoid appendages at both ends..... *Urohendersoniella*
2. Conidia fusiform to naviculate, without mucoid appendages..... *Brecklea*

Broomella Sacc., Syll. fung. (Abellini) 2: 557 (1883)

Facesoffungi number: FoF 00626; Fig. 49

Fig. 49 Coelomycetous morph of *Broomella vitalbae* (Material examined: Italy, Arezzo [AR] Province, Stia, Montemezzano, on dead branch of *Clematis vitalba*, 25 August 2013, E. Camporesi, MFLU 15–0054, epitype). **a** Conidiomata on host material. **b**, **c** Vertical sections of conidiomata. **d** Conidioma wall. **e–k** Conidiogenesis. **l–t** Conidia. Scale bars: **b** = 100 μ m, **d** = 50 μ m, **e–t** = 10 μ m

Sordariomycetes, *Xylariomycetidae*, *Amphisphaeriales*, *Bartaliniaceae*

Endophytic or *saprobic* on a range of host plants. **Sexual morph**: see Li et al. (2015b); Senanayake et al. (2015).

Asexual morph: *Conidiomata* stromatic, pycnidoid, scattered to gregarious, immersed to semi-immersed, rounded, oval or elongated, black, unilocular, papillate, glabrous. *Conidiomata* wall composed of thick-walled, brown cells of *textura globulosa* to *textura angularis*, outwardly pale brown to brown, inwardly merging with relatively thin-walled and colourless cells. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* cylindrical, phialidic, percurrently proliferating, discrete, hyaline, smooth. *Conidia* fusiform to aciculate, with acute ends, straight or slightly curved, 3-septate, constricted at septa, pale brown or brown, verruculose, thick-walled; bearing a single tubular appendage at each end, or 2–5 appendages at apex and a single appendage at the base (Li et al. 2015b; Senanayake et al. 2015).

Type species: *Broomella vitalbae* (Berk. & Broome) Sacc., Syll. fung. (Abellini) 2: 558 (1883); Fig. 49

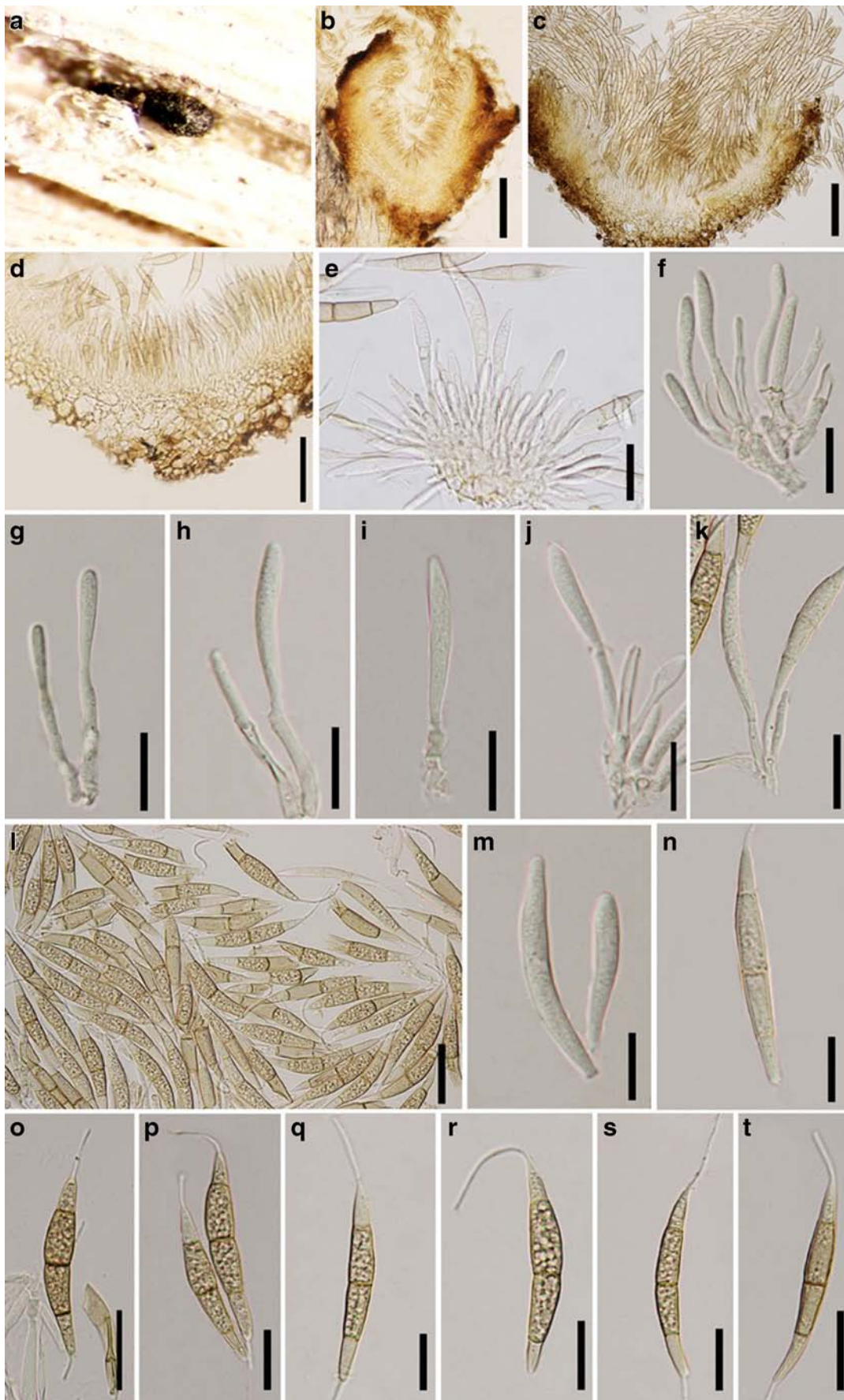
Notes: Saccardo (1883) introduced *Broomella* with *B. vitalbae* as the type species. Shoemaker et al. (1989) and Yuan and Zhao (1992) reported pestalotiod-like asexual morphs. *Broomella* spp. with truncatella-like asexual morphs are not congeneric with the type species of *Broomella* (Senanayake et al. 2015). Based on sequence data, Li et al. (2015) showed *Broomella sensu stricto* resides in *Amphisphaeriaceae*, and reported the asexual morph which has conidia with a single apical and basal appendages. However, Senanayake et al. (2015) treated *Broomella* as a distinct genus in *Bartaliniaceae* and this agrees with our phylogenetic sequence analyses (Figs. 9 and 16).

Brunneodinemasporium Crous & R.F. Castañeda, Persoonia, Mol. Phyl. Evol. Fungi 28: 128 (2012)

Facesoffungi number: FoF 01444; Fig. 50

Sordariomycetes, *Sordariomycetidae*, *Chaetosphaeriales*, *Chaetosphaeriaceae*

Endophytic or *saprobic* on decaying leaves. **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* stromatic, solitary or gregarious, superficial, dark brown to black, cupulate, unilocular, globose, setose. *Conidiomata* wall basal stroma of *textura angularis*. *Setae* abundant, subulate to cylindrical, unbranched, simple, septate, brown to black, smooth, thick-walled, multi-septate. *Conidiophores* cylindrical, septate, brown, unbranched, thin-walled, smooth. *Conidiogenous cells* phialidic, subcylindrical to lageniform,



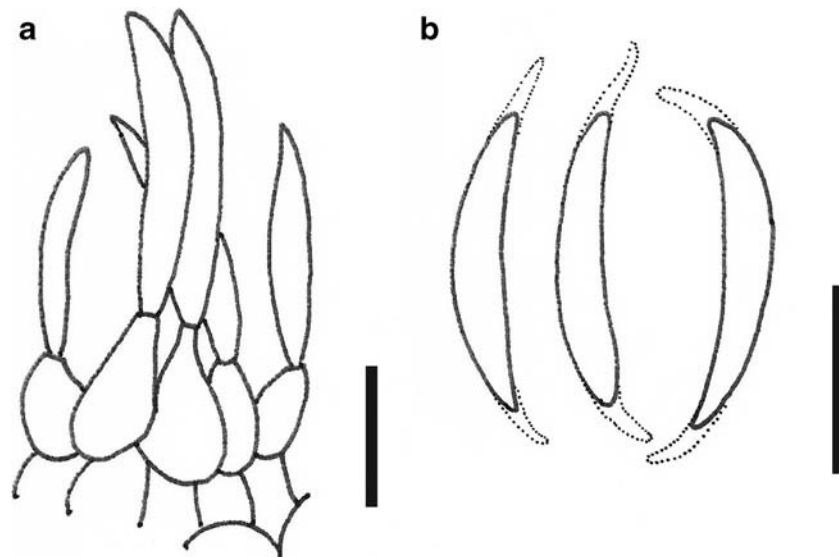


Fig. 50 *Brunneodinemasporium brasiliense*. **a** Immature conidia attach to conidiogenous cells. **b** Conidia. Scale bars: **a**, **b** = 10 μ m (re-drawn from Crous et al. 2012f)

integrated, determinate, brown, smooth. *Conidia* fusiform, slightly curved or straight, apex obtuse to sub obtusely rounded, base truncate, aseptate, hyaline to pale brown, thin and smooth-walled, eguttulate or guttulate; with a single, cellular, unbranched, flexuous, tubular appendage at each end, delimited by a septum; basal appendage excentric (description modified from Crous et al. 2012f).

Type species: Brunneodinemasporium brasiliense Crous & R.F. Castañeda, *Persoonia*, *Mol. Phyl. Evol. Fungi* 28: 129 (2012); Fig. 50

Notes: Crous et al. (2012f) introduced *Brunneodinemasporium* with *B. brasiliense* and mentioned it has hyaline to pale brown conidia. *Brunneodinemasporium* morphologically resembles *Dinemasporium* which also has hyaline to pale brown, aseptate conidia (Sutton 1980; Nag Raj 1993), but is phylogenetically distinct from *Dinemasporium sensu stricto* (Crous et al. 2012f). Maharachchikumbura et al. (2015) listed *Brunneodinemasporium* under *Chaetosphaeriaceae*, *Chaetosphaeriales*. Our phylogenetic analyses, also agree with Maharachchikumbura et al. (2015) (Fig. 9).

Caeruleoconidia Zhurb. & Diederich, *Herzogia* 28(2): 264 (2015)

Facesoffungi number: FoF 01787; Fig. 51

Ascomycota, genera incertae sedis

Lichenicolous. Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* sporodochial to pulvinate, stromatic, erumpent, convex to applanate, black, but sometimes with a lateral ring-like rudimentary wall. *Conidiophores* reduced conidiogenous cells, hyaline to light greenish blue, densely aggregated in a compact basal stroma. *Conidiogenous cells* holoblastic, hardly distinguishable. *Conidia* subglobose to

irregularly ellipsoid or rectangular, abundant, solitary to indistinctly catenate, subhyaline to moderate greenish blue becoming olivaceous green in KOH, dry, 0(–1)-septate, smooth-walled (Zhurbenko et al. 2015).

Type species: Caeruleoconidia ochrolechia Zhurb. & Diederich, *Herzogia* 28(2): 264; Fig. 51

Notes: Zhurbenko et al. (2015) introduced *Caeruleoconidia* with *C. ochrolechia* as the type species. *Caeruleoconidia ochrolechia* resembles *Coniambigua phaeographidis*, but the latter has pycnidial-like conidiomata with a colourless wall, and dark brown, aseptate conidia with a thin and ornamented outer wall (Zhurbenko et al. 2015). The taxonomic key under *Licheniconium* allows distinguishing *Caeruleoconidia* from other lichenicolous genera. Sequence data is unavailable, thus taxonomic placement is uncertain.

Conidiomata of *Caeruleoconidia* resemble sporodochia and might therefore be referred to as hyphomycetes. However, as these sporodochia-like structures are often surrounded by a thin rudimentary wall, *Caeruleoconidia* may as well be treated as a coelomycetous genus.

Callistospora Petr., *Sydowia* 9 (1–6): 571 (1955)

Facesoffungi number: FoF 01445; Fig. 52

Ascomycota, genera incertae sedis

Endophytic, saprobic on culms of *Poaceae* (Monocotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic or pycnidial, immersed, globose, unilocular, dark brown to black, ostiolate. *Ostiole* papillate, central, circular. *Conidiomata* wall composed of thick-walled, black to dark brown cells of *textura globulosa* in neck region, *textura prismatica* in venter, inner layer becoming thin-walled and paler. *Conidiophores* reduced to conidiogenous cells, invested in mucus. *Conidiogenous cells* holoblastic, ampulliform,

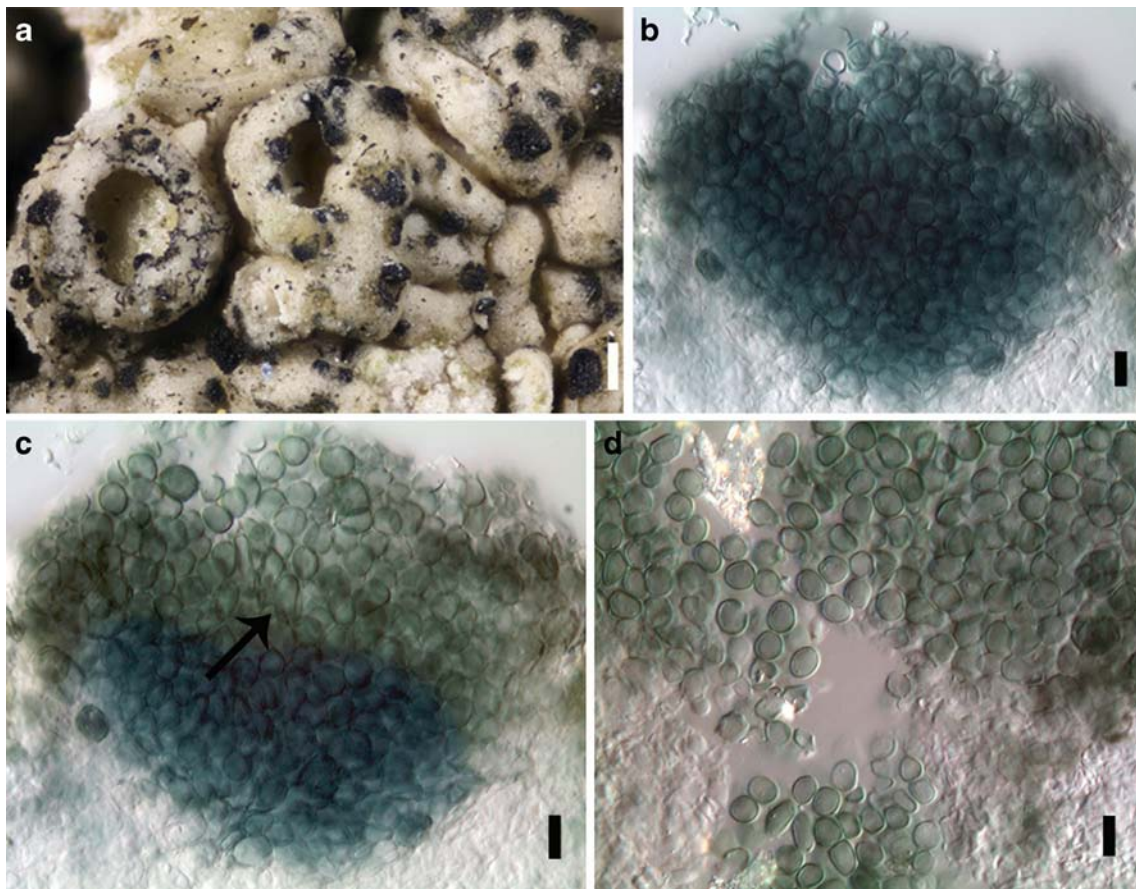


Fig. 51 *Caeruleoconidia ochrolechia* (Material examined: MEXICO, Chihuahua, ridge crest area along a secondary dirt road to Casas Grandes from Bavispe, Sonora, on *Ochrolechia pseudopallescens*, 18 July 1994, T.H. Nash III 36366a, ASA, holotype). **a** Conidiomata of *Caeruleoconidia ochrolechia* on thallus of *Ochrolechia*

pseudopallescens. **b** Vertical section of conidioma in water. **c** Vertical section of conidioma in 10 % KOH (colour reaction due to chemical reaction is pointed by arrow). **d** Conidia in KOH. Scale bars: **a** = 200 μ m, **b–d** = 10 μ m

occasionally conical to cylindrical, hyaline, smooth. *Macroconidia* ellipsoidal or elongate-fusiform, transversely distoseptate, rarely longitudinal septa or oblique septa, constricted at the septa, brown to dark brown, smooth to slightly verrucose, bearing mucoid appendages at each end. *Microconidia* ovoid to ellipsoidal, with broad rounded apex, narrow truncate base with basal marginal frills, aseptate, smooth-walled (von Arx and Constantinescu 1983; Nag Raj 1989, 1993).

Type species: Callistospora gaubae Petr., Sydowia 9(1–6): 571 (1955); Fig. 52

Notes: Petrak (1955a) introduced *Callistospora* with *C. gaubae* as the type species. However, Sutton (1980) did not include this genus in his monograph. von Arx and Constantinescu (1983) re-described the genus, but with several omissions (viz. did not mention the presence of mucoid appendages of conidia, mucus in conidiophores and presence of microconidia), thus Nag Raj (1989, 1993) remedied these omissions and provided detailed taxonomic notes.

Callistospora is a monotypic genus and sequence data is unavailable, thus its taxonomic placement is uncertain.

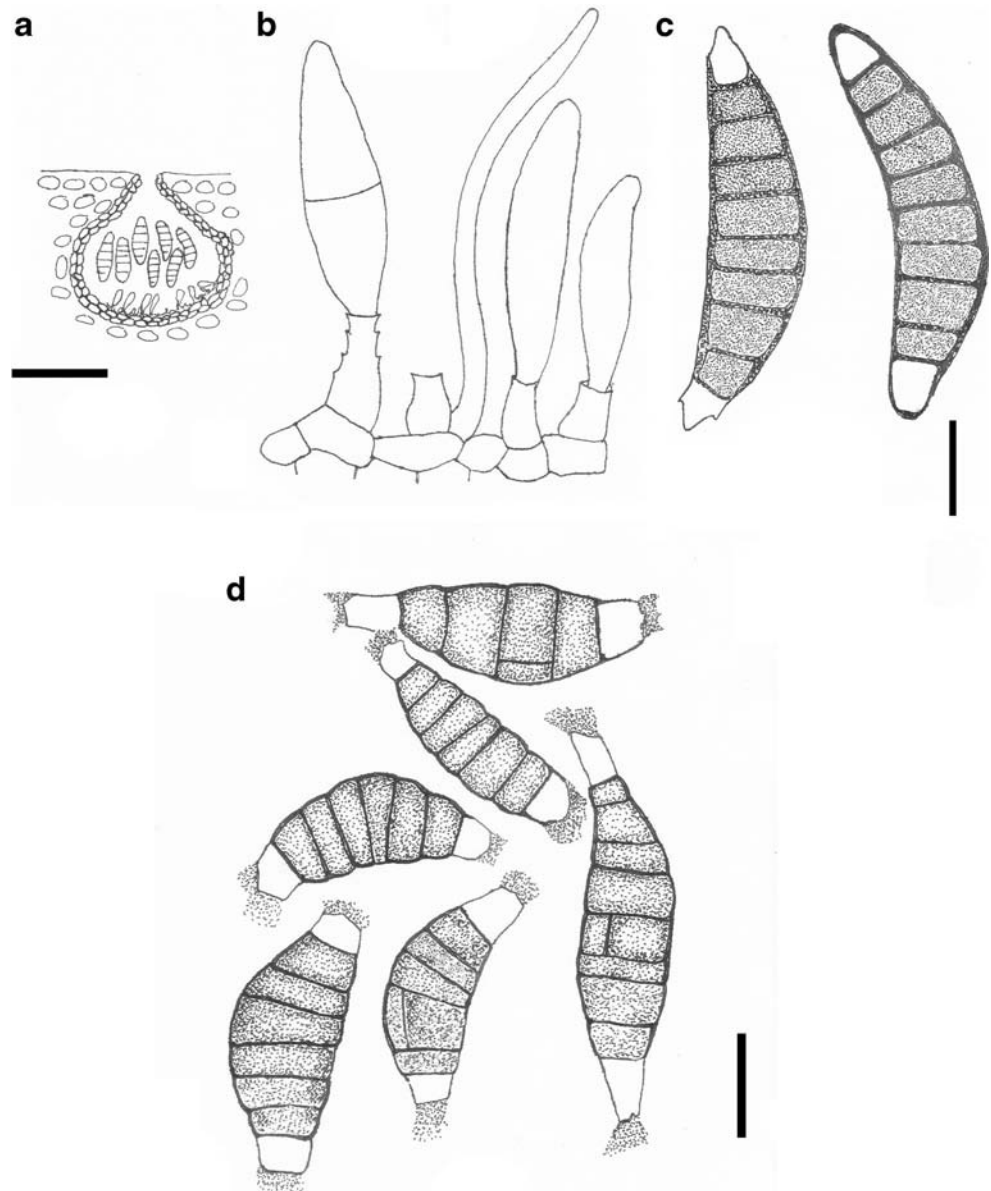
Camarographium Bubák, Ber. dt. bot. Ges. 34: 306 (1916)

Facesoffungi number: FoF 01446; Fig. 53

Dothideomycetes, Pleosporomycetidae, Pleosporales
genera *incertae sedis*

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, solitary or gregarious, immersed to subepidermal, globose, unilocular, dark brown, ostiolate. *Ostiole* papillate, central, circular. *Conidiomata* wall outer layer thick, composed of pale brown-walled cells of *textura angularis*, inner layer thin, composed of subhyaline-walled cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, ampulliform to doliiform, determinate, discrete, hyaline, smooth. *Macroconidia* ellipsoid or irregular in shape, globose, base obtuse, distoseptate, with up to 5 transverse septa, numerous longitudinal or oblique septa, pale brown, guttulate, smooth-walled. *Microconidiogenous* cells phialidic, holoblastic, non-proliferating, ampulliform to doliiform. *Microconidia* subglobose to ellipsoidal, rounded at apex, truncate base (Sutton 1980; Verkley et al. 2005; Crous et al. 2011b).

Fig. 52 *Callistospora gaubae* (a–c re-drawn from von Arx and Constantinescu 1983; d Nag Raj 1993). **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c, d** Conidia. Scale bars: a = 100 μ m, b–d = 20 μ m



Type species: Camarographium stephensii (Berk. & Broome) Bubák, Ber. dt. bot. Ges. 34: 306 (1916)

≡ *Hendersonia stephensii* Berk. & Broome, Ann. Mag. nat. Hist., Ser. 2 5: 465 (1850)

≡ *Camarosporium stephensii* (Berk. & Broome) Sacc., Sylloge Fungorum 3: 469 (1884)

Notes: Bubák (1916) introduced *Camarographium* with *C. stephensii* as the type species. Grove (1937) included *C. metableticum* (Trail) Grove and *C. abietis* (Wils. & Anders.) Grove in the genus, but Sutton (1980) questioned the placement of these two species in *Camarographium* as their conidiomata structures are not congeneric with the type species.

Verkley et al. (2005) and Crous et al. (2011b) introduced *C. koreanum* Verkley et al. and *C. carpini* Mel'nik et al., respectively. Verkley et al. (2005) reported the presence of microconidia in *C. koreanum* for the first time.

Key to species of *Camarographium* (modified key from Crous et al. 2011b)

Crous et al. (2011b) included all accepted species following Verkley et al. (2005) in their key for *Camarographium*. However, we do not include *C. atriplicis* in the key or generic description, which has been reported with hyaline conidia (Golovin 1950).

1. Conidiomata in linear stromata, on petioles of *Pteridium aquilinum*, conidia 22–28 μ m wide.....*C. stephensii*
1. Conidiomata pycnidial, on other substrata.....2
2. Conidia more than 24 μ m wide.....*C. clematidis*
2. Conidia up to 24 μ m wide.....3
3. Conidia 15–24 μ m wide.....4

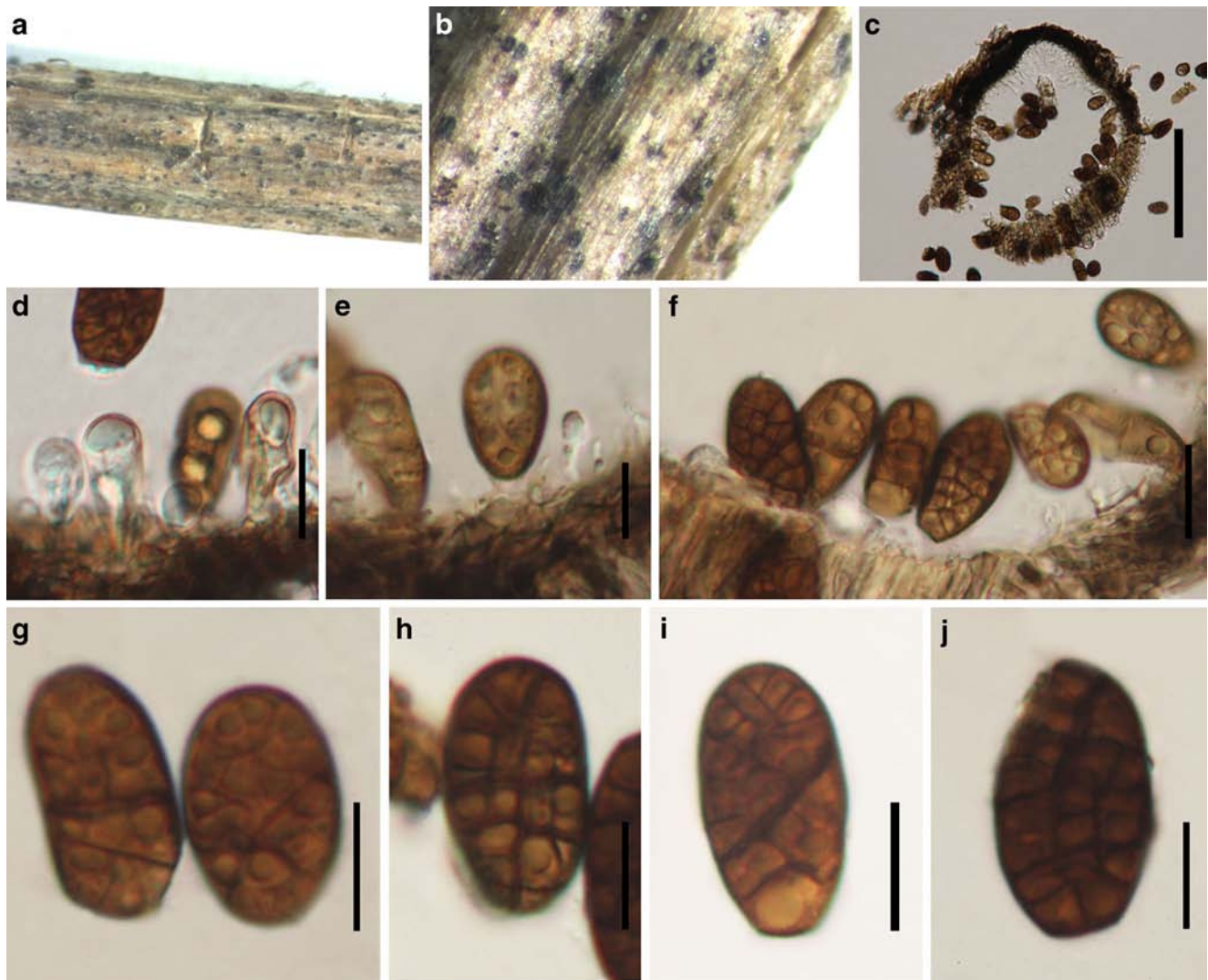


Fig. 53 *Camarographium clematidis* (holotype). **a, b** Conidiomata on host material. **c** Vertical section of conidioma. **d–f** Different stages of conidiogenesis. **g–j** Conidia. Scale bars: **c** = 200 μm , **d–j** = 20 μm

3. Conidia less than 15 μm wide.....5
 4. Conidia 52–62 \times 17–19.5 μm , extruding in a white conidial mass, immersed in bark of *Cornus kousa*, microconidia present.....*C. koreanum*
 4. Conidia 50–60 \times 19–24 μm , extruding in a yellowish brown conidial mass, immersed in bark of *Carpinus betulus*, microconidia absent.....*C. carpini*
 5. Conidia 5.6–7.5 μm wide, on fruits of *Prunus domestica*.....*C. fructicola*
 5. Conidia 7–12 μm wide, on spines of *Acacia sphaerocephala*.....*C. indicum*

Camarographium clematidis Wijayaw., Camporesi, McKenzie, & K.D. Hyde, *sp. nov.*

Index Fungorum number: IF551767; *Facesoffungi* number: FoF 01447; Fig. 53

Etymology: Named after the host genus

Holotype: MFLU 15–3444

Saprobic on twigs, branches and stems of *Clematis vitalba*. **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* 400–450 μm diam., 450–550 μm high, pycnidial, gregarious, immersed, globose, unilocular, dark brown, ostiolate. *Ostiole* papillate, single, central, circular. *Conidiomata wall* outer layer thick, 30–40 μm , composed of thin-walled, brown cells of *textura angularis*, inner layer thin, 3–4 μm , composed of subhyaline-walled cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* 3–8 \times 8–10 μm , enteroblastic, phialidic, determinate, discrete, hyaline, smooth. *Conidia* 47–57 \times 24–34 μm (\bar{x} = 49.6 \times 28.6 μm , n = 20), pale brown, oblong to ellipsoid, globose, base obtuse, guttulate when immature, distoseptate, with 2–4 transverse septa, numerous longitudinal or oblique septa, thin and smooth-walled, guttulate when immature.

Material examined: Italy, Forli-Cesena [FC] Province, Collina di Pondo - Santa Sofia, dead branch of *Clematis vitalba* L. (*Ranunculaceae*), 24 October 2013, Erio Camporesi, IT 1488 (MFLU 15–3444, **holotype**); (HKAS92551, **isotype**).

Notes: The distoseptate conidia of *Camarographium* species separate them from camarosporium-like taxa. Based on morphology (Sutton 1980), we conclude our collection is properly placed in *Camarographium*. Our collection has wide conidia and is morphologically distinct from other described species (Crous et al. 2011b) and it is thus introduced as a new species.

Single spore isolation of *Camarographium clematidis* was successful, but germinated conidia did not grow further in PDA or MEA. In morphology, *Camarographium clematidis* resembles with *Magnicamarosporium iriomotense*, the type species of *Magnicamarosporium* (Tanaka et al. 2015) however, our collection lacks paraphyses.

Camarosporium Tassi, Bulletin Labor. Orto Bot. de R. Univ. Siena 5: 62 (1902)

Facesoffungi number: FoF 01448; Fig. 54

Ascomycota, genera *incertae sedis*

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, solitary, immersed, sub-peridermal, globose, unilocular, black, ostiolate. *Ostiole* papillate, single, circular. *Conidiomata wall* composed of thin-walled, brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic,

ampulliform, determinate, discrete, smooth. *Conidia* ellipsoid or obvoid, truncate base, apex obtuse, distoseptate, muriform, brown to dark chocolate brown, smooth-walled (Sutton and Pollack 1974; Sutton 1980; van Warmelo and Sutton 1981).

Type species: *Camarosporium nervisequum* (Tassi) Tassi, Bulletin Labor. Orto Bot. de R. Univ. Siena 5: 62 (1902)

≡ *Camarosporium nervisequum* Tassi, Bulletin Labor. Orto Bot. de R. Univ. Siena 3: 19 (1900)

Notes: Tassi (1902) established the genus *Camarosporium* to accommodate *Camarosporium nervisequum*. Sutton and Pollack (1974) lectotypified the genus and introduced the second species, *C. cercocarpi* B. Sutton & Pollack. Sutton (1980) compared both *C. nervisequum* and *C. cercocarpi* and further stated that *C. eucalypti* (G. Winter) Tassi (Tassi 1902) is not congeneric with *Camarosporium sensu stricto*. van Warmelo and Sutton (1981) introduced a third species, *C. heterospermum* (Vestergr.) Van Warmelo & B. Sutton. sequence data is unavailable, thus taxonomic placement is uncertain.

Camarosporiopsis Abbas et al., Pakist. J. Bot. 32(2): 239 (2000)

Facesoffungi number: FoF 01449; Fig. 55

Ascomycota, genera *incertae sedis*

Saprobic and *endophytic* on *Capparaceae* (Dicotyledons).

Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* pycnidial to stromatic, immersed, solitary to gregarious, globose to oblong or irregular, black, ostiolar papillate, single, circular. *Conidiomata wall* only one layer, composed of

Fig. 54 *Camarosporium nervisequum*. **a** Vertical section of conidioma. **b** Developing conidia attach to conidiogenous cells. **c** Conidia. Scale bars: **a**, **b** = 20 μ m, **c** = 50 μ m (re-drawn from Sutton and Pollack 1974)

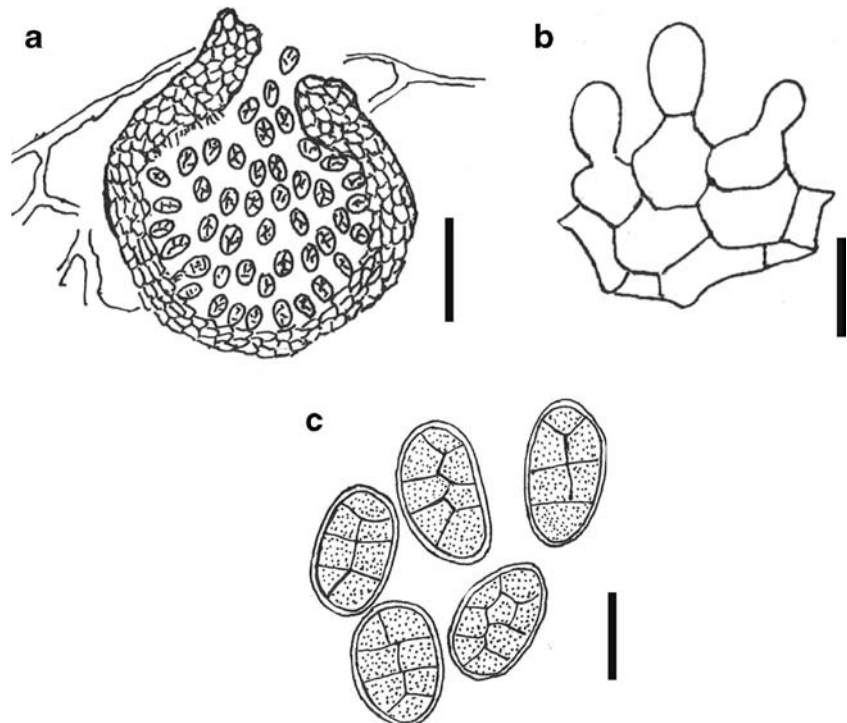
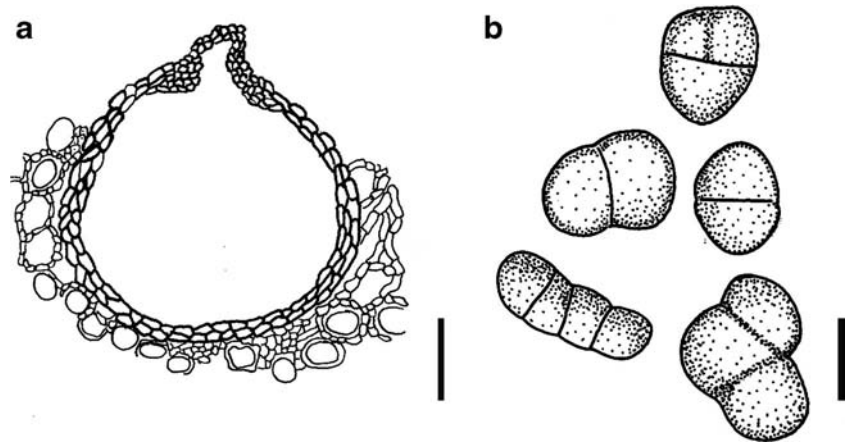


Fig. 55 *Camarosporiopsis capparidis*. **a** Vertical section of conidioma. **b** Conidia. Scale bars: **a** = 50 μ m, **b** = 8 μ m (re-drawn from Abbas et al. 2000)



thick-walled, brown cells of *textura prismatica*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enterogenous proliferation and progressively, ampulliform to lageniform, hyaline, smooth. *Conidia* globose to oblong or triangular, or irregular in shape, both ends obtuse, muriform, brown, verruculose, enclosed in thick mucilaginous sheath (description modified from Abbas et al. 2000)

Type species: *Camarosporiopsis capparidis* (S. Ahmad) Abbas et al., *Pakist. J. Bot.* 32(2): 241 (2000); Fig. 55

≡ *Camarosporium capparidis* S. Ahmad [as ‘capparidis’], *Sydowia* 5(3–6): 393 (1951)

Notes: Abbas et al. (2000) introduced *Camarosporiopsis* with *C. capparidis* as the type species. In conidial morphology, *Camarosporiopsis* resembles *Camarosporium* and *Dichomera* but conidia of the latter two genera are not enclosed in a mucilaginous sheath. The morphology of *Camarosporiopsis* is compared with other relative genera under *Camarosporium*. Sequence data is unavailable, hence the taxonomic placement is uncertain.

Camarosporium Schulzer, *Verh. zool.-bot. Ges. Wien* 20: 649 (1870)

= *Piringa* Speg., *Anal. Mus. nac. B. Aires, Ser. 3* 13: 378 (1911)

= *Sclerotheca* Bubák & Vleugel, *Svensk bot. Tidskr.* 11: 314 (1917)

Facesoffungi number: FoF 01450; Fig. 56

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, *Pleosporineae*, genera *incertae sedis*

Saprobic and endophytic on a range of plants, occasionally pathogenic. **Sexual morph**: cucurbitaria-like *vide* Wijayawardene et al. (2014a); Tibpromma et al. (2015).

Asexual morph: *Conidiomata* pycnidial, immersed to subepidermal, solitary to gregarious, globose, unilocular, dark brown to black, ostiolate. *Ostirole* papillate, single, circular, central. *Conidiomata wall* composed thick-walled, dark brown cells of *textura angularis*, inner layer with hyaline cells. *Conidiogenous cells* holoblastic, annellidic, integrated to discrete,

doliiform, lageniform or cylindrical, smooth, hyaline, formed from the inner cells of the pycnidial wall. *Conidia* variable in shape, mostly ellipsoidal, curved to straight, truncate at the base, obtuse at the apex, muriform, continuous or constricted at the septa, medium brown to dark brown, thin and smooth-walled (Mirza 1968; Sutton and Pollack 1974; Sutton 1980; Hyde et al. 2013; Wijayawardene et al. 2014b; Tibpromma et al. 2015).

Type species: *Camarosporium quaternatum* (Hanzl.) Schulz., *Verh. Zool.-Bot. Ges. Wien* 20: 641 (1870)

Notes: The genus *Camarosporium* was introduced by Schulzer (1870) with *C. quaternatum* as the type species. There are approximately 500 records listed in *Index Fungorum* (2016), but most of them have not been re-examined since they were introduced (Sutton 1980). *Camarosporium* was treated as a polyphyletic genus (Sutton 1980; Kirk et al. 2008; Wijayawardene et al. 2012b) and linked to several phylogenetically distinct families viz. *Leptosphaeriaceae* (Schoch et al. 2009), *Cucurbitariaceae* (Doilom et al. 2013) and *Botryosphaeriales*, genera *incertae sedis* (Liu et al. 2012). However, Wijayawardene et al. (2014a) showed that *Camarosporium sensu stricto* belongs to *Pleosporineae*, *Pleosporales* and predicts its placement as a new family. Wijayawardene et al. (2014a) and Tibpromma et al. (2015) showed that *Camarosporium sensu stricto* has cucurbitaria-like sexual morphs.

Camarosporula Petr., *Sydowia* 8(1–6): 99 (1954)

= *Anthracostroma* Petr., *Sydowia* 8(1–6): 96 (1954)

Facesoffungi number: FoF 01424; Fig. 57

Dothideomycetes, *Dothideomycetidae*, *Capnodiales*, *Teratosphaeriaceae*

Endophytic or *saprobic* on various substrates of range of host plants. **Sexual morph**: see Crous et al. (2011c). **Asexual morph**: *Conidiomata* acervular, subcuticular, epidermal to subepidermal, solitary to confluent. *Conidiomata wall* composed of thick-walled, dark brown globose to angular cells. *Conidiophores* reduced to conidiogenous cells.

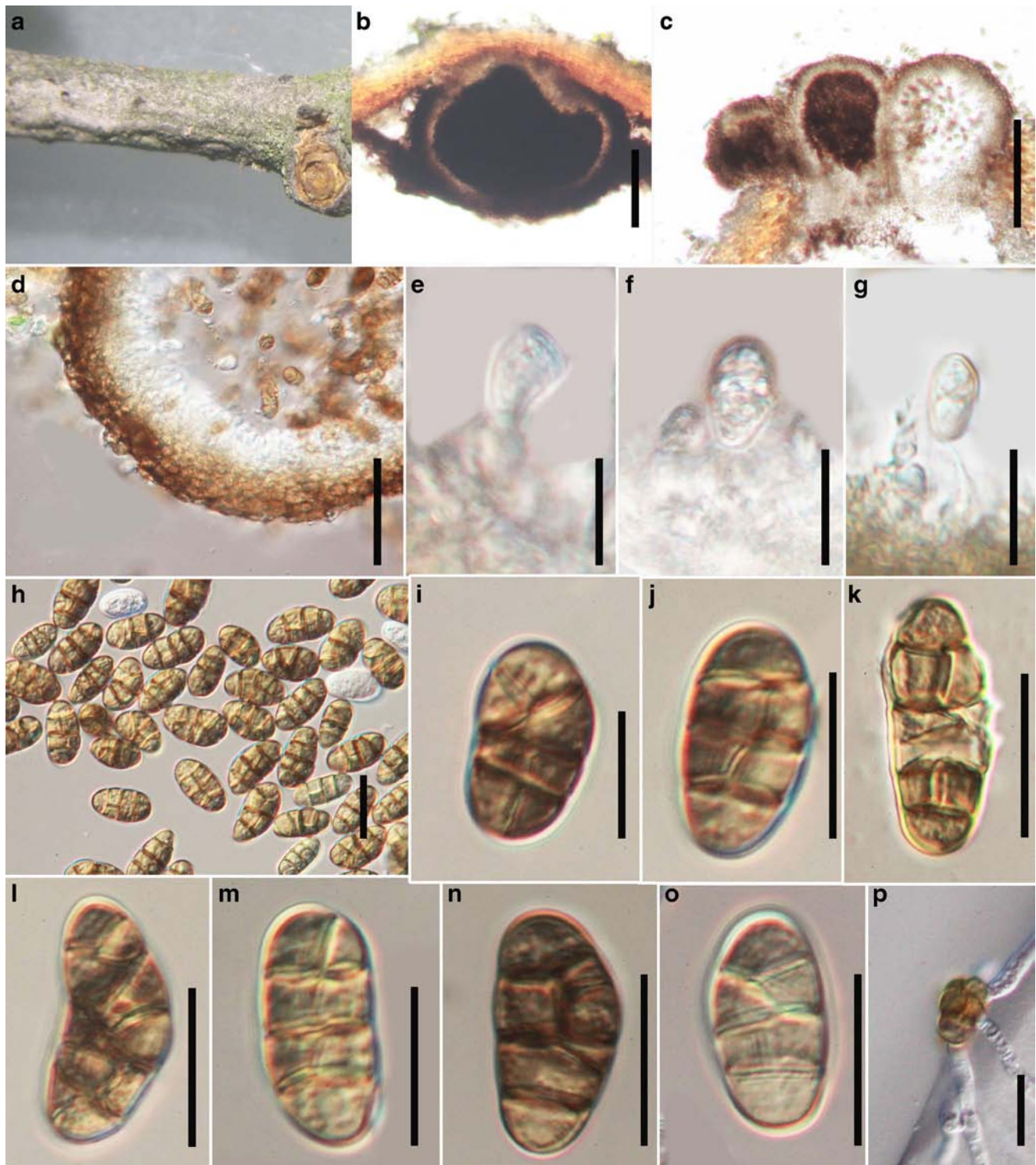


Fig. 56 *Camarosporium elaeagnellum* (Material examined: Germany, near Berlin, on branches and twigs of *Elaeagnus angustifolia*, 6 May 2013, René K. Schumacher, MFLU 15–3551). **a** Conidiomata on branches of *Elaeagnus angustifolia*. **b, c** Vertical sections of conidiomata.

d Conidioma wall. **e–g** Different stages of conidiogenesis. **h–o** Conidia. **p** Germinating conidium. Scale bars: **b** = 75 μ m, **c, h** = 20 μ m, **d** = 30 μ m, **e–g, i–p** = 10 μ m

Conidiogenous cells holoblastic, cylindrical to doliiform, integrated, hyaline to pale brown, smooth or minutely verruculose. *Conidia* cylindrical, clavate, obclavate or

irregular, truncate base, muriform, distoseptate, medium to dark brown, thick and smooth-walled (Petraik 1954; Sutton 1980; Swart 1985; Crous et al. 2011d).

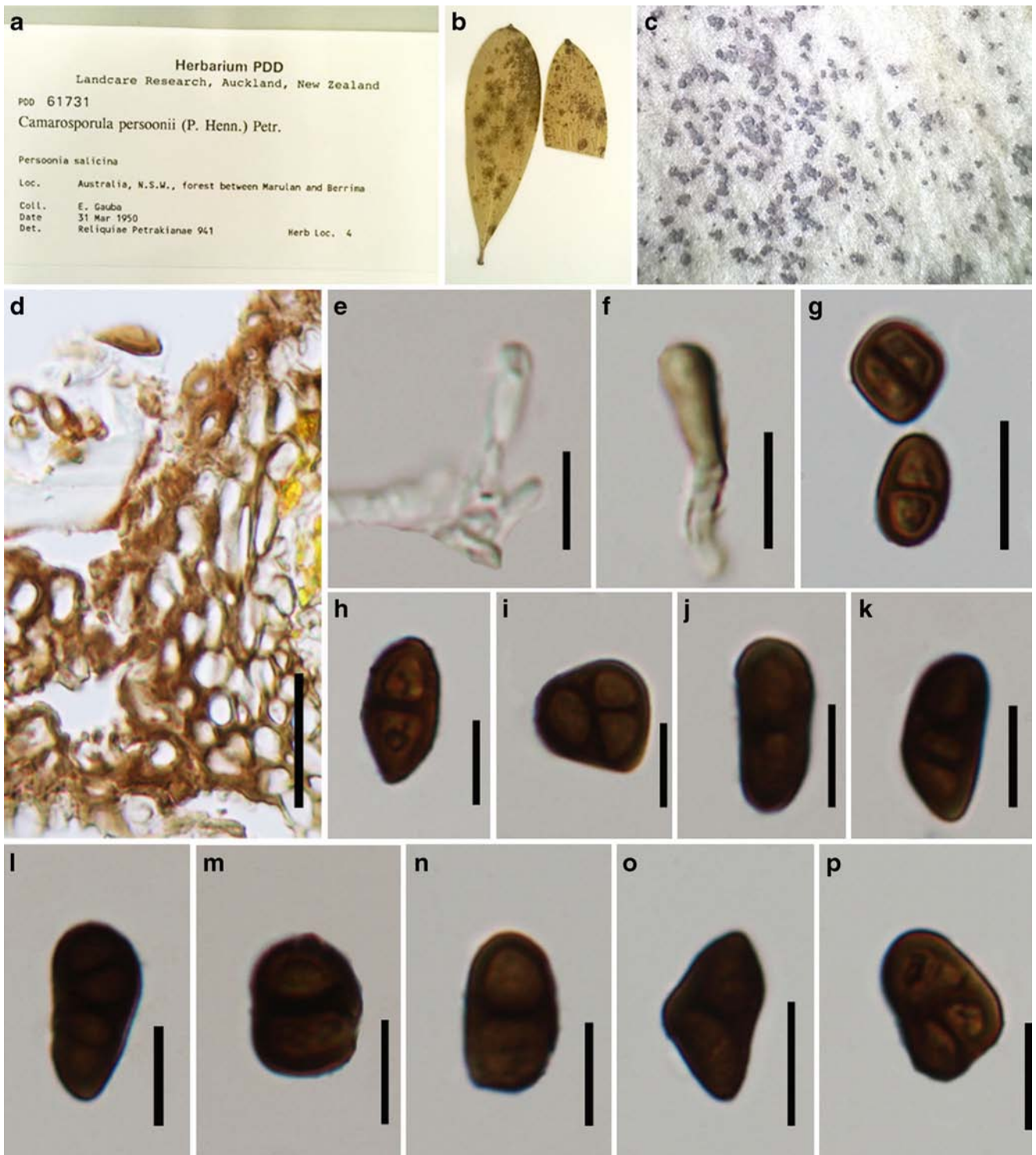


Fig. 57 *Camarosporula persooniae* (Australia, N. S. W., forest between Marulan and Berrima, on unidentified leaf, 31 March 1950, E. Gauba, PDD 61731). **a** Label of herbarium material. **b** Herbarium materials. **c**

Conidiomata on host. **d** Conidioma wall. **e, f** Different stages of conidiogenesis. **g–p** Conidia. Scale bars: **d** = 20 μ m, **e–p** = 10 μ m

Type species: Camarosporula persooniae (Henn.) Petr., Sydowia 8(1–6): 99 (1954); Fig. 57

\equiv *Hendersonia persoonii* Henn., Hedwigia 40(4): 97 (1901)

\equiv *Anthracostroma persooniae* (Henn.) Petr., Sydowia 8 (1–6): 97 (1954)

Notes: Petrak (1954) introduced *Camarosporula* to accommodate the asexual morph of *Anthracostroma*. Sutton (1980)

provided a description and illustrations of the type species and accepted *A. persooniae* as the sexual morph. Crous et al. (2011d) phylogenetically confirmed this established link. Hence, Wijayawardene et al. (2014c) proposed to synonymize the younger asexual typified name under older sexual typified name. However, Rossman et al. (2015) contrary with Wijayawardene et al. (2014c) suggested to adopt *Camarosporula* over *Anthracostroma* as former has been reported frequently (Farr and Rossman 2016) and as it was used in recent literature (Crous et al. 2011d).

In morphology, *Camarosporula* resembles camarosporium-like taxa, but it is phylogenetically quite distinct and is accommodated in *Teratosphaeriaceae* (Crous et al. 2011d; Figs. 9 and 11).

Capitorostrum Bat., Revta Biol., Lisb. 1(2): 140 (1957)

Facesoffungi number: FoF 01451; Fig. 58

Ascomycota, genera incertae sedis

Fungicolous on colonies of *Asteridiella fraseriana*, associated with leaf spots of *Cocos nucifera* (*Areaceae*, Monocotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, superficial to immersed, solitary to gregarious, separate, globose to subglobose at the base, with a long neck, thin-walled, ostiolate. *Ostirole* single circular. *Conidiomata* wall basal region composed of thin-walled, pale brown cells of *textura angularis*, neck region composed of parallel *textura prismatica*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells*

enteroblastic, phialidic, ampulliform, hyaline, smooth, channel and collarete minute. *Conidia* ellipsoid, aseptate, pale brown, eguttulate, smooth-walled (Sutton 1980; Hyde and Philemon 1991).

Type species: Capitorostrum asteridiellae Bat., Revta Biol., Lisb. 1(2): 140 (1957) Fig. 58

Notes: Batista and Maia (1957) introduced *Capitorostrum* with *C. asteridiellae*. The genus comprises two species after Hyde and Philemon (1991) introduced the second species, *Capitorostrum cocoës* K.D. Hyde & Philemon. Sequence data is unavailable in GenBank, thus the taxonomic placement of *Capitorostrum* is uncertain.

Capnodiastrum Speg., Anal. Soc. cient. argent. 22(4): 192 (1886)

Facesoffungi number: FoF 01452; Fig. 59

Dothideomycetes, families incertae sedis, Englerulaceae

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, superficial, solitary, globose, unilocular, dark brown. *Conidiomata* wall composed of thin-walled cells of *textura angularis* or *textura globulosa*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, doliiform, determinate, discrete, hyaline, smooth. *Conidia* obovoid, base truncate, apex obtuse to conic, 1-septate, with a central guttule, median transverse hyaline band; apical cell small, pale brown, lower cell much larger (Sutton 1980; Kheyrodin and Ghazvinian 2012).

Fig. 58 *Capitorostrum asteridiellae*. **a** Vertical section of conidioma. **b** Developing conidia. **c** Conidia. Scale bars: **b**, **c** = 10 μ m, **a** = 50 μ m (re-drawn from Sutton 1980)

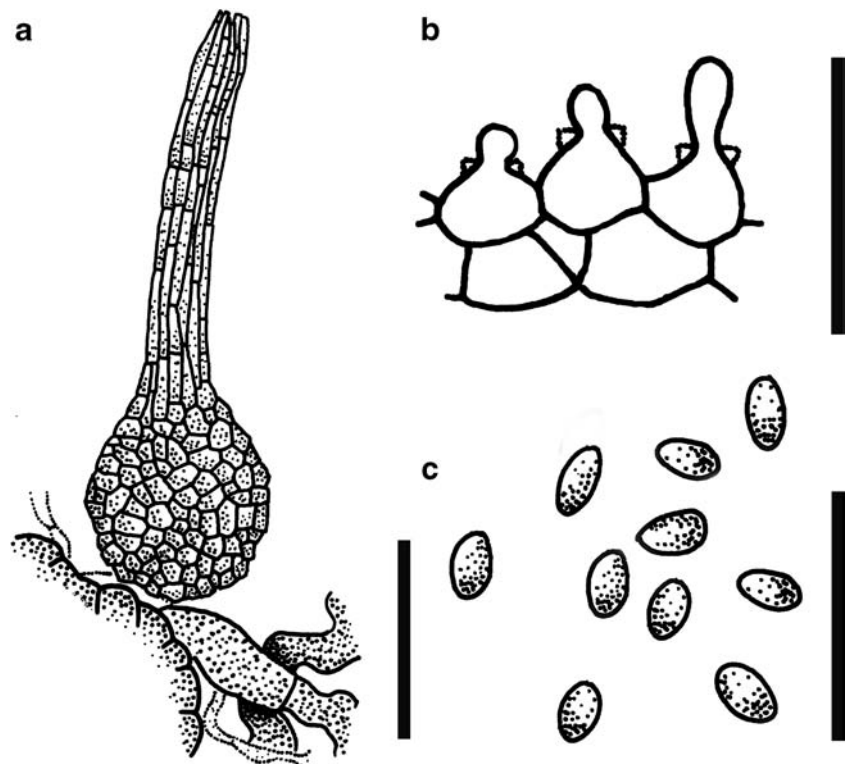
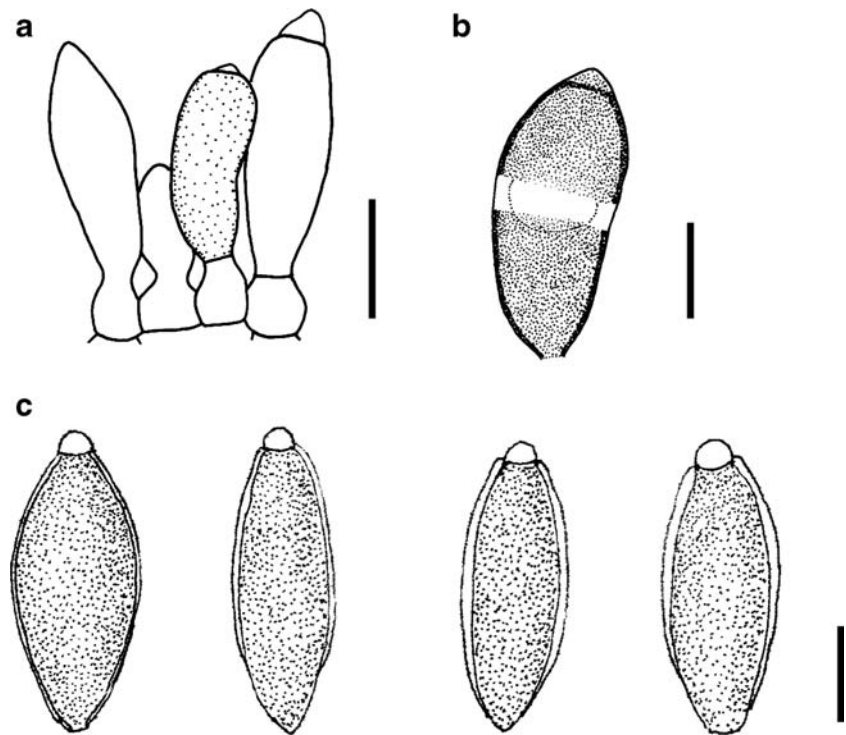


Fig. 59 **a, b** Conidia of *Capnodiastrum guaraniticum*. **c** Conidia of *C. sawadae*. Scale bars: **a–c** = 10 μ m (re-drawn from Sutton 1980 and Kheyrodin and Ghazvinian 2012 respectively)



Type species: Capnodiastrum guaraniticum Speg., Anal. Soc. cient. argent. 22(2): 145 (1886)

Notes: Spegazzini (1886) introduced *Capnodiastrum* with *C. guaraniticum* as the type species. Petrak (1952) transferred four species into the genus viz. *C. leptaleum* (Petr.) Petr., *C. macarangae* (Petr.) Petr., *C. stylosporum* (Cooke) Petr. and *C. trematis* (Syd.) Petr. Arnaud (1918) and Farr (1973) re-described the genus and Sutton (1980) accepted 12 species.

Wijayawardene et al. (2012b) and Dai et al. (2014a) treated *Capnodiastrum* as a genus in *Englerulaceae* and stated it is the asexual morph of *Englerula*. Sequence data is unavailable, thus taxonomic placement of *Capnodiastrum* is uncertain.

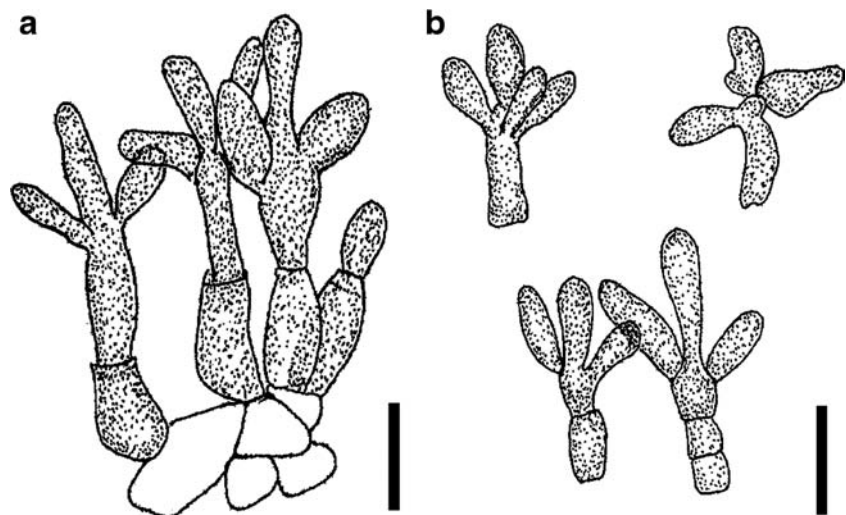
Carnegieispora Etayo & F. Berger, Opuscula Philolichenum 7: 17 (2009)

Facesoffungi number: FoF 01680; Fig. 60

Ascomycota, genera incertae sedis

Lichenicolous. Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* when immature appear as pycnidial, immersed, erumpent at maturity, acervular. *Conidiophores* formed on a paraplechtenchyma of subhyaline to brownish cells at the base of the conidiomata, subsphaerical. *Conidiogenous cells* holoblastic, annellidic, with 1(–2) percurrent proliferations, ellipsoid or elongate-cylindrical, terminal, grey, smooth. *Conidia* digitate, basally truncate, arising singly, irregularly branched, branches not arranged in a single

Fig. 60 *Carnegieispora rimeliae*. **a** Different stages of conidiogenesis. **b** Conidia. Scale bars: **a, b** = 10 μ m (re-drawn from Etayo and Berger 2009)



plane, dry, acrogenous, grey, thin, smooth-walled; stem 0–2-septate, arms simple or rarely with 1 septum, constricted at the base, with obtuse apex (description modified from Etayo and Berger 2009).

Type species: Carnegieispora rimeliae Etayo & F. Berger, *Opuscula Philolichenum* 7: 18 (2009); Fig. 60

Notes: Etayo and Berger (2009) introduced *Carnegieispora* with *C. rimeliae* as the type species. *Carnegieispora* shows distinct conidial morphological characters as it has digitate (finger-like) conidia, and therefore clearly differs from other common lichenicolous genera such as *Licheniconium* or *Lichenodiopsis*, which have obvate, obpyriform, ellipsoid to sub-spherical (Hawksworth 1977) or subcylindrical to cylindrical conidia, respectively (Hawksworth and Dyko 1979). A

taxonomic key to distinguish lichenicolous taxa is provided under the notes of *Licheniconium*.

The genus is monotypic and sequence data is unavailable. Thus, taxonomic placement is uncertain.

Ceratopycnis Höhn., *Sber. Akad. Wiss. Wien, Math.-naturw. Kl., Abt. 1* 124: 86 (1915)

Facesoffungi number: FoF 01453; Fig. 61

Ascomycota, genera incertae sedis

Endophytic or *saprobic* on stems of *Ranunculaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, rostrate, solitary to gregarious, immersed, globose to subglobose, unilocular, dark brown to black, ostiolate. *Ostiole* at the apex of the rostrum, central,



Fig. 61 *Ceratopycnis pseudoclematidis* (holotype). **a** Immersed conidiomata on *Clematis vitalba*. **b** Vertical section of conidioma. **c** Conidioma wall. **d–f** Different stages of conidiogenesis. **g–o** Conidia. Scale bars: **b, c** = 70 μ m, **d–o** = 10 μ m

single, circular. *Conidiomata* wall composed of thin-walled, brown cells of *textura prismatica*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, doliiform to cylindrical, determinate, discrete, hyaline, smooth. *Conidia* cylindrical, truncate at base, obtuse at apex, narrow in the middle, straight, 3-septate, continuous or constricted at septa, golden brown to dark brown, thick-walled, smooth to verrucose (Morgan-Jones et al. 1972c; Morgan-Jones 1975; Sutton 1980).

Type species: Ceratopycnis clematidis Höhn., Sber. Akad. Wiss. Wien, Math.-naturw. Kl., Abt. 1 124: 88 (1915)

Notes: Von Höhnel (1915) introduced the genus *Ceratopycnis* with *C. clematidis* as the type species. Morgan-Jones et al. (1972c), Morgan-Jones (1975) and Sutton (1980) revisited the type species. Sutton (1980) mentioned that the two other species introduced by Racovitza (1959) (viz. *C. bryophila* Racov. and *C. muscorum* Racov.) are not congeneric with the type species, and thus treated the genus as monotypic.

During our collecting program in Italy, we found a specimen which is morphologically similar to *Ceratopycnis*, but differs from the type species and hence introduce it as a new species.

Ceratopycnis pseudoclematidis Wijayaw., Camporesi, D.J. Bhat & K.D. Hyde, *sp. nov.*

Index Fungorum number: IF551768; *Facesoffungi number:* FoF 01454; Fig. 61

Etymology: Named because of its morphological resemblance to *Ceratopycnis clematidis*

Holotype: MFLU 15–3446

Saprobic on dead branches of *Clematis vitalba* (*Ranunculaceae*). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* 120–150 μm diam., 140–170 μm high, pycnidial, immersed, solitary, black, globose to subglobose, unilocular. *Ostiole* papillate, central, single, circular. *Conidiomata* wall multi-layered, with thick outer layer, 10–20 μm wide, composed of brown-walled cells of *textura angularis*, with thin, hyaline, inner layer, 5–7 μm wide. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* 3–7 \times 1–3 μm , holoblastic, phialidic, indeterminate, integrated, hyaline, smooth. *Conidia* 14–21 \times 5–8 μm (\bar{x} = 17.7 \times 6.2 μm , n = 20), cylindrical or rarely oblong, obtuse at apex, truncate at base, occasionally tapered to the base, straight to slightly curved, rarely sigmoid, occasionally wider at the middle, 3-septate, golden brown to dark brown, continuous or constricted at the septa, thin and smooth-walled.

Material examined: Italy, Forli-Cesena [FC] Province, Cabelli - Santa Sofia, on dead branch of *Clematis vitalba* L. (*Ranunculaceae*), 23 January 2014, Erio Camporesi, IT 1866 (MFLU 15–3446, **holotype**).

Notes: *Ceratopycnis clematidis* has also been reported from *Clematis* spp. (Farr and Rossman 2016), but its conidia are larger than in our collection (i.e. 18.5–28.5 \times 8.5–9.5 μm *vide* Sutton 1980).

Chaetodiplodia P. Karst., Hedwigia 23: 62 (1884)

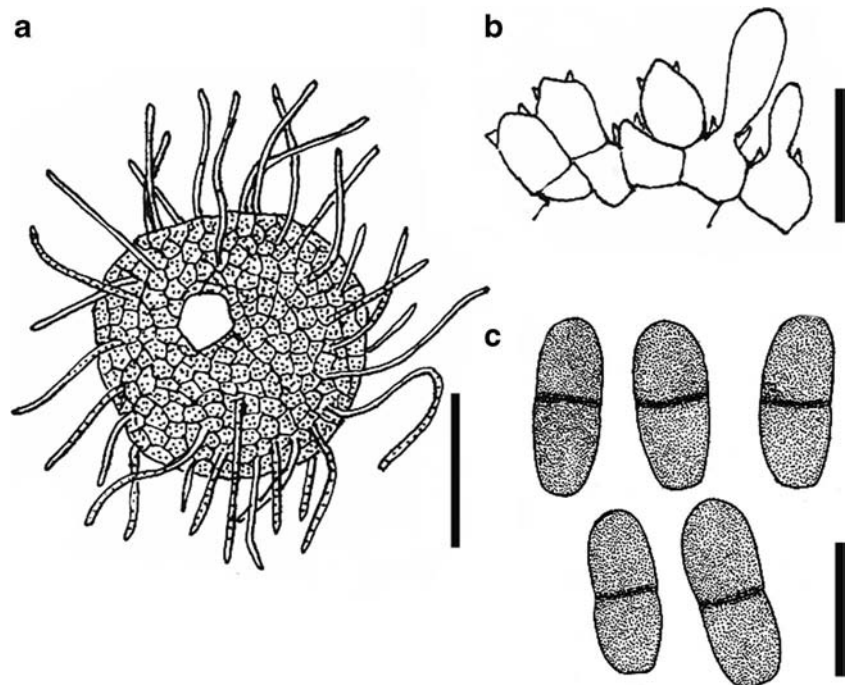
Facesoffungi number: FoF 01455; Fig. 62

Ascomycota, genera *incertae sedis*

Saprobic or *endophytic* on various substrates of a range of host plants or associated with leaf lesions of *Rutaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:**

Fig. 62 *Chaetodiplodia caulina*.

a Surface view of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 100 μm , **b**, **c** = 10 μm (re-drawn from Sutton 1980)



morph: *Conidiomata* pycnidial, superficial, dark brown to black, globose, solitary or occasionally gregarious, unilocular, ostiolate. *Ostirole* single, circular, central. *Conidiomata wall* composed of thin-walled, brown cells of *textura angularis*. *Setae* numerous, covering whole pycnidium, straight or flexuous, smooth, pale brown, usually aseptate, becoming septate at maturity, with obtuse apices, not markedly tapered. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, discrete, determinate, hyaline, smooth, ampulliform to doliiform, with narrow channel, minute collarete, periclinal wall thickening. *Conidia* cylindrical to ellipsoid, obtuse at apex, occasionally truncate at base, 1-septate, with prominent septum, continuous or occasionally slightly constricted, pale brown, eguttulate or guttulate, thin and smooth-walled (Sutton 1980; Tiwari and Rai 2009).

Type species: Chaetodiplodia caulina P. Karst., Hedwigia 23: 62 (1884); Fig. 62

Notes: Karsten (1884) introduced *Chaetodiplodia* with *C. caulina* as the type species. Currently, the genus comprises 27 epithets in Index Fungorum (2016) however, Sutton (1980) stated that the genus needs revision. van der Aa and van Kesteren (1979) treated the type species of *Chaetodiplodia* as a synonym of *Ascochyta caulina* (P. Karst.) Aa & Kesteren which is followed in Species Fungorum.

De Gruyter et al. (2009, 2013) included two *Chaetodiplodia* strains (CBS 568.88, CBS 453.68) and two *Ascochyta caulina* strains (CBS 246.79, CBS 343.78) in their phylogenetic analyses. *Chaetodiplodia* sp. (CBS 568.88) clustered in *Leptosphaeriaceae*, while both *Ascochyta caulina* strains and *Chaetodiplodia* sp. (CBS 453.68) grouped in *Pleosporaceae*. De Gruyter et al. (2013) treated *Ascochyta caulina* as a synonym of *Pleospora calvescens* (Fr.) Tul. & C. Tul. following de Gruyter et al. (2009) who stated that the former species is the asexual morph of the latter. van der Aa and van Kesteren (1979) mentioned *Ascochyta caulina* has ‘sub-hyaline to yellowish-green, olivaceous or rarely brownish’ conidia, thus contradicting with the generic concept of *Ascochyta sensu stricto*, which has hyaline conidia (Sutton 1980). Furthermore, *Ascochyta sensu stricto* belongs in *Didymellaceae* (de Gruyter et al. 2009, 2013; Wijayawardene et al. 2014d) and we assume *Chaetodiplodia caulina* as the most appropriate name for this taxon. Thus, based on current morphological and sequence data analyses, the type species of *Chaetodiplodia caulina* remains a synonym of *Pleospora calvescens* (de Gruyter et al. 2013).

De Gruyter et al. (2013) mentioned that ‘*Phoma betae* clearly groups with other pycnidial fungi pathogenic on *Chenopodiaceae*, including *Ascochyta obiones*, *A. hyalospora* and *A. caulina* and *Chaetodiplodia* sp. All species produce similar hairy pycnidia, but are classified in *Ascochyta* or *Coniothyrium* due to conidial septation, or brown pigmentation of conidia, respectively’, based on their observations and sequence data analyses. P.W. Crous (personal communication) mentioned that the strain based on CBS

453.68 is not similar to *Chaetodiplodia* and hence it should be placed in a new genus. Therefore, naming this group of taxa based on names in GenBank is not wise. Further fresh collections and morpho-molecular analyses are essential to clarify the generic concept of *Chaetodiplodia*.

Chaetoplea (Sacc.) Clem., Gen. fung., Edn 2 (Minneapolis): 275 (1931)

Faces of Fungi number: FoF00280; Fig. 63

≡ *Pyrenophora* subgen. *Chaetoplea* Sacc., Syll. fung. (Abellini) 2: 279 (1883)

= *Parahendersonia* A.W. Ramaley, Aliso 14(2): 152 (1995)

Dothideomycetes, Pleosporomycetidae, Pleosporales, Pleosporineae, Leptosphaeriaceae

Endophytic or saprobic on a range of host plants. **Sexual morph:** see Phookamsak et al. (2014). **Asexual morph:** *Conidiomata* co-occurring with sexual morph, pycnidial, solitary to gregarious, semi-immersed to erumpent, unilocular, ellipsoidal to broadly fusiform, with rounded apex, globose, dark brown to black, ostiolate. *Ostirole* papillate, central. *Conidiomata wall* thick, outer layer composed of thick-walled, dark brown to black cells of *textura angularis*, inner layer composed of thin-walled, hyaline to pale brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, phialidic, ampulliform or lageniform, discrete, hyaline, aseptate, smooth. *Conidia* oblong to ellipsoidal, with rounded or obtuse ends, brown, 1-septate, smooth-walled.

Type species: Chaetoplea calvescens (Fr. ex Desm.) Clem., Gen. fung., Edn 2 (Minneapolis): 275 (1931); Fig. 63

Notes: Clements and Shear (1931) introduced *Chaetoplea* with *C. calvescens* as the type species. The asexual morph of *Chaetoplea* was reported as *Dendryphon comosum* Walk. (for *Pyrenophora calvescens* (Fr.) Sacc.) fide Saccardo 1883), while Webster and Lucas (1959) treated *Microdiplodia henningsii* Staritz. as the asexual morph. Crous et al. (2006a) however, treated *Microdiplodia* as an asexual morph in *Didymosphaeriaceae* (The generic concept of *Microdiplodia* is problematic. See notes under *Microdiplodia*). Further, Ramaley (1995) reported *Parahendersonia* as the asexual morph of *Chaetoplea*. Phookamsak et al. (2014) however, observed a coelomycetous asexual morph closely associated with the sexual morph on the lectotype and described the holomorph of *Chaetoplea* based on co-occurrence of both morphs on same host material.

Phookamsak et al. (2014) treated *Chaetoplea* as a member of *Leptosphaeriaceae* based on morphological characters.

Cheirospora Moug. & Fr., Syst. orb. veg. (Lundae) 1: 365 (1825)

See Index Fungorum for synonyms.

Facesoffungi number: FoF 01456; Fig. 64

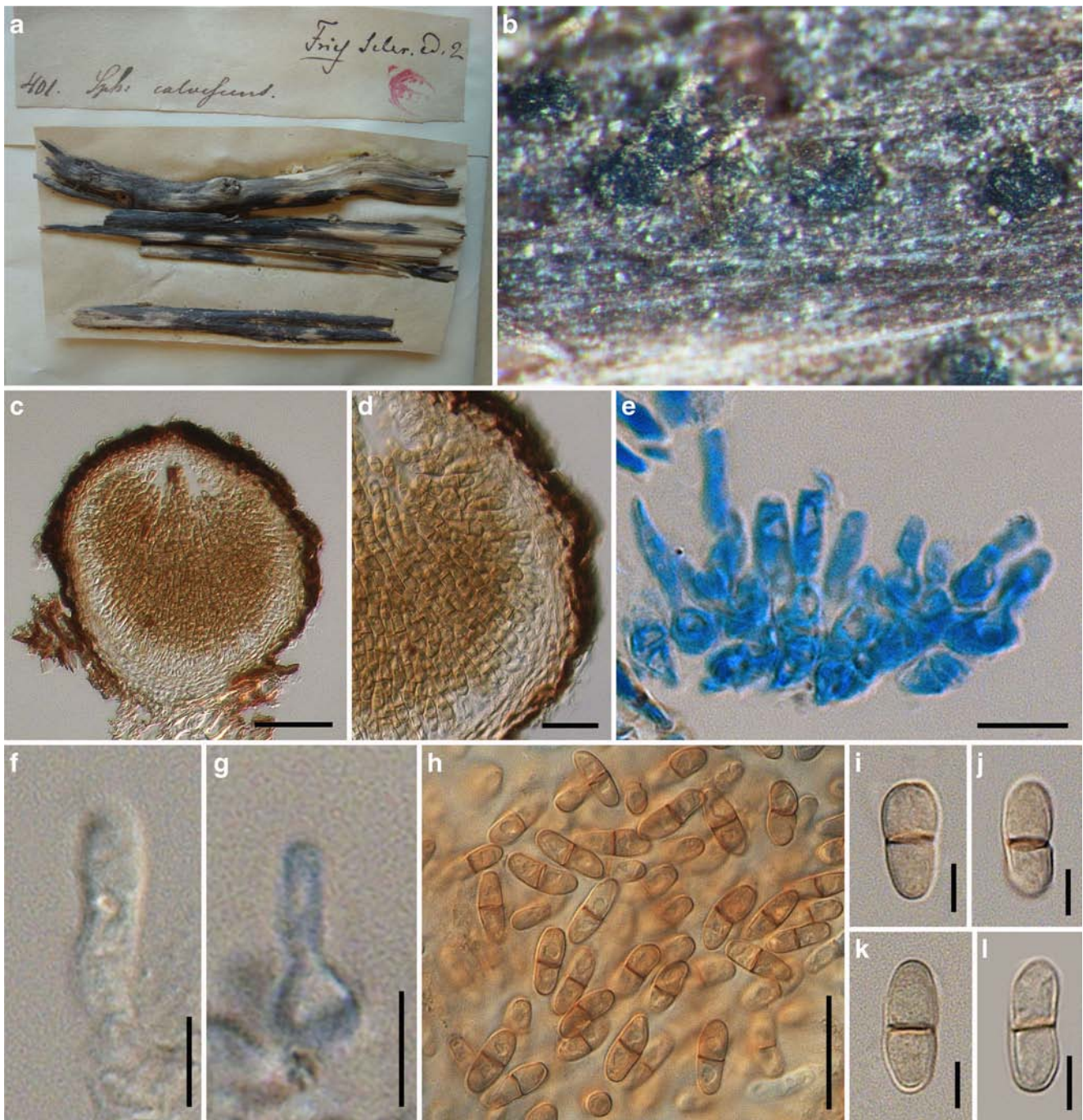


Fig. 63 *Chaetoplea calvescens* (= *Parahendersonia dasyliirii*) (Material examined: Sweden, on dead wood, 1822, E.M. Fries, no. 401 (Fries Sbarbaro Collection), BPI). **a** Label and specimen of *Chaetoplea calvescens*. **b** Conidiomata on host material. **c** Vertical section of

conidioma. **d** Conidioma wall. **e** Conidiogenous cells stained in cotton blue. **f, g** Conidiogenous cells and developing conidia. **h–l** Conidia. Scale bars: **c** = 50 μ m, **d, h** = 20 μ m, **e** = 10 μ m, **f–g, i–l** = 5 μ m

Leotiomyces, *Helotiales*, genera *incertae sedis*

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* acervular, sub-epidermal or sub-peridermal, solitary. *Conidiomata* wall composed of pale, thin-walled, brown cells of *textura angularis*. *Conidiophores* cylindrical, straight or slightly curved,

branched only at the base, septate, hyaline, expanding towards the apices, smooth. *Conidiogenous cells* holoblastic, polyblastic, cylindrical, determinate, integrated, hyaline, smooth. *Conidia* sphaerical, proliferating with several, short, lateral, acropetal, branched chains; primary branches in turn develop secondary branches which eventually form a globose to cylindrical mass of small,



Fig. 64 *Cheirospora botryospora* (Material examined: Germany, on branches of *Tilia* sp., 05 March 2013, René K. Schumacher, MFLU 15–3550). **a** Label and specimen. **b** Conidia outside the conidiomata. **c**

Conidioma. **d** Vertical section of conidioma. **e–g** Conidia attach to conidiophores. **h** Conidia. Scale bars: **b**, **c** = 1 mm, **d** = 200 μ m, **e–g** = 150 μ m, **h** = 30 μ m

thick-walled, dark brown, septate, eguttulate, smooth, cheiroid, conidium-complex, enclosed in a gelatinous sheath (Sutton 1980; Shabunin 2007; Crous et al. 2015c).

Type species: Cheirospora botryospora (Mont.) Berk. & Broome, Ann. Mag. nat. Hist., Ser. 2 5: 455 (1850); Fig. 64

≡ *Stilbospora botryosporum* Mont., Anns Sci. Nat., Bot., sér. 2 6: 338 (1836)

Notes: Fries (1825) introduced *Cheirospora* with *C. botryospora* (Mont.) Berk. & Br. as the type species. Currently, nine epithets are listed in Index Fungorum (2016). However, two names have been transferred to *Endobotryella* and *Taeniolella* (Von Höhnelt 1909; Hughes 1958). Sutton (1980) stated that ‘the several generic synonyms and wide spread occurrence on many different substrates of the described species has resulted in many nomenclatural changes and synonyms’. Thus it is essential to epitypify the genus and deposit ex-type strains in GenBank.

Shabunin (2007) introduced *Cheirospora alni* Shabunin as a new species, while *C. botryospora* has been reported by several authors (Dennis 1986; Ginns 1986; Mel’nik and Popushoi 1992; Chlebicki 2002; Molenko et al. 2004, 2008; Ono and Kobayashi 2005; Chlebicki and Chmiel 2006; Huseyin and Selcuk 2007; Kobayashi 2007; Legon 2012).

Crous et al. (2015c) placed *Cheirospora botryospora* in *Helotiales* and reported a *Phialophora* synsexual morph in culture.

Chithramia Nag Raj, Can. J. Bot. 66(5): 903 (1988)

Facesoffungi number: FoF 01457; Fig. 65

Ascomycota, genera *incertae sedis*

Endophytic or *saprobic* on glumes of *Poaceae* (Monocotyledons). **Sexual morph:** Undetermined. **Asexual**

morph: *Conidiomata* stromatic, solitary to gregarious, occasionally confluent, erumpent, globose to subglobose, unilocular, brown to dark brown. *Conidiomata* wall with outer layer composed of thick-walled, brown cells of *textura angularis* or *textura intricata*, pale brown to subhyaline in the inner layers. *Conidiophores* reduced to conidiogenous cells, invested in mucus. *Conidiogenous cells* holoblastic, cylindrical to ampulliform, hyaline, smooth. *Conidia* ellipsoidal, 1-septate, brown, verrucose; bearing an unbranched, attenuated, apical appendage and 6–8 lateral appendages (description modified from Nag Raj 1988, 1993).

Type species: *Chithramia elegantissima* Nag Raj, Can. J. Bot. 66(5): 903 (1988)

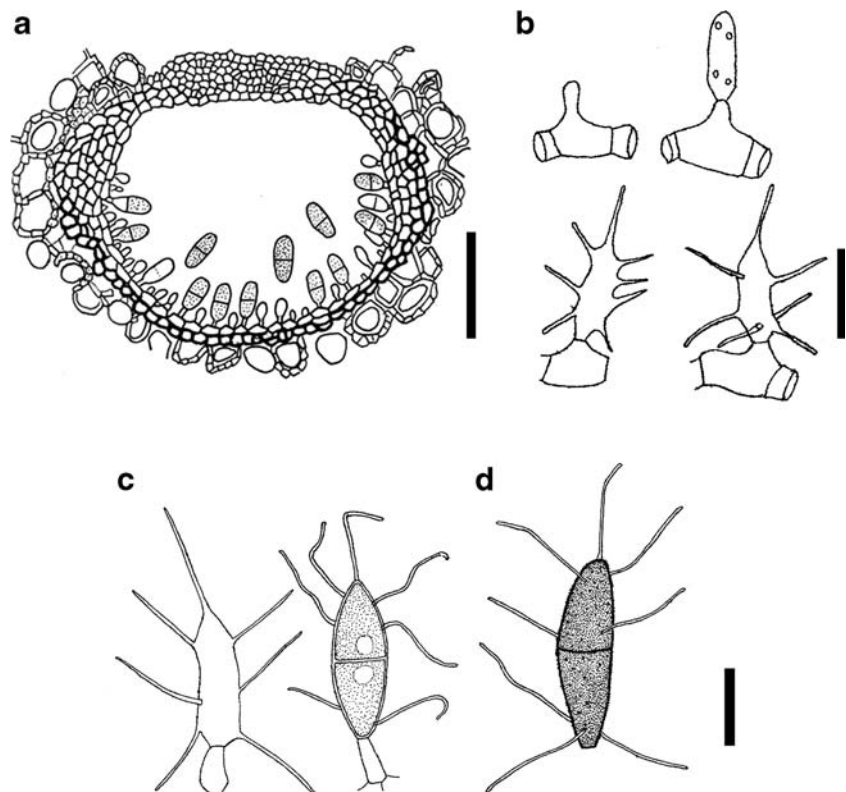
Notes: Nag Raj (1988) introduced the genus *Chithramia* with *C. elegantissima* as the type species. *Chithramia* has distinct conidia, bearing 6–8 unbranched appendages ‘which arise as extrusions through pores in the wall’ (Nag Raj 1993). *Neoheteroceras* also has appendages similar to *Chithramia*, but conidia in the former genus are falcate or oblong or fusiform. Kirk et al. (2008, 2013) accepted *Chithramia*, but its taxonomic placement remains uncertain. Currently, the genus is monotypic.

Ciliochorella Syd., Anns mycol. 33(1/2): 62 (1935)

= *Phaeocilospora* Bat. & Peres, Atas Inst. Micol. Univ. Recife 5: 152 (1967)

= *Plagionema* Subram. & K. Ramakr., J. Indian bot. Soc. 32: 135 (1953)

Fig. 65 *Chithramia elegantissima*. **a** Vertical section of conidioma. **b, c** Different stages of conidiogenesis. **d** Conidium. Scale bars: **a** = 100 μ m, **b, c** = 5 μ m (redrawn from Nag Raj 1988)



Facesoffungi number: FoF 01458; Fig. 66

Sordariomycetes, Xylariomycetidae, Amphisphaeriales, Pestalotiopsidaceae

Endophytic or saprobic on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic or indeterminate to pycnidial, amphigenous, solitary or gregarious, subcuticular to epidermal, flattened, lenticular, unilocular, oval, circular or irregular, dark brown to black, ostiolate. *Ostiole* rarely papillate, central, circular. *Conidiomata* wall upper and lower walls are composed of thick-walled, dark reddish brown cells of *textura prismatica*. *Conidiophores* usually reduced to conidiogenous cells, when present branched or unbranched, sparsely septate, hyaline, smooth. *Conidiogenous cells* enteroblastic or holoblastic, phialidic, determinate, discrete, ampulliform, hyaline, smooth. *Conidia* cylindrical or subfusiform, straight or slightly curved, 3-septate, continuous or constricted, two median cells very pale brown, end cells hyaline, thin-walled, basal cell with an eccentric, short, cellular appendage, apical cell with one ± straight and one lateral cellular, unbranched appendage (Sutton 1980; Nag Raj 1993; Allegrucci et al. 2011; Tangthirasunun et al. 2015).

Type species: Ciliochorella mangiferae Syd., *Annls mycol.* 33(1/2): 63 (1935)

Notes: Sydow and Mitter (1935) introduced *Ciliochorella* with *C. mangiferae* as the type species. Currently, there are seven records listed in Index Fungorum (2016). However, Allegrucci et al. (2011) accepted only four species including

the type viz. *C. buxifoliae* Allegr. et al., *C. castaneae* Munjal and *C. splendida* Nag Raj & R.F. Castañeda.

Endo et al. (2011) showed *Ciliochorella castaneae* grouped in *Amphisphaeriaceae*. However, Senanayake et al. (2015) found *Ciliochorella* clusters in *Pestalotiopsidaceae* with five other genera. Our multi-gene analyses (Figs. 9 and 16), agree with the findings in Senanayake et al. (2015).

Cirrosporium S. Hughes, *N.Z. JI Bot.* 18(3): 329 (1980)

Facesoffungi number: FoF 01459; Fig. 67

Eurotiomycetes, genera incertae sedis

Endophytic or saprobic on trunk of *Cunoniaceae* (Dicotyledons) and *Podocarpaceae* (Gymnosperm). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, cylindrical, unilocular, upright, sometimes slightly flexuous, dark brown, glabrous or with rings of sterile, straight or slightly curved, dark brown to black. *Conidiomata* wall outer layer composed of brown-walled cells of *textura angularis* or *textura prismatica*, inner layer is composed of loose, hyaline, longitudinally arranged cells of *textura porrecta*. *Conidiogenous hyphae* hyaline, unbranched, deeply staining. *Conidia* glabrous, columnar cirrus, borne in chains, straight, fragile, 3-septate, darker at the septa, central cells dark brown to almost opaque, end cells smaller, pale brown to subhyaline (Hughes 1980; Réblova and Seifert 2012).

Type species: Cirrosporium novae-zelandiae S. Hughes, *N.Z. JI Bot.* 18(3): 329 (1980); Fig. 67

Notes: Hughes (1980) introduced *Cirrosporium* with *C. novae-zelandiae* as the type species. Conidial

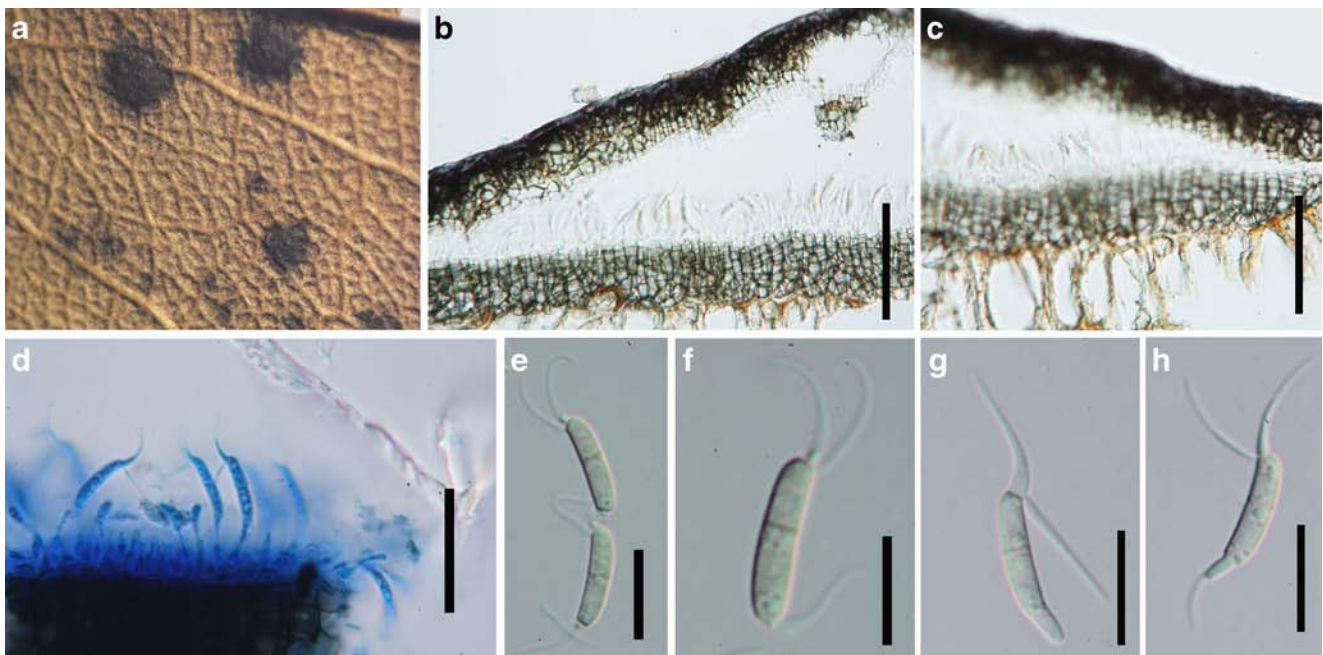


Fig. 66 *Ciliochorella mangiferae* (Material examined: Italy, on dead stem, 17 March 2012, E. Camporesi, MFLU 13–0326, holotype). **a** Conidiomata on dead leaf. **b, c** Vertical sections of conidiomata. **d**

Developing conidia attach to conidiogenous cells. **e–h** Conidia. Scale bars: **b, c** = 50 μ m, **d–h** = 10 μ m



Fig. 67 *Cirrosporium novae-zelandiae* (Material examined: New Zealand, West Land, 5 km SW from Fox Glacier, Westland National park, Lake Matheson, on decayed bark of trunk, 13 April 2005, M. Re’blova, PDD 94361). **a** Label of herbarium material. **b** Herbarium materials. **c** Conidiomata from side view. **d** Conidioma from surface. **e**,

f Vertical sections of conidioma. **g** Conidiogenesis. **h** Conidium attach to conidiogenous cell. **i** An initial stage of forming basipetal chain. **j** Basipetal chain of conidia. **k** Matured conidia as a chain. **l–o** Conidia. Scale bars: **c, d** = 4 mm, **e–g** = 500 μ m, **h–o** = 25 μ m

development (conidiogenesis) of *Cirrosporium* is similar to *Phragmotrichum*, *Neozythia* and *Vouauxiella* (Réblova and Seifert 2012). Réblova and Seifert (2012) re-described and carried out phylogenetic studies of the type species and showed it resides in *Eurotiomycetes*.

Key to distinguish *Cirrosporium* and related genera

- 1. Conidia hyaline.....*Neozythia*
- 1. Conidia pigmented.....2
- 2. Conidia aseptate.....*Vouauxiella*
- 2. Conidia septate.....3

3. Conidia with several transverse, longitudinal and oblique septa.....*Phragmotrichum*
 3. Conidia with only 3-transverse septa.....*Cirrosporium*

Coelodictyosporium Thambug. & K.D. Hyde, Fungal Diversity 74: 218 (2015)

Index Fungorum Number: IF551286; *Facesoffungi number*: FoF00801; Fig. 68

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, family *incertae sedis*, *Lophiostomataceae*

Saprobic on dead branches. **Sexual morph**: see Thambugala et al. (2015). **Asexual morph**: Colonies growing on dead branches. *Conidiomata* pycnidial, on the upper surface of stems, solitary, scattered, superficial, globose to subglobose, black. *Conidiomata wall* thin at the apex, base a single layer, composed of thin-walled, brown to black cells of *textura angularis*. *Conidiogenous cells* holoblastic, cup-shaped or doliiform, integrated, smooth, brown. *Conidia* digitate, medium brown, complanate, dictyosporous, regularly consisting of 6–8 rows of cells, each row comprising 5–7 cells (Liu et al. 2015; Thambugala et al. 2015).

Fig. 69 *Colletogloeum simmondsii* (Material examined: Australia, Queensland, Isla Gorge, on leaf spots of *Acacia complanta*, August 1973, J.H. Simmonds, BRIP 8881). **a, b** Label of herbarium material and specimens. **c, d** Conidiomata on leaf spots. **e, f** Vertical sections of conidiomata. **g** Conidioma wall. **h–k** Conidiogenous cell and developing conidia. **l–p** Conidia. Scale bars: **e, f** = 80 μ m, **g** = 20 μ m, **h–q** = 30 μ m

Type species: ***Coelodictyosporium pseudodictyosporium*** (Qing Tian et al.) Thambug. & K.D. Hyde, Fungal Divers. 74: 218 (2015); Fig. 68

≡ *Lophiostoma pseudodictyosporium* Qing Tian et al., in Liu et al., Fungal Diversity 72(1): 114 (2015)

Notes: Liu et al. (2015) introduced *Lophiostoma pseudodictyosporium* Qing Tian et al. as a new coelomycetous species belonging in *Lophiostomataceae*. Thambugala et al. (2015) showed it groups with one of their new strains and introduced it as a new genus, *Coelodictyosporium*. In conidial morphology, *Coelodictyosporium* resembles *Psammia* (Sutton 1980), but *Psammia* was treated as hyphomycetous by Earland-Bennett and Hawksworth (1999, 2005), although Sutton (1980) treated *Psammia* as coelomycetous (see notes under *Psammia*).

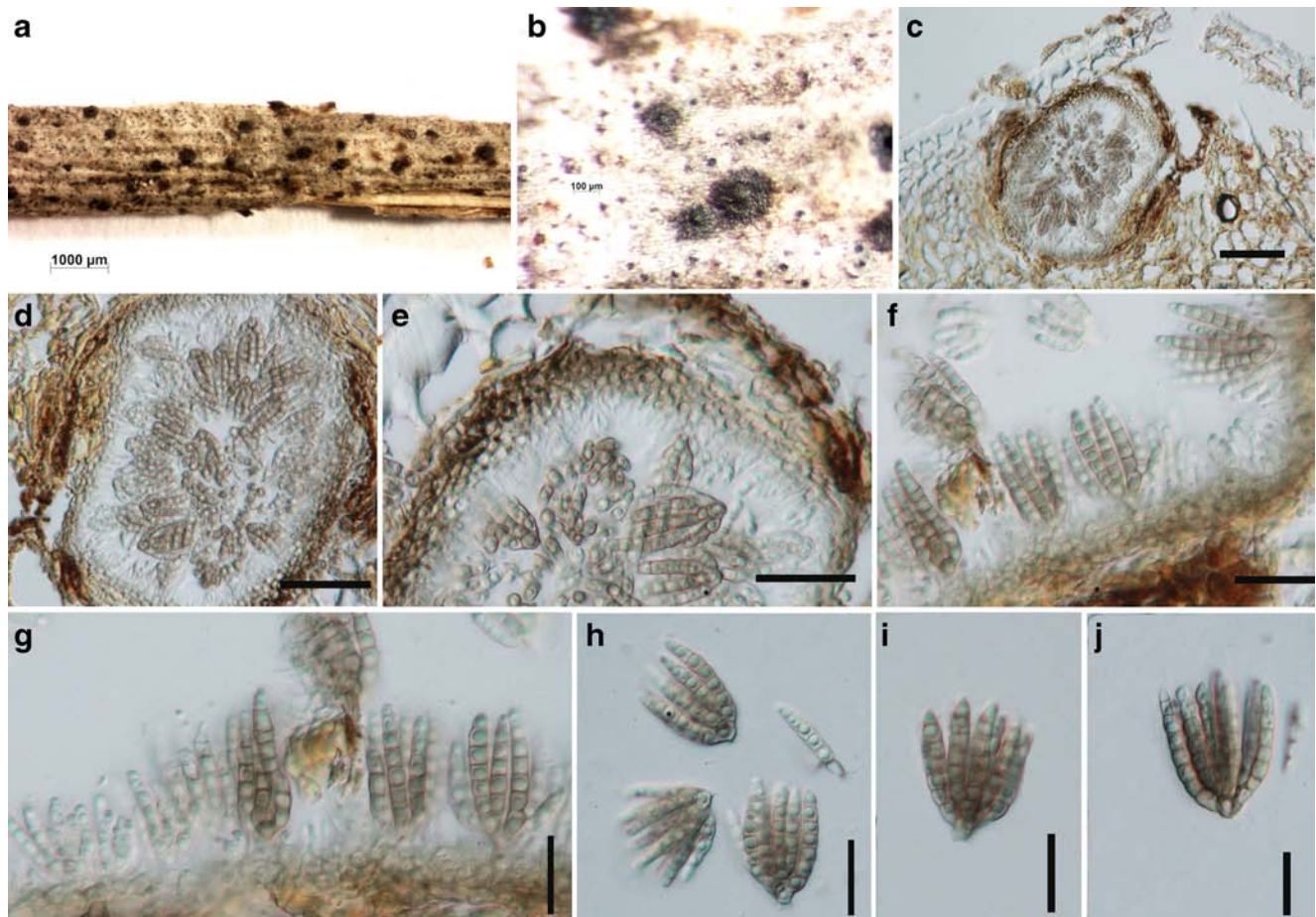
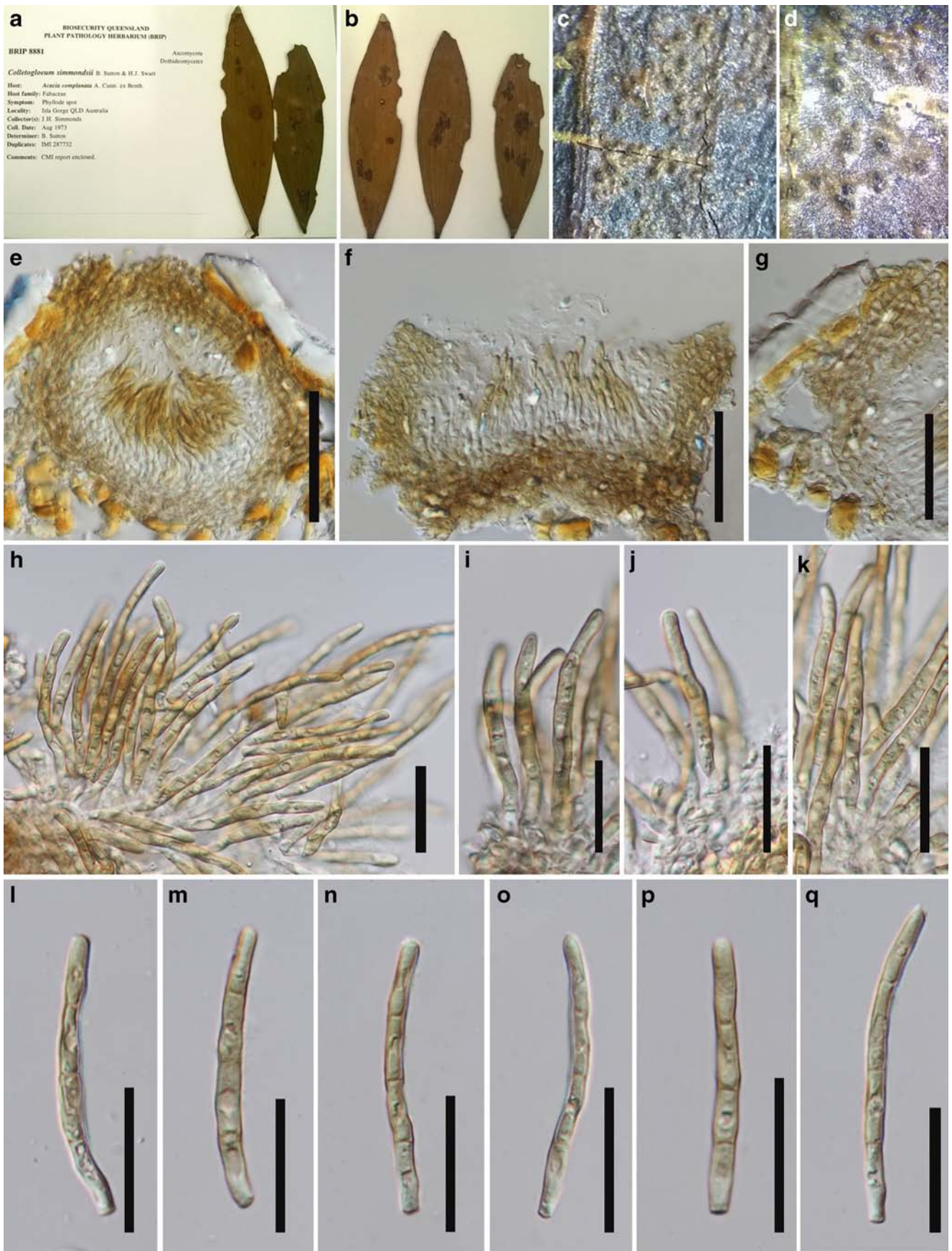


Fig. 68 *Coelodictyosporium pseudodictyosporium* (Material examined: Italy, of Forli-Cesena [FC] Province, Fiumicello, Premilcuore, on branch of *Spartium junceum*, 6 March 2013, E. Camporesi, MFLU 14–0737,

holotype). **a, b** Conidiomata on host material. **c, d** Vertical sections of conidiomata. **e** Conidioma wall. **f, g** Different stages of conidiogenesis. **h–j** Conidia. Scale bars: **c, d** = 50 μ m, **e–g** = 20 μ m, **h–j** = 10 μ m



Colletogloeum Petr., Sydowia 7(5–6): 368 (1953)

Facesoffungi number: FoF 01460; Fig. 69

Dothideomycetes, *Dothideomycetidae*, *Capnodiales*, *Mycosphaerellaceae*

Endophytic or *saprobic* on various substrates of a range of host plants or associated with leaf lesions, or pathogenic.

Sexual morph: ?mycosphaerella-like *fide* Crous et al. (2009b). **Asexual morph:** *Conidiomata* acervular, epidermal to sub-epidermal, erumpent, solitary or occasionally confluent. *Conidiomata* wall composed of thin-walled, pale brown to hyaline cells of *textura angularis*. *Conidiophores* cylindrical or slightly irregular, short, sparsely branched, mostly at the base, hyaline or very pale brown, septate, smooth. *Conidiogenous cells* holoblastic, annellidic, cylindrical or doliiform, integrated or discrete, indeterminate. *Conidia* straight, curved or irregular, truncate at the base, obtuse at the apex hyaline or pale brown, multi septate, usually thin and smooth-walled or verruculose, guttulate or eguttulate (Sutton 1980; Sutton and Swart 1986; Sivanesan 1987; Morgan-Jones and Phelps 1995; Braun and Scheuer 2007; Zhao and Zhao 2012).

Type species: *Colletogloeum sissoo* (Syd.) B. Sutton, Mycol. Pap. 97: 14 (1964)

≡ *Cercospora sissoo* Syd., Anns mycol. 31(1/2): 92 (1933)

= *Septogloeum dalbergiae* S. Ahmad, Sydowia 7(1–4): 269 (1953)

= *Colletogloeum dalbergiae* (S. Ahmad) Petr., Sydowia 7(5–6): 369 (1953)

Notes: Petrak (1953a) introduced *Colletogloeum* with *C. dalbergiae* as the type species. However, Sutton (1964) recognized that the earlier described *Cercospora sissoo* Syd. belongs to *Colletogloeum* and its conidia are similar in morphology to those of *C. dalbergiae*. Thus, Sutton transferred *Cercospora sissoo* to *Colletogloeum* and introduced the new combination, *Colletogloeum sissoo*.

Ahmad and Lodhi (1953) (as *Septogloeum dalbergiae*) and Petrak (1953a) mentioned *Colletogloeum dalbergiae* has hyaline conidia, but Sutton (1964, 1980) stated that *Colletogloeum sissoo* has hyaline or very pale brown conidia. Subsequently introduced species by Pollack and Sutton (1972), Sutton (1975a, 1980), Sutton and Mehrotra (1982), Sutton and Swart (1986) were described with pale brown to medium brown conidia. Conidial pigmentation of known species of *Colletogloeum* spp. are summarized in Table 3.

Crous et al. (2009b) stated that the taxonomic placement of *Colletogloeum* is confused as some species show relationships with *Teratosphaeria*, while ITS sequence data from the type species (*C. sissoo* IMI 119162) show it is allied with *Pseudocercospora* complex in the *Mycosphaerellaceae*. The genus needs to be resolved and generic boundaries must be established by using molecular data.

In GenBank, there are only 10 sequences available, but none are identified to species level. We used two strains in our phylogenetic analyses (Fig. 11) and both strains reside in *Mycosphaerellaceae*. However, Crous et al. (2012a) did not recognize *Colletogloeum* as an accepted genus in

Table 3 Conidial pigmentation of *Colletogloeum* spp

Species	Colour of conidia	Reference
<i>C. acaciae</i> (Cooke & Masee) B. Sutton & H.J. Swart	Yellow brown	Sutton and Swart (1986)
<i>C. acaciicola</i> B. Sutton & H.J. Swart	Very pale brown	Sutton and Swart (1986)
<i>C. dalbergiae</i> (S. Ahmad) Petr.	Hyaline	Ahmad and Lodhi (1953); Petrak (1953a)
<i>C. dovyalidis</i> (Van der Byl) B. Sutton	Pale brown	Sutton (1975a)
<i>C. feroniae</i> (T. S. Ramakr. & K. Ramakr.) B. Sutton	Very pale brown	Sutton (1980)
<i>C. fici</i> G.C. Zhao & R.L. Zhao	Hyaline	Zhao and Zhao (2012)
<i>C. fouquieriae</i> Pollack & B. Sutton	Very pale brown	Pollack and Sutton (1972)
<i>C. glochidiicola</i> (Seshadri) B. Sutton	Pale brown	Sutton (1975a)
<i>C. obtusum</i> B. Sutton	Pale brown	Sutton (1980)
<i>C. olacis</i> B. Sutton	Pale brown	Sutton (1980)
<i>C. perseae</i> Sivan.	Hyaline to pale brown	Sivanesan (1987)
<i>C. protii</i> B. Sutton & M.D. Mehrotra	Pale brown	Sutton and Mehrotra (1982)
<i>C. rhois</i> (Halst.) B. Sutton	Pale brown	Sutton (1975a)
<i>C. simmondsii</i> B. Sutton & H.J. Swart	Medium brown	Sutton and Swart (1986)
<i>C. sissoo</i> (Syd.) B. Sutton	Hyaline or very pale brown	Sutton (1964)
<i>C. veratri</i> (Ellis & Everh.) Morgan-Jones & R.A. Phelps	Sub-hyaline	Morgan-Jones and Phelps (1995)
<i>C. veratri-albi</i> U. Braun & Scheuer	Hyaline	Braun and Scheuer (2007)

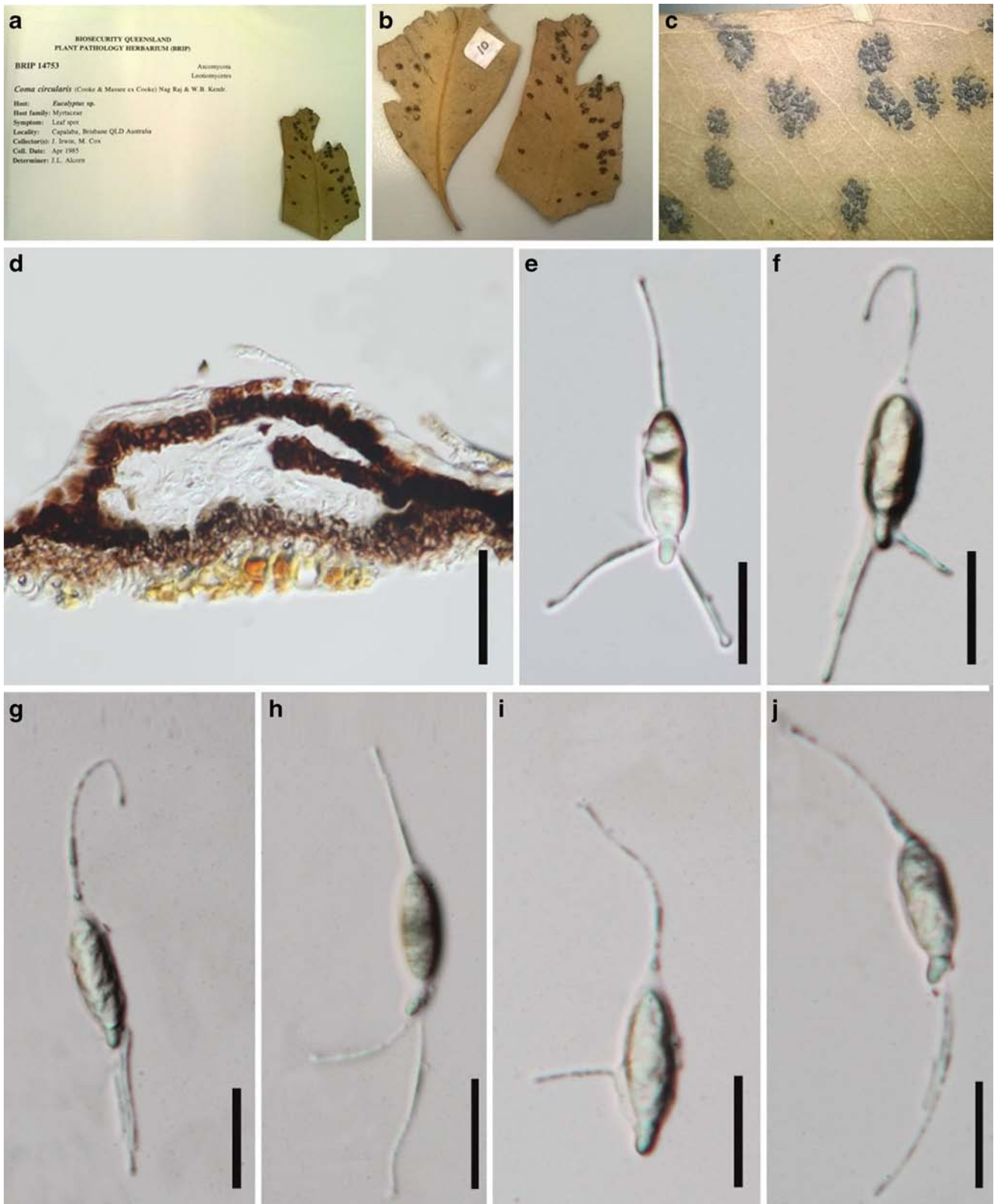


Fig. 70 *Coma circularis* (Material examined: Australia, Queensland, Brisbane, Capalaba, saprobic on *Eucalyptus* leaf, April 1985, J. Irwin and M. Cox, BRIP 14753). **a, b** Label of herbarium material and

specimens. **c** Conidiomata on host material. **d** Vertical section of conidioma with setae. **e–j** Conidia. Scale bars: **d** = 70 μ m, **e–j** = 30 μ m (Conidiophores and conidiogenous cells were not observed)

Mycosphaerellaceae. Hence, it is essential to re-collect and carry out further culture and molecular data assay to confirm the status of the genus.

Coma Nag Raj & W.B. Kendr., Can. J. Bot. 50: 614 (1972) = *Ascocoma* H.J. Swart, Trans. Br. mycol. Soc. 87(4): 606 (1987) [1986]

Facesoffungi number: FoF 01461; Fig. 70

Leotiomyces, *Helotiales*, *Phacidiaceae*

Endophytic or saprobic on *Myrtaceae* (Dicotyledons).

Sexual morph: *Ascoma* fide Swart (1986). **Asexual morph:** *Conidiomata* stromatic, acervular, gregarious, subcuticular to intraperidermal, erumpent, unilocular, globose. *Conidiomata* wall outer layer thick-walled, dark brown, basal and parietal tissue composed of brown-walled cells of *textura angularis*, inner layer composed of thin-walled, paler cells of *textura angularis*. *Conidiophores* mostly reduced to conidiogenous cells, when present sparsely septate, unbranched, cylindrical hyaline, smooth, invested in mucus. *Conidiogenous cells* holoblastic, cylindrical to doliiform, discrete, hyaline, smooth. *Conidia* cylindrical, 1-septate, constricted at the septum, lower cell 3–4 times long as the upper cell, pale brown, verruculose, bearing a single, tubular, unbranched, flexuous basal appendage; lower cell with 1–3 lateral appendages (Nag Raj and Kendrick 1972b; Sutton 1974; Swart 1986; Nag Raj 1993).

Type species: *Coma circularis* (Cooke & Masee) Nag Raj & W.B. Kendr., Can. J. Bot. 50: 614 (1972); Fig. 70

≡ *Pestalozziella circularis* Cooke & Masee, Grevillea 18(no. 88): 80 (1890)

Notes: Nag Raj and Kendrick (1972b) introduced *Coma* with *C. circularis* as the type species. Sutton (1974) re-described the type species and it was accepted by Swart (1986). Furthermore, Swart (1986) established *Ascocoma* Swart as the sexual morph of *Coma*, based on co-occurrence of both morphs on same host material. Beilharz and Pascoe (2005) also accepted this relationship by observing several fresh collections. Hence, Johnston et al. (2014) proposed to adopt *Coma* over *Ascocoma* in their list of recommended generic names for use in *Leotiomyces* (*Ascomycota*).

Coniambigua Etayo & Diederich, Flechten Follmann, Contributions to Lichenology in Honour of Gerhard Follmann (Cologne): 207 (1995)

Facesoffungi number: FoF 01782; Fig. 71

Ascomycota, genera *incertae sedis*

Lichenicolous. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, dark coloured, opening irregularly. *Conidiomata* wall composed of hyaline cells. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, irregular in shape, terminal, integrated, hyaline.

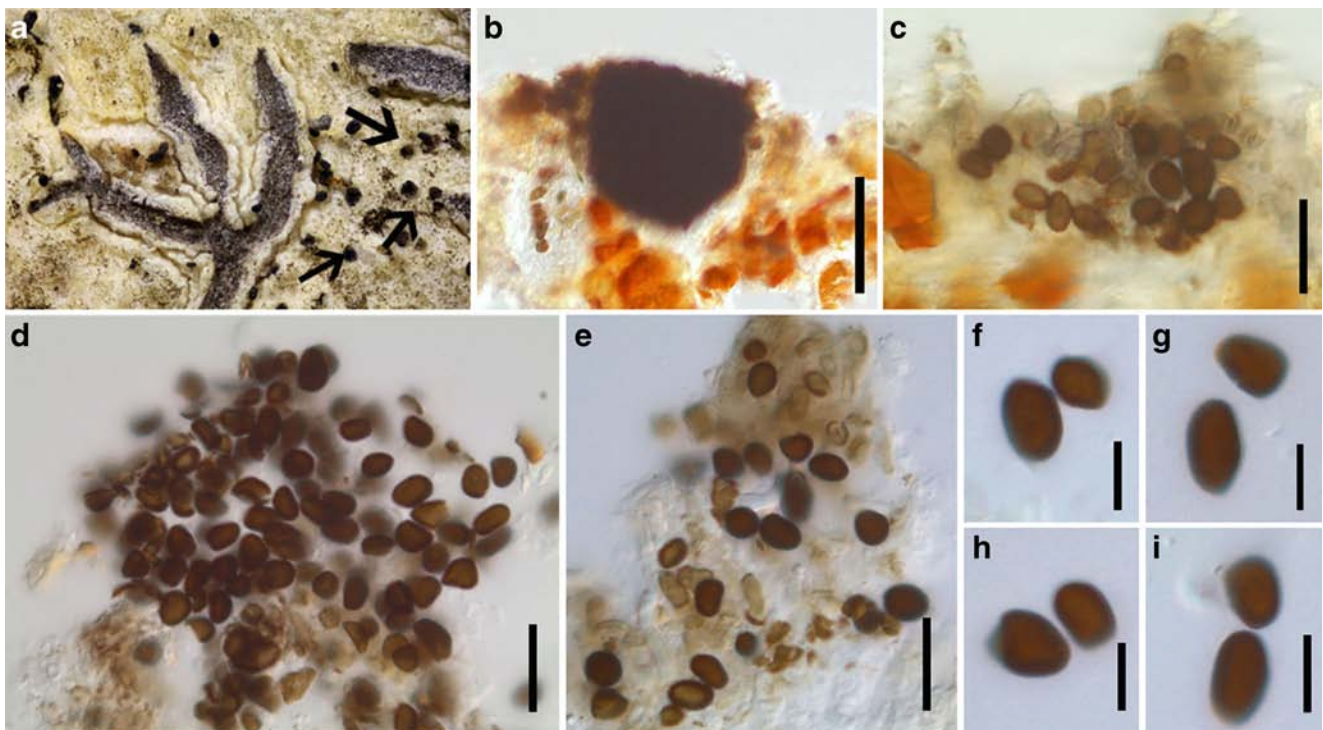


Fig. 71 *Coniambigua phaeographidis* (Material examined: Spain, Navarra, Oronoz-Mugarie, Senorio de Bertiz, on thallus of *Leiorreuma lyellii* growing on *Alnus glutinosa*, 22 July 1991, P. Diederich, Diederich 9748). **a** Thallus of *Leiorreuma lyellii* with conidiomata of *Coniambigua*

phaeographidis (pointed by arrows). **b** Vertical section of mature conidioma. **c** Conidia inside the cavity of young conidioma. **d–i** Conidia. Scale bars: **b, c** = 50 μ m, **d, e** = 20 μ m, **f–i** = 10 μ m

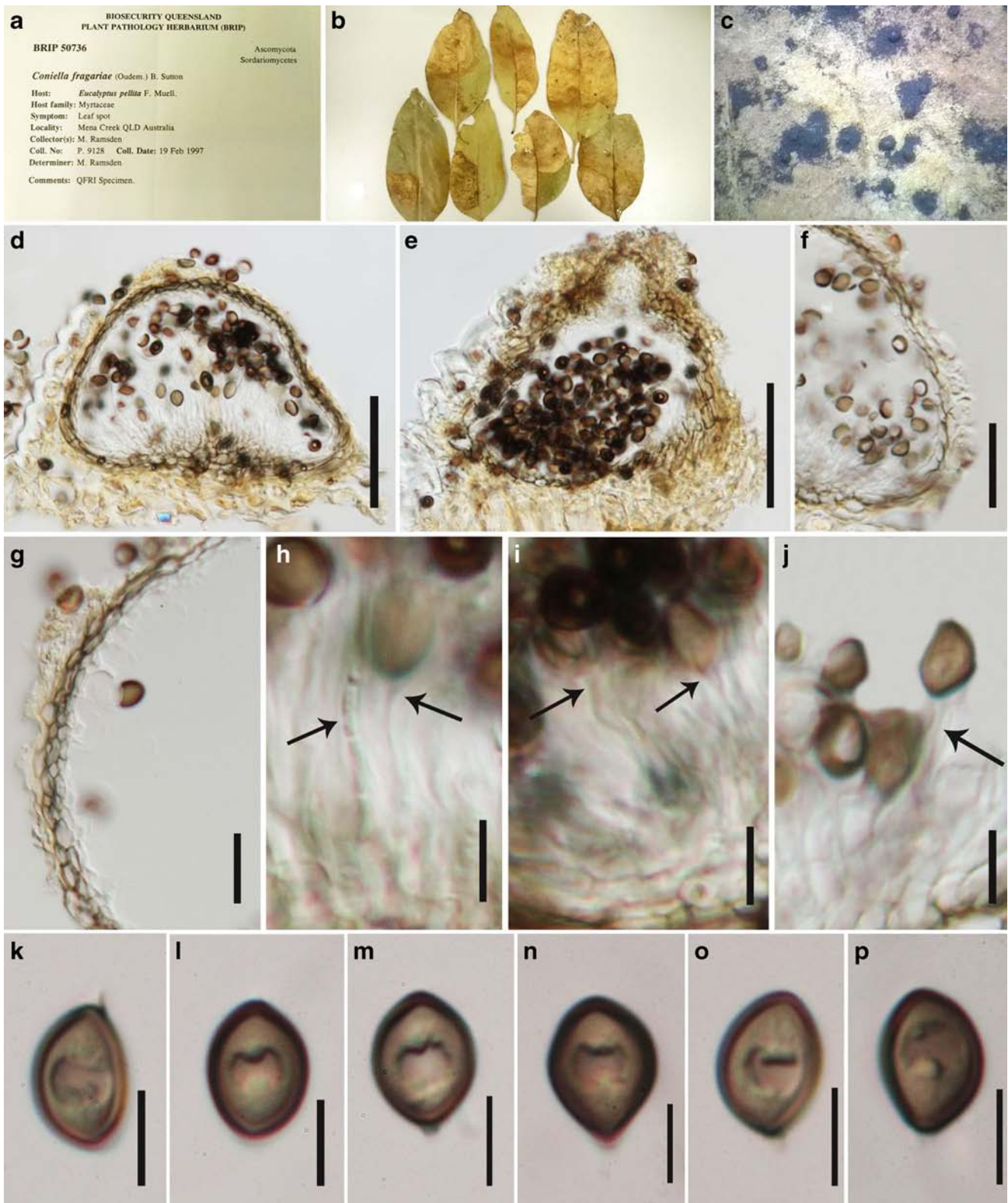
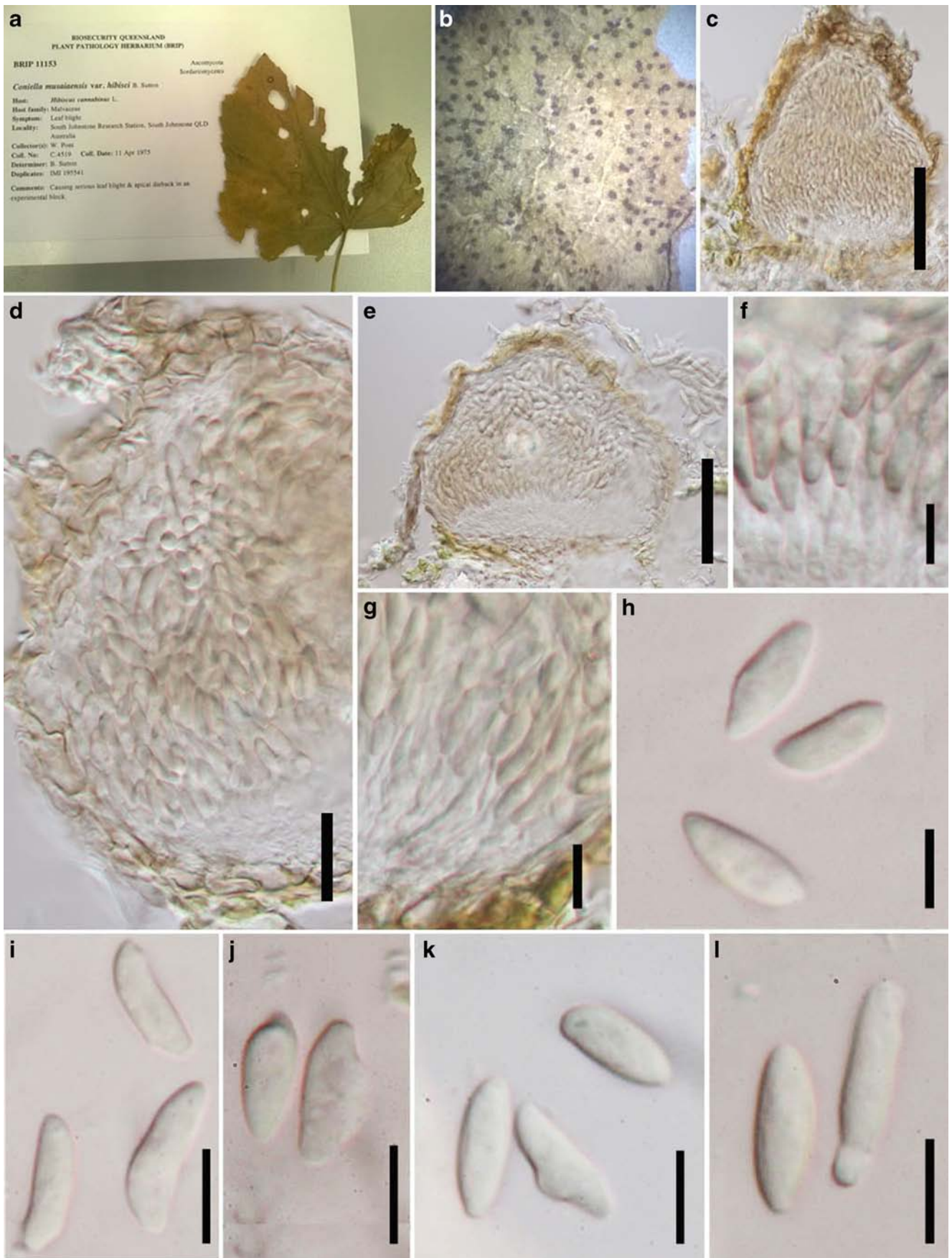


Fig. 72 *Coniella fragariae* (Material examined: Australia, Queensland, Mena Creek, pathogenic on *Eucalyptus pellita*, 19 February 1997, M. Ramsden, BRIP 50736). **a** Label of herbarium specimen. **b** Herbarium material. **c** Conidiomata on host. **d, e** Vertical sections of conidiomata. **f, g** Conidiomata wall. **h–j** Different stages of conidiogenesis (conidiophores are pointed by arrows). **k–p** Conidia. Scale bars: **d, e** = 50 μm , **f, g** = 20 μm , **h–p** = 8 μm



◀ **Fig. 73** *Coniella musaiaensis* var. *hibisci* (Material examined: Australia, Queensland, South Johnstone, South Johnston Research Centre, pathogenic on *Hibiscus cannabinus*, 11 April 1975, W. Pont, BRIP 50736). **a** Label of herbarium specimen and material. **b** Conidiomata on host. **c, e** Vertical section of conidiomata. **d** Conidioma wall. **f, g** Different stages of conidiogenesis. **h–l** Conidia. Scale bars: **c, e** = 50 μm , **d, h–l** = 10 μm , **f, g** = 5 μm

Conidia simple, variable in shape, acrogenous, dark brown, aseptate, with thin and indistinctly ornamented outer wall (description modified from Etayo and Diederich 1995).

Type species: Coniambigua phaeographidis Etayo & Diederich, Flechten Follmann, Contributions to Lichenology in Honour of Gerhard Follmann (Cologne): 208 (1995); Fig. 71

Notes: Etayo and Diederich (1995) introduced *Coniambigua* with *C. phaeographidis* as the type species. Etayo and Diederich (1995) stated that mature conidiomata lack conidiogenous cells, but immature stages show hyaline structures which are variable in form and treated as conidiogenous cells.

The genus remains monotypic and sequence data is unavailable. Thus taxonomic placement is uncertain.

Coniella Höhn., Ber. dt. bot. Ges. 36: 316 (1918)

See Index Fungorum for synonyms

Facesoffungi number: FoF 01462; Figs. 72 and 73

Sordariomycetes, Sordariomycetidae, Diaporthales, Schizoparmeaceae

Endophytic, saprobic or *pathogenic* on different substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, globose, initially appearing hyaline with a dark brown, internal conidial mass, becoming brown, ostiolate. *Ostiole* papillate, central. *Conidiomata* wall composed of medium brown-walled cells of *textura angularis*. *Conidiophores* densely aggregated, slender, subulate, simple, frequently branched above, reduced to conidiogenous cells, or with 1–2 supporting cells. *Conidiogenous cells* simple, tapering, hyaline, smooth, wide at apex, surrounded by a gelatinous coating, apex with visible periclinal thickening, rarely with percurrent proliferation. *Conidia* ellipsoidal, apex obtuse, base subtruncate, inequilateral, multi-guttulate when young, bi-guttulate when mature, hyaline to pale brown, becoming dark brown at maturity, smooth, germ slits present or absent; small, hyaline, mucoid basal appendage frequently present. *Microconidia* also rarely observed, cylindrical, hyaline, straight with obtuse ends (Sutton 1980; Nag Raj 1993; van Niekerk et al. 2004).

Type species: Coniella pulchella Höhn., Ber. dt. bot. Ges. 36: 316 (1918)

Notes: Von Höhnel (1917) introduced *Coniella* with *C. pulchella* as the type species. The genus has been re-

visited by von Arx (1981) who used pigmentation of conidia as a criterion to distinguish *Pilidiella* from *Coniella*. However, Sutton (1980) and Nag Raj (1993) treated *Pilidiella* as a synonym of *Coniella*. Nevertheless, recent molecular based analyses confirmed that *Pilidiella* and *Coniella* have two distinct phylogenetic lineages in *Schizoparmeaceae, Diaporthales* (Castlebury et al. 2002; van Niekerk et al. 2004; Rossman et al. 2007; Fig. 12). Detailed taxonomic notes are provided for both *Coniella* and *Pilidiella* under *Pilidiella*.

Coniothyrium Corda, Icon. fung. (Prague) 4: 38 (1840)

See Index Fungorum for synonyms

Facesoffungi number: FoF 01463; Fig. 74

Dothideomycetes, Pleosporomycetidae, Pleosporales, Pleosporineae, Coniothyriaceae

Endophytic ostigmella

Endophytic or *saprobic* on various substrates of a range of host plants, associated with leaf spots, or ?*pathogenic*. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, solitary to gregarious, scattered, immersed, globose, unilocular, dark or pale brown, ostiolate. *Ostiole* papillate, circular, central. *Conidiomata* wall thin, composed of thick-walled, brown cells of *textura angularis* or *globulosa*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, annellidic, indeterminate, discrete, doliiform or ampulliform, hyaline or pale brown, smooth, formed from the inner cells of the pycnidial wall. *Conidia* elliptical or broadly clavate, apex obtuse, base truncate, cylindrical, sphaerical, 0–1-septate, constricted at the septum, hyaline to brown, thin, smooth-walled, or verruculose (Sutton 1980; Taylor and Crous 2001; Crous et al. 2013; de Gruyter et al. 2013).

Type species: Coniothyrium palmarum Corda, Icon. fung. (Prague) 4: 38 (1840)

Notes: The genus *Coniothyrium* was introduced by Corda (1840) with *C. palmarum* as the type species. Approximately 900 records have been listed in Index Fungorum (2016), but their accuracy is uncertain. Most of the introduced species are based on host and most of the described species lack cultural studies or molecular data (Verkley et al. 2004). De Gruyter et al. (2013) showed that several phoma-like taxa cluster with *Coniothyrium sensu stricto* hence treated them as *Coniothyrium* spp.

Taxonomists have faced difficulties identifying coniothyrium-like taxa such as *Coniothyrium, Cyclothyrium, Cytoplea* and *Microsphaeropsis* (Sutton 1971a, 1980; Verkley et al. 2004, 2014; Damm et al. 2008; de Gruyter et al. 2013). *Coniothyrium* and *Microsphaeropsis* share similar morphological characters, thus Sutton (1971a) mentioned that ‘the majority of species described in *Coniothyrium* were not congeneric with the type species’.

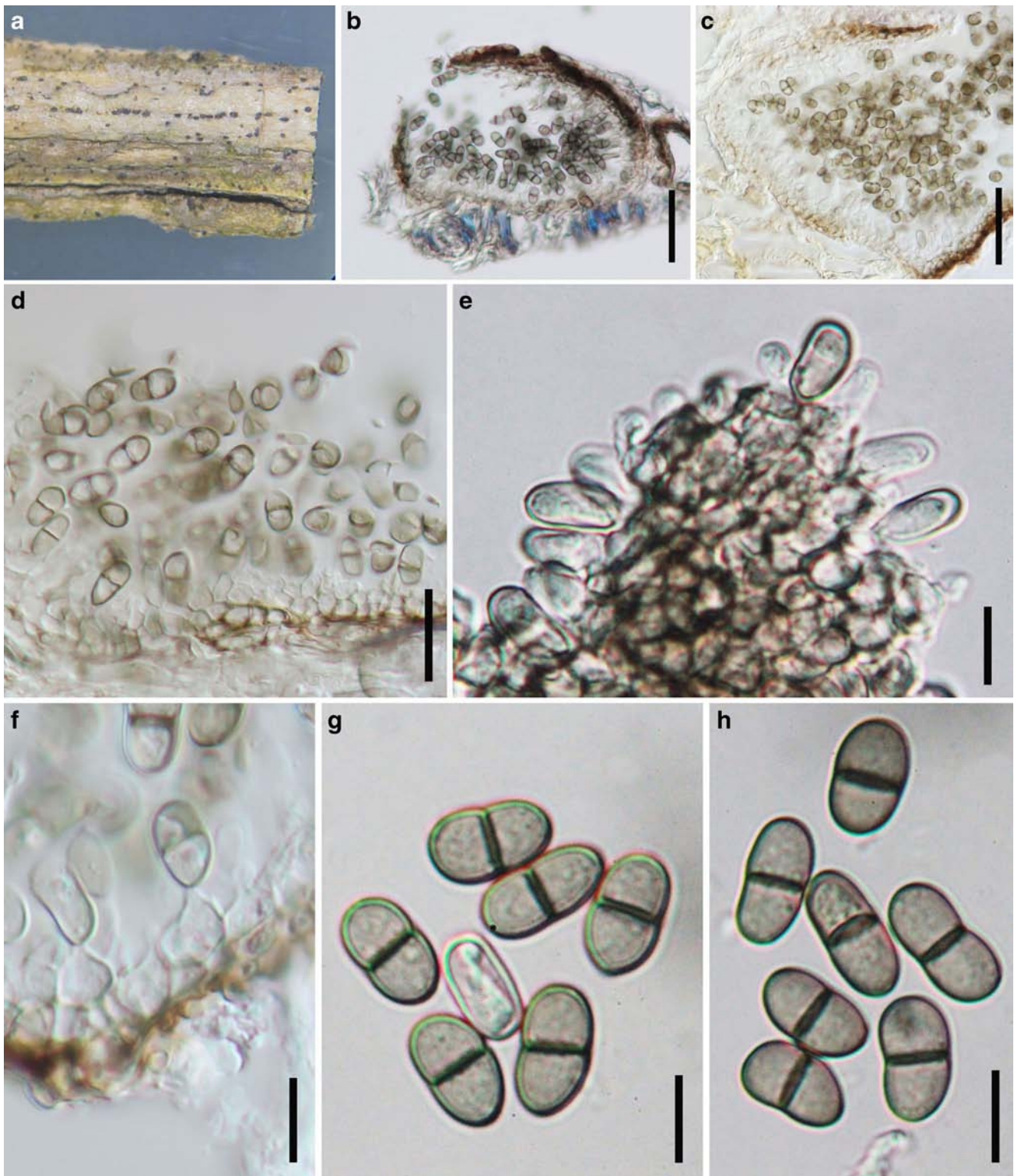


Fig. 74 *Coniothyrium* sp. (Material examined: Italy, Forli-Cesena [FC] Province, Strada San Zeno – Galeata, on dead branch of *Clematis vitalba*, 15 February 2013, E. Camporesi, MFLU 15–3447 = HKAS92547). **a**

Conidiomata on the host material. **b, c** Vertical sections of conidiomata. **d** Conidioma wall. **e, f** Immature conidia attach to conidiogenous cells. **g, h** Conidia. Scale bars: **b, c** = 80 μm , **d** = 20 μm , **e–h** = 8 μm

The below key is based on Sutton (1980) however, recent phylogenetic analyses expand the generic concepts of

coniothyrium-like taxa and included several phoma-like species (Verkley et al. 2004, 2014; de Gruyter et al. 2013).

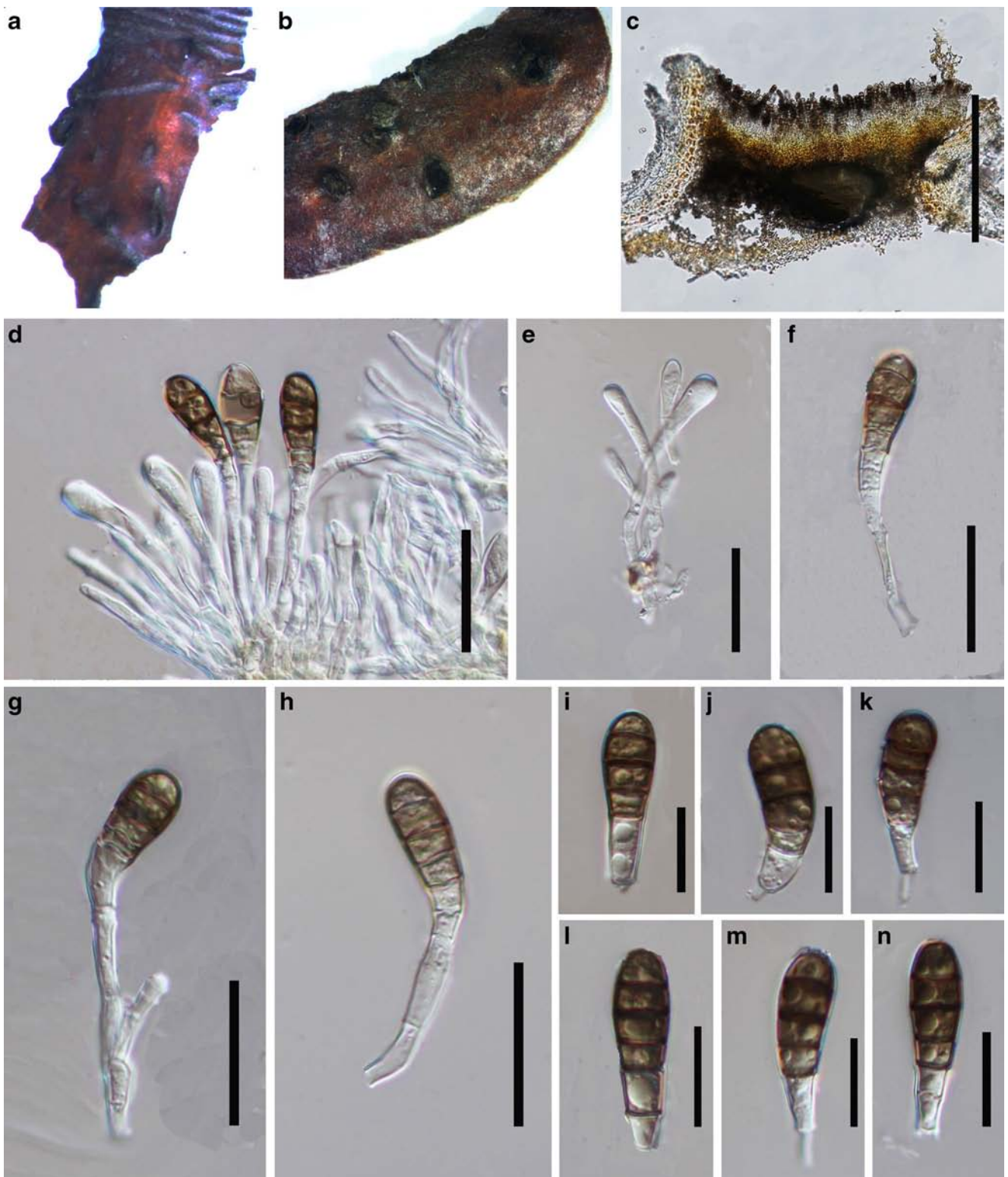


Fig. 75 *Coryneum pruni* (holotype). **a, b** Conidiomata on stems of *Prunus* sp. **c** Vertical section of matured conidioma. **d, e** Different stages of conidiogenesis. **f–i** Conidia attached to conidiophores. **j–o** Conidia. Scale bars: **c** = 70 μ m, **d–h** = 20 μ m, **j–o** = 15 μ m

Key to distinguish *Coniothyrium* and related genera*

- 1. Conidiomata pycnidial or acervuli.....2
- 2. Conidiomata stromatic.....3
- 2. Annelidic conidiogenesis, with septate conidia.....*Coniothyrium*

2. Phialidic conidiogenesis, with aseptate conidia.....*Microsphaeropsis*
 3. Conidiophores absent; oval to ellipsoid conidia.....*Cytoplea*
 3. Conidiophores present; short cylindrical, apex obtuse, base truncate conidia.....*Cyclothyrium*

*We did not include phoma-like species and *Colletogloeopsis*, *Paraconiothyrium* which are morphologically similar to *Coniothyrium sensu stricto*, but distinct in phylogeny (Cortinas et al. 2006; Verkley et al. 2014).

Coryneum Nees, Syst. Pilze (Würzburg): 34 (1816) [1816–17]
 = *Murogenella* Goos & E.F. Morris, Mycologia 57(5): 776 (1965)

Facesoffungi number: FoF 01464; Fig. 75

Sordariomycetes, *Sordariomycetidae*, *Diaporthales*, *Pseudovalsaceae*

Endophytic or saprobic on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* acervular, solitary to gregarious, sub-epidermal, erumpent at maturity, dark brown to black. *Conidiomata* wall brown, composed of thin-walled, dark brown cells of *textura angularis*. *Conidiophores* cylindrical, hyaline, septate, branched at the base, smooth. *Conidiogenous cells* holoblastic, annellidic, integrated, determinate, hyaline, extending at the apices. *Conidia* narrow to broadly fusiform, straight or curved, transversely distoseptate, truncate at the base, rounded at the apex, apical and median cells brown to pale brown, 2–3 basal cells hyaline, guttulate, smooth-walled (Sutton 1975a, 1980; Orsenigo et al. 1998).

Type species: Coryneum umbonatum Nees, Syst. Pilze (Würzburg): 34 (1816) [1816–17]

Notes: Nees von Esenbeck (1817) introduced *Coryneum* with *C. umbonatum* Nees. as the type species. Currently more than 200 names are listed in Index Fungorum (2016). Sutton (1975a) accepted only 19 species and one variety under *Coryneum sensu stricto* in his monograph of *Coryneum* and related fungi. Subsequently, Sutton (1986) accepted an addition species, *Coryneum terrophilum* (Goos & E.F. Morris) B. Sutton.

Sutton (1980) grouped *Coryneum* in suborder *Blastostromatineae* (Annelidic) based on morphology and conidiogenesis. However, this genus have not been treated by modern sequence based techniques and there are no sequences in GenBank. During our re-collecting programs, we collected one *Coryneum* sp. but isolation process based on single spore method was not successful.

Coryneum pruni Wijayaw., Camporesi, McKenzie & K.D. Hyde, *sp. nov.*

Index Fungorum number: IF551770; *Facesoffungi* number: FoF 01465; Fig. 75

Etymology: Named after the host genus

Holotype: MFLU 15–3448

Endophytic or saprobic on twigs and branches of *Prunus* sp. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* 180–240 μm diam., 115–185 μm high, acervulus, sporodochial-like at maturity, solitary, scattered, sub-epidermal, erumpent at maturity, dark brown to black. *Conidiomata* wall composed of thin-walled, dark brown cells of *textura angularis*. *Conidiophores* 18.5–23 \times 3.5–5 μm , long, cylindrical, hyaline, septate, branched at the base, smooth. *Conidiogenous cells* holoblastic, annellidic, simple, integrated, determinate, hyaline, extended at the apices. *Conidia* 14–23 \times 5.5–9 μm (\bar{x} = 23.79 \times 7.84 μm , n = 20), narrow to broadly fusiform, straight or curved, 4–5-transversely distoseptate, truncate at the base, rounded at the apex, with apical and 2–3 median cells, brown to pale brown, 2–3 basal cells, hyaline, guttulate, smooth-walled.

Material examined: Italy, Arezzo Province, Madonna di Montalto - Stia, on branch of *Prunus* sp. (*Rosaceae*), 24 December 2013, E. Camporesi, NNW IT 1593 (MFLU 15–3448, **holotype**); (HKAS92553, **isotype**).

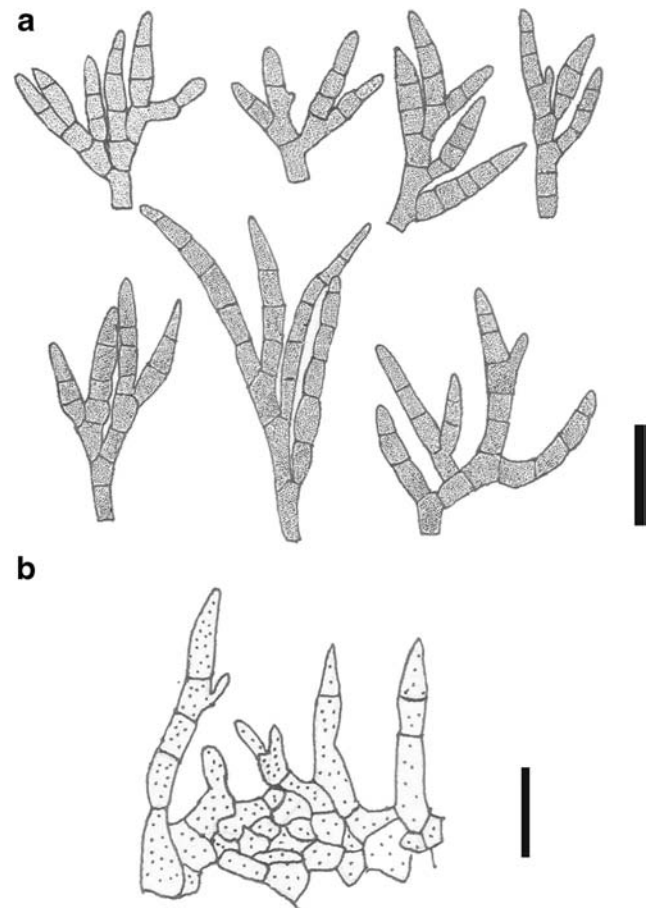


Fig. 76 *Crumenulopsis sororia* (= *Digitosporium piniphilum*). **a** Conidia. **b** Different stages of conidiogenesis. Scale bars: **a**, **b** = 10 μm (re-drawn from Sutton 1980)

Notes: *Coryneum nigrellum* Lacroix was reported from *Prunus persica* in France, but, Sutton (1975a) mentioned that the type material was not available in Paris herbarium for examination and therefore did not include *C. nigrellum* as an accepted species. Hence, we introduce our collection as a new species, which is distinct in morphology from known species.

Crumenulopsis J.W. Groves, Can. J. Bot. 47: 48 (1969)
 = *Digitosporium* Gremmen, Acta bot. neerl. 2(2): 233 (1953)
Facesoffungi number: FoF 01466; Figs. 76 and 77

Leotiomyces, Helotiales, Helotiaceae
Endophytic or *saprobic* on bark and cones of *Pinaceae* (Gymnosperms), *Ranunculaceae* (Dicotyledons) or *pathogenic* on *Pinaceae*. **Sexual morph:** see Groves (1969). **Asexual morph:** *Conidiomata* stromatic, immersed to semi-immersed, erumpent at maturity, solitary or gregarious, unilocular or multilocular, occasionally irregular, medium brown to black. *Conidiomata* wall composed of irregular, thick-walled, dark brown cells of *textura angularis*. *Conidiophores* usually reduced to conidiogenous cells, when present branched, septate, pale brown, smooth. *Conidiogenous cells* holoblastic,

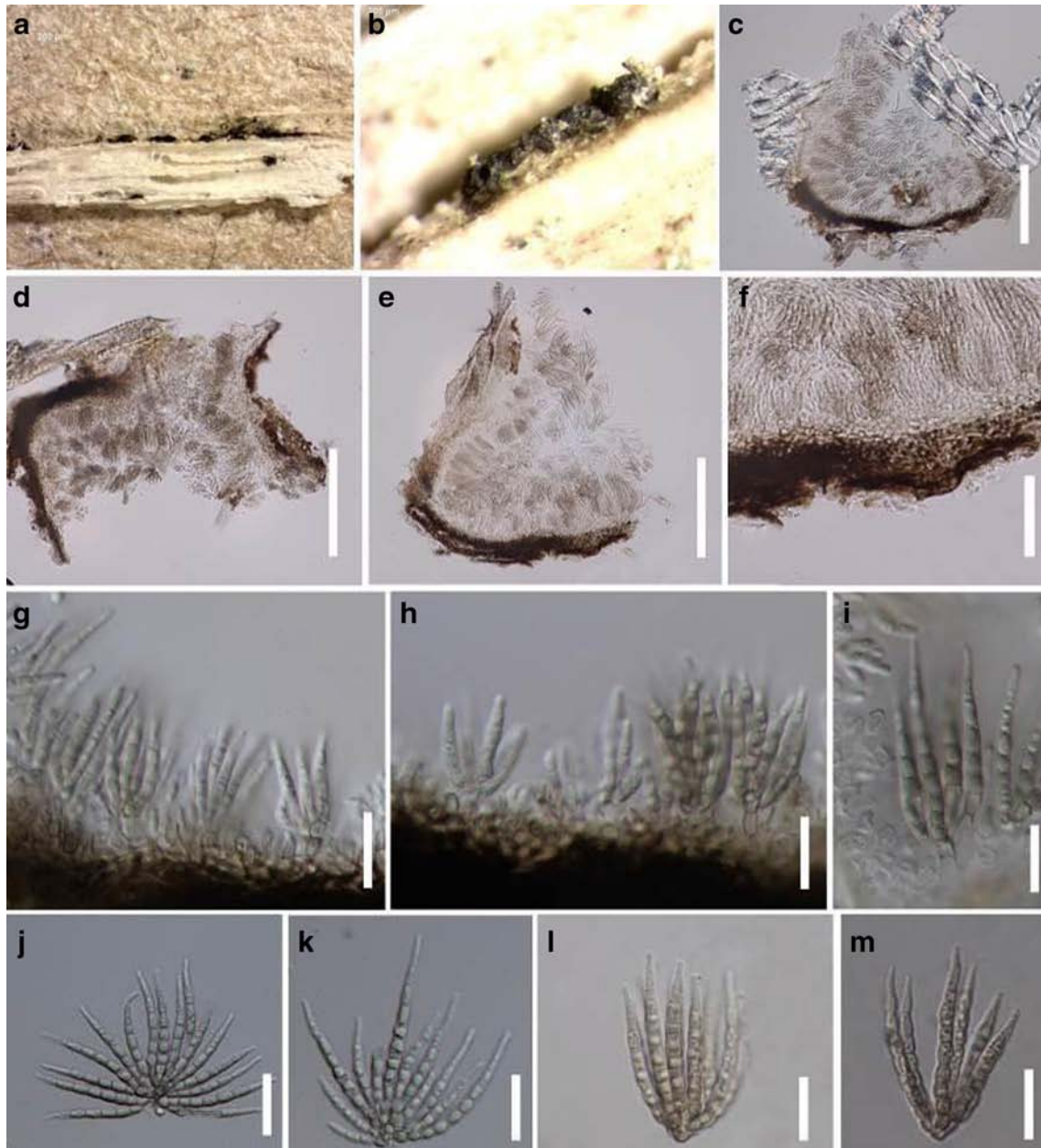


Fig. 77 *Crumenulopsis* sp. (Material examined: Italy, Forli-Cesena [FC] Province, Passo la Calla - Santa Sofia, on dead branch of *Clematis vitalba*, 25 September 2013, E. Camporesi, MFLU 15–

3557 = HKAS92550). **a, b** Conidiomata on host material. **c–e** Vertical section of conidioma. **f** Conidiomata wall. **g–i** Conidia attach to

cylindrical to doliiform, discrete or integrated, pale brown to hyaline, smooth. *Conidia* digitate, with several branches of unequal length, septate, apical cell long, conic, pale brown, smooth-walled (Sutton 1980; Chalkley 2015).

Type species: *Crumenulopsis pinicola* (Rebent.) J.W. Groves, Can. J. Bot. 47: 48 (1969)

= *Peziza pinicola* Rebent., Prodr. fl. neomarch. (Berolini): 385 (1804)

= *Digitosporium piniphilum* Gremmen, Acta bot. neerl. 2(2): 233 (1953)

Notes: van Vloten and Gremmen (1953) introduced *Digitosporium* with *D. piniphilum* as the type species and treated it as the conidial state of *Crumenula sororia* Karst. (current name *Crumenulopsis sororia* (P. Karst.) J.W. Groves *vide*

Groves 1969). Johnston et al. (2014) accepted this relationship and proposed to use *Crumenulopsis* over *Digitosporium*.

Cyclothyrium Petr., Anns mycol. 21(1/2): 5 (1923)

= *Coniothyriopsiella* Bender, Mycologia 24 (4): 410 (1932) *vide* Kirk et al. 2008

= *Coniothyriopsis* Petr., Anns mycol. 21(1/2): 5 (1923) *vide* Kirk et al. 2008

= *Kirschsteiniella* Petr., Anns mycol. 21(3/4): 331 (1923) *vide* Kirk et al. 2008

Facesoffungi number: FoF 01762; Fig. 78

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, genera *incertae sedis*

Endophytic or **saprobic** on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:**

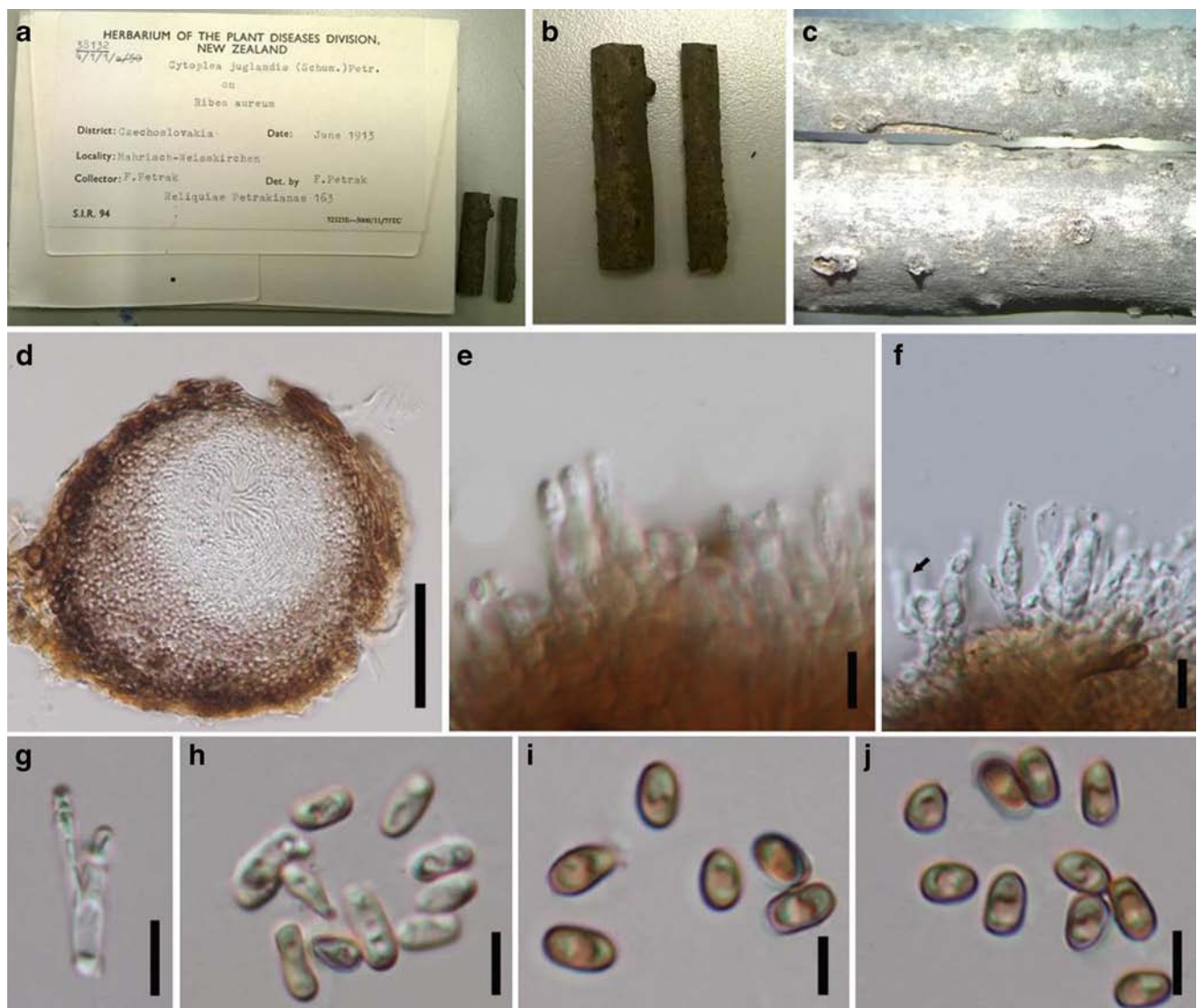


Fig. 78 *Cyclothyrium juglandis* (Material examined: Czechoslovakia, Mährisch-Weiskirchen, on *Ribes aureum*, June 1913, F. Petrak, PDD 38132). **a, b** Herbarium label and material. **c** Conidiomata on host. **d** Vertical section of conidioma. **e–g** Different stages of conidiogenesis

(arrow head shows conidiogenous cell without attaching conidium). **h** Immature conidia. **i, j** Mature conidia. Scale bars: **d** = 50 μ m, **e–j** = 5 μ m. (Herbarium material was deposited as *Cytoplea juglandis*, but Sutton (1975, 1980) transferred this species to *Cyclothyrium*)

Conidiomata stromatic, immersed to sub-peridermal, solitary, multilocular and convoluted, dark brown to black, ostiolate. *Conidiomata* wall outer layer composed of thin-walled, brown cells of *textura angularis*, inner layer composed of hyaline-walled cells of *textura angularis*. *Conidiophores* hyaline, branched at the base, septate, smooth, hyaline. *Conidiogenous cells* enteroblastic, phialidic, cylindrical, indeterminate, integrated or discrete, hyaline, smooth. *Conidia* cylindrical, apex obtuse, base truncate or not, aseptate, pale brown, medianly guttulate, thick and smooth-walled (description modified from Sutton 1980).

Lectotype species: *Cyclothyrium juglandis* (Schum. ex Rabenh.) Sutton (syn. *Cytospora juglandis* Schum. ex Rabenh.) *fide* Sutton (1977, 1980)

Notes: Petrak (1923a) introduced *Cyclothyrium* with *C. ulmigenum* as the type species but Petrak and Sydow (1927) treated *Cyclothyrium* as a sub generic rank within *Cytoplea*. Sutton (1977, 1980) rejected this concept and further Sutton (1977) designated the lectotype. Sutton (1980) stated that *Cyclothyrium juglandis* is the asexual morph of *Thyridaria rubronotata* (Berk. & Br.) Sacc. However, the latter species is not the type species of *Thyridaria* thus Wijayawardene et al. (2014c) concluded that *Cyclothyrium* has thyridaria-like sexual morphs.

Verkley et al. (2004), Damm et al. (2008) and de Gruyter et al. (2013) showed its taxonomic placement in *Pleosporales* by analysis of SSU sequence data. Our phylogenetic analyses also agree with results in Verkley et al. (2004) and de Gruyter et al. (2013). However, *Thyridaria* / *Cyclothyrium* clade does not belong in *Massarineae* or *Pleosporineae* (Fig. 9).

Cytoplea Bizz. & Sacc., Atti dell'Istituto Veneto Scienze 3: 307 (1885)

= *Neopycnodothis* Tak. Kobay., Ann. phytopath. Soc. Japan 30: 154 (1965)

Facesoffungi number: FoF 01788; Fig. 79

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, family *incertae sedis*, *Roussellaceae*

Endophytic or **saprobic** on various substrates of a range of host plants. **Sexual morph:** roussella-like *fide* Hyde et al. (1996). **Asexual morph:** *Conidiomata* stromatic, immersed, epidermal or sub-epidermal, erumpent at maturity, multilocular, black, ostiolate, indistinct. *Conidiomata* upper wall composed of sclerotoid, brown-walled cells of *textura angularis*, extending over the whole area of conidioma, often become as a clypeate. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, ampulliform or short cylindrical, determinate, discrete, hyaline, smooth. *Conidia* oval to ellipsoid, aseptate, brown, guttulate, thin or thick-walled, verrucose (Sutton 1980; Hyde et al. 1996).

Type species: *Cytoplea arundinacea* (Sacc.) Petr. & Syd., Reprum nov. Spec. Regni veg. 42: 439 (1927)

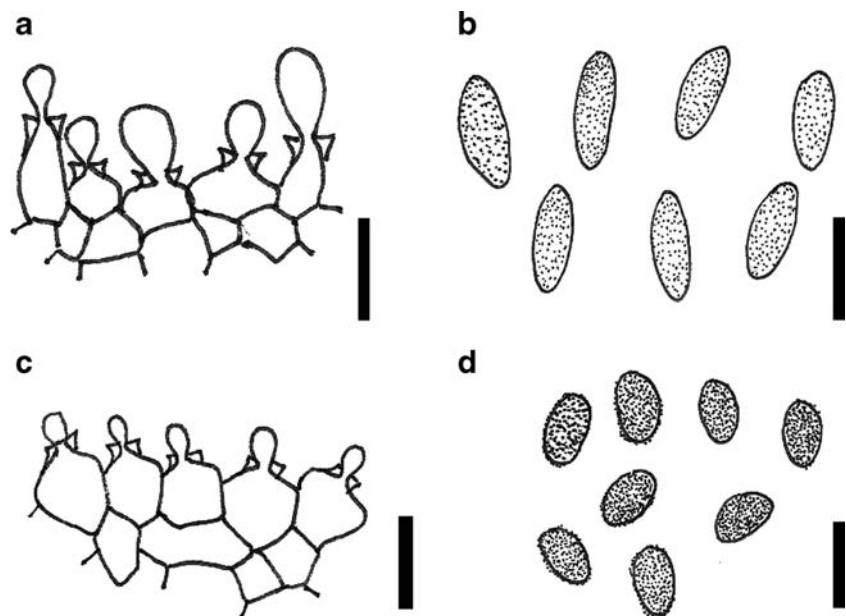
= *Coniothyrium arundinaceum* Sacc., Syll. fung. (Abellini) 3: 319 (1884)

= *Clisporium arundinaceum* (Sacc.) Kuntze, Revis. gen. pl. (Leipzig) 3(2): 458 (1898)

= *Cytoplea arundinicola* Bizz. & Sacc., in Bizzozero, Atti Inst. Veneto Sci. lett., ed Arti, Sér. 6 3: 307 (1885)

Notes: Bizzozero (1885) introduced *Cytoplea* with *C. arundinicola*. However, Petrak and Sydow (1927) transferred *Coniothyrium arundinaceum* to *Cytoplea* as *C. arundinacea*. Sutton (1980) recognized the oldest taxon, *Cytoplea arundinacea* as the type species and listed *Cytoplea arundinicola* as a synonym of former species. Verkley et al. (2004) also accepted *Cytoplea arundinacea* as the type

Fig. 79 a, b *Cytoplea orientalis*. c, d *C. arundinacea*. a, c Different stages of conidiogenesis. b, d Conidia. Scale bars: a–d = 10 μ m (re-drawn from Sutton 1980)



species of *Cytoplea*. A key is provided under *Coniothyrium* to distinguish *Cytoplea* and related genera.

Based on culture methods, Hyde et al. (1996) revealed that *Rousoella hysterioides* (Ces.) Höhn. has asexual morphs in *Cytoplea* (viz. *C. hysterioides* K.D. Hyde). Kang et al. (1998) and Verkley et al. (2004) showed that *Rousoella hysterioides* and *Cytoplea hysterioides* have close relationship based on sequence data. Hence, Liu et al. (2014) listed *Cytoplea* as a synonym of *Rousoella*. However, Wijayawardene et al. (2014c) did not agree with Liu et al. (2014) as the sequences of type species of *Cytoplea* is unavailable. Thus, Wijayawardene et al. (2014c) proposed continued use of *Cytoplea* and *Rousoella*.

Davisoniella H.J. Swart, Trans. Br. mycol. Soc. 90(2): 289 (1988)

Facesoffungi number: FoF 01467; Fig. 80

Dothideomycetes, *Dothideomycetidae*, *Capnodiales*, *Mycosphaerellaceae*

Associated with leaf spots of *Myrtaceae* (Dicotyledons).

Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* stromatic, abaxial, solitary to gregarious, subepidermal, erumpent, multi-locular at maturity. *Conidiomata* wall composed of brown-walled cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, percurrent proliferation, flask-shaped. *Conidia* oval, apex

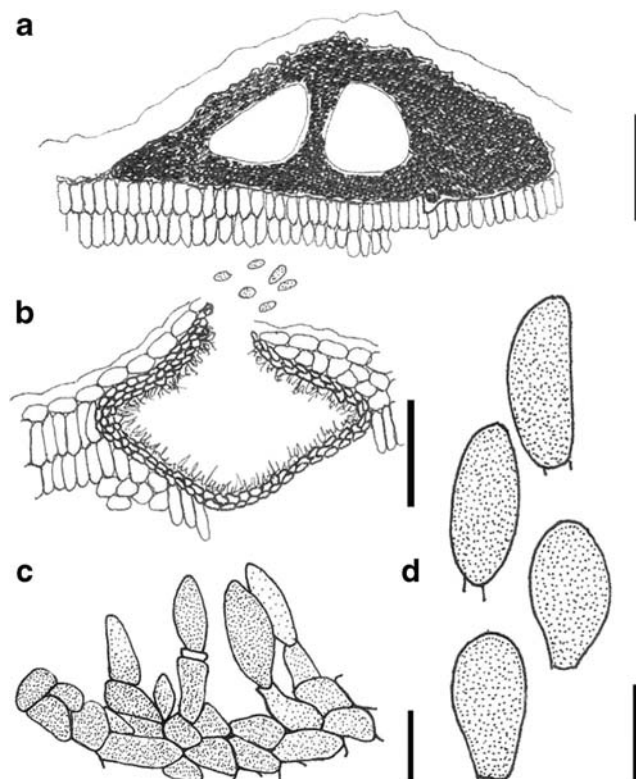


Fig. 80 *Davisoniella eucalypti*. **a, b** Vertical section of multi-locular conidioma. **c** Different stages of conidiogenesis. **d** Conidia. Scale bars: a, b = 100 μ m, c, d = 10 μ m (re-drawn from Swart 1988)

rounded, base truncate, with marginal frill, brown, verruculose (modified description from Swart 1988)

Type species: Davisoniella eucalypti H.J. Swart, Trans. Br. mycol. Soc. 90(2): 289 (1988); Fig. 80

Notes: Swart (1988) introduced *Davisoniella* with *D. eucalypti* which was found on leaf spots of saplings and on the foliage of recently felled trees. Swart (1988) compared *Davisoniella* with *Coniothyrium* and doubted former as stromatic counterpart of latter. However, Swart (1988) established *Davisoniella* as previous studies did not mention about stromatic states of *Coniothyrium*. In morphology, *Davisoniella* can be placed in *Colletogloeopsis* (current name *Teratosphaeria*) which also has ‘medium brown, aseptate conidia’ (Crous and Wingfield 1997). *Colletogloeopsis* spp. have been reported as pathogens of *Eucalyptus* spp. (Crous and Wingfield 1997; Cortinas et al. 2006) Hence, we doubt whether *Davisoniella* belongs in *Teratosphaeria sensu stricto*, however, this must be confirmed based on sequence data analyses.

Didymellocamarosporium Wijayaw., Camporesi, D.J. Bhat & K.D. Hyde, *gen. nov.*

Index Fungorum number: IF551771; *Facesoffungi* number: FoF 01468; Fig. 81

Etymology: Named for its morphological similarity to the genus *Camarosporium* and its placement in *Didymellaceae*

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, *Pleosporineae*, *Didymellaceae*

Saprobic on dead branches of *Tamaricaceae* (Dicotyledons).

Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* pycnidial, immersed, globose, unilocular, solitary to gregarious, dark brown to black, ostiolate. *Ostiole* papillate, central, single, circular. *Conidiomata* wall with outer layer composed of thick-walled, dark brown cells of *textura angularis*, inner layer with hyaline cells. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, annellidic, discrete, determinate, smooth, hyaline, formed from the innermost layer of pycnidial wall cells. *Conidia* oblong, muriform, with 3–5 transverse and 1–5 longitudinal septa, continuous or occasionally constricted at septa, straight to slightly curved, rounded at both ends, medium to dark brown, smooth-walled.

Notes: Our strain is a camarosporium-like taxon (MFLUCC 14–0241) that groups in *Didymellaceae* and does not cluster with other species (Fig. 9). Currently there are no camarosporium-like taxa reported in *Didymellaceae* (Wijayawardene et al. 2014c), thus we introduce *Didymellocamarosporium*.

Type species: Didymellocamarosporium tamaricis Wijayaw., Camporesi, D.J. Bhat & K.D. Hyde

Didymellocamarosporium tamaricis Wijayaw., Camporesi, D.J. Bhat & K.D. Hyde, *sp. nov.*

Index Fungorum number: IF551772; *Facesoffungi* number: FoF 01469; Fig. 81

Etymology: Named after the host genus

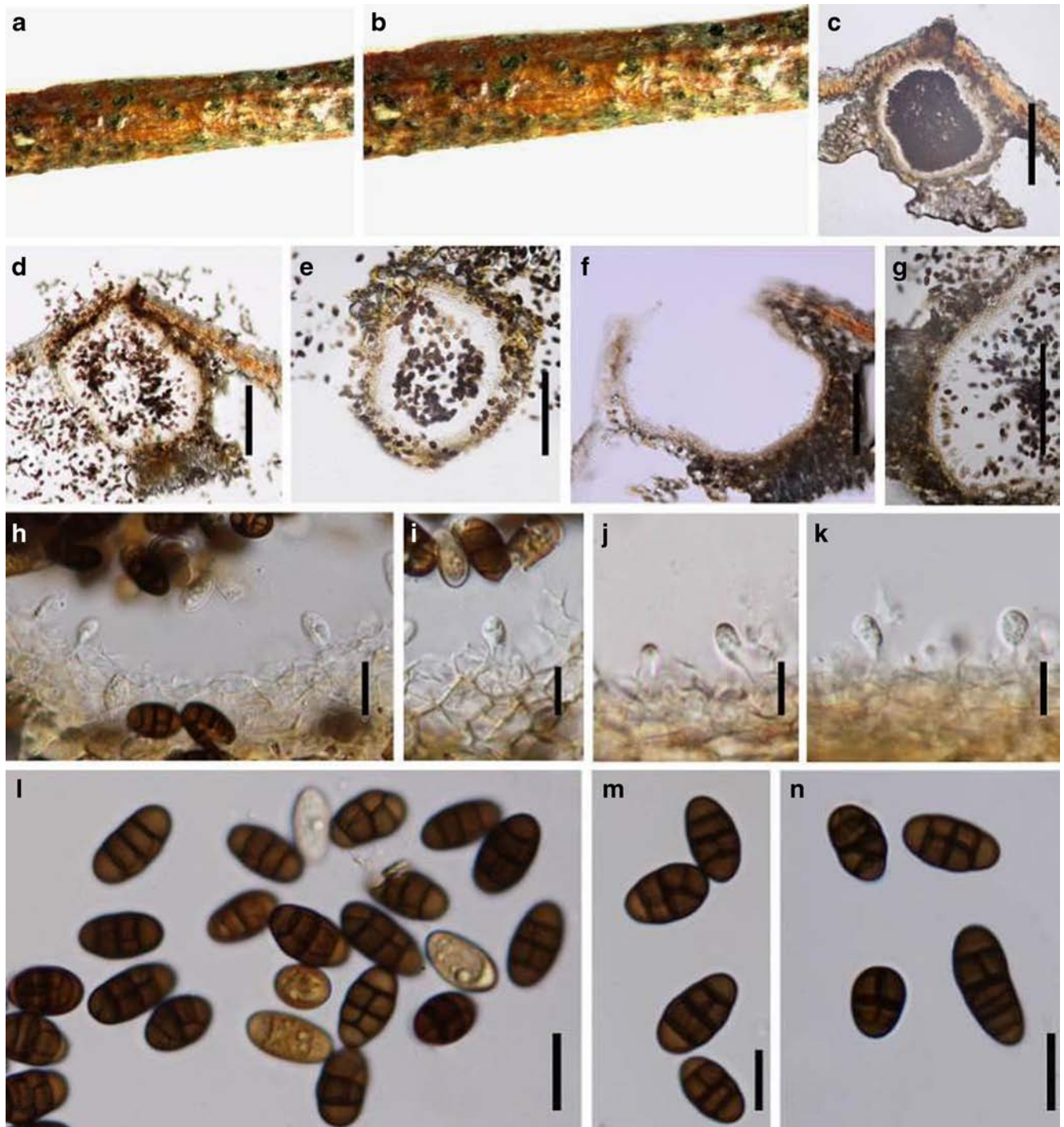


Fig. 81 *Didymellocamarosporium tamaricis* (holotype). **a, b** Appearance of conidiomata on host. **c–g** Vertical sections of conidiomata. **h–k** Developing conidia attach to conidiogenous cells. **l–n** Conidia. Scale bars: **c–g** = 150 μm , **h–k** = 10 μm , **l–n** = 15 μm

Holotype: MFLU 15–3548

Saprobic on dead branches and stems of *Tamarix* sp. (*Tamaricaceae*). **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* 290–330 μm diam., 310–350 μm high, pycnidial, immersed, gregarious, dark brown to black, unilocular. *Ostiole* papillate, central, single, central, circular. *Conidiomata* outer wall layer composed of thick-walled, medium brown cells of *textura angularis*, inner layer with hyaline to

sub hyaline cells. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, determinate, discrete, smooth, hyaline, formed from the innermost layer of pycnidial wall cells. *Conidia* 13–21.5 \times 7–9.5 μm (\bar{x} = 16.12 \times 8.36 μm , n = 20), oblong, muriform, with 3–5 transverse and 1–3 longitudinal septa, slightly constricted at septa, straight to slightly curved, wide at the center, rounded at both ends, medium to dark brown, smooth-walled.

Culture characteristics: on PDA greyish white from above and light brown from below, with thin mycelium, margin uneven, slow growing, attaining a diam. of 2 cm in 7 days at 18 °C.

Material examined: Italy, Ravenna (RA) Province, Lido di Dante, on twigs of *Tamarix* sp., 19 February 2013, Erio Camporesi, NNW IT 1070 (MFLU 15–3548, **holotype**), living cultures MFLUCC 14–0241, GUCC 15.

Notes: Four *Camarosporium* spp. are recorded on *Tamarix* species, viz. *C. tamaricis* Hollós on branches of *Tamarix africanae* (18–24 × 8–10 μm *vide* Hollós 1906), *C. potebniae* Sacc. & Trotter (28 × 12 μm *vide* Saccardo and Trotter 1913) on branches of *Tamarix gallicae*, *C. tamaricum* Mekht. (7–21 × 7–17 μm) on branches of *Tamarix hohenackeri* and an unidentified *Camarosporium* species from *Tamarix* sp. (Farr and Rossman 2016). Our collection is morphologically distinct from these species of *Tamarix* and phylogenetic analyses show it belongs in *Didymellaceae*. Hence, *Didymellocamarosporium* is introduced to accommodate our new collection.

Didymosporina Höhn., Sber. Akad. Wiss. Wien, Math.-naturw. Kl., Abt. 1 125(1–2): 83 (1916)

Facesoffungi number: FoF 01470: Fig. 82

Ascomycota, genera incertae sedis

Endophytic or **saprobic** on leaves of *Anacardiaceae* (Dicotyledons) or associated with leaf spots of *Acer* spp. or **?pathogenic**. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* acervular, epidermal, solitary, or occasionally confluent. *Conidiomata* wall composed of thin-walled, pale brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, annellidic, short cylindrical to doliiform, discrete, indeterminate, pale brown, smooth. *Conidia* cuneiform to cylindrical, base wide or truncate, apex obtuse, 1-septate, continuous, olivaceous to pale brown, thin, smooth-walled (description modified from Sutton 1980).

Type species: *Didymosporina aceris* (Lib.) Höhn., Sber. Akad. Wiss. Wien, Math.-naturw. Kl., Abt. 1 125(1–2): 83 (1916); Fig. 82

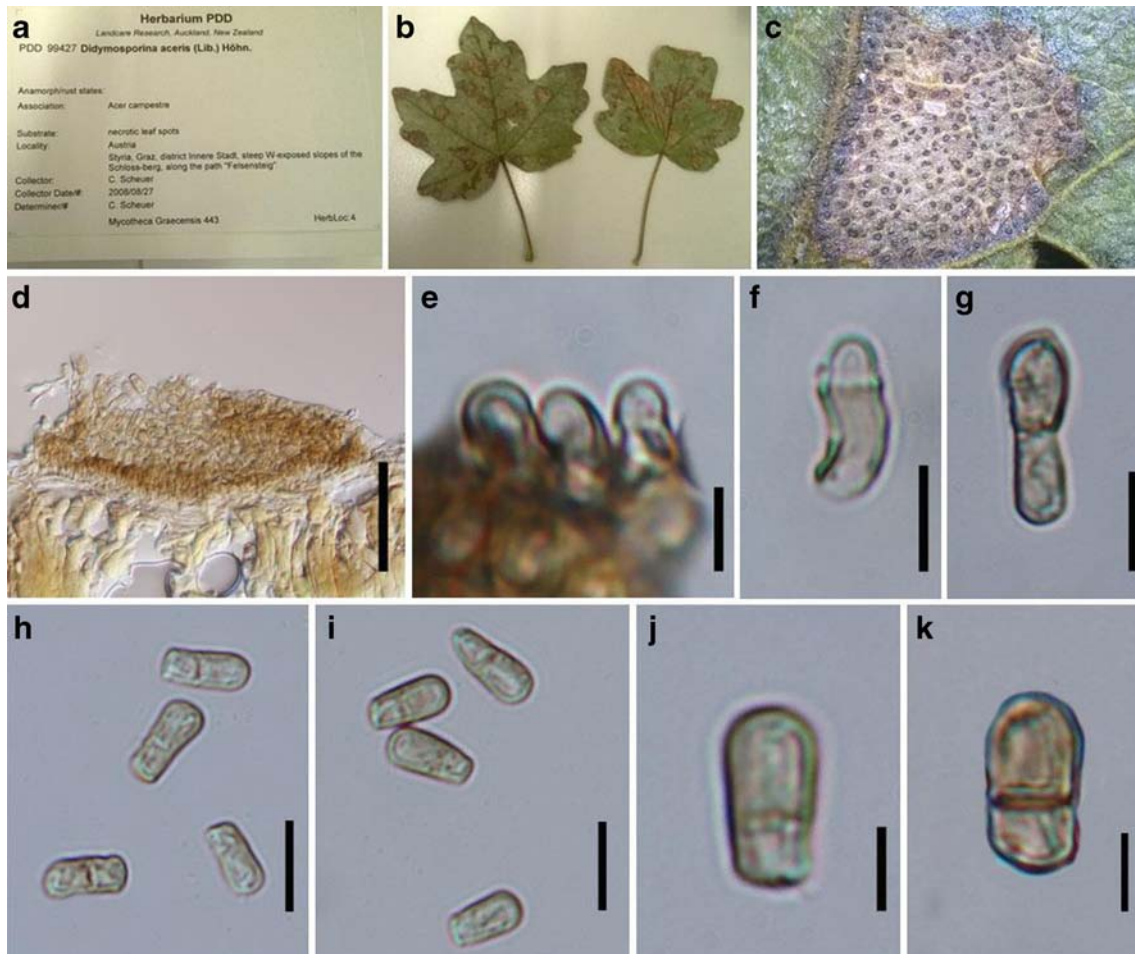


Fig. 82 *Didymosporina aceris* (Material examined: Austria, Styria, Graz, Innere Stadt district, steep W-exposed, slopes of the Schloss-berg, along parth “Felsensteig”, on leaf spots of *Acer campestre*, 27 August 2008, C. Scheuer, PDD 99427). **a** Label of herbarium specimen. **b**

Herbarium specimens. **c** Conidiomata on leaf spot. **d** Vertical section of conidiomata. **e** Conidiogenous cells. **f, g** Different stages of conidiogenesis. **h–k** Conidia. Scale bars: **d** = 25 μm, **e–k** = 10 μm

Notes: Von Höhnell (1916) introduced *Didymosporina* with *D. aceris* as the type species. Currently two species epithets are listed in Index Fungorum (2016) and Sutton (1980) stated the genus needs reassessment. Species Fungorum (2016) listed *Didymosporina aceris* as a synonym of *Phloeospora aceris* (Lib.) Sacc. However, *Phloeospora* Wallr. has hyaline conidia (Sutton 1980) and Verkley et al. (2013) listed *P. aceris* as a synonym of *Sphaerulina aceris* (Lib.) Verkley et al.

Dimorphiopsis Crous, Persoonia, Mol. Phyl. Evol. Fungi 31: 217 (2013)

Facesoffungi number: FoF 01783; Fig. 83

Dothideomycetes, Pleosporomycetidae, Pleosporales, family incertae sedis, Lophiostomataceae

Endophytic or *saprobic* on various substrates of *Leguminosae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* vary from pycnidia to sporodochia, immersed to superficial, globose to irregular. *Conidiomatal wall* not clearly distinguishable, composed of globose, aseptate, medium brown cells. *Conidiogenous cells* phialidic, ampulliform to globose, aggregated, hyaline to pale brown, smooth. *Conidia* ellipsoid, with obtuse ends, 1-distoseptate, golden to dark brown, thick-walled, with flattened basal scar (description modified from Crous et al. 2013).

Type species: Dimorphiopsis brachystegiae Crous, Persoonia, Mol. Phyl. Evol. Fungi 31: 217 (2013); Fig. 83

Notes: Crous et al. (2013) introduced *Dimorphiopsis* with *D. brachystegiae* as the type species and further said, ‘it is debatable if this odd fungus is a coelomycetes or hyphomycete’. Mega blast results of LSU rDNA sequences show it has close relationship with *Lophiostoma* sp. (Crous et al. 2013). Our phylogenetic analyses show it belongs to *Lophiostomataceae, Pleosporales* (Fig. 9).

Dinemasporium Lév., Anns Sci. Nat., Bot., sér. 3 5: 274 (1846)

= *Stauronema* (Sacc.) Syd., P. Syd. & E.J. Butler, Anns mycol. 14(3/4): 217 (1916)

= *Pycnidiochaeta* Sousa da Câmara, Agron. lusit. 12: 109 (1950)

= *Diarimella* B. Sutton, The Coelomycetes (Kew): 452 (1980)

Facesoffungi number: FoF 01763; Fig. 84

Sordariomycetes, Sordariomycetidae, Chaetosphaeriales, Chaetosphaeriaceae

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* ?sporodochial, solitary or gregarious, superficial, globose, black. *Conidiomata wall* basal area composed of brown, *textura angularis*, periphery walls are composed of either *textura angularis* or *textura porrecta*, or *textura intricata*. *Setae* abundant or sparse, brown, septate, acuminate. *Conidiophores* cylindrical or tapered to the apices, septate, simple or branched, smooth. *Conidiogenous cells* enteroblastic, phialidic, cylindrical to tapered or subcylindrical to lageniform, integrated, determinate, hyaline, smooth. *Conidia* fusiform, straight or allantoid, aseptate, guttulate or eguttulate, thin and smooth-walled; with a single unbranched appendage at each end (Sutton 1980; Nag Raj 1993; Duan et al. 2007; Crous et al. 2012f; Hashimoto et al. 2015).

Type species: Dinemasporium strigosum (Pers.) Sacc., Michelia 2(no. 7): 281 (1881)

= *Dematium aureum* var. *strigosum* Pers., Tent. disp. meth. fung. (Lipsiae): 75 (1797)

= *Dinemasporium graminum* (Lib.) Lév., Anns Sci. Nat., Bot., sér. 3 5: 274 (1846)

For additional synonyms see Sutton (1980), Nag Raj (1993) and Crous et al. (2012f).

Notes: Lévillé (1846) introduced *Dinemasporium* with *D. graminum* as the type species. However, Saccardo (1881) introduced *D. strigosum* (= *Dematium aureum* var. *strigosum*), thus Sutton (1980) treated *D. strigosum* as the type species as it is the oldest name. This was accepted by Nag Raj (1993) and Crous et al. (2012f).

Sutton (1980) and Nag Raj (1993) stated that *Dinemasporium* has ‘hyaline or pale brown conidia’ but only *Dinemasporium aberrans* B. Sutton (Sutton 1969b) has been listed with pale brown conidia (Duan et al. 2007). There have been several species published since Sutton (1980), but all species have hyaline conidia (Matsushima 1995; Duan et al. 2007; Crous et al. 2012f, 2014c; Hashimoto et al. 2015). Hence, we conclude that the

Fig. 83 *Dimorphiopsis brachystegiae*. **a** Conidiogenous cell and developing conidium. **b** Conidia. Scale bars: **a, b** = 10 μ m (re-drawn from Crous et al. 2013)

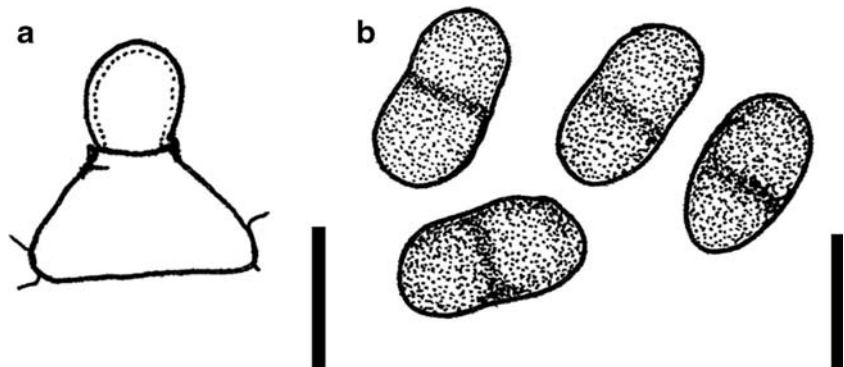




Fig. 84 *Dinemasporium nelloi* (Material examined: Italy, Province of Forli-Cesena [FC], Castrocara Terme, Converselle, on dead stem of *Dactylis glomerata*, 1 December 2012, E. Camporesi, HKAS 83970, isotype). **a** Herbarium label and material. **b** Conidiomata on specimen.

c Close up of conidioma. **d** Vertical section of conidioma. **e** Setae. **f–h** Different stages of conidiogenesis. **i–l** Conidia. Scale bars: **d** = 100 μ m, **e** = 50 μ m, **f–l** = 10 μ m. (*Dinemasporium nelloi* has hyaline conidia but we illustrate it to show other morphological characters)

generic concept of *Dinemasporium* must be revised and probably it can be heterogeneous as predicted by Sutton (1980).

Moreover, Crous et al. (2012f) showed that dinemasporium-like taxa are polyphyletic in *Chaetosphaeriaceae*, *Chaetosphaeriales*, hence introduced *Brunneodinemasporium*. Maharachchikumbura et al. (2015) also accepted *Dinemasporium* as a distinct genus in *Chaetosphaeriaceae*, *Chaetosphaeriales*.

Diplodia Fr., in Montagne, *Annls Sci. Nat., Bot.*, sér. 2 1: 302 (1834)

= *Cryptosphaeria* Grev., *Scott. crypt. fl.* (Edinburgh) 1: pl. 13 (1822)

= *Holcomyces* Lindau, *Verh. bot. Ver. Prov. Brandenb.* 45: 155 (1904) [1905]

Facesoffungi number: FoF 01735; Figs. 85, 86, 87, 88 and 89

Dothideomycetes, order *incertae sedis*, *Botryosphaeriales*, *Botryosphaeriaceae*

Pathogenic, endophytic or saprobic, on leaves, twigs, stems of a range of host plants. **Sexual morph**: see Phillips

et al. (2013). **Asexual morph**: *Conidiomata* pycnidial, solitary to gregarious, occasionally confluent, formed in uni- or multi-loculate stromata, immersed, becoming erumpent at maturity, ostiolate. *Ostirole* papillate, central, circular. *Conidiomata* wall thick, composed of thick-walled, brown cells of *textura angularis*; inner layer thin, hyaline. *Conidiophores* usually reduced to conidiogenous cells, when present hyaline, simple, occasionally septate, rarely branched, cylindrical, arising from the cells lining the pycnidial cavity. *Conidiogenous cells* holoblastic, hyaline, cylindrical, discrete or occasionally integrated, determinate or proliferating at the same level giving rise to periclinal thickenings, or proliferating percurrently and forming two or three annellations. *Conidia* oblong to ovoid, straight, both ends, broadly rounded, initially hyaline, aseptate when immature, 1–2-septate and pale brown at maturity; or brown, aseptate, even from an early stage of development, even before discharge from conidiomata, thick-walled (Sutton 1980; Alves et al. 2004, 2006, 2014; Phillips et al. 2008, 2013; Liu et al. 2012).

Type species: Diplodia mutila (Fr. : Fr.) Fr., *Summa Veg. Scand.* 2: 417 (1849); Fig. 85

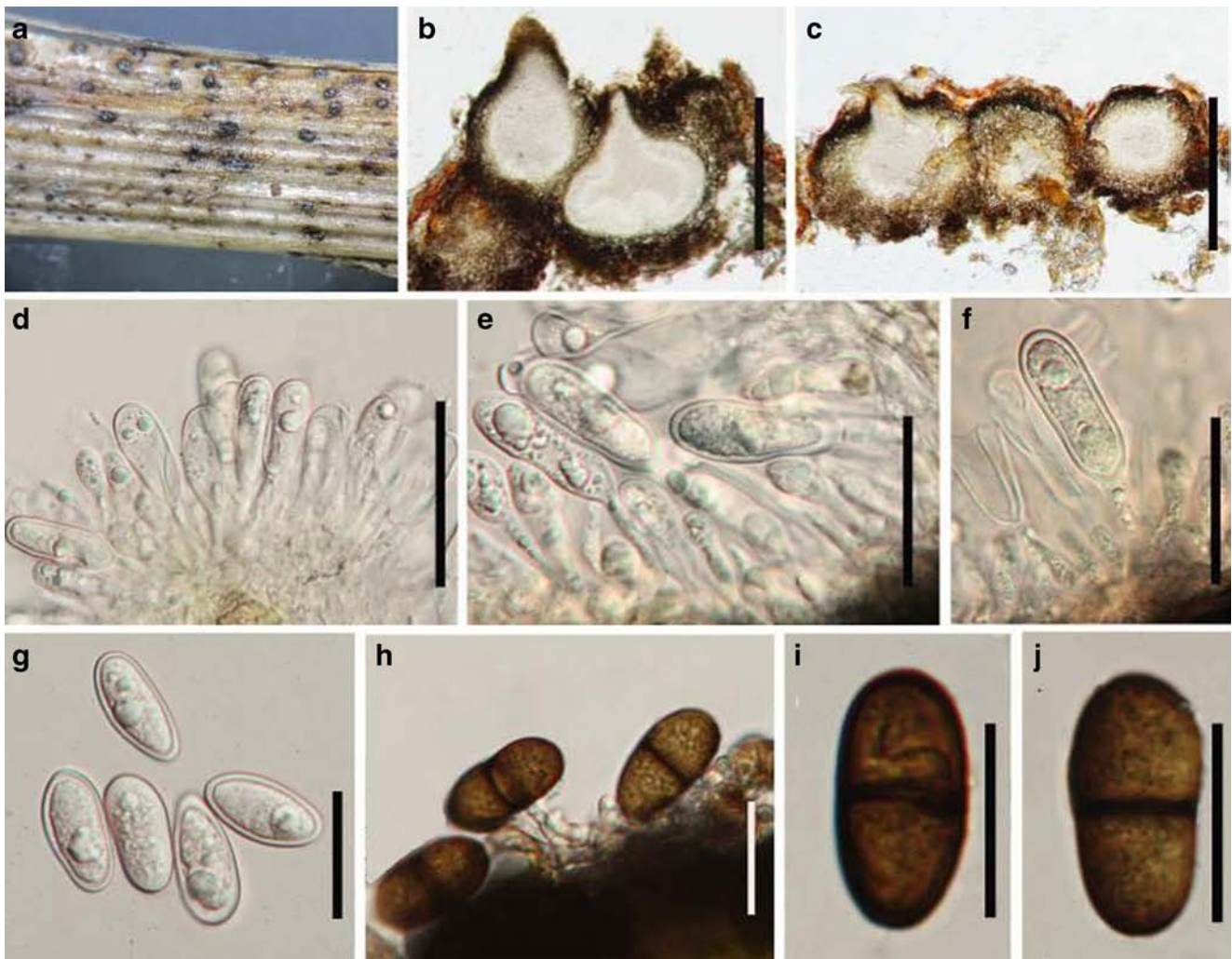
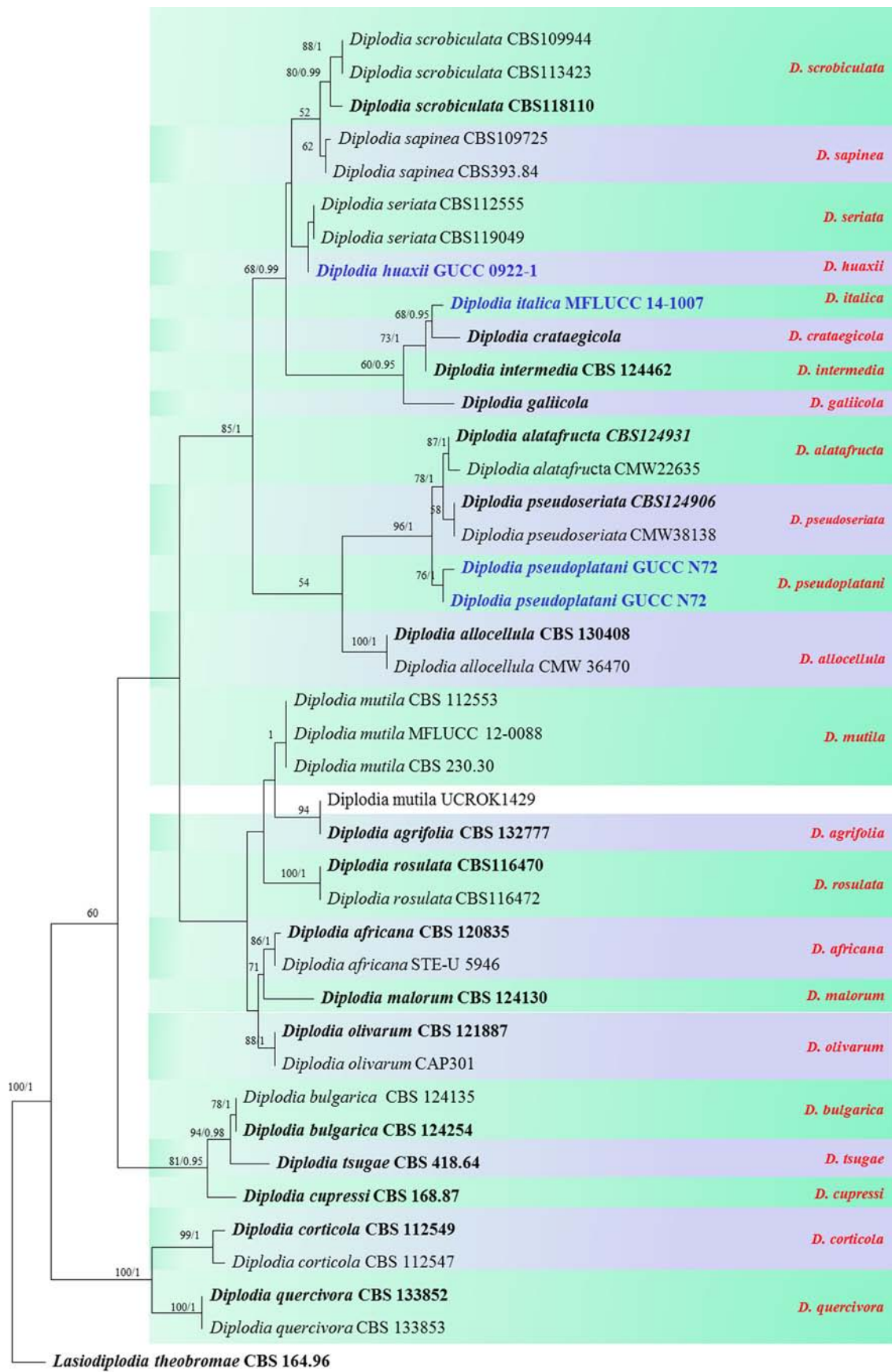


Fig. 85 *Diplodia mutila* (Material examined: Italy, Forlì-Cesena [FC] Province, Collinaccia - Castrocaro e Terra del Sole, on dead branch of *Cupressus glabra*, 25 February 2012, E. Camporesi, MFLU 15–3549). **a**

Conidiomata on host material. **b, c** Vertical sections of conidiomata. **d–f** Immature conidia attach to conidiogenous cells. **g** Immature conidia. **h–j** Mature conidia. Scale bars: **b, c** = 300 μm , **d–f** = 30 μm , **g–j** = 20 μm

Notes: Montagne (1834) introduced *Diplodia* with *D. mutila* as the type species. However, Montagne (1834) indicated *Sphaeria mutila* as the type of the new genus *Diplodia*, the 1834 protologue did not make any definite association of “mutila” with “Diplodia”, as required for a valid comb. nov. Therefore, the frequently cited date of 1834 for publication of the combination *Diplodia mutila* is incorrect. Fries (1823) described *Sphaeria mutila* and distributed two exsiccati under that name as Scler. Suec. 164 and 385. Stevens (1933) and Sutton (1980) reported that these two exsiccati in BPI and K had no spores. Alves et al. (2004) examined material of the same two exsiccati in STR and also found no spores. Montagne sent Fries a fungus that was identified as *S. mutila*. The record was listed under *S. mutila* Fr. by Montagne (1834) with the note that this would become the type of a new genus, *Diplodia*, later characterized by Fries (1849). Thus, the binomial *Diplodia mutila* was first

introduced by Fries (1849). Montagne distributed this fungus in his exsiccatus No. 498. According to Alves et al. (2004) no material of this exsiccatus could be found in STR. Alves et al. (2004) examined Montagne’s specimen of *D. mutila* in Kew, K(M) 99664 (presumed to be an isotype) and found it to agree in all aspects with Stevens’ (1933) account of Montagne’s exs. 498. Stevens (1933) described *Physalospora mutila* as the sexual morph of *D. mutila* referring to BPI 599151, but this name was invalid because it lacked a Latin description. Alves et al. (2004) examined this specimen and could find no sexual morph, but they did find ample material of the sexual morph on BPI 599153, which is a specimen on apple collected by Stevens from the same locality at same time he collected BPI 599151. Shoemaker (1964) considered the sexual morph to be a species of *Botryosphaeria* and since the name *B. mutila* was already taken, he proposed the name *Botryosphaeria stevensii*. After Crous et al. (2006a) revised *Botryosphaeria* reducing it



1

◀ **Fig. 86** Most parsimonious tree generated from the analysis of combined data set of ITS and EF1- α sequences of *Diplodia* species accepted in Phillips et al. (2013) (CI=0.787, RI=0.889, RC=0.700, HI=0.213). Bootstrap values are above for maximum parsimony greater than 50 % and Bayesian posterior probabilities greater than 0.95 are above the nodes. Ex-type strains are in bold and newly introduced species are in blue. The tree is rooted with *Lasiodiplodia theobromae* (CBS 164.96)

to *B. dothidea* (Moug.) Ces. & De Not. and *B. corticis* (Demaree & Wilcox) Arx & E. Müll., the fungus known as *B. stevensii* was referred to only by its asexual name *D. mutila*.

Some species of *Diplodia*, are known to be pathogens while others are recoded as endophytes and saprobes on a wide range of hosts and have a worldwide distribution (Sutton 1980; Crous et al. 2006a). *Diplodia pinea*, *D. mutila*, *D. seriata* are some important pathogens and other known pathogenic species are listed in Table 4. It is one of the largest genera among coelomycetous fungi and currently comprises more than 1200 names in Index Fungorum (2016). Traditionally, species in *Diplodia* were described based on host association, which resulted in proliferation of species names (Phillips et al. 2012). Slippers et al. (2004) rejected this concept and mentioned host

association is not an important criterion in species differentiation of genera of *Botryosphaeriaceae*.

Several species of *Diplodia* and *Dothiorella* share similar morphological characters, which can cause some confusion for taxonomists and pathologists. Slippers et al. (2013) showed that strains of *Diplodia juglandis* and *D. coryli* in GenBank grouped in *Dothiorella sensu stricto*. Thus *Diplodia* was restricted to taxa with uni- or multilocular conidiomata ‘lined with conidiogenous cells that form hyaline, aseptate, thick-walled conidia at their tips’ (Phillips et al. 2005, 2012). Further, Phillips et al. (2005) mentioned that most of the known *Diplodia* spp. have hyaline conidia for a long period, before they turn brown and 1-septate. However, some species (*D. pinea*, *D. scrobiculata* and *D. seriata*) produce conidia which become pigmented before release from the pycnidia and typically remain aseptate (Phillips et al. 2005, 2012).

Recent phylogenetic studies reveal and delimit generic boundaries between *Diplodia* and *Dothiorella* (Phillips et al. 2008, 2013; Liu et al. 2012; Slippers et al. 2013, 2014), which is an important distinction in plant pathology and plant

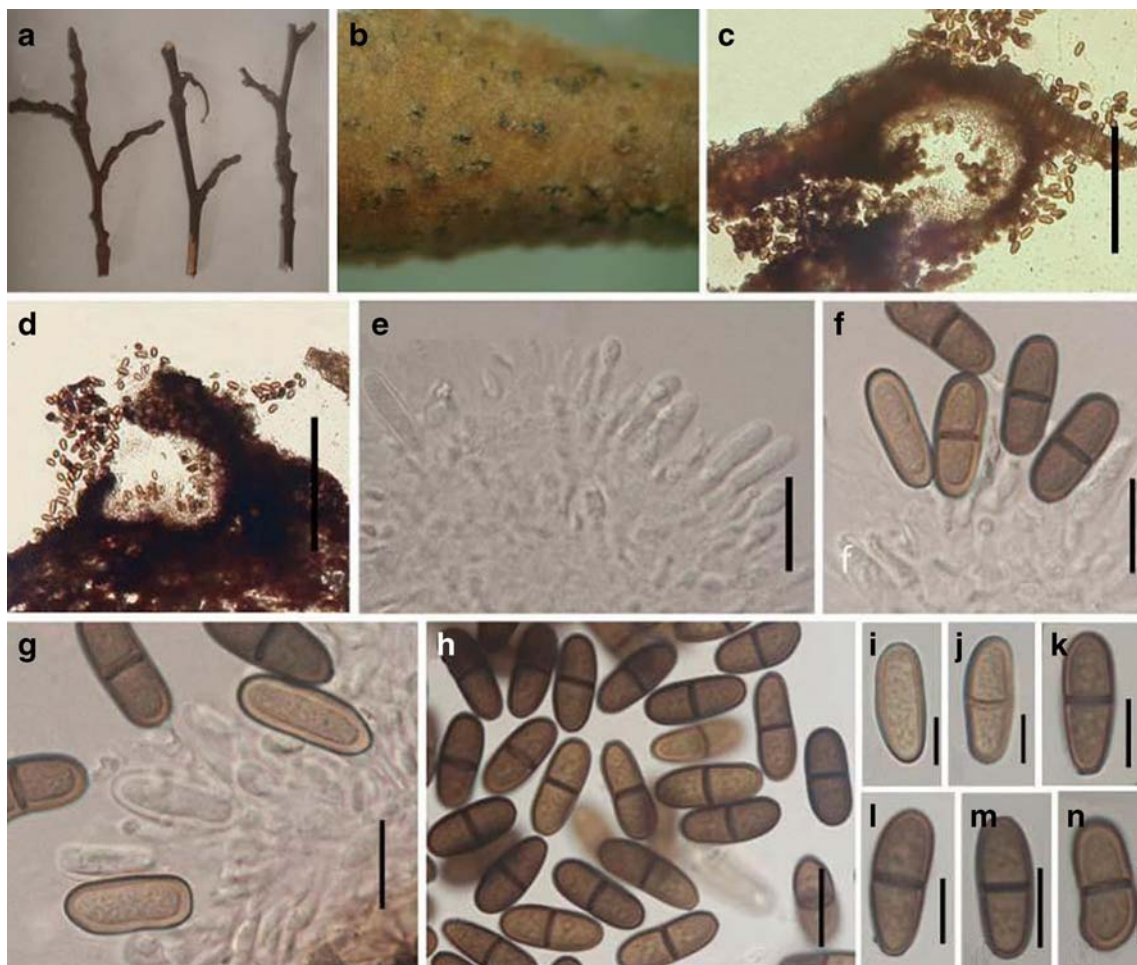


Fig. 87 *Diplodia huaxii* (holotype). **a** Branches of *Platanus* sp. **b** Conidiomata on host material. **c, d** Vertical sections of conidiomata. **e–g** Different stages of conidiogenesis. **h–n** Conidia. Scale bars: **c, d** = 300 μ m, **e–h** = 20 μ m, **i–n** = 15 μ m

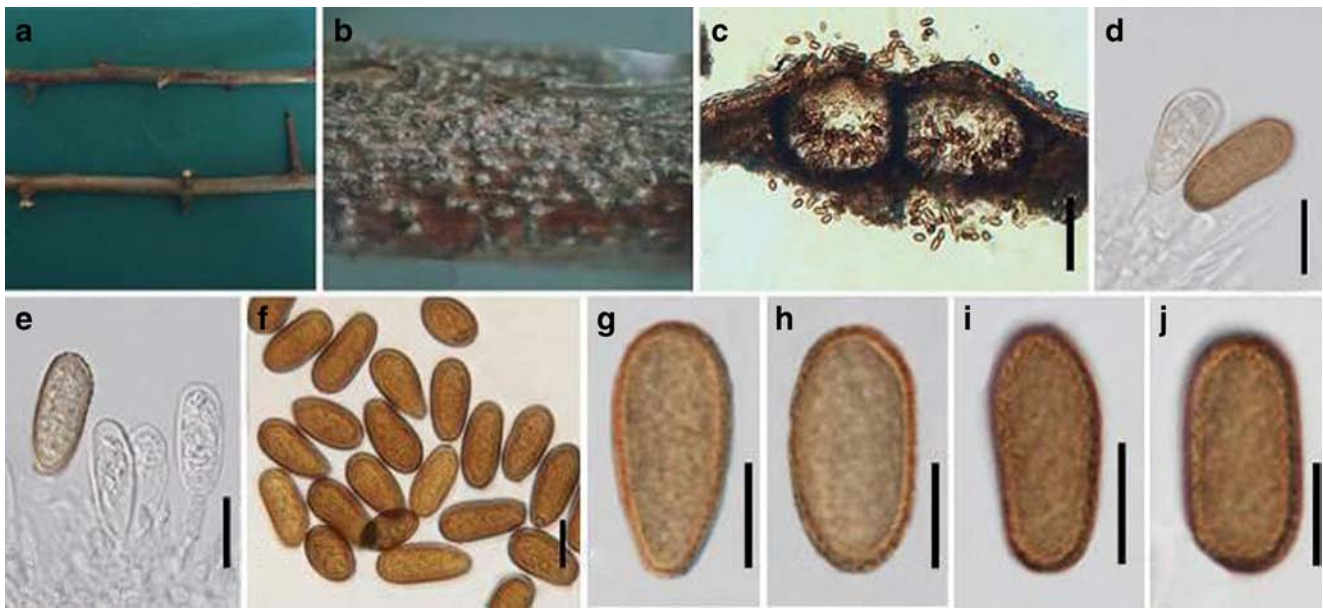


Fig. 88 *Diplodia pseudoplatani* (holotype). **a** Branches of *Platanus* sp. **b** Conidiomata on host material. **c** Vertical section of conidiomata. **d–e** Different stage of conidiogenesis. **f–j** Conidia. Scale bars: **a** = 200 μm , **d–j** = 10 μm

quarantine (Arzanlou and Bakhshi 2012). Furthermore, Phillips et al. (2012) discussed the significance of molecular data to resolve species complexes of *Diplodia* on apple and other *Rosaceae* hosts. Figure 86 shows the back bone tree for *Diplodia* species based on ITS and EF1- α sequences.

Diplodia huaxii Wijayaw., A.J.L. Phillips, Yong Wang bis. & K.D. Hyde, *sp. nov.*

Index Fungorum number: IF551773; *Facesoffungi number*: FoF 01471; Fig. 87

Etymology: Named after the city, Huaxi, where it was collected

Holotype: HGUP NNW 0922-1

Saprobic on dead branches of *Platanus* sp. **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* 300–400 μm diam., 150–200 μm high, pycnidial to irregular, solitary, scattered, globose to subglobose, unilocular, immersed, becoming erumpent at maturity, ostiolate, dark brown, ostiolate. *Ostiole* papillate, central, circular, single. *Conidiomata* wall with outer wall composed of thick-walled, dark brown cells of *textura angularis*, inner wall composed of thin-walled, hyaline cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* 5–10 \times 2–3 μm , long, holoblastic, phialidic, discrete, determinate, cylindrical, hyaline. *Conidia* 18–25 \times 6.5–10 μm (\bar{x} = 21.1 \times 7.87 μm , n = 20), obovate to ovoid, straight, broadly rounded at both ends, cylindrical, 1-septate, brown to dark brown, smooth and thick-walled.

Culture characteristics: On PDA fast growing, attaining 4 cm in 4 days at 18 $^{\circ}\text{C}$, greyish white from above, grey from below, margin uneven, cottony, with thick mycelium.

Material examined: China, Guizhou Province, Huaxi, near Guizhou University, on dead stems of *Platanus* sp., 30

June 2012, Nalin Wijayawardene, NNW 0922-1 (HGUP NNW 0922-1, **holotype**), living cultures GUCC 0922-1

Notes: Cooke (1878) and Farr and Rossman (2016) reported several *Diplodia* species from *Platanus* spp., with distinguishable conidial dimensions, viz. *D. ditior* Sacc. & Roum. (25–30 \times 10–12 μm), *D. fulvella* Cooke (30 \times 14 μm), *D. myxosporioides* Sacc. (22 \times 15 μm) and *D. platanicola* Sacc. (16–20 \times 8–11 μm). In phylogenetic analyses, our new strain groups as a sister clade to *D. seriata* (Fig. 86). The conidia of *D. seriata* (22–27 \times 11.5–14.5 μm *vide* Phillips et al. 2013) are aseptate and wider than our collection, while in our collection conidia are 1-septate. Moreover, our collection is morphologically distinct from other species reported from *Platanus* spp. and hence, we introduce it as a new species of *Diplodia*.

Diplodia pseudoplatani Wijayaw., A.J.L. Phillips, D.J. Bhat & K.D. Hyde, *sp. nov.*

Index Fungorum number: IF551774; *Facesoffungi number*: FoF 01472; Fig. 88

Etymology: Named as its morphological similarity with *Diplodia platani*

Holotype: HGUP NNW 603-1

Saprobic or *endophytic* on branches of *Platanus* sp. **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* 350–420 μm diam., 150–200 μm high, pycnidial, solitary to confluent, globose, unilocular, immersed, becoming erumpent at maturity, dark brown, ostiolate. *Ostiole* papillate, central, single, circular. *Conidiomata* outer wall composed of thick-walled, dark brown to black cells of *textura angularis*, inner wall composed of thin-walled cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* 10–15 \times 4–6 μm ,

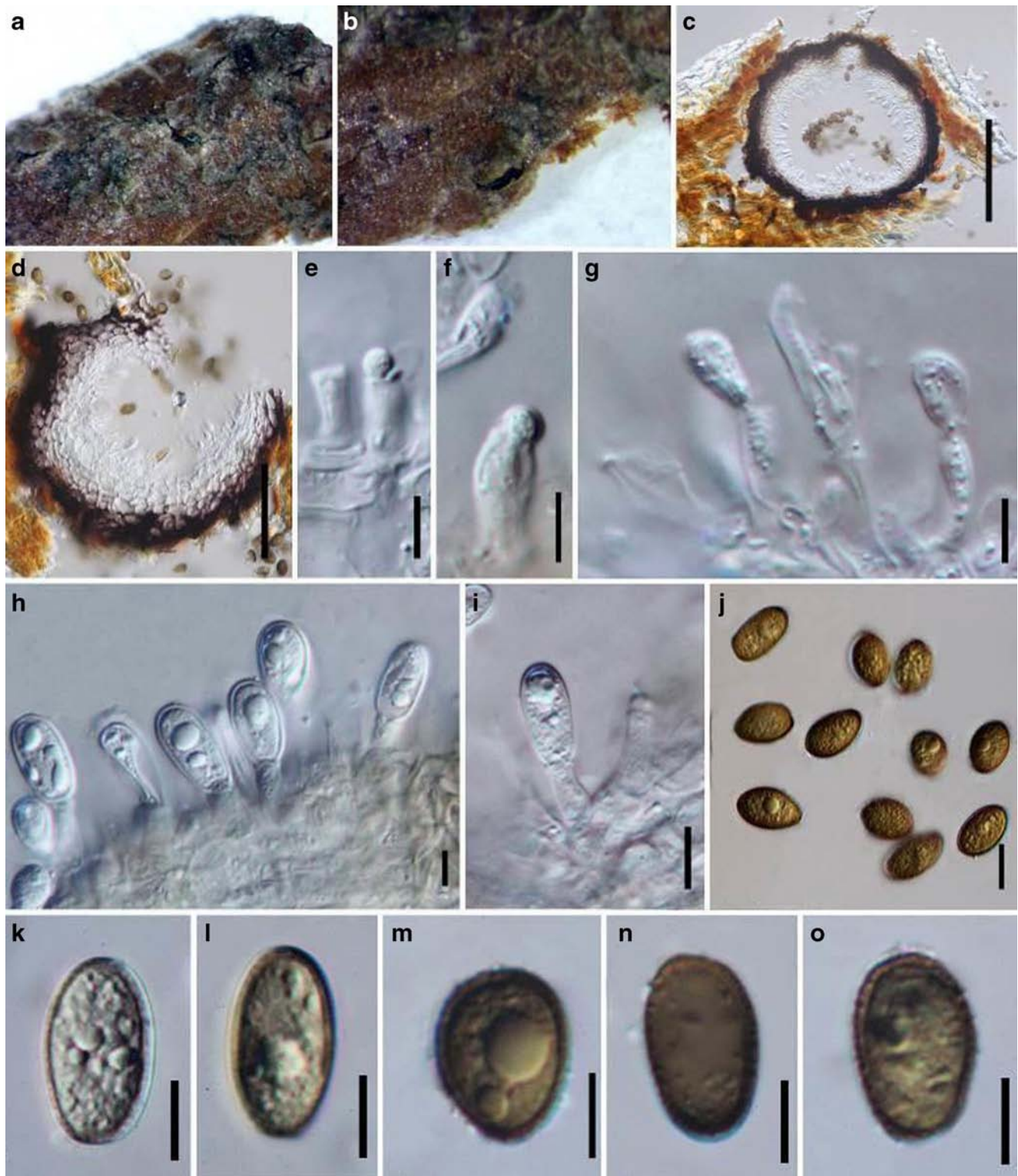


Fig. 89 *Diplodia italica* (holotype). **a, b** Immersed conidiomata on host material. **c** Vertical section of conidioma. **d** Conidioma wall. **e–i** Different stages of conidiogenesis. **j–o** Conidia. Scale bars: **c**=150 μm , **d**=30 μm , **e–i**=5 μm , **j**=10 μm , **k–o**=8 μm

long, holoblastic, phialidic, discrete, determinate, doliiform, cylindrical, hyaline, smooth-walled. *Conidia* 19–26 \times 10–12 μm (\bar{x} =22.1 \times 11.27 μm , n =20), oblong to ovoid, straight, rounded at both ends, sometimes truncate at base, cylindrical,

aseptate, pale brown to brown, smooth and thick-walled, eguttulate.

Culture characteristics: On PDA fast growing, attaining 4.5 cm in 4 days at 18–25 $^{\circ}\text{C}$, cottony, margin uneven, circular,

Table 4 Pathogenic species of *Diplodia*

Species	Disease and affected host	Literature
<i>D. corticola</i>	Canker and dieback of cork and other oaks, rarely on grapevines	Alves et al. 2004
<i>D. cupressi</i>	Stem canker of Cupressus, Juniperus	Alves et al. 2006
<i>D. mutila</i>	Black rot and canker of apples	Stevens 1933; Brown and Britton 1986
<i>D. pinea</i>	Crown wilt, dieback, cankers, shoot and tip blight, and root disease on pines	Eldridge 1961
<i>D. seriata</i>	Frog-eye leaf spot, black rot and canker of apple	Brown-Rytlewski and McManus 2000

zonate, greenish black from above, dark brown to black from below.

Material examined: China, Guizhou Province, Huaxi, near Guizhou University, on twigs of *Platanus* sp., 30 June 2012, Nalin Wijayawardene, NNW 603–1 (HGUP NNW 603–1, **holotype**), living cultures GUCC G603-1

Notes: Our second collection from *Platanus* spp. clusters as a sister clade to *D. pseudoseriata* and *D. alatafructa*. Phillips et al. (2013) treated *D. pseudoseriata* and *D. alatafructa* clade as an unresolved clade. However, in phylogenetic analyses, both species separate with moderate bootstrap values (Fig. 86). In conidial morphology, our collection is distinct from both *D. pseudoseriata* ($25.5\text{--}26.5 \times 11.5\text{--}12 \mu\text{m}$ fide Phillips et al. 2013) and *D. alatafructa* ($21.5\text{--}25 \times 10\text{--}12.5 \mu\text{m}$ fide Phillips et al. 2013), thus the new species is proposed to accommodate our collection.

Diplodia italica Wijayaw., A.J.L. Phillips, Camporesi & K.D. Hyde, *sp. nov.*

Index Fungorum number: IF551775; **Facesoffungi number:** FoF 01473; Fig. 89

Etymology: Named after the country where it was collected, Italy

Holotype: MFLU 15–3300

Saprobic on aerial litter of *Crataegus* sp. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* 280–310 μm diam., 260–280 μm high, pycnidial, immersed, erumpent at maturity, globose, unilocular, immersed, black, ostiolate. *Ostiole* papillate, central, circular, single. *Conidiomata wall* composed of thick-walled, dark brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* $4\text{--}12 \times 3\text{--}5 \mu\text{m}$, cylindrical, long, enteroblastic, phialidic, discrete, determinate, hyaline. *Conidia* $13\text{--}16 \times 8\text{--}11 \mu\text{m}$ ($\bar{x} = 14.52 \times 9.34 \mu\text{m}$, $n = 20$), oblong to ovoid, broadly rounded, rarely truncate at base, aseptate, brown to dark brown, thick and smooth-walled, guttulate.

Culture characteristics: On PDA fast growing, attaining 3 cm in 4 days at 18 °C, white from above, greyish white from below, margin uneven, cottony, thick mycelium.

Material examined: Italy, Arezzo [AR] Province, Papiano - Stia, on dead branch of *Crataegus* sp. 11 May 2014, Erio Camporesi, IT 1863 (MFLU 15–3300, **holotype**), living cultures MFLUCC 14–1007, GUCC 1863.

Notes: In phylogenetic analyses (Fig. 86), this new collection groups as the sister clade to *Diplodia crataegicola* which has close morphology with our collection (conidia $11\text{--}16 \times 6\text{--}10 \mu\text{m}$). However, *D. crataegicola* has larger conidiogenous cells ($10\text{--}22 \mu\text{m} \times 4\text{--}6 \mu\text{m}$), while our collection has comparatively smaller conidiogenous cells ($4\text{--}12 \times 3\text{--}5 \mu\text{m}$). Hence, based on both morphological and phylogenetic analyses, we introduce a new species.

Discosia Lib., Pl. crypt. Arduenna, fasc. (Liège) 4: no. 346 (1837)

= *Adisciso* Kaz. Tanaka et al., Persoonia, Mol. Phyl. Evol. Fungi 26: 90 (2011)

See Index Fungorum for synonyms

Facesoffungi number: FoF 01777; Fig. 90

Sordariomycetes, *Xylariomycetidae*, *Amphisphaeriales*, *Discosiaceae*

Saprobic or **pathogenic** on various substrates of a range of host plants. **Sexual morph:** see Tanaka et al. (2011). **Asexual morph:** *Conidiomata* stromatic, solitary or gregarious, occasionally confluent, flattened, black, superficial, unilocular or multi-locular, papillate ostiole, circular, *Conidiomata wall* thick at the base, composed of thin-walled, pale brown cells of *textura angularis*, upper wall thinner, composed of thick-walled, dark brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, discrete, determinate, conical, hyaline to pale brown, smooth, only in basal conidiomatal wall. *Conidia* dorsiventral, straight or slightly curved, 3–4-transverse septate, tapered to a truncate base, apex obtuse, hyaline to pale brown, smooth-walled, apical and basal cells each with a subapical and suprabasal unbranched cellular appendage (Sutton 1980; Nag Raj 1993; Vanev 1995; Matsushima 1996; Tanaka et al. 2011; Crous et al. 2013; Senanayake et al. 2015).

Type species: ***Discosia strobilina*** Lib., Pl. Crypt. Ard. exs. 346 (1837)

Notes: Libert (1837) introduced *Discosia* with *D. strobilina* as the type species. Subramanian and Reddy (1974) recognized four sections in *Discosia*, and five described species (*D. strobilina* Lib., *D. vagans* de Not., *D. julia* Speg., *D. aquatica* Fautr. and *D. grammata* Berk. & Curt.) based on conidial septation and size, and the varying proportional lengths of the conidial cells. However, Subramanian and Reddy (1974) did not examine the

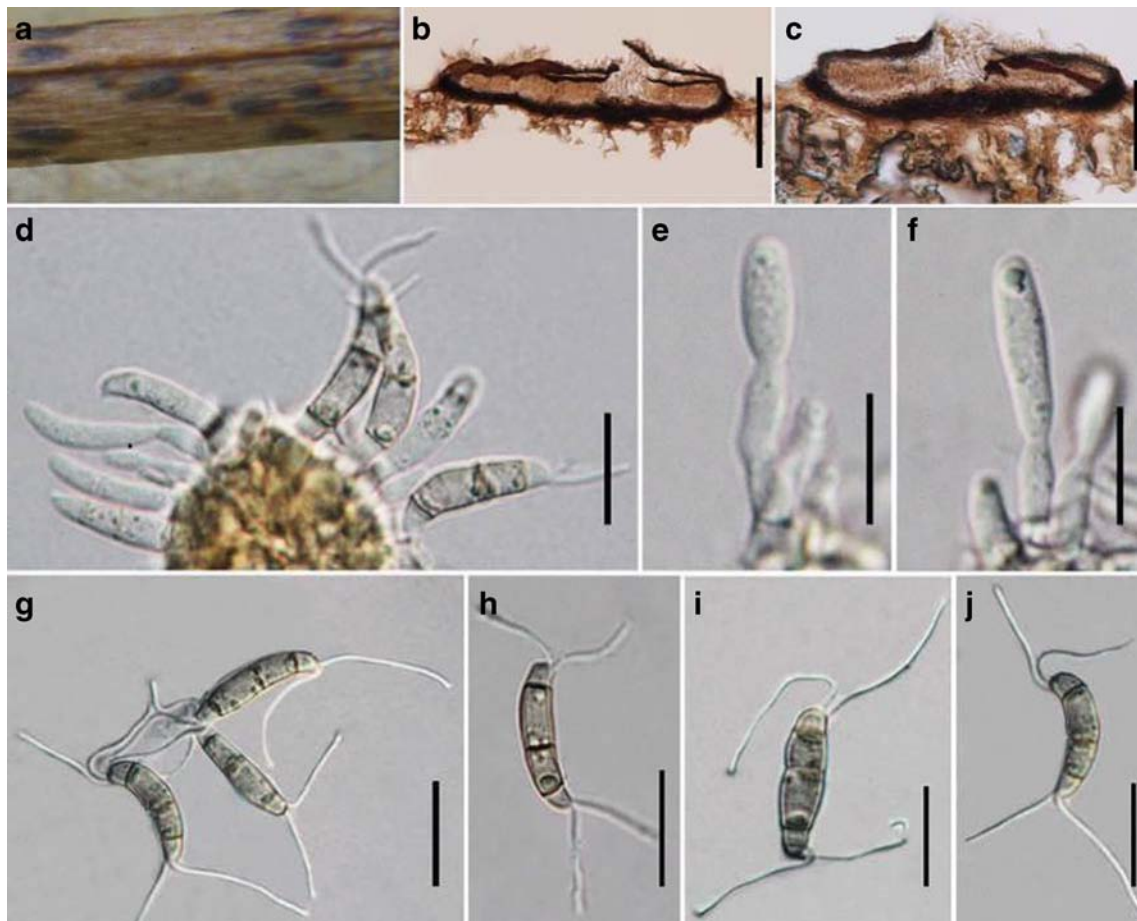


Fig. 90 *Discosia pseudoceanothi* (holotype). **a** Conidiomata on branch of *Medicago* sp. **b, c** Vertical sections of conidiomata. **d–f** Different stages of conidiogenesis. **g–j** Conidia. Scale bars: **b, c** = 150 μm , **d** = 20 μm , **e, f** = 10 μm , **g–j** = 20 μm

type of *D. artocreas* (Sutton 1980), which is treated as the type species of *Discosia* in Index Fungorum (2016).

Subramanian and Reddy (1974) treated *D. theae* Cavara, *D. virginiana* and *D. himalayensis* as synonyms of *D. strobilina*. Sutton (1980) agreed with the synonymies of Subramanian and Reddy (1974), but Nag Raj (1993) rejected this.

Morphological characters between some species of *Discosia* and *Seimatosporium* (such as *Discosia grammata* Berk. & M.A. Curtis) are unclear and thus phylogenetic analyses are important to distinguish them (Tanaka et al. 2011). Jeewon et al. (2002) showed that *Discosia* and *Seimatosporium* are distinct clades in *Amphisphaeriaceae*, *Xylariales* based on LSU and ITS sequence data. Tanaka et al. (2011) carried out extensive molecular data analyses (based on LSU, ITS and β -tubulin) on both *Discosia* and *Seimatosporium* and showed discosia-like taxa are polyphyletic in *Amphisphaeriaceae* as predicted by Sutton (1980) and Nag Raj (1993). Hence, Tanaka et al. (2011) introduced *Immersidiscosia* Kaz. Tanaka et al. based on *I. eucalypti* (Pat.) Kaz. Tanaka et al. which has similar morphological characters with *Discosia sensu stricto* except for its hyaline conidia. Furthermore, Tanaka et al.

(2011) introduced the sexual morph of *Discosia sensu stricto* viz. *Adisciso* Kaz. Tanaka et al., but here in we treat *Adisciso* as a synonym of *Discosia* agreeing with the ‘one fungus one name’ concept (Hawksworth 2012).

Senanayake et al. (2015) showed that *Discosia sensu stricto* groups with *Adisciso*, *Discostroma*, *Sarcostroma* and *Seimatosporium* as a distinct clade in *Amphisphaeriales*, and hence, introduced *Discosiaceae* Maharachch. & K.D. Hyde to accommodate these genera (Fig. 16).

Discosia pseudoceanothi Wijayaw., Camporesi, D.J. Bhat & K.D. Hyde, *sp. nov.*

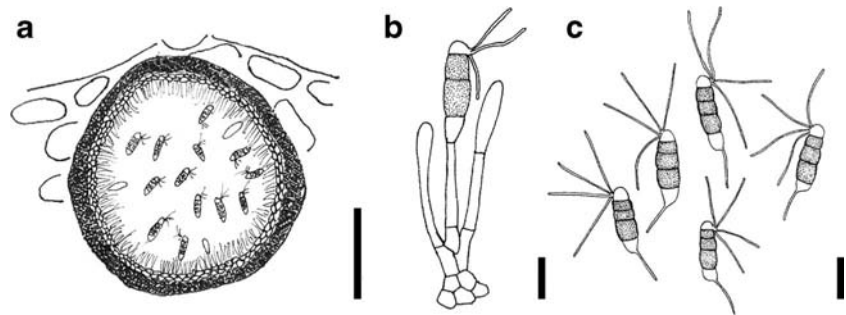
Index Fungorum number: IF551776; *Facesoffungi* number: FoF 01474; Fig. 90

Etymology: Named after its morphological similarity with *Discosia ceanothi*

Holotype: MFLU 15–3449

Saprobic on dead stem of *Medicago* sp. (*Fabaceae*). **Sexual morph**: Undetermined. **Asexual morph**: Conidiomata 450–500 μm diam., 60–120 μm high, stromatic, solitary to gregarious, flattened, black, superficial to subepidermal, unilocular, with papillate, circular ostiole. Conidiomata wall thick at the

Fig. 91 *Doliomyces senegalensis*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 50 μm , **b**, **c** = 10 μm (re-drawn from Morgan-Jones et al. 1972b)



base, composed of thin-walled, pale brown *textura angularis*. *Conidiogenous cells* 3.5–10 \times 3–4 μm , holoblastic, discrete, determinate, conical, hyaline to pale brown, smooth, developing only from basal conidiomatal wall. *Conidia* 19–25 \times 4–6 μm (\bar{x} = 22.7 \times 5.3 μm , $n=20$), subcylindrical, tapered to a truncate base, obtuse at apex, slightly curved or occasionally straight, dorsiventral, 3-transverse septate, continuous or constricted at septa, 2 median cells pale brown, apical and basal cells subhyaline to hyaline, smooth-walled, bearing 4 appendages; 2 apical appendages 16–18 μm , long, tubular, unbranched; 2 basal appendage, 15–17 μm , long, tubular, unbranched.

Material examined: Italy, Forli-Cesena [FC] Province, Rocca delle Caminate - Predappio, on dead stem of *Medicago* sp. (*Fabaceae*), 11 June 2012, Erio Camporesi, IT 427 (MFLU 15–3449, **holotype**).

Notes: We compared our collection with other *Discosia* species in Nag Raj (1993), Crous et al. (2013) and Senanayake et al. (2015). Although *Discosia pseudoceanothi* morphologically resembles *D. ceanothi* (A.W. Ramaley) Nag Raj (conidial dimensions = 18–24 \times 3–3.5 μm), the former has wider conidia, and thus we introduce a new species based on differences in morphology.

Doliomyces Steyaert, Darwiniana 12(2): 169 (1961)

= *Bartaliniopsis* S.S. Singh, Proc. Natl. Inst. Sci. India, B, Biol. Sci. 42(4): 395 (1974) [1972]

Facesoffungi number: FoF 01475; Fig. 91

Sordariomycetes, *Xylariomycetidae*, *Amphisphaeriales*, *Bartaliniaceae*

Saprobic or *pathogenic* on various substrates of a range of host plants. **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* pycnidial, solitary, immersed, globose, unilocular, dark brown. *Conidiomata wall* outer layer composed of thick-walled, dark brown cells of *textura angularis*, inner layer thinner, paler. *Conidiophores* branched, septate, hyaline, smooth-walled. *Conidiogenous cells* holoblastic, annellidic, cylindrical, integrated, indeterminate, hyaline, smooth. *Conidia* cylindrical to navicular or fusiform, straight or slightly curved, 3–5-septate, constricted, median cells dark brown, thick-walled; basal cell hyaline to pale brown, thin and smooth-walled, with single unbranched appendage; apical cell hyaline, with flexuous, branched appendages, variable in number (Nag Raj and Kendrick 1972a; Sutton 1980; Nag Raj 1993).

Type species: Doliomyces senegalensis (Speg.) Steyaert, Darwiniana 12(2): 169 (1961); Fig. 91

= *Pestalotia senegalensis* Speg., Anal. Mus. nac. B. Aires 26: 131 (1914)

Notes: Steyaert (1961) introduced *Doliomyces* with *D. senegalensis* as the type species. Nag Raj and Kendrick (1972a) re-described the type species and introduced *D. mysorensis* Nag Raj & W.B. Kendr. Nag Raj (1993) added a third species, *D. saksenaensis* (S.S. Singh) Nag Raj and only these three species are listed in Index Fungorum (2016).

Kirk et al. (2008) stated *Doliomyces* belongs in *Amphisphaeriaceae*, but sequence data is unavailable. Thus its placement is uncertain. However, Senanayake et al. (2015) listed *Doliomyces* under *Amphisphaeriales*, genera *incertae sedis*. However, we prefer to keep *Doliomyces* as a member of *Bartaliniaceae*, as it shows closer morphologies with other genera of the family.

Dothideodiplodia Murashk., Trudy Sibitsk. Inst. Sel'sk. Khoz. Lesov. 9: 3 (1927)

Facesoffungi number: FoF 01476; Fig. 92

Ascomycota, genera *incertae sedis*

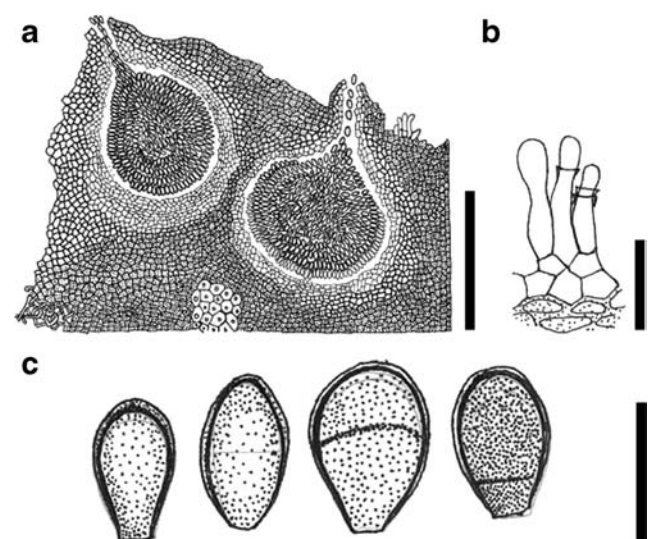


Fig. 92 *Dothideodiplodia agropyri*. **a** Vertical section of conidioma. **b** Developing conidia. **c** Conidia. Scale bars: **a** = 100 μm , **b**, **c** = 10 μm (Nag Raj and DiCosmo 1982)

Endophytic or *saprobic* on dead culms of *Fabaceae* (Dicotyledons) and *Poaceae* (Monocotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, immersed at immaturity, multilocular, dark brown to black, ostiolate. *Ostiole* single in each locule, apapillate, circular. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, annellidic, cylindrical, discrete, indeterminate, hyaline, smooth. *Conidia* ellipsoid to obovoid, truncate base, apex obtuse, 1–2-septate, pale brown, eguttulate, thick and smooth-walled (Sutton 1980; Nag Raj and DiCosmo 1982).

Type species: Dothideodiplodia agropyri Murashk., Mater. Mycol. Phytopath. Jcz. 6(1): 67 (1927); Fig. 92

Notes: Murashkinsky and Ziling (1927) introduced *Dothideodiplodia* with *D. agropyri* as the type species. In conidial morphology, *Dothideodiplodia* resembles diplodia-like taxa, but sequence data is unavailable to establish generic boundaries among *Dothideodiplodia* and other diplodia-like genera. Currently, two epithets are listed in Index Fungorum (2016), but taxonomic placement is uncertain (Wijayawardene et al. 2012b).

Dothiorella Sacc., *Michelia* 2(no. 6): 5 (1880)
= *Botryophoma* (P. Karst.) Höhn., Sber. Akad. Wiss. Wien, Math.-naturw. Kl., Abt. 1 125(1–2): 72 (1916)
= *Phoma* subgen. *Botryophoma* P. Karst., *Hedwigia* 23: 62 (1884)

= ?*Sclerodothiorella* Died., *Krypt.-Fl. Brandenburg* (Leipzig) 9: 299 (1912)

Facesoffungi number: FoF 01681; Fig. 93

Dothideomycetes, order *incertae sedis*, *Botryosphaeriales*, *Botryosphaeriaceae*

Pathogenic or *saprobic* on leaves, stems and branches of various plants. **Sexual morph:** see Phillips et al. (2013). **Asexual morph:** *Conidiomata* pycnidial, solitary to gregarious, immersed, uni- or multi-locular, globose to subglobose, dark brown, papillate or apapillate ostiole. *Conidiomata* wall composed of brown, thin-walled cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, cylindrical, discrete, determinate or indeterminate, smooth-walled, hyaline. *Conidia* initially hyaline, dark brown at maturity, 1-septate, ellipsoid to ovoid, thick-

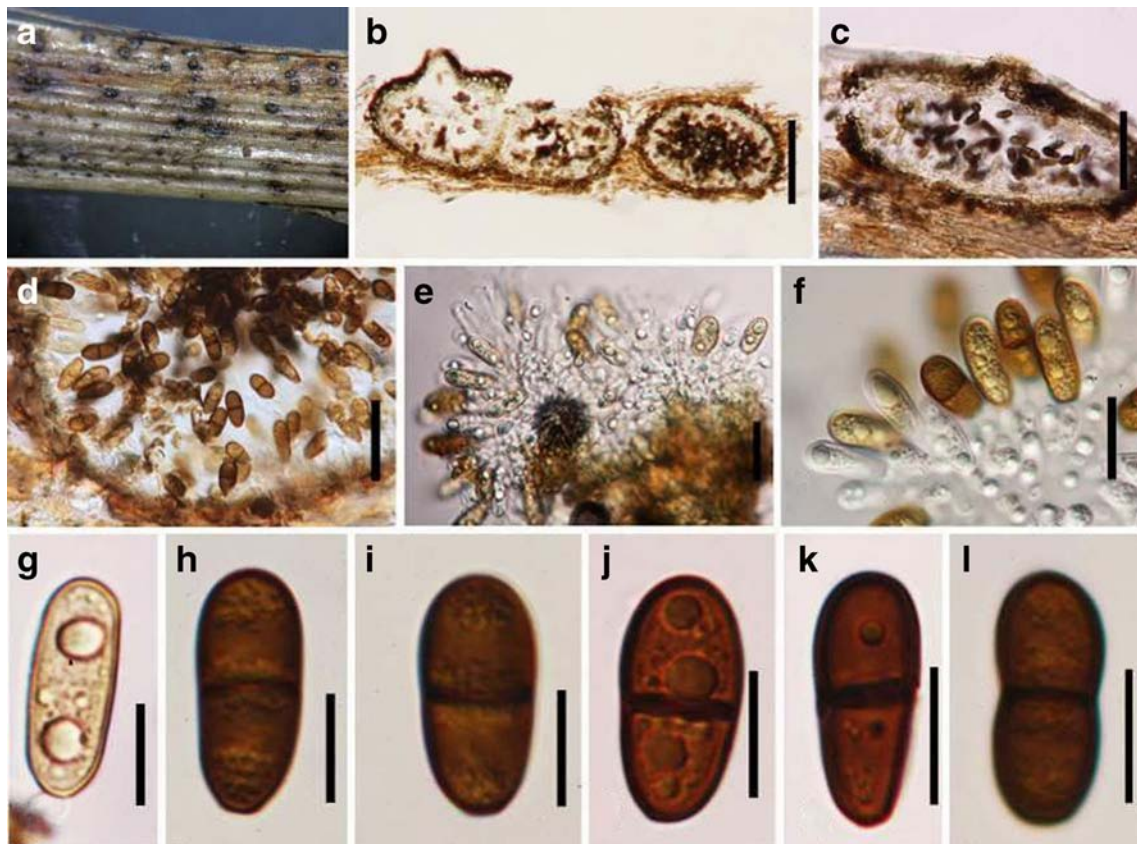


Fig. 93 *Dothiorella symphoricarposicola* (Material examined: Italy, Forlì-Cesena [FC] Province, Marsignano - Predappio, on dead branch of *Cornus sanguinea*, 21 January 2012, E. Camporesi, MFLU 15–3547). **a** Conidiomata on dead stem of *Cornus sanguinea*. **b, c** Vertical

sections of conidiomata. **d** Conidioma wall. **e, f** Different stages of conidiogenesis. **g–l** Conidia. Scale bars: **b, c** = 100 μ m, **g** = 50 μ m, **e, f** = 20 μ m, **g–l** = 10 μ m

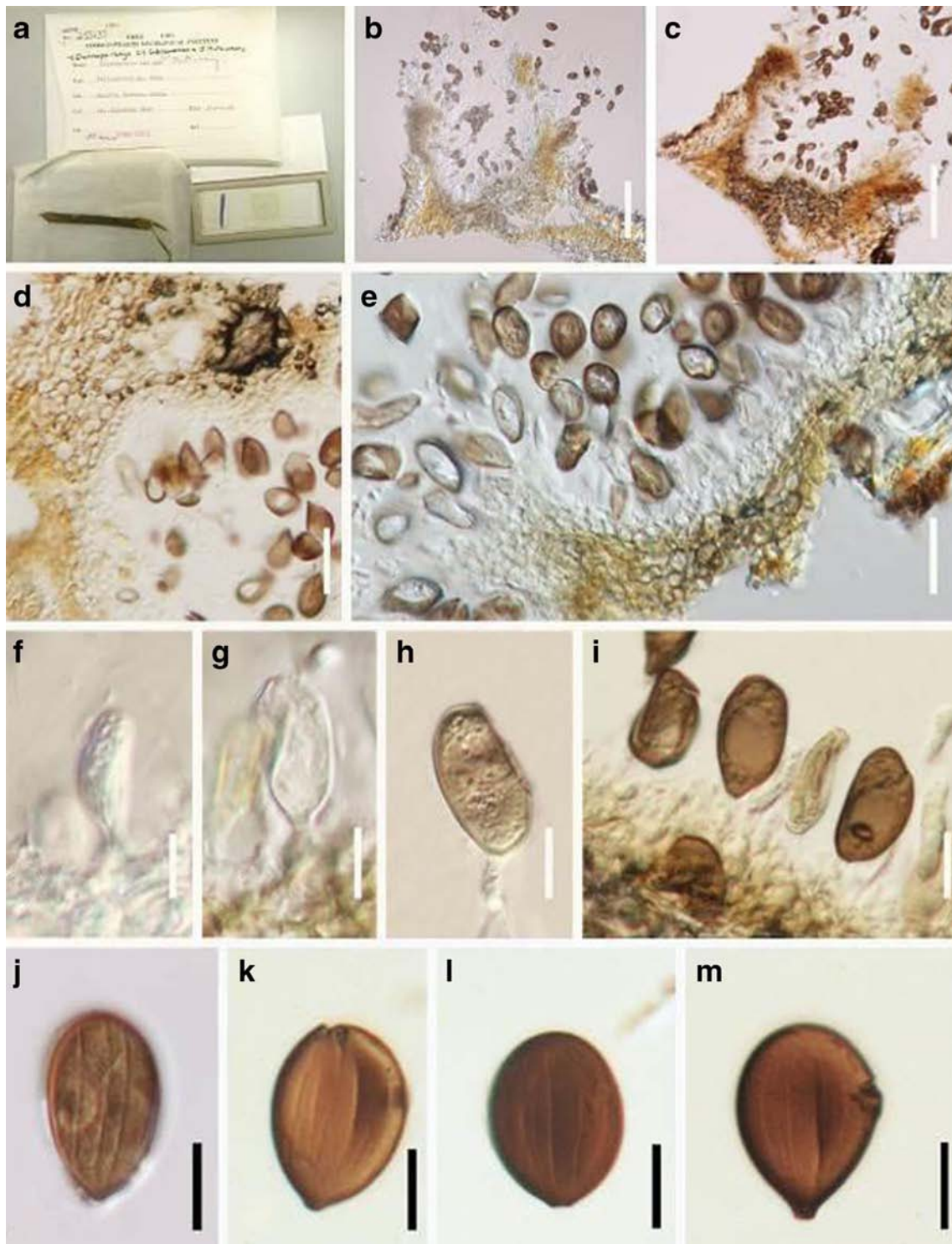


Fig. 94 *Dwiroopa ramya* (Material examined: India, Mysore, Agumbe, on twigs of *Peltophorum* sp., 31 October 1979, Jayarama Bhat, IMI255137). **a** Label and herbarium material. **b, c** Vertical sections of

conidiomata. **d, e** Conidiomata wall. **f–h** Different stages of conidiogenesis. **j–m** Conidia with a short flange. Scale bars: **b, c** = 100 μ m, **d, e** = 20 μ m, **f–m** = 10 μ m

walled, smooth or striate, guttulate (Phillips et al. 2005, 2013; Liu et al. 2012).

Type species: Dothiorella pyrenophora Berk. ex Sacc., *Michelia* 2(no. 6): 5 (1880)

Notes: Saccardo (1880) introduced the genus *Dothiorella* with *D. pyrenophora* as the type species. Currently, there are 375 names listed in Index Fungorum (2016), but it is essential to confirm their accuracy based on sequence data analyses. 'It is

likely that a number of other *Diplodia* species will similarly reside in *Dothiorella* or *Spencermartinsia*, or vice versa, given the confusion of these names in the past' (Slippers et al. 2013). Based on sequence data analyses, several researchers have confirmed the placement of *Dothiorella* in *Botryosphaeriaceae* (Phillips et al. 2008, 2013; Liu et al. 2012; Slippers et al. 2013, 2014). Detailed background of taxonomy of *Dothiorella* was provided by Sutton (1977) and Crous and Palm (1999a). Crous and Palm (1999a) reduced *Dothiorella* under *Diplodia* based on morphology, but Phillips et al. (2005) and Crous et al. (2006a) treated *Dothiorella* as a distinct genus.

Phillips et al. (2005) reported *Botryosphaeria sarmentorum* A.J.L. Phillips et al. and *B. iberica* A.J.L. Phillips et al. with *Dothiorella* asexual morphs. However, Phillips et al. (2013) showed that these species are not congeneric with *Botryosphaeria sensu stricto* and thus transferred them to *Dothiorella sensu stricto* based on sequence data analyses. Hence, it is confirmed that *Dothiorella sensu stricto* has botryosphaeria-like sexual morphs (Phillips et al. 2013; Slippers et al. 2013).

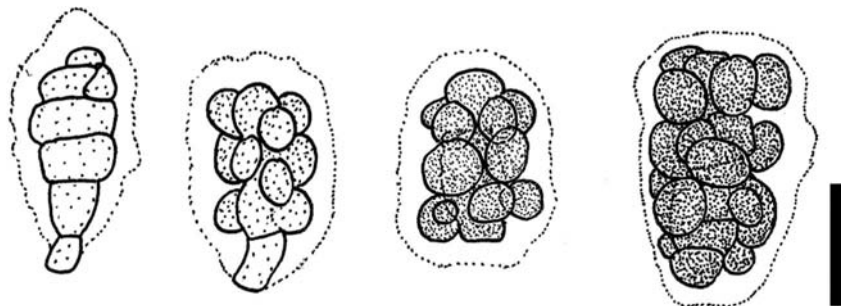
Dwiroopa Subram. & Muthumary, Proc. Indian Acad. Sci., Pl. Sci. 96(3): 196 (1986)

Facesoffungi number: FoF 01477; Fig. 94

Sordariomycetes, Sordariomycetidae, Diaporthales, Diaporthales, genera incertae sedis

Endophytic or *saprobic* on a range of host plants. **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* stromatic, immersed to semi-immersed, erumpent at maturity, solitary, scattered, uni- to multi-locular, glabrous, brown to black, with irregular opening. *Conidiomata wall* composed of thick-walled, brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Macroconidiogenous cells* holoblastic, rectangular, ampulliform, simple. *Macroconidia* obovoid to ovoid, oblong, apex broadly rounded, base truncate, brown to dark brown, aseptate, thick, with six to ten longitudinal slits, base with a short flange. *Microconidia* presence or absent, when present ellipsoidal, apex rounded, base truncate, pale brown, aseptate (Subramanian and Muthumary 1986; Farr and Rossman 2001, 2003).

Fig. 95 Conidia of *Endobotrya elegans*. Scale bar = 10 µm (re-drawn from Sutton 1980)



Type species: Dwiroopa ramya Subram. & Muthumary, Proc. Indian Acad. Sci., Pl. Sci. 96(3): 196 (1986); Fig. 94

Notes: Subramanian and Muthumary (1986) introduced *Dwiroopa* with *D. ramya* as the type species. Farr and Rossman (2003) re-described the type species and transferred *Harknessia lythri* to *Dwiroopa* as a new combination.

In conidial morphology and conidiomata structure, *Dwiroopa* closely resembles *Harknessia* (Farr and Rossman 2001, 2003). However, *Dwiroopa* lacks basal appendages and has longitudinal slits on both sides of the conidia, while *Harknessia* may or may not have a basal appendage and has longitudinal slits on only one side of the conidia (Farr and Rossman 2003). *Dwiroopa* lacks sequence data, but Farr and Rossman (2003) placed it in *Diaporthales* as it is closely related to *Harknessia*.

Endobotrya Berk. & M.A. Curtis, Grevillea 2(no. 19): 98 (1874)

Facesoffungi number: FoF 01478; Fig. 95

Ascomycota, genera incertae sedis

Endophytic or *saprobic* on branches of *Fagaceae* (Dicotyledons). **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* acervular, subperidermal, solitary. *Conidiomata wall* composed of hyaline to pale brown-walled cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, cylindrical, discrete, determinate, hyaline, smooth. *Conidia* cylindrical to doliiform, septate, muriform, constricted, enclosed in a gelatinous sheath (description modified from Sutton 1980).

Type species: Endobotrya elegans Berk. & M.A. Curtis, Grevillea 2 (no. 19): 98 (1874); Fig. 95

Notes: Berkeley (1874) introduced *Endobotrya* with *E. elegans* as the type species. The genus is monotypic (Sutton 1980; Index Fungorum 2016) and sequence data is unavailable in GenBank. Hence, taxonomic placement is uncertain.

Endobotrya has conidial morphology similar to *Cheirospora*, *Endobotryella* and *Myxocyclus*. A taxonomic key is provided under *Endobotryella* to distinguish it from related genera.

Endobotryella Höhn., Sber. Akad. Wiss. Wien, Math.-naturw. Kl., Abt. I 118: 1536 (1909)

Facesoffungi number: FoF 01479; Fig. 96

Ascomycota, genera incertae sedis

Endophytic or *saprobic* on bark of *Pinaceae* (Gymnosperm). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, peridermal to subperidermal, solitary or confluent. *Conidiomata wall* basal region composed of thin-walled, pale brown cells of *textura intricata*, side walls composed of thick-walled, brown cells of *textura porrecta*. *Conidiophores* cylindrical, expanding towards the apices, branched at the base, septate, straight, hyaline, smooth. *Conidiogenous cells* holoblastic, determinate, integrated, short, cylindrical, hyaline, smooth. *Conidia* sphaerical or cuneiform, with up to 4 central cells, each with several short lateral cells, aseptate, eguttulate, brown, thick and smooth-walled (description modified from Sutton 1980).

Type species: Endobotryella oblonga (Fuckel) Höhn., Sber. Akad. Wiss. Wien, Math.-naturw. Kl., Abt. 1 118: 1536 (1909)

≡ *Myriocephalum oblongum* Fuckel, Jb. nassau. Ver. Naturk. 23–24: 351 (1870) [1869–70]

Notes: Von Höhnel (1909) introduced *Endobotryella* to accommodate *Myriocephalum oblongum*. In morphology, *Endobotryella* shares a similar morphology with *Cheirospora*, but the latter has acervular to sporodochial conidiomata, while *Endobotryella* has stromatic conidiomata (Sutton 1980). Sutton (1980) placed both genera in *Blastostromatineae*, *Monoblastic* along with *Endobotrya* and *Myxocyclus*. However, *Endobotryella oblonga* lacks sequence data, hence taxonomic placement is uncertain.

Key to distinguish *Cheirospora*, *Endobotrya*, *Endobotryella* and *Myxocyclus*

1. Conidia aseptate, sphaerical, thick-walled.....
Endobotryella
1. Conidia septate, enclosed in a gelatinous sheath.....2
2. Conidia 7–8-distoseptate.....*Myxocyclus*
2. Conidia euseptate.....3
3. Conidia sphaerical.....*Cheirospora*
3. Conidia cylindrical to doliiform.....*Endobotrya*

Endocoryneum Petr., Anns mycol. 20(5/6): 334 (1922)

Facesoffungi number: FoF 01480; Fig. 97

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, *Pleosporineae*, ?*Didymellaceae*

Saprobic and *endophytic* on stems and branches of Monocotyledons. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic or pycnidial, immersed to subperidermal, erumpent at maturity, solitary, globose, unilocular to multi-locular, dark brown to black, ostiolate. *Ostiole* papillate, central, circular. *Conidiomata wall* multi-layered, outer layer composed of brown-walled cells of *textura angularis*, inner layer thin, hyaline. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, short, integrated or discrete, cylindrical, indeterminate, hyaline, smooth-walled. *Conidia* cylindrical to clavate, straight or slightly curved, obtuse at the apex, base truncate, 3–4-transverse septate, continuous, brown, septa dark brown,

Fig. 96 *Endobotryella oblonga*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 100 μ m, **b**, **c** = 10 μ m (re-drawn from Sutton 1980)

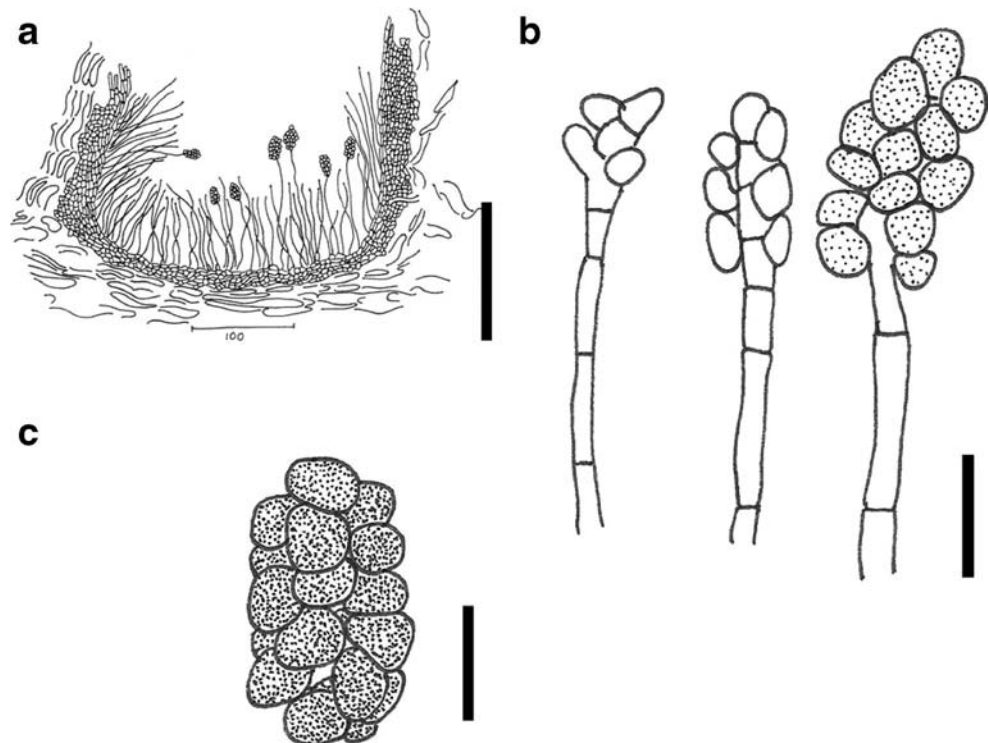
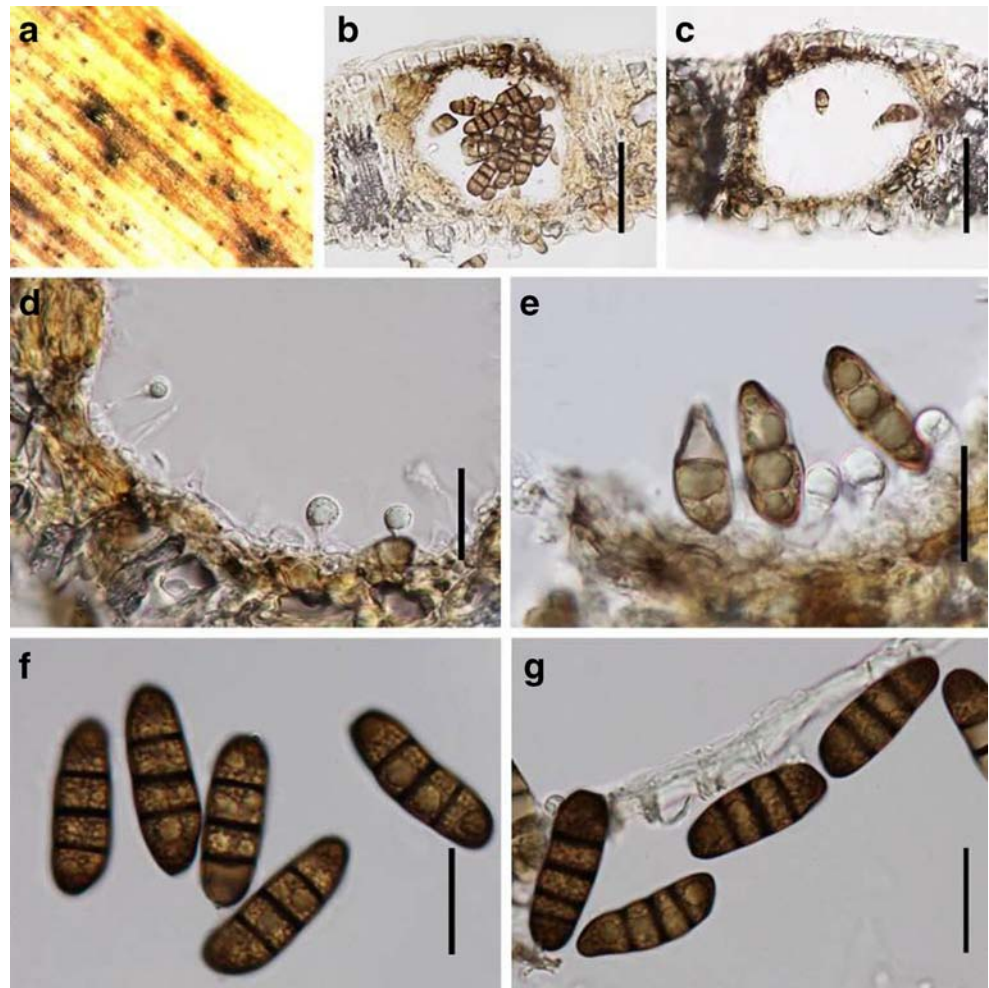


Fig. 97 *Endocoryneum festucae* (holotype). **a** Conidiomata on host material. **b, c** Vertical section of conidiomata. **d, e** Different stages of conidiogenesis. **f, g** Conidia. Scale bars: **b, c** = 100 μm , **d** = 10 μm , **e–g** = 15 μm



eguttulate or guttulate, smooth-walled (Sutton 1980; Marras et al. 1993).

Type species: Endocoryneum loculosum (Sacc.) Petr., *Annls mycol.* 20(5/6): 334 (1922)

\equiv *Coryneum loculosum* Sacc., *Annls mycol.* 11(6): 560 (1913)

Notes: Petrak (1922) introduced the genus *Endocoryneum* with *E. loculosum*. Sutton (1980) accepted only one species and included it in suborder *Phialostromatineae*, which is characterised by stromatic conidiomata and phialidic conidiogenesis. Marras et al. (1993) described a second species, *E. quercus* B. Sutton et al.

Our new collection of *Endocoryneum* groups in *Didymellaceae*, however the type species lacks sequence data.

Key to distinguish species of *Endocoryneum*

1. Conidia shorter than 29 μm*E. loculosum*
1. Conidia longer than 29 μm2
2. Conidia 38–45 \times 11.5–12.5 μm*E. quercus*
2. Conidia 30–37 \times 9–12 μm*E. dactylidis*

Endocoryneum festucae Wijayaw., Camporesi, D.J. Bhat & K.D. Hyde, *sp. nov.*

Index Fungorum number: IF551777; *Facesoffungi number:* FoF 01481; Fig. 97

Etymology: Name after the host genus

Holotype: MFLU 15–3450

Saprobic on stems of *Festuca* sp. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* 80–110 μm diam., 100–120 μm high, pycnidial, immersed, erumpent at maturity, solitary, globose, unilocular, with papillate, dark brown to black, ostiolate. *Ostiole* central, circular. *Conidiomata wall* multi-layered, with thick outer layer, composed of thick-walled, brown cells of *textura angularis*, with thin, hyaline, inner layer. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, short, integrated to discrete, cylindrical, indeterminate, hyaline, smooth. *Conidia* 30–37 \times 9–12 μm (\bar{x} = 33.2 \times 10.7 μm , $n=20$), cylindrical to clavate, straight or slightly curved, obtuse at apex, truncate at base, brown, 3–4-transverse septate, continuous, dark brown at septa, guttulate, smooth-walled.

Culture characteristics: On PDA slow growing, attaining 25 mm diam. in 7 days at 18 °C, with thin mycelium, even at margin, white from the surface, pale brown to white from the reverse, becoming cottony in 14 days.

Material examined: Italy, Forli-Cesena [FC] Province, Strada San Zeno - Galeata, on dead stem of *Festuca* sp. (*Poaceae*), 24 June 2012, Erio Camporesi, IT 470 (MFLU 15–3450 **holotype**); (HKAS92543, **isotype**), ex-type living cultures MFLUCC 14–0461, GUCC IT 470.

Notes: Our collection from *Festuca* sp. closely resembles *Angiopomopsis*, *Endocoryneum* and *Hendersoniopsis*. However, *Angiopomopsis* has 3-distoseptate conidia (Sutton 1980) and thus it is distinct from our collection which has eusepta. Conidia of *Hendersoniopsis* have 2–7 transverse septate, but our collection has dark brown septa which was treated as a distinct character in *Endocoryneum* (Sutton 1980). Thus we place our collection in *Endocoryneum*. In phylogenetic analyses, *Endocoryneum festucae* grouped in *Didymellaceae* (Fig. 9).

Endomelanconiopsis E.I. Rojas & Samuels, *Mycologia* 100(5): 770 (2008)

Facesoffungi number: FoF 01482; Fig. 98

Dothideomycetes, order *incertae sedis*, *Botryosphaerales*, *Botryosphaeriaceae*

Endophytic or **saprobic** on leaves of *Malvaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, scattered, globose to cylindrical, with 1–3 cylindrical necks, superficial or immersed, ostiolate. *Ostiole* papillate, central, single. *Conidiomata* wall composed of pale brown to black-walled cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, rarely with a single percurrent proliferation, discrete, determinate, cylindrical, hyaline. *Conidia* ellipsoidal to limoniform, apex rounded, base flat or rounded, aseptate, hyaline at immaturity, dark brown at maturity. *Microconidia* densely arranged, enteroblastic, phialidic conidiogenous cells, ellipsoidal to allantoid (description modified from Rojas et al. 2008).

Type species: *Endomelanconiopsis endophytica* E.I. Rojas & Samuels, *Mycologia* 100(5): 770 (2008); Fig. 98

Notes: Rojas et al. (2008) introduced *Endomelanconiopsis* with *E. endophytica* as the type species. Further, Rojas et al.

(2008) showed (i.e. *Endomelanconiopsis endophytica* and *E. microspora* (Verkley & Aa) E.I. Rojas & Samuels), reside in *Botryosphaeriaceae* in their phylogenetic analyses. Our phylogenetic analyses also agree with these findings (Fig. 10).

Endomelanconium Petr., *Annl. mycol.* 38(2/4): 206 (1940)

Facesoffungi number: FoF 01483; Fig. 99

Ascomycota, *genera incertae sedis*

Saprobic or **endophytic** on various substrates of a range of host plants. **Sexual morph:** ?*Austrocenangium* fide Gamundí (1997). **Asexual morph:** *Conidiomata* eustromatic, superficial or immersed, peridermal to subperidermal, solitary, globose to subglobose, irregularly multilocular, black. *Conidiomata* wall composed of thin-walled, pale brown cells of *textura angularis*, becoming hyaline towards the conidiogenous region. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, determinate, discrete, cylindrical, tapered markedly or gradually towards the apices, hyaline, smooth, thin-walled, formed from the walls of the locules. *Conidia* ellipsoid or pyriform or limoniform, aseptate, dark brown, thick and smooth-walled, base often protruding and papillate, with or without a central guttule and a longitudinal striation (Sutton 1980; Verkley and van der Aa 1997; Yanna et al. 1999).

Type species: *Endomelanconium pini* (Corda) Petr., *Annl. mycol.* 38(2/4): 206 (1940)

≡ *Melanconium pini* Corda, *Icon. fung.* (Prague) 1: 3 (1837)

Notes: *Endomelanconium* has distinct morphology from *Melanconium* as it has stromatic, multi-locular conidiomata and cylindrical, hyaline conidiogenous cells (Sutton 1980). *Endomelanconium* also produces dark brown conidia with a protruding base and each bears longitudinal striations (Sutton 1980; Verkley and van der Aa 1997; Yanna et al. 1999). Currently, the genus comprises four species viz. *E. nanum* Gamundí & Aramb. (Gamundí and Arambarri 1983), *E. microsporum* Verkley & van der Aa (1997), *E. phoenicicola* Yanna et al. (1999) and the type species.

Gamundí (1997) stated *Austrocenangium* Gamundí is the sexual morph of *Endomelanconium* based on co-occurrence of both fungi on the same host material. However, this link has not been confirmed by either

Fig. 98 *Endomelanconiopsis endophytica*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 200 µm, **b**, **c** = 10 µm (re-drawn from Rojas et al. 2008)

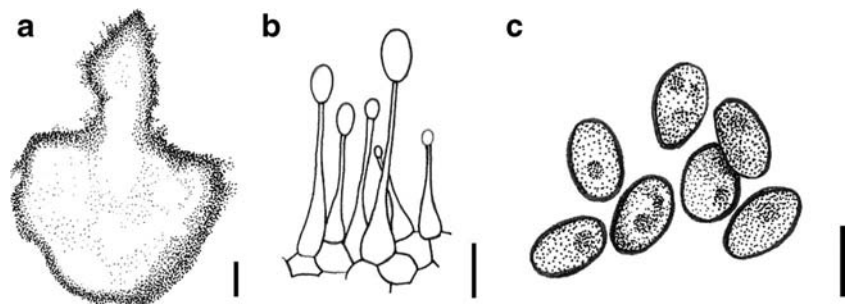
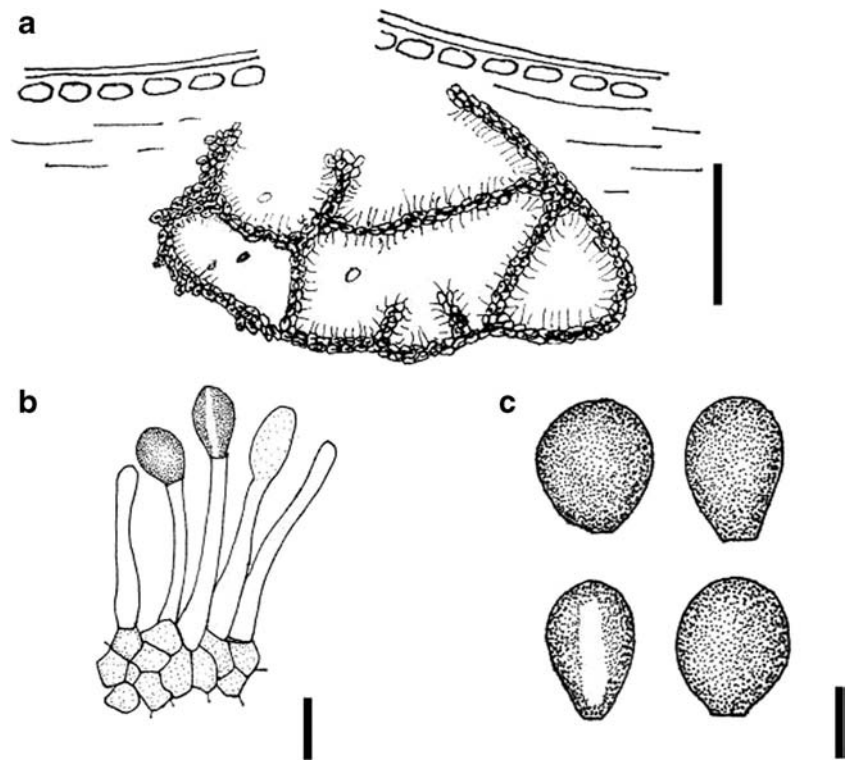


Fig. 99 *Endomelanconium phoenicicola*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 100 μm , **b**, **c** = 10 μm (re-drawn from Yanna et al. 1999)



cultural or phylogenetic methods. Currently, sequence data is unavailable, thus taxonomic placement is uncertain.

Enerthidium Syd., *Annls mycol.* 37(3): 244 (1939)

Facesoffungi number: FoF 01484; Fig. 100

Ascomycota, genera *incertae sedis*

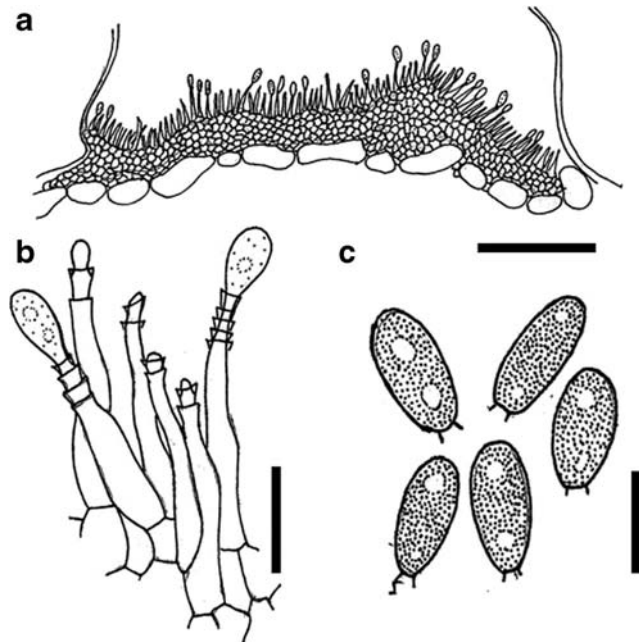


Fig. 100 *Enerthidium canarii*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 50 μm , **b**, **c** = 10 μm (re-drawn from Sutton 1980)

Associated with leaf spots or ?*pathogenic* on leaves of *Burseraceae* (Dicotyledons). **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* acervuli, epidermal to subepidermal, solitary, or rarely confluent. *Conidiomata* wall composed of thin-walled, pale brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, annellidic, cylindrical, straight or flexuous, discrete, indeterminate, hyaline to pale brown, smooth. *Conidia* cylindrical, base truncate, apex obtuse, straight, pale brown, aseptate, biguttulate, thin and smooth-walled, basal cell with a frill (description modified from Sutton 1980).

Type species: ***Enerthidium canarii*** Syd., *Annls mycol.* 37(3): 244 (1939); Fig. 100

Notes: Sydow (1939) introduced *Enerthidium* with *E. canarii* as the type species. The genus was accepted as a coelomycetous genus in Sutton (1977, 1980) and Kirk et al. (2008, 2013) accepted it as a legitimate name. *Enerthidium* is monotypic and sequence data is unavailable, thus taxonomic placement is uncertain. The genus has not been revisited since Sutton (1980).

Epithyrium (Sacc.) Trotter, *Syll. fung.* (Abellini) 25: 249 (1931)

\equiv *Coniothyrium* subgen. *Epithyrium* Sacc., *Syll. fung.* (Abellini) 10: 268 (1892)

Facesoffungi number: FoF 01485; Fig. 101

Lecanoromycetes, *Ostropomycetidae*, *Agyriales*, *Trapeliaceae*

Endophytic or *saprobic* on a range of host plants, on resinous exudate of *Picea* spp. and *Pinus* spp. (*Pinaceae*, *Gymnosperm*).

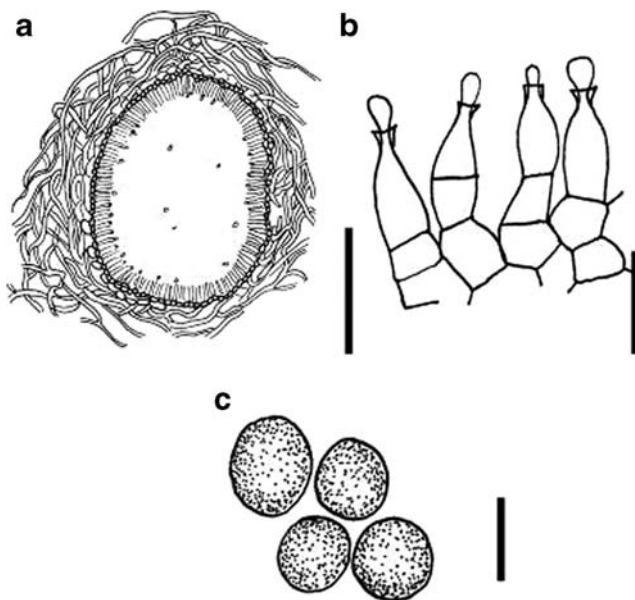


Fig. 101 *Epithyrium resiniae*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 100 μm , **b** = 10 μm , **c** = 5 μm (re-drawn from Sutton 1980)

Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* eustromatic, superficial or semi-immersed, solitary or gregarious, globose, unilocular, convoluted or multilocular, dark brown to black. *Conidiomata* outer wall thick, composed of thick-walled, brown cells of *textura intricata*, inner layer composed of hyaline cells of *textura angularis*. *Conidiophores* branched and septate at the base, smooth, hyaline. *Conidiogenous cells* enteroblastic, phialidic, lageniform or cylindrical, determinate, discrete or integrated, hyaline, smooth. *Conidia* globose, aseptate, pale brown, thick and smooth-walled (Sutton 1980; Hawksworth and Sherwood 1981).

Lectotype species: *Epithyrium resiniae* (Sacc. & Berl.) Trotter, Syll. fung. (Abellini) 25: 250 (1931); Fig. 101

≡ *Coniothyrium resiniae* Sacc. & Berl., Miscell. mycol. 2: 29 (1885) [1884–1885]

Notes: Trotter (1931) raised *Coniothyrium* subgen. *Epithyrium* to generic level and placed four species in *Epithyrium* viz. *E. obscurum* (Pass.) Sacc., *E. populi* (Oudem.) Sacc., *E. innatum* (P. Karst.) Sacc. and *E. resiniae*. Sutton (1977) accepted *Epithyrium* as a distinct genus and Sutton (1980) provided comprehensive taxonomic notes on the genus. Kirk et al. (2013) did not list *Epithyrium* in the list of ‘protected generic names of fungi’. However, we suggest to include *Epithyrium* in the protected generic name list as it was shown to be a well-established genus (Sutton 1980; Hawksworth and Sherwood 1981; Kirk et al. 2008). Sequence data is unavailable, thus taxonomic status is uncertain.

Fairmaniella Petr. & Syd., Beih. Reprrium nov. Spec. Regni veg. 42(1): 481 (1927) [1926]

Facesoffungi number: FoF 01486; Fig. 102

Ascomycota, genera incertae sedis

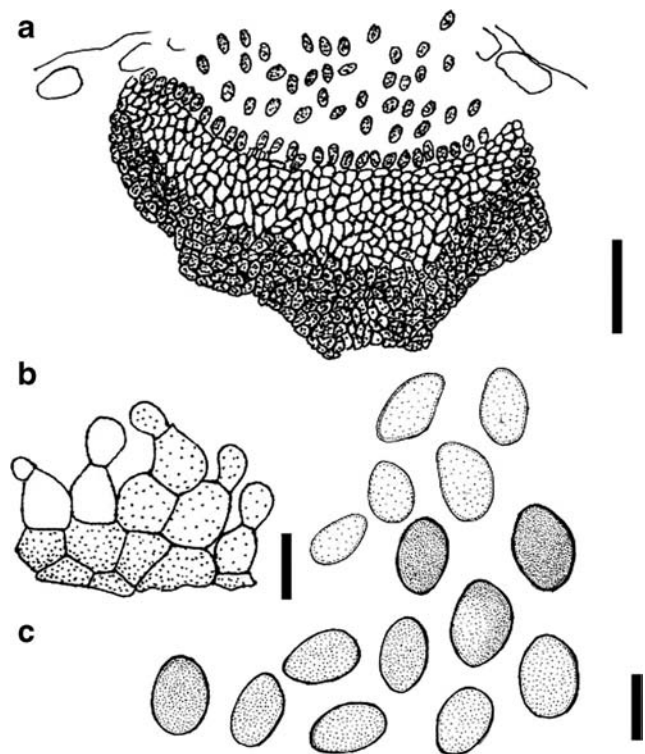


Fig. 102 *Fairmaniella leprosa*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 20 μm , **b**, **c** = 10 μm (re-drawn from Morgan-Jones and Kendrick 1972)

Endophytic or *saprobic* on leaves of *Myrtaceae* (Dicotyledons) or associated with leaf lesions or *pathogenic* on leaves of *Myrtaceae*. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* acervular, subepidermal, solitary. *Conidiomata* wall composed of thick-walled, medium brown cells of *textura epidermoidea*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, ampulliform, determinate, discrete, hyaline, smooth. *Conidia* elliptical to ovate, base obtuse to truncate, apex obtuse, aseptate, pale brown, thick-walled, punctulate (Sutton 1971a, 1980; Morgan-Jones and Kendrick 1972; Swart 1988; Crous et al. 1989; Wingfield et al. 1995).

Type species: *Fairmaniella leprosa* (Fairm.) Petr. & Syd., Beih. Reprrium nov. Spec. Regni veg. 42(1): 481 (1927) [1926]; Fig. 102

≡ *Coniothyrium leprosum* Fairm., Publications of the Field Museum of Natural History, Botany Series 5(no. 212): 328 (1923)

Notes: Petrak and Sydow (1927) introduced *Fairmaniella* with *F. leprosa* as the type species. von Arx (1957) introduced the second species, *F. nigricans* (Cooke & Masee) Arx, but Sutton (1971a, 1977, 1980) accepted only the type species. *Fairmaniella leprosa* has been reported as a pathogen in several plants, especially on *Eucalyptus* sp. (Raabe et al. 1981; Swart 1988; Cook and Dubé 1989; Crous et al. 1989a, b, 2000; Tidwell 1990; Wingfield et al. 1995; Bettucci et al. 1997; Gadgil 2005).

Sequence data is unavailable, thus the taxonomic placement is uncertain.

Floricola Kohlm. & Volkm.-Kohlm., Bot. Mar. 43(4): 385 (2000)

Facesoffungi number: FoF 01487; Fig. 103

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, family *incertae sedis*, *Floricolaceae*

Endophytic and *saprobic* on various substrates of *Juncaceae* (Monocotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic or pycnidial, immersed to subcuticular, unilocular, solitary, circular, dark brown to black, ostiolate, apapillate or short papillate. *Conidiomata* wall composed of thin-walled, brown cells of *textura angularis*, inner wall composed of pale brown to hyaline cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic,

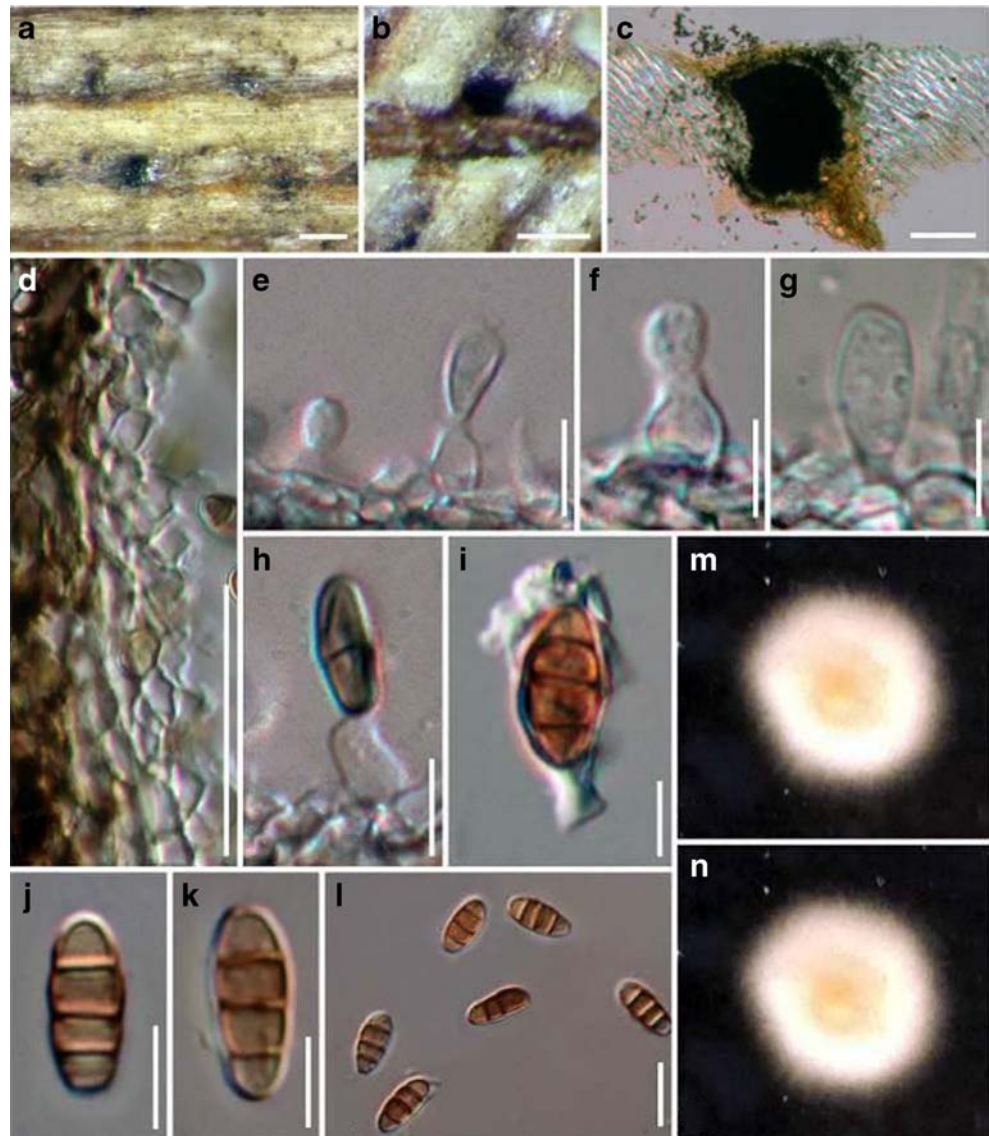
annellidic, cylindrical to obpyriform, indeterminate, discrete, hyaline to pale brown, smooth. *Conidia* cylindrical to ellipsoid, apex obtuse, base broadly truncate, 3-septate, euseptate or distoseptate, pale brown, thin-walled, with or without a gelatinous sheath (Kohlmeyer and Volkmann-Kohlmeyer 2000; Ariyawansa et al. 2015a; Thambugala et al. 2015).

Type species: Floricola striata Kohlm. & Volkm.-Kohlm., Bot. Mar. 43(4): 385 (2000)

Notes: Kohlmeyer and Volkmann-Kohlmeyer (2000) introduced *Floricola* with *F. striata*. Recently Ariyawansa et al. (2015a) introduced a second species, *F. viticola* Phuk. et al. Thambugala et al. (2015) showed *Floricola* resides in *Pleosporales* and introduced *Floricolaceae*.

The type species of *Floricola* was introduced with conidia with gelatinous sheaths (Kohlmeyer and Volkmann-Kohlmeyer 2000), but *F. viticola* lacks a sheath (Ariyawansa et al. 2015a). However, phylogenetic analyses confirm that

Fig. 103 *Floricola viticola* (Material examined: Italy, Forlì-Cesena Province, near Galeata, on dead branch of *Vitis vinifera*, 16 October 2014, E. Camporesi, MFLU 15–1404, holotype). **a, b** *Conidiomata* on host material. **c** Vertical section of conidioma. **d** *Conidiomata* wall. **e–i** Different stages of conidiogenesis. **j–l** *Conidia*. **m, n** Culture on PDA. Scale bars: **a, b** = 200 μ m, **c** = 100 μ m, **d** = 50 μ m, **e–k** = 5 μ m, **l** = 10 μ m



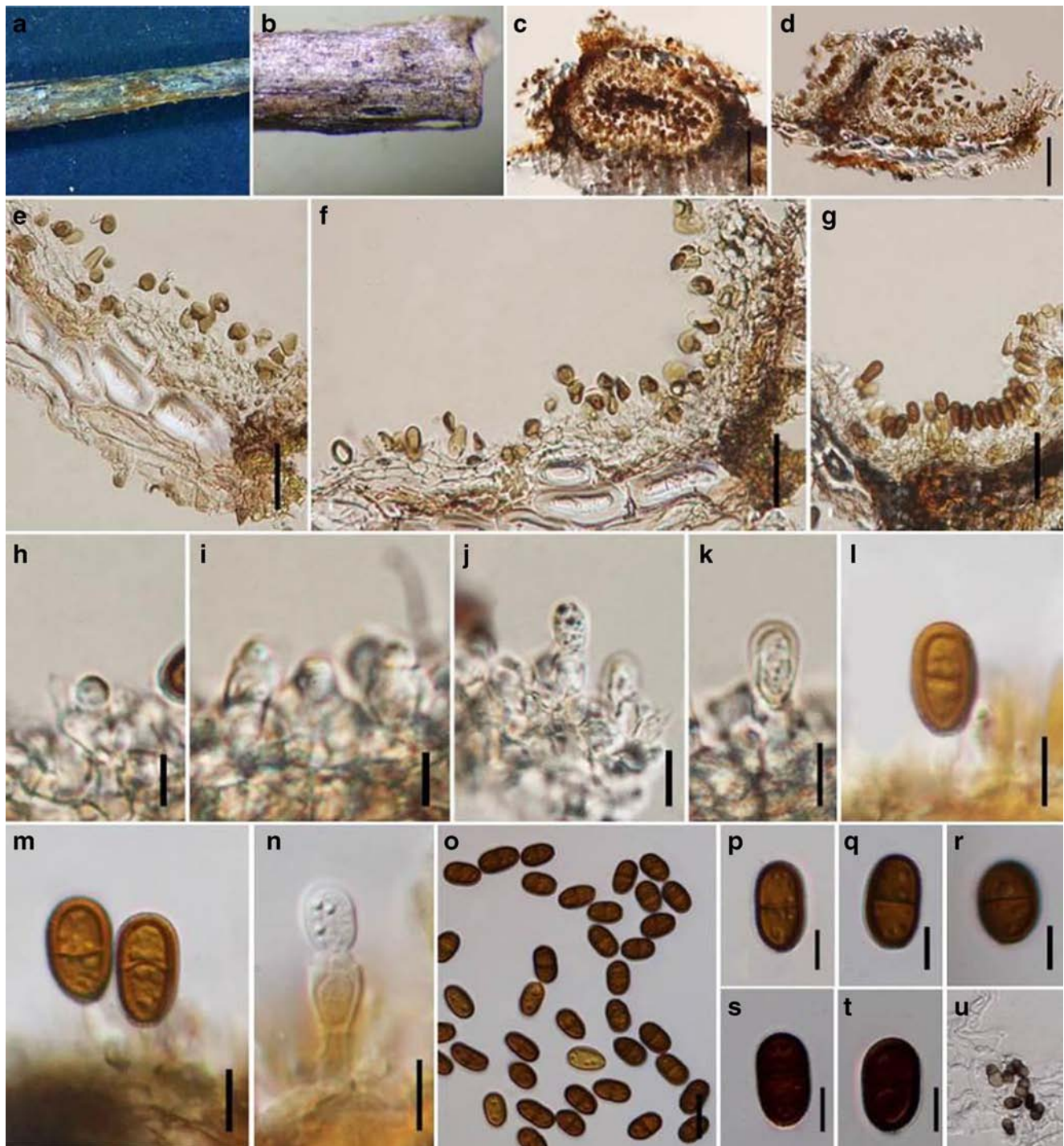


Fig. 104 *Forliomyces uniseptata* (holotype). **a, b** Host material with conidiomata. **c, d** Vertical sections of conidiomata. **e–g** Conidiomata walls. **h–n** Different stages of conidiogenesis. **o–t** Conidia. **u** Germinating conidia. Scale bars: **c, d** = 100 μm , **e–n** = 10 μm , **o–t** = 5 μm

latter species belongs to *Floricola sensu stricto*. In conidial morphology, *Floricola striata* resembles *Macrodiplodiopsis*, which also has 3-distoseptate conidia, surrounded by mucilaginous sheath (Crous et al. 2015a). However, phylogenetically both taxa show distinct affiliations in *Pleosporales* (Thambugala et al. 2015; Fig. 14). *Floricola viticola* resembles *Pseudohendersonia* as both taxa have 3-septate conidia,

without mucilaginous sheath. However, *Pseudohendersonia sensu stricto* lacks sequence data and under *Pseudohendersonia* we show *Pseudohendersonia galiorum* resides in *Didymellaceae* (Fig. 9).

Forliomyces Phukhamsakda, Camporesi & K.D. Hyde, Cryptog. Mycol. (in press)

Index Fungorum number: IF551778; *Facesoffungi number*: FoF 01488; Fig. 104

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, family *incertae sedis*, *Sporormiaceae*

Endophytic or *saprobic* on *Salvia* sp. (*Lamiaceae*, Dicotyledons). **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* pycnidial, immersed, slightly erumpent at maturity, solitary, scattered, globose to subglobose, unilocular, black. *Conidiomata* outer wall composed of thin-walled, dark brown cells of *textura angularis*; inner wall composed of hyaline to subhyaline cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, percurrently proliferating up to 3 times, cylindrical to ampulliform, discrete, hyaline, smooth. *Conidia* ovoid to ellipsoid, with rounded apex and truncate base, initially hyaline and aseptate, becoming brown and 1-septate, while attached to conidiogenous cells, continuous, thick-walled, verrucose, occasionally guttulate.

Type species: *Forliomyces uniseptata* Phukhamsakda, Camporesi & K.D. Hyde (in press)

Notes: Phukhamsakda et al. (2016) introduced *Forliomyces* with *F. uniseptata* as the type species. *Forliomyces* morphologically resembles *Coniothyrium* and *Paraconiothyrium*. However, in phylogenetic analyses, *Forliomyces* resides in *Sporormiaceae*, while *Coniothyrium* and *Paraconiothyrium* are accommodated in *Coniothyriaceae* and *Didymosphaeriaceae* respectively (Fig. 9). Moreover, *Forliomyces* is morphologically similar to *Microdiplodia* Allesch. (= *Microdiplodia* Tassi *vide* Sutton 1977; Kirk et al. 2008), which was ‘originally introduced for stem- or branch-inhabiting species with small, brown, 1-septate conidia, in contrast to *Diplodia* with large conidia’ (Sutton 1977). However, according to Sutton (1977, 1980) the validity of *Microdiplodia* is questionable (see under

Microdiplodia in ‘doubtful genera’). Furthermore, sequence data of the type species of *Microdiplodia* is not available.

Fuscostagonospora Kaz. Tanaka & K. Hiray., Stud. Mycol. 82: 124 (2015)

Facesoffungi number: FoF 01682; Fig. 105

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, *Massarineae* genera *incertae sedis*

Endophytic and *saprobic* on various substrates of bamboo (Monocotyledons). **Sexual morph**: see Tanaka et al. (2015). **Asexual morph**: *Conidiomata* pycnidial, immersed, scattered, gregarious, depressed globose, ostiolate. *Conidiomatal wall* composed of thin-walled, hyaline to pale brown cells. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, annellidic, doliiform, discrete, hyaline to pale brown, smooth. *Conidia* cylindrical, fusiform, both ends rounded, straight or rarely slightly curved, 3-septate, continuous, yellow to pale brown, thick and smooth-walled (Tanaka et al. 2015).

Type species: *Fuscostagonospora sasae* Kaz. Tanaka & K. Hiray., Stud. Mycol. 82: 124; Fig. 105

Notes: Tanaka et al. (2015) introduced *Fuscostagonospora* with *F. sasae* as the type species. *Fuscostagonospora* morphologically resembles *Sclerostagonospora*, *Stilbospora*, and *Poaceicola* but phylogenetically it is distinct as other genera reside in *Pleosporales*, genera *incertae sedis* (*Dothideomycetes*), *Stilbosporaceae* (*Sordariomycetes*), and *Phaeosphaeriaceae* (*Dothideomycetes*) respectively.

Gaubaea Petr., Bot. Arch. 43: 89 (1942) [1941]

Facesoffungi number: FoF 01490; Fig. 106

Ascomycota, genera *incertae sedis*

Endophytic and *saprobic* on various substrates of *Polygonaceae* (Dicotyledons). **Sexual morph**: Undetermined.

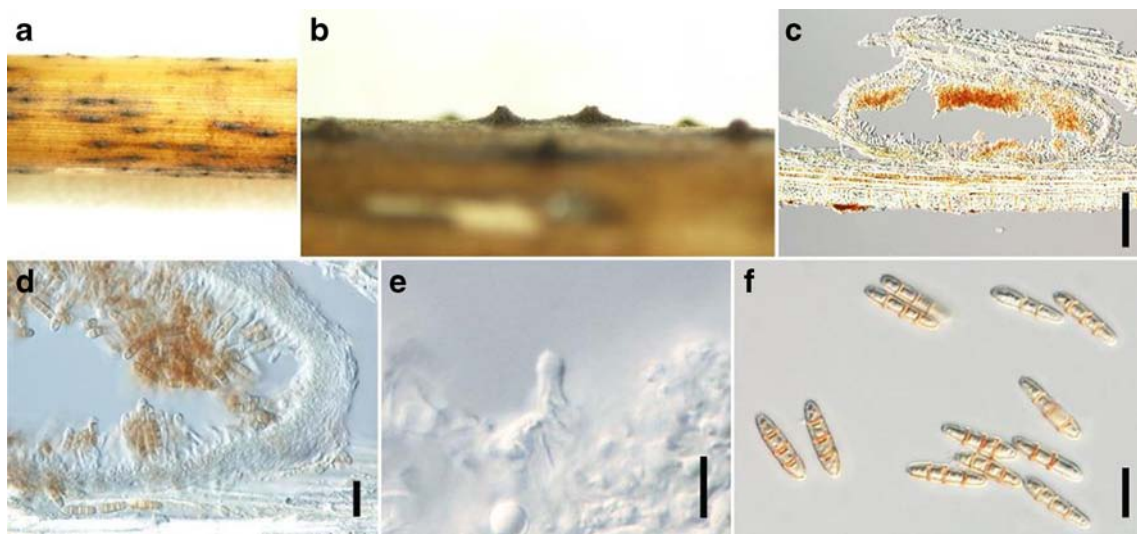
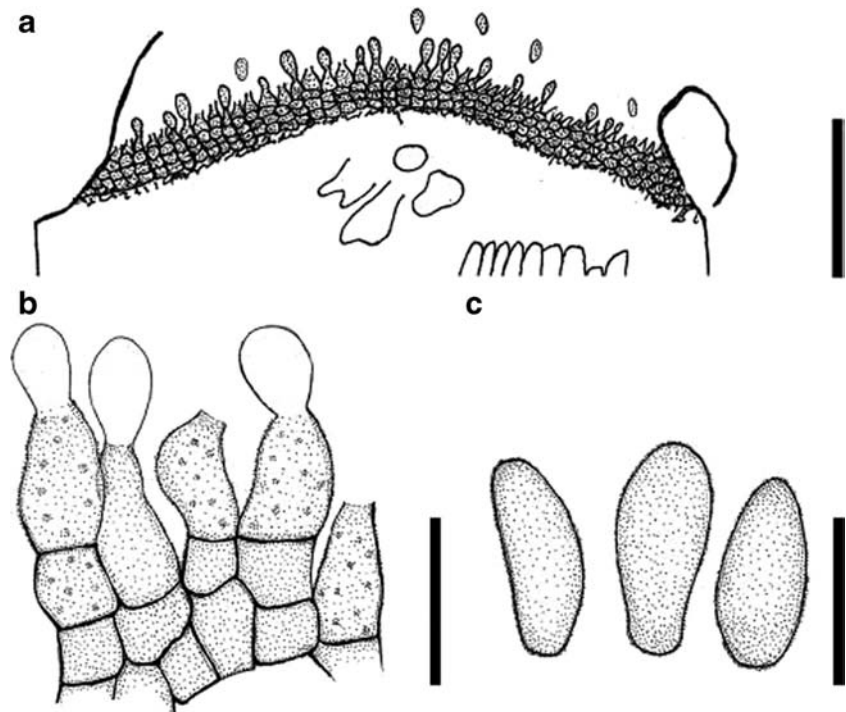


Fig. 105 *Fuscostagonospora sasae* (Material examined: Japan, Fukushima, Minamiaizu, Ose pond, on dead twigs of *Sasa* sp., 30 August 2003, N. Asama, KT 1467, holotype). **a**, **b** Conidiomata in

culture (on rice straw). **c** Vertical section of conidioma. **d** Conidiomatal wall. **e** Conidiogenous cell. **f** Conidia. Scale bars: **c** = 100 μ m, **d**–**f** = 10 μ m

Fig. 106 *Gaubaea bornmuelleri*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 100 μ m, **b**, **c** = 20 μ m (re-drawn from Nag Raj and DiCosmo 1982)



Asexual morph: *Conidiomata* stromatic, subcuticular, applanate, solitary, circular, dark brown to black. *Conidiomata upper wall* composed of thick-walled, dark brown cells of *textura angularis*, lower wall composed of pale brown-walled cells of *textura angularis* or *textura intricata*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic to annellidic, cylindrical or lageniform, indeterminate, discrete, pale brown, verruculose. *Conidia* fusiform to obpyriform, apex obtuse, base broadly truncate, aseptate, pale brown, thin-walled, verruculose (Speer 1971; Sutton 1980).

Type species: *Gaubaea bornmuelleri* (Magnus) Petr., Sydowia 1(1–3): 67 (1947); Fig. 106

≡ *Leptothyrium bornmuelleri* Magnus, Ber. dt. bot. Ges.: 447 (1901)

= *Gaubaea insignis* Petr., Bot. Arch. 43: 89 (1942) [1941]

Notes: Petrak (1941) introduced *Gaubaea* with *G. insignis* as the type species. However, Petrak (1947b) found *Leptothyrium bornmuelleri* is the older epithet of *Gaubaea insignis* thus, it was transferred to *Gaubaea* as *G. bornmuelleri* and treated as the type species. Further, *Gaubaea insignis* was treated as a synonym of *G. bornmuelleri*. In morphology, *Gaubaea* is similar to *Jubispora* and *Septoriella*. A taxonomic key is provided under *Jubispora* to distinguish *Gaubaea* from other related genera.

Currently *Gaubaea* comprises of a single species (i.e. *G. rechingeri* Speer *vide* Speer 1971), besides the type species. Sequence data is unavailable, thus the taxonomic placement is uncertain.

Gloeocoryneum Weindlm., Sydowia 17: 100–101 (1964) [1963]

Facesoffungi number: FoF 01491; Fig. 107

Ascomycota, genera *incertae sedis*

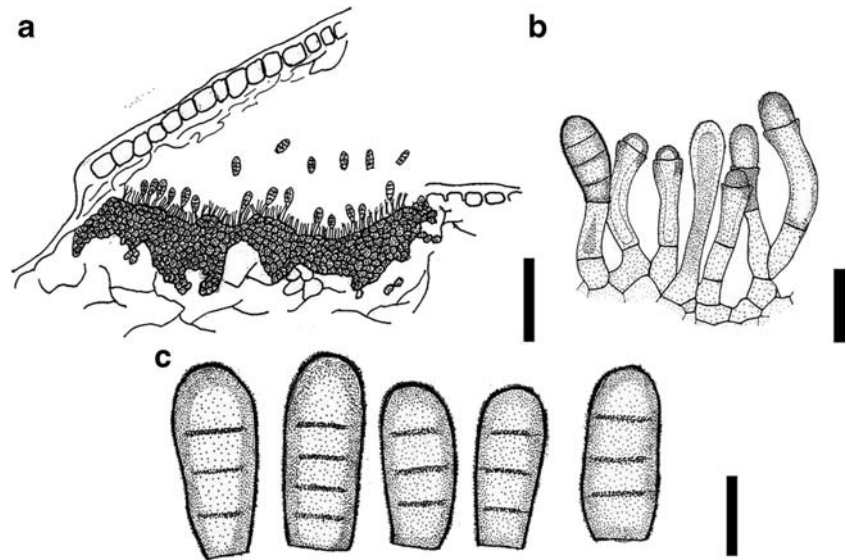
Saprobic or *endophytic* on needles of *Pinaceae* (Gymnosperm), on phyllodes of *Acacia koa* (*Fabaceae*, Dicotyledons), on decayed petiole of palm. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* acervular or ?sporodochia, epidermal to subepidermal, solitary or confluent. *Conidiomata wall* composed of thin-walled, pale brown to medium brown cells of *textura angularis*. *Conidiophores* branched at the base, septate or sparingly septate, hyaline to pale brown, smooth. *Conidiogenous cells* holoblastic, cylindrical, integrated or discrete, determinate, hyaline to very pale brown, smooth. *Conidia* acrogenous, ovoid to ellipsoidal, or cylindrical, base truncate, apex obtuse, 2–5-septate, continuous, brown, guttulate or eguttulate, thick-walled, verruculose (Sutton 1980; Sutton and Hodges 1983; Matsushima 1995).

Type species: *Gloeocoryneum cinereum* (Dearn.) Weindlm., Sydowia 17: 101 (1964) [1963]; Fig. 107

≡ *Coryneum cinereum* Dearn., Mycologia 16(4): 171 (1924)

Notes: Weindlmayr (1963) introduced *Gloeocoryneum* to place *Coryneum cinereum*. *Gloeocoryneum* is morphologically quite similar with *Leptomelanconium*, thus Morgan-Jones (1971) treated the former as a synonym of the latter genus. However, Sutton (1975a, 1977, 1980) recognized *Gloeocoryneum* as a distinct genus based on slight differences in conidiogenous cells and conidia viz. *Gloeocoryneum* has long conidiogenous cells, but lacks annellations, while *Leptomelanconium* has annellations. Further, the conidia of *Leptomelanconium* are 0–1-septate, while those of *Gloeocoryneum* are 2–5-septate. Hence, it is appropriate

Fig. 107 *Gloeocoryneum cinereum*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 100 μm , **b**, **c** = 10 μm (re-drawn from Sutton 1980)



to maintain *Leptomelanconium* and *Gloeocoryneum* as two distinct genera.

Currently the genus comprises three species viz. *G. hawaiiense* B. Sutton & Hodges (Sutton and Hodges 1983), *G. angamosense* Matsush. (Matsushima 1995) and the type species. Kirk et al. (2008, 2013) followed Morgan-Jones (1971) and did not list *Gloeocoryneum* in the list of ‘protected generic names of fungi’. We prefer to follow Sutton (1975a, 1977, 1980) and Matsushima (1995) as there are significant morphological differences between *Leptomelanconium* and *Gloeocoryneum*.

However, *G. angamosense* was introduced with sporodochial conidiomata (Matsushima 1995), which are accepted as the conidiomata of hyphomycetous genera (Kendrick and Nag Raj 1993; Seifert et al. 2011). Hence, treating *G. angamosense* as a coelomycetous species is doubtful. Sequence data is unavailable, thus taxonomic placement is uncertain.

Key for species *Gloeocoryneum*

- | | |
|---|-----------------------|
| 1. Conidia 2–3(–4)-septate | 2 |
| 1. Conidia 3–5-septate | <i>G. cinereum</i> |
| 2. Conidia 22–30 \times 7–9 μm | <i>G. hawaiiense</i> |
| 2. Conidia 12–22 \times 4–6 μm | <i>G. angamosense</i> |

Gordonomyces Crous & Marinc., Persoonia 27: 39 (2011)

Facesoffungi number: FoF 01492; Fig. 108

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, genera *incertae sedis*

Endophytic or *saprobic* leaf litter of *Proteaceae* (Dicotyledons). **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* globose, solitary to gregarious, erumpent at maturity, black. *Conidiomata* outer wall composed of smooth-walled, dark brown cells of *textura angularis*, inner region composed of thick, hyaline cells of *textura angularis*. *Paraphyses* intermixed among

conidiogenous cells, cylindrical, only branched below, septate. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* with apical percurrent proliferation, subcylindrical to ampulliform, mostly reduced to single cells. *Conidia* obovoid to semi-clavate, apex obtuse, base subtruncate, 1-septate, medium to golden-brown, verruculose,

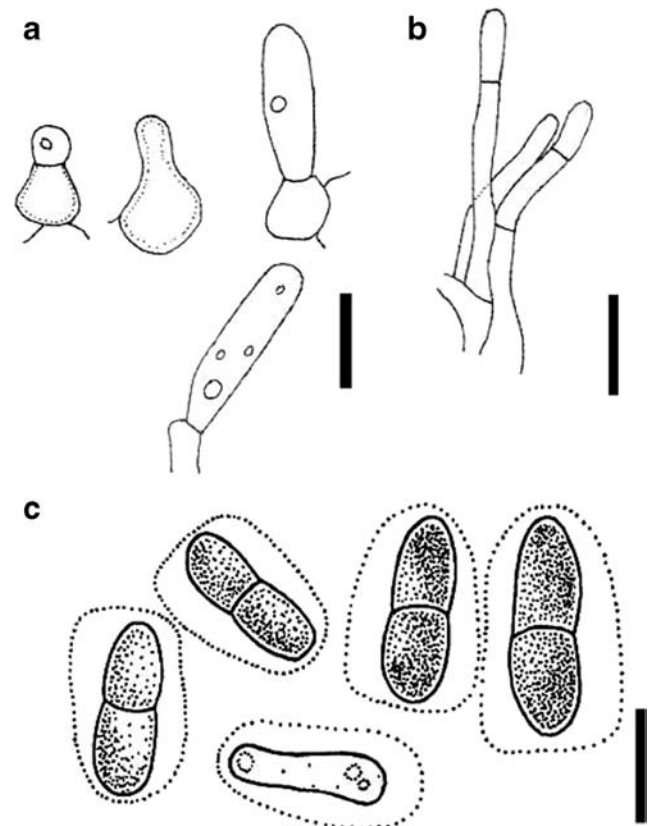


Fig. 108 *Gordonomyces mucovaginatius*. **a** Different stages of conidiogenesis. **b** Paraphyses. **c** Conidia. Scale bars: **a–c** = 10 μm (re-drawn from Crous et al. 2011c)

conidia covered in mucoid sheath (description modified from Crous et al. 2011c).

Type species: Gordonomyces mucovaginatus Crous & Marinč., *Persoonia* 27: 39 (2011); Fig. 108

Notes: Crous et al. (2011c) introduced *Gordonomyces* with *G. mucovaginatus*. *Gordonomyces* morphologically resembles *Kirramyces* and *Phaeophleospora* (Crous et al. 1997; Andjic et al. 2007b). However, *Gordonomyces* has erumpent conidiomata with a smooth, black outer wall and immature conidia enclosed in a mucoid sheath (Crous et al. 2011c), and thus morphologically distinct from *Phaeophleospora* and *Kirramyces*. Phylogenetically, *Gordonomyces* is distinct from *Phaeophleospora* (in *Mycosphaerellaceae* fide Crous et al. 2009b) and *Kirramyces* (= *Teratosphaeria* in *Teratosphaeriaceae* fide Crous et al. 2009b, 2011c) as it groups *Pleosporales*, genera *incertae sedis*.

Greeneria Scribn. & Viala, C. r. hebd. Séanc. Acad. Sci., Paris 105: 473 (1887)

Facesoffungi number: FoF 01493; Fig. 109

Sordariomycetes, *Sordariomycetidae*, *Diaporthales*, genera *incertae sedis*

Endophytic or saprobic on dead leaves of *Myrtaceae* or pathogenic on leaves of *Vitaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* acervular, superficial to semi-immersed, solitary or confluent, dark olivaceous to black. *Conidiomata* wall composed of thin-walled, pale to dark brown cells of *textura angularis*. *Conidiophores* branched, septate, compact, hyaline, cylindrical, tapered towards the apex, smooth. *Conidiogenous cells* enteroblastic, phialidic, collarette, discrete or integrated, cylindrical, tapered towards the apex. *Conidia* fusiform to oval or obovoid or cylindrical, with apex obtuse, truncate to pointed base, light brown to olivaceous brown, thick and smooth-walled, with one to many oil droplets (Sutton 1980; Tangthirasunun et al. 2014).

Type species: Greeneria uvicola (Berk. & M.A. Curtis) Punith., *Mycol. Pap.* 136: 6 (1974)

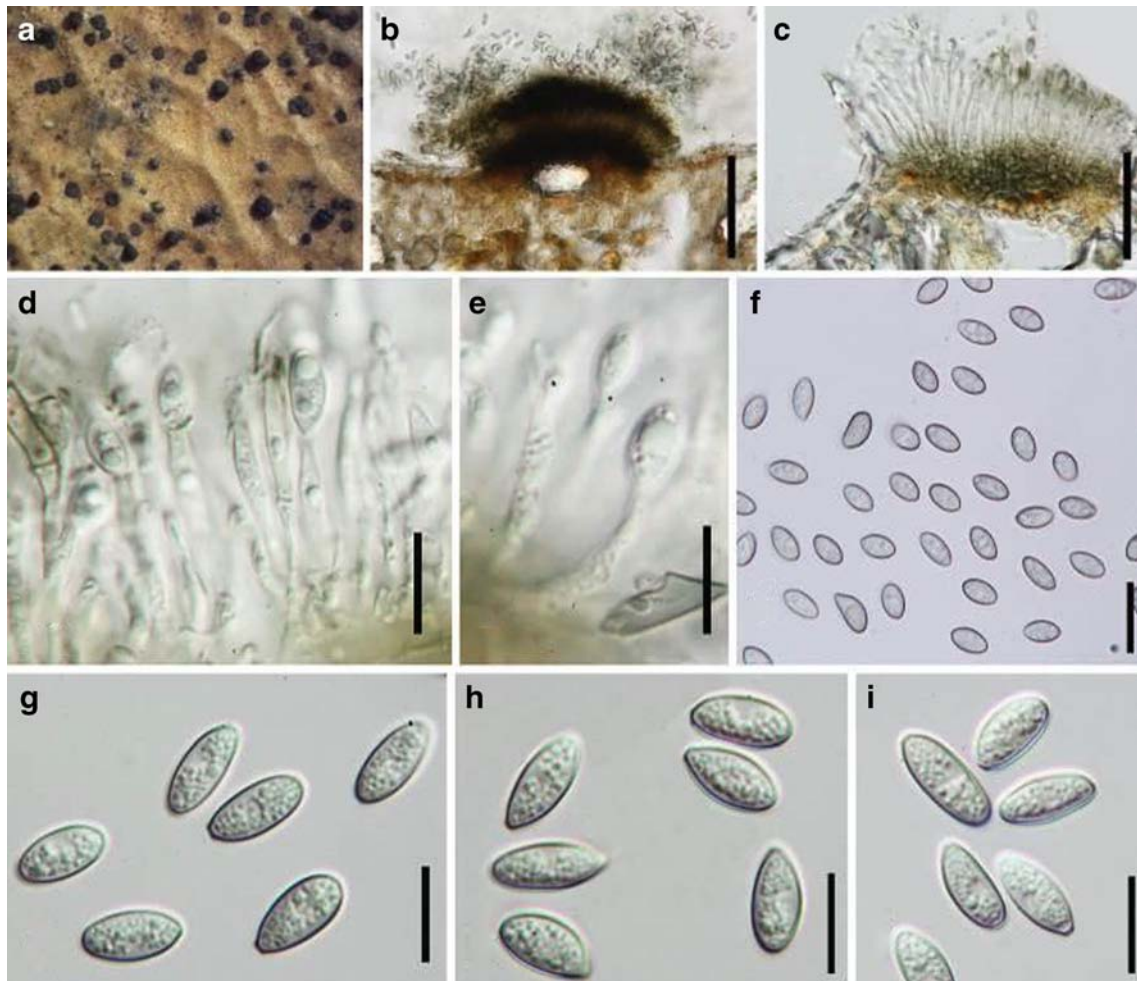


Fig. 109 *Greeneria saprophytica* (Material examined: Thailand, Chiang Rai Province, Mae Fah Luang University, on dead leaves of *Syzygium cumini*, 21 March 2012, N. Tangthirasunun, MFLU 13–0255, holotype).

a Conidiomata on dead leaf of *Syzygium cumini*. **b, c** Vertical sections of conidiomata. **d, e** Different stages of conidiogenesis. **f–i** *Conidia*. Scale bars: **b, c** = 50 μ m, **d, e, g–i** = 10 μ m, **f** = 20 μ m

≡ *Phoma uvicola* Berk. & M.A. Curtis, Grevillea 2(no. 18): 82 (1873)

= *Greeneria fuliginea* Scribn. & Viala, C. r. hebd. Séanc. Acad. Sci., Paris 105: 473 (1887)

Notes: Scribner and Viala (1887) introduced *Greeneria* with *G. fuliginea* as the type species. Punithalingam (1974) treated *Phoma uvicola* as the oldest name of *G. fuliginea* thus former species was introduced as a new species of *Greeneria*. At the same time, Punithalingam (1974) listed *Greeneria fuliginea* as a synonym of *G. uvicola*. This synonymy was accepted by Sutton (1977, 1980), who treated the genus as monotypic. Tangthirasunun et al. (2014) introduced a second species, *Greeneria saprophytica* N. Tangthirasunun et al.

Greeneria uvicola has been reported as a pathogen of grapevine (*Vitis vinifera*) (Alfieri et al. 1984; Crous et al. 2000; Farr et al. 2001; Longland and Sutton 2008; Navarrete et al. 2009; Abreo et al. 2012; Samuelian et al. 2013). Samuelian et al. (2013) and Tangthirasunun et al. (2014) showed that *Greeneria* clusters in *Diaporthales*, genera *incertae sedis* in their phylogenetic analyses. Our phylogenetic analyses also agree with Tangthirasunun et al. (2014) (Fig. 12).

Key to species of *Greeneria*

1. Conidia 7.5–10 × 3–4 μm *G. uvicola*
1. Conidia 9–15 × 5–6 μm *G. saprophytica*

Griphosphaerioma Höhn., Ber. dt. bot. Ges. 36: 312 (1918)

= *Labridella* Brenckle, Fungi Dakotenses: no. 663 (1929)
Facesoffungi number: FoF 01506; Fig. 110

Sordariomycetes, *Xylariomycetidae*, *Amphisphaeriales*, genera *incertae sedis*

Endophytic or **saprobic** on twigs of *Caprifoliaceae* (Dicotyledons). **Sexual morph:** *Griphosphaerioma* fide Guba (1961). **Asexual morph:** *Conidiomata* pycnidial, superficial to semi-immersed, solitary, globose, unilocular, dark brown. *Conidiomata* wall thick, composed of thick-walled, dark brown cells of *textura intricata*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, cylindrical, discrete, determinate, hyaline, smooth. *Conidia* fusiform, straight or slightly curved, 5-septate, continuous or constricted; 5 lower cells medium brown, thick and smooth-walled, basal cell truncate; apical cell hyaline, thin and smooth-walled, prolonged into a tapered, cellular or tubular appendage, dichotomously or irregularly branched (Sutton 1969a, 1980; Morgan-Jones et al. 1972b; Nag Raj 1993).

Type species: *Griphosphaerioma symphoricarpi* (Ellis & Everh.) Höhn. ex Petr., Anns mycol. 19(3–4): 194 (1921); Fig. 110

= *Labridella cornu-cervae* Brenckle, Fungi Dakotenses: no. 663 (1929)

= *Labridella cornu-cervi* Brenckle (1929)

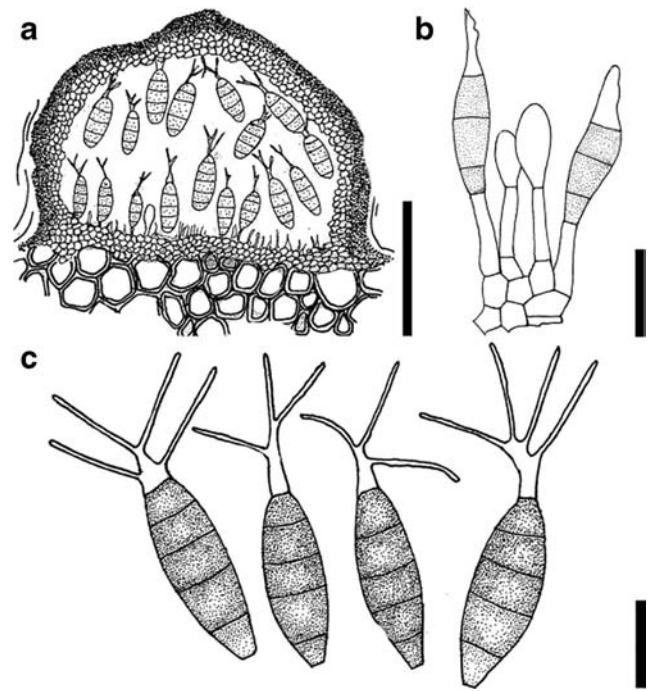


Fig. 110 *Griphosphaerioma symphoricarpi*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 50 μm, **b**, **c** = 10 μm (re-drawn from Morgan-Jones et al. 1972b as *Labridella cornu-cervae*)

≡ *Pestalotia cornu-cervae* (Brenckle) Guba, Monograph of *Monochaetia* and *Pestalotia*: 251 (1961)

Notes: Brenckle (1929) introduced *Labridella* with *L. cornu-cervae* as the type species. The genus was re-described and illustrated by Sutton (1969a), Morgan-Jones et al. (1972b) and Nag Raj (1993). Guba (1961) showed that *Griphosphaerioma* has *Labridella* asexual morph based on culture methods. Shoemaker (1963) also accepted this link. Jeewon et al. (2002) predicted that *Labridella* might have closer phylogenetic relationship with genera in *Amphisphaeriaceae* however, sequence data is unavailable. The genus remains monotypic.

Maharachchikumbura et al. (2015) proposed to adopt the older sexual typified name i.e. *Griphosphaerioma* over the younger asexual typified name.

Harknessia Cooke, Grevillea 9 (no. 51): 85 (1881)

= *Caudosporella* Höhn., Sber. Akad. Wiss. Wien, Math.-naturw. Kl., Abt. 1 123: 135 (1914)

= *Mastigonetron* Kleb., Mykol. Zentbl. 4: 17 (1914)

= ?*Cymbothyrium* Petr., Sydowia 1(1–3): 148 (1947)

Facesoffungi number: FoF 01683; Fig. 111

Sordariomycetes, *Sordariomycetidae*, *Diaporthales*, *Harknessiaceae*

Endophytic or **saprobic** or **pathogenic** or associated with leaf spots on various substrates of a range of host plants.

Sexual morph: see Crous et al. (2012e). **Asexual morph:** *Conidiomata* stromatic or pycnidial, immersed, globose,

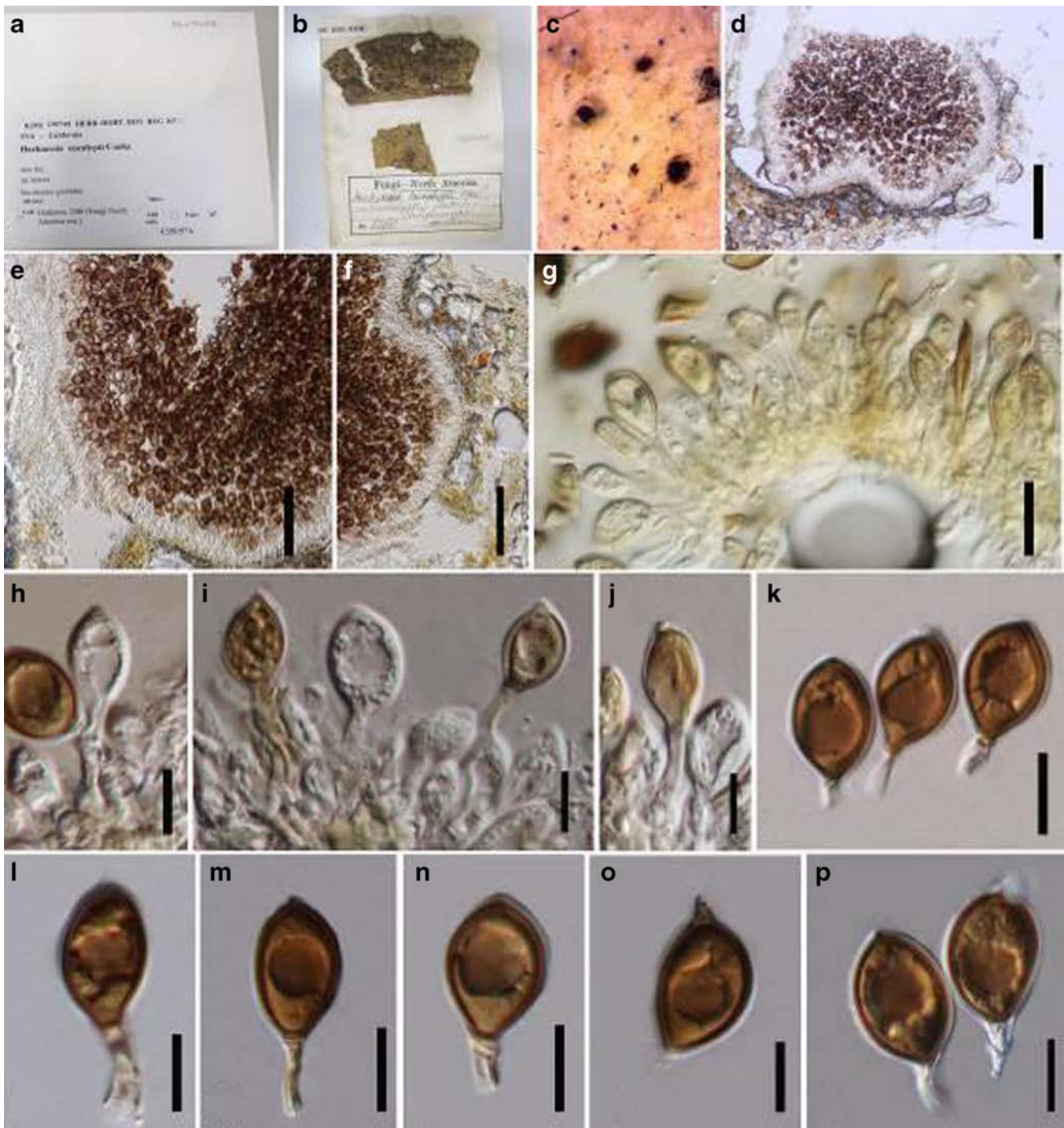


Fig. 111 *Harknessia eucalypti* (Material examined: USA, California, on leaves of *Eucalyptus globulus*, Harkness, K(M) 195744). **a, b** Label and herbarium material. **c** Conidiomata on host material. **d** Vertical section of

conidioma. **e, f** Conidiomata walls. **g–j** Different stages of conidiogenesis. **k–p** Conidia. Scale bars: **d** = 100 μm , **e, f** = 30 μm , **g** = 10 μm , **h–p** = 5 μm

unilocular to multi-locular, or occasionally convoluted, brown, ostiolate. *Ostiole* central, circular. *Conidiomata wall* composed of thin-walled, pale brown to brown cells of *textura angularis*. *Conidiophores* usually reduced to conidiogenous cells, if present rarely septate and branched, commonly invested in mucus. *Conidiogenous cells* percurrently proliferating, ampulliform, lageniform, subcylindrical to cylindrical,

discrete, hyaline to pale brown, smooth. *Macroconidia* variously shaped, globose to subglobose, brown, with or without longitudinal bands, thick and smooth-walled, guttulate; with basal appendage, cellular, cylindrical to subcylindrical, hyaline, flexuous, thin-walled and devoid of contents; with or without apical appendage, when present elongated, attenuated; invested in a thin layer of mucus or not. *Microconidia*

present or absent, when present oval to ellipsoid, aseptate, hyaline, smooth-walled (Sutton 1971a, 1980; Morgan-Jones et al. 1972b; Nag Raj and DiCosmo 1981a; Crous et al. 1993, 2012e; Nag Raj 1993).

Type species: Harknessia eucalypti Cooke, Grevillea 9(no. 51): 85 (1881); Fig. 111

Notes: Cooke and Harkness (1881) introduced *Harknessia* with *H. eucalypti* as the type species. Sutton (1980) and Nag Raj (1993) revised the genus and provided comprehensive background including keys and illustrations. Members of *Harknessia* have been reported as saprobes (Lee et al. 2004; Marincowitz et al. 2008) and also from leaf spots (Crous et al. 1989b, 1993).

Nag Raj and DiCosmo (1981) treated *Cryptosporella* as the sexual morph of *Harknessia*. Castlebury et al. (2002), Crous et al. (2012d) and Lee et al. (2004) showed the overview of *Diaporthales* in their phylogenetic analyses and accepted *Wuestneia/Harknessia* as a distinct clade. Crous et al. (2012d) confirmed the findings of Castlebury et al. (2002) and introduced *Harknessiaceae* Crous to place *Harknessia* and *wuestneia*-like spp (Fig. 12). However, Rossman et al. (2007) listed *Wuestneia xanthostroma* (Mont.) J. Reid & C. Booth, type species of *Wuestneia* as a member in *Cryphonectriaceae*. Nevertheless, several *Wuestneia* species have been reported with *Harknessia* asexual morphs (Crous et al. 1993; Crous and Rogers 2001). Hence, Crous et al. (2012e) treated *Harknessia sensu stricto* as having *wuestneia*-like sexual morphs.

Petrak (1947a) introduced *Cymbothyrium* based on *C. sudans* as the type species. Sutton (1980) re-illustrated and described the type species and mentioned that ‘*Cymbothyrium* is distinguished from *Harknessia* only by the clypeate stromata and non-persistent conidiogenous cells’. However, Nag Raj and DiCosmo (1984) and Nag Raj (1993) treated *Cymbothyrium* as a synonym of *Harknessia*. Nevertheless, Crous et al. (2012e) questioned the synonymy in Nag Raj and DiCosmo (1984) and Nag Raj (1993). We follow Nag Raj and DiCosmo (1984) and Nag Raj (1993) as both genera share very similar morphological characters, until phylogenetic studies resolve the taxonomic placement of *Cymbothyrium*.

Key to distinguish *Harknessia* from other related genera

1. Conidia hyaline*Strasserioopsis*
1. Conidia pigmented2
2. Microconidia present*Harknessia*
2. Microconidia absent3
3. Conidia pale brown*Bellulicauda*
3. Conidia brown to black4
4. Conidia brown, smooth-walled*Apharknessia*
4. Conidia greenish black to black, verruculose*Myrotheciastrum*

Hendersonina E.J. Butler, Memoirs of the Dept. Agric. India, Bot. Ser. 6: 198 (1913)

Facesoffungi number: FoF 01494; Fig. 112

Ascomycota, genera incertae sedis

Endophytic or *saprobic* on various substrates of *Poaceae* (Monocotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, immersed, semi-erumpent at maturity, solitary to gregarious, unilocular or multi-locular, occasionally convoluted, dark brown to black, papillate ostiole, indistinct. *Conidiomata wall* outer layer composed of thin-walled, brown cells of *textura angularis*, inner layer becoming paler. *Conidiophores* septate, branched at the base and above. *Conidiogenous cells* enteroblastic, phialidic, cylindrical to lageniform, determinate, integrated or discrete. *Conidia* fusiform to cylindrical, 0–1-septate, brown, with a dark scar at each end, smooth-walled, eguttulate (description modified from Sutton 1980).

Type species: Hendersonina sacchari E.J. Butler, Memoirs of the Dept. Agric. India, Bot. Ser. 6: 198 (1913); Fig. 112

Notes: Butler (1913) introduced *Hendersonina* with *H. sacchari* as the type species. In conidial morphology, *Hendersonina* somewhat resembles *Stenocarpella* which has ‘0–3-septate, continuous or constricted, cylindrical to fusiform, straight or bent conidia’ (Sutton 1980). However, the dark scar at each end of conidia is conspicuous character in *Hendersonina* thus it can be distinguished from *Stenocarpella*.

The genus is monotypic and sequence data is unavailable, thus taxonomic status is uncertain.

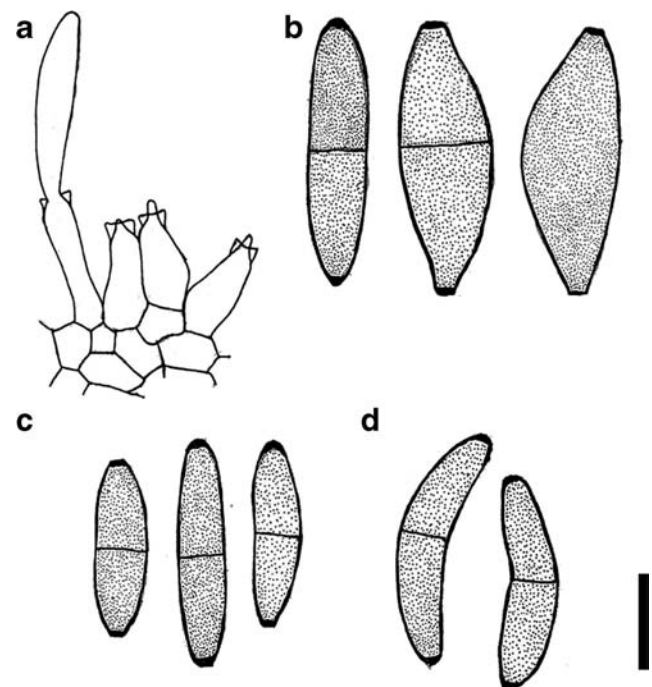


Fig. 112 *Hendersonina sacchari*. **a** Different stages of conidiogenesis. **b–d** Conidia (b: IMI 60370; c: IMI 62555; d: IMI 82322). Scale bars: **a–d** = 10 μ m (re-drawn from Sutton 1980)

Hendersoniopsis Höhn., *Annls mycol.* 16(1/2): 124 (1918)

Facesoffungi number: FoF 01495; Fig. 113

Ascomycota, genera incertae sedis

Endophytic or *saprobic* on various substrates of *Betulaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, pulvinate, separate, subperidermal, multilocular, or convoluted dark brown. *Conidiomata* wall composed of thin-walled, pale to medium brown cells of *textura angularis*. *Macroconidiophores* cylindrical, branched and septate only at the base, hyaline to pale brown, smooth. *Macroconidiogenous cells* enteroblastic, occasionally percurrent, indeterminate, integrated or discrete, smooth, pale brown to hyaline. *Macroconidia* fusiform, base truncate, obtuse to conic apex, often slightly curved or occasionally straight, 2–7-septate, pale brown, smooth-walled. *Microconidiophores* branched, septate, tapered to the apices, hyaline, smooth. *Microconidiogenous cells* enteroblastic, phialidic, integrated or discrete. *Microconidia* falcate, fusiform, aseptate, hyaline, smooth-walled, eguttulate (description modified from Sutton 1980).

Type species: ***Hendersoniopsis thelebola*** (Sacc.) Höhn., *Annls mycol.* 16(1/2): 124 (1918); Fig. 113

≡ *Stilbospora thelebola* Sacc., *Michelia* 2(no. 8): 542 (1882)

Notes: Von Höhnel (1918) introduced *Hendersoniopsis* with *H. thelebola* as the type species. Based on culture methods,

Wehmeyer (1938) showed *Melanconis thelebola* (Fr.) Sacc. has asexual morph belonging to *Hendersoniopsis thelebola*. However, Voglmayr et al. (2012) mentioned *Melanconis sensu stricto* has melanconium-like asexual morphs. Thus, the status of sexual morph of *Hendersoniopsis* is uncertain. It is essential to re-collect and epitypify the genus and carry out phylogenetic analyses to confirm its taxonomic placement.

Hendersonula Speg., *Anal. Soc. cient. argent.* 10(5–6): 160 (1880)

Facesoffungi number: FoF 01496; Fig. 114 and 115

Ascomycota, genera incertae sedis

Endophytic or *saprobic* on various substrates of a range of host. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, subcuticular, epidermal, becoming erumpent, irregularly multilocular, blackish-brown. *Conidiomata* wall composed of thick-walled, dark brown cells of *textura angularis*; basal tissues composed of thin-walled, hyaline to pale brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, annellidic, cylindrical, indeterminate, discrete, hyaline, smooth. *Conidia* cylindrical to fusiform, apex obtuse, base truncate, 1–3-septate, pale brown, eguttulate, thin and smooth-walled, with or without apical mucilaginous cap (Sutton 1980; Sutton and Dyko 1989; Hüseyinov 2000).

Fig. 113 *Hendersoniopsis thelebola*. **a** Vertical section of conidioma. **b** Different stages of macroconidiogenesis. **c** Macroconidia. **d** Different stages of microconidiogenesis. **e** Microconidia. Scale bars: **a** = 100 μ m, **b–e** = 10 μ m (re-drawn from Sutton 1980)

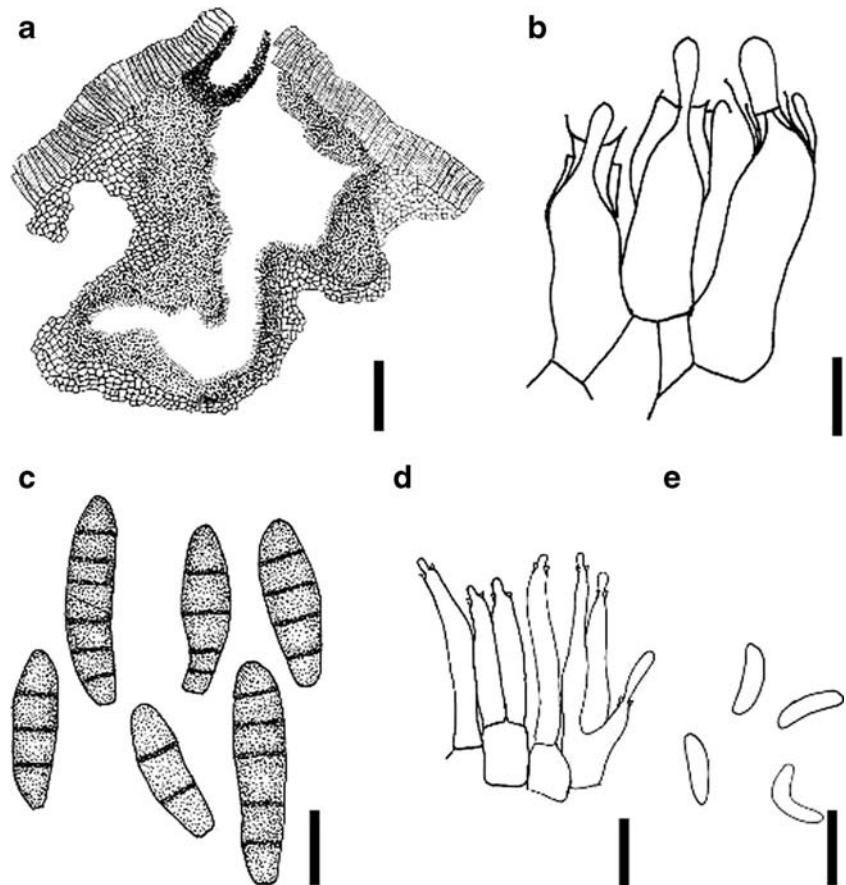
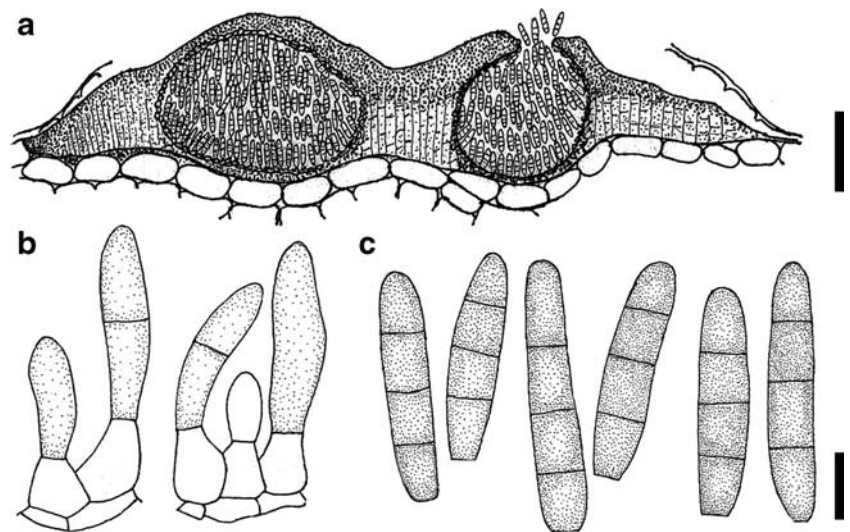


Fig. 114 *Hendersonula australis*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 100 μ m, **b**, **c** = 10 μ m (re-drawn from Morgan-Jones 1974)



Type species: Hendersonula australis Speg., Anal. Soc. cient. argent. 10(5–6): 160 (1880); Fig. 114
Notes: Spegazzini (1880) introduced *Hendersonula* with *H. australis* as the type species. Over 40 species epithets are listed

in Index Fungorum (2016), but Sutton and Dyko (1989) accepted only three species including type species viz. *H. australis*, *H. monochaetiellae* Tommerup & Langdon and *H. symploci* (Berk. & Broome) B. Sutton & Dyko. *Hendersonula*



Fig. 115 *Hendersonula* sp. (Material examined: Italy, Forli-Cesena [FC] Province, Converselle - Castrocaro Terme e Terra del Sole, on dead stem of *Aster linosyris*, 2 December 2012, E. Camporesi, MFLU 16–0029). **a** Host material. **b**, **c** Conidiomata on host. **d** Vertical section of conidioma.

e Vertical section of neck region. **f–h** Different stages of conidiogenesis, **i** Conidioma wall. **j–l** Conidia. Scale bars: **d**, **e** = 50 μ m, **f–h**, **j–l** = 5 μ m, **i** = 20 μ m

monochaetiellae has distinct morphology as it has mucilaginous cap-like structure at the apex (Sutton and Dyko 1989).

Only one species has been introduced since Sutton and Dyko (1989) i.e. *H. chochrjakovii* Hüseyin (Hüseyinov 2000). Sequence data is unavailable, thus its taxonomic placement is uncertain.

Hoehneliella Bres. & Sacc., Verh. zool.-bot. Ges. Wien 52: 437 (1902)

= *Klebahnopycnis* Kirschst., Annl. mycol. 37(1/2): 120 (1939); Fig. 116

Facesoffungi number: FoF 01497

Ascomycota, genera *incertae sedis*

Endophytic or *saprobic* on *Berberidaceae*, *Ranunculaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, closed at immaturity, cupulate and erumpent at maturity, superficial, solitary to gregarious, unilocular, dark brown to black. *Conidiomata* wall composed of thin-walled cells of *textura epidermoidea*, merging with *textura intricata*. *Setae* subulate, peripheral, incurved, thick-walled, dark brown, septate, rigid or flexuous,

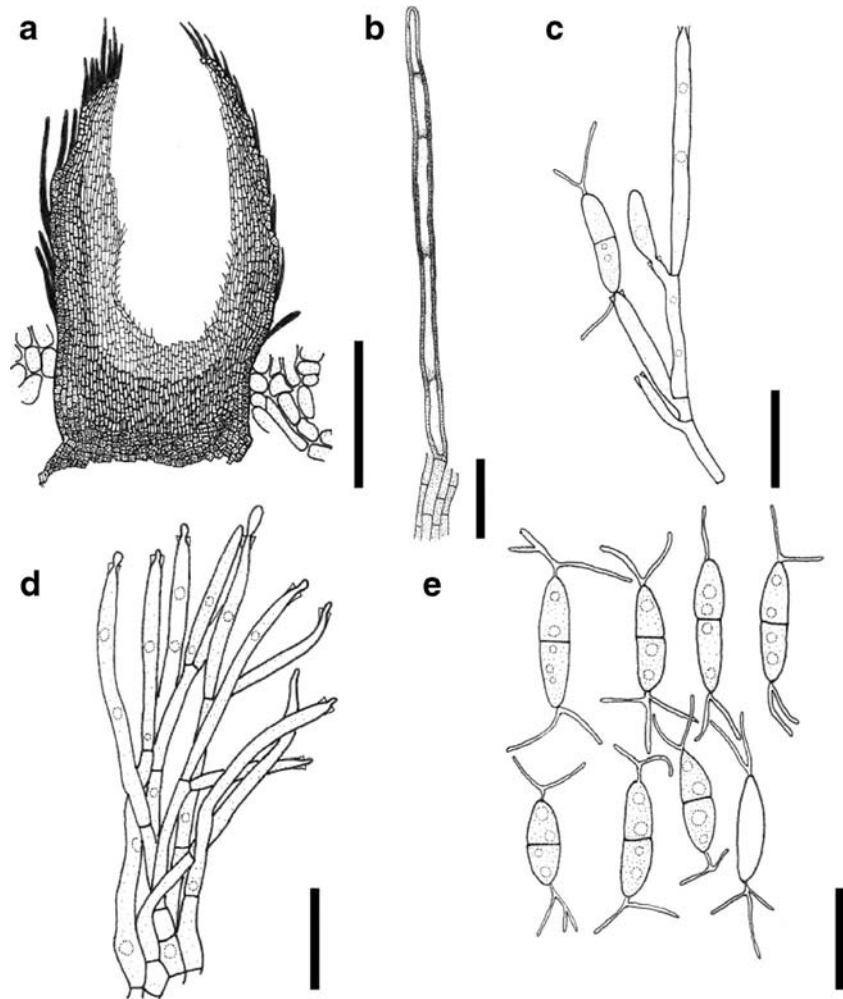
Fig. 117 *Homortomyces tamaricis* (Material examined: Italy, Ravenna Province, Cervia, on dead branch of *Tamarix gallica*, 25 November 2012, E. Camporesi, MFLU 14-0727, holotype). **a, b** Conidiomata on host. **c** Vertical section of conidioma. **d, e** Conidiomata walls. **f** Ostiole. **g, h, l** Conidia attach to conidiogenous cells and paraphyses. **i–k, m–p** Conidia. **q** Germinating conidium. Scale bars: **c, d** = 120 μm , **e** = 60 μm , **f, g** = 30 μm , **h, l** = 15 μm , **i–k, m–q** = 20 μm (from Wijayawardene et al. 2014e)

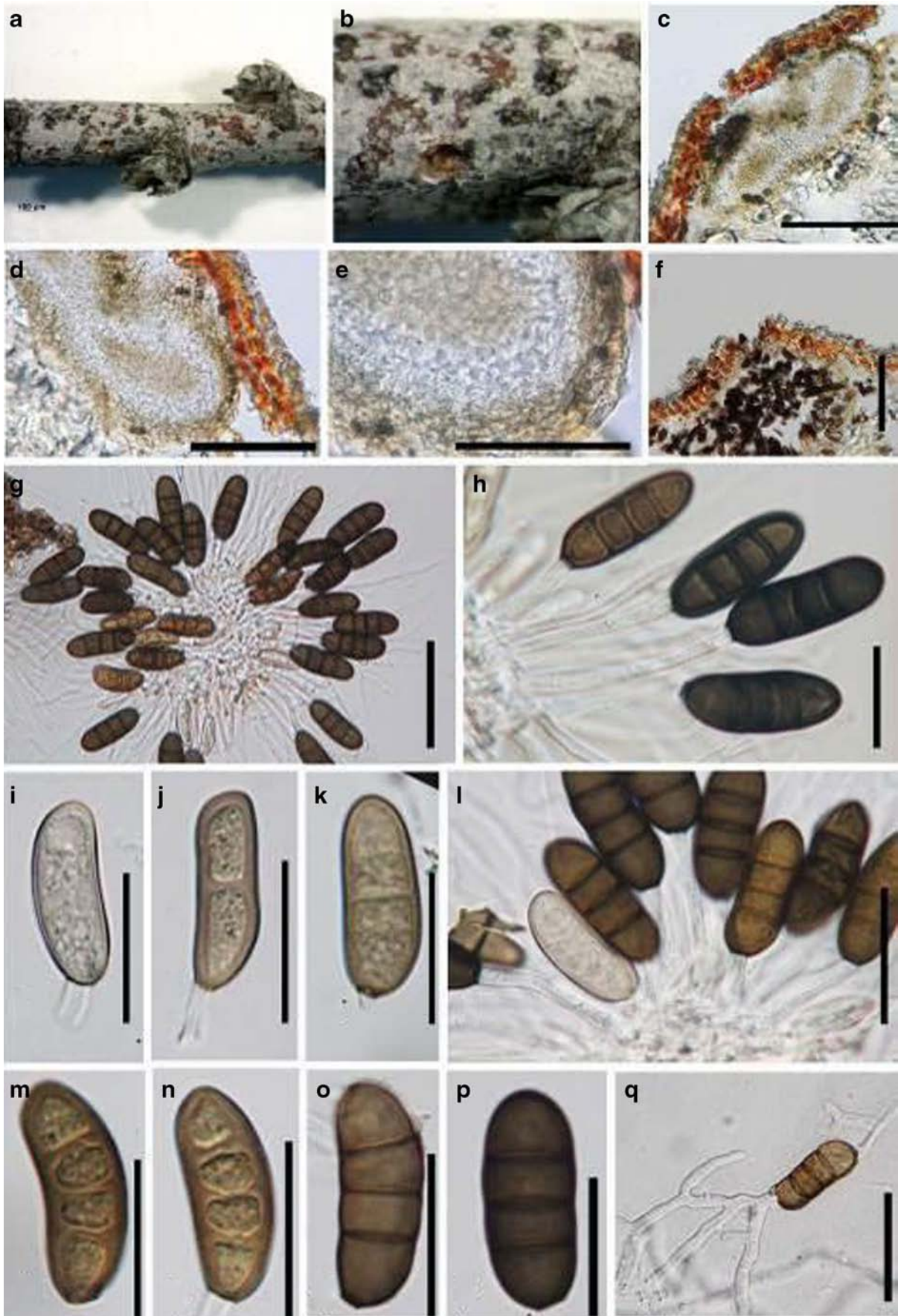
acuminate. *Conidiophores* cylindrical, straight or slightly curved, branched, septate at the base, hyaline, smooth, invested in mucus. *Conidiogenous cells* enteroblastic, phialidic, integrated, hyaline, smooth, apical, channel and collarette minute. *Conidia* cylindrical to fusiform, or ellipsoidal, straight, apex and base obtuse to truncate, solitary or catenate, pale brown, 1-septate, continuous, slightly thickened, thin and smooth-walled, guttulate, each end with an extracellular, unbranched or dichotomously to irregularly branched appendage (Vasant Rao and Sutton 1976; Nag Raj and DiCosmo 1980; Sutton 1980; Nag Raj 1993).

Type species: *Hoehneliella perplexa* Bres. & Sacc., Verh. zool.-bot. Ges. Wien 52: 437 (1902); Fig. 116

Fig. 116 *Hoehneliella perplexa*.

a Vertical section of conidioma. **b** Setae. **c, d** Different stages of conidiogenesis. **e** Conidia. Scale bars: **a** = 200 μm , **b** = 20 μm , **c–e** = 10 μm (re-drawn from Nag Raj and DiCosmo 1980)





= *Klebahnopycnis clematidis* Kirschst., Anns mycol. 37(1/2): 120 (1939)

Notes: Strasser (1902) introduced *Hoehneliella* with *H. perplexa* as the type species and originally it was originally treated as a hyphomycetous genus (Nag Raj 1993). Clements and Shear (1931) mentioned *Hoehneliella* has both coelomycetous and hyphomycetous characters. Seifert et al. (2011) accepted *Hoehneliella* as a coelomycetous genus, but mentioned that it resembles *Hyphopolynema*, which has sporodochial to synnemetous conidiomata, branched conidiophores, phialidic conidiogenesis and hyaline, phragmospore conidia with multiple polar stulae.

However, Vasant Rao and Sutton (1976) re-described the genus and treated *Hoehneliella* as a coelomycetous genus and Sutton (1977, 1980) and Nag Raj (1993) accepted it. Currently

Hoehneliella is monotypic and sequence data is unavailable. Hence, the taxonomic placement is uncertain.

Homortomyces Crous & M.J. Wingf., IMA Fungus 3(2): 110 (2012)

Facesoffungi number: FoF 01498; Fig. 117

Dothideomycetes, genera *incertae sedis*

Pathogenic on leaves or **saprobic** on dead branches of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial to irregular, solitary or gregarious, immersed, unilocular, subglobose, brown to dark brown, apapillate. *Conidiomata* wall multi-layered, outer layer thick, composed of brown-walled cells of *textura angularis*, inner layer thin, hyaline. *Paraphyses* numerous, hyaline, smooth, cylindrical, flexuous, apex obtuse, sparingly septate or aseptate.

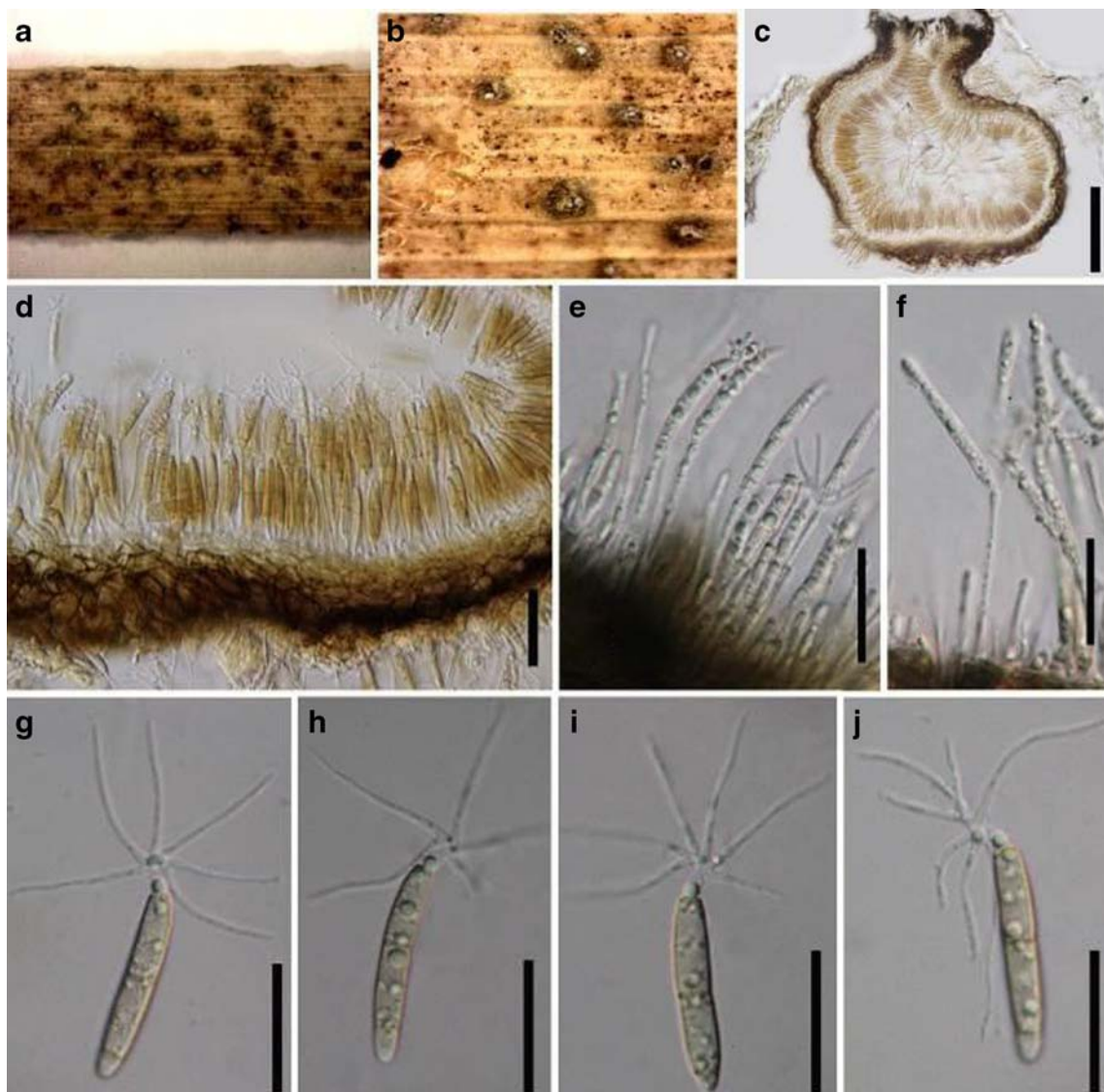


Fig. 118 *Hyalotiella spartii* (Material examined: Italy, Forli-Cesena [FC] Province, Santa Sofia, Collina di Pondo, on dead branch of *Spartium junceum*, 16 October 2012, E. Camporesi, MFLU 15-0055, holotype).

a Host material. **b** Conidiomata on the host material. **c** Vertical section of conidioma. **d** Wall of conidioma. **e–f** Conidiogenous cells and developing conidia. **g–j** Conidia. Scale bars: **c** = 100 μm , **d** = 50 μm , **e–j** = 15 μm

Conidiophores reduced to conidiogenous cells with supporting cell, percurrent proliferations at apex, determinate, hyaline, cylindrical, smooth. *Conidia* ellipsoid to subcylindrical, straight to slightly curved, initially hyaline, golden brown to dark brown at maturity, 3-septate, apex obtuse, base with scar, smooth-walled (Crous et al. 2012b; Wijayawardene et al. 2014e).

Type species: *Homortomyces combreti* Crous & M.J. Wingf., IMA Fungus 3(2): 113 (2012)

Notes: Crous et al. (2012b) introduced the genus *Homortomyces* with *H. combreti* as the types species. Wijayawardene et al. (2014e) described *Homortomyces tamaricis* Wijayaw. et al., thus currently the genus comprises two species. In morphology, *Homortomyces* resembles *Stilbospora* Pers., but former treated as *Botryosphaerales*, genera *incertae sedis* while latter resides in *Stilbosporaceae* (Crous et al. 2012b; Wijayawardene et al. 2014e; Fig. 9).

Key to species of *Homortomyces*

1. Conidia ellipsoid to subcylindrical, 22–29 × 9–11 μm *H. tamaricis*
1. Conidia ellipsoid to subcylindrical, 32–38 × 13–16 μm *H. combreti*

Hyalotiella Papendorf, Trans. Br. mycol. Soc. 50(1): 69 (1967)

Facesoffungi number: FoF 01499; Fig. 118

Sordariomycetes, *Xylariomycetidae*, *Amphisphaerales*, *Bartaliniaceae*

Endophytic or **saprobic** on various substrates of a range of host plants. **Sexual morph:** see Senanayake et al. (2015). **Asexual morph:** *Conidiomata* stromatic or pycnidial, immersed, subepidermal, solitary or gregarious, globose, unilocular, dark brown, ostiolate. *Conidiomata* wall outer layer thick, composed of thick-walled, dark brown cells of *textura angularis*, inner wall thin, becoming paler. *Conidiophores* reduced to conidiogenous cells or when present, filiform, septate, branched only at the base, hyaline. *Conidiogenous cells* holoblastic, occasionally sympodial, cylindrical to ampulliform, indeterminate, discrete or integrated, hyaline, smooth. *Conidia* cylindrical, straight or slightly curved, 3-septate, basal cell and two median cells are pale brown, apical cell hyaline, with a single cellular appendage, with 2–4 branches, eguttulate, smooth-walled (Papendorf 1967b; Nag Raj 1975, 1993; Sutton 1980; Li et al. 2015b; Senanayake et al. 2015).

Type species: *Hyalotiella transvalensis* Papendorf, Trans. Br. mycol. Soc. 50(1): 69 (1967)

Notes: Papendorf (1967b) introduced *Hyalotiella* with *H. transvalensis* as the type species. Agnihothru and Luke (1970) introduced *H. subramanianii* Agnihothr. & Luke, but Punithalingam (1969) transferred it to *Hyalotiopsis* Punith. (see notes under *Hyalotiopsis* for comparison). Nag Raj (1975) re-described the genus and introduced *Hyalotiella orientalis* Nag Raj. However, Nag

Raj (1979) treated it as a synonym of *H. americana* (Speg.) Nag Raj (= *Robillarda americana* Speg.). Li et al. (2015) introduced *Hyalotiella spartii* hence, *Hyalotiella* comprises three species.

Senanayake et al. (2015) showed that *Hyalotiella* groups in *Bartaliniaceae*, *Xylariales* and our phylogenetic analyses also agree with their findings (Fig. 16).

Hyalotiopsis Punith., Mycol. Pap. 119: 12 (1970) [1969]

= *Ellurema* Nag Raj & W.B. Kendr., Sydowia 38: 178 (1986) [1985]

Facesoffungi number: FoF 01500; Fig. 119

Sordariomycetes, *Xylariomycetidae*, *Amphisphaerales*, genera *incertae sedis*

Endophytic and **saprobic** on bark and leaflets of *Fabaceae* (Dicotyledons). **Sexual morph:** see Nag Raj and Kendrick (1985). **Asexual morph:** *Conidiomata* stromatic, pycnidoid, solitary to gregarious, or confluent, subepidermal in origin, immersed to partly exposed, globose to subglobose, brown to dark brown. *Conidiomata* outer wall thick, composed of brown-walled *textura angularis*, inner wall thin, hyaline. *Conidiophores* reduced to conidiogenous cells, invested in mucus. *Conidiogenous cells* annellidic, lageniform to ampulliform, discrete, hyaline, smooth. *Conidia* cylindrical to fusiform or obclavate, with a narrow truncate base, more or less rounded apex, broader basal part, 3-septate, continuous or constricted, median cells pale brown to almost hyaline, basal cell paler to hyaline, with 2–3 apical appendages, initially tubular, unbranched, usually bi- or tri-furcate, filiform, flexuous (Punithalingam 1969; Nag Raj 1974, 1975, 1993; Sutton 1980; Nag Raj and Kendrick 1985).

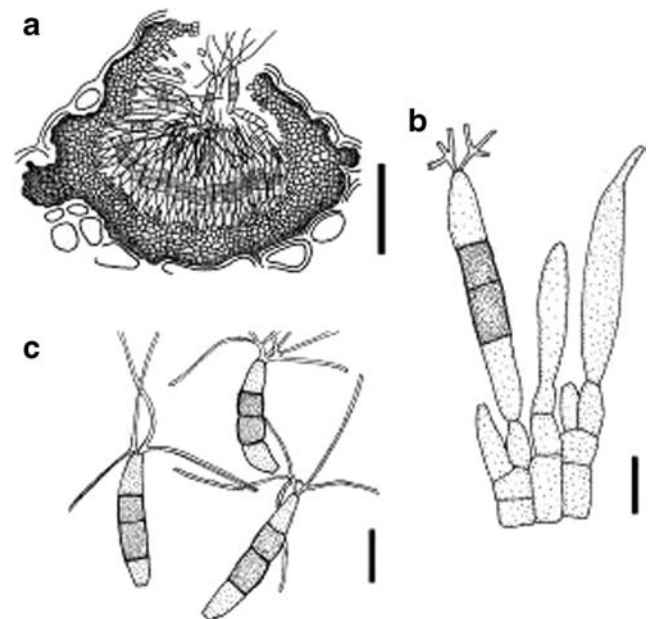


Fig. 119 *Hyalotiopsis subramanianii*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 50 μm, **b**, **c** = 10 μm (re-drawn from Nag Raj 1974)

Type species: Hyalotiopsis subramanianii (Agnihothr. & Luke) Punith., Mycol. Pap. 119: 14 (1970) [1969]

≡ *Hyalotiella subramanianii* Agnihothr. & Luke, Proc. Indian Acad. Sci., Pl. Sci. 71(2): 48 (1970)

Notes: Punithalingam (1969) introduced *Hyalotiopsis* with *H. subramanianii* as the type species. Thaug (1975) introduced a second species, *H. borassi* Thaug, but it was transferred to a new genus, *Parahyalotiopsis* Nag Raj by Nag Raj (1976). Hence, *Hyalotiopsis* remains a monotypic genus. The key can be used to distinguish *Hyalotiopsis* from related genera based on morphology.

Key to distinguish *Hyalotiopsis* from related genera

1. Conidia hyaline *Chaetospora*
1. Conidia pale brown to brown 2
2. Conidiomata ostiolate 3
2. Conidiomata without ostiole *Hyalotiopsis*
3. Conidia 3-septate *Hyalotiella*
3. Conidia 2–4-septate *Parahyalotiopsis*

Punithalingam (1969) stated *Massaria indica* Punith. to be the sexual morph of *Hyalotiopsis subramanianii* based on culture methods. However, Arx (1970) treated the same species as belonging to *Lepteutypa* i.e. *L. indica* (Punith.) Arx. Most *Lepteutypa* spp. have seiridium-like asexual morphs (Sutton 1980; Nag Raj and Kendrick 1985; Nag Raj 1993), thus Nag Raj and Kendrick (1985) introduced *Ellurema* Nag Raj & W.B. Kendr. to place *Lepteutypa indica*. The link between *Lepteutypa indica* and *Hyalotiopsis subramanianii* was confirmed by Nag Raj (1993), thus we propose to adopt older asexual typified name, *Hyalotiopsis* over younger sexual typified name *Ellurema*. Sequence data is unavailable, thus the taxonomic placement is uncertain.

Hymenopsis Sacc., Syll. fung. (Abellini) 4: 744 (1886)

See Index Fungorum for synonyms

Facesoffungi number: FoF 01501; Fig. 120

Sordariomycetes, *Hypocreomycetidae*, *Hypocreales*, genera *incertae sedis*

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic to acervular, shallow-cupulate, solitary, immersed, partially erumpent, dark greenish brown, unilocular. *Conidiomata* basal wall layers composed of thin-walled, hyaline cells of *textura angularis*, above layers thick-walled, brown cells of *textura porrecta*. *Setae* occasionally present, brown, septate. *Conidiophores* cylindrical, branched at the base, 1–2-septate, hyaline, smooth-walled, invested in mucus. *Conidiogenous cells* holoblastic to annellidic, cylindrical or subcylindrical or clavate, indeterminate, integrated or discrete, hyaline, smooth. *Conidia* fusiform to ellipsoid, occasionally pyriform, apex obtuse, base truncate, aseptate, almost hyaline

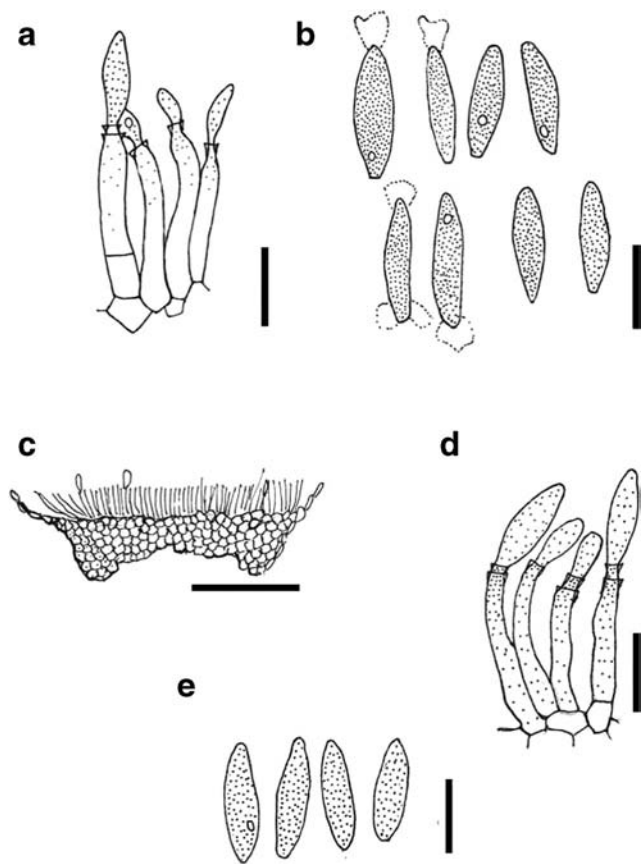


Fig. 120 *Hymenopsis* spp. **a, b** *H. typhae*. **c–e** *H. trochiloides*. Scale bars: **a, b, d, e** = 10 μm, **c** = 100 μm (re-drawn from Sutton 1980)

to brown, thick-walled, guttulate, verruculose or smooth-walled, straight, sometimes with an apical and/or basal gelatinous appendage (Sutton 1980; Nag Raj 1993, 1995; Kohlmeyer and Volkmann–Kohlmeyer 2001).

Lectotype species: Hymenopsis trochiloides (Sacc.) Sacc., Michelia 2(no. 7): 367 (1881)

≡ *Myrothecium trochiloides* Sacc., Michelia 1(no. 4): 367 (1878)

Notes: Saccardo (1881) introduced *Hymenopsis* with *H. trochiloides* as the type species. Currently, 35 species epithets are listed in Index Fungorum (2016), but Sutton (1980) and Nag Raj (1993) each accepted only four species. Including the type, Sutton (1980) accepted *H. saccardoana* (Speg.) B. Sutton, *H. typhae* (Höhn.) B. Sutton, and *H. argentinensis* (Speg.) B. Sutton, while Nag Raj (1993) accepted *H. atroviridis* (Berk. & Broome) Nag Raj, *H. caricis* (Fuckel) Nag Raj and *H. typhae* (Höhn.) B. Sutton. Nag Raj (1993) also listed 27 taxa under ‘unexamined and excluded taxa’ while *Myrothecium flavovirens* B. Sutton was treated as *Hymenopsis flavovirens* (B. Sutton) Nag Raj. Since Nag Raj (1993) only three species have been introduced i.e. *H. bambusae* Nag Raj, *H. olivacea* Nag Raj (Nag Raj 1995), and *H. chlorothrix* Kohlm. & Volkm.-Kohlm (Kohlmeyer and Volkmann - Kohlmeyer 2001). In morphology, *Hymenopsis* resembles *Xepicula* and *Xepiculopsis*. However

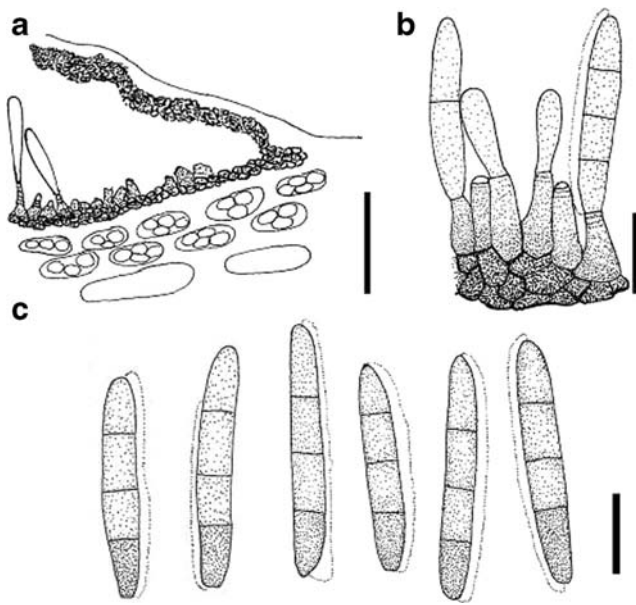


Fig. 121 *Jubispora acacia*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 50 μ m, **b**, **c** = 10 μ m (re-drawn from Sutton and Swart 1986)

both latter genera have conidiomata with an excipulum, thus it can be distinguished from *Hymenopsis*.

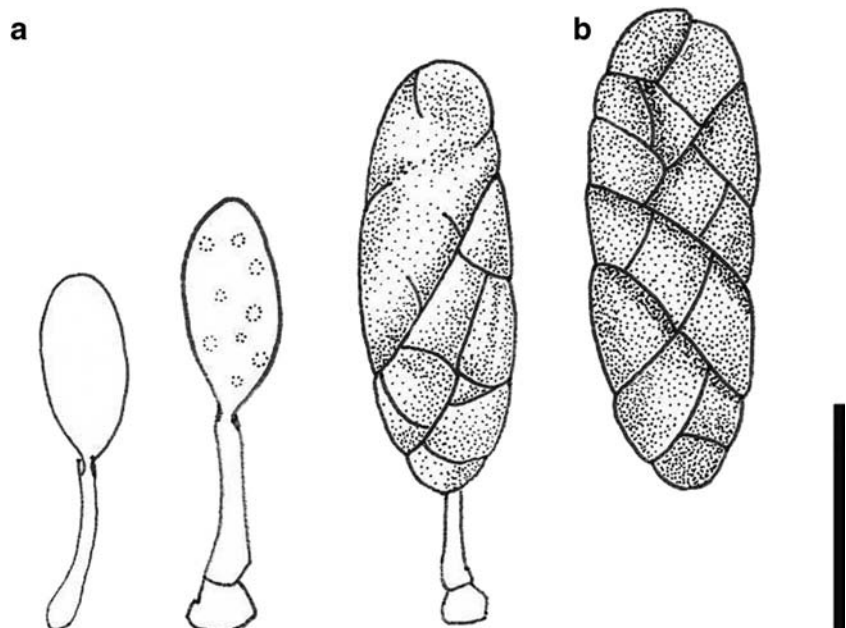
Currently, there is only a single sequence (ITS) available in GenBank (accession date 17.02.2016) named under *Hymenopsis* sp. Mega blast results show it has close relationship to *Myrothecium roridum* (CBS 331.51) in *Hypocreales*.

Jubispora B. Sutton & H.J. Swart, Trans. Br. mycol. Soc. 87(1): 97 (1986)

Facesoffungi number: FoF 01502; Fig. 121

Ascomycota, genera *incertae sedis*

Fig. 122 *Kaleidosporium fenestratum*. **a** Different stages of conidiogenesis. **b** Conidium. Scale bar: **a**, **b** = 20 μ m (van Warmelo and Sutton 1981)



Endophytic or *saprobic* on *Fabaceae* (Dicotyledons).
Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* stromatic, epidermal, flat, circular to ellipsoid, black. *Conidiomata* wall basal and thinner upper layer composed of thick-walled, dark brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, percurrent proliferation, lageniform to cylindrical, discrete, dark brown, verrucose. *Conidia* tapered to an obtuse to subulate apex, base narrow truncate, brown, 3-septate, verruculose, conidia formed in a mucilaginous sheath and persist along one side at maturity (description modified from Sutton and Swart 1986).

Type species: ***Jubispora acaciae*** B. Sutton & H.J. Swart, Trans. Br. mycol. Soc. 87(1): 99 (1986)

Notes: Sutton and Swart (1986) introduced the genus *Jubispora* with *J. acaciae* as the type species. In morphology, *Jubispora* is similar to *Gaubaea* and *Septoriella*, but the taxonomic key below can be used to distinguish *Jubispora* from *Gaubaea* and *Septoriella*.

Taxonomic key to distinguish *Jubispora* from *Gaubaea* and *Septoriella*

- 1. Conidia with mucilaginous sheath***Jubispora***
- 1. Conidia without mucilaginous sheath2
- 2. Conidia aseptate***Gaubaea***
- 2. Conidia septate***Septoriella***

Kaleidosporium Van Warmelo & B. Sutton, Mycol. Pap. 145: 23 (1981)

Facesoffungi number: FoF 01503; Fig. 122

Ascomycota, genera *incertae sedis*

Endophytic or *saprobic* of various substrates of *Clethraceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, acervular, subepidermal, solitary. *Conidiomata* wall composed of thick-walled, brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, cylindrical, straight or slightly curved, discrete, determinate, septate, with a narrow channel, periclinal thickening, no collarete. *Conidia* ellipsoid, straight, obtuse apex, truncate at the base, with oblique septa, dark brown (description modified from van Warmelo and Sutton 1981).

Type species: Kaleidosporium fenestratum (Ellis & Everh.) Van Warmelo & B. Sutton, Mycol. Pap. 145: 24 (1981); Fig. 122

≡ *Stilbospora fenestrata* Ellis & Everh., Bull. Torrey bot. Club 11: 18 (1884)

= *Stegonsporium fenestratum* (Ellis & Everh.) Sacc., Syll. fung. (Abellini) 3: 804 (1884)

Notes: van Warmelo and Sutton (1981) introduced *Kaleidosporium* with *K. fenestratum* to accommodate *Stegonsporium fenestratum*. *Kaleidosporium* is morphologically distinct from other genera with muriform conidia such as *Camarosporium* and *Stegonsporium*. Both the latter genera have transverse and vertical septa (Sutton 1980), while conidia of *Kaleidosporium* have only oblique septa from its earlier stages of development (van Warmelo and Sutton 1981). Sequence data is unavailable, thus taxonomic placement is uncertain.

Kalmusia Niessl, Verh. nat. Ver. Brünn 10: 204 (1872)

= *Dendrothyrium* Verkley et al., Persoonia, Mol. Phyl. Evol. Fungi 32: 34 (2014)

Facesoffungi number: FoF 01504; Fig. 123

Dothideomycetes, Pleosporales, Massariaceae, Didymosphaeriaceae

Endophytic or *saprobic* of *Santalaceae* and *Poaceae* (Monocotyledons). **Sexual morph:** *Kalmusia sensu stricto* fide

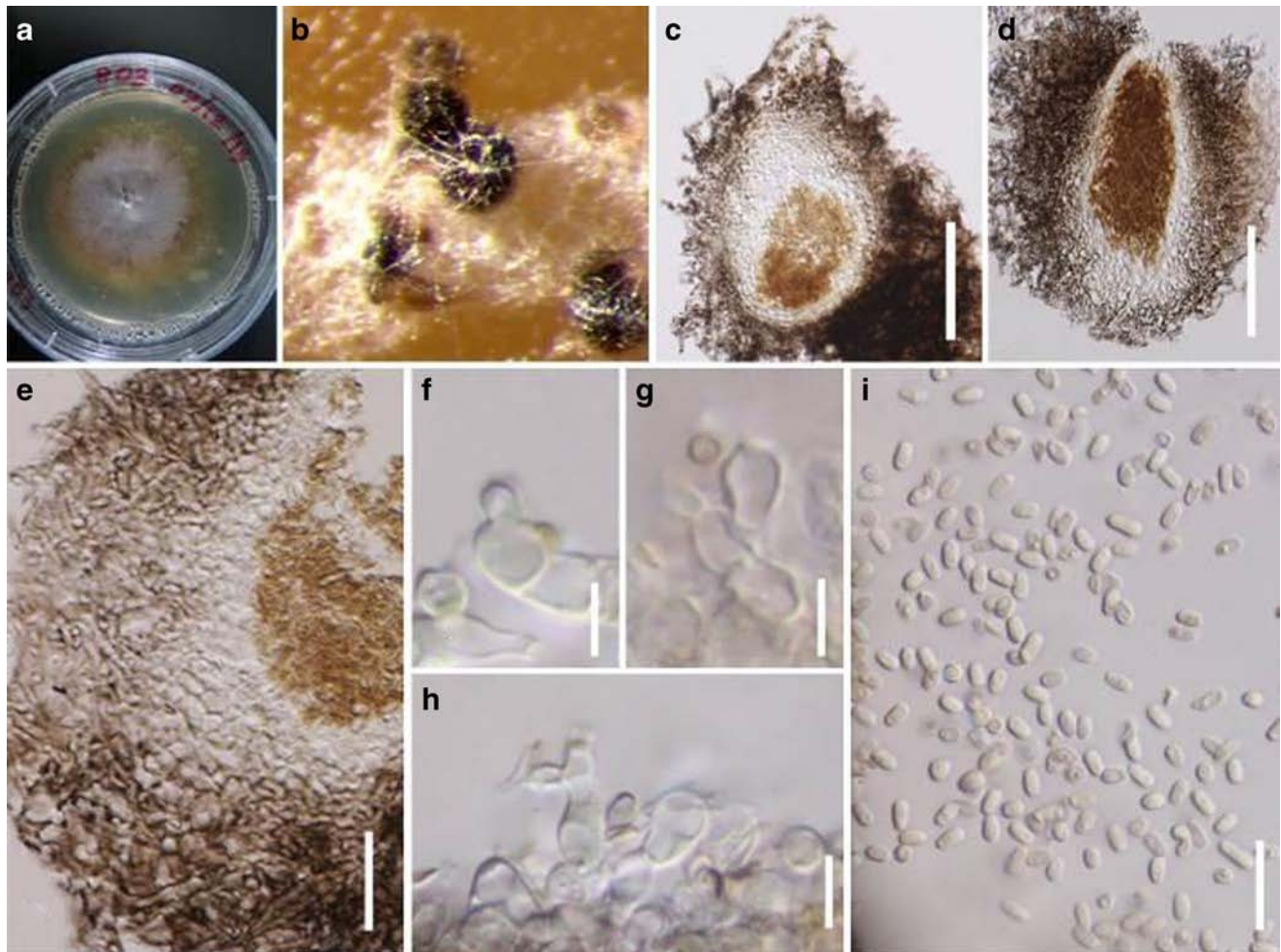


Fig. 123 *Kalmusia spartii* (Material examined: Italy, Forli-Cesena Province, Castello di Corniolino, Santa Sofia, dead and hanging branches of *Spartium junceum*, 15 March 2013, E. Camporesi, MFLU 14–0751, holotype). **a** Culture generated from sexual morph. **b**

c, d Vertical sections of conidiomata. **e** Conidioma wall. **f** Developing conidium attached to conidiogenous cell. **g, h** Conidiogenous cells. **i** Conidia. Scale bars: **c, d** = 100 μ m, **e** = 30 μ m, **f–h** = 5 μ m, **i** = 10 μ m

Ariyawansa et al. (2014b); Liu et al. (2015). **Asexual morph:** *Conidiomata* pycnidial or stromatic, globose, ostiolate. *Ostiole* central, single. *Conidiomata wall* composed of pale yellowish brown-walled cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* phialidic, simple, discrete or integrated, doliiform to ampulliform, septate. *Conidia* cylindrical to ellipsoid, aseptate, initially hyaline, olivaceous-brown at maturity, thin and smooth-walled, with minute granules (Ariyawansa et al. 2014b; Verkley et al. 2014; Liu et al. 2015).

Type species: Kalmusia ebuli Niessl, Verh. nat. Ver. Brünn 10: 204 (1872)

Notes: The genus *Dendrothyrium* was introduced by Verkley et al. (2014) with *D. variisporum* Verkley et al. The genus is characterised by aseptate, olivaceous brown, thin and smooth-walled conidia and phylogenetically clusters in *Didymosphaeriaceae* (Ariyawansa et al. 2014b; Verkley et al. 2014). However, Ariyawansa et al. (2014b) showed that the type species of *Dendrothyrium*, *D. variisporum* and *D. longisporum* Verkley et al. grouped in *Kalmusia sensu stricto*, thus the former name was reduced to synonymy under the latter generic name.

Liu et al. (2015) also introduced *Kalmusia spartii* Wan et al. with a dendrothyrium-like asexual morph.

Kamatella Anahosur, Bull. Torrey bot. Club 96: 207 (1969)

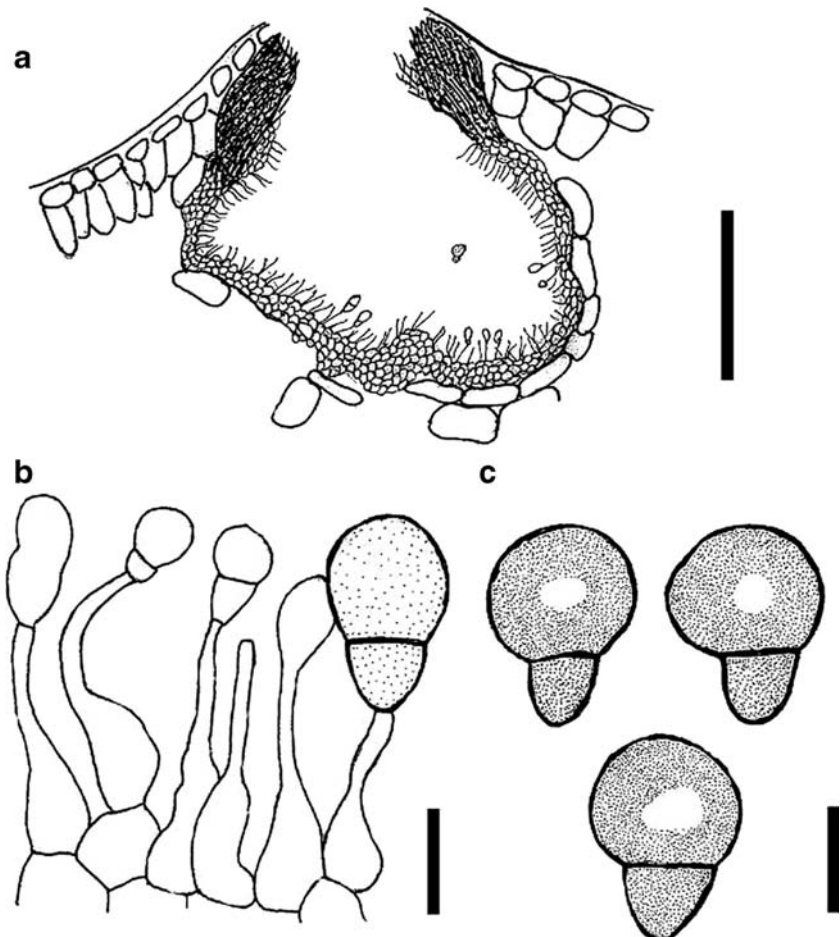
Facesoffungi number: FoF 01505; Fig. 124

Ascomycota, genera incertae sedis

Endophytic or *saprobic* or associated with lesions on leaves of *Myrtaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, epiphyllous, immersed, solitary, globose to irregular, unilocular but convoluted, brown, ostiolate. *Ostiole* papillate, circular, central or excentric. *Conidiomata wall* composed of brown walled-cells of *textura angularis*, thicker and darker around the ostiole. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, swollen at the base, filiform above, determinate, discrete, hyaline, smooth. *Conidia* conic, base truncate, upper cell larger, lower cell smaller, globose, 1-septate, with a guttule, dark brown, thick and smooth-walled (description modified from Sutton 1980).

Type species: Kamatella apiospora (Cooke & Massee) Mel'nik & B. Sutton, The Coelomycetes (Kew): 78 (1980); Fig. 124

Fig. 124 *Kamatella apiospora*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 100 μm , **b**, **c** = 10 μm (re-drawn from Sutton 1980)



See Index Fungorum for synonyms

Notes: Anahosur (1969) introduced *Kamatella* with *K. indica* as the type species. Index Fungorum (2016) lists four species epithets, including the type species. However, Sutton (1980) found that *Ascochyta apiospora* as the oldest name of *Kamatella indica* thus former species was transferred to *Kamatella*. Further, Sutton (1980) listed all other species under *Kamatella apiospora* as its synonyms thus, the genus remains monotypic. The genus was not re-visited since Sutton (1980). Sequence data is unavailable, hence the taxonomic placement is uncertain.

Laeviomycetes D. Hawksw., Bull. Br. Mus. nat. Hist. (Bot.) 9: 26 (1981)

Facesoffungi number: FoF 01786; Fig. 125

Ascomycota, genera *incertae sedis*

Lichenicolous. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial to stromatic, convoluted, arising

singly, scattered, immersed, dark brown. *Conidiomatal* wall composed of hyaline to brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, mainly cylindrical, lining the whole of the pycnidial cavity, distinct annellations not observed, hyaline, discrete, smooth-walled. *Conidia* obovate, rarely elliptic or oblong, apex rounded, base truncate, aseptate, pale to medium greyish brown, not distinctly guttulate, smooth-walled (modified description from Zhurbenko and Otte 2012).

Type species: Laeviomycetes pertusariicola (Nyl.) D. Hawksw., Bull. Br. Mus. nat. Hist. (Bot.) 9(1): 29 (1981); Fig. 125

≡ *Spilium pertusariicola* Nyl., Mém., Soc. Imp. Sci. nat. Cherbourg 5: 91 (1858)

Notes: This genus was described by Hawksworth (1981b) and distinguished from *Lichenodiplis* by the aseptate conidia. Diederich (2003) noted that some *Laeviomycetes* species are so similar to the type of *Lichenodiplis* that he suggested both genera

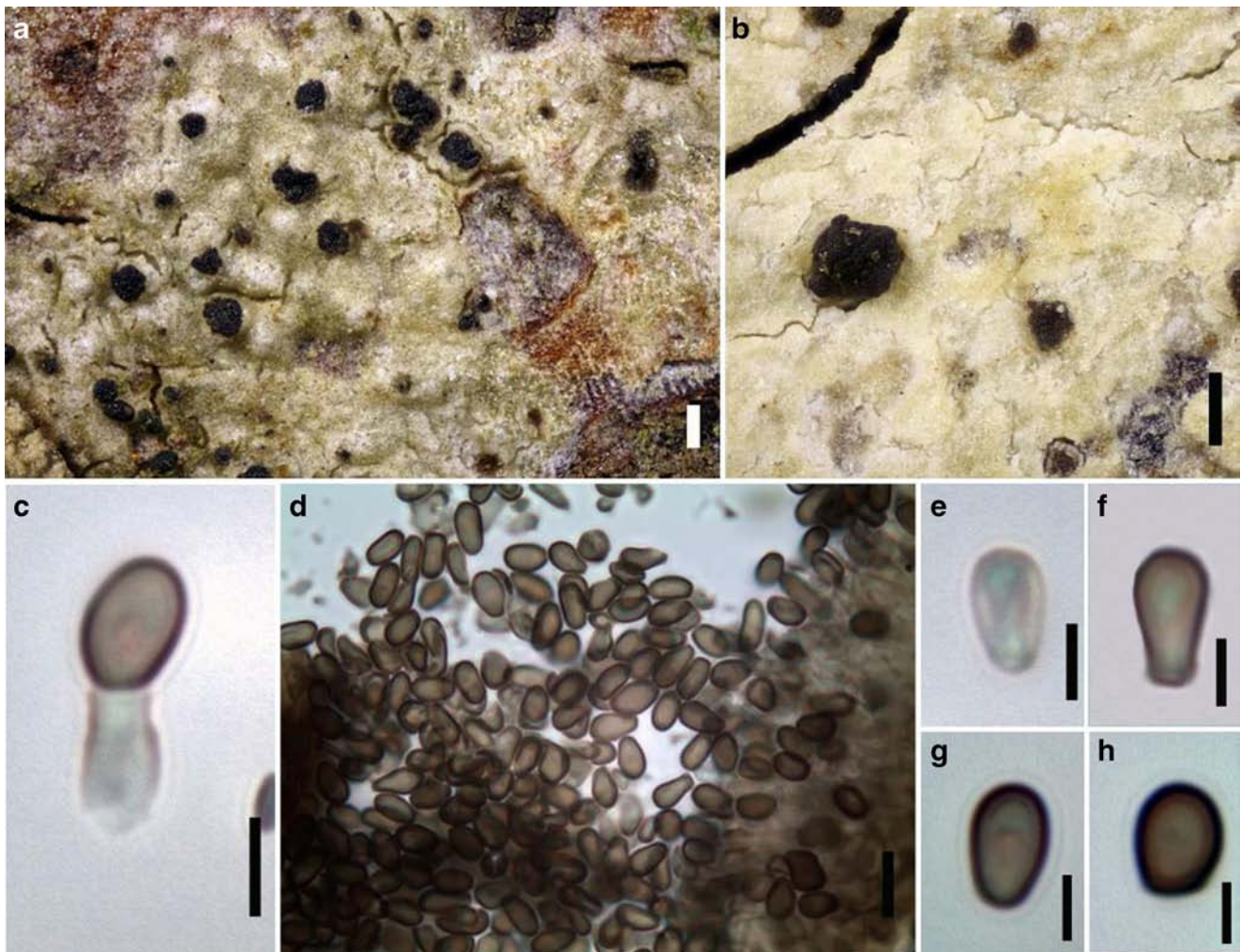


Fig. 125 *Laeviomycetes pertusariicola* (Material examined: **a:** Netherlands, Texel, on *Pertusaria leioplaca*, 1999, A. Aptroot, 47047 (herb. Diederich); **b–h:** France, Fontainebleau (= Type locality), on thallus of *Pertusaria pertusa*, 1991, Diederich 9483). **a** Conidiomata on

thallus of *Pertusaria pertusa*. **b** Conidiomata on thallus of *Pertusaria leioplaca*. **c** Conidium attached to conidiogenous cell. **d–h** Conidia. Scale bars: **a, b** = 2 mm, **c, d** = 10 μ m, **e–h** = 5 μ m

to be synonyms. Zhurbenko and Otte (2012) convincingly argued that the type species of *Laeviomyces* represents a distinct genus. Several former *Laeviomyces* species have been transferred to *Lichenodiplis* by Diederich; apart from the aseptate conidia, they can hardly be distinguished from *Lichenodiplis*, and are better accommodated in that genus. Sequence data is unavailable, thus taxonomic placement is uncertain.

Lamproconium (Grove) Grove, British Stem- and Leaf-Fungi (Coelomycetes) (Cambridge) 2: 321 (1937)

≡ *Melanconium* sect. *Lamproconium* Grove, Bull. Misc. Inf., Kew: 161 (1918)

Facesoffungi number: FoF 01507; Fig. 126

Ascomycota, genera *incertae sedis*

Endophytic or *saprobic* on branches of *Malvaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* acervular, subperidermal, solitary. *Conidiomata* wall composed of thin-walled, pale brown to hyaline cells of *textura angularis*. *Paraphyses* filiform, hyaline, branched, septate, occasionally with a gelatinous sheath. *Conidiophores* filiform,

cylindrical, septate, branched at the base, hyaline. *Conidiogenous cells* holoblastic, annellidic, cylindrical, integrated, indeterminate, hyaline, smooth. *Conidia* ellipsoid, base truncate, apex obtuse to bluntly apiculate, aseptate, purplish blue, thick and smooth-walled (description modified from Sutton 1980).

Type species: Lamproconium desmazieresii (Berk. & Broome) Grove, British Stem- and Leaf-Fungi (Coelomycetes) 2: 321 (1937); Fig. 126

≡ *Discella desmazieri* Berk. & Broome, Annals and Magazine of Natural History 5: 377 (1850)

Notes: Grove (1937) introduced *Lamproconium* with *L. desmazieresii* as the type species. Sutton (1977, 1980) recognized *Lamproconium* as a coelomycetous genus and it remains as monotypic. Sequence data is unavailable thus taxonomic placement is uncertain.

Lasiodiplodia Ellis & Everh., Bot. Gaz. 21: 92 (1896)

See Index Fungorum for synonyms

Facesoffungi number: FoF 01789; Fig. 127

Dothideomycetes, order *incertae sedis*, *Botryosphaerales*, *Botryosphaeriaceae*

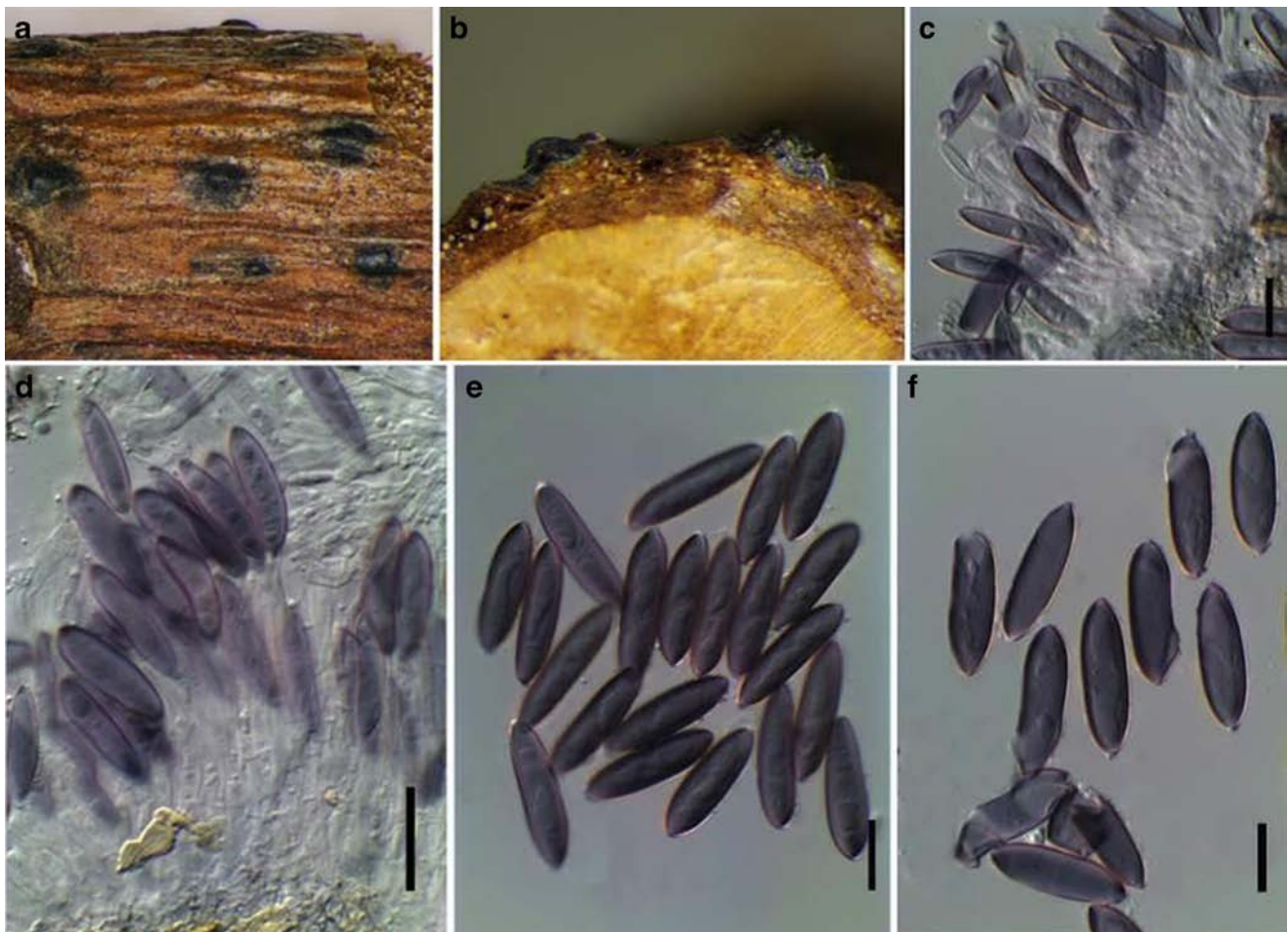


Fig. 126 *Lamproconium desmazieresii*. **a** Conidiomata on host material. **b** Vertical section of conidiomata. **c, d** Conidia attach to conidiogenous cells. **e, f** Conidia. Scale bars: **c–f** = 10 μ m (photo credit to P.F. Cannon)

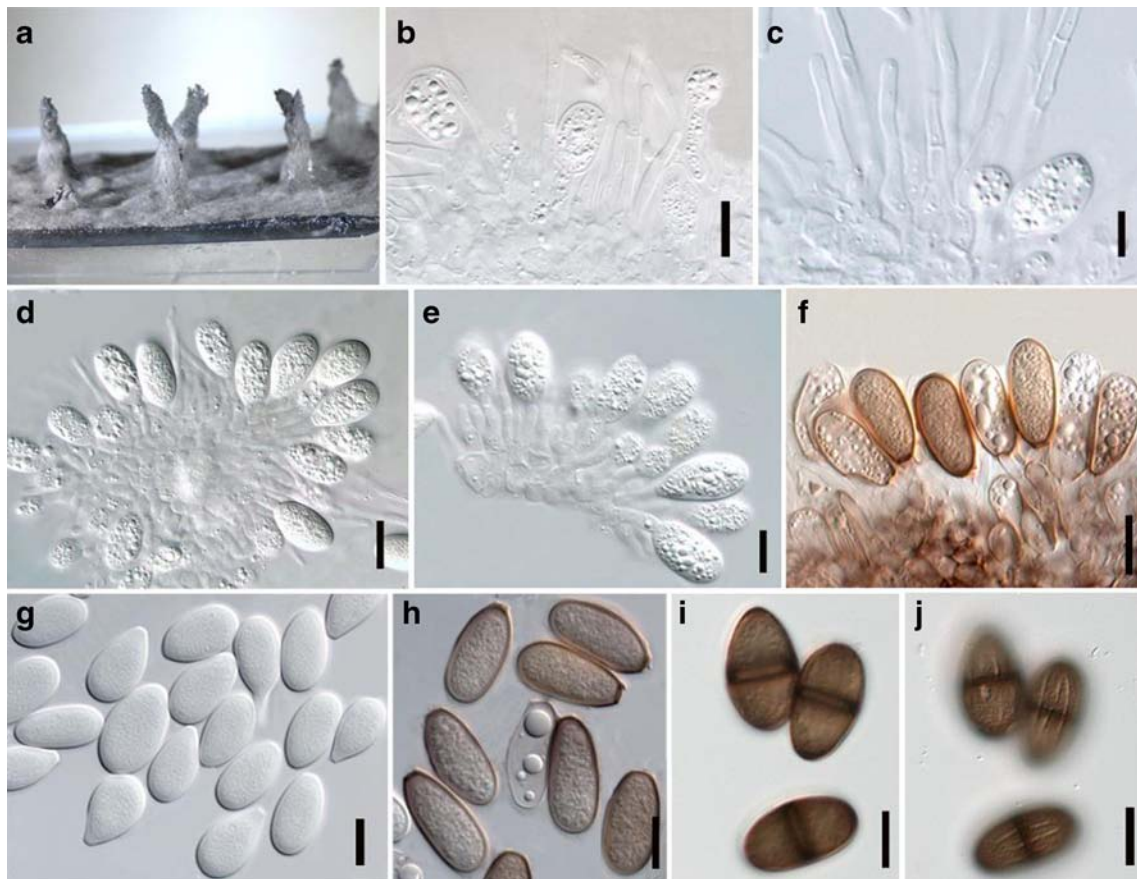


Fig. 127 *Lasiodiplodia theobromae* (a–c, g, i, j: Material examined: Papua New Guinea, Madang, Jais Aben, from unidentified fruit along coral reef coast, No. 1995, A. Aptroot; d, e: CBS11530; f, h:

CBS112874). a Conidiomata in culture. b–f Different stages of conidiogenesis and paraphyses. g–j Conidia. Scale bars: b–j = 10 μ m

Pathogenic, endophytic and saprobic on leaves, stems of a range of host plants. **Sexual morph:** see Phillips et al. (2013). **Asexual morph:** *Conidiomata* pycnidial, immersed or superficial, solitary or gregarious, occasionally confluent, globose, dark brown, uni- or multi-locular, ostiolate. *Ostiole* papillate, circular, single. *Conidiomata wall* multi-layered, outer layer thick, composed of dark brown-walled cells of *textura angularis*, inner layer thin, hyaline. *Paraphyses* cylindrical, septate, hyaline. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, proliferating percurrently, with one or two distinct annellations, or proliferating at the same level giving rise to periclinal thickenings, cylindrical to sub-obpyriform, discrete, determinate or indeterminate, smooth. *Conidia* oblong to ellipsoid, broadly rounded at the apex, base truncate, straight, initially hyaline, becoming brown, 1-septate, with longitudinal striations (Sutton 1980; Pavlic et al. 2004, 2008; Burgess et al. 2006; Alves et al. 2008; Phillips et al. 2008, 2013; Abdollahzadeh et al. 2010; Ismail et al. 2012; Liu et al. 2012).

Type species: Lasiodiplodia theobromae (Pat.) Griffon & Maubl., Bull. Soc. mycol. Fr. 25: 57 (1909); Fig. 127

\equiv *Botryodiplodia theobromae* Pat., Bull. Soc. mycol. Fr. 8(3): 136 (1892)

\equiv *Lasiodiplodia tuberculata* Ellis & Everh., Bot. Gaz. 21: 92 (1896)

Notes: Clendenin (1896) introduced *Lasiodiplodia* with *L. tuberculata* as the type species. However, Griffon and Maublanc (1909) transferred *Botryodiplodia theobromae* to *Lasiodiplodia*. As pointed out by Sutton (1977, 1980) the epithet *theobromae* (1892) is older than *tuberculata* (1896),

Table 5 Plant pathogenic *Lasiodiplodia* species

Species	Host plant	Reference
<i>L. crassispora</i>	Grapevine	Van Niekerk and Bester 2010
<i>L. egyptiaca</i>	Mango	Ismail et al. 2012
	Cashew	Olunloyo 1979; Adeniyi et al. 2013
<i>L. plurivora</i>	<i>Prunus</i> spp.	Damm et al. 2007a, b
<i>L. pseudotheobromae</i>	Mango	Ismail et al. 2012
<i>L. theobromae</i>	Mango	Ismail et al. 2012
	Banana	Thangavelu et al. 2007

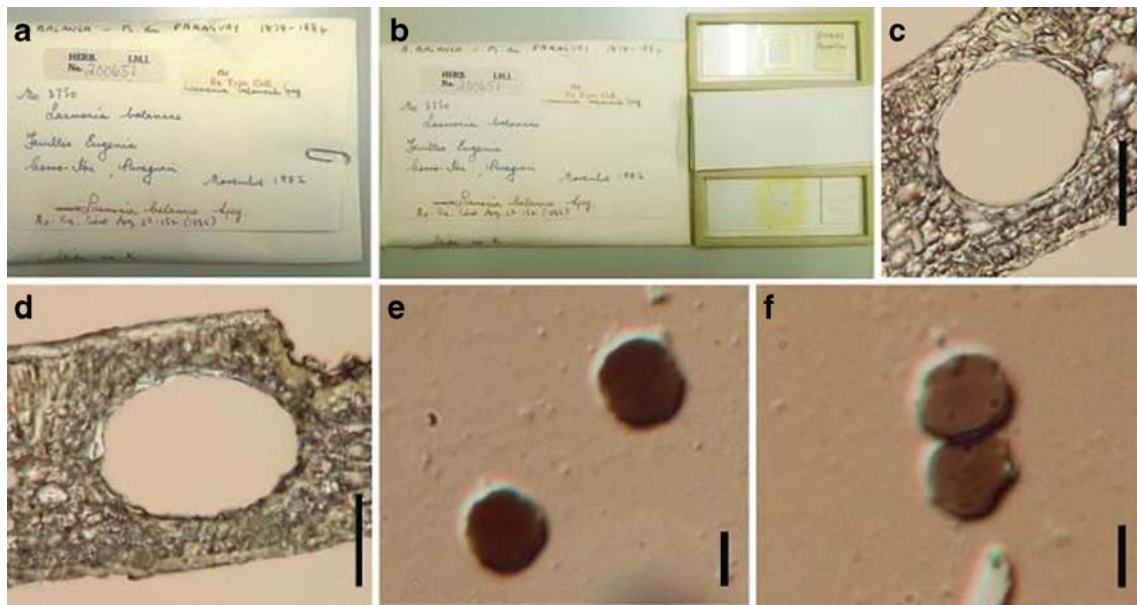


Fig. 128 *Lasmenia balansaе* (Material examined: Paraguay, Paraguari, Cerro Hu, IMI 200651). **a, b** Herbarium label and material. **c, d** Vertical sections of conidiomata. **e, f** Conidia. Scale bars: **c, d** = 50 μm , **e, f** = 5 μm

thus *Lasiodiplodia theobromae* should be regarded as the type species. Phillips et al. (2013) also accepted *L. theobromae* in place of *Botryodiplodia theobromae*. Currently 37 species epithets are listed in Index Fungorum (2016).

Although Denman et al. (2000) suggested that *Lasiodiplodia* could be a synonym of *Diplodia*, Pavlic et al. (2008), Phillips et al. (2008, 2013), Liu et al. (2012) and Slippers et al. (2013) recognized *Lasiodiplodia* as a distinct genus in *Botryosphaeriaceae*. Slippers et al. (2013) showed that *Macrovalsaria* Petr. grouped with *Lasiodiplodia sensu lato*. Subsequent sequence based studies recognized that *L. theobromae* is a complex of cryptic species (Pavlic et al. 2004, 2008; Burgess et al. 2006; Damm et al. 2007a, b; Alves et al. 2008; Abdollahzadeh et al. 2010; Ismail et al. 2012).

Several *Lasiodiplodia* spp. have been reported as pathogens on various plant hosts (Table 5).

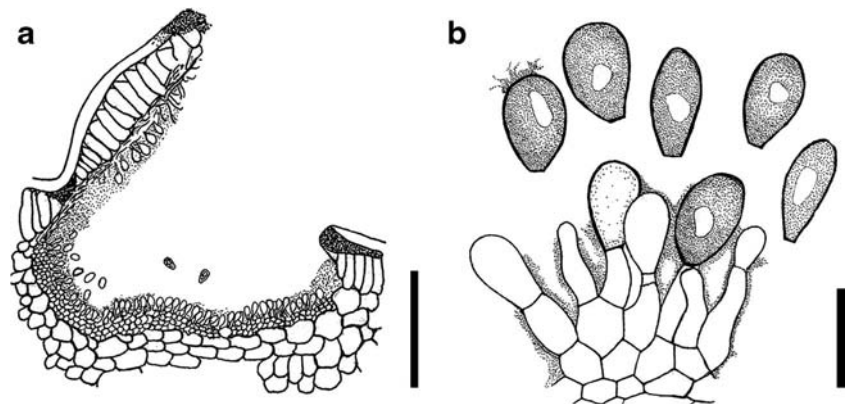
Lasmenia Speg., Anal. Soc. cient. argent. 22(4): 199 (1886)

Facesoffungi number: FoF 01509; Figs. 128 and 129

Sordariomycetes, Sordariomycetidae, Diaporthales, genera incertae sedis

Endophytic or saprobic on various substrates on a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* acervular or stromatic, solitary to gregarious, or occasionally coalescing, initially immersed, erumpent at maturity, unilocular or irregularly multilocular, glabrous. *Conidiomata* wall composed of thin-walled, brown cells of *textura angularis*, and periphery walls are composed of dark brown cells of *textura angularis*. *Conidiophores* cylindrical, simple or rarely branched, septate, hyaline, or reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, phialidic, cylindrical, determinate, integrated or discrete, hyaline, smooth. *Conidia* ellipsoid or ovoid, truncate and protuberant at the base, apex obtuse, pale brown, aseptate, with a central guttule, thick and smooth-walled (Nag Raj and DiCosmo 1980; Sutton 1980).

Fig. 129 *Lasmenia balansaе*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis and conidia. Scale bars: **a** = 100 μm , **b** = 20 μm (re-drawn from Nag Raj and DiCosmo 1980)



Lectotype species: Lasmenia balansae Speg., Anal. Soc. cient. argent. 22(2): 152 (1886); Figs. 128 and 129

Notes: Spegazzini (1886) introduced *Lasmenia* with *L. balansae* as the type species. Von Höhnelt (1910) designated the lectotype for the type species. There are 12 species epithets listed in Index Fungorum (2016), however, Petrak and Sydow (1927) transferred several species to *Lasmeniella*. *Lasmenia* and *Lasmeniella* share close morphological characters and are difficult to distinguish. However, Sutton (1980) stated *Lasmeniella* has ‘cylindrical to tapered above’ conidiogenous cells, while *Lasmenia* has cylindrical conidiogenous cells. Nevertheless, Sutton (1980) stated that *Lasmenia* needs extensive re-assessment (See further comparisons under notes in *Lasmeniella*).

Nishijima et al. (2002), Serrato-Diaz et al. (2011) reported *Lasmenia* spp. as pathogen on rambutan in Hawaii and Puerto Rico, respectively. Further, Serrato-Diaz et al. (2011) deposited DNA sequences in GenBank and our phylogenetic analyses show *Lasmenia* sp. group in *Diaporthales*. However, it does not cluster in any family, hence, we conclude *Lasmenia* as *Diaporthales*, genera *incertae sedis* (Fig. 12).

Lasmeniella Petr. & Syd., Beih. Reprim nov. Spec. Regni veg. 42(1): 301 (1927)

Facesoffungi number: FoF 01510; Figs. 130 and 131

Ascomycota, genera *incertae sedis*

Endophytic or *saprobic* on various substrates on a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, subepidermal, erumpent, solitary or gregarious, occasionally confluent, multi-locular, black. *Conidiomata* wall composed of thick-walled, dark brown cells of *textura angularis*. *Conidiophores* often reduced to conidiogenous cells, if present simple, occasionally septate at the base. *Conidiogenous cells* holoblastic, cylindrical to tapered above, determinate or indeterminate, discrete, hyaline to pale brown, swollen at the base. *Conidia* circular or polygonal in outline, base truncate, discoid to flat, brown, aseptate, often with a central pore, thick and smooth-walled; with tubular, subcylindrical, basal appendage (Sutton 1980; Nag Raj and DiCosmo 1981b; Nag Raj 1993).

Type species: Lasmeniella guaranitica (Speg.) Petr. & Syd., Beih. Reprim nov. Spec. Regni veg. 42(1): 302 (1927) [1926]

≡ *Lasmenia guaranitica* Speg., Anal. Soc. cient. argent. 22(4): 199 (1886)

Notes: Petrak and Sydow (1927) introduced *Lasmeniella* with *L. guaranitica* as the type species and accepted 10 species. Subsequently, Petrak (1929) and Sydow (1934) added three more species and currently 13 records have been accepted (Sutton 1980; Index Fungorum 2016). Nag Raj and DiCosmo (1981b) and Nag Raj (1993) re-described the genus and provided illustration of type species.

Fig. 130 *Lasmeniella cocois* (Material examined: Vanuatu, Santo, Hog Harbour, on leaves of *Cocos nucifera*, 30 November 1983, E.H.C. McKenzie, PDD 45124). **a** Label of herbarium specimen. **b** Herbarium specimen. **c, d** Conidiomata on host materials. **e, f** Vertical sections of conidiomata. **g–j** Different stages of conidiogenesis. **k–s** Conidia. Scale bars: **e, f** = 100 µm, **g–j** = 20 µm, **k–s** = 10 µm

In morphology of conidia, *Lasmeniella* closely resembles *Lasmenia*, which has brown conidia with a truncate base (Sutton 1980). However, Nag Raj and DiCosmo (1981b) and Nag Raj (1993) stated *Lasmeniella* has a tubular, subcylindrical basal appendage, but Sutton (1980) did not mention the basal appendage. Nag Raj (1993) illustrated and re-described *L. congoensis* (Har. & Pat.) Petr. & Syd. in addition to the type species. However, Sutton (1980) used conidiomatal characters to distinguish *Lasmenia* and *Lasmeniella*, i.e. unilocular and multilocular stromata in *Lasmenia* and *Lasmeniella*, respectively. Nevertheless, Nag Raj and DiCosmo (1981b) stated, *Lasmenia* also has ‘irregular multilocular stromata’ thus distinguishing the genera based on stromatic characters is uncertain. Thus, we conclude presence of basal appendage of conidia is the most reliable character to distinguish *Lasmenia* and *Lasmeniella*.

Currently sequence data is unavailable, thus the taxonomic placement is uncertain.

Lecanosticta Syd., Anns mycol. 20(3/4): 211 (1922)

= *Eruptio* M.E. Barr, Mycotaxon 60: 437 (1996)

Facesoffungi number: FoF 01511; Fig. 132

Dothideomycetes, Dothideomycetidae, Capnodiales, Mycosphaerellaceae

Pathogenic on needles or *saprobic* on *Pinaceae* (Gymnosperm). **Sexual morph:** *Eruptio* fide Quaedvlieg et al. (2012). **Asexual morph:** *Conidiomata* acervular, subperidermal, erumpent at maturity, brown. *Conidiophores* subcylindrical, densely aggregated, hyaline to dark brown, verruculose, unbranched or branched at base, septate, smooth. *Conidiogenous cells* holoblastic, terminal, integrated or discrete, indeterminate, subcylindrical to cylindrical, hyaline to brown. *Conidia* fusiform or subcylindrical, tapered to the rounded apex and truncate base, straight to curved, septate, continuous, pale brown to brown, guttulate, verruculose, base with minute marginal frill (Nag Raj 1977; Sutton 1980; Marmolejo 2000; Quaedvlieg et al. 2012).

Type species: Lecanosticta acicola (Thüm.) Syd., Anns mycol. 22(3/6): 400 (1924); Fig. 132

See Quaedvlieg et al. (2012) for synonyms

Notes: Sydow and Petrak (1922) introduced *Lecanosticta* with *Lecanosticta pini*, but Petrak and Sydow (1924) found that *Lecanosticta acicola* (Thüm.) Syd. (≡ *Cryptosporium acicola* Thüm.) is the oldest name for *Lecanosticta pini*. Hence, the former species epithet was treated as the type species, while the latter epithet has been listed as its synonym. Subsequent taxonomic notes and checklists by Nag Raj

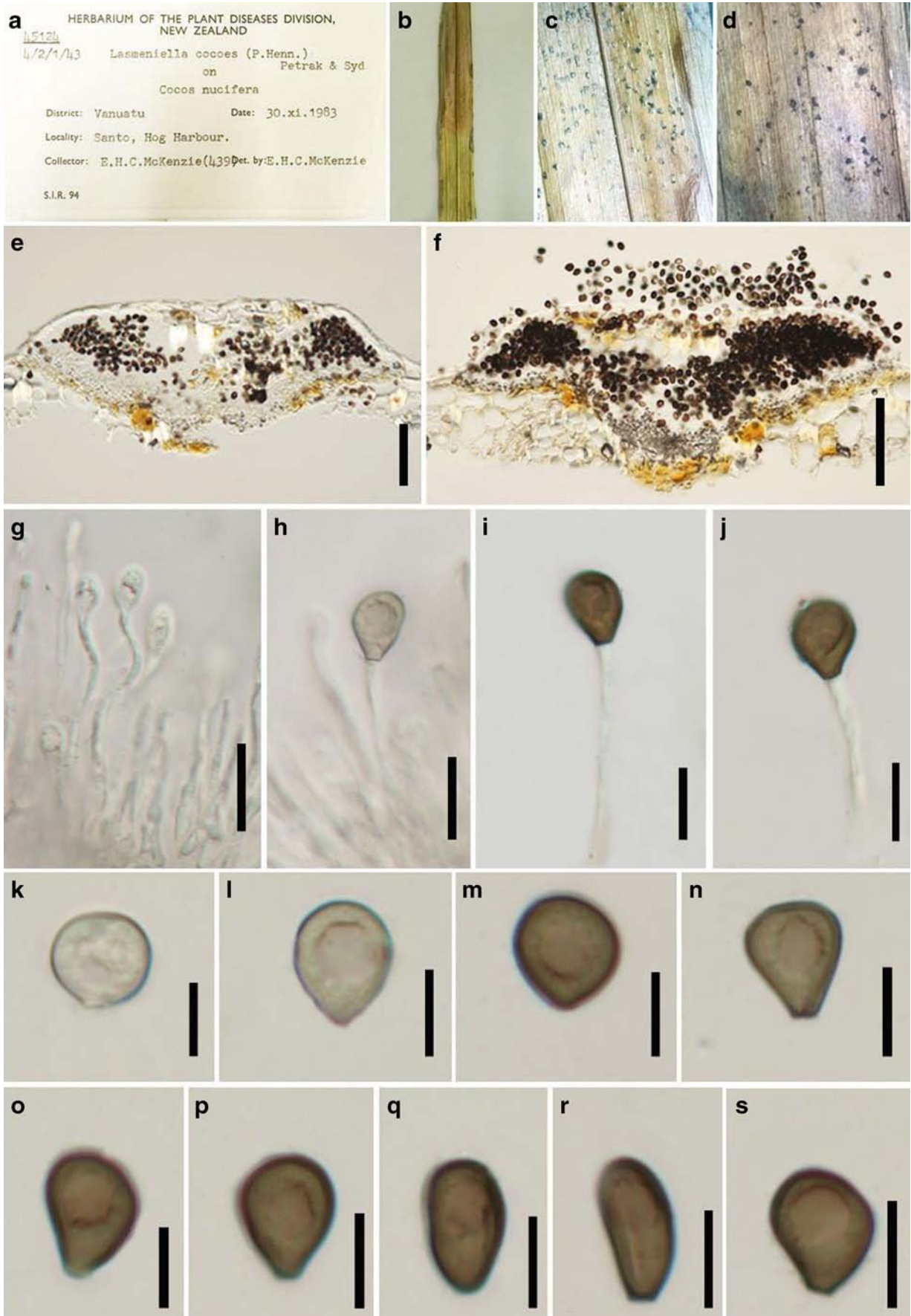
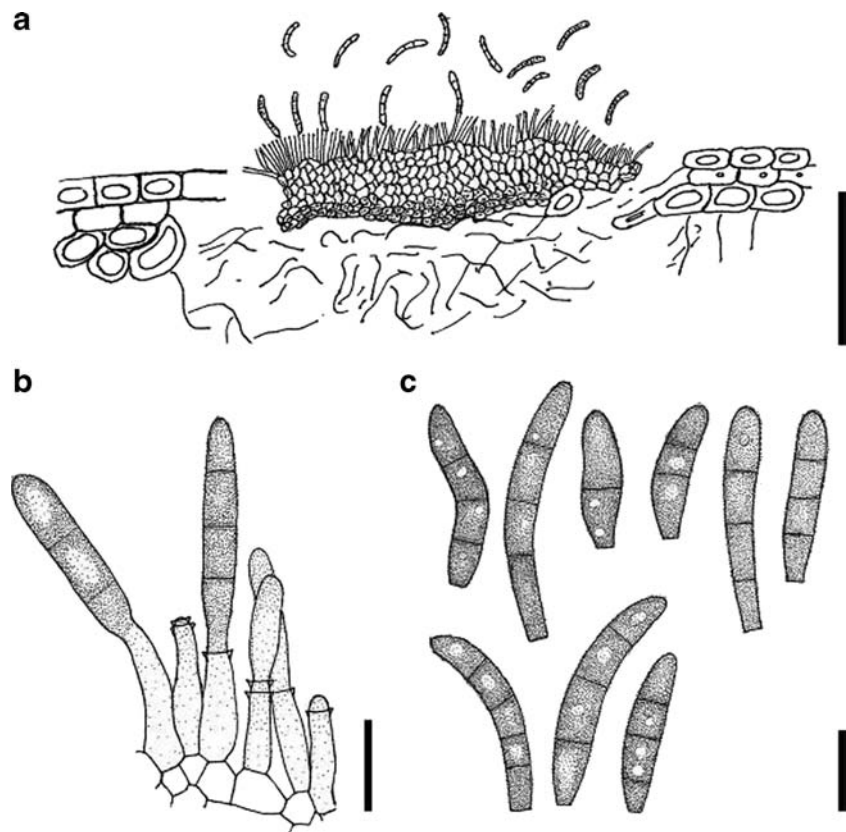




Fig. 131 *Lasmeniella* sp. (Material examined: Australia, Weipa, Weipa camp ground, on leaves of *Parinari nonda*, 4 June 2003, V.M. Brake, BRIP 44732). **a, b** Herbarium label and material. **c** Conidiomata on host.

d Vertical section of conidiomata. **e** Conidioma wall. **f–i** Different stages of conidiogenesis. **j–n** Conidia. Scale bars: **d** = 50 μm , **e** = 30 μm , **f–n** = 8 μm

Fig. 132 *Lecanosticta acicola*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** conidia. Scale bars: **a** = 100 μm , **b**, **c** = 10 μm (re-drawn from Sutton 1980)



(1977a) and Sutton (1977, 1980) also followed Petrak and Sydow (1924).

Crous et al. (2009b) and Quaedvlieg et al. (2012) showed *Lecanosticta acicola* clusters in *Mycosphaerellaceae* and our phylogenetic analyses also agree with this (Fig. 11). Crous et al. (2009b) also treated *Mycosphaerella dearnessii* M.E. Barr (Barr 1972) as the sexual morph of *Lecanosticta acicola*. However, Barr (1996) erected *Eruptio* M.E. Barr for *Mycosphaerella dearnessii* and named as *Eruptio acicola* (Dearn.) M.E. Barr (\equiv *Oligostroma acicola* Dearn.). Quaedvlieg et al. (2012) listed both *Oligostroma acicola* and *Mycosphaerella dearnessii* under the oldest name *Lecanosticta acicola*. Wijayawardene et al. (2014c) proposed to adopt *Lecanosticta* over *Eruptio* in their proposed list of generic names for *Dothideomycetes*.

Lecanostictopsis B. Sutton & Crous, Mycol. Res. 101(2): 215 (1997)

Facesoffungi number: FoF 01512; Fig. 133

Ascomycota, genera incertae sedis

Endophytic or *saprobic* or associated with leaf lesions of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, acervular to ?sporodochial, erumpent, epidermal to sub-epidermal. *Conidiomata* wall composed of thick-walled, dark brown to reddish brown cells of *textura angularis*. *Conidiophores* cylindrical, simple, separate, coarsely verrucose, dark to reddish brown. *Conidiogenous cells*

enteroblastic, percurrent proliferation, cylindrical, dark to reddish brown, integrated, coarsely verruculose to tuberculate. *Conidia* cylindrical to fusiform, obtuse to acute apex, truncate base, straight to curved, dark to reddish brown, with 0–several transverse septa, coarsely verruculose to tuberculate (Sutton and Crous 1997; Crous 1998).

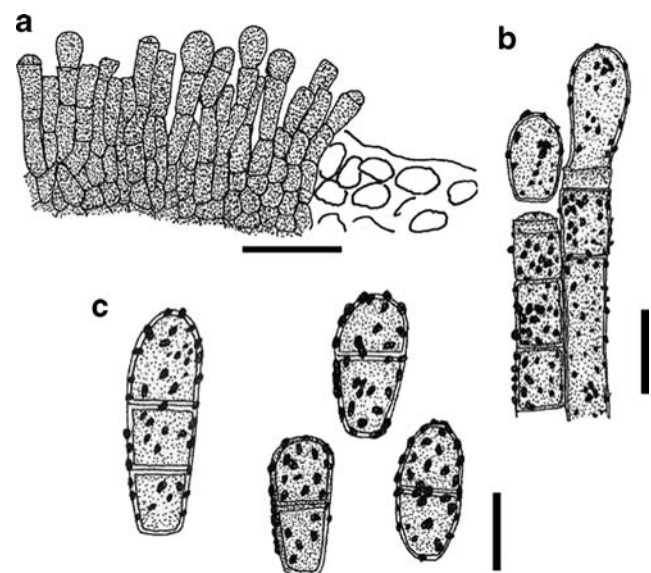
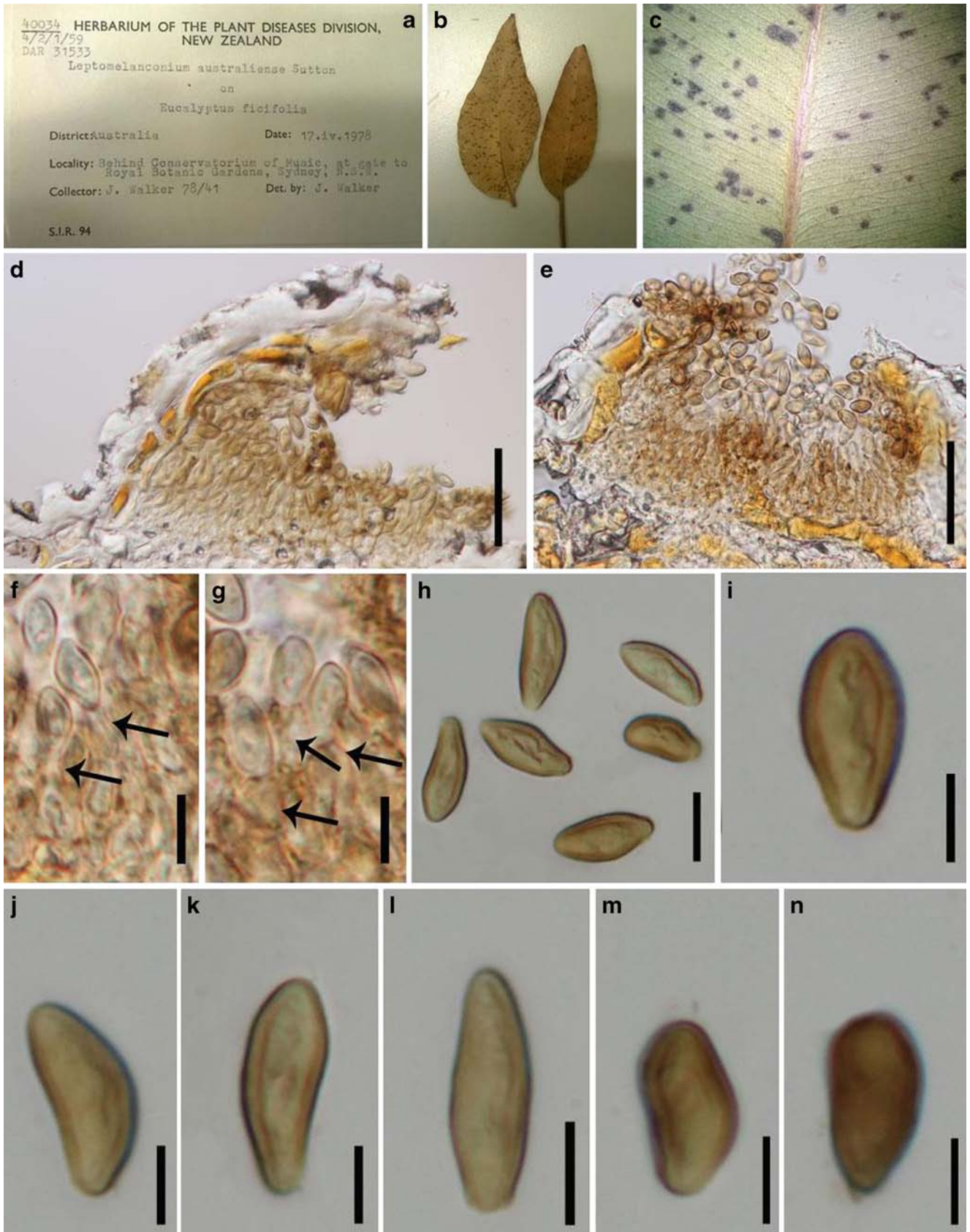


Fig. 133 *Lecanostictopsis kamatii*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 50 μm , **b**, **c** = 10 μm (re-drawn from Sutton and Crous 1997)



◀ **Fig. 134** *Leptomelanconium australiense* (Material examined: Australia, N.S.W., Sydney, at gate to Royal Botanic Garden, behind conservatorium of music, on *Eucalyptus ficifolia*, 17 April 1978, J. Walker, PDD 40034). **a** Label of herbarium specimen. **b** Herbarium specimens. **c** Conidiomata on host. **d, e** Vertical sections of conidiomata. **f, g** Different stages of conidiogenesis. Arrow heads are pointed to conidiogenous cells. **h–n** Conidia. Scale bars: **d, e** = 50 μm , **f–h** = 10 μm , **i–n** = 5 μm (current name: *Teratosphaeria australiensis* (B. Sutton) Crous *vide* Crous et al. 2009b)

Type species: Lecanostictopsis kamatii (Ullasa) B. Sutton & Crous, Mycol. Res. 101(2): 216 (1997); Fig. 133

≡ *Stigmia kamatii* Ullasa, Archos Inst. biol., S. Paulo 40(2): 153 (1973)

Notes: Sutton and Crous (1997) introduced *Lecanostictopsis* with *L. kamatii* as the type species. Sutton and Crous (1997) introduced *L. noumeaensis* B. Sutton & Crous and *L. syzygii* (Ciccar.) B. Sutton & Crous (≡ *Scolicosporium syzygii* Ciccar.), as well as the type species. Crous (1998) introduced a fourth species, *L. eucalypti* Crous.

Lecanostictopsis shows close conidial morphology with *Pseudocercospora* and *Cercospora* which are hyphomycetous (Sutton and Crous 1997; Seifert et al. 2011). Sutton and Crous (1997) compared *Lecanostictopsis* with *Lecanosticta*. However, *Lecanostictopsis* shows ‘dark to reddish brown, coarsely verruculose’ conidiogenous cells while *Lecanosticta* shows ‘hyaline to pale brown and verruculose conidiogenous cells (Sutton and Crous 1997). Sequence data is unavailable, thus the taxonomic placement is uncertain.

Leptomelanconium Petr., Annl. mycol. 21(3/4): 179 (1923)

Facesoffungi number: FoF 01513; Fig. 134

?*Dothideomycetes*, *Dothideomycetidae*, *Capnodiales*, *Teratosphaeriaceae*

Saprobic on needles or cones of *Pinaceae* (Gymnosperm), causing lesions on leaves of *Myrtaceae* (Dicotyledons). **Sexual morph:** *Leptomelanconium sensu lato* asexual morph of ?*Teratosphaeria* *vide* Crous et al. (2009b). **Asexual morph:** *Conidiomata* acervular, subepidermal or immersed, erumpent at maturity, solitary or gregarious or confluent, globose, unilocular. *Conidiomata* wall composed of thin-walled, pale brown cells of textura angularis. *Conidiophores* reduced to conidiogenous cells or if presence, cylindrical, unbranched or branched at the base, septate, hyaline to pale brown, smooth-walled, formed from the upper pseudoparenchyma. *Conidiogenous cells* holoblastic, annellidic, cylindrical, integrated or discrete, indeterminate, pale brown, verruculose, with up to 4 verruculose percurrent proliferations. *Conidia* navicular to clavate, or ellipsoid, base truncate, 0–1-septate, continuous or constricted at septum, brown, thick-walled, verruculose (Morgan-Jones et al. 1972b; Sutton 1980; Vujanovic and St.-Arnaud 2001; Crous et al. 2009b; Zhao and Zhao 2012).

Type species: Leptomelanconium allescheri (Schnabl) Petr., Sydowia 16(1–6): 358 (1963) [1962]; Fig. 134

≡ *Cryptomela allescheri* Schnabl, Ber. bayer. bot. Ges. 2: 69 (1892)

= *Leptomelanconium asperulum* (Moesz) Petr., Annl. mycol. 21(3/4): 179 (1923)

≡ *Melanconium asperulum* Moesz, Bot. Közl. 14(5–6): 157 (1915)

Notes: Sydow (1923) erected *Leptomelanconium* to place *Melanconium asperulum* and treated *Leptomelanconium asperulum* as the type species. However, Petrak (1962) found that *Cryptomela allescheri* is similar to *Leptomelanconium asperulum* thus, transferred it to *Leptomelanconium* and treated it as the type species. Sutton (1977, 1980) agreed with Petrak (1962) and listed *Leptomelanconium asperulum* under *L. allescheri*.

Crous et al. (2009b) showed that *Leptomelanconium australiense* B. Sutton groups in *Teratosphaeria sensu stricto* (Fig. 11). Thus, it was transferred to *Teratosphaeria* as *T. australiensis*. However, neither the cultures nor sequences are available for *Leptomelanconium allescheri*, hence the taxonomic status of *Leptomelanconium sensu stricto* is uncertain.

Lichenoconium Petr. & Syd., Beih. Reprum nov. Spec. Regni veg. 42(1): 432 (1927)

Facesoffungi number: FoF 01514; Figs. 135 and 136

Dothideomycetes, *Pleosporomycetidae*, *Lichenoconiales*, *Lichenoconiaceae*

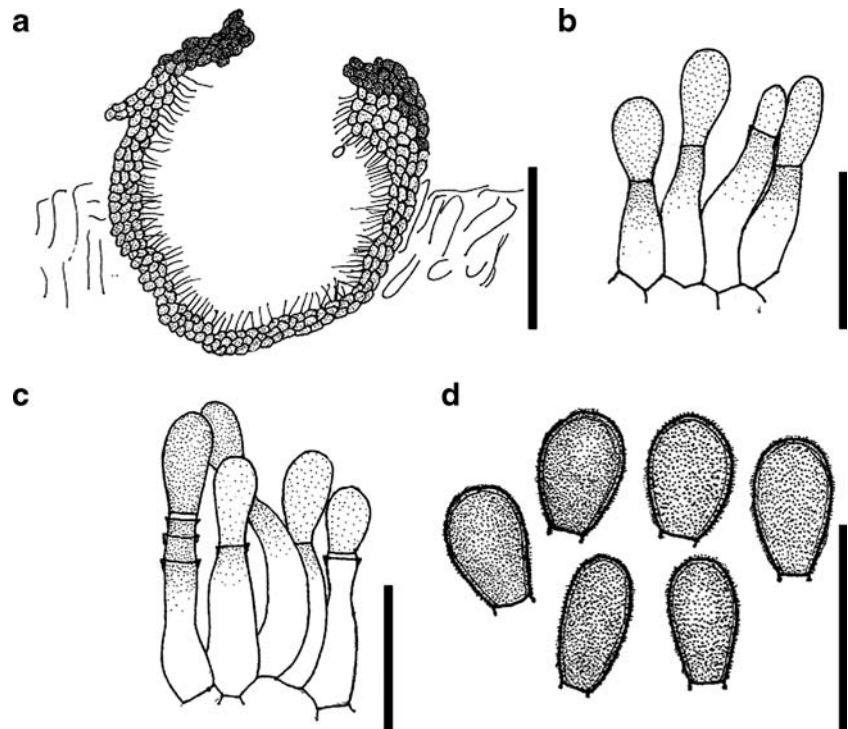
Lichenicolous. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, immersed to semi-immersed, or erumpent at maturity, separate, occasionally gregarious, globose, unilocular, dark brown to black. *Conidiomata* wall thick-walled, composed of thick-walled, medium brown cells of textura angularis, often darker in the upper region. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, annellidic or phialidic, indeterminate, discrete, cylindrical to subcylindrical, hyaline or poorly pigmented, smooth. *Conidia* obovate, obpyriform, ellipsoid to subsphaerical, aseptate, apex obtuse, base truncate, often with a frill, pale brown to dark brown, thick-walled, verruculose, eguttulate (Hawksworth 1977; Sutton 1980; Diederich 2003; Cole and Hawksworth 2004; Lawrey et al. 2011).

Type species: Lichenoconium lichenicola (P. Karst.) Petr. & Syd. [as ‘lichenicolum’], Beih. Reprum nov. Spec. Regni veg. 42(1): 432 (1927) [1926]; Fig. 135

≡ *Dactylium dendroides* subsp. *lichenicola* P. Karst., Meddn Soc. Fauna Flora fenn. 14: 107 (1888)

Notes: In their taxonomic studies, Keissler (1910) and Vouaux (1914) treated ‘lichenicolous fungi forming single-celled dark brown conidia in irregularly opening pycnidia as *Coniothyrium*’ (Hawksworth 1977). However, Petrak and Sydow (1927) introduced *Lichenoconium* based on *L. lichenicola* as the type species. Hawksworth (1977) revised the genus and accepted 10 species.

Fig. 135 *Lichenocodium lichenicola* **a** Vertical section of conidioma. **b, c** Different stages of conidiogenesis. **d** conidia. Scale bars: **a** = 100 μ m, **b–d** = 10 μ m (re-drawn from Sutton 1980)



Based on nuLSU and mtSSU sequence data, Lawrey et al. (2011) showed *Lichenocodium* clusters as a distinct group in class *Dothideomycetes*. Hyde et al. (2013) also accepted the findings in Lawrey et al. (2011) and introduced *Lichenocodiaceae* Diederich & Lawrey and *Lichenocodiales*

Diederich et al., to place *Lichenocodium* in *Dothideomycetes*. Wijayawardene et al. (2014c) showed that *Abrothallales* Sergio Pérez-Ortega & Ave Suija (Pérez-Ortega et al. 2013) has close relationship with *Lichenocodiales* in their molecular data analyses. Ertz and Diederich (2015) also agreed with findings in

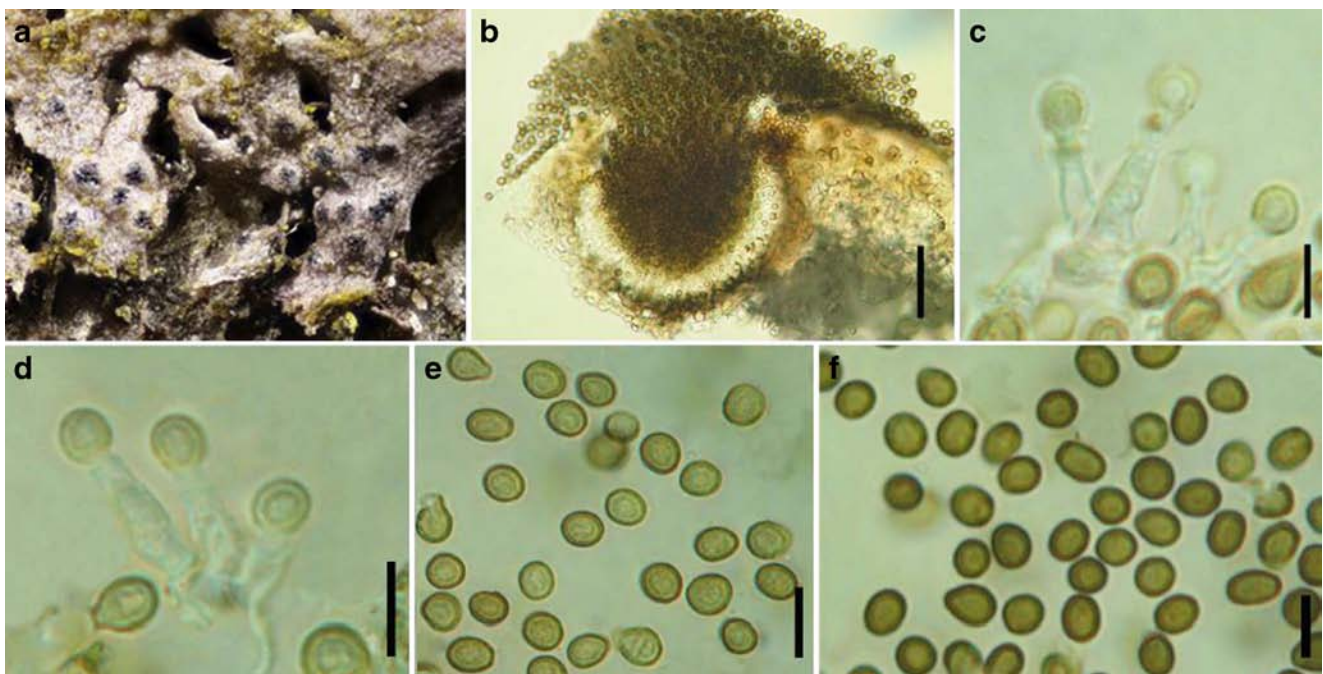


Fig. 136 *Lichenocodium* spp. (Material examined: a- France, on thallus of *Physcia tenella*, 2013, P. Diederich 17721, herb. Diederich; b- Luxembourg, on thallus of *Cladonia pocillum*, 2009, P. Diederich 16825, herb. Diederich; c-f- France, on thallus of *C. pocillum*, 2001, P.

Diederich 15359, herb. Diederich). **a** *Lichenocodium lichenicola* on thallus of *Physcia tenella*. **b** Vertical section of conidioma of *Lichenocodium usneae*. **c–f** Conidiogenesis and conidia of *Lichenocodium aeruginosum*. Scale bars: **b** = 10 μ m, **c–f** = 5 μ m

Wijayawardene et al. (2014c) and stated that *Abrothallales* and *Lichenoconiales* probably represent a single order. In our phylogenetic analyses, both genera grouped as one clade with high bootstrap values agreeing with both Wijayawardene et al. (2014c) and Ertz and Diederich (2015). We provisionally keep both orders as distinct, pending further studies.

Key to distinguish dematiaceous lichenicolous coelomycetous genera

1. Conidia mainly aseptate2
1. Conidia with 1 to several septa10
2. Conidia single or indistinctly catenate3
2. Conidia catenate9
3. Conidia bluish green, subglobose, ellipsoid or irregular in shape; conidiomata sporodochia-like, often with a thin wall*Caeruleoconidia*
3. Conidia pale to dark brown4
4. Conidia dark brown, basally not truncate, variable in shape; conidiogenous cells indistinct*Coniambigua*
4. Conidia pale to medium brown, basally truncate or not5
5. Conidial wall verruculose (strong magnification), rarely echinulate; conidia obovate, obpyriform, ellipsoid to subspherical, often with a basal frill, thick-walled*Lichenonium*
5. Conidial wall smooth6
6. Conidia basally rounded; conidiogenous cells enteroblastic*Acaroconium/Microsphaeropsis**
6. Conidia basally truncate; conidiogenous cells holoblastic7
7. Conidiomata pycnidial, opening not distinctly enlarged at maturity*Lichenodiplis*
7. Conidiomata pycnidial when young, when mature with a large, often irregular opening8
8. Conidiomatal wall hyaline to pale brown, convoluted; dark brown agglomerations of conidia often spreading around conidioma on host thallus*Laeviomycetes*
8. Conidiomatal wall dark brown, not convoluted; conidia not visibly spreading as dark brown agglomerations on host thallus*Minutoexcipula*
9. Conidia arthric, cylindrical or elongate cuneiform, greenish brown, produced in simple unbranched basipetal chains, verruculose to verrucose*Vouauxiella*
9. Conidia catenate at first, accumulating in a cirrus, irregular, dark olivaceous or black, individual conidia mainly simple, verrucose*Nigropuncta*
10. Conidia digitate, arising singly, irregularly branched, branches not arranged in a single plane, dry, acrogenous, grey, thin, smooth-walled, stem with 0–2 septa, arms simple or rarely with 1 septum, constricted at the base*Carnegieispora*
10. Conidia not branched, brown11

11. Conidiogenous cells ampulliform; conidia 1–3-septate*Lichenohendersonia/Phaeoseptoria***
11. Conidiogenous cells more or less cylindrical; conidia 1-septate12
12. Conidiomata pycnidial, opening not distinctly enlarged at maturity*Lichenodiplis*
12. Conidiomata sporodochia-like*Minutoexcipula*

* In morphology, *Acaroconium* resembles *Microsphaeropsis* (Sutton 1980; Etayo and Sancho 2008; Kocourková and Hawksworth 2008; Etayo and Yazici 2009). Sequences of lichenicolous *Microsphaeropsis* species (i.e. *M. caloplacia* Etayo & Yazici, *M. lichenicola* Etayo and *M. physciae* Brackel) are not available thus the phylogenetic placement is uncertain. It is important to re-examine holotype specimens of these species and compare them to *Acaroconium*, where they might be better placed rather than maintaining them under *Microsphaeropsis*. Moreover, a phylogenetic assessment will be helpful to clarify the taxonomic placement of these taxa, as *Microsphaeropsis sensu stricto* belongs in *Didymellaceae* (de Gruyter et al. 2009; Wijayawardene et al. 2014d).

** Following the original descriptions, the lichenicolous *Phaeoseptoria peltigerae* and the genus *Lichenohendersonia* are morphologically very similar and can hardly be distinguished at generic level.

Lichenodiplis Dyko & D. Hawksw., *Lichenologist* 11(1): 51 (1979)

= *Laeviomycetes* D. Hawksw., *Bull. Br. Mus. nat. Hist. (Bot.)* 9: 26 (1981)

Facesoffungi number: FoF 01515; Fig. 137

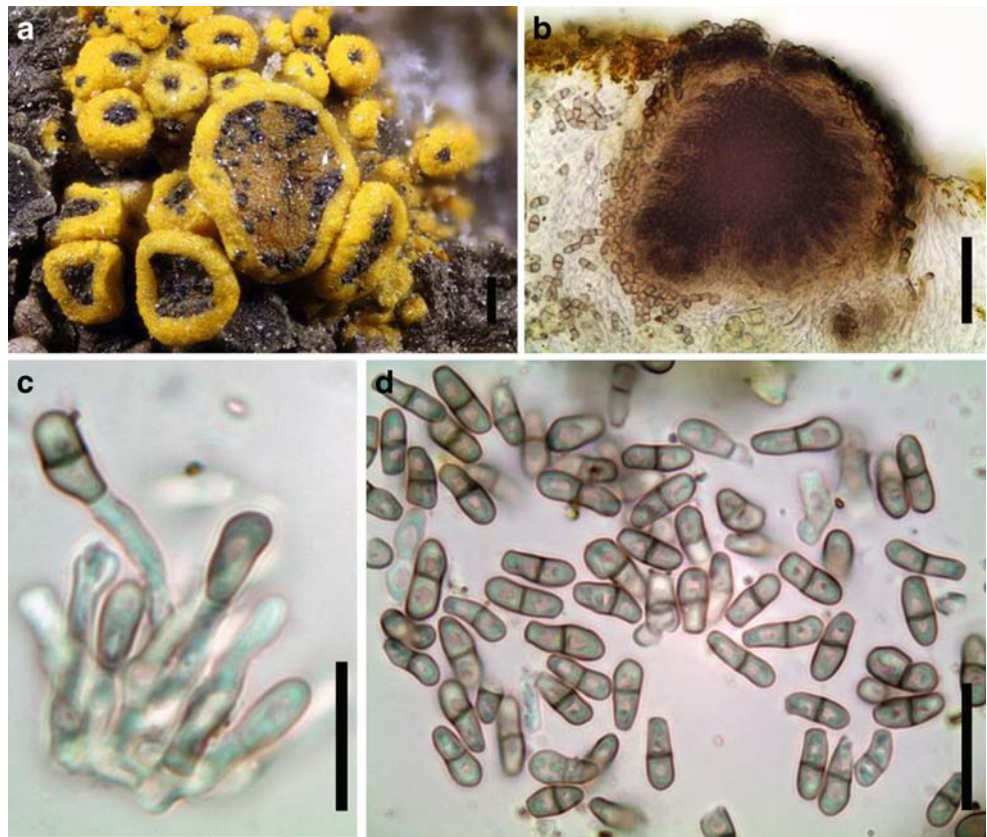
Eurotiomycetes, *Chaetothyriomycetidae*, *Chaetothyriales*, genera *incertae sedis*

Lichenicolous. **Sexual morph:** muellerella-like fide Muggia et al. (2015). **Asexual morph:** *Conidiomata* pycnidial, arising singly, scattered, immersed, becoming erumpent, sometimes cupulate, unilocular, globose, dark brown. *Conidiomata* wall composed of thick-walled, brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous* cells holoblastic, lageniform to cylindrical, lining the whole of the pycnidial cavity, percurrently proliferating with up to 4 annellations, hyaline to pale brown, discrete, smooth-walled. *Conidia* subcylindrical to cylindrical, ellipsoid or more rarely irregular in shape, apex obtuse, base truncate, 0–1-septate, medium reddish to pale brown, not distinctly guttulate, smooth-walled, sometimes with a marginal frill persisting (Hawksworth and Dyko 1979; Diederich 2003; Atienza et al. 2009; Knudsen and Kocourkova 2009; Pérez-Vargas et al. 2013).

Type species: *Lichenodiplis lecanorae* (Vouaux) Dyko & D. Hawksw., *Lichenologist* 11(1): 52 (1979); Fig. 137

≡ *Diplodina lecanorae* Vouaux, *Bull. Soc. bot. Fr.* 58(Mém. 22): 69 (1911)

Fig. 137 *Lichenodiplis lecanorae* (Material examined: Norway, Varanger Peninsula, on *Caloplaca vitellinula*, 1966, L. Tibell 2808, herb. Diederich). **a** Conidiomata on apothecia of *C. vitellinula*. **b** Vertical section of conidioma. **c** Different stages of conidiogenesis. **d** Conidia. Scale bars: **a** = 4 mm, **b** = 50 μ m, **c**, **d** = 10 μ m



Notes: Hawksworth and Dyko (1979) introduced *Lichenodiplis* with *L. lecanorae* as the type species. Currently *Lichenodiplis* comprises 11 species (Lawrey and Diederich 2015), with important contributions by Berger and Diederich (1996), Diederich (2003), Atienza et al. (2009), Knudsen and Kocourkova (2009) and Pérez-Vargas et al. (2013).

Muggia et al. (2015) showed that *Lichenodiplis* clusters in *Chaetothyriales* and has muellerella-like sexual morphs.

Lichenohendersonia Calat. & Etayo, Can. J. Bot. 79(2): 225 (2001)

Facesoffungi number: (FoF 01516; Fig. 138)

Ascomycota, genera *incertae sedis*

Lichenicolous. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, immersed, unilocular, globose or subglobose, black, ostiolate. *Conidiomata* wall composed of thin-walled, pale or medium brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous* cells holoblastic, ampulliform, hyaline, occasionally pale brown towards the base, smooth. *Conidia* solitary, ellipsoidal, or oblong, brown, 1–3-septate, dry, usually filling the conidiomatal cavity (description modified from Calatayud and Etayo 2001).

Type species: Lichenohendersonia squamarinae Calat. & Etayo, Can. J. Bot. 79(2): 225 (2001)

Notes: Calatayud and Etayo (2001) introduced *Lichenohendersonia* with *L. squamarinae* as the type species,

and two additional species, *L. uniseptata* Etayo & Calat. and *L. varians* Calat. & Etayo. The conidial morphology of *Lichenohendersonia* is distinct as most other lichenicolous genera show 0–1-septate conidia. A taxonomic key to differentiate dematiaceous lichenicolous coelomycetous genera is provided under *Lichenoconium*.

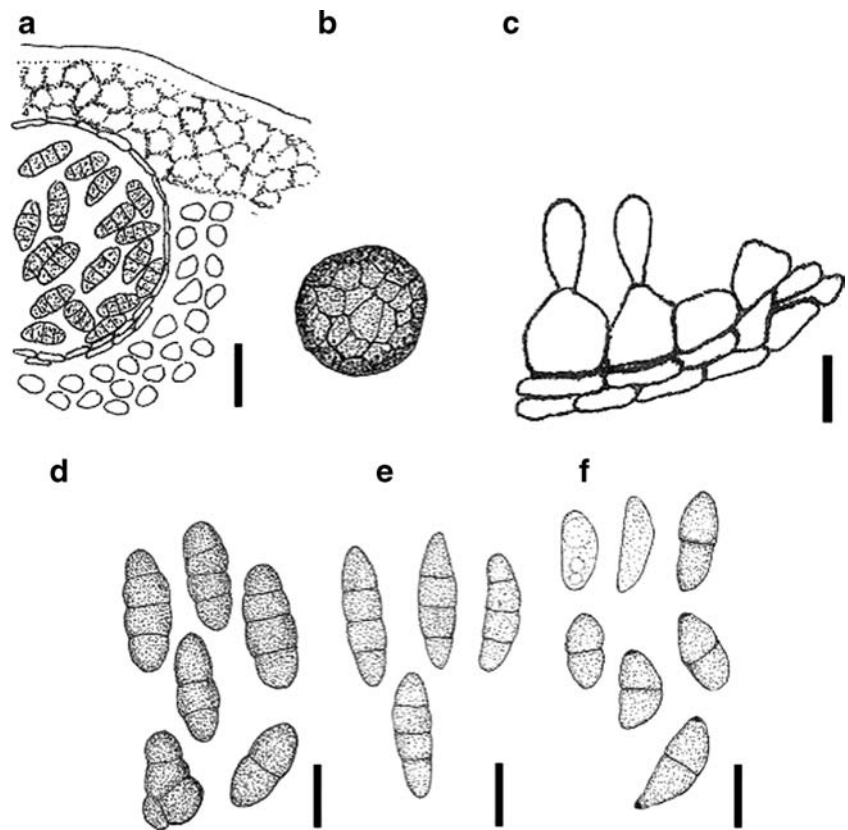
Linochorella Syd. & P. Syd., Anns mycol. 10(1): 43 (1912)

Facesoffungi number: FoF 01517; Fig. 139

Ascomycota, genera *incertae sedis*

Foliicolous or **saprobic** or **endophytic** on leaves of *Poaceae* (Monocotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, solitary or gregarious, immersed, multi-locular, globose, brown, ostiolate. *Ostiole* central or oblique, circular to oval, apapillate. *Conidiomata* upper wall and wall near the ostiole composed of thin-walled, dark cells of *textura angularis*, thin-walled, pale brown to brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, ampulliform, hyaline, thin and smooth-walled. *Macroconidia* fusiform, with acute apex and truncate base, subhyaline to pale brown, septate, slightly constricted at the septa, smooth-walled, bearing mucoid, cap-like, apical appendage. *Microconidia* subglobose to ellipsoid, with blunt to rounded apex and truncate base, aseptate, hyaline, thin and smooth-walled (Nag Raj and DiCosmo 1981b; Nag Raj 1993).

Fig. 138 *Lichenohendersonia* spp. **a–d** *Lichenohendersonia varians*: **a** Vertical section of conidioma. **b** Surface view of conidioma. **c** Different stages of conidiogenesis. **d** Conidia. **e** Conidia of *L. squamarinae*. **f** Conidia of *L. uniseptata*. Scale bars: **a, b, d–f** = 10 μ m, **c** = 5 μ m (re-drawn from Calatayud and Etayo 2001)



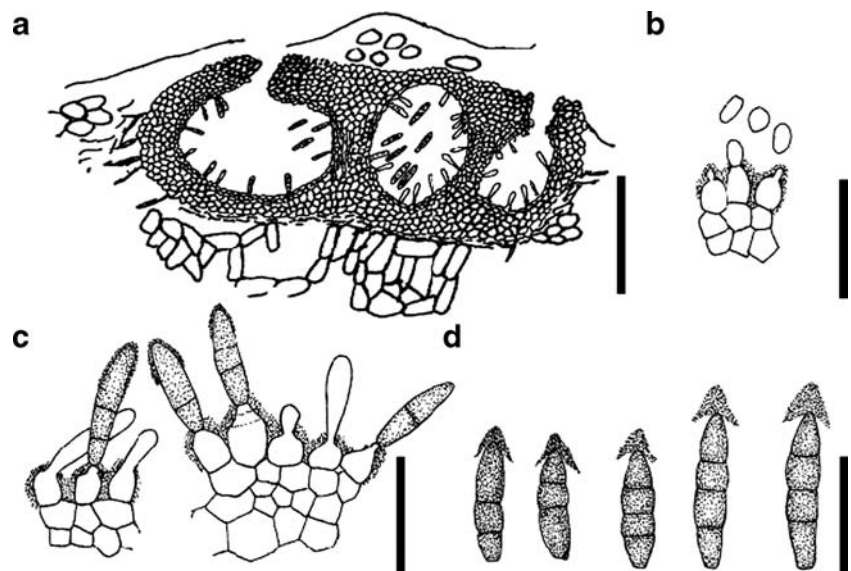
Type species: Linochorella striiformis Syd. & P. Syd., *Annl. mycol.* 10(1): 43 (1912); Fig. 139

Notes: Sydow and Sydow (1912) introduced *Linochorella* with *L. striiformis* as the type species. Höhnelt (1912) and Sutton (1977, 1980) reduced *Linochorella* under *Septoriella* however, Nag Raj and DiCosmo (1981b) and Nag Raj (1993) recognized *Linochorella* as a distinct genus. Nag Raj (1993) also

mentioned that both genera have distinct modes of appendage development and because of the presence of microconidia in *Linochorella* he preferred to maintain two genera.

We agree with Nag Raj (1993) and it is wise to continue using both names, until the taxonomic placement of *Linochorella* has been confirmed based on sequence data analyses.

Fig. 139 *Linochorella striiformis*. **a** Vertical section of conidiomata. **b** Microconidiogenous cells and microconidia. **c** Different stages of macroconidiogenesis. **d** Macroconidia. Scale bars: **a** = 100 μ m, **b–d** = 20 μ m (re-drawn from Nag Raj and DiCosmo 1981b)



Macrodiplodiopsis Petr., Annl. mycol. 20(5/6): 343 (1922)
 = *Macrodiplis* Clem. & Shear, Gen. fung., Edn 2
 (Minneapolis): 366 (1931)
Facesoffungi number: FoF 01518; Fig. 140

Dothideomycetes, Pleosporomycetidae, Pleosporales,
Massarineae, Macrodiplodiopsidaceae
Saprobic on decorticated branches, bark of *Platanaceae*
 (Dicotyledons). **Sexual morph:** see Crous et al. (2015a).

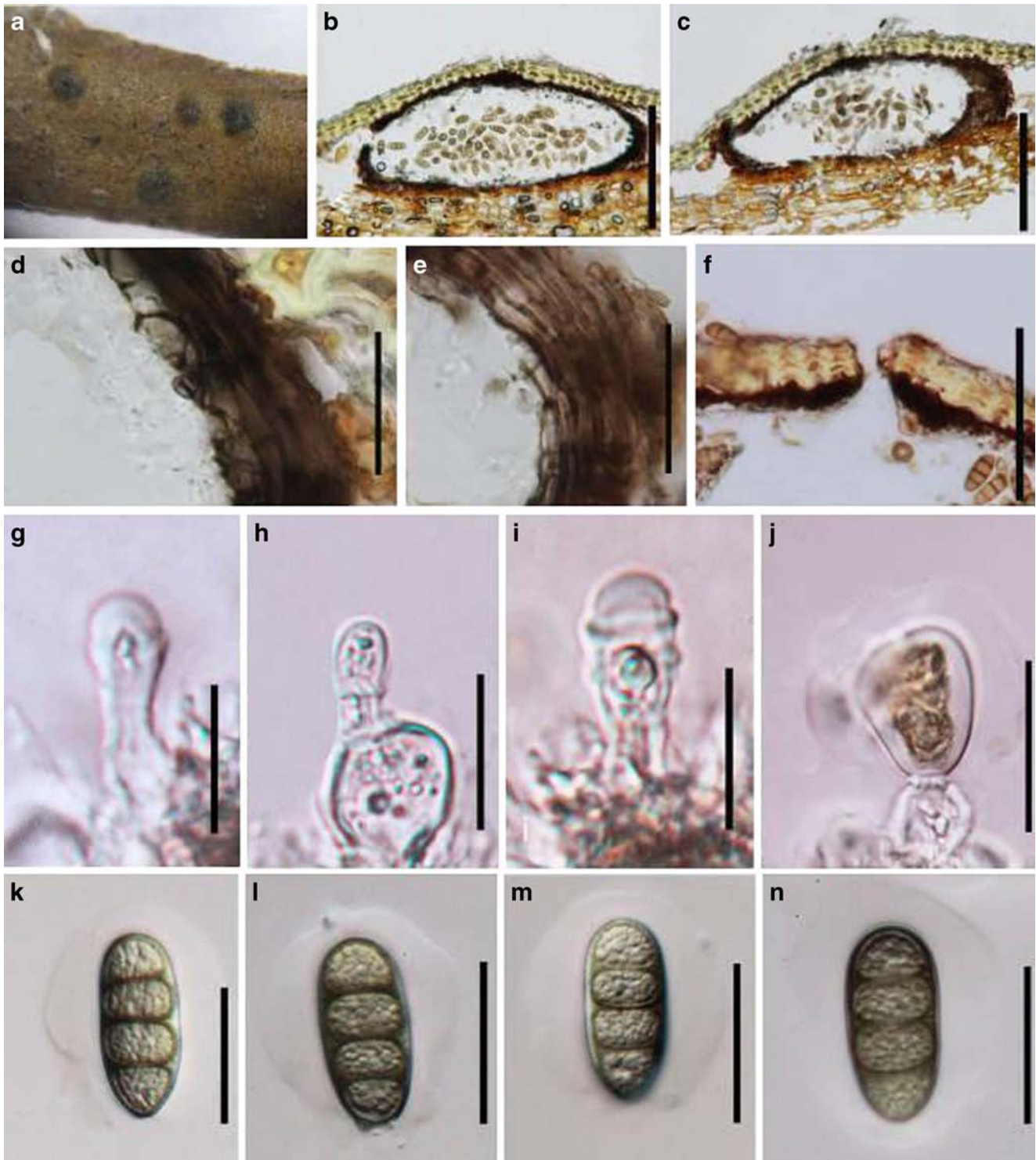


Fig. 140 *Macrodiplodiopsis desmazieri* (Material examined: Italy, Forlì-Cesena Province, Modigliana, Montebello (Ibola Valley), on branches of *Platanus acerifolia*, 15 April 2013, E. Camporesi, MFLU 13–0090). **a** Conidiomata on the host. **b, c** Vertical sections of conidiomata. **d, e**

Conidiomata walls. **f** Short neck of the conidioma. **g, j** Different stages of conidium development. **k–n** Conidia. Scale bars: **b, c** = 200 μm , **d, e** = 40 μm , **f** = 100 μm , **g, h, j** = 15 μm , **i, k–n** = 30 μm

Asexual morph: *Conidiomata* pycnidial, solitary or gregarious, immersed, globose to collabent, dark brown to black, unilocular, ostiolate. *Ostirole* papillate, single, circular. *Conidiomata* wall multi-layered, outer layer thick, composed of dark brown-walled cells of *textura porrecta*, except at the base where they are *textura angularis*, inner layer thin, hyaline. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous* cells annellidic, simple, discrete, indeterminate, cylindrical, hyaline, smooth, formed from the inner cells of the pycnidial wall. *Conidia* ellipsoid to obovoid, or clavate, with truncate base and with an abscission scar, with obtuse apex, 3-distoseptate, occasionally with a longitudinal septum in the middle cell, pale brown, with lumina very much reduced and often surrounded by dark brown wall deposits, continuous, thick-walled, surrounded by a large gelatinous sheath (Sutton 1980; Wijayawardene et al. 2014c; Crous et al. 2015a).

Type species: Macrodiplodiopsis desmazieri (Mont.) Petr., *Annl. mycol.* 20(5/6): 343 (1922); Fig. 140

Notes: Petrak (1922) introduced *Macrodiplodiopsis* with *M. desmazieri*. It is an appendage bearing coelomycetous genus (Sutton 1980; Wijayawardene et al. 2014b). However, Nag Raj (1993) did not mention the gelatinous sheath. Shear and Davidson (1936) mentioned that *M. desmazieri* (Mont.) Petr. (as *Hendersonia desmazieri* Mont.), the type species of *Macrodiplodiopsis*, is the asexual state of *Massaria platani* Ces. (current name *Splanchnonema platani* (Ces.) M. E. Barr), but Glawe (1985) rejected this link. Crous et al. (2015a) showed that *Macrodiplodiopsis* clusters as a distinct clade in *Massarineae*, *Pleosporales*, and thus introduced *Macrodiplodiopsidaceae* Voglmayr et al. This finding was accepted by Thambugala et al. (2015) and in our phylogenetic analyses (Figs. 9 and 14).

Macrohilum H.J. Swart, *Trans. Br. mycol. Soc.* 90(2): 288 (1988)

Facesoffungi number: FoF 01519; Fig. 141

Sordariomycetes, *Sordariomycetidae*, *Diaporthales*, *Macrohilaceae*

Endophytic or *saprobic* on leaves of *Myrtaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, solitary, immersed, globose to irregular, unilocular to convoluted, ostiolate. *Conidiomata* wall composed of pale brown-walled cells of *textura globulosa*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, percurrent proliferation with annellations. *Conidia* apex rounded, base flattened, with protruding hilum, 1-septate, slightly constricted at septum, greenish brown to dark brown (Swart 1988; Crous et al. 2006b, 2015a).

Type species: Macrohilum eucalypti H.J. Swart, *Trans. Br. mycol. Soc.* 90(2): 288 (1988); Fig. 141

Notes: Swart (1988) introduced *Macrohilum* with *M. eucalypti* as the type species. In conidial morphology,

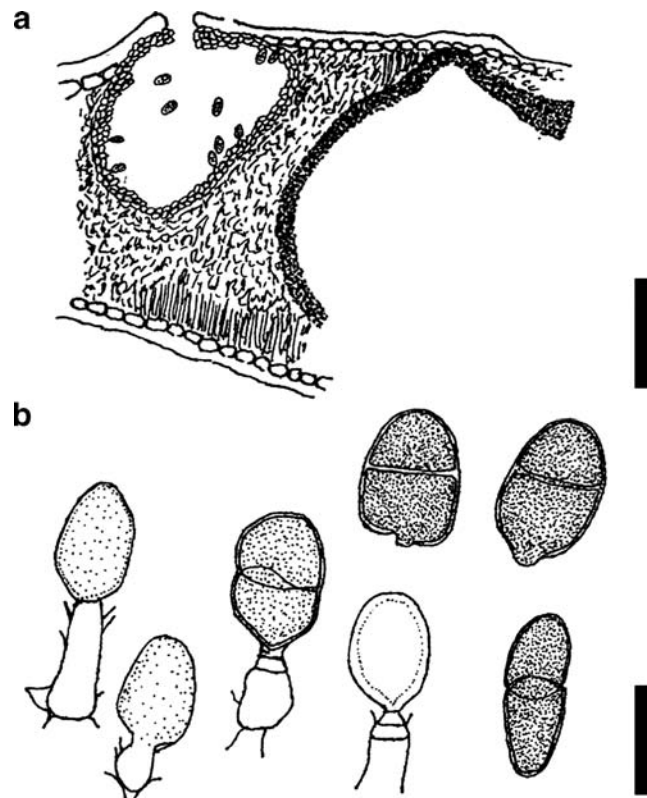


Fig. 141 *Macrohilum eucalypti*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis and conidia. Scale bars: **a** = 100 μ m, **b** = 10 μ m (re-drawn from Swart 1988)

Macrohilum resembles coniothyrium-like taxa, but is distinct as it has a protruding hilum. Crous et al. (2006b, 2015a) re-described *Macrohilum eucalypti* and concluded it belongs to *Diaporthales* based on LSU and ITS sequence data. Moreover, Crous et al. (2015a) introduced *Macrohilaceae* to accommodate *Macrohilum* as it clustered in a distinct clade in *Diaporthales*. Our phylogenetic analyses (Fig. 12) also agree with the findings in Crous et al. (2015a).

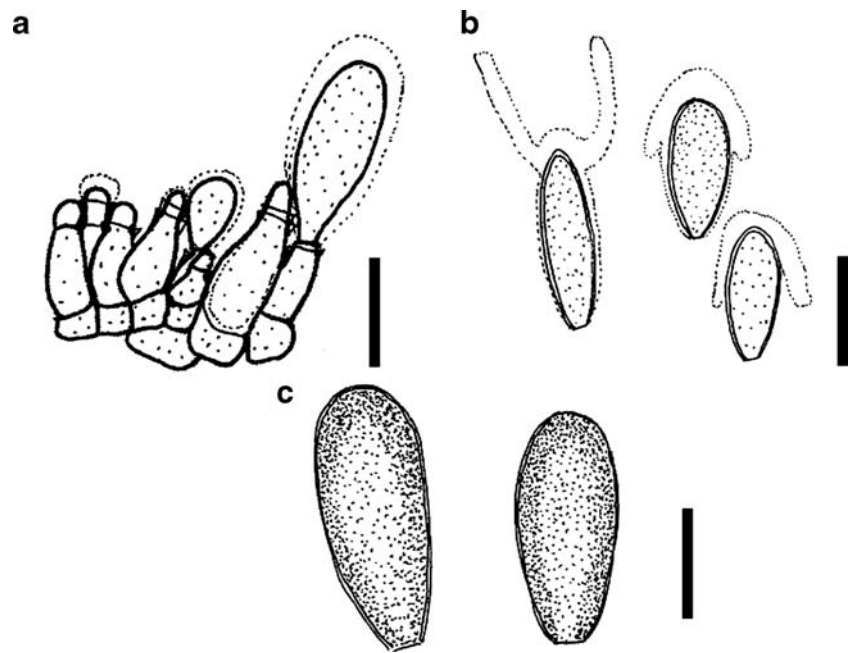
Macrophomina Petr., *Annl. mycol.* 21(3/4): 314 (1923)

Facesoffungi number: FoF 01520; Fig. 142

Dothideomycetes, order *incertae sedis*, *Botryosphaeriales*, *Botryosphaeriaceae*

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, stromatic, solitary, immersed, unilocular, globose, dark brown, ostiolate. *Ostirole* central, circular, papillate. *Conidiomata* wall thick-walled, outer wall composed of thick-walled, dark brown cells of *textura angularis*; inner layer composed of hyaline-walled cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, lageniform to doliiform, determinate, discrete, hyaline, smooth. *Conidia* ellipsoid to obovoid or cylindrical to fusiform, obtuse at each end, straight, immature conidia hyaline, thin and smooth-walled, guttulate, enclosed in a

Fig. 142 *Macrophomina phaseolina*. **a** Different stages of conidiogenesis. **b** Immature conidia with apical mucoid appendages. **c** Mature conidia. Scale bars: **a–c** = 10 μ m (re-drawn from Crous et al. 2006a)



mucous sheath, that upon dehiscence encloses the top half of the conidium, transformed into two lateral tentaculiform, apical mucoid appendages; mature conidia becoming medium to dark brown, aseptate, without any mucoid appendages (Crous et al. 2006a; Phillips et al. 2013).

Type species: Macrophomina phaseolina (Tassi) Goid., *Annali Sper. agr. N.S.* 1: 457. 1947; Fig. 142

Notes: Petrak (1923b) introduced *Macrophomina* with *M. philippinensis* as the type species. von Arx (1981) introduced *Tiarosporella phaseolina* (Tassi) van der Aa for the same taxon and reduced *Macrophomina* under *Tiarosporella*. The genus *Tiarosporella* [type species: *T. paludosa* (Sacc. & Fiori ex P. Syd.) Höhn.] has smooth, hyaline conidiogenous cells, which lack periclinal thickenings and percurrent proliferations and has hyaline, b cylindrical to fusiform conidia that have irregular apical mucoid appendages (Crous et al. 2006a, b). Hence, Crous et al. (2006a) resurrected the genus *Macrophomina* and treated *Macrophomina phaseolina* as the type species. Phillips et al. (2013) also accepted this.

Immature stage of *Macrophomina* also shows similar conidial characters to *Tiarosporella* but become medium to dark brown at maturity (Crous et al. 2006a; Phillips et al. 2013). Moreover, phylogenetic analyses show *Tiarosporella* has distinct phylogenetic lineage from *Macrophomina* in *Botryosphaeriaceae* (Phillips et al. 2013; Crous et al. 2015a; Fig. 10).

Premamalini et al. (2012) reported *Macrophomina phaseolina* as a human pathogen.

Magnicamarosporium Kaz. Tanaka & K. Hiray., *Studies Mycol.* 82: 119 (2015)

Facesoffungi number: FoF 01684; Fig. 143

Dothideomycetes, Pleosporomycetidae, Pleosporales, Massarineae, Sulcatisporaceae

Saprobic or *endophytic* on different substrates of *Rubiaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, scattered, immersed, depressed globose, ostiolate. *Ostiole* with a short neck, central, papillate. *Paraphyses* filamentous, unbranched or rarely branched, associated with gelatinous material. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous* cells holoblastic, cylindrical to doliiform, discrete, smooth. *Conidia* subglobose to obovoid, sometimes obpyriform, obtuse apex, muriform, with several transverse, longitudinal and oblique septa, continuous, dark brown, thick and smooth-walled (Tanaka et al. 2015).

Type species: Magnicamarosporium iriomotense Kaz. Tanaka & K. Hiray., *Studies Mycol.* 82: 119 (2015); Fig. 143

Notes: Tanaka et al. (2015) introduced *Magnicamarosporium* with *M. iriomotense* as the type species. *Magnicamarosporium* resembles *Amarenographium*, *Camarosporium* and *Camarographium*. However, *Amarenographium* has gelatinous cap-like appendage and both

Camarosporium and *Camarographium* lack paraphyses.

In phylogenetic analyses, Tanaka et al. (2015) showed *Magnicamarosporium iriomotense* grouped in *Sulcatisporaceae*, *Massarineae* and this placement is confirmed by our phylogenetic analyses (Fig. 15).

Massariothea Syd., *Annl. mycol.* 37(3): 249 (1939)

Facesoffungi number: FoF 01521; Fig. 144

Ascomycota, genera incertae sedis

Saprobic or *endophytic* on different substrates of a range of host plants or *weak pathogen*. **Sexual morph:** Undetermined.

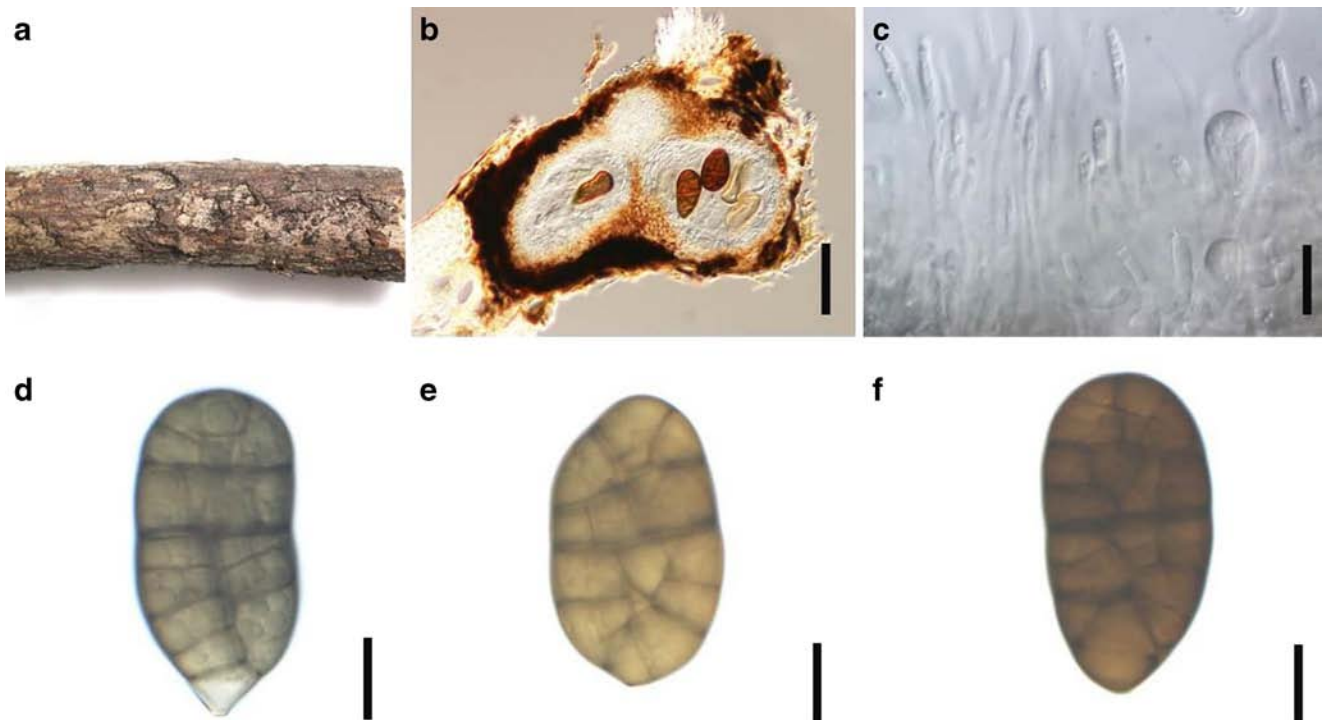


Fig. 143 *Magnicamarosporium iriomotense* (Material examined: Japan, Okinawa, Isl. Iriomote, Tropical botanic garden, on dead twigs of *Diplospora dubia*, 13 July 2011, K. Tanaka and K. Hirayama, KT

2822, holotype). **a** Host material. **b** Vertical section of conidioma. **c** Paraphyses and conidiogenesis. **d–f** Conidia. Scale bars: **b** = 50 μ m, **c–f** = 10 μ m

Asexual morph: *Conidiomata* stromatic, solitary or gregarious, globose to rostrate, immersed or superficial, unilocular or multi-locular, dark brown to black, ostiolate. *Ostiole* papillate

or not, central, circular. *Conidiomata* wall wide, outer wall composed of thick-walled, dark brown cells of *textura angularis* to *textura intricata*, inner wall thin-walled, pale brown to hyaline cells of *textura angularis*. *Paraphyses* branched, septate, hyaline, filiform. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, doliiiform to lageniform, determinate, discrete, hyaline, smooth. *Conidia* cylindrical, both ends with a thickened periclinal wall, straight or curved, base truncate, apex obtuse, with markedly reduced lumina, 3–7-distoseptate, continuous, brown, smooth-walled (Sutton 1980; Sutton and Alcorn 1985; Alcorn 1993).

Type species: Massariothea themedae Syd., Annlis mycol. 37(3): 249 (1939); Fig. 144

Notes: Sydow (1939) introduced *Massariothea* with *M. themedae* as the type species. Sutton (1980) accepted four species viz. *M. botulispora* (Teng) B. Sutton, *M. paspal* (Ellis & Everh.) B. Sutton, *M. shawiae* (B. Sutton) B. Sutton and *M. themedae*. Subsequently, *M. attenuata* B. Sutton & Alcorn (Sutton and Alcorn 1985), *M. scotica* B. Sutton & Rizwi (Sutton and Rizwi 1980), *M. similis* Alcorn and *M. triseptata* Alcorn (Alcorn 1993) have been added to the genus, thus eight species are presently accepted. Sequence data is unavailable, thus the taxonomic placement is uncertain.

Melanconiopsis Ellis & Everh., Bull. Torrey bot. Club 27: 575 (1900)

Facesoffungi number: FoF 01524; Fig. 145

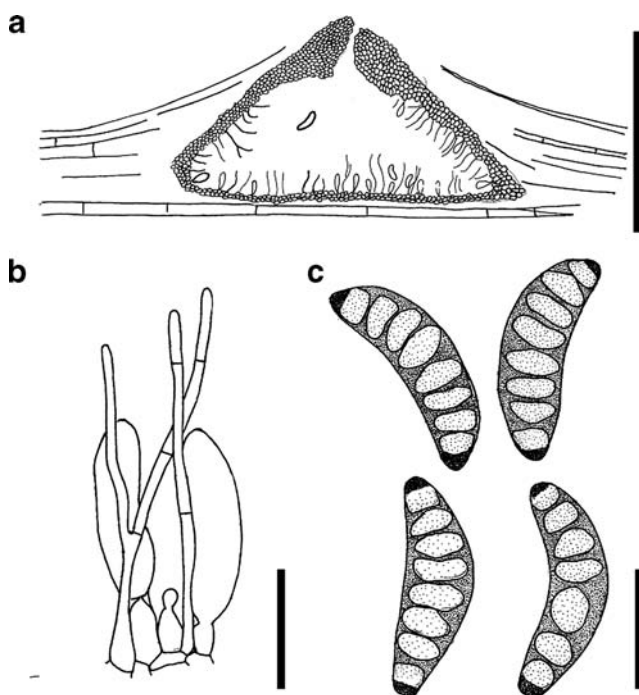
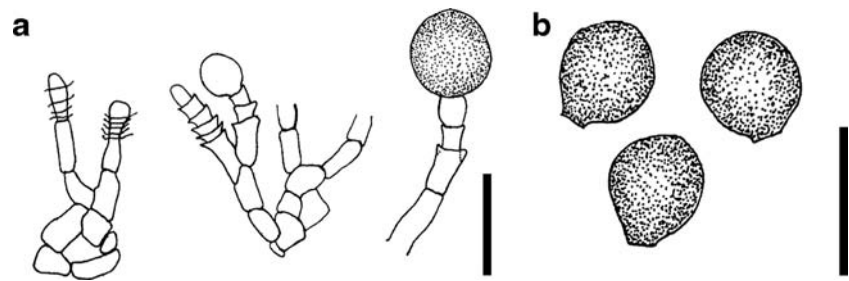


Fig. 144 *Massariothea themedae*. **a** Vertical section of conidioma. **b** Paraphyses and conidiogenesis. **c** Conidia. Scale bars: **a** = 500 μ m, **b**, **c** = 20 μ m (re-drawn from Sutton 1980)

Fig. 145 *Melanconiopsis microspora*. **a** Different stages of conidiogenesis. **b** Conidia. Scale bars: **a, b** = 15 μ m (re-drawn from Suarez et al. 2000)



Sordariomycetes, Sordariomycetidae, Diaporthales, Melanconidaceae

Endophytic or *saprobic* on a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** Conidiomata acervular, peridermal to sub-peridermal, separate, irregular, convoluted. *Conidiomata* wall composed of hyaline to pale brown-walled cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells or when present cylindrical, straight to curved or sinuous, prominently 1–3-septate, simple or sometimes branched at the base, hyaline. *Conidiogenous cells* holoblastic, annellidic, indeterminate, discrete or integrated, cylindrical, hyaline, smooth. *Conidia* sphaerical, truncate at the base, aseptate, dark brown, often guttulate, thick and smooth-walled (Sutton 1980; Suarez et al. 2000).

Type species: Melanconiopsis inquinans Ellis & Everh., Bull. Torrey bot. Club 27: 575 (1900)

Notes: Ellis and Everhart (1900) introduced *Melanconiopsis* with *M. inquinans* as the type species. Sutton (1980) included taxonomic notes and illustrations of the type species. Currently there are eight epithets listed in Index Fungorum (2016) however, most have been transferred to other genera (Table 6). Thus, beside the type species, only *M. microspora* V.L. Suárez et al. would be treated as *Melanconiopsis sensu stricto* (Suarez et al. 2000).

Sequence data is unavailable in GenBank thus taxonomic placement is uncertain.

Melanconium Link, Mag. Gesell. naturf. Freunde, Berlin 3(1–2): 9 (1809)

Facesoffungi number: FoF 01525: Fig. 146

Sordariomycetes, Sordariomycetidae, Diaporthales, Melanconidaceae

Saprobic on leaves, twigs and stems on a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* acervular or irregular in shape, superficial to subepidermal, solitary to gregarious, convoluted, globose to subglobose, unilocular, apapillate. *Conidiomata* wall outer layer thin, composed of hyaline to pale brown-walled cells of *textura angularis*, inner layer thin, composed of hyaline-walled cells of *textura angularis*. *Conidiophores* long, hyaline to pale brown, smooth. *Conidiogenous cells* holoblastic to annellidic, indeterminate, discrete to integrated, cylindrical, hyaline to pale brown, smooth, formed from the upper pseudoparenchyma. *Conidia* brown to dark brown, often multi-guttulate, globose to ellipsoid, truncate at the base, aseptate, thick-walled, smooth or verrucose (Morgan-Jones 1977; Sutton 1980; Crous et al. 2015d).

Type species: Melanconium atrum Link, Mag. Gesell. naturf. Freunde, Berlin 3(1–2): 9 (1809)

Notes: Link (1809) introduced the genus *Melanconium* with *M. atrum* as the type species. Currently, over 200 epithets are listed in Index Fungorum (2016). Sutton (1964) revised the genus and Sutton (1980) provided taxonomic notes. Sieber et al. (1991) compared *Melanconium apiocarpum*, *M. marginale* and other *Melanconium* spp. from *Alnus* spp. based on morphological, cultural and biochemical methods. Further, Sieber et al. (1991) reported that *M. apiocarpum* can cause diseases on *Alnus* sp. Belisario (1999) also reported that *M. juglandinum*, is a pathogen that cause black pustular dieback of *Juglans* spp. in Europe.

Traditionally, *Melanconium* was listed as the asexual morph of *Melanconis* Tul. & C. Tul. (Tulasne and Tulasne 1863; Wehmeyer 1941; Sieber et al. 1991). Sieber et al. (1991) regarded *Melanconium apiocarpum* and *M. marginale* as the asexual morph of *Melanconis alni* and *M. marginalis*, respectively.

Table 6 Re-deposition of species of *Melanconiopsis* (Modified table from Suarez et al. 2000)

Species	Re-deposition	Reference
<i>M. africana</i> Luc	Status uncertain	Sutton 1980
<i>M. ailanthi</i> Höhn.	<i>Cytoplea juglandis</i> (Schumach.) Petr.	Petrak and Sydow 1927
<i>M. elzoi</i> Speg.	? <i>Endomelanconium nanum</i>	Suarez et al. 2000
<i>M. incrustans</i> (Sacc.) Petr.	<i>Cytoplea juglandis</i> (Schumach.) Petr.	Petrak and Sydow 1927
<i>M. megalospora</i> Speer	Status uncertain	Suarez et al. 2000
<i>M. olivacea</i> (G.H. Otth) Petr. & Syd.	<i>Sphaeropsis olivacea</i> G.H. Otth	Suarez et al. 2000
<i>M. ulmigena</i> Höhn.	<i>Cytoplea juglandis</i> (Schumach.) Petr.	Petrak and Sydow 1927

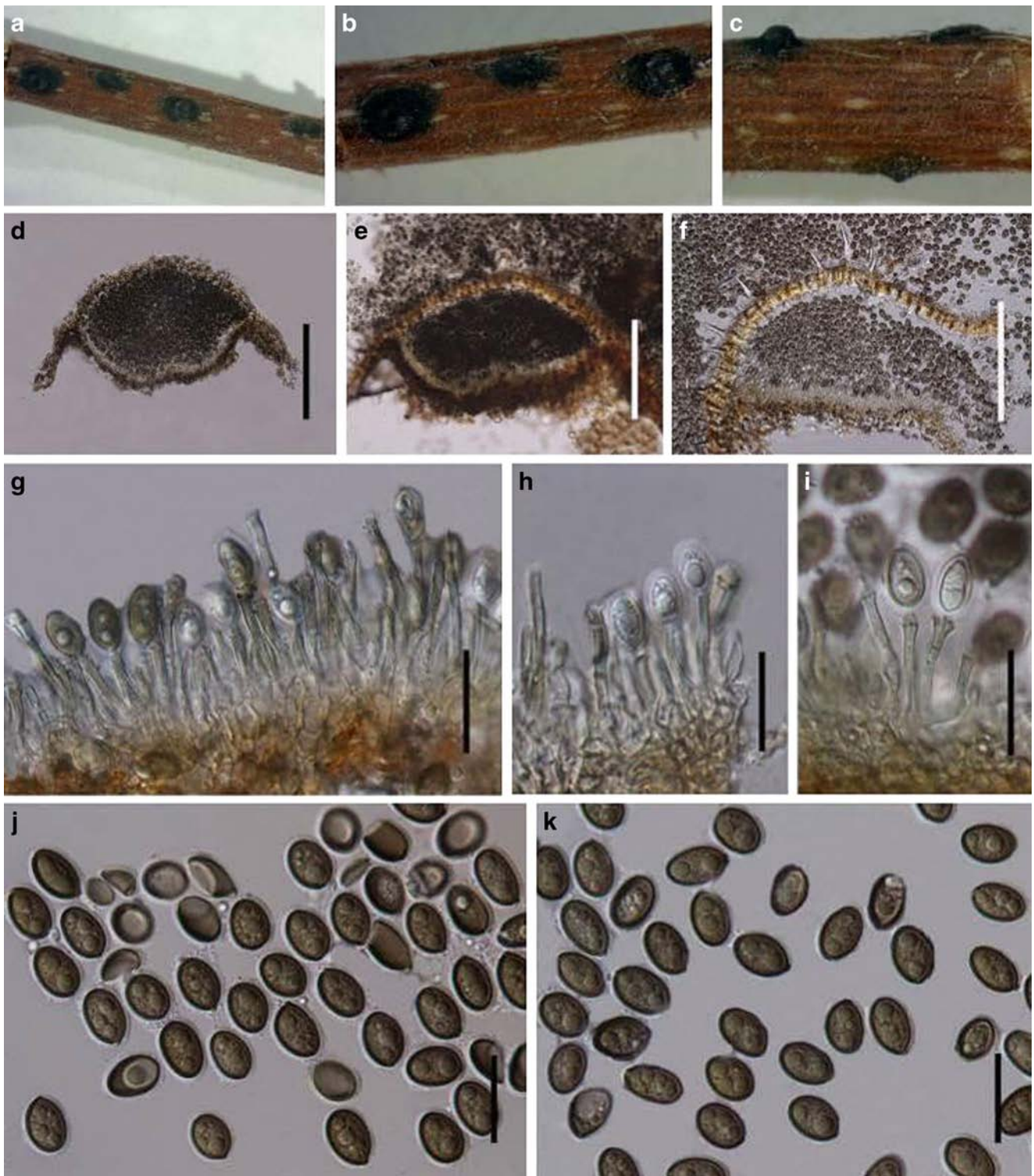


Fig. 146 *Melanconium capinicola* (holotype). **a–c** Conidiomata on host material. **d, e** Vertical sections of conidiomata. **f–j** Different stages of conidiogenesis. **k, l** Conidia. Scale bars: **d–f** = 300 μ m, **f–j** = 30 μ m, **k, l** = 20 μ m

However, Voglmayr and Jaklitsch (2012) reported that *Melanconiella chryso-melanconium* Voglmayr & Jaklitsch and *M. decorahensis* (Ellis) Sacc. show melanconium-like sexual morphs. Voglmayr and Jaklitsch (2012) also reported several *Melanconiella* spp. with discosporina-like asexual morphs.

Voglmayr and Jaklitsch (2012) questioned the reliability of existing species epithets of *Melanconium* as many binomials are based on host association. Further, original materials are not in good condition for examination or unavailable, thus it is essential to carry out generic

revision based on morpho-molecular analyses (Voglmayr and Jaklitsch 2012).

There are several sequences present in GenBank under the name of *Melanconium*. However, sequences of the type species are unavailable thus, and therefore the taxonomic position is uncertain.

Melanconium carpinicola Wijayaw., Camporesi, McKenzie & K.D. Hyde, *sp. nov.*

Index Fungorum number: IF551782; *Facesoffungi number*: FoF 01526; Fig. 146

Etymology: Named after the host genus

Holotype: MFLU 15–1098

Saprobic on stem and branches of *Carpinus betulus*.

Sexual morph: Undetermined. **Asexual morph**: *Conidiomata* 350–700 µm diam., 200–450 µm high, acervular, superficial, solitary, convoluted, dark brown, conidia mass oozing out of the conidiomata, globose to subglobose, unilocular. *Conidiomata wall* outer layer thin, composed of hyaline to pale brown walled cells of *textura angularis*, inner layer thin, hyaline. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* 10–40 × 3–4 µm, long, annellidic, hyaline to pale brown, integrated, determinate, cylindrical, smooth-walled. *Conidia* 12–17 × 9–12 µm, (\bar{x} = 14.6 × 10.1 µm, n=20), globose to ellipsoid, truncate at the base, aseptate, brown to dark brown, guttulate, thick-walled, verrucose.

Material examined: Italy, Forli-Cesena [FC] Province, Forli - Via Risorgimento, on dead branches of *Carpinus betulus* L. (*Betulaceae*), 23 April 2014, Nello Camporesi, IT 1622 (MFLU 15–1098, **holotype**).

Notes: Our collection is morphologically similar to the asexual morph of *Melanconiella decorahensis*. However, *Melanconium deplanatum* (current name in Species Fungorum *Myxofusicoccum deplanatum* (Speg. & Roum.) Died.), *M. ramulorum* (9–10 × 7–8 µm), *M. stromaticum* (22–25 × 20 µm *fide* Corda 1833) and *M. triangulare* Ellis & Everh. (only length was given 5–6 µm *fide* Ellis and Everhart 1886) are also recorded from *Carpinus* spp. (Farr and Rossman 2015). Our collection of melanconium-like taxon is distinct from the conidial morphology of other species recorded on *Carpinus* spp. thus we introduce a new species. Several attempts to culture the fungus were unsuccessful and hence identification is based on morphology and host association.

Melanocamarosporium Wijayaw., Camporesi, D.J. Bhat & K.D. Hyde, *gen. nov.*

Index Fungorum number: IF551780; *Facesoffungi number*: FoF 01522; Fig. 147

Etymology: Named after its morphological similarity to the genus *Camarosporium* and its placement in *Melanommataceae*

Dothideomycetes, Pleosporomycetidae, Pleosporales, family incertae sedis, Melanommataceae

Saprobic on *Galium* sp. (*Rubiaceae*, Dicotyledons). **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* pycnidial, solitary to gregarious, subepidermal, erumpent at maturity, dark brown to black, with a papillate ostiole. *Conidiomata wall* multi-layered, outer layer composed of thick-walled, brown cells of *textura angularis*, inner layer thin, with thick-walled, hyaline cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, with periclinal thickenings, long, discrete, determinate, hyaline to subhyaline, smooth. *Conidia* oblong to ellipsoid, truncate at base, obtuse at apex, straight, muriform, with 2–4 transverse septa and 2–4 longitudinal septa, pale brown to medium brown, continuous, smooth-walled.

Notes: In morphology, our collection from *Galium* sp. resembles *Camarosporium sensu stricto*. However, in phylogenetic analyses, it clusters in *Melanommataceae* (Fig. 9). Currently, there are no *camarosporium*-like taxa reported in *Melanommataceae* (Wijayawardene et al. 2014c; Tian et al. 2015), and therefore we introduce *Melanocamarosporium* to accommodate our new collection.

Type species: ***Melanocamarosporium galiicola*** Wijayaw., Camporesi, D.J. Bhat & K.D. Hyde

Melanocamarosporium galiicola Wijayaw., Camporesi, D.J. Bhat & K.D. Hyde, *sp. nov.*;

Index Fungorum number: IF551781; *Facesoffungi number*: FoF 01523; Fig. 147

Etymology: Named after the host genus

Holotype: MFLU 15–3451

Saprobic on *Galium* sp. (*Rubiaceae*). **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* 350–400 µm diam., 250–340 µm high, pycnidial, solitary to gregarious, subepidermal, erumpent at maturity, dark brown to black, with a papillate ostiole. *Conidiomata wall* multi-layered, with 4–5 outer layers of thick-walled, brown cells of *textura angularis*, with inner most layer thin, 4–5 layers, hyaline. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* 8–12 × 6–8.5 µm, enteroblastic, phialidic, with periclinal thickenings, discrete, determinate, hyaline to subhyaline, smooth. *Conidia* 13–18 × 5–9 µm (\bar{x} = 15.2 × 6.2 µm, n=20), oblong to ellipsoid, truncate at base, obtuse at apex, straight, muriform, with 2–4 transverse septa and 2–4 longitudinal septa, pale brown to medium brown, continuous, smooth-walled.

Culture characteristics: On PDA slow growing, attaining 30 mm diam. in 7 days at 18 °C, with thick mycelium, wavy margin, white from the surface, pale brown from the reverse, becoming cottony in 14 days.

Material examined: Italy, Province of Forli-Cesena [FC], near Monte Fumaiolo - Bagno di Romagna, on dead stem of *Galium* sp. (*Rubiaceae*), 19 May 2013, Erio Camporesi, IT 1274 (MFLU 15–3451, **holotype**); (HKAS92548, **isotype**), ex-type living cultures MFLUCC 13–0545, GUCC 2

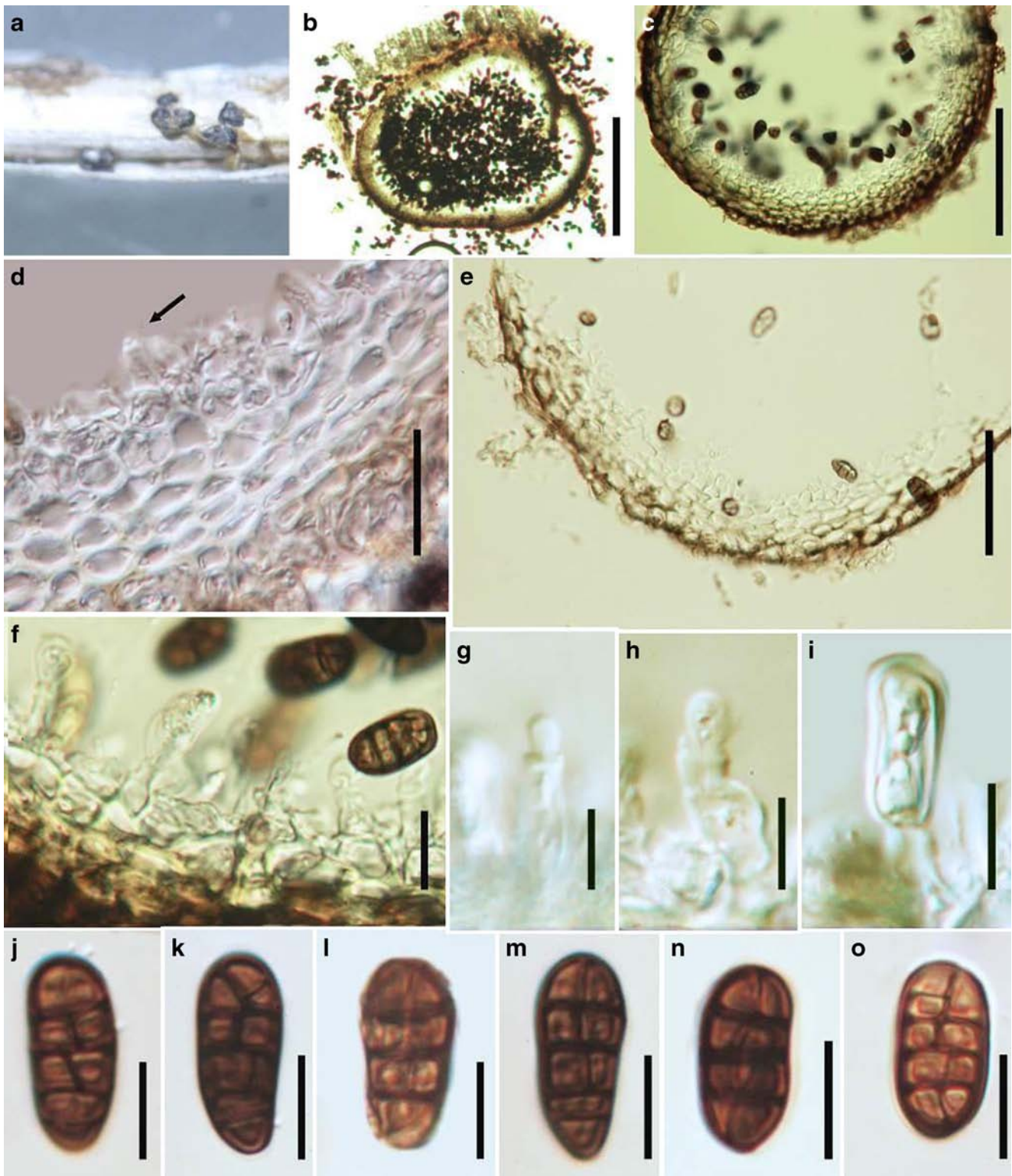


Fig. 147 *Melanocamarosporium galiicola* (holotype). **a** Conidiomata on host. **b** Vertical section of pycnidium. **c**, **e** Conidiomata walls. **d** Inner wall of pycnidium and developing conidium (shown by arrow

head). **f–i** Developing conidia. **j–o** Conidia. Scale bars: **b**, **c** = 150 μm , **d** = 10 μm , **e** = 100 μm , **f–o** = 10 μm

Notes: As far as we know, there are no camarosporium-like taxa reported on *Galium* spp. (Farr and Rossman 2016), hence

our new collection is introduced as new species in *Melanocamarosporium*.

Melanophoma Papendorf & J.W. du Toit, Trans. Br. mycol. Soc. 50(3): 503 (1967)

Facesoffungi number: FoF 01527; Fig. 148

Ascomycota, genera incertae sedis

Endophytic or saprobic on leaf litter of *Fabaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, solitary, immersed to semi-immersed, globose to ampulliform, unilocular, medium brown, papillate ostiole or depressed, single, circular. *Conidiomata* wall composed of thin-walled, pale brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, ampulliform to doliiform, determinate, discrete, hyaline, smooth, channel wide, with collarette. *Conidia* ovoid, broadly elliptical or subglobose, base rounded, apex obtuse, dark smoky brown, aseptate, thick and smooth-walled, with a hyaline, membranous, persistent, episporium (Papendorf 1967a; Sutton 1980).

Type species: Melanophoma karroo Papendorf & J.W. du Toit, Trans. Br. mycol. Soc. 50(3): 503 (1967); Fig. 148

Notes: Papendorf (1967a) introduced *Melanophoma* with *M. karroo* as the type species. Sutton (1977, 1980) and Kirk et al. (2013) accepted *Melanophoma*. Papendorf (1967a) stated the conidial wall to be smooth, but Sutton (1980) found it to be verruculose. The genus remains monotypic and sequence data is unavailable, thus the taxonomic placement is uncertain.

In conidial morphology, *Melanconiopsis*, *Melanconium* and *Melanophoma* share very similar characters such as ovoid or globose to ellipsoid, dark to dark brown, guttulate, thick-walled conidia. Nevertheless, the key below can be used to distinguish them based on morphology.

Key to distinguish *Melanconiopsis*, *Melanconium* and *Melanophoma*

1. *Conidiomata* pycnidial *Melanophoma*
1. *Conidiomata* acervular 2

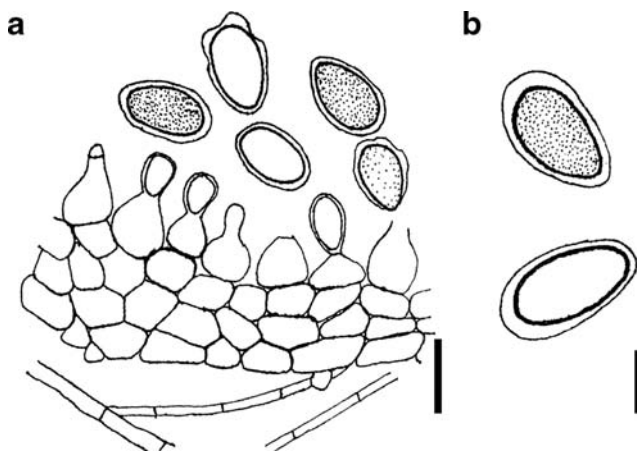


Fig. 148 *Melanophoma karroo*. **a** Different stages of conidiogenesis. **b** Conidia. Scale bars: **a** = 10 μm , **b** = 5 μm (re-drawn from Papendorf 1967a)

2. *Conidia* often with 1 guttule *Melanconiopsis*
2. *Conidia* often multi-guttulate *Melanconium*

Melnikia Wijayaw., Goonas., D.J. Bhat & K.D. Hyde, *gen. nov.*

Index Fungorum number: IF551799; *Facesoffungi* number: FoF 01528; Fig. 149

Etymology: In honour of V.A. Mel'nik, a Russian mycologist, recognizing his invaluable contribution to science

Dothideomycetes, Pleosporomycetidae, Pleosporales, Pleosporineae, Phaeosphaeriaceae

Endophytic or saprobic on *Poaceae* (Monocotyledons).

Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* pycnidial, solitary, scattered, subepidermal to immersed, erumpent at maturity, globose, unilocular, brown. *Ostiole* apapillate, single, circular, central. *Conidiomata* wall composed of two layers, outer layer thick, composed of thin-walled, brown cells of *textura globosa*; inner layer thin, hyaline, almost reduced to conidiogenous region. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, ampulliform to rarely lageniform, discrete, determinate, hyaline to pale brown, smooth. *Conidia* ellipsoidal or rarely slightly sigmoid, straight to slightly curved, both ends rounded or rarely truncate base, phragmosporous, 2–3-transverse septate, constricted at septa, often with small guttules, thick and smooth-walled.

Type species: Melnikia anthoxanthii Wijayaw., Goonas., Camporesi, D.J. Bhat & K.D. Hyde

Notes: The genus *Melnikia* is introduced to accommodate our collection from *Anthoxanthum* sp., characterised by pycnidial conidiomata, phialidic conidiogenesis and phragmosporous, pale brown to brown conidia. The conidial morphology of *Melnikia* resembles *Pseudohendersonia*. However, *Pseudohendersonia* has eguttulate and brown to dark brown conidia (Crous and Palm 1999b; Fig. 9), while *Melnikia* has guttulate, pale brown to brown conidia. In phylogenetic analyses, the type species of *Melnikia* resides in *Phaeosphaeriaceae*. The type species of *Pseudohendersonia* lacks sequence data, however, in this study we introduce *P. galiorum* which resides in *Didymellaceae* (Fig. 9).

Melnikia anthoxanthii Wijayaw., Goonas., Camporesi, D.J. Bhat & K.D. Hyde, *sp. nov.*

Index Fungorum number: IF551800; *Facesoffungi* number: FoF 01529; Fig. 149

Etymology: Named after the host genus

Holotype: MFLU 15–2657

Endophytic or saprobic on *Anthoxanthum odoratum*.

Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* 90–110 μm high, 170–200 μm diam., pycnidial, solitary, scattered, sub-epidermal to immersed, erumpent at maturity, globose, unilocular, brown, ostiolate. *Ostiole* apapillate, single, circular, central. *Conidiomata* wall with outer layer



Fig. 149 *Melnikia anthoxanthii* (holotype). **a, b** Conidiomata on host material. **c, d** Vertical sections of conidiomata. **e–g** Different stages of conidiogenesis. **h–q** Conidia. Scale bars: **c, d** = 100 μm , **e–g** = 10 μm , **h–q** = 5 μm

thick, composed of thin-walled, brown cells of *textura globosa*; inner layer thin, hyaline, almost reduced to conidiogenous region. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* 2–3 \times 1–2 μm , enteroblastic, phialidic, ampulliform to rarely lageniform, discrete, determinate, hyaline to pale brown, smooth. Conidia 11–18 \times 3–6 μm (\bar{x} = 15.2 \times 4.7 μm , $n=20$), ellipsoidal or rarely slightly sigmoid, straight or slightly curved, both ends rounded or rarely truncate at base, 2–3-transverse septate, constricted at septa, often with small guttules, thick and smooth-walled.

Culture characteristics: On PDA slow growing, attaining 2.5 cm in 10 days, white from the above and

pale brown from below, thin mycelium, not zonate, wavy margin, cottony.

Material examined: Italy, Forlì-Cesena [FC] of Province, Passo delle Forche – Galeata, on stems of *Anthoxanthum odoratum* L. (Poaceae), 23 April 2014, Erio Camporesi, NNW IT 1835 (MFLU 15–2657, **holotype**); living cultures MFLUCC 14–1010, GUCC 1835.

Notes: Farr and Rossman (2016) reported *Pseudoseptoria* and *Stagonospora* spp. from *Anthoxanthum* species, but both genera have hyaline conidia (Sutton 1980). Based on molecular and morphological data, we accommodate our collection in *Melnikia*.

Microsphaeropsis Höhn., Hedwigia 59: 267 (1917)

See index Fungorum for synonyms

Facesoffungi number: FoF 01530; Fig. 150

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, *Pleosporineae*, *Didymellaceae*

Saprobic on leaves, stems or branches of dead plants on a range of host plants or *pathogenic* on animals or associated with leaf spots, *lichenicolous*.

Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* pycnidial, solitary or gregarious, immersed to semi-immersed, globose to subglobose, unilocular, brown to black, ostiolate or not. *Ostiole* occasionally papillate ostiolar, circular, single, central. *Conidiomata* wall composed of thin-walled, brown cells of *textura angularis*, inner layer thin-walled, hyaline cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, periclinal thickening, determinate, discrete, doliiform or ampulliform, cylindrical, hyaline, smooth-walled. *Conidia* pyriform or short cylindrical or fusiform or globose to subglobose, pale brown to brown, aseptate, some species are guttulate, thin to thick and smooth-walled (Sutton 1980; Matsushima 1996, 2001; van der Aa and Vanev 2002; Etayo and Yazici 2009; Alves et al. 2010; Crous et al. 2011c).

Type species: Microsphaeropsis olivacea (Bonord.) Höhn. [as ‘olivaceus’], Hedwigia 59: 267 (1917)

Notes: Von Höhnelt (1917) introduced the genus *Microsphaeropsis* with *M. olivaceus* (current name *M. olivacea*) as the type species. Currently, there are about 50 epithets listed in Index Fungorum (2016). Coniothyrium-like taxa and *Microsphaeropsis* share similar morphological characters such as shape and pigmentation of the conidia, thus taxonomists faced difficulties determining generic boundaries (Sutton 1977, 1980). Hence, Sutton (1980) categorized species with thin-walled, 1-celled conidia and phialidic conidiogenesis as *Microsphaeropsis*. This concept was accepted and expanded by de Gruyter et al. (2013) who stated ‘*Microsphaeropsis* is characterised by the production of phialidic conidiogenous cells with periclinal thickening, and thin-walled, pale greenish brown conidia.’

However, recent phylogenetic studies reveal coniothyrium-like taxa and microsphaeropsis-like taxa are polyphyletic in *Capnodiales* and *Pleosporales* (Verkley et al. 2004, 2014; Cortinas et al. 2006; de Gruyter et al. 2009, 2013). Most of these taxa reside in *Pleosporales* viz. *Microsphaeropsis sensu stricto* in *Didymellaceae* (Verkley et al. 2004; de Gruyter et al. 2009; Wijayawardene et al. 2014d), *Paraconiothyrium sensu stricto* in *Didymosphaeriaceae* (Verkley et al. 2004, 2014; Damm et al. 2008; Ariyawansa et al.

Fig. 150 *Microsphaeropsis* sp. (Material examined: Italy, Arezzo [AR] Province, near Croce di Pratomagno, on dead branch of *Cytisus scoparius*, 24 June 2012, E. Camporesi, MFLU 13–0340). **a, b** Conidiomata on host material. **c, e** Vertical sections of conidiomata. **d** Conidioma wall. **f–i** Different stages of conidiogenesis. **j–l** Different stages of conidiogenesis in methyl blue. **m** Conidia. **n** Germinating conidium. **o, p** Culture from the top and reverse respectively. Scale bars: **c** = 100 μ m, **d** = 50 μ m, **e** = 10 μ m, **f–m** = 5 μ m, **n** = 10 μ m

2014b; Wijayawardene et al. 2014d), *Coniothyrium sensu stricto* in *Coniothyriaceae* (de Gruyter et al. 2013; Wijayawardene et al. 2014d). Thus, it is highly recommended to rely on molecular data to confirm the correct generic placement of such genera with higher plasticity in morphology. A taxonomic key to distinguish *Microsphaeropsis* and coniothyrium-like taxa is provided under *Coniothyrium*.

Brackel (2014), Etayo and Sancho (2008), and Etayo and Yazici (2009) introduced *Microsphaeropsis caloplacae* Etayo & Yazici, *M. lichenicola* Etayo and *M. physciae* Brackel as lichenicolous species. However, sequence data of both species are unavailable thus taxonomic placements are unavailable.

Minutoexcipula V. Atienza & D. Hawksw., Mycol. Res. 98(5): 587 (1994)

Facesoffungi number: FoF 01779; Fig. 151

Ascomycota, genera *incertae sedis*

Lichenicolous. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* in the type species sporodochia, superficial, single, dark brown to black, in some species pycnidial when young. *Conidiophores* macronematous, short-cylindrical, septate, branched, smooth, hyaline to pale brown. *Conidiogenous cells* enteroblastic, annellate, terminal percurrently proliferating, cylindrical, integrated, subhyaline, smooth. *Conidia* ellipsoid, rounded at the apex and truncated at the base, (0–)1-septate, pale to dark brown, smooth-walled (Atienza and Hawksworth 1994; Atienza et al. 2009).

Type species: Minutoexcipula tuckerae V. Atienza & D. Hawksw., Mycol. Res. 98(5): 587 (1994)

Notes: Atienza et al. (1994) introduced *Minutoexcipula* with *M. tuckerae* as the type species and compared the new genus to similar genera with sporodochia-like conidiomata. Seifert et al. (2011) listed *Minutoexcipula* as a hyphomycetous genus. Some species, such as *M. mariana* V. Atienza, have pycnidial conidiomata when young.

Monochaetia (Sacc.) Allesch., Rabenh. Krypt.-Fl., Edn 2 (Leipzig) 1(7): 665 (1902) [1903]

= *Lennisia* Nieuwl., Am. Midl. Nat. 4: 380 (1916)

= *Pestalotia* subgen. *Monochaetia* Sacc. [as ‘Pestalozzia’], Syll. fung. (Abellini) 3: 797 (1884)



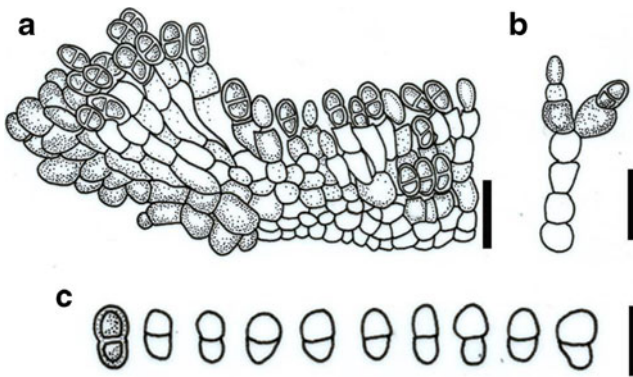


Fig. 151 *Minutoexcipula tephromelae*. **a** Vertical section of conidioma. **b** Conidiophore and developing conidium. **c** Conidia. Scale bars: **a–c** = 10 μm (re-drawn from Atienza et al. 2009)

Facesoffungi number: FoF 01531; Figs. 152 and 153

Sordariomycetes, *Xylariomycetidae*, *Amphisphaeriales*, *Pestalotiopsidaceae*

Saprobic on leaf litter or weak pathogen of stems of a range of plants. **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* acervular, superficial to subepidermal, solitary or gregarious, occasionally confluent, unilocular, globose. *Conidiomata* wall multi-layered, composed of thin-walled, brown cells of *textura angularis*. *Conidiophores* cylindrical, straight or occasionally curved, hyaline, sparsely branched and septate only at the base. *Conidiogenous cells* holoblastic, annellidic, indeterminate, discrete, hyaline, cylindrical, smooth. *Conidia* fusiform, straight to slightly curved, 3–5-septate, continuous or constricted at the septa, apical and basal cell hyaline, median cells thick-walled, brown, smooth-walled; with an unbranched, short, central basal appendage; with simple or branched, filiform apical appendage (Sutton 1980; Nag Raj 1993; Matsushima 1996; Maharachchikumbura et al. 2015; Senanayake et al. 2015).

Type species: Monochaetia monochaeta (Desm.) Allesch., Rabenh. Krypt.-Fl., Edn 2 (Leipzig) 1(7): 667 (1902) [1903]; Fig. 152

Notes: Allescher (1902) introduced the genus *Monochaetia* with *M. monochaeta* as the type species. Guba (1961) revised the genus and accepted 41 species with 3–5-septate conidia. However, Nag Raj (1993) mentioned that most of these species belong to *Seimatosporium* or *Seiridium* and thus accepted only 12 species, while listing 98 species under ‘unexamined and excluded genera’. Currently, there are 121 species epithets listed under *Monochaetia* in Index Fungorum (2016), but most have been transferred to other genera such as *Seiridium*, *Seimatosporium*, *Sarcostroma* (Species Fungorum 2016).

Based on phylogenetic analyses, Jeewon et al. (2002) showed that *Monochaetia* clustered in *Amphisphaeriaceae* with several other appendaged bearing genera such as *Discosia* and *Pestalotiopsis*. However, Jeewon et al. (2002) stated that it is essential to resolve the generic concept of *Monochaetia* as it shares similar morphological characters with *Seiridium* and *Seimatosporium*. Maharachchikumbura et al. (2015) listed *Monochaetia* under *Amphisphaeriaceae* but Senanayake et al. (2015) showed it belongs to *Pestalotiopsidaceae*. Our phylogenetic analyses also agree with findings in Senanayake et al. (2015) (Fig. 16).

Currently 38 different sequences are available in GenBank, but sequence for the type species is not available. Thus it is essential to carry out further recollections and morpho-molecular analyses to confirm correct generic boundaries of the genus.

Monochaetinula Muthumary et al., Trans. Br. mycol. Soc. 87(1): 104 (1986)

Facesoffungi number: FoF 01532; Fig. 154

Sordariomycetes, *Xylariomycetidae*, *Amphisphaeriales*, genera *incertae sedis*

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* stromatic or pynidial, immersed or suberumpent, solitary, unilocular or multi-locular, globose or glabrous, brown, ostiolate. Ostiole apapillate, single, circular. *Conidiomata* wall composed of pale brown-walled cells of *textura angularis*. *Paraphyses* filiform, septate, hyaline. *Conidiophores* reduced to conidiogenous cells or if present, filiform or cylindrical or irregular, septate, sparingly branched, hyaline, smooth. *Conidiogenous cells* holoblastic, annellidic, cylindrical to irregular, discrete or integrated, hyaline, smooth. *Conidia* fusiform, 3–4-septate, continuous or constricted, with olivaceous to pale brown median cells; apical cell conic, hyaline, with a short simple appendage; basal cell hyaline, with or without a simple appendage (Muthumary et al. 1986; Nag Raj 1993; Matsushima 1996).

Type species: Monochaetinula terminaliae (Bat. & J.L. Bezerra) Muthumary et al., Trans. Br. mycol. Soc. 87(1): 106 (1986); Fig. 154

\equiv *Monochaetia terminaliae* Bat. & J.L. Bezerra, Publicações Inst. Micol. Recife 298: 13 (1960)

Notes: Muthumary et al. (1986) erected *Monochaetinula* to place *Monochaetia terminaliae* and named it as *Monochaetinula terminaliae*. The original generic description of *Monochaetinula* (Muthumary et al. 1986) and Nag Raj (1993) did not mention the presence of paraphyses. However, Matsushima (1996)

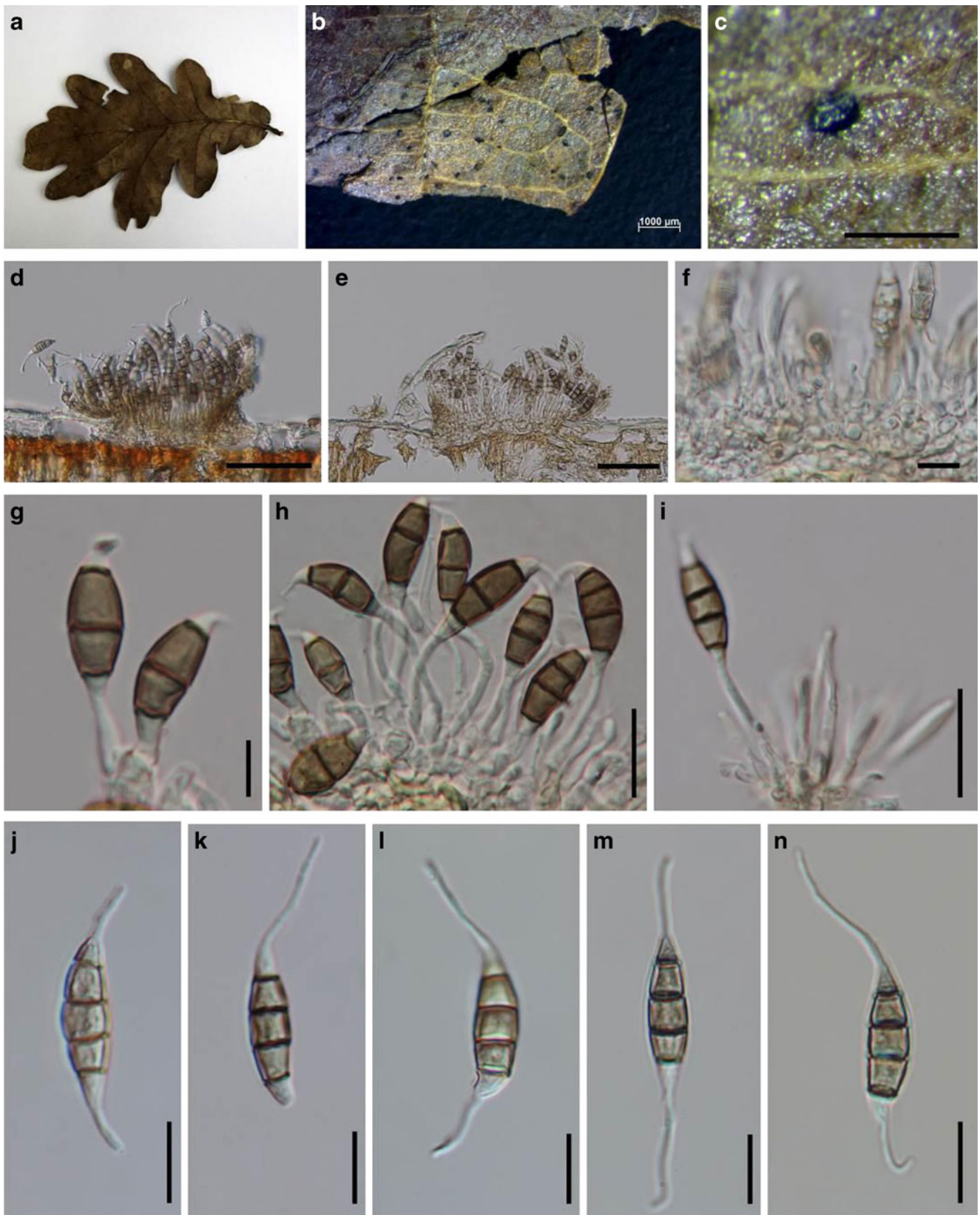


Fig. 152 *Monochaetia monochaeta* (Material examined: Germany, on leaf of *Quercus robur*, 21 December 2013, René K. Schumacher, MFLU 16-0002). **a** Host specimen. **b** Conidiomata on host. **c** and close up of conidioma. **d**, **e** Vertical sections of conidioma. **f** Section of conidioma

wall. **g–i** Conidia arising from conidiogenous cells. **j–n** Conidia. Scale bars: **c** = 100 µm, **d**, **e**, **h**, **i** = 50 µm, **e** = 100 µm, **f**, **j–n** = 10 µm, **g** = 20 µm

introduced *Monochaetina caffra* Matsush. with ‘filiform, septate, hyaline’ paraphyses. *Monochaetina* closely resembles *Monochaetia* but the former has stromatic or pycnidial conidiomata, while the latter has acervular conidiomata. However, it is important to carry out molecular analyses of both taxa to delimit clear generic boundaries. Currently six species epithets are listed in Index Fungorum (2016). Sequence data is unavailable, thus taxonomic placement is uncertain.

Morinia Berl. & Bres., *Annuario Soc. Alpinisti Trident.*, 1887–88: 82 (1889) [1887–88]

Facesoffungi number: FoF 01533; Fig. 155

Sordariomycetes, *Xylariomycetidae*, *Amphisphaeriales*, *Bartaliniaceae*

Endophytic or *saprobic* on stems of *Ericaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* acervular, subepidermal to partially immersed, separate, globose to subglobose, circular, dark brown to black. *Conidiomatal wall* composed of thin-walled, pale brown, cells of *textura angularis*. *Conidiophores* cylindrical, flexuous, septate, simple or branched at the base, hyaline, smooth-walled. *Conidiogenous cells* holoblastic, integrated, indeterminate, cylindrical, hyaline, smooth. *Conidia* fusiform to ellipsoid, straight to slightly curved, muriform, with 5–6 transverse septa, and 1–3 vertical septa or septa oblique, apical and end cells hyaline to sub-hyaline, median cells medium brown, smooth-walled, basal cell truncate with the remains of the conidiogenous cell attached; apical cell conic with 2–4 cellular, unbranched, filiform appendage (Sutton 1980; Collado et al. 2006).

Type species: Morinia pestalozzioides Berl. & Bres., *Annuario Soc. Alpinisti Trident.*, 1887–88: 82 (1889) [1887–88]; Fig. 155

Notes: Berlese and Bresadola (1889) introduced *Morinia* with *M. pestalozzioides* as the type species. Sutton (1977, 1980) accepted *Morinia* as a monotypic genus and Collado et al. (2006) introduced a second species, *M. longiappendiculata* Collado & Platas. Further, Collado et al. (2006) showed *M. longiappendiculata* has close relationship with *Truncatella* and *Bartalinia* in *Amphisphaeriaceae* in their molecular data analyses. In phylogenetic analyses, *Morinia sensu stricto* groups as a monotypic clade in *Bartaliniaceae* (Fig. 16).

In morphology, *Morinia* has unique conidial characters as other members in *Bartaliniaceae* lack vertical or oblique septa.

Mucoharknessia Crous et al., *Phytotaxa* 202 (2): 86 (2015)

Facesoffungi number: FoF 01685; Fig. 156

Dothideomycetes, order *incertae sedis*, *Botryosphaeriales*, *Botryosphaeriaceae*

Fig. 153 *Monochaetia* sp. (Material examined: USA, on a leaf of unknown plant, 20 August 2012, K.D. Hyde, MFLU 13–0302). **a** Specimen on dead leaf. **b** Conidiomata on the host surface. **c–h** Conidiogenous cells with developing conidia. **i–m** Conidia. **n** Germinating conidium. **o–p** Colonies on PDA (**o** From top. **p** From reverse). Scale bars: **c–n** = 10 μ m

Foliicolous. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, immersed, solitary to gregarious, unilocular, globose to subglobose, black, ostiolate. *Ostiole* subepidermal, circular to subcircular, opening onto the abaxial side of leaves. *Conidiomata wall* outer layer composed of brown walled-cells of *textura angularis*; inner layer of flattened, hyaline cells. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* percurrently proliferating, with flared collarete, lageniform to subcylindrical, smooth, hyaline, invested in mucus. *Conidia* oval to ellipsoidal, aseptate, brown, thick-walled, smooth to finely verruculose, lacking striations, appendaged; apical appendage extracellular, mucilaginous, irregular, smooth, hyaline; basal appendage tubular, thin-walled, hyaline and smooth (description modified from Crous et al. 2015b).

Type species: Mucoharknessia cortaderiae Crous et al., *Phytotaxa* 202 (2): 86 (2015); Fig. 156

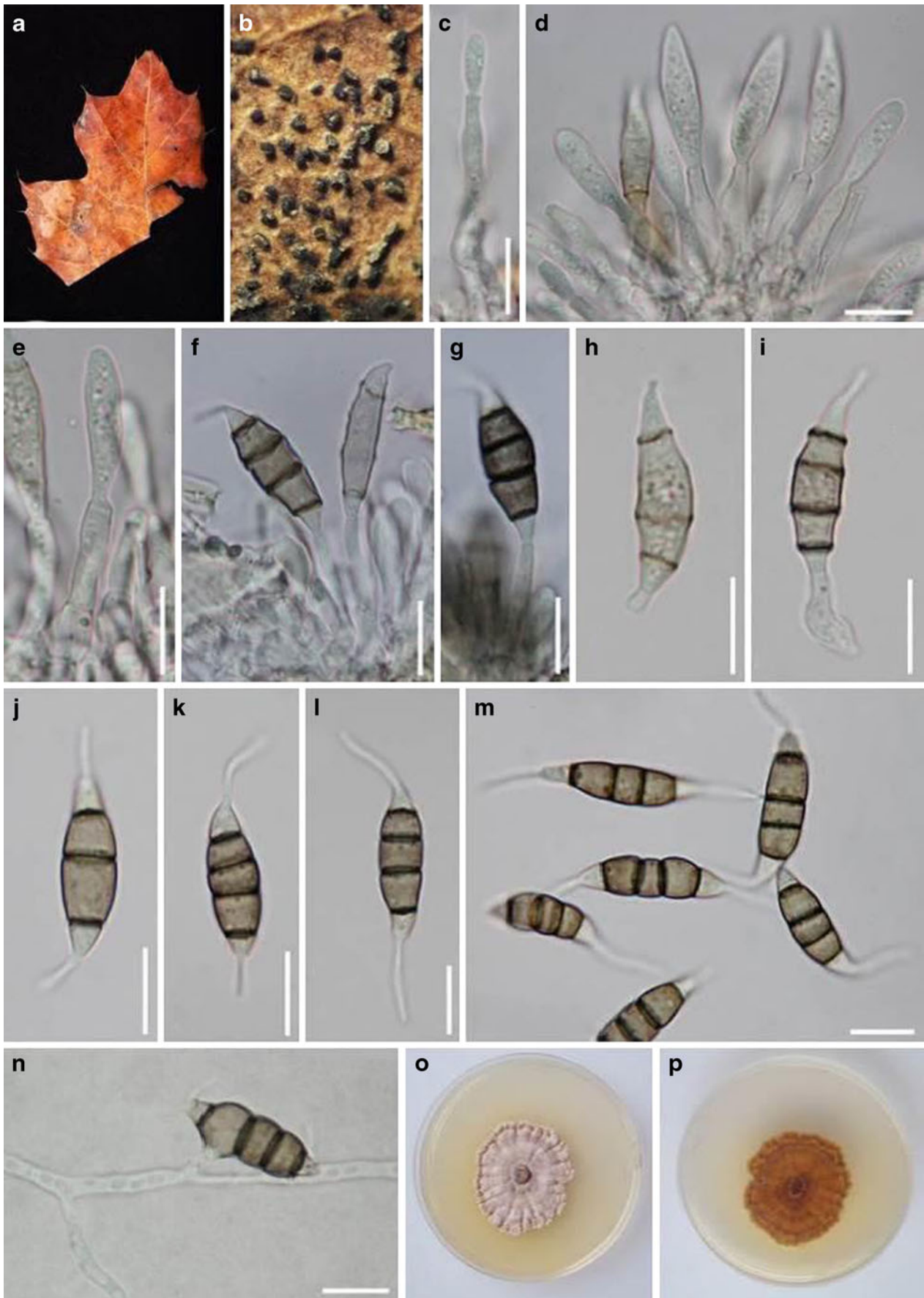
Notes: Crous et al. (2015b) introduced *Mucoharknessia* with *M. cortaderiae* as the type species. In morphology, *Mucoharknessia* resembles *Harknessia*, but the latter genus lacks mucilaginous apical appendages in the conidia (Crous et al. 2015b). In phylogeny, *Mucoharknessia* clusters in *Botryosphaeriaceae* (Crous et al. 2015b; Fig. 10) while *Harknessia* resides in *Harknessiaceae*, *Diaporthales* (Crous et al. 2012d; Fig. 12).

Murilenthécium Wanasinghe et al., *Crypto Mycol* 35(4): 330 (2014)

Facesoffungi number: FoF00294; Fig. 157

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, *Massarineae*, *Lentitheciaceae*

Endophytic or *saprobic* on dead herbaceous branches. **Sexual morph:** see Wanasinghe et al. (2014). **Asexual morph:** *Conidiomata* pycnidial, solitary, immersed, unilocular, dark brown. *Ostiole* papillate, single, circular. *Conidiomata wall* outer layer composed of thick-walled, brown cells of *textura angularis*, inner wall composed of thin-walled, hyaline cells of *textura angularis*. *Conidiophores* reduced to *conidiogenous cells*. *Conidiogenous cells* enteroblastic, phialidic, hyaline, smooth, formed from the inner most layer of pycnidium wall. *Conidia* oblong, mostly straight, infrequently slightly curved, muriform, with 3–5 transverse septa, and 2–5 longitudinal septa, constricted at the septa, initially hyaline, pale brown to brown at maturity, narrowly rounded at both ends, smooth-walled.



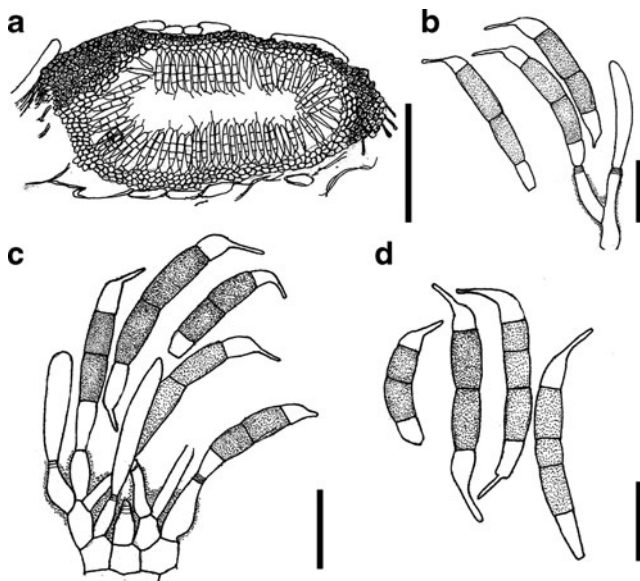


Fig. 154 *Monochaetiniula terminaliae*. **a** Vertical section of conidioma. **b**, **c** Different stages of conidiogenesis. **d** Conidia. Scale bars: **a** = 100 µm, **b–d** = 20 µm (re-drawn from Nag Raj 1993)

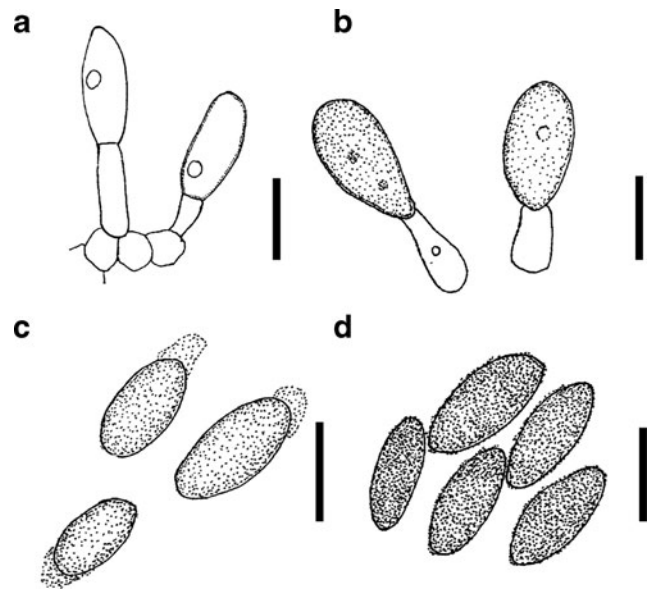


Fig. 156 *Mucoharknessia cortaderiae*. **a**, **b** Different stages of conidiogenesis. **c** Conidia with apical mucoid appendage. **d** Conidia without appendages. Scale bars: **a–d** = 10 µm (re-drawn from Crous et al. 2015b)

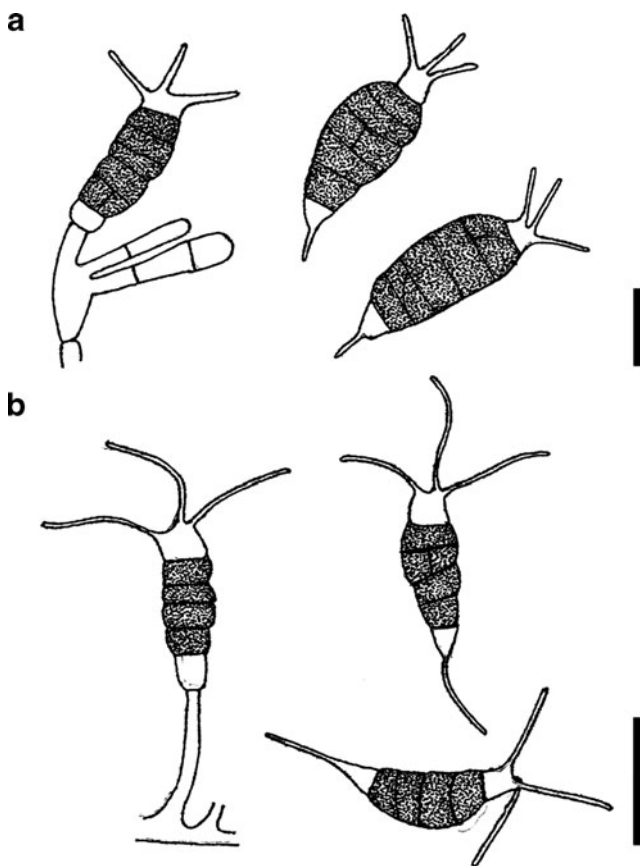


Fig. 155 **a** Different stages of conidiogenesis and conidia of *M. pestalozzioides*. **b** Different stages of conidiogenesis and conidia of *M. longiappendiculata*. Scale bars: **a**, **b** = 10 µm (re-drawn from Collado et al. 2006)

Type species: Murilentithecium clematidis Wanasinghe et al., *Crypto Mycol* 35(4): 331; Fig. 152

Notes: Wanasinghe et al. (2014) introduced *Murilentithecium* to accommodate the bi-tunicate, muriform sexual morph in *Lentithecaceae*. Moreover, Wanasinghe et al. (2014) reported a camarosporium-like asexual morph from culture. Wijayawardene et al. (2015a) also reported *Phragmocamarosporium* in *Lentithecaceae* (Fig. 15) which also has reduced conidiophores, phialidic conidiogenesis. However, *Phragmocamarosporium* lacks longitudinal septa and is thus distinct from *Murilentithecium*.

Mycohypallage B. Sutton, *Mycol. Pap.* 88: 4 (1963)

Facesoffungi number: FoF 01534; Fig. 158

?*Sordariomycetes*, order *incertae sedis*, *Phyllachorales*, *Phyllachoraceae*

Associated with leaf lesions of *Myrtaceae* (Dicotyledons).

Sexual morph: ?*Plagiostigma* fide Sutton (1980). **Asexual morph:** *Conidiomata* eustromatic or pycnidial, amphigenous or only on upper surface, immersed to subepidermis, solitary to gregarious, globose to irregular, unilocular or multi-locular, or convoluted, brown, ostiolate. *Ostiole* papillate ostiole,

Fig. 157 Holomorph of *Murilentithecium clematidis* (Material examined: Italy, Arezzo Province, Badia Tega, Ortignano Raggiolo, dead and hanging branches of *Clematis vitalba*, 10 March 2013, E. Camporesi, MFLU 14–0334, holotype). **a** Ascomata on host substrate. **b** Vertical section of ascoma. **c** Ostiole. **d** Pseudoparaphyses. **e** Peridium. **f**, **g** Asci. **h–j** Ascospores. **k** Ascospores stained with Indian ink. **l**, **m** Colonies on PDA (m from below). **n** Longitudinal sections of conidiomata. **o**, **p** Immature and mature conidia attached to conidiogenous cell. **q–s** Conidia. Scale bars: **b** = 100 µm, **c**, **f**, **g** = 20 µm, **d**, **o**, **p** = 5 µm, **e**, **h–k**, **q–s** = 10 µm, **n** = 50 µm



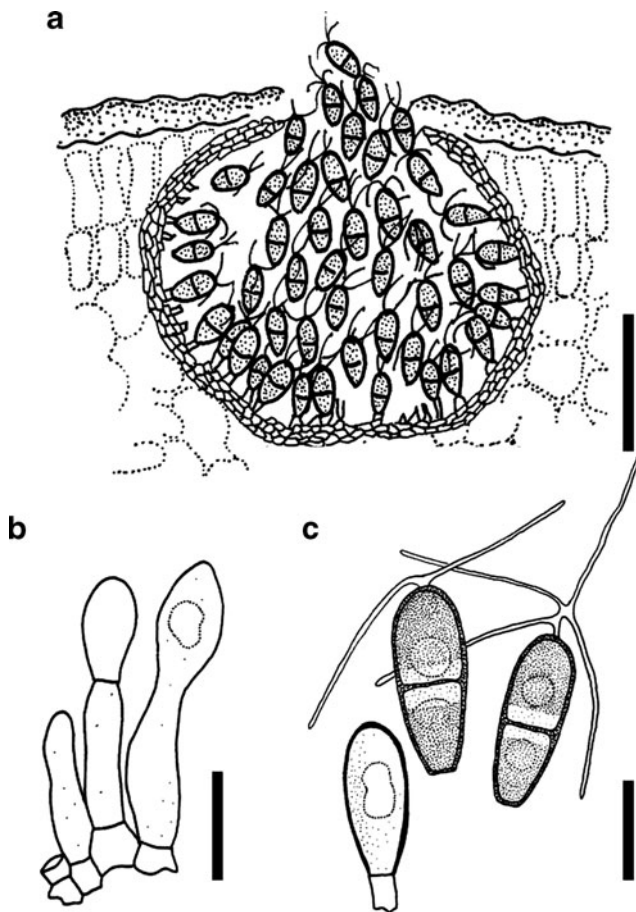


Fig. 158 *Mycohypallage congesta*. **a** Vertical section of conidioma. **b, c** Different stages of conidiogenesis. **d** Conidia. Scale bars: **a** = 50 μ m, **b, c** = 20 μ m (re-drawn from Morgan-Jones et al. 1972d)

circular, central or excentric. *Conidiomata* wall composed of highly compressed, subhyaline to pale brown, thin or thick-walled, brown cells of *textura angularis*. *Conidiophores* simple or reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, determinate, discrete, cylindrical, filiform, hyaline, smooth. *Conidia* clavate, base truncate, apex obtuse, 1-septate, constricted, brown, lighter around the middle, thick and smooth-walled, guttulate or eguttulate; with tubular, unbranched or branched 1–5 times, cellular, apical appendage; with or without doliiform, gelatinous basal appendage (Morgan-Jones et al. 1972d; Sutton 1980; Nag Raj 1993; Marincowitz et al. 2010).

Type species: Mycohypallage congesta (Berk. & Broome) B. Sutton, Mycol. Pap. 88: 5 (1963); Fig. 158

≡ *Pestalotia congesta* Berk. & Broome, J. Linn. Soc., Bot. 14(no. 74): 89 (1873) [1875]

Notes: Sutton (1963) erected *Mycohypallage* to place *Pestalotia congesta* and named it as *Mycohypallage congesta*. Mel'nik (1970) added a second species, *M. northeae* Mel'nik but Sutton (1980) and Nag Raj (1993) excluded it from the genus and treated it as a synonym of *Robillarda sessilis* (Sacc.) Sacc. (Nag Raj 1993). Marincowitz et al. (2010)

introduced *M. margaretae* Marinc. et al. and compared it with the type species. Sequence data is unavailable thus taxonomic placement is uncertain. Kirk et al. (2008) stated *Deshpandiella* Kamat & Ullasa as the sexual morph.

Myrotheciastrum Abbas & B. Sutton, Trans. Br. mycol. Soc. 91(2): 352 (1988)

Facesoffungi number: FoF 01535; Fig. 159

Ascomycota, genera *incertae sedis*

Endophytic or *saprobic* on *Salvadoraceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, superficial to semi-immersed, solitary to gregarious, cupulate or convoluted, unilocular or occasionally multi-locular. *Conidiomata* wall outer layer composed of thick-walled, dark brown cells of *textura angularis* to *textura prismatica*; inner wall poorly developed or absent, composed of thin-walled, hyaline cells of *textura angularis*. *Paraphyses* cylindrical, branched, septate, hyaline, smooth. *Conidiophores* reduced to conidiogenous cells or rarely present; if present, cylindrical, branched, 1–2-septate, hyaline. *Conidiogenous cells* enteroblastic, cylindrical, hyaline or rarely dark brown to black, discrete or integrated. *Conidia* ovoid, ellipsoid to globose, apex obtuse, base obtuse or truncate, greenish black to black, aseptate, verruculose, with hyaline, tubular, basal appendage (description modified from Abbas and Sutton 1988b).

Type species: Myrotheciastrum salvadorae Abbas & B. Sutton, Trans. Br. mycol. Soc. 91(2): 354 (1988); Fig. 159

Notes: Abbas and Sutton (1988b) introduced *Myrotheciastrum* with *M. salvadorae* as the type species. In morphology, *Myrotheciastrum* resembles *Apharknessia*, *Bellulicauda*, *Harknessia* and *Strasseriopsis*. A taxonomic key to distinguish *Myrotheciastrum* from related genera is provided under *Harknessia*. Sequence data is unavailable, thus taxonomic placement is uncertain

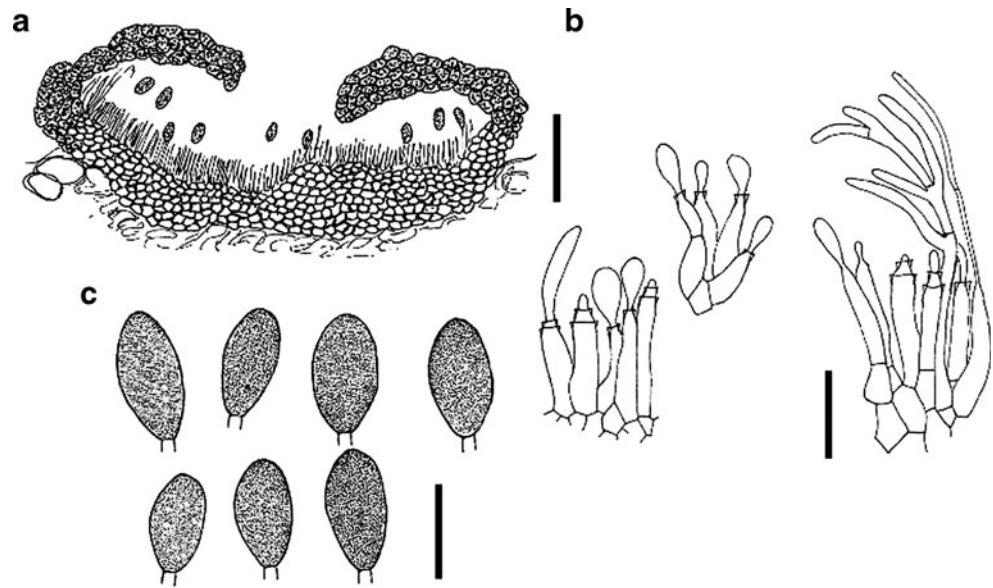
Myxocyclus Riess, Beitr. Mykol. 2: 62 (1852)

Facesoffungi number: FoF 01536; Fig. 160

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, family *incertae sedis*, *Pleomassariaceae*

Endophytic or *saprobic* on twigs or bark of *Pinaceae* (Gymnosperm) and *Betulaceae* (Dicotyledons). **Sexual morph:** *Splanchnonema sensu lato* Tanaka et al. (2005). **Asexual morph:** *Conidiomata* acervular or pycnidial, subperidermal, immersed, erumpent at maturity, solitary, punctiform, dark brown to black. *Conidiomata* outer wall composed of thick-walled, dark brown walled cells of *textura angularis*, inner wall composed of thin-walled, pale brown cells of *textura angularis*. *Conidiophores* cylindrical, flexuous, septate, branched at the base, pale brown, verruculose, hyaline at the apex, enclosed in a gelatinous sheath. *Conidiogenous*

Fig. 159 *Myrotheciastrum salvadorae*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 100 μm , **b**, **c** = 10 μm (re-drawn from Abbas and Sutton 1988b)



cells holoblastic, cylindrical, integrated, determinate, pale brown to hyaline, smooth. *Conidia* clavate to pyriform, tapered to the base, apex obtuse, muriform, verruculose, 7–8-distoseptate, constricted, with longitudinal or oblique distosepta, lumina reduced, guttulate, enclosed in a gelatinous sheath (Sutton 1980; Nag Raj and DiCosmo 1981b; Tanaka et al. 2005; Pastirčáková and Pastirčák 2010).

Type species: Myxocyclus polycystis (Berk. & Broome) Sacc., *Annl. mycol.* 6(6): 559 (1908); Fig. 160

≡ *Hendersonia polycystis* Berk. & Broome, *Ann. Mag. nat. Hist.*, Ser. 2 5: no. 415 (1850)

= *Myxocyclus confluens* Riess, *Beitr. Mykol.* 2: 63 (1852)

Notes: Fresenius (1852) introduced *Myxocyclus* with *M. confluens* as the type species. However, Sutton (1975a, 1977, 1980) treated *Hendersonia polycystis* as the oldest name of the taxon and thus transferred to *Myxocyclus* as *M. polycystis*. At the same time, *M. polycystis* was treated as the type species, while *M. confluens* treated as its synonym. Petrak (1927) introduced *M. cenangioides* (Ellis & Rothr.) Petr., but Sutton (1980) stated that it is not congeneric with the type species, thus its placement is uncertain.

Saccardo (1908) and Barr (1982) predicted *Splanchnonema argus* (Berk. & Broome) Kuntze, as the sexual morph of *Myxocyclus polycystis* based on the co-occurrence of both morphs on same host. This link was proved in culture methods by Tanaka et al. (2005). However, *Splanchnonema argus* is not the type species of *Splanchnonema*. Further, *Splanchnonema argus* lacks sequence data to confirm whether it belongs to *Splanchnonema sensu stricto*. Hence, we do not reduce *Myxocyclus* under *Splanchnonema* until *S. argus* is shown to be congeneric with *Splanchnonema sensu stricto*. Sequence

data of *Myxocyclus polycystis* is unavailable, thus taxonomic placement is unclear.

Nagrajomyces Mel'nik, *Mikol. Fitopatol.* 18(1): 9 (1984)

Facesoffungi number: FoF 01537; Fig. 161

Ascomycota, genera *incertae sedis*

Endophytic or *saprobic* on twigs of Ericaceae (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, sporodochial-like, erumpent, with an obtuse head and stalk, glabrous, above region unilocular to multi-locular. *Conidiomata* wall basal region composed of brown-walled cells of *textura intricata* and *textura prismatica*, inner region hyaline to pale brown. *Conidiophores* branched, septate, hyaline to subhyaline, smooth, invested in mucus. *Conidiogenous cells* holoblastic, enteroblastic, integrated, hyaline, smooth. *Conidia* fusiform to ellipsoid, subglobose to globose, straight or curved, muriform, pale brown, smooth-walled, bearing single, unbranched, attenuated, flexuous apical appendage (Mel'nik 1984; Nag Raj 1993).

Type species: Nagrajomyces dictyosporus Mel'nik, *Mikol. Fitopatol.* 18(1): 9 (1984); Fig. 161

Notes: Mel'nik (1984) introduced *Nagrajomyces* with *N. dictyosporus* as the type species. The genus remains monotypic and sequence data is unavailable. Hence, the taxonomic placement is uncertain.

In conidial morphology, *Nagrajomyces* resembles *Uniseta* as the latter taxon also has a single, unbranched apical appendage. However, *Uniseta* has conidia with a single septum while, *Nagrajomyces* has muriform conidia (Nag Raj 1974).

Neocamarosporium Crous & M.J. Wingf., *Persoonia, Mol. Phyl. Evol. Fungi* 32: 273 (2014)

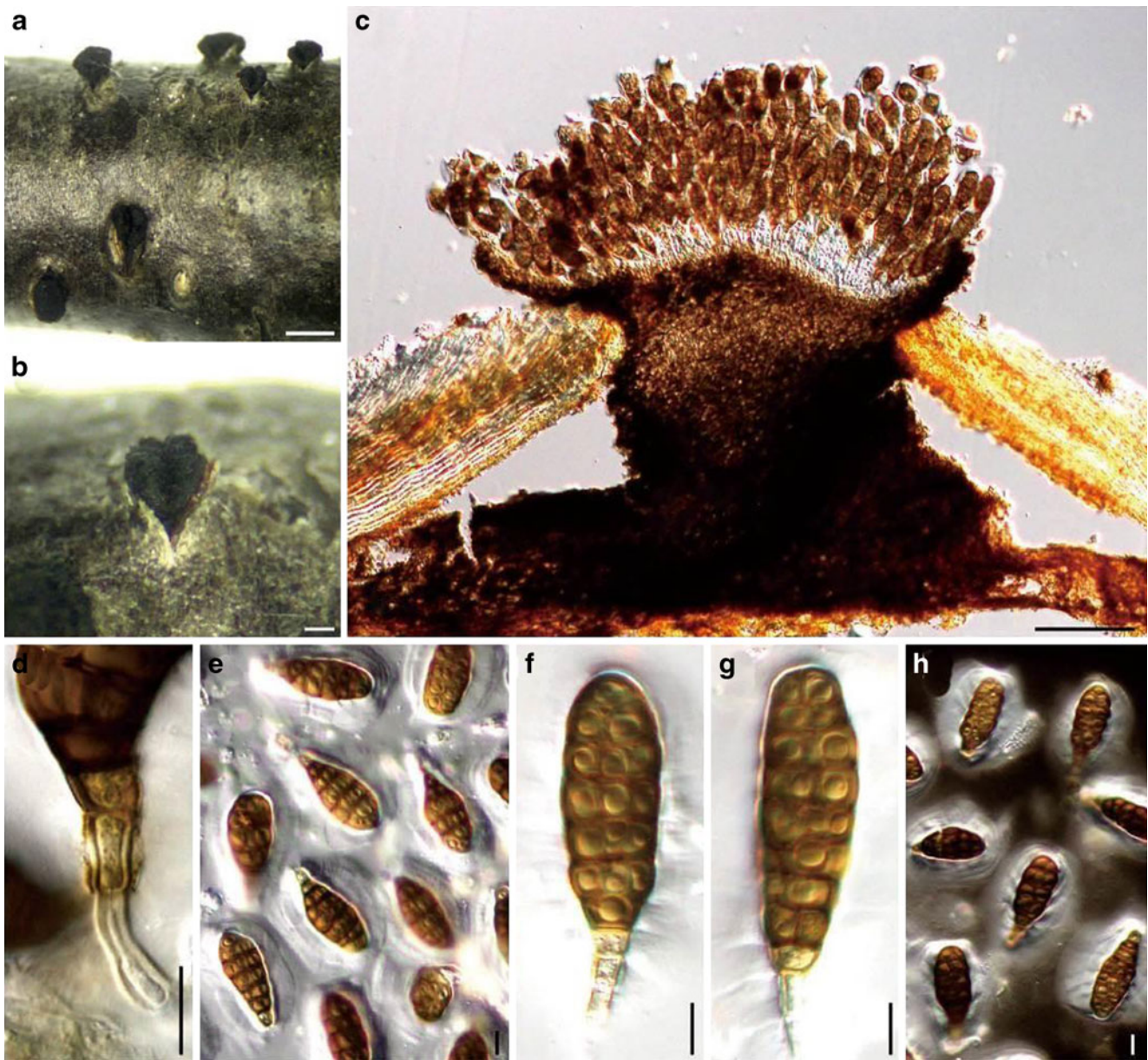


Fig. 160 *Myxocyclus polycystis* (Material examined: Japan, Aomori, Sannohe, Shingou, on twigs of *Betula platyphylla* var. *japonica*, 21 July 2014, K. Tanaka, HHUF 30473). **a, b** Conidiomata on host. **c**

Vertical section of conidioma. **d** Conidiogenous cell. **e–g** Conidia. **h** Conidia with sheath (in India ink). Scale bars: **a** = 1 mm, **b** = 200 μ m, **c** = 100 μ m, **d–h** = 10 μ m

Facesoffungi number: FoF 01538; Fig. 162

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, *Pleosporaceae*

Saprobic or *endophytic* on leaves of Aizoaceae (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* immersed, becoming erumpent, globose, brown to black, ostiolate. *Ostiole* papillate, central. *Conidiomata* wall composed of thin-walled, brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* proliferating several times percurrently near apex, ampulliform with prominent periclinal thickening, separate, hyaline, smooth. *Conidia* solitary,

initially hyaline, aseptate, developing a central septum and then becoming muriform, shape variable from globose to obovoid to ellipsoid, golden brown, finely roughened, thick-walled (Crous et al. 2014c).

Type species: *Neocamarosporium goegapense* Crous & M.J. Wingf., *Persoonia*, *Mol. Phyl. Evol. Fungi* 32: 273 (2014)

Notes: Crous et al. (2014c) introduced *Neocamarosporium* with *N. goegapense* as the type species. *Neocamarosporium* is morphologically similar to *Camarosporium sensu stricto* but it is phylogenetically distinct and resides in *Pleosporaceae* (Fig. 9).

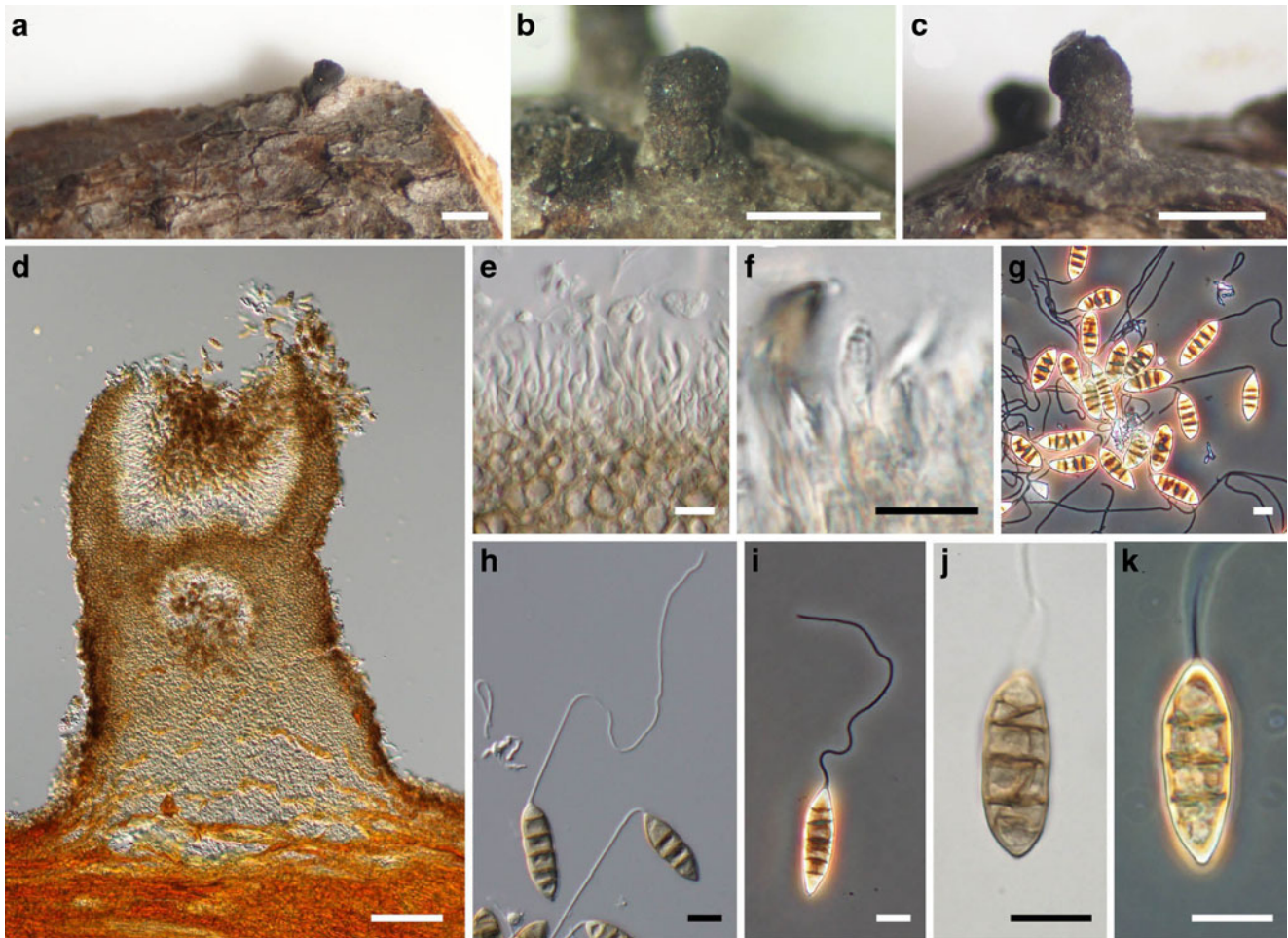


Fig. 161 *Nagrajomycetes dictyosporus* (Material examined: Russia, Kamchatka, Kronokense Reservation, on twigs of *Rhododendron aureum*, 14 July 1981, N. Vassiljeva, LE 41390, holotype). **a–c**

Conidiomata on host. **d** Vertical section of conidioma. **e, f** Conidiogenous cells. **g–k** Conidia. Scale bars: **a–c** = 500 μ m, **d** = 100 μ m, **e–k** = 10 μ m

Neocurreya Thambug. & K.D. Hyde, Fungal Divers. 74: 249 (2015)

Facesoffungi number: FoF00836; Fig. 163

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, family *incertae sedis*, *Floricolaceae*

Endophytic or *saprobic* on various substrates on a range of plants. **Sexual morph:** see Thambugala et al. (2015). **Asexual morph:** *Conidiomata* pycnidial, subepidermal to superficial, solitary to gregarious, globose or subglobose, unilocular, dark brown to black, ostiolate. *Conidiomata wall* several-layered, outer layer composed of thin-walled, brown cells of *textura angularis*, inner layer composed of thin-walled, hyaline cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells or branched at the base, 0–2-septate, hyaline. *Conidiogenous cells* holoblastic, proliferating 1–3 times percurrently, cylindrical, branched or unbranched, discrete or integrate, indeterminate, hyaline to pale brown, smooth. *Conidia* ellipsoidal or oblong, 0–1-septate, pale to dark brown, guttulate or eguttulate, thin to thick-walled, smooth or verrucose.

Type species: Neocurreya austroafricana (Marinc. et al.) Thambug. & K.D. Hyde, Fungal Divers. 74: 250 (2015)

\equiv *Curreya austroafricana* Marinc. et al., in Marincowitz et al., CBS Diversity Ser. (Utrecht) 7: 37 (2008)

Notes: Thambugala et al. (2015) introduced *Neocurreya* to accommodate *Curreya austroafricana* which is not congeneric with *Curreya sensu stricto* in *Cucurbitariaceae* (Doilom et al. 2013). At the same time, Thambugala et al. (2015) introduced three new combinations; *N. claviformis* (Mugambi & Huhndorf) Thambug. & K.D. Hyde, *N. grandicipis* (Joanne E. Taylor & Crous) Thambugala & K.D. Hyde and *N. proteae* (Marinc. et al.) Thambugala & K.D. Hyde.

Our phylogenetic analyses also agree with findings in Thambugala et al. (2015) (Fig. 14) and confirm the placement of *Neocurreya* in *Floricolaceae*, *Pleosporales*. Crous et al. (2015c) introduced *Curreya acaciae* Crous & M.J. Wingf. based on mega blast results but our phylogenetic showed it belongs to *Neocurreya*, thus we provide a new combination.

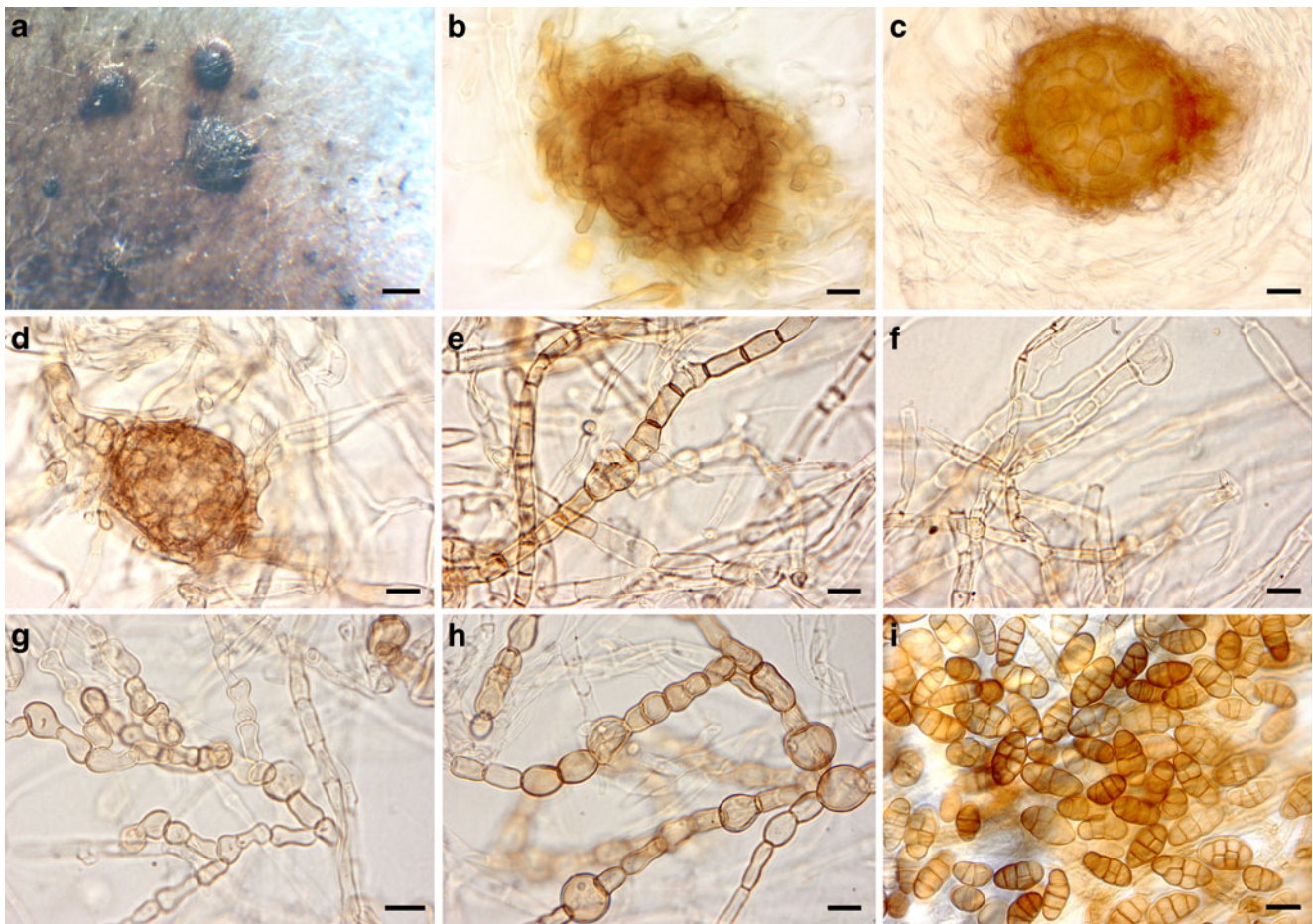


Fig. 162 *Neocamarosporium chichastianum* (Material examined: Iran, West Azerbaijan Province, Urmia (Lake Urmia), soil, 8 October 2011, M. Papizadeh & M. R. Soudi, IBRC-M 30126). **a** Conidiomata on agar. **b–e**

Developmental stages of conidiomata. **f–h** Chlamydospores. **i** Conidia. Scale bars: **a** = 100 μ m, **b–i** = 10 μ m

Neocurreya acaciae (Crous & M.J. Wingf.) Wijayaw., Wanasinghe & K.D. Hyde, *comb. nov.*

Basionym: *Curreya acaciae* Crous & M.J. Wingf., Sydowia 67: 94 (2015)

Neodeightonia C. Booth, Mycol. Pap. 119: 17 (1970) [1969]

Facesoffungi number: FoF 01539; Figs. 164 and 165

Dothideomycetes, order *incertae sedis*, *Botryosphaeriales*, *Botryosphaeriaceae*

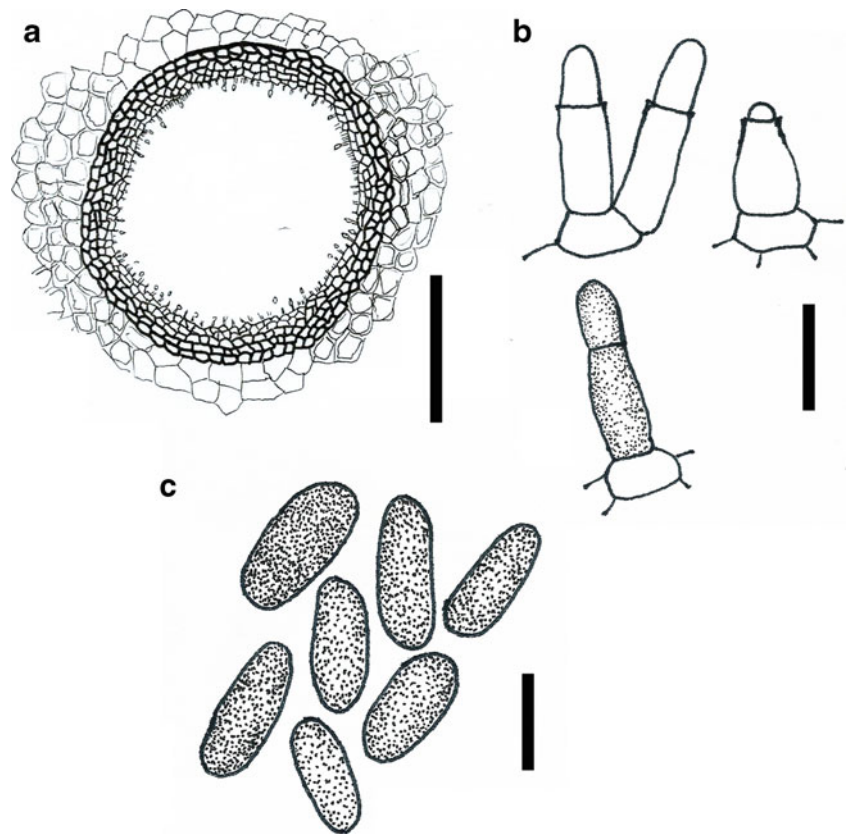
Endophytic or *saprobic* on various substrates on a range of host plants. **Sexual morph:** see Liu et al. (2012); Phillips et al. (2013). **Asexual morph:** *Conidiomata* stromatic to pycnidial, immersed, erumpent at maturity, solitary or aggregated, globose, uni- to multilocular, brown to black. *Conidiomata* wall composed of thick-walled, dark brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous* cells holoblastic, hyaline, aseptate, cylindrical to subcylindrical. *Conidia* sphaerical to globose, initially hyaline, pale to dark brown when mature, 1-

septate, thick-walled, smooth to verruculose, with fine striations (Phillips et al. 2008, 2013; Liu et al. 2010, 2012).

Type species: Neodeightonia subglobosa C. Booth, Mycol. Pap. 119: 19 (1970) [1969]; Fig. 164

Notes: Punithalingam (1969) introduced *Neodeightonia* with *N. subglobosa* as the type species. von Arx and Müller (1975) treated *Botryosphaeria* with a broad generic concept and reduced *Neodeightonia* to synonymy under *Botryosphaeria*. Crous et al. (2006a) did not recognize *Neodeightonia* as a genus in *Botryosphaeriaceae*. However, Crous et al. (2006a) showed *Botryosphaeria subglobosa* (C. Booth) Arx & E. Müll. (CBS 448.91) grouped away from *Botryosphaeria sensu stricto* and compared the conidial morphology with *Diplodia* and *Lasiodiplodia*. Phillips et al. (2008) also recognized *Botryosphaeria subglobosa* (CBS 448.91) as a distinct species and hence reinstated *Neodeightonia* to accommodate it. Phillips et al. (2008) also introduced *N. phoenicum* A.J.L. Phillips et al. and Liu et al. (2010) introduced a third species, *N. palmicola* J.K. Liu et al.

Fig. 163 *Curreya grandicypis*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 150 μ m, **b**, **c** = 10 μ m (re-drawn from Crous et al. 2011c)



In conidial morphology, *Neodeightonia* resembles *Lasiodiplodia* as both have striate conidia. However, *Neodeightonia* can be distinguished as it lacks paraphyses while *Lasiodiplodia* has conspicuous paraphyses (Phillips et al. 2008, 2013). Phylogenetically, both genera are distinct in *Botryosphaeriaceae* (Phillips et al. 2008, 2013; Liu et al. 2010, 2012; Figs. 9 and 10).

Neofusicoccum Crous et al., Stud. Mycol. 55: 247 (2006) (species with dichomera-like asexual morphs)

Facesoffungi number: FoF 01790; Figs. 166 and 167

Dothideomycetes, order *incertae sedis*, *Botryosphaeriales*, *Botryosphaeriaceae*

Saprobic or endophytic on various substrates of a range of host plants. **Sexual morph**: see Phillips et al. (2013). **Asexual morph**: with hyaline, aseptate, fusiform to ovoid conidia (*vide* Crous et al. 2006a; Liu et al. 2012; Phillips et al. 2013) or muriform, brown, irregular shape conidia (dichomera-like taxa). **Dichomera-like asexual morph**: *Conidiomata* pycnidial, solitary to gregarious, or occasionally confluent, subepidermal to superficial, unilocular, globose, dark brown. *Conidiomata wall* composed of thick-walled, dark brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, annellidic, cylindrical, determinate, discrete. *Conidia*

globose, subglobose, obovoid or obpyriform, straight or curved, apex obtuse, base tapered and truncate, pale brown to dark brown, muriform, continuous or constricted, thick and smooth-walled, eguttulate.

Type species: Neofusicoccum parvum (Pennycook & Samuels) Crous et al., Stud. Mycol. 55: 248 (2006)

Notes: Crous et al. (2006a) showed that *Dichomera eucalypti* (G. Winter) B. Sutton and *D. versiformis* Z.Q. Yuan grouped in *Neofusicoccum sensu stricto*. This placement was confirmed by Phillips et al. (2013) and Slippers et al. (2013). Thus, Slippers et al. (2013) concluded that dichomera-like taxa are polyphyletic and the taxa which grouped with *Neofusicoccum sensu stricto* were considered as synonyms of *Neofusicoccum*. Our multi-gene analyses of *Botryosphaeriaceae* (SSU, LSU, ITS, EF and β -tubulin) (Fig. 10) and dichomera-like taxa (ITS and EF) (Fig. 13) also concur with the findings in both Phillips et al. (2013) and Slippers et al. (2013).

Neohendersonia Petr., Annls mycol. 19(3–4): 190 (1921)

Facesoffungi number: FoF 01540; Figs. 168 and 169

Ascomycota, genera *incertae sedis*

Saprobic or endophytic on stems and branches of a range of host plants. **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* stromatic or acervular,

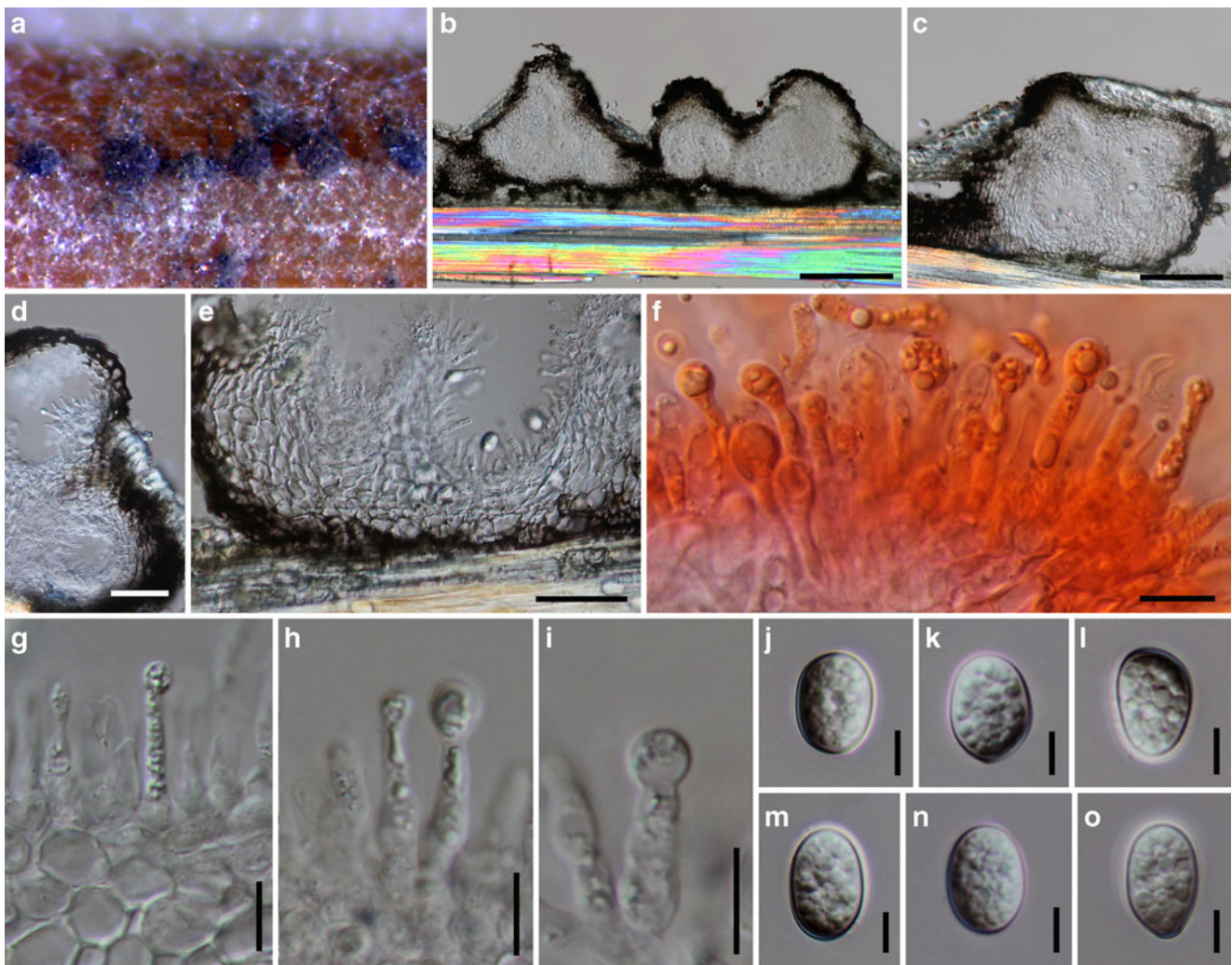


Fig. 164 Coelomycetous morph of *Neodeightonia subglobosa* (Material examined: Thailand, Lampang Province., Jae Hom District, Mae Yuag Forestry Plantation, on dead culms of *Bambusa* sp., 19 August 2010, R. Phookamsak, RP0079 (MFLU 11-0199)). **a** Conidiomata on pine needle. **b, c** Vertical sections of conidioma. **d, e**

Conidiomata walls. **f–i** Different stages of conidiogenesis. **j–o** Immature conidia. Scale bars: **b** = 200 μ m, **c** = 100 μ m, **d–e** = 50 μ m, **f–i** = 10 μ m, **j–o** = 5 μ m. (we could not find mature conidia, thus only immature conidia were included)

solitary or gregarious, immersed to subepidermal, globose or collabent, circular, dark brown to black, unilocular or multi-locular, ostiolate. *Ostirole* papillate or apapillate, single. *Conidiomata* wall multi-layered, outer layer composed of thick-walled, dark brown cells of *textura porrecta* or *intricata*, inner layer thin-walled, hyaline *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic to annellidic, discrete, determinate or indeterminate, cylindrical, lageniform, doliiform or ampulliform, hyaline, smooth, formed from the inner layer of conidiomata. *Conidia* obovoid, cylindrical to clavate or fusiform, base truncate, apex obtuse, 2–7-septate or distoseptate, continuous or slightly constricted, versicoloured, thick and smooth-walled, with or

without thickened scar at the base, eguttulate (Sutton and Pollack 1974; Sutton 1975a, 1980; Morgan-Jones 1977).

Type species: Neohendersonia kickxii (Westend.) B. Sutton & Pollack, Mycopath. Mycol. appl. 52(3–4): 334 (1974); Fig. 168

≡ *Stilbospora kickxii* Westend., Bull. Acad. R. Sci. Belg., Cl. Sci. 18(2): 32 (1851)

= *Neohendersonia pyriformis* (G.H. Otth) Petr., Annl. mycol. 19(3–4): 191 (1921)

≡ *Hendersonia pyriformis* G.H. Otth, Mitt. naturf. Ges. Bern: 164 (1866) [1865]

Notes: The genus *Neohendersonia* was introduced by Petrak (1921b) with *N. pyriformis* as the type species. However, Sutton and Pollack (1974) adopted the

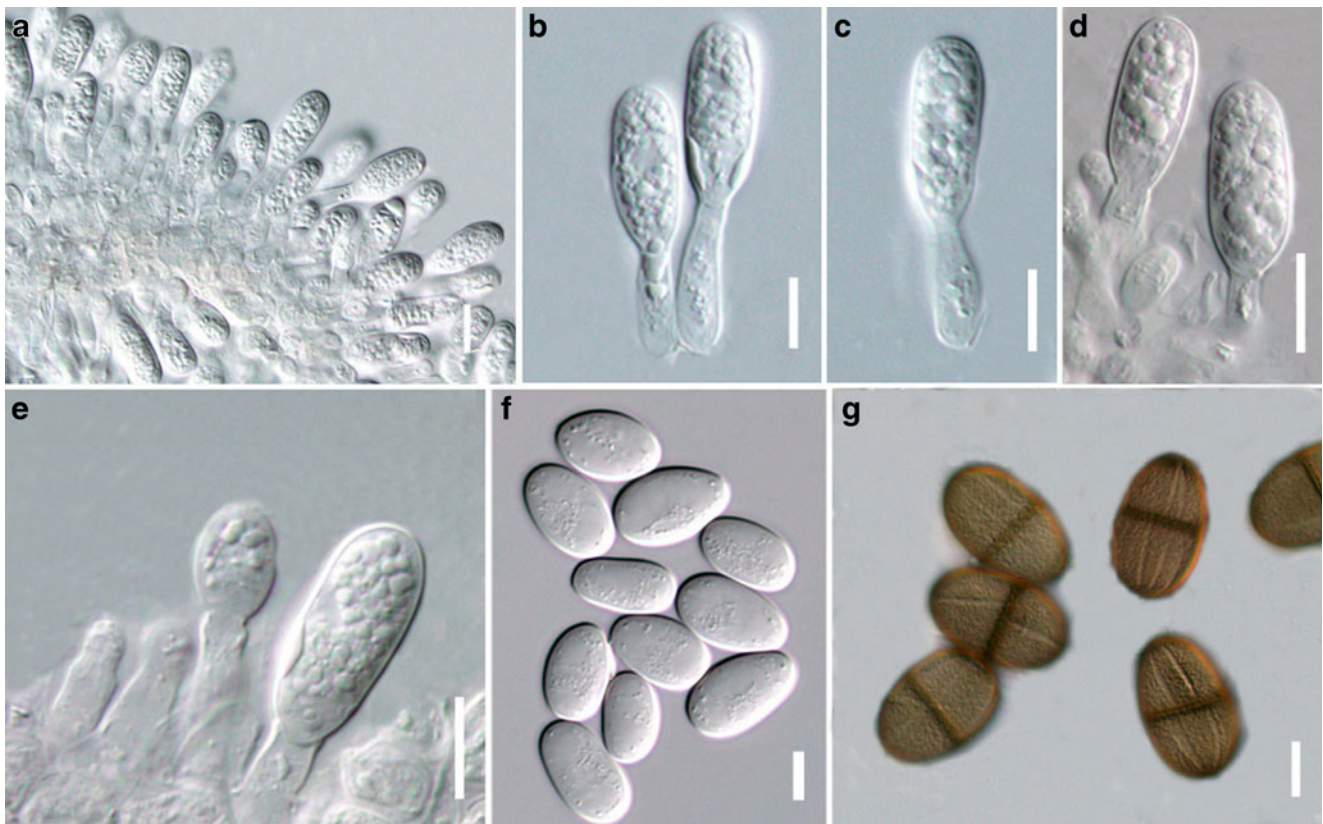


Fig. 165 *Neodeightonia phoenicum* (Material examined: Spain, Catalonia, Tarragona, Salou, on *Phoenix* sp., F. Garcia, CBS H-20108, culture ex-type CBS). **a–e** Different stages of conidiogenesis. **f** Immature

conidia. **g** Matured conidia with striations. Scale bars: **a–g** = 10 μ m. (from Phillips et al. 2013 and reproduced with the permission from SIM)

earlier epithet in *Stilbospora kickxii* Westend. and proposed *Neohendersonia kickxii* for the species. At the same time, the latter epithet was treated as the type species of *Neohendersonia* and *N. pyriformis* (Otth) Petrak listed as its synonym. Sutton (1975a) expanded the generic concept and introduced *N. congoensis* (Torrend) Sutton and Sutton (1980) accepted only two species.

Neohendersonia fagi Wijayaw., Camporesi, McKenzie & K.D. Hyde, *sp. nov.*

Index Fungorum number: IF551792; *Facesoffungi* number: FoF 01541; Fig. 169

Etymology: Named after the host genus

Holotype: MFLU 15–3452

Saprobic or *phellophytic* on *Fagus sylvatica*. **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* 500–600 μ m diam., 150–250 μ m high, acervulus, solitary, dark brown to black, immersed, erumpent at maturity, subglobose, unilocular. *Conidiomata* wall multi-layered, outer layer composed of thick-walled, brown cells of *textura angularis*, inner layer thin, hyaline. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* 5–16 \times 5–10 μ m, enteroblastic,

annellidic, percurrently proliferating, doliiform, discrete, determinate, hyaline, smooth-walled. *Conidia* 30–48 \times 10–15 μ m (\bar{x} = 39.2 \times 12.3, n=20), fusiform to cylindrical, obtuse apex, base truncate, straight to slightly curved, 2–4-distoseptate, continuous, golden brown to brown, thick and smooth-walled.

Material examined: Italy, Forli-Cesena [FC] Province, Campigna-Santa Sofia, on dead branch of *Fagus sylvatica* L. (Fagaceae), 19 February 2014, Erio Camporesi, IT 1733 (MFLU 15–3452, **holotype**); (HKAS92557, **isotype**).

Notes: In morphology, our collection from *Fagus* sp. resembles with *Neohendersonia*. However, other species recorded from *Fagus* sp. are morphologically distinct. Thus, we introduce a new species to place our collection based on morphology.

Key to species of *Neohendersonia*

1. Conidia 2–7-euseptate *N. congoensis*
1. Conidia distoseptate 2
2. Conidia 17.5–30 μ m *N. kickxii*
2. Conidia 30–48 μ m *N. fagi*

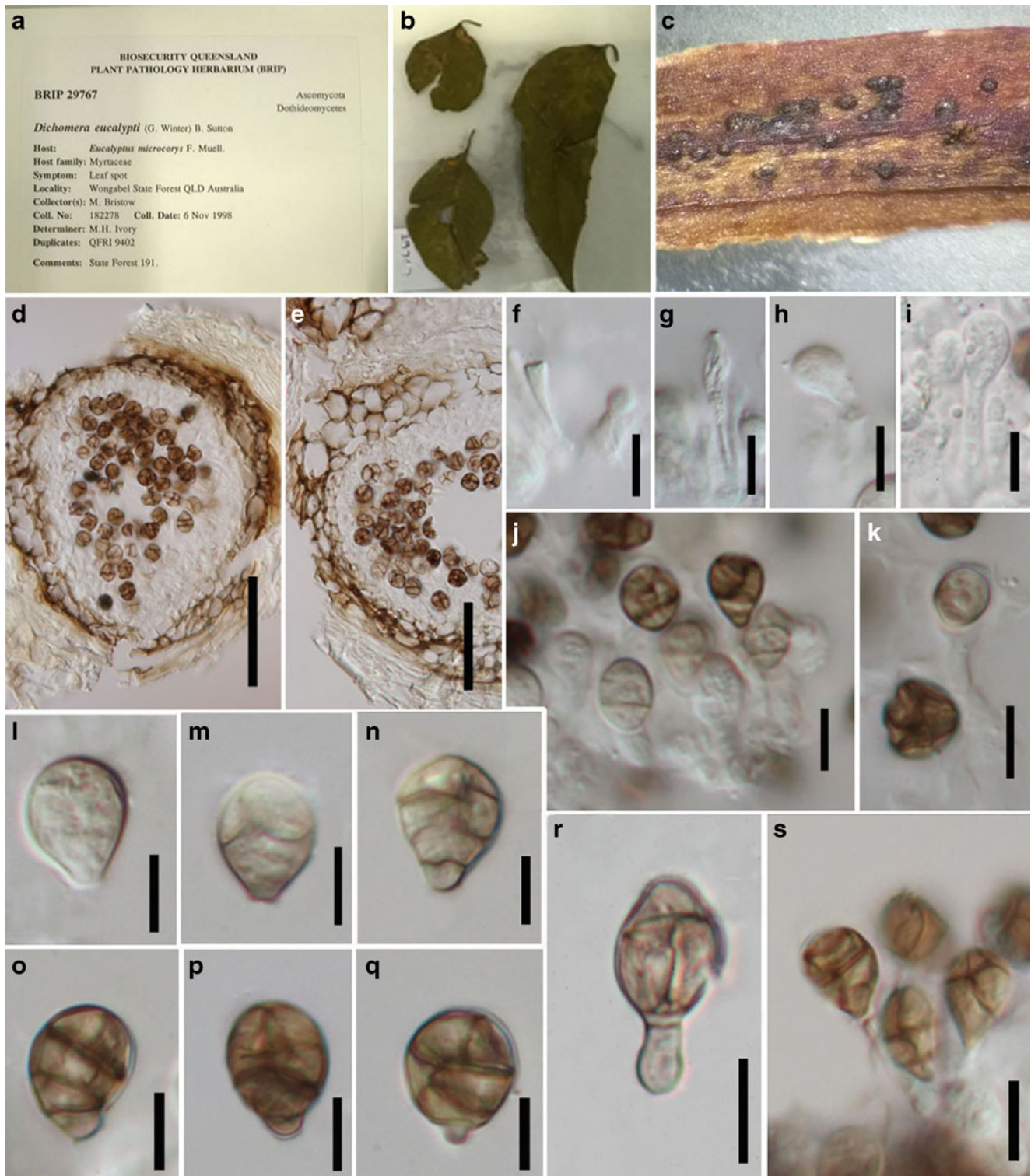


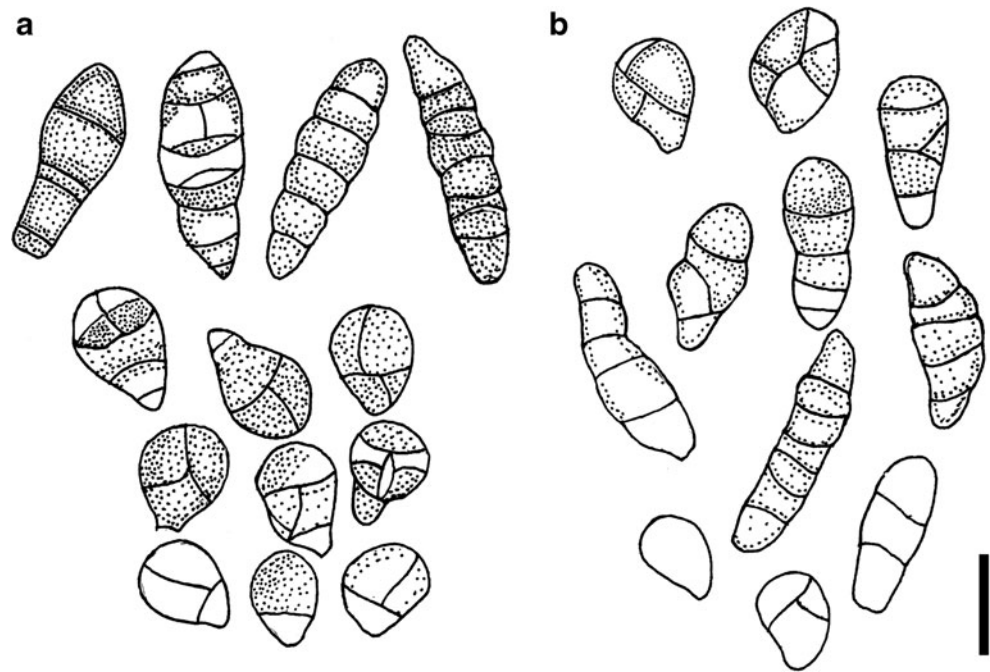
Fig. 166 *Neofusicoccum eucalypti* (Material examined: Australia, Queensland, Wongable state forest, pathogenic on *Eucalyptus microcorys*, 6 November 1998, M. Bristow, BRIP 19767). **a** Label of herbarium material. **b** Herbarium materials. **c** Conidiomata on petiole of

leaves. **d** Vertical section of conidiomata. **e** Conidioma wall. **f** Conidiogenous cell. **g–k, r, s** Different stages of conidiogenesis. **l–n, o–q** Conidia. Scale bars: **d** = 50 μm , **e** = 20 μm . **f–k, s** = 5 μm , **l–s** = 10 μm

Neoheteroceras Nag Raj, Coelomycetous Anamorphs with Appendage-bearing Conidia (Ontario): 539 (1993)

Facesoffungi number: FoF 01542; Fig. 170
Ascomycota, genera incertae sedis

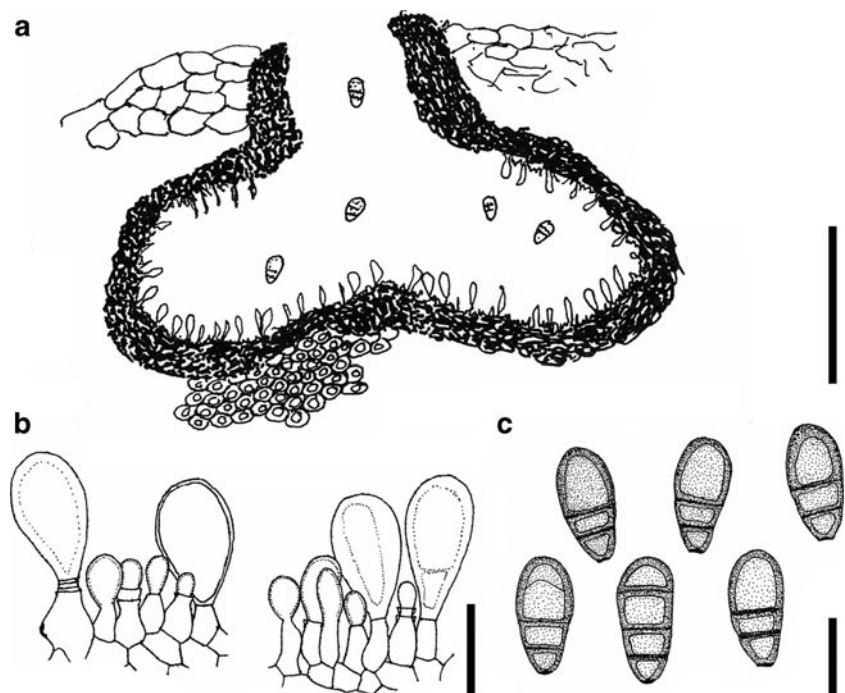
Fig. 167 **a** dichomera-like synasexual form of *Neofusicoccum ribis*. **b** ‘*Dichomera*’ versiformis. Scale bar: **a, b** = 10 μm (re-drawn from Barber et al. 2005)



Fungicolous or *saprobic* or *endophytic* on a range of woody plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic or acervular, subperidermal or superficial, erumpent at maturity, solitary to gregarious, unilocular, globose, dark brown to black. *Conidiomata* wall composed of thick-walled, brown cells of *textura angularis*. *Paraphyses* absent, or when present filiform, unbranched,

septate, hyaline, smooth-walled. *Conidiophores* cylindrical, branched, septate or sparsely septate at the base, constricted at the septa, hyaline, or occasionally reduced to conidiogenous cells. *Conidiogenous cells* cylindrical to subcylindrical, hyaline to sub-hyaline. *Conidia* falcate, oblong or fusiform, 6–15-distoseptate, constricted at the septa, including the apical and basal appendages, with lateral appendages; basal cell obconic

Fig. 168 *Neohendersonia kickxii*. **a** Vertical section of conidioma. **b, c** Different stages of conidiogenesis. **d** Conidia. Scale bars: **a** = 500 μm , **b, c** = 20 μm (re-drawn from Sutton and Pollack 1974)



with a truncate base, attenuated at the apex, hyaline; median cells dark brown to pale brown, thick and smooth-walled; apical cell conical, subhyaline to hyaline, attenuated at the apex as an unbranched, tubular appendage. *Lateral appendages* 2–5 appendages, arising from median cells, cellular and tubular, unbranched, hyaline, straight or sinuate (Nag Raj 1993; Yonezawa and Tanaka 2008).

Type species: Neoheteroceras flageoletii (Sacc.) Nag Raj, Coelomycetous anamorphs with appendage-bearing conidia: 539 (1993)

≡ *Heteroceras flageoletii* Sacc., *Annl. mycol.* 13(2): 136 (1915)

Notes: Nag Raj (1993) introduced *Neoheteroceras* with *N. flageoletii* as the type species. The second species, *N. macrosporum* H. Yonez. & Kaz. Tanaka was introduced by Yonezawa and Tanaka (2008). In morphology, *Neoheteroceras* is distinct from other dematiaceous coelomycetous genera with lateral appendages viz. *Chithramia* and *Coma*. Both *Chithramia* and *Coma* have 1-euseptate conidia, while *Neoheteroceras* has 6–15-distoseptate conidia. Sequence data is unavailable, thus the taxonomic placement of *Neoheteroceras* is uncertain.

Neomelanconium Petr., *Annl. mycol.* 38(2/4): 208 (1940)

Facesoffungi number: FoF 01543; Fig. 171

Ascomycota, genera incertae sedis

Endophytic or *saprobic* on various substrates on a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, immersed to sub-peridermal, solitary or gregarious, occasionally confluent, multi-locular or unilocular, globose to subglobose, black. *Conidiomata wall* multi-layered, outer layer composed of thick-walled, brown cells of *textura angularis*, inner layer thin, hyaline to pale brown. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, short, determinate, discrete, cylindrical, hyaline, smooth and thick-walled. *Conidia* globose, base truncate, aseptate, brown to dark brown, thick and smooth-walled (Petrak 1940; Sutton 1980).

Type species: Neomelanconium gelatosporum (H. Zimm.)

Petr., *Annl. mycol.* 38(2/4): 209 (1940)

≡ *Melanconium gelatosporum* H. Zimm., *Verh. nat. Ver. Brünn* 52: 111 (1913)

Notes: Petrak (1940) introduced the genus *Neomelanconium* to place *Melanconium gelatosporum* as it has enteroblastic, phialidic conidiogenesis, while *Melanconium sensu stricto* has holoblastic, phialidic conidiogenesis. Conidia of *Neomelanconium* spp. are also eguttulate and globose, while those of *Melanconium* are guttulate and globose to ellipsoid. Currently, only two species epithets are available in *Index Fungorum* (2016) and sequence data are unavailable.

Fig. 169 *Neohendersonia fagi* (holotype). **a, b** Immersed conidiomata on dead branch of *Fagus sylvatica*. **c–e** Vertical sections of conidiomata. **f–h** Different stages of conidiogenesis. **i–k** Different stage of conidia attach to conidiogenous cells. **l–q** Conidia. Scale bars: **c, d** = 500 µm, **e** = 150 µm, **f–h** = 10 µm, **i–l** = 20 µm

Neomelanconium spartii Wijayaw., Camporesi, McKenzie & K.D. Hyde, *sp. nov.*

Index Fungorum number: IF551801; *Facesoffungi* number: FoF 01544; Fig. 171

Etymology: Named after the host genus

Holotype: MFLU 15–3453

Saprobic on stem of *Spartium* sp. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* 520–560 µm diam., 320–360 µm high, pycnidial, immersed to subperidermal, solitary or gregarious, occasionally confluent, unilocular, globose to subglobose, black. *Conidiomata wall* multi-layered, outer layer thick, composed of brown walled-cells of *textura angularis*, inner layer thin, hyaline to pale brown. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* 8–10 × 5–8 µm, enteroblastic, phialidic, short, indeterminate, discrete, cylindrical, hyaline to dark brown, smooth-walled. *Conidia* 12–17 × 12–16 µm (\bar{x} = 14.7 × 14.2 µm, n = 20), globose, aseptate, base truncate, dark brown, thick and smooth-walled.

Material examined: Italy, Arezzo [AR] Province, Montalone - Pieve Santo Stefano, on dead branch of *Spartium junceum* L. (Fabaceae), 6 June 2012, Erio Camporesi, IT 404 (MFLU 15–3453, **holotype**); (HKAS92541, **isotype**).

Notes: There are no melanconium-like or microsphaeropsis-like taxa reported on *Spartium* sp. (Farr and Rossman 2016). In morphology, our collection from *Spartium* sp. resembles *Neomelanconium* as it clearly shows enteroblastic conidiogenesis. It has distinct morphology from other *Neomelanconium* spp. and is thus introduced as a new species.

Neopestalotiopsis Maharachch. et al., *Stud. Mycol.* 79: 135 (2014)

Facesoffungi number: FoF 01545; Fig. 172

Sordariomycetes, Xylariomycetidae, Amphisphaeriales, Pestalotiopsisaceae

Saprobic, endophytic or *pathogenic* on a various substrates of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* acervular or pycnidial, subglobose or globose, clavate, solitary or aggregated, dark brown to black, immersed to erumpent, unilocular or irregularly plurilocular; exuding dark brown to black conidia in a slimy, globose mass. *Conidiophores* indistinct, often reduced to conidiogenous cells. *Conidiogenous cells* discrete, cylindrical, ampulliform to lageniform, hyaline, smooth and thin-walled;



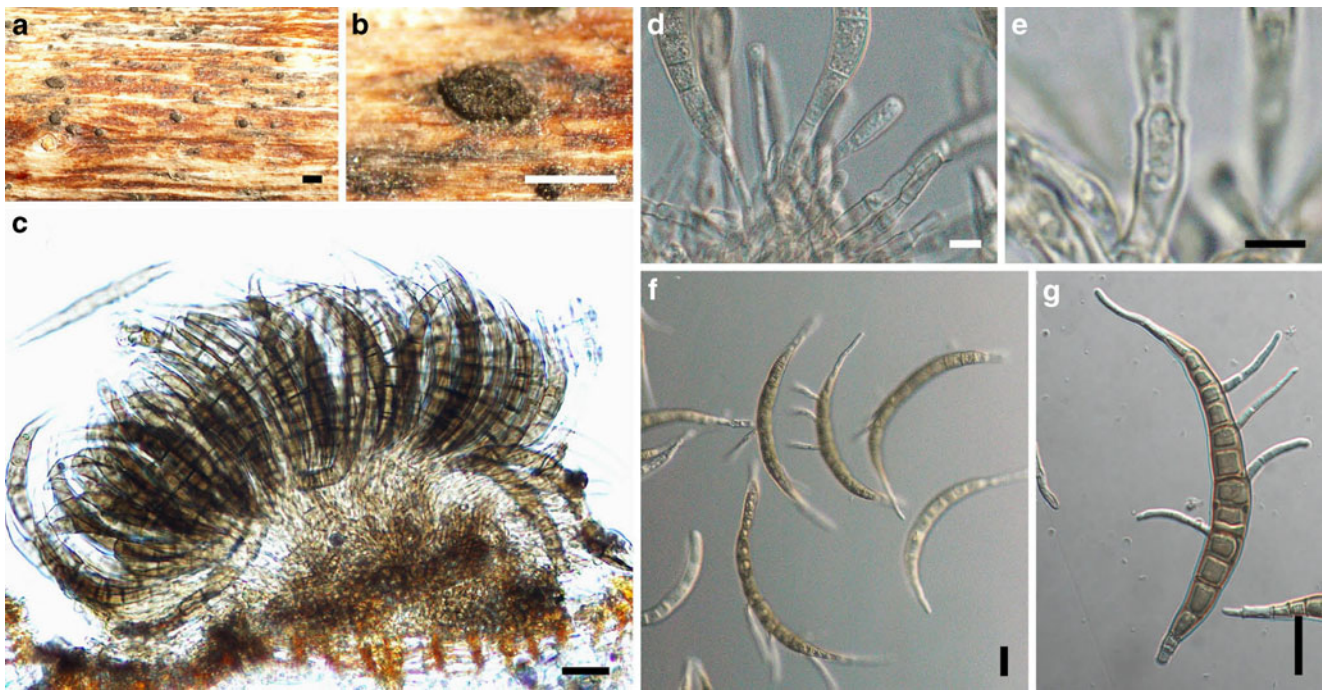


Fig. 170 *Neoheteroceras macrosporum* (Material examined: Japan, Aomori, Hirosaki, Zatouishi, Ogamizawa, on submerged wood, 8 July 2006, K. Tanaka, H. Yonezawa, Y. Hiro, and G. Sato, HHUF

29691, holotype). **a, b** Conidiomata on host. **c** Vertical section of conidioma. **d, e** Conidiogenous cells. **f, g** Conidia. Scale bars: **a–b** = 500 μm , **c, f, g** = 20 μm , **d, e** = 5 μm

conidiogenesis initially holoblastic, becoming percurrent to produce additional conidia at slightly higher levels. *Conidia* fusoid, ellipsoid to subcylindrical, straight to slightly curved, 4-septate; basal cell conic to subcylindrical, with a truncate base, hyaline or pale brown to olivaceous, thin and rugose to smooth-walled; three median cells doliiform, wall rugose to verruculose, versicoloured, septa darker than the rest of the cell; apical cell hyaline, conic to cylindrical, thin and smooth-walled; with tubular apical appendages, one to many, filiform or attenuated, flexuous, branched or unbranched; basal appendage single, tubular, unbranched, centric (Maharachchikumbura et al. 2014; Senanayake et al. 2015).

Type species: Neopestalotiopsis protearum (Crous & L. Swart) Maharachch. et al., Stud. Mycol. 79: 147 (2014)

Notes: Maharachchikumbura et al. (2014) resolved genera in the *Amphisphaeriaceae* based on analysis of LSU sequence data. The phylogeny resolved *Pestalotiopsis* as a distinct clade in *Amphisphaeriaceae*, with three well-supported groups that correlated with morphology; besides *Pestalotiopsis*, two new genera, *Neopestalotiopsis* and *Pseudopestalotiopsis* were proposed. *Neopestalotiopsis protearum* which was isolated from living leaves of *Leucospermum cuneiforme* in Zimbabwe was assigned as the type species of *Neopestalotiopsis*. Senanayake et al. (2015) showed *Neopestalotiopsis* and *Pestalotiopsis*, *Pseudopestalotiopsis* and *Seiridium* grouped as a distinct clade in *Xylariales*, thus

introduced *Pestalotiopsidaceae*. Our phylogenetic analyses also agree with findings in Senanayake et al. (2015), hence we confirm the placement of *Neopestalotiopsis* in *Pestalotiopsidaceae* (Fig. 16).

Neosetophoma Gruyter et al., Mycologia 102(5): 1075 (2010)

Facesoffungi number: FoF 01546; Fig. 173

Dothideomycetes, Pleosporomycetidae, Pleosporales, Pleosporineae, Phaeosphaeriaceae

Endophytic or *saprobic* on a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, solitary, or confluent, superficial to subperidermal, unilocular, globose, dark brown to black, ostiolate. *Ostiole* papillate or with long neck, central, single, circular. *Conidiomata wall* composed of thick-walled, brown to dark brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous

Fig. 171 *Neomelanconium* sp. **a–j** *N. spartii* (holotype). **a, b** Conidiomata on the stem of *Spartium* sp. **c** Vertical section of conidioma. **d** Conidioma wall. **e–h** Different stages of conidiogenesis. **i, j** Conidia; **k–m** *N. deightonii* (Material examined: Sierra Leone, Najala Kori, on stem on *Spondias mombin*, 28 January 1953, F.C. Deighton, PDD 61086, Isotype). **k** Label of herbarium specimen. **l** Herbarium materials. **m** Conidiomata on host. **n** Vertical section of conidioma. **o** Developing conidium attach to conidiogenous cells. **p** Conidia. Scale bars: **c** = 300 μm , **d, n** = 50 μm , **e–j** = 20 μm , **o, p** = 10 μm

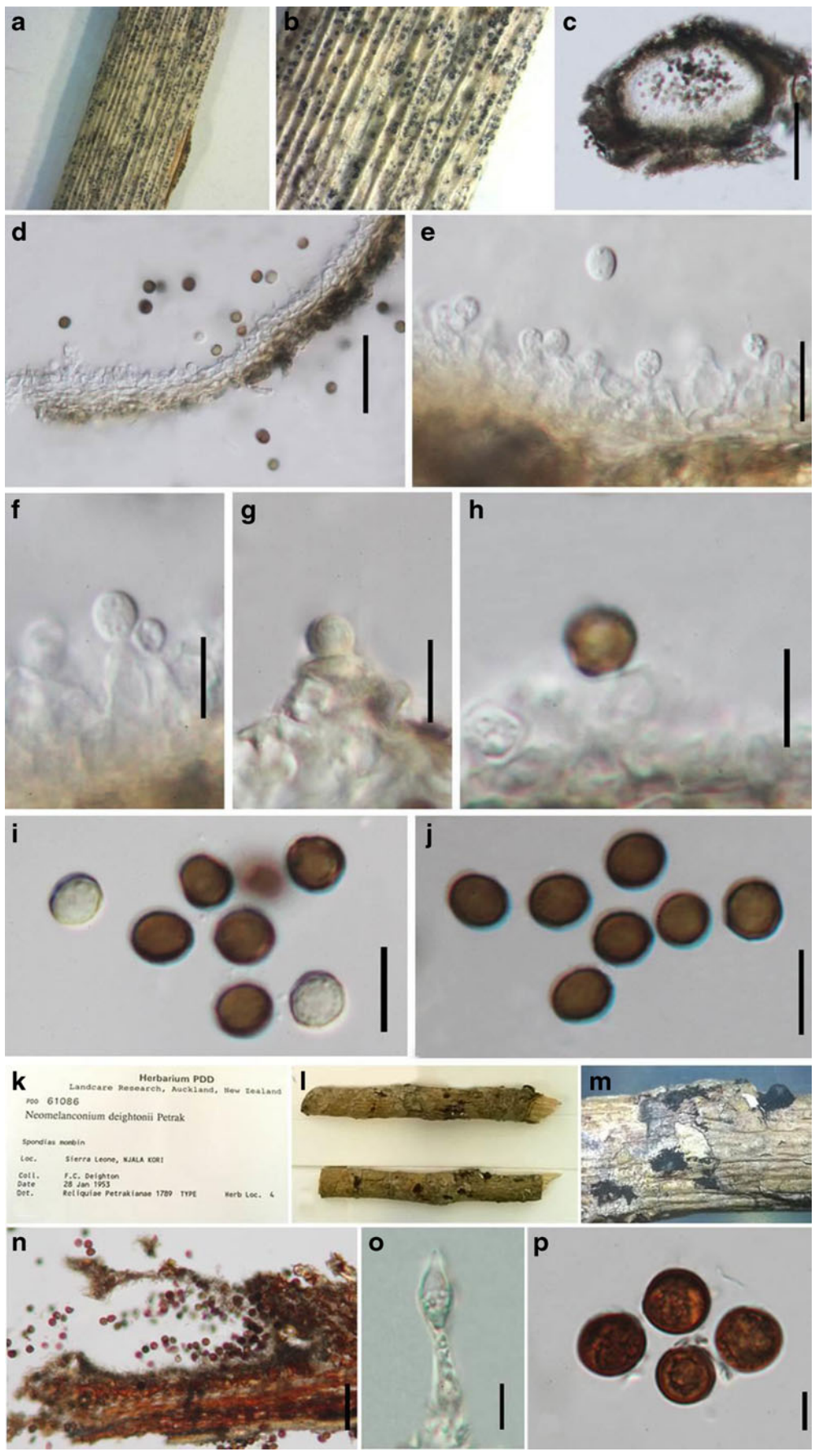
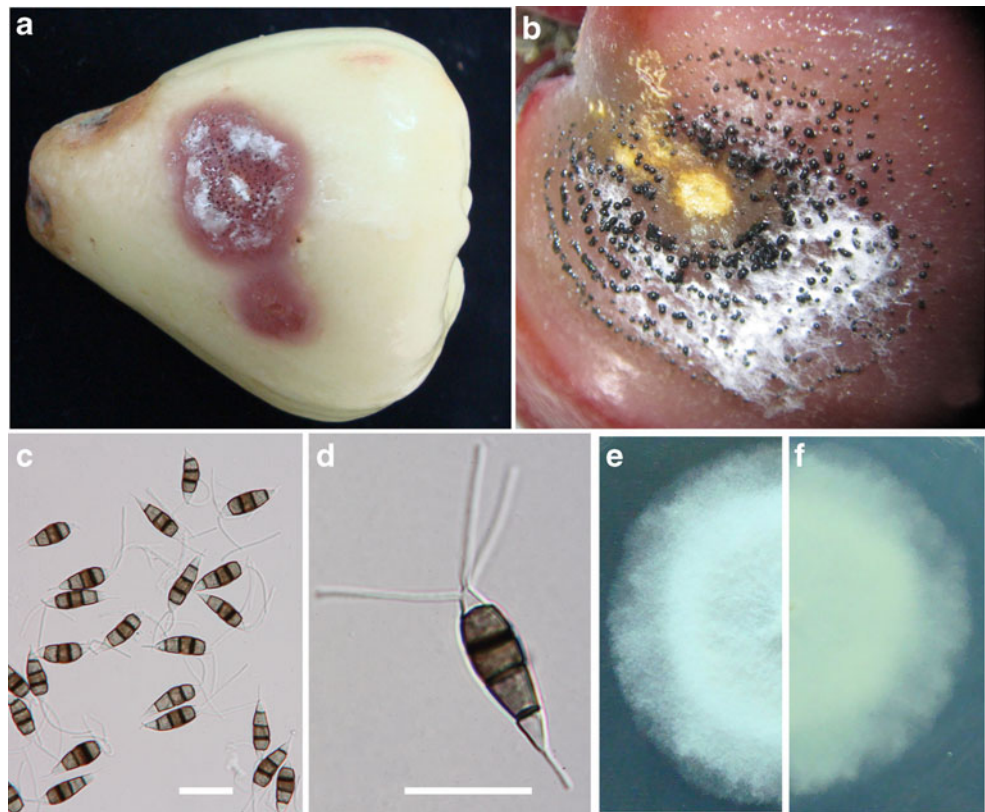


Fig. 172 *Neopestalotiopsis samarangensis* (Material examined: Thailand, Chiang Mai Province, Chiang Mai, on fruits of *Syzygium samarangense*, 20 January 2010, S.S.N. Maharachchikumbura, MFLU 12–0133, holotype). **a, b** Fruit rot of wax apple. **c, d** Conidia. **e, f** Colony on PDA above (**e**) and below (**f**). Scale bars: **c, d** = 20 μ m



cells. *Conidiogenous cells* enteroblastic, phialidic, doliiform to ampulliform, discrete, determinate, hyaline, smooth. *Conidia* ellipsoidal to cylindrical, straight to slightly curved, aseptate to septate, continuous or constricted at septa, slightly yellowish to pale brown, smooth-walled, guttulate or eguttulate (de Gruyter et al. 2010; Liu et al. 2015).

Type species: Neosetophoma samararum (Desm.) Gruyter et al., Mycologia 102(5): 1075 (2010)

≡ *Phoma samararum* Desm., Pl. Crypt. Nord France, Edn 1 7: no. 349 (1828)

Notes: De Gruyter et al. (2010) introduced *Neosetophoma* with *N. samararum* as the type species. The type species has been introduced with slightly yellowish conidia, but Liu et al. (2015) introduced another two species with pale brown conidia, viz. *N. clematidis* Wijaya et al. and *N. italica* W.J. Li et al. However, both latter species cluster in *Phaeosphaeriaceae* and group with *Neosetophoma sensu stricto* in the phylogenetic analyses (Liu et al. 2015; Fig. 9).

Neosulcatispora Crous & M.J. Wingf., Fungal Planet description sheets 371–399; Persoonia 35: 283 (2015)

Facesoffungi number: FoF 01686; Fig. 174

Dothideomycetes, Pleosporomycetidae, Pleosporales, Pleosporineae, Phaeosphaeriaceae

Endophytic or saprobic on Asparagaceae (Monocotyledons).

Sexual morph: Undetermined. **Asexual morph:**

Conidiomata pycnidial, solitary, becoming aggregated, linked by a stroma, erumpent, globose, dark brown, ostiolate. *Ostiole* central. *Conidiomata* wall composed of brown-walled cells of *textura angularis*. *Conidiophores* subcylindrical, straight to curved, unbranched or branched at the base, septate, hyaline, smooth. *Conidiogenous cells* proliferating percurrently, subcylindrical, straight to geniculate, terminal, hyaline, smooth. *Conidia* subcylindrical, straight to irregularly curved, apex obtuse, base truncate to bluntly rounded, initially hyaline, with two large polar guttules and various smaller guttules, becoming 1-septate, golden-brown, and prominently striate, with striations covering the length of the conidium, becoming dark brown after discharge (description modified from Crous et al. 2015e).

Type species: Neosulcatispora agaves Crous & M.J. Wingf., Fungal Planet description sheets 371–399; Persoonia 35: 283 (2015); Fig. 174

Notes: The genus *Neosulcatispora* was introduced by Crous et al. (2015e) with *N. agaves* as the type species. *Neosulcatispora* resembles *Chaetodiplodia*, *Placodiplodia* and *Pseudodiplodia*, but only *Neosulcatispora* has conidia with striations (Crous et al. 2015e). In phylogenetic analyses, Crous et al. (2015e) showed that *Neosulcatispora agaves* clustered in *Phaeosphaeriaceae*.

Neottiosporina Subram., Proc. Natl. Inst. Sci. India, B, Biol. Sci. 27: 238 (1961)

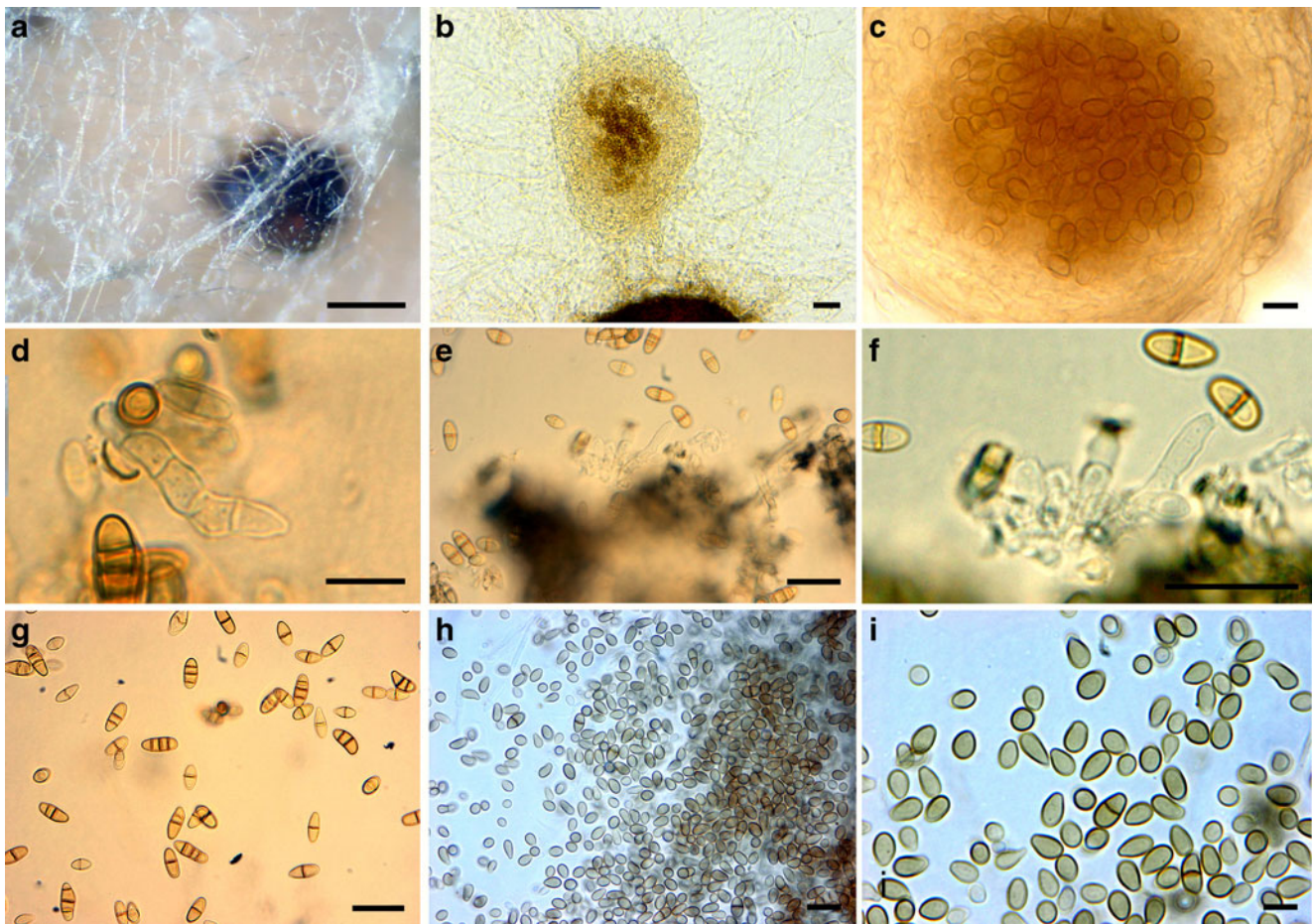


Fig. 173 *Neosetophoma samararum* (Material examined: Iran, Golestan Province, Golestan, Gomishan wetland, on soil, 23 May 2014, Moslem Papizadeh, IBRC-M 30176). **a–c** Conidiomata. **d–f** Conidiogenous cells. **g–i** conidia. Scale bars: **a** = 100 μm , **b** = 20 μm , **c–i** = 5 μm , **d–h** = 10 μm

Facesoffungi number: FoF 01791; Fig. 175
 Dothideomycetes, Pleosporomycetidae, Pleosporales,
 Massarineae, Massarinaceae
 Endophytic or saprobic on a range of host plants. **Sexual
 morph:** Undetermined. **Asexual morph:** Conidiomata

pycnidial, immersed, solitary, globose, brown, unilocular,
 ostiolate. *Ostiole* central, circular, papillate. *Conidiomata* wall
 thin, composed of brown cells of *textura angularis*.
Conidiophores reduced to conidiogenous cells.
Conidiogenous cells holoblastic, doliiform, determinate,

Fig. 174 *Neosulcatispora agaves*. **a** Different stages of conidiogenesis. **b** Conidia. Scale bars: **a**, **b** = 10 μm (re-drawn from Crous et al. 2015e)

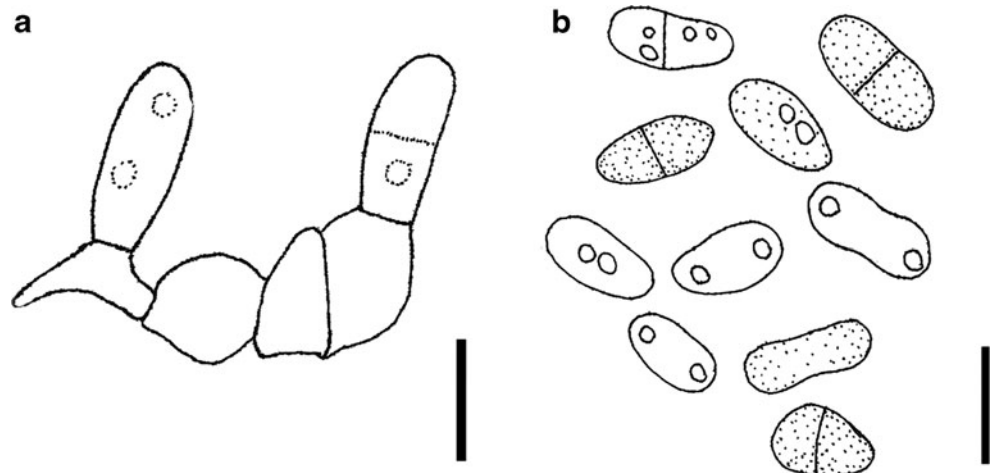
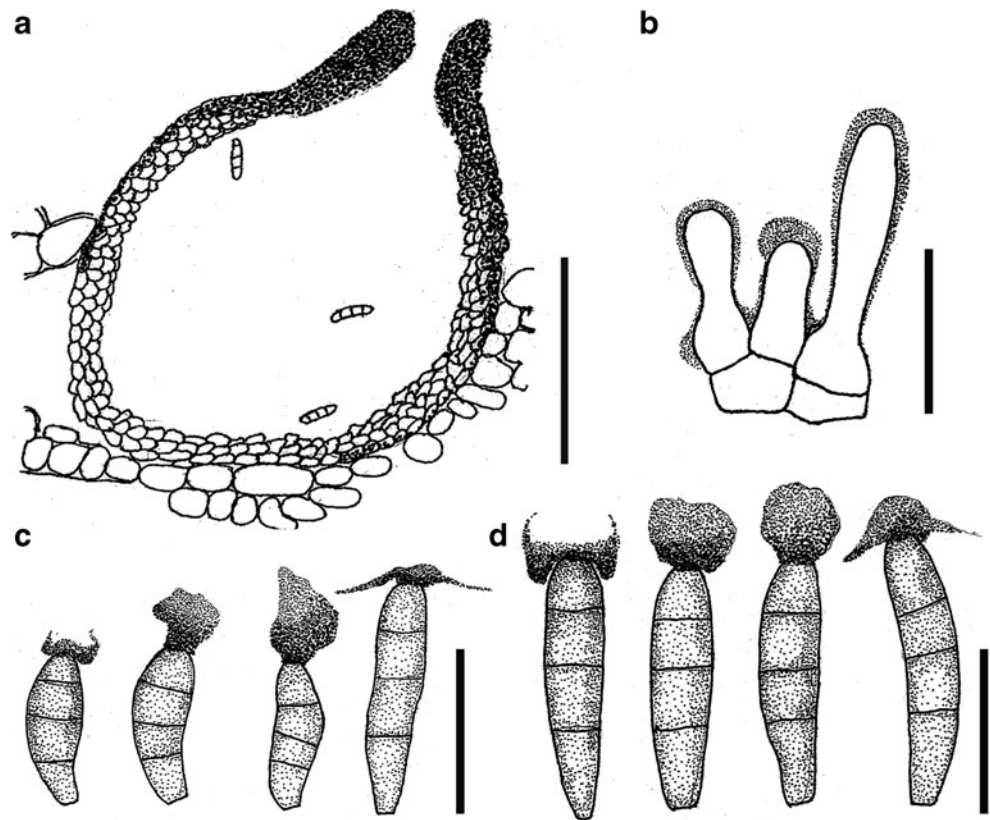


Fig. 175 *Neottiosporina apoda*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c, d** Conidia. Scale bars: **a** = 100 μ m, **b–d** = 20 μ m (re-drawn from Nag Raj 1993)



discrete, hyaline, smooth. *Conidia* cylindrical, navicular to obovoid, apex obtuse, base truncate, hyaline to brown, 2–3-septate, continuous or constricted, thin and smooth-walled, at first enclosed or partially enclosed in a gelatinous sheath that may become everted as an apical and basal appendage (Sutton 1980; Nag Raj 1993).

Type species: Neottiosporina apoda (Speg.) Subram., Proc. natn. Acad. Sci. India, Sect. B, Biol. Sci. 27(4): 239 (1961)

≡ *Cryptostictis apoda* Speg., Anal. Mus. nac. B. Aires, Ser. 3 13: 374 (1911)

Notes: Sutton (1980) mentioned that this genus has hyaline conidia, but Nag Raj (1993) stated that conidia are ‘colourless to almost colourless or brown’. Sutton (1980) accepted eight species. Sequence data is unavailable, thus taxonomic placement is uncertain.

Nigropuncta D. Hawksw., Bull. Br. Mus. nat. Hist., Bot. 9(1): 46 (1981)

Facesoffungi number: FoF 01547; Fig. 176

Ascomycota, genera incertae sedis

Lichenicolous. Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* pycnidial, single, immersed, subglobose at immaturity, becoming cupuliform at maturity, hyaline, but appearing as black when covered by conidia. *Conidiomata* wall composed of loosely interwoven hyaline

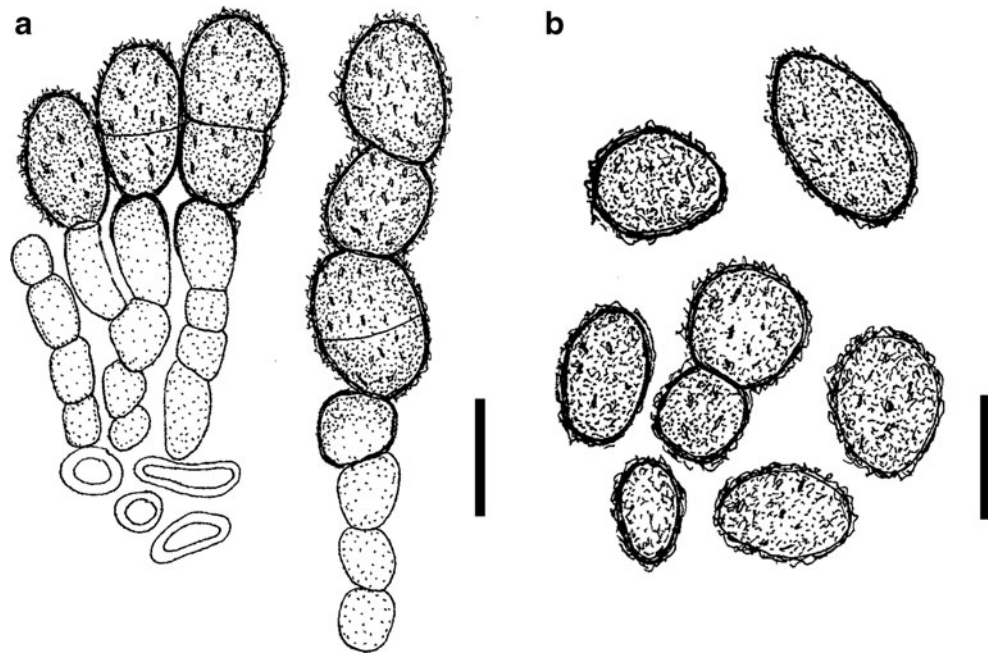
hyphae forming a *textura intricata*. *Conidiophores* unbranched or sparsely branched, hyaline, septate, composed of isodiametric cells. *Conidiogenous cells* holothallic, subglobose to subcylindrical, acrogenous, integrated, terminal, determinate, hyaline but becoming olivaceous at the apex. *Conidia* catenate at first, accumulating in a cirrus, irregular, aseptate, dark olivaceous or black, individual cells mainly simple, rough-walled (Hawksworth 1981a, b; Alstrup 1993).

Type species: Nigropuncta rugulosa D. Hawksw., Bull. Br. Mus. nat. Hist., Bot. 9(1): 46 (1981); Fig. 176

Notes: Hawksworth (1981a, b) introduced *Nigropuncta* with *N. rugulosa* as the type species. In morphology, *Nigropuncta* resembles *Sclerococcum* but that genus has superficial sporodochia (thus treated as hyphomycetous genus fide Seifert et al. 2011) and conidia smooth-walled (Hawksworth 1979). Hawksworth (1981b) compared *N. rugulosa* with *Nigromacula uniseptata* but that species has much longer and pigmented conidiogenous cells, and the conidia are consistently 1-septate and not aggregating into multicellular clumps. Moreover, *Nigromacula uniseptata* has conidia with a different mode of ornamentation and are produced in a dark brown pycnidium, while conidiomata of *Nigropuncta rugulosa* are hyaline.

A taxonomic key is provided under *Lichenocodium* to distinguish *Nigropuncta* from other dematiaceous lichenicolous coelomycetous genera.

Fig. 176 *Nigropuncta rugulosa*. **a** Different stages of conidiogenesis. **b** Conidia. Scale bars: **a**, **b** = 10 μm (re-drawn from Hawksworth 1981b)



Nummospora E. Müll. & Shoemaker, Nova Hedwigia 7: 1 (1964)

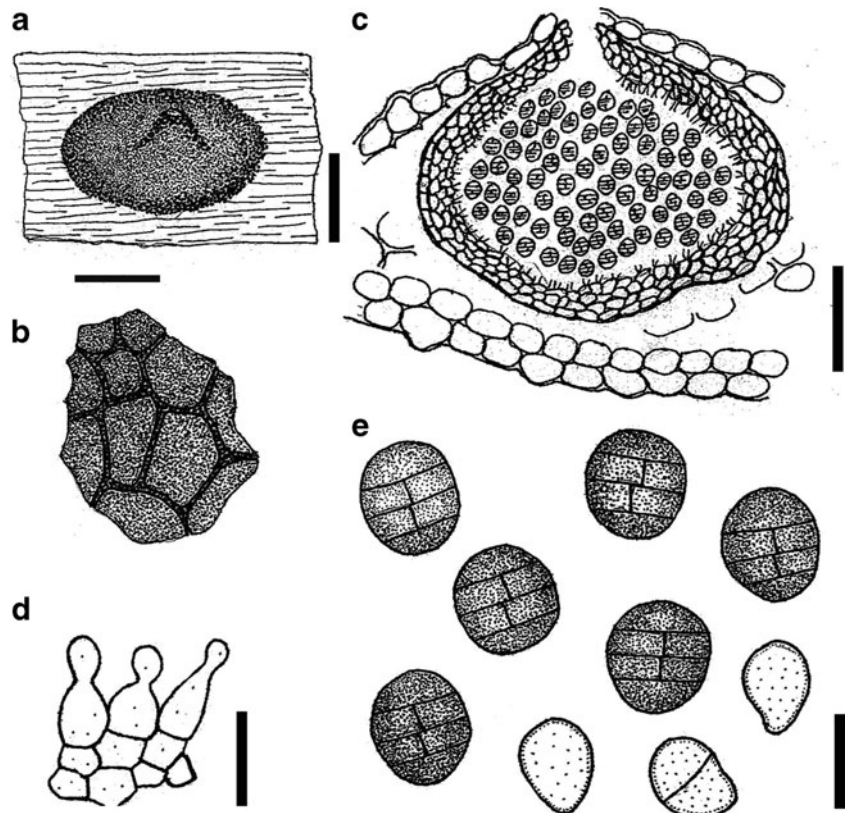
Facesoffungi number: FoF 01548; Fig. 177

Ascomycota, genera incertae sedis

Endophytic or saprobic on dead leaves of *Cyperaceae* (Monocotyledons). **Sexual morph:** Undetermined. **Asexual**

morph: *Conidiomata* pycnidial, solitary, immersed, unilocular, globose, medium brown, ostiolate. *Ostiole* papillate, central, circular. *Conidiomata* wall thin-walled, composed of thin-walled, pale brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, ampulliform to lageniform,

Fig. 177 *Nummospora hexamera*. **a** Surface view of conidioma. **b** Conidioma wall. **c** Vertical section of conidioma. **d** Different stages of conidiogenesis. **e** Conidia. Scale bars: **a**, **c** = 100 μm , **d**, **e** = 10 μm (re-drawn from Morgan-Jones 1974)



determinate, discrete, hyaline, smooth. *Conidia* vertically flattened, circular, with 3-transverse septa, and 2 longitudinal septa in the central cells, reddish brown, thick and smooth-walled, guttulate (Müller and Shoemaker 1964; Morgan-Jones 1974; Sutton 1980).

Type species: Nummospora hexamera E. Müll. & Shoemaker, *Nova Hedwigia* 7: 2 (1964); Fig. 177

Notes: Müller and Shoemaker (1964) introduced *Nummospora* with *N. hexamera* as the type species. The genus is monotypic and sequence data is unavailable. Hence, the taxonomic placement is uncertain.

Nummospora has unique conidial morphology as it has vertically flattened conidia, but which are spherical in side view. Morgan-Jones (1974) used the words ‘coin-shaped’ to describe above view of conidia. Most of the genera with globose conidia (in vertical or in side view) lack septa, but *Nummospora* has both transverse and longitudinal septa.

Obstipipilus B. Sutton, *Can. J. Bot.* 46: 187 (1968)

Facesoffungi number: FoF 01549; Fig. 178

Ascomycota, genera *incertae sedis*

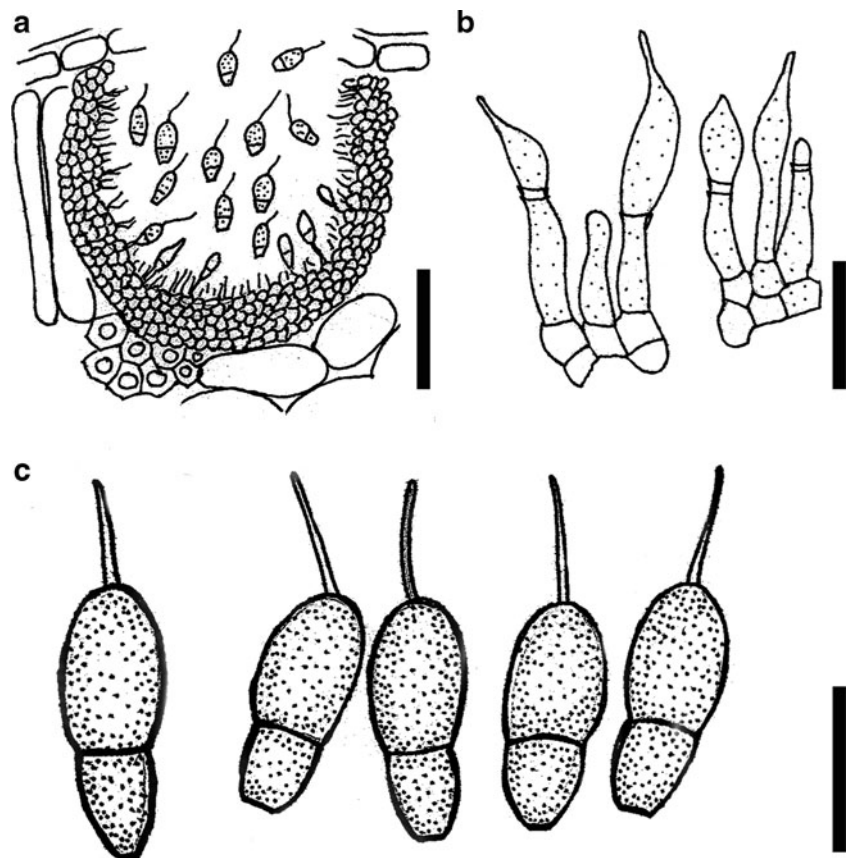
Associated with leaf lesions of *Combretaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* acervular or occasionally stromatic,

subepidermal, immersed, subglobose to glabrous, unilocular, solitary or confluent, ostiolate. *Ostiole* papillate or apapillate, circular. *Conidiomata wall* composed of pale thin-walled, brown cells of *textura angularis* to *textura prismatica*, invested in mucus. *Conidiophores* reduced to *conidiogenous cells*. *Conidiogenous cells* holoblastic to annellidic, discrete, indeterminate, lageniform, hyaline or pale brown, smooth. *Conidia* obovate, 1-septate, upper cell larger, slightly constricted, olivaceous to pale brown, thin and smooth-walled, base truncate; apical cell with an unbranched hyaline setula inclined to one side. *Microconidia* globose, ellipsoid, subglobose, oblong or irregular, unicellular, hyaline, smooth-walled (Sutton 1968, 1980; Morgan-Jones et al. 1972b; Nag Raj 1993).

Type species: Obstipipilus malabaricus (T.S. Ramakr. & K. Ramakr.) B. Sutton, *Can. J. Bot.* 46: 188 (1968); Fig. 178
≡ *Kellermania malabarica* T.S. Ramakr. & K. Ramakr., *Proc. Indian natn Sci. Acad., Part B. Biol. Sci.* 32: 211 (1950)

Notes: Sutton (1968) erected *Obstipipilus* to place *Kellermania malabarica* and named it as *Obstipipilus malabaricus*. Morgan-Jones et al. (1972b) stated the conidiogenesis as ‘blastic-phialidic’, while Sutton (1980) and Nag Raj (1993) mentioned it as ‘annellidic’. The genus remains monotypic and sequence data is unavailable. Hence, taxonomic placement is uncertain.

Fig. 178 *Obstipipilus malabaricus*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **d** Conidia. Scale bars: **a** = 50 µm, **b**, **c** = 10 µm (re-drawn from Morgan-Jones et al. 1972b)



Oncospora Kalchbr., Grevillea 9(no. 49): 19 (1880)

Facesoffungi number: FoF 01550; Fig. 179

Ascomycota, genera incertae sedis

Endophytic or *saprobic* on *Cupressaceae* (Gymnosperm), *Fagaceae* (Dicotyledons), or associated with lesions of leaves of *Cupressaceae*. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, immersed, later erumpent, epidermal to subepidermal, solitary to gregarious, dark brown. *Conidiomata* wall thin, composed of brown cells of *textura angularis*. *Conidiophores* cylindrical to irregular, branched at the base, septate, pale brown to hyaline, smooth-walled. *Conidiogenous cells* holoblastic, integrated or discrete, determinate, cylindrical, pale brown to hyaline, smooth. *Conidia* fusiform to cylindrical, straight or curved or irregular, tapered to the truncate base, apex obtuse to bluntly acute, pale brown, 0–1-septate, continuous, smooth-walled, with guttulate lower cells (Kalchbrenner and Cooke 1880; Sutton 1980; Chevassut 1992).

Type species: ***Oncospora bullata*** Kalchbr. & Cooke, Grevillea 9(no. 49): 19 (1880); Fig. 179

Notes: Kalchbrenner and Cooke (1880) introduced *Oncospora* with *O. bullata* as the type species. In conidial morphology, *Oncospora* shares a few similar characters with *Caryophylloseptoria* Verkley et al. which also has ‘cylindrical, straight, curved or flexuous conidia’ (Verkley et al. 2013). However, *Caryophylloseptoria* often has multi-septate and hyaline conidia and is thus distinct from *Oncospora*.

Eight epithets are listed in Index Fungorum (2016) however, Sutton (1980) mentioned the genus needs revision.

Orphanocoela Nag Raj, Can. J. Bot. 67(11): 3176 (1989)

Facesoffungi number: FoF 01551; Fig. 180

Ascomycota, genera incertae sedis

Endophytic or *saprobic* on various substrates on a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, immersed, unilocular, glabrous, brown, ostiolate. *Ostiole* papillate or not, circular, central.

Conidiomata wall composed of brown-walled cells of *textura angularis* or *textura prismatica*. *Conidiophores* reduced to conidiogenous cells, invested in mucus. *Conidiogenous cells* holoblastic to annellidic, discrete, ampulliform, subcylindrical, subglobose, hyaline, smooth. *Conidia* ovoid, ellipsoid or clavate, muriform, with many transverse and oblique septa, hyaline to yellowish brown, thick and smooth-walled; with or without a single, attenuated, unbranched apical appendage. *Microconidia* globose, ellipsoid, subglobose, or irregular, aseptate, hyaline, smooth-walled (Nag Raj 1989, 1993).

Type species: ***Orphanocoela calamagrostidis*** (H.C. Greene) Nag Raj, Can. J. Bot. 67(11): 3178 (1989); Fig. 180 ≡ *Hyalothyridium calamagrostidis* H.C. Greene, Trans. Wis. Acad. Sci. Arts Lett. 38: 230 (1947) [1946]

Notes: Nag Raj (1989) introduced *Orphanocoela* with *O. calamagrostidis* as the type species. At the same time, Nag Raj (1989) introduced two other species, *O. kranzii* (B. Sutton) Nag Raj and *O. maydis* (Latterell & A.E. Rossi) Nag Raj as well as the type species. *Orphanocoela* is morphologically similar to *Nagrajomyces* which also has muriform conidia with a single, unbranched, attenuated basal appendage (Nag Raj 1993). However, *Nagrajomyces* has conidiophores with percurrent proliferation while *Orphanocoela* has reduced conidiophores and annellidic conidiogenous cells. Sequence data is unavailable thus taxonomic placement is uncertain.

Palmiascoma Phookamsak & K.D. Hyde, Fungal Diversity 72: 65 (2015)

Index Fungorum number: IF550927; *Facesoffungi* number: FoF00429; Fig. 181

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, *Massarineae*, *Bambusicolaceae*

Endophytic or *saprobic* on palms. **Sexual morph:** see Liu et al. (2015). **Asexual morph:** produced in culture; *Conidiomata* pycnidial, solitary, immersed in agar, becoming superficial, black, covered by vegetative hyphae, uni-

Fig. 179 *Oncospora bullata*. **a** Vertical section of conidioma. **b, c** Different stages of conidiogenesis. **d** Conidia. Scale bars: **a** = 200 μ m, **b, c** = 10 μ m (re-drawn from Sutton 1980)

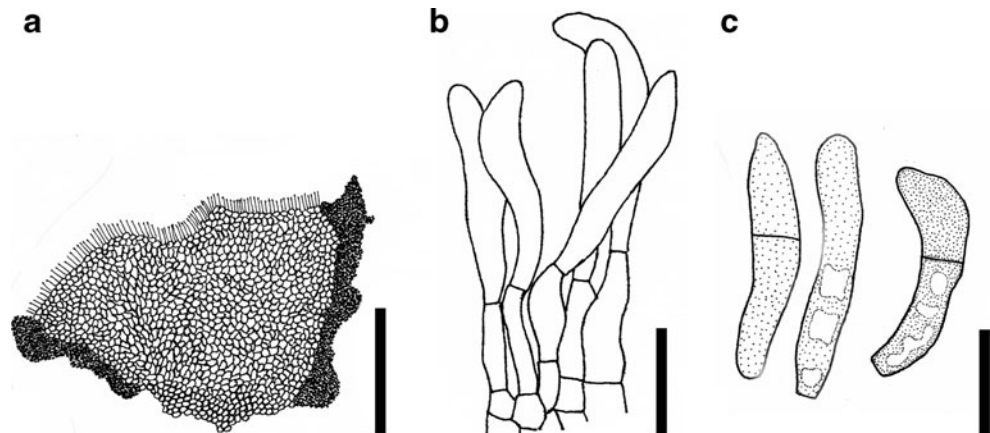
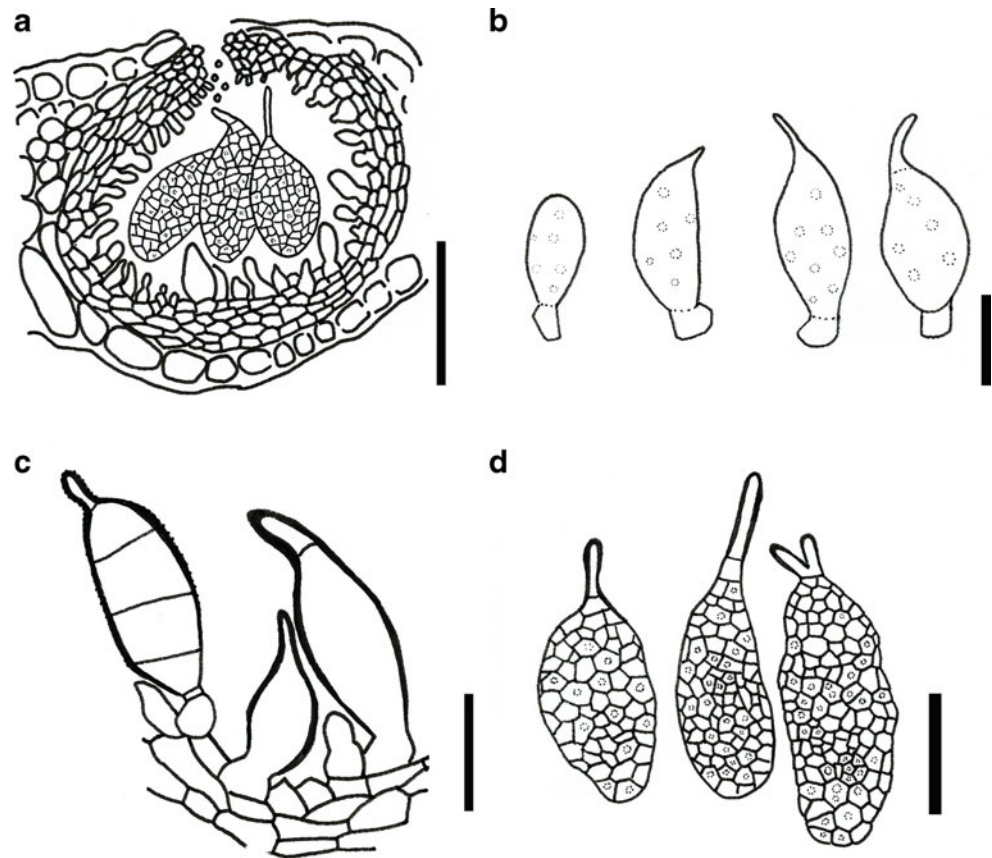


Fig. 180 *Orphanocoela calamagrostidis*. **a** Vertical section of conidioma. **b, c** Different stages of conidiogenesis. **d** Conidia. Scale bars: **a** = 50 μ m, **b–d** = 20 μ m (re-drawn from Nag Raj 1989)



multi-locular, globose to subglobose, ostiolate. *Ostiole* central, with minute papilla. *Conidiomata* wall composed of several layers of hyaline to dark brown, pseudoparenchymatous cells, outer layers composed of thick-walled, dark brown to black cells of *textura angularis* to *textura prismatica*; inner layers comprising 2–3 layers of thin-walled, hyaline, organized in *textura angularis*. *Conidiophores* mostly reduced to conidiogenous cells. *Conidiogenous cells* holoblastic to phialidic, discrete, ampulliform to cylindrical, hyaline, aseptate, smooth-walled. *Conidia* oblong to ellipsoidal, with rounded or obtuse ends, initially hyaline, becoming brown at maturity, aseptate, smooth-walled.

Type species: Palmiascoma gregariascomum Phookamsak & K.D. Hyde, in Liu et al., Fungal Diversity: 72: 65 (2015); Fig. 181

Notes: Liu et al. (2015) introduced *Palmiascoma* with *P. gregariascomum* as the type species. In phylogenetic analyses, *Palmiascoma* clusters in *Bambusicolaceae*.

Paraaoria R.K. Verma & Kamal, Trans. Br. mycol. Soc. 87(4): 645 (1987) [1986]

Facesoffungi number: FoF 01552; Fig. 182

Ascomycota, genera *incertae sedis*

Associated with tar spots lesions of *Rutaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, flattened, subcuticular,

multi-locular, rarely unilocular, black. *Conidiomata* upper wall composed of dark brown to black dead tissues of *textura angularis*; lower wall composed of thick-walled, very dark brown to black cells of *textura angularis*. *Conidiophores* simple or branched, straight, septate, pale brown. *Conidiogenous cells* enterblastic, filiform, indeterminate, discrete or integrated, periclinal thickening, hyaline. *Conidia* ellipsoid, straight, apex obtuse, base truncate, aseptate, pale brown, guttulate, verruculose, base with a marginal frill (description modified from Verma and Kamal 1986).

Type species: Paraaoria himalayana R.K. Verma & Kamal, Trans. Br. mycol. Soc. 87(4): 646 (1987) [1986]; Fig. 182

Notes: Verma and Kamal introduced *Paraaoria* with *P. himalayana* as the type species. Further, Verma and Kamal (1987) compared *Paraaoria* with morphologically similar genera in suborder *Blastostromatineae* viz. *Aoria*, *Crandallia*, *Leptothyria* and *Leptostroma* (Sutton 1980). However, these genera have hyaline conidia (Sutton 1980) whereas those of *Paraaoria* are pale brown. *Conidiomatal* structure of *Paraaoria* is similar to that of *Gaubaea*, but latter genus lacks conidiophores and has eguttulate conidia without a basal frill (Sutton 1980). The genus is monotypic and lacks sequence data. Hence taxonomic placement is uncertain.

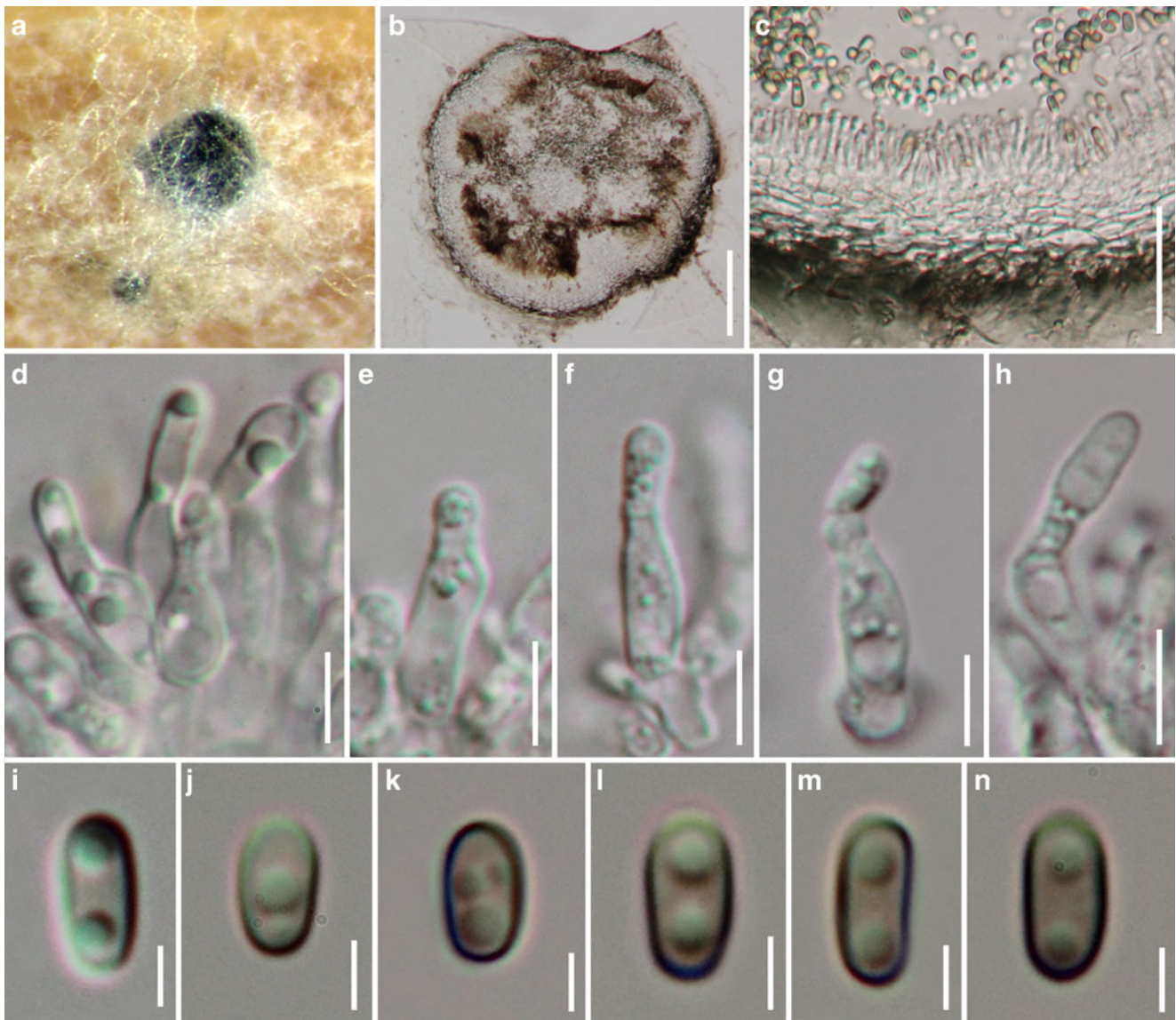


Fig. 181 *Palmiascoma gregariascomum* (Material examined: Thailand: Chiang Rai Province, Muang District, Khun Korn Waterfall, on dead frond of palm, 17 December 2010, R. Phookamsak, MFLU 11-0211, holotype). **a** Conidiomata produced on bamboo pieces on WA. **b**

Vertical section of conidioma. **c** Vertical section through conidioma wall. **d–h** Conidiogenous cells. **i–n** Conidia. Scale bars: **b** = 100 μ m, **c** = 50 μ m, **d–h** = 5 μ m, **i–n** = 2 μ m

Paracamarosporium Wijayaw. & K.D. Hyde, Cryptog. Mycol. 35(2): 183 (2014)

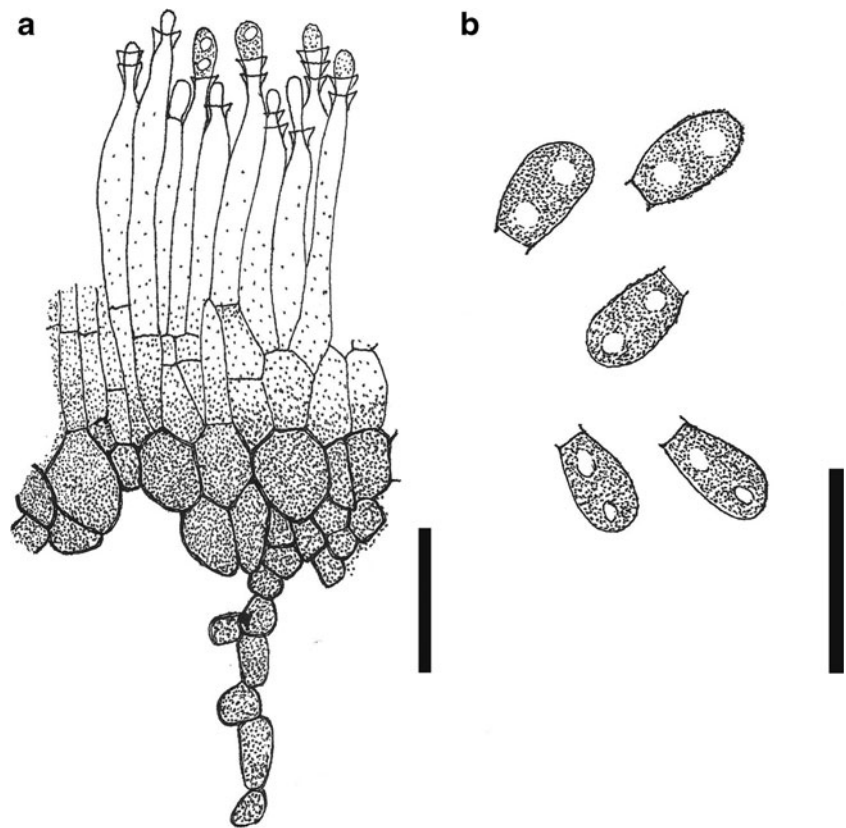
Facesoffungi number: FoF 01553; Fig. 183

Dothideomycetes, *Pleosporales*, *Massarineae*, *Didymosphaeriaceae*

Saprobic on dead branches and stems of *Fabaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* immersed to erumpent, solitary, globose, ostiolate. *Ostiole* central, single. *Conidiomata* wall composed of brown-walled cells of *textura angularis*. *Paraphyses* hyaline, hyphae-like, smooth, intermingled among conidiogenous cells, subcylindrical, with bulbous base, tapering to obtuse apex, 1–4-septate, unbranched or branched at

base, and anastomosing. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* lining the inner cavity, globose to doliiform, hyaline, smooth, phialidic with prominent periclinal thickening and thick channel (at times also with percurrent proliferation). *Conidia* ellipsoid to ovoid, with obtuse ends, brown, finely roughened, 1–3 transversely septate, developing 1–6 oblique to transverse septa, at times becoming constricted at primary septa. *Microconidiogenous cells* intermingled among macro conidiogenous cells, hyaline, smooth, ampulliform to doliiform to irregular, mono to polyphialidic, proliferating percurrently, or with periclinal thickening. *Microconidia* hyaline, smooth,

Fig. 182 *Paraooria himalayana*. **a** Different stages of conidiogenesis. **b** Conidia. Scale bars: **a, b** = 10 μ m (re-drawn from Verma and Kamal 1986)



guttulate, bacilliform to subcylindrical, apex obtuse, base truncate (description modified from Crous et al. 2013).

Type species: Paracamarosporium psoraleae (Crous & M.J. Wingf.) Wijayaw. & K.D. Hyde, Cryptog. Mycol. 35(2): 185 (2014); Fig. 183

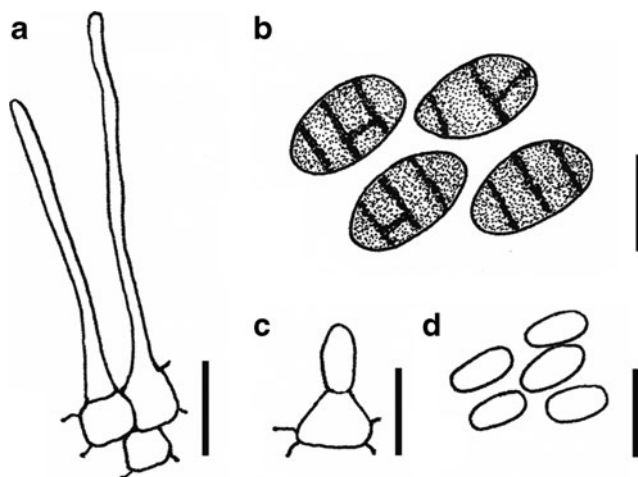


Fig. 183 *Paracamarosporium psoraleae*. **a** Paraphyses. **b** Macroconidia. **c** Microconidiogenous cell and developing microconidium. **d** Microconidia. Scale bars: **a–d** = 10 μ m (re-drawn from Crous et al. 2013)

\equiv *Camarosporium psoraleae* Crous & M.J. Wingf., Persoonia, Mol. Phyl. Evol. Fungi 31: 235 (2013)

Notes: Wijayawardene et al. (2014d) showed *Camarosporium psoraleae* Crous & M.J. Wingf. is not congeneric with *Camarosporium sensu stricto* and grouped in *Didymosphaeriaceae* (= *Montagnulaceae*). Further, *Camarosporium sensu stricto* does not have microconidia stage, thus *Paracamarosporium* was introduced based on both phylogenetic and culture based data Wijayawardene et al. (2014d).

Paraconiothyrium Verkley, Stud. Mycol. 50(2): 327 (2004)

Facesoffungi number: FoF 01554; Fig. 184

Dothideomycetes, Pleosporales, Massariaceae, Didymosphaeriaceae

Saprobic or *endophytic* on various substrates of a range of host plants or associated with leaf spots. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic or pycnidial, superficial to semi-immersed, solitary, subglobose to globose, dark brown. *Conidiomata* wall composed of thick-walled, dark brown cells of *textura angularis*, becoming hyaline and thin-walled towards the inside. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* phialidic, with periclinal wall thickening or with one or more percurrent proliferations near the apex, variable in shape, conical to

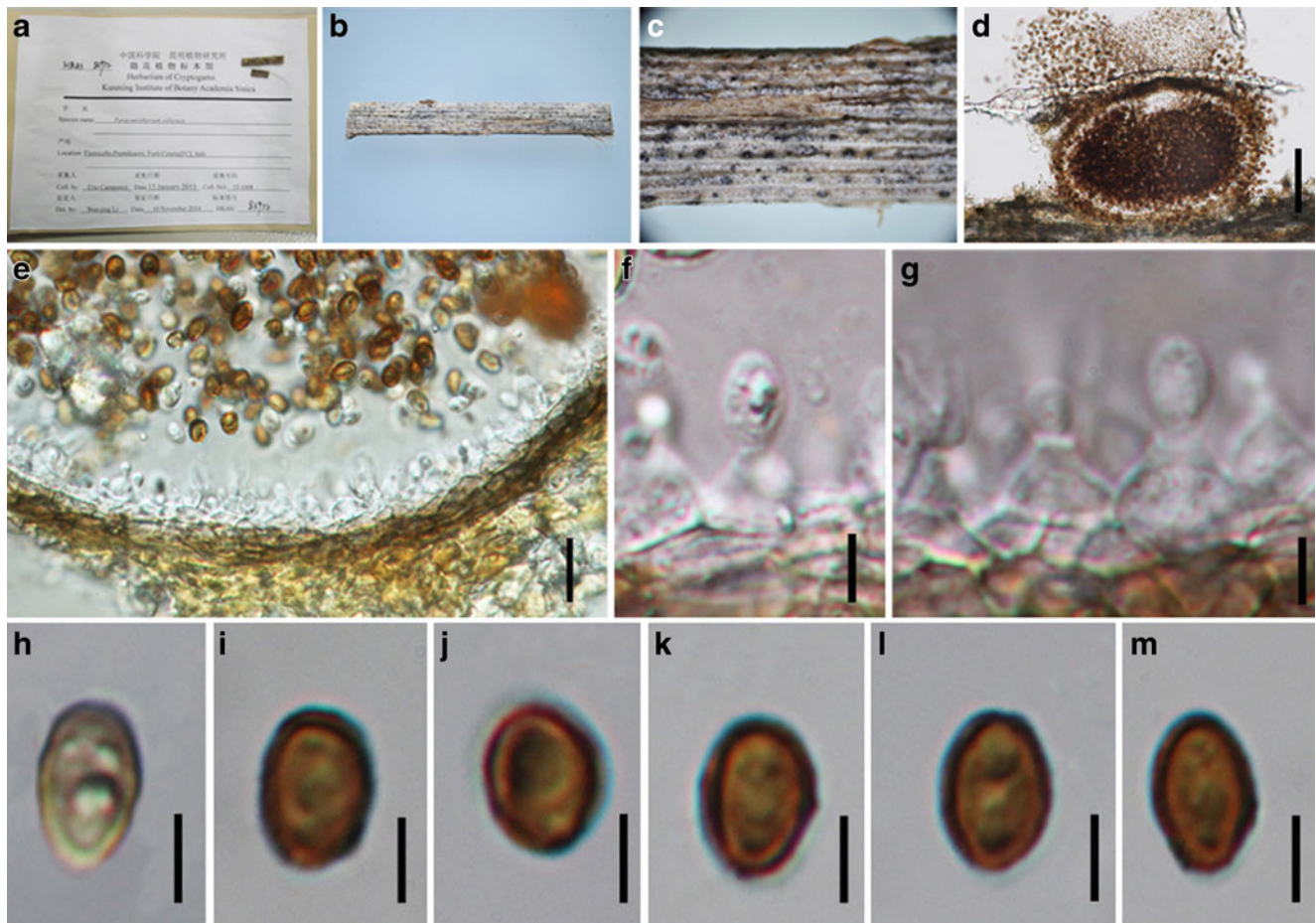


Fig. 184 *Paraconiothyrium nelloi* (Material examined: Italy, Forli-Cesena [FC] Province, Premilcuore, Fiumicello, on dead twig of *Spartium junceum*, 13 January 2013, 1 December 2012, E. Camporesi, MFLU 14–0811, holotype). **a** Label of herbarium material. **b** Herbarium

specimen. **c** Conidiomata on host. **d** Vertical section of conidioma. **e** Conidioma wall. **f, g** Different stages of conidiogenesis. **h–m** Conidia. Scale bars: **d** = 100 μm , **e** = 20 μm , **f–m** = 4 μm

subulate or subcylindrical, doliiform, broadly or elongated ampulliform, sometimes with a long neck. *Conidia* varying in shape, initially hyaline, olivaceous-brown to brown, 0–1-septate, smooth-walled to fine verruculose and thin-walled, sometimes with polar droplets (Verkley et al. 2004, 2014; Damm et al. 2008; Liu et al. 2014).

Type species: Paraconiothyrium estuarinum Verkley & Manuela Silva, Stud. Mycol. 50(2): 327 (2004)

Notes: Verkley et al. (2004) introduced *Paraconiothyrium* with *P. estuarinum* as the type species. At the same time Verkley et al. (2004) predicted that *Paraphaeosphaeria* O.E. Erikss. as the sexual morph of *Paraconiothyrium*. However, Verkley et al. (2014) recognized *Paraconiothyrium* and *Paraphaeosphaeria* as two distinct genera in Didymosphaeriaceae. Damm et al. (2008), Budziszewska et al. (2011), de Gruyter et al. (2013) and Verkley et al. (2014) introduced new species and new combinations based on both morphological and molecular data studies.

In conidial morphology, *Paraconiothyrium* is similar to *Coniothyrium sensu stricto* and *Alloconiothyrium*, as

both genera have 0–1-septate conidia. However, *Coniothyrium sensu stricto* resides in *Pleosporineae* (Wijayawardene et al. 2014c) and *Alloconiothyrium* resides in *Didymosphaeriaceae*, but distinct from *Paraconiothyrium* (Ariyawansa et al. 2014b; Wijayawardene et al. 2014c). Hence, phylogenetic analysis is required to identify the generic placement of paraconiothyrium-like species as they similar to other coniothyrium-like taxa.

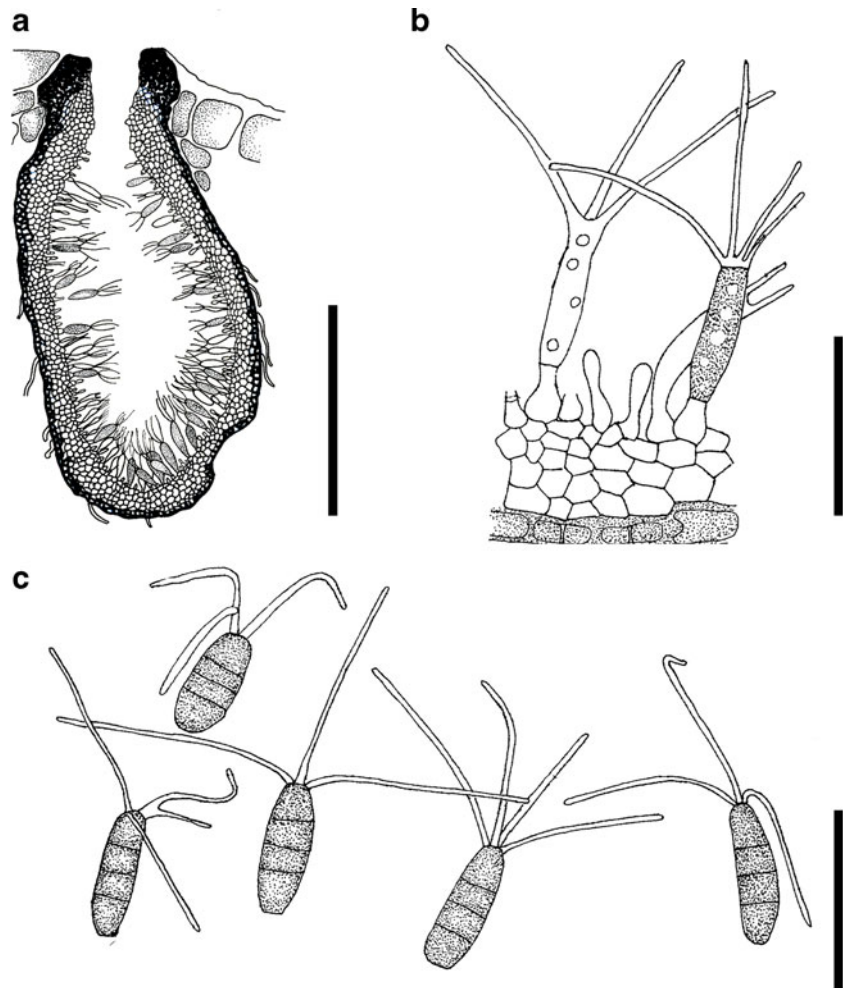
Parahyalotiopsis Nag Raj, Can. J. Bot. 54(12): 1374 (1976)

Facesoffungi number: FoF 01555; Fig. 185

Ascomycota, genera *incertae sedis*

Saprobic or *endophytic* on dead leaves of *Arecaceae* and dead culms of *Restionaceae* (Monocotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, amphigenous, solitary to gregarious, immersed, subepidermal, unilocular, globose or variable in shape, brown, ostiolate. *Conidiomata* wall outer layer composed of thick-walled, brown cells of *textura globulosa*, darker in the ostiolar

Fig. 185 *Parahyalotiopsis borassi*. **a.** Vertical section of conidioma. **b.** Different stages of conidiogenesis. **c.** Conidia. Scale bars: **a** = 100 μm , **b**, **c** = 20 μm (re-drawn from Nag Raj 1977a)



region, inner layer composed of thin-walled, hyaline walled cells of *textura prismatica*. *Conidiophores* reduced to conidiogenous cells, invested or not in mucus. *Conidiogenous cells* holoblastic, subcylindrical to ampulliform, discrete, hyaline, thin-walled, smooth. *Conidia* cylindrical to oblong, with a blunt apex and a truncate base, 2–4-septate, continuous, median cells shorter than end cells, light brown, thick-walled, minutely verruculose; bearing 2–4 apical appendages, flexuous, cellular, unbranched or rarely branched (Nag Raj 1976, 1977, 1993; Lee and Crous 2003).

Type species: Parahyalotiopsis borassi (Thaug) Nag Raj, Can. J. Bot. 54: 1375 (1976); Fig. 185

≡ *Hyalotiopsis borassi* Thaug, Trans. Br. mycol. Soc. 64(2): 311 (1975)

Notes: Nag Raj (1976) introduced *Parahyalotiopsis* with *P. borassi* as the type species. Nag Raj (1993) re-described the type species. Lee and Crous (2003) introduced a second species, *Parahyalotiopsis elegiae* S.J. Lee & Crous.

Parahyalotiopsis is morphologically close to *Hyalotiopsis* (see taxonomic key under *Hyalotiopsis*). However, *Hyalotiopsis* does not have an ostiole, while

Parahyalotiopsis has ostiolate pycnidia. However, we assume *Hyalotiopsis* and *Parahyalotiopsis* might be a single genus, but this needs to be confirmed by sequence data analyses.

Paraphaeosphaeria O.E. Erikss., Ark. Bot., Ser. 2 6: 405 (1967)

Facesoffungi number: FoF00057; Fig. 186

Dothideomycetes, Pleosporales, Massariaceae, Didymosphaeriaceae

Endophytic or saprobic on various substrates of a range of host plants. **Sexual morph:** see Ariyawansa et al. (2014b). **Asexual morph:** *Conidiomata* pycnidial, superficial to semi-immersed, solitary to gregarious, scattered, globose to subglobose, unilocular, pale brown, ostiolate. *Ostiole* circular, papillate. *Conidiomata* wall outer layer composed of thin-walled, brown cells of *textura angularis*, inner wall composed of thin-walled, hyaline cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, with an inconspicuous periclinal thickening, cylindrical to subcylindrical, or subcylindrical to ampulliform,

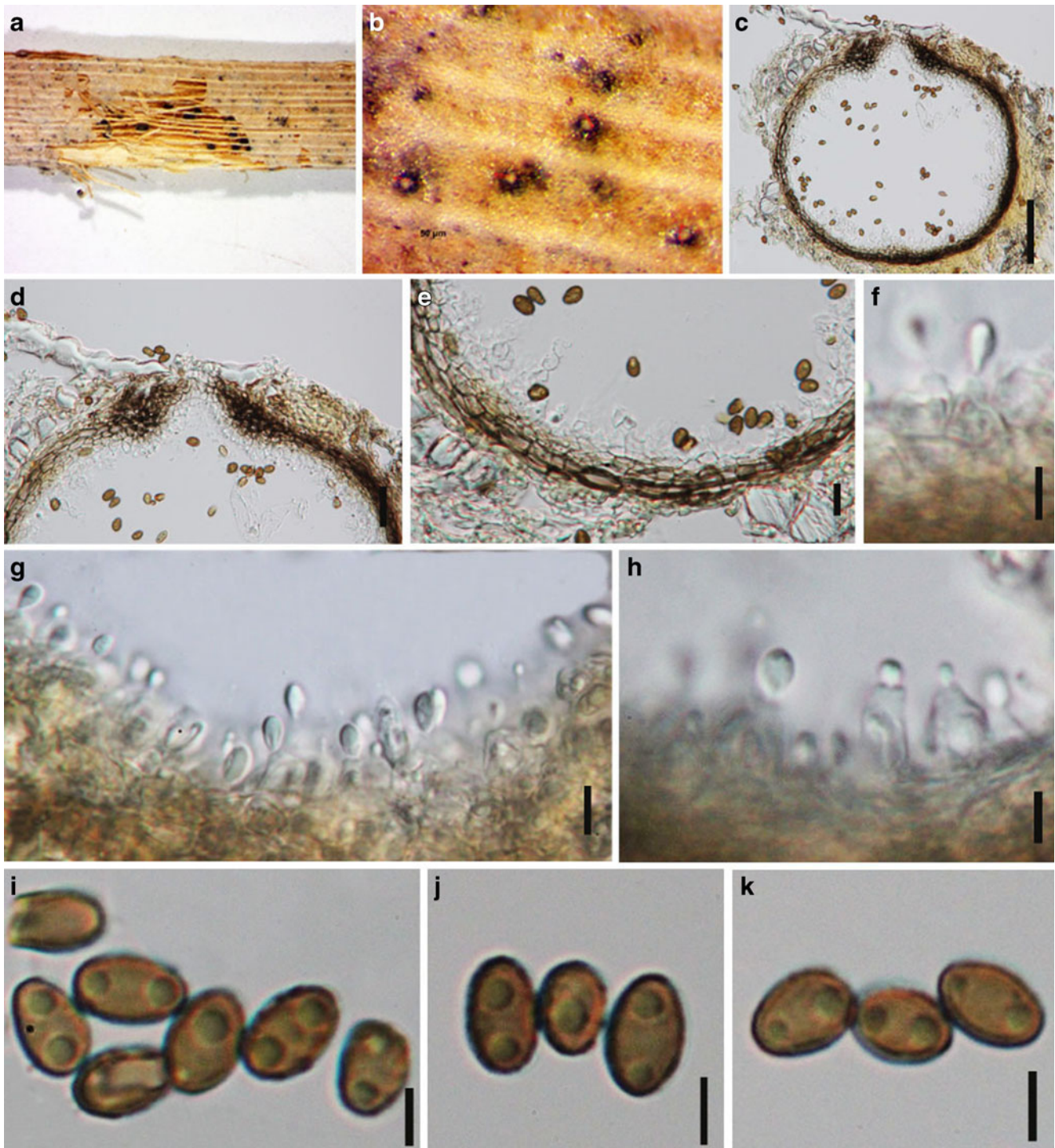


Fig. 186 *Paraphaeosphaeria spartii* (Material examined: Italy, Forlì-Cesena [FC] Province, Santa Sofia, Collina di Pondo. on dead branch of *Spartium junceum*, 16 October 2012, E. Camporesi, MFLU 14–0810, holotype). **a** Host material. **b** Conidiomata on host material. **c** Vertical

section of conidioma. **d** Vertical section of ostiolar region. **e** Conidioma wall. **f–h** Different stages of conidigenesis. **i–k** Conidia. Scale bars: **c** = 100 µm, **d, e–k** = 5 µm

discrete, determinate, hyaline, smooth. *Conidia* subglobose to ellipsoid or obovoid, aseptate, hyaline when immature, becoming pale brown to brown at maturity, smooth and thin-walled, guttulate (Liu et al. 2015).

Type species: Paraphaeosphaeria michotii (Westend.) O.E. Erikss., *Cryptogams of the Himalayas* 6: 405 (1967)

Notes: Verkley et al. (2004) mentioned that *Paraconiothyrium* has a *Paraphaeosphaeria* sexual morph. However, Verkley et al. (2014) showed that

Paraconiothyrium has a distinct phylogenetic lineage to *Paraphaeosphaeria* in *Didymosphaeriaceae*. Liu et al. (2015) introduced *Paraphaeosphaeria spartii* Li et al. and showed it is phylogenetically related to *Paraphaeosphaeria sensu stricto*. *Paraphaeosphaeria spartii* morphologically resembles *Paraconiothyrium* as it has aseptate, brown conidia. However, *Paraphaeosphaeria spartii* has guttulate conidia and it is distinct in phylogeny from *Paraphaeosphaeria* (Figs. 9 and 15).

Paulkirkia Wijayaw., Wanasinghe, Tangthirasunun, Camporesi & K.D. Hyde, *gen. nov.*

Index Fungorum number: IF551793; *Facesoffungi number*: FoF 01677; Fig. 187

Etymology: In honour of P.M. Kirk, a British mycologist, recognizing his invaluable contribution to mycology

Dothideomycetes, Pleosporomycetidae, Pleosporales, family incertae sedis, Floricolaceae

Endophytic or saprobic on Poaceae (Monocotyledons).

Sexual morph: Undetermined. **Asexual morph**: *Conidiomata* pycnidial, subepidermal to superficial, solitary to gregarious, globose or subglobose, unilocular, dark brown to black. *Conidiomata wall* several-layered, outer layer thick in above, thin at bottom, composed of thick-walled, brown cells of *textura angularis*, inner layer composed of thin-walled, hyaline cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, proliferating 1–2 times percurrently but mostly only 1 time, cylindrical to funnel-shaped, unbranched, discrete, indeterminate, hyaline to pale brown, smooth. *Conidia* ellipsoidal or oblong to irregular, rounded apex, truncate base, 0–1-septate, pale to dark brown, guttulate or eguttulate, thin-walled, verrucose.

Type species: Paulkirkia arundinis Wijayaw., Wanasinghe, Tangthirasunun, Camporesi & K.D. Hyde

Notes: In morphology, our new collection resembles *Microdiplodia* and *Verrucoconiothyrium*. However, the validity of *Microdiplodia* is questionable (see under *Microdiplodia* in ‘doubtful genera’) and the sequence data of type species of *Microdiplodia* is unavailable. In phylogenetic analyses, *Paulkirkia* clusters in *Floricolaceae* while *Verrucoconiothyrium* resides in *Didymosphaeriaceae* (Figs. 14 and 15 respectively).

Paulkirkia arundinis Wijayaw., Wanasinghe, Tangthirasunun, Camporesi & K.D. Hyde, *sp. nov.*

Index Fungorum number: IF551794; *Facesoffungi number*: FoF 01678; Fig. 187

Etymology: Named after the host genus

Holotype: MFLU 13–0315

Endophytic or saprobic on Arundo plinii (Poaceae, Monocotyledons). **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* 80–140 µm diam., 120–180 µm high, pycnidial, subepidermal to superficial, solitary to gregarious,

Fig. 187 *Paulkirkia arundinis* (holotype). **a** Host material. **b** Conidiomata on stems. **c, d** Vertical sections of conidiomata. **e, f** Conidiomata walls. **e–i** Different stages of conidiogenesis. **j–n** Conidia. Scale bars: **c, d** = 60 µm, **d, e** = 20 µm, **e–j** = 10 µm, **k–n** = 5 µm

globose or subglobose, unilocular, dark brown to black. *Conidiomata wall* 20–30 µm thick, several-layered, outer layer thick in above, thin at bottom, composed of thick-walled, brown cells of *textura angularis*, inner layer composed of thin-walled, hyaline cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* 2–5 × 1–3 µm, holoblastic, proliferating 1–2 times percurrently but mostly only 1 time, cylindrical to funnel-shaped, unbranched, discrete, indeterminate, hyaline to pale brown, smooth. *Conidia* 7–10 × 4–6 µm (\bar{x} = 9.1 × 4.8 µm, n = 20), ellipsoidal or oblong to irregular, rounded apex, truncate base, 0–1-septate, pale to dark brown, guttulate or eguttulate, thin-walled, verrucose.

Culture characteristics: On PDA, slow growing, attain 20 mm in 7 days at 18 °C, thin mycelium, uneven margin, zonate, greyish brown from surface, blackish brown from reverse, with aerial mycelia.

Material examined: Italy, Forli-Cesena [FC] Province, near Bertinoro, on dead stems of *Arundo plinii* Turra (*Poaceae*), 4 March 2012, Erio Camporesi, NTIT148 (MFLU 13–0315, **holotype**), ex-type living cultures MFLUCC 12–0328, NTCL148.

Notes: Farr and Rossman (2016) reported *Microdiplodia myriospora* (Sacc.) Allesch. from *Arundo donax* L. (5–6 × 2.5–3 µm fide Allescher 1901), but our collection has larger conidia thus introduced as a new species.

Peltistromella Höhn., Denkschr. Kaiserl. Akad. Wiss., Math.-Naturwiss. Kl. 83: 35 (1907)

Facesoffungi number: FoF 01556; Figs. 188 and 189

Ascomycota, genera incertae sedis

Endophytic or saprobic on leaves of a range of host plants.

Sexual morph: Undetermined. **Asexual morph**: *Conidiomata* pycnothyrial, superficial, solitary, scattered, scutate, unilocular, glabrous. *Conidiomata wall* upper layers composed of thick-walled, dark brown to black, radiating hyphae, attached with each other, lower region with holdfasts. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* blastic, phialidic, restricted only to concavity of upper region, subglobose to ampulliform, hyaline, smooth-walled. *Conidia* obovoid to ellipsoidal, apex rounded, base truncate, 1-septate, brown, basal region pale brown to hyaline, guttulate, smooth-walled (Saccardo and Trotter 1913; Nag Raj and DiCosmo 1978).

Type species: Peltistromella brasiliensis Höhn., Denkschr. Kaiserl. Akad. Wiss., Math.-Naturwiss. Kl. 83: 35 [extr.] (1907); Fig. 188

Notes: Von Höhnelt (1907) introduced *Peltistromella* with *P. brasiliensis* as the type species. Sutton (1977, 1980) did not

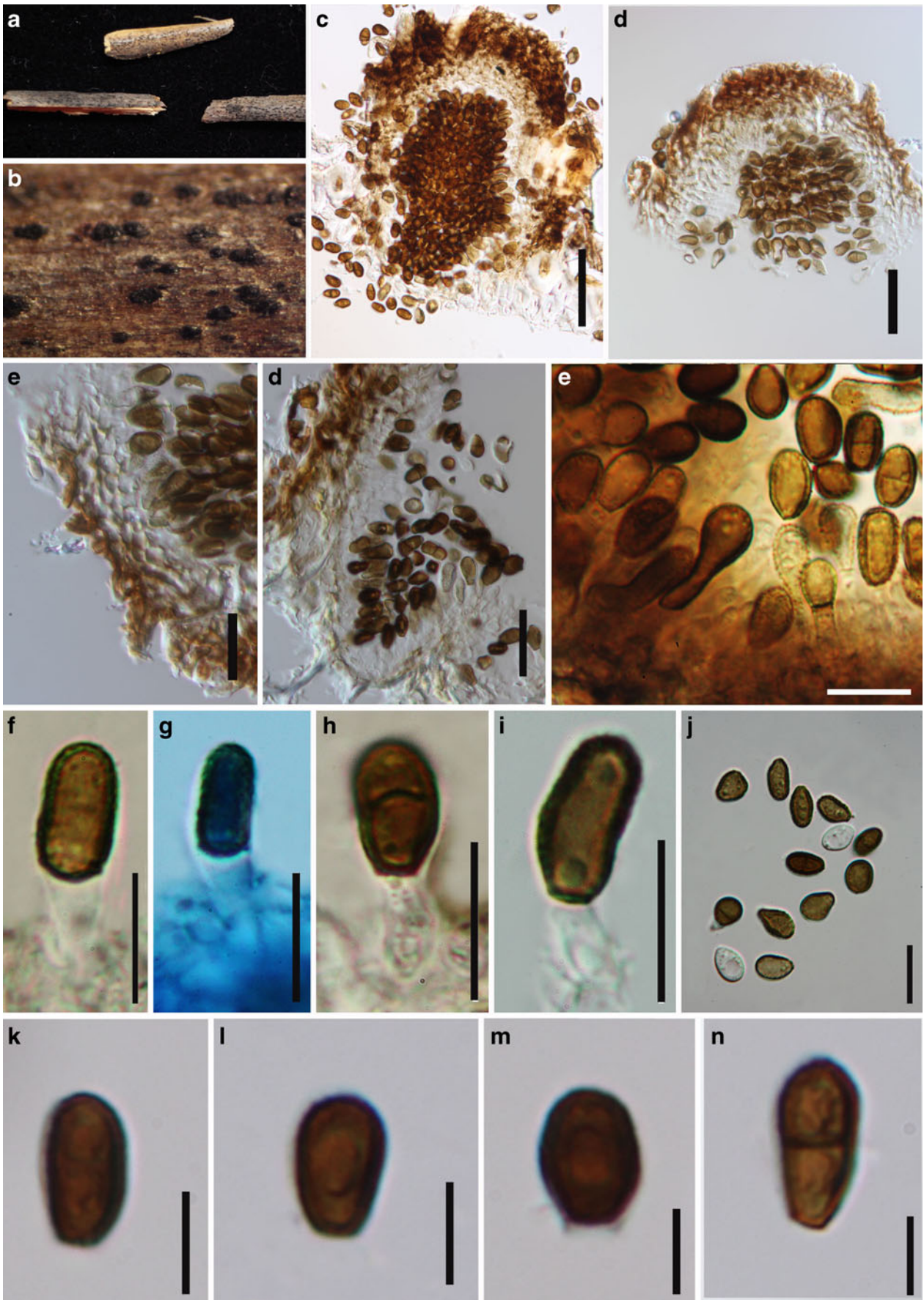
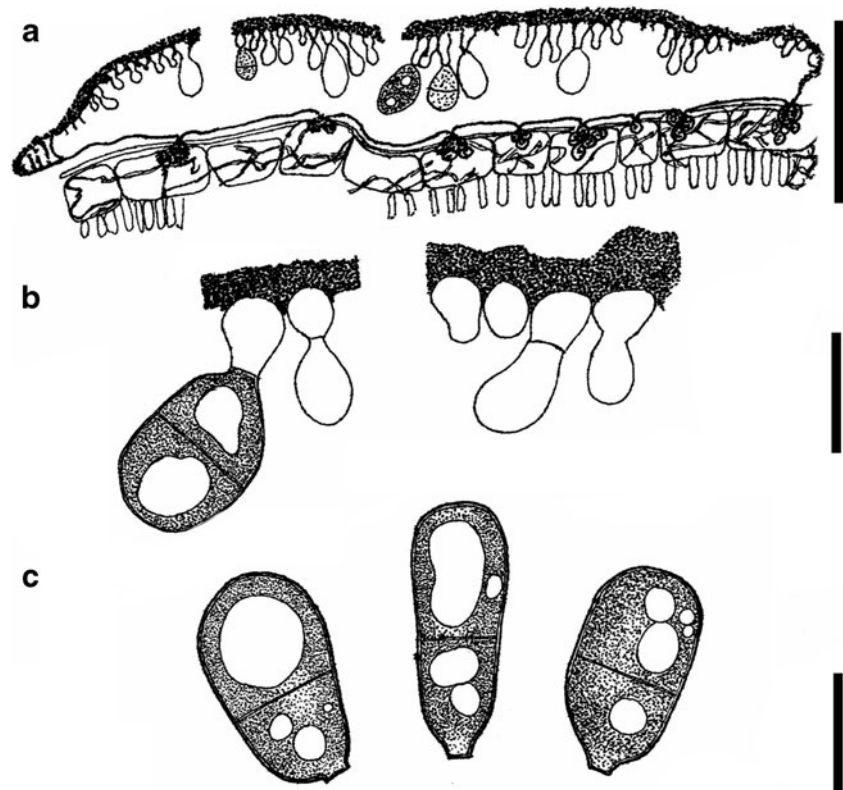


Fig. 188 *Peltistromella brasiliensis*. **a** Vertical section of conidioma. **b, c** Different stages of conidiogenesis. **d** Conidia. Scale bars: **a** = 100 μ m, **b, c** = 20 μ m (re-drawn from Nag Raj and DiCosmo 1978)



list *Peltistromella* in his checklist or monograph. Nevertheless, Kirk et al. (2008, 2013) listed *Peltistromella* as an accepted genus. We conclude that *Peltistromella* should be treated as a distinct coelomycetous genus pending molecular data.

Peltosoma Syd., Leafl. of Philipp. Bot. 9: 3129 (1925)

Facesoffungi number: FoF 01557; Fig. 190

Ascomycota, genera incertae sedis

Endophytic or *saprobic* on leaves of *Pandanaceae* (Monocotyledons). **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* pycnothyrial, superficial, solitary, with only upper wall, scutate, unilocular, often circular, or ellipsoid to irregular, dark brown. *Conidiomata* wall composed of radiate cells or *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous* cells holoblastic, short, discrete, hyaline or brown. *Conidia* pyriform to fusiform, attenuated towards each end, apex conical to obtuse, base truncate, 4–6-septate, with black-band, continuous or slightly constricted at the septa, end cells smaller, medium brown, median cells larger, very dark brown, smooth-walled (Sutton and Pascoe 1989).

Type species: *Peltosoma freycinetiae* Syd. & P. Syd. [as ‘freycinetia’], Leafl. of Philipp. Bot. 7: 3130 (1925); Fig. 190

Notes: Sydow (1925) introduced *Peltosoma* with *P. freycinetiae* as the type species. The genus was not addressed in Sutton (1977, 1980). However, Sutton and Pascoe (1989) re-

described and illustrated the type species. In conidial morphology, *Peltosoma* resembles *Endocoryneum* (Sutton 1980; Farr et al. 1998), but latter genus shows only 3–4 transverse septa.

Perizomella Syd., Anns mycol. 25(1/2): 106 (1927)

Facesoffungi number: FoF 01558; Fig. 191

Ascomycota, genera incertae sedis

Hyperparasitic on *Phyllachora* sp. **Sexual morph**:

Undetermined. **Asexual morph**: *Conidiomata* stromatic, immersed in leaf tissue amongst *Phyllachora* stromatic tissue, solitary or confluent, unilocular or multi-locular, occasionally convoluted. *Conidiomata* wall thin, composed of thin-walled, hyaline cells of *textura angularis* or *textura intricata*. *Conidiophores* cylindrical, septate only at the base, hyaline. *Conidiogenous cells* holoblastic, cylindrical, integrated or discrete, determinate, hyaline, smooth. *Conidia* ellipsoid, base truncate, apex flattened, pale brown, with a hyaline band, aseptate, smooth-walled (Sydow 1927; Sutton 1980).

Type species: *Perizomella inquinans* Syd., Anns mycol. 25(1/2): 106 (1927)

Notes: Sydow (1927) introduced *Perizomella* with *P. inquinans* as the type species. Sutton (1980) provided taxonomic notes and *Perizomella* remained a monotypic genus. Petrak (1924) introduced *Davisiella elymina* (Davis) Petr. as a hyperparasitic of *Phyllachora* sp., but it has fusiform, 1-septate, hyaline conidia (Sutton 1980), and thus morphologically distinct from *Perizomella*. *Perizomella* has not been

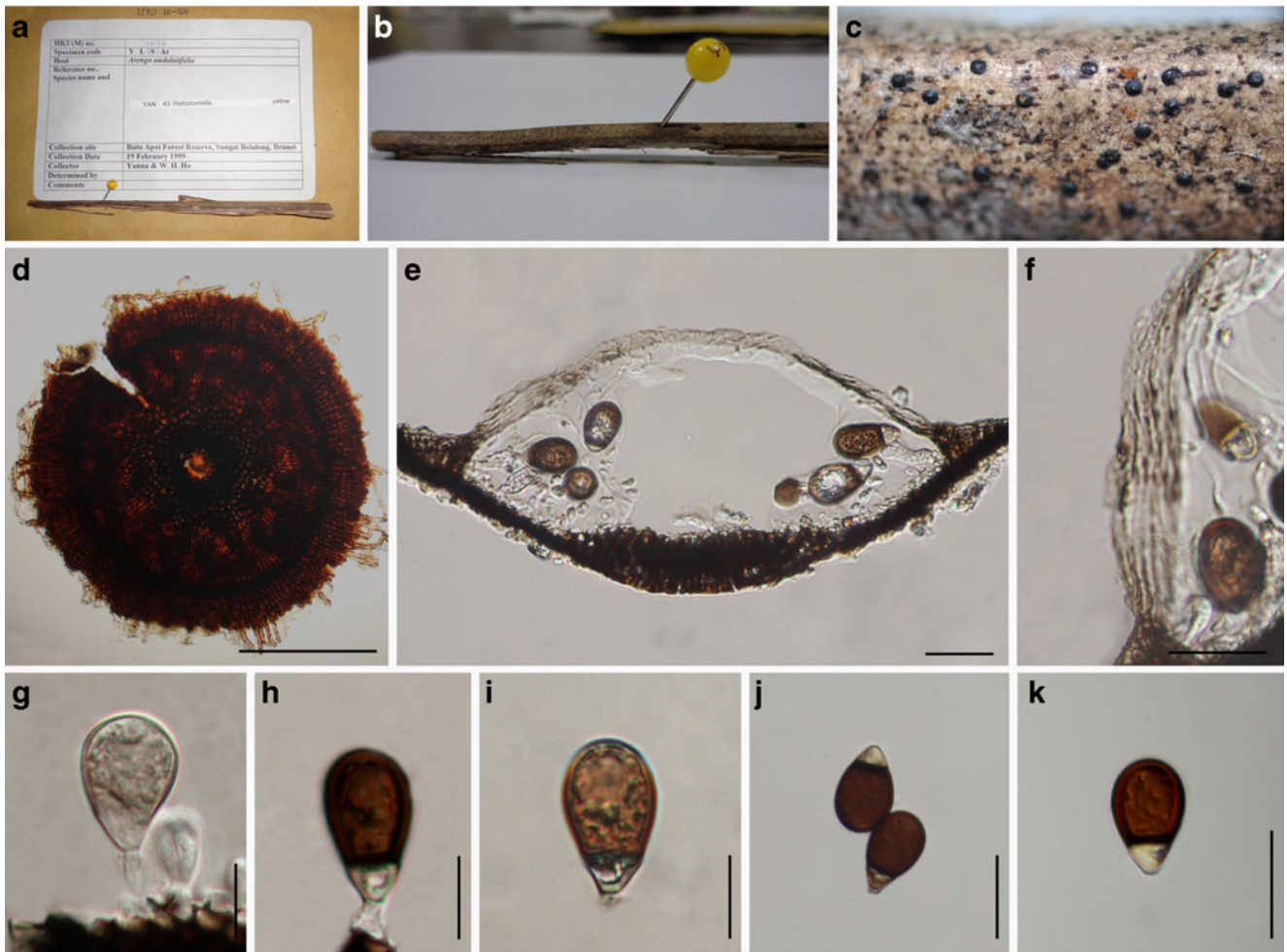


Fig. 189 *Peltistromella* sp. (Material examined: Brunei, Batu Apoi Forest Reserve, Sungai Belalong, on stem of *Arenga undulatifolia*, 19 February 1999, Yanna and W.H. Ho, IFRD 110–020). **a** Herbarium label. **b, c** Conidiomata on host. **d** Squash mount of conidioma **e**

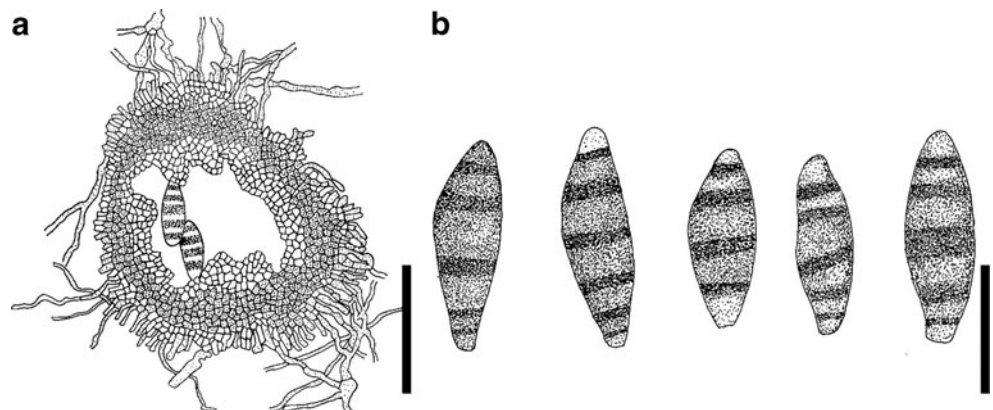
Vertical section of conidioma. **f** Conidioma wall. **g, h** Conidia attached to conidiogenous cells. **i–k** Conidia. Scale bars: **d** = 50 μ m, **e** = 100 μ m, **f, j, k** = 20 μ m, **g–i** = 10 μ m

revised since Sutton (1980). Sequence data is unavailable, thus taxonomic placement is uncertain.

Pestalotia De Not., Mém. R. Accad. Sci. Torino, Ser. 2 3: 80 (1841)

Facesoffungi number: FoF 01559; Fig. 192
Sordariomycetes, *Xylariomycetidae*, *Amphisphaeriales*, *Pestalotiopsidaceae*
Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:**

Fig. 190 *Peltosoma freycinetiae*. **a** Vertical section of conidioma. **b** Conidia. Scale bars: **a** = 100 μ m, **b, c** = 25 μ m (re-drawn from Sutton and Pascoe 1989)



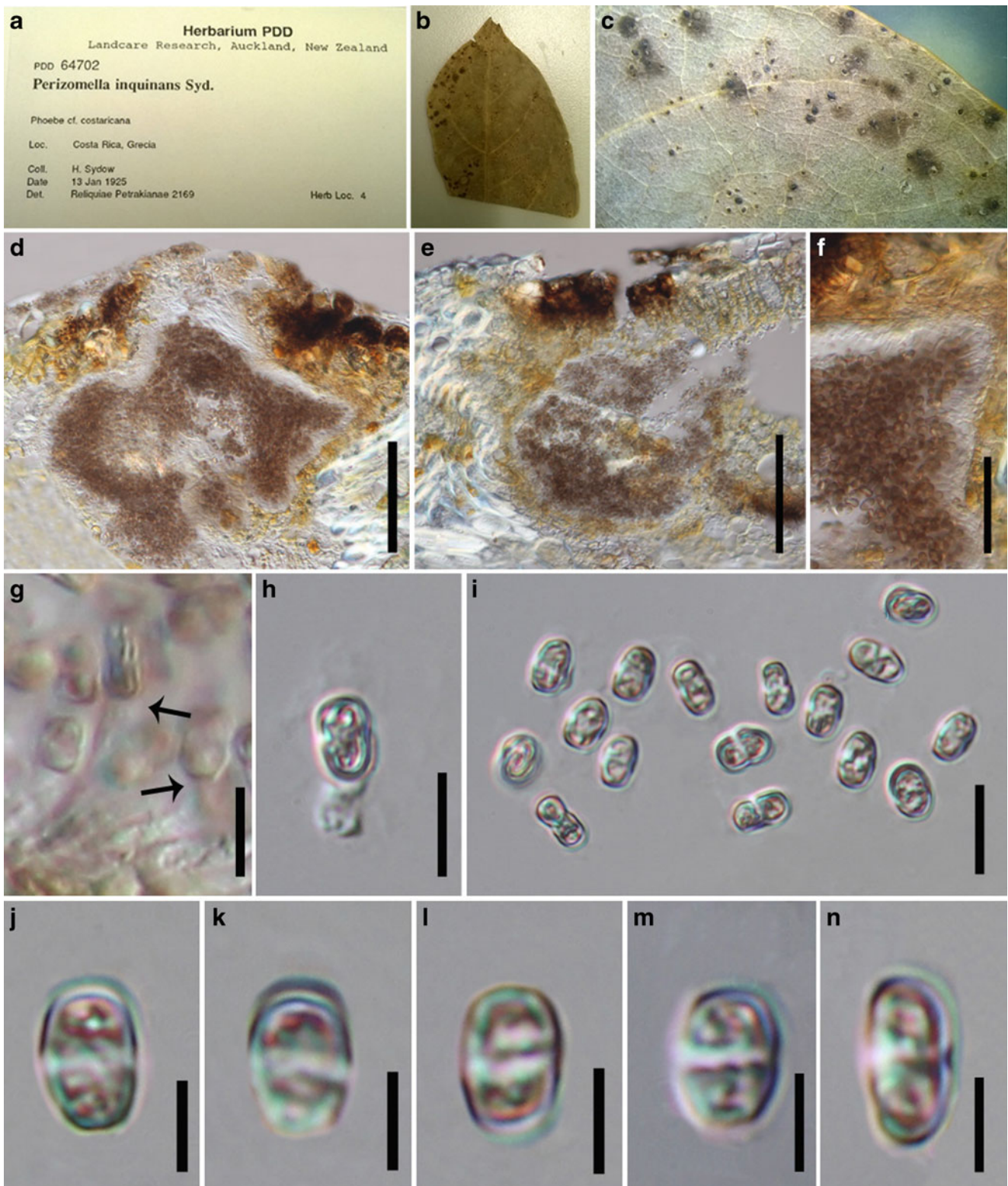


Fig. 191 *Perizomella inquinans* (Material examined: Costa Rica, Grecia, on *Phoebe costaricana*, 13 January 1913, H. Sydow, PDD 64702). **a** Label of herbarium material. **b** Herbarium material. **c** Conidiomata on host. **d, e** Vertical sections of conidiomata. **f**

Conidioma wall. **g, h** Developing conidia attach to conidiogenous cells (arrow heads are pointed to conidiogenous cells in **f**). **i–n** Conidia. Scale bars: **d, e** = 100 μm , **f** = 20, **g–m** = 10 μm

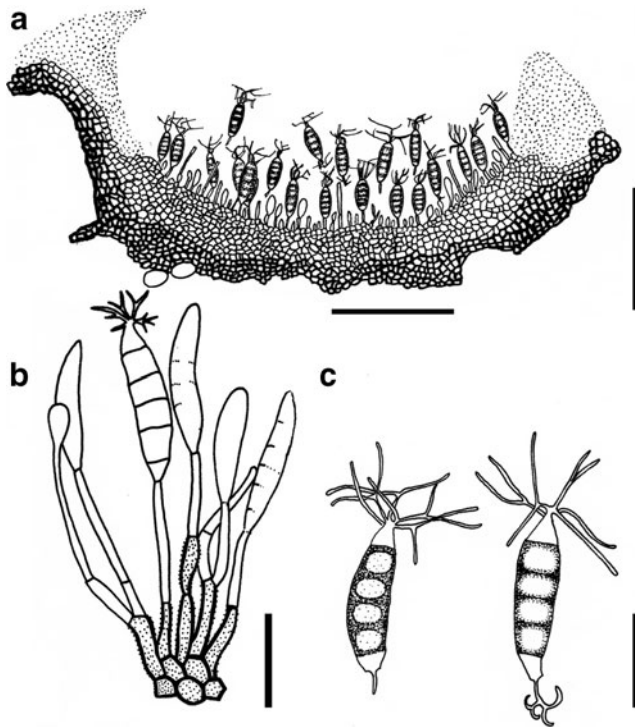


Fig. 192 *Pestalotia pezizoides*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 100 µm, **b**, **c** = 20 µm (re-drawn from Morgan-Jones et al. 1972b)

Conidiomata stromatic, cupulate, separate or confluent, immersed, erumpent at maturity, black or dark brown. *Conidiomata* wall composed of thick-walled, dark brown cells of *textura angularis*. *Conidiophores* branched irregularly, septate, hyaline, smooth-walled. *Conidiogenous cells* holoblastic to annellidic, cylindrical, indeterminate, integrated, hyaline, smooth. *Conidia* fusiform, straight or slightly curved, 5-septate; basal cell truncate, hyaline, thin-walled, with cellular, simple or dichotomously branched appendage; apical cell conic, thin-walled, hyaline, with 3–9 simple or dichotomously branched, apical appendages; median cells lumina reduced, medium brown (Sutton 1969a, 1980; Morgan-Jones et al. 1972b; Nag Raj 1993).

Type species: Pestalotia pezizoides De Not., Mém. R. Accad. Sci. Torino, Ser. 2 2: 80 (1841); Fig. 192

Notes: *Pestalotia* has been revisited by several studies such as Guba (1961), Steyaert (1949) and Sutton (1969c). In his monograph, Guba (1961) accepted 220 species while adopting a wide generic concept of *Pestalotia*, treating *Pestalotiopsis* and *Truncatella* as synonyms of *Pestalotia*. However, Sutton (1969c, 1980) and Nag Raj (1993) rejected Guba's generic concept and accepted taxa with 5 septa (or 6 cells) as *Pestalotia*. von Arx (1981) also treated *Adea* Petr., *Ahmadinula* Petr., *Hyaloceras* Durieu & Mont., *Monochaetia* (Sacc.) Allesch., *Pseudopestalotia* Elenkin & Ohl, *Robillarda* Castagne and *Truncatella* Steyaert as synonyms of *Pestalotia* however, Nag Raj (1993) rejected this.

Steyaert (1949) and Sutton (1980) accepted the genus as monotypic and Nag Raj (1993) accepted only the type species, but listed over 600 names under 'unexamined and excluded genera'. Jeewon et al. (2002) and Maharachchikumbura et al. (2011) discussed the generic boundaries between *Pestalotia* and *Pestalotiopsis*. Further, Jeewon et al. (2002) showed that *Pestalotia* clusters in *Amphisphaeriaceae*, *Xylariales* in their phylogenetic analyses. However, Maharachchikumbura et al. (2014, 2015) and Senanayake et al. (2015) did not recognize *Pestalotia* as a distinct genus and predicted it may be a synonym of *Seiridium* as both genera share close morphologies.

Pestalotiopsis Steyaert, Bull. Jard. bot. État Brux. 19: 300 (1949)

Facesoffungi number: FoF 01560; Fig. 193

Sordariomycetes, *Xylariomycetidae*, *Amphisphaeriales*, *Pestalotiopsidaceae*

Endophytic, *pathogenic* or *saprobic* on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* acervular or pycnidoid or cornute, epidermal to subepidermal, solitary to gregarious, globose to subglobose, unilocular, dark brown to black. *Conidiomata* wall composed of thin-walled, brown cells of *textura angularis*. *Conidiophores* cylindrical or lageniform, branched, septate, hyaline, smooth-walled. *Conidiogenous cells* holoblastic to annellidic, indeterminate, integrated, cylindrical, hyaline, smooth. *Conidia* fusiform, straight or slightly curved, 4-septate; basal cell obconic with truncate base, hyaline, thin-walled, with an endogenous, cellular, simple or rarely branched appendage; apical cell conic, hyaline, with 2 or more apical, simple or branched, spathulate or espathulate appendages; median cells brown, concolorous or versicoloured, thick-walled, smooth or verruculose (Sutton 1980; Nag Raj 1993; Maharachchikumbura et al. 2011, 2012, 2013a, b, 2014).

Type species: Pestalotiopsis maculans (Corda) Nag Raj, Mycotaxon 22(1): 47 (1985)

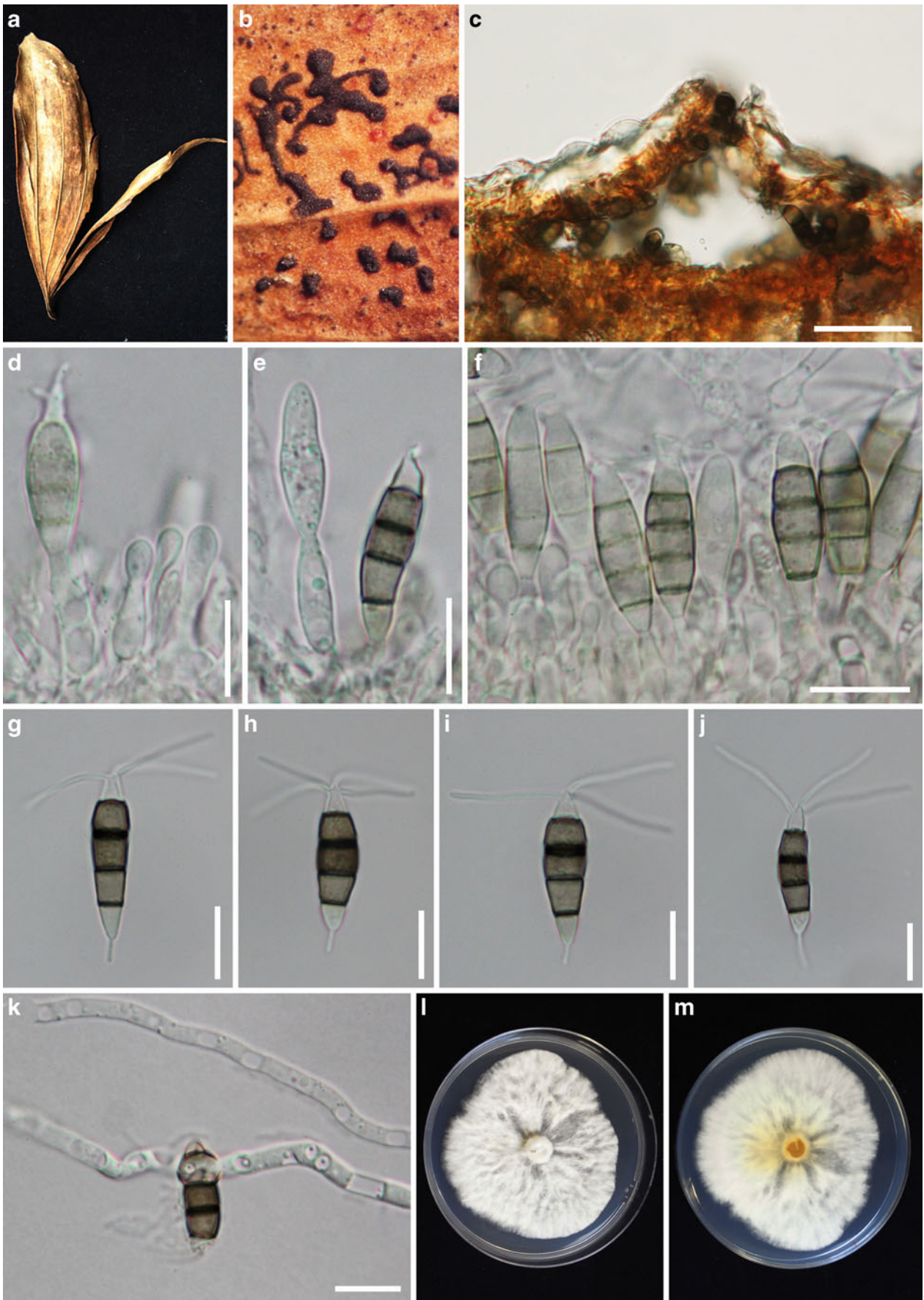
≡ *Sporocadus maculans* Corda, Icon. fung. (Prague) 3: 23 (1839)

= *Pestalotiopsis guepinii* (Desm.) Steyaert [as 'guepini'], Bull. Jard. bot. État Brux. 19(3): 312 (1949)

≡ *Pestalotia guepinii* Desm., Anns Sci. Nat., Bot., sér. 2 13: 181 (1840)

Notes: Steyaert (1949) introduced *Pestalotiopsis* with *P. guepinii* as the type species. Nag Raj (1985) observed that *Sporocadus maculans* (PR 155665) resembles the generic concept of *Pestalotiopsis*. Moreover, Nag Raj (1985) observed the isotype of *Pestalotiopsis guepinii*, and compared with *Sporocadus maculans* and regarded them to be identical. Hence, *Pestalotiopsis maculans* is the older for *Pestalotiopsis guepinii* (Maharachchikumbura et al. 2014).

In his classification of *Pestalotia* spp., Steyaert (1949) listed all species with 5 cells under *Pestalotiopsis*, while 6-celled forms and 4-celled forms were listed under *Pestalotia*



◀ **Fig. 193** *Pestalotiopsis* sp. (Material examined: Thailand, Chiang Rai Province, Phungha, unknown dead leaf, 3 August 2012, N. Tangthirasunun, MFLU 13–0298). **a** Host material. **b** Conidiomata on the host surface. **c** Vertical section of a conidioma. **d–f** Conidigenous cells with developing conidia. **g–j** Conidia. **k** Germinating conidium. **l–m** Colonies on PDA; **l** From top; **m** From reverse. Scale bars: **c** = 30 μ m, **d–k** = 10 μ m

and *Truncatella*, respectively. Sutton (1980) and Nag Raj (1993) accepted this classification, but Guba (1961) regarded *Pestalotiopsis* and *Truncatella* as synonyms of *Pestalotia*. Maharachchikumbura et al. (2011) comprehensively discussed the history of *Pestalotiopsis* and *Pestalotia* and accepted the classification by Steyaert (1949).

Recent publications by Maharachchikumbura et al. (2011, 2012, 2014) discussed the life history, pathogenicity and phylogenetic re-assessment of *Pestalotiopsis*. Maharachchikumbura et al. (2014) showed *Pestalotiopsis* spp. are polyphyletic in *Amphisphaeriaceae* and thus introduced *Neopestalotiopsis* and *Pseudopestalotiopsis*. Senanayake et al. (2015) showed *Pestalotiopsis sensu stricto* grouped with *Ciliochorella*, *Neopestalotiopsis*, *Pseudopestalotiopsis* and *Seiridium* as a distinct clade in *Amphisphaeriales* thus introduced *Pestalotiopsidaceae*. Our phylogenetic analyses also agree with findings in Senanayake et al. (2015) (Fig. 16).

Phaeobotryon Theiss. & Syd., Anns mycol. 13(5/6): 664 (1915)

Facesoffungi number: FoF 01561; Fig. 194

Dothideomycetes, order *incertae sedis*, *Botryosphaeriales*, *Botryosphaeriaceae*

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** see Phillips et al. (2008, 2013). **Asexual morph:** *Conidiomata* pycnidial, stromatic, solitary to gregarious, immersed to erumpent, unilocular or multi-locular, black, ostiolate. *Ostiole* circular, central, papillate or apapillate. *Conidiomata wall* composed of dark brown walled-cells of *textura angularis*. *Paraphyses* hyaline, thin-walled, aseptate or sometimes becoming 1–2-septate, occasionally branched. *Conidigenous cells* holoblastic to phialidic, cylindrical to doliiform, hyaline, smooth and thin-walled. *Conidia* ellipsoidal to oblong or obovoid, ends rounded, moderately thick-walled, initially hyaline, becoming brown, mostly 1–2-septate at maturity. *Microconidiomata* globose, dark-brown to black, superficial, occasionally immersed. *Microconidiophores* cylindrical, hyaline, aseptate, becoming 1–2-septate, branched. *Microconidigenous cells* hyaline, thin-walled, phialidic, proliferating internally, with periclinal thickening. *Microconidia* oval, thin-walled, hyaline, aseptate. *Chlamydospores* formed within the agar medium, intercalary, brown, smooth, thick-walled (Phillips et al. 2008, 2013; Abdollahzadeh et al. 2009).

Type species: Phaeobotryon cercidis (Cooke) Theiss. & Syd., Anns mycol. 13(5/6): 664 (1915)

\equiv *Dothidea cercidis* Cooke, Grevillea 13(no. 67): 66 (1885)

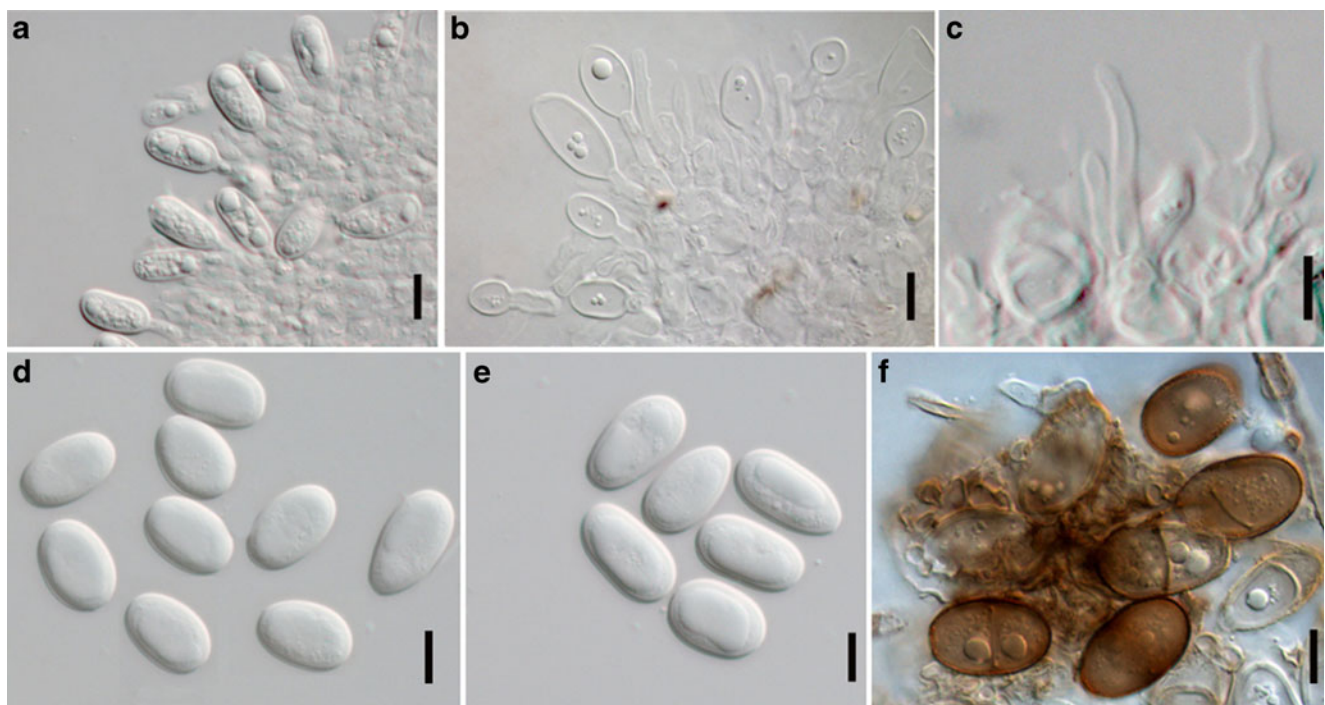


Fig. 194 *Phaeobotryon cupressi* (Material examined: Iran, Golestan Province, Gorgan, City Park, on twigs of *Cupressus sempervirens*, 15 August 2006, M.A. Aghajani, IRAN 13940 F, holotype). **a, b** Different

stages of conidiogenesis. **c** Paraphyses. **d, e** Immature conidia. **f** Mature conidia. Scale bars: **a–c** = 10 μ m

Notes: Theissen and Sydow (1915) introduced *Phaeobotryon* with *P. cercidis* as the type species. Von Arx and Müller (1954, 1975) treated *Phaeobotryon* as a synonym of *Botryosphaeria*, but Phillips et al. (2008) reinstated *Phaeobotryon* based on both morphological and phylogenetic analyses. Moreover, Phillips et al. (2008, 2013) showed that *Phaeobotryon* has a distinct phylogenetic lineage in *Botryosphaeriaceae*.

Sequence data are available only for *Phaeobotryon mamane* Crous & A.J.L. Phillips and *P. cupressi* Abdollahzadeh et al., which have been reported as holomorph and only asexual morph, respectively (Phillips et al. 2008; Abdollahzadeh et al. 2009).

In morphology, *Phaeobotryon* resembles *Diplodia* but the latter has 1-septate and only rarely becomes 2-septate (Phillips et al. 2013). However, both have distinct phylogenetic lineages in *Botryosphaeriaceae* (Fig. 10).

Phaeocystroma Petr., Anns mycol. 19(1/2): 45 (1921)
Facesoffungi number: FoF 01562; Fig. 195

Sordariomycetes, *Sordariomycetidae*, *Diaporthales*, *Diaporthaceae*

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, rarely confluent, immersed, unilocular, multilocular or convoluted, dark brown, ostiolate. *Ostiole* slightly papillate, single, circular, central. *Conidiomata wall* thick, composed of thick-walled, dark brown cells of *textura angularis*. *Paraphyses* filiform, apex obtuse, branched, hyaline, septate. *Conidiophores* cylindrical to filiform, septate, hyaline, branched at the base. *Conidiogenous cells* enteroblastic, phialidic, cylindrical, determinate, discrete or integrated, hyaline. *Macroconidia* cylindrical or ellipsoid, base truncate, apex obtuse, aseptate, brown, eguttulate, thin or thick and smooth-walled. *Microconidia* fusiform, short or elongate, hyaline, smooth-walled (Morgan-Jones et al. 1972d; Sutton 1980; Lević and Petrović 1997).

Type species: Phaeocystroma ambiguum (Mont.) Petr., Feddes Repert., Beih. 42: 457 (1927); Fig. 195

≡ *Sphaeropsis ambigua* Mont., Anns Sci. Nat., Bot., sér. 3 12: 308 (1849)

= *Phaeocystroma istricea* Petr., Anns mycol. 19(1/2): 45 (1921)

Notes: Petrak (1921a) introduced *Phaeocystroma* with *P. istricea* as the type species. However, Petrak and Sydow (1927) found that *Sphaeropsis ambigua* was the oldest name and thus transferred it to *Phaeocystroma*. Sutton (1964, 1977, 1980) treated *Phaeocystroma istricea* as a synonym of *P. ambiguum*. As well as the type species, Sutton (1980) accepted only three other species viz. *P. megalosporum* B. Sutton, *P. plurivorum* B. Sutton and *P. sacchari* (Ellis & Everh.) B.

Fig. 195 *Phaeocystroma ambiguum* (Material examined: Australia, Queensland, Warwick, Hermitage Research Station, on *Sorghum bicolor*, April 1984, R. Dodman, BRIP 14341). **a** Label of herbarium material and specimen. **b, c** *Conidiomata* on host. **d, e** Vertical sections of *conidiomata*. **f** *Conidioma* wall. **g–j** Different stages of *conidiogenesis* and *paraphyses*. The arrow heads are pointed to *conidiophores*. **k–m** *Conidia*. Scale bars: **d, e** = 75 µm, **f** = 20 µm, **g–o** = 10 µm

Sutton. *Phaeocystroma sacchari* was divided into three varieties by Sutton (1964, 1980) i.e. *P. sacchari* var. *penniseti* B. Sutton, *P. sacchari* var. *sacchari* (Ellis & Everh.) B. Sutton and *P. sacchari* var. *calami* (Panwar & Bohra) B. Sutton. Lević and Petrović (1997) observed α and β *conidia* in *Phaeocystroma ambiguum* for the first time. Slavica et al. (2007) reported *Phaeocystroma ambiguum* as the causal agent of root and stalk rot in maize.

Kirk et al. (2008) stated *Clypeoporthe* Höhn. is the sexual morph of *Phaeocystroma*. Lamprecht et al. (2011) and Verkley et al. (2014) showed *Phaeocystroma sacchari* and *P. ambigua* grouped in *Diaporthaceae*, *Diaporthales*. Our phylogenetic analyses also agree with previous studies, as *Phaeocystroma ambigua*, *P. plurivorum* and *P. sacchari* group in *Diaporthaceae* with high bootstrap values (Fig. 12).

Phaeodomus Höhn., Sber. Akad. Wiss. Wien, Math.-naturw. Kl., Abt. 1 118: 1529 (1909)

Facesoffungi number: FoF 01563; Fig. 196

Ascomycota, genera *incertae sedis*

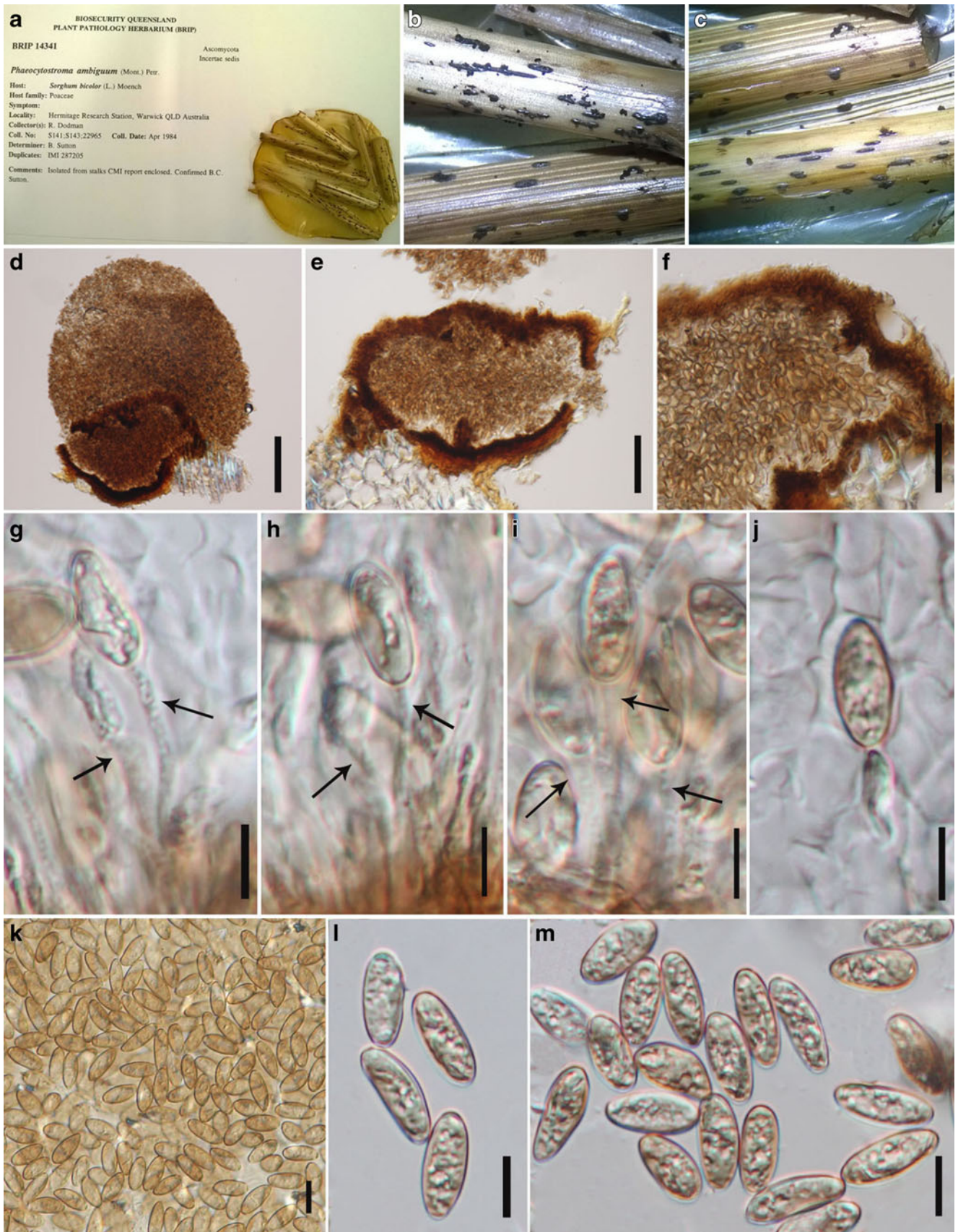
Endophytic or *saprobic* on various hosts plants of *Lauraceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, solitary, occasionally confluent, erumpent, irregularly pulvinate, uni- to multilocular, dark brown to black. *Conidiomata wall* composed of thick-walled, brown cells of *textura angularis*. *Conidiophores* reduced to *conidiogenous cells*. *Conidiogenous cells* holoblastic to annellidic, cylindrical, doliiform or conical, determinate or indeterminate, discrete, straight, hyaline, smooth. *Conidia* apex obtuse, ellipsoid to obpyriform, apex obtuse, base truncate, aseptate, pale brown, eguttulate, smooth-walled, sometimes with a basal frill (Sutton 1980; Abbas et al. 2004).

Type species: Phaeodomus erumpens (Berk. & M.A. Curtis) Petr. & Syd., Beih. Reprim nov. Spec. Regni veg. 42(1): 179 (1927) [1926]; Fig. 196

≡ *Sphaeropsis erumpens* Berk. & M.A. Curtis, J. Linn. Soc., Bot. 10(no. 46): 353 (1868) [1869]

= *Phaeodomus lauracearum* Höhn., Sber. Akad. Wiss. Wien, Math.-naturw. Kl., Abt. 1 118: 1529 (1909)

Notes: Von Höhnel (1909) introduced *Phaeodomus* with *P. lauracearum* as the type species. However, Petrak and Sydow (1927) treated *Sphaeropsis erumpens* as the oldest name of *Phaeodomus lauracearum*, thus the former species was transferred to *Phaeodomus*. Sutton (1977, 1980) and Abbas et al. (2004) listed *P. lauracearum* as a synonym of *P. erumpens*.



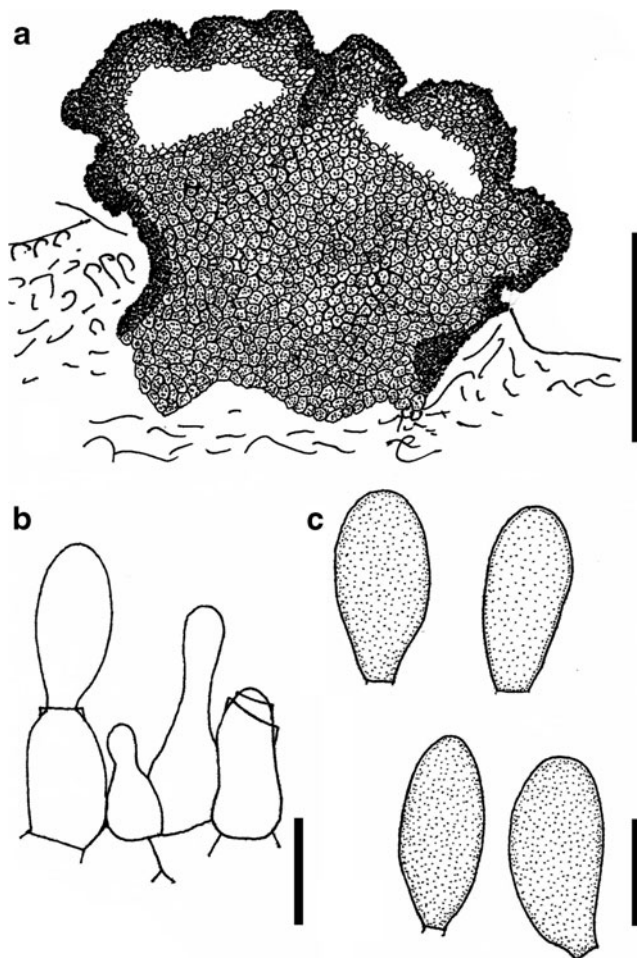


Fig. 196 *Phaeodomus erumpens*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 500 μm , **b**, **c** = 10 μm (re-drawn from Sutton 1980)

Abbas et al. (2004) revisited the genus and introduced a second species, *P. berkeleyi* Abbas et al. Sequence data is unavailable, thus the taxonomic placement is uncertain.

Key to species of *Phaeodomus*

1. Conidia 24–28.5 \times 10–13 μm *P. erumpens*
1. Conidia 12–16 \times 7.5–8.8 μm *P. berkeleyi*

Phaeolabrella Speg., Anal. Mus. nac. Hist. nat. B. Aires 23: 117 (1912)

Facesoffungi number: FoF 01564; Fig. 197

Ascomycota, genera incertae sedis

Endophytic or saprobic on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* acervular, subcuticular, solitary or gregarious. *Conidiomata* wall composed of thick-walled, greenish brown cells arranged in a pseudoparenchyma. *Conidiophores*

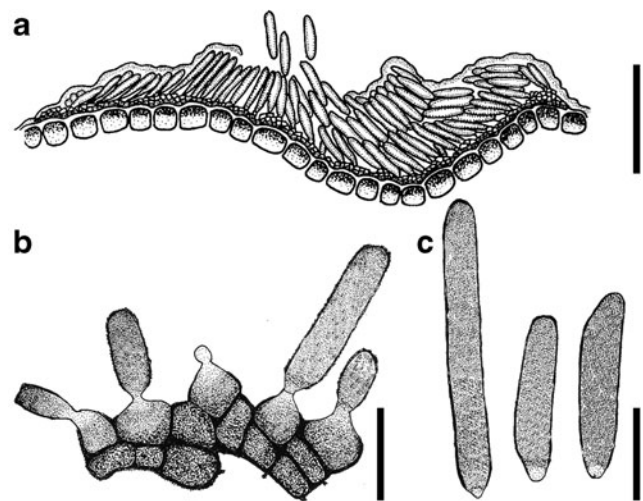


Fig. 197 *Phaeolabrella eryngicola*. **a** Vertical section of conidioma. **b**, **c** Different stages of conidiogenesis. **d** Conidia. Scale bars: **a** = 50 μm , **b**, **c** = 10 μm (re-drawn Nag Raj 1974)

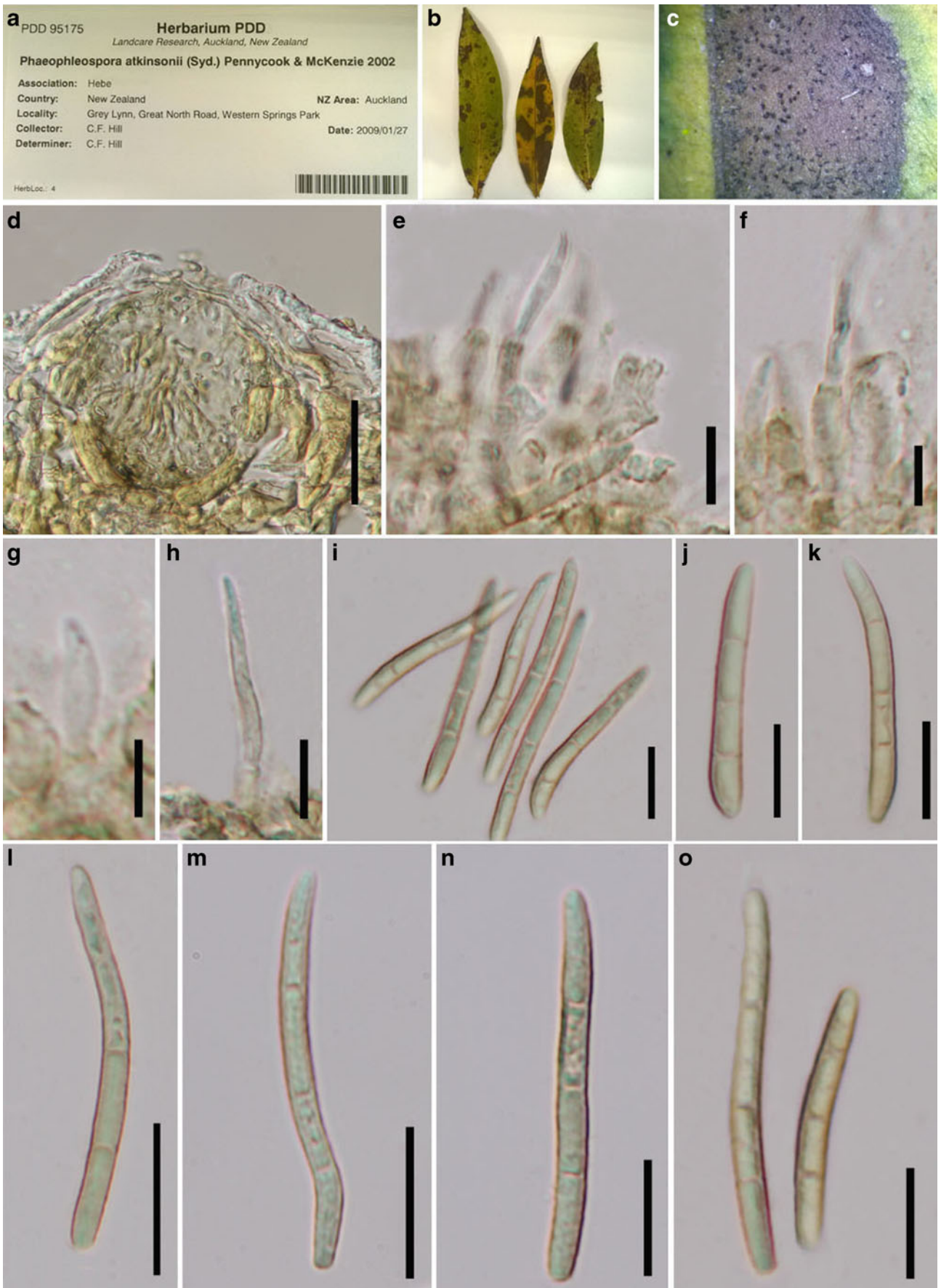
reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, ampulliform, discrete, determinate, pale to dark brown, becoming paler, verrucose, thinner-walled and smoother towards the apices. *Conidia* cylindrical to subcylindrical, straight or slightly curved, apex obtuse or flattened, base truncate or rounded, aseptate, olive green, thick-walled, verrucose, smooth and thin-walled (Nag Raj 1974; Sutton 1980).

Type species: Phaeolabrella eryngicola Speg., Anal. Mus. nac. Hist. nat. B. Aires 23: 117 (1912); Fig. 197

Notes: Spegazzini (1912) introduced *Phaeolabrella* with *P. eryngicola* as the type species. Nag Raj (1974) and Sutton (1980) re-described the type species. The genus was maintained as monotypic (Petraik and Sydow 1935; Sutton 1980).

In morphology, *Phaeolabrella* is distinct from other known genera as it has aseptate conidia. Most of the genera with cylindrical to subcylindrical conidia have phragmospore conidia with smooth walls such as *Dichomera*, *Neohendersonia*, *Oncospora*, *Phaeostagonospora*. Sequence data is unavailable, thus the taxonomic placement is uncertain.

Fig. 198 **a** *Phaeophleospora atkinsonii* (Material examined: New Zealand, Auckland, Grey Lynn, Great North Road, Western Springs Park, on unidentified leaves, C.F. Hill, PDD 95175). **a** Label of herbarium specimen. **b** Herbarium specimens. **c** Conidiomata on host. **d** Vertical section of conidioma. **e–h** Different stages of conidiogenesis. **i–o** Conidia. Scale bars: **d** = 50 μm , **e–o** = 10 μm . **b** *Phaeophleospora phormii* (Material examined: New Zealand, Hanmer Springs, Jollies Pass, on leaves of *Phormium cookianum*, 17 February 2011, E.H.C. McKenzie & M. Padamsee, PDD 102906). **a** Label of herbarium specimen. **b** Herbarium specimens. **c** Conidiomata on host. **d** Vertical section of conidioma. **e–g** Different stages of conidiogenesis. **h–l** Conidia. Scale bars: **s** = 20 μm , **e–l** = 5 μm



Phaeophleospora Rangel, Arq. Mus. Nac. Rio de Janeiro 18: 162 (1916)

Facesoffungi number: FoF 01565; Fig. 198

Dothideomycetes, Dothideomycetidae, Capnodiales, Mycosphaerellaceae

Endophytic, saprobic, pathogenic or associated with leaf spots. **Sexual morph:** ?*Mycosphaerella sensu lato*. **Asexual morph:** *Conidiomata* pycnidial, solitary or gregarious, immersed, subepidermal, becoming erumpent, black, globose to irregular, unilocular, or ?multi-locular, ostiolate. *Conidiomata* wall composed of pale brown to medium brown-walled cells of *textura angularis* or *textura epidermidea*. Conidiophores reduced to conidiogenous cells. *Conidiogenous cells* percurrent proliferation, holoblastic, discrete, ampulliform or doliiform to subcylindrical, medium brown, verruculose. *Conidia* cylindrical to subcylindrical, truncate base, apex rounded, straight or curved, hyaline or medium red-brown, verruculose, not prominently guttulate or eguttulate, with or without marginal frill (Crous et al. 1997, 2015d; Crous 1998; Taylor and Crous 1999).

Type species: Phaeophleospora eugeniae Rangel, Decheniana 18: 162 (1916); Fig. 198

Notes: Rangel (1916) introduced *Phaeophleospora* based on *P. eugeniae* as the type species. Sutton (1977) did not list *Phaeophleospora* as an accepted genus and referred it as *nomina dubia* as the original description was poor. Crous et al. (1997) collected new specimens, resurrected the genus, transferred several species to the genus and designated a neotype. Crous et al. (1997) treated *Kirramyces* as a synonym of *Phaeophleospora* as the latter is the oldest name. However, Andjic et al. (2007a) showed that *Kirramyces* (current name *Teratosphaeria*) is phylogenetically distinct from *P. eugeniae* and that *Phaeophleospora* is polyphyletic. Hence, *Phaeophleospora* was restricted only to the type species. Crous et al. (2007, Crous et al. 2009b, 2015a, b) accepted *Phaeophleospora* as a member of *Mycosphaerellaceae* however, further re-collections and culture studies are essential.

Nevertheless, Crous et al. (2015d) introduced *Phaeophleospora parsoniae* Crous, and *P. hymenocallidicola* Crous which has hyaline conidia. Hence, the generic boundaries of *Phaeophleospora sensu stricto* would be expanded to include species with hyaline conidia. Our multi-gene analyses (based on LSU, RPB2, ITS, β -tubulin and TEF1- α gene region) show that *Phaeophleospora* resides in *Mycosphaerellaceae* (Fig. 11).

Phaeosphaeria I. Miyake, Bot. Mag., Tokyo 23: 93 (1909) = *Phaeoseptoria* Speg., Revta Mus. La Plata 15: 39 (1908)
Facesoffungi number: FoF00233; Figs. 199 and 200

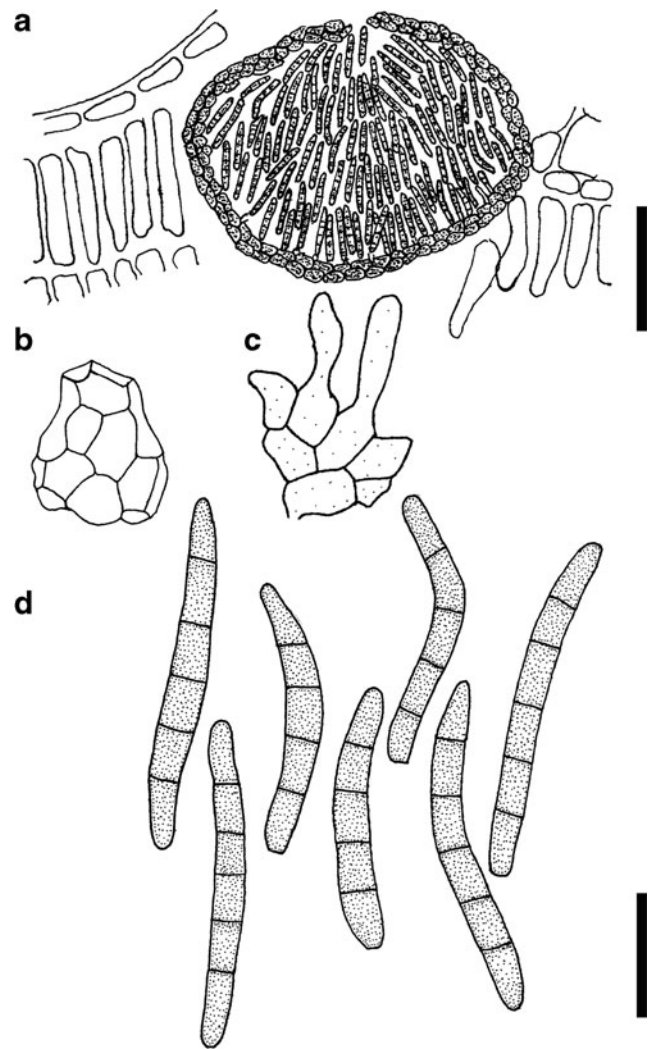


Fig. 199 *Phaeoseptoria papayae*. **a** Vertical section of conidioma. **b** Conidioma wall. **c** Different stages of conidiogenesis. **d** Conidia. Scale bars: **a** = 50 μ m, **b–d** = 10 μ m (re-drawn from Morgan-Jones 1974)

Dothideomycetes, Pleosporomycetidae, Pleosporales, Pleosporineae, Phaeosphaeriaceae

Foliicolous, saprobic or pathogenic on a range of host plants or ?lichenicolous. **Sexual morph:** see Hyde et al. (2013); Quaedvlieg et al. (2013); Phookamsak et al. (2014). **Asexual morph:** *Conidiomata* pycnidial, solitary to gregarious, immersed, becoming erumpent, brown, ostiolate. *Ostiole* central. *Conidiomata* wall composed of thin-walled, brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* proliferating percurrently near apex, simple, ampulliform to subcylindrical or doliiform, hyaline, smooth. *Conidia* subcylindrical to obclavate, apex obtuse, base truncate, straight to curved or slightly curved, phragmosporous, continuous or slightly constricted at septa, solitary, pale brown, smooth-walled, guttulate (Morgan-Jones 1974; Punithalingam and Spooner 1997; Quaedvlieg et al. 2013; Phookamsak et al. 2014).

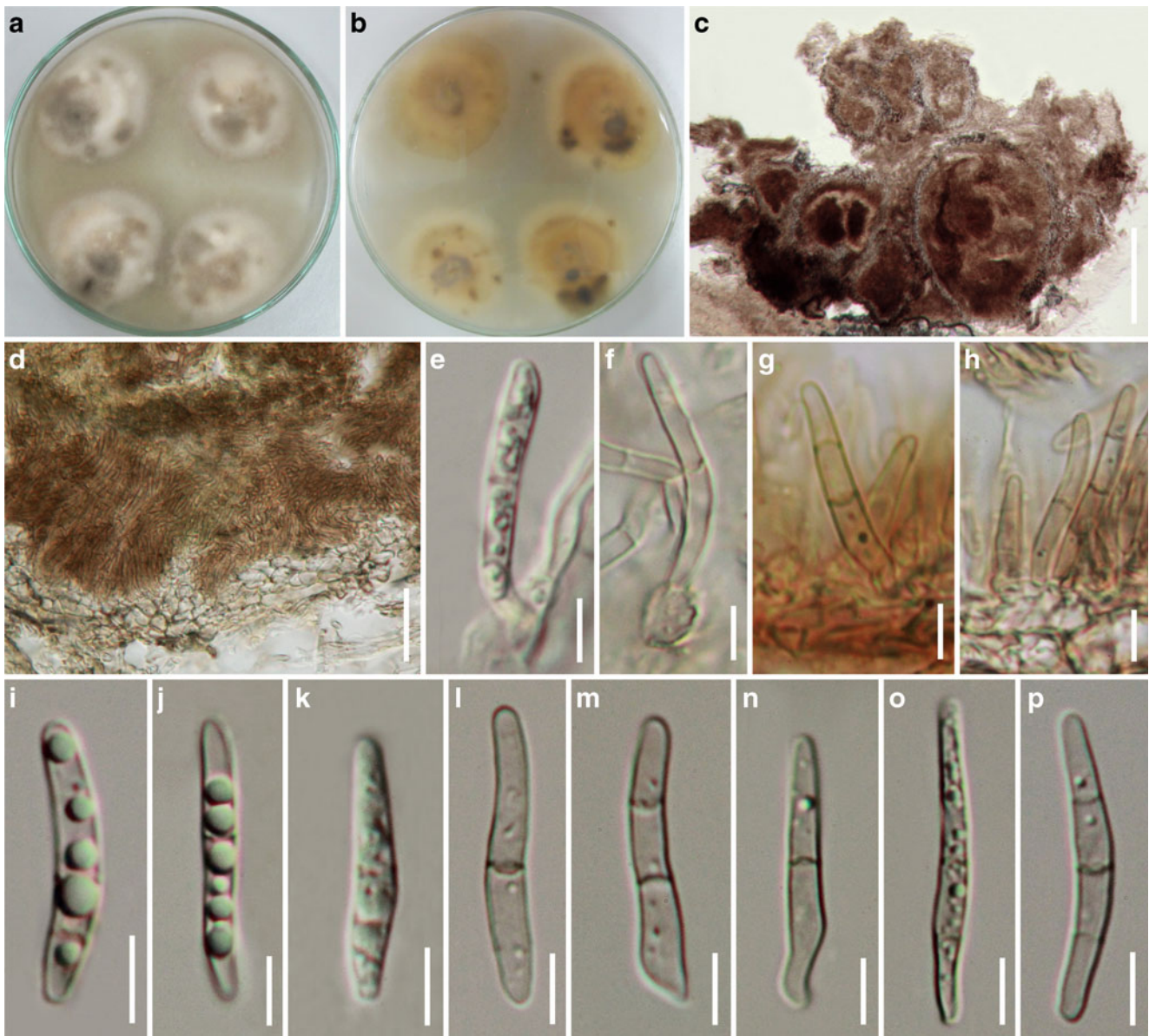


Fig. 200 *Phaeosphaeria chiangraina* (Material examined: Thailand, Chiang Rai Province, Muang District, Nanglae Village, on dead leaves of *Oryza sativa*, 20 January 2013, R. Phookamsak, MFLU 12–2472,

holotype). **a, b** Cultures with conidiomata. **c** Vertical section of conidioma. **d** Conidioma wall. **e–h** Different stages of conidiogenesis. **i–p** Conidia. Scale bars: **c** = 100 μ m, **d** = 20 μ m, **e–p** = 5 μ m

Type species: Phaeosphaeria oryzae I. Miyake, Bot. Mag. Tokyo, 23(266): 93 (1909)

Notes: Spegazzini (1908) introduced *Phaeoseptoria* with *P. papayae* as the type species. Quaedvlieg et al. (2013) showed that *P. papayae* clusters with *Phaeosphaeria sensu stricto* hence introduced it as the new combination of *Phaeosphaeria papaya* (Speg.) Quaedvlieg et al. Quaedvlieg et al. (2013) also proposed to adopt *Phaeosphaeria* over *Phaeoseptoria*. Phookamsak et al. (2014) and Wijayawardene et al. (2014c) agreed with this adoption in their list of genera in *Phaeosphaeriaceae* and proposed list of generic names for *Dothideomycetes* respectively.

Punithalingam and Spooner (1997) described *Phaeoseptoria peltigerae* Punith. & Spooner from the thallus of the lichen *Peltigera horizontalis*.

Phaeosphaeriopsis M.P.S. Câmara et al., in Câmara et al., Mycol. Res. 107(5): 519 (2003) *Facesoffungi* number: FoF00264; Fig. 201

Dothideomycetes, Pleosporomycetidae, Pleosporales, Pleosporineae, Phaeosphaeriaceae

Saprobic or *pathogenic* on various monocotyledons. **Sexual morph:** see Phookamsak et al. (2014). **Asexual morph:** *Conidiomata* pycnidial, solitary, superficial, or semi-immersed, black, globose to subglobose or cup-

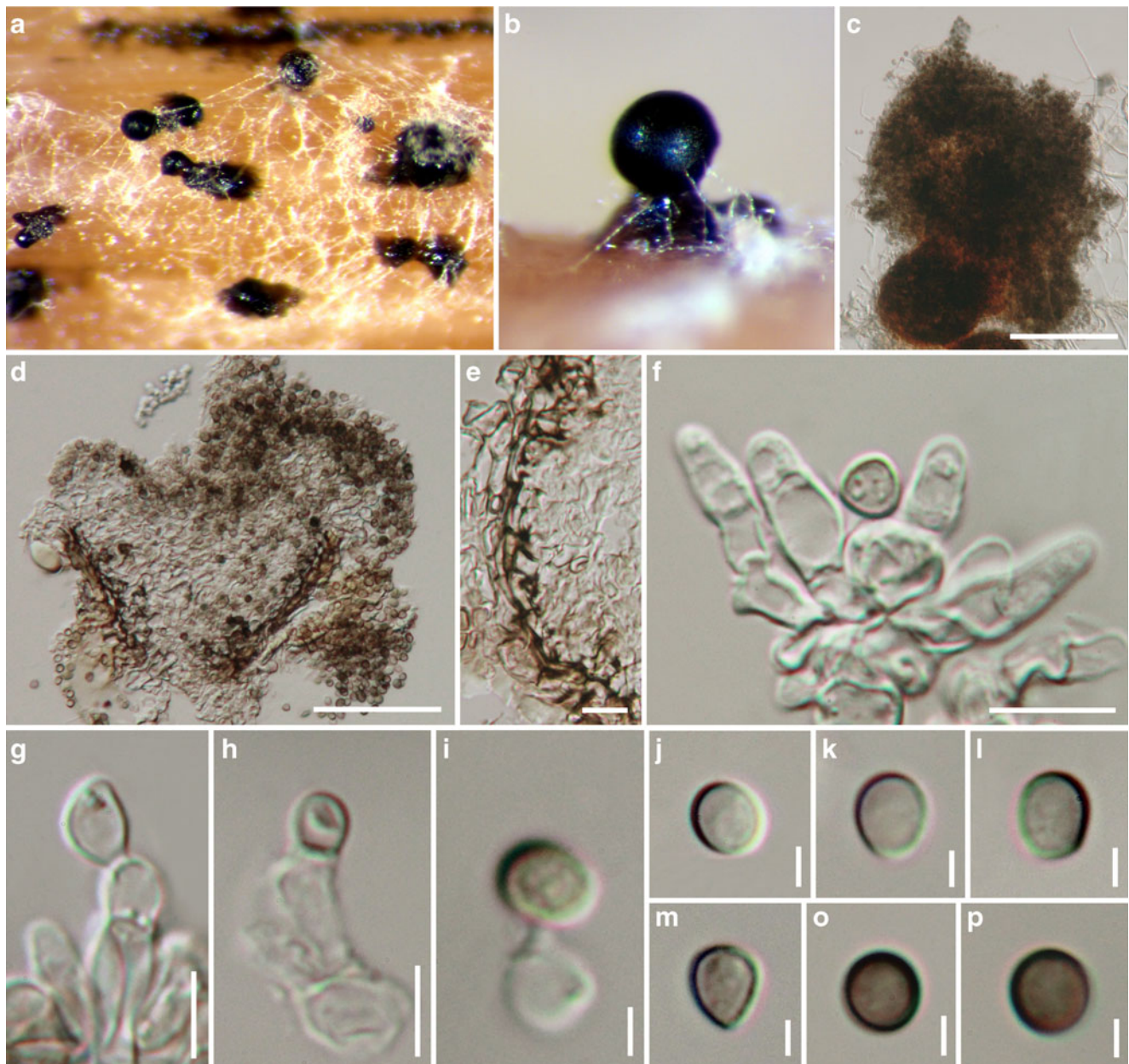


Fig. 201 *Phaeosphaeriopsis dracaenicola* (Material examined: Thailand, Chiang Rai Province, Muang District, Nang Lae Village, on living leaves of *Dracaena lourieri*, 21 September 2010, S. Wikee, MFLU 11–0193, holotype). **a, b** Conidiomata on culture. **c** Squashed conidioma.

d Vertical section of conidioma. **e** Conidioma wall. **f–i** Different stages of conidiogenesis. **j–o** Conidia. Scale bars: **c** = 100 μ m, **d** = 50 μ m, **e**, **f** = 10 μ m, **g**, **h** = 5 μ m, **i–o** = 2 μ m

shaped, ostiolate. *Ostiole* central, apapillate. *Conidiomata* wall outer layer composed of dark brown cells of *textura angularis*, inner layer composed of thin-walled, hyaline cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells or simple, rarely branched, septate, hyaline. *Conidiogenous cells* holoblastic, phialidic, doliiform to cylindrical or ampulliform, single, discrete, sometimes integrated, ampulliform or cylindric-clavate, hyaline, arising from basal stratum. *Conidia* globose to subglobose, initially

hyaline, becoming brown to dark brown, aseptate, thick and smooth-walled (Phookamsak et al. 2014).

Type species: Phaeosphaeriopsis glaucopunctata (Grev.) M.P.S. Câmara et al., in Câmara et al., Mycol. Res. 107(5): 519 (2003)

Notes: Phookamsak et al. (2014) introduced the *Phaeosphaeriopsis dracaenicola* Phookamsak & K.D. Hyde with brown to dark brown, aseptate conidia. Phylogenetic analyses show that *Phaeosphaeriopsis dracaenicola* resides in *Phaeosphaeriopsis sensu stricto*.

Phaeostagonospora A.W. Ramaley, Mycotaxon 61: 351 (1997)

Facesoffungi number: FoF 01566; Fig. 202

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, *Pleosporineae*, *Phaeosphaeriaceae*

Saprobic or *endophytic* on *Asparagaceae* (Monocotyledons). **Sexual morph:** ?*Phaeosphaeriopsis* fide Ramaley (1997). **Asexual morph:** *Conidiomata* pycnidial, solitary, subepidermal, unilocular, elongated to globose, flattened at the apex against the host epidermis, with small papilla penetrating the host epidermis. *Conidiomata* wall thick, composed of 3–6 layers of brown-walled cells, with 1–2 hyaline interior layers. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, discrete, doliform, ampulliform or irregular in shape, hyaline, smooth. *Macroconidia* ellipsoidal to cylindrical, with rounded ends, foveolate, brown, phragmosporous, 1–3-septate, rough-walled. *Microconidia* globose or ellipsoidal, hyaline, smooth-walled, forming on the conidiomatal wall near the ostiole (description modified from Ramaley 1997).

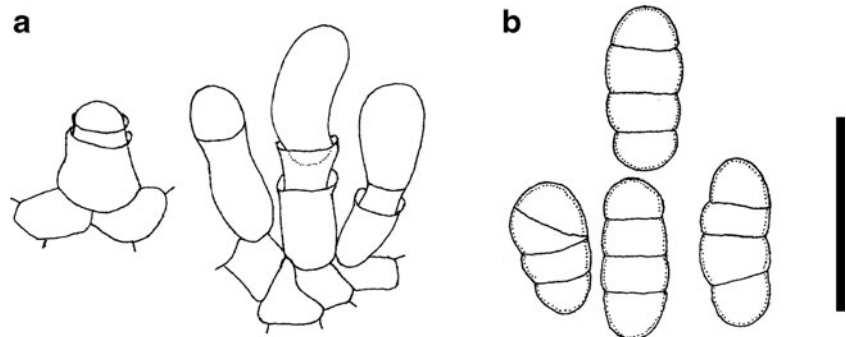
Type species: Phaeostagonospora nolinae A.W. Ramaley, Mycotaxon 61: 351 (1997); Fig. 202

Notes: Ramaley (1997) introduced the genus *Phaeostagonospora* with *P. nolinae* as the type species. At the same time, Ramaley (1997) introduced *Paraphaeosphaeria nolinae* A.W. Ramaley as the sexual morph of *Phaeostagonospora nolinae* based on occurrence of both fungi on same substrate. Câmara et al. (2003) transferred the sexual morph to the new genus, *Phaeosphaeriopsis* M.P.S. Câmara et al. and treated *Phaeostagonospora* as its asexual morph. However, this link was not proven based on either culture or molecular based methods. Phookamsak et al. (2014) and Wijayawardene et al. (2014c) accepted *Phaeostagonospora* as a distinct genus in *Phaeosphaeriaceae*, but this placement has not been confirmed by phylogenetic analyses.

Phragmocamarosporium Wijayaw. et al., Crypto Mycol 36(2): 217 (2015)

Index Fungorum number: IF551084; *Facesoffungi* number: FoF 00465; Fig. 203

Fig. 202 *Phaeostagonospora nolinae*. **a** Different stages of conidiogenesis. **b** Conidia. Scale bars: **a**, **b** = 20 μ m (re-drawn from Ramaley 1997)



Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, *Massarineae*, *Lentitheciaceae*

Saprobic and *endophytic* on twigs of *Araliaceae* and *Platanaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, subepidermal, black, gregarious, unilocular, globose to subglobose, papillate ostiole, central. *Conidiomata* wall multi-layered, outer wall composed of dark brown, thin walled cells of *textura angularis*, with inner layer of hyaline, thin-walled cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, discrete, determinate, simple to branched at the base, short or long, hyaline to pale brown, smooth-walled. *Conidia* medium brown, clavate or ellipsoid to subcylindrical, with obtuse apex and truncate base, straight to curved, (2–)3(–4)-transverse septate, rarely with 1 longitudinal septum, constricted at the septa.

Type species: Phragmocamarosporium platani Wijayaw. et al., Crypto Mycol 36(2): 217 (2015); Fig. 203

Notes: *Phragmocamarosporium* spp. are morphologically similar to *Camarosporium hederæ* which is characterized by brown, phragmosporous conidia (Ellis and Everhart 1900). However, both morphology and molecular data strongly supported the erection of a new genus, thus Wijayawardene et al. (2015) introduced *Phragmocamarosporium*. Currently the genus comprises two species and resides in *Lentitheciaceae*.

Key to species of *Phragmocamarosporium*

1. Conidiogenous cells 8–10 \times 1.5–2.5 μ m, conidia 9–11 \times 3–4.5 μ m ***P. hederæ***
1. Conidiogenous cells 1.5–3 \times 1.5–2.5 μ m, conidia 12–13 \times 5–7.5 μ m ***P. platani***

Phragmotrichum Kunze, Mykologische Hefte (Leipzig) 2: 84 (1823)

Facesoffungi number: FoF 01567; Fig. 204
Ascomycota, genera *incertae sedis*

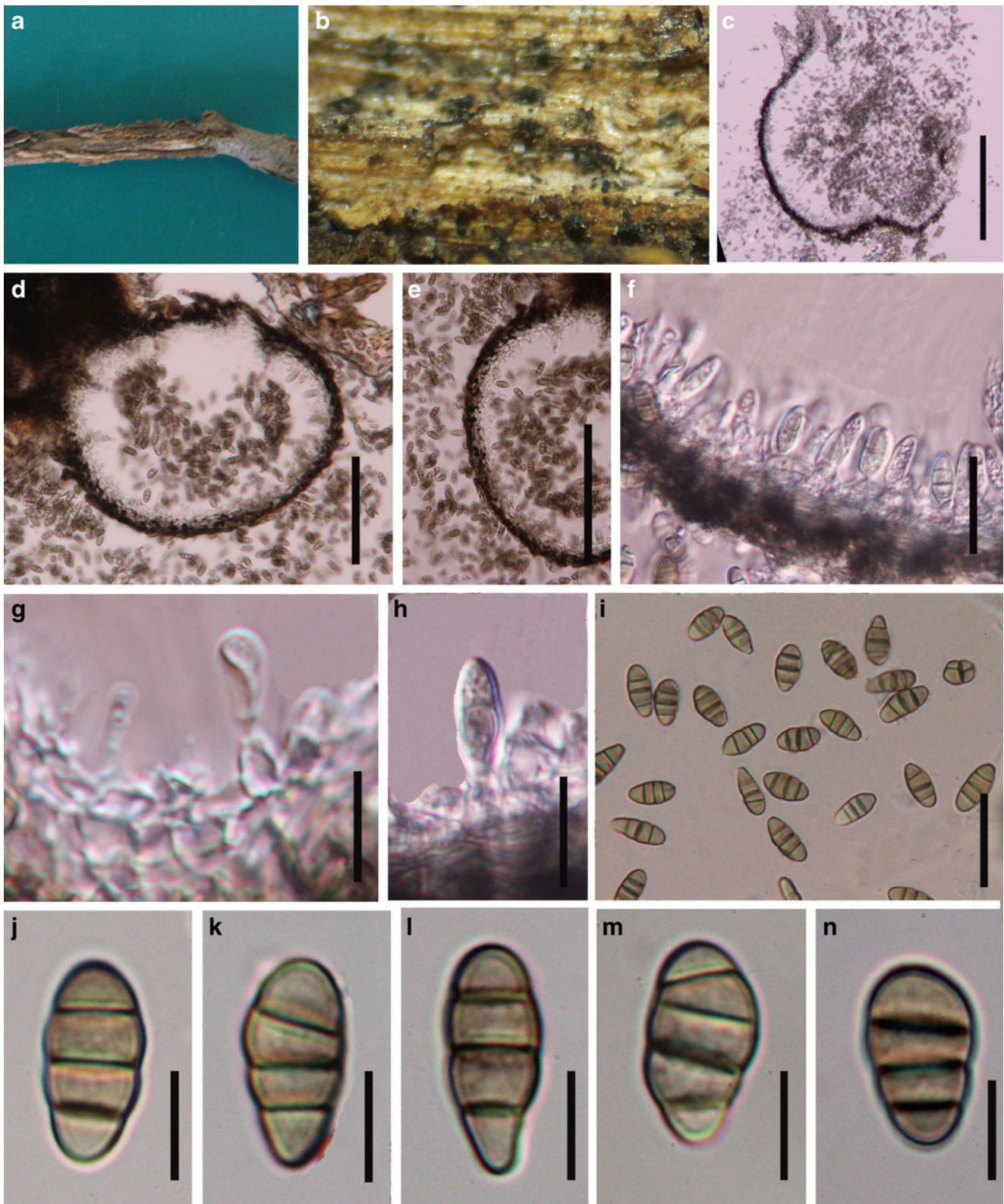


Fig. 203 *Phragmocamarosporium platani* (Material examined: China, Guizhou Province, Huaxi, on branch of *Platanus* sp., 20 July 2012, N. Wijayawardene, MFLU 15–0164, holotype). **a** Branch of *Platanus* sp. **b** Conidiomata on branch. **c**, **d** Vertical sections of conidiomata. **e**

Conidioma wall. **f–h** Developing conidia attached to conidiogenous cells. **i–n** Conidia. Scale bars: **c** = 150 μ m, **d** = 100 μ m, **e** = 100 μ m, **f–h** = 10 μ m, **i** = 15 μ m, **j–n** = 5 μ m (from Wijayawardene et al. 2015)

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic to sporodochium-like, immersed at immaturity, erumpent at maturity, solitary to gregarious, dark brown. *Conidiomatal wall* composed of dark brown-walled cells of *textura angularis*. *Conidiophores* hyaline, branched only at the base, septate, smooth, cylindrical, formed from the base of the inner wall of conidioma. *Conidiogenous cells* thallic, integrated, hyaline, smooth, cylindrical, producing un-branched basipetal chains of conidia. *Conidia* brown, muriform, 4–5 transversely septate, with 2–3 longitudinal septa, continuous, truncate at both ends, straight to curved, fusiform or ellipsoidal, smooth-walled (Sutton 1980; Mel'nik 1984; Bhat and Kendrick 1993).

Type species: Phragmotrichum chailletii Kunze, Mykologische Hefte (Leipzig) 2: 84 (1823)

Notes: The genus *Phragmotrichum* was introduced by Kunze and Schmidt (1823) based on *P. chailletii* as the type species. The conidial development of *Phragmotrichum* is fascinating as only a few coelomycetous genera have holothallic conidiogenesis (Sutton 1980) although several hyphomycetous genera show such conidiogenesis (Seifert et al. 2011). However, Sutton and Pirozynski (1965), Sutton and Sandhu (1969) and Sutton (1977, 1980) accepted this genus as a coelomycete. Conidial development (arthric conidiogenesis) of *Phragmotrichum* is similar to *Neozythia* and *Vouauxiella*. A taxonomic key to distinguish *Phragmotrichum* and other related genera is provided under *Cirrosporium*.

Besides the type species, Sutton (1980) accepted three species viz. *P. pini* (W.B. Cooke) B. Sutton & D.K. Sandhu, *P. rivoclarinum* (Peyronel) B. Sutton & Piroz. and *P. platanoidis* G.H. Otth. Since Sutton (1980), two species have been introduced i.e. *P. vassiljevae* Mel'nik (Mel'nik 1984) and *P. andamanense* Bhat et al. (Bhat and Kendrick 1993). Hence currently *Phragmotrichum* comprises six species.

Piggotia Berk. & Broome, Ann. Mag. nat. Hist., Ser. 2 7: 95 (1851)

Facesoffungi number: FoF 01568; Fig. 205

?*Dothideomycetes*, order *incertae sedis*, *Venturiales*, *Venturiaceae*

Endophytic or *saprobic* on leaves of a range of host plants, or associated with leaf lesions. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* acervular, subcuticular, separate or convoluted, black, cuticle dark brown. *Conidiomata wall* lower layer composed of pale to medium brown almost cuboid *textura prismatica*. *Conidiophores* branched, septate only near the base, pale brown, smooth, cylindrical, straight. *Conidiogenous cells* holoblastic to annellidic, indeterminate, discrete, cylindrical, pale brown, smooth or verruculose above. *Macroconidia* cylindrical to almost cuneiform, apex obtuse, base truncate, pale brown, aseptate, thin and smooth-

walled. *Microconidia* cylindrical to subglobose, apex rounded, base broadly truncate, hyaline to pale brown, with a tiny frill at the base, aseptate, thin and smooth-walled (Morgan-Jones et al. 1972c; Sutton 1980; Johnston 1999).

Type species: Piggotia ulmi (Grev.) Keissl., Annln naturh. Mus. Wien: 207 (1933); Fig. 205

≡ *Asteroma ulmi* Grev., Fl. Edin.: 368 (1824)

= *Piggotia astroidea* Berk. & Broome, Ann. Mag. nat. Hist., Ser. 2 7: 95 (1851)

Notes: Berkeley and Broome (1851) introduced *Piggotia* with *P. astroidea* Berk. & Broome as the type species. However, Sutton (1980) listed only two species as accepted species. Further Sutton (1980) stated that all other species need to be revisited.

Kirk et al. (2008) and Zhang et al. (2012) listed *Piggotia* as an asexual morph in *Venturiaceae*. However, Sutton (1980) stated *Platychora ulmi* (Schleich.) Pet. is the sexual morph of *Piggotia ulmi*. Sequence data is unavailable, thus taxonomic placement is uncertain.

Pilidiella Petr. & Syd., Beih. Reprim nov. Spec. Regni veg. 42(1): 462 (1927)

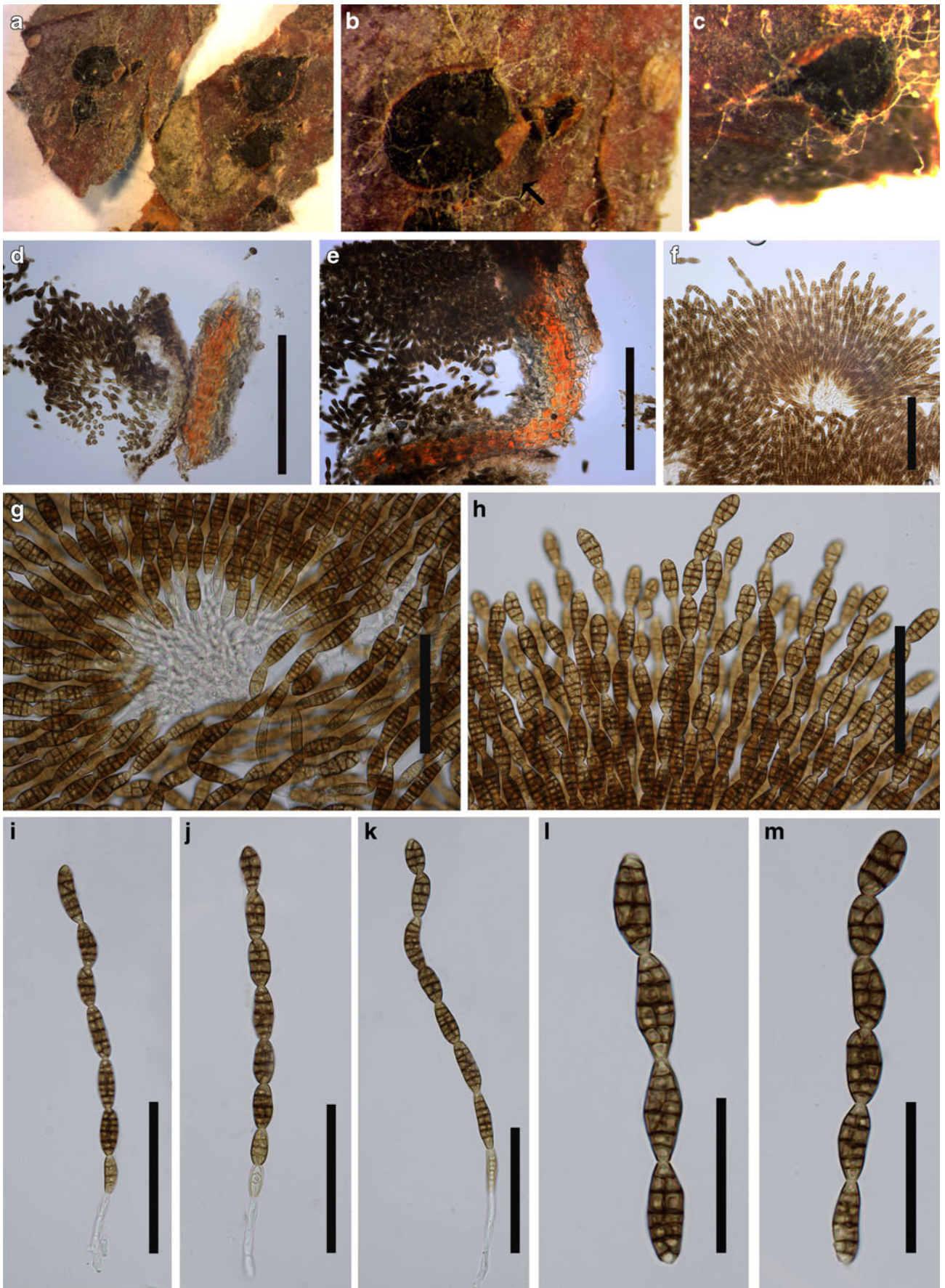
Facesoffungi number: FoF 01569; Figs. 206 and 207

Sordariomycetes, *Sordariomycetidae*, *Diaporthales*, *Schizoparmeaceae*

Saprobic and *pathogenic* on leaves, stems of a range of host plants or associated with leaf spots. **Sexual morph:** *Schizoparme* fide Van Niekerk et al. (2004). **Asexual morph:** *Conidiomata* pycnidia, globose and slightly depressed to subglobose, uniloculate, with a prominent ostiole. *Conidiomata wall* thick-walled, composed of thin-walled, brown cells of *textura angularis*, with outer layers pigmented and inner layers hyaline. *Conidiophores* dense, branched at the base, aseptate to septate, hyaline, smooth. *Conidiogenous cells* simple, hyaline, annellidic, arising from a supporting conidiophore cell. *Conidia* ellipsoidal or cylindrical to fusiform, with slightly obtuse apex and base, aseptate, straight to slightly curved, hyaline to pale brown, smooth-walled, some species with lateral appendages or mucoid sheath (Sutton 1980; Nag Raj 1993; Van Niekerk et al. 2004; Rossmann 2007; Miranda et al. 2012).

Type species: Pilidiella quercicola (Oudem.) Petr., Beih. Reprim nov. Spec. Regni veg. 42(1): 462 (1927) [1926]

Notes: Sutton (1980) reduced *Pilidiella* to synonym with *Coniella* as pycnidia, conidiogenesis and orientation of conidiophores were identical, except conidial pigmentation. von Arx (1957, 1981) used conidial pigmentation to distinguish *Coniella* and *Pilidiella*. However, Nag Raj (1993) accepted *Pilidiella* as a synonym of *Coniella* and rejected von Arx's (1981) criteria of conidial pigmentation for distinguishing both genera. Nevertheless, Castlebury et al. (2002) and van Niekerk et al. (2004) showed that these two genera have distinct affiliations in their phylogenetic analyses



◀ **Fig. 204** *Phragmotrichum platanoidis*. (Material examined: Italy, Forlì-Cesena [FC] Province, Ronco del Cianco - Santa Sofia, on bark of *Fraxinus* sp., E. Camporesi, 29 April 2012, MFLU 15-3454=HKAS92539). **a–c** Conidiomata on host. **d, e** Vertical sections of conidiomata. **f** Basipetal development of conidial chain in matrix of conidiomata. **g** Basal region of chain of conidia. **h** Apical region of conidial chains. **i–k** Chains of conidia attach to conidiogenous cells. **l, m** Chain of conidia. Scale bars: **d, e** = 60 μm , **f–l** = 20 μm , **m, n** = 15 μm

of ITS and LSU sequence data. Our phylogenetic analyses also agree with these findings (Figs. 9, 12 and 208).

Sutton (1980) stated that *Pilidiella castaneicola* (as *Coniella castaneicola*) has pale brown conidia, but van Niekerk et al. (2004) mentioned both *P. castaneicola* and *P. granati* have hyaline conidia. Hence, van Niekerk et al. (2004) expanded the generic boundaries of *Pilidiella* to include ‘hyaline to dark brown conidia’. Our collection (Fig. 206) of *P. castaneicola* also has hyaline to subhyaline conidia while the collection of *P. eucalyptorum* has dark brown conidia (Fig. 207). However, *Coniella* also has dark brown conidia thus it is appropriate to rely on sequence data to distinguish *Pilidiella* species with dark brown conidia and *Coniella* species.

Placodiplodia Bubák, Ber. dt. bot. Ges. 34: 305 (1916)

Facesoffungi number: FoF 01570; Figs. 209 and 210

Ascomycota, genera *incertae sedis*

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, immersed, erumpent at maturity, solitary or gregarious, or occasionally confluent, navicular,

unilocular, dark brown to black. *Conidiomata* wall outer layer composed of thick-walled, dark brown walled cells of *textura angularis*, inner layer composed of thin-walled, hyaline cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, ampulliform to doliiform, determinate, discrete, hyaline, smooth, collarette, channel minute. *Conidia* cylindrical to ellipsoid, pale brown to brown, 1-septate, continuous or slightly constricted, obtuse apex and base, smooth-walled (Cooke 1891; Sutton 1980; Buchanan 1987; Bianchinotti 2001).

Type species: Placodiplodia copelandii Bubák [as ‘copelandi’], Ber. dt. bot. Ges. 35: 305 (1916); Fig. 209

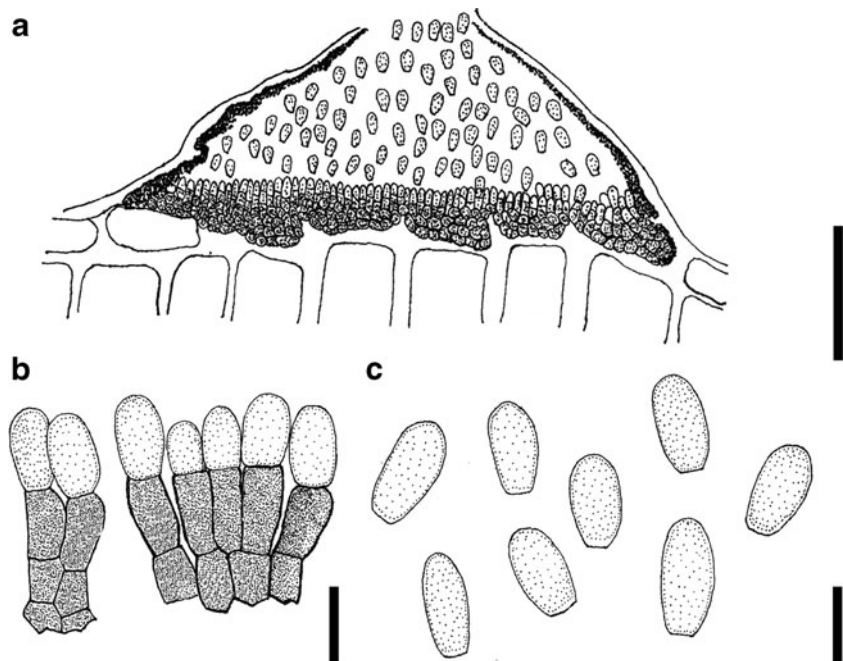
Notes: Bubák (1916) introduced *Placodiplodia* with *P. copelandii* as the type species. Zambettakis (1954) introduced several species but Sutton (1980) maintained the genus as monotypic. Buchanan (1987) transferred *Diplodia canthiifolia* Cooke & Massee to *Placodiplodia* and thus the genus comprises two species. In conidial morphology, *Placodiplodia* resembles *Diplodia* and *Dothiorella*. However, *Placodiplodia* has stromatic conidiomata, while both *Diplodia* and *Dothiorella* have pycnidial conidiomata. Nevertheless, phylogenetic studies are required to confirm the placement; Sequence data is unavailable.

Pleoseptum A.W. Ramaley & M.E. Barr, Mycotaxon 54: 76 (1995)

Facesoffungi number: FoF00282; Fig. 211

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, *Pleosporineae*, *Phaeosphaeriaceae*

Fig. 205 *Piggotia ulmi*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 50 μm , **b, c** = 10 μm (redrawn Morgan-Jones et al. 1972c)



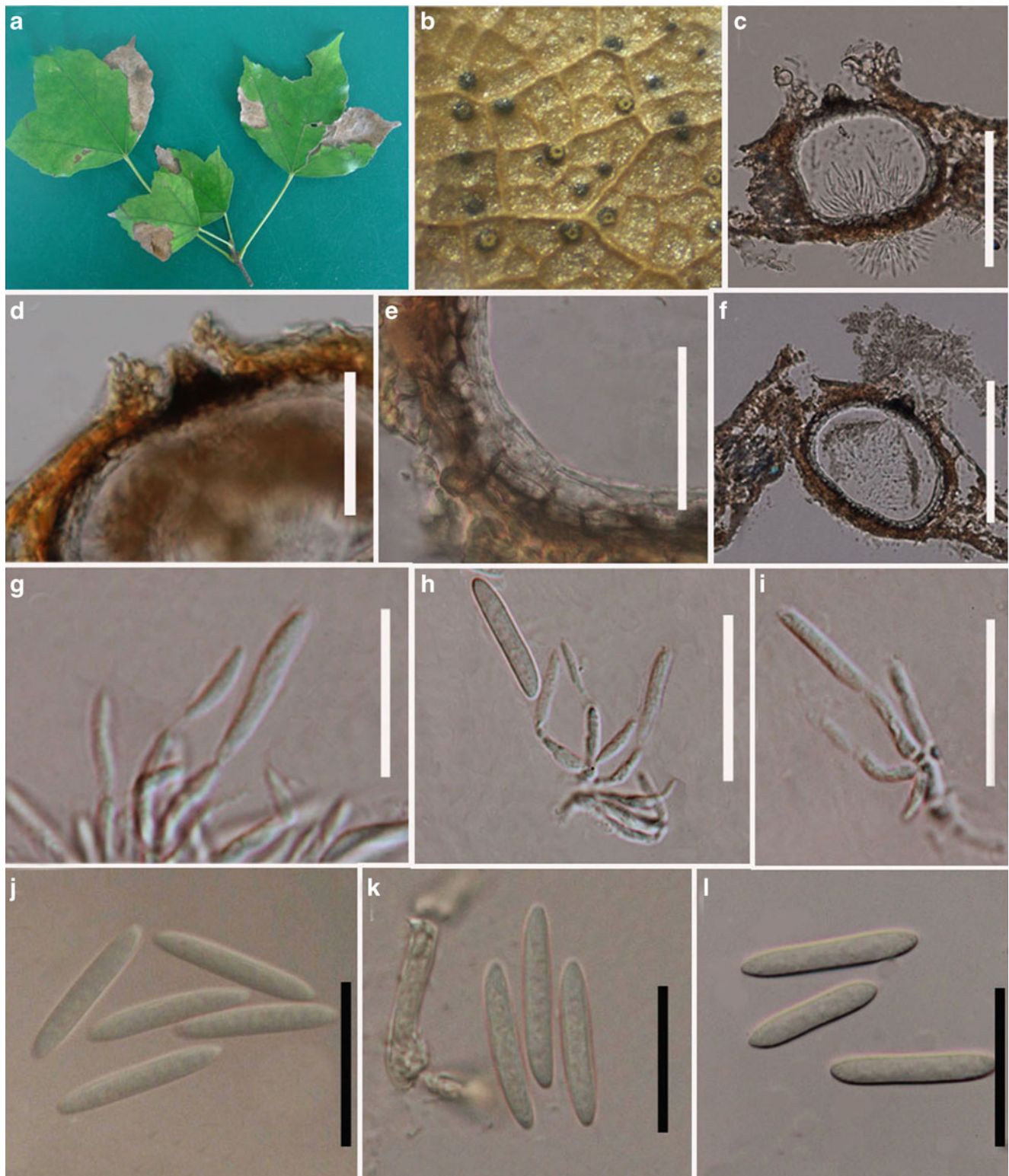


Fig. 206 *Pileidiella castaneicola* (Material examined: China, Guizhou Province, Guiyang, Huaxi, near Guizhou University, on leaves of *Acer buergerianum*, 28 September 2013, N. Wijayawardene, MFLU 13–0006). **a** Leaf spots on *Acer* sp. **b** Conidiomata in leaf spot. **c, f** Vertical

sections of conidiomata. **d** Vertical section of neck. **e** Conidiomata wall. **g–i** Conidia attached to the conidiogenous cells. **j–l** Conidia. Scale bars: **c, f** = 100 μ m, **d, g–i** = 15 μ m, **e, j–l** = 20 μ m

Endophytic or saprobic on Asparagaceae (Monocotyledons). **Sexual morph:** see Phookamsak et al.

(2014). **Asexual morph:** *Conidiomata* growing with the sexual morph, pycnidial, immersed, solitary to gregarious,

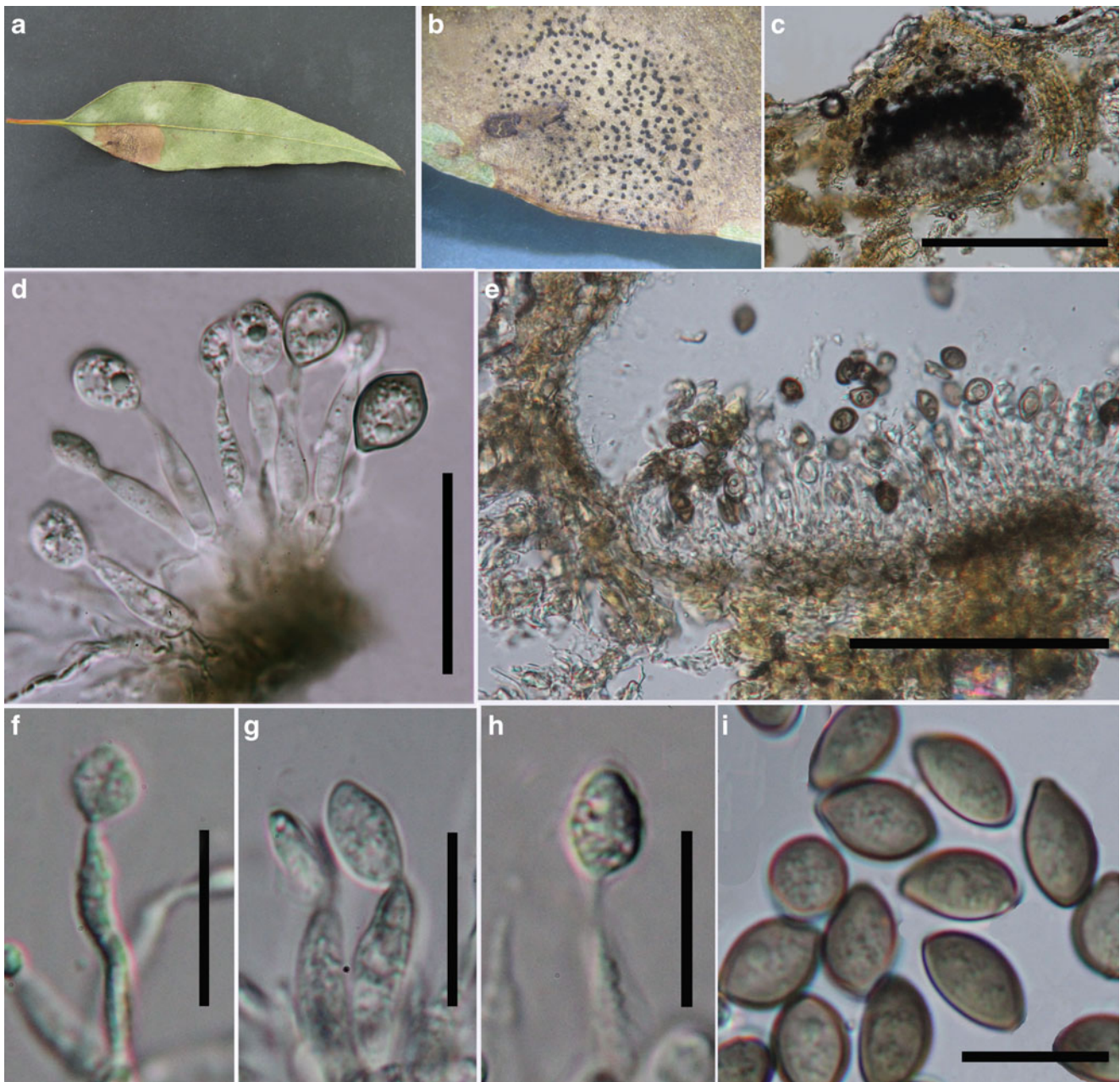


Fig. 207 *Pilidiella eucalyptorum* (Material examined: Thailand, Chiang Rai Province, Chiang Rai, near Mae Fah Luang university, on twigs of *Eucalyptus* sp., 20 May 2013, N. Wijayawardene, MFLU 15–3544). **a**

Leaf spot on *Eucalyptus* sp. **b** Conidiomata on leaf spot. **c, e** Vertical sections of conidiomata. **d, f–h** Conidia attached to conidiogenous cells. **i** Conidia. Scale bars: **c, e** = 100 μ m, **d, f–h** = 20 μ m, **i** = 10 μ m

uniloculate, globose to ovoid or conoid, brown to dark brown, ostiolate. *Conidiomata* walls thick, composed of thick-walled, brown to dark brown pseudoparenchymatous cells, arranged in *textura angularis*. *Conidiophores* oblong to cylindrical, discrete, usually unbranched, hyaline to brown, septate. *Conidiogenous cells* enteroblastic, annellidic or sympodial. *Conidia* oblong to obovoid or ellipsoidal, with rounded or obtuse ends, or with truncate base, muriform, initially hyaline, becoming brown to reddish-brown or dark brown at maturity, mostly with 3–5 transverse septa and 1–3 longitudinal septa, smooth-walled.

Type species: Pleoseptum yuccaesedum A.W. Ramaley & M.E. Barr, Mycotaxon 54: 76 (1995); Fig. 211

= *Camarosporium yuccaesedum* Fairm., Mycologia 10(5): 261 (1918)

Notes: Ramaley and Barr (1995) introduced *Pleoseptum* with *P. yuccaesedum* as the type species. At the same time, Ramaley and Barr (1995) reported *Camarosporium yuccaesedum* as the asexual morph of *Pleoseptum yuccaesedum* as both morphs grow on same host material and they also proved the link by culture based methods. Phookamsak et al. (2014) examined the holotype and

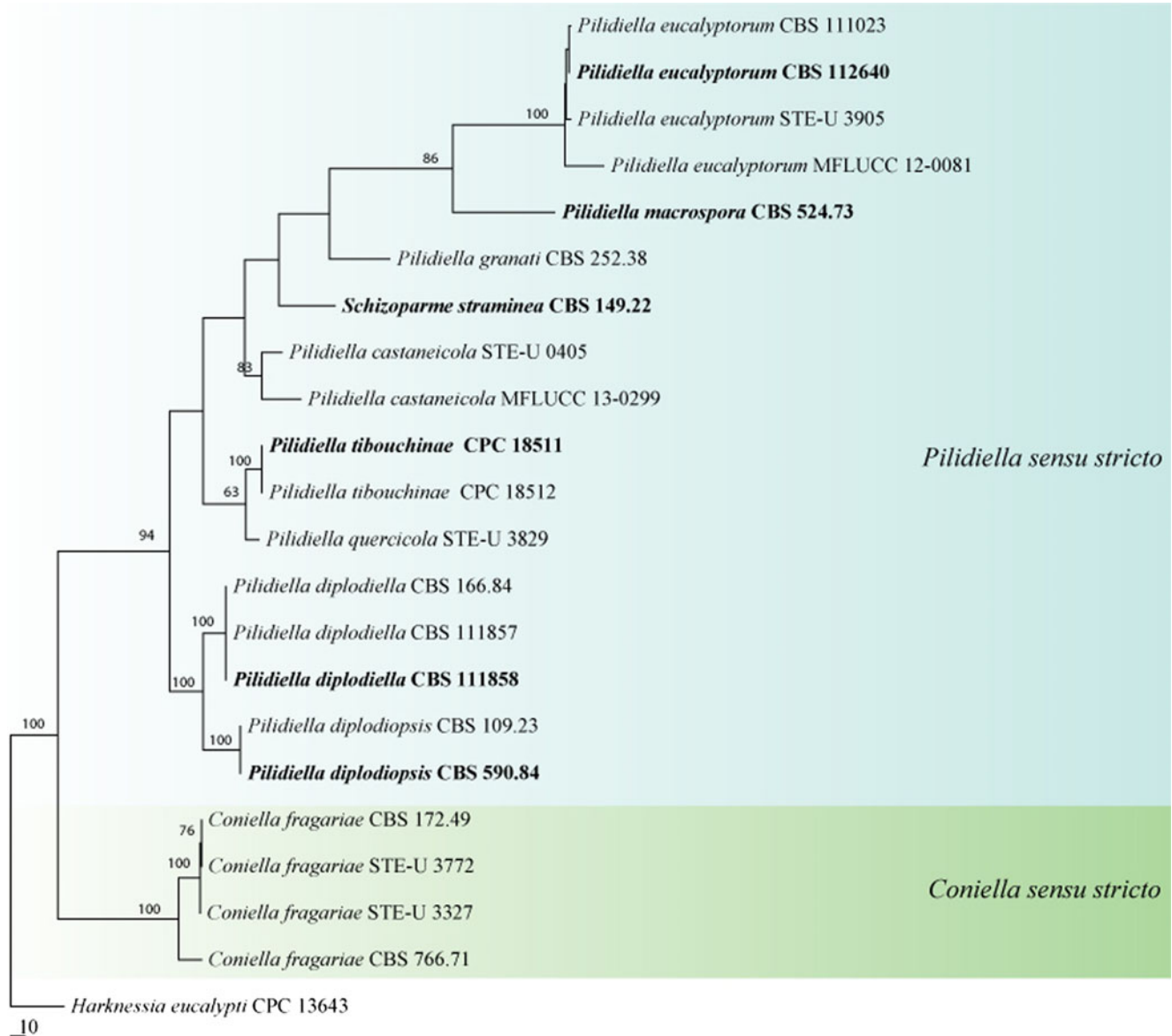


Fig. 208 One of the 16 equally most parsimonious trees obtained from the combined data set of LSU, ITS and EF1- α (CI=0.735, RI=0.806, RC=0.593, HI=0.265). MP values (>60 %) resulting from 1000

bootstrap replicates are given at the nodes. The tree was rooted to *Harknessia eucalypti* (CBS 13643). Ex-type strains are in bold

confirmed the co-occurrence of both morphs on the host material. *Camarosporium sensu stricto* has distinct phylogenetic relationship in *Pleosporineae* hence, Phookamsak et al. (2014) reduced *Camarosporium yuccaesedum* under *Pleoseptum yuccaesedum*.

Phookamsak et al. (2014) accommodated *Pleoseptum* in *Pleosporaceae* based on morphology, however, this placement is uncertain as it lacks sequence data.

Poaceicola W.J. Li et al. Mycosphere 6(6): 692 (2015)

Facesoffungi number: FoF 01571; Fig. 212

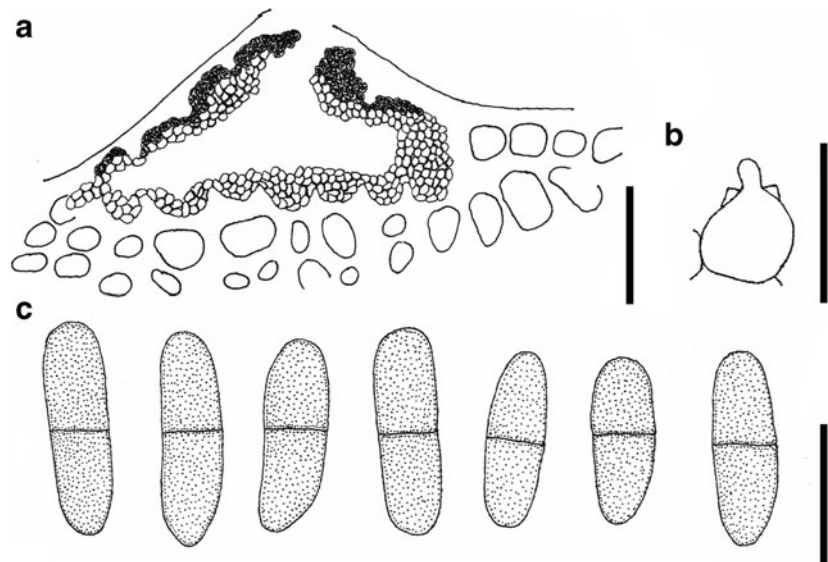
Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, *Pleosporineae*, *Phaeosphaeriaceae*

Endophytic or saprobic on twigs and stems of Poaceae. **Sexual morph:** see Li et al. (2015a).

Asexual morph: *Conidiomata* pycnidial, solitary, scattered, immersed, erumpent at maturity, globose, unilocular, dark brown, osiolate. *Ostiole* with long neck, circular, single, central. *Conidiomata* wall composed of thick-walled, dark brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, short, simple, aggregated, discrete, determinate, hyaline, smooth. *Conidia* cylindrical, both ends rounded, straight or rarely slightly curved, with 7 transverse septa, continuous to constricted at septa, thin and smooth-walled.

Type species: ***Poaceicola arundinis*** W.J. Li et al., Mycosphere 6(6): 692 (2015)

Fig. 209 *Placodiplodia copelandii*. **a** Vertical section of conidioma. **b** Conidiogenous cells. **d** Conidia. Scale bars: **a** = 50 μ m, **b**, **c** = 10 μ m (re-drawn from Sutton 1980)



Notes: Li et al. (2015a) introduced *Poaceicola* with *P. arundinis* as the type species. Currently the genus comprises three species viz. *P. arundinis* W.J. Li et al., *P. bromii* Wijaya et al. and *P. elongata* (Wehm.) Shoemaker & C.E. Babc. W.J. Li et al. Moreover, Li et al. (2015) showed that *Poaceicola* resided in *Phaeosphaeriaceae* and our phylogenetic analyses also agree with this finding (Fig. 9).

Poropeltis Henn., Hedwigia 43: 390 (1904)

Facesoffungi number: FoF 01572; Fig. 213

Ascomycota, genera *incertae sedis*

Endophytic or *saprobic* on leaves of *Dilleniaceae* (Dicotyledons). **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* pycnothyrial, superficial, solitary to gregarious, occasionally confluent, glabrous, dark brown scutate, orbicular to irregular in outline. *Conidiomata* wall composed of thick-walled, dark brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells.

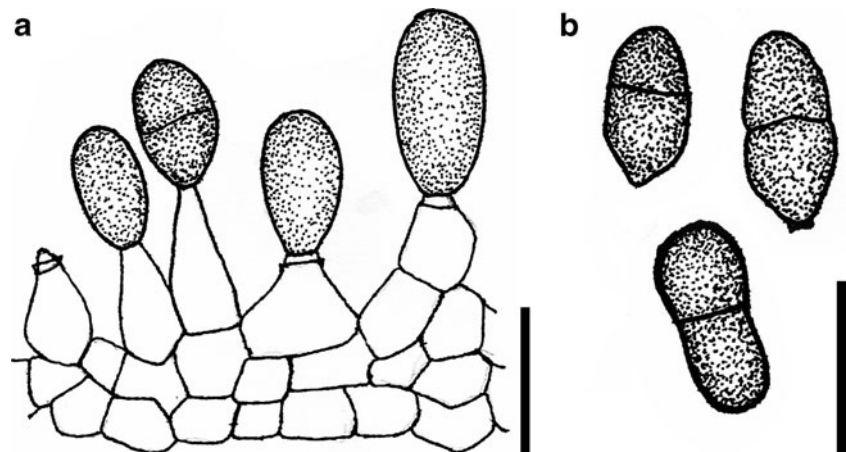
Conidiogenous cells enteroblastic, phialidic, ampulliform, discrete, subhyaline to hyaline, smooth. *Conidia* oval to elliptic, aseptate, brown to dark brown, with narrow, paler band in the centre, smooth-walled (Hennings 1904; Nag Raj 1977).

Type species: Poropeltis davillae Henn., Hedwigia 43(6): 390 (1904); Fig. 213

Notes: Hennings (1904) introduced *Poropeltis* with *P. davillae* as the type species. Nag Raj (1977a) re-described and illustrated the type species. Sutton (1977, 1980) did not list *Poropeltis* in his checklist and monograph, respectively. Nevertheless, Kirk et al. (2008, 2013) listed it and thus we treat *Poropeltis* as a valid name. In morphology, *Poropeltis* resembles diplodia-like taxa, but lacks a median septum. Sequence data is unavailable, thus taxonomic placement is uncertain.

Prillieuxina G. Arnaud, Annals d'École National d'Agric. de Montpellier, Série 2 16(1–4): 161 (1918) [1917]

Fig. 210 *Placodiplodia hilata*. **a** Different stages of conidiogenesis. **b** Conidia. Scale bars: **a**, **b** = 10 μ m (re-drawn from Bianchinotti 2001)



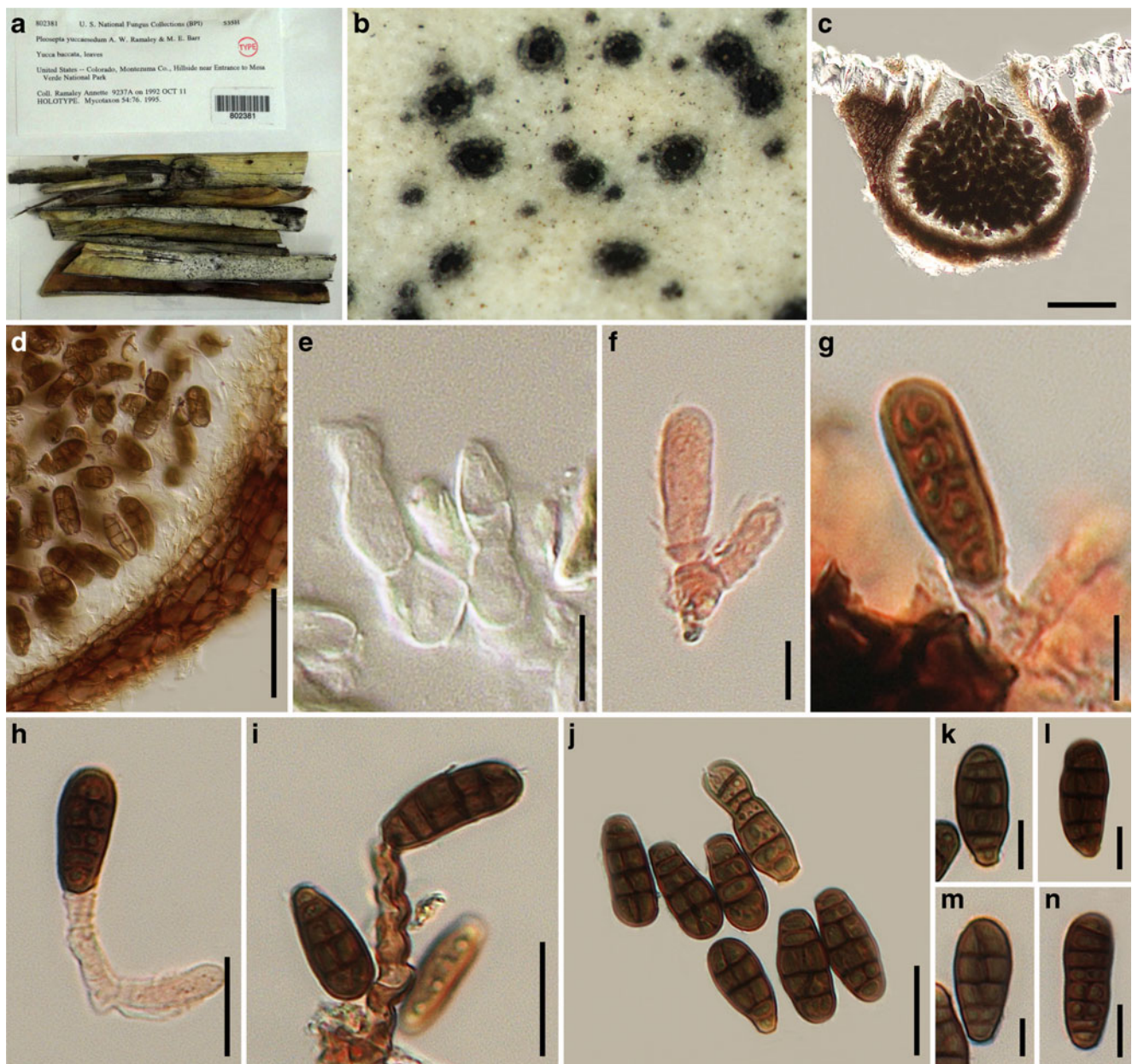


Fig. 211 Coelomycetous morph of *Pleoseptum yuccaesedum* (Material examined: USA, Colorado, Montezuma County, hillside near entrance to Mesa Verde National Park, on leaves of *Yucca baccata*, 11 October 1992, A. Ramaley, BPI 802381). **a** Herbarium label and specimens of *Pleoseptum yuccaesedum*. **b** Conidiomata occurs close to ascomata on

same host material. **c** Vertical section of conidioma. **d** Conidioma wall. **e** Immature conidia attach to conidiogenous cells. **f–i** Conidiogenous cells stained in congo red. **j–n** Conidia. Scale bars: **c** = 100 μ m, **d** = 50 μ m, **h–j** = 20 μ m, **e–g**, **k–n** = 10 μ m

= *Leprieurina* G. Arnaud, *Annals d'École National d'Agric. de Montpellier, Série 2* 16(1–4): 210 (1918) [1917]

Facesoffungi number: FoF 01573; Fig. 214

Dothideomycetes, *Dothideomycetidae*, *Asterinales*, *Asterinaceae*

Epiphytes on surface of leaves, forming minute, scattered, blackened areas. **Sexual morph**: see Hongsanan et al. (2014).

Asexual morph: *Conidiomata* pycnothyrial, superficial, scattered. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, short, discrete, hyaline,

smooth. *Conidia* obovoid, widest near the apex and tapering towards lower end, 0–1-septate at lower cell, continuous, brown to dark brown (Hongsanan et al. 2014).

Type species: Prillieuxina winteriana (Pazschke) G. Arnaud, *Annals d'École National d'Agric. de Montpellier, Série 2* 16(1–4): 162 (1918) [1917]; Fig. 214

= *Leprieurina winteriana* G. Arnaud, *Annals d'École National d'Agric. de Montpellier, Série 2* 16(1–4): 211(1918)[1917]

See Hongsanan et al. (2014) for synonyms.

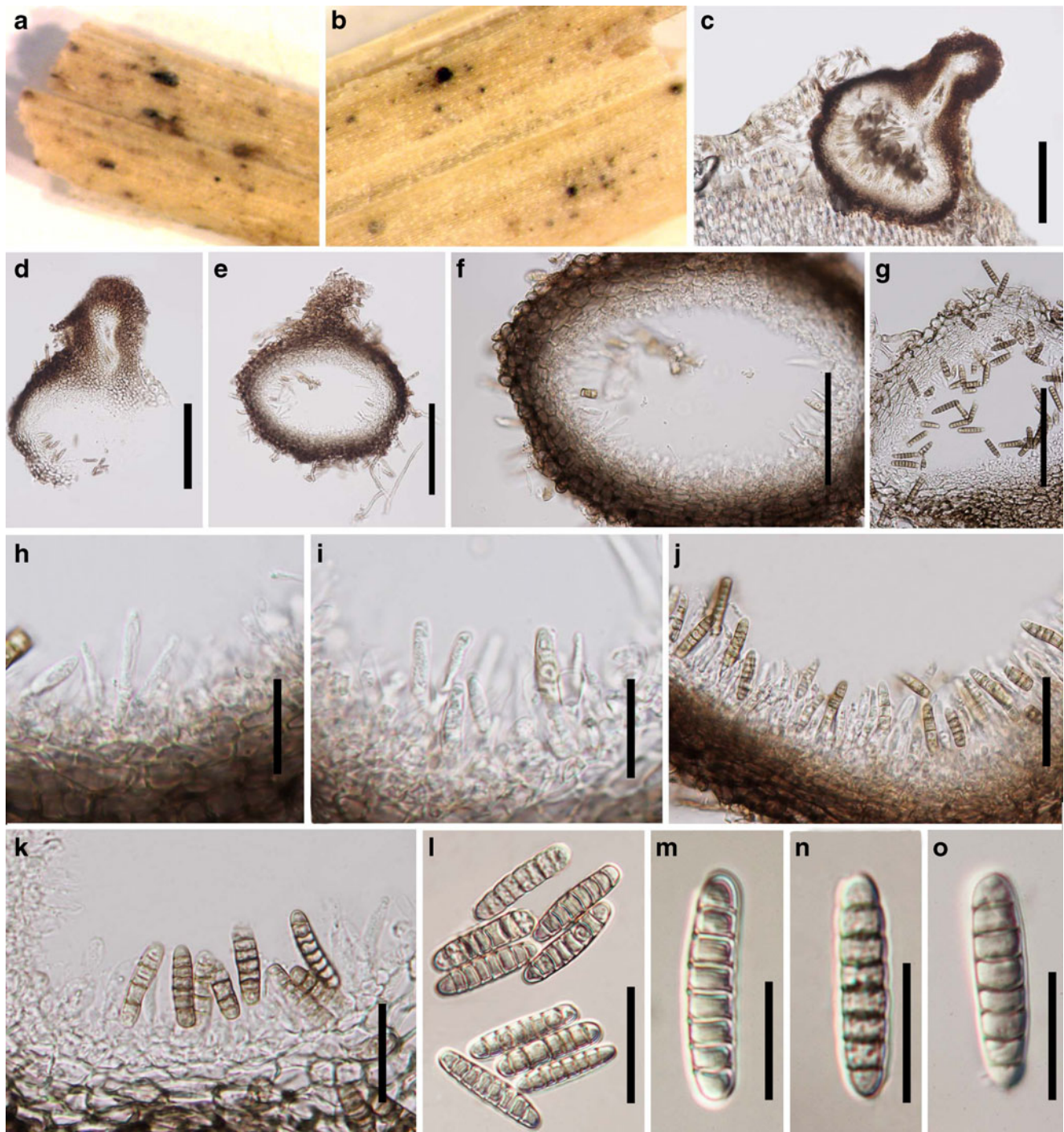


Fig. 212 *Poaceicola bromii* (Material examined: Italy, Forli-Cesena [FC] Province, on leaves of *Bromus sterilis*, 19 July 2013, E. Camporesi, MFLU 15–2719, holotype). **a, b** Conidiomata on host

material. **c–e** Vertical sections of conidiomata. **f, g** Conidiomata wall. **h–k** Different stages of conidiogenesis. **l–o** Conidia. Scale bars: **c–e** = 150 μ m, **f, g** = 250 μ m, **h–l** = 5 μ m

Notes: Hongsanan et al. (2014) reduced the asexual typified name, *Leprieurina* under sexual typified name i.e. *Prillieuxina* as both genera co-occur on same host material. This was accepted by Wijayawardene et al. (2014c) and Rossman et al. (2015).

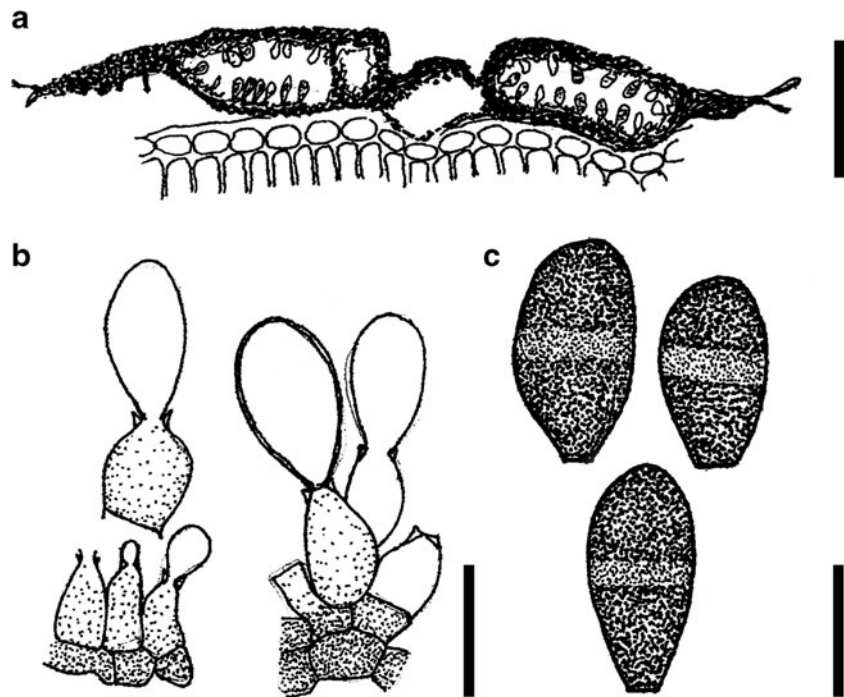
Prosopidicola Crous & C.L. Lennox, Stud. Mycol. 50(1): ‘187’ [191] (2004)

Facesoffungi number: FoF 01573; Fig. 215

Sordariomycetes, *Sordariomycetidae*, *Diaporthales*, *Cryphonectriaceae*

Associated with pod rot symptoms of *Fabaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, or sometimes appearing like acervular, solitary, subepidermal, erumpent at

Fig. 213 *Poropeltis davillae*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 100 μm , **b**, **c** = 10 μm (re-drawn from Nag Raj 1977a)



maturity, globose to subglobose, unilocular, black. *Conidiomata* wall composed of medium brown-walled cells of *textura angularis*. *Conidiophores* subcylindrical, branched, septate, straight to irregularly curved, pale brown to green-brown. *Conidiogenous cells* phialidic, but proliferating percurrently, subcylindrical to lageniform, green-brown and smooth when immature, becoming medium to dark green-brown and warty at maturity, with prominent periclinal thickening and a narrow apex, apex with flared collarette. *Conidia* broadly ellipsoidal, straight to slightly curved, rounded at the apex, aseptate, tapering to a subtruncate base, medium brown, with thin and smooth-walled (description modified from Lennox et al. 2004).

Type species: Prosopidicola mexicana Crous & C.L. Lennox, Stud. Mycol. 50(1): 191 (2004); Fig. 215

Notes: Lennox et al. (2004) introduced the genus *Prosopidicola* with *P. mexicana* as the type species. In morphology, *Prosopidicola* resembles coniothyrium-like taxa i.e. which have brown pycnidia, reduced conidiophores and 0–1-septate conidia (Lennox et al. 2004; Verkley et al. 2004). However, phylogenetically, *Prosopidicola* cluster in distinct lineage from other coniothyrium-like taxa and resides in *Diaporthales* (Lennox et al. 2004).

Prosthemia Kunze, Mykologische Hefte (Leipzig) 1: 17 (1817)

= *Pleomassaria* Speg., Anal. Soc. cient. argent. 9: (1880); Fig. 216

Facesoffungi number: FoF 01574

Dothideomycetes, Pleosporomycetidae, Pleosporales, family incertae sedis, Pleomassariaceae

Saprobic or *endophytic* or *phellophytic* mainly on twigs of *Betulaceae* (Dicotyledons). **Sexual morph:** *Pleomassaria* fide Tanaka et al. (2010). **Asexual morph:** *Conidiomata* pycnidial to stromatic, immersed to subperidermal, circular, solitary or gregarious, occasionally confluent, ostiolate. *Conidiomata* wall multi-layered, outer layer composed of thick-walled, brown cells of *textura angularis*, inner layer thin-walled, occasionally thick-walled, hyaline cells of *textura angularis*. *Conidiophores* filiform, unbranched, septate, hyaline, smooth-walled. *Conidiogenous cells* holoblastic, cylindrical, integrated, determinate, hyaline, smooth, terminal. *Conidia* stellate, with transverse septate arms, brown, apical cells of arms hyaline to subhyaline, smooth to minutely verrucose (Sutton 1980; Kowalski and Holdenrieder 1996; Tanaka et al. 2005, 2010; Kamiyama et al. 2009).

Type species: Prosthemia betulinum Kunze, in Kunze & Schmidt, Mykologische Hefte (Leipzig) 1: 18 (1817)

Notes: Schmidt (1817) introduced *Prosthemia* with *P. betulinum* as the type species. In morphology, *Prosthemia* closely resembles *Asterosporium*, thus recent studies rely on phylogenetic analyses (Kamiyama et al. 2009; Tanaka et al. 2010). Currently eleven epithets are listed in Index Fungorum (2016) however, Sutton (1980) listed only *P. stellare* Riess besides the type species. Since Sutton (1980), five species have been introduced viz. *P. asterosporum* T. Kowalski & Holdenr. (Kowalski and Holdenrieder 1996), *P. canba* Kaz.



Fig. 214 *Prillieuxina winteriana* (Material examined: Dominican Republic, on leaves of *Annona* sp., intercepted JFK International Airport, New York, 25 September 1979, D. Kepich, BPI 690983). **a**

Herbarium label and specimens. **b** Conidiomata and ascomata on host material. **c** Surface view of conidioma. **d–g** Conidia attach to conidiogenous cells. **h–l** Conidia. Scale bars: **c–l** = 10 μ m

Tanaka et al. (Tanaka et al. 2005), *P. intermedium* Kaz. Tanaka & Mel'nik, *P. neobetulinum* Kaz. Tanaka & Mel'nik (Tanaka et al. 2010) and *P. orientale* (Mel'nik) Kamiy. et al. (Kamiyama et al. 2009).

Tanaka et al. (2010) showed that *Asterosporium* and *Prosthemium* are phylogenetically distinct and are accommodated in *Diaporthales* and *Pleosporales* respectively. At the same time, Tanaka et al. (2010) showed that the type species of *Pleomassaria* and *Prosthemium* (i.e. *Pleomassaria siparia* (Berk. & Broome) Sacc. and *P. betulinum* Kunze respectively) cluster in the same clade in *Pleomassariaceae*, *Pleosporales*. Hence, Wijayawardene

et al. (2014c) proposed to adopt the older asexual typified generic name over the younger sexual typified name i.e. *Prosthemium* over *Pleomassaria* respectively. The adoption was accepted by Rossman et al. (2015).

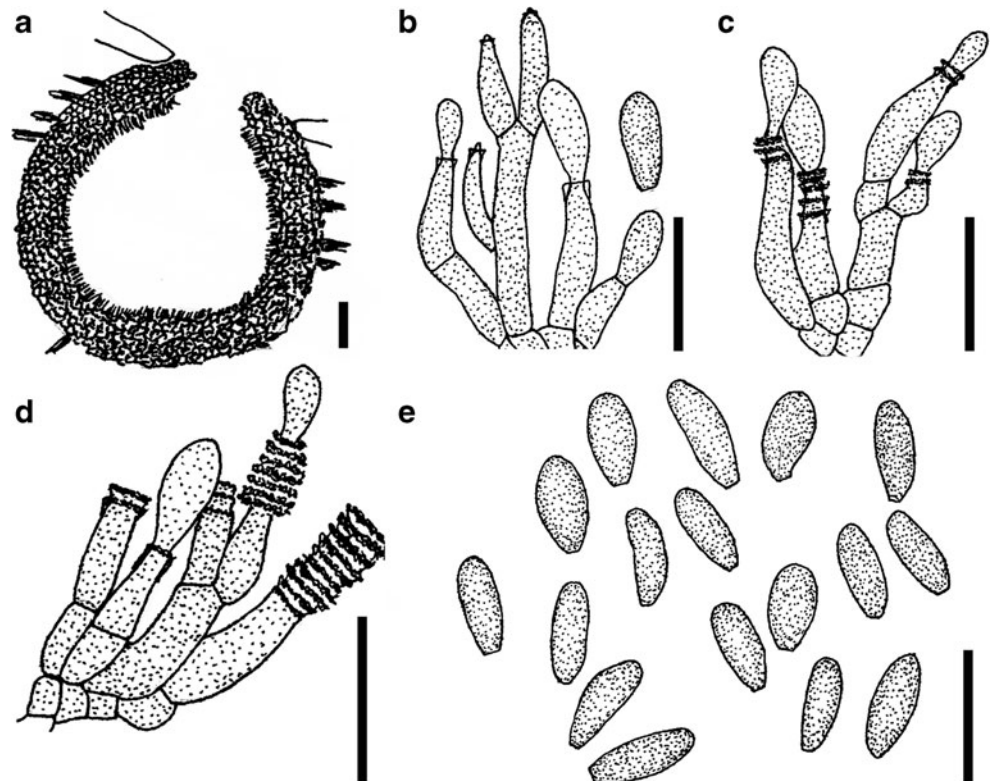
Pseudocamarosporium Wijayaw. & K.D. Hyde, Cryptog. Mycol. 35(2): 185 (2014)

Facesoffungi number: FoF 01575; Figs. 217 and 218

Dothideomycetes, *Pleosporales*, *Massariaceae*, *Didymosphaeriaceae*

Endophytic or *saprobic* on dead twigs, branches, cones and stems of a range of host plants. **Sexual morph:**

Fig. 215 *Prosopidicola mexicana* **a** Vertical section of conidioma. **b–d** Different stages of conidiogenesis. **e** Conidia. Scale bars: **a–e** = 10 μ m (re-drawn from Lennox et al. 2004)



Undetermined. **Asexual morph:** *Conidiomata* pycnidial, black, globose to subglobose, unilocular, immersed, solitary to gregarious, brown to dark brown, ostiolate. *Ostiole* central, papillate. *Conidiomata* wall outer layer composed of thin-walled, brown cells of *textura angularis*, becoming paler towards the inside. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cell* enteroblastic, phialidic with percurrent proliferation, simple, short, hyaline, thin-walled, indeterminate, discrete to integrated. *Conidia* oblong, muriform, with transverse and longitudinal septa, occasionally oblique septa, generally with a truncate base and obtuse apex, varying in shape, brown to dark brown, smooth-walled (Wijayawardene et al. 2014e).

Type species: Pseudocamarosporium propinquum (Sacc.) Wijayaw. et al., Cryptog. Mycol. 35(2): 191 (2014); Fig. 217 \equiv *Hendersonia propinqua* Sacc., *Michelia* 1(no. 5): 516 (1879)

Notes: Wijayawardene et al. (2014d) showed that camarosporium-like taxa are polyphyletic in *Pleosporales* in their phylogenetic analyses. *Camarosporium sensu stricto* groups in *Pleosporineae*, while other camarosporium-like taxa group as two other distinct clades in *Didymosphaeriaceae*, *Massarineae* (Wijayawardene et al. 2014e; Figs. 9 and 15). Hence, Wijayawardene et al. (2014d) introduced *Pseudocamarosporium* to place five taxa residing in *Didymosphaeriaceae*. *Pseudocamarosporium* is morphologically quite similar with *Camarosporium sensu*

stricto and *Paracamarosporium* (in *Didymosphaeriaceae*). However, the latter genus has microconidia and paraphyses thus distinct from *Pseudocamarosporium*.

Pseudodiplodia (P. Karst.) Sacc., *Syll. fung.* (Abellini) 3: 621 (1884)

= *Diplodia* subgen. *Pseudodiplodia* P. Karst., *Meddn Soc. Fauna Flora fenn.* 11: 156 (1884)

Facesoffungi number: FoF 01576; Fig. 219

Ascomycota, genera incertae sedis

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, solitary, globose, immersed, unilocular, dark brown, ostiolate. *Ostiole* apapillate, single, central, circular. *Conidiomata* wall composed of thin-walled, brown cells of *textura angularis* on the outside, thinner-walled and pale towards the conidiogenous layer, hyaline at the base. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, doliiform to ampulliform, discrete, determinate, hyaline, smooth. *Conidia* ellipsoid, apex and base obtuse, 0–1-septate, often slightly constricted at the septum, pale brown, smooth-walled (description modified from Sutton 1980).

Type species: Pseudodiplodia ligniaria (P. Karst.) Sacc., *Syll. fung.* (Abellini) 3: 621 (1884)

\equiv *Diplodia ligniaria* P. Karst., *Hedwigia* 23(6): 87 (1884)

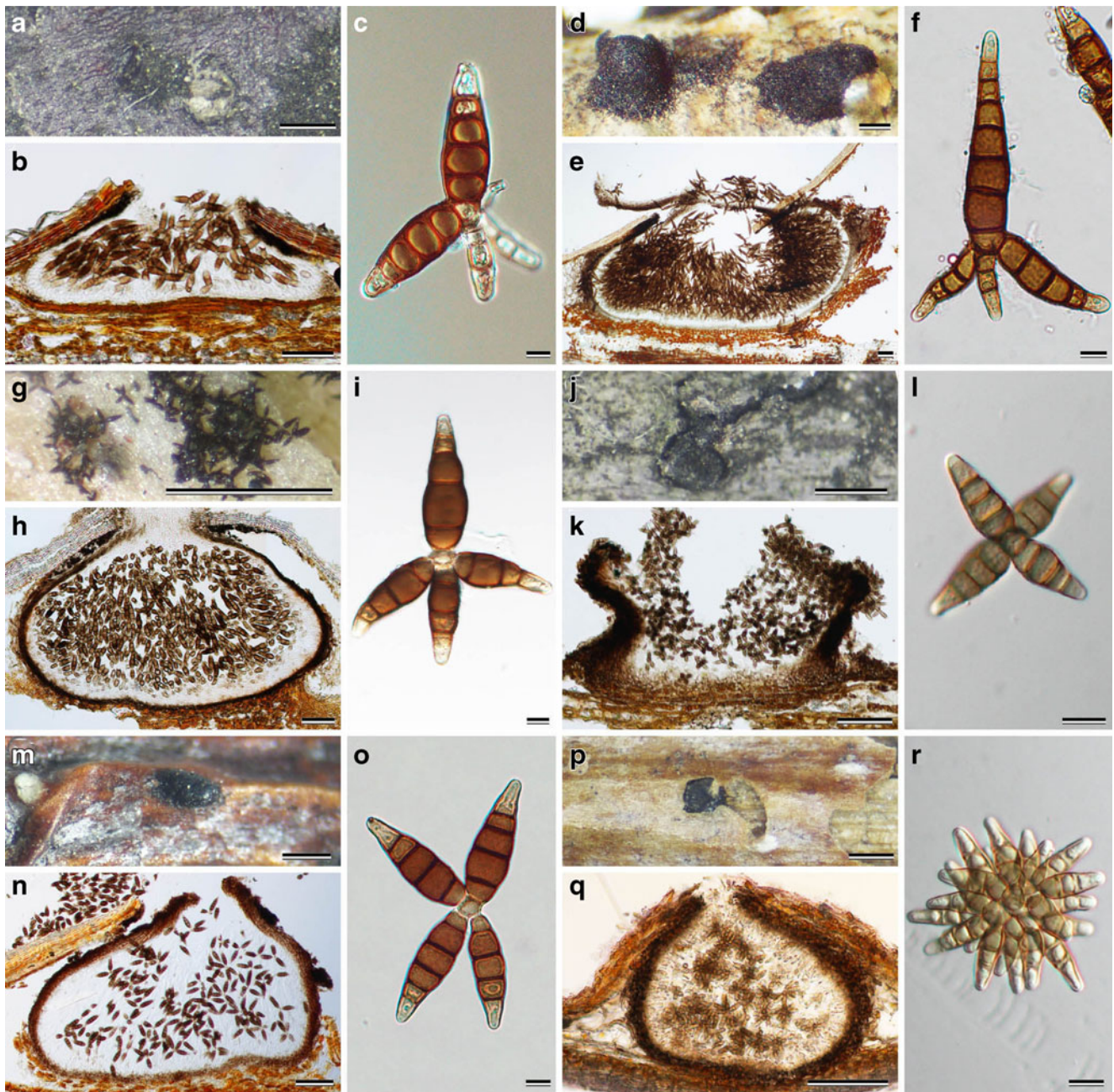


Fig. 216 *Prosthemium* spp. **a–c** *P. betulinum* (Material examined: Russia, St. Petersburg, botanical garden of Komarov Botanical Institute, on twigs of *Betula raddeana*, 8 May 2002, V.A. Mel'nik, LE 212484). **d–f** *P. canba* (Material examined: Japan, Aomori, Hakkoda, on twigs of *Betula ermanii*, 14 April 2002, S. Hatakeyama, HHUF 27340, holotype). **g–i** *P. intermedium* (Material examined: Japan, Aomori, Hakkoda, on twigs of *Betula ermanii*, 31 March 2007, K. Tanaka, HHUF 30063, holotype). **j–l** *P. neobetulinum* (Material examined: Russia, St. Petersburg, botanical garden of Komarov Botanical Institute,

on twigs of *Betula davurica*, 2 October 2008, V.A. Mel'nik, HHUF 30040). **m–o** *P. orientale* (Material examined: Russia, Kamczatka, distr. Ustj-Kamczatskij, settlement Kljuczi, on dead twigs of *Betula ermanii*, 22 July 1983, Lar. N. Vassiljeva, LE 73863, holotype of *Asterosporium orientale*). **p–r** *P. stellare* (Material examined: Lithuania, Juodkrante, on twigs of *Alnus glutinosa*, 11 June 2005, V.A. Mel'nik, HHUF 29951). **a, d, g, j, m, p** Conidiomata on host surface. **b, e, h, k, n, q** Vertical sections of conidiomata. **c, f, i, l, o, r** Conidia. Scale bars: **a, d, g, j, m, p** = 500 µm, **b, e, h, k, n, q** = 100 µm, **c, f, i, l, o, r** = 10 µm

Notes: Saccardo (1884) introduced *Pseudodiplodia* with *P. ligniaria* as the type species. Petrak (1953b) introduced 51 new combinations from *Ascochyrella* Tassi and *Ascochyula* (Poteb.) Died. Hence, 85 epithets are listed in Index Fungorum (2016) and Sutton (1980) stated that

Pseudodiplodia resembles *Ascochyulina* beside the absence of a clypeus and the smooth conidia (see under *Ascochyulina*). Phillips et al. (2013) treated *Pseudodiplodia visci* (DC.) Petr. as a synonym of *Sphaeropsis visci* (Alb. & Schwein.) Sacc.

De Gruyter et al. (2009) deposited sequence data for *Pseudodiplodia* sp. (CBS 255.86) in GenBank but excluded it from the analyses.

Pseudohendersonia Crous & M.E. Palm, Mycol. Res. 103(10): 1302 (1999)

Facesoffungi number: FoF 01577; Fig. 220

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, *Pleosporineae*, *Didymellaceae*

Associated with leaf spots of *Proteaceae*, *Rubiaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, solitary, scattered, subcuticular, erumpent at maturity, globose to subglobose, unilocular, black, ostiolate. *Ostirole* single, circular, single. *Conidiomata* wall composed of medium brown-walled cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* phialidic, subcylindrical to cupulate, hyaline, smooth, with periclinal thickening. *Conidia* broadly ellipsoidal, straight to slightly curved, both ends rounded, distoseptate or septate, continuous, light brown at immaturity, becoming brown to dark brown at maturity, verruculose or smooth-walled (Crous and Palm 1999b)

Type species: Pseudohendersonia proteae Crous & M.E. Palm, Mycol. Res. 103(10): 1303 (1999)

Notes: Crous and Palm (1999b) introduced *Pseudohendersonia* with *P. proteae* as the type species. In conidial morphology, *Pseudohendersonia* is similar with *Homortomyces* and *Phragmocamarosporium*. However, *Homortomyces* has paraphyses and in phylogenetic analyses *Phragmocamarosporium* resides in *Lentitheciaceae* (Wijayawardene et al. 2015 and see notes under *Phragmocamarosporium*).

In this study we introduce the second species, but is slightly distinct from the type species of *Pseudohendersonia* as it has a smooth conidium wall. Currently, *P. proteae* lacks sequence data, but we prefer to maintain new collection under *Pseudohendersonia* until sequence of the type species is available.

Pseudohendersonia galiorum Wijayaw., Camporesi, McKenzie & K.D. Hyde, *sp. nov.*

Index Fungorum number: IF551795; *Facesoffungi* number: FoF 01578; Fig. 220

Etymology: Named after the host genus

Holotype: MFLU 15–3552

Associated with leaf spots of *Galium* sp. (*Rubiaceae*).

Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* 130–160 µm high, 150–180 µm, pycnidial, solitary, scattered, subcuticular, erumpent at maturity, globose, occasionally subglobose, unilocular, black, ostiolate. *Ostirole* single, circular. *Conidiomata* wall composed of thin-walled, medium brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* 3–8 × 1–

Fig. 217 *Pseudocamarosporium propinquum* (Material examined: Italy, Firenze Province, Passo Dell'Eremo – Marradi, on dead branch of *Salix* sp., 12 May 2013, E. Camporesi, MFLU 14–0092, epitype). **a** *Conidiomata* on *Salix* sp. **b, c** Vertical sections of conidiomata. **d** *Conidiomata* wall. **f–h** Developing conidia attach to conidiogenous cells. **i–q** *Conidia*. **r** Germinating conidium. Scale bars: **b** = 250 µm, **c** = 350 µm, **d** = 25 µm, **e–h, j–r** = 5 µm, **i** = 20 µm

3 µm, phialidic, subcylindrical to cupulate, simple, hyaline, smooth. *Conidia* 9–15 × 3.5–5.5 µm (\bar{x} = 11.74 × 4.62 µm), ellipsoidal, straight to slightly curved, both ends rounded, or rarely with truncate base, 3-septate, continuous, light brown at immaturity, becoming brown at maturity, eguttulate, thick and smooth-walled.

Culture characteristics: On PDA slow growing, attaining 2 cm in 7 days, white from the above and greyish white from below, with thin mycelium, zonate, margin wavy, cottony.

Material examined: Italy, Forli-Cesena [FC] Province, Valgianna - Bagno di Romagna, dead stem of *Galium* sp. (*Rubiaceae*), 29 January 2014, Erio Camporesi, IT 1687 (MFLU 15–3552, **holotype**); ibid (HKAS92556, **isotype**), living cultures MFLUCC 14–0452, GUCC 1687.

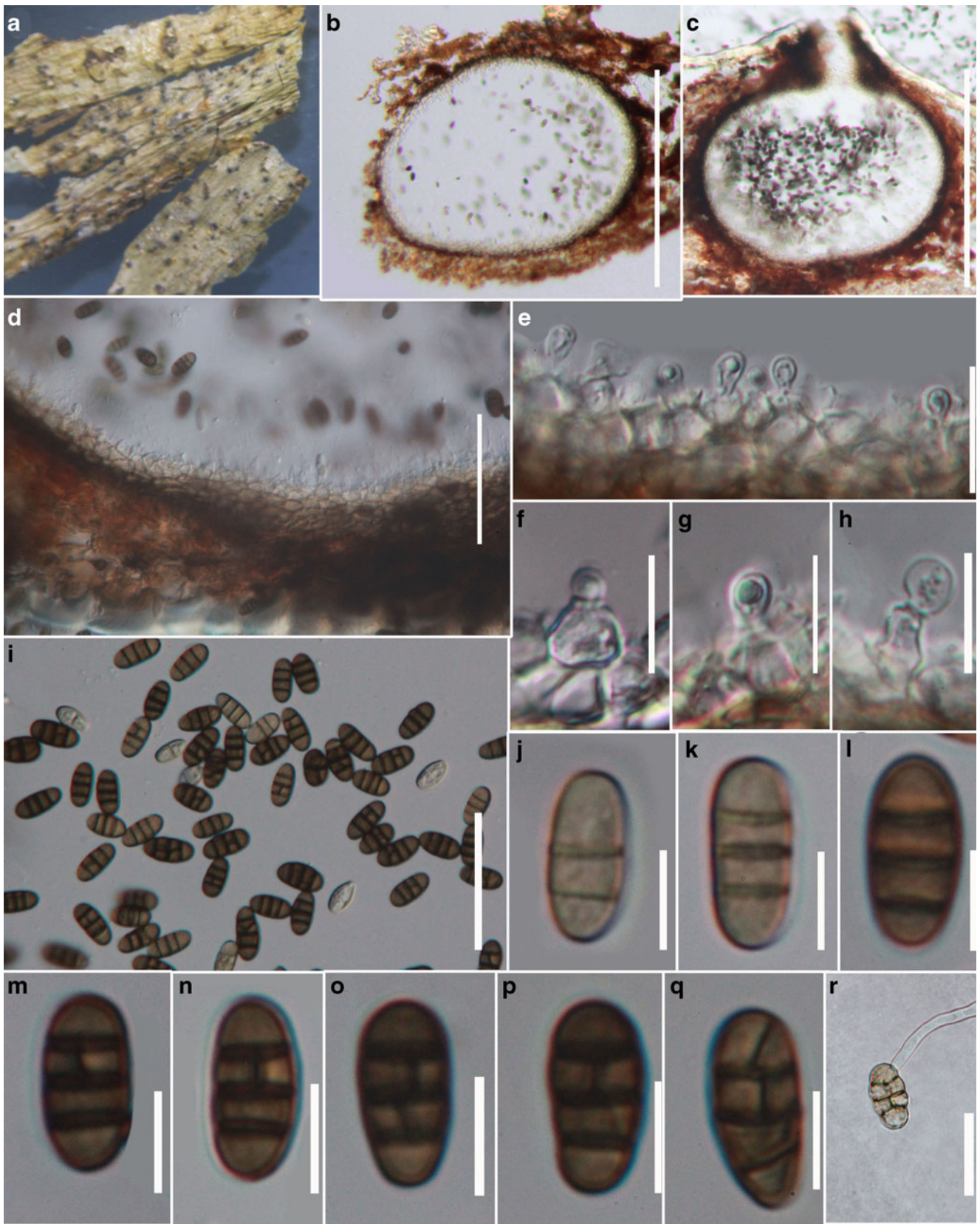
Notes: Farr and Rossman (2016) reported *Hendersonia galiorum* Cooke & Harkn. (20 × 8 µm fide Cooke and Harkness 1880) and *H. sarmentorum* Westend. (12–14 × 5 µm fide Saccardo 1892) from *Galium* sp. Our new collection morphologically slightly resembles *H. galiorum*. However, *Hendersonia* Berk. was not listed as a valid name in any checklist or publication (Sutton 1977, 1980; Kirk et al. 2008, 2013). Based on morphology, our collection can be placed in *Pseudohendersonia*. Phylogenetic analyses show that *Pseudohendersonia galiorum* groups in *Didymellaceae* as a sister clade to *Endocoryneum dactylidis* (MFLUCC 14–0461) (Fig. 9).

Pseudopestalotiopsis Maharachch. et al., Stud. Mycol. 79: 180 (2014)

Facesoffungi number: FoF 01579; Fig. 221

Sordariomycetes, *Xylariomycetidae*, *Amphisphaerales*, *Pestalotiopsisaceae*

Saprobic, endophytic or pathogenic on leaves, stems and fruits of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* acervular or pycnidial, subglobose, globose, clavate, solitary or aggregated, dark brown to black, immersed to erumpent, unilocular; exuding dark brown to black conidia in a slimy, globose mass. *Conidiophores* indistinct, reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, percurrent proliferations, discrete, cylindrical, ampulliform to lageniform, hyaline, smooth. *Conidia* fusoid, ellipsoid, subcylindrical, straight to slightly curved, 4-septate, slightly constricted at septa; basal cell conical to cylindrical with a truncate base; three median



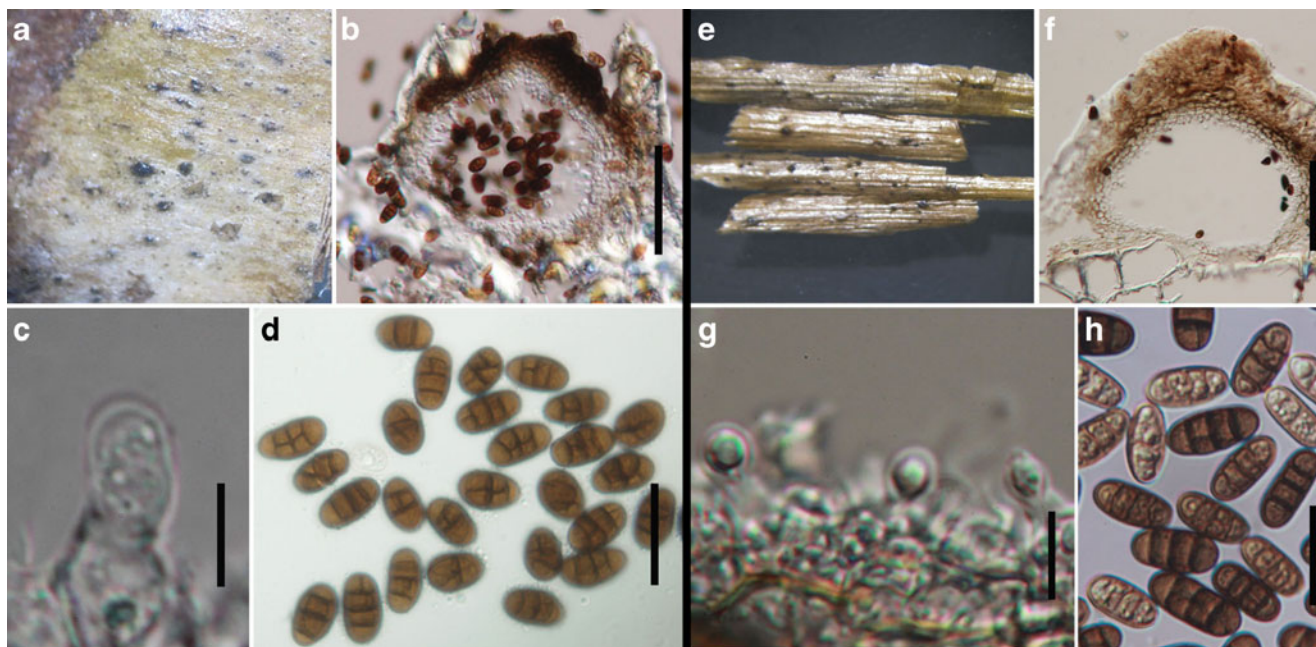


Fig. 218 *Pseudocamarosporium* spp. **a–d** *Pseudocamarosporium piceae* (Material examined: Italy, Forli-Cesena Province, San Martino-Predappio, on dead cones of *Picea excelsa*, 25 March 2012, E. Camporesi, MFLU 14–0090, holotype). **a** Conidiomata on cones of *Picea excelsa*. **b** Vertical section of conidioma. **c** Developing conidium. **d** Conidia. **e–h**. *Pseudocamarosporium loniceriae* (Material examined:

Italy, Forli-Cesena Province, Forli, Via del Partigiano, on stem of *Lonicera* sp., 9 March 2013, E. Camporesi, MFLU 14–0091, holotype). **e** Conidiomata on branch of *Lonicera* sp. **f** Vertical section of conidioma. **g** Developing conidia. **h** Conidia. Scale bars: **b**, **f** = 100 μ m, **c**, **d**, **g** = 10 μ m, **h** = 20 μ m

cells doliiform, concolorous, brown to dark brown or olivaceous, wall rugose to verruculose, septa darker than the rest of the cell; apical cell conic to cylindrical, thin and smooth-walled; with tubular apical appendages, one to many, filiform or attenuated, flexuous, branched or unbranched, with or without spatulate tips; basal appendage single, tubular, unbranched, centric (description modified from Maharachchikumbura et al. 2014).

Type species: Pseudopestalotiopsis theae (Sawada) Maharachch. et al., Stud. Mycol. 79: 183 (2014); Fig. 221

See Index Fungorum for synonyms

Notes: The new genus *Pseudopestalotiopsis*, which segregate off *Pestalotiopsis*, was proposed based on the type *Pseudopestalotiopsis theae* (Maharachchikumbura et al. 2014). The *Pseudopestalotiopsis theae* epitype was designated from the fresh leaves of *Camellia sinensis* collected from Thailand (Maharachchikumbura et al. 2013a).

Pustulomyces D.Q. Dai et al., Cryptog. Mycol. 35(1): 64 (2014)

Facesoffungi number: FoF 01580; Fig. 222

Sordariomycetes, *Sordariomycetidae*, *Diaporthales*, *Diaporthaceae*

Saprobic on bamboo culms. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* acervular, immersed, erumpent and pustule-like at maturity, solitary, scattered, coriaceous, with black, ostiolate. *Conidiomatal wall*

outer layer composed of dark brown, thin-walled cells of *textura angularis*, with hyaline conidiogenous inner layer. *Conidiophores* cylindrical to irregular, branched only at the base, septate, hyaline, smooth. *Conidiogenous cells* enteroblastic, phialidic, with a small collarete, determinate, integrated, cylindrical, hyaline, smooth. *Conidia* fusiform, elongated, straight to curved, occasionally slightly sigmoid, pale brown, aseptate, guttulate, smooth-walled (Dai et al. 2014).

Type species: Pustulomyces bambusicola D.Q. Dai et al., Cryptog. Mycol. 35(1): 64 (2014); Fig. 222

Notes: Dai et al. (2014) introduced *Pustulomyces* with *P. bambusicola* as the type species. In conidiomatal structure, *Pustulomyces* resembles the asexual morph of *Bambusicola* (Dai et al. 2012) as both have immersed conidiomata formed on bamboo hosts. Both genera have short, inconspicuous conidiophores which are almost reduced to conidiogenous cells. However, phylogenetically, these genera have distinct placements with *Pustulomyces bambusicola* in *Diaporthaceae*, *Diaporthales* (Dai et al. 2014b; Fig. 12) and *Bambusicola* sensu stricto in *Bambusicolaceae* (Hyde et al. 2013; Wijayawardene et al. 2014d; Fig. 15).

Readeriella Syd. & P. Syd., Anns mycol. 6(5): 484 (1908) = *Nothostrasseria* Nag Raj, Can. J. Bot. 61(1): 23 (1983) = *Cibiessia* Crous, Fungal Diversity 26: 151 (2007)

Facesoffungi number: FoF 01581; Fig. 223

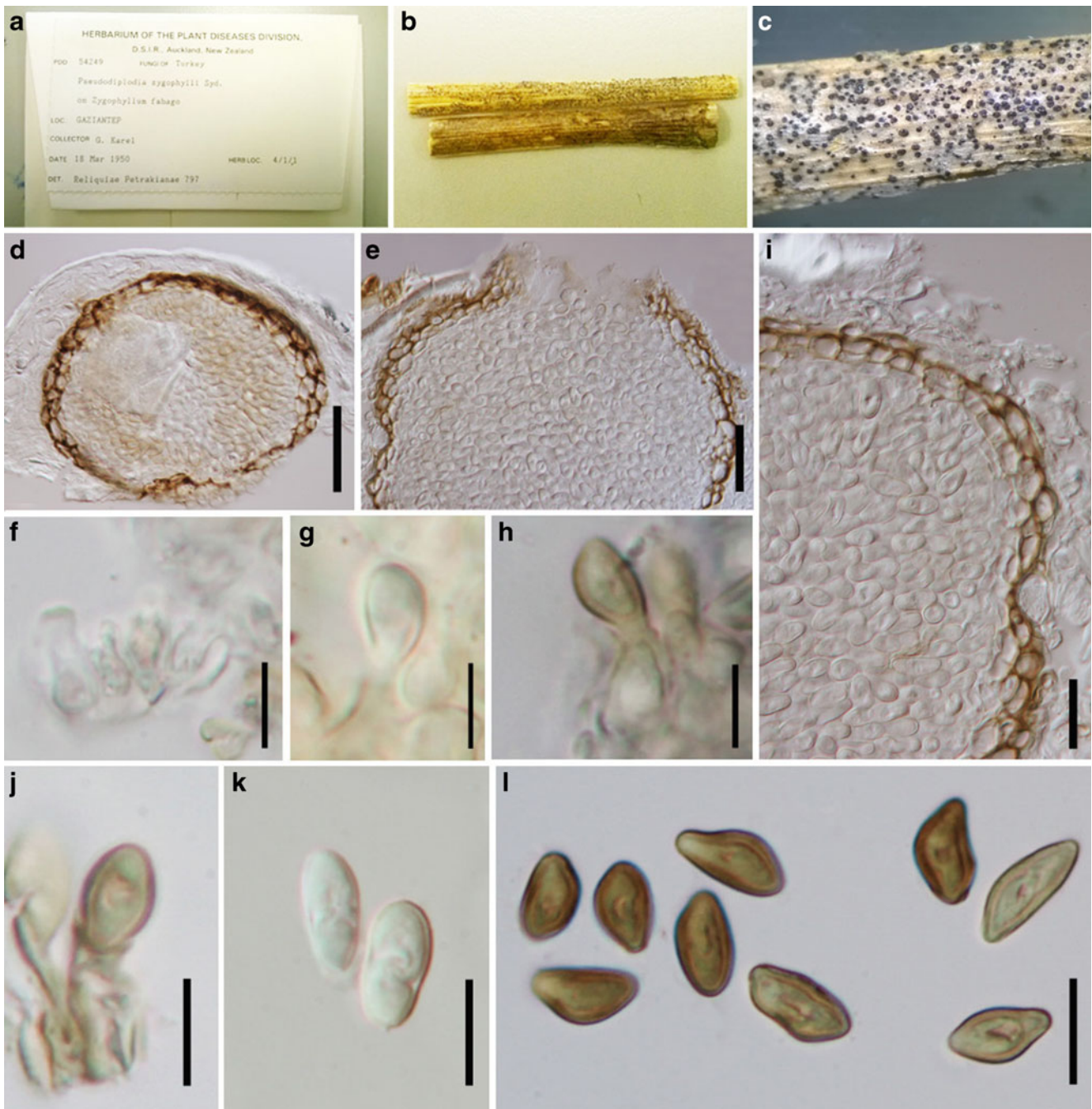


Fig. 219 *Pseudodiplodia zygophylli* (Material examined: Turkey, Gaziantep, on *Zygophyllum fabago*, 18 March 1950, G. Karel, PDD 54249). **a** Label of the herbarium material. **b** Herbarium specimen. **c** Conidiomata on host. **d** Vertical section of conidioma. **e** Vertical section

of ostiole region. **f** Conidiogenous cells. **g, h, j** Different stages of conidiogenesis. **i** Conidioma wall. **k** Immature conidia. **l** Matured conidia. Scale bars: **d, e** = 50 μ m, **f–h, j–l** = 10 μ m, **i** = 15 μ m

Dothideomycetes, *Dothideomycetidae*, *Capnodiales*, *Teratosphaeriaceae*

Associated with leaf spots, or *endophytic*, *saprobic*. **Sexual morph**: teratosphaeria-like fide Crous et al. (2009b). **Asexual morph**: *Conidiomata* pycnidial, immersed, solitary, unilocular, globose to subglobose, dark brown, ostiolate. *Ostiole* single, circular. *Conidiomata wall* outer layer thick, composed of elongated, dark

brown, thick-walled cells of *textura angularis*, inner layer paler. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, indeterminate, discrete, short lageniform to ampulliform, or doliiform to subcylindrical, hyaline, becomes pale yellow-brown, smooth, occasionally proliferating percurrently, verruculose. *Conidia* ellipsoidal to limoniform, base truncate or sub-truncate, pale brown or yellow to green-

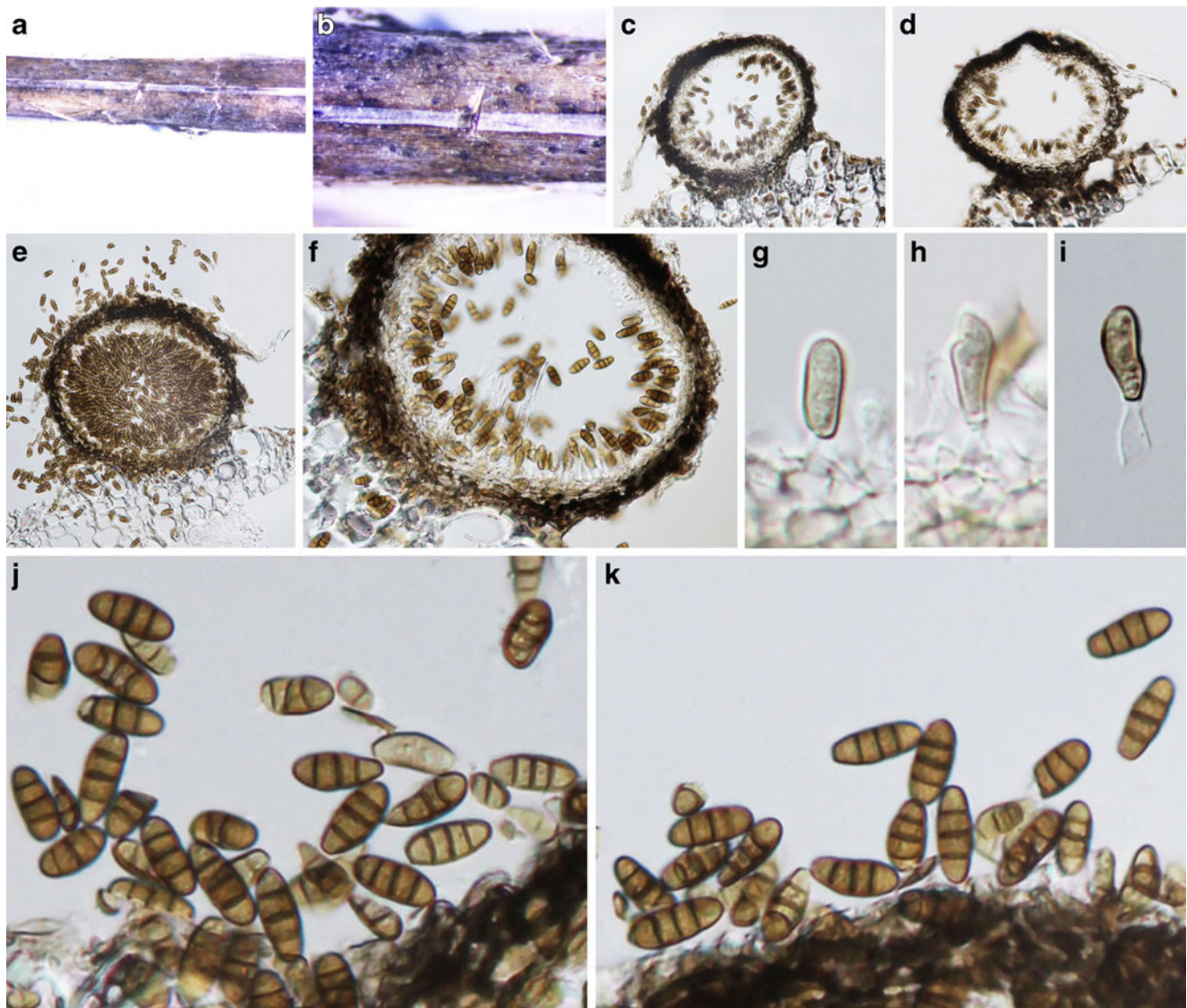


Fig. 220 *Pseudohendersonia galiorum* (holotype). **a, b** Conidiomata on host material. **c–e** Vertical sections of conidiomata. **g–i** Different stages of conidiogenesis. **j, k** Conidia. Scale bars: **c–e** = 100 μm , **f** = 50 μm , **g–k** = 10 μm

brown, dark brown at maturity, aseptate, apex flattened, deltoid, thick and smooth-walled, guttulate (Sutton 1971a, 1980; Morgan-Jones et al. 1972b; Crous et al. 2004, 2007, 2009b).

Type species: Readeriella mirabilis Syd. & P. Syd., Annl. mycol. 6(5): 484 (1908); Fig. 223

Notes: Sydow and Sydow (1908) introduced *Readeriella* with *R. mirabilis* as the type species. Crous et al. (2004, 2007, 2009b) re-visited the genus based on both morphology and phylogenetic studies and Crous et al. (2009b) reduced *Nothotrasseria* Nag Raj and *Cibiessia* Crous under *Readeriella*. Crous et al. (2007, 2009b) recognized *Readeriella* as polyphyletic in *Teratosphaeriaceae*. Further, Crous et al. (2009b) transferred several species of *Readeriella* to *Teratosphaeria* which clustered in *Teratosphaeria sensu stricto*. Based on culture methods and

molecular methods Crous et al. (2009b) confirmed that *Readeriella* often form *Cibiessia* synsexual morphs. Our phylogenetic analyses also agree with findings in Crous et al. (2009b) (Fig. 11).

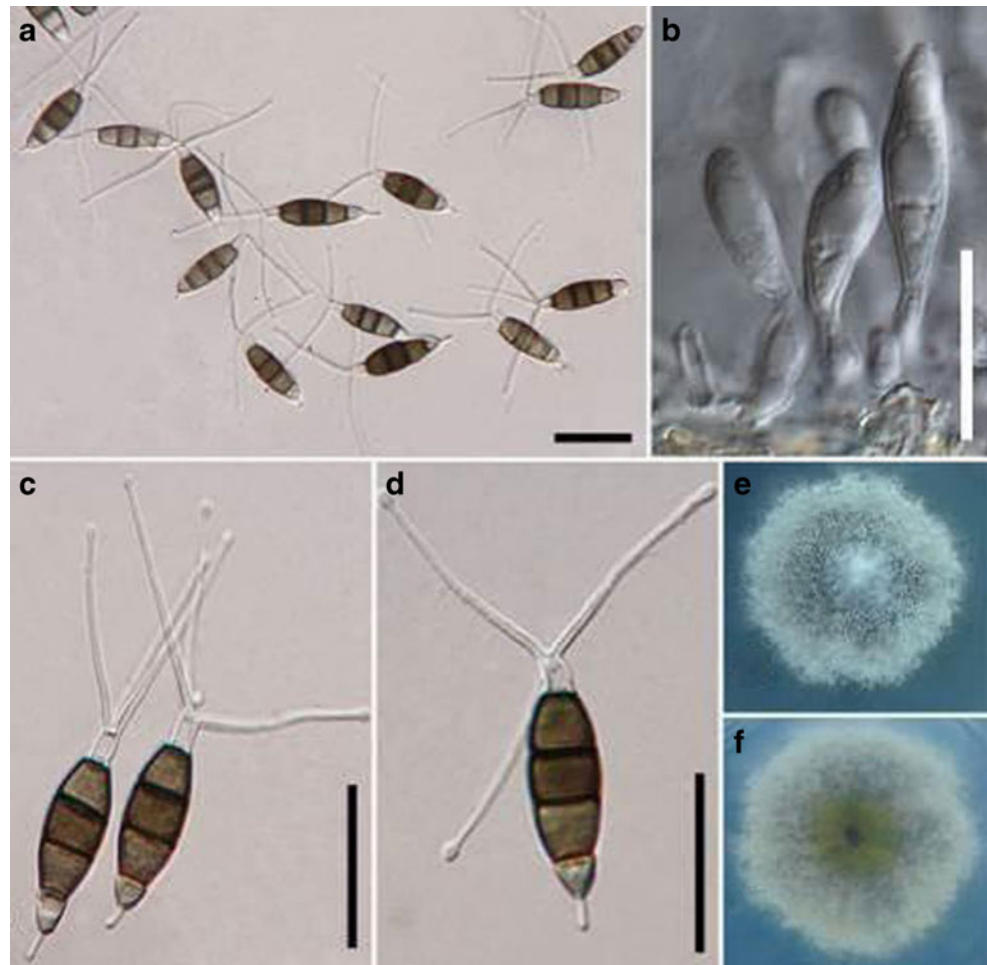
Readerielliopsis Crous & C. Decock, Fungal Planet description sheets: 320–370. Persoonia 34: 195 (2015)

Facesoffungi number: FoF 01736; Fig. 224

Dothideomycetes, Dothideomycetidae, Capnodiales, genera incertae sedis

Endophytic or *saprobic* on angiosperms or on *Fuscoporia* (Basidiomycota). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, brown, subglobose to pyriform, aggregated, somewhat papillate, ostiolate, mostly with single, central ostiole, rarely with 1–2 lateral ostioles, unilocular, exuding a brown conidial mass. *Conidiophores* reduced to conidiogenous cells lining the inner cavity. *Conidiogenous*

Fig. 221 *Pseudopestalotiopsis theae* (Material examined: Thailand, Chiang Mai Province, Mae Taeng District, Ban Pha Deng, Mushroom Research Centre, on living leaves of *Camellia sinensis*, 20 January 2010, S.S.N. Maharachchikumbura, MFLU 12–0116, epitype). **a, c, d** Conidia. **b** Conidia attached to conidiogenous cells. **e, f** Colony on PDA top (e) and reverse (f). Scale bars: **b, d** = 20 μ m. (from Maharachchikumbura et al. 2013a)



cells pale brown, subglobose, phialidic, apex with visible minute collarette. *Conidia* solitary, globose to clavate or obdeltoid, with three bluntly rounded ends, mostly straight, rarely curved, brown, smooth-walled (description modified from Crous et al. 2015d).

Type species: Readeriellopsis fuscoporae Crous & Decock, Fungal Planet description sheets: 320–370. Persoonia 34: 195 (2015); Fig. 224

Notes: Crous et al. (2015d) introduced *Readeriellopsis* with *R. fuscoporae* as the type species. The morphology of *Readeriellopsis* deviates slightly from *Readeriella sensu stricto* which has solitary, non-papillate conidiomata and phialidic, non-percurrent conidiogenesis (Sutton 1980; Crous et al. 2015d). However, *Readeriellopsis* is phylogenetically distinct from *Readeriella* as it resides in *Capnodiales*, genera *incertae sedis* while latter genus resides in *Teratosphaeriaceae* (Fig. 11).

Rousoellopsis I. Hino & Katum., J. Jap. Bot. 40: 86 (1965)

Facesoffungi number: FoF 01778; Fig. 225

Saprobic on decaying bamboo culms. **Sexual morph:** see Liu et al. (2014). **Asexual morph:** *Conidiomata* pycnothyrial,

superficial to semi-immersed, subglobose, dark-brown to black, unilocular or multi-locular. *Conidiomata* wall composed of brown to dark brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* annellidic, hyaline, cylindrical, smooth, formed from cells lining the inner most layer of the pycnidium. *Conidia* globose, black, aseptate, smooth and thick-walled surrounded thin gelatinous material (Liu et al. 2014).

Type species: Rousoellopsis japonica (I. Hino & Katum.) I. Hino & Katum., J. Jap. Bot. 40: 86 (1965)

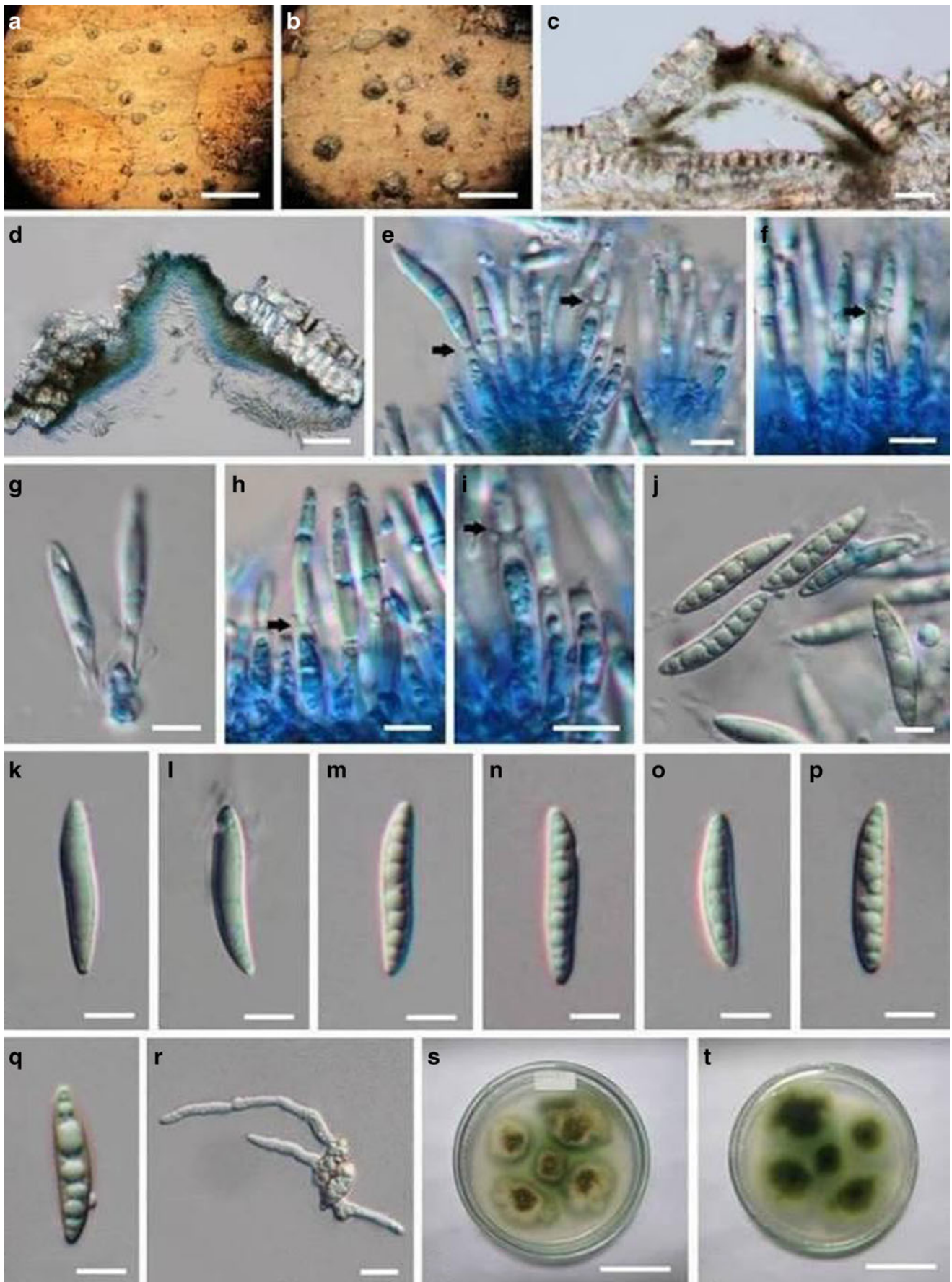
Notes: Liu et al. (2014) reported that *Rousoellopsis* macrospora (I. Hino & Katum.) I. Hino & Katum has asexual morph with globose, black, aseptate, smooth and thick-walled conidia. Further, Liu et al. (2014) showed *Rousoellopsis* resides in *Rousoellaceae*.

Rhizosphaerina B. Sutton, Sydowia 38: 332 (1986) [1985]

Facesoffungi number: FoF 01687; Fig. 226

Ascomycota, genera *incertae sedis*

Endophytic or saprobic on leaves of *Myrtaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* superficial to immersed, sporodochial



◀ **Fig. 222** *Pustulomyces bambusicola* (Material examined: Thailand, Chiang Rai Province, Mae Fah Luang University, on dead culm of Bamboo, 19 July 2011, Dong-Qin Dai, MFLU 13–0369). **a, b** Conidiomata formed on host surface. **c** Vertical section of conidioma. **d** Vertical section of ostioles. **e–h** Conidiogenous cells and conidia. **i** Conidiophores. **j–q** Conidia. **r** Geminating conidia. **s** Cultures on PDA from above after 15 days. **t** Cultures on PDA from reverse after 15 days. (**d–l** Photograph in cotton blue. **c, m–r** Photograph in water). Scale bars: **a** = 2 mm, **b** = 1 mm, **c, d** = 50 μm , **e–p** = 5 μm , **q, r** = 10 μm , **s, t** = 25 mm (from Dai et al. 2014b)

to acervular, solitary or confluent, enclosed in an initially hyaline, later brown gelatinous matrix. *Conidiomata* wall composed of hyaline to dark brown-walled cells of *textura oblita* or *textura intricata*. *Conidiophores* irregularly branched, septate, constricted at the septa, hyaline to brown. *Conidiogenous* cells holoblastic, doliiiform to ampulliform, integrated, determinate, terminal or intercalary. *Conidia* ellipsoid, thick-walled, truncate at the base, aseptate, brown, thick-walled, verruculose (description modified from Sutton 1985).

Type species: Rhizosphaerina variabilis B. Sutton, Sydowia 38: 336 (1986) [1985]

Notes: Sutton (1985) introduced *Rhizosphaerina* with *R. variabilis* as the type species. *Rhizosphaerina* is characterized by sporodochial to acervular conidiomata, and thick-walled, brown conidia (Sutton 1985). In morphology, *Rhizosphaerina* resembles several genera such as *Davisoniella* and *Fairmaniella*, which are also reported on *Myrtaceae*. Sutton (1985) compared the morphology of *Rhizosphaerina* with *Coniothyrium* and *Microsphaeropsis* which also have brown conidia. However, *Coniothyrium* is restricted to 1-septate conidia (de Gruyter et al. 2013), while *Microsphaeropsis* has aseptate conidia (see notes under *Coniothyrium*) and both genera have pycnidial conidiomata. Sequence data is unavailable thus it is important to re-collect and carry out culture studies and phylogenetic studies to confirm its familial placement and generic boundaries. The taxonomic key can be used to distinguish *Rhizosphaerina* from related genera.

Key to distinguish *Rhizosphaerina* from related genera

1. Conidiomata sporodochial, or acervular2
1. Conidiomata stromatic*Davisoniella*
2. Conidiomata occur as both sporodochia or acervuli*Rhizosphaerina*
2. Conidiomata only acervuli3
3. Conidia aseptate*Fairmaniella*
3. Conidia 0–1-septate*Leptomelanconium*

Robillarda Sacc., Michelia 2(no. 6): 8 (1880)

Facesoffungi number: FoF 01688; Fig. 227

Sordariomycetes, Xylariomycetidae, Amphisphaeriales, Robillardaceae

Endophytic, or saprobic on a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic or pycnidial, occasionally intermediate, immersed to partly erumpent, unilocular or variable, globose, ostiolate or not. *Conidiomata* wall composed of thick-walled, brown cells of *textura angularis* to *textura prismatica*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic to sympodial, ampulliform to lageniform, discrete, hyaline, smooth. *Conidia* ellipsoid to fusiform, 1-septate, constricted at the septum or continuous, hyaline to pale brown, often guttulate; apical cell short-cylindrical, with 2–5 tubular, flexuous, appendages (Nag Raj 1993; Crous et al. 2015a)

Type species: Robillarda sessilis (Sacc.) Sacc., Michelia 2(no. 6): 8 (1880)

Notes: Saccardo (1880) introduced *Robillarda* with *R. sessilis* as the type species. *Robillarda* has unique conidial morphology as it has only 1-septate conidia with apical appendages. *Mycophyallage* also has 1-septate, thick-walled conidia but, are paler in middle region (Sutton 1980). Nag Raj (1993) stated only *Robillarda citricola* Nag Raj, *R. gossypii* Erem. and *R. sessilis* (Sacc.) Sacc. have pale brown conidia, while other species have hyaline conidia.

Crous et al. (2015a) showed that *Robillarda* belongs to *Xylariales* and clusters as a distinct clade, thus introduced *Robillardaceae* Crous. However, our multi-gene analyses show *Robillarda* groups as a distinct clade in *Amphisphaeriales* (Fig. 16).

Rousoella Sacc., Atti Inst. Veneto Sci. lett., ed Arti, Sér. 6 6: 410 (1888)

Facesoffungi number: FoF 01689; Figs. 228 and 229

Dothideomycetes, Pleosporomycetidae, Pleosporales, family incertae sedis, Rousoellaceae

Endophytic or saprobic on a range of host plants. **Sexual morph:** see Liu et al. (2014). **Asexual morph:** *Conidiomata* eustromatic, immersed, erumpent at maturity, solitary, scattered, multilocular, ellipsoid to wide-fusiform, coriaceous. *Conidiomatal* wall thin, composed of dark brown to hyaline-walled cells of *textura angularis*. *Paraphyses* straight to flexuous, wide at base, septate, hyaline. *Conidiophores* cylindrical, subglobose to irregular, simple or occasionally branched, smooth, hyaline. *Conidiogenous cells* enteroblastic, phialidic, cylindrical to subglobose, or ampulliform, determinate, discrete, smooth, hyaline. *Macroconidia* cylindrical, obtuse at both ends, base occasionally truncate, straight, 0–1-septate, pale brown to dark brown, smooth to verruculose, guttulate. *Microconidia* subglobose, hyaline, smooth-walled, guttulate.

Type species: Rousoella nitidula Sacc. & Paol., Atti Inst. Veneto Sci. lett., ed Arti, Sér. 6 6: 387–428 (1888)

Notes: Hyde et al. (1996) reported *Cytoplea* asexual morphs from *Rousoella* and Liu et al. (2014) reduced

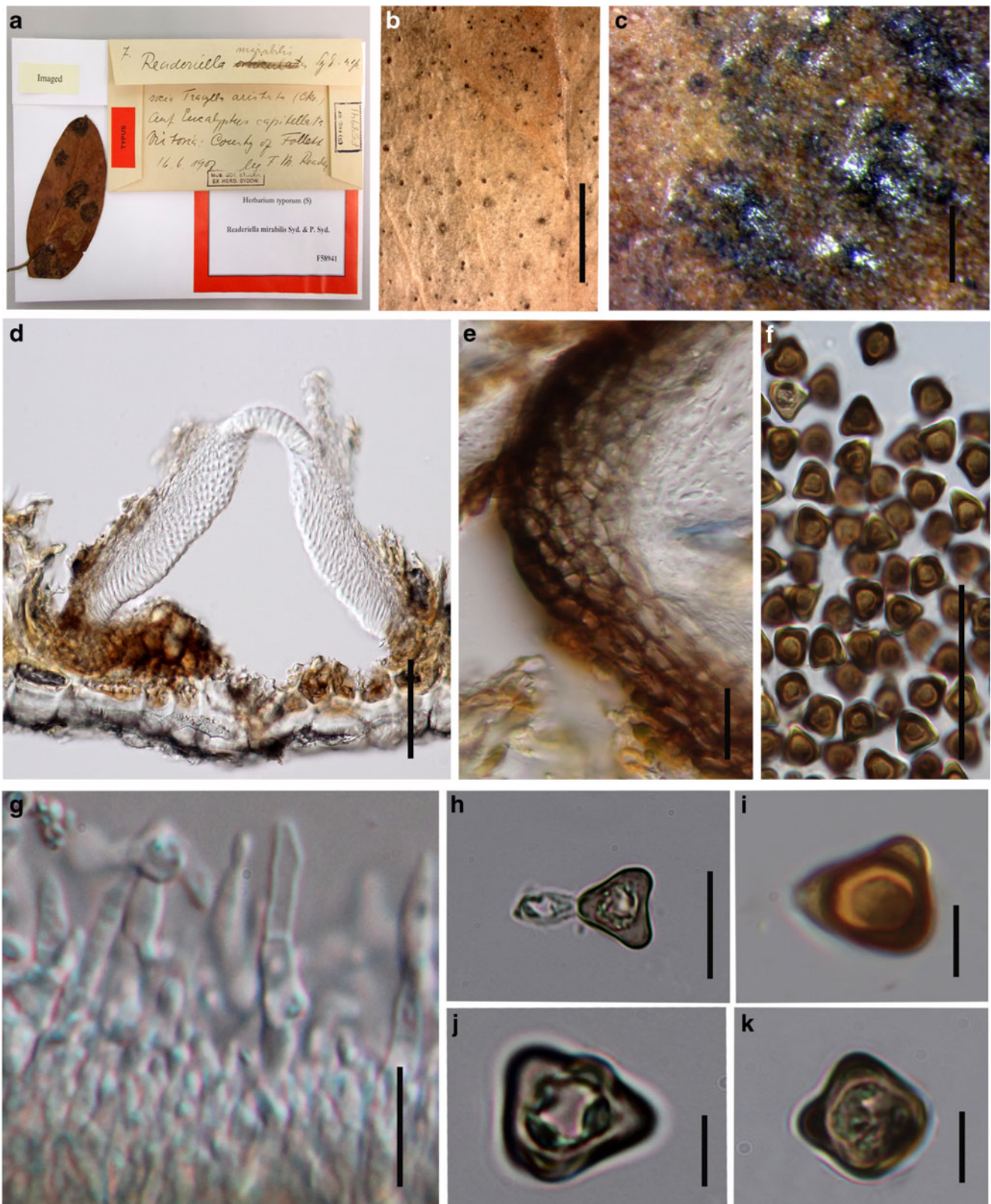


Fig. 223 *Readeriella mirabilis* (Material examined: Austria, Victoria, County of Follett., on leaves of *Eucalyptus capitellata*, F.M. Reader, July 1907, (S) F58941, holotype). **a** Label and herbarium material. **b**, **c**

Conidiomata on host material. **c** Vertical section of conidioma. **e–g** Conidiomata walls. **h–k** Different stages of conidiogenesis. **l–r** Conidia. Scale bars: **d** = 30 μm , **e–k** = 5 μm , **l–r** = 8 μm

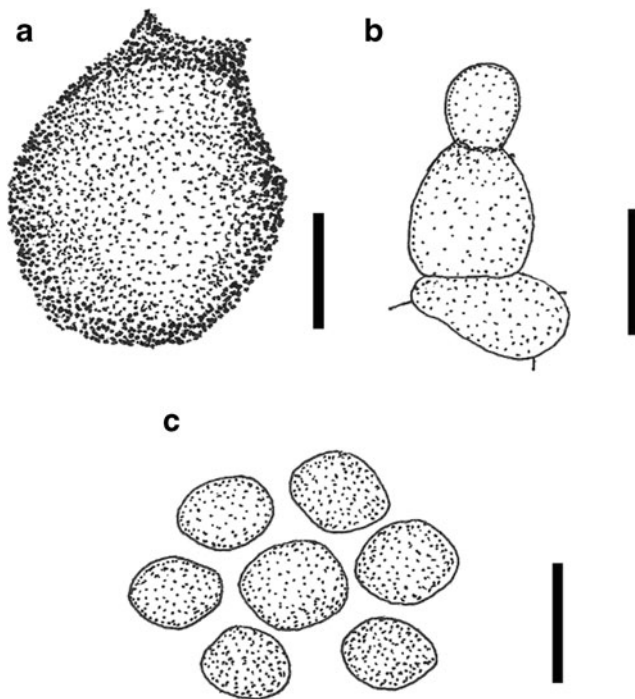


Fig. 224 *Readeriellipsoidia fuscoporiae*. **a** Squashed conidioma. **b** Conidiogenous cells and developing conidioma. **c** Conidia. Scale bars: **a–c** = 10 μ m (re-drawn from Crous et al. 2015d)

Cytoplea under *Rousoella*. However, Wijayawardene et al. (2014c) did not agree and suggested to continue using both generic names (see notes under *Cytoplea*). Nevertheless, Ariyawansa et al. (2015) reported three dematiaceous coelomycetes from bamboo clustered with *Rousoella sensu stricto* in their phylogenetic analyses. Both species, *Rousoella magnatum* D.Q. Dai & K.D. Hyde, and *R. angustior* D.Q. Dai & K.D. Hyde with 1-septate conidia also produced microconidia in cultures, while *Cytoplea* lacks septate macroconidia or microconidia.

Rubikia H.C. Evans & Minter, Trans. Br. mycol. Soc. 84(1): 57 (1985)

Facesoffungi number: FoF 01690; Fig. 230

Ascomycota, genera incertae sedis

Endophytic or saprobic on *Pinaceae* (Gymnosperm).

Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* pycnidial, immersed, solitary, globose, unilocular, hyaline, ostiolate. *Ostiole* papillate, circular. *Conidiomata* wall multi-layered, composed of brown-walled cells of *textura angularis*. *Conidiophores* branched, hyaline, thin-walled, smooth, constricted at the base. *Conidiogenous* cells holoblastic. *Conidia* circular to square in front view, elongated in end view, vertically flattened, consist of approximately 12 cells of cyanophilous, hyaline, thin-walled central cells, with

approximately 36 brown walled exterior cells (Evans and Minter 1985; Dulymamode et al. 1998).

Type species: ***Rubikia samsonii*** H.C. Evans & Minter, Trans. Br. mycol. Soc. 84(1): 57 (1985)

Notes: Evans and Minter (1985) introduced *Rubikia* with *R. samsonii* as the type species. *Rubikia* is conspicuous among other coelomycetes as it has a pycnidial wall without pigmentation. *Rubikia* also has vertically flattened conidia, which is only similar to *Nummospora*, but the latter has only 6-celled conidia. In the original description, Evans and Minter (1985) did not describe the conidiogenous cells in detail. Hence, it is essential to re-collect and define well-established generic boundaries following phylogenetic data analyses.

Schwarzmannia Pisareva, Botanicheskie Materialy Gerbariya Instituta Botaniki, Akademiya Nauk Kazakhskoi SSR 5: 72 (1968)

Facesoffungi number: FoF 01583; Fig. 231

Ascomycota, genera incertae sedis

Endophytic or saprobic on leaves of *Fabaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, separate or gregarious, immersed, subepidermal, globose, unilocular, dark brown.

Conidiomata wall thin, composed of thick-walled, dark brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic to annellidic, cylindrical, indeterminate, discrete, pale brown, verruculose. *Conidia* globose to pyriform, base truncate or not, 1-septate, continuous, very pale brown, thin-walled, verruculose (Mel'nik 1970; Sutton 1980).

Type species: ***Schwarzmannia goebeliae*** Pisareva, J. Bot. U.S.S.R. 5: 72 (1968)

= *Schwarzmannia ammodendri* Kusnezowa, Bot. Mater. Gerb. Inst. Bot. Akad. Nauk kazakh. SSR: 76 (1968)

Notes: The genus *Schwarzmannia* was introduced with *S. goebeliae* and the second species, *S. ammodendri* Kusnezowa. However, Sutton (1980) studied the isotypes of both species and stated they were identical, thus the latter species was reduced under the type species. Hence, the genus remains monotypic and sequence data is unavailable thus taxonomic placement is uncertain.

Sclerostagonospora Höhn., Hedwigia 59: 252 (1917)

Facesoffungi number: FoF 01584; Fig. 232

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, genera incertae sedis

Endophytic or saprobic on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, immersed, solitary to gregarious, globose, dark brown to black, unilocular, ostiolate. *Ostiole* papillate, central, single, circular. *Conidiomata* wall multi-layered, outer layer thick, composed of brown cells of *textura angularis*, inner layer thin, hyaline.

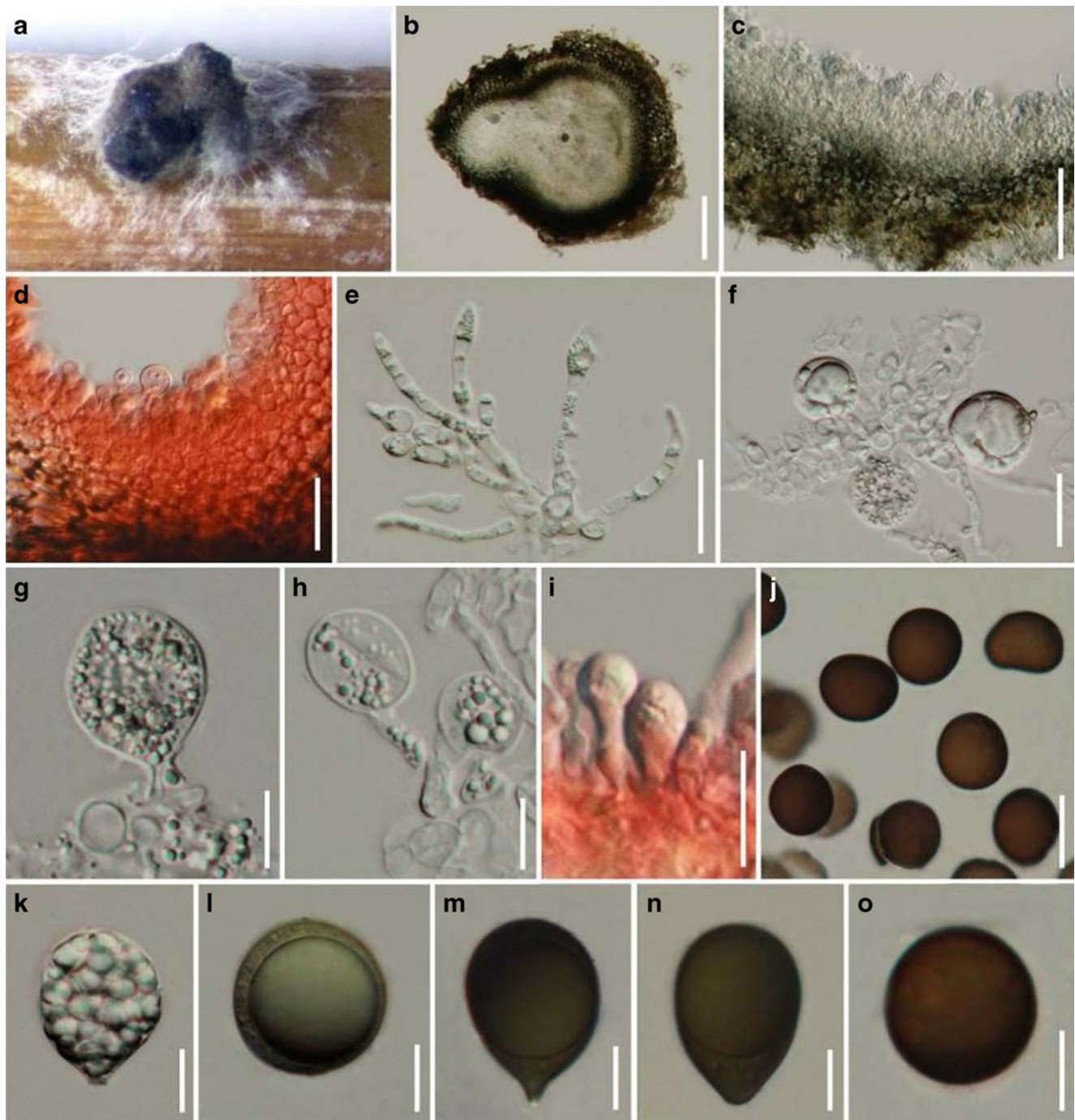


Fig. 225 *Roussoellopsis macrospora* (Thailand, Chiang Rai Province, Muang District, Khun Korn Waterfall, on living stem of bamboo, 21 June 2011, R. Phookamsak, MFLU 11-0244). **a** Conidiomata produced on bamboo pieces on WA. **b** Section through conidiomata **c**

Section through pycnidial wall. **d** Pycnidial walls and conidiogenous cells stained in congo red. **e–h** Conidiogenous cells. **i** Conidiogenous cells stained in congo red. **j–o** Conidia. Scale bars: **b** = 100 μ m, **c** = 50 μ m, **d–f**, **j** = 20 μ m, **g–i**, **k–o** = 10 μ m

Conidiophores reduced to conidiogenous cells. *Conidiogenous* cells holoblastic, ampulliform to irregular, determinate, discrete, hyaline to pale brown, smooth. *Conidia* apex obtuse, cylindrical or tapered slightly to the base, straight or occasionally curved, base truncate, 3(–4)-septate, continuous or occasionally slightly constricted at the septa, pale brown to brown, thin-walled,

smooth or minutely verruculose (Sutton 1980; Crous et al. 2011a; Quaedvlieg et al. 2013).

Type species: Sclerostagonospora heraclei (Sacc.) Höhn., Hedwigia 59: 252 (1917)

Notes: Höhnel (1917) introduced *Sclerostagonospora* with *S. heraclei* as the type species. In morphology, *Sclerostagonospora* resembles *Stagonospora* (Sutton 1980),

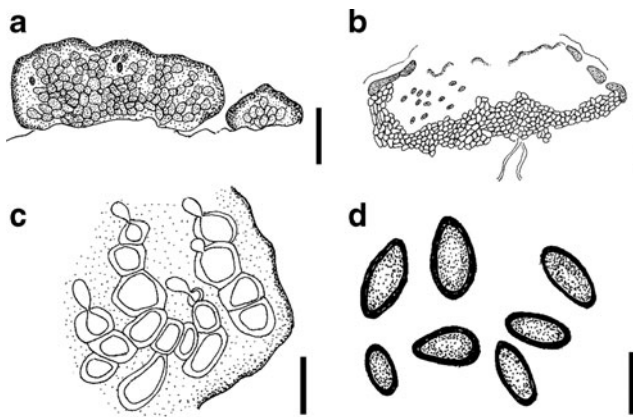


Fig. 226 *Rhizosphaerina variabilis*. **a** Vertical section of uperficial conidioma. **b** Vertical section of immersed conidioma. **c** Conidiogenous cells. **d** Conidia. Scale bars: **a**, **b** = 50 μ m, **c**, **d** = 10 μ m (re-drawn from Sutton 1985)

but the latter genus lacks pigmented conidia and is phylogenetically distinct (Quaedvlieg et al. 2013). Quaedvlieg et al. (2013) introduced *S. phragmiticola* Quaedvlieg et al. and showed it resides in *Phaeosphaeriaceae* in their molecular data analyses. Further, Quaedvlieg et al. (2013) predicted that *Sclerostagonospora* might have phaeosphaeria-like sexual morph. However, the type species lacks sequence data, thus the placement of *Sclerostagonospora sensu stricto* is uncertain.

Sclerostagonospora arundinis Wijayaw., Camporesi, McKenzie & K.D. Hyde, *sp. nov.*

Index Fungorum number: IF551796; *Facesoffungi number*: FoF 01585; Fig. 232

Etymology: Named after the host genus

Holotype: MFLU 15–3455

Saprobic on dead stems of *Arundo plinii* (Poaceae).

Sexual morph: Undetermined. **Asexual morph**: *Conidiomata* 90–130 μ m diam., 80–120 μ m high, pycnidial, immersed, solitary to gregarious, globose to subglobose, unilocular, dark brown to black, papillate ostiole, central, single, circular. *Conidiomata wall* multi-layered, composed of thick-walled, brown cells of *textura angularis*, inner layer thin, hyaline. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* 8–10 \times 1–2 μ m, holoblastic, ampulliform to irregular, determinate, discrete, hyaline, smooth. *Conidia* 13–16 \times 4–6 μ m (\bar{x} = 14.66 \times 4.71 μ m, n=20), cylindrical or tapered slightly to the base, straight or occasionally curved, apex obtuse, base truncate or rarely rounded, occasionally wider at the middle, 3(–4)-septate, continuous, or slightly constricted at the septa, pale-brown to brown, thin and smooth-walled.

Culture characteristics: On PDA slow growing, attaining 20 mm in 7 days at 18 $^{\circ}$ C, circular, with even margin, white from above, greyish white from below, mycelium thin, lacking zonation.

Material examined: Italy, Province of Forli-Cesena [FC], Strada San Zeno - Galeata, on dead stems of *Arundo plinii* (Poaceae), 27 October 2013, Erio Camporesi, IT 1492 (MFLU 15–3455, **holotype**); (HKAS92552, **isotype**), ex-type living cultures MFLUCC 13–0542 = GUCC IT1492.

Notes: During our collecting program of coelomycetous fungi, we collected a taxon morphologically resembles *Sclerostagonospora*. It is distinct from other known species, thus introduced as a new species.

Scolecosporiella Petr., *Annl. mycol.* 19(1/2): 30 (1921)

Facesoffungi number: FoF 01691; Fig. 233

Ascomycota, genera *incertae sedis*

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* pycnidial, solitary, immersed, globose to glabrous, unilocular, brown, ostiolate. *Ostiole* papillate or apapillate, central, circular. *Conidiomata wall* composed of pale brown, thin-walled cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells, invested in mucus. *Conidiogenous cells* holoblastic, doliiform to ampulliform, determinate, discrete, hyaline, smooth. *Conidia* fusiform, base truncate, apical cell tapered, short or long, filiform, unbranched, with cellular appendage, 3-numerous transverse septa, occasionally with longitudinal septa, continuous or constricted, pale brown, thin and smooth-walled (Sutton 1968, 1980; Nag Raj 1993).

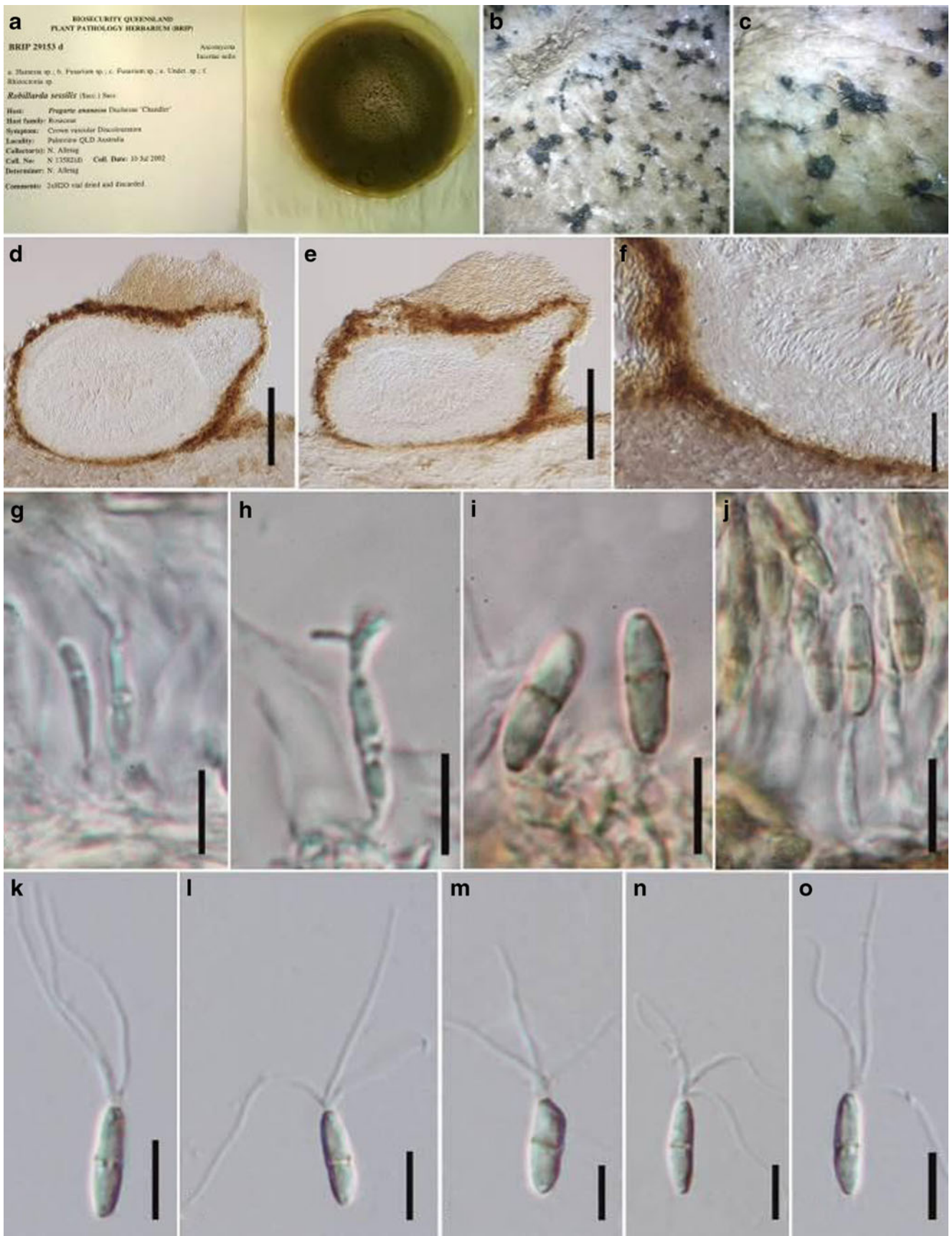
Type species: *Scolecosporiella typhae* (Oudem.) Petr., *Annl. mycol.* 19(1/2): 31 (1921)

= *Hendersonia typhae* Oudem., *Ned. kruidk. Archf.* 2 sér. 1: 255 (1873)

Notes: Petrak (1921a) introduced *Scolecosporiella* with *S. typhae* as the type species. Sutton (1968) re-described *Scolecosporiella* and added two species, *S. kranzii* B. Sutton (current name *Orphanocoela kranzii* (B. Sutton) Nag Raj *vide* Nag Raj 1989) and *S. sisyinchii* (Ellis & Everh.) B. Sutton. Sutton and Alcorn (1974) introduced *S. spraguei* B. Sutton & Alcorn and Sutton (1980) introduced *S. mastigospora* (Petr.) B. Sutton while treating *Urohendersoniella* Petrak and *Brencklea* Petrak as synonyms of *Scolecosporiella*. However, Nag Raj (1993) rejected synonyms in Sutton (1980) and treated *Urohendersoniella* and *Brencklea* as distinct genera. We agree with Nag Raj (1993) and it is appropriate to continue using separate names.

The taxonomic key is provided under *Brencklea* to distinguish *Brencklea*, *Scolecosporiella* and *Urohendersoniella*.

Fig. 227 *Robillarda sessilis* (Material examined: Australia, Queensland, Palmview, on dry culture, 10 July 2002, N. Alletag, BRIP 29153d). **a** Label and herbarium material. **b**, **c** Conidiomata on culture. **d**, **e** Vertical sections of conidiomata. **f** Conidioma wall. **g–j** Different stages of conidiogenesis. **k–o** Conidia. Scale bars: **d**, **e** = 100 μ m, **f** = 20 μ m, **g–o** = 8 μ m



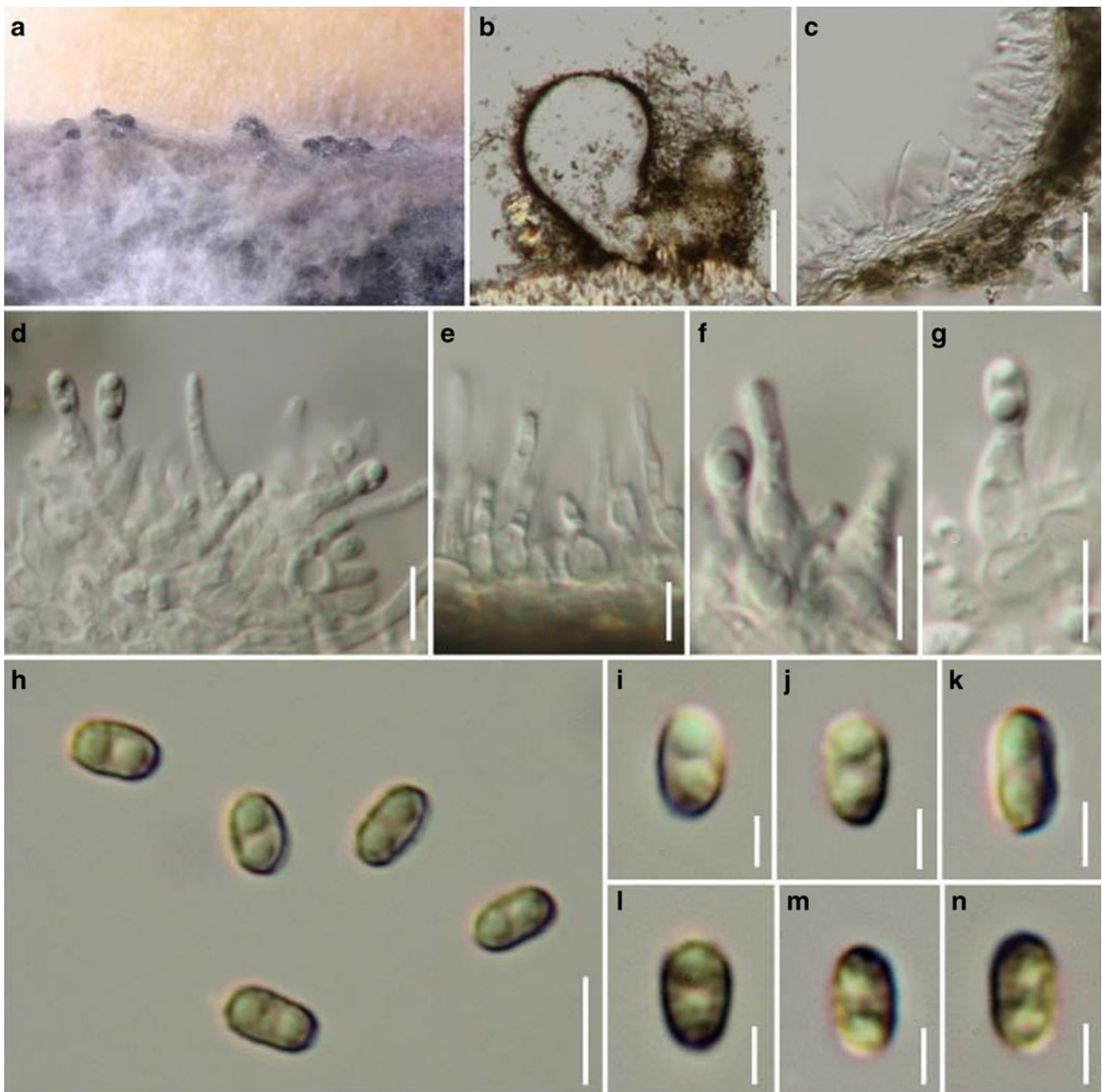


Fig. 228 *Roussoella chiangraina* (Material examined: Thailand, Chiang Rai Province, Muang District, Huai Mae Sai Waterfall, on dead branch of bamboo, 10 March 2010, R. Phookamsak, MFLU 11–0148, holotype). **a**

Conidiomata on culture. **b** Vertical section of conidioma. **c** Conidioma wall. **d–g** Different stages of conidiogenesis. **h–n** Pale brown conidia. Scale bars: **b** = 100 μ m, **c** = 20 μ m, **d–h** = 5 μ m, **i–n** = 2 μ m

Scolicosporium Lib. ex Roum., Fungi Selecti Galliaei Exs.: no. 676 (1880)

Facesoffungi number: FoF 01692; Figs. 234 and 235

?*Dothideomycetes*, *Pleosporomycetidae*, *Pleosporales*, *Pleosporineae*, *Phaeosphaeriaceae*

Saprobic on various substrates of a range of host plants.

Sexual morph: ?*Asteromassaria* fide Kirk et al. (2008).

Asexual morph: *Conidiomata* acervular or pycnidial, subepidermal, erumpent at maturity, solitary to gregarious, brown to

dark brown. *Conidiomata* wall composed of thin-walled, pale brown cells of *textura angularis*. *Conidiophores* long, branched, 1–2-septate, cylindrical, hyaline, smooth. *Conidiogenous cells* holoblastic to annellidic, determinate or indeterminate, with 1–2 annellations, integrated or discrete, cylindrical, hyaline. *Conidia* fusiform, straight or curved or sigmoid, pale brown with the end cells pale or hyaline, tapered to the obtuse apex and truncate base, with several transverse septa, often

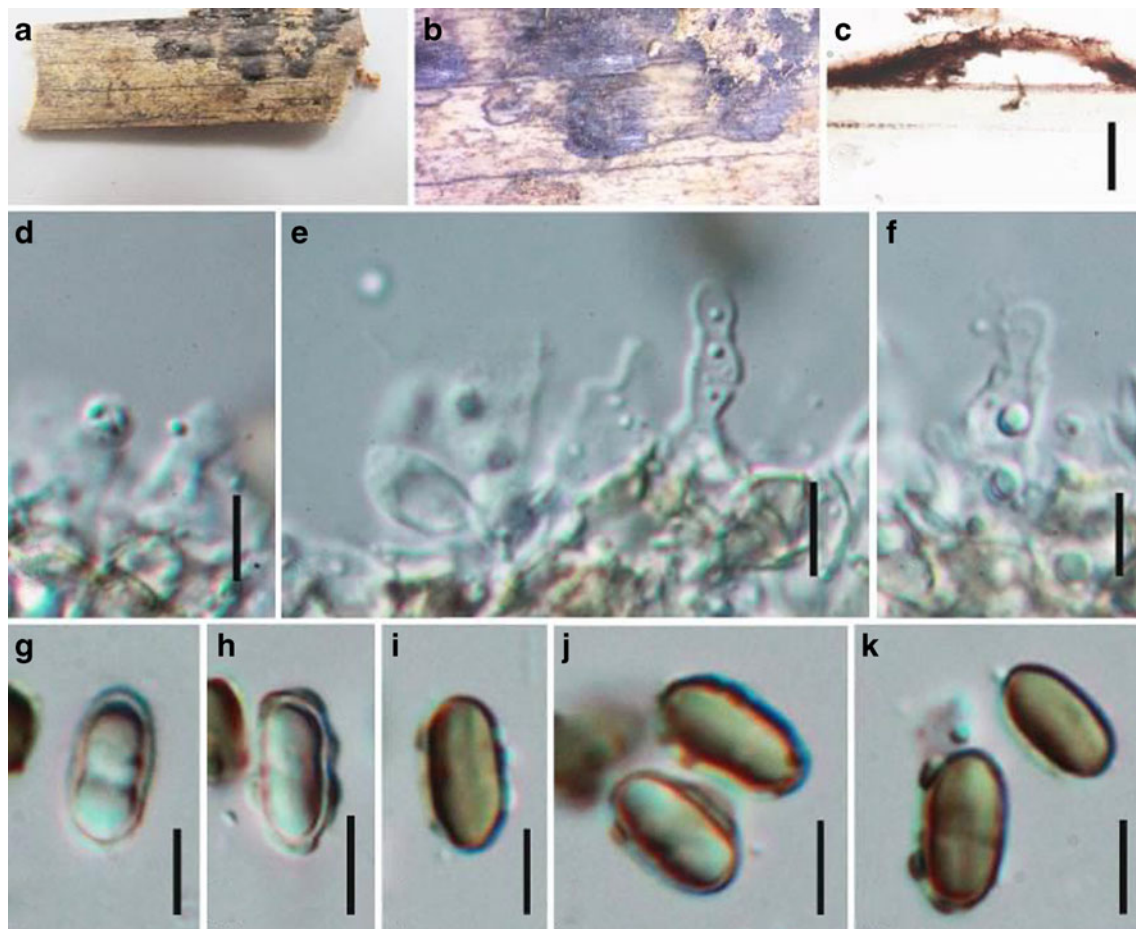


Fig. 229 *Roussoella pustulatum* (Material examined: Thailand, Chiang Rai Province, Mae Fah Luang University, on dead culm of Bamboo, 9 July 2013, Dong-Qin Dai, MFLU 15–1211, holotype). **a** Host material. **b**

Conidiomata on bamboo. **c** Vertical section of conidioma. **d–f** Different stages of conidiogenesis. **g–k** Conidia. Scale bars: **c** = 100 μm , **d–f** = 10 μm , **g–k** = 5 μm

guttulate, thin and smooth-walled (Sutton 1980; Treigiene and Mel'nik 2002; Wijayawardene et al. 2013b).

Type species: Scolicosporium macrosporium (Berk.) Sutton, Mycol. Pap. 141: 185 (1977); Fig. 234

= *Coryneum macrosporium* Berk., Hooker's English Flora 5(2): 355(1836)

= *Scolicosporium fagi* Lib. in Sacc, Michelia 2: 355 (1881)

= *Sporidesmium vermiforme* Riessin Fres., Beitragezur Myk. 51(1863)

Notes: The genus *Scolicosporium* was introduced by Roumeguère (1880) with *S. fagi* Lib. ex Roum. and it was treated as a hyphomycete by Spooner and Kirk (1982) and Seifert et al. (2011). However, Treigiene and Mel'nik (2002) introduced *S. minkeviciusii* Treigiene as a coelomycete, while Wijayawardene et al. (2013b) confirmed the species as a coelomycete, and found that *S. minkeviciusii* belongs to *Phaeosphaeriaceae*, *Pleosporales*, in their phylogenetic analyses. We confirm the type species of *Scolicosporium*, *S. fagi* as a coelomycete since it shows typical acervulus type conidioma (Fig. 234 c and d).

Scyphospora L.A. Kantsch., Bolz. Rast. 17: 87 (1928)

Facesoffungi number: FoF 01792; Fig. 236

Sordariomycetes, family *incertae sedis*, *Apiosporaceae*

Endophytic or *saprobic* on stems of *Poaceae* (Monocotyledons). **Sexual morph:** ?*Apiospora* fide Sivanesan (1983). **Asexual morph:** *Conidiomata* acervular, subepidermal, dark brown, solitary to gregarious. *Conidiomata* wall composed of subhyaline to pale brown walled-cells of *textura angularis*, becoming darker conidiogenous region, composed of thick-walled, dark brown cells of *textura prismatica*. *Conidiophores* long, simple or rarely branched, septate, cylindrical, brown to paler, verrucose. *Conidiogenous cells* holoblastic, cylindrical, determinate, integrated, brown, thick-walled. *Conidia* turbinate, scyphoid, base truncate, apex broadly obtuse, aseptate, brown, thick-, smooth-walled (Nag Raj 1974; Sutton 1980; Sivanesan 1983).

Type species: Scyphospora phyllostachydis L.A. Kantsch. [as 'phyllostachidis'], Bolz. Rast. 17: 88 (1928); Fig. 236

Notes: Kantschaveli (1928) introduced *Scyphospora* with *S. phyllostachydis* as the type species. Sutton (1977, 1980)

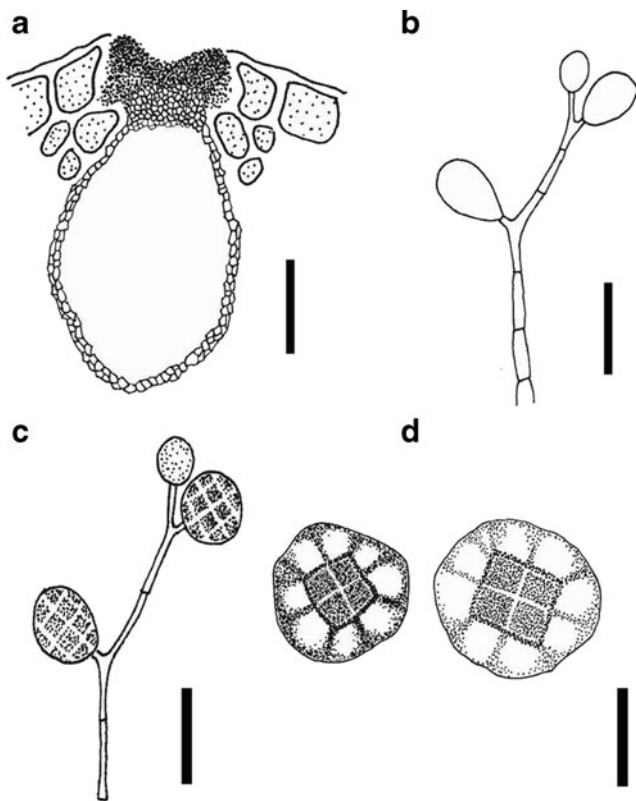


Fig. 230 *Rubikia samsonii*. **a** Vertical section of conidioma. **b, c** Conidiophores and different stages of conidiogenesis. **d** Conidia. Scale bars: **a** = 40 μm , **b–d** = 10 μm (re-drawn from Evans and Minter 1985)

accepted *Scyphospora* as a monotypic genus. Kirk et al. (2008) stated *Scyphospora* is the asexual morph of *Apiospora* (1983), Species Fungorum (2016) stated the current name of *Scyphospora phyllostachydis* as *Apiospora bambusae* (Turconi) Sivan. Kirk et al. (2013) did not list *Scyphospora* as a legitimate name.

Seimatosporiopsis B. Sutton et al. Trans. Br. mycol. Soc. 59(2): 295 (1972)

Facesoffungi number: FoF 01694; Fig. 237

Ascomycota, genera incertae sedis

Endophytic or *saprobic* on stems of *Salvadoraceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, gregarious, immersed, subperidermal, unilocular, globose, dark brown to black, ostiolate. *Ostiole* circular, papillate. *Conidiomata* wall with outer layer composed of dark, thick-walled, brown cells of *textura angularis*, inner layer composed of thin-walled, paler cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, annellidic, lageniform to doliiform, or ampulliform, indeterminate, discrete, hyaline, smooth. *Conidia* cylindrical to subcylindrical, straight or slightly curved, with obtuse apex, truncate at base, dark brown, 1–4-septate, continuous, thick

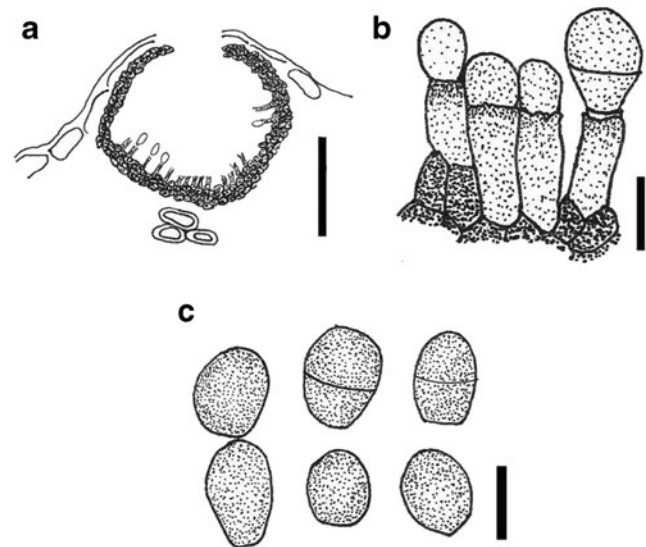


Fig. 231 *Schwarzmannia goebeliae*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 100 μm , **b, c** = 10 μm (re-drawn from Sutton 1980)

and smooth-walled; with 1 apical or subapical and 1–2 lateral, basal, cellular, filiform, occasionally branched appendages (Sutton et al. 1972; Morgan-Jones 1977; Sutton 1980; Nag Raj 1993).

Type species: Seimatosporiopsis salvadorae B. Sutton et al., Transactions of the British Mycological Society 59 (2): 295 (1972)

Notes: Sutton et al. (1972) introduced *Seimatosporiopsis* with *S. salvadorae* as the type species. Sutton (1980) and Nag Raj (1993) retained the genus as monotypic. Sequence data is unavailable and thus taxonomic placement remains uncertain. *Seimatosporiopsis* differs from *Seimatosporium* in its concolorous conidia, while *Seimatosporium* has conidia with almost hyaline basal cells.

Seimatosporium Corda, Fl., 3 Abt. (Pilze Deutschl.) 3(13): 79 (1833)

Facesoffungi number: FoF 01695; Figs. 238 and 239

Sordariomycetes, Xylariomycetidae, Amphisphaeriales, Discosiaceae

Saprobic on leaves, stem, and bark of a range of host plants; pathogenic on a range of host plants. **Sexual morph:** discostroma-like fide Tanaka et al. (2011); Senanayake et al. (2015). **Asexual morph:** *Conidiomata* acervular, solitary to gregarious, superficial to immersed, dark brown to black. *Conidiomata* wall composed of, thin or thick-walled, brown cells of *textura angularis*. *Conidiophores* cylindrical, septate or not, branched, hyaline, filiform. *Conidiogenous cells* holoblastic, annellidic, integrated or discrete, hyaline, determinate. *Conidia* variable, cylindrical, fusiform or clavate or obovoid, (2–)3(–5)-septate, continuous or occasionally constricted at the septa, eguttulate, brown at median cells, with hyaline basal



Fig. 232 *Sclerostagonospora arundinis* (holotype). a, b Conidiomata on stem of *Arundo* sp. c–e Vertical sections of conidiomata. f–j Conidia attach to conidiogenous cells. k–s Conidia. Scale bars: c, d = 60 μ m, e–s = 10 μ m

cell, lacking appendages entirely, or with the apical cell provided with a single, cellular, simple or branched appendage, truncate at the base (Sutton 1980; Nag Raj 1993; Hatakeyama and Harada 2004; Barber et al. 2011; Tanaka et al. 2011;

Crous et al. 2014c; Ariyawansa et al. 2015a; Norphanphoun et al. 2015; Senanayake et al. 2015).

Type species: Seimatosporium rosae Corda, *Deutschl. Fl.*, 3 Abt. (Pilze Deutschl.) 3(13): 79 (1833)

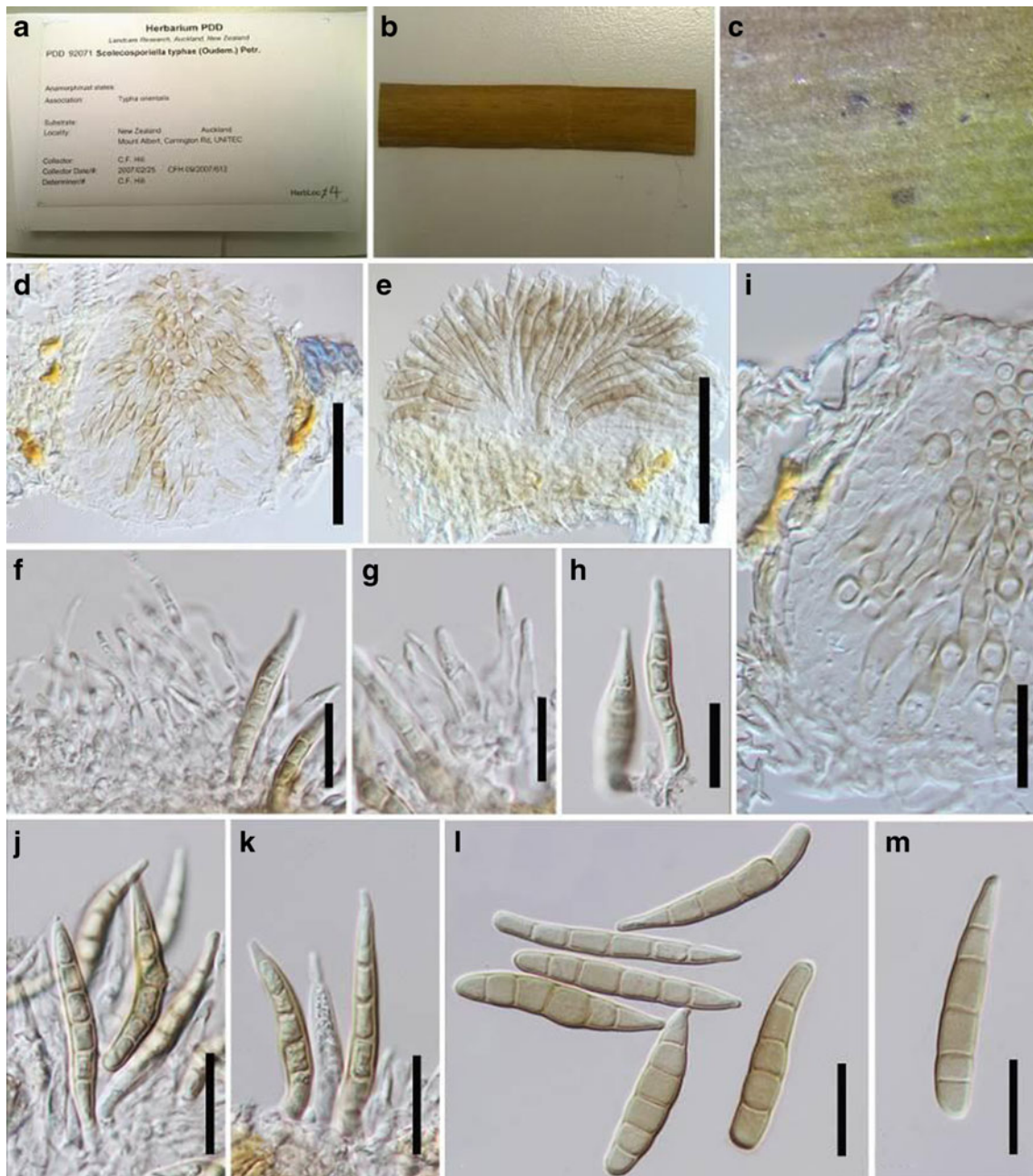


Fig. 233 *Scolecosporiella typhae* (Material examined: New Zealand, Auckland, Mount Albert, Carrington Rd., UNITEC, on *Typha orientalis*, 25 February 2007, C.F. Hill, PDD 92071). **a** Label of

herbarium material. **b** Herbarium specimen. **d, e** Vertical sections of conidiomata. **f–h, j, k** Different stages of conidiogenesis. **i** Conidioma wall. **l, m** Conidia. Scale bars: **d** = 60 μm , **e** = 100 μm , **f–m** = 20 μm

Notes: Corda (1833) introduced *Seimatosporium* with *S. rosae* as the type species, while Sutton (1963, 1964, 1977, 1980), Shoemaker (1964a), Shoemaker and Muller (1964) and Nag Raj (1993) revisited the genus. Von Arx (1981) treated *Bartalinia*, *Bartiloniopsis*, *Bleptosporium*, *Doliomyces* and *Hyalotia* as synonyms of *Seimatosporium*. However, Nag Raj (1993) rejected these synonymies. We follow Nag Raj (1993) as his concept of *Seimatosporium* and other related genera has been shown to be more natural based on recent

phylogenetic analyses (Barber et al. 2011; Tanaka et al. 2011; Norphanphoun et al. 2015; Senanayake et al. 2015).

The heterogeneity of *Seimatosporium* was predicted by Sutton (1980) and Nag Raj (1993). *Seimatosporium azaleae* Okane et al. (Okane et al. 1996) grouped in *Discosia sensu stricto* (Tanaka et al. 2011). Barber et al. (2011) showed that *Vermisporium* H.J. Swart & M.A. Will. clusters in *Seimatosporium sensu stricto* thus it was treated as a synonym of *Seimatosporium*.

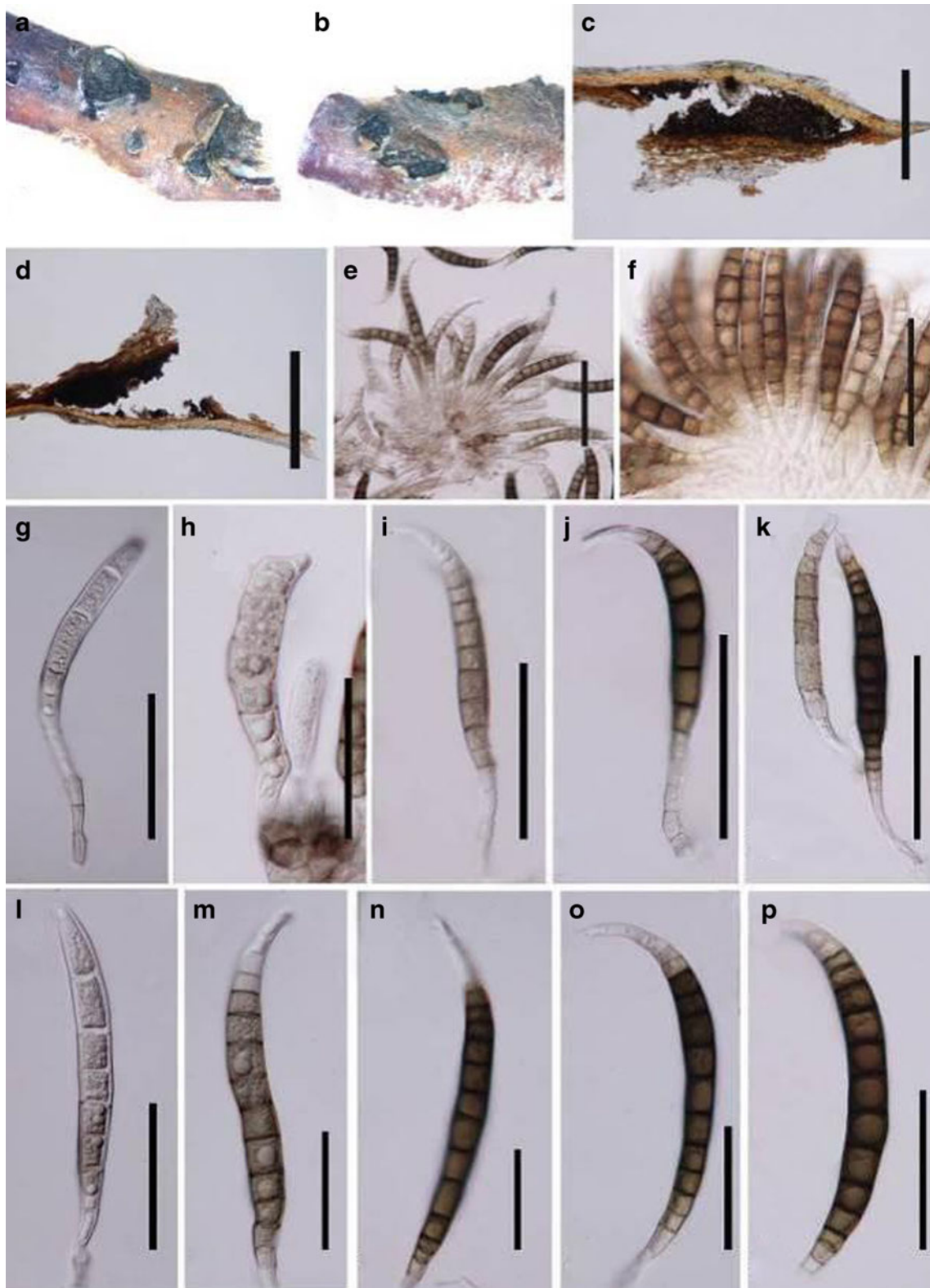


Fig. 234 *Scolicosporium macrosporium* (Material examined: Italy, Forli-Cesena [FC] Province, Campigna - Santa Sofia, on branches of *Fagus sylvatica*, 24 December 2013, E. Camporesi, MFLU 15-3457=HKAS92554). **a, b** Matured sporodochium-like conidiomata. **c**,

d Vertical sections of conidiomata. **e, f** Orientation of conidia inside conidiomata. **g–k** Conidia attach to conidiophores. **l–p** Conidia. Scale bars: **e–k** = 100 μm , **l–p** = 50 μm

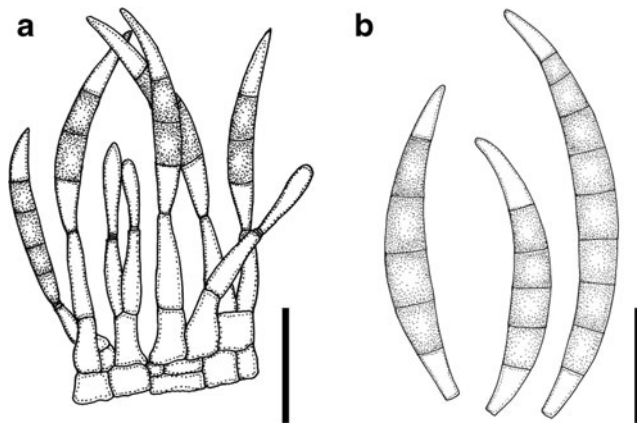


Fig. 235 *Scolicosporium pauciseptatum*. **a** Different stages of conidiogenesis. **b** Conidia. Scale bars: **a**, **b** = 10 μm (re-drawn from Constantinescu 1991)

Nag Raj (1993) stated that *Discostroma* was the sexual morph of *Seimatosporium*. Subsequently, Okane et al. (1996) and Hatakeyama and Harada (2004) introduced *Seimatosporium* spp. with *Discostroma* sexual morphs. Barber et al. (2011), Tanaka et al. (2011), Ariyawansa et al. (2015a), Norphanphoun et al. (2015) and Senanayake et al.

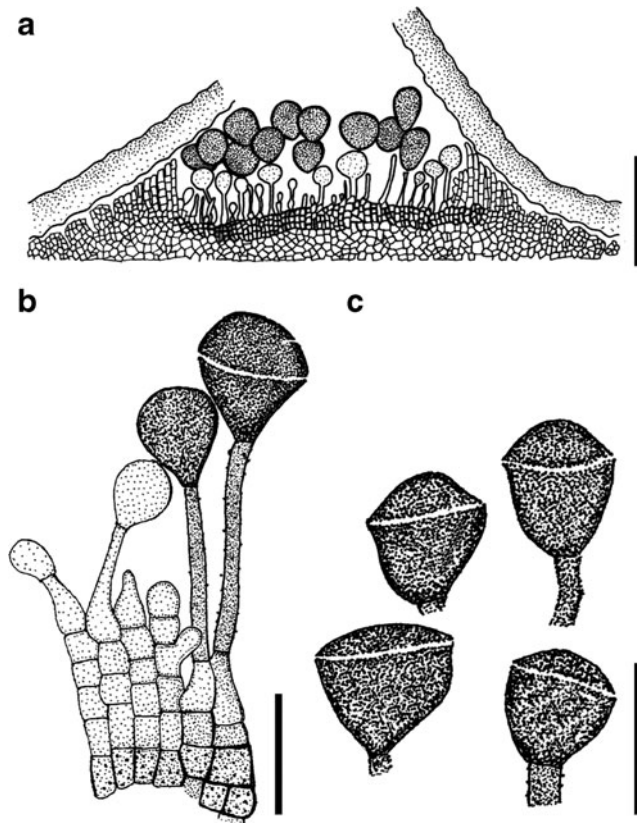


Fig. 236 *Scyphospora phyllostachidis*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 50 μm , **b**, **c** = 20 μm (re-drawn from Nag Raj 1974)

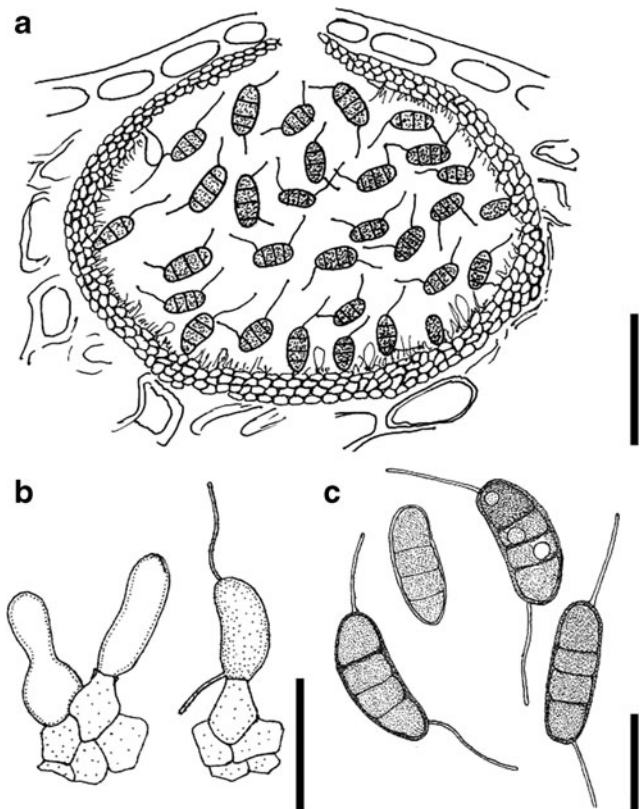


Fig. 237 *Seimatosporiopsis salvadorae*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 30 μm , **b**, **c** = 10 μm (re-drawn from Morgan-Jones 1977)

(2015) showed that both *Seimatosporium* and *Discostroma* clustered in a monophyletic clade and this agrees with our multi-gene analyses (Fig. 16). However, the type species of *Discostroma*, *D. rehmi* lacks sequence data, thus we prefer to maintain both generic names.

Recently, Norphanphoun et al. (2015) designated the epitype for *Seimatosporium rosae* and provided a comprehensive phylogenetic background of the genus.

Seiridium Nees, Syst. Pilze (Würzburg): 22 (1816) [1816–17]

Facesoffungi number: FoF 01696; Fig. 240

Sordariomycetes, *Xylariomycetidae*, *Amphisphaeriales*, *Pestalotiopsidaceae*

Saprobic on leaf, stem, and twigs of a range of host plants and pathogenic on leaves, stems and branches of *Cupressaceae* and *Myrtaceae*. **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* acervular, solitary to gregarious, semi-immersed or superficial, erumpent at maturity, unilocular or occasionally multi-locular, brown to black. *Conidiomata* wall composed of thin-walled, brown cells of *textura angularis*. *Paraphyses* present or absent; when present, numerous, filiform, cylindrical, hyaline, smooth-walled. *Conidiophores* hyaline, cylindrical, straight or curved, septate at base, branched. *Conidiogenous cells* holoblastic to

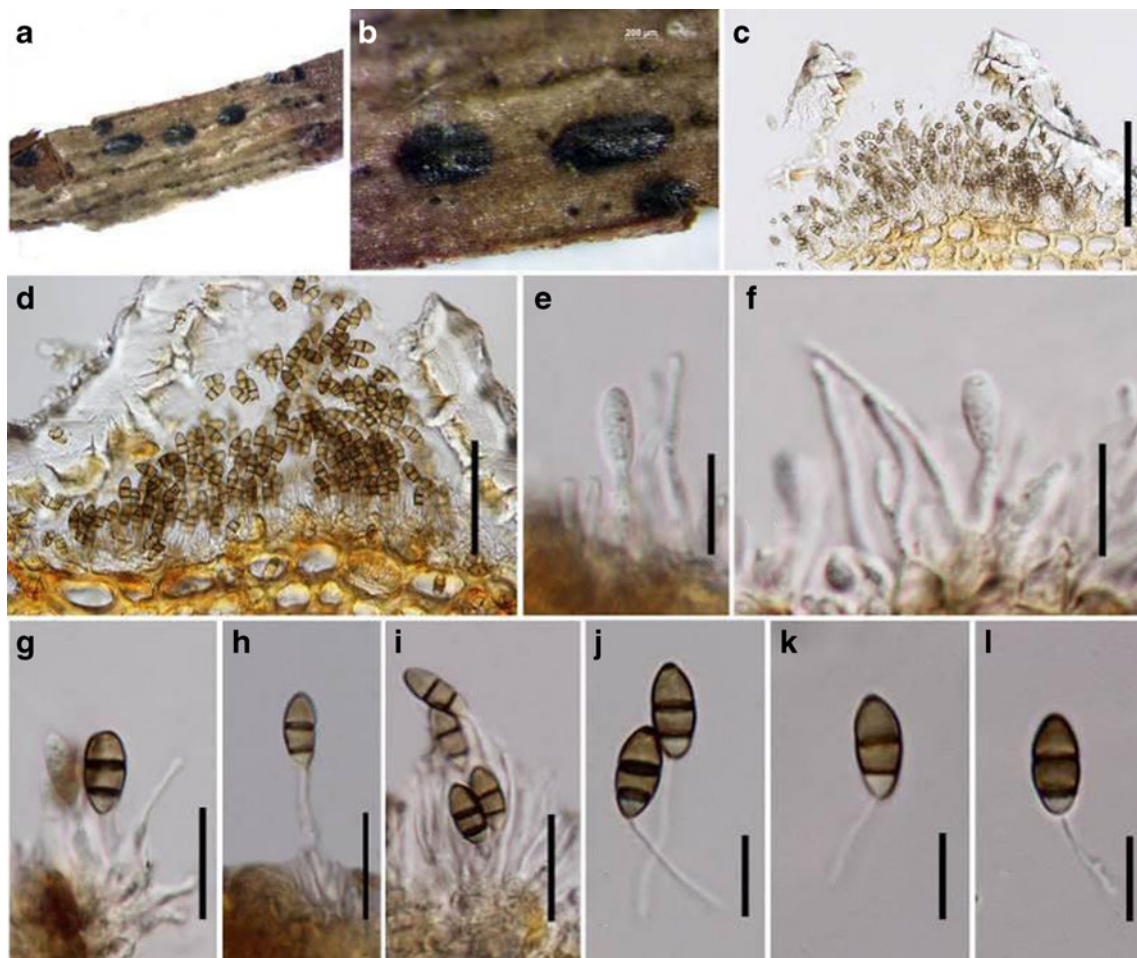


Fig. 238 *Seimatosporium pseudorosarum* (Material examined: Italy, Rimini [RN], Province, near Pennabilli-Rimini, on dead branch of *Rosa canina*, 22 March 2014, E. Camporesi, MFLU 15–0745, holotype). **a, b** Conidiomata on *Rosa villosa*. **c, d** Vertical sections of conidiomata. **e–i**

Different stages of conidiogenesis and paraphyses. **j–l** Conidia. Scale bars: **c, d** = 100 μ m, **e, f, j–l** = 10 μ m, **g–i** = 15 μ m (from Ariyawansa et al. 2015a)

annellidic, indeterminate, discrete or integrated, hyaline, cylindrical. *Conidia* fusiform, 5-septate, constricted or continuous at the septa, hyaline at apical and basal cells, with 4 median cells, thick-walled, smooth or occasionally verruculose, brown, basal cell with or without an endogenous, cellular, simple appendage; apical cell with a single, cellular, simple or branched appendage (Sutton 1980; Nag Raj 1993; Marinowitz et al. 2008; Crous et al. 2012c, 2014b; Maharachchikumbura et al. 2015; Senanayake et al. 2015).

Type species: Seiridium marginatum Nees, System der Pilze und Schwämme: 22: (1816–1817)

Notes: Nees (1817) introduced *Seiridium* with *S. marginatum* as the type species. Guba (1961), Shoemaker et al. (1966), Sutton (1969a, 1980) and Nag Raj (1993) revisited the genus with taxonomic notes. Nag Raj (1993) stated that *Seiridium* has sexual morphs in *Lepteutypa* and *Blotiascospora*. Jeewon et al. (2002) showed that *Seiridium cardinale* (W.W. Wagener) B. Sutton & I.A.S. Gibson and *S. cupressi* (Guba) Boesew. clustered with *Lepteutypa cupressi*

(Natrass et al.) H.J. Swart in their phylogenetic analyses. They also showed *Seiridium* could be accommodated in *Amphisphaeriaceae*. However, Maharachchikumbura et al. (2015) and Senanayake et al. (2015) showed that *Seiridium* has distinct lineage in *Amphisphaeriales* and clustered in *Pestalotiopsaceae* (Fig. 16).

Seiridium spp. have been reported as pathogens of cypress (*Cupressus* spp.) (Graniti 1998). Barnes et al. (2001) identified three species, *S. cardinale*, *S. cupressi* and *S. unicorne* based on phylogenetic analyses of β -tubulin and histone H3 gene regions. Krokene et al. (2004) confirmed the findings of Barnes et al. (2001) by PCR-RFLP based diagnostic techniques.

Seiridium pseudocardinale Wijayaw., Camporesi, McKenzie & K.D. Hyde, *sp. nov.*

Index Fungorum number: IF551797; *Facesoffungi* number: FoF 01697

Etymology: Named as it morphological similarity with *Seiridium cardinale*; Fig. 240

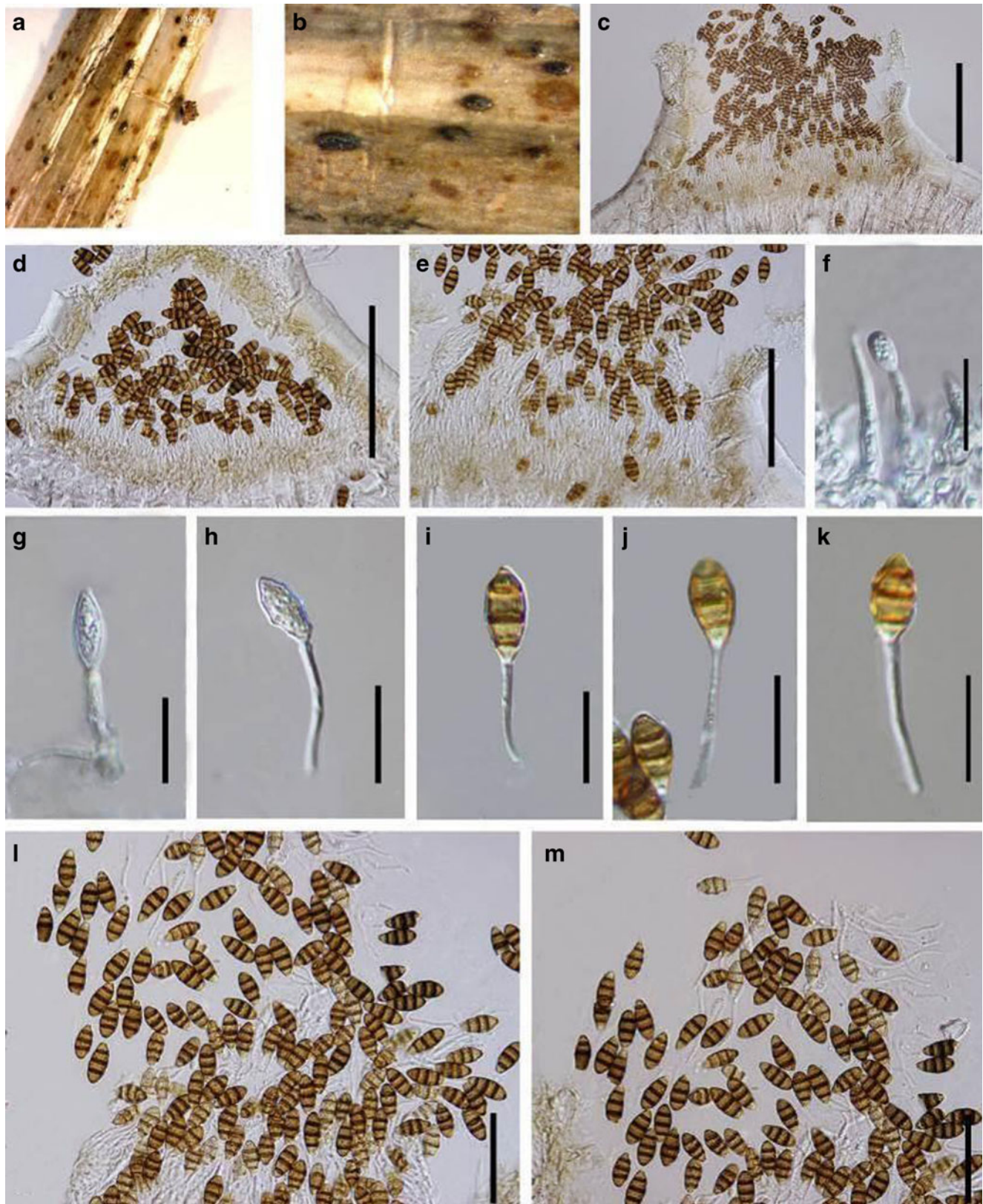


Fig. 239 *Seimatosporium rhododendri* (Material examined: Italy, Forlì-Cesena [FC] Province, Fiumicello di Premilcuore, dead branch of *Lonicera* sp., 6 May 2012, E. Camporesi, MFLU 15–

3456=HKAS92540). **a, b** Conidiomata on *Lonicera* sp. **c–e** Vertical sections of conidiomata. **f–k** Developing conidia attach to conidiogenous. **l–m** Conidia. Scale bars: **c–e** = 100 μ m, **f–k** = 15 μ m

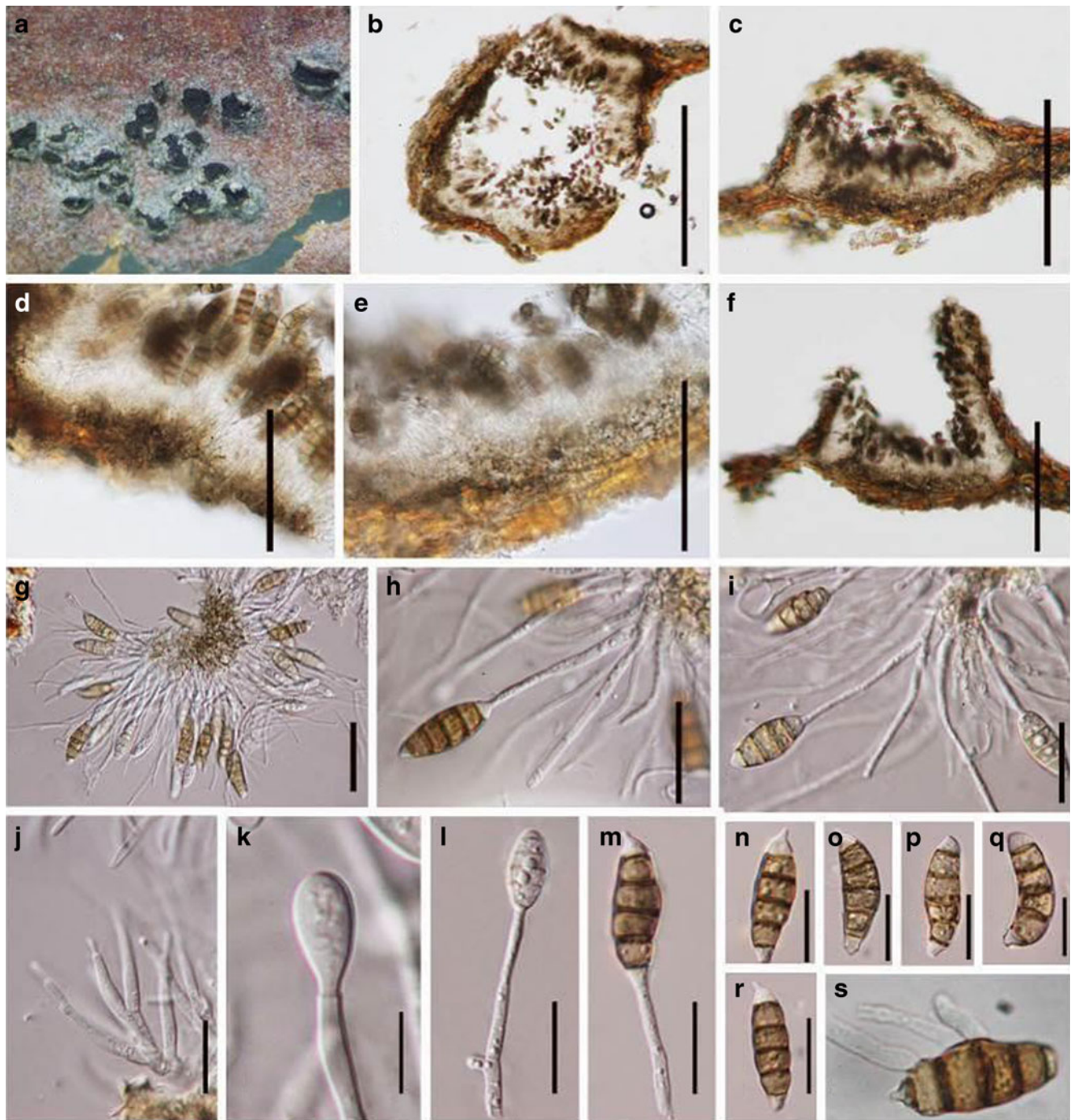


Fig. 240 *Seiridium pseudocupressi* (holotype). **a** Conidiomata on host material. **b–f** Vertical sections of conidiomata. **g** Conidiophores and paraphyses. **h–m** Conidia attach to conidiogenous cells. **n–r** Conidia. **s**

Germinating conidium. Scale bars: **b, c, f** = 250 μm , **d, e, g–i** = 100 μm , **j, k** = 10 μm , **l–r** = 20 μm

Holotype: MFLU 15–3458

Saprobic on bark of *Cupressus arizonica* var. *glabra* (*Cupressaceae*). **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* 200–500 μm diam., 200–350 μm high, acervular, gregarious, superficial, dark brown to black. *Conidiomata* wall outer layer thick, composed of thin-walled, brown cells of *textura angularis*, inner layer thin, hyaline.

Conidiophores 20–90 \times 1.5–2.5 μm , cylindrical, straight or curved, branched and septate at the base, hyaline. *Conidiogenous cells* holoblastic, annellidic, indeterminate, integrated, cylindrical, hyaline. *Conidia* 17–33 \times 7–9 μm (\bar{x} = 26.8 \times 8.1 μm , n = 20), fusiform, straight to slightly curved, 5-transverse septate, constricted at septa, medium brown at four median cells, with hyaline apical and basal cells, smooth;

basal cell without an appendage; apical cell with a short (3 μm), cellular, simple appendage.

Culture characteristics: On PDA slow growing, attaining a diam. of 2.5 cm in 7 days at 18 °C, white to light brown from top, brown from below, with thin mycelium, flat, circular.

Material examined: Italy, Forli-Cesena [FC] Province, Fiumana di Predappio, on dead bark of *Cupressus arizonica*

var. *glabra* (Sudw.) Little (*Cupressaceae*), 29 July 2013, Erio Camporesi, IT 994 (MFLU 15–3458, **holotype**); (HKAS 92545, **isotype**), ex-type living cultures MFLUCC 13–0525, GUCC IT 994.

Notes: Our collection from *Cupressus glabra* morphologically resembles *Seiridium* species (Sutton 1980; Nag Raj 1993), and in sequence analyses, it groups with *Seiridium*

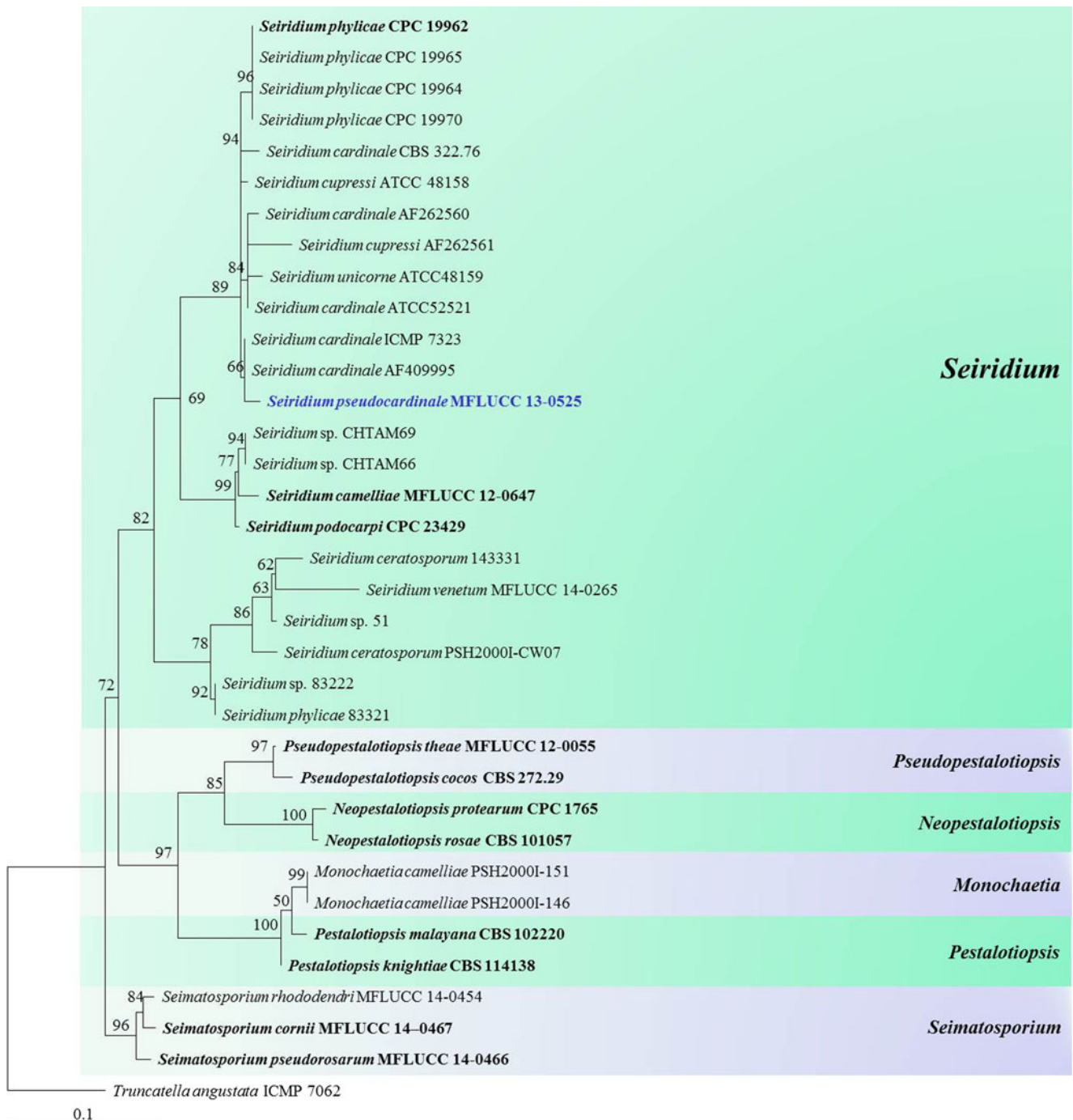


Fig. 241 RAxML tree generated from ITS sequences of *Seiridium* strains in GenBank. Maximum-likelihood bootstrap values above 50 % are given above the nodes. Newly generated strains are in blue and ex-

type strains are in bold. The scale bar represents the expected number of changes per site. The tree was rooted to *Truncatella angustata* (ICMP 7062)

sensu stricto (Fig. 241). Two *Seiridium* spp. have been reported on *Cupressus* spp. (Sutton 1980; Farr and Rossman 2016). Our collection is morphologically distinct from these two species and hence it is introduced as a new species. The key below distinguishes species described from *Cupressus* spp.

1. Conidial appendage longer than 5 μm ; conidia 24–30 \times 7.5–9.5 μm *S. unicorne*
 1. Conidial appendages shorter than 5 μm **2**
 2. Conidiophores up to 25 μm long \times 1.5–2 μm ; conidia 21–30 \times 8–9 μm , short basal appendage sometimes present *S. cardinale*
 2. Conidiophores 20–90 \times 1.5–2.5 μm ; conidia 17–33 \times 7–9 μm , with short apical appendage *S. pseudocardinale*

Septoriella Oudem., Ned. kruidk. Archf, 2 sér. 5: 52 (1889)
 = *Wojnowicia* Sacc., Syll. Fung. 10: 328 (1892)

Facesoffungi number: FoF 01698; Fig. 242

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, *Pleosporineae*, *Phaeosphaeriaceae*

Endophytic or *saprobic* on a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial or stromata, solitary, when pycnidial, immersed,

separate, globose, dark brown, subepidermal, unilocular or convoluted, ostiolate. *Ostiole* papillate, central, circular. *Conidiomata* wall composed of thick-walled, brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells, invested in mucus. *Conidiogenous cells* holoblastic, determinate, discrete, cylindrical but swollen at the base, hyaline, smooth, formed from the inner cells of the locular walls. *Conidia* clavate or cylindrical, apex obtuse, base truncate, pale brown, straight or bent somewhat irregularly, up to 8-septate, continuous, thin-walled, smooth, eguttulate or guttulate, with a gelatinous cap that may become partially everted (Sutton 1980; Nag Raj 1993; Lee and Crous 2003; Taylor and Hyde 2003; Crous et al. 2014b, 2015a).

Type species: Septoriella phragmitis Oudem., Ned. kruidk. Archf, 2 sér. 5: 54 (1889)

Notes: Oudemans (1889) introduced *Septoriella* with *S. phragmitis* as the type species. Sutton (1977) listed the synonyms and Sutton (1980) provided taxonomic notes. Nag Raj (1993) re-visited the genus and provided illustrations and descriptions for six species. Since Nag raj (1993), several species have been introduced by Sutton and Mel'nik (1999), Kohlmeyer and Volkmann-Kohlmeyer (2000), Lee and Crous (2003), Taylor and Hyde (2003), Andrianova and Minter (2007) and Crous et al. (2014b). In morphology, *Septoriella*

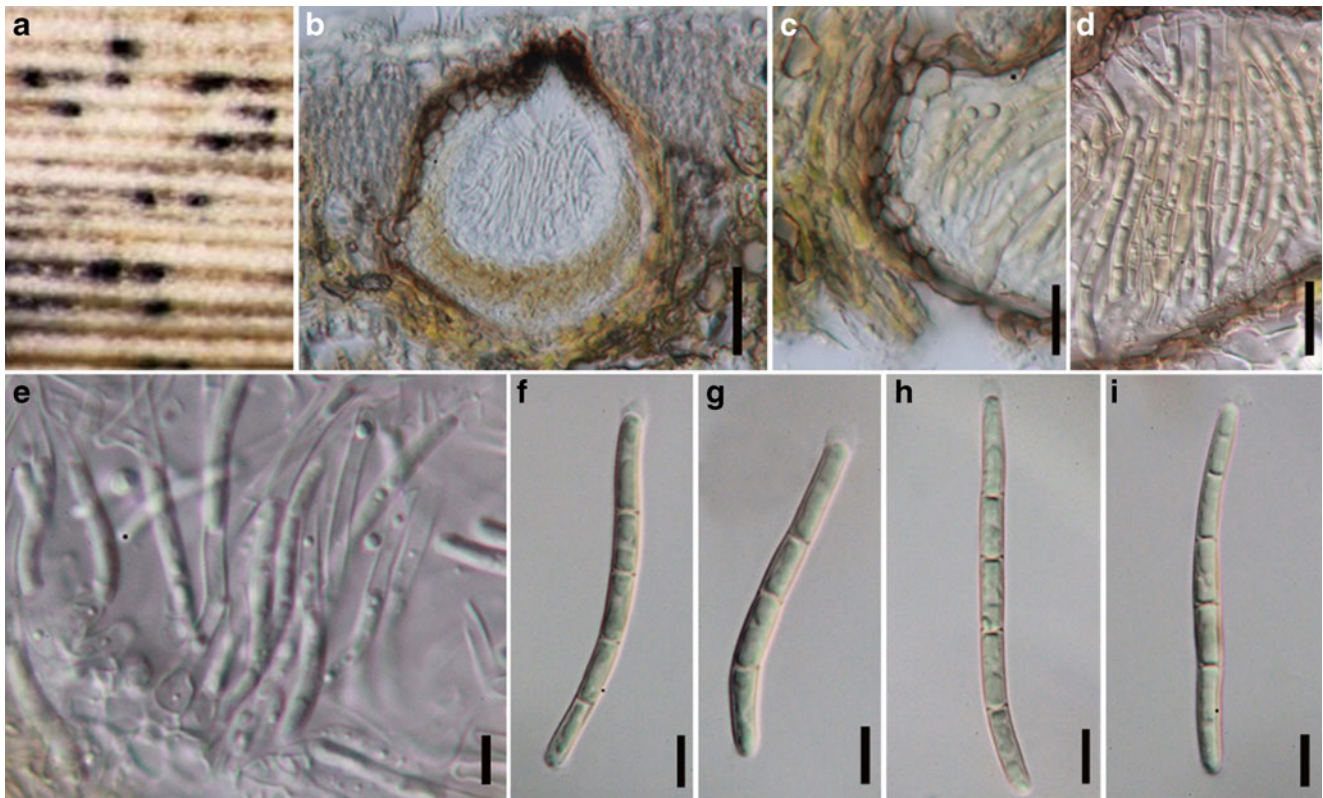


Fig. 242 *Septoriella allojunci* (Material examined: Italy, Forlì-Cesena [FC] Province, Galeata, Strada San Zeno, on dead stems of *Juncus* sp. (Juncaceae), 27 November 2012, E. Camporesi, MFLU 15–0701, holotype). **a** Conidiomata on host material. **b** Vertical section of

conidioma. **c** Conidiomata wall. **d, e** Conidia attach to conidiogenous cells. **f–i** Conidia. Scale bars: **b** = 200 μm , **c** = 100 μm , **d** = 20 μm , **e–i** = 10 μm

resembles with *Septoria* and *Stagonospora*, but both latter genera have hyaline conidia and are thus distinct from *Septoriella*. Crous et al. (2014b) provided LSU sequence data of *Septoriella oudemansii* P.W. Crous & W. Quaedvlieg.

Crous et al. (2015a) designated the ex-type cultures of *Septoriella phragmitis* and showed it resides in *Phaeosphaeriaceae* with several other *Septoriella* spp. and with the type species of *Wojnowicia*, *W. hirta* (CBS 536.77, 160.73). Hence, Crous et al. (2015a) reduced *Wojnowicia* under *Septoriella*.

Shawiella Hansf., Proc. Linn. Soc. N.S.W. 82: 226 (1957)

Facesoffungi number: FoF 01699

Ascomycota, genera incertae sedis

Endophytic or *saprobic* on leaf hairs of *Proteaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* infundibuliform, cupulate, superficial, separate, or gregarious, medium brown. *Conidiomata* wall

basal region composed of large, thin-walled cells of *textura angularis*, periclinal wall composed of olivaceous, rounded to angular, thin-walled cells. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, papilliform, discrete, determinate, pale brown, smooth. *Conidia* cylindrical to fusiform, attenuated towards the pale apex, base truncate, nidulant, at first strongly re-curved in the conidioma, later straight or curved at the apex, pale brown, 8–13-distoseptate, with reduced lumina (description modified from Sutton 1980).

Type species: Shawiella grevilleae Hansf., Proc. Linn. Soc. N.S.W. 82: 226 (1957)

Notes: Hansford (1957) introduced *Shawiella* based on *S. grevilleae* as the type species. Sutton (1980) accepted only one species and the genus remains monotypic. However, Sutton (1980) did not provide an illustration. Sequence data is unavailable thus taxonomic placement is uncertain. (We were not able to find illustration of this genus).

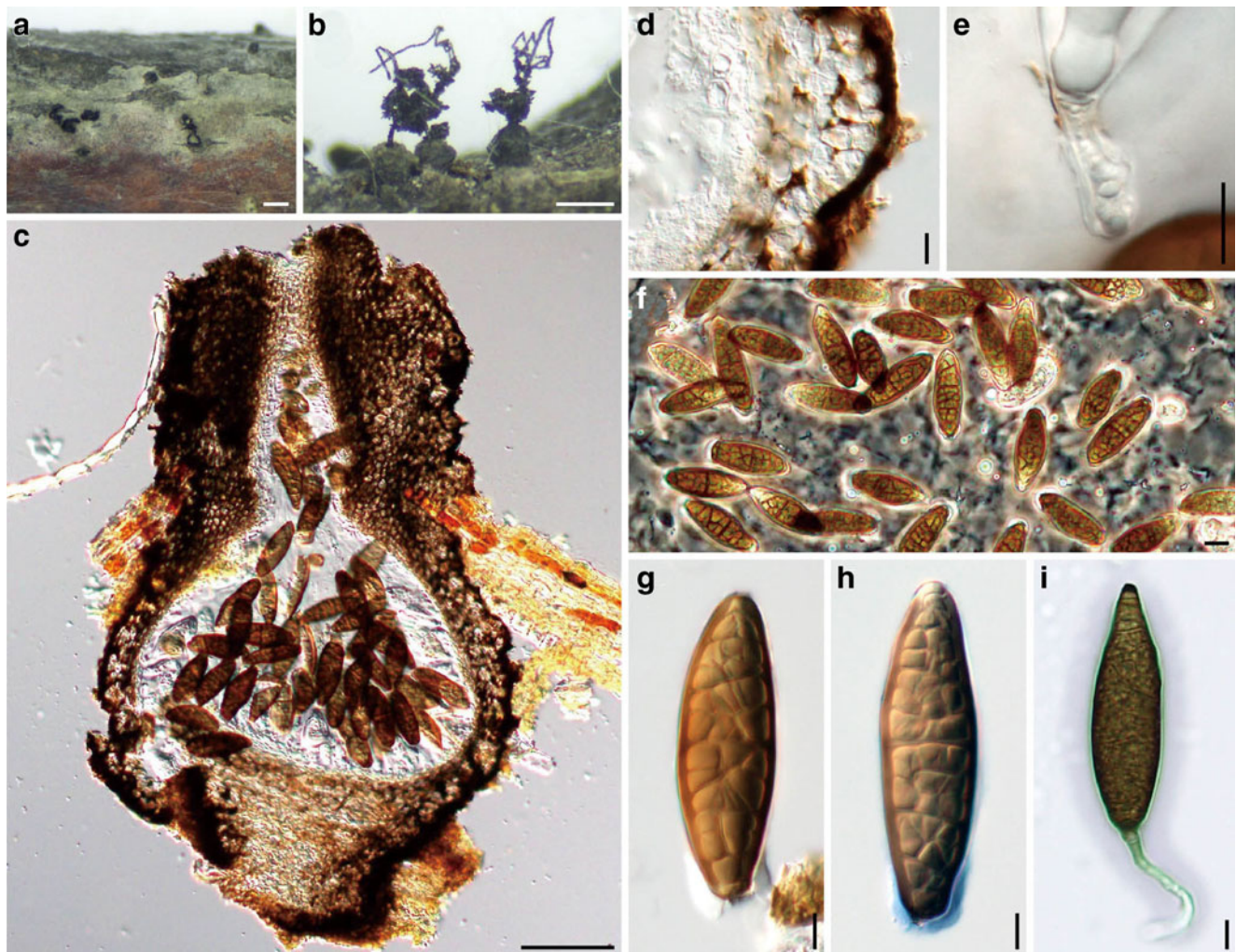
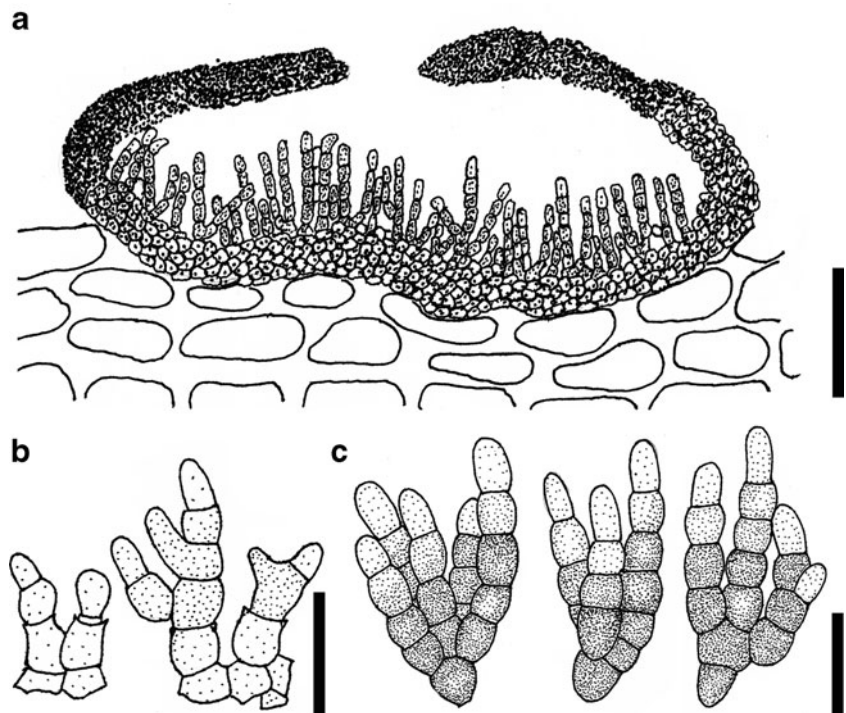


Fig. 243 *Shearia fusa* (Material examined: Japan, Aomori, Hirosaki, Hirosaki Univ., on twigs of *Magnolia praecoccissima* var. *borealis*, 13 April 2013, K. Tanaka, HHUF 30474). **a, b** Conidiomata on host. **c**

Vertical section of conidioma. **d** Conidioma wall. **e** Conidiogenous cell. **f–h** Conidia with a basal sheath (h in blue ink). **i** Germinating conidium. Scale bars: **a, b** = 500 μ m, **c** = 100 μ m, **f** = 20 μ m, **d, e, g–i** = 10 μ m

Fig. 244 *Sirothecium saepiarium*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 50 μm , **b**, **c** = 10 μm (re-drawn from Morgan-Jones et al. 1972d)



Shearia Petr., Anns mycol. 22(1/2): 180 (1924)
Facesoffungi number: FoF 01700; Fig. 243
 Dothideomycetes, Pleosporomycetidae, Pleosporales, genera incertae sedis

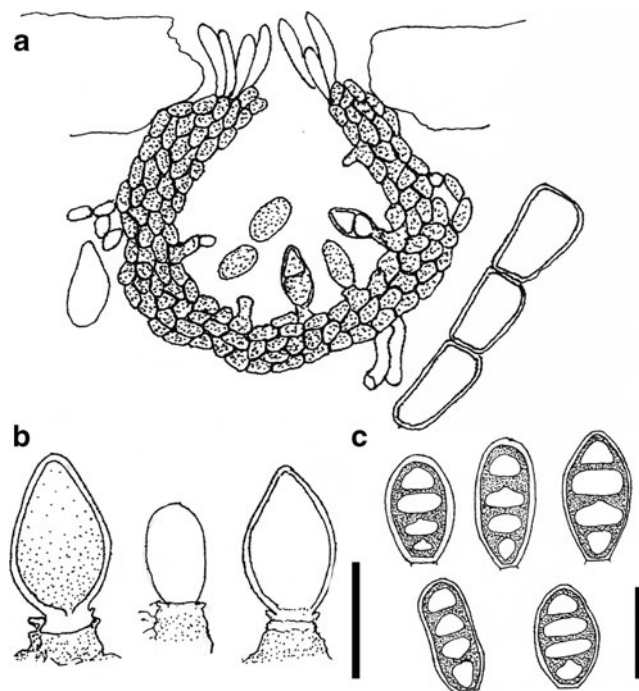


Fig. 245 *Sonderhenia eucalyptorum*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **b**, **c** = 10 μm (re-drawn from Swart and Walker 1988)

Endophytic or saprobic on various substrates of a range of host plants. **Sexual morph:** ?*Pleomassaria* fide Sutton (1980). **Asexual morph:** *Conidiomata* pseudostromatic, solitary to gregarious, immersed, peridermal to subperidermal, globose to conical, unilocular, dark brown, papillate ostiole, central, circular. *Conidiomata* wall outer layer composed of thick-walled, very dark brown occluded cells, lateral and basal walls composed of peridermal cells and thick-walled, brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, annellidic, ampulliform, doliiform or cylindrical, discrete, indeterminate, hyaline, often thick and smooth-walled. *Conidia* fusiform, base truncate, apex obtuse, with several transverse and lateral distosepta, continuous, smooth and thick-walled; initially enveloped in a gelatinous sheath, depressed at the apex, at maturity remaining as a basal lateral sheath (Petraik 1961; Sutton 1980; Barr 1982; Tanaka et al. 2005).

Type species: Shearia formosa (Ellis & Everh.) Petr., Sydowia 15(1–6): 216 (1962) [1961]

≡ *Stegonsporium formosa* Ellis & Everh., Bull. Torrey bot. Club 10(7): 76 (1883)

= *Shearia magnoliae* (Shear) Petr., Anns mycol. 22(1/2): 180 (1924)

Notes: Petraik (1924) introduced *Shearia* with *S. magnoliae* as the type species. However, Sutton (1980) treated *S. formosa* (≡ *Stegonsporium formosa*) as the type species and listed *Shearia magnoliae* as a synonym. Currently, four species epithets are listed in Index Fungorum (2016), but Sutton (1980) accepted only one species.

Following Shear (1902), Sutton (1980) stated that *Pleomassaria magnolia* Shear is the sexual morph of *Shearia formosa* based on co-occurrence of both states on same host material. This was accepted by Barr (1982) and Tubaki et al. (1983). Tanaka et al. (2005) reported *Pleomassaria maxima* Ellis & Everh. as the sexual morph of *S. fusa* (Berk. & M.A. Curtis) M.E. Barr based on cultural methods, however, *Pleomassaria sensu stricto* was linked with *Prosthemia sensu stricto* (Tanaka et al. 2010). The link between *Shearia sensu stricto* and *Pleomassaria sensu lato* is not confirmed by sequence data analyses. Further, taxonomic placement of *Shearia* is uncertain as sequence data is unavailable.

Sirothecium P. Karst., Meddn Soc. Fauna Flora fenn. 14: 105 (1887)

Facesoffungi number: FoF 01701; Fig. 244

Ascomycota, genera incertae sedis

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* eustromatic, solitary, rarely confluent, semi-immersed to superficial, flattened, oval to elongated, unilocular. *Conidiomata* wall thick-walled, base and sides walls composed of thick-walled, brown cells of *textura angularis*, becoming darker and sclerotoid in the upper wall. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, annellidic, discrete, indeterminate, hyaline to pale brown, smooth. *Conidia* cheiroid, apex obtuse, consisting of a basal cell from with 3 or more septate arms, slightly constricted at the septa, pale brown, smooth (Morgan-Jones et al. 1972d; Sutton 1980).



Fig. 246 *Spencermartinsia mangiferae* (Material examined: Iran, Hormozgan Province, Bandar Abbas (Hajiabad-Siaho), on twigs of *Mangifera indica*, March 2007, J. Abdollahzadeh and A. Javadi, IRAN

14266 F, holotype). **a, b** Conidiomata on host. **c–g** Different stages of conidiogenesis. **h–j** Conidia. Scale bars: **c** = 5 μ m, **d–g** = 12 μ m, **h–j** = 10 μ m

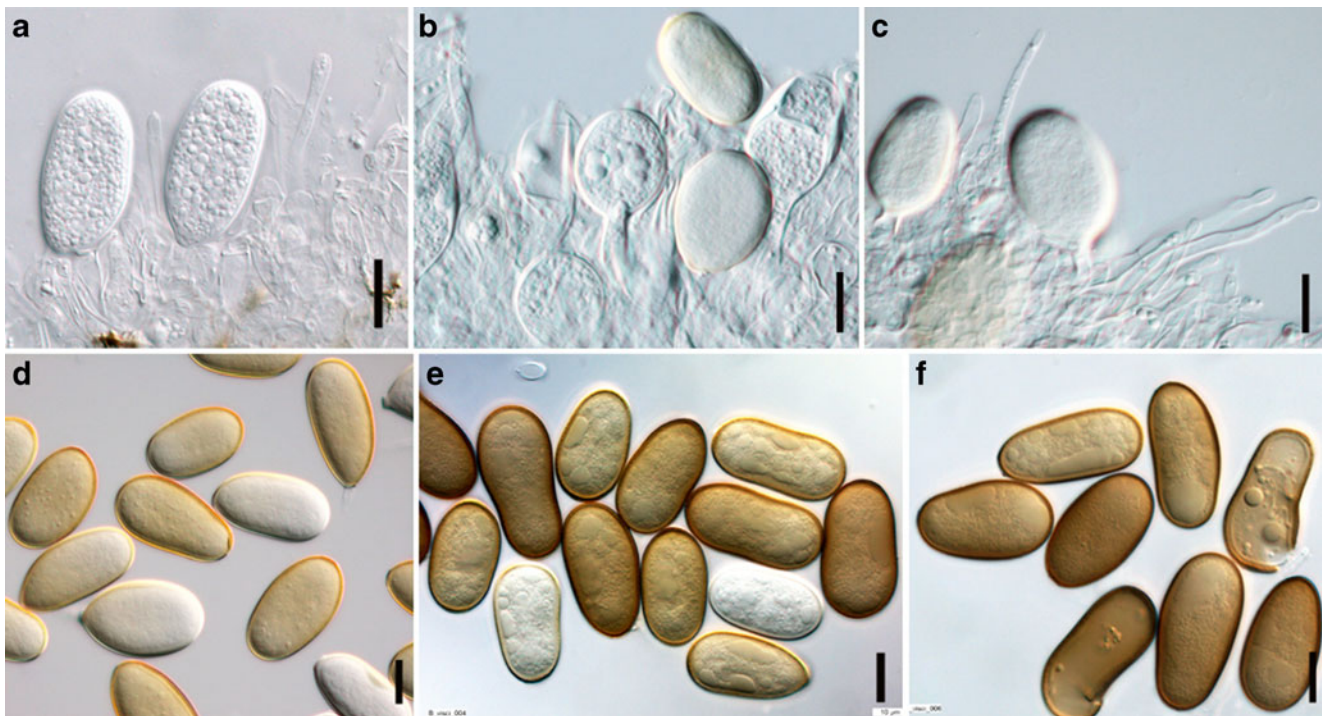


Fig. 247 *Sphaeropsis visci* (Material examined: Ukraine, National Nature Park ‘Svjatie Gory’, on *Viscum album*, 10 March 2007, Á. Akulov, MBT 176099, neotype). **a–c** Different stages of conidiogenesis

and paraphyses. **d–f** Conidia. **a–f** = 10 μm . (Reproduced from Phillips et al. 2013 in *Studies in Mycology* 76)

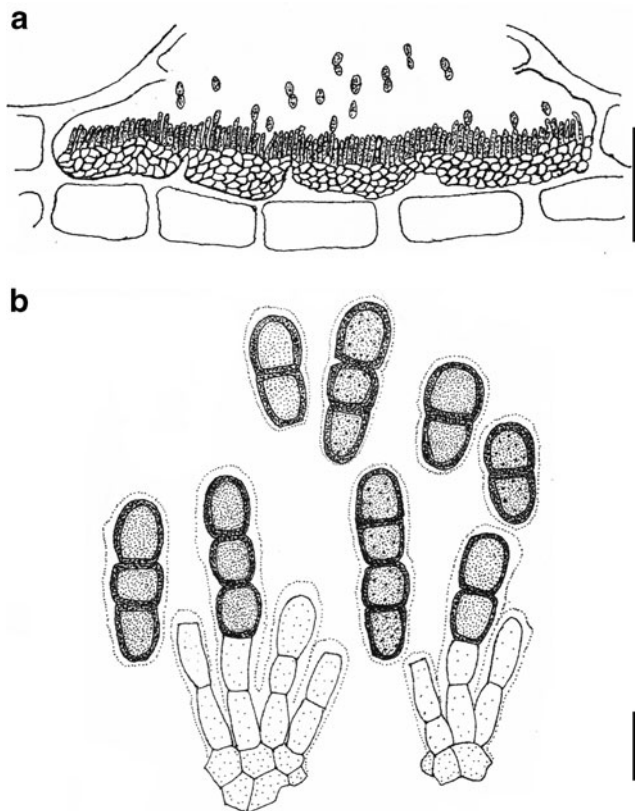


Fig. 248 *Staninwardia breviuscula*. **a** Vertical section of conidioma. **b, c** Different stages of conidiogenesis and conidia. Scale bars: **a** = 50 μm , **b, c** = 10 μm (re-drawn from Morgan-Jones 1977)

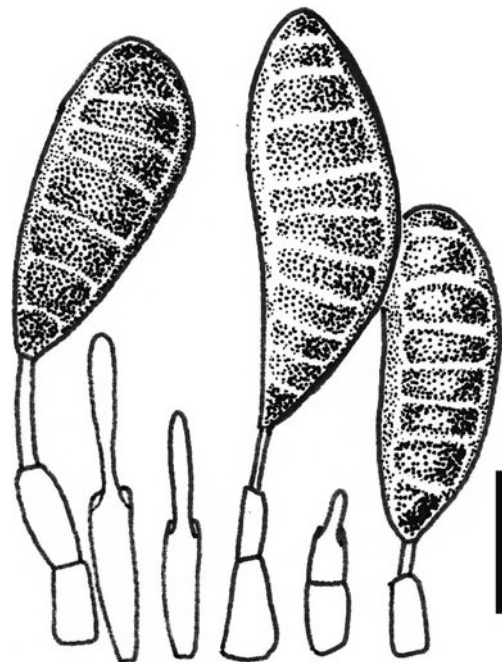


Fig. 249 Conidia and conidiogenous cells of *Stegonsporiopsis cenangioides*. Scale bar: 20 μm (re-drawn from Warmelo and Sutton 1981)

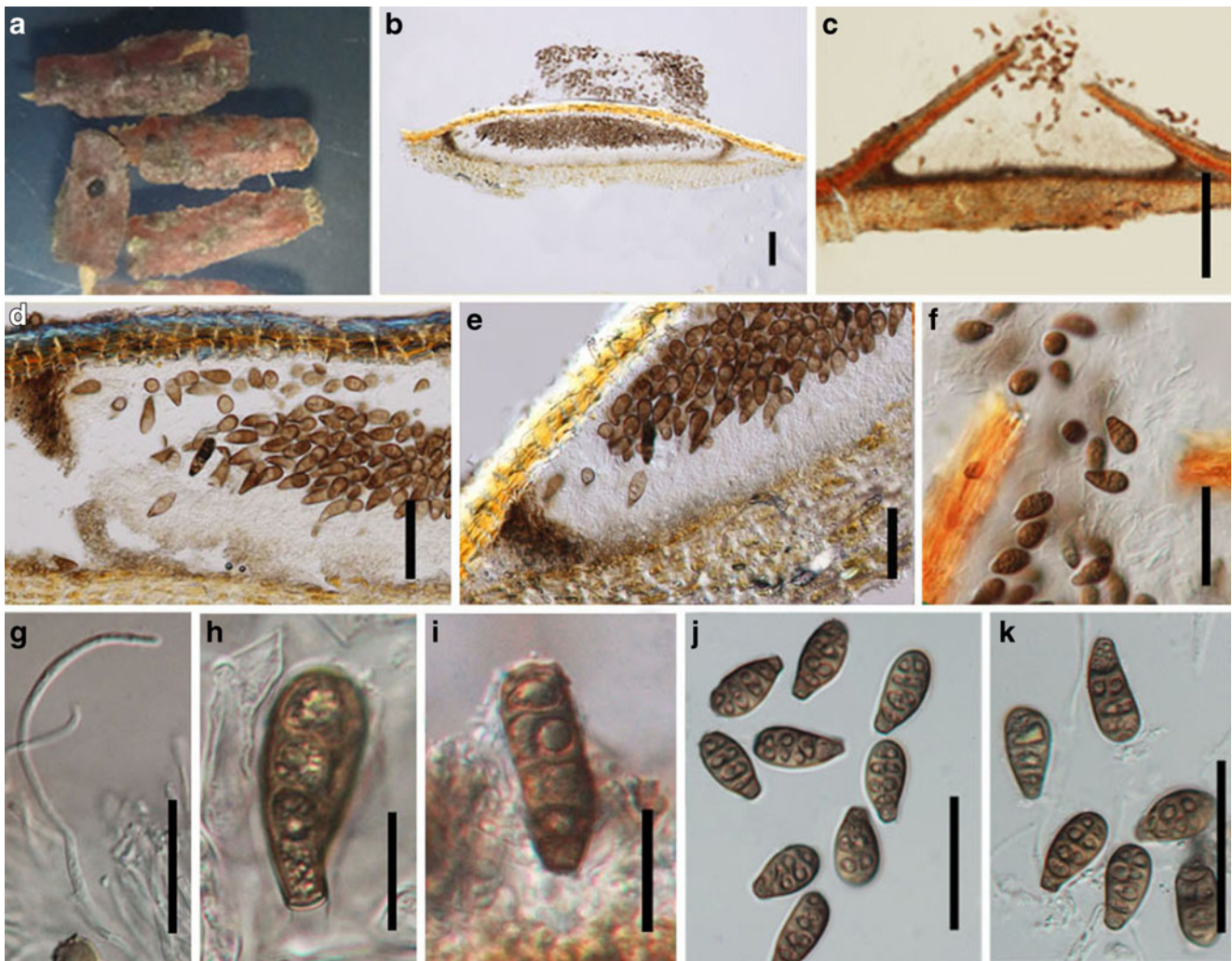


Fig. 250 *Stegосporium pyriforme* (Material examined: Italy, Forlì-Cesena [FC] Province, San Agostino - Santa Sofia, on dead bark of *Acer pseudoplatanus*, 27 July 2012, E. Camporesi, MFLU 15-3459=HKAS92544). **a** Conidiomata on the host material. **b–e** Vertical

sections of conidiomata. **f** Conidia released from ostiole. **g** Paraphyses. **h–i** Developing conidia attach to conidiophores. **j, k** Conidia. Scale bars: **b, c** = 300 μ m, **d, e** = 100 μ m, **f, j–k** = 45 μ m, **g** = 50 μ m, **h–i** = 15 μ m

Type species: Sirothecium saepiarium P. Karst. [as ‘sepiarium’], Meddn Soc. Fauna Flora fenn. 14: 105 (1887); Fig. 244

Notes: Karsten (1887) introduced *Sirothecium* with *S. saepiarium* as the type species. Morgan-Jones et al. (1972d) re-described and illustrated the type species. Sutton (1977, 1980) accepted only one other species, *S. minor* B. Sutton. Hu et al. (2007) introduced a third species, *S. triseriale* D.M. Hu et al. Sequence data is unavailable, thus taxonomic placement is uncertain.

Sonderhenia H.J. Swart & J. Walker, Trans. Br. mycol. Soc. 90(4): 640 (1988)

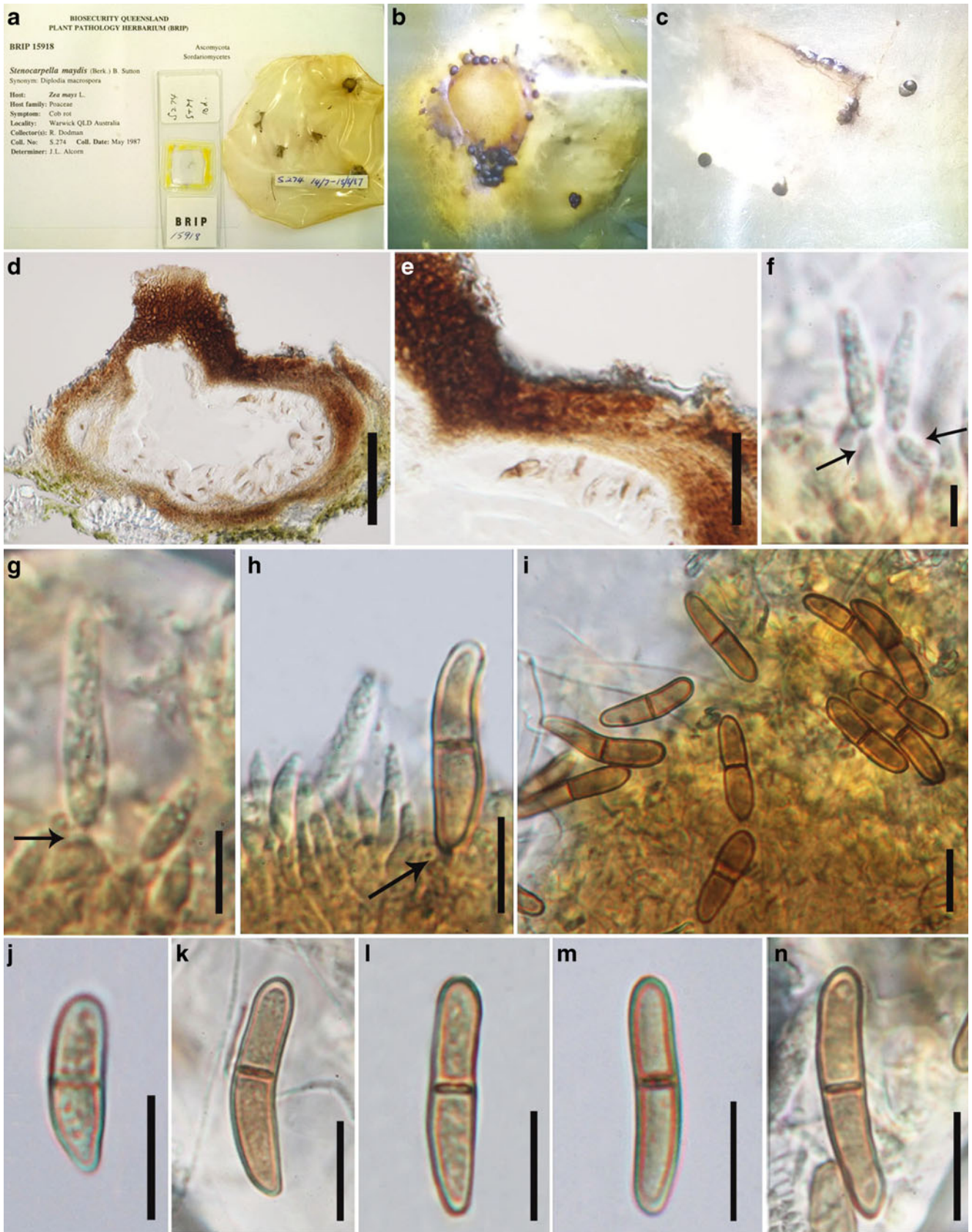
Facesoffungi number: FoF 01702; Fig. 245

Dothideomycetes, Dothideomycetidae, Capnodiales, Mycosphaerellaceae

Endophytic or saprobic or associated with leaf spots on different substrates of a range of host plants. Sexual morph:

mycosphaerella-like fide Crous et al. (2012a). **Asexual morph:** *Conidiomata* pycnidial, amphigenous, subepidermal, globose, substomatal, black, ostiolate. *Conidiomata wall* composed of dark brown isodiametric cells. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, percurrently proliferating with thin annellations, brown. *Conidia* ellipsoid to cylindrical or ovoid, straight or bent, with rounded apex, truncate at base, distoseptate, dark brown, verruculose, with a marginal frill at truncate base (Swart and

Fig. 251 *Stenocarpella maydis* (Material examined: Australia, Queensland, Warwick,, pathogenic on *Zea mays* (Cob rot), May 1987, R. Dodman, BRIP 15918). **a** Label of herbarium material. **b, c** Conidiomata on culture. **d** Vertical section of conidiomata. **e** Conidiomata wall. **f–h** Different stages of conidiogenesis. **i–n** Conidia. **d, e** = 150 μ m, **f** = 50 μ m, **f–n** = 12 μ m



Walker 1988; Crous et al. 2001, 2012a; Summerell et al. 2006).

Type species: Sonderhenia eucalyptorum (Hansf.) H.J. Swart & J. Walker, Trans. Br. mycol. Soc. 90(4): 640 (1988); Fig. 245

≡ *Hendersonia eucalyptorum* Hansf., Proc. Linn. Soc. N.S.W. 79(3–4): 135 (1954)

Notes: Swart and Walker (1988) introduced *Sonderhenia* to accommodate *Hendersonia eucalyptorum* and *H. eucalypticola* A.R. Davis. The genus *Hendersonia* was treated as doubtful by Sutton (1977, 1980). Kirk et al. (2008, 2013) also did not recognize *Sonderhenia* as a valid name. In some morphological characters, *Sonderhenia* resembles *Macrodiplodiopsis* and *Stilbospora* as they also have ‘cylindrical, fusiform, distoseptate conidia’. However, *Macrodiplodiopsis* has a conspicuous gelatinous sheath around the conidium and *Stilbospora* has paraphyses in the conidioma and thus *Sonderhenia* can easily be distinguished.

Hunter et al. (2006) and Crous et al. (2012a) showed that *Sonderhenia sensu stricto* belongs to *Mycosphaerellaceae* and our phylogenetic analyses also agree with their findings (Fig. 11).

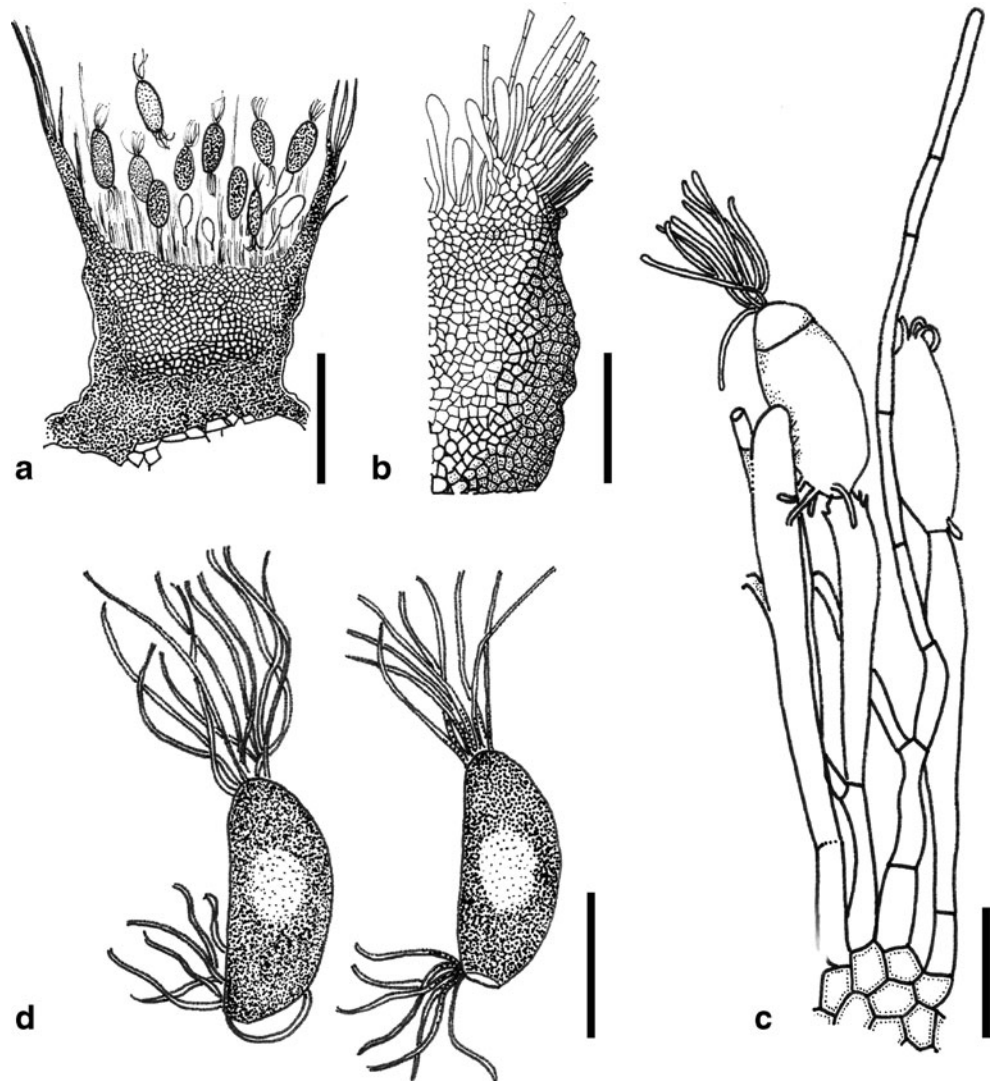
Spencermartinsia A.J.L. Phillips et al., Persoonia 21: 51 (2008)

Facesoffungi number: FoF 01703; Fig. 246

Dothideomycetes, order incertae sedis, *Botryosphaerales*, *Botryosphaeriaceae*

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** see Phillips et al. (2013). **Asexual morph:** *Conidiomata* pycnidial, stromatic, immersed, partially erumpent at maturity, solitary to gregarious, spherical to globose, ostiolate. *Ostiole* single, circular, central, papillate. *Conidiomata wall* outer layer composed of thick-walled, dark brown cells of *textura angularis*; a median layer composed of thin-walled, dark brown cells of *textura angularis*; an inner

Fig. 252 *Stevensonula ciliata*. **a** Vertical section of conidioma. **b** Conidioma wall. **c** Different stage of conidiogenesis. **d** Conidia. Scale bars: **a** = 100 μ m, **b** = 50 μ m, **c**, **d** = 20 μ m (re-drawn from Nag Raj 1993)



layer composed of thin-walled, hyaline cells. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, proliferating at same level to form periclinal thickenings or rarely proliferating percurrently, cylindrical to broad lageniform, indeterminate, discrete or integrated, hyaline, smooth. *Conidia* oblong to subcylindrical, apical end rounded, with a truncate base, 1-septate, continuous or occasionally slightly constricted at septum, brown, moderately thick-walled, externally smooth, internally finely verruculose (Phillips et al. 2008, 2013).

Type species: Spencermartinsia viticola (A.J.L. Phillips & J. Luque) A.J.L. Phillips et al., *Persoonia* 21: 51 (2008)

≡ *Botryosphaeria viticola* A.J.L. Phillips & J. Luque, *Mycologia* 97(5): 1118 (2006) [2005]

Notes: Phillips et al. (2008) introduced *Spencermartinsia* to accommodate *Botryosphaeria viticola* which has dothiorella-like asexual morphs. Phillips et al. (2013) maintained the genus as monotypic although several strains grouped in the *Spencermartinsia* clade. Further, Phillips et al. (2013) mentioned that the asexual morph is common in nature compared to sexual morph.

In conidial morphology, *Spencermartinsia* resembles *Dothiorella*, as ‘conidia become brown and 1-septate while attached to the conidiogenous cells before dehiscence’ (Phillips et al. 2013). However, *Spencermartinsia* has ascospores with a conspicuous apiculus, while ascospores of *Dothiorella* lack an apiculus (Phillips et al. 2013). Phylogenetically, *Dothiorella* and *Spencermartinsia* show distinct lineages in *Botryosphaeriaceae* (Phillips et al. 2008, 2013; Liu et al. 2012; Fig. 9 and 10), thus it is more reliable to rely on sequences data to distinguish both genera.

Sphaeropsis Sacc., *Michelia* 2(no. 6): 105 (1880)

= *Phaeobotryosphaeria* Speg., *Anal. Mus. nac. B. Aires*, Ser. 3 17(10): 120 (1908)

Facesoffungi number: FoF 01704; Fig. 247

Dothideomycetes, order *incertae sedis*, *Botryosphaeriales*, *Botryosphaeriaceae*

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** see Phillips et al. (2013). **Asexual morph:** *Conidiomata* pycnidial, immersed, immersed to superficial, erumpent, solitary to gregarious, globose, dark brown, unilocular, ostiolate. *Ostiole* papillate, single, central. *Conidiomata* wall composed of thick-walled, dark brown cells of *textura angularis*. *Paraphyses* hyaline, aseptate, thin-walled. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, long lageniform, discrete, determinate or indeterminate, hyaline, smooth-walled. *Conidia* oval, oblong or clavate, straight, aseptate, moderately thick-walled (Sutton 1980; Phillips et al. 2008, 2013).

Type species: Sphaeropsis visci (Alb. & Schwein.) Sacc., *Michelia* 2(no. 6): 105 (1880)

= *Botryosphaerostroma visci* (Alb. & Schwein.) Petr., *Beih. Rep. spec. nov. regn. veg.* 42: 127. 1926.

See Phillips et al. (2013) for synonyms

Notes: Saccardo (1880) introduced *Sphaeropsis* with *S. visci* as the type species. More than 600 names are listed in *Index Fungorum* (2016), but most are based on host association (Phillips et al. 2013). Phillips et al. (2008) showed that the cultures of *Phaeobotryosphaeria visci*, produce *Sphaeropsis visci* asexual morphs. Moreover, Phillips et al. (2008, 2013) showed *Sphaeropsis* and *Phaeobotryosphaeria* clustered in *Botryosphaeriaceae* in a monophyletic clade in their phylogenetic analyses. Thus, Phillips et al. (2013) accepted that *Phaeobotryosphaeria* represents sexual morph of *Sphaeropsis*. Phillips et al. (2013) proposed to adopt older asexual name, *Sphaeropsis*, over the younger sexual typified name.

Our phylogenetic analyses also agree with results in Phillips et al. (2013) (Fig. 10).

Key to distinguish *Avetetaea*, *Aplosporella* and *Sphaeropsis*

1. Conidia enclosed by mucilaginous sheath*Avetetaea*
1. Conidia without mucilaginous sheath2
2. Conidia with smooth-walled*Sphaeropsis*
2. Conidia with spinulose-walled*Aplosporella*

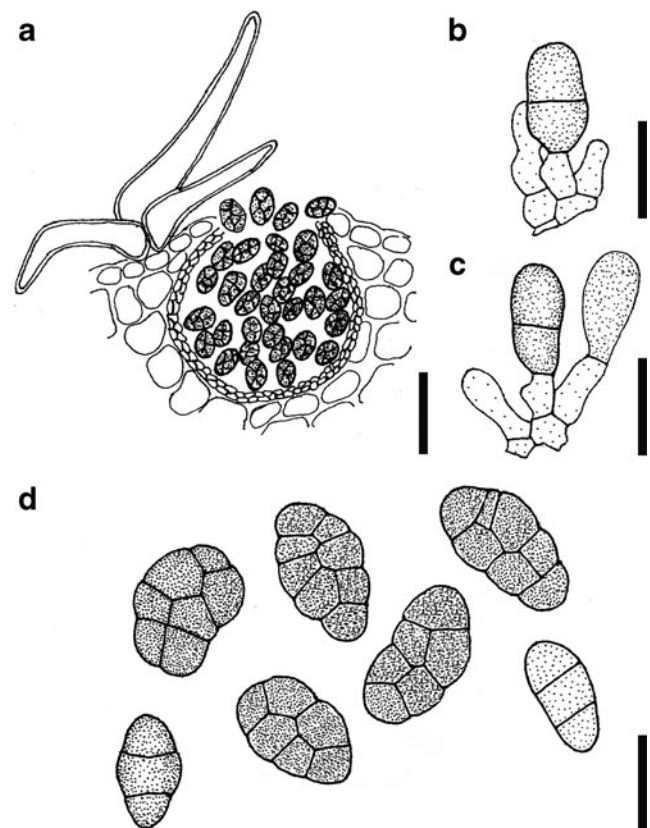


Fig. 253 *Stigmella effigurata*. **a** Vertical section of conidioma. **b, c** Different stages of conidiogenesis. **d** Conidia. Scale bars: **a** = 50 μ m, **b, c** = 10 μ m (re-drawn from Morgan-Jones et al. 1972c)

Staninwardia B. Sutton, Transactions of the British Mycological Society 57: 540 (1971)

Facesoffungi number: FoF 01705; Fig. 248

Dothideomycetes, *Dothideomycetidae*, *Capnodiales*, *Extremaceae*

Pathogenic or associated with leaf spots on *Myrtaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* acervuli, epidermal, solitary, black. *Conidiomata* wall composed of pale smooth-walled, brown cells of *textura angularis*. *Conidiophores* hyaline to pale brown, cylindrical, densely aggregated, unbranched or branched below, covered in mucous, 0–2-septate, smooth or

verrucose. *Conidiogenous* cells percurrently proliferating or holothallic, arthric, integrated, terminal, indeterminate, hyaline, smooth or verruculose, covered in mucus. *Conidia* fusoid-ellipsoidal with rounded apex and truncate base, aggregated in mucus, pale brown to brown, verruculose, predominantly 1-septate, constricted, thick walled, formed in short 'conidial chains (Sutton 1971b, 1980; Morgan-Jones 1977; Summerell et al. 2006).

Type species: *Staninwardia breviuscula* B. Sutton, Trans. Br. mycol. Soc. 57(3): 541 (1971); Fig. 248

Notes: Sutton (1971b) established *Staninwardia* with *S. breviuscula* as the type species. Sutton (1980) accepted only

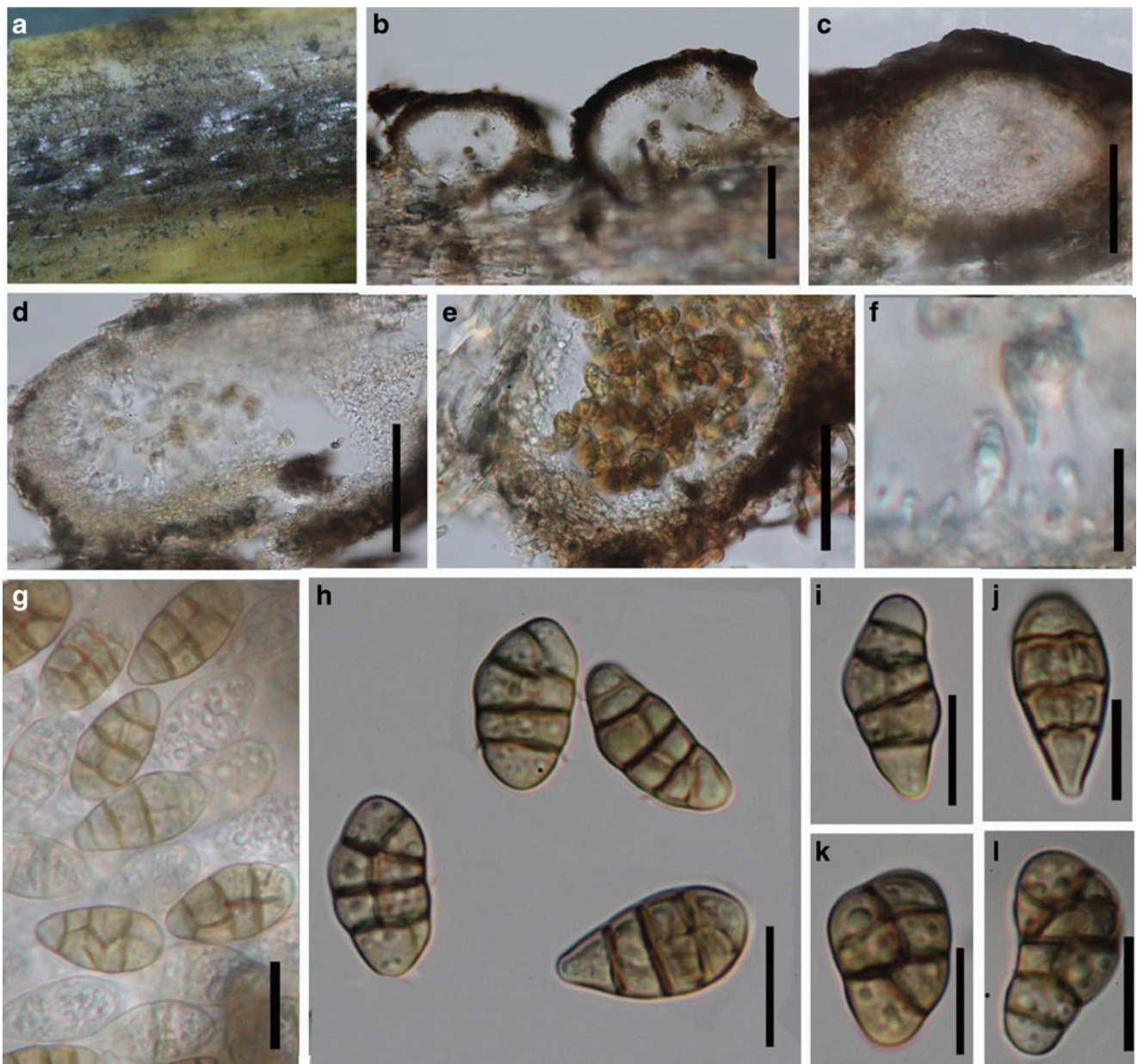


Fig. 254 *Stigmella* sp. (Material examined: Italy, Forli-Cesena [FC] Province, Monte Pallareto - Meldola, on stem of *Arundo plinii*, 15 December 2012, E. Camporesi, MFLU 16-0521). **a** Conidiomata on

host material. **b, c** Vertical sections of conidiomata. **d, e** Conidiomata walls. **f** Different stages of conidiogenesis. **g-l** Conidia. Scale bars: **b–e** = 50 μm , **f–l** = 10 μm

the type species in the genus, while Summerell et al. (2006) introduced a second species *Staninwardia suttonii* Crous & Summerell. Egidi et al. (2014) showed *S. suttonii* to belong in *Capnodiales*, and Quaedvlieg et al. (2014) placed *S. suttonii* in the new family *Extremaceae* Quaedvlieg & Crous. Wijayawardene et al. (2014c) also recognized *Staninwardia* as a genus in *Extremaceae*. Our phylogenetic analyses agree with findings in Quaedvlieg et al. (2014) and Wijayawardene et al. (2014c) (Fig. 11).

Stegonsporiopsis Van Warmelo & B. Sutton, Mycol. Pap. 145: 17 (1981)

Facesoffungi number: FoF 01706; Fig. 249

Ascomycota, genera incertae sedis

Endophytic or saprobic on Pinaceae (Gymnosperm).

Sexual morph: Undetermined. **Asexual morph:**

Conidiomata stromatic, solitary or gregarious, immersed, erumpent at maturity, solitary, pulvinate to globose, unilocular, black. *Conidiomata wall* formed of brown-walled cells of *textura angularis*. *Conidiophores* cylindrical, unbranched, septate, hyaline, smooth, restricted to the base of the conidioma. *Conidiogenous cells* holoblastic to phialidic, with a wide channel, minute collarette and periclinal thickening, cylindrical, integrated, hyaline. *Conidia* fusiform, with several transverse and longitudinal distosepta, continuous, brown, smooth-walled (description modified from Warmelo and Sutton 1981).

Type species: *Stegonsporiopsis cenangioides* (Ellis & Rothr.) Van Warmelo & B. Sutton 1981; Fig. 249

≡ *Stegosporium cenangioides* Ellis & Rothr., J. Mycol. 1(7): 93 (1885)

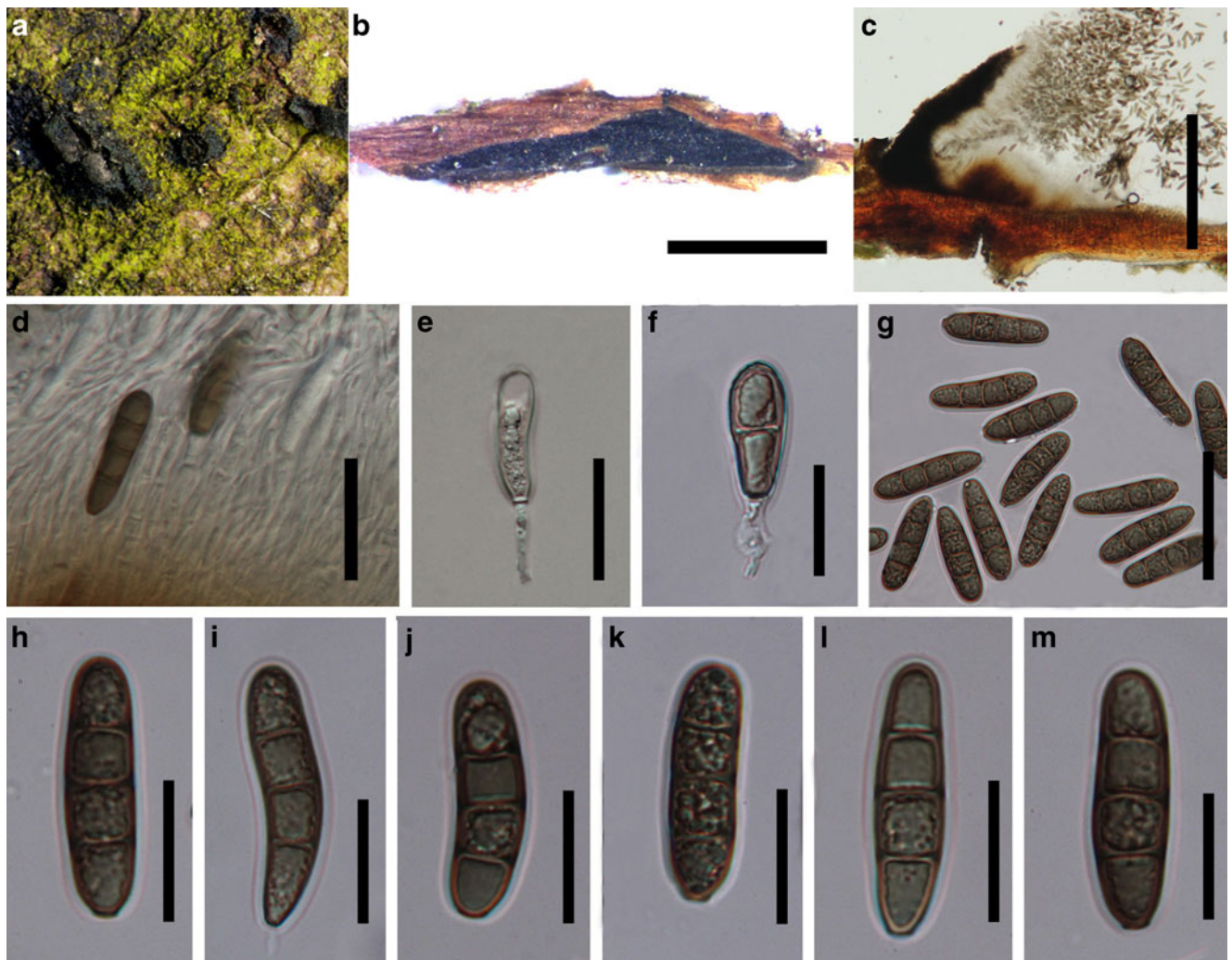


Fig. 255 *Stilbospora macrosperma* (Material examined: Germany, floodplain (Alno-Ulmion), on stem of *Carpinus betulus*, 11 August 2013, René K. Schumacher, MFLU 15-3553). **a** Conidiomata on stem of *Carpinus betulus*. **b, c** Vertical sections of conidiomata. **d** Conidia

attach to conidiophores and paraphyses. **e, f** Conidia attached to conidiophores. **g–m** Conidia. Scale bars: **b, c** = 500 μ m, **d–g** = 30 μ m, **h–m** = 20 μ m

Notes: Warmelo and Sutton (1981) introduced *Stegonsporiopsis* to accommodate *Stegonsporium cenangioides*. In morphology, *Stegonsporiopsis* resembles *Stegonsporium* but former has phialidic conidiogenesis. Sequence data is unavailable thus taxonomic placement is uncertain.

Stegonsporium Corda, Naturalientausch 11: 458 (1827)

Facesoffungi number: FoF 01707; Fig. 250

Sordariomycetes, *Sordariomycetidae*, *Diaporthales*, *Stilbosporaceae*

Saprobic, *opportunistic*, moderately *phytopathogenic*.

Sexual morph: *Prosthecium sensu lato* fide Voglmayr and Jaklitsch (2008, 2014). **Asexual morph:** *Conidiomata* acervular, solitary or gregarious, immersed, dark brown to black, corticolous. *Conidiomata* wall formed of hyaline to pale brown-walled cells of *textura angularis*. *Paraphyses* filiform, septate, hyaline, flexuous. *Conidiophores* cylindrical, septate and branched only towards the base, hyaline, smooth, formed from the upper cells of the conidioma. *Conidiogenous cells* holoblastic to annellidic, with up to 3 percurrent proliferations, integrated or discrete, hyaline. *Conidia* obovoid to clavate, with several transverse and longitudinal distosepta,

cell lumina reduced, brown, smooth, obtuse at the apex, truncate at the base (Sutton 1980; Warmelo and Sutton 1981; Voglmayr and Jaklitsch 2008, 2014).

Type species: *Stegonsporium pyriforme* (Hoffm.) Corda, Icon. fung. (Prague) 3: 23 (1839); Fig. 250

Notes: Opiz (1827) introduced *Stegonsporium* with *S. pyriforme* as the type species. Sutton (1975a, 1980) and Warmelo and Sutton (1981) re-visited the genus and compared it with other related genera. Voglmayr and Jaklitsch (2008, 2014) comprehensively addressed the genus with both morphology and molecular analyses. *Stegonsporium* is similar to *Myxocyclus* in conidial morphology. However, spores of *Myxocyclus* are often enclosed in a gelatinous sheath, a feature that is lacking in *Stegonsporium*.

Voglmayr and Jaklitsch (2008, 2014) accepted that *Stegonsporium* had prosthecium-like sexual morphs. Several *Prosthecium* species grouped with *Stegonsporium sensu stricto* and these were transferred to *Stegonsporium* as new combinations (Voglmayr and Jaklitsch 2014). Moreover, Voglmayr and Jaklitsch (2014) showed *Stegonsporium* groups as a distinct clade in *Stilbosporaceae*, *Diaporthales* and this agrees with our phylogenetic analyses (Fig. 12).

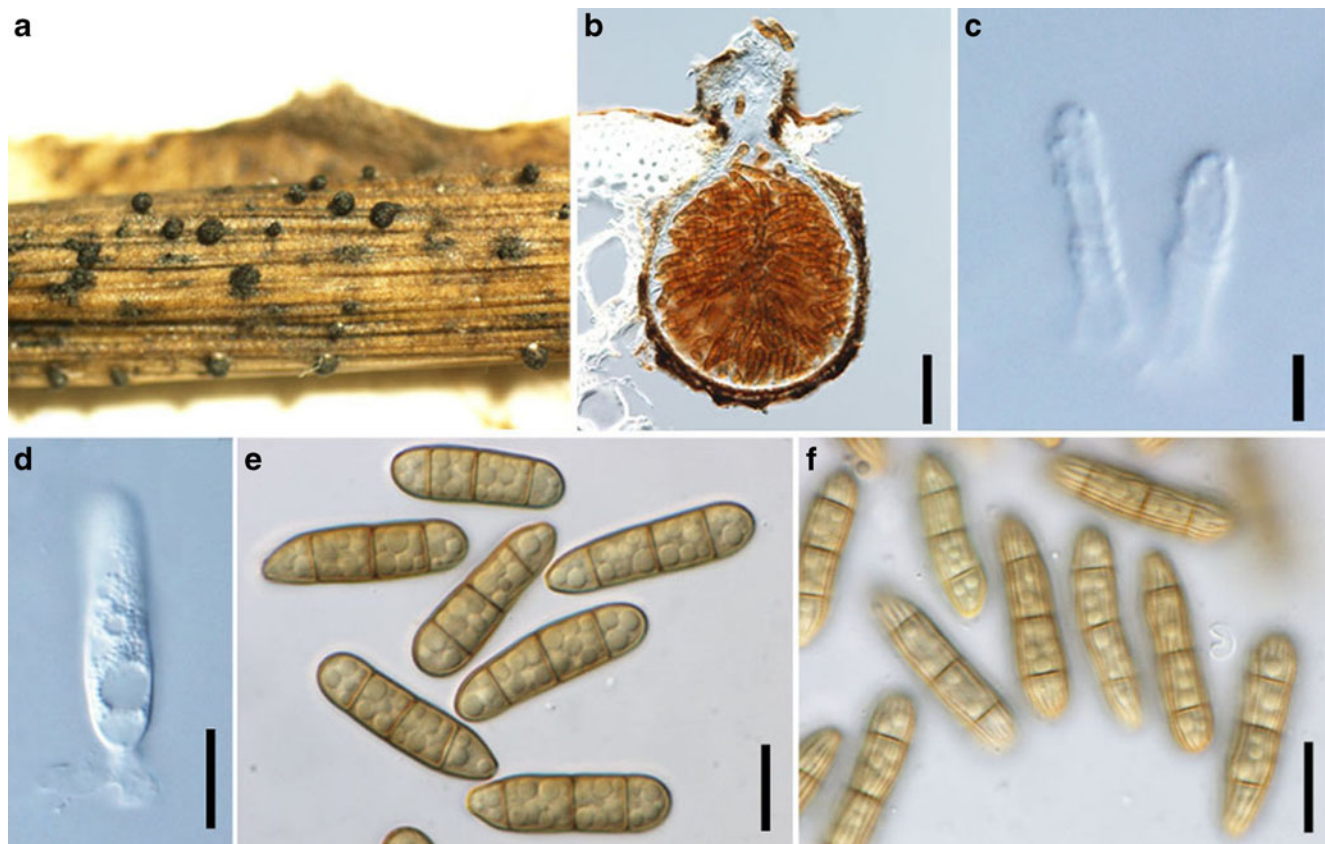


Fig. 256 *Sulcatispora acerina* (Material examined: Japan, Fukuoka, Kasuya, Hisayama, Yamada, Mt. Tachibanayama, on dead twigs of *Acer palmatum*, 31 March 2012, K. Tanaka, HHUF 30449, holotype). **a**

Conidiomata on host material. **b** Vertical section of conidioma. **c** Conidiogenous cells with annellations. **d** Conidia attach to conidiogenous cells. **e, f** Conidia. Scale bars: **b** = 20 μ m, **e–f** = 10 μ m

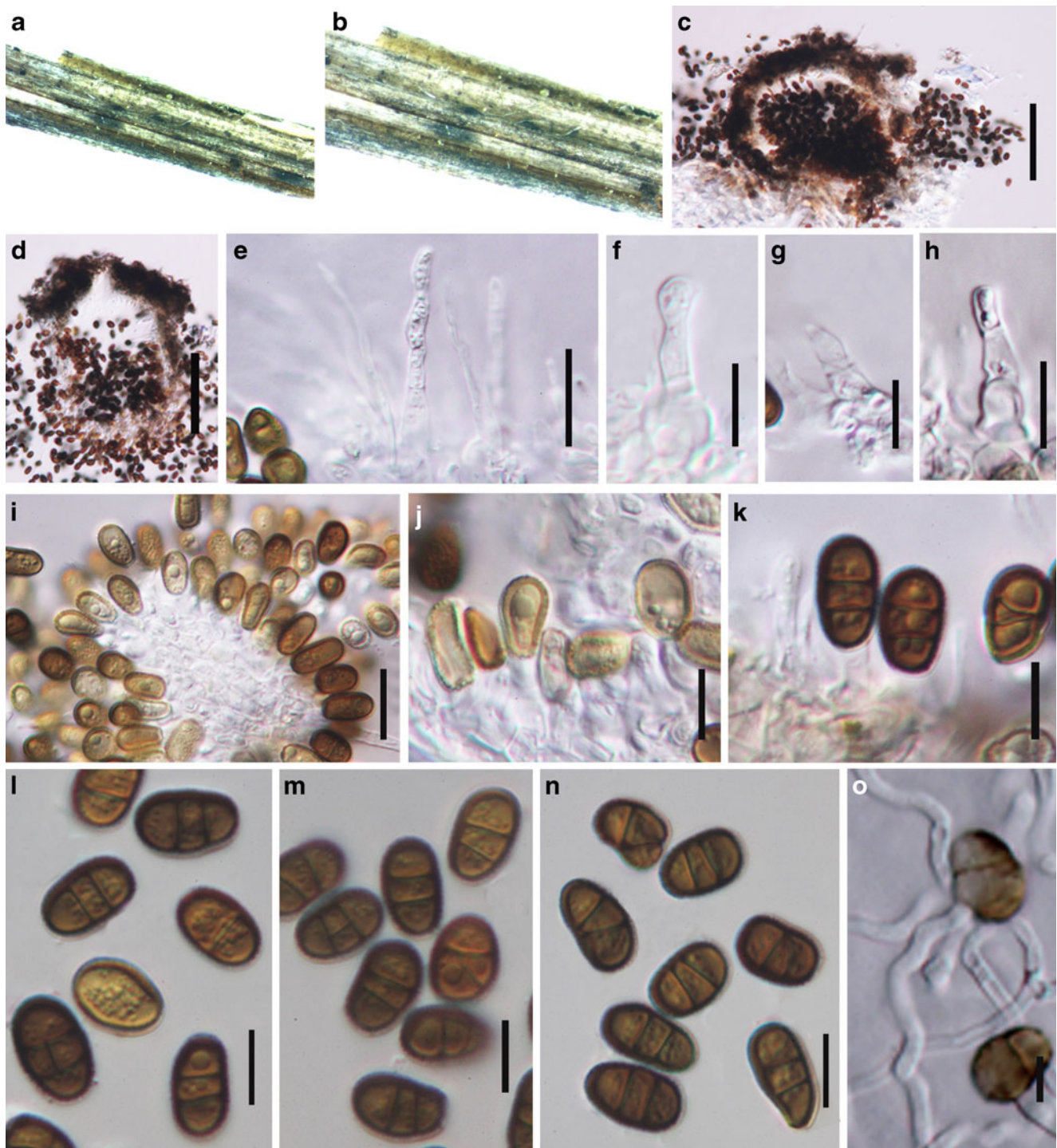


Fig. 257 *Suttonomyces clematidis* (Material examined: Italy, Forlì-Cesena [FC] Province, Acquapartita - Bagno di Romagna, on twigs of *Clematis vitalba*, 6 December 2013, E. Camporesi, MFLU 15-0166, holotype). **a, b** Conidiomata on host. **c, d** Vertical sections of

conidiomata. **e** Paraphyses. **f–h** Developing conidia. **i–k** Mature conidia attached to conidiogenous cells. **l–n** Conidia. **o** Germinating conidia. Scale bars: **c, d** = 250 μm , **e** = 40 μm , **f–n** = 20 μm (from Wijayawardene et al. 2015)

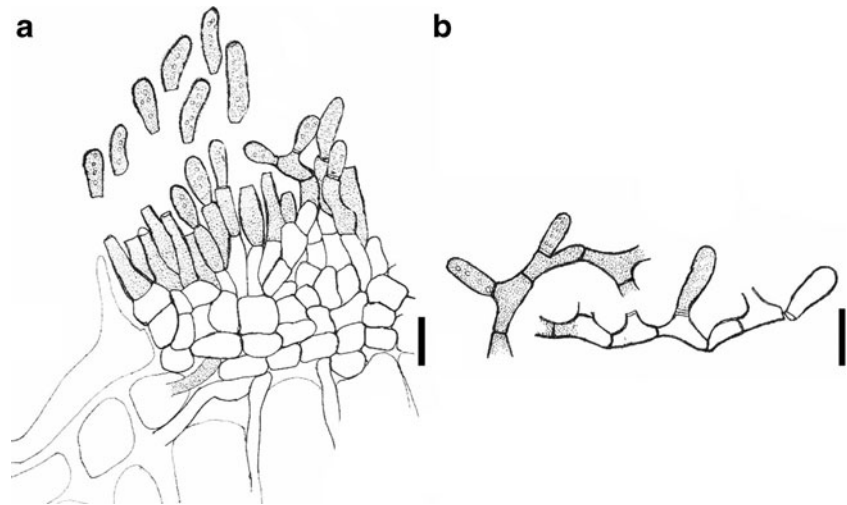
Stenocarpella Syd. & P. Syd., Anns mycol. 15(3/4): 258 (1917)

Facesoffungi number: FoF 01708; Fig. 251

Sordariomycetes, *Sordariomycetidae*, *Diaporthales*, *Diaporthaceae*

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, solitary, or occasionally confluent, subepidermal, unilocular, globose or elongated, dark brown, ostiolate. *Ostiole* papillate, single, circular. *Conidiomata* wall

Fig. 258 *Colletogloeopsis nubilosum*. **a** Vertical section of conidioma. **b** Mycelia producing conidia. Scale bars: **a**, **b** = 10 μm (re-drawn from Crous and Wingfield 1997)



composed of thick-walled, dark brown cells of *textura angularis*. *Conidiophores* usually reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, cylindrical, determinate, discrete, collarette and channel minute, periclinal wall thickened. *Conidia* cylindrical, fusiform, straight or curved, apex obtuse, base tapered and truncate, pale brown, 0–3-septate, continuous or constricted, thick and smooth-walled, eguttulate (Sutton 1980; Lamprecht et al. 2011).

Type species: Stenocarpella macrospora (Earle) B. Sutton, Mycol. Pap. 141: 202 (1977)

≡ *Diplodia macrospora* Earle, Bull. Torrey bot. Club 24: 29 (1897)

= *Stenocarpella zaeae* Syd. & P. Syd., Annls mycol. 15(3/4): 258 (1917)

Notes: Sydow and Sydow (1917) established *Stenocarpella* based on *S. zaeae* as the type species. However, Sutton (1977)

Fig. 259 *Tiarospora perforans*. **a** Vertical section of conidioma. **b** Microconidiogenous cells and microconidia **c** Different stages of conidiogenesis of macroconidia. **d** Macroconidia. Scale bars: **a** = 100 μm , **b–d** = 20 μm (re-drawn from Nag Raj 1993)

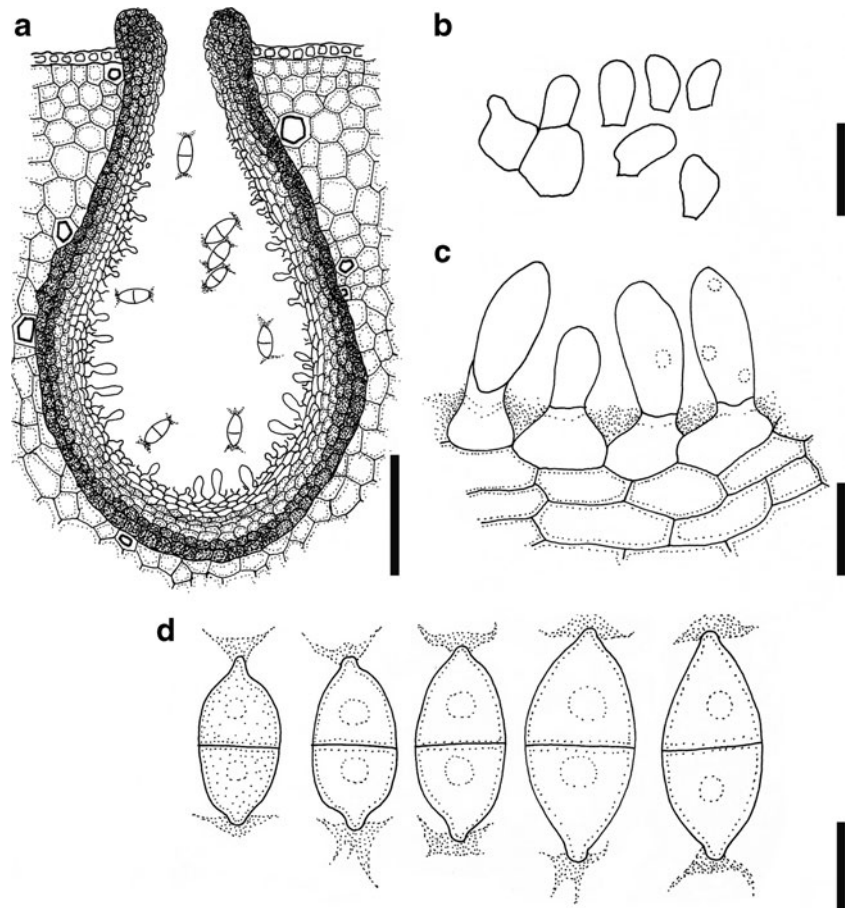
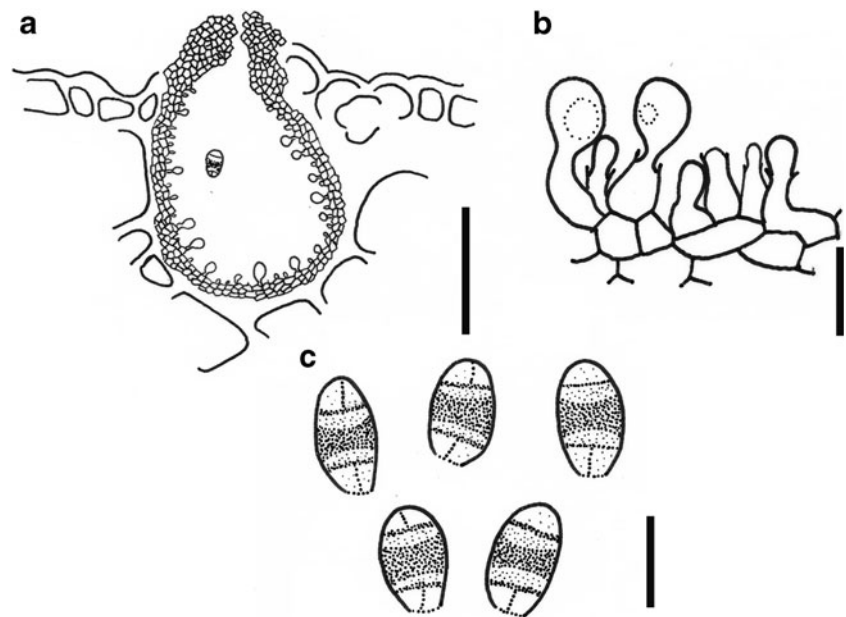


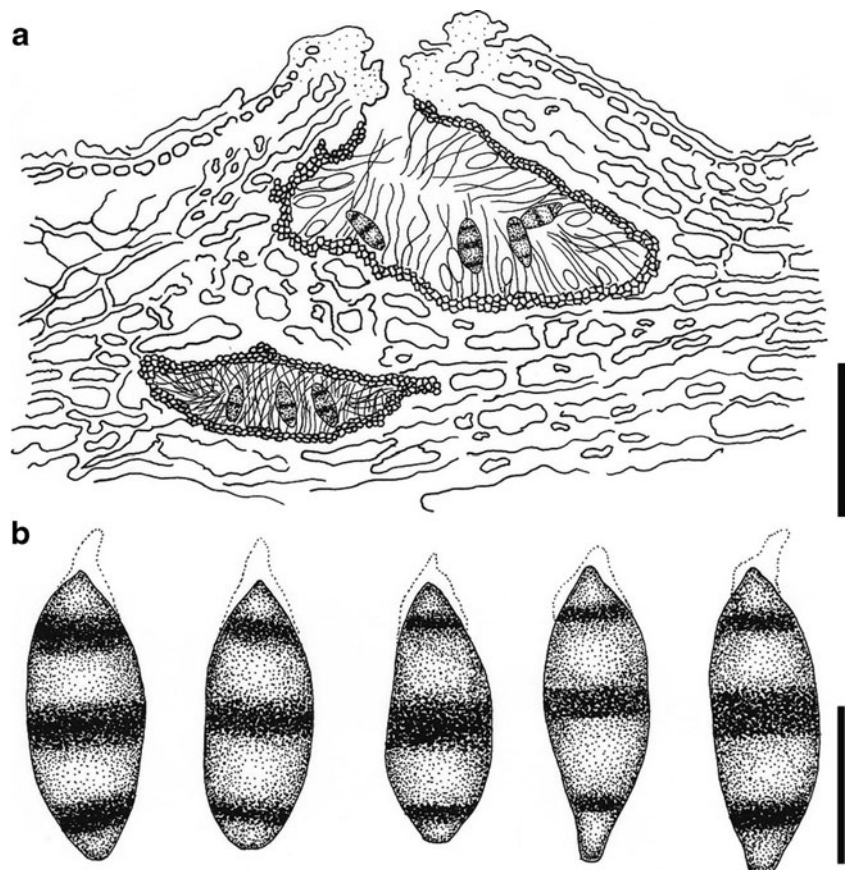
Fig. 260 *Toxosporiella bactrodesmioides*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: **a** = 100 μm , **b**, **c** = 10 μm (re-drawn from Sutton 1986)



found *Diplodia macrospora* is the oldest name for *Stenocarpella zeae*, thus transferred former species to *Stenocarpella* and treated it as the type species i.e. *S. macrospora*. Sutton (1980) introduced a second species *S. maydis* (Berk.) B. Sutton.

Sutton (1964) and Petrak and Sydow (1927) treated *Stenocarpella macrospora* and *S. maydis* as *Diplodia* and *Macrodiplodia* respectively. However, Sutton (1977, 1980) transferred both species to *Stenocarpella*. Both *Stenocarpella macrospora* (= *Diplodia macrospora*) and *S. maydis*

Fig. 261 *Toxosporiopsis capitata*. **a** Vertical section of conidioma. **b** Conidia. Scale bars: **a** = 100 μm , **b**, **c** = 20 μm (re-drawn from Sutton 1980)



(= *D. maydis*) are well known pathogens of corn, the causal agent of stalk and ear rot and leaf spot (Latterell 1983; da Silva Siqueira et al. 2014).

Based on LSU sequence data, Crous et al. (2006a) showed that *Stenocarpella sensu stricto* has a distinct phylogenetic placement from *Diplodia sensu stricto* and is accommodated in *Diaporthales*. Lamprecht et al. (2011) and our phylogenetic analyses also agree with Crous et al. (2006a) and further confirm the placement in *Diaporthaceae* (Fig. 12).

Stevensonula Petr., Sydowia 6(1–4): 1 (1952)

Facesoffungi number: FoF 01709; Fig. 252

Ascomycota, genera *incertae sedis*

Endophytic or *saprobic* on dead stems of *Compositae* (Dicotyledons) and *Poaceae* (Monocotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, columnar, infundibuliform, superficial, erumpent, solitary, dark brown to black. *Conidiomata wall* composed of dark brown-walled cells of *textura angularis*. *Conidiophores* cylindrical, long, septate, irregularly branched, hyaline. *Conidiogenous cells* holoblastic, integrated, determinate, hyaline, smooth. *Conidia* fusiform, truncate at the base, straight or slightly curved or reniform, dark brown, 1-septate, unequally 2 celled, smooth larger cell guttulate, thick-walled; with several unbranched, cellular, filiform appendages at the both ends (Petrak 1952; Sutton 1975b, 1980; Nag Raj 1993).

Type species: Stevensonula ciliata Petr., Sydowia 6(1–4): 2 (1952); Fig. 254

Notes: Petrak (1952) established the genus with *S. ciliata* as the type species. Sutton (1980) provided taxonomic notes and compared the genus with conidiomata of *Nanoschema*. However, *Nanoschema* has ellipsoid, 1-septate, eguttulate, hyaline conidia and is thus distinct from *Stevensonula*. Sutton (1980) and Nag Raj (1993) retained the genus as monotypic. Sequence data is unavailable thus taxonomic placement is uncertain.

Stigmella Lév., Voyage dans la Russie Meridionale et la Crimeé, par la Hongrie, la Valachie et la Moldavie 2: 111 (1842)

Facesoffungi number: FoF 01710; Figs. 253 and 254

Ascomycota, genera *incertae sedis*

Saprobic or *endophytic* or *pathogenic* on leaves of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, separate, globose, pale brown, immersed, subepidermal, unilocular, ostiolate. *Ostiole* apapillate, central, circular. *Conidiomata wall* composed of thin-walled, pale brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, determinate, discrete, doliiform to ampulliform, hyaline to sub-hyaline, smooth. *Conidia* clavate to ellipsoid, variable in shape, apex and base obtuse, or truncate base, muriform, up to 6 transverse septa and some longitudinal septa, brown, constricted, thick and smooth (Morgan-Jones et al. 1972c; Sutton 1980; Bagyanarayana et al. 1992; Wang et al. 2012).

Type species: Stigmella effigurata (Schwein.) S. Hughes, Can. J. Bot. 36: 814 (1958)

≡ *Coryneum effiguratum* Schwein., Trans. Am. phil. Soc., New Series 4(2): 307 (1832) [1834]

= *Stigmella dryina* Lév., Voyage dans la Russie Meridionale et la Crimeé, par la Hongrie, la Valachie et la Moldavie 2: 111 (1842)

Notes: Demidov (1842) introduced *Stigmella* with *S. dryina* as the type species. Hughes (1958) determined *Coryneum effiguratum* as an older name for the taxon and transferred it to *Stigmella* as *S. effigurata* and treated *S. dryina* as a synonym of *S. effigurata* (Hughes 1958). Sutton (1977, 1980) accepted the findings of Hughes (1958).

Bagyanarayana et al. (1992) and Wang et al. (2012) have introduced *S. tirumalensis* Bagyan. et al. and *S. lycii* X.R. Chen & Y. Wang. Sequence data is unavailable, thus the taxonomic placement is uncertain.

Stilbospora Pers., Neues Mag. Bot. 1: 93 (1794)

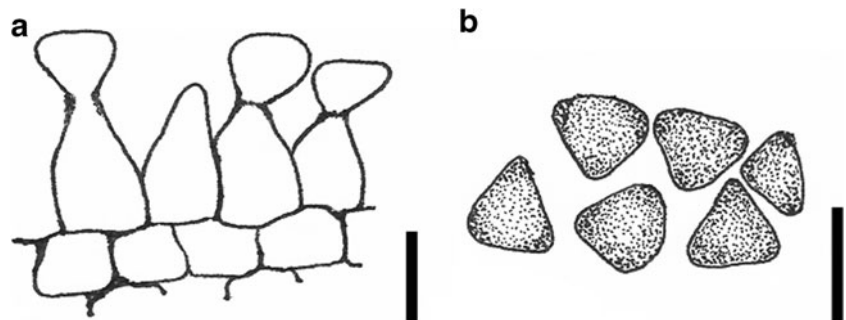
= *Prosthegium* Fresen., Beitr. Mykol. 2: 62 (1852)

Facesoffungi number: FoF 01711; Fig. 255

Sordariomycetes, *Sordariomycetidae*, *Diaporthales*, *Stilbosporaceae*

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** *Prosthegium sensu*

Fig. 262 *Trinosporium guianense*. **a** Different stages of conidiogenesis. **b** Conidia. Scale bars: a, b = 10 μm (re-drawn from Crous et al. 2012d)



stricto fide Voglmayr and Jaklitsch (2014). **Asexual morph:** *Conidiomata* acervular, immersed, gregarious to solitary, occasionally confluent, circular, dark brown to black. *Conidiomata* wall outer layer composed of dark brown-walled cells of *textura angularis*, inner layer thin, hyaline. *Paraphyses* numerous, simple, septate, hyaline, unbranched. *Conidiophores* cylindrical, branched, hyaline, smooth. *Conidiogenous cells* enteroblastic, annellidic, integrated, indeterminate, cylindrical, hyaline, smooth-walled. *Conidia* ellipsoid or oblong, cylindrical, straight or slightly curved, truncate at the base, 3–4-septate, brown, smooth-walled; with a hyaline sheath (Sutton 1980; Taylor and Crous 2000; Marinowitz et al. 2008; Voglmayr and Jaklitsch 2014).

Lectotype species: Stilbospora macrosperma Pers., Syn. Meth. Fung. (Göttingen) 1: 96. 1801, fide Clements and Shear (1931); Fig. 255

Notes: Persoon (1795) introduced *Stilbospora* with *S. macrosperma*. However, Kirk et al. (2008, 2013) and Voglmayr and Jaklitsch (2014) accepted *Stilbospora* Pers. (1794) as the legitimate name.

Sutton (1980) stated, ‘more than 60 taxa have been described in the genus so far and the majority of these have not been re-examined’. Taylor and Crous (2000), Marinowitz et al. (2008) and Voglmayr and Jaklitsch (2014) have re-visited the genus and introduced several taxa.

Crous et al. (2012b) showed that *Stilbospora macrosperma* belongs in *Diaporthales*. Voglmayr and Jaklitsch (2014) treated *Prosthecius elliposporum* Fresen. the type species of *Prosthecius* as a synonym of *Stilbospora macrosperma*. Voglmayr and Jaklitsch (2014) also showed several *Prosthecius* spp. clustered in *Stilbospora sensu stricto* and thus transferred them to *Stilbospora*. Based on molecular data analyses, Voglmayr and Jaklitsch (2014) and Maharachchikumbura et al. (2015) showed *Stilbospora* and *Stegosporium* have distinct phylogenetic lineages in *Diaporthales*, thus they re-instated *Stilbosporaceae* to accommodate these genera. Our phylogenetic analyses agree with Voglmayr and Jaklitsch (2014) and confirm the placement of *Stilbospora sensu stricto* as a distinct clade in *Diaporthales* (Fig. 12).

Sulcatispora Kaz. Tanaka & K. Hiray., Stud Mycol 82: 120 (2015)

Facesoffungi number: FoF 01712; Fig. 256

Dothideomycetes, Pleosporomycetidae, Pleosporales, Massarineae, Sulcatisporaceae

Endophytic or *saprobic* on a range of host plants.

Sexual morph: see Tanaka et al. (2015). **Asexual morph:** *Conidiomata* pycnidial, solitary, immersed when immature, becoming erumpent at maturity, globose, unilocular, ostiolate. *Ostiole* papillate, central, single. *Conidiomata* wall thick, composed of dark brown

polygonal cells. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, annellidic, cylindrical to lageniform, discrete, hyaline. *Conidia* ellipsoid, rounded at the apex, truncate at the base, yellowish brown, with striate ornamentation (Tanaka et al. 2015).

Type species: Sulcatispora acerina Kaz. Tanaka & K. Hiray. Stud Mycol 82: 120 (2015); Fig. 258

Notes: Tanaka et al. (2015) introduced *Sulcatispora* with *S. acerina* as the type species. At the same time, Tanaka et al. (2015) introduced *S. berchemiae* Kaz. Tanaka & K. Hiray. and both species are reported as holomorph. *Sulcatispora* resembles *Sclerostagonospora*, but the latter genus showed phylogenetic lineages in *Pleosporineae, Pleosporales* and may have phaeosphaeria-like sexual morphs. (Quaedvlieg et al. 2013).

In their phylogenetic study, Tanaka et al. (2015) showed that *Sulcatispora* has distinct lineage in *Massarineae*, thus they introduced *Sulcatisporaceae* Kaz. Tanaka & K. Hiray. These results were also confirmed by our phylogenetic analyses (Fig. 15).

Suttonomyces Wijayaw. et al., Crypto Mycol 36(2): 220 (2015)

Index Fungorum number: IF551091; *Facesoffungi* number: FoF 00468; Fig. 257

Dothideomycetes, Pleosporomycetidae, Pleosporales, Massarineae, Massarinaceae

Saprobic on branch of *Ranunculaceae* (Dicotyledons).

Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* pycnidial, dark brown to black, solitary, superficial, unilocular, globose to subglobose, ostiolate. *Ostiole* papillate, central. *Conidiomata* wall outer layer thick-walled, dark brown cells of *textura angularis*, with inner layer hyaline, thin layer. *Paraphyses* present, hyaline, aseptate, tapering to obtuse apex, cylindrical, not abundant. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* simple, holoblastic, discrete, determinate, continuous, smooth, with percurrent proliferation. *Conidia* pale brown to dark brown, oblong, with a truncate base, obtuse at the apex, straight to curved, muriform, with 1–2 transverse septa and occasionally with 1 longitudinal septum, smooth-walled, guttulate when young and occasionally at maturity.

Type species: Suttonomyces clematidis Wijayawardene et al., Crypto Mycol 36(2): 221 (2015); Fig. 257

Notes: Wijayawardene et al. (2015) showed a camarosporium-like taxon clustered in *Massarinaceae*. As there are no camarosporium-like taxa reported in *Massarinaceae* (Hyde et al. 2013; Wijayawardene et al. 2014d), Wijayawardene et al.

(2015) introduced *Suttonomyces* to accommodate their new collection.

In conidial morphology, *Suttonomyces* resembles other camarosporium-like genera viz. *Camarosporium*, *Neocamarosporium*, *Paracamarosporium*, *Pseudocamarosporium* and *Xenocamarosporium* (Crous et al. 2013, 2015d; Wijayawardene et al. 2014a, d). However, only *Paracamarosporium* also has paraphyses, but it distinct from *Suttonomyces* in phylogeny as it resides in *Didymosphaeriaceae* and also forms microconidia in culture.

Teratosphaeria Syd. & P. Syd., *Annls mycol.* 10(1): 39 (1912)

Facesoffungi number: FoF 01713; Fig. 258

= *Colletogloeopsis* Crous & M.J. Wingf., *Can. J. Bot.* 75(4): 668 (1997)

= *Kirramyces* J. Walker, B. Sutton & Pascoe, *Mycol. Res.* 96(11): 919 (1992)

Dothideomycetes, *Dothideomycetidae*, *Capnodiales*, *Teratosphaeriaceae*

Endophytic, *saprobic* or *pathogenic* on various substrates of range of host plants. **Sexual morph:** see Crous et al. (2009b). **Asexual morph:** *Conidiomata* acervuli to pycnidial, subcuticular, erumpent, dark brown to black. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic and percurrent, doliform to subcylindrical or irregular, thick-walled. brown, verruculose. *Conidia* subcylindrical to ellipsoidal, or cylindrical to obclavate, straight to curved, apex obtuse, base truncate, aseptate, medium brown, verruculose (Walker et al. 1992; Crous and Wingfield 1997; Crous et al. 2009b, 2011d; Andjic et al. 2007a, b).

Type species: Teratosphaeria fibrillosa Syd. & P. Syd., *Annls mycol.* 10(1): 40 (1912)

Notes: Crous et al. (2009b) accepted that *Teratosphaeria sensu stricto* has *Colletogloeopsis* and *Kirramyces* asexual morph. Thus, Wijayawardene et al. (2014c) proposed to adopt *Teratosphaeria* over *Colletogloeopsis* and *Kirramyces*. In our phylogenetic analyses of *Capnodiales*, *Teratosphaeria sensu stricto* consists of both *Colletogloeopsis* and *Kirramyces* (Fig. 11).

Tiarospora Sacc. & Marchal, *Revue mycol.*, Toulouse 7(no. 26): 148 (1885)

Facesoffungi number: FoF 01714; Fig. 259

?*Dothideomycetes*, *Pleosporomycetidae*, *Pleosporales*, *Pleosporineae*, *Phaeosphaeriaceae*

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, solitary to gregarious, globose, subepidermal, immersed, unilocular, brown, with a short neck, ostiolate. *Ostiole* apiculate,

central. *Conidiomata wall* with outer layer composed of flattened, thick-walled, dark brown cells of *textura angularis*, inner layer of thinner, paler tissue. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, doliform, cylindrical or lageniform, sympodial, indeterminate, discrete, hyaline, smooth. *Conidia* ellipsoid, obtuse to flattened at apex and base, 1-septate, continuous, initially hyaline, pale brown at maturity, thick and smooth-walled, guttulate; with an irregular or cap-like gelatinous appendage at each end (Morgan-Jones et al. 1972c; Sutton 1980; Nag Raj 1993).

Type species: Tiarospora perforans (Sacc.) Höhn., *Hedwigia* 60: 141 (1918); Fig. 259

= *Sphaerella perforans* Sacc., *Syll. fung.* (Abellini) 1: 538 (1882)

= *Sphaeria perforans* Roberge ex Desm., *Fl. Crypt. Flandres* (Paris) 1: 354 (1867)

= *Tiarospora westendorpii* Sacc. & Marchal, *Revue mycol.*, Toulouse 7(no. 26): 148 (1885)

Notes: Saccardo and Marchal (1885) established *Tiarospora* with *T. westendorpii* as the type species. However, Höhnel (1918) found *Sphaerella perforans* is the oldest name for the taxon and thus transferred it to *Tiarospora* as *T. perforans*. Pirozynski and Shoemaker (1971), Morgan-Jones et al. (1972c), Sutton (1971, 1980) and Nag Raj (1993) accepted this adoption and treated *Tiarospora westendorpii* as a synonym of *T. perforans*. Beside the type species, Sutton (1980) accepted only *T. deschampsiae* Krusch. Chlebicki (2002) introduced *Tiarospora pirozynskii* Chleb. and thus the genus now comprises three species. Sequence data is unavailable thus taxonomic placement is uncertain.

Toxosporiella B. Sutton, *Trans. Br. mycol. Soc.* 86(1): 16 (1986)

Facesoffungi number: FoF 01715; Fig. 260

Ascomycota, *genera incertae sedis*

Endophytic or *saprobic* on *Proteaceae* (Dicotyledons).

Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* pycnidial, solitary, immersed, globose, unilocular, dark brown, ostiolate. *Ostiole* slightly papillate, central, circular. *Conidiomata wall* composed of thick-walled, brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, ampulliform, lageniform or cylindrical, discrete, hyaline. *Conidia* ellipsoid, obtuse apex, truncate base, with 3-transverse septate, median cell dark brown, apical and basal cell with oblique septum (description modified from Sutton 1986).

Type species: Toxosporiella bactrodesmioides B. Sutton, *Trans. Br. mycol. Soc.* 86(1): 16 (1986)

Notes: Sutton (1986) introduced *Toxosporiella* with *T. bactrodesmioides* as the type species. *Toxosporiella* comprises one species and is characterised by versicoloured conidia,

hence distinct from other genera. However, *Toxosporiella* resembles the conidial morphology of *Versicolorisporium* (Hatakeyama et al. 2010) but latter genus lacks a single oblique septum in the apical and basal cells. Sequence data is unavailable in GenBank thus taxonomic placement is uncertain.

Toxosporiopsis B. Sutton & Sellar, Can. J. Bot. 44(11): 1505 (1966)

Facesoffungi number: FoF 01716; Fig. 261

Ascomycota, genera *incertae sedis*

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, immersed, subepidermal, solitary or confluent, irregular in shape, irregularly locular, hyaline to pale brown. *Conidiomata wall* composed of small-celled, thin-walled, hyaline to pale brown cells of *textura angularis*. *Conidiophores* hyaline, branched at the base, septate, smooth. *Conidiogenous cells* holoblastic, determinate, integrated or discrete, cylindrical, hyaline, smooth. *Conidia* broadly fusiform, base truncate, 3-septate, septa dark brown, continuous or slightly constricted, thick and smooth-walled, apical and basal cells thinner-walled and paler; mucoid cap at the apex of developing conidium (Sutton 1980; Sutton and Dyko 1989; Nag Raj 1993; Wu 1993).

Type species: Toxosporiopsis capitata B. Sutton & Sellar, Can. J. Bot. 44(11): 1507 (1966); Fig. 263

Notes: Saccardo and Marchal (1966) established *Toxosporiopsis* with *T. capitata* as the type species. Sutton and Dyko (1989) and Wu (1993) added two more species, *T. macrosperma* (Cavara) B. Sutton & Dyko and *T. sinensis* W.P. Wu, respectively. Nag Raj (1993) re-described the genus and illustrated the type species. However, Nag Raj (1993) listed *T. macrosperma* as an ‘unexamined taxon’ and mentioned it differs from type species as it has conidia with paler and verruculose apical and basal cells. Nevertheless, Wu (1993) treated *T. macrosperma* as an accepted species of *Toxosporiopsis* and thus we accept three species. Sequence data is unavailable, thus, taxonomic placement is uncertain.

Key to species of *Toxosporiopsis*

1. Paraphyses longer than 100 μm *T. sinensis*
1. Paraphyses shorter than 100 μm 2
2. Conidia 29.5–37.5 \times 11.5–15 μm *T. capitata*
2. Conidia 27–40 \times 12.5–16 μm *T. macrosperma*

Trinosporium Crous & Decock, Persoonia, Mol. Phyl. Evol. Fungi 28: 169 (2012)

Facesoffungi number: FoF 01717; Fig. 262

Leotiomycetes, genera *incertae sedis*

Isolated as a contaminant. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, separate, globose, with a central ostiole, lined with paraphyses; wall of 2–3 layers of brown-walled cells of *textura angularis*. *Conidiophores* lining the inner cavity, subcylindrical, hyaline, smooth, reduced to conidiogenous cells or branched, 1–3-septate, with conidiogenous cells terminal and lateral. *Conidiogenous cells* hyaline to pale brown, smooth, thin-walled, ampulliform to subcylindrical; apex with periclinal thickening, but at times also with 1–2 percurrent proliferations. *Conidia* rounded lobes, tapering towards a truncate base, aseptate, widest at apex, brown, smooth, with three lateral (modified description from Crous et al. 2012d)

Type species: Trinosporium guianense Crous & Decock, Persoonia, Mol. Phyl. Evol. Fungi 28: 169 (2012)

Notes: Crous et al. (2012d) introduced *Trinosporium* with *T. guianense* as the type species. In morphology, *Trinosporium* resembles *Readeriella*, which is a well-established genus in *Teratosphaeriaceae* (Crous et al. 2009b), but the former resides in *Leotiomycetes*, genera *incertae sedis* (Fig. 9). Further, Crous et al. (2012d) compared *Trinosporium* with *Tribolospora* D.A. Reid and *Trigonosporium* Tassi and both genera have hyaline conidia (Sutton 1980).

Trullula Ces., Bot. Ztg. 10: 287 (1852)

Facesoffungi number: FoF 01718; Fig. 263

Leotiomycetes, genera *incertae sedis*

Saprobic or *endophytic* on stems and branches of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic, solitary to gregarious, immersed to subepidermal when immature, erumpent at maturity, subglobose to globose, or flattened and discoid, dark brown to black. *Conidiomata wall* thick, wall at the base composed of thin-walled, pale brown to subhyaline cells of *textura angularis*, at the sides and above walls composed of thick-walled, dark brown cells of *textura angularis* to *textura intricata*. *Conidiophores* cylindrical, hyaline, branched, septate near the base and above, formed from the inner cells of the conidiomata. *Conidiogenous cells* holothallic, integrated, hyaline, smooth, cylindrical. *Conidia* regularly oblong, truncate at each end, arthric, produced in long, branched chains with the youngest conidia at the base, pale brown, smooth-walled, often guttulate, aseptate (Sutton 1980).

Type species: Trullula oreoselini Ces., Bot. Ztg. 10: 287 (1852)

Notes: Cesati (1852) introduced *Trullula* with *T. oreoselini* as the type species. Sutton (1980) stated that the characters of the genus are not well known. Hence, further collections and morphological and molecular studies are essential for better understanding of the genus.

GenBank has sequence data of *Trullula melanochlora* (CBS 138861 fide Crous et al. 2014c) and according to our analyses it is accommodated in *Leotiomyces*, genera incertae sedis (Fig. 9).

Truncatella Steyaert, Bull. Jard. bot. État Brux. 19: 293 (1949)

Facesoffungi number: FoF 01719; Fig. 264

Fig. 264 *Truncatella* sp. (Material examined: Italy, Forli-Cesena [FC] Province, near Porcentico – Predappio, on dead needles of *Pinus nigra*, 11 December 2011, E. Camporesi, MFLU 15–3460 = HKAS92538). **a, b** Conidiomata on pine needles. **c, d** Vertical sections of conidiomata. **e, f** Conidia inside conidiomata. **g–k** Different stages of conidiogenesis. **l–p** Conidia. Scale bars: **c, d** = 200 μm , **e, f, l** = 30 μm , **g–k, m–n** = 15 μm

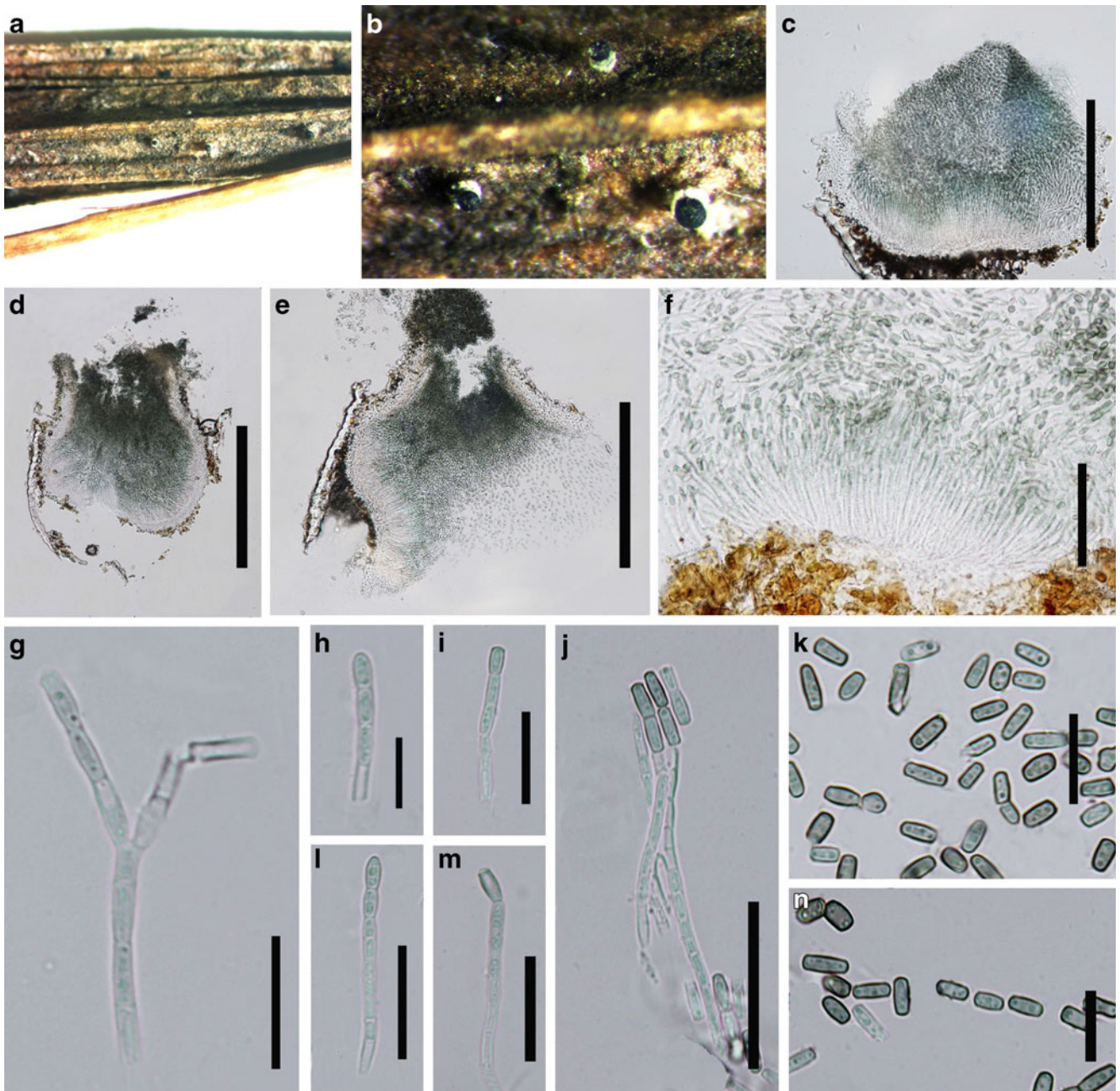
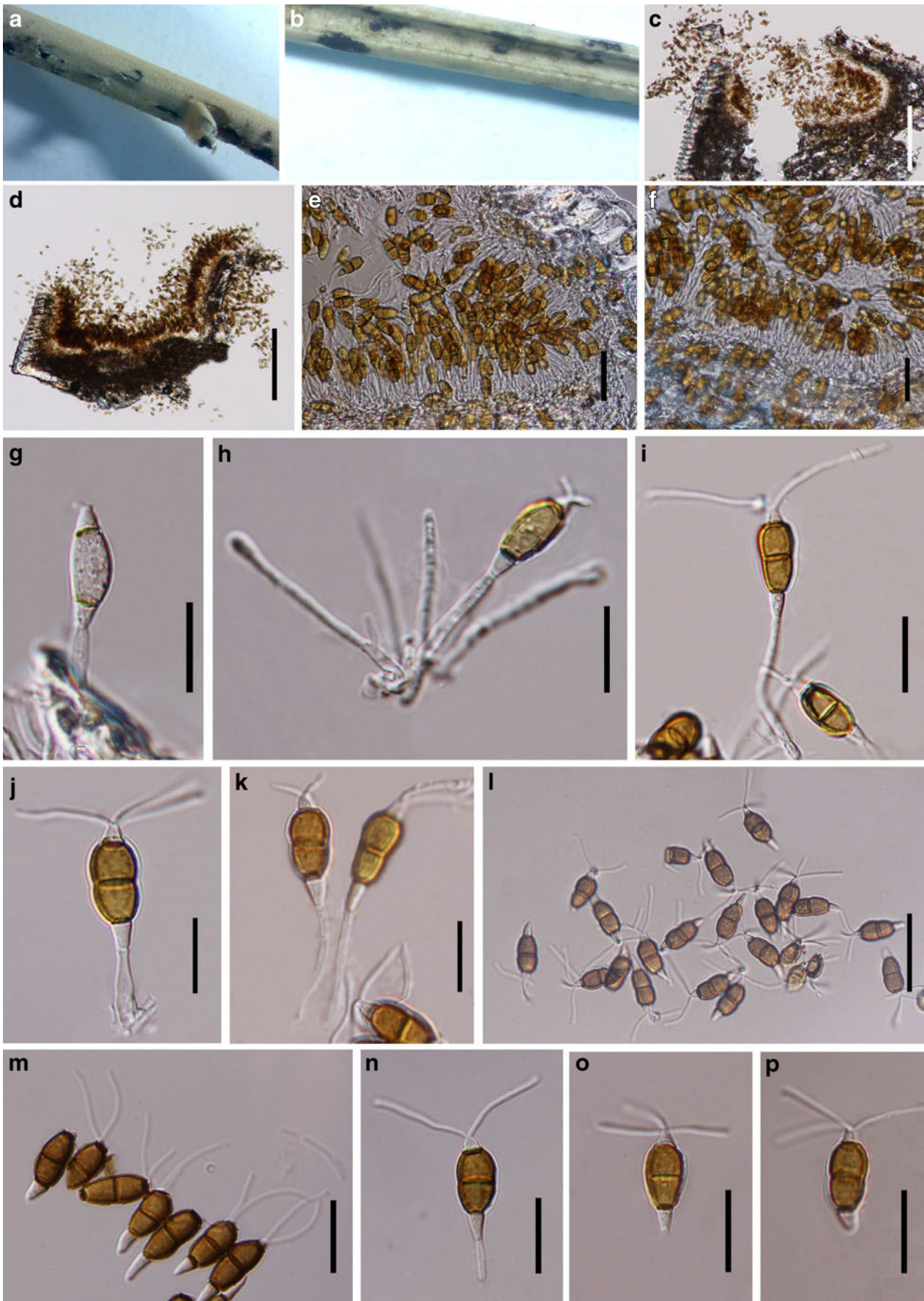


Fig. 263 *Trullula melanochlora* (Material examined: Germany, near Berlin, on twigs of *Viburnum opulus*, 04 January 2014, René K. Schumacher, MFLU 15-3554). **a** Host material. **b** Conidiomata on twigs of *Viburnum opulus*. **c–e** Vertical sections of conidiomata. **f**

Conidia mass and conidiophores. **g–j, l, m** Different stages of conidiogenesis. **k, n** Conidia. Scale bars: **c–e** = 150 μm , **f** = 15 μm , **g–n** = 10 μm



Sordariomycetes, *Xylariomycetidae*, *Amphisphaeriales*, *Bartaliniaceae*

Saprobic or *endophytic* on stems, branches, twigs of a range of host plants or occasionally pathogenic. **Sexual morph:** see Senanayake et al. (2015). **Asexual morph:** *Conidiomata* acervular, superficial to subepidermal, solitary to gregarious, occasionally confluent, dark brown to black. *Conidiomata* wall outer layer thick, composed of thin-walled, brown cells of *textura angularis*, inner wall thin, hyaline. *Conidiophores* cylindrical, hyaline, branched and septate at the base and above, formed from the upper cells of the pseudoparenchyma, smooth-walled. *Conidiogenous* cells holoblastic to annellidic, indeterminate, integrated, cylindrical, hyaline, smooth-walled, with several percurrent proliferations. *Conidia* fusiform, straight or slightly curved, 3-transverse septate; basal cell hyaline, truncate, with simple or rarely branched appendage; apical cell conic, hyaline, with 1 or more apical, simple or branched cellular appendages; two median cells brown, thick, smooth-walled, often constricted at the septa (Sutton 1980, 1996; Shoemaker et al. 1989; Yuan and Zhao 1992; Nag Raj 1993; Lee et al. 2006; Senanayake et al. 2015).

Type species: *Truncatella angustata* (Pers.) S. Hughes, Can. J. Bot. 36: 822 (1958) ≡ *Pestalotia truncata* Lév., Anns Sci. Nat., Bot., sér. 3 5: 285 (1846)

= *Truncatella truncata* (Lév.) Steyaert, Bull. Jard. bot. État Brux. 19: 295 (1949)

≡ *Pestalotia truncata* Lév., Anns Sci. Nat., Bot., sér. 3 5: 285 (1846)

Notes: Steyaert (1949) established *Truncatella* with *T. truncata* as the type species. Sutton (1980) stated *Truncatella angustata* (Pers.) S. Hughes (≡ *Stilbospora*

angustata Pers.) as the type species, while listing *Truncatella truncata* as its synonym. However, Nag Raj (1993) used *Truncatella truncata* as the type species, but we prefer to use the name based on the oldest name i.e. *Truncatella angustata*.

Sutton (1980) compared the previous taxonomic works by Steyaert (1949) and Guba (1961) on *Truncatella*. Since Sutton (1980), several species have been introduced and summarized in Table 7.

Lee et al. (2006) showed *Truncatella* spp. group with *Bartalinia* spp. and form a distinct clade in *Amphisphaeriaceae*. However, the clade actually comprises two distinct clades. The first clade comprises new collections in Lee et al. (2006) with *T. hartigii* (Tubef) Steyaert, while the second sub-clade comprises *T. angustata* (Pers.) S. Hughes and species of *Bartalinia* Tassi. Senanayake et al. (2015) and our results also agree with findings in Lee et al. (2006) and *Truncatella* is treated as a member in *Bartaliniaceae*.

Tunicago B. Sutton & Pollack, Can. J. Bot. 55(3): 326 (1977)

Facesoffungi number: FoF 01720; Fig. 265

Ascomycota, genera *incertae sedis*

Endophytic or *saprobic* on various substrates on a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, immersed, solitary, globose, unilocular, dark brown to black, ostiolate, single, circular. *Conidiomata* wall thick, composed of thick-walled, dark brown cells of *textura angularis*. *Conidiophores* hyaline, smooth, septate, irregularly branched. *Conidiogenous cells* enteroblastic, phialidic, cylindrical or lageniform, integrated

Table 7 Summary of *Truncatella* spp. introduced since Sutton (1980)

Species	Reference	Current name and references
<i>T. betulae</i> (Morochk.) S.J. Lee & Crous	Lee et al. 2006	N/A
<i>T. excelsa</i> (Petr.) Shoemaker et al.	Shoemaker et al. 1989	N/A
<i>T. helichrysi</i> (Severini) B. Sutton	Sutton 1996	N/A
<i>T. megaspora</i> S.J. Lee & Crous	Lee et al. 2006	N/A
<i>T. pestalozzioides</i> (Dearn. & Fairm.) Shoemaker et al.	Shoemaker et al. 1989	<i>Pestalotiopsis pestalozzioides</i> (Dearn. & Fairm.) Nag Raj fide Nag Raj 1993
<i>T. pitospora</i> (M.E.A. Costa & Sousa da Câmara) Bissett	Bissett 1982	<i>Truncatella angustata</i> (Pers.) S. Hughes fide Nag Raj 1993
<i>T. restionacearum</i> S.J. Lee & Crous	Lee et al. 2006	N/A
<i>T. spadicea</i> S.J. Lee & Crous	Lee et al. 2006	N/A
<i>T. tianshanica</i> Z.Q. Yuan & Z.Y. Zhao	Yuan and Zhao 1992	N/A
<i>T. trevoae</i> (Speg.) Nag Raj*	Nag Raj 1993	N/A
<i>T. vitalbae</i> (Shoemaker & E. Müll.) Shoemaker	Shoemaker et al. 1989	N/A
<i>T. wangikarii</i> Somani	Somani 1980	N/A

(*Nag Raj (1993) introduced this species as a new combination in *Truncatella* but Species Fungorum (2016) list this name as a synonym of *Chrysalidopsis trevoae* (Speg.) Steyaert. However, Lee et al. (1996) treated *T. trevoae* as an accepted species in *Truncatella*)

or discrete, determinate, apical or lateral, channel wide. *Conidia* perprolate, brown, 1-septate, guttulate, smooth-walled, covered by a thick, brown, granular, sheath at maturity (Sutton and Pollack 1977; Nag Raj and DiCosmo 1978; Sutton 1980; Alcorn and Sutton 1999).

Type species: Tunicago uniolae B. Sutton & Pollack, Can. J. Bot. 55(3): 327 (1977)

Notes: Sutton and Pollack (1977) introduced *Tunicago* with *T. uniolae* as the type species. Sutton (1980) provided taxonomic notes and illustrations for this genus. Alcorn and Sutton (1999) introduced a second species, *T. triodiae* Alcorn

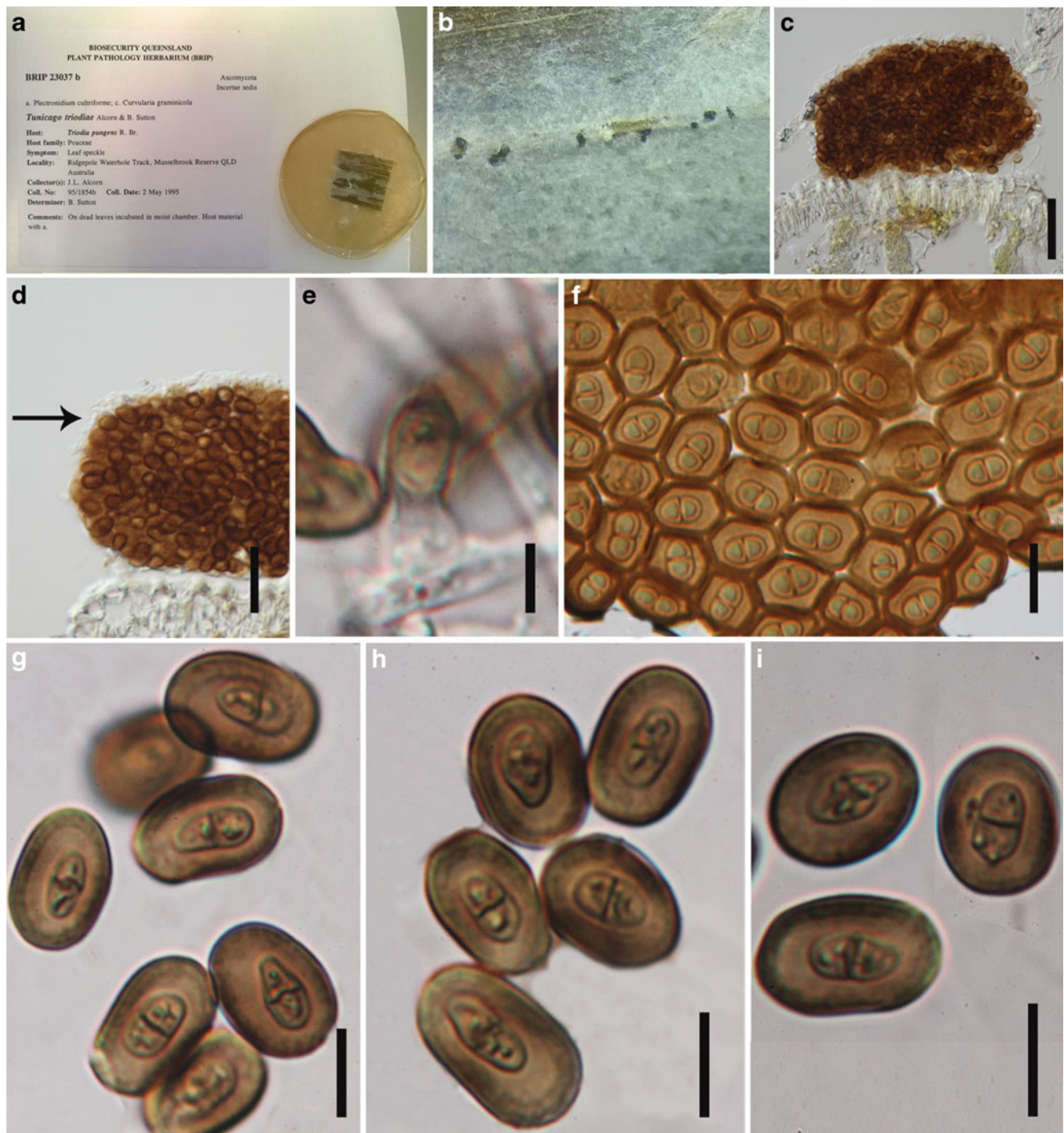


Fig. 265 *Tunicago triodiae* (Material examined: Australia, Queensland, Musselbrook Reserve, Ridgopole Waterhole track, on *Triodia pungens*, 2 May 1995, J.L. Alcorn, BRIP 23037b). **a** Label and herbarium material. **b**

Conidiomata on culture. **c, d** Vertical sections of conidiomata (thin wall is pointed by arrow in **d**). **e** Conidiogenous cell and developing conidia. **f–i** Conidia. Scale bars: **c, d** = 70 μm , **e** = 8 μm , **f–i** = 12 μm

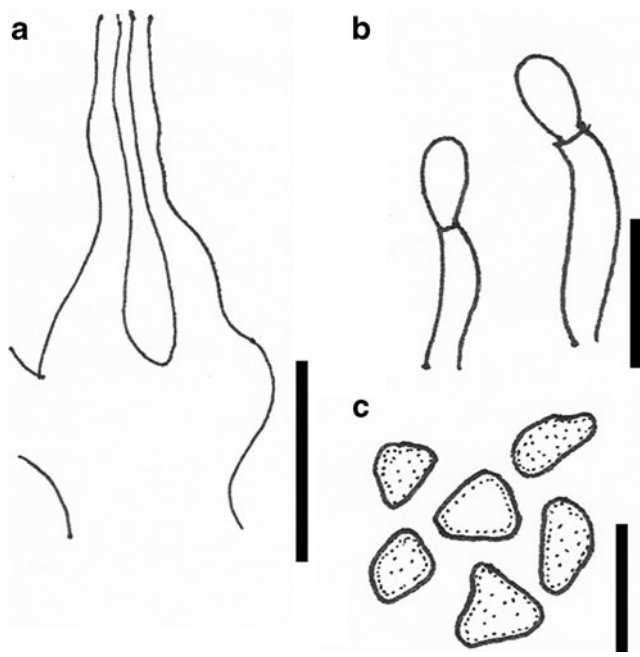


Fig. 266 *Deltosperma infundibuliforme*. **a** Line drawing of vertical section of conidioma. **b** Conidiogenous cells and developing conidia. **c**

& B. Sutton. Conidial morphology of *Tunicago* resembles *Ascochyulina* and *Pseudodiplodia*, but conidia of both latter genera lack a mucilaginous sheath. Sequence data is unavailable, thus the taxonomic placement is uncertain.

Unguiculariopsis Rehm, *Annls mycol.* 7(5): 400 (1909)
= *Deltosperma* W.Y. Zhuang, *Mycotaxon* 32: 31 (1988)

Facesoffungi number: FoF 01721; Fig. 266

Leotiomyces, genera *incertae sedis*

Endophytic or *saprobic* on a range of host plants. **Sexual morph:** fide Zhuang (1988). **Asexual morph:** *Conidiomata* pycnidial, elongated conical or subcylindrical, superficial, gregarious, cinnamon brown to dark brown. *Conidiomata* wall outer layer composed of brown-walled cells of *textura angularis*, inner layer composed of interwoven hyphae. *Conidiophores* reduced to conidiogenous cells or indistinct. *Conidiogenous cells* enteroblastic, phialidic, elongate lageniform to sub-cylindrical, pale brown to brown, smooth. *Conidia* deloid to irregular angular, aseptate, pale brown, thin and smooth-walled (description modified from Zhuang 1988, 2000)

Fig. 267 *Uniseta flagellifera*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: a = 100 μ m, b, c = 10 μ m (re-drawn from Nag Raj 1974)

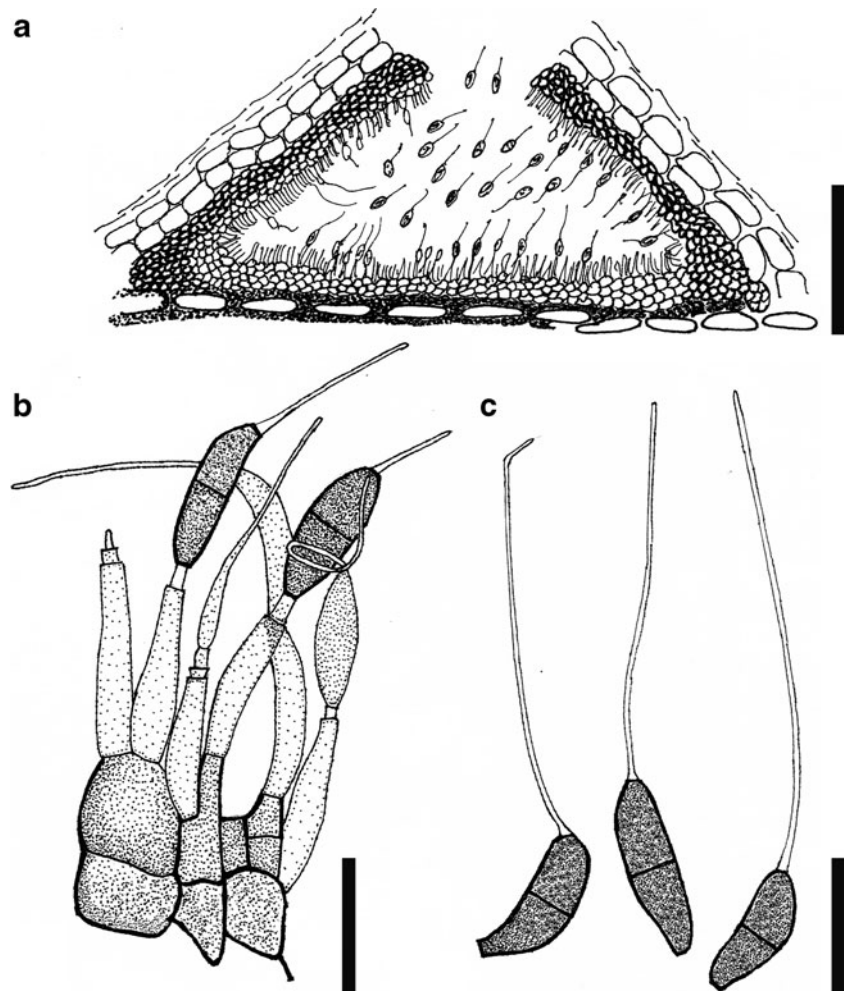
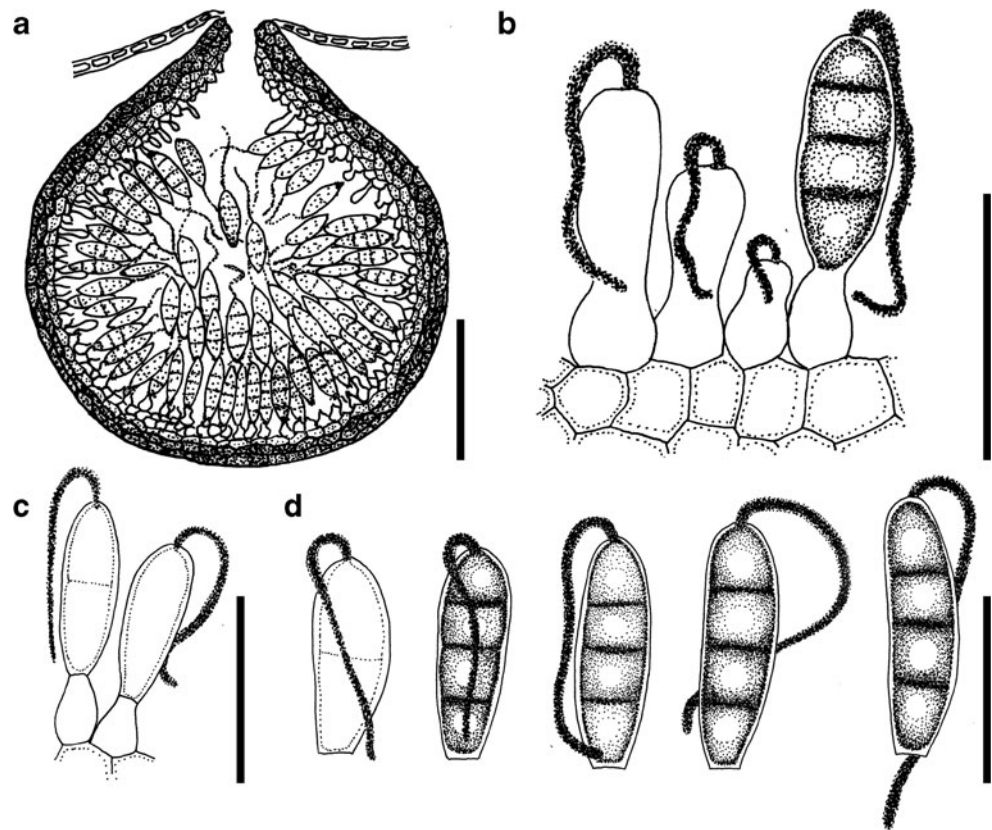


Fig. 268 *Urohendersonia platensis* **a** Vertical section of conidioma. **b, c** Different stages of conidiogenesis. **d** Conidia. Scale bars: **a** = 50 μ m, **b, c** = 20 μ m (re-drawn from Nag Raj 1993)



Type species: Unguiculariopsis ilicincola (Berk. & Broome) Rehm, *Annls mycol.* 7(5): 400 (1909)

Notes: Zhuang (1988) introduced *Deltosperma* with *D. infundibuliforme* as the type species and stated *Unguiculariopsis* is the sexual morph. Zhuang (2000) also introduced *Unguiculariopsis changbaiensis* and its asexual morph *Deltosperma oblongum* as both occur on same host. Johnston et al. (2014) proposed to adopt the older sexual typified name over younger asexual typified name.

Unisetia Cicc., *Nuovo G. bot. ital.* 54: 711 (1948)

Facesoffungi number: FoF 01722; Fig. 267

Ascomycota, genera incertae sedis

Endophytic or *saprobic* on branches of *Myricaceae* (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* stromatic or pycnidial, gregarious, conic, immersed, unilocular, brown, ostiolate, single, circular, furfuraceous. *Conidiomata wall* outer layer composed of thick-walled, dark brown cells of *textura angularis*, inner layer composed of thin-walled, pale brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic to annellidic, cylindrical to flexuous, indeterminate, discrete, hyaline, smooth. *Conidia* ellipsoid to fusiform, upper cells slightly wider, straight or slightly curved, base truncate, 1-septate, continuous, pale

brown, thick and smooth-walled, eguttulate; with a cellular, unbranched, filiform apical appendage (Nag Raj 1974, 1993; Sutton 1980).

Type species: Unisetia flagellifera (Ellis & Everh.) Cicc., *Nuovo G. bot. ital.* 54: 15 (1947); Fig. 267

≡ *Pestalotia flagellifera* Ellis & Everh., *J. Mycol.* 5(3): 156 (1889)

Notes: Ciccaglione (1947) introduced *Unisetia* to accommodate *Pestalotia flagellifera*. Sutton (1980) and Nag Raj (1993) revisited the genus and provided taxonomic notes. In conidial morphology, *Unisetia* resembles *Nagrajomyces*, but the latter genus has muriform conidia with single, unbranched apical appendages, while *Unisetia* has 1-septate conidia with a single, unbranched apical appendage.

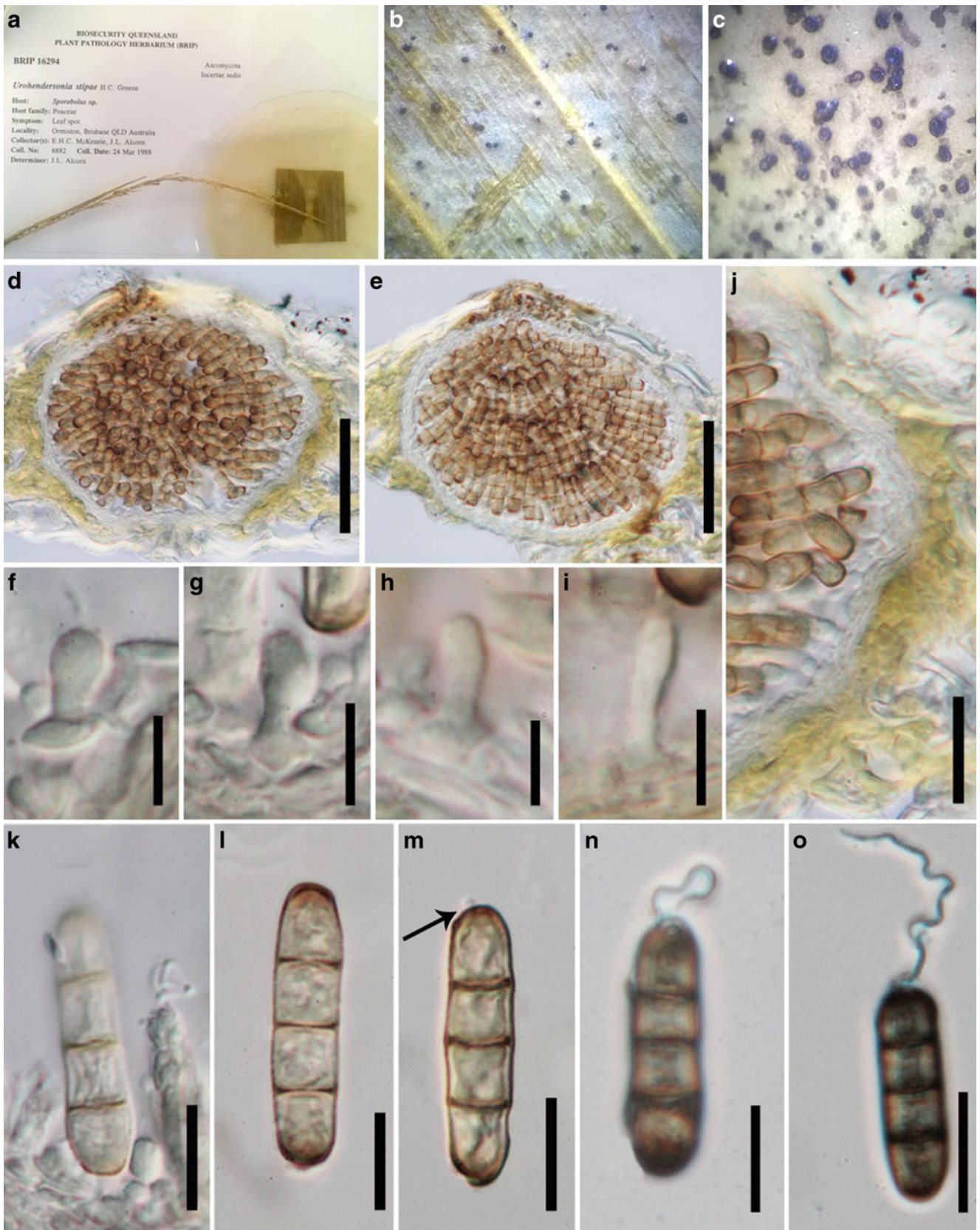
Nag Raj (1993) mentioned *Unisetia* has a sexual morph in *Cryptodiaporthe* Petr. However, this link was not confirmed by culture or phylogenetic methods. Sequence data is unavailable, thus the taxonomic placement is uncertain.

Urohendersonia Speg., *Anal. Mus. nac. B. Aires, Ser. 3* 1: 84 (1902)

Facesoffungi number: FoF 01723; Figs. 268 and 269

Ascomycota, genera incertae sedis

Endophytic or *saprobic* on various substrates of a range of host plants. **Sexual morph:** Undetermined. **Asexual morph:**



◀ **Fig. 269** *Urohendersonia stipae* (Material examined: Australia, Queensland, Brisbane, Ormiston, on dead leaves of *Sporobolus* sp., 24 March 1988, E.H.C McKenzie and J.A. Alcorn, BRIP 16294). **a** Label and herbarium material. **b, c** Conidiomata on host material. **d, e** Vertical sections of conidiomata. **f–i** Conidiogenous cells and different stages of conidiogenesis. **j** Conidiomata wall. **k–o** Conidia. Scale bars: d, e = 60 μm , f–i, k–o = 10 μm , j = 20 μm

Conidiomata pycnidial, superficial to immersed, sub-epidermal, solitary, gregarious or occasionally confluent, globose to subglobose, unilocular, brown, ostiolate. *Ostiole* papillate, circular, single. *Conidiomata wall* composed of thick-walled, brown cells of *textura angularis* to *textura intricata*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic, annellidic, ampulliform to doliiform, determinate or indeterminate, discrete, pale brown to hyaline, smooth. *Conidia* cylindrical, clavate or fusiform, apex obtuse, base truncate, often with a marginal frill, 3-septate, continuous or constricted, yellowish brown to brown, thin-walled, smooth or verruculose, occasionally guttulate; with an extracellular, gelatinous, unbranched, single, apical appendage. *Microconidia* globose to subglobose, aseptate,

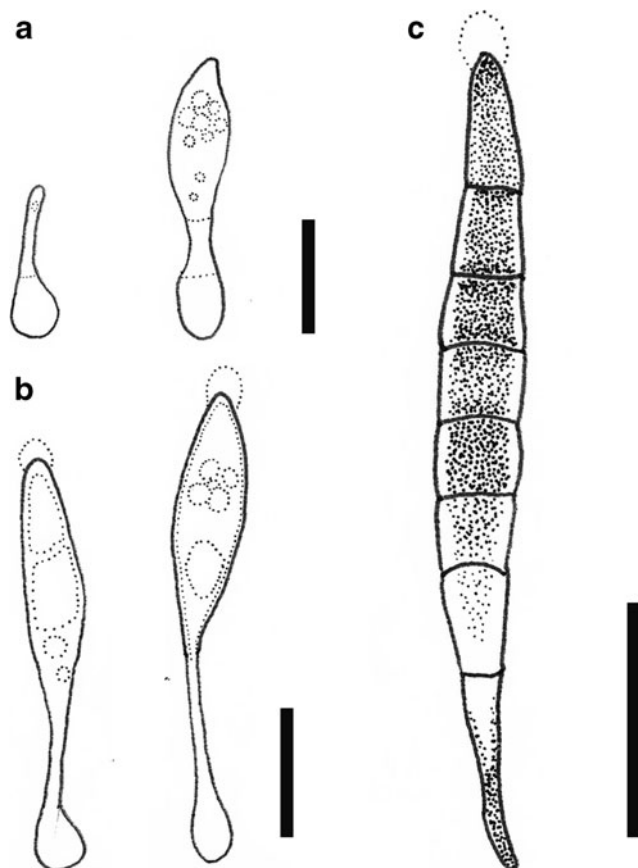


Fig. 270 *Urohendersoniella mastigospora*. **a, b** Conidiogenous cell and different stages of conidiogenesis. **c** Conidium. Scale bars: a, b = 5 μm , c = 25 μm (re-drawn from Nag Raj 1989)

hyaline, smooth-walled (Nag Raj and Kendrick 1971; Sutton et al. 1972; Sutton 1980; Nag Raj 1993).

Type species: Urohendersonia platensis Speng., Anal. Mus. nac. B. Aires, Ser. 3 1: 84 (1902); Fig. 268

Notes: Spegazzini (1902) introduced *Urohendersonia* with *U. platensis* as the type species. Sutton (1980) and Nag Raj (1993) re-visited the genus and provided detailed taxonomic notes. There are six epithets listed in Index Fungorum (2016), but Sutton (1980) and Nag Raj (1993) accepted only five species including the type species, while *U. mysorensis* Nag Raj & W.B. Kendr. was excluded. The genus lacks sequence data, thus the taxonomic placement is uncertain.

Urohendersoniella Petr., Sydowia 9(1–6): 513 (1955)

Facesoffungi number: FoF 01724; Fig. 270

Ascomycota, genera incertae sedis

Endophytic or saprobic on leaves of *Xanthorrhoeaceae* (Monocotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, immersed, unilocular, glabrous, brown, ostiolate, circular or oval. *Conidiomata wall* composed of thick-walled, brown cells of *textura angularis*, pale brown to subhyaline inner layer. *Conidiophores* reduced to conidiogenous cells, invested in mucus. *Conidiogenous cells* holoblastic, ampulliform, hyaline, smooth. *Conidia* narrowly fusiform, septate; basal cell long, cylindrical, almost hyaline; with several median cells, yellowish brown to brown; apical cell conical, pale brown to almost hyaline; with mucoid appendages at both ends (description modified from Nag Raj 1989, 1993).

Type species: Urohendersoniella mastigospora Petr., Sydowia 9(1–6): 513 (1955)

Notes: Petrak (1955) introduced *Urohendersoniella* with *U. mastigospora* as the type species. Sutton (1977, 1980) treated *Urohendersoniella* as a synonym of *Scolecosporiella*. However, Nag Raj (1989, 1993) reinstated *Urohendersoniella* as a valid genus and Kirk et al. (2008, 2013) also accepted it. We prefer to follow Nag Raj (1989, 1993) and taxonomic key is provided under *Scolecosporiella* to distinguish *Urohendersoniella* from other related genera.

Vanderystiella Henn., Ann. Mus. Congo Belge, Bot. Série 5 2(3): 229 (1908)

= *Deightonia* Petr., Sydowia 1(1–3): 114 (1947); Fig. 271

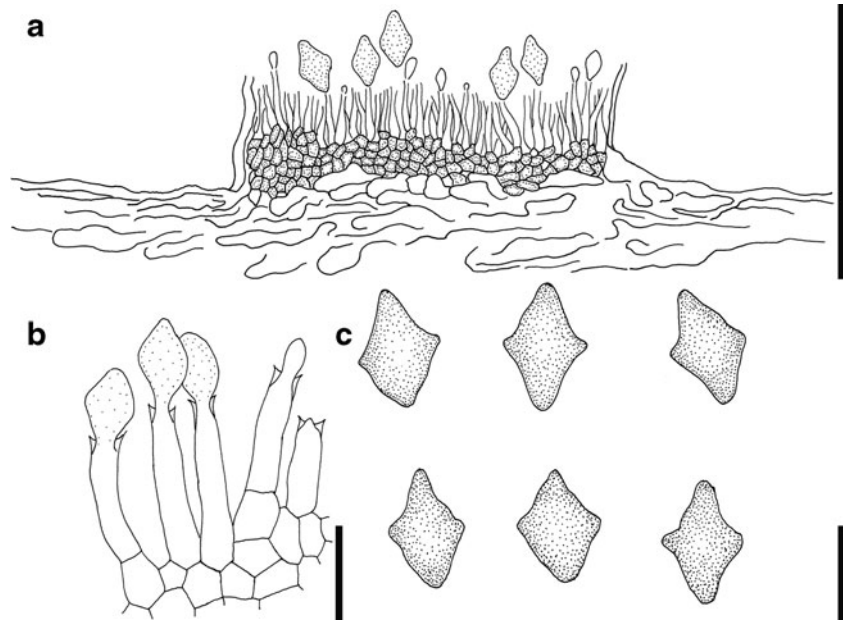
Facesoffungi number: FoF 01725

Ascomycota, genera incertae sedis

Associated with leaf lesions of Fabaceae (Dicotyledons).

Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* acervular, epidermal to subepidermal, solitary or confluent, hypophyllous, pale brown. *Conidiomata wall* composed of thin-walled cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* enteroblastic, phialidic, cylindrical, determinate, discrete, hyaline, smooth. *Conidia* biconic,

Fig. 271 *Vanderystiella leopoldvilleana*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: a = 50 μ m, b, c = 10 μ m (re-drawn from Sutton 1980)



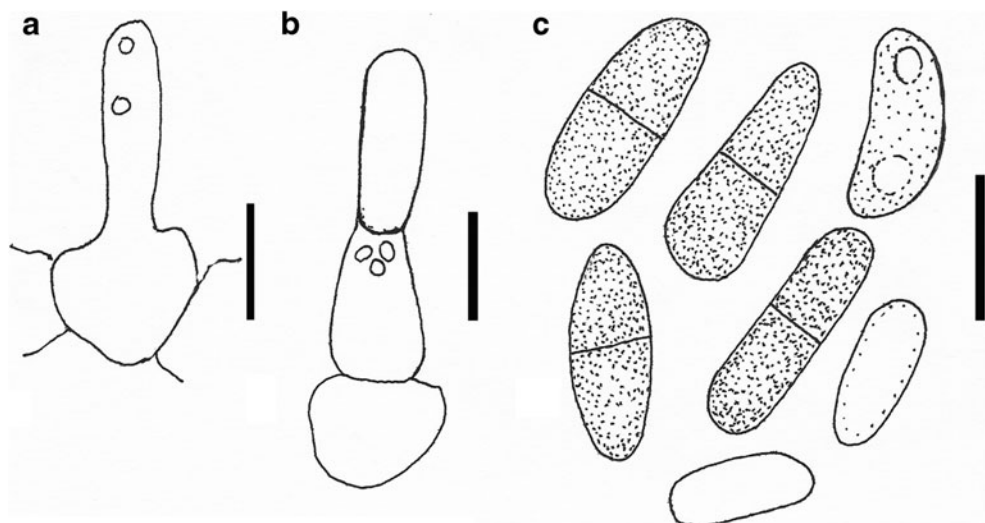
rhomboid, base truncate, pale brown, aseptate, smooth-walled, eguttulate (description modified from Sutton 1980).

Type species: Vanderystiella leopoldvilleana Henn. [as ‘leopoldvilliana’], Ann. Mus. Congo Belge, Bot. Série 5 2(3): 229 (1908); Fig. 271

Notes: Wildeman (1908) introduced *Vanderystiella* with *V. leopoldvilleana* as the type species. Petrak (1951) treated *Vanderystiella* as a synonym of *Deightonia* Petr. However, Sutton (1977, 1980) and Kirk et al. (2013) listed *Vanderystiella* as a valid genus, while listing *Deightonia* as its synonym. We also prefer to follow Sutton (1977, 1980) as *Vanderystiella* is the oldest name. The genus remains monotypic and sequence data is unavailable thus taxonomic placement is uncertain.

Verrucoconiothyrium Crous, Sydowia 67: 110 (2015)

Fig. 272 *Verrucoconiothyrium nitidae*. **a**, **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: a–c = 10 μ m. (re-drawn from Crous et al. 2015c)



Facesoffungi number: FoF 01726; Fig. 272

Dothideomycetes, Pleosporales, Massarineae, Didymosphaeriaceae

Pathogenic on Proteaceae (Dicotyledons). **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, sub-epidermal, globose, solitary, brown. *Conidiomata wall* composed of 3–4 layers of brown-walled cells of *textura angularis*. *Conidiogenous cells* proliferating percurrently, doliiform to ampulliform, discrete, smooth, hyaline to pale olivaceous. *Conidia* ellipsoidal to subcylindrical, medium brown, 0–1-septate, thick-walled, verruculose (description modified from Crous et al. 2015c).

Type species: Verrucoconiothyrium nitidae (Crous & Denman) Crous, Sydowia 67: 110 (2015); Fig. 272

Notes: Crous et al. (2015c) introduced *Verrucoconiothyrium* with *V. nitidae* as the type species.

Verrucoconiothyrium resembles with *Coniothyrium* but is distinct as the former genus has verruculose conidial walls. Phylogenetically both genera are distinct as *Verrucoconiothyrium* resides in *Didymosphaeriaceae*, while *Coniothyrium* resides in *Coniothyriaceae* (Figs. 9 and 15).

Versicolorisporium Sat. Hatak. et al., *Mycoscience* 49(3): [211] (2008)

Facesoffungi number: FoF 01727; Fig. 273

Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*, family *incertae sedis*, *Biatriosporaceae*

Saprobic on culms of bamboo. **Sexual morph:** Undetermined. **Asexual morph:** *Conidiomata* pycnidial, subepidermal, single to gregarious, subglobose to depressed globose, unilocular, black, with slightly papillate ostiole, with short hyaline periphyses, circular, central. *Conidiomatal wall* composed of vertically orientated rectangular, pale brown-walled cells of *textura angularis*; wall at the base flattened, poorly developed, composed of polygonal cells. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic,

ampulliform to cylindrical, unbranched, determinate, bearing a single terminal conidium, formed from the inner layer of the conidiomatal wall. *Conidia* obovoid, apex rounded, base truncate, 3-septate, with a submedian primary septum, smooth-walled; apical cell pale brown; second cell from the apex dark brown; third cell pale brown; basal cell hyaline (description modified from Hatakeyama et al. 2008).

Type species: Versicolorisporium triseptatum Sat. Hatak. Et al., *Mycoscience* 49(3): [211] (2008); Fig. 273

Notes: Hatakeyama et al. (2008) established *Versicolorisporium* with *V. triseptatum* as the type species. Mega blast result of LSU nrDNA sequences show the type species resides in *Pleosporales*, *Dothideomycetes* (Hatakeyama et al. 2008). In shape of conidia, *Versicolorisporium* is similar to *Phragmocamarosporium* (Wijayawardene et al. 2015), but the latter taxon has concolorous conidia, while the former has versicoloured conidia. *Versicolorisporium* also resembles *Toxosporiella*, but the latter genus has an oblique septum in the basal cell (Sutton 1986).

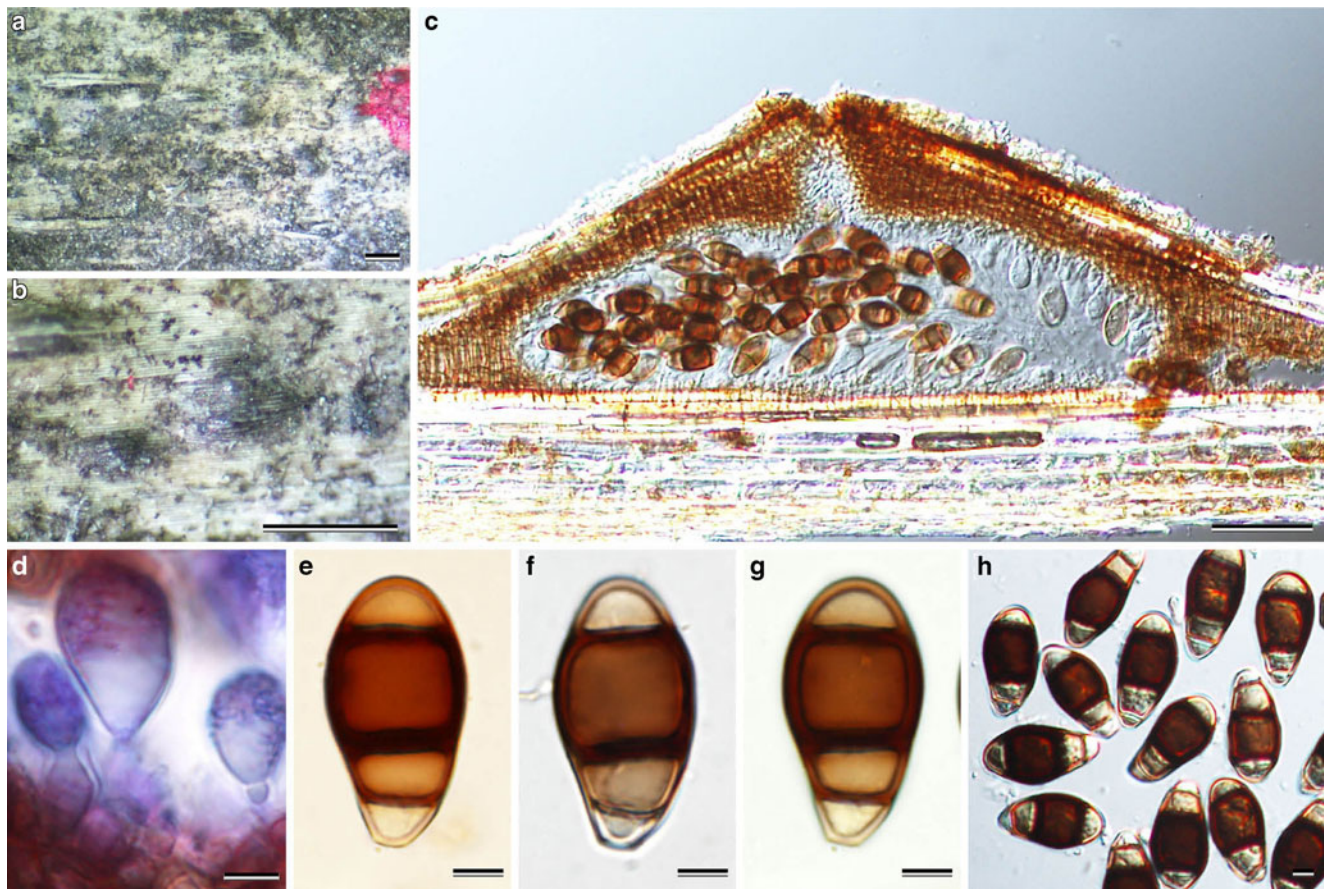


Fig. 273 *Versicolorisporium triseptatum* (Material examined: Japan, Aomori, Gonohe, Asamizu, on dead culms of *Pleioblastus*, 2 December 2003, K. Tanaka, N. Nakagawara, and S. Hatakeyama, HHUF 28815, holotype; single conidium isolate from the holotype = JCM 14775).

(a–g from HHUF 28815. h from culture JCM 14775). **a, b** Conidiomata on host surface. **c** Vertical section of conidioma. **d** Conidiogenous cells. **e–h** Conidia. Scale bars: a, b = 500 μ m, c = 50 μ m, d–h = 5 μ m

Versicolorisporium triseptatum resides in *Biatrisporaceae*, *Pleosporales* and groups with *Biatrispora marina* K.D. Hyde & Borse, the type species of *Biatrispora* in our phylogenetic analyses (Fig. 9). Hence, we conclude that *Biatrisporaceae* comprises two genera, *Biatrispora* and *Versicolorisporium*. Further, we predict that *Versicolorisporium* might represent the asexual morph of *Biatrispora*.

Vouauxiella Petr. & Syd., Beih. Reprint nov. Spec. Regni veg. 42(1): 482 (1927)

Facesoffungi number: FoF 01793; Fig. 274

Ascomycota, genera incertae sedis

Lichenicolous. Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* pycnidial, immersed, solitary, globose or subglobose, occasionally flask-shaped, unilocular, dark brown. *Conidiomata* wall composed of thick-, dark brown-walled cells of *textura angularis* to *textura intricata*. *Conidiophores* short, septate, irregularly branched at the base, pale brown, verrucose. *Conidiogenous cells* holothallic, integrated or discrete, determinate, hyaline to brown, verrucose. *Conidia* arthric, cylindrical or long cuneiform, both ends

truncate, but apical conidium with obtuse apex, brown or dark brown, aseptate, produced in simple unbranched basipetal chains (Morgan-Jones 1977; Sutton 1980; Diederich 2003).

Type species: *Vouauxiella verrucosa* (Vouaux) Petr. & Syd., Beih. Reprint nov. Spec. Regni veg. 42(1): 483 (1927) [1926]

≡ *Torula verrucosa* Vouaux, Bull. Soc. bot. Fr. 54: 697 (1907)

Notes: Petrak and Sydow (1927) described *Vouauxiella* for the two species *V. verrucosa* and *V. lichenicola* (Linds.) Petr. & Syd., both growing on *Lecanora* species. Morgan-Jones (1977) illustrated and re-described the type species, while Sutton (1980) added a third lichenicolous species, *V. pithospora* (Cavalc. & A.A. Silva) B. Sutton. Conidial development (arthric conidiogenesis) of *Vouauxiella* is similar to *Phragmotrichum*, *Neozythia* and *Cirrosporium*. A taxonomic key to distinguish *Vouauxiella* and related genera is provided under *Cirrosporium*. Sequence data is unavailable thus taxonomic placement is uncertain.

Wojnowiciella Crous et al., Persoonia, Mol. Phyl. Evol. Fungi 335: 201 (2015)

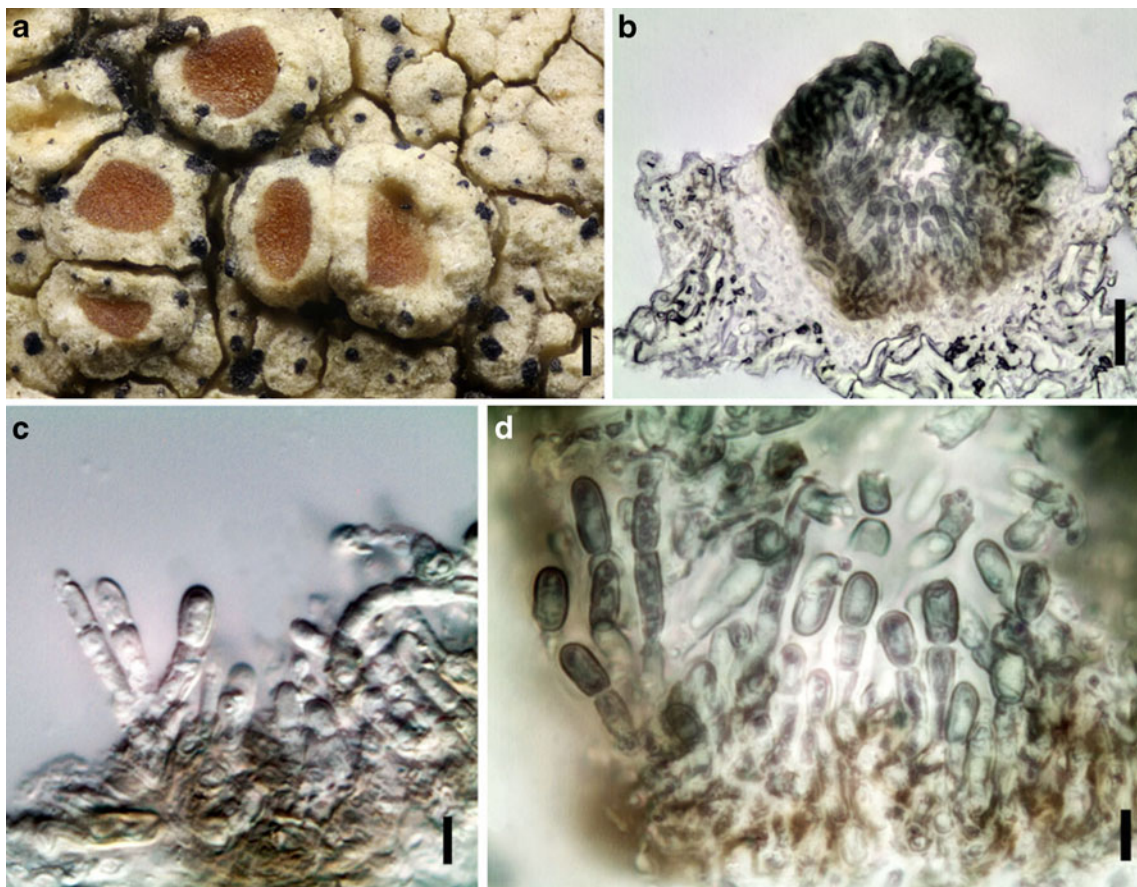


Fig. 274 *Vouauxiella lichenicola* (Material examined: Luxembourg, Ansembourg, 2005, P. Diederich 16175, herb. Diederich). **a** *V. lichenicola* on thallus of *Lecanora chlorotera*. **b** Vertical section of

conidioma. **c** Conidia attached to conidiogenous cells. **d** Conidia and different stages of conidiogenesis. Scale bars: **a** = 5 mm, **b** = 20 μ m, **c**, **d** = 5 μ m

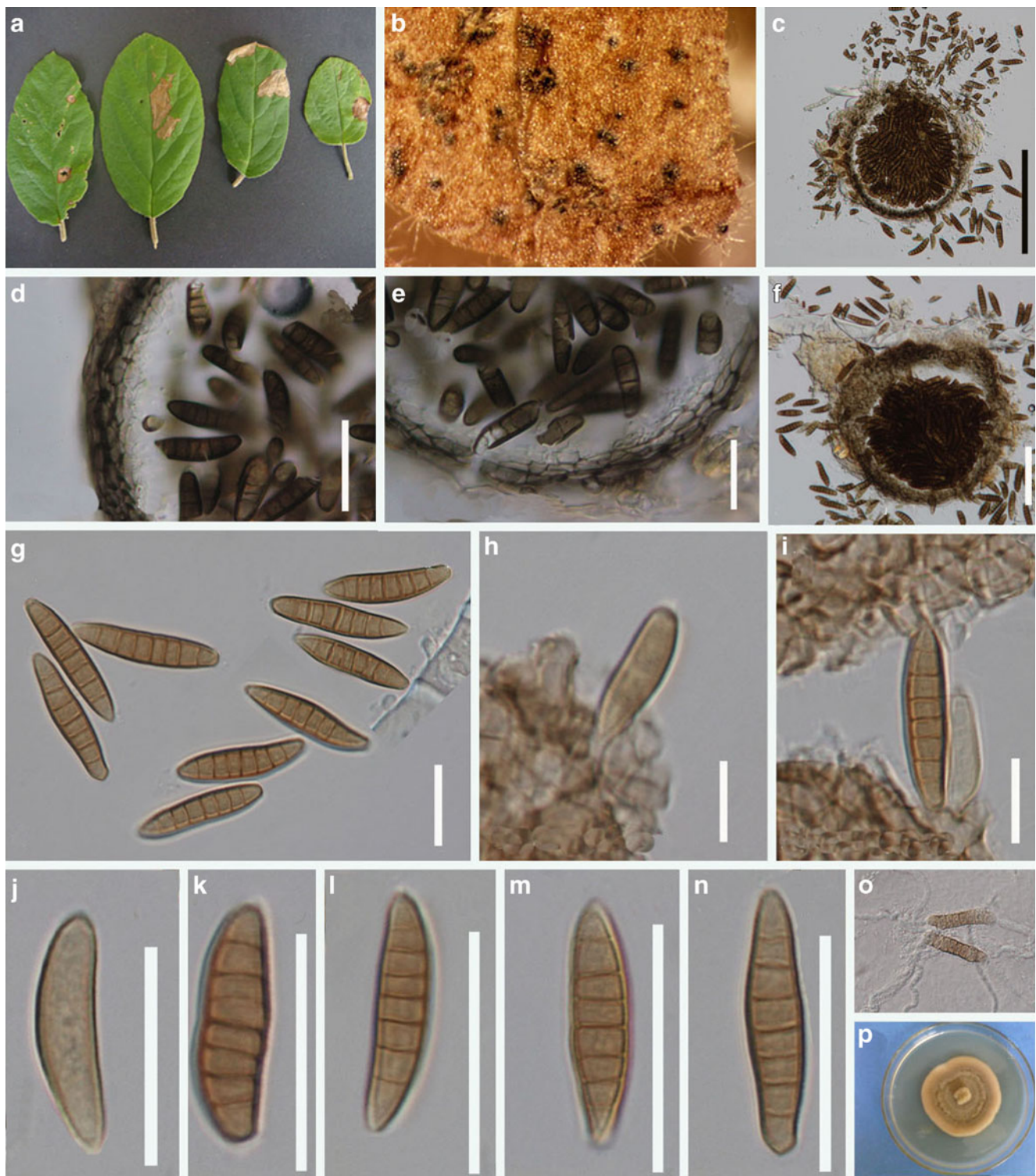
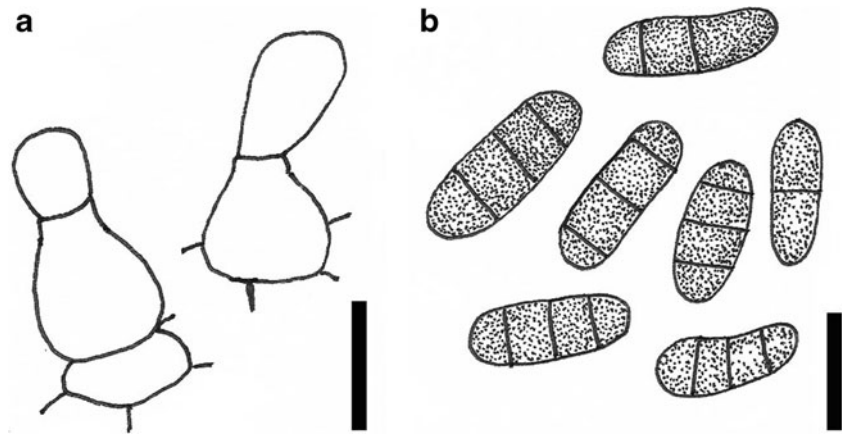


Fig. 275 *Wojnowiciella viburni* (Material examined: China, Guizhou Province, Kaiyang, Longguang, on *Viburnum utile*, leaves, 3 June 2012, N. Wijayawardene, HGUP500, holotype). **a** Leaf spot on leaves of *Viburni* spp. **b** Immersed conidiomata. **c, f** Longitudinal sections of conidiomata. **d, e** Conidiomata walls. **g, j–n** Conidia. **h–i** Developing

young conidia and mature conidium attached to conidiogenous cell. **o** Germinating conidia. **p** Culture on PDA. Scale bars: **c** = 100 μ m, **d** = 100 μ m, **f** = 200 μ m, **d, e, g–i** = 50 μ m, **j–n** = 20 μ m (from Wijayawardene et al. 2013a as *Wojnowicia viburni*)

Fig. 276 *Xenocamarosporium acaciae*. **a** Conidiogenous cells and conidiogenesis. **b** Conidia. Scale bars: **a**, **b** = 10 μ m (re-drawn from Crous et al. 2015d)



Facesoffungi number: FoF 01729; Fig. 275
Dothideomycetes, *Pleosporomycetidae*, *Pleosporales*,
Pleosporineae, *Phaeosphaeriaceae*
Endophytic, *saprobic* or associated with leaf spots. **Sexual morph**: Undetermined. **Asexual morph**: *Conidiomata* pycnidial, solitary, globose, unilocular, dark brown to black, apapillate. *Conidiomata* wall composed of thick-walled, brown cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* holoblastic,

ampulliform to subcylindrical, discrete, determinate, smooth, hyaline to pale brown. *Conidia* cylindrical to subcylindrical or ellipsoid, fusiform, base truncate, with several transverse septa, occasionally 1–2 oblique septa, thick or thin-walled, verrucose or smooth, golden brown. *Microconidiophores* subcylindrical, branched at the base, septate, hyaline, smooth. *Microconidiogenous cells* ampulliform to subcylindrical, phialidic, with periclinal thickening, hyaline, smooth. *Microconidia* subcylindrical to ellipsoid, apex obtuse to

Fig. 277 *Xenoconiothyrium catenatum*. **a** Conidiogenous cells and developing conidia. **b** Immature conidia as a chain. **c** Solitary matured conidia. Scale bars: a–c = 10 μ m (re-drawn from Crous et al. 2011c)

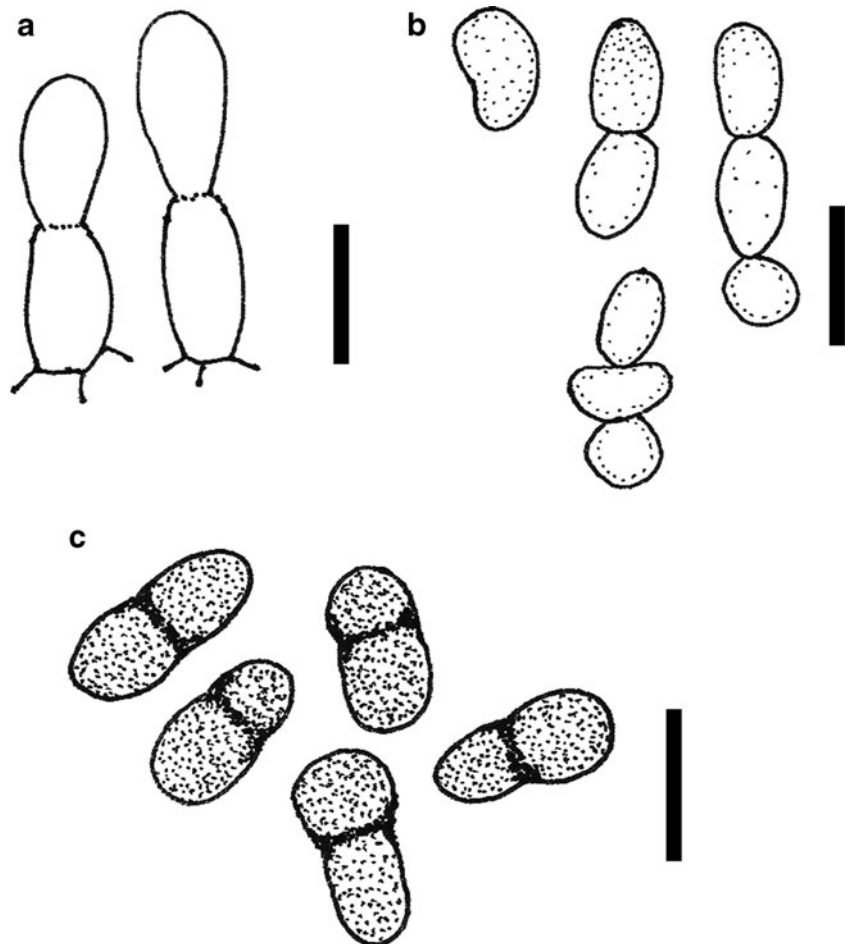




Fig. 278 *Xepicula leucotricha* (Material examined: Australia, Queensland, Brisbane, Chapel Hill, on dead leaves of *Phyla nodiflora*, 2 February 1995, J.A. Alcorn, BRIP 22613). **a** Herbarium material. **b** Conidioma from above with setae (superficial). **c, d** Vertical section of

conidiomata with setae. **e, f** Conidiogenous cells and different stages of conidiogenesis (periclinal thickenings are pointed by arrows). **g–i** Conidia. Scale bars: **b** = 80 μm , **c, d** = 50 μm , **e–g** = 8 μm

subobtuse, base truncate, smooth, hyaline, guttulate (Wijayawardene et al. 2013a; Crous et al. 2015d).

Type species: Wojnowiciella eucalypti Crous et al., Persoonia, Mol. Phyl. Evol. Fungi 335: 201 (2015)

Notes: Crous et al. (2015d) introduced *Wojnowiciella* with *W. eucalypti* Crous et al. as the type species. *Wojnowiciella*

resembles *Wojnowicia* in conidial morphology, but the latter genus has papillate conidiomata, with setae (Sutton 1980). Crous et al. (2015d) proposed to place *Wojnowicia viburni* Wijayaw. et al. (Wijayawardene et al. 2013b) under *Wojnowiciella* as it has conidiomata without setae. Moreover, Crous et al. (2015d) reported microconidia from

W. eucalypti, but Wijayawardene et al. (2013b) did not report microconidia from the culture.

Xenocamarosporium Crous & M.J. Wingf., *Persoonia*, *Mol. Phyl. Evol. Fungi* 335: 185 (2015)

Facesoffungi number: FoF 01730; Fig. 276

Dothideomycetes, *Pleosporales*, *Massariaceae*, *Didymosphaeriaceae*

Endophytic or *saprobic* on *Fabaceae* (Dicotyledons).

Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* pycnidial, solitary, globose, brown. *Conidiomata* wall composed of brown-walled cells of *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous* cells phialidic, ampulliform, hyaline, smooth, with periclinal thickening. *Conidia* ellipsoidal to subcylindrical, apex obtuse, base truncate to rounded, hyaline and smooth when immature, golden-brown and verruculose at maturity, transversely septate, thick-walled (modified description from Crous et al. 2015d).

Type species: ***Xenocamarosporium acaciae*** Crous & M.J. Wingf., *Persoonia*, *Mol. Phyl. Evol. Fungi* 335: 185 (2015)

Notes: The genus *Xenocamarosporium* was introduced by Crous et al. (2015d) with *X. acaciae* as the type species. *Xenocamarosporium* morphologically resembles *Melnikia* and *Pseudohendersonia*. However, these genera are phylogenetically distinct from *Xenocamarosporium* which resides in *Didymosphaeriaceae* (Fig. 15). Moreover, *Pseudohendersonia* has conidia with rounded ends, while

Xenocamarosporium has conidia with an obtuse apex truncate to rounded base.

Xenoconiothyrium Crous & Marinc., *Persoonia*, *Mol. Phyl. Evol. Fungi* 27: 42 (2011)

Facesoffungi number: FoF 01731; Fig. 277

Dothideomycetes, *Dothideomycetidae*, *Capnodiales*, *Teratosphaeriaceae*

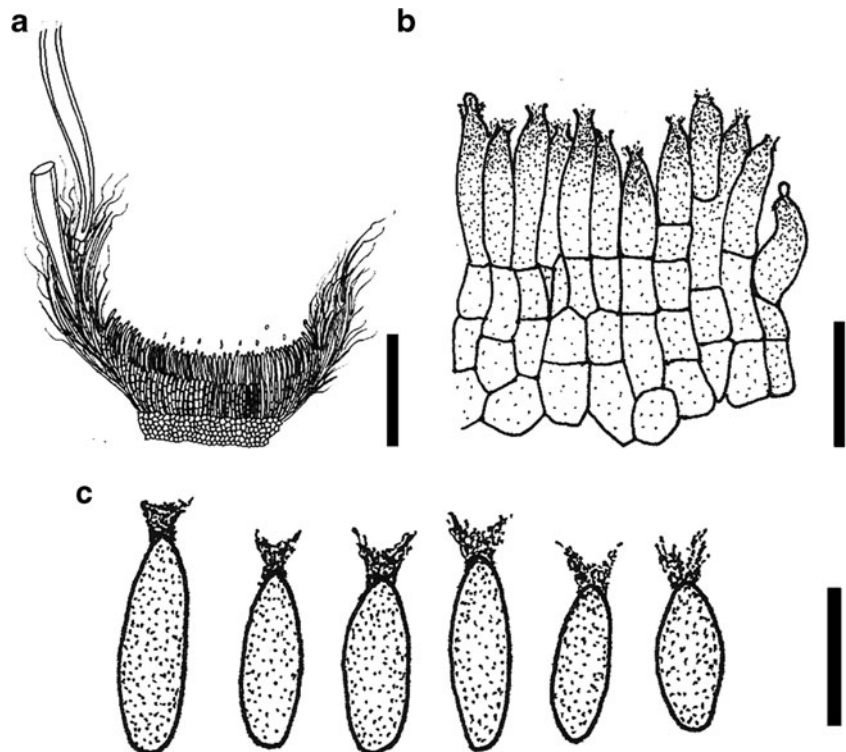
Endophytic or *saprobic* on *Proteaceae* (Dicotyledons).

Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* pycnidial. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* phialidic, ampulliform, tapering to an abrupt apex, hyaline. *Conidia* ellipsoid to subcylindrical, apex obtuse, thick-walled, hyaline and smooth when immature, verruculose and dark brown, 0(–1)-septate at maturity, continuous or constricted at the septum. Spermata hyaline, bacilliform (description modified from Crous et al. 2011c).

Type species: ***Xenoconiothyrium catenatum*** Crous & Marinc. [as ‘catenata’], *Persoonia*, *Mol. Phyl. Evol. Fungi* 27: 42 (2011); Fig. 277

Notes: Crous et al. (2011c) introduced *Xenoconiothyrium* with *X. catenatum* as the type species. However, Crous et al. (2011c) only mentioned the conidiomatal type as pycnidial but did not describe it in detail. Phylogenetically, *Xenoconiothyrium* is distinct from *Coniothyrium sensu stricto* (in *Pleosporineae*, *Coniothyriaceae*) and resides in *Teratosphaeriaceae*, *Capnodiales* (Crous et al. 2011c; Fig. 11).

Fig. 279 *Xepiculopsis graminea*. **a** Vertical section of conidioma. **b** Different stages of conidiogenesis. **c** Conidia. Scale bars: a = 100 μ m, b, c = 20 μ m (re-drawn from Nag Raj 1993)



Xepicula Nag Raj, Coelomycetous Anamorphs with Appendage-bearing Conidia (Ontario): 979 (1993)

Facesoffungi number: FoF 01732; Fig. 278

Ascomycota, genera incertae sedis

Endophytic or *saprobic* on *Poaceae* (Monocotyledons).

Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* stromatic, pulvinate to cupulate, with an excipulum. *Conidiomata* wall basal region composed of brown-walled cells of *textura globulosa* and *textura angularis*. *Setae* cylindrical to subulate, straight or curved, unbranched, thick-walled, with numerous septa. *Conidiophores* simple or branched, compact in a hymenium, hyaline, smooth. *Conidiogenous cells* holoblastic, sub-cylindrical to lageniform or ampulliform, discrete or integrated, hyaline, smooth. *Conidia* fusiform to ellipsoid, narrow towards obtuse apex, truncate base, aseptate, pale brown, thin-, smooth-walled, with apical, cup-like, mucoid appendage (description modified from Nag Raj 1993)

Type species: ***Xepicula leucotricha*** (Peck) Nag Raj, Coelomycetous Anamorphs with Appendage-bearing Conidia (Ontario): 980 (1993); Fig. 278

≡ *Excipula leucotricha* Peck, Ann. Rep. N.Y. St. Mus. nat. Hist. 29: 49 (1878) [1876]

Notes: Nag Raj (1993) introduced *Xepicula* with *X. leucotricha* to accommodate *Excipula leucotricha*. Nag Raj (1993) also introduced *Xepiculopsis*, which has similar morphological characters to *Xepicula* and further compared *Xepicula* to *Hymenopsis*. A taxonomic key is provided under *Xepiculopsis* to distinguish morphologically similar genera.

Xepiculopsis Nag Raj, Coelomycetous Anamorphs with Appendage-bearing Conidia (Ontario): 983 (1993)

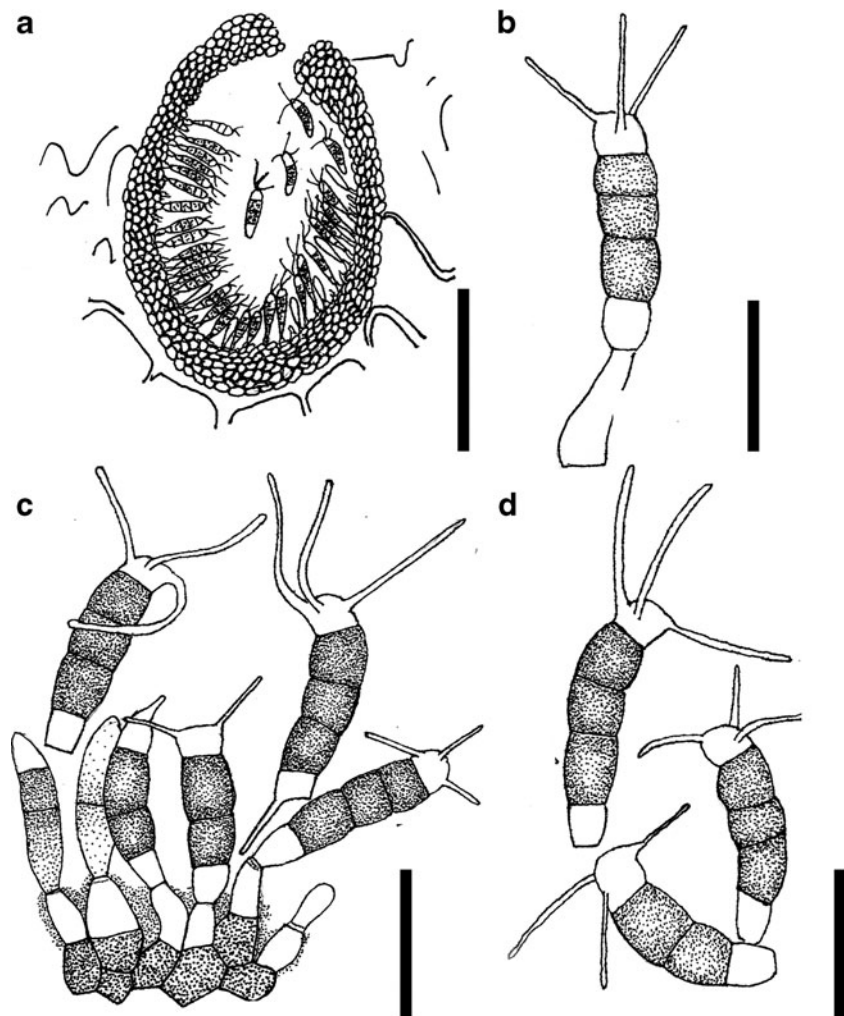
Facesoffungi number: FoF 01733; Fig. 279

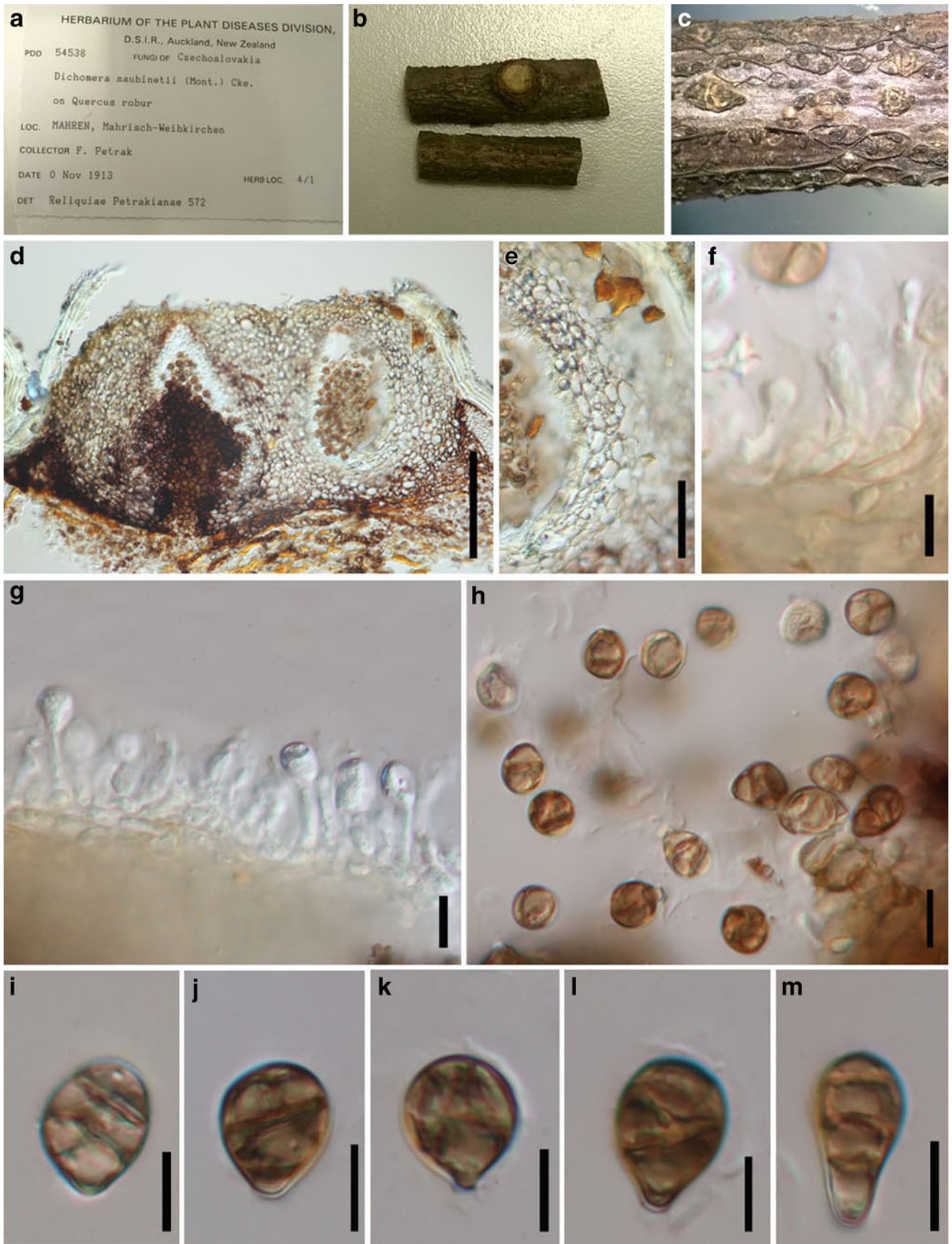
Ascomycota, genera incertae sedis

Foliicolous on *Poaceae* (Monocotyledons). **Sexual**

morph: Undetermined. **Asexual morph:** *Conidiomata* stromatic, pulvinate to cupulate, with an excipulum. *Conidiomata* wall basal region composed of brown-walled cells of *textura globulosa* and *textura angularis*. *Setae* subcylindrical to subulate, straight to curved, unbranched, thick-walled, smooth, aseptate, hyaline. *Conidiophores*

Fig. 280 *Zetiasplozna unicolor*. **a** Vertical section of conidioma. **b**, **c** Different stages of conidiogenesis. **d** Conidia. Scale bars: a = 50 μ m, b, c = 10 μ m (re-drawn from Nag Raj 1993)





◀ **Fig. 281** *Dichomera saubinetii* (Material examined: Mahren, Mährisch-Weibkirchen, on *Quercus robur*, November 1913, F. Petrak, PDD 54538). **a** Label of herbarium specimen. **b** Herbarium specimens. **c** Conidiomata on host. **d** Vertical section of conidioma. **e** Conidioma wall. **f, g** Different stages of conidiogenesis. **h–m** Conidia. Scale bars: **d** = 150 μm , **e** = 60 μm , **f, g** = 5 μm , **h–m** = 10 μm

simple to branched, hyaline, smooth. *Conidiogenous cells* holoblastic, subcylindrical to lageniform or ampulliform, discrete or integrated, hyaline, smooth. *Conidia* fusiform to ellipsoid, apex obtuse, base truncate, aseptate, pale brown, thin and smooth-walled, with an apical cap-like mucoid appendage (description modified from Nag Raj 1993).

Type species: Xepiculopsis perpulchra Nag Raj, Coelomycetous Anamorphs with Appendage-bearing Conidia (Ontario): 986 (1993); Fig. 279

Notes: Nag Raj (1993) introduced *Xepiculopsis* with *X. perpulchra* as the type species. Nag Raj (1993) also introduced a second species, hence the genus comprises two species. *Xepiculopsis* morphologically resembles *Xepicula* and *Hymenopsis*. The taxonomic key below can be used to distinguish *Xepiculopsis* from related genera.

Key to *Xepiculopsis* and related genera

1. Stromatic conidiomata without excipulum *Hymenopsis*
1. Stromatic conidiomata with excipulum 2
2. Setae with septa *Xepicula*
2. Setae without septa *Xepiculopsis*

Zetiasplozna Nag Raj, Coelomycetous Anamorphs with Appendage-bearing Conidia (Ontario): 996 (1993)

Facesoffungi number: FoF 01734; Figs. 280

Sordariomycetes, Xylariomycetidae, Amphisphaeriales, Bartaliniaceae

Foliicolous or *fructicolous* or saprobic on wood.

Sexual morph: Undetermined. **Asexual morph:** *Conidiomata* stromatic or pycnidial to indeterminate or variable, immersed to erumpent, globose or depressed globose, unilocular, brown or black. *Conidiomata wall* composed thick-walled, brown cells of *textura angularis*, becoming thin-walled and paler towards inner layer. *Conidiophores* reduced to conidiogenous cells or with a supporting cell, invested in mucus. *Conidiogenous cells* holoblastic, ampulliform, discrete, hyaline, thin-, smooth-walled. *Conidia* fusiform to subcylindrical, straight to slightly curved, 4-septate, continuous or slightly constricted, bearing appendages, apical cell conical, median cells sub-hyaline to pale brown, guttulate; apical cell sub-hyaline, with unbranched, flexuous, cellular apical appendage; basal cell obconic,

truncate base, hyaline, with or without cellular, unbranched, single appendage (Nag Raj 1993; Matsushima 1996; Crous et al. 2014b)

Type species: Zetiasplozna unicolor (Berk. & M.A. Curtis) Nag Raj, Coelomycetous Anamorphs with Appendage-bearing Conidia (Ontario): 1002 (1993); Fig. 280

Notes: Nag Raj (1993) introduced *Zetiasplozna* with *Z. unicolor* as the type species. At the same time, Nag Raj (1993) accepted three further species, *Z. cordylines* (Speg.) Nag Raj, *Z. heteromorpha* (Thüm.) Nag Raj and *Z. thuenenii* (Speg.) Nag Raj. Matsushima (1996) and Crous et al. (2014b) introduced *Z. caffra* Matsush. and *Z. acaciae* Crous respectively. In conidial morphology, *Zetiasplozna* is similar to *Bartaliniina*, but the latter genus has branched apical appendages, while the former has unbranched apical appendages.

Based on mega blast search of ITS and LSU sequence data of *Z. acaciae*, Crous et al. (2014b) stated it belongs to *Amphisphaeriaceae*. Our phylogenetic analyses indicate that *Z. acaciae* belongs in *Bartaliniaceae* and clusters as the sister clade to *Morinia sensu stricto*.

Poorly known genera

In this section we list the genera with lack of data and with confusion among older literature.

Psammia Sacc. & M. Rousseau ex E. Bommer & M. Rousseau, Bull. Soc. R. Bot. Belg. 29(1): 295 (1891)

Notes: Sutton (1980) treated *Psammia* as a coelomycetous genus with ‘acervular’ conidiomata. However, Hawksworth (1979) mentioned that the type species of *Psammia*, *P. bommerae* Rouss. & Sacc show ‘a rudimentary stroma’ hence subsequent publications by Earland-Bennett and Hawksworth (1999, 2005) treated *Psammia* as a hyphomycetous genus. *Psammia* species are reported as lichenicolous, algicolous and lichen-forming taxa (Earland-Bennett and Hawksworth 1999, 2005).

Sclerodothiorella Died., Krypt.-Fl. Brandenburg (Leipzig) 9: 299 (1912).

Notes: Sutton (1977) listed *Sclerodothiorella* in his list of generic names but stated the type species as *Dothiorella populina* P. Karst. *Sclerodothiorella* is listed as a synonym of *Dothiorella* in Species Fungorum (2016). However, Kirk et al. (2008) recognized *Sclerodothiorella* as a distinct genus, while neither Sutton (1980) nor Kirk et al. (2013) listed it as a distinct genus.

Microdiplodia Allesch., Rabenh. Krypt.-Fl., Edn 2 (Leipzig) 1(7): 78 (1901) [1903]

Notes: Approximately, 400 names have been listed in Index Fungorum (2016). Sutton (1977) did not confirm the validity of *Microdiplodia* in his accepted genera of coelomycetes i.e. ‘Coelomycetes VI. Nomenclature of generic names proposed

Table 8 Summary of adopted names and suppressed names of pleomorphic coelomycetous genera (Agreeing to Article 59.1)

Adopted names	Suppressed name or names (sexual or asexual or synasexual)	References
<i>Arthriniium</i> Kunze	<i>Apiospora</i> Sacc.	Senanayake et al. 2015
<i>Camarosporula</i> Petr.	<i>Anthracostroma</i> Petr.	Rossmann et al. 2015
<i>Ascodichaena</i> Butin	<i>Polymorphum</i> Chevall. (H)*	Johnston et al. 2014
<i>Blumeriella</i> Arx	<i>Microgloeum</i> Petr., <i>Phloeosporella</i> Höhn. (H)	Johnston et al. 2014
<i>Botryohypoxylon</i> Samuels & J.D. Rogers	<i>Iledon</i> Samuels & J.D. Rogers	Wijayawardene et al. 2014d
<i>Botryosphaeria</i> Ces. & De Not.	<i>Fusicoccum</i> Corda(H)	Phillips et al. 2013; Wijayawardene et al. 2014d
<i>Capnodium</i> Mont. <i>Chaetomella</i> Fuckel (= <i>Volutellopora</i> Thirum. & P.N. Mathur = <i>Harikrishnaella</i> D.V. Singh & A.K. Sarbhoy) (H)	<i>Polychaeton</i> (Pers.) Lév. (H)	Chomnunti et al. 2011
<i>Chlorociboria</i> Seaver ex C.S. Ramamurthi et al.	<i>Dothiorina</i> Höhn (H)	Johnston et al. 2014
<i>Coma</i> Nag Raj & W.B. Kendr.	<i>Ascocoma</i> H.J. Swart	Johnston et al. 2014
<i>Crumenulopsis</i> J.W. Groves	<i>Digitosporium</i> Gremmen	Johnston et al. 2014
<i>Cyclopeltis</i> Petr.	<i>Cyclopeltella</i> Petr. (H)	Wijayawardene et al. 2014d
<i>Diplocarpon</i> F.A. Wolf (= <i>Entomopeziza</i> Kleb.)	<i>Entomosporium</i> Lév., <i>Bostrichonema</i> Ces., (H)	Johnston et al. 2014
<i>Diaporthe</i> Nitschke	<i>Phomopsis</i> (Sacc.) Bubák (H)	Udayanga et al. 2011
<i>Discosia</i> Lib.	<i>Adisciso</i> Kaz. Tanaka et al.	In this study
<i>Elsinoë</i> Racib.	<i>Sphaceloma</i> de Bary (H)	Hyde et al. 2013
<i>Godronia</i> Moug. & Lév.	<i>Sphaeronaema</i> Fr., <i>Topospora</i> Fr., (= <i>Mastomyces</i> Mont. ' = <i>Clinterium</i> Fr.), <i>Fuckelia</i> Bonord., <i>Chondropodiella</i> Höhn. (H)	Johnston et al. 2014
<i>Gremmeniella</i> M. Morelet	<i>Brunchorstia</i> Erikss. (H)	Johnston et al. 2014
<i>Heterosphaeria</i> Grev.	<i>Heteropatella</i> Fuckel (H)	Johnston et al. 2014
<i>Hyalotiopsis</i> Punith.	<i>Ellurema</i> Nag Raj & W.B. Kendr.	In this paper
<i>Hypohelion</i> P.R. Johnst.	<i>Leptostroma</i> Fr. (H)	Johnston et al. 2014
<i>Kalmusia</i> Niessl	<i>Dendrothyrium</i> Verkley et al.	Ariyawansa et al. 2014b
<i>Kellermania</i> Ellis & Everh. (H)	<i>Planistromella</i> A.W. Ramaley	Minnis et al. 2012; Hyde et al. 2013
<i>Lecanosticta</i> Syd.	<i>Eruptio</i> M.E. Barr	Crous et al. 2009b; Hyde et al. 2013; Wijayawardene et al. 2014d
<i>Leptotrochila</i> P. Karst.	<i>Sporonema</i> Desm. (H)	Johnston et al. 2014
<i>Micraspis</i> Darker	<i>Periperidium</i> Darker(H)	Johnston et al. 2014
<i>Monochaetiopsis</i> B. Sutton & DiCosmo (H)	<i>Hypnotheca</i> Tommerup	Johnston et al. 2014
<i>Neofabraea</i> H.S. Jacks.	<i>Phlyctema</i> Desm. (= <i>Allantozythia</i> Höhn) (H)	Johnston et al. 2014
<i>Ocotomyces</i> H.C. Evans & Minter	<i>Uyucamyces</i> H.C. Evans & Minter (H)	Johnston et al. 2014
<i>Pezicula</i> Tul. & C. Tul.	<i>Cryptosporiopsis</i> Bubák & Kabát (= <i>Lagynodella</i> Petr.) (H)	Johnston et al. 2014
<i>Phacidiopycnis</i> Potebnia (= <i>Discosporiopsis</i> Petr.) (H)	<i>Potebniamyces</i> Smerlis	Johnston et al. 2014
<i>Phacidium</i> Fr.	<i>Ceuthospora</i> Grev.	Johnston et al. 2014
<i>Phaeosphaeria</i> I. Miyake	<i>Phaeoseptoria</i> Speg.	Quaedvlieg et al. 2013; Wijayawardene et al. 2014d
<i>Phyllosticta</i> Pers. (H)	<i>Guignardia</i> Viala & Ravaz	Wikee et al. 2011, 2013a
<i>Pilidium</i> Kunze (= <i>Sclerotiopsis</i> Speg.)	<i>Discohainesia</i> Nannf., <i>Hainesia</i> Ellis & Sacc. (H)	Johnston et al. 2014
<i>Ploioderma</i> Darkern	<i>Cryocaligula</i> Minter (H)	Johnston et al. 2014
<i>Pragmopora</i> A. Massal	<i>Pragmopycnis</i> B. Sutton & A. Funk (H)	Johnston et al. 2014

Table 8 (continued)

Adopted names	Suppressed name or names (sexual or asexual or synasexual)	References
<i>Prillieuxina</i> G. Arnaud	<i>Leprieurina</i> G. Arnaud	Hongsanan et al. 2014; Wijayawardene et al. 2014d
<i>Prosthemium</i> Kunze	<i>Pleomassaria</i> Speg.	Tanaka et al. 2010; Wijayawardene et al. 2014d
<i>Pycnopeziza</i> W.L. White & Whetzel	<i>Acarosporium</i> Bubák & Vleugel ex Bubák (= <i>Chaetalysis</i> Peyrone, <i>Ciliosira</i> Syd.) (H)	Johnston et al. 2014
<i>Pyrenopeziza</i> Fuckel	<i>Cylindrosporium</i> Grev. (H)	Johnston et al. 2014
<i>Rhizothyrium</i> Naumov (H)	<i>Rhizocalyx</i> Petr.	Johnston et al. 2014
<i>Rhytisma</i> Fr	<i>Melasmia</i> Lév. (H)	Johnston et al. 2014
<i>Scleropezicula</i> Verkley	<i>Cryptosymphodula</i> Verkley (H)	Johnston et al. 2014
<i>Seimatosporium</i> Corda	<i>Vermisporium</i> H.J. Swart & M.A. Will.	Barber et al. 2011
<i>Septoriella</i> Oudem.	<i>Wojnowicia</i> Sacc.	Crous et al. 2015a, b
<i>Sphaeropsis</i> Sacc.	<i>Phaeobotryosphaeria</i> Speg.	Phillips et al. 2013
<i>Stannaria</i> Fuckel	<i>Titaeospora</i> Bubák (H)	Johnston et al. 2014
<i>Stilbospora</i> Pers.	<i>Prosthecium</i> Fresen.	Voglmayr and Jaklitsch 2014
<i>Teratosphaeria</i> Syd. & P. Syd.	<i>Colletogloeopsis</i> Crous & M.J. Wingf., <i>Kirramyces</i> J. Walker et al.	Crous et al. 2009b
<i>Tympanis</i> Tode	<i>Sirodothis</i> Clem. (= <i>Pleurophomella</i> Höhn) (H)	Johnston et al. 2014
<i>Unguiculariopsis</i> Rehm	<i>Deltosperma</i> W.Y. Zhuang	Johnston et al. 2014

Coelomycetous stage is in bold; (Hn) = with hyaline conidia

for Coelomycetes' thus Sutton (1980) did not list *Microdiplodia* as a recognized genus.

Crous and Groenewald (2006) introduced *Microdiplodia* hawaiiensis based on its small, brown, 1-septate conidia, and their occurrence on stems and branches. However, Damm et al. (2008) showed *M. hawaiiensis* clusters with *Paraconiothyrium sensu stricto* thus transferred to *Paraconiothyrium*. Hence, the generic stability of *Microdiplodia* is problematic thus need further re-collections are needed with molecular based studies.

Discussion

Hidden species and genera

The number of fungal species was estimated as 1.5 million by Hawksworth (1991). However, the introduction of molecular techniques, including phylogenetic analyses, since 1990 the number of new taxa has increased dramatically. O'Brien et al. (2005) and Blackwell (2011) estimated the number of global fungal species to be around 5.1 million, while Hawksworth (2012) stated that it would be appropriate to use 'at least 1.5, but probably as many as 3 million'. Nevertheless, Hawksworth (2012) mentioned that the number of fungi will increase with the extensive taxonomic studies in tropics and utilization of sequence based taxonomy as well.

Kirk et al. (2008) stated that there are 1000 genera of coelomycetes comprising over 7000 known species. However, recent molecular based studies showed many species are actually species complexes comprising cryptic species, i.e. species identical in morphology and thus hard to distinguish, but resolved as distinct species based on sequence data (Alves et al. 2008). For example, several 'species' of *Colletotrichum* (Hyde et al. 2009a, b; Damm et al. 2012, 2013, 2014; Liu et al. 2013), *Diaporthe* (Udayanga et al. 2012), *Diplodia* (Alves et al. 2014), *Lasiodiplodia* (Alves et al. 2008), *Pestalotiopsis* (Maharachchikumbura et al. 2014) have been shown to be species complexes.

Furthermore, several genera that were treated as polyphyletic e.g., *Camarosporium*, *Coniothyrium*, *Phoma*, etc. are now known to be monophyletic, and at the same time new genera have been introduced (Verkley et al. 2004, 2014; de Gruyter et al. 2009, 2013; Wijayawardene et al. 2014e; Crous et al. 2015d). Hence the number of genera and species of coelomycetes is expected to increase dramatically over the coming decades.

Identification, detection methods and quarantine needs

Several coelomycetous genera are well known plant pathogens and it is essential within many disciplines and industries such as agriculture, horticulture, plant breeding and export–import industry to be able to reliably identify the species. Traditionally pathogens were identified based on characters

of disease material (Hyde et al. 2010) and culture based morphological methods (Lievens and Thomma 2005). However, as many of the pathogens are species complexes (Damm et al. 2012; Alves et al. 2008, 2014; Hyde et al. 2014) the use of traditional methods has become questionable (Abd-Elsalam et al. 2010). Hence, modern techniques including molecular detection methods and polyphasic approaches are strongly recommended (Cai et al. 2009; Aveskamp et al. 2010; Hyde et al. 2014). Precise identification is essential for producers or farmers, exporters and quarantine authorities to avoid unnecessary losses (Meyer et al. 2012). Fluorescence in situ hybridisation (FISH), DNA array technology and Multiplex tandem PCR are some modern detecting techniques used in fungal identification.

At the same time, it is essential to maintain viable living cultures of plant pathogenic species that have economic and quarantine importance. Maintaining such a culture collection is important as the cultures can be used as standards, for improving disease resistant plants in breeding programs (Abd-Elsalam et al. 2010).

Natural classification and 1 F = 1 N

Since most of the important genera show pleomorphism i.e. ‘they occur as sexual and asexual states through their life history, but may be separated in time and space’ (Kendrick 1979), Saccardo (1904) proposed the dual system of fungal nomenclature. However, proposing two or more names for different states has caused confusion, misunderstanding and contradiction among taxonomists and pathologists (Cannon and Kirk 2000; Wingfield et al. 2012). Hence, the 18th International Botanical Congress, in Melbourne, Australia in 2011 (Hawksworth 2012) governed that the separate nomenclatural system will not be accepted from 30 July 2011 (Hawksworth 2012; Wingfield et al. 2012). The international Commission of Taxonomy of Fungi (ICTF) appointed different working groups to prepare lists for adopting names for pleomorphic genera. With the involvement of well-known taxonomists and pathologists, adopted lists were discussed at the 10th International Mycological Congress (Redhead 2014) and published in various journals (Johnston et al. 2014; Stadler et al. 2014; Wijayawardene et al. 2014d).

Future usage of several pleomorphic fungi with coelomycetous asexual morphs have been discussed in Johnston et al. (2014), Stadler et al. (2014) and Wijayawardene et al. (2014c) and Maharachchikumbura et al. (2015). Beside the mentioned publications, Crous et al. (2009b), Barber et al. (2011), Minnis et al. (2012), Quaedvlieg et al. (2013), Ariyawansa et al. (2014b), Hongsanan et al. (2014), Voglmayr and Jaklitsch (2014), and Senanayake et al. (2015) also discussed pleomorphic genera. Table 8 summarizes future adoptions in nomenclature of pleomorphic genera with coelomycetous asexual morphs.

Botryosphaeria-Dichomera-Neofusicoccum

The taxonomic background of *Botryosphaeria* has been discussed in recent studies by Liu et al. (2012) and Phillips et al. (2013). Briefly, the original concept of the genus by Cesati and De Notaris (1863) was expanded over the years to encompass a broad range of morphologies. For example, Denman et al. (2000) mentioned that approximately 18 asexual genera have been linked with *Botryosphaeria sensu lato*. Among these, *Diplodia*, *Dothiorella*, *Fusicoccum*, *Lasiodiplodia*, *Macrophoma* and *Sphaeropsis* have been the subject of detailed taxonomic studies (Sivanesan 1984, Denman et al. 2000; Barber et al. 2005; Phillips et al. 2008, 2013; Liu et al. 2012). In view of the wide range of morphologies associated with *Botryosphaeria sensu lato*, Crous et al. (2006a) re-evaluated the genus and showed that it consists of 10 phylogenetic lineages, representing 10 distinct genera. As a result, Crous et al. (2006a), Phillips et al. (2008, 2013), Liu et al. (2012) and Slippers et al. (2013) recognized *Botryosphaeria* as a relatively small, monophyletic genus in the *Botryosphaeriaceae* with *Fusicoccum* asexual morphs. Since *Botryosphaeria* is the more commonly used name and is the type genus of the *Botryosphaeriaceae*, the older asexual typified name was treated as a synonym of the sexual typified name (Phillips et al. 2013; Wijayawardene et al. 2014d). Seven species were accepted by Phillips et al. (2013) who mentioned that six species are reported with asexual morphs or only as asexual morph.

Crous et al. (2006a) introduced *Neofusicoccum*, which morphologically resembles *Fusicoccum*, but is phylogenetically distinct. Barber et al. (2005) described a dichomera-like asexual morph associated with some species of *Neofusicoccum* (which they reported as *Fusicoccum*), while Phillips et al. (2005, 2013) revealed that some isolates of *Botryosphaeria dothidea* also form a similar synasexual morph. Hence, it is not possible to differentiate *Botryosphaeria* (including *Fusicoccum* species) from *Neofusicoccum* based on dichomera-like synasexual morphs. In our phylogenetic analyses of combined ITS and EF sequence data, dichomera-like taxa cluster in *Botryosphaeria* and *Neofusicoccum* (Fig. 13). An isolate of the type species of *Dichomera*, *D. saubinetii*, (Fig. 281) resides in *Fusicoccum*, but this strain (CBS 990.70) was not derived from the type. Therefore we decline to treat *Dichomera* as a synonym of *Botryosphaeria*, but stress that it is important to epitypify the type species of *Dichomera* and designate an ex-epitype strain.

Orphan genera, re-collecting and epitypification

Approximately, 700 of coelomycetous taxa can be treated as orphan genera that are not placed in any taxonomic level

(Wijayawardene et al. 2012b). However, it is important to place these orphan genera in a natural classification system. Hence, taxonomists rely on sequence data to understand the taxonomic positions and sexual-asexual relationships.

Most of the coelomycetous genera lack cultures and sequence data is unavailable or some genera lack molecular data of the type species. It is essential to re-collect and epitypify species of particular genera (Ariyawansa et al. 2014a). Moreover, culture based studies and phylogenetic studies must be carried out to establish clear generic boundaries, taxonomic placements and sexual-asexual relationships.

Fungus-Host Index for dematiaceous coelomycetes

In this section, we summarize the host-fungi relationships based on Sutton (1980), Nag Raj (1993), Ellis and Ellis (1985, 1997), Farr and Rossman (2016) and other recent publications. However, we list host of type species and other species belong to sensu stricto of the respective genus when there are more than ten epithets in Index Fungorum (2016). Genera occur on more than ten host species are indicated by asterisk and referred to USDA.

Alanphillipsia

Aloe sp.
Euphorbia sp.
Amarenographium
Ammophila arenaria
Uniola paniculata
Palm sp.
Trachycarpus fortunei

Amerosporium

Aizoon canariense
Boerhaavia diffusa
Cassia auriculata
Clerodendrum inerme
Conium maculatum
Cycas revoluta
Cynodon dactylon
Micromeria sp.

Sarcopoterium spinosum

Solanum sp.

Sonchus sp.

Typha elephantina

Ampelomyces

USDA*

Angiopomopsis

Phragmites sp.

Annellolacinia

Ananas comosus

Ananas sativus

Carica papaya

Pandanus furcatus

Pandanus minor

Anthracostroma

Persoonia sp.

Syagrus flexuosa

Aplosporella

Bursera penicillata

Lasiosiphon eriocephalus

Parthenium hysterophorus

Pyrostegia venusta

Robinia pseudoacacia

Apoharknessia

Eucalyptus pellita

Eucalyptus robusta

Ascochyulina

Lonicera fragrantissima

L. tatarica

Olea europaea

Pinus maximinoi

Smilax pulverulenta

Tillandsia multicaulis

T. polystachia

Asterosporium

Betula alleghaniensis

B. davurica

B. ermanii

B. davurica

B. fruticosa

B. lutea

B. occidentalis

B. papyrifera

B. pendula

Fagus crenata

F. grandifolia

F. sylvatica

Juglans sp.

Avettaea

Salvadora persica

S. oleoides

Xanthorrhoea sp.

Bambusicola

Bambusa spp.

Barnettella

Borassus flabellifer

Cynodon dactylon

Dichanthium annulatum

Urvillea ulmacea

Zea mays

Bartalinia*

USDA

Bellulicauda

Dialium angolense

*D. guineense***Blastacervulus***Eucalyptus obliqua**E. robertsonii***Bleptosporium***Monttea aphylla***Botryohyoxylon**

Unidentified Leguminose

Brencklea*Andropogon bellum**A. tectorum**Sisyrinchium angustifolium***Callistospora***Danthonia frigida***Camarographium***Acacia sphaerocephala**Ammophila* sp.*Betula papyrifera**Carpinus betulus**Cornus kousa**Pteridium aquilinum**Scorzonera pusilla**Stachytarpheta jamaicensis***Camarosporellum***Cercocarpus hypoleucus**C. ledifolius**Magnolia pumila**Prunus spinosa***Camarosporiopsis***Capparis decidua***Camarosporium***Capparis aphylla**Lycium europaeum**Lycium halimifolium**L. intricatum**Suaeda fruticosa***Capitorostrum***Cocos nucifera**Cryptocarya meissneri***Capnodiastrum***Calamus* sp.*Celtis boliviensis**Eleiodoxa conferta**Santalum album**Trema micranthae**Trema orientalis**Xylosma salzmanni***Ceratopycnis***Clematis grata**C. vitalba***Chaetodiplodia***Cattleya* sp.*Chenopodium album**Citrus aurantifolia**Ephedra ochreatea**Euonymus japonica**Grewia populifolia**Halimione portulacoides**Quillaja saponaria***Cheirospora***Alnus incana**Betula pubescens**Carpinus betulus**C. caroliniana**C. orientalis**Cornus* sp.*Fagus crenata**F. grandifolia**F. orientalis**F. sylvatica**Hedera helix***Chithramia***Oryza sativa***Ciliochorella***

USDA

Cirrosporium*Weinmannia racemosa***Colletogloeum***Dalbergia sissoo***Coma***Eucalyptus parviflora**Kunzea ericoides***Coniella***Ananas comosus**Paeonia officinalis**Pisum sativum**Vicia faba**Morus alba***Coniothyrium***Antopetitia* sp.*Camellia* sp.*Chamaerops humilis**Ocimum* sp.*Phoenix dactylifera**Thrinax* sp.*Trachycarpus excelsa***Coryneum***

USDA

Cyclothyrium*Acer truncatum**Juglans regia**Sambucus racemosa***Cytoplea***Acacia modesta**Adenia* sp.*Albizia julibrissin*

Arundo donax
Bambusa sp.
Hypoxylon rubiginosum
Mangifera indica
Morus alba
Phoenix sp.
Phragmites karka
P. australis
Phyllostachys edulis
P. heterocycla
Poncirus trifoliata
Viburnum grandiflorum
Wisteria sp.
Ziziphus oxyphylla
Z. sativa
Davisoniella
Eucalyptus marginata
Didymellocomarosporium
Tamarix sp.
Didymosporina
Acer campestre
A. ibericum
A. laetum
A. negundo
A. platanoides
Rhus viminalis
Digitosporium
Pinus halepensis
Pinus larix
Dimorphiopsis
Brachystegia spiciformis
Dinemasporium*
 USDA
Diplodia
 USDA
Discosia
 USDA
Dothideodiplodia
Agropyron repens
Dothiorella*
 USDA
Dwiroopa
Lythrum salicaria
Endobotrya
Fagus grandifolia
Endobotryella
Pinus sp.
Endocoryneum
Fraxinus excelsior
Endomelanconiopsis
Theobroma cacao
Endomelanconium
Casuarina sp.

Eucalyptus sp.
Phoenix hanceana
Enerthidium
Canarium schweinfurthii
Epithyrium
Juniperus occidentalis
Pinus sylvestris
Fairmaniella
Eucalyptus camaldulensis
E. delegatensis
E. fasciculosa
E. fastigata
E. globulus
E. wandoo
Gaubaea
Calligonum arborescens
C. caput-medusae
C. comosum
C. eriopodum
C. microcarpum
C. setosum
Gloeocoryneum
Acacia koa
Pinus attenuata
P. banksiana
P. cembroides
P. contorta
P. jeffreyi
P. monophylla
P. ponderosa
P. pseudostrobus
P. torreyana
Greeneria
Vitis vinifera
V. aestivalis
V. labrusca
V. rotundifolia
Griphosphaerioma
Symphoricarpos occidentalis
Harknessia
Banksia marginata
Eucalyptus alba
E. cinerea
E. drepanophylla
E. globulus
E. maidenii
E. marginata
E. nitens
E. regnans
Lambertia formosa
Hendersonina
Saccharum officinarum
Hendersoniopsis

*Alnus glutinosa**A. Hirsute**A. Incana**A. viridis***Hendersonula***Solanum boerhaviaefolium***Hoehneliella***Berberis vulgaris**Clematis vitalba***Homortomyces***Combretum erythrophyllum***Hyalotiella***Acacia auriculiformis**Acacia karroo**Eucalyptus citriodora**Gleditsia triacanthos**Mimusops hexandra**Nectandra coriacea**Tamarindus indica***Hyalotiopsis***Borassus flabellifer**Tamarindus indica***Hymenopsis***Lens culinaris**Phragmites communis**Scirpus lacustris***Jubispora***Acacia arabica**A. spirocarpa**A. tortilis***Kaleidosporium***Clethra* sp.*Clethra alnifolia***Kalmusia***Arceuthobium pusillum**Erica carnea**Triticum aestivum**Vitis vinifera***Kamatella***Eugenia jambolana***Lamproconium***Tilia cordata**T. europaea***Lasiodiplodia***Ipomoea batatas***Lasmenia***Bambusa* sp.*Dendrocalamus* sp.*Cudrania* sp.*Eugenia* sp.*Ficus* sp.*Machaerium* sp.*Maclura* sp.*Nephelium* sp.*Phyllostachys* sp.**Lasmeniella***Acacia robusta**Achatocarpus* sp.*Albizia gummifera**Bauhinia vahlii**Butea* sp.*Cocos* sp.*Dalbergia miscolobium**Dunalia spinosa**Eucalyptus* sp.*Eugenia* sp.*Ficus disticha**Machaerium lanatum**Parinari nonda**Pterocarpus ceriseus**Sambucus* sp.*Tilia* sp.*Vochysia* sp.**Lecanosticta***Pinus ayacahuite**P. banksiana**P. caribaea**P. cembroides**P. contorta**P. elliotii**P. halepensis**P. mugo**P. nigra**P. oocarpa**P. palustris**P. ponderosa**P. radiata**P. strobus**P. sylvestris**P. thunbergii***Lecanostictopsis***Eucalyptus* sp.*Syzygium caryophyllaeum**S. cordatum**S. cumini**S. guineense**S. lateriflorum***Leptomelanconium***Abies balsamea**Eucalyptus ficifolia**Picea mariana**Pinus arizonica**P. contorta**P. hartwegii**P. montana**P. monticola*

- P. mugho*
P. mugo
P. ponderosa
P. yunnanensis
Populus tremuloides
Linochorella
Heteropogon contortus
Macrodiplodiopsis
Platanus occidentalis
P. orientalis
Macrohilum
Eucalyptus delegatensis
E. polyanthemos
Massariothea
Heteropogon triticeus
Phragmites communis
Sorghum plumosum
S. vulgare
Melanconiopsis
Acer dasycarpum
A. macrophyllum
Alnus glutinosa
Araucaria imbricata
Carya sp.
Melanconium
Acer negundo
Fagus sylvatica
Populus angustifolia
Melanophoma
Acacia karroo
Melnikia
Anthoxanthum odoratum
Melanocamarosporium
Galium sp.
Microsphaeropsis*
 USDA
Monochaetia*
 USDA
Monochaetinula
Agathis robusta
Azadirachta indica
Capparis decidua
Cassia javanica
C. nodosa
Ceratonia siliqua
Geoffroea decorticans
Grewia salvifolia
Hiptage benghalensis
Lagerstroemia sp.
Lucuma ramiflora
Mimusops elengi
Sterculia sp.
Terminalia argentea
Vitis vinifera
Morinia
Artemisia campestris
A. camphorata
Artemisia glutinosa
Calluna vulgaris
Sedum sediforme
Mucoharknessia
Cortaderia selloana
Mycohypallage
Eugenia heyneana
Northea fasciculata
S. cordatum
S. cumini
S. jambolanum
Myrotheciastrum
Salvadora oleoides
Myxocyclus
Abies procera
Betula occidentalis
B. papyrifera
B. pendula
B. platyphylla
B. verrucosa
Nagrajomyces
Rhododendron aureum
Neocamarosporium
Mesembryanthemum sp.
Neohendersonia
Fagus orientalis
F. sylvatica
Neoheteroceras
Tilia rubra
T. europaea
Neomelanconium
Spondias mombin
Neopestalotiopsis
Leucospermum cuneiforme
Neottiosporina
Achyrocline satuireioides
Cyperus brevifolius
Paspalum distichum
P. laeve
P. notatum
Phragmites australis
P. communis
P. mauritanus
Pinus caribaea
Schoenoplectus litoralis
Sorghum vulgare
Themeda australis
Tridens flavus
Nummospora

Carex inflata

Obstipipilus

Anogeissus latifolia

A. pendula

Oncospora

Capparis citrifolia

C. flanagani

C. gueinzii

C. rudatisii

Quercus coccifera

Sequoia sempervirens

Orphanocoela

Andropogon tectorum

Calamagrostis canadensis

Zea mays

Paracamarosporium

Psoralea pinnata

Paraconiothyrium*

Coffea arabica

Parahyalotiopsis

Borassus flabellifer

Elegia capensis

Paulkirkia

Arundo plinii

Peltistromella

Arenga undulatifolia

Peltosoma

Freycinetia ensifolia

F. maxima

Gahnia lanigera

Perizomella

Phoebe costaricana

Pestalotia*

USDA

Pestalotiopsis*

USDA

Phaeocytostroma

Calamus rotang

Cocos nucifera

Helianthus annuus

Hyparrhenia hirta

H. rufa

Pennisetum purpureum

Pinus sp.

Saccharum munja

S. officinarum

S. spontaneum

Sorghum bicolor

Zea mays

Phaeodomus

Misanteca triandra

Ocotea floribunda

O. leucoxydon

Phaeolabrella

Eryngium pandanifolium

Phaeophleospora

Eugenia uniflora

Phaeosphaeria

Bambusa multiplex

Cyperus monti

Etlingera sp.

Oryza sativa

Phragmites australis

Phaeostagonospora

Nolina erumpens

Phragmocamarosporium

Hedera helix

Platanus sp.

Phragmotrichum

Acer sp.

Alnus kamtschatica

Betula pendula

Duschekia kamtschatica

Picea abies

P. excelsa

P. glauca

P. mariana

P. rubens

P. smithiana

Pinus monticola

Rhus typhina

Salix sp.

Strobilanthes sp.

Piggotia

Ulmus campestris

U. densa

U. foliacea

U. minor

U. montana

U. procera

Pilidiella

Eucalyptus brassiana

E. urophylla

Eugenia jambolana

Fragaria ananassa

Lindera aggregata

Phragmites

Punica granatum

Quercus dilatata

Tamarix articulata

Terminalia chebula

T. ivorensis

Tibouchina granulosa

Vitis vinifera

Placodiopodia

Cyathea sp.

Geoffroea decorticans

Poropeltis

Davilla rugosa

Prosopidicola

Prosopis glandulosa

Prosthemium

Alnus glutinosa

A. incana

Betula alleghaniensis

B. papyrifera

B. pendula

B. raddeana

Pterocarya rhoifolia

Salix caprea

Pseudodiplodia

Acer sp.

Asplenium sp.

Butea pubescens

B. monosperma

Elaeis guineensis

Farsetia linearis

Lecythis ollaria

Oreodoxa oleracea

Pterodon polygaliflorus

P. pubescens

Quercus ilex

Q. incana

Sambucus racemosa

Pseudohendersonia

Protea aurea

P. burchellii

P. caffra

P. compacta

P. cynaroides

P. effusa

P. eximia

P. grandiceps

P. lanceolata

P. laurifolia

P. lepidocarpodendron

P. longifolia

P. lorifolia

P. magnifica

P. mundii

P. nana

P. neriifolia

P. nitida

P. obtusifolia

P. punctate

P. repens

P. roupelliae

P. susannae

Pustulomyces

Bambusa sp.

Readeriella

Eucalyptus capitellata

E. cinerea

E. delegatensis

E. fastigata

E. fraxinoides

E. globulus

E. macrorhyncha

E. mitchelliana

E. nicholii

E. nitens

E. pilularis

E. robusta

E. simmondsii

Readerielliopsis

Fuscoporia wahlbergii

Rhizosphaerina

Eucalyptus sp.

Robillarda*

USDA

Schwarzmannia

Ammodendron argenteum

A. bifolium

Goebelia alopecuroides

Sclerostagonospora

Acer truncatum

Arundo donax

Cannomois virgata

Cycas revoluta

Elegia equisetacea

Heracleum sphondylium

Ischyrolepis subverticellata

Persea americana

Phragmites australis

Salsola kali

Scirpus holoschoenus

Thamnochortus spicigerus

Vitis vinifera

Scolecosporiella

Andropogon gayanus

A. tectorum

Carex gracilis

Chamaecyparis lawsoniana

Dianella revoluta

Paspalum dilatatum

Senecio jacobaea

Sisyrinchium angustifolium

S. bellum

Streblus asper

Symplocos whitfordii

Typha angustata

T. angustifolia

T. latifolia

Scolicosporium

Castanea dentata

Corylus americana

Cryptomeria japonica

Fagus sylvatica

Malus sylvestris

Nothofagus antarctica

Olea europaea

Phoebe paniculata

Populus fastigiata

Pyrus sp.

Quercus sp.

Robinia pseudoacacia

Syzygium guineense

Typha latifolia

Scyphospora

Phyllostachys humilis

P. nigra

P. pubescens

Shibataea kumasaca

Seimatosporiopsis

Salvadora oleoides

Salvadora oleioides

S. persica

Seimatosporium

Amelanchier ovalis

Rosa pimpinellifolia

Seiridium

Rosa canina

Septoriella

Arundo donax

Bambusa sp.

Euchlaena luxurians

Ficus alba

Heteropogon contortus

Juncus bufonius

J. conglomeratus

J. effusus

J. maritimus

J. roemerianus

Koeleria glomerata

Lomandra leucocephala

Lupinus obtusilobus

Malva sylvestris

Olea europaea

Restio sp.

Phragmites australis

P. communis

P. longivalvis

Pinus montana

Romulea columnae

Saccharum spontaneum

Trachycarpus fortunei

Triodia irritans

Vicia unijuga

Shawiella

Grevillea robusta

Shearia

Magnolia kobus

M. grandiflora

Sirothecium

Citrus sinensis

Linum marginale

Pinus sp.

Populus alba

Sonderhenia

Eucalyptus agglomerata

E. baxteri

E. cladocalyx

E. coccifera

E. globulus

E. leucoxydon

E. nitens

E. phaeotricha

E. tereticornis

Sphaeropsis

Phoradendron serotinum

Viscum album

Staninwardia

Eucalyptus camaldulensis

E. robusta

Stegonsporium

Acer heldreichii

A. monspessulanum

A. negundo

A. platanoides

A. pseudoplatanus

A. rubrum

A. saccharinum

Betula lenta

Fagus sylvatica

Tilia sp.

Stenocarpella

Bambusa tuldoidea

Sorghum bicolor

Zea mays

Stevensonula

Baccharis halimifolia

Stigmella

Allophylus dimorphus

Atriplex muelleri

Cassia tora

Celastrus paniculata

Celtis tetrandra

Chenopodium sp.

- Crataegus parvifolia*
Elaeodendron glaucum
Eugenia sp.
Grewia asiatica
Lycium chinense
Platanus orientalis
P. racemosa
Quercus sp.
Rhynchelytrum repens
Senecio mesogrammoides
Stephania abyssinica
Vernonia sp.
Zea mays
Stilbospora
Acer nigrum
Acer saccharinum
Carpinus betulus
Cistus ladanifer
Cistus laurifolius
Chamaecyparis pisifera
Clethra alnifolia
Eucalyptus globulus
Fagus sylvatica
Faurea saligna
Helichrysum sp.
Lodoicea maldivica
Parrotia persica
Pinus contorta
Pinus palustris
Pistacia lentiscus
Pistacia mutica
Platanus sp.
Protea susannae
Robinia pseudoacacia
Smilax sp.
Syzygium lateriflorum
Terminalia sp.
Ulmus glabra
Ulmus minor
Ulmus montana
Pinus tecumumani
Suttonomyces
Clematis vitalba
Teratosphaeria
Eucalyptus blakelyi
E. consideriana
E. canobolensis
E. nitens
E. grandis
Tiarospora
Ammophila arenaria
Deschampsia caespitosa
Dryas grandis
Elymus mollis
Toxosporiopsis
Ceiba pentandra
Salix sp.
Trullula
Abies sp.
Juncus lesueurii
Saccharum officinarum
Spiraea sp.
Trachycarpus fortunei
Vanilla fragrans
Vitis vinifera
Truncatella*
 USDA
Tunicago
Uniola paniculata
Uniseta
Comptonia asplenifolia
Urohendersonia
Dactyloctenium aegyptium
Erythrina crista-galli
E. indica
E. variegata
Manihot carthagenensis
Medicago sativa
Peganum harmala
Pongamia glabra
P. pinnata
Sporobolus elongatus
Stipa spartea
Striga lutea
Urohendersoniella
Dianella revoluta
Vanderystiella
Leptoderris brachyptera
Capparis aphylla
Versicolorisporium
Pleioblastus chino
Sasamorpha borealis
Vouauxiella
Lecanora argentata
L. intumescens
L. pulicaris
Porina epiphylla
Stephania abyssinica
Wojnowiciella
Eucalyptus grandis
Viburnum utile
Xenocamarosporium
Acacia mangium
Xenoconiothyrium
Protea laurifolia
Zetiasplozna

Acacia melanoxylon
Cordyline dracaenoides
Homalocladium platycladum
Hypericum hookerianum
Leucospermum cordifolium
Metasequoia glyptostroboides
Myrtus communis
Parrotia persica
Pistacia guajava
P. lentiscus
Podocarpus macrophyllus
Vitis vinifera

Host index for lichenicolous dematiaceous coelomycetes

In this section we summarize the dematiaceous lichenicolous coelomycetes genera and their host lichen species.

Carnegieispora

Parmotrema reticulatum

Coniambigua

Phaeographis lyellii

Lichenoconium

Cladonia pocillum
Flavoparmelia caperata
Haematomma stevensiae
Heterodea muelleri
Heterodermia comosa
Hypogymnia physodes
Lecanora conizaeoides
Lecanora rugosella
Lecanora symmicta
Lobaria pulmonaria
Melanelia sp.
Nodobryoria abbreviate
Parmelia sulcata
Platismatia glauca
Pseudocyphellaria rubella
Psiloparmelia distincta
Ramalina fraxinea
Ramalina yemensis
Rimelia cetrata
Teloschistes chrysophthalmus
Usnea florida
Xanthoparmelia sp.

Lichenodiplis

Buellia multisporea
Caloplaca cerina
Caloplaca holocarpa
Candelaria fibrosa
Cyphelium notarisi
Dendrographa leucophaea f. minor

Lecanora caesiorubella
Lecanora wisconsinensis
Pertusaria pustulata
Rinodina septentrionalis
Rinodina sp.
Teloschistes brevior
Xanthoria parietina

Lichenohendersonia

Squamarina lentigera
Parmelina tiliacea
Rhizoplaca chrysoleuca

Microsphaeropsis lichenicola

Pannaria sphinctrina

Microsphaeropsis caloplacae

Caloplaca persica

Phaeoseptoria peltigerae

Peltigera horizontalis

Vouauxiella

Lecanora sp.

Minutoexcipula

Lecanora sp.
Hypogymnia tubulosa
Pertusaria heterochroa
Tephromela atra
Pertusaria glomerata

Acknowledgments We acknowledge the International Highly Cited Research Group (IHCRRGP# 14–205), Deanship of Scientific Research, King Saud University, Riyadh, Kingdom of Saudi Arabia. Nalin N. Wijayawardene, Dhanushka N. Wanasinghe, Dong Qin Dai, Ishani D. Goonasekara and Wen Jing Li thank the Mushroom Research Foundation (MRF), Chiang Rai Province, Thailand for providing Postgraduate Scholarships. Nalin N. Wijayawardene would like to thank P.M. Kirk, V.A. Mel'nik, Buddhika Dilhan, Dmitrii Shabunin, Manjari Dissanayake and Lesley Ragab for being helpful to gather old literature. Kevin D. Hyde is grateful to the Chinese Academy of Sciences, project number 2013T2S0030, for the award of Visiting Professorship for Senior International Scientists at Kunming Institute of Botany, research grant from the Biodiversity Research and Training Program (BRT R253012) and The Thailand Research Fund (BRG 5280002). Alan J.L. Phillips thanks Mae Fah Luang University for a Visiting Professorship during the tenure of which this paper was finalised. Yong Wang would like to thank The International Scientific Cooperated Project of Guizhou Province (No[2013] 7004). Rungtiwa Phookamsak thanks the Royal Golden Jubilee Ph.D. Program (PHD/0090/2551). Erio Camporesi is grateful to Giancarlo Lombardi, Sergio Montanari and Gigi Stagioni for their help in identifying host plants of fresh collections. K. Tanaka would like to thank the Japan Society for the Promotion of Science (JSPS, 25440199 and 26291084) and Hirosaki University Grant for Exploratory Research by Young Scientists and Newly-appointed Scientists for financial support. Yong Wang thanks Yong-Cheng Long, Prof. De-Gang Zhao and Prof. Zhuo Chen for their help in sequencing and suggestions in molecular experiments. We would like to thank MFU grant No. 56101020032 for funding to study the taxonomy and phylogeny of Dothideomycetes. The authors also wish to acknowledge Saranyaphat Boonmee, Chayanard Phukhamsakda and Qing Tian. Ishani D. Goonasekara wishes to acknowledge Liu Ende, Assistant Curator, Herbarium, Kunming Institute of Botany, Chinese Academy of Sciences (KUN), Kunming, China, Wu HaiXia and staff of International

Fungal Research and Development Centre (IFRD), Key Laboratory of Resource Insect Cultivation & Utilization State Forestry Administration, The Research Institute of Resource Insects, Chinese Academy of Forestry Kunming 650224, PR China and Danushka S. Tennakoon for their assistance with herbarium material.

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