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Towards a natural classification and backbone tree for *Sordariomycetes*

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Abstract
Sordariomycetes is one of the largest classes of *Ascomycota* and is characterised by perithecial ascomata and inoperculate unitunicate asci. The class includes many important plant pathogens, as well as endophytes, saprobes, epiphytes, and fungicolous, lichenized or lichenicolous taxa. The class includes freshwater, marine and terrestrial taxa and has a worldwide distribution. This paper provides an updated outline of the *Sordariomycetes* and a backbone tree incorporating asexual and sexual genera in the class. Based on phylogeny and morphology we introduced three subclasses; *Diaporthomycetidae, Lulworthiomycetidae* and *Meliolomycetidae* and five orders; *Amplistromatales*, *Annulatascales*, *Falcocladiales*, *Jobellisiales* and

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Togniniales. The outline is based on literature to the end of 2014 and the backbone tree published in this paper. Notes for 397 taxa with information, such as new family and genera novelties, novel molecular data published since the Outline of Ascomycota 2009, and new links between sexual and asexual genera and thus synonymies, are provided. The Sordariomycetes now comprises six subclasses, 28 orders, 90 families and 1344 genera. In addition a list of 829 genera with uncertain placement in *Sordariomycetes* is also provided.

Keywords *Boliniales* · *Calosphaeriales* · *Chaetosphaeriales* · *Coniochaetales* · *Coronophorales* · *Diaporthales* · *Glomerellales* · *Hypocreomycetidae* · *Hypocreales* · *Koralionastetales* · *Lulworthiales* · *Magnaporthales* · *Melanosporales* · *Meliolales* · *Microascales* · Molecular identification · Nomenclature · *Ophiostomatales* · *Phyllachorales* · *Sordariales* · *Sordariomycetidae* · Taxonomy · *Trichosphaeriales* · Type species · *Xylariales* · *Xylariomycetidae*

Introduction

Sordariomycetes is the largest class of *Ascomycota* after *Dothideomycetes* (Kirk et al. 2008; Hyde et al. 2013). Kirk et al. (2008) included 15 orders, 64 families, 1119 genera and 10,564 species in *Sordariomycetes*, while Lumbsch and Huhndorf (2010) included 18 orders, 63 families and 947 genera. The majority of the species of *Sordariomycetes* are terrestrial, while some can be found in aquatic habitats (Hyde and Wong 2000; Samuels and Blackwell 2001; Cai et al. 2006a; Jones et al. 2009a, b, Jones and Pang 2012; Pratibha et al. 2014). They are pathogens of plants, arthropods and mammals (Sung et al. 2007; Prados-Rosale et al. 2012; Hyde et al. 2014) and have been isolated as endophytes from various plants (Keim et al. 2014). Some taxa are fungicolous (PeiGui et al. 2000; Jaklitsch et al. 2013), while many are saprobes involved in decomposition and nutrient cycling (Jaklitsch and Voglmayr 2012). Some important plant pathogenic genera belong to *Sordariomycetes*, including *Colletotrichum*, *Diaporthe*, *Fusarium*, *Magnaporthe*, *Pestalotiopsis* and *Verticillium* (Maharachchikumbura et al. 2012, 2013a; Udayanga et al. 2012, 2013; Hyde et al. 2014). Also included are mushroom pathogens, such as some *Hypocrea* and *Verticillium* species (PeiGui et al. 2000, Zare et al. 2007). Some species of *Sordariomycetes* (*ie. Beauveria bassiana*, *Trichoderma viride*, *T. harzianum*) are economically important biocontrol agents (Wraight et al. 1998; Kaewchai et al. 2009; Thiruvudainambi et al. 2010) and as well as important in medicinal and other biotechnological industries (Semenova et al. 2012; Debbab et al. 2013; Xu et al. 2014).

Historically, some of the families of *Sordariomycetes* such as *Amphisphaeriaceae*, *Diaporthaceae*, *Diatrypaceae*, *Halosphaeriaceae*, *Hypocreaceae*, *Polystigmataceae* and *Sordariaceae*, were classified under the order *Sphaeriales*, an order characterized by sphaerical or flask-shaped fruiting bodies (Müller and von Arx 1962). Chadefaud (1960) recognized *Diaporthales* as a separate order based on the characteristic stromatic tissue. Benny and Kimbrough (1980) introduced the orders *Microascales*, *Onygenales* and *Ophiostomatales*. A comprehensive taxonomic study of families and higher taxa of the *Sordariomycetes* based on morphology was that of Barr (1990). Barr (1990) included the orders *Calosphaeriales*, *Coryneliales*, *Clavicipitales*, *Diaporthales*, *Erysiphales*, *Eurotiales*, *Halosphaeriales*, *Hypocreales*, *Meliolales*, *Microascales*, *Onygenales*, *Sordariales*, *Spathulosporales* and *Xylariales* in the class named *Hymenoascomycetes*.

Eriksson and Winka (1997) introduced the class *Sordariomycetes* based on morphological (perithecial ascomata, hamathecium composed of paraphyses, ostioles with periphyses and unitunicate or pseudoprotunicate asci) and molecular data and accommodated three subclasses: *Hypocreomycetidae*, *Sordariomycetidae* and *Xylariomycetidae*. The subclass *Sordariomycetidae* included three orders (i.e. *Diaporthales*, *Ophiostomatales* and *Sordariales*), while *Xylariomycetidae* was intoduced to accommodate a single order *Xylariales* (Eriksson and Winka 1997). Eriksson and Winka (1997) separated *Onygenales* and *Eurotiales* from *Sordariomycetes* and placed them in the class *Eurotiomycetes* based on morphology and phylogenetic analyses. A comprehensive study of *Sordariomycetes* based on both morphological characters and SSU rDNA sequence data was carried out by Samuels and Blackwell (2001) and Eriksson (2006). In the classification of Eriksson (2006), the subclass *Hypocreomycetidae* comprised 4 orders (i.e. *Coronophorales*, *Halosphaeriales*, *Hypocreales* and *Microascales*). *Coronophorales*, *Halosphaeriales* and *Hypocreales* are recognized as monophyletic and *Microascales* as paraphyletic. Samuels and Blackwell (2001) excluded *Erysiphales* and *Coryneliales* sensu Barr (1990) from *Sordariomycetes*, while Eriksson (2006) placed *Erysiphales* in the *Leotiomycetes*, a sister taxon of the *Sordariomycetes*. Eriksson (2006) also recognized *Melanosporales* as a distinct order in the *Hypocreomycetidae*.

A large number of species of *Sordariomycetes* are characterized by non-lichenized, perithecial ascomata and inoperculate unitunicate asci (Zhang et al. 2006) or non-fiscitunicate asci (Kirk et al. 2008). Most members of the *Xylariomycetidae* and some of the *Sordariomycetidae* have dark perithecia, amyloid asci, true paraphyses and periphysate ostioles, while most of the taxa of the *Hypocreomycetidae* have light coloured perithecia, nonamyloid apical rings in the asci when apical rings are present and the absence of true paraphyses (Zhang et al. 2006).

The most widely used gene regions for phylogenetic studies of *Sordariomycetes* from the early 1990s were SSU nrDNA and LSU nrDNA (Berbee and Taylor 1992; Spatafora and Blackwell 1993; Spatafora 1995). In addition to these ribosomal genes, the phylogenetic relationships among *Sordariomycetes* were investigated using partial translation elongation factor 1-alpha (TEF) and the second largest subunit of RNA polymerase (RPB2) protein-coding genes (Zhang et al. 2006). Tang et al. (2007) evaluated the phylogenetic utility of the ß-tubulin gene for resolving evolutionary relationships in *Sordariomycetes*.

Pleomorphism arises from the fact that many ascomycete taxa including species of *Sordariomycetes*, occur in either their sexual or asexual morphs alone, or in combination (Wingfield et al. 2012). Asexual and sexual morphs together make up a whole fungus called the holomorph (Seifert et al. 2011). Some taxa also have more than one asexual morph (synanamorph) often linked to unique ecological niches (Wingfield et al. 2012). Sutton (1980) contributed to summarize the established links between coelomycetous asexual morphs and their sexual morphs. Later Seifert et al. (2011) did the same for genera of hyphomycetes. The asexual and sexual morphs of *Sordariomycetes* often develop separately, or only one morph is formed, and it is therefore often difficult to develop links between the same species but with different morphs (Wijayawardene et al. 2014). This is especially true when one or both morphs cannot be cultured or induced to form sporulating structures on artificial media. Observation of two morphs on the same substrate was an earlier method used to link morphs, but this does not prove that the morphs are related (Shenoy et al. 2007). DNA sequence-data can irrefutably link asexual and sexual morphs and provide phylogenetic placements for asexual taxa within the sexual morph taxonomic classification schemes. It is difficult to place asexual genera into current classification schemes, when asexual genera are in fact polyphyletic and paraphyletic. Their type species/ specimens need to be recollected to verify their phylogenetic position (Schoch et al. 2009). In addition to this, it appears that even some concepts of sexual taxa will require extensive reconsideration (Schoch et al. 2009). DNA sequencing and analysis have established the natural placements of many sexual and asexual genera and have also proven links between the sexual and asexual morphs (e.g. *Trichoderma*–*Hypocrea*, *Dyrithiopsis*–*Monochaetiopsis*, *Cylindrocladiella*–*Nectricladiella*, *Fusarium*–*Gibberella*, *Colletotrichum*–*Glomerella*; Jeewon et al. 2003a; Jaklitsch et al. 2006; Hyde et al. 2009a, b; Rossman et al. 2013), while some links have been not accepted (e.g. *Didymostilbe*–*Peethambara*, *Discostroma*–*Seimatosporium*, *Hypomyces*–*Cladobotyrum*; Subramanian and Bhat 1978; Tanaka et al. 2011; Rossman et al. 2013). Decisions taken in the XVIIIth International Botanical Congress, in Melbourne, Australia in 2011 (Hawksworth 2012) ruled that separate names for asexual and sexual morphs, was no longer allowed; this became effective from 30 July 2011 (Hawksworth 2012; Wingfield et al. 2012). Based on this ruling, mycologists now have the task to clear up the historical confusion of dual nomenclature.

In this paper, we deal with the classification of one of the largest groups of ascomycetes, the class *Sordariomycetes*. Some asexual genera in this class have been linked to sexual morphs and some are discussed in Rossman et al. (2013), and these are followed in this paper. Several groups have not been dealt with as yet and therefore we generally follow the older name in this paper. A list of “accepted/ protected names”, “suppressed names” as published for the Dothideomcyetes by Wijayawardene et al. (2014) is still required. The outline here uses Lumbsch and Huhndorf (2010) as a starting point. We have then scanned the literature and provide data mostly to the end of 2014. A note is provided for newly introduced genera and families and where important molecular data is recently provided we also provide notes. The outline also follows the results of the phylogenetic data generated in this study. A list of genera presently placed in *Sordariomycetes* in Index Fungorum (2015) is also included. These were not listed in Lumbsch and Huhndorf (2010), but most were listed in Kirk et al. (2013). Their status and placement must still be established. There are also numerous synonyms that were synonymised under various genera, possibly without much thought and it would be interesting to establish if these are also distinct genera.

Materials and methods

Phylogenetic analyses

Sequences were obtained from GenBank mostly following previous literature (Castlebury et al. 2002; Réblová 2003, 2008; 2011a, b, Réblová 2013a, b; García et al. 2006; Boonyuen et al. 2011; Mugambi and Huhndorf 2010; Johnson et al. 2009; Campbell et al. 2005, 2009; Thongkantha et al. 2009; Sung et al. 2007) and are listed in Table 1.

This study used LSU, SSU, TEF and RPB2 sequence data in the analyses. Multiple sequence alignments were generated with MAFFT v. 7 (http://mafft.cbrc.jp/alignment/server/index.html); then manually corrected to ensure alignment and to minimize the number of uninformative gaps using MEGA v. 6.06 (Kumar et al. 2012). The datasets were produced to show families and order relationships within the class *Sordariomycetes*.

The combined alignments were split between the genera to improve the robustness of the alignment across the four loci. Phylogenies used Bayesian Inference (BI) and Maximum

Table 1 GenBank accession numbers of isolates includes in this study

Species	Culture accession no.	GenBank accession			
		LSU	SSU	TEF	RPB2
Acanthonitschkea argentinensis	SMH1395	AY695259	–	FJ969042	FJ968943
Achaetomium strumarium	IMI 082624	AJ312098	–	–	–
Albertiniella polyporicola	CBS 457.88	AF096185	AF096170	–	–
Ambrosiella ferruginea	CBS 460.82	EU825651	–	–	–
Amphisphaeria umbrina	AFTOL-ID 1229	FJ176863	FJ176809	FJ238394	FJ238348
Amplistroma caroliniana	BEO9923	FJ532377	–	–	–
Amplistroma erinaceum	AH 43902	KC907374	–	KC907375	–
Anisogramma anomala	AA01	EU683066	–	–	–
Anisogramma virgultorum	AV05	EU683065	–	–	–
Annulatascus velatisporus	HKUCC 3701	AF132320	–	–	–
Annulusmagnus triseptatus	CBS 128831	GQ996540	JQ429242	–	–
Apiorhynchostoma curreyi	UAMH 11088	JX460989	–	–	–
Apiosordaria verruculosa	F-152365	AY346258	–	–	AY780150
Apiospora bambusae	ICMP 6889	DQ368630	DQ368662	–	DQ368649
Apiospora montagnei	AFTOL-ID 951	DQ471018	FJ190614	DQ842027	DQ842033
Arecophila bambusae	HKUCC 4794	AF452038	AY083802	–	–
Arthrinium hydei	CBS 114990	KF144936	–	KF145024	–
Arthrinium phaeospermum	HKUCC 3395	AY083832	AY083816	–	–
Ascitendus austriacus	MR 2936	GQ996539	GQ996542	–	–
Ascopolyporus polychrous	PC546	AY886546	–	DQ118745	DQ127236
Ascotaiwania lignicola	NIL00005	HQ446364	HQ446284	HQ446307	HQ446419
Ascothailandia grenadoidia	NB-2010a = SS03615	GQ390267	GQ390252	HQ446309	HQ446420
Ascovaginospora stellipala	P5-13A	U85088	U85087	–	–
Asteridiella obesa	VIC 31239	JX096809	–	–	–
Astrocystis cocoes	HKUCC 3441	AY083823	–	–	–
Australiasca queenslandica	BRIP 24607	HM237324	–	–	–
Bambusicularia brunnea	INA-B-92-45	KM484948	–	–	–
Beltraniella endiandrae	CPC 22193	KJ869185	–	–	–
Bertia moriformis	SMH4320	AY695260	–	–	AY780151
Bertia ngongensis	GKM1239	FJ968954	–	–	–
Bertia tropicalis	SMH3513	AY695263	–	–	–
Bionectria ochroleuca	AFTOL-ID 187	DQ862027	DQ862044	DQ862029	DQ862013
Bombardia bombarda	AFTOL-ID 967	DQ470970	DQ471021	–	DQ470923
Botryotinia fuckeliana	AFTOL-ID 59	AY544651	AY544695	DQ471045	DQ247786
Buergenerula spartinae	ATCC 22848	DQ341492	DQ341471	JX134692	–
Bussabanomyces longisporus	CBS 125232	KM009154	–	–	–
Cainia graminis	CBS 136.62	AF431949	–	–	–
Cainiella johansonii	Kruys 727 (UPS)	JF701920	–	–	–
Camaropella pugillus	SMH3846	EU481406	–	–	–
Camarops ustulinoides	AFTOL-ID 72	DQ470941	DQ470989	DQ471050	–
Canalisporium caribense	SS03839	GQ390268	GQ390253	–	HQ446421
Carpoligna pleurothecii	CBS 114211	JQ429235	JQ429249	–	JQ429267
Catabotrys deciduum	SMH3436	AY346268	–	–	AY780158
Cephalotheca foveolata	UAMH11631	KC40839	–	KC408410	KC408404
Ceratocystiopsis minuta	CBS 116963	EU913655	–	–	–
Ceratocystis fimbriata	C89	CFU17401	CFU32418	–	–
Chaetomidium galaicum	CBS 113678	FJ666361	–	–	FJ666392

Table 1 (continued)

Species	Culture accession no.	GenBank accession			
		LSU	SSU	TEF	RPB2
Chaetosphaerella fusca	GKML124N	FJ968967	–	FJ969002	–
Chaetosphaerella phaeostroma	SMH4257	AY695264	–	FJ969004	FJ968940
Chaetosphaeria innumera	SMH 2748	AY017375	–	–	–
Chromendothia citrina	AFTOL-ID 2121	–	DQ862046	DQ862031	DQ862015
Claviceps purpurea	AEG 97-2	AF543789	AF543765	AF543778	–
Clypeosphaeria uniseptata	6349 (HKUCC)	DQ810219	DQ810255	–	–
Coccodiella melastomatum	CMU78543	–	U78543	–	–
Coccodiella miconiae	ppMP 1342	–	GU233440	–	–
Colletotrichum asianum	LC0037	JN940408	JN940347	–	–
Colletotrichum gloeosporioides	LC0555	JN940412	JN940356	–	–
Colletotrichum fructicola	LC0032	JN940418	JN940350	–	–
Colletotrichum brevisporum	LC0600	JN940398	JN940357	–	–
Coniocessia anandra	Iran 1468C	GU553349	–	–	–
Coniocessia maxima	CBS 593.74	GU553344	–	–	–
Coniocessia nodulisporioides	CBS 281.77	GU553352	AJ875185	–	–
Coniochaeta ligniaria	C8	AY198388	–	–	–
Conioscypha japonica	CBS 387.84	AY484514	JQ437438	–	JQ429259
Conioscyphascus varius	CBS 113653	AY484512	–	–	–
Cordana pauciseptata	CBS 121804	HE672160	–	–	–
Cordyceps militaris	OSC 93623	AY184966	AY184977	DQ522332	–
Coronophora gregaria	ANM1555	–	–	FJ969007	FJ968938
Cornipulvina ellipsoides	SMH1378	DQ231441	–	–	–
Corynascella inaequalis	CBS 284.82	–	–	HQ871746	HQ871839
Cosmospora coccinea	AR2741	AY489734	AY489702	AY489629	–
Crassochaeta nigrita	SMH2931	AY695266	–	–	–
Creosphaeria sassafras	CM AT-018	DQ840056	–	–	DQ631964
Cryptendoxyla hypophloia	WM10.89	HQ014708	–	–	–
Cryphonectria parasitica	CMW 7048	JN940858	JN938760	–	–
Cryptadelphia groenendalensis	SH12	EU528007	–	–	–
Cryptadelphia groenendalensis	SMH3767	EU528001	–	–	–
Cryptodiaporthe aesculi	AFTOL-ID 1238	DQ836905	–	DQ836914	DQ836892
Cryptometrion aestuescens	CMW18790	HQ730869	–	–	–
Cryptosphaerella elliptica	SMH4722	FJ968974	–	FJ969029	FJ968944
Cryptosporella hypodermia	AFTOL-ID 2124	DQ862028	DQ862049	DQ862034	DQ862018
Cumulospora marina	MF46	GU252135	GU252136	–	–
Custingophora cecropiae	CCF 3568	–	AM267267	–	–
Cytospora elaeagni	CFCC 89633	KF765693	–	–	KF765709
Diaporthales sp.	BCC00200	EF622231	EF622228	–	–
Diaporthe eres	AFTOL-ID 935	–	DQ471015	–	DQ471161
Diatrype disciformis	AFTOL-ID 927	DQ470964	DQ471012	DQ471085	–
Discostroma botan	–	DQ368629	DQ368660	–	DQ368648
Doratomyces stemonitis	AFTOL-ID 1380	DQ836907	DQ836901	DQ836916	–
Dothidea sambuci	DAOM 231303	AY544681	AY544722	DQ497606	DQ522854
Echinosphaeria canescens	SMH4791	AY436403	–	–	–
Elaphocordyceps capitata	OSC 71233	AY489721	AY489689	AY489615	DQ522421
Elaphocordyceps japonica	OSC 110991	DQ518761	DQ522547	DQ522330	DQ522428
Endomeliola dingleyae	PDD:98304	GU138866	–	–	–

Table 1 (continued)

Species	Culture accession no.	GenBank accession			
		LSU	SSU	TEF	RPB2
Etheirophora blepharospora	JK5289	EF027724	–	–	EF027732
Etheirophora unijubata	JK5443B	EF027725	–	–	–
Epichloe typhina	ATCC 56429	ETU17396	ETU32405	AF543777	DQ522440
Eutypa lata	CBS 208.87 = AFTOL-ID 929	DQ836903	–	–	KF453595
Exophiala dermatitidis	AFTOL-ID 668	DQ823107	–	DQ840566	DQ840562
Exserticlava vasiformis	TAMA 450	AB753846	–	–	–
Falcocladium multivesiculatum	CBS 120386	JF831932	JF831928	–	–
Falcocladium sphaeropedunculatum	CBS 111292	JF831933	JF831929	–	–
Fracchiaea broomeana	SMH347	FJ968979	–	–	FJ968947
Fragosphaeria purpurea	CBS 133.34	AB189154	AF096176	–	–
Gaillardiella pezizoides	GKM1245	FJ968981	–	FJ969006	–
Graphostroma platystoma	AFTOL-ID 1249	DQ836906	DQ836900	DQ836915	–
Gelasinospora tetrasperma	CBS 178.33	DQ470980	DQ471032	DQ471103	DQ470932
Gibellulopsis nigrescens	DAOM 226890	GU180648	GU180613	–	GU180664
Glomerulispora mangrovis	NBRC 105264	GU252149	GU252150	–	–
Gnomonia gnomon	CBS 199.53 = AFTOL-ID 952	AF408361	DQ471019	DQ471094	DQ470922
Gondwanamyces capensis	AFTOL ID 1907	FJ176888	FJ176834	–	FJ238373
Graphium fimbriasporum	CMW5605	KM495388	–	–	–
Graphium penicillioides	CBS 506.86 = AFTOL-ID 1415	AF027384	–	DQ471110	DQ470938
Halosphaeria appendiculata	CBS 197.60	HAU46885	HAU46872	–	–
Hapalocystis occidentalis	WU 24705	AY616231	–	–	–
Harknessia australiensis	CPC 15029	JQ706211	–	–	–
Harknessia ellipsoidea	CPC 17111	JQ706213	–	–	–
Harknessia eucalypti	CBS 342.97	AF408363	–	–	–
Harknessia pseudohawaiiensis	CPC 17379	JQ706234	–	–	–
Helminthosphaeria hyphodermae	SMH4192	AY346284	–	–	–
Hydea pygmea	NBRC 33069	GU252133	GU252134	–	–
Hydropisphaera peziza	GJS92-101 = BPI802846	AY489730	AY489698	AY489625	–
Hymenostilbe aurantiaca	OSC 128578	DQ518770	DQ522556	DQ522345	DQ522445
Hyperdermium pulvinatum	PC602	DQ118738	–	–	–
Hypocrea americana	AFTOL-ID 52	AY544649	AY544693	DQ471043	–
Hypocrea rufa	DAOM JBT1003	JN938865	JN939042	–	–
Hypocrella discoidea	BCC 8237	DQ384937	–	DQ384977	DQ452461
Hyponectria buxi	UME 31430	AY083834	AF130976	–	–
Immersidiscosia eucalypti	HHUF:29920	AB593722	AB593703	–	–
Irenopsis cornuta	VIC32058	KC61864	KC618657	–	–
Irenopsis vincensii	VIC 31751	JX133163	–	–	–
Jattaea mookgoponga	STE-U 6184	EU367458	EU367463	–	–
Jobellisia fraterna	SMH2863	AY346285	–	–	–
Jobellisia luteola	SMH2753	AY346286	–	–	–
Jugulospora rotula	ATCC 38359	AY346287	–	–	AY780178
Juncigena adarca	JK5548A	EF027727	EF027720	–	–
Koralionastes ellipticus	JK5769	EU863585	EU863581	–	–
Kylindria peruamazonensis	CBS 838.91	GU180638	GU180609	–	GU180656
Lasiosphaeria ovina	SMH4605	AY436413	–	–	AY600284
Lecythophora luteoviridis	CBS 206.38	FR691987	–	–	–
Leotia lubrica	OSC 100001	NG_027596	NG_013133	DQ471041	DQ470876

Table 1 (continued)

Species	Culture accession no.	GenBank accession			
		LSU	SSU	TEF	RPB2
Lepteutypa cupressi	IMI 052255	AF382379	AY083813	–	–
Leucostoma niveum	AR3413 = BPI 748232	AF362558	NG_013203	EU222015	EU219343
Lignincola laevis	JK-5180A	U46890	U46873	–	–
Lindra thalassiae	AFTOL-ID 413	DQ470947	DQ470994	DQ471065	DQ470897
Lopadostoma turgidum	LT3	KC774618	–	–	–
Lulworthia fucicola	ATCC 64288	AY878965	AY879007	–	–
Luteocirrhus shearii	CBS 130776	KC197019	–	–	–
Magnaporthe salvinii	M21	JF414887	–	JF710406	–
Marinokulati chaetosa	BCRC FU30271	KJ866931	KJ866929	–	–
Mazzantia napelli	BPI748443 = AR3498 = AFTOL-ID 2126	AF408368	DQ862051	EU222017	EU219345
Melanconis marginalis	BPI748446 = AR3442 = AFTOL-ID 2128	AF408373	DQ862053	EU221991	EU219301
Melanconis stilbostoma	BPI748447 = AR3501 = CBS 109778	AF408374	NG_013198	EU221886	EU219299
Melanochaeta hemipsila	SMH2125	AY346292	–	–	–
Melanospora tiffanii	ATCC15515	AY015630	AY015619	–	AY015637
Melanospora zamiae	ATCC 12340	AY046579	AY046578		–
Meliola centellae	VIC:31244	JQ734545	–	–	–
Microascus longirostris	CBS 267.49 = AFTOL-ID 1237	DQ471172	DQ471026	DQ836913	–
Moheitospora fruticosae	EF14	GU252145	GU252146	–	–
Monilochaetes infuscans	CBS 869.96	GU180639	GU180620	–	GU180657
Monosporascus cannonballus	FMR6682	–	AF340016	–	–
Myrothecium roridum	ATCC 16297	AY489708	AY489676	AY489603	–
Nectria cinnabarina	CBS 114055 = GJS 89-107	NCU00748	NCU32412	AF543785	–
Neofracchiaea callista	SMH2689	AY695269	–	FJ969020	FJ968941
Neonectria ramulariae	CBS 151.29	HM042436	HQ840414	–	DQ789792
Neurospora crassa	MUCL 19026	AF286411	X04971	–	–
Nimbospora effusa	JK 5104A	NEU46892	NEU46877	–	–
Niesslia exilis	CBS 560.74	AY489720	AY489688	AY489614	–
Nitschkia tetraspora	GKML148N	FJ968987	–	FJ969011	FJ968936
Ophioceras commune	M92	JX134688	JX134662	–	–
Ophioceras dolichostomum	CBS 114926	JX134689	JX134663	JX134703	–
Ophioceras leptosporum	CBS 894.70	JX134690	–	–	–
Ophiocordyceps sinensis	YN09-64	JX968033	JX968028	–	JX968013
Ophiodiaporthe cyatheae	YMJ 1364	JX570891	JX570890	KC465406	JX570893
Ophiostoma piliferum	AFTOL-ID 910	DQ470955	DQ471003	DQ471074	–
Parasarcopodium ceratocaryi	CBS 110664	AY425026	–	–	–
Papulosa amerospora	AFTOL-ID 748	DQ470950	DQ470998	DQ471069	–
Peethambara spirostriata	CBS 110115	AY489724	AY489692	AY489619	–
Petriella setifera	AFTOL-ID 956	DQ470969	DQ471020	DQ836911	–
Phaeoacremonium pallidum	STE U 6104	–	EU128061	–	–
Phialemonium atrogriseum	CBS 604.67	HE610470	–	–	–
Phyllachora graminis	UME 31349	–	AF064051	–	–
Pilidiella diplodiella	STE U 3708	AY339284	–	–	–
Pilidiella wangiensis	CPC 19397	JX069857	–	–	–
Plagiostoma euphorbiae	CBS 340.78 = AFTOL-ID 2130	AF408382	DQ862055	GU354016	EU219292
Plectosphaerella cucumerina	DAOM 226828	GU180647	GU180612	–	GU180663
Pleurostoma ootheca	CMU 23858 = CBS 115329	AY761079	AY761074	–	HQ878606
Pleurostomophora repens	CBS 294.39	AY729813	–	–	–

Table 1 (continued)

Species	Culture accession no.	GenBank accession			
		LSU	SSU	TEF	RPB2
Pleurostomophora richardsiae	CBS 270.33	AY249089	–	–	HQ878607
Conioscyphascus	CBS 131271	JQ429240	–	–	JQ429270
Porosphaerellopsis sporoschismophora	ATCC 42528	AY346298	–	–	–
Pseudohalonectria lignicola	M95	JX134691	JX134665	JX134705	–
Pseudomassaria carolinensis	9502 (IFO)	DQ810233	DQ810262	–	DQ810239
Pseudoneurospora amorphoporcata	CBS 626.80	FR774287	–	–	–
Pseudoplagiostoma eucalypti	CBS 124807	GU973606	–	–	–
Pseudoplagiostoma oldii	CBS 124808	GU973609	–	–	–
Pseudoplagiostoma variabile	CBS 113067	GU973611	–	–	–
Pseudoproboscispora caudae	A336-2D	AY094192	–	–	–
Pseudopyricularia kyllingae	HYKB202-1-2	KM484992	–	–	–
Pseudovalsa longipes	AR 3541	EU683072	–	–	–
Pseudovalsa modonia	AR 3558	EU683073	–	–	–
Pyricularia borealis	CBS 461.65	DQ341511	–	–	–
Raffaelea canadensis	C2233 = CBS 168.66	EU177458	EU170270	–	–
Remispora maritima	JPHY-15-038	HQ111012	HQ111002	–	HQ111041
Reticulascus clavatus	CBS 125296	GU180643	GU180622	–	–
Reticulascus clavatus	CBS 125239	–	GU180615	–	–
Rhopalostroma lekae	MFLUCC 13-0123	KJ472427	–	–	KJ472429
Rimaconus coronatus	SMH 5212	HM171292	–	–	–
Rimaconus jamaicensis	SMH 4782	HM171293	–	–	–
Robillarda sessilis	BCC13393	FJ825378	FJ825368	–	–
Rosellinia necatrix	HKUCC 9037	AY083824	–	–	–
Rossmania ukurunduensis	AR 3484	EU683075	–	–	–
Roumegueriella rufula	GJS 91-164	EF469082	EF469129	EF469070	EF469116
Ruzenia spermoides	SMH4655	KF765619	–	–	–
Savoryella lignicola	NF00204	HQ446378	HQ446300	HQ446334	–
Schizoparme straminea	CBS 149.22	AF362569	–	–	–
Schizoparme straminea	STE-U 3932	AY339296	–	–	–
Scopinella solani	CBS 770.84	AY015632	AY015621	–	–
Scortechinia acanthostroma	SMH1143	FJ968988	FJ969012	–	FJ968948
Scortechiniellopsis leonensis	GKM1269	FJ968993	–	FJ969021	FJ968933
Seynesia erumpensnew	SMH 1291	AF279410	AF279409	–	–
Shimizuomyces paradoxus	EFCC 6279	EF469084	EF469131	–	EF469117
Slopeiomyces cylindrosporus	CBS 609.75	KM485040	–	–	–
Sordaria fimicola	CBS 508.50	AY681160	–	–	–
Sphaerostilbella berkeleyanan	CBS 102308 = GJS 82-274	U00756	AF543770	AF543783	DQ522465
Spinulosphaeria nuda	SMH1952	FJ968995	–	–	–
Stachybotrys chlorohalonata	UAMH6417	AY489712	AY489680	AY489607	–
Stachylidium bicolor	DAOM 226658	GU180651	GU180616	–	–
Stegonsporium protopyriforme	D30 = CBS 117041	EU039991	–	EU040017	–
Stegonsporium pyriforme	D2 = CBS 117023	EU039987	–	EU040001	–
Stephanonectria keithii	GJS92-133	AY489727	AY489695	AY489622	–
Stilbospora macrosperma	CBS 121883	JX517299	–	–	–
Stilbospora longicornuta	CBS 122529	KF570164	–	KF570232	KF570194
Swampomyces armeniacus	JK5325A	EF027729	–	–	–
Swampomyces triseptatus	CY2802	AY858953	AY858942	–	–

Table 1 (continued)

Species	Culture accession no.	GenBank accession			
		LSU	SSU	TEF	RPB2
Sydowiella stellatifolii	CBS 119342	EU552156	–	–	–
Synaptospora plumbea	SMH3962	KF765621	–	–	–
Thailandiomyces bisetulosus	BCC00018	EF622230	EF622229	–	–
Thielaviopsis thielavioides	CBS 130.39	AF222480	–	–	–
Thyridium sp.	Mas 56	–	HQ993268	–	–
Thyridium vestitum	AFTOL ID 172	AY544671	AY544715	DQ471058	DQ470890
Tirisporella beccariana	BCC36737	JQ655450	JQ655454	–	–
Togninia africana	STE U 6177	–	EU128060	–	–
Togninia griseo olivacea	STE U 5966	–	EU128058	–	–
Togniniella acerosa	PDD 81432	AY761076	AY761073	–	–
Torpedospora radiata	AFTOL-ID 751	DQ470951	DQ470999	DQ471070	DQ470902
Torpedospora radiata	PP7763	AY858947	AY858939	–	–
Torrubiella wallacei	CBS 101237	AY184967	AY184978	EF469073	EF469119
Trichoderma viride	GJS89-127	AY489726	–	–	–
Umbrinosphaeria caesariata	CBS 102664	AF261069	–	–	–
Utrechtiana cibiessia	CPC 18916	JF951176	–	–	–
Valsa ambiens	AR3516 = CBS 109491	EU255208	DQ862056	EU222019	EU219347
Valsella salicis	AR 3514	EU255210	–	EU222018	–
Verticillium dahliae	ATCC 16535	AY489737	AY489705	AY489632	DQ522468
Vialaea mangifia	MFLUCC 12-0808	KF724975	–	–	–
Vialaea minutella	BRIP 56959	KC181924	–	–	–
Viridispora diparietispora	ATCC MYA 627	AY489735	AY489703	AY489630	–
Vittatispora coorgii	BICC 7817	DQ017375	–	–	–
Wallrothiella congregata	SMH1760	FJ532375	–	–	–
Xylaria hypoxylon	CBS 122620	KM186301	–	–	–

[a] Note provided in this paper

[b] Molecular data used in this study

[c] No sequence data in GenBank as at date on submission

Likelihood (ML) analyses of both the individual data partitions as well as the combined aligned dataset. Ambiguously aligned regions were excluded from all analyses and gaps were treated as "missing data" in the parsimony analysis. Suitable models for the Bayesian analysis were first selected using models of nucleotide substitution for each gene, as determined using MrModeltest v. 2.2 (Nylander et al. 2004), and included for each gene partition. The GTR+I+G model with inverse gamma rate were selected for LSU, TEF and RPB2 and SYM+I+G model with inverse gamma rate were selected for LSU and included for each gene partition. The Bayesian analyses (MrBayes v. 3.2.1; Ronquist et al. 2012) of four simultaneous Markov Chain Monte Carlo (MCMC) chains were run from random trees for 100,000,000 generations and sampled every 1000 generations. The temperature value was lowered to 0.15, burn-in was set to 0.25, and the run was automatically stopped as soon as the average standard deviation of split frequencies reached below 0.01. A Maximum Likelihood analysis was performed using raxmlGUI v. 1.3 (Silvestro and Michalak 2011). The optimal ML tree search was conducted with 100 separate runs, using the default algorithm of the program from a random starting tree for each run. The final tree was selected among suboptimal trees from each run by comparing likelihood scores under the GTR+GAMMA substitution model. The MP analysis was performed with MEGA v. 6.06 using a heuristic search option. Bootstrap analyses were performed using 1000 replications. The resulting trees were printed with FigTree v. 1.4.0 (http://tree.bio.ed.ac.uk software/figtree/) and the layout was done with Adobe Illustrator CS v. 6.

Results and discussion

The combined LSU, SSU, TEF, and RPB2 gene data set comprsied 260 taxa, with *Botryotinia fuckeliana*, *Dothidea* *sambuci*, *Exophiala dermatitidis* and *Leotia lubrica* as the outgroup taxa. The combined dataset comprised 4015 characters including gaps. The best scoring RAxML tress are shown in Figs. 1 and 2. The Maximum Parsimony resulted in a tree with the same topology and clades as the Bayesian analysis resulted tree. Bootstrap support (BS) values of MP and ML (equal to or above 50 %) are shown on the upper branches. Values of Bayesian posterior probabilities (equal to or above 90 %) from MCMC analyses are shown under the branches.

In the phylogenetic trees (Figs. 1 and 2), the 260 strains of *Sordariomycetes* included in the analysis cluster into six subclasses. *Sordariomycetidae, Hypocreomycetidae* and *Xylariomycetidae* as in the previous treatment of Lumbsch and Huhndorf (2010), *Meliolomycetidae* as suggested by Kirk et al. (2001), while *Diaporthomycetidae* and *Lulworthiomycetidae* are introduced as new subclasses in this paper. Figure 1 is a reduced tree of Fig. 2. The arrangement of orders and genera within the subclasses can be seen in the outline.

Subclasses of *Sordariomycetes*

Diaporthomycetidae Senan., Maharachch. & K.D. Hyde, ***subclass novus***

Index Fungorum no: IF 551051; *Facesoffungi number*: FoF 00594

Pathogenic, *parasitic*, *endophytic*, or *saprobic*, associated with plants or *pathogens* of insects, animals or humans. Sexual morph: *Stromata* immersed to erumpent, composed of orange, brown or black parenchymatous tissues, ascomata embedded in stromatic tissues. Ascomata solitary or aggregated, immersed, erumpent to superficial, globose to subglobose, rarely pyriform, sometimes carbonaceous, brown to black. *Asci* 8 or multi-spored, unitunicate, cylindrical, clavate to oblong, with a nonamyloid refractive apical apparatus. *Ascospores* 2–3-seriate, variously shaped, aseptate or septate, sometimes with appendages and sheaths. Asexual morph: ceolomycetous or hypomyceteous, when coelomycetous, *Conidiomata* acervuli or pycnidial. *Conidiogenous cells* phialidic or annellidic. *Conidia* small to large, unicellular to multiseptate, hyaline, light brown to dark brown. when hypomyceteous, *Conidiophores* arising from hyphae. *Conidiogenous cells* terminal or lateral, sometimes coloured, mostly hyaline. *Conidia* mostly unicellular, oval, hyaline.

Type order: ***Diaporthales*** Nannf.

The subclass *Diaporthomycetidae* comprises ten main clades which are represented by six existing orders, four newly introduced orders and 26 families. The order *Diaporthales* comprises 12 clades represented by *Cryphonectriaceae*, *Diaporthaceae*, *Gnonomiaceae, Harknessiaceae*, *Melanconidaceae*, *Pseudoplagiostomataceae*, *Pseudovalsaceae*, *Schizoparmeaceae*, *Stilbosporaceae*, *Sydowiellaceae*, *Tirisporellaceae* and *Valsaceae*. *Calosphaeriales* comprises the families *Calosphaeriaceae* and *Pleurostromataceae*. The new orders *Jobellisiales* and *Togniniales* are introduced for *Jobellisiaceae* and *Togniniaceae,* respectively. *Magnaporthales* is expanded to incorporate *Magnaporthaceae, Ophioceraceae* and *Pyriculariaceae*.

Fig. 1 The best scoring RAxML *Sordariomycetes* tree (compressed overview tree) from 260 taxa based on a combined dataset of LSU, SSU, TEF and RPB2 genes with all lineages collapsed to family level where possible. Subclasses are indicated in coloured blocks and RAxML bootstrap support values (MLB) and Bayesian posterior probabilities (PP) are given at the nodes (MLB/PP). The tree is rooted with *Botryotinia fuckeliana*, *Dothidea sambuci*, *Exophiala dermatitidis* and *Leotia lubrica* ▶

Type species: ***Diaporthe eres*** Nitschke

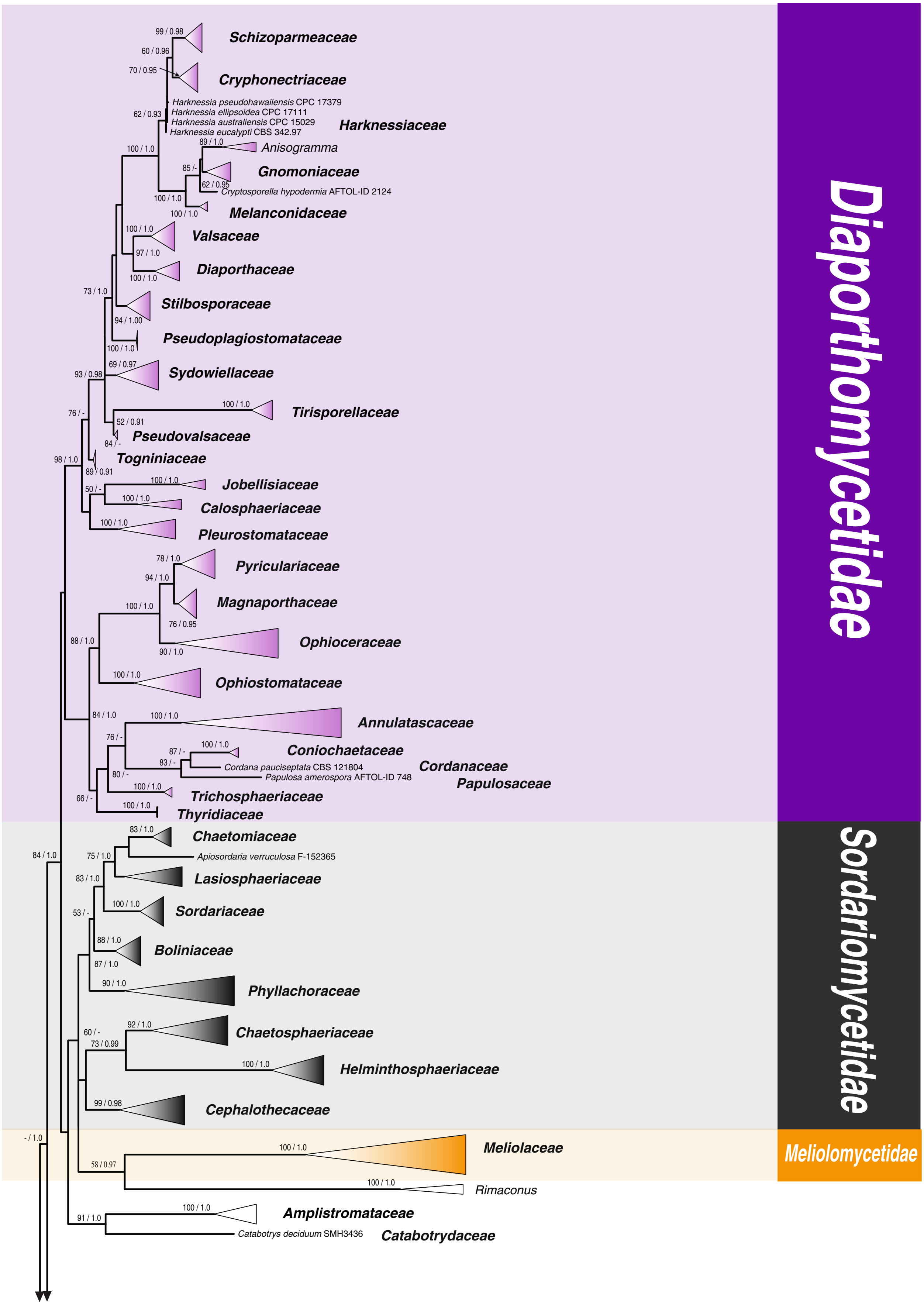
Hypocreomycetidae O.E. Erikss. & Winka, Myconet 1(1): 6 (1997)

This subclass was introduced by Eriksson and Winka (1997) and comprises four existing orders, one new order introduced in this paper and 28 families. The order *Coronophorales* now includes *Coronophoraceae*, *Ceratostomataceae*, *Chaetosphaerellaceae* *Scortechiniaceae*, plus *Nitschkiaceae* and *Bertiaceae.* The *Melanosporales* comprises the family *Ceratostomataceae*. The order *Microascales* is enlarged to include the families *Halosphaeriaceae*, *Microascaceae*, *Gondwanamycetaceae*, *Ceratocystidaceae* and *Graphiaceae*, but with weak support. The order *Glomerellales* includes *Australiascaceae*, *Glomerellaceae*, *Plectosphaerellaceae* and *Reticulascaceae*. The order *Hypocreales* incorporates *Bionectriaceae*, *Clavicipitaceae*, *Cordycipitaceae*, *Hypocreaceae*, *Nectriaceae*, *Niessliaceae*, *Ophiocordyciptiaceae* and *Stachybotriaceae*. The new order *Falcocladiales* is introduced and comprises one family *Falcocladiaceae*. *Torpedosporaceae*, *Juncigenaceae* and *Etheirophoraceae* are placed in the subclass *Hypocreomycetidae* family *incertae sedis.* The recently introduced monotypic order *Savoryellales* form a basal clade in the *Hypocreomycetidae*.

Lulworthiomycetidae Dayar.*,* E.B.G. Jones & K.D. Hyde, ***subclass novus***

Index Fungorum number: IF551131; *Facesoffungi No.*: FoF 00617

Saprobic on wood, sea grasses and marsh plants or parasites on algae. Sexual morph: *Ascomata* subglobose to cylindrical or ovoid to ellipsoidal, immersed or superficial, ostiolate, papillate or epapillate, periphysate. *Hamathecium* composed of paraphyses or internal structures absent; centrum initially filled with a hyaline pseudoparenchyma, dissolving at maturity. *Asci* eight-spored, cylindrical to fusiform or clavate to ellipsoidal, unitunicate, deliquescent. *Ascospores* filamentous or ellipsoidal to fusiform, septate; multiseptate near the apices, or evenly multiseptate, some are non-septate, hyaline, thick- or thin-walled, with or without apical chambers. Asexual morph: hypomycetous, *hyphae* hyaline, septatae,


99 / 0.98
Schizoparmeaceae
60 / 0.96
70 / 0.95
Cryphonectriaceae
Harknessia pseudohawaiiensis CPC 17379
Harknessia ellipsoidea CPC 17111
Harknessia australiensis CPC 15029
Harknessia eucalypti CBS 342.97
62 / 0.93
Harknessiaceae
100 / 1.0
89 / 1.0
Anisogramma
85 /-
Gnomoniaceae
62 / 0.95
Cryptosporella hypodermia AFTOL-ID 2124
100 / 1.0
100 / 1.0
Melanconidaceae
100 / 1.0
Valsaceae
97 / 1.0
100 / 1.0
Diaporthaceae
73 / 1.0
Stilbosporaceae
94 / 1.00
Pseudoplagiostomataceae
100 / 1.0
69 / 0.97
93 / 0.98
Sydowiellaceae
100 / 1.0
Tirisporellaceae
76 / -
52 / 0.91
Pseudovalsaceae
84 / -
98 / 1.0
Togniniaceae
89 / 0.91
100 / 1.0
Jobellisiaceae
50 / -
100 / 1.0
Calosphaeriaceae
100 / 1.0
Pleurostomataceae
78 / 1.0
Pyriculariaceae
94 / 1.0
Magnaporthaceae
100 / 1.0
76 / 0.95
88 / 1.0
Ophioceraceae
90 / 1.0
100 / 1.0
Ophiostomataceae
84 / 1.0
100 / 1.0
Annulatascaceae
76 / -
100 / 1.0
87 / -
Coniochaetaceae
83 / -
Cordana pauciseptata CBS 121804
Cordanaceae
Papulosa amerospora AFTOL-ID 748
80 / -
Papulosaceae
100 / 1.0
Trichosphaeriaceae
66 / -
100 / 1.0
Thyridiaceae
83 / 1.0
Chaetomiaceae
84 / 1.0
75 / 1.0
Apiosordaria verruculosa F-152365
83 / 1.0
Lasiosphaeriaceae
100 / 1.0
53 / -
Sordariaceae
88 / 1.0
Boliniaceae
87 / 1.0
90 / 1.0
Phyllachoraceae
92 / 1.0
60 / -
Chaetosphaeriaceae
73 / 0.99
100 / 1.0
Helminthosphaeriaceae
99 / 0.98
Cephalothecaceae
- / 1.0
100 / 1.0
Meliolaceae
58 / 0.97
100 / 1.0
Rimaconus
100 / 1.0
Amplistromataceae
91 / 1.0
Catabotrys deciduum SMH3436
Catabotrydaceae
Diaporthomycetidae
Sordariomycetidae
Meliolomycetidae

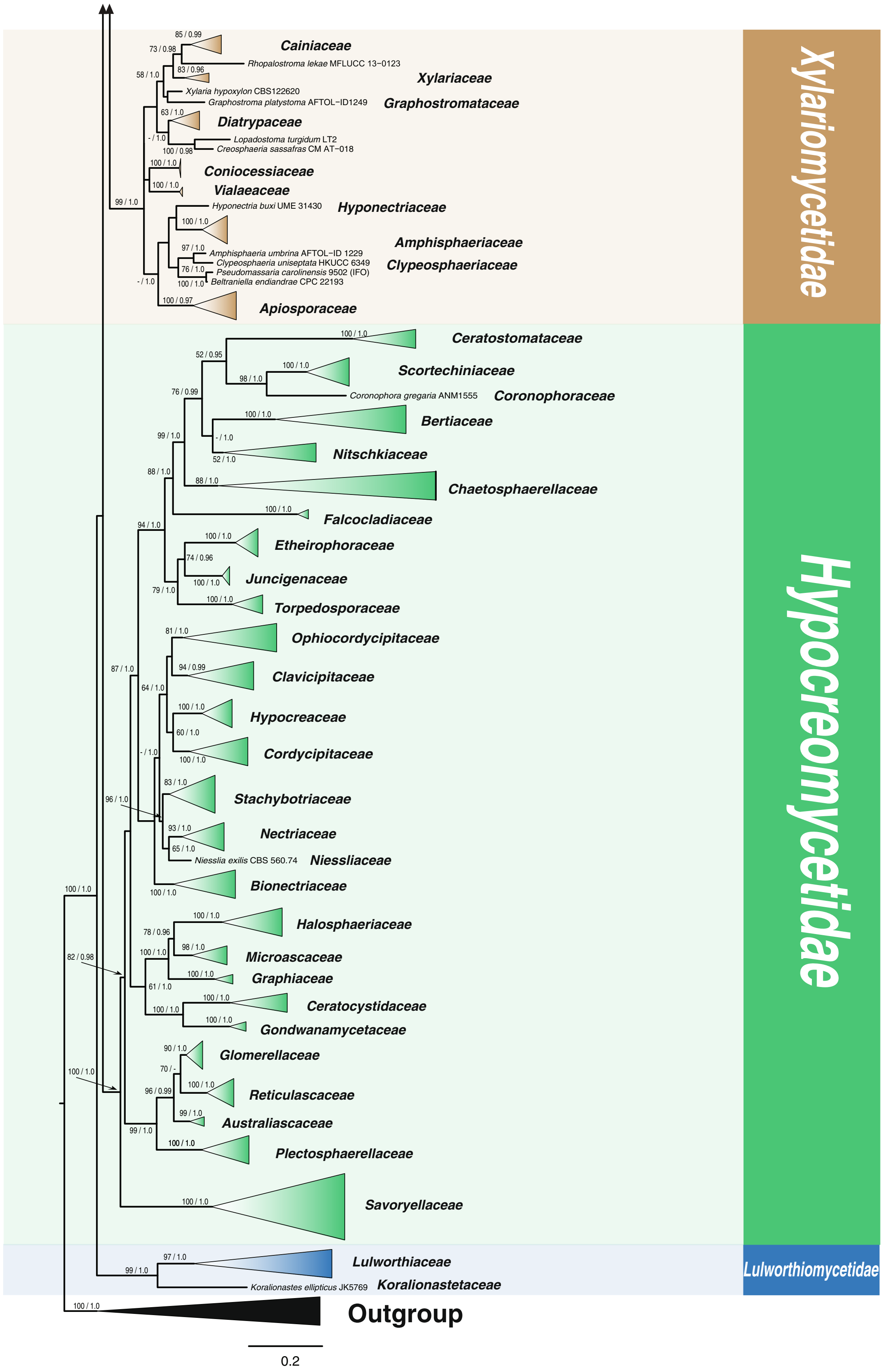


Fig. 1 (continued)

branched. *Conidiophores* micronematous or semi micronematous. *Conidia* filiform or ellipsoidal, septate or non septate, some are coiled, when spermatial, *spermatia*, enteroblastic, subglobose.

Type order: **Lulworthiales** Kohlm. et al.

This new subclass is introduced for a lineage of marine fungi that are unrelated to *Halosphaeriaceae* (*Microascales*, *Hypocreomycetidae*). It includes the orders *Lulworthiales* with the family *Lulworthiaceae* and *Koralionastetales* with the family *Koralionastetaceae*. Spatafora et al. (1998) demonstrated that the order *Halosphaeriales* was polyphyletic and comprised two distinct lineages. The first clade, *Halosphaeriales* including 11 genera, was closely related to, and is now included in the order *Microascales*, whereas the second clade, with *Lulworthia* and *Lindra* species, was assigned to *Lulworthiaceae* in *Lulworthiales* (Kohlmeyer et al. 2000). Members of *Lulworthiales* are saprobes, on wood, sea grasses and marsh plants or parasites on algae (Campbell et al. 2005). *Lindra*, which is composed of six species, is the only genus in the order *Lulworthiales* which does not have ascospores with apical chambers filled with mucus. Other genera placed in the *Lulworthiales* based on molecular data include *Kohlmeyeriella* (Campbell et al. 2002) and the algicolous genera *Spathulospora* (Inderbitzin et al. 2004) and *Haloguignardia* (Harvey 2004). *Koralionastes* and *Pontogeneia* are closely related to members of *Lulworthiales*, while the differences in morphological characters are expressed in the ascospores and the presence/absence of periphyses and paraphyses. Phylogenetic studies of Campbell et al. (2009) showed that some species of *Koralionastes* and *Pontogeneia* that were sequenced group in a monophyletic clade basal to the clade of *Lulworthiales*. This clade represents a distinct taxonomic entity at the order level based on both molecular and morphological data. Based on molecular studies and using morphological characters, the genera *Koralionastes* and *Pontogeneia* were assigned to the new order *Koralionastetales* which is a sister group to *Lulworthiales*. The orders *Lulworthiales* and *Koralionastetales* clustered together in a well-supported clade based on combined gene data and a new subclass is introduced here as *Lulworthiomycetidae*. The orders in this subclass are, however, well separated.

Type species: ***Lulworthia fucicola*** G.K. Sutherl.

Meliolomycetidae P.M. Kirk & K.D. Hyde, ***subclass novus***
Meliolomycetidae P.M. Kirk et al., Ainsworth & Bisby's Dictionary of the Fungi, Edn 9 (Wallingford): 314 (2001) [nom. inval.]

This subclass *Meliolomycetidae* was introduced by Kirk et al. (2001) to accomodate the order *Meliolales*. Justavino et al. (2014) provided a phylogenetic tree (based on analysis of LSU) that included five subclasses in *Sordariomycetes*, and eight species of *Meliolaceae* which were analyzed by neighbor joining analysis. The results indicated that the *Meliolaceae* clade formed the most basal clade in *Sordariomycetes* with strong support. Hence, they suggested that the order *Meliolales* which comprises *Armatellaceae* and *Meliolaceae* should be accommodated in a subclass *Meliolomycetidae*. In our multi-gene phylogenetic analysis (Figs. 1 and 2) the subclass *Meliolomycetidae* is most closely related to Sordariomycetidae as in Justavino et al. (2014). The *Meliolales*, clusters as a sister group to the order *Chaetosphaeriales*, family *Cephalothecaceae* and genus *Rimaconus*. The placement of the family *Cephalothecaceae* is uncertain during the phylogenetic analysis and this is probably because the sequences of *Cephalothecaceae* species are relatively short and do not provide adequate phylogenetic resolution. The morphology of taxa of *Cephalothecaceae* and *Meliolales* differ greatly. In species of *Meliolaceae* have a parasitic habitat, forming superficial, web-like, black colonies on leaves, stems or branches, the mycelia are hyphopodiate and spores are mostly brown. Species of *Cephalothecaceae* are distinct in having a saprobic habitat, often growing on rotten wood or on other fungi, the mycelia lack hyphopodia and ascomata have a cephalothecoid peridium (von Höhnel 1917c). Hence, we tentatively place *Cephalothecaceae* as family *incertae sedis* in *Sordariomycetes* because of its uncertain phylogenetic placement and differing morphology. There are few sequences for species in *Meliolomycetidae* as they are biotrophic and cannot presently be isolated into culture. Therefore all sequence data for *Meliolales* is from DNA extracted from fruiting bodies of taxa on the host.

Sordariomycetidae O.E. Erikss. & Winka, Myconet 1(1): 10 (1997)

This subclass was established by Eriksson and Winka (1997) and comprises four orders, eight families and one family *incertae sedis*. The order *Chaetosphaeriales* comprises the families *Chaetosphaeriaceae* and *Helminthosphaeriaceae*. The order *Phyllachorales*, which is moved from *Sordariomycetes* orders *incertae sedis* to *Sordariomycetidae*, comprises two families, *Phaeochoraceae* and *Phyllachoraceae*. Hyde et al. (1997) introduced the family *Phaeochoraceae* in the order *Phyllachorales* for a taxon of biotrophic and saprotrophic fungi on palms. The order *Boliniales* comprises a single family *Bolinaceae*. The order *Sordariales* includes three clades represented by *Sordariaceae*, *Chaetomiaceae* and *Lasiosphaeriaceae,* that latter comprises *Lasiosphaeriaceae* sensu *lato* and *Lasiosphaeriaceae* sensu stricto. *Batistiaceae*, typified by *Batistia annulipes* was introduced by Samuels and Rodrigues (1989) as a monotypic family. The family was placed in the *Sordariomycetidae incertae sedis* (Kirk et al.

2001). Sequence data published by Huhndorf et al. (2004) has been determined to be contaminated and there is no sequence data for this family in GenBank.

Xylariomycetidae O.E. Erikss. & Winka, Myconet 1(1): 12 (1997)

This subclass was introduced by Eriksson and Winka (1997) and comprises one lagre existing order *Xylariales*. The order includes *Amphisphaeriaceae*, *Apiosporaceae*, *Cainiaceae*, *Coniocessiaceae*, *Diaptrypaceae*, *Graphostromataceae*, *Hyponectriaceae*, *Melanogrammataceae*, *Vialaeaceae*, and *Xylariaceae.* Many species in the subclass may have large stromata and are clearly visible and dominating the surface of decaying plants.

Orders of *Sordariomycetes*

The phylogenetic trees produced in this study (Figs. 1 and 2) support several of the existing orders and indicate that several new orders should be introduced. Each order is discussed alphabetically.

Amplistromatales D'souza, Maharachch. & K.D. Hyde, ***ordo novus***

Type family: ***Amplistromataceae***

Index Fungorum number: IF551156; Facesoffungi No.: FOF 00632

An order comprising families *Amplistromataceae* and *Catabotrydaceae*. Sexual morph: Stromatic or non-stromatic. *Stromata* if present superficial, obovoid to pulvinate, soft or firm textured. *Ascomata* perithecial, rarely subiculate, solitary or gregarious, globose to sub globose, monostichous or polystichous with long necks. *Paraphyses* abundant, persistent, longer than asci. *Asci* numerous, unitunicate, stipitate, cylindrical to clavate, with a small, J-, apical ring. *Ascospores* hyaline, globose, aseptate. Asexual morph: Acrodontium-like for *Amplistroma*.

Type species: ***Amplistroma carolinianum*** Huhndorf et al.

Notes: Two genera are included in *Amplistromatacaeae* namely *Amplistroma* Huhndorf et al. and *Wallrothiella* Sacc. The genus *Wallrothiella* was redescribed by Reblova and Seifert (2004) along with neotypification of its type species *Wallrothiella congregata* (Wallr.) Sacc. *Amplistroma* has been segregated from *Wallrothiella* on the basis of presence of stromatic ascomata. *Catabotydaceae* is monotypic with *Catabotrys* as its type genus. However *Catabotrys* and *Wallrothiella* do not possess stromatic ascomata, while *Amplistroma* is stromatic. LSU sequence data analysis shows that *Amplistromataceae* has an unsupported relationship with *Chaetospheriales* and *Magnaporthaceae* (Huhndorf et al. 2009). In our phylogenetic analyses *Amplistromatales* shows a distant relationship with *Meliolomycetidae* and *Sordariomycetidae* and thus placed in *Sordariomycetes* order *incertae sedis* until further data is available.

Fig. 2 Maximum likelihood (ML) majority rule combined LSU, SSU, TEF and RPB2 consensus tree for the analyzed *Sordariomycetes* isolates. Orders are indicated in coloured blocks and RAxML bootstrap support values (MLB) and Bayesian posterior probabilities (PP) are given at the nodes (MLB/PP). The scale bar represents the expected number of changes per site. The tree is rooted with *Botryotinia fuckeliana*, *Dothidea sambuci*, *Exophiala dermatitidis* and *Leotia lubrica* ▶

Annulatascales D'souza, Maharachch. & K.D. Hyde, ***ordo novus***

Type family: ***Annulatascaceae***

Index Fungorum number: IF551133; *Facesoffungi No.*: FoF 00620

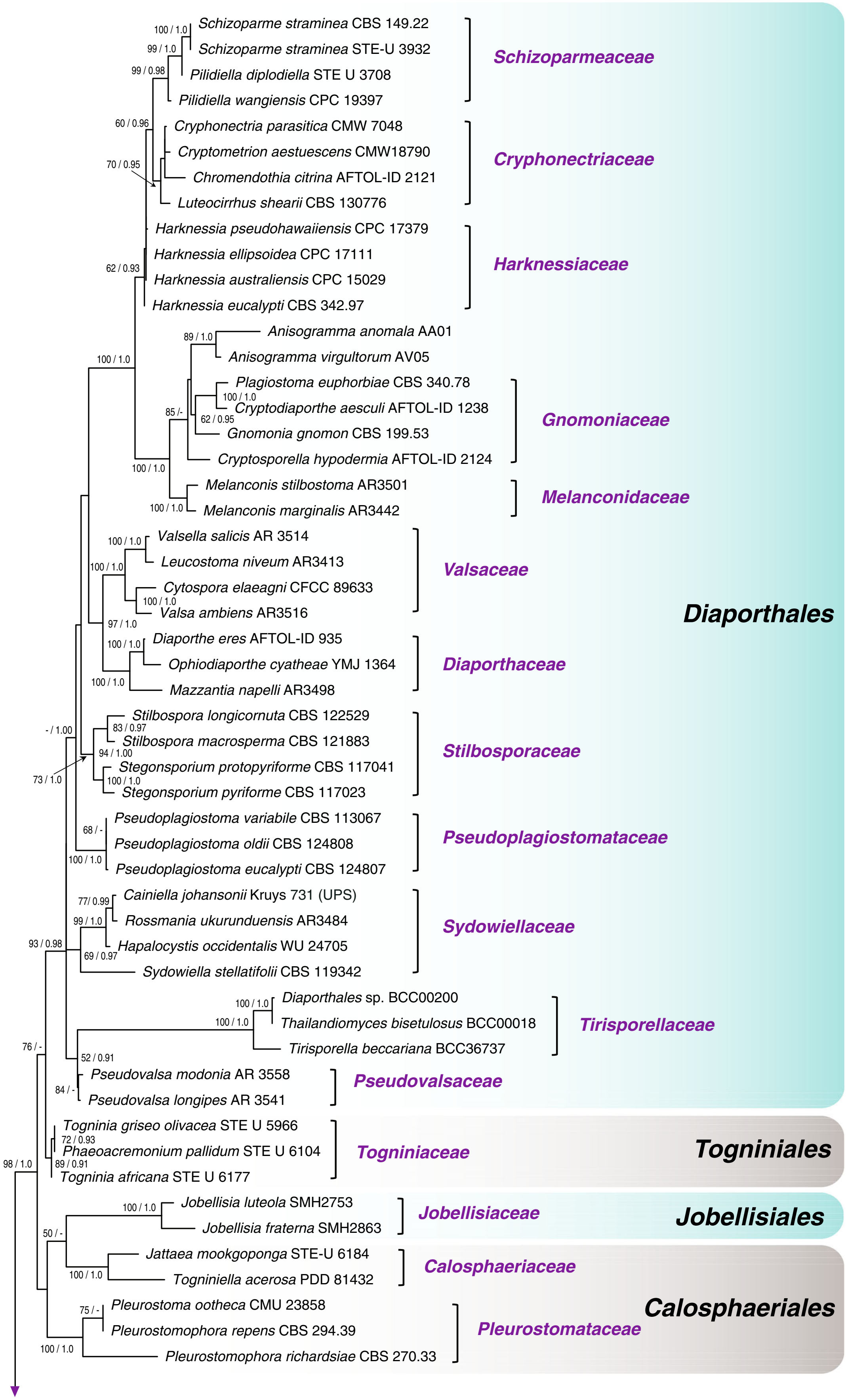
A monotypic order within the class *Sordariomycetes*, subclass *Diaporthomycetidae*. Characterized by a dominant freshwater lifestyle, although some members have been reported from terrestrial habitats. Sexual morph: *Ascomata* unilocular, rarely clypeate, perithecial. Necks black or hyaline. *Peridium* coriaceous or membranous. *Hamathecium* with tapering paraphyses. *Asci* 8-spored, unitunicate, pedicellate, usually with a massive, J-, refractive apical ring. *Ascospores* uniseriate, hyaline, sometimes brown, septate or aseptate. Asexual morph: Taeniolella-like for *Chaetorostrum.*

Type species: ***Annulatascus velatispora*** K.D. Hyde

Notes: This order is characterized by its typical freshwater habitat, growing on submerged woody substrates, with most genera distributed in the tropics. Significant characters of most genera in *Annulatascales* include cylindrical, thin-walled asci, with a massive, J-, refractive, apical apparatus, which assists in active spore ejection (Tsui et al. 2003). Ascospores are usually equipped with appendages or sheaths. These characters might be important in aquatic habitats where they aid in the attachment to substrates (Shearer et al. 2007). The order presently comprises 18 genera which belong to, or are referred to, the family *Annulatascaceae*. Many genera lack molecular data, and it is likely that the family as presently circumscribed is polyphyletic (Campbell and Shearer 2004; Huhndorf et al. 2004; Vijaykrishna and Hyde 2006; Abdel-Wahab et al. 2011). The closest relatives are, *Cordanales* and *Papulosaceae*, but *Annulatascales* can be easily distinguished by a massive, J-, refractive, apical ring. Ranghoo et al. (1999) analyzed LSU rDNA sequence data to show that *Annulatascaceae* has relationships with *Sordariales*. However, in our phylogenetic analyses the order *Annulatascales* is placed in *Diaportheomycetidae* (Figs. 1 and 2).

Boliniales P.F. Cannon, in Kirk et al., Ainsworth & Bisby's Dictionary of the Fungi, Edn 9 (Wallingford): x (2001)

An order of saprotrophic fungi within the subclass *Sordariomycetidae*, which was introduced by Cannon (Kirk et al. 2001). In our phylogenetic analysis (Figs. 1 and 2), *Boliniales* is closest to *Phyllachorales* and *Sordariales. Boliniales* comprises a single family, *Boliniaceae*, with nine genera.


100 / 1.0
Schizoparme straminea CBS 149.22
99 / 1.0
Schizoparme straminea STE-U 3932
99 / 0.98
Pilidiella diplodiella STE U 3708
Pilidiella wangiensis CPC 19397
Schizoparmeaceae
60 / 0.96
Cryphonectria parasitica CMW 7048
70 / 0.95
Cryptometrion aestuescens CMW18790
Chromendothia citrina AFTOL-ID 2121
Luteocirrhus shearii CBS 130776
Cryphonectriaceae
Harknessia pseudohawaiiensis CPC 17379
Harknessia ellipsoidea CPC 17111
62 / 0.93
Harknessia australiensis CPC 15029
Harknessia eucalypti CBS 342.97
Harknessiaceae
89 / 1.0
Anisogramma anomala AA01
100 / 1.0
Anisogramma virgultorum AV05
Plagiostoma euphorbiae CBS 340.78
100 / 1.0
Cryptodiaporthe aesculi AFTOL-ID 1238
85 /-
62 / 0.95
Gnomonia gnomon CBS 199.53
Cryptosporella hypodermia AFTOL-ID 2124
Gnomoniaceae
100 / 1.0
Melanconis stilbostoma AR3501
100 / 1.0
Melanconis marginalis AR3442
Melanconidaceae
100 / 1.0
Valsella salicis AR 3514
100 / 1.0
Leucostoma niveum AR3413
Cytospora elaeagni CFCC 89633
100 / 1.0
Valsa ambiens AR3516
Valsaceae
97 / 1.0
Diaporthales
100 / 1.0
Diaporthe eres AFTOL-ID 935
Ophiodiaporthe cyatheae YMJ 1364
100 / 1.0
Mazzantia napelli AR3498
Diaporthaceae
Stilbospora longicornuta CBS 122529
83 / 0.97
- / 1.00
Stilbospora macrosperma CBS 121883
94 / 1.00
73 / 1.0
Stegonsporium protopyriforme CBS 117041
100 / 1.0
Stegonsporium pyriforme CBS 117023
Stilbosporaceae
Pseudoplagiostoma variabile CBS 113067
68 / -
Pseudoplagiostoma oldii CBS 124808
100 / 1.0
Pseudoplagiostoma eucalypti CBS 124807
Pseudoplagiostomataceae
77/ 0.99
Cainiella johansonii Kruys 731 (UPS)
99 / 1.0
Rossmania ukurunduensis AR3484
Hapalocystis occidentalis WU 24705
93 / 0.98
69 / 0.97
Sydowiella stellatifolii CBS 119342
Sydowiellaceae
100 / 1.0
Diaporthales sp. BCC00200
100 / 1.0
Thailandiomyces bisetulosus BCC00018
Tirisporella beccariana BCC36737
Tirisporellaceae
76 / -
52 / 0.91
Pseudovalsa modonia AR 3558
84 / -
Pseudovalsa longipes AR 3541
Pseudovalsaceae
Togninia griseo olivacea STE U 5966
72 / 0.93
Phaeoacremonium pallidum STE U 6104
98 / 1.0
89 / 0.91
Togninia africana STE U 6177
Togniniaceae
Togniniales
100 / 1.0
Jobellisia luteola SMH2753
Jobellisia fraterna SMH2863
Jobellisiaceae
Jobellisiales
50 / -
Jattaea mookgoponga STE-U 6184
100 / 1.0
Togniniella acerosa PDD 81432
Calosphaeriaceae
Pleurostoma ootheca CMU 23858
75 / -
Calosphaeriales
Pleurostomophora repens CBS 294.39
Pleurostomataceae
100 / 1.0
Pleurostomophora richardsiae CBS 270.33

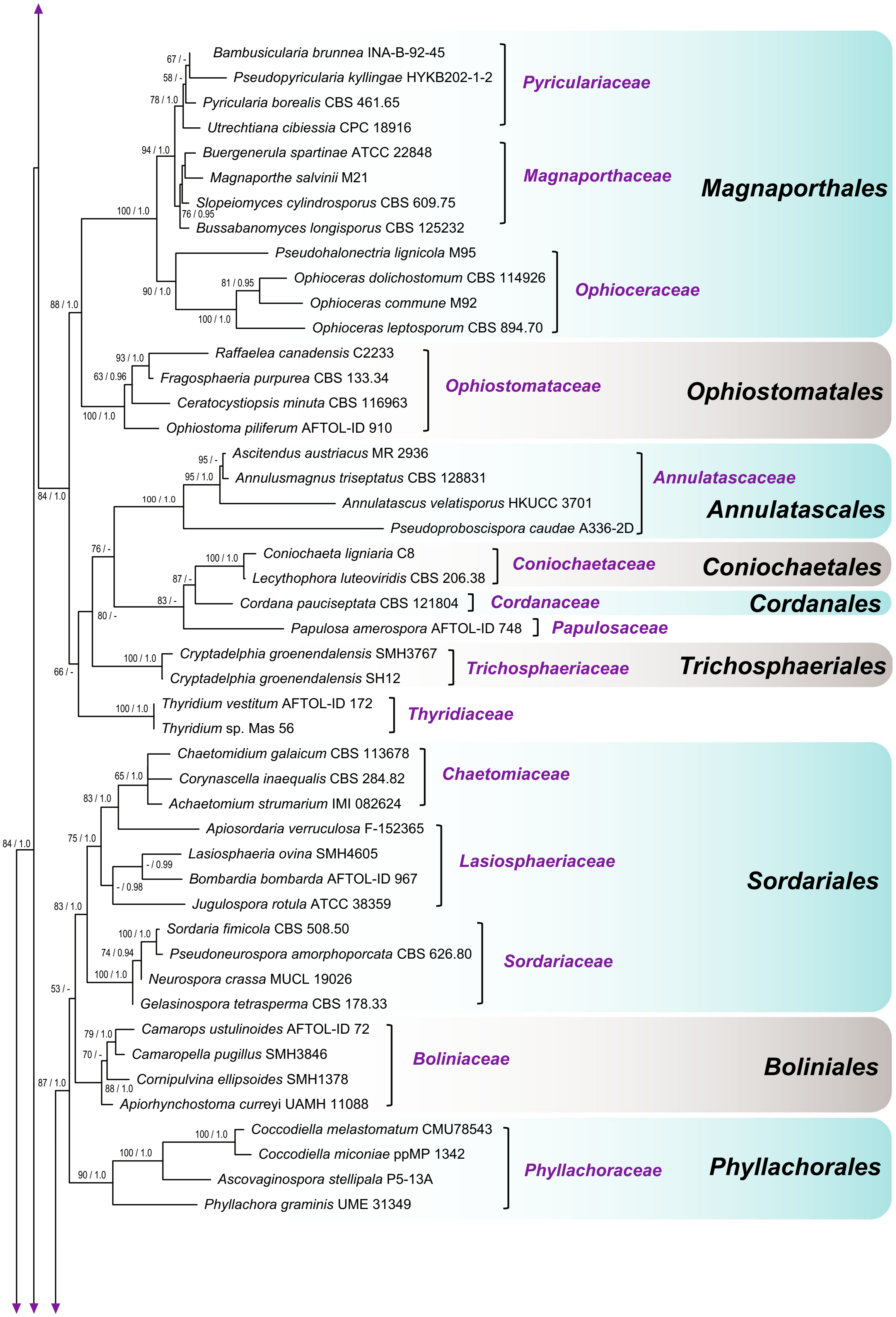


Fig. 2 (continued)

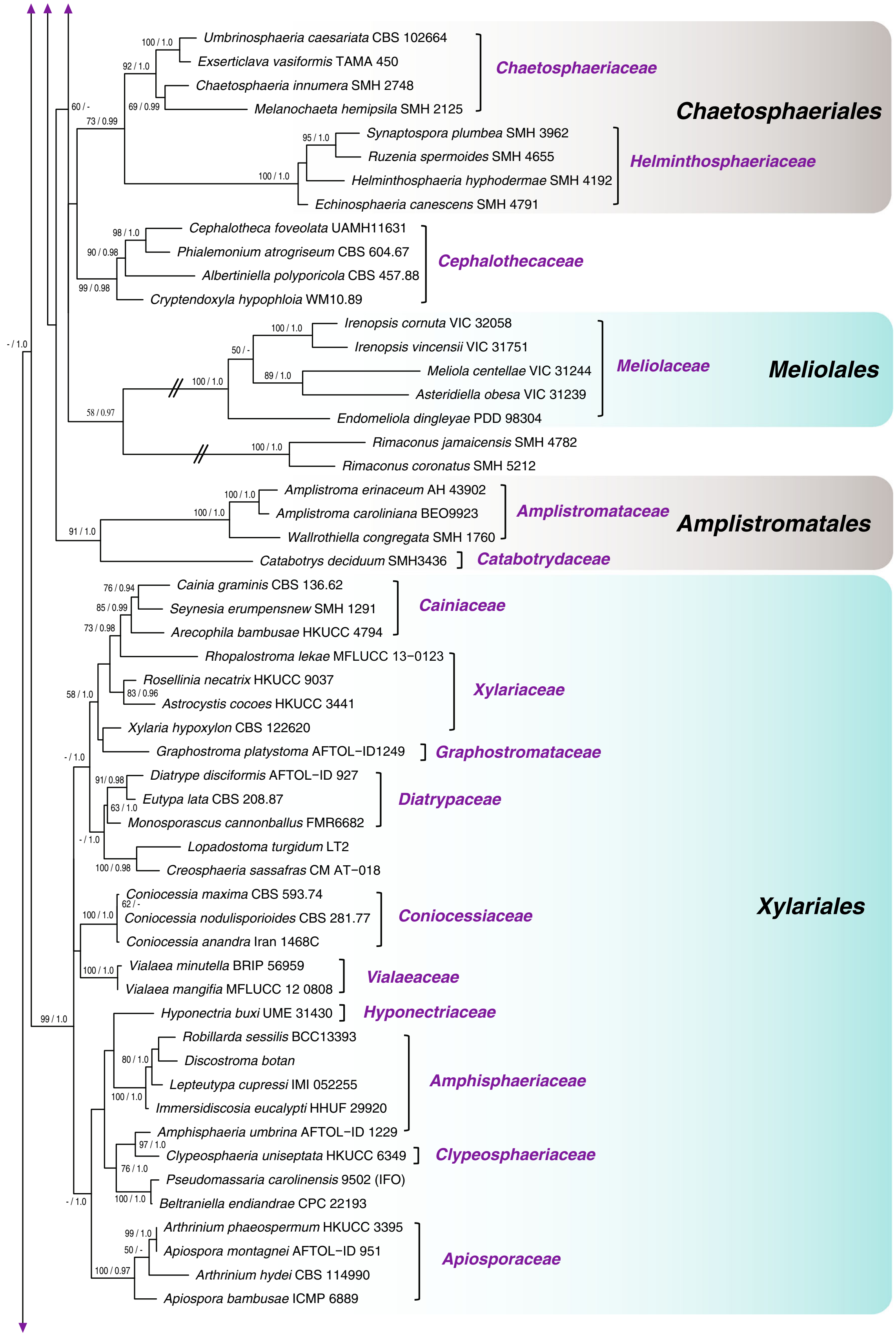


Fig. 2 (continued)

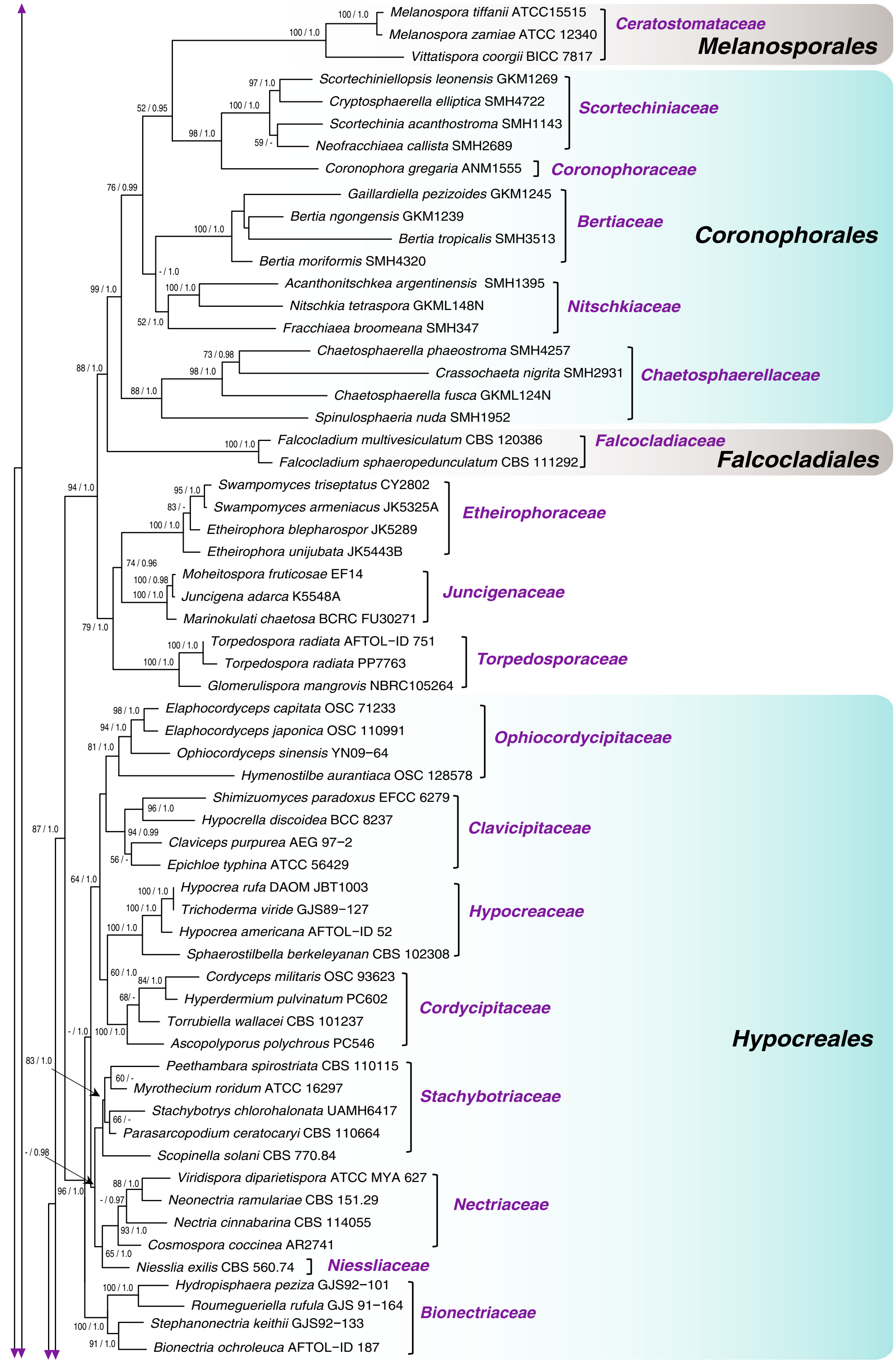


Fig. 2 (continued)

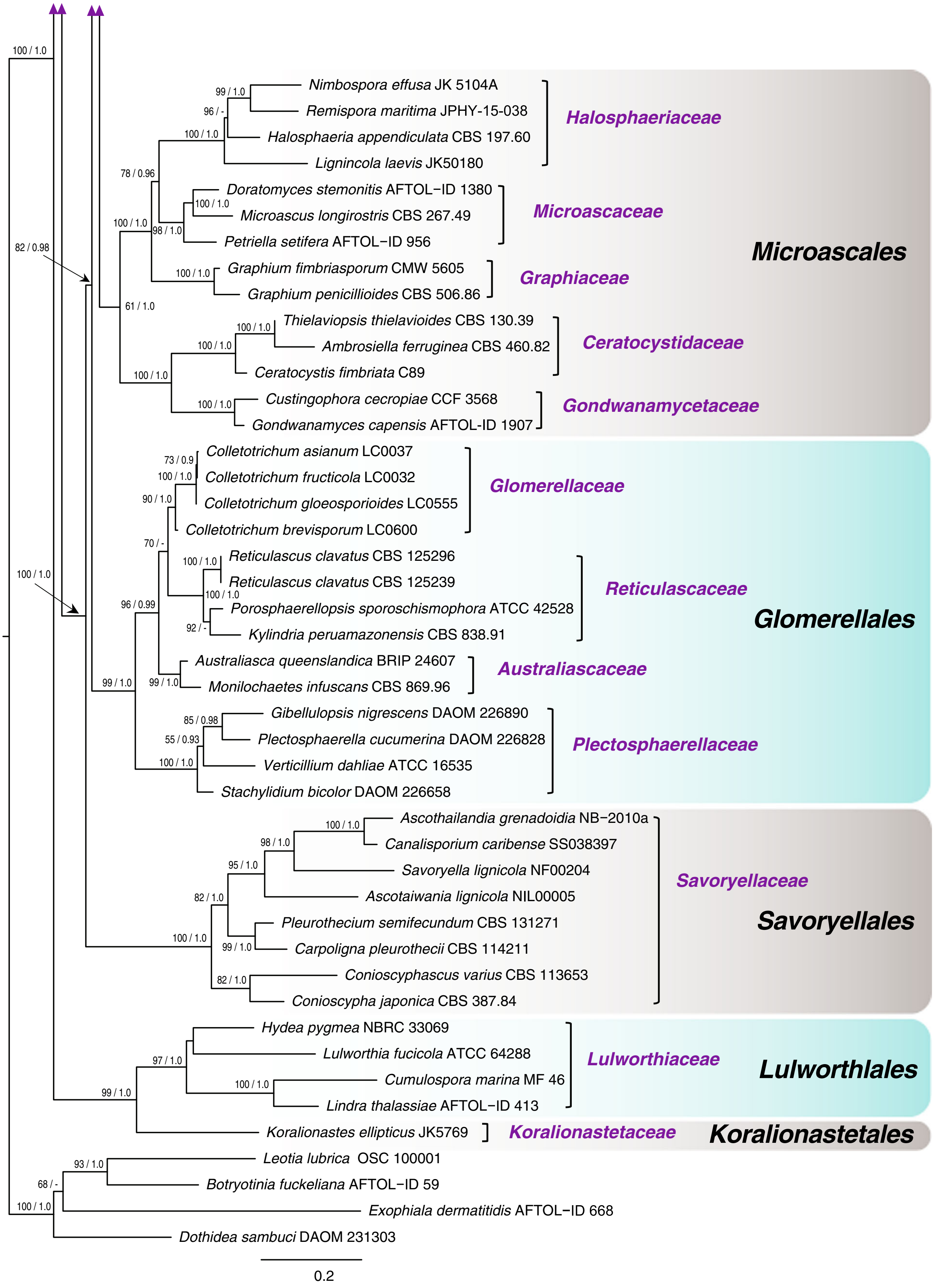


Fig. 2 (continued)

Calosphaeriales M.E. Barr, Mycologia 75(1): 11 (1983)

This small order was introduced by Barr (1985). It presently comprises *Calosphaeriaceae* and *Pleurostomataceae* (Figs. 1 and 2). The taxa belonging to the order mainly comprise simple, dark perithecia, unitunicate asci, and hyaline to slightly pigmented, ellipsoid to allantoid ascospores (Réblová et al. 2004). It forms a sister clade to the order *Jobellisiales* (Figs. 1 and 2).

Chaetosphaeriales Huhndorf et al., Mycologia 96(2): 378 (2004)

This order was introduced in *Sordariomycetidae* based on molecular analysis of LSU nrDNA sequence data by Huhndorf et al. (2004). In our phylogenetic analysis (Fig. 1), *Chaetosphaeriales* is close to *Boliniales* and *Phyllachorales*. The order comprises *Chaetosphaeriaceae* with 35 genera and *Helminthosphaeriaceae* with seven genera.

Coniochaetales Huhndorf et al., Mycologia 96(2): 378 (2004)

This order was introduced by Huhndorf et al. (2004) and incorporates a single family *Coniochaetaceae* with three genera. *Cordanales* is a sister order and *Papulospora* (*Papulospoaceae*) is basal to *Coniochaetiaceae* and may also require its own order. *Coniochaetaceae* differs from *Sordariaceae* and related families in having ascospores with elongate germ slits (Malloch and Cain 1971).

Cordanales Hernández-Restrepo et al., Phytotaxa (in press)

This order was introduced by Hernández-Restrepo et al. (2015) to accommodate the family *Cordanaceae* with a single genus *Cordana.* Morphologically it is easily distinguished from its sister order *Coniochaetales* (*Coniochaetaceae*) by having a basal stroma, ascospores without germ slits and polyblastic asexual morphs (Hernández-Restrepo et al. 2015).

Coronophorales Nannf., Nova Acta R. Soc. Scient. upsal., Ser. 4 8(no. 2): 54 (1932)

The wood inhabiting order *Coronophorales* comprises *Bertiaceae*, *Ceratostomataceae*, *Chaetosphaerellaceae*, *Coronophoraceae*, *Nitschkiaceae* and *Scortechiniaceae*. The taxa in the order are characterised by mostly superficial ascomata, sometimes with an extensive hyphal subiculum or well developed basal stroma that often becomes cupulate or collapsed, and in some cases the ostiolar opening is either indistinct or lacking (Mugambi and Huhndorf 2010).

Diaporthales Nannf., Nova Acta R. Soc. Scient. upsal., Ser. 4 8(no. 2): 53 (1932)

The order *Diaporthales* comprises 12 families which are *Cryphonectriaceae*, *Diaporthaceae*, *Gnomoniaceae*, *Harknessiaceae*, *Melanconidaceae*, *Pseudoplagiostomataceae*, *Pseudovalsaceae*, *Schizoparmeaceae*, *Stilbosporaceae*, *Sydowiellaceae*, *Tirisporellaceae* and *Valsaceae*. The family *Tirisporellaceae* will be introduced by Suetrong et al. (2015) to accommodate a basal clade of *Diaporthales* comprising the marine ascomycete geneus *Tirisporella* and the freshwater genus *Thailandiomyces*. Members of *Diaporthales* are pathogens, parasites, and endophytes of plants, human-animal pathogens, saprobes and soil inhabitants (Rossman et al. 2007). The order *Diaporthales* is characterized by perithecia with an elongate beak, often formingwithin stromatic tissues (Rossman et al. 2007). Asci generally deliquesce at the base when mature and have a characteristic refractive apical annulus.

Falcocladiales R.H. Perera, Maharachch., S. Somrithipol, S. Suetrong & K.D. Hyde, ***ordo novus***

Type family: ***Falcocladiaceae***

Index Fungorum number: IF551132; *Facesoffungi No.:* FoF 00606

This monotypic order in the subclass *Hypocreomycetidae* is introduced to accommodate the family *Falcocladiaceae.* Members of this family are saprobes on leaf litter and leaves including *Eucalyptus grandis* and *E. camaldulensis* in tropical, terrestrial habitats (Crous et al. 1994; Jones et al. 2014). Sexual morph: Undetermined. Asexual morph: *Conidiomata* hyaline, sporodochial or synnematal, or penicillate, arising from the mycelium or from a stroma or from microsclerotia, thick-walled with non-septate stipe extensions that terminate in thin-walled sphaeropendunculate vesicles. *Conidiophores* hyaline, non to multi-septate, branched, forming three series of branches per conidioma (primary, secondary and tertiary), subcylindical. *Conidiogenous cells* phialidic, arranged in 2–6 whorls, necks elongate, with minute collarettes. Conidia transseptate, hyaline, falcate, with short apical and basal appendages (Jones et al. 2014).

Type species: ***Falcocladium multivesiculatum*** S.F. Silveira et al.

Notes: The order presently includes one hyphomycetous asexual genus *Falcocladium* introduced by Crous et al. (1994). Jones et al. (2014) introduced the monotypic family *Falcocladiaceae* based on SSU and LSU sequence data to accommodate the members of genus *Falcocladium* and suggested further taxon sampling was needed to determine its ordinal status. There is no recorded sexual morph for this order. In the molecular analysis (Figs. 1 and 2) *Falcocladiales* is most closely related to the order *Coronophorales*.

Glomerellales Chadef. ex Réblová et al., Stud. Mycol. 68(1): 170 (2011a, b)

Chadefaud (1960) had proposed the order "*Glomérellales*" but without a Latin diagnosis and the name was thus invalid. The order *Glomerellales* was therefore validly published by Réblová et al. (2011a) in the class *Sordariomycetes* and comprised three families *Australiascaceae*, *Reticulascaceae* and *Glomerellaceae.* The introduction was based on analysis of ITS1, 5.8S rDNA and ITS2 (ITS), nc28S (LSU) rDNA, and nc18S (SSU) rDNA datasets, and a combined data set of LSU-SSU-RPB2.

Hypocreales Lindau, in Engler & Prantl, Nat. Pflanzenfam., Teil. I (Leipzig) 1(1): 343 (1897)

Members of the *Hypocreales* are highly diverse in the tropics and subtropics (Põldmaa 2011). This larger order is represent by *Bionectriaceae*, *Clavicipitaceae*, *Cordycipitaceae*, *Hypocreaceae*, *Nectriaceae*, *Niessliaceae*, *Ophiocordycipitaceae*, *Stachybotriaceae* and *Tilachlidiaceae.* In the phylogenetic analysis (Figs. 1 and 2) it forms a sister clade to *Trichosphaeriales* and *Falcocladiales*.

Jobellisiales D'souza & K.D. Hyde, ***ordo novus***

Type family: ***Jobellisiaceae***

Index Fungorum number: IF551134; *Facesoffungi No.*: FoF 00621

Jobellisiales is a monotypic order in the class *Sordariomycetes*, subclass *Diaporthomycetidae*. It includes a single family *Jobellisiaceae* characterized by saprobic lignicolous taxa found in terrestrial and freshwater habitats. Sexual morph: *Ascomata* superficial, basally immersed, brown to black, or externally with yellowish pigments, papillate perithecial. *Peridium* 3-layered, with an orange, middle wall layer. *Hamathecium* with paraphyses. *Asci* unitunicate, cylindrical, with a large, refractive, J-, apical ring. *Ascospores* uniseriate, 1-septate, coloured, with germ pores. Asexual morph: Undetermined.

Type species: ***Jobellisia luteola*** (Ellis & Everh.) M.E. Barr

Notes: This order encompasses taxa that possess relatively large, superficial ascomata, a three layered, thick peridium, cylindrical asci and one septate ascospores. Ascomata of *Jobellisia luteola* (Ellis & Everh.) M.E. Barr are peculiar in appearing orange to yellow brown, whereas those of *J. barrii* Huhndorf et al. and *J. viridifusca* K.M. Tsui & K.D. Hyde have a bright orange middle wall layer (Ranghoo et al. 2001, Liu et al. 2012). The family *Jobellisiaceae* was introduced by Réblová (2008) as a monotypic family and currently includes seven species. Réblová (2008) using LSU rDNA sequence analysis showed that the closest relatives to *Jobellisiaceae* are *Diaporthales*, *Calosphaeriales* and *Togniniaceae*. No asexual morph is reported for this order. In our phylogenetic analysis (Figs. 1 and 2) this order is closest to *Calosphaeriales*.

Koralionastetales Kohlm. et al., Mycol. Res. 113(3): 377 (2009)

Based on the combined dataset of SSU and LSU rDNA sequences and morphological characters the genera *Koralionastes* and *Pontogeneia* were assigned to the new order *Koralionastetales* (Campbell et al. 2009). *Koralionastetales* shows phylogenetic affinities to *Lulworthiales*, but differences in morphology are expressed in the ascospores and the presence/absence of periphyses and paraphyses (Campbell et al. 2009).

Lulworthiales Kohlm. et al., Mycologia 92(3): 456 (2000)

Kohlmeyer et al. (2000) assigned two genera *Lulworthia* and *Lindra*, to this new order and the new family (*Lulworthiaceae*). Abdel-Wahab et al. (2010) showed that a number of asxual morphs also belong in this family, ie *Halazoon*, *Hydea* and *Orbimyces.* Members of *Lulworthiales* lack an apical apparatus in the asci and sexual morphs members of the *Lulworthiales* have ascospores with apical chambers from which mucilage is released (Campbell et al. 2005) and together with the order *Koralionastes* belong to the new subclass *Lulworthiomycetidae* introduced in this study.

Magnaportha`les Thongk. et al., Fungal Diversity 34: 166 (2009)

A phylogenetic study of *Pyricularia* and related genera in *Magnaporthales* by Klaubauf et al. (2014) resulted in the introduction of two new families, *Ophioceraceae* and *Pyriculariaceae. Ophioceraceae* comprises a single genus *Ophioceras*, containing species that mostly occur on wood submerged in freshwater. *Magnaporthaceae* was considered to include *Buergenerula*, *Bussabanomyces*, *Endopyricularia*, *Gaeumannomyces*, *Harpophora*, *Magnaporthiopsis*, *Nakataea*, *Omnidemptus*, *Pyriculariopsis* and *Slopeiomyces* with *Nakataea* as the correct name for the type of the family. The new genus *Kohlmeyeriopsis* was introduced based on molecular data and morphology. *Pyriculariaceae* was introduced and included *Deightoniella* and *Pyricularia*, and the new genera *Bambusicularia*, *Barretomyces*, *Macgarvieomyces*, *Neopyricularia*, *Proxipyricularia*, *Pseudopyricularia* and *Xenopyricularia*.

Melanosporales N. Zhang & M. Blackw., in Hibbett et al., Mycol. Res. 111(5): 531 (2007)

This order was suggested in Zhang et al. (2006) but not validly published; it was formaly introduced by Hibbett et al. (2007) to accommodate *Melanospora* and *Sphaerodes* in *Ceratostomataceae. Melanosporales* forms a sister clade to *Coronophorales* in the present phylogenetic analysis (Figs. 1 and 2).

Meliolales Gäum et al., Syst. Ascom. 5(1): 180 (1986)

This order was introduced by Eriksson and Hawksworth (1985) and it accommodates a single family *Meliolaceae*, which are the black mildews and comprise more than 26 genera. This group is unique in producing black web-like colonies on the host, comprising superficial brown to black mycelium with appressoria (Hosagoudar 2004). Until recently the family was thought to be a member of *Dothideomycetes* (Huhndorf and Lumbsch 2007).

Microascales Luttr. et al., Mycotaxon 12(1): 40 (1980)
The order *Microascales* was introduced by Benny and Kimbrough (1980) to accommodate *Chadefaudiellaceae, Microascaceae* and *Pithoascaceae*, and later expanded to include *Ceratocystidaceae*, *Gondwanamycetaceae*, *Halosphaeriaceae* and *Graphiaceae* (Réblová et al. 2011a).

Ophiostomatales Benny & Kimbr., Mycotaxon 12(1): 48 (1980)

This order was introduced by Benny and Kimbrough (1980) for the family *Ophiostomataceae*; plus *Kathistaceae* was added by Malloch and Blackwell (1990). In present study *Ophiostomatales* forms a well supported sister clade to *Magnaporthales*.

Phyllachorales M.E. Barr, Mycologia 75(1): 11 (1983)

The order *Phyllachorales* was introduced by Barr (1983) comprising two clades, viz. *Phaeochoraceae* and *Phyllachoraceae*. This order is distinctive as the species are biotrophs on various hosts, where they form bright or black stroma (Pearce and Hyde 1994). Asci are unitunicate and ascospores are hyaline or lightly pigmented (Barr 1983; Pearce and Hyde 1993a, b, 1994, Pearce et al. 2001). In our phylogenetic study (Figs. 1 and 2), molecular data from a species of *Phyllachoraceae* confirmed that *Phyllachorales* can be included in *Sordariomycetidae* with higher support.

Pisorisporiales Réblová & J. Fourn., Persoonia 34: 43 (2015)
This monotypic order was introduced by Réblová et al. (2015) based on LSU, SSU and RPB2 sequence data. It currently includes the family *Pisorisporiaceae*. In their analyses, the *Pisorisporiales* nested in a weakly supported clade sister to the orders *Lulworthiales* and *Koralionastetales* and is included here in *Sordariomycetes* subclass *incertae sedis*.

Sordariales Chadef. ex D. Hawksw. & O.E. Eriks., Syst. Ascom. 5(1): 182 (1986)

This order was introduced by Eriksson and Hawksworth (1985) and is well-supported in the phylogenetic tree (Figs. 1 and 2). It comprises three families viz. *Chaetomiaceae*, *Sordariaceae* and *Lasiosphaeriaceae* sensu *lato*. Most species either grow on dung or decaying substrata such as wood or are aquatic growing on submerged wood (Zhang et al. 2006). The *Sordariales* are characterized by membraneous or coriaceous ascomata, and hyaline or brown ascospores often with appendages or sheaths (Zhang et al. 2006). Our molecular tree (Figs. 1 and 2) places the order in the subclass *Sordariomycetidae*.

Savoryellales Boonyuen et al., in Boonyuen et al., Mycologia 103(6): 1368 (2011)

The taxonomic placement of the genus *Savoryella* has been widely debated and Jones et al. (2009a, b) referred it to the *Sordariales* genera *incertae sedis*. Boonyuen et al. (2011), in a combined phylogenetic analysis of *Savoryella* species (LSU, SSU, 5.8S rRNA genes, RPB1, RPB2, TEF), showed that they formed a monophyletic group in the *Sordariomycetes*, but showed no affinities with other accepted orders. The order *Savoryellales* was introduced to accommodate *Savoryella* species, along with the genera *Ascotaiwania*, *Ascothailandia* (and its asexual morph *Canalisporium*), as they formed a distinct lineage in the *Sordariomycetes* (Boonyuen et al. 2011).

Togniniales Senan., Maharachch. & K.D. Hyde***, ordo novus***

Type family: ***Togniniaceae***

Index Fungorum no: IF551049; *Facesoffungi number*: FoF 00592

Togniniales is a monotypic order in the class *Sordariomycetes*, subclass *Diaporthomycetidae*. It includes a single family *Togniniaceae* containing species saprobic on dead wood. Sexual morph: *Ascomata* lacking stromatic tissues, perithecial, with 1–3 necks. *Hamathecium* comprising paraphyses. *Asci* 8 or poly-sporous, unitunicate, clavate, with sessile bases, occurring on hyaline and branched ascogenous hyphae. *Ascospores* hyaline and unicellular. Asexual morph: *Conidiophores* long or short, branched or unbranched. Conidia hyaline, aseptate.

Type species: ***Togninia minima*** (Tul. & C. Tul.) Berl.

Notes: This monotypic order is introduced based on its phylogenetic and morphological distinctiveness to accommodate a single family, *Togniniaceae* comprising the sexual morph genera *Conidiotheca* and *Togninia* and the asexual morph genus *Phaeoacremonim* (Réblová and Mostert 2007). *Togniniaceae* had been placed in *Calosphaeriales* based on both unique morphological characters and phylogeny (Mostert et al. 2003). Mostert et al. (2006) placed *Togniniaceae* in *Diaporthales* based on SSU and LSU rRNA gene analysis. In this study *Togniniaceae* forms a distinct clade basal to *Diaporthales* in the subclass *Diaportheomycetidae* and is sister to *Diaporthales* and *Calosphaeriales*. Hence, we exclude *Togniniaceae* from *Diaporthales* and introduce a new order *Togniniales*.

Trichosphaeriales M.E. Barr, Mycologia 75(1): 11 (1983)

This order was introduced by Barr (1983) based on *Trichosphaeria pilosa* (Pers.) Fuckel. The current classification of *Trichosphaeriales* recognizes only one family, the terrestrial *Trichosphaeriaceae. Trichosphaeriaceae* has affinities with *Papulosporaceae* and *Thyridiaceae*, however until more collections and data become available it is better to maintain these familes.

Xylariales Nannf., Nova Acta R. Soc. Scient. upsal., Ser. 4 8(no. 2): 66 (1932)

The *Xylariales* is a large order of perithecial ascomycetes with eight-spored unitunicate asci, with a J+, apical apparatus (Smith et al. 2003). Presently there are 11 families accepted in *Xylariales*; *Amphisphaeriaceae*, *Apiosporaceae*, *Cainiaceae*, *Clypeosphaeriaceae*, *Coniocessiaceae*, *Diatrypaceae*, *Graphostromataceae*, *Hyponectriaceae*, *Melogrammataceae*, *Vialaeaceae* and *Xylariaceae*.

Outline of *Sordariomycetes*, 31 December 2014

Class *SORDARIOMYCETES* sensu O.E. Erikss. & Winka
Diaportheomycetidae Senan. et al.

Annulatascales D'souza et al.*
Annulatascaceae S.W. Wong et al.
- *Annulatascus* K.D. Hyde$
- *Annulusmagnus* J. Campb. & Shearer
- *Aqualignicola* V.M. et al.#$
- *Aquaticola* W.H. Ho et al.
- *Ascitendus* J. Campb. & Shearer
- *Ayria* Fryar & K.D. Hyde#
- *Cataractispora* K.D. Hyde et al.$
- *Chaetorostrum* Zelski et al.*#
- *Clohiesia* K.D. Hyde$
- *Cyanoannulus* Raja et al.$
- *Diluviocola* K.D. Hyde et al.#
- *Fusoidispora* D. Vijaykrishna et al.$
- *Longicollum* Zelski et al.*#
- *Pseudoproboscispora* Punith.$
- *Rhamphoria* Niessl.$
- *Submersisphaeria* K.D. Hyde$
- *Torrentispora* K.D. Hyde et al.#
- *Vertexicola* K.D. Hyde et al.$

Calosphaeriales M.E. Barr
Calosphaeriaceae Munk
- *Calosphaeria* Tul. & C Tul.*
  - = *Calosphaeriophora* Réblová et al.
- *Jattaea* Berl*$
  - = *Phragmocalosphaeria* Petr.
  - = *Wegelina* Berl.
- *Kacosphaeria* Speg.#
- *Sulcatistroma* A.W. Ramaley#
- *Togniniella* Réblová et al.*$
  - = *Phaeocrella* Réblová et al.
- *Tulipispora* Révay & J. Gönczöl, in Révay et al.#

Pleurostomataceae Réblová et al.
- *Pleurostoma* Tul. & C. Tul.$
  - = *Pleurostomophora* Vijaykr. et al.$

Calosphaeriales genera, *incertae sedis*
- *Enchnoa* Fr.#

Coniochaetales Huhndorf et al.
Coniochaetaceae Malloch & Cain
- *Barrina* A.W. Ramaley
- *Coniochaeta* (Sacc.) Cooke$
- *Lecythophora* Nannf$

Cordanales M. Hern.-Rest. & Crous
Cordanaceae Nann.
- *Cordana* Preuss$
  - = *Porosphaerella* E. Müll. & Samuels

Diaporthales Nannf.
Cryphonectriaceae Gryzenh. & M.J. Wingf.
- *Amphilogia* Gryzenh. et al.
- *Aurantiosacculus* Dyko & B. Sutton*
- *Aurapex* Gryzenh. & M.J. Wingf.
- *Aurifilum* Begoude et al.
- *Celoporthe* Nakab. et al.
- *Chromendothia* Lar.N. Vassiljeva$
- *Chrysocrypta* Crous & Summerell*
- *Chrysoporthe* Gryzenh. & M.J. Wingf.*
  - = *Chrysoporthella* Gryzenh. & M.J. Wingf.
- *Cryphonectria* (Sacc.) Sacc. & D. Sacc.$
- *Cryptometrion* Gryzenh. & M.J. Wingf.*$
- *Diversimorbus* S.F. Chen & J. Roux*
- *Endothia* Fr.
- *Endothiella* Sacc.
- *Foliocryphia* Cheewangkoon & Crous
- *Holocryphia* Gryzenh. & M.J. Wingf.
- *Immersiporthe* S.F. Chen et al.*
- *Lasmenia* Speg.*
- *Latruncellus* M. Verm. Et al.
- *Luteocirrhus* C.F. Crane & T.I. Burgess*$
- *Mastigosporella* Höhn.
- *Microthia* Gryzenh. & M.J. Wingf.
- *Rostraureum* Gryzenh. & M.J. Wingf.
- *Ursicollum* Gryzenh. & M.J. Wingf.

Diaporthaceae Höhn. ex Wehm.
- *Allantoporthe* Petr.#
- *Apioporthella* Petr.#
- *Clypeoporthella* Petr.*#
- *Diaporthe* Nitschke*$
  - = *Phomopsis* (Sacc) Bubák*
- *Diaporthella* Petr.
- *Diaporthopsis* Fabre#
- *Leucodiaporthe* M.E. Barr & Lar.N. Vassiljeva#
- *Mazzantia* Mont.$
- *Mazzantiella* Höhn. #

Ophiodiaporthe Y.M. Ju et al.*$
Pustulomyces D.Q. Dai et al.*

Gnomoniaceae G. Winter
Alnecium Voglmayr & Jaklitsch
Ambarignomonia Sogonov
Amphiporthe Petr.
Anisomyces Theiss. & Syd.#
Apiognomonia Höhn.
Apioplagiostoma M.E. Barr
Asteroma DC
Bagcheea E. Müll. & R. Menon#
Clypeoporthe Höhn.#
Cryptosporella Sacc.$
Cylindrosporella Höhn.#
Depazea Fr.#
Diplacella Syd.#
= *Discosporium* Höhn.#
= *Discula* Sacc.
Ditopella De Not.
Ditopellopsis J. Reid & C. Booth
Gloeosporidina Petr.#
Gnomonia Ces. & De Not.$
Gnomoniella Sacc.
Gnomoniopsis Berl.
Mamiania Ces & De Not.#
Millerburtonia Cif #
Occultocarpon L.C. Mejía & Zhu L. Yang*
Ophiognomonia (Sacc.) Sacc.
Phragmoporthe Petr.
Phylloporthe Syd.#
Plagiostoma Fuckel*$
= *Cryptodiaporthe* Petr.
= *Diplodina* Westend
Pleuroceras Riess.
= *Linospora* Fuckel
Skottsbergiella Petr.#
Sirococcus Preuss*
Spataporthe Bronson et al.*#
Uniseta Ciccar#
Xenotypa Petr.#
Zythia Fr.

Harknessiaceae Crous*
Harknessia Cooke*$

Melanconidaceae G. Winter
Botanamphora Nograsek & Scheuer#
Ceratoporthe Petr.#
Cytomelanconis Naumov#
Dicarpella Syd. & P. Syd.
Dictyoporthe Petr.#
Fremineavia Nieuwl.#
Gibellia Sacc.#
Hypophloeda K.D. Hyde & E.B.G. Jones*#
Kensinjia J. Reid & C. Booth#
Macrodiaporthe Petr.#
Massariovalsa Sacc.#
Mebarria J. Reid & C. Booth#
Melanamphora Lafl.#
Melanconiella Sacc.*
Melanconiopsis Ellis & Everh.#*
Melanconis Tul. & C. Tul.$
Melanconium Link
Phragmodiaporthe Wehm.#
Plagiophiale Petr.#
Plagiostigme Syd.#
Prosthecium Fresen.
Prostratus Sivan. et al.#
Pseudovalsella Höhn.#
Wehmeyera J. Reid & C. Booth#
Wuestneia Auersw. ex Fuckel
Wuestneiopsis J. Reid & Dowsett#

Pseudoplagiostomataceae Cheew. et al.
Pseudoplagiostoma Cheew. et al.$

Pseudovalsaceae M.E. Barr
Apoharknessia Crous & S.J. Lee
Coryneum Nees#
Pseudovalsa Ces. & De Not.$

Schizoparmeaceae Rossman
Coniella Höhn.
= *Baeumleria* Petr. & Syd.
Pilidiella Petr. & Syd.$
Schizoparme Shear$

Stilbosporaceae Link*
Natarajania Pratibha & Bhat
Stilbospora Pers.
Stegonsporium Corda

Sydowiellaceae Lar.N. Vassiljeva
Cainiella E. Müll.$
Calosporella J. Schröt
Chapeckia M.E. Barr
Hapalocystis Auersw. ex Fuckel$
Lambro Racib.#
Rossmania Lar.N. Vassiljeva$
Sillia P. Karst.
Stegophora Syd. & P. Syd.#
Sydowiella Petr.$
Uleoporthe Petr.#
Winterella (Sacc.) Kuntze

Tirisporellaceae Suetrong et al.
- *Tirisporella* E.B.G. Jones et al.$^{\$}$
- *Thailandiomyces* Pinruan et al.$^{\$}$

Valsaceae Tul. & C. Tul.
- *Amphicytostroma* Petr$^{\#}$
- *Chadefaudiomyces* Kamat et al.$^{\#}$
- *Cryptascoma* Ananthap.$^{\#}$
- *Cytospora* Ehrenb.*$^{\$}$
  - = *Leucostoma* (Nitschke) Höhn.$^{\$}$
  - = *Valsa* Fr.$^{\$}$
  - = *Valsella* Fuckel$^{\$}$
  - = *Valseutypella* Höhn.
- *Ditopellina* J. Reid & C. Booth$^{\#}$
- *Durispora* K.D. Hyde$^{\#}$
- *Harpostroma* Höhn.*$^{\#}$
- *Hypospilina* (Sacc) Traverso$^{\#}$
- *Kapooria* J. Reid & C. Booth$^{\#}$
- *Leptosillia* Höhn.$^{\#}$
- *Maculatipalma* J. Fröhlich & K.D. Hyde
- *Pachytrype* Berl. ex M.E. Barr et al.*
- *Paravalsa* Ananthapadm.$^{\#}$

Diaporthales, genera *incertae sedis*
- *Argentinomyces* N.I. Peña & Aramb.*$^{\#}$
- *Anisogramma* Theiss. & Syd.$^{\$}$
- *Anisomycopsis* I. Hino & Katum.$^{\#}$
- *Apiosporopsis* (Traverso) Mariani$^{\$}$
  - = *Sphaerognomonia* Potebnia ex Höhn.
- *Apomelasmia* Grove$^{\#}$
- *Auratiopycnidiella* Crous & Summerell*
- *Bagadiella* Cheew. & Crous*
- *Caudospora* Starbäck$^{\#}$
- *Chaetoconis* Clem.*
- *Cryptoleptosphaeria* Petr.$^{\#}$
- *Cryptonectriella* (Höhn.) Weese$^{\#}$
- *Cryptonectriopsis* (Höhn.) Weese$^{\#}$
- *Diatrypoidiella* Manohar et al.$^{\#}$
- *Disculoides* Crous et al.*
- *Dwiroopa* Subram. & Muthumary$^{\#}$
- *Erythrogloeum* Petr.*
- *Exormatostoma* Gray$^{\#}$
- *Greeneria* Scribn. & Viala*
- *Gyrostroma* Naumov*
- *Hercospora* Fr.
- *Hyalorostratum* Raja & Shearer*
- *Hypodermina* Höhn.$^{\#}$
- *Keinstirschia* J. Reid & C. Booth$^{\#}$
- *Lollipopaia* Inderbitzin
- *Macrohilum* H.J. Swart
- *Mamianiella* Höhn.
- *Pseudocryptosporella* J. Reid & C. Booth$^{\#}$
- *Pseudothis* Theiss. & Syd.$^{\#}$
- *Rabenhorstia* Fr.
- *Savulescua* Petr.$^{\#}$
- *Stenocarpella* Syd. & P. Syd.$^{\$}$
- *Sphaerognomoniella* Naumov & Kusnezowa$^{\#}$
- *Stioclettia* Dennis$^{\#}$
- *Trematovalsa* Jacobesco$^{\#}$
- *Tubakia* B. Sutton
- *Valsalnicola* D.M. Walker & Rossman*
- *Vismaya* V.V. Sarma & K.D. Hyde$^{\#}$

Jobellisiales D'souza & K.D. Hyde*

Jobellisiaceae Réblová
- *Jobellisia* M.E. Barr$^{\$}$

Magnaporthales Thongk. et al.*

Magnaporthaceae P.F. Cannon
- *Buergenerula* Syd.$^{\$}$
- *Bussabanomyces* Klaubauf et al.$^{\$}$
- *Ceratosphaerella* Huhndorf et al.
- *Ceratosphaeria* Niessl.
- *Clasterosphaeria* Sivan.$^{\#}$
- *Clasterosporium* Schwein$^{\#}$
- *Clavatisporella* K.D. Hyde$^{\#}$
- *Gaeumannomyces* Arx & D.L. Olivier
- *Harpophora* W. Gams
- *Herbampulla* Scheuer & Nograsek$^{\#}$
- *Kohlmeyeriopsis* Klaubauf et al.
- *Magnaporthe* R.A. Krause & R.K. Webster$^{\$}$
- *Magnaporthiopsis* J. Luo & N. Zhang*
- *Muraeriata* Huhndorf et al.
- *Mycoleptodiscus* Ostaz.
- *Nakataea* Hara
- *Omnidemptus* P.F. Cannon & Alcorn
- *Phomatospora* Sacc.*
- *Pyriculariopsis* M.B. Ellis
- *Slopeiomyces* Klaubauf et al.$^{\$}$

Ophioceraceae Klaubauf et al.*
- *Ophioceras* Sacc.*$^{\$}$

Pyriculariaceae Klaubauf et al.
- *Bambusicularia* Klaubauf et al.*$^{\$}$
- *Barretomyces* Klaubauf et al.*
- *Deightoniella* S. Hughes*
  - = *Utrechtiana* Crous & Quaedvl.*$^{\$}$
- *Macgarvieomyces* Klaubauf et al.*
- *Neopyricularia* Klaubauf et al.*
- *Proxipyricularia* Klaubauf et al.*
- *Pseudopyricularia* Klaubauf et al.*$^{\$}$
- *Pyricularia* Sacc.*$^{\$}$
- *Xenopyricularia* Klaubauf et al.*

Magnaporthales, genera *incertae sedis*
Pseudohalonectria Minoura & T. Muroi[$]

Ophiostomatales Benny & Kimbr.
Kathistaceae Malloch & M. Blackw.
Kathistes Malloch & M. Blackw.
Mattirolella S. Colla[#]
Termitariopsis M. Blackw. et al.[#]

Ophiostomataceae Nannf.
Ceratocystiopsis H.P. Upadhyay & W.B. Kendr.[$]
Fragosphaeria Shear[$]
Hyalobelemnospora Matsush.[#]
Hyalorhinocladiella H.P. Upadhyay & W.B. Kendr.
Klasterskya Petr.[#]
Leptographium Lagerb. & Melin
Ophiostoma Syd. & P. Syd.[$]
Pesotum JL Crane & Schokn.
Phialographium H.P. Upadhyay & W.B. Kendr.
Raffaelea Arx & Hennebert[$]
Spumatoria Massee & E.S. Salmon[#]
Subbaromyces Hesselt.

Ophiostiomatales, genera *incertae sedis*
Lanspora K.D. Hyde & E.B.G. Jones*

Togniniales I.C. Senanayake et al.*
Togniniaceae Réblová et al.
Conidiotheca Réblová & L. Mostert[#]
Phaeoacremonium W. Gams et al.*[$]
Togninia Berl.[$]
= *Romellia* Berl.

Trichosphaeriales M.E. Barr
Trichosphaeriaceae G. Winter
Acanthosphaeria Kirschst.[#]
Brachysporium Sacc.[#]
Collematospora Jeng & Cain[#]
Coniobrevicolla Réblová[#]
Cresporhaphis M.B. Aguirre[#]
Cryptadelphia Réblová & Seifert[$]
Eriosphaeria Sacc.[#]
Fluviostroma Samuels & E. Müll.[#]
Kananascus Nag Raj
Khuskia H.J. Huds.
Koorchaloma Subram.
Neorehmia Höhn.[#]
Oplothecium Syd.[#]
Rizalia Syd. & P. Syd.[#]
Schweinitziella Speg.[#]
Setocampanula Sivan. & W.H. Hsieh[#]
Trichosphaeria Fuckel
Unisetosphaeria Pinnoi et al.[#]

Diaportheomycetidae, families *incertae sedis*
Papulosaceae Winka & O.E. Erikss.
Brunneosporella V.M. Ranghoo & K.D. Hyde[#]
Fluminicola S.W. Wong et al.[#]
Papulosa Kohlm & Volkm-Kohlm*[$]

Thyridiaceae O.E. Erikss & J.Z. Yue
Mattirolia Berl. & Bres.[#]
= *Balzania* Speg.*[#]
= *Thyronectroidea* Seaver[#]
Pleurocytospora Petr.[#]
Thyridium Nitschke[$]

Diaportheomycetidae, genera *incertae sedis*
Platytrachelon Réblová*

Subclass *Hypocreomycetidae* O.E. Erikss. & Winka*[$]

Coronophorales Nannf.*
Bertiaceae Smyk*
Bertia De Not.[$]
Gaillardiella Pat.*[$]

Chaetosphaerellaceae Huhndorf et al.*
Chaetosphaerella E. Müll. & C. Booth[$]
Crassochaeta Réblová[$]
Oedemium Link*[#]
= *Veramycina* Subram.
Spinulosphaeria Sivan.[$]

Coronophoraceae Höhn.*
Coronophora Fuckel[$]

Nitschkiaceae (Fitzp) Nannf.*
Acanthonitschkea Speg.[$]
Biciliosporina Subram. & Sekar[#]
Botryola Bat. & J.L. Bezerra[#]
Fracchiaea Sacc.[$]
Groenhiella Jørg. Koch et al.*[#]
Janannfeldtia Subram. & Sekar[#]
Lasiosphaeriopsis D. Hawksw. & Sivan.[#]
Loranitschkia Lar.N. Vasiljeva[#]
Neochaetosphaerella Lar.N. Vassiljeva et al.*[#]
Neotrotteria Sacc.
Nitschkia G.H. Otth ex P. Karst.[$]
Rhagadostoma Körb.[#]
Rhagadostomella Etayo[#]
Tortulomyces Lar.N. Vassiljeva et al.*[#]

Scortechiniaceae Huhndorf et al.*
- *Biciliospora* Petr.*
- *Coronophorella* Höhn.
- *Cryptosphaerella* Sacc.*$
- *Euacanthe* Theiss.
- *Neofracchiaea* Teng$
- *Scortechinia* Sacc.$
- *Scortechiniella* Arx & E. Müll.
- *Scortechiniellopsis* Sivan.$
- *Tympanopsis* Starbäck$

Coronophorales, genera *incertae sedis*
- *Pseudocatenomycopsis* Crous & L.A. Shuttlew.*$

Falcocladiales R.H. Perera et al.*
Falcocladiaceae Somrithipol et al.*
- *Falcocladium* S.F. Silveira et al.*$

Glomerellales Chadef. ex Réblová et al.
Australiascaceae Réblová & W. Gams*
- *Australiasca* Sivan. & Alcorn*$
- *Hyalocylindrophora* J.L. Crane & Dumont#
- *Monilochaetes* Halst. ex Harter*$
  - = *Dischloridium* B. Sutton

Glomerellaceae Locq. ex Seifert & W. Gams
- *Colletotrichum* Corda*$
  - = *Glomerella* Spauld. & Schrenk

Plectosphaerellaceae W. Gams et al.*
- *Acrostalagmus* Corda$
- *Gibellulopsis* Bat. & H. Maia*$
- *Lectera* P.F. Cannon*$
- *Musicillium* Zare & W Gams*$
- *Plectosphaerella* Kleb.*$
  - = *Plectosporium* M.E. Palm et al.
  - = *Spermosporina* U. Braun
- *Stachylidium* Link*$
- *Verticillium* Nees*$

Reticulascaceae Réblová & W. Gams*
- *Cylindrotrichum* Bonord.*
  - = *Reticulascus* Réblová & W. Gams*$
- *Kylindria* DiCosmo et al.$
- *Sporoschismopsis* Hol-Jech. & Hennebert*
  - = *Porosphaerellopsis* Samuels & E. Müll.$

Glomerellales, genera, *incertae sedis*
- *Ascocodinaea* Samuels et al.

Hypocreales Lindau*
Bionectriaceae Samuels & Rossman*
  - = *Spicariaceae* Nann.
- *Acremonium* Link*
- *Anthonectria* Döbbeler*#
- *Aphanotria* Döbbeler#
- *Battarrina* (Sacc.) Clem. & Shear#
- *Clonostachys* Corda*
  - = *Bionectria* Speg.$
- *Bryocentria* Döbbeler*
- *Clibanites* (P. Karst.) P. Karst.#
- *Didymostilbe* Henn*
- *Dimerosporiella* Speg.#
- *Gliomastix* Guég.*
- *Globonectria* Etayo#
- *Gracilistilbella* Seifert#
- *Halonectria* E.B.G. Jones*#
- *Heleococcum* P.M. Jørg.*$
- *Hydropisphaera* Dumort*$
- *Ijuhya* Starbäck*
- *Lasionectria* (Sacc) Cooke
- *Mycocitrus* Möller#
- *Nectriella* Nitschke ex Fuckel#
- *Nectriopsis* Maire
- *Ochronectria* Rossman & Samuels
- *Ovicuculospora* Etayo
- *Paranectria* Sacc.#
- *Peristomialis* (W. Phillips) Boud.
- *Pronectria* Clem.#
- *Protocreopsis* Yoshim Doi*$
- *Rhopalocladium* Schroers et al.#
- *Roumegueriella* Speg.$
- *Selinia* P. Karst.
- *Spicellum* Nicot & Roquebert
- *Stephanonectria* Schroers & Samuels
- *Stilbocrea* Pat.
- *Stromatocrea* W.B. Cooke#
- *Stromatonectria* Jaklitsch & H. Voglmayr*
- *Trichonectria* Kirschst.
- *Vesicladiella* Crous & M.J. Wingf.
- *Verrucostoma* Hirooka et al.*
- *Virgatospora* Finley

Clavicipitaceae (Lindau) Earle ex Rogerson
- *Aciculosporium* I. Miyake
  - = *Albomyces* I. Miyake#
  - = *Mitosporium* Clem. & Shear
- *Amphichorda* Fr.#
- *Atkinsonella* Diehl.
- *Balansia* Speg.
  - = *Dothichloë* G.F. Atk.
- *Cavimalum* Yoshim. Doi et al.#
- *Chamaeleomyces* Sigler
- *Claviceps* Tul.$
- *Conoideocrella* D. Johnson et al.
- *Corallocytostroma* Y.N. Yu & Z.Y. Zhang

Diploöspora Grove#
Dussiella Pat.
Ephelis Fr.
Epichloë (Fr.) Tul. & C. Tul.$
Epicrea Petr.#
Helminthascus Tranzschel#
Heteroepichloë E. Tanaka et al.
Hypocrella Sacc.$
    = *Aschersonia* Mont.
Konradia Racib.#
Loculistroma F. Patt & Charles#
Metacordyceps G.H. Sung et al.
Metarhiziopsis D.W. Li et al.
Metarhizium Sorokīn
Metapochonia Kepler et al.*
Moelleriella Bres.
Mycomalus Möller#
Myriogenospora G.F. Atk.
Neobarya Lowen
Neoclaviceps J. White et al.
Neocordyceps Kobayasi#
Neotyphodium Glenn et al.
Nigrocornus Ryley & Langdon
Nomuraea Maubl.
Orbiocrella D. Johnson et al.
Parepichloë F.J. White Jr. & Reddy
Periglandula U. Steineret al.*
Pochonia Bat. & O.M. Fonseca
Pseudogibellula Samson & H.C. Evans
Pseudomeria G.L. Barron#
Regiocrella Chaverri & K.T. Hodge*
Romanoa Thirum.#
Rotiferophthora G.L. Barron
Samuelsia Chaverri & K.T. Hodge*
Shimizuomyces Kobayasi$
Sphacelia Lév.
Sphaerocordyceps Kobayasi#
Stereocrea Syd. & P. Syd.#
Tyrannicordyceps Kepler & Spatafora
Ustilaginoidea Bref.
    = *Villosiclava* E. Tanaka & C. Tanaka

Cordycipitaceae Kreisel ex G.M. Sung et al.
Akanthomyces Lebert
Ascopolyporus Möller$
Beauveria Vuill.*
Cordyceps (Fr.) Link$
Gibellula Cavara$
Granulomanus de Hoog & Samson#
Hyperdermium J. White et al.$
Isaria Pers.
Lecanicillium W. Gams & Zare
Microhilum H.Y. Yip & A.C. Rath
Simplicillium W. Gams & Zare
Syspastospora P.F. Cannon & D. Hawksw.
Torrubiella Boud.$

Hypocreaceae De Not.
    = *Trichodermataceae* Fr.
Aphysiostroma Barrasa et al.
Arachnocrea Z. Moravec.
Cladobotryum Nees
Dialhypocrea Speg.#
Escovopsis J.J. Muchovej & Della Lucia*
Escovopsioides H.C. Evans & J.O. Augustin*
Hypocreopsis P. Karst.*
Hypomyces (Fr.) Tul.*
Mycogone Link
Payoshaeria W.F. Leong*
Protocrea Petch
Pseudohypocrea Yoshim. Doi#
Rogersonia Samuels & Lodge#
Sepedonium Link
Sibirina G.R.W. Arnold#
Sphaerostilbella (Henn.) Sacc. & D. Sacc*$
    = *Gliocladium* Corda
Sporophagomyces K. Põldmaa & Samuels
Stephanoma Wallr
Trichoderma Pers.*$
    = *Hypocrea* Fr.$
    = *Sarawakus* Lloyd

Nectriaceae Tul. & C. Tul.*
    = *Tuberculariaceae* Fr.
Actinostilbe Petch*
    = *Lanatonectria* Samuels & Rossman
Albonectria Rossman & Samuels
Allantonectria Earle*
Allonectella Petr.#
Antipodium Piroz.#
Atractium Link*
Aquanectria L. Lombard & Crous*
Baipadisphaeria Pinruan*$
Bisifusarium L. Lombard et al.*
Calonectria De Not.*
    = *Cylindrocladium* Morgan
Calostilbe Sacc. & Syd.#
    = *Calostilbella* Höhn.
Campylocarpon Halleen et al.
Chaetonectrioides Matsush.
Chaetopsina Rambelli$
Chaetopsinectria J Luo & WY Zhuang
Coccinonectria Lombard & Crous
Corallomycetella Henn.*
Corallonectria C. Herrera & P. Chaverri*

Cosmospora Rabenh.*$^{\$}$
Curvicladiella Decock & Crous$^{\#}$
Curvicladium Decock & Crous
Cyanochyta Höhn.$^{\#}$
Cyanonectria Samuels & Chaverri
Cyanophomella Höhn.$^{\#}$
Cylindrocladiella Boesew.*
= *Nectricladiella* Crous & C.L. Schoch
Cylindrodendrum Bonord.*
Dacryoma Samuels$^{\#}$
Dematiocladium Allegr. et al.
Dialonectria (Sacc.) Cooke*
Fusarium Link *
= *Gibberella* Sacc.
Fusicolla Bonord*
Geejayessia Schroers et al.*
Gliocephalotrichum J.J. Ellis & Hesselt.*
= *Leuconectria* Rossman et al.
Gliocladiopsis S.B. Saksena*
Glionectria Crous & C.L. Schoch
Heliscus Sacc*
Ilyonectria P. Chaverri & C. Salgado*
Macroconia (Wollenw.) Gräfenhan et al.*
Mariannaea G. Arnaud ex Samson*
Microcera Desm.
Nalanthamala Subram.*
= *Rubrinectria* Rossman & Samuels
Nectria (Fr.) Fr.*$^{\$}$
= *Tubercularia* Tode
Neonectria Wollenw.*$^{\$}$
= *Cylindrocarpon* Wollenw.
Neocosmospora E.F. Sm.*
= *Haematonectria* Samuels & Nirenberg
Ophionectria Sacc.*
Paracremonium L. Lombard & Crous*
Penicillifer Emden
Persiciospora P.F. Cannon & D. Hawksw.
Pleogibberella Sacc.$^{\#}$
Pleonectria Sacc.*
= *Zythiostroma* Höhn ex Falck
Pleurocolla Petr.
Pseudocosmospora C. Herrera & P. Chaverri
Pseudonectria Seaver
Rectifusarium Lombard et al.
Rodentomyces Doveri et al.*
Rugonectria P. Chaverri & Samuels*
Stachybotryna Tubaki & T. Yokoy$^{\#}$
Stalagmites Theiss. & Syd.$^{\#}$
Stylonectria Höhn.
Thelonectria P. Chaverri & C.G. Salgado*
Thyronectria Sacc.
Viridispora Samuels & Rossman$^{\$}$
Volutella Fr.
= *Chaetodochium* Höhn.$^{\#}$
Volutellonectria J. Luo & W.Y. Zhuang*
Xenoacremonium Lombard & Crous
Xenocalonectria Crous & C.L. Schoch
= *Xenocylindrocladium* Decock et al.
Xenonectriella Weese$^{\#}$

Niessliaceae Kirschst.
Atronectria Etayo$^{\#}$
Circinoniesslia Samuels & M.E. Barr$^{\#}$
Cryptoniesslia Scheuer$^{\#}$
Eucasphaeria Crous*
Hyaloseta A.W. Ramaley$^{\#}$
Malmeomyces Starb.$^{\#}$
Melchioria Penz. & Sacc.$^{\#}$
Miyakeomyces Hara$^{\#}$
Myrmaeciella Lindau*$^{\#}$
Niesslia Auersw.*$^{\$}$
Paraniesslia K.M. Tsui et al.$^{\#}$
Pseudonectriella Petr.$^{\#}$
Pseudorhynchia Höhn.$^{\#}$
Rosasphaeria Jaklitsch & Voglmayr*
Taiwanascus Sivan. & H.S. Chang$^{\#}$
Trichosphaerella E. Bommer et al.$^{\#}$
Valetoniella Höhn.$^{\#}$

Ophiocordycipitaceae G.H. Sung et al.
Drechmeria W. Gams & H.B. Jansson
= *Haptocillium* W. Gams & Zare
Harposporium Lohde
= *Atricordyceps* Samuels
= *Podocrella* Seaver
= *Polyrhina* Sorokin
Ophiocordyceps Petch$^{\$}$
= *Cordycepioideus* Stifler
= *Didymobotryopsis* Henn
= *Didymobotrys* Clem. & Shear
= *Hirsutella* Pat
= *Hymenostilbe* Petch$^{\$}$
= *Mahevia* Lagarde
= *Paraisaria* Samson & B.L. Brady
= *Sorosporella* Sorokin
= *Synglicladium* Petch$^{\#}$
= *Synnematium* Speare
= *Trichosterigma* Petch
= *Troglobiomyces* Pacioni
Polycephalomyces Kobayasi
= *Blistum* B. Sutton
Purpureocillium Luangsa-ard et al.*
Tolypocladium W. Gams
= *Chaunopycnis* W. Gams
= *Elaphocordyceps* G.H. Sung & Spatafora$^{\$}$

Stachybotriaceae L. Lombard & Crous
- *Albosynnema* E.F. Morris[$]
- *Myrothecium* Tode*[$]
- *Parasarcopodium* Melnik et al.[$]
- *Peethambara* Subram. & Bhat*[$]
- *Sarcopodium* Ehrenb.
- *Scopinella* Lév.*[$]
- *Stachybotrys* Corda*[$]
  - = *Memnoniella* Höhn.
  - = *Ornatispora* K.D. Hyde et al.
  - = *Melanopsamma* Niessl.
  - = *Valsonectria* Speg.

Tilachlidiaceae Lombard & Crous
- *Septofusidium* W. Gams[$]
- *Tilachlidium* Preuss[$]

Hypocreales, genera *incertae sedis*
- *Berkelella* (Sacc.) Sacc.[#]
- *Bulbithecium* Udagawa & T Muroi
- *Emericellopsis* JFH Beyma*
- *Fecundostilbum* T.P. Devi & Chowdhry[#]
- *Geosmithia* J. Pitt
- *Gynonectria* Döbbeler*[#]
- *Hapsidospora* Malloch & Cain
- *Haptospora* G.L. Barron[#]
- *Harzia* Costantin
- *Illosporiopsis* D. Hawksw.[#]
- *Illosporium* Mart.
- *Kallichroma* Kohlm. & Volkm-Kohlm.*
- *Leucosphaerina* Arx
- *Metadothella* Henn.[#]
- *Munkia* Speg.[#]
- *Mycoarachis* Malloch & Cain
- *Neomunkia* Petr
- *Nigrosabulum* Malloch & Cain
- *Payosphaeria* W.F. Leong*[#]
- *Peloronectria* Möller[#]
- *Pseudoidriella* Crous & R.G. Shivas*
- *Pseudomeliola* Speg.[#]
- *Pseudomicrodochium* B. Sutton[#]
- *Roselliniella* Vain*
- *Sarocladium* W. Gams & D. Hawksw.*
- *Sedecimiella* K.L. Pang et al.*
- *Septomyrothecium* Matsush.[#]
  - = *Sporothrix* Hektoen & C.F. Perkins
- *Stanjemonium* W. Gams et al.
- *Stilbella* Lindau
- *Ticonectria* Döbbeler[#]
- *Tilakidium* Vaidya et al.[#]
- *Trichothecium* Link
- *Valetoniellopsis* Samuels & M.E. Barr

Melanosporales N. Zhang & M. Blackw.

Ceratostomataceae G. Winter*
- *Acrospeira* Berk & Broome[#]
- *Arxiomyces* P.F. Cannon & D. Hawksw.[#]
- *Erythrocarpon* Zukal[#]
- *Gonatobotrys* Corda[#]
- *Melanospora* Corda[$]
  - = *Proteophiala* Cif.
- *Pteridiosperma* J.C. Krug & Jeng[#]
- *Pustulipora* P.F. Cannon[#]
- *Rhytidospora* Jeng & Cain[#]
- *Setiferotheca* Matsush.[#]
- *Vittatispora* P. Chaudhary et al.[$]

Melanosporales genera, *incertae sedis*
- *Sphaerodes* Clem.*
- *Papulaspora* Preuss

Microascales Luttr. ex Benny & Kimbr.
  - = *Halosphaeriales* Kohlm.

Chadefaudiellaceae Faurel & Schotter ex Benny & Kimbr.
- *Chadefaudiella* Faurel & Schotter[#]
- *Faurelina* Locq-Lin.

Ceratocystidaceae Locq. ex Réblova et al.*
- *Ambrosiella* Brader ex Arx & Hennebert[$]
- *Ceratocystis* Ellis & Halst.[$]
- *Chalaropsis* Peyronel
- *Davidsoniella* Z.W. de Beer et al.
- *Endoconidiophora* Münch
- *Grosmannia* Goid.
- *Huntiella* Z.W. de Beer et al.
- *Thielaviopsis* Went.[$]

Gondwanamycetaceae Réblová et al.*
- *Custingophora* Stolk et al.*[$]
- *Gondwanamyces* Marais & M.J. Wingf.*[$]

Graphiaceae De Beer
- *Graphium* Corda[$]

Halosphaeriaceae E. Müll & Arx ex Kohlm.
- *Alisea* J. Dupont & E.B.G. Jones*
- *Aniptodera* Shearer & M. Miller*
- *Anisostagma* K.R.L. Petersen & Jørg. Koch*[#]
- *Antennospora* Meyers*
- *Appendichordella* R.G. Johnson et al.*[#]
- *Arenariomyces* Höhnk*
- *Ascosacculus* J J Campb., J.L. Anderson & Shearer*
- *Bathyascus* Kohlm.*[#]
- *Carbosphaerella* I. Schmidt*
- *Ceriosporopsis* Linder*

= *Bovicornua* Jørg Koch & E.B.G. Jones
Chadefaudia Feldm.-Maz.#
Cirrenalia Meyers & R.T. Moore*
Clavatospora Sv Nilsson ex Marvanová & Sv Nilsson*
Corallicola Volkm.-Kohlm. & Kohlm.*#
Corollospora Werderm*
= *Halosigmoidea* Nakagiri et al.
Cucullosporella K.D. Hyde & E.B.G. Jones*
Ebullia K.L. Pang*
Fluviatispora K.D. Hyde*#
Gesasha Abdel-Wahab & Nagah.*
Haiyanga K.L. Pang & E.B.G. Jones*
Haligena Kohlm.*
Halosarpheia Kohlm. & E. Kohlm.*
Halosphaeria Linder*$
Halosphaeriopsis T.W. Johnson*$
= *Culcitalna* Meyers & R.T. Moore
Havispora K.L. Pang & Vrijmoed
Iwilsoniella EBG Jones*#
Kitesporella Jheng & K.L. Pang*
Kochiella Sakay. et al.*
Lautisporiopsis E.B.G. Jones et al.
Lignincola Höhnk*$
Limacospora Jørg. Koch & E.B.G. Jones*#
Luttrellia Shearer*#
Magnisphaera J. Campb. et al.*
= *Matsusphaeria* K.L. Pang & E.B.G. Jones
Marinospora A.R. Caval.*
= *Ceriosporella* (Kohlm.) A.R. Caval.
Moana Kohlm. & Volkm.-Kohlm.*#
Morakotiella Sakay.*
Nais Kohlm.*
Natantispora J. Campb. et al.r*
Naufragella Kohlm. & Volkm.-Kohlm.*
Nautosphaeria E.B.G. Jones*
Neptunella K.L. Pang & E.B.G. Jones*
Nereiospora EBG Jones et al.*
Nimbospora Jørg. Koch*$
Nohea Kohlm. & Volkm.-Kohlm.*
Oceanitis Kohlm.*
= *Ascosalsum* J. Campb. et al.
= *Falcatispora* K.L. Pang & E.B.G. Jones
Ocostaspora E.B.G. Jones et al.*
Okeanomyces K.L. Pang & E.B.G. Jones*
Ondiniella E.B.G. Jones et al.*$
Ophiodeira Kohlm. & Volkm.-Kohlm.*
Panorbis J. Campb. et al. *
Phaeonectriella Eaton & E.B.G. Jones*
Pileomyces K.L. Pang & Jheng*
Pseudolignincola Chatmala & E.B.G. Jones#
Remispora Linder*$
Saagaromyces K.L. Pang & E.B.G. Jones*
= *Littispora* J. Campb. et al.
Sablicola E B.G. Jones et al.*
Thalassogena Kohlm. & Volkm.-Kohlm.*
Thalespora Chatmala & E.B.G. Jones*
Tirispora E.B.G. Jones & Vrijmoed*
Toriella Sakay. et al.*
Trailia G.K. Sutherl.*#
Trichomaris Hibbits et al.*#
Tubakiella Sakay. et al.*
Tunicatispora K.D. Hyde*#
= *Buxetroldia* K.R.L. Petersen & Jørg Koch
Varicosporina Meyers & Kohlm.*

Microascaceae Luttr. ex Malloch
Anekabeeja Udaiyan & Hosag.#
Brachyconidiellopsis Decock et al.
Canariomyces Arx
Cephalotrichum Link#
Doratomyces Corda$
Echinobotryum Corda#
Enterocarpus Locq.-Lin.
Kernia Nieuwl.
Knoxdaviesia M.J. Wingf. et al.
Lophotrichus R.K. Benj.
Microascus Zukal$
Parascedosporium Gilgado et al.*
Petriella Curzi$
Pseudallescheria Negroni & I. Fisch.
= *Petriellopsis* Gilgado et al.
Scedosporium Sacc. ex Castell. & Chalm.
Scopulariopsis Bainier
Wardomyces F.T. Brooks & Hansf.
Wardomycopsis Udagawa & Furuya

Microascales, genera *incertae sedis*
Bisporostilbella Brandsb. & E.F. Morris#
Cornuvesica C.D. Viljoen et al.
Gabarnaudia Samson & W. Gams
Sphaeronaemella P. Karst.
Sporendocladia G. Arnaud ex Nag Raj & W.B. Kendr.
Trichurus Clem.
Viennotidia Negru & Verona ex Rogerson#
Vermiculariopsiella Bender

Savoryellales Boonyuen et al.*
Savoryellaceae Jaklitsch & Réblová
Ascotaiwania Sivan. & H.S. Chang*$
Canalisporium Nawawi & Kuthub.*$
= *Ascothailandia* Sri-indr. et al.*$
Savoryella E.B.G. Jones & R.A. Eaton*$

Savoryellales, genera *incertae sedis*
Carpoligna F.A. Fernández & Huhndorf$
Conioscypha Höhn.$*
= *Conioscyphascus* Réblová & Seifert$

Flammispora Pinruan et al.
Sterigmatobotrys Oudem.*

Hypocreomycetidae, families *incertae sedis*
Etheirophoraceae Rungjindamai et al.*
Etheirophora Kohlm. & Volkm.-Kohlm.*$
Swampomyces Kohlm. & Volkm.*$

Juncigenaceae E.B.G. Jones et al.*
Juncigena Kohlm et al.*$
Fulvocentrum E.B.G. Jones & Abdel-Wahab*
Marinokulati E.B.G. Jones & K.L. Pang*$
Moheitospora Abdel-Wahab et al.*$

Torpedosporaceae E.B.G. Jones & K.L. Pang*
Glomerulispora Abdel-Wahab & Nagah.*$
Torpedospora Meyers*$

Hypocreomycetidae, genera *incertae sedis*
Myrmecridium Arzanlou et al.
Pleurotheciella Réblová et al.* $
Pleurothecium Höhn.*$

Subclass *Lulworthiomycetidae* Dayarathne et al.

Koralionastetales Kohlm. et al.
Koralionastetaceae Kohlm. & Volkm.-Kohlm.
Koralionastes Kohlm. & Volkm.-Kohlm.$

Lulworthiales Kohlm. et al.
Lulworthiaceae Kohlm. et al.
Cumulospora I. Schmidt*$
Equicapillimyces S.S.Y. Wong et al.
Halazoon Abdel-Aziz et al.*
Haloguignardia A. Cribb & J. Cribb*
Hydea K.L. Pang & E.B.G Jones*$
Kohlmeyeriella E B G Jones et al.*
Lindra I. Wilson*$
Lulwoana Kohlm. et al.*
Lulwoidea Kohlm. et al.*
Lulworthia G.K. Sutherl*$
Matsusporium E.B.G. Jones & K.L. Pang*
Moleospora Abdel-Wahab et al.*
Moromyces Abdel-Wahab et al.*
Orbimyces Linder*
Rostrupiella Jørg Koch et al.*

Subclass *Meliolomycetidae* P.M. Kirk & K.D. Hyde*

Meliolales Gäum. ex D. Hawksw. & O.E. Erikss.#
Armatellaceae Hosag.
Armatella Theiss. & Syd.#
Meliolaceae G.W. Martin ex Hansf.
Amazonia Theiss.#
Appendiculella Höhn.
Asteridiella McAlpine$
Basavamyces V.B. Hosag.#
Ceratospermopsis Bat.#
Cryptomeliola S. Hughes & Piroz.
Ectendomeliola Hosag. & D.K. Agarwal#
Endomeliola S. Hughes & Piroz.$
Haraea Sacc. & P. Syd.#
Hypasteridium Speg.#
Irenopsis F. Stevens$
Laeviomeliola Bat.#
Leptascospora Speg.#
Meliola Fr.$
Metasteridium Speg.#
Ophiociliomyces Bat. & I.H. Lima#
Ophioirenina Sawada & W. Yamam.#
Ophiomeliola Starb.#
Parasteridium Speg.#
Pauahia F. Stevens#
Pleomeliola (Sacc.) Sacc.#
Pleomerium Speg.#
Prataprajella Hosag.#
Ticomyces Toro#
= *Dontuzia* L.D. Gomez
Urupe Viégas#
Xenostigme Syd.#

Subclass *Sordariomycetidae* O.E. Erikss & Winka

Boliniales P.F. Cannon
Boliniaceae Rick*
Apiocamarops Samuels & J.D. Rogers#
Apiorhynchostoma Petr.$
Camaropella Lar.N. Vassiljeva$
Camarops P. Karst.*$
Cornipulvina Huhndorf et al.$
Endoxyla Fuckel
Mollicamarops Lar.N. Vassiljeva#
Pseudovalsaria Spooner

Chaetosphaeriales Huhndorf et al.
Chaetosphaeriaceae Réblová et al.
Ascochalara Réblová#
Brunneodinemasporium Crous & R.F. Castañeda*
Catenularia Grove#
Chaetosphaeria Tul. & C. Tul.*$
Chloridium Link
Codinaea Maire
Codinaeopsis Morgan-Jones
Craspedodidymum Hol-Jech.#
Cryptophiale Piroz.#
Dendrophoma Sacc.
Dinemasporium Lév.*
Dictyochaeta Speg.

Dictyochaetopsis Aramb. & Cabello$^{\#}$
Exserticlava S. Hughes$^{\$}$
Gonytrichum Nees & T. Nees$^{\#}$
Hemicorynespora M.B. Ellis$^{\#}$
Kionochaeta P.M. Kirk & B. Sutton
Infundibulomyces Plaingam et al.*
Lecythothecium Réblová & Winka
Melanopsammella Höhn.
Menispora Pers.*
Phaeostalagmus W. Gams$^{\#}$
Phialogeniculata Matsush.$^{\#}$
Pseudobotrytis Krzemien. & Badura
Pseudolachnea Ranoj.
Pyrigemmula D. Magyar & R. Shoemaker*
Rattania Prabhug. & Bhat$^{\$}$
Miyoshiella Kawam.$^{\#}$
Sporoschisma Berk. & Broome*
= *Melanochaeta* E. Müll. et al.$^{\$}$
Striatosphaeria Samuels & E. Müll.
Tainosphaeria F.A. Fernández & Huhndorf
Thozetella Kuntze
Umbrinosphaeria Réblová$^{\$}$
Zanclospora S. Hughes & W.B. Kendr.$^{\#}$
Zignoëlla Sacc.

Helminthosphaeriaceae Samuels et al.
Echinosphaeria A.N. Mill. & Huhndorf*$^{\$}$
Endophragmiella B. Sutton$^{\#}$
Helminthosphaeria Fuckel*$^{\$}$
Hilberina Huhndorf & A.N. Mill.*
Ruzenia O. Hilber*$^{\$}$
Synaptospora Cain*$^{\$}$
Tengiomyces Réblová$^{\#}$

Pleurotremataceae Walt. Watson
Pleurotrema Müll. Arg.*$^{\#}$

Chaetosphaeriales* genera *incertae sedis
Caudatispora J. Fröhl. & K.D. Hyde
Erythromada Huhndorf et al.
Lasiosphaeriella Sivan.*
Leptosporella Penz. & Sacc.*
Nawawia Marvanová
Rimaconus Huhndorf et al.*$^{\$}$

Phyllachorales M.E. Barr*
Phaeochoraceae K.D. Hyde et al.
Cocoicola K.D. Hyde$^{\#}$
Phaeochora Höhn.$^{\#}$
Phaeochoropsis K.D Hyde & P.F. Cannon$^{\#}$
Serenomyces Petr.*

Phyllachoraceae Theiss. & H. Syd.
Acerviclypeatus Hanlin*$^{\#}$
Apiosphaeria Höhn.$^{\#}$
Ascovaginospora Fallah et al.$^{\$}$
Brobdingnagia K.D. Hyde & P.F. Cannon$^{\#}$
Camarotella Theiss. & Syd.$^{\#}$
Coccodiella Hara$^{\$}$
Cyclodomus Höhn.$^{\#}$
Deshpandiella Kamat & Ullasa$^{\#}$
Diachora Müll. Arg.$^{\#}$
= *Diachorella* Höhn.
Diatractium Syd. & P. Syd.
Erikssonia Penz. & Sacc.$^{\#}$
Fremitomyces P.F. Cannon & H.C. Evans$^{\#}$
Geminispora Pat.$^{\#}$
Gibellina Pass. ex Roum.$^{\#}$
Imazekia Tak. Kobay. & Y. Kawabe$^{\#}$
Isothea Fr.$^{\#}$
Lichenochora Hafellner$^{\#}$
Lindauella Rehm$^{\#}$
Linochora Höhn.$^{\#}$
Lohwagia Petr.$^{\#}$
Maculatifrondes K.D. Hyde$^{\#}$
Malthomyces K.D. Hyde & P.F. Cannon$^{\#}$
Muelleromyces Kamat & Anahosur$^{\#}$
Mycohypallage B. Sutton$^{\#}$
Neoflageoletia J. Reid & C. Booth$^{\#}$
Ophiodothella (Henn.). Höhn.*
Orphnodactylis Malloch & Mallik$^{\#}$
Oswaldina Rangel$^{\#}$
Oxodeora K.D. Hyde & P.F. Cannon$^{\#}$
Parberya C.A. Pearce & K.D. Hyde$^{\#}$
Petrakiella Syd.$^{\#}$
Phaeochorella Theiss. & Syd.$^{\#}$
Phycomelaina Kohlm.$^{\#}$
Phyllachora Nitschke ex Fuckel$^{\$}$
Phylleutypa Petr.$^{\#}$
Phyllocrea Höhn.$^{\#}$
Polystigma DC.
= *Polystigmina* Sacc.$^{\#}$
Pseudothiella Petr.$^{\#}$
Pseudothiopsella Petr.$^{\#}$
Pterosporidium W.H. Ho & K.D. Hyde$^{\#}$
Rehmiodothis Theiss. & Syd.$^{\#}$
Retroa P.F. Cannon$^{\#}$
Rhodosticta Woron.$^{\#}$
Rikatlia P.F. Cannon$^{\#}$
Schizochora Syd. & P. Syd.$^{\#}$
Sphaerodothella C.A. Pearce & K.D. Hyde$^{\#}$
Sphaerodothis (Sacc. & P. Syd.) Shear
Stigmatula (Sacc.) Syd. & P. Syd.$^{\#}$
Stigmochora Theiss. & Syd.$^{\#}$
Stromaster Höhn.$^{\#}$
Telimena Racib.$^{\#}$

Telimenella Petr.#
Telimenochora Sivan.#
Trabutia Sacc. & Roum.#
Tribulatia J.E. Taylor et al.#
Uropolystigma Maubl.#
Vitreostroma P.F. Cannon#
Zimmermanniella Henn.#

Phyllachorales genera *incertae sedis*
Marinosphaera K.D. Hyde*#

Sordariales Chad. ex D. Hawksw. & O.E. Erikss.
Chaetomiaceae G. Winter
Achaetomium J.N. Rai et al.$
Bommerella Marchal#
Boothiella Lodhi & Mirza#
Botryotrichum Sacc. & Marchal
Chaetomidium (Zopf) Sacc.$
Corynascella Arx & Hodges$
Chaetomiopsis Mustafa & Abdul-Wahid#
Chaetomium Kunze$
Diplogelasinospora Cain
Emilmuelleria Arx
Farrowia D. Hawksw.
Guanomyces M.C. Gonzáles et al.
Humicola Traaen*
Madurella Brumpt
Myceliophthora Costantin*
= *Corynascus* Arx
Staphylotrichum J.A. Mey. & Nicot*
Subramaniula Arx#
Taifanglania Z.Q. Liang et al.
Thielavia Zopf
Zopfiella G. Winter*

Lasiosphaeriaceae Nannf.*
Angulimaya Subram & Lodha#
Anopodium Lundq.*
Apiosordaria Arx & W. Gams$
Apodospora Cain & J.H. Mirza*
Apodus Malloch & Cain
Arniella Jeng & J.C. Krug#
Arnium Nitschke ex G. Winter*
Bellojisia Réblová
Biconiosporella Schaumann*#
Bombardia (Fr.) P. Karst.$
Bombardioidea C. Moreau ex N. Lundqv.
Camptosphaeria Fuckel#
Cercophora Fuckel
Cladorrhinum Sacc. & Marchal
Diffractella Guarro et al.#
Emblemospora Jeng & J.C. Krug#
Eosphaeria Höhn.#
Fimetariella N. Lundq.*
Immersiella A.N. Mill. & Huhndorf
Jugulospora N. Lundq.$
Lacunospora Cailleux#
Lasiosphaeria Ces. & De Not.$
Mammaria Ces. ex Rabenh.
Melanocarpus Arx
Periamphispora J.C. Krug#
Podospora Ces.
Pseudocercophora Subram. & Sekar#
Schizothecium Corda
Strattonia Cif.
Thaxteria Sacc.#
Triangularia Boedijn
Tripterosporella Subram. & Lodha#
Zygopleurage Boedijn$
Zygospermella Cain*

Sordariaceae G. Winter
Copromyces N. Lundq.
Effetia Bartoli et al.*#
Gelasinospora Dowding$
Guilliermondia Boud.#
Neurospora Shear & B.O. Dodge*$
= *Chrysonilia* Arx
Pseudoneurospora Dania García et al.$
Sordaria Ces & De Not. $
Stellatospora T. Ito & A. Nakagiri#

Sordariales, genera *incertae sedis*
Abyssomyces Kohlm*#
Acanthotheciella Höhn.#
Ascolacicola Ranghoo & K.D. Hyde
Asterosporium Kunze
Bombardiella Höhn.#
Cancellidium Tubaki
Coronatomyces Dania García et al.
Corylomyces Stchigel et al.
Cuspidatispora A. Mill.
Globosphaeria D. Hawksw.#
Isia D. Hawksw & Manohar#
Lasiosphaeris Clem.
= *Lasiadelphia* Réblová & W Gams*
Lockerbia K.D. Hyde#
Nitschkiopsis Nannf. & R. Sant.#
Onygenopsis Henn.#
Phaeosporis Clem.#
Ramophialophora M. Calduch et al.
Reconditella Matzer & Hafellner#
Rhexodenticula W.A. Baker & Morgan-Jones
Rhexosporium Udagawa & Furuya#
Roselliniomyces Matzer & Hafellner#
Roselliniopsis Matzer & Hafellner#

Sporidesmiopsis Subram. & Bhat
Utriascus Réblova[#]
Ypsilonia Lév.[#]

Sordariomycetidae, families _incertae sedis_

Batistiaceae Samuels & K.F. Rodrigues[$]
Acrostroma Seifert[#]
Batistia Cif.[$]
Cephalothecaceae Höhn.*
Albertiniella Kirschst.[$]
Cephalotheca Fuckel[$]
Cryptendoxyla Malloch & Cain[$]
Phialemonium W. Gams & McGinnis[$]

Sordariomycetidae, genera _incertae sedis_
Arecacicola Joanne E. Taylor et al.[#]
Barbatosphaeria Réblová[#]
Bullimyces A. Ferrer et al.*
Brachysporiella Bat.
Ceratolenta Réblová*
Ceratostomella Sacc.
Chaetosphaerides Matsush.[#]
Conlarium F. Liu & L. Cai*
Garethjonesia K.D. Hyde[#]
Hanliniomyces Raja & Shearer[#]
Hydromelitis A. Ferrer et al.*
Lentomitella Höhn.
Mirannulata Huhndorf et al.
Menisporopascus Matsush.*[#]
Merugia Rogerson & Samuels[#]
Mycomedusiospora G.C. Carroll & Munk[#]
Myelosperma Syd. & P. Syd.[#]
Nigromammilla K.D. Hyde & J. Fröhl.[#]
Phaeotrichosphaeria Sivan.[#]
Phragmodiscus Hansf.[#]
Plagiosphaera Petr.[#]
Rhodoveronaea Arzanlou et al.
Riomyces A. Ferrer et al.
Spadicoides S. Hughes*
Xylomelasma Réblová
Woswasia Jaklitsch et al.

Subclass _Xylariomycetidae_ O.E. Erikss & Winka

Xylariales Nannf.
Apiosporaceae K.D. Hyde et al.*[$]
Appendicospora K.D. Hyde
Arthrinium Kunze*[$]
= _Apiospora_ Sacc.[$]
= _Cordella_ Speg.
= _Pteroconium_ Sacc. ex Grove
Dictyoarthrinium S. Hughes[#]
Endocalyx Berk. & Broome[#]
Scyphospora LA Kantsch[#]
Spegazzinia Sacc.

Amphisphaeriaceae G. Winter
Adisciso Kaz. Tanaka
Amphisphaerella (Sacc.) Kirschst.[#]
Amphisphaeria Ces & De Not.*[$]
Atrotorquata Kohlm. & Volkm.-Kohlm.
Bartalinia Tassi*
Bleptosporium Steyaert*[#]
Broomella Sacc*
Capsulospora K.D. Hyde
Ceratosporium Schwein.[#]
Ceriophora Höhn.[#]
Ceriospora Niessl[#]
Chitonospora E. Bommer et al.[#]
Clypeophysalospora H.J. Swart[#]
Discosia Lib.*
Discostroma Clem.*[$]
Distorimula San Martín et al.[#]
Doliomyces Steyaert[#]
Dyrithium M.E. Barr[#]
Dyrithiopsis L. Cai et al.
= _Monochaetiopsis_ L. Cai et al.*
Flagellosphaeria Aptroot[#]
Frondispora K.D. Hyde[#]
Funiliomyces Aptroot*
Griphosphaerioma Höhn.*[#]
= _Labridella_ Brenckle
Hyalotiopsis Punith.*
= _Ellurema_ Nag Raj & W.B. Kendr.
Immersidiscosia Kaz. Tanaka et al.*[$]
Iodosphaeria Samuels et al.[#]
Labridium Vestergr.
Lindquistomyces Aramb. et al.[#]
Manokwaria K.D. Hyde[#]
Microdochium Syd.
Monochaetia (Sacc) Allesch.*
Monochaetinula Muthumary et al.*[#]
Monographella Petr.[$]
Morinia Berl. & Bres.*
Mukhakesa Udaiyan & Hosag.[#]
Neobroomella Petr.[#]
Neohypodiscus J.D. Rogers et al.[#]
Neopestalotiopsis Maharachch. et al.*
Ommatomyces Kohlm et al.[#]
Paracainiella Lar.N. Vassiljeva[#]
Pemphidium Mont.[#]
Pestalotiopsis Steyaert*
= _Pestalosphaeria_ M.E. Barr
Phlogicylindrium Crous et al.*
Pseudopestalotiopsis Maharachch. et al.*[$]

- *Reticulosphaeria* Sivan. & Bahekar#
- *Robillarda* Sacc.$
- *Sarcostroma* Cooke
- *Seimatosporium* Corda
    - = *Vermisporium* H.J. Swart & M.A. Will.*
- *Seiridium* Nees *
    - = *Blogiascospora* Shoemaker et al.
    - = *Lepteutypa* Petr.$
    - = *Pestalotia* De Not.
- *Sporocadus* Corda#
- *Synnemapestaloides* T. Handa & Y. Harada#
- *Truncatella* Steyaert
- *Urosporella* G.F. Atk.#
- *Urosporellopsis* W.H. Hsieh et al.#
- *Xylochora* Arx & E. Müll.#
- *Zetiasplozna* Nag Raj

Cainiaceae J.C. Krug*

- *Arecophila* K.D. Hyde*$
- *Cainia* Arx & E. Müll.*$
- *Seynesia* Sacc.$

Clypeosphaeriaceae G. Winter

- *Apioclypea* K.D. Hyde
- *Aquasphaeria* K.D. Hyde#
- *Brunneiapiospora* K.D. Hyde et al.
- *Clypeosphaeria* Fuckel$
- *Crassoascus* Checa et al.#
- *Palmomyces* K.D. Hyde et al.#

Coniocessiaceae Asgari & Zare*

- *Coniocessia* Dania García et al.$

Diatrypaceae Nitschke

- *Anthostoma* Nitschke
- *Cryptosphaeria* Ces & De Not.
- *Cryptovalsa* Ces & De Not. ex Fuckel
- *Diatrype* Fr.$
- *Diatrypella* (Ces & De Not.) De Not.
- *Diatrypasimilis* J.J. Zhou & Kohlm., in Chalkleyet al*
- *Echinomyces* Rappaz#
- *Eutypa* Tul. & C. Tul.$
- *Eutypella* (Nitschke) Sacc.
- *Leptoperidia* Rappaz#
- *Monosporascus* Pollack & Uecker$
- *Pedumispora* K.D. Hyde & E.B.G. Jones*
- *Peroneutypa* Berl.#
- *Phaeoisaria* Höhn.
- *Quaternaria* Tul. & C. Tul.#

Graphostromataceae M.E. Barr et al.*$

- *Graphostroma* Piroz.$

Hyponectriaceae Petr.

- *Apiothyrium* Petr.#
- *Arecomyces* K.D. Hyde#
- *Arwidssonia* B. Erikss.#
- *Cesatiella* Sacc.#
- *Chamaeascus* L. Holm et al.#
- *Charonectria* Sacc.#
- *Discosphaerina* Höhn.*
- *Exarmidium* P. Karst.#
- *Frondicola* K D Hyde*#
- *Hyponectria* Sacc.$
- *Micronectria* Speg.#
- *Papilionovela* Aptroot#
- *Pellucida* Dulym. et al.#
- *Physalospora* Niessl
- *Phragmitensis* M.K.M. Wong et al.*#
- *Pseudomassaria* Jacz*$
- *Rhachidicola* K.D. Hyde & J. Fröhl.#
- *Xenothecium* Höhn.#

Melogrammataceae G. Winter*

- *Melogramma* Fr.

Vialaeaceae P.F. Cannon*

- *Vialaea* Sacc.*$

Xylariaceae Tul. & C. Tul.*

- *Amphirosellinia* Y.M. Ju et al.*
- *Annulohypoxylon* Y.M. Ju et al.*
- *Anthocanalis* Daranagama et al.*
- *Anthostomella* Sacc.*
- *Appendixia* B.S. Lu & K.D. Hyde#
- *Areolospora* S.C. Jong & E.E. Davis#
- *Arthroxylaria* Seifert & W Gams*
- *Ascotricha* Berk.*
    - = *Dicyma* Boulanger
    - = *Puciola* De Bert.
- *Astrocystis* Berk & Broome*
- *Barrmaelia* Rappaz
- *Biscogniauxia* Kuntze*
- *Brunneiperidium* Daranagama et al.*
- *Calceomyces* Udagawa & S Ueda
- *Camillea* Fr.*
    - = *Basidiobotrys* Höhn.
    - = *Masoniomyces* JL Crane & Dumont
    - = *Xylocladium* P. Syd. ex Lindau
- *Cannonia* J.E. Taylor & K.D. Hyde#
- *Chaenocarpus* Rebent.#
- *Chlorostroma* A.N. Mill. et al.*
- *Collodiscula* I Hino & Katum.*
    - = *Acanthodochium* Samuels et al.
- *Coniolariella* Dania García et al.*
    - = *Coniolaria* Seigle-Mur et al.

Creosphaeria Theiss.*\$
Cyanopulvis J. Fröhl. & K.D. Hyde#
Daldinia Ces. & De Not.*
= *Annellosporium* M.L. Davey
= *Versiomyces* Whalley & Watling
Durotheca Læssøe et al.*
Emarcea Duong et al.
Engleromyces Henn.*
Entoleuca Syd.
Entonaema Möller
Euepixylon Füisting
Fasciatispora K.D. Hyde*
Fassia Dennis#
Gigantospora B.S. Lu & K.D. Hyde#
Guestia G.J.D. Sm. & K.D. Hyde#
Halorosellinia Whalley et al.
Helicogermslita Lodha & D. Hawksw.#
Hypocopra (Fr) J. Kickx f
Hypocreodendron Henn.*
= *Discoxylaria* J.C. Lindq. & J.E. Wright
Hypoxylon Bull.*
= *Pyrenopolyporus* Lloyd
= *Triplicaria* P Karst *
Induratia Samuels, E. Müll. & Petrin
Jumillera J.D. Rogers et al.#
Kretzschmaria Fr.*
= *Holttumia* Lloyd
Kretzschmariella Viégas#
Leprieuria Laessøe et al.#
Leptomassaria Petr.#
Libertella Desm.
Lopadostoma (Nitschke) Traverso*
Lunatiannulus Daranagama et al.*
Muscodor Worapong et al.*
Myconeesia Kirschst.#
Nemania Gray*\$
= *Geniculisynnema* Okane & Nakagiri
= *Geniculosporium* Chesters & Greenh.
Nodulisporium Preuss*
= *Pleurographium* Goid.
Nipicola K.D. Hyde#
Obolarina Pouzar
Occultitheca J.D. Rogers & Y.M. Ju#
Ophiorosellinia JJ.D. Rogers et al.#
Pandanicola K.D. Hyde#
Paramphisphaeria F.A. Fernández et al.#
Paucithecium Lloyd#
Phylacia Lév.
Podosordaria Ellis. & Holw.
Poroleprieuria M.C. González et al.#
Poronia Willd.*
= *Lindquistia* Subram. & Chandrash
Pyrenomyxa Morgan
= *Pulveria* Malloch & Rogerson
Pyriformiascoma Daranagama et al.*
Rhopalostroma D. Hawksw.*
Rosellinia De Not.*\$
= *Dematophora* R. Hartig
= *Vrikshopama* D. Rao & P.Rag. Rao
Rostrohypoxylon J Fourn & M Stadler*
Ruwenzoria J. Fourn. et al.*
Sabalicola K.D. Hyde#
Sarcoxylon Cooke#
Sclerodermatopsis Torrens#
Spirodecospora B.S. Lu et al.#
Squamotubera Henn.#
Steganopycnis Syd. & P Syd.#
Stilbohypoxylon Henn.
Streblema Chevall.#
Striatodecospora D.Q. Zhou et al.#
Stromatoneurospora S.C. Jong & E.E. Davis
Thamnomyces Ehrenb.
Theissenia Maubl.
Thuemenella Penz. & Sacc.
Virgaria Nees*
= *Ascovirgaria* J.D. Rogers & Y.M. Ju
Vivantia J.D. Rogers et al.#
Wawelia Namysl#
Whalleya J.D. Rogers et al.
Xylaria Hill ex Schrank*
= *Moelleroclavus* Henn.
= *Padixonia* Subram.
= *Pseudoxylaria* Boedijn
= *Xylocoremium* J.D. Rogers
Xylocrea Möller#
Xylotumulus J.D. Rogers et al.

Xylariales, genera *incertae sedis*
Adomia S. Schatz#
Ascotrichella Valldos & Guarro#
Beltraniella Subram.\$
Diamantinia A.N. Mill. et al.
Hadrotrichum Fuckel
Lanceispora Nakagiri et al.*
Lasiobertia Sivan.
Leiosphaerella Höhn*
Linocarpon Syd. & P. Syd.
Neolinocarpon K.D. Hyde*
Oxydothis Penz. & Sacc.*
Palmicola K.D. Hyde#
Pidoplitchkoviella Kiril.
Plectosphaera Theiss.
Polyancora Voglmayr & Yule
Pulmosphaeria Joanne E. Taylor et al.#
Sporidesmina Subram. & Bhat
Subramaniomyces Varghese & V.G. Rao

Yuea O.E. Erikss.#

Sordariomycetes, orders *incertae sedis*

Amplistromatales D'souza et al. *
Amplistromataceae Huhndorf et al.
Amplistroma Huhndorf et al.*$
Wallrothiella Sacc.*$
=*Pseudogliomastix* W. Gams
= *Zignoina* Cooke#

Catabotrydaceae Petr. ex M.E. Barr
Catabotrys Theiss. & Syd.$

Pisorisporiales Réblová & J. Fourn.*
Pisorisporiaceae Réblová & J. Fourn.*
Achroceratosphaeria Réblová et al.*
Pisorisporium Réblová & J. Fourn.*

Spathulosporales Kohlm.
Hispidicarpomycetaceae Nakagiri
Hispidicarpomyces Nakagiri*

Spathulosporaceae Kohlm.
Retrostium Nakagiri & Tad Ito*
Spathulospora A.R. Caval. & T.W. Johnson*

Sordariomycetes, families *incertae sedis*

Obryzaceae Körb
Obryzum Wallr.#

Sordariomycetes, genera *incertae sedis*
Acerbiella Sacc.#
Acrospermoides Miller & G.E. Thomps.#
Ameromassaria Hara#
Amphisphaerellula Gucevič#
Amphisphaerina Höhn.#
Amphorulopsis Petr.#
Amylis Speg.#
Anthostomaria (Sacc.) Theiss. & Syd.#
Anthostomellina L.A. Kantsch.#
Apharia Bonord.#
Apodothina Petr.#
Apogaeumannomyces Matsush.#
Aquadulciospora Fallah & Shearer#
Aropsiclus Kohlm. & Volkm.-Kohlm.#
Ascorhiza Lecht.-Trnka#
Ascoyunnania L. Cai & K.D. Hyde#
Assoa Urries#
Aulospora Speg.#
Azbukinia Lar.N. Vassiljeva#
Bactrosphaeria Penz. & Sacc.#
Biporispora J.D. Rogers et al.#
Bombardiastrum Pat.#
Brenesiella Syd.#
Byrsomyces Cavalc.#
Byssotheciella Petr.#
Caleutypa Petr.#
Calosphaeriopsis Petr.#
Caproniella Berl.#
Chaetoamphisphaeria Hara#
Ciliofusospora Bat. & J.L. Bezerra#
Calcarisporium Preuss#
Clypeoceriospora Sousa da Câmara#
Clypeosphaerulina Sousa da Câmara#
Crinigera Schmidt
Cryptoascus Petri#
Cryptomycella Höhn.#
Cryptomycina Höhn.#
Cucurbitopsis Bat. & Cif.#
Curvatispora V.V. Sarma & K.D. Hyde#
Dasysphaeria Speg.#
Delpinoëlla Sacc.#
Diacrochordon Petr.#
Dryosphaera Jørg. Koch & E.B.G. Jones#
Duradens Samuels & Rogerson$
Ellisembia Subram.
Endoxylina Romell#
Esfandiariomyces Ershad#
Frondisphaera K.D. Hyde#
Glabrotheca Chardón#
Heliastrum Petr.#
Hyaloderma Speg.#
Hydronectria Kirschst.#
Hypotrachynicola Etayo#
Immersisphaeria Jaklitsch.#
Iraniella Petr.#
Imicles Shoemaker & Hambl.#
Konenia Hara#
Kravtzevia Schwartzman#
Kurssanovia Kravtzev#
Lecythiomyces Doweld#
= *Lecythium* Zukal
Leptosacca Syd.#
Leptosphaerella Speg.#
Leptosporina Chardón#
Liberomyces Pažoutová et al.*
Lyonella Syd.#
Mangrovispora K.D.Hyde & Nagakiri#
Melanographium Sacc.#
Melomastia Nitschke ex Sacc.
Microcyclephaeria Bat.#
Monotosporella S. Hughes

Naumovela Kravtzev#
Natantiella R blová
Neocryptospora Petr.#
Neolamya Theiss. & Syd.#
Neothyridaria Petr.#
Nigrospora Zimm.
Ophiomassaria Jacz.#
Orcadia GK Sutherl*#
Paoayensis Cabanela et al.
Pareutypella Y.M. Ju & J.D. Rogers#
Phialemoniopsis Perdomo et al.*
Phomatosporella Tak. Kobay & K. Sasaki#
Phyllocelis Syd.#
Pleocryptospora J. Reid & C. Booth#
Pleosphaeria Speg.#
Pontogeneia Kohlm.#
Porodiscus Lloyd#
Protocucurbitaria Naumov#
Pulvinaria Bon.#
Pumilus Viala & Marsais#
Rehmiomycella E. Müll.#
Rhamphosphaeria Kirschst.#
Rhizophila K.D. Hyde & E.B.G. Jones#
Rhopographella (Henn.) Sacc. & Trotter
Rhynchosphaeria (Sacc.) Berl.#
Rivulicola K.D. Hyde#
Romellina Petr.#
Saccardoëlla Speg.#
Sarcopyrenia Nyl.#
Sartorya Vuill.#
Scharifia Petr.#
Scoliocarpon Nyl.#
Scotiosphaeria Sivan.#
Selenosporella G. Arnaud ex MacGarvie 1969*
Servazziella J. Reid & C. Booth#
Sporoctomorpha J.V. Almeida & Sousa da Câmara#
Stanjehughesia Subram.
Stearophora L. Mangin & Viala#
Stegophorella Petr.#
Stellosetifera Matsush.#
Stereosphaeria Kirschst.
Stomatogenella Petr.#
Stromatographium Höhn.#
Strickeria Körb.#
Sungaiicola Fryar & K.D. Hyde#
Synsphaeria Bon.#
Tamsiniella S.W. Wong et al.#
Tectonidula Réblová
Teracosphaeria R blová & Seifert
Thelidiella Fink.#
Thyridella (Sacc.) Sacc.#
Thyrotheca Kirschst.#
Trichospermella Speg.#
Trichosphaeropsis Bat. & Nasc.#
Tunstallia Agnihothr.#
Vleugelia J. Reid & C. Booth#
Zalerion R.T. Moore & Meyers*

Dothideomycetes

Dothideales

This obviously does not list all genera of *Dothideales* but only those which were considered to be placed in *Sordariomycetes* in Lumbsch and Huhndorf (2010) and Wijayawardene et al. (2012) and are now excluded.

Dichomera Cooke
Hendersonula Speg.#
Kabatia Bubák#
Kabatiella Bubák
Sarcophoma Höhn.#
Selenophoma Maire

Leotiomycetes O.E. Erikss. & Winka

Helotiales Nannf.

This obviously does not list all genera of *Helotiales* but only those which were considered to be placed in *Sordariomycetes* in Lumbsch and Huhndorf (2010) and Wijayawardene et al. (2012) and are now excluded.

Chalara (Corda) Rabenh.
  = *Chaetochalara* B. Sutton & Piroz.#
Diplococcium Grove *
Idriella P.E. Nelson & S. Wilh.*

Ascomycota* genera *incertae sedis

This does not list all genera of *Ascomycota* genera *incertae sedis* but only those which were considered to be placed in *Sordariomycetes* in Lumbsch and Huhndorf (2010) and Wijayawardene et al. (2012) and are now excluded. There are large numbers of genera listed in Kirk et al. (2013, 2014) that are considered synonyms in Index Fungorum, however it is impossible to check whether these have been correctly synonymised and these are not listed here.

Acrophialophora Edward
Anguillospora Ingold*
Aphanocladium W. Gams
Biflua Jørg. Koch & E.B.G. Jones*#
Cacumisporium Preuss#
Didymobotryum Sacc.
Dumortieria Westend.#
Eiona Kohlm.*#
Engyodontium de Hoog
Fusichalara S. Hughes & Nag Raj#
Hapsidascus Kohlm. & Volkm.-Kohlm.*#
Kutilakesa Subram.#
Linkosia A. Hern.-Gut. & B. Sutton*

Lunulospora Ingold
Menisporopsis S. Hughes*$
Monocillium S.B. Saksena$
Paliphora Sivan. & B. Sutton
Phaeocytostroma Petr.
Pleurodesmospora Samson et al.
Pleurophragmium Costantin
Retroconis de Hoog & Bat Vegte$
Septogloeum Sacc.
Sporidesmium Link*
Trichocladium Harz*
Verticimonosporium Matsush.*$

Notes on outline - 2014

Abyssomyces Kohlm., Ber. dt. bot. Ges. 83(9–10): 505 (1970)

The type species is *Abyssomyces hydrozoicus* Kohlm., which was collected on hydrocaulon, attached to stony corals (Kohlmeyer 1970). The genus was referred by Jones et al. (2009a, b) to *Sordariales* genera *incertae sedis*. Further collections and molecular study are required to determine its natural taxonomic placement.

Achroceratosphaeria Réblová et al., Fungal Diversity 43: 79 (2010)

The genus *Achroceratosphaeria* was introduced from freshwater and terrestrial habitats with the type species *A. potamia* Réblová et al. and two other species (Réblová et al. 2010). *Achroceratosphaeria* is characterized by immersed perithecia, with hyaline to subhyaline emergent necks and cylindrical-clavate asci with a distinct apical annulus. Molecular studies shows that *Achroceratosphaeria* resides in a single branch as a sister to the clade containing *Lulworthiales* and *Koralionastetales* and was placed in *Pisorisporiaceae* (Réblová et al. 2015).

Acremonium Link, Magazin der Gesellschaft Naturforschenden Freunde Berlin 3: 15 (1809)

Acremonium is generally considered to be a highly polyphyletic asexual genus containing distantly related fungi (Glenn et al. 1996), with *A. alternatum* Link, the type species, in the *Hypocreales*. *Acremonium furcatum* Moreau & F. Moreau ex Gams has been shown to group in the *Plectosphaerellaceae* with *Gibellulopsis nigrescens* (Pethybr.) Zare et al. as a sister group (Réblová et al. 2011a). Summerbell et al. (2011) confirmed the placement of *A. alcalophilum* G. Okada, *A. brunnescens* W. Gams, *A. furcatum*, *A. nepalense* W. Gams, *A. restrictum* (J.F.H. Beyma) W. Gams and *A. stromaticum* W. Gams & R.H. Stover in the *Plectosphaerellaceae*, as was already shown by Zare et al. (2007). *Acremonium apii* (M.A. Sm. & Ramsey) W. Gams also has been shown to belong to this family as a synonym of *Verticillium albo-atrum* Reinke & Berthold. The phytopathogen *A. cucurbitacearum* Alfaro-García et al. has also been shown to belong in *Plectosphaerellaceae* (Zare et al. 2007). Summerbell et al. (2011) designated CBS 407.66 as the epitype of *Acremonium alternatum*, the type species of the genus. ITS sequences analyses by Giraldo et al. (2012) show that the *A. alternatum* epitype strain (CBS 407.66) and a large group of species currently accepted in *Acremonium* belong in the family *Bionectriaceae*.

Acrostalagmus Corda, Icones fungorum hucusque cognitorum 2: 15 (1838)

A polyphyletic asexual genus with most species assigned to the *Hypocreales*; *Acrostalagmus cinnabarinus* Corda is the type species. Réblová et al. (2011a) showed *Acrostalagmus annulatus* (Berk. & M.A. Curtis) Seifert (= *Stilbella annulata* Berk. & M.A. Curtis) and *A. luteoalbus* (Link) Zare et al. groups with high support in the *Plectosphaerellaceae*, based on nuclear SSU rDNA sequences, with *Verticillium dahliae* Kleb. as a sister group.

Actinostilbe Petch, Ann. R. bot. Gdns Peradeniya 9: 327 (1925)

Actinostilbe appears to be linked to *Lanatonectria.* However, they are not common genera, and thus Rossman et al. (2013) proposed the name *Lanatonectria* be abandoned in favour of the older and more widely used asexual morph generic name *Actinostilbe.* The genus belongs in *Nectriaceae.*

Alisea J. Dupont & E.B.G. Jones, Mycol. Res. 113(12): 1358 (2009)

Monotypic marine taxon growing on submerged wood recovered at 1000 m depth in the Pacific Ocean with no known asexual morph. Molecular data confirm its position in *Halosphaeriaceae* (Dupont et al. 2009).

Allantonectria Earle, in Greene, Plant. Bak. 2(1): 11 (1901)

Hirooka et al. (2012) studied the systematics of *Nectria* based on a 6-loci phylogenetic analysis. *Nectria* divided into two main clades: the first clade being *Nectria* sensu stricto which includes the type species, *N. cinnabarina* (Tode) Fr., along with 27 additional species and genera. The second clade comprised *Pleonectria* with 26 species some with *Zythiostroma* asexual morphs. Sister to the *Pleonectria* clade is *Nectria miltina* (Mont.) Mont. which has Trichoderma-like asexual morphs and occurs on monocotyledons. Since these characters are different from *Pleonectria*, a new genus, *Allantonectria*, was introduced.

Amphirosellinia Y.M. Ju et al., Mycologia 96(6): 1393 (2004)

Amphirosellinia was introduced by Ju et al. (2004) to include five xylariaceous taxa with erumpent or immersed perithecioid stromata. The name itself refers to its stromatal anatomy which is similar to that of the genus *Rosellinia*, but differs in having stromata that develop beneath the host epidermis (Ju et al. 2004). The accepted *Amphirosellinia* species constitute a coherent group that is characterized by several unique characteristics, and a synnematous asexual morph that produces lacrymoid conidia (Ju et al. 2004). A molecular study that included type strains of *A. fushanensis* Y.M. Ju et al. and *A. nigrospora* Y.M. Ju et al. placed *Amphirosellinia* as a discrete monophyletic group, which appears to be paraphyletic with *Xylaria digitata* and *X. montagnei* (Hsieh et al. 2010).

Amphisphaeria Ces. & De Not., Comm. Soc. crittog. Ital. 1(4): 223 (1863)

The genus *Amphisphaeria* was introduced by De Notaris (1863) with *A. umbrina* (Fr.) De Not. as the type species. Based on molecular data, Kang et al. (1999a) determined that *Amphisphaeria* is polyphyletic.

Amplistroma Huhndorf et al., Mycologia 101(6): 907 (2009)

Amplistroma was described to accommodate seven species with *A. carolinianum* Huhndorf et al. as the type species (Huhndorf et al. 2009). According to phylogenetic analyses using LSU data, *Amplistroma* is included in the family *Amplistromataceae* formed a monophyletic clade with strong bootstrap and Bayesian support (Huhndorf et al. 2009). In our combined analysis *Amplistroma* clusters with *Wallrothiella* and is sister to *Catabotrys deciduum* in *Catabotrydaceae* (*Amplistromatales*).

Anguillospora Ingold, Trans. Br. Mycol. Soc. 25 (4): 401 (1942)

A polyphyletic genus with species in the family *Lulworthiaceae* (*A. marina* Nakagiri & Tubaki), asexual *Pleosporales* (*A. crassa* Ingold), *Hymenoscyphus imberbis* (Bull.) Dennis, *Helotiaceae* (*A. fustiformis* Marvanová & Descals) and *A. coryli* (Redhead & G.P. White) U. Braun, asexual *Mycosphaerellaceae* (Index Fungorum 2015). *Anguillospora marina* is a synonym of *Lindra obtusa* Nakagiri & Tubaki as established by cultural studies and molecular data (Jones et al. 2009b). The type species, *A. longissima* (Sacc. & P. Syd.) Ingold, is not linked to any sexual morph and was placed in asexual *Ascomycota* in Shearer et al. (2009); the genus is retained and placed here in *Ascomycota* genera *incertae sedis.*

Aniptodera Shearer & M.A. Mill., Mycologia 69(5): 893 (1977)

A genus of *Halosphaeriaceae* established by Shearer and Miller (1977) to accommodate the aquatic fungus *A. chesapeakensis* Shearer & M.A. Mill. Molecular analysis of SSU and LSU rDNA sequence data confirm that *Aniptodera* is a polyphyletic genus with *A. chesapeakensis* and *A. lignatilis* K.D. Hyde placed in one clade, while the rest of the species are placed in distant clades (Jones et al. 2009a). Further study is needed to resolve the taxonomy of the species referred to *Aniptodera*. No asexual morph is known.

Anisostagma K.R.L. Petersen & Jørg. Koch, Mycol. Res. 100(2): 209 (1996)

Monotypic genus of *Halosphaeriaceae* that was established by Petersen and Koch (1996) to accommodate the marine species, *A. rotundatum* K.R.L. Petersen & Jørg. Koch. This infrequently collected species has no known asexual morph. A phylogenetic study is required to determine if it differs from *Thalassogena* and confirm its position in the *Halosphaeriaceae*.

Anopodium N. Lundq., Botaniska Notiser 117 (4): 356 (1964)

A genus of *Lasiosphaeriaceae* based on morphological and molecular data with *A. ampullaceum* as the type species. The genus groups with *Cercophora sulphurella* (Sacc.) R. Hilber in a well-supported clade and joins the weakly supported clade containing *Cercophora sparsa* (Sacc. & Fairm.) R. Hilber, *Corylomyces selenosporus* Stchigel et al., *Bellojisia rhynchostoma* (Höhn.) Réblová and *Podospora didyma* J.H. Mirza & Cain (Kruys et al. 2015).

Annulohypoxylon Y.M. Ju et al., in Hsieh et al., Mycologia 97(4): 855 (2005)

Two sections were recognized in *Hypoxylon* by Ju and Rogers (1996); *Hypoxylon* sect. *Hypoxylon* and *Hypoxylon* sect. *Annulata*. Based on a phylogenetic analysis, including protein coding genes, *Annulohypoxylon* was introduced as a new genus by Heish et al. (2005) to accommodate *Hypoxylon* sect. *Annulata* with *A. truncatum* (Schwein.) Y.M. Ju et al. designated as the type species. Hsieh et al. (2005) described 37 species and varieties belonging to *Annulohypoxylon.* Several other species have been added to the genus (Fournier et al. 2010; Hladki and Romero 2009; Ju et al. 2004; Marincowitz et al. 2008; Pereira et al. 2010; Vassiljeva and Stephenson 2013); Index Fungorum (2015) lists 50 species. *Annulohypoxylon* species have nodulosporium-like asexual morphs.

Antennospora Meyers, Mycologia 49: 501 (1957)

Monotypic marine ascomycete growing on submerged wood, often in association with calcareous shells. No asexual morph is known. Molecular data confirms its position in the *Halosphaeriaceae*, forming a sister group to *Pseudolignincola siamensis* with high bootstrap support (Pang et al. 2008; Sakayaroj et al. 2011a).

Anthocanalis Daranagama et al., Fungal Diversity (in press) (2015)

The genus *Anthocanalis* was introduced for *A. sparti* Daranagama et al. to represent anthostomella-like taxa distinguished by having ascomata with a reduced clypeus with shiny papilla and limoniform ascospores (Daranagama et al.

2015). Isolates from ascospores of *A. sparti* produced a nodulisporium-like asexual morph in culture. According to the phylogenetic analysis by Daranagama et al. (2014) using four combined genes, *A. sparti* clustered in the hypoxyloid *Xylariaceae* and was closely related to *Rhopalostroma*, *Ruwenzoria* and *Thamnomyces*.

Anthonectria Döbbeler, Mycologia 102(2): 405 (2010)

This monotypic genus was introduced by Döbbeler (2010) based on *Anthonectria mammispora* Döbbeler and is stated to be invalid in Index Fungorum (2014). According to the morphology the genus is classified in family *Bionectriaceae*.

Apiosporaceae K.D. Hyde et al., in Hyde et al., Sydowia 50(1): 23 (1998)

Hyde et al. (1998) introduced *Apiosporaceae* to accommodate *Apiospora* and *Appendicospora*. Smith et al. (2003) concluded that *Apiosporaceae* represented one of the seven families in *Xylariales*. Lumbsch and Huhndorf (2010) listed *Apiosporaceae* as family *incertae sedis* (*Sordariomycetes*). Crous and Groenewald (2013) analysed LSU rDNA sequence data and confirmed the *Apiosporaceae* belongs in *Xylariales*, and is a sister group to *Amphisphaeriaceae*.

Apodospora Cain & J.H. Mirza, Can. Bot. 48 (5): 891 (1970)

Monophyletic genus in *Lasiosphaeriaceae* with *Apodospora simulans* Cain & J.H. Mirza as the type species (Kruys et al. 2015). It groups with a number of other taxa with unclear affinities to each other, lacking higher-level support (Kruys et al. 2015).

Appendichordella R.G. Johnson et al., Can. J. Bot. 65(5): 941 (1987)

A monotypic lignicolous genus with no known asexual morph, the type of which was described in *Sphaerulina* (Kohlmeyer 1962) and has been referred to *Haligena* (Kohlmeyer and Kohlmeyer 1979). The genus is morphologically well-placed in the family *Halosphaeriaceae*, but requires further collection, isolation and sequencing to confirm its position therein (Jones et al. 2009a).

Aquanectria Lombard et al., in Lombard et al., Stud. Mycol.80: 207 (2015)

Lombard et al. (2015) introduced the genus *Aquanectria*, typified by *Aquanectria penicillioides* (Ingold) L. Lombard & Crous, based on a multi-locus gene analysis to accommodate two species previously treated as members of the genera *Flagellospora* and *Heliscus.* The genus belongs in the family *Nectriaceae.*

Arecophila K.D. Hyde, Nova Hedwigia 63(1–2): 82 (1996)

Arecophila was introduced by Hyde (1996), with the type species *A. gulubilcola* K.D. Hyde and six other species. The genus was originally placed in *Amphisphaeriaceae* due to a morphological resemblance to *Amphisphaeria* but was revised by Kang et al. (1999a) and excluded from *Amphisphaeriaceae. Arecophila* differs from *Amphisphaeria* in having a cylindrical, J+ ascus ring and ascomata immersed under a clypeus. Its striate ascospores surrounded by a mucilaginous sheath show certain similarities to those of *Atrotorquata*, *Cainia*, and *Ceriophora* (Kang et al. 1999b). Due to its close morphological affinities with these genera in *Cainiaceae*, *Arecophila* was moved to *Cainiaceae* (Kang et al. 1999b). Molecular data is required to resolve its taxonomic position.

Arenariomyces Höhnk, Veröff. Inst. Meeresf. Bremerhaven 3: 28 (1954)

A genus of *Halosphaeriaceae*, the type species of which has been variously referred to *Halosphaeria* (Cribb and Cribb 1956), *Peritrichospora* (Kohlmeyer 1961) and *Corollospora* (Kohlmeyer 1962), molecular data confirming its position in this family (Jones et al. 2009b). No asexual morph is known. Five species are referred to the genus (Jones et al. 2009b; Koch 2013).

Argentinomyces N.I. Peña & Aramb., Mycotaxon 65: 333 (1997)

A monotypic genus, based on a single collection, of unknown affinities and requiring further study at the molecular level. Jones et al. (2009b) referred *Argentinomyces* to the *Diaporthales* genera *incertae sedis* based on its morphology. Although it has features in common with members of the *Halosphaeriaceae*, it does not belong in the family as it has a thick-walled ascus apex and persistent asci.

Arnium Nitschke ex G. Winter, Bot. Ztg.: 450 (1873)

A genus in the *Lasiosphaeriaceae* with *A. lanuginosum* Nitschke as the type species (Kruys et al. 2015). The genus, as currently circumscribed, comprises 35 species that are morphologically diverse. Phylogenetically *Arnium* species are dispersed in three of the four major clades in the family, which may be accounted for by the great morphological plasticity within the genus. Further studies, including the type species, are required to resolve the phylogenetic relationship of *Arnium* species.

Arthrinium Kunze, in Kunze & Schmidt, Mykologische Hefte (Leipzig) 1: 9 (1817)

This widespread and ecologically diverse genus is common on grasses and bamboo. Crous and Groenewald (2013) accepted the name *Arthrinium* over its sexual morph name *Apiospora* on the basis that the name *Arthrinium* is older, more commonly encountered, and more frequently used in literature. Based on morphology and molecular studies of LSU and ITS rDNA sequence data, the genus is placed in

Apiosporaceae, order *Xylariales* (Crous and Groenewald 2013). The genera *Pteroconium* and *Cordella* are also reduced to synonymy with *Arthrinium*, because spore shape and the presence of setae were rejected as characters of generic significance (Crous and Groenewald 2013).

Arthroxylaria Seifert & W. Gams, in Seifert et al., Czech Mycol. 53(4): 299 (2002)

Arthroxylaria was introduced by Seifert et al. (2002) and is typified by *A. elegans* Seifert & W. Gams. This xylarioid asexual morph has been connected to *Xylaria* (Stadler et al. 2013). The asexual name could be suppressed in favour of *Xylaria* as it is the older name and the cosmopolitan morph is frequently encountered in nature. Stadler et al. (2013) suggested that the name *Arthroxylaria* can be retained to accommodate certain species of *Xylaria* which is thought to be a comparatively diverse genus; a separation at the subgeneric level may soon occur with the availability of molecular data.

Ascosacculus J. Campb. et al., Mycologia 95(3): 545 (2003)

Genus of *Halosphaeriaceae* that was introduced by Campbell et al. (2003) to accommodate *Ascosacculus heteroguttulatus* (S.W. Wong et al.) J. Campb. et al. and *A. aquaticus* (K.D. Hyde) J. Campb. et al., two species previously placed in *Halosarpheia* that grow on decaying wood in freshwater habitats; the genus is typified by *A. aquaticus*. In a molecular study, species of *Ascosacculus* clustered in a well-supported clade with *Aniptodera* species (*A. chesapeakensis* Shearer & M.A. Mill. and *A. lignatilis* K.D. Hyde), that is distant from *H. fibrosa* Kohlm. & E. Kohlm., the type species of the genus *Halosarpheia. Ascosacculus aquaticus* produces chains of brown chlamydospores (Campbell et al. 2003), while *A. heteroguttulatus* has a asexual morph in *Trichocladium* (Wong et al. 1998a, b).

Ascotaiwania Sivan. & H.S. Chang, Mycol. Res. 96(6): 481 (1992)

The genus was introduced to accommodate a freshwater ascomycete (*A. lignicola*) collected on wood in Taiwan (Sivanesan and Chang 1992) and referred to the *Sordariales* by Cai et al. (2006a). Currently 12 species are known from wood and palm material and are characterised by a conspicuous, apical, J- ring in the ascus, reminiscent of that found in *Annulatascus* species. A combined phylogenetic analysis of *Ascotaiwania* species, showed that they grouped in *Savoryellales* (*Hypocreomycetidae*), but the position is not fully resolved. *Ascotaiwania sawadae* H.S. Chang & S.Y. Hsieh, *A. mitriformis* Ranghoo & K.D. Hyde and *A. lignicola* Sivan. & H.S. Chang form a well-supported clade in the *Savoryellales*, but *A. hughesii* Fallah et al. does not group with the other species (Boonyuen et al. 2011). Several dematiaceous hyphomycetous anamorphs have been reported for *Ascotaiwania,* including *Monotosporella* sp. (for *Ascotaiwania sawadae*, Sivicha et al. 1998), *Monotosporella setosa* (Berk. & M.A. Curtis) S. Hughes (for *Ascotaiwania sawadae*, Ranghoo and Hyde 1998), *Helicoön farinosum* Linder (*Ascotaiwania hughesii*, Fallah et al. 1999; Tsui and Berbee 2006). Further collections, isolation and sequence data are required to resolve the taxonomic assignment of individual species in this genus.

Ascotricha Berk., Ann. nat. Hist., Mag. Zool. Bot. Geol. 1: 257 (1838)

Dicyma was introduced with *D. ampullifera* Boulanger 1897 as the type species. This asexual genus has been linked with *Ascotricha* by Saccardo (1899) as mentioned in Index Fungorum (2015). The morphological characters of *Dicyma ampullifera* almost perfectly match those of *Ascotricha chartarum* and *Chaetomium chartarum* (Saccardo 1899). Stadler et al. (2013) suggested that the older name be given priority and that *Dicyma* placed in synonymy.

Astrocystis Berk. & Broome, J. Linn. Soc., Bot. 14 (no. 74): 123 (1873) [1875]

Astrocystis was introduced by Berkeley and Broome (1874) to accommodate species with uniperitheciate or rarely multi-peritheciate stromata which appear superficial. Pinnoi et al. (2010) introduced a new species *Astrocystis eleiodoxae* Pinnoi et al. and inferred the phylogenetic relationships of this and related species based on rDNA sequences of the ITS1-5.8S-ITS2 and partial SSU and LSU genes. They observed that *A. eleiodoxae* clusters with *Stilbohypoxylon elaeicola* (Henn.) L.E. Petrini with weak support when ITS and 28S rDNA were combined. However, multilocus sequence analysis confirmed the monophyly of *A. eleiodoxae* and that it was well positioned in the family *Xylariaceae.*

Atractium Link, Mag. Gesell. naturf. Freunde, Berlin 3(1–2): 10 (1809)

In the phylogenetic analysis of Gräfenhan et al. (2011) two *Atractium* species, including the type species *A. stilbaster* Link, formed a well-supported monophyletic group in *Nectriaceae*. No sexual morphs are conclusively known for this genus.

Aurantiosacculus Dyko & B. Sutton, in Dyko et al., Mycologia 71(5): 922 (1979)

Two new *Aurantiosacculus* species (*A. acutatus* Crous & Summerell and *A. eucalyptorum* Crous & C. Mohammed) clustered in *Cryphonectriaceae* (Crous et al. 2012a). No sexual morph is known for this coelomycetous genus.

Auratiopycnidiella Crous & Summerell, in Crous et al., Persoonia, Mol. Phyl. Evol. Fungi 28: 69 (2012)

This genus has a unique set of morphological characteristics when compared to other genera of coelomycetous anamorphs treated by Sutton (1980). The genus may be distantly allied to *Melanconidaceae*, but is presently placed in *Diaporthales* genera *incertae sedis* (Crous et al. 2012d). No sexual morph is known for this monotypic genus.

Aurifilum Begoude et al., in Begoude et al., Antonie van Leeuwenhoek 98(3): 273 (2010)

The monotypic genus *Aurifilum* was introduced for *A. marmelostoma* Begoude et al., a species from bark of *Terminalia ivorensis* from the Cameroons (Begoude et al. 2010) and was placed in *Cryphonectriaceae* based on molecular data. It has several obvious characteristics that differ from other genera in *Cryphonectriaceae*, especially in the asexual morph. Conidiomata are broadly convex, and wider than similar structures of *Amphilogia* and *Rostraureum*. The presence of darkened ostiolar openings at the apex of the conidiomata is also unique to the taxon.

Australiasca Sivan. & Alcorn. Aust. Syst. Bot. 15(5): 741 (2002)

Sivanesan and Alcorn (2002) published this genus with *Australiasca queenslandica* Sivan. & Alcorn as the type species and with *Dischloridium camelliae* Alcorn & Sivan. asexual morph which is thus a synonym. This genus was transferred from *Chaetosphaeriaceae* to *Australiascaceae* by Réblová et al. (2011a) based on molecular data.

Australiascaceae Réblová & W. Gams, in Réblová et al., Stud. Mycol. 68(1): 171 (2011)

The family *Australiascaceae* was introduced based on LSU, and a combined dataset of LSU, SSU and RPB2 and was placed in the *Glomerellales* (Réblová et al. 2011a). The family includes the sexual genus *Australiasca* and asexual genus *Monilochaetes*. Currently, the family comprises *Australiasca queenslandica* Sivan. & Alcorn, *A. laeënsis* Réblová & W. Gams, *Monilochaetes infuscans* Harter and *M. guadalcanalensis* (Matsush.) I.H. Rong & W. Gams. *It* accommodates species with a sexual morph that is similar to *Chaetosphaeria* with indistinguishable perithecia. The asexual morphs are phialidic dematiaceous and hyphomycetous, which are also similar to the asexual morphs of *Chaetosphaeria*.

Baipadisphaeria Pinruan, in Pinruan et al., Mycosphere 1: 58 (2011)

Pinruan et al. (2010) introduced this monotypic genus, with *B. spathulospora* Pinruan et al. as its type, based on a collection from Thailand in a peat swamp forest on a submerged woody trunk of *Licuala longicalycata*. Phylogenetic analyses of LSU and SSU rDNA sequence data reveal that the genus belongs in the *Nectriaceae* (*Hypocreales*). where it forms a sister clade with *Leuconectria*.

Bagadiella Cheew. & Crous, Persoonia 23: 59 (2009)

Cheewangkoon et al. (2009) introduced this hyphomycetous genus with *B. lanata* Cheew. & Crous as its type. Currently this genus has three species and the sexual morph is unknown. *Bagadiella* is similar to *Cladorrhinum* (*Lasiosphaeriaceae*) in having pigmented hyphae and pustular-like aggregations of conidiophores. Based on LSU sequence data, the status of this new genus is supported and referred to *Diaporthales* genera *incertae sedis*.

Bambusicularia Klaubauf et al., Stud. Mycol. 79: 105 (2014)

Bambusicularia is a monotypic genus of *Pyriculariaceae* recently introduced by Klaubauf et al. (2014) to accommodate the plant pathogenic *B. brunnea* Klaubauf et al. which was isolated from *Sasa* sp. in Japan. It differs from *Pyricularia* in conidiophore morphology and phylogeny based on LSU, ITS, RPB1, ACT and CAL sequence data (Klaubauf et al. 2014).

Barretomyces Klaubauf et al., Stud. Mycol. 79: 105 (2014)

Based on sequence analysis of LSU, ITS, RPB1, actin and calmodulin genes, Klaubauf et al. (2014) introduced this monotypic genus, assigned to *Pyriculariaceae* for *Barretomyces calatheae* (D.J. Soares et al.) Klaubauf et al., a foliar pathogen of *Calathea longifolia* from Brazil (Soares et al. 2011).

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

Bartalinia is a coelomycetous anamorph genus which accommodates species having conidia with either three or four septa (Marincowitz et al. 2010). The taxonomic revision of Andrianova and Minter (2007) provided a key to ten *Bartalinia* species. Marincowitz et al. (2010) introduced *B. pondoensis* Marinc. et al., which was isolated from South Africa from living leaves of *Maytenus abbottii.* An epitype was designated for the type species *B. robillardoides* Tassi which showed the genus to belong in *Amphisphaeriaceae*.

Bathyascus Kohlm., Revue de Mycologie 41(2): 190 (1977)

Genus with no known asexual morph. Although generally referred to the *Halosphaeriaceae*, preliminary molecular results indicate it has no affinity with taxa in this family (Jones et al. 2006). Further collections of the five *Bathyascus* species are required for isolation and sequencing.

Bertiaceae Smyk, Ukr. bot. Zh. 38(6): 47 (1981)

Mugambi and Huhndorf (2010) revisited the order *Coronophorales* with DNA sequence data and showed *Bertiaceae* to be monophyletic. *Bertiaceae* was expanded to include *Gaillardiella* and *Bertia didyma* (Speg.) Mugambi & Huhndorf (Mugambi and Huhndorf 2010).

Biciliospora Petr., Sydowia 6(5–6): 429 (1952)

See under ***Scortechiniaceae.***

Biconiosporella Schaumann, Veröff. Inst. Meeresforsch. Bremerhaven 14: 24 (1972)

The genus *Biconiosporella* was referred to the *Lasiosphaeriaceae* based on morphological observations, but requiring sequence data to confirm its assignment to the family (Jones et al. 2009b).

Biflua Jørg. Koch & E.B.G. Jones, Can. J. Bot. 67: 1187 (1989)

Monotypic marine genus based on morphological observations, requiring study at the molecular level (Jones et al. 2009b) and referred to *Ascomycota* genera *incertae sedis*. It grows on wood associated with sand.

Bionectriaceae Samuels & Rossman, Stud. Mycol. 42: 15 (1999)

Rossman et al. (2013) suggested that *Bionectriaceae* which has been frequently cited, be retained over *Spicariaceae* 1934 which has rarely been cited. They suggested protecting *Bionectriaceae*, despite the synonymy of *Bionectria* and *Clonostachys* (syn. *Spicaria*), and maintaining use of the younger name.

Biscogniauxia Kuntze, Revis. gen. pl. (Leipzig) 2: 398 (1891)

Biscogniauxia Kuntze includes xylariaceous taxa with bipartite stromata that do not release KOH extractable pigments (Ju et al. 1998). Their asexual morphs in culture are usually considered as a variation of nodulisporium-like to periconiella-like (Stadler et al. 2013). Molecular studies, mainly based on ITS and protein coding genes (Hsieh et al. 2005; Stadler et al. 2013, 2014), place *Biscogniauxia* as a basal lineage to other xylariaceous taxa.

Bisifusarium Lombard et al., in Lombard et al., Stud. Mycol. 80: 223 (2015)

This genus is introduced by Lombard et al. (2015), typified by *B. dimerum* (Penz.) L. Lombard & Crous, to include fusarium-like species previously classified in the genus *Fusarium*. Species of *Bisifusarium* can be differentiated from species in *Fusarium* by their short, (0–) 1–2(−3)-septate macroconidia and the formation of lateral phialidic pegs arising from the hyphae. Phylogenetic studies revealed that *Bisifusarium* is closely related to *Fusarium* in *Nectriaceae*, but distinct from the *Fusarium* clade.

Bleptosporium Steyaert, Darwiniana 12: 171 (1961)

Bleptosporium includes two species, the generic type *B. montteae* Speg. ex Steyaert and *B. pleurochaetum* (Speg.) B. Sutton. The asexual *Bleptosporium* has been linked to *Amphisphaeria* and *Discostroma* (Hyde et al. 2011, Index Fungorum 2015), but these links have not been proven by molecular data. Both names should be retained pending fresh collection and molecular study.

Boliniaceae Rick, Brotéria, sér. bot. 25: 65 (1931)

The family was emended by Untereiner et al. (2013) based on molecular data and includes the genera *Apiocamarops*, *Apiorhynchostoma*, *Camarops*, *Camaropella*, *Cornipulvina*, *Endoxyla*, *Mollicamarops*, *Neohypodiscus* and *Pseudovalsaria*. A key to genera was also provided.

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

Broomella species are distinct in having ellipsoid-fusiform, inequilaterally curved, triseptate ascospores with central brown cells and hyaline end cells, with a single appendage at each end (Kang et al. 1999a). Many species in this genus were initially linked to *Pestalotia* asexual morphs (Shoemaker and Müller 1963). Based on the conidial forms, Steyaert (1949) split *Pestalotia* into three genera, namely *Pestalotia*, *Pestalotiopsis* and *Truncatella* (4-celled conidia). However Nag Raj (1985, 1993) preferred to adopt a broader concept for *Pestalotiopsis* to include 3-septate conidial forms. *Pestalotiopsis besseyi* (Guba) Nag Raj, *P. casuarinae* (Cooke & Massee) Nag Raj, *P. citrina* (McAlpine) Nag Raj, *P. eupyrena* (Tassi) Nag Raj, *P. gastrolobi* (Tassi) Nag Raj, *P. jacksoniae* (Henn.) Nag Raj, *P. moorei* (Harkn.) Nag Raj, *P. pestalozzioides* (Dearn. & Fairm.) Nag Raj, *P. puyae* (Henn.) Nag Raj, *P. stevensoniii* stevensonii (Peck) Nag Raj and *P. torrendiii* (J.V. Almeida & Sousa da Câmara) Nag Raj are 3-celled conidial forms that Nag Raj (1993) placed in *Pestalotiopsis*, but which actually belong in *Truncatella* (Maharachchikumbura et al. 2014). LSU sequence data reveal that *Truncatella* is a distinct genus in the family *Amphisphaeriaceae* (Jeewon et al. 2002; Barber et al. 2011; Maharachchikumbura et al. 2014).

Brunneiperidium Daranagama et al., Fungal Diversity (in press) (2015)

Brunneiperidium was introduced as a new genus to accommodate two new species *B. gracilentum* Daranagama et al. (type species) and *B. involucratum* Daranagama et al. (Daranagama et al. 2015). Phylogenetic analysis places these species within the xylarioid clade comprising *Xylaria* and *Kretzschmaria*. The genus has morphological similarities with *Nipicola*, however the phylogenetic relationship of *Brunneiperidium* and *Nipicola* could not be evaluated due to the lack of cultures of the latter.

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

Crous et al. (2012b) studied *Dinemasporium* and related genera and showed species with tightly aggregated conidiogenous cells and pale brown conidia belong in the monotypic genus *Brunneodinemasporium*. They placed the genus in *Chaetosphaeriaceae* with *B. brasiliense* Crous & R.F. Castañeda as the type species.

Brunneosporella Ranghoo & K.D. Hyde, Mycol. Res. 105(5): 625 (2001)

This monotypic genus with *Brunneosporella aquatica* Ranghoo & K.D. Hyde as type species is known to be saprobic on wood in freshwater habitats. It was placed in *Annulatascaceae* based on the black ascomata, cylindrical asci with a refractive apical ring and brown uniseptate ascospores. Ranghoo et al. (1999) in their phylogenetic study showed that *Brunneosporella* (as *Ascobrunneispora*) clusters with *Annulatascus* in *Annulatascaceae*. Réblová et al. (2015) showed that *Brunneosporella* clusters in the family *Papulosaceae* in phylogenetic analyses.

Bryocentria Döbbeler, Mycol. Progr. 3(3): 247 (2004)

Stenroos et al. (2010) obtained sequence data for this genus and showed it belongs in *Bionectriaceae.* The generic type, *B. brongniartii* Döbbeler, is a frequent biotrophic and host-specific leaf perforator of *Frullania dilatata.* Currently seven species are assigned to the genus (Index Fungorum 2015).

Bullimyces A. Ferrer et al., Mycologia 104(4): 868 (2012)

This genus was introduced by Ferrer et al. (2012), with *Bullimyces communis* Ferrer et al. as the type species, based on a collection of submerged woody debris in freshwater. Molecular analysis showed the genus to belong in *Sordariomycetidae* genera *incertae sedis*.

Cainia Arx & E. Müll., Acta bot. neerl. 4(1): 111 (1955)

Krug (1977) revised the genus and introduced *Cainiaceae* to accommodate two species; the type species is *Cainia graminis* (Niessl) Arx & E. Müll. According to Kang et al. (1999b) another genus *Atrotorquata*, which is closely related to *Cainia* in their respective morphologies, did not infer any phylogenetic affinity with the *Amphisphaeriaceae* (sensu stricto), therefore the genus was excluded from this family. Kang et al. (1999b) pointed out that *Atrotorquata* morphologically resembles *Cainia*.

Calonectria De Not., Comm. Soc. crittog. Ital. 2(3): 477 (1867)

The asexual morph of the type species of *Calonectria, C. daldiniana* (= *C. pyrochroa* (Desm.) Sacc. 1878) is a species of *Cylindrocladium*. Rossman (1979) established the connection from a culture study. A decision is needed for the use between *Cylindrocladium* and *Calonectria. Calonectria* is the older name, a well-known pathogen and has more species epithets than *Cylindrocladium.* Crous et al. (2013) described two new species in *Calonectria* which only had *Cylindrocladium* asexual morphs.

Calosphaeria Tul. & C. Tul., Select. fung. carpol. (Paris) 2: 108 (1863)

Calosphaeria pulchella (Pers.) J. Schröt. was found to form a distinct acremonium-like asexual morph in culture, for which the monotypic genus *Calosphaeriophora* (*Calosphaeriophora pulchella* Réblová et al. as type) was proposed (Réblová et al. 2004). It causes almond die back in Iran and has an impact on the almond industry (Arzanlou and Dokhanchi 2013). *Calosphaeriophora* becomes a synonym of *Calosphaeria*.

Camillea Fr., Summa veg. Scand., Section Post. (Stockholm): 382 (1849)

The monotypic asexual genus *Masoniomyces* was introduced by Crane and Dumont (1975) and later synonymised with *Xylocladium. Masoniomyces claviformis* J.L. Crane & Dumont, the type, was then named as *Xylocladium claviforme* (J.L. Crane & Dumont) Arx which is currently in use. Jong and Rogers (1972) investigated the asexual morphs of the *Camillea* species from culture and later Rogers (1984) reported *C. broomeana* (Berk. & M.A. Curtis) Læssøe et al. to have a *Xylocladium* asexual morph. Læssøe et al. (1989) observed the development of a *Xylocladium* asexual morph in culture of *C. leprieurii* Mont., and therefore assigned the asexual genus *Xylocladium* to the sexual genus *Camillea.* Stadler et al. (2013) mentioned that the asexual morph *Xylocladium* should be synonymised under *Camillea.*

Canalisporium (Hol.-Jech. & Mercado) Nawawi & Kuthub., Mycotaxon 34(2): 479 (1989)

This genus was introduced by Nawawi and Kuthubutheen (1989) to accommodate the type species *Canalisporium caribense* (Hol.-Jech. & Mercado) Nawawi & Kuthub., a freshwater hyphomycetous anamorph growing on wood. A combined analysis of partial 18S, 28S rDNA and internal transcribed spacer 5.8S region showed that seven *Canalisporium* species formed a highly supported monophyletic clade in the *Hypocreomycetidae* with *Ascothailandia*, a sexual morph genus. *Ascothailandia* had been introduced to accommodate a freshwater taxon, *Ascothailandia grenadoidia* Sri-indr. et al., collected in Thailand (Sri-indrasutdhi et al. 2010). Ascospore isolates produced the *Canalisporium grenadoidium* Sri-indrasutdhi et al. asexual morph in culture. Thus *Ascothailandia*, which is a recent name, becomes a synonym of *Canalisporium.* Subsequently, the genus *Canalisporium* was referred to the order *Savoryellales* (Boonyuen et al. 2011).

Cancellidium Tubaki, Trans. Mycol. Soc. Japan 16(4): 357 (1975)

Cancellidium applanatum Tubaki is the type species of the genus *Cancellidium.* Based on a combined analysis of ITS and LSU sequences, *Cancellidium* lies in *Sordariomycetes* genera, *incertae sedis* (Pratibha et al. 2014).

Carbosphaerella I. Schmidt, Feddes Repert. 80: 108 (1969)

The genus well-placed at the morphological and molecular level in the family *Halosphaeriaceae* (Sakayaroj et al. 2011a); no asexual morph is known. Molecular data indicates the genus has affinities with the genus *Remispora* (Sakayaroj et al. 2011a).

Carpoligna F.A. Fernández & Huhndorf, in Fernández et al., Mycologia 91(2): 253 (1999)

The genus *Carpoligena* was introduced by Fernández et al. (1999) based on characters of the asexual morph and the analysis of ribosomal DNA data. The characteristics of ascomata and ascospores of the sexual morph resemble typical *Chaetosphaeria* species, however, the asexual morphs are readily distinguished by the typical phialidic conidiophores in *Chaetosphaeria* species (Fernández et al. 1999). Fernández et al. (1999) noted a high degree of DNA divergence between *Carpoligena* and taxa belonging to the orders, *Diaporthales, Hypocreales, Microascales* and *Sordariales.*

Ceratocystidaceae Locq. ex Réblová, W. Gams & Seifert, Stud. Mycol. 68(1): 188 (2011)

The name *Ceratocystidaceae* (as "*Ceratocystaceae*") was proposed by Locquin (1972), but was not validly published. This was rectified in Réblová et al. (2011a, b) with phylogenetic data and a recent treatment was provided by De Beer et al. (2014). The family *Ceratocystidaceae* formed a strongly supported monophyletic group consisting of *Ceratocystis*, *Cornuvesica*, *Thielaviopsis* and the type species of *Ambrosiella* (*Ambrosiella xylebori* Brader ex Arx & Hennebert) and is placed in the order *Microascales* based on molecular data (Réblová et al. 2011a, b). De Beer et al. (2014) treated and accepted *Ambrosiella*, *Ceratocystis*, *Chalaropsis*, *Davidsoniella* (a newly introduced genus), *Endoconidiophora*, *Huntiella* (a newly introduced genus) and *Thielaviopsis* in the family. They excluded *Cornuvesica*, but did not mention which family it should be placed; here we refer it to *Microascales* genera *incertae sedis*.

Ceratolenta Réblová, Mycologia 105(2): 466 (2013)

Réblová (2013a) described this new genus with a single species *Ceratolenta caudata* Réblová based on morphology and phylogenetic analyses. Phylogenetic analyses of combined genes of this wood-inhabiting taxon indicated that this species belongs in a separate monophyletic branch (100/1.0) without close relationship to other morphologically similar fungi of the *Sordariomycetidae*.

Ceriosporopsis Linder, Farlowia 1: 408 (1945)

Genus well-placed at the morphological and molecular level in the family *Halosphaeriaceae*, with no documented asexual morph, except it does produce profuse chlamydospores on wood and in culture (Jones et al. 2009a, b). *Ceriosporopsis* species form a well-supported clade that has affinities with *Oceanitis* (Sakayaroj et al. 2011a; Pang et al. 2012). Based on molecular data the genus *Bovicornua* is reduced to synonymy with *Ceriosporopsis* (Sakayaroj et al. 2011a).

Chaetoconis Clem., Gen. fung. (Minneapolis): 125, 176 (1909)

Chaetoconis is a coelomycetous anamorph proposed to accommodate *Kellermania polygoni*, which is a segregate of *Kellermania* (Nag Raj 1993). Presently there are two species, *Chaetoconis polygoni* (Ellis & Everh.) Clem. and *C. vaccinii* Melnik & Nag Raj. De Gruyter et al. (2009) placed the type species, *C. polygoni*, in *Diaporthales* genera *incertae sedis* based on sequence analysis.

Chaetorostrum Zelski et al., Mycosphere 2(5): 594 (2011)

This monotypic genus was introduced for *Chaetorostrum quincemilensis* Zelski et al., collected on woody debris from streams in a lower montaine cloud forest in Peru. The taxon also produces a taeniolella-like asexual morph in culture, which is a first record of an asexual morph in *Annulatascaceae*, however, the placement of this genus was confirmed only by morphology and thus placed in *Annulatascaceae* sensu *lato* (Zelski et al. 2011a). This genus can be compared to *Ascotaiwania*, which was recently placed in *Savoryellales* (Boonyuen et al. 2011).

Chaetosphaerellaceae Huhndorf et al., Mycol. Res. 108(12): 1387 (2004)

Mugambi and Huhndorf (2010) revisited the order *Coronophorales* with DNA sequence data and showed *Chaetosphaerellaceae* to be monophyletic, composed of *Chaetosphaerella* and *Crassochaeta*.

Chamaeleomyces Sigler, J. Clin. Microbiol. 48(9): 3186 (2010)

Chamaeleomyces was introduced as a new monotypic genus for *C. granulomatis* Sigler, isolated from the liver *Chamaeleo calyptratus* collected from a zoo (Sigler et al. 2010). According to morphological studies and phylogenetic analyses of nuclear ribosomal rRNA (rDNA) the genus belongs in *Clavicipitaceae***.** *Paecilomyces viridis* was concurrently transferred to the genus as *Chamaeleomyces viridis* (Segretain et al.) Sigler (Sigler et al. 2010).

Chlorostroma A.N. Mill. et al., Sydowia 59(1): 142 (2007)

Chlorostroma was introduced by Miller et al. (2007) as a monotypic new genus for *C. subcubisporum* A.N. Mill. et al.. This taxon was first collected inhabiting the stromata of *Hypoxylon perforatum* (Schwein.) Fr. in the USA and resembles *Thuemenella cubispora* (Ellis & Holw.) Boedijn in stromatal morphology. Thus, the genus was placed in *Xylariaceae* by Miller et al. (2007). Læssøe et al. (2010) detected a lepraric acid derivative in the type specimen. *Chlorostroma cyaninum* Læssøe et al. was described from Thailand and has the same metabolite profile as *Hypoxylon aeruginosum* J.H. Mill. suggesting therefore concluded that *Chlorostroma* and *Hypoxylon aeruginosum* are closely related Læssøe et al. (2010). However, the taxonomic conclusion is not yet established because cultures to study the asexual morphology, secondary metabolites and molecular phylogeny are lacking (Læssøe et al. 2010).

Chromendothia Lar.N. Vassiljeva, Mikol. Fitopatol. 27(4): 5 (1993)

This monotypic genus was introduced by Vasilyeva (1993) for *C. appendiculata* Lar.N. Vassiljeva. In the present study *C. citrina* Lar.N. Vassiljeva clusters in *Cryphonectriaceae* (Fig. 2).

Chrysocrypta Crous & Summerell, in Crous et al., Persoonia, Mol. Phyl. Evol. Fungi 28: 165 (2012)

This monotypic genus was introduced for a foliar pathogen of *Corymbia* sp. and is coelomycetous. Crous et al. (2012c) placed it in the *Cryphonectriaceae*.

Chrysoporthe Gryzenh. & M.J. Wingf., Stud. Mycol. 50(1): 129 (2004)

The genus *Chrysoporthella* is typified by *C. hodgesiana* Gryzenh. & M.J. Wingf., and *Chrysoporthe* is typified by *C. cubensis* (Bruner) Gryzenh. & M.J. Wingf. *Chrysoporthella hodgesiana* is recognized as a species of *Chrysoporthe* based on ITS and β-tubulin data (Gryzenhout et al. 2004). Phylogenetic analysis showed *C. austroafricana* Gryzenh. & M.J. Wingf., *C. cubensis*, *C. doradensis* Gryzenh. & M.J. Wingf. and *Chrysoporthella hodgesiana* grouped together as a single genus (Gryzenhout et al. 2004). *Chrysoporthe* (asexual morph *Conoideocrella*) is the most commonly used name and therefore *Chrysoporthella* should be considered a synonym.

Cirrenalia Meyers & R.T. Moore, Am. J. Bot. 47: 346 (1960)

A genus in *Halosphaeriaceae* supported by molecular data (Abdel-Wahab et al. (2010) with *C. macrocephala* (Kohlm.) Meyers & R.T. Moore as the type species, although the strain sequenced was not ex-type. However, the genus is polyphyletic with a sexual morph in *Juncigera* (*Microascales*; *Juncigenaceae*), and putative assignments of new genera in *Lulworthiales* (*Hydea* = *Cirrenalia pygmea* Kohlm.; *Halazoon melhae* Abdel-Aziz et al., *H. fuscus* (I. Schmidt) Abdel-Wahab et al., Abdel-Aziz & E.B.G. Jones; *Moleospora maritima* Abdel-Wahab et al., *Matsusporium tropicale* (Kohlm.) E.B.G. Jones & K.L. Pang = *Cirrenalia tropicalis* Kohlm.) and *Pleosporales* (*Hiogispora* = *Cirrenalia japonica* Sugiy.) (Abdel-Wahab et al. 2010), based on molecular data.

Cladobotryum Nees, Syst. Pilze (Würzburg): 56 (1816) [1816–17]
See under *Hypomyces*.

Clavatospora Sv. Nilsson ex Marvanová & Sv Nilsson, Trans. Br. Mycol. Soc. 57: 531 (1971)

A polyphyletic genus with species in *Halosphaeriaceae* (*C. bulbosa* (Anastasiou) Nakagiri & Tubaki) and *Leotiaceae* (*C. flagellate* J. Gönczöl). *Clavatospora bulbosa* (= *Clavariopsis bulbosa* Anastasiou) was shown by culture techniques to be the asexual morph of *Corollospora pulchella* (Shearer and Crane 1971). Other species need to be sequenced to determine their phylogenetic position. The type species *Clavatospora longibrachiata* (Ingold) Sv. Nilsson ex Marvanová & Sv. Nilsson, clusters in *Halosphaeriaceae* (Duarte et al. 2015).

Clonostachys Corda, Pracht-Fl. Eur. Schimmelbild.: 31 (1839)

Schroers (2001) reported a possible link between *Clonostachys* and *Bionectria*, which have consistently been considered congeneric and this is followed in Rossman et al. (2013). Because the name *Clonostachys rosea* (the generic type) is commonly used in biocontrol studies, Rossman et al. (2013) proposed the protection of the older asexual morph-typified name *Clonostachys* for this genus.

Clypeoporthella Petr., Annls mycol. 22(1/2): 149 (1924)

Clypeoporthella is typified by *C. brencklei* Petr. which occurs on goldenrod (*Solidago*) in North America. This may be a synonym of *Diaporthe* but needs recollecting and sequencing.

Coccinonectria Lombard & Crous, in Lombard et al., Stud. Mycol. 80: 218 (2015)

The sexual genus *Coccinonectria* was established by Lombard et al. (2015) with *C. pachysandricola* (B.O. Dodge) L. Lombard & Crous as the type species. It is distinguished from *Pseudonectria* by its orange to scarlet ascomata with short, thick-walled setae extending from the ascomatal surface. Molecular analysis using combined data sets recognized *Coccinonectria* as a separate genus that is clearly distinct from the genus *Pseudonectria* (Lombard et al. 2015).

Codinaeopsis Morgan-Jones, Mycotaxon 4(1): 166 (1976)

Codinaea gonytrichoides Shearer & Crane was introduced by Shearer and Crane (1971), was selected as the type of the monotypic genus *Codinaeopsis* by Morgan-Jones (1976), a genus characterized by its encircling hyphae and conidiogenous cells with collarettes. Whitton et al. (2000) combined this species as *Dictyochaetopsis gonytrichoides*. Crous et al. (2012b) placed *Codinaeopsis* in the family *Chaetosphaeriaceae* based on the molecular data. In this study Crous et al. (2012b) is followed.

Colletotrichum Corda, in Sturm, Deutschl. Fl., 3 Abt. (Pilze Deutschl.) 3(12): 41, tab. 21 (1831)

This genus has been placed in *Glomerellaceae* by Réblová et al. (2011a, b), which is also confirmed in this study (Fig. 2). Significant changes in the understanding of *Colletotrichum* species took place following the outline given by Hyde et al. (2009a,

b) and recommendation for use of polyphasic approach for species identification (Cai et al. 2009). Incorporation of these approaches especially the use of multigene phylogenetic analysis, classification and knowledge of species complexes, as well as epitypification, contributed to the better understanding of the genus *Colletotrichum* (Cannon et al. 2008, 2012; Crouch 2014; Damm et al. 2012a, b, 2013; Doyle et al. 2013; Weir et al. 2012, Hyde et al. 2014). The epitypification of *C. gloeosporioides* (Penz.) Penz. & Sacc. (Cannon et al. 2008) was particularly important. Twenty-five *Colletotrichum* species have now been epitypified, while one has been neotypified, and three have been lectotypified (Damm et al. 2009, 2012a, b, 2013; Doyle et al. 2013; Liu et al. 2011, 2013; Su et al. 2011; Weir and Johnston 2010; Weir et al. 2012).

Cannon et al. (2012) incorporated six gene analyses for nearly all the presently sequenced species of this genus and at least nine clades were revealed. *Colletotrichum gloeosporioides* (Cannon et al. 2008; Phoulivong et al. 2010; Weir et al. 2012), *C. acutatum* J.H. Simmonds (Marcelino et al. 2008; Shivas and Tan 2009; Damm et al. 2012a), *C. boninense* Moriwaki (Moriwaki et al. 2003; Yang et al. 2009; Damm et al. 2012b), *C. destructivum* O'Gara (Damm et al. 2014), *C. orbiculare* Damm et al. (Damm et al. 2013) are well-resolved important species complexes among the nine clades. Damm et al. (2013) resolved *C. orbiculare* and introduced four new species, while Crouch (2014) introduced a new species complex as *C. caudatum* (Peck ex Sacc.) Peck with five new species found on warm-season grasses, characterized by spores with the apex extended to a filiform appendage. Further studies in the *C. gloeosporioides* species complex led to recognition of *C. citricola* (Huang et al. 2013), *C. dianesei* (Lima et al. 2013), *C. endomangiferae* (Vieira et al. 2014), *C. endophytica* (Manamgoda et al. 2013), *C. fructivorum* (Doyle et al. 2013), *C. melanocaulon* (Doyle et al. 2013), *C. murrayae* (Peng et al. 2012), *C. syzygicola* (Udayanga et al. 2013), *C. temperatum* (Doyle et al. 2013) and *C. viniferum* (Peng et al. 2013). Rakotoniriana et al. (2013) introduced a singleton species *C. gigasporum*, Tao et al. (2013) introduced seven new species; four species belonging to the graminicola clade, two species belonging to the Spaethianum clade and one singleton species. Yang et al. (2014) introduced a new species belonging to the Spaethianum clade named *C. incanum. Colletotrichum melanocaulon* was synonymized under *C. dianesei* (Vieira et al. 2014). Many recent studies used multi-gene phylogeny to understand the phylogenetic divergence of *Colletotrichum* species. Since it is an expensive procedure as well as time consuming, Silva et al. (2012) stressed the need to use 'powerful genes' such as *ApMat* and *Apn25L*. The *ApMat* marker provides a better resolution, similar to the multi-gene markers, and has been a better gene in resolving species within the *C. gloeosporioides* species complex (Doyle et al. 2013; Sharma et al. 2013; Hyde et al. 2014; Silva et al. 2012; Liu et al. 2015).

Von Schrenk and Spaulding (1903) proposed the name *Glomerella* as the sexual morph of *Colletotrichum* and this has been confirmed in cultural and molecular studies (Sutton 1968; Crouch et al. 2009). A single name, either *Colletotrichum* or *Glomerella,* has to be chosen to represent this taxon. Here we recommend the use of *Colletotrichum* because 1) the *Colletotrichum* name/asexual morph is commonly associated with disease symptoms, while many *Glomerella* sexual morphs tend to develop on dead host tissues (Sutton 1992) and thus are understudied in comparison to the asexual morphs (Cannon et al. 2012). 2) A comprehensive monograph on *Colletotrichum* (von Arx 1957) and notes on species (Hyde et al. 2009b) has been published, while a comprehensive monograph for is not available. 3) There has been little morphology based comparison of sexual taxa and many claimed asexual-sexual links are not based on authentic/type material. 4) In most cases the sexual names are not typified according to modern practices (Cannon et al. 2012). 5) There are no reliable reports of sexual morph from any taxon within the truncatum clade (Cannon et al. 2012). Further, in the graminicola clade some individual species such as *C. falcatum,* and *C. graminicola* are known to produce sexual morphs, but other groups seem to form the sexual morph rarely or apparently not at all (Crouch and Beirn 2009; Cannon et al. 2012). 6) *Colletotrichum* has many more species epithets (772) than *Glomerella* (100) and is also the older generic name. 7) The number of Google scholar hits of *Colletotrichum* (60,700) is higher than *Glomerella* (13, 500). 8) *Colletotrichum* is a well-established name in the plant pathological and plant breeder community (Cannon et al. 2012; Hyde et al. 2009a).

Hyde et al. (2009a, b) suggested the adoption of the generic name *Colletotrichum* in future revisions and this has been followed in most subsequent studies (Cannon et al. 2012; Hyde et al. 2014).

Collodiscula I. Hino & Katum., Bull. Faculty of Agriculture, Yamaguchi University 6: 55 (1955)

Collodiscula japonica I. Hino & Katum. is the type species of this monotypic genus. Samuels et al. (1987) observed several specimens that were associated with a conidiomatal fungus that is morphologically similar to the ascomatal initial of *C. japonica.* This morphological similarity was then confirmed by isolation of ascospores of *C. japonica* and the conidia of the asexual morph and observing that the cultures formed from both morphs were identical. They were unable to place this new asexual morph in any of the described genera and proposed *Acanthodochium* to accommodate *A. collodisculae* Samuels et al. Based on priority *Acanthodochium* should be regarded as a synonym *Collodiscula* I. Hino & Katum. (Jaklitsch and Voglmayr 2012; Stadler et al. 2013).

Coniocessiaceae Asgari & Zare, Mycol. Progr. 10(2): 195 (2011)

This family was introduced by Asgari and Zare (2011) and placed in *Xylariales* and comprises a single genus, *Coniocessia*, with its type species *C. nodulisporioides* (D. Hawksw.) Dania García et al. forming with a nodulisporium-like asexual morph. Four new species were added by Asgari and Zare (2011).

Coniolariella Dania García et al., Mycol. Res. 110(11): 1285 (2006)

Coniolariella was introduced by Dania García et al. (2006) with *C. gamsii* (Asgari and Zare) Dania García et al. as the type species. Phylogenetic analysis placed *Coniolariella* within the *Xylariales* and its close relationship with rosellinia-like genera (Checa et al. 2008) and was placed in *Xylariaceae* in Stadler et al. (2013). *Coniolariella hispanica* Checa, Arenal & J.D. Rogers and *C. limoniispora* var. *limoniispora* (Ellis & Everh.) Checa et al. have sporothrix-or geniculosporium-like asexual morphs associated with stromata at different stages.

Conioscypha Höhn., Annls mycol. 2(1): 58 (1904)

Conioscypha comprises eight terrestrial and freshwater species found on decayed wood, leaves or bamboo stems and also from skin scrapings and hair of living animals (Shearer 1973; Matsushima 1980, 1993, 1996). Réblová et al. (2004) introduced *Conioscyphascus* as the sexual morph of *Conioscypha*. Phylogenetic analyses confirmed a close relationship of *Conioscypha* with *Ascotaiwania* and *Carpoligna* (*Savoryellales*), but the family and order relationships remain uncertain. The genus is therefore placed in *Savoryellales* genera *incertae sedis*.

Conlarium F. Liu & L. Cai, Mycologia 104(5): 1180 (2012)

Liu and Cai (2012) described this genus with a single species – *Conlarium duplumascospora* F. Liu & L. Cai based on morphology and molecular analyses. It was collected from submerged wood in Guangdong Province, China. The genus was considered unique among genera in *Annulatascaceae* sensu *lato* because of its unusual combination of morphological characters. Phylogenetic analysis also indicated that *Conlarium* has affinities with members in *Annulatascaceae* sensu *lato*, but the genus could not be included in any existing genera.

The taxon is placed in *Sordariomycetidae* genera *incertae sedis* here.

Corallicola Volkm.-Kohlm. & Kohlm., Mycotaxon 44(2): 418 (1992)

A monotypic genus of *Halosphaeriaceae* that was established by Volkmann-Kohlmeyer and Kohlmeyer (1992) to accommodate the marine fungus, *Corallicola nana* Volkm.-Kohlm. & Kohlm. The placement of the genus in the *Halosphaeriaceae* has not been confirmed at the molecular level (Jones et al. 2009a). No asexual morph is known. It can easily be confused with *Arenariomyces* but differs in the centrum pseudoparenchyma in lacking pit connections, ascospore appendages that do not terminate in a spade-like structure and the fact that it has only been found on dead coral (Volkmann-Kohlmeyer and Kohlmeyer 1992).

Corallomycetella Henn., Hedwigia 43: 245 (1904)

This genus was revisited by Herrera et al. (2013a) and shown to comprise two distinct well-separated clades in *Nectriaceae*. *Corallomycetella* sensu stricto represented two species, *C. elegans* (Berk. & M.A. Curtis) C. Herrera & P. Chaverri and *C. repens* (Berk. & Broome) Rossman & Samuels while *C. jatrophae* (Möller) Rossman & Samuels was placed in a new genus, *Corallonectria*, as *C. jatrophae* (Möller) C. Herrera & P. Chaverri.

Cordana Preuss, Linnaea 24: 129 (1851)

Porosphaerella cordanophora E. Müll. & Samuels (generic type) was isolated in vitro and produced a *Cordana pauciseptata* Preuss (generic type) asexual morph in culture (Müller and Samuels 1982). *Cordana* is the older generic name and *Porosphaerella* is therefore a synonym. The biological link between *Porosphaerella borinquensis* F.A. Fernández & Huhndorf and *Pseudobotrytis terrestris* (Timonin) Subram. was proven by in vitro culture of ascospores (Fernández and Huhndorf 2004; Müller and Samuels 1982). *Cordana* belongs to the family *Cordanaceae* and based on sequence analysis, Hernández-Restrepo et al. (2015) recognized *Cordanaceae* is distinct at ordinal level established *Cordanales*.

Corollospora Werderm., Notizbl. Bot. Mus. Berlin-Dahlem 8: 248 (1922)

A monotypic genus of *Halosphaeriaceae* that was established by Werdermann (1922) to accommodate *C. maritima* Werderm. Molecular studies showed that the genus is monophyletic and formed a moderately supported clade within *Halosphaeriaceae* (Campbell et al. 2002; Abdel-Wahab et al. 2009; Sakayaroj et al. 2011b). *Corollospora* is currently the most speciose genus in marine habitats with 23 species. The most distinctive feature of *Corollospora* species is their apical and equatorial ribbon-like secondary appendages, which are formed by the fragmentation and peeling off of the exospore layer and their associations with sand grains. They have asexual morphs in species of *Clavatospora*, *Halosigmoidea* and *Varicosporina* (Jones et al. 2009b). *Halosigmoidea* was introduced to accommodate three marine hyphomycetous asexual morphs that did not group with the type species of *Sigmoidea* J.L. Crane (type *S. prolifera* (R.H. Petersen) J.L. Crane); *Corollospora* has priority and is the accepted name.

Coronophoraceae Höhn., Sber. Akad. Wiss. Wien, Math.-naturw. Kl., Abt. 1 116: 624 (1907)

Mugambi and Huhndorf (2010) revisited the order *Coronophorales* using DNA sequence data and showed *Coronophoraceae* to be monophyletic.

Cosmospora Rabenh., Hedwigia 2: 59 (1862)

Gräfenhan et al. (2011) treated *Cosmospora* in a narrow sense, limiting it to a clade including the type, *C. coccinea* Rabenh., which have acremonium-like asexual morphs and tend to occur on other fungi. Thus possible synonyms such as *Mariannaea* and *Volutella* are recognised.

Cryptometrion Gryzenh. & M.J. Wingf., Australas. Pl. Path. 39(2): 166 (2010)

This monotypic genus was introduced for *Cryptometrion aestuescens* Gryzenh. & M.J. Wingf. (Gryzenhout et al. 2010) from bark of *Eucalyptus grandis* collected in Sumatra. It closely related to *Cryphonectria*, *Microthia* and *Holocryphia* and could be difficult to differentiate morphologically from species in these genera. However, species of *Cryptometrion* can be distinguished based on a combination of characteristics of the stromata, the presence or absence of paraphyses and ascospore septation. The morphology is similar to species in *Cryphonectriaceae* with orange, globose to pulvinate conidiomata, and colour and shape of ascospores and conidia (Gryzenhout et al. 2005). ITS and β tubulin data shows that this fungus forms a distinct clade in the family *Cryphonectriaceae* (Gryzenhout et al. 2006).

Cryptosphaerella Sacc., Syll. fung. (Abellini) 1: 186 (1882)

See under *Scortechiniaceae.*

Cucullosporella K.D. Hyde & E.B.G. Jones, Bot. Mar. 29(6): 491 (1986)

A monotypic genus of *Halosphaeriaceae* that was introduced by Hyde and Jones (1986) to accommodate the marine fungus, *C. mangrovei* K.D. Hyde & E.B.G. Jones. Molecular phylogenetic analyses of the LSU rDNA showed that *C. mangrovei* has affinity with *Aniptodera longispora* K.D. Hyde and *Antennospora quadricornuata* (Jones et al. 2009b). No asexual morph is known (Hyde and Jones 1986).

Cumulospora I. Schmidt, Mycotaxon 24: 420 (1985)

A monotypic asexual genus in the order *Lulworthiales*, forming a sister clade to three species of *Lulworthia* (sensu *lato*) with high statistical support (Abdel-Wahab et al. 2010). A second species, *C. varia* was transferred to a new genus *Moromyces* Abdel-Wahab et al. (Abdel-Wahab et al. 2010).

Cylindrocladiella Boesew., Can. J. Bot. 60(11): 2289 (1982)

The sexual morph-typified genus *Nectricladiella* was introduced with *N. camelliae* (Shipton) Crous & C.L. Schoch as the type species (Schoch et al. 2000). These genera are linked and Rossman et al. (2013) proposed that *Cylindrocladiella* should be used over *Nectricladiella*, which is followed here. The genus is placed in *Nectriaceae*.

Cylindrotrichum Bonord., Handb. Allgem. mykol. (Stuttgart): 88 (1851)

The genus *Reticulascus* (*Reticulascaceae*), which is similar to *Chaetosphaeria*, was introduced by Réblová et al. (2011a, b) based on multi-gene phylogenetic analysis and comprises two species; the type species is *R. tulasneorum* (Réblová & W. Gams) Réblová & W. Gams. The asexual morph is the generic type of *Cylindrotrichum*, *C. oligospermum* (Corda) Bonord., and thus *Cylindrotrichum* and *Reticulascus* should be treated as congeneric. *Cylindrotrichum* is the older name and should take priority, and this selection is recommend here.

Cytospora Ehrenb., Sylv. mycol. berol. (Berlin): 2 (1818)

Valseutypella and *Valsella* were synonymised under *Valsa*, a genus of *Valsaceae. Cytospora* is the asexual morph of these taxa and the most commonly used name and the name used in recent publications (Adams et al. 2005). We therefore use the older name *Cytospora* in this treatment, but the mycological community must decide which name should be used.

Daldinia Ces. & De Not., Comm. Soc. crittog. Ital. 1(4): 197 (1863)

Daldinia concentrica (Bolton) Ces. & De Not. (basionym *Sphaeria concentrica*) is the type species of this genus introduced by Cesati and De Notaris (1863) and incorporates xylariaceous fungi with conspicuous glomerate stromata with concentric zones. Several additional species of *Daldinia* were later introduced by Hennings (1898, 1901, 1902) and Lloyd (1919, 1924a). The first successful and accurate monograph on *Daldinia* was presented by Ju et al. (1997). The presence of specific secondary metabolites is a characteristic feature in this genus (Hellwig et al. 2005; Stadler and Hellwig 2005). Several chemical metabolites with biological activities have been detected from the stromata by analytical methods (Stadler and Hellwig 2005; Stadler et al. 2014). Recently Stadler et al. (2014) provided a world monograph using a polythetic approach to resolve the taxonomic positions and intergeneric affinities of *Daldinia* which confirms their placement in hypoxyloid *Xylariaceae.*

Annellosporium was introduced and typified by *A. nemorosum* M.L. Davey (Davey 2010). The genus was described based on morphology as well as rDNA ITS sequence data. Phylogenetic analysis placed *A. nemorosum* close to *Daldinia loculata* (Lév.) Sacc. The culture characteristics include common features with those of the *D. petriniae* Y.M. Ju et al. species complex (Stadler et al. 2014). *Daldinia* cultures from Canada were observed by Stadler et al. (2014) and the similarities in morphology with the *A. nemorosum* type strain, which were more reminiscent of *Daldinia* *loculatoides* Wollw. & M. Stadler, were reported. Thus, this newly introduced monotypic genus can be regarded as a synonym of *Daldinia* (Stadler et al. 2014). *Versiomyces* was introduced by Whalley and Watling (1988) and referred to superficially similar to *Daldinia*, but justified as a distinct genus because the type species, *Versiomyces cahuchucosus* Whalley & Watling, lacks concentric zonations. However, the authors themselves mentioned the close relationship with *Daldinia* regarding ascospore characters and size and regular shape of stromata. Stadler et al. (2014) modified the generic description of *Daldinia* sensu Ju et al. (1997) to accommodate azonate species and included *Versiomyces* as synonym.

Deightoniella S. Hughes, Mycol. Pap. 48: 27. 1952.

Deightoniella as presently defined is heterogeneous (Klaubauf et al. 2014). Klaubauf et al. (2014) based on analysis of combined sequence data derived from *D. Africana* (from occurring on leaves of *Imperata cylindrica* var. *africana*) placed *Deightoniella* in the *Pyriculariaceae.*

Dialonectria (Sacc.) Cooke, Grevillea 12(no. 63): 77, 109 (1884)

This genus was treated in a narrow sense around its type species *D. episphaeria* (Tode) Cooke by Gräfenhan et al. (2011) and belongs in *Nectriaceae.* A new species was introduced in Gräfenhan et al. (2011) but other species may be correctly referred to *Stylonectria* Höhn (1915).

Diaporthe Nitschke, Pyrenomyc. Germ. 2: 240 (1870)

With the need for a single scientific name for this pleomorphic genus, *Diaporthe* Nitschke (1870) has relative priority over *Phomopsis* (Sacc.) Bubák and Kabát (1905), being the older generic name (Wehmeyer 1933; Rossman et al. 2007; Wingfield et al. 2012). Nitschke (1870), established the genus *Diaporthe* based on the sexual morph, which is typified by *Diaporthe eres* Nitschke. Index Fungorum (2015) and MycoBank (Crous et al. 2004) list 901 and 913 names of *Diaporthe* and 984 and 1040 names of *Phomopsis* respectively; thus there is little difference in numbers of species epithets. *Diaporthe* is also the type of the *Diaporthaceae* and *Diaporthales* and this adds an extra strength to the argument for using this name. The only comprehensive monograph of the genus (Wehmeyer 1933), used the name *Diaporthe* which has been the taxonomic account followed by most mycologists. The arguments in favour of using *Diaporthe* against *Phomopsis* have been put forwarded in numerous publications (Santos and Phillips 2009; Santos et al. 2010; Udayanga et al. 2012; Wingfield et al. 2012; Gomes et al. 2013; Rossman et al. 2014; Udayanga et al. 2014a, b) and the taxonomy of the genus has progressed considerably in the last few years.

Arguments in favour of *Phomopsis* against *Diaporthe* have also been put forward. There are a relative greater number of applications of *Phomopsis* in the recent literature which can be seen in Google citations. Some field plant pathologists also prefer *Phomopsis*. However, most of the important phytopathogens are now linked to *Diaporthe* based on molecular data and there are no apparent problems in adopting this one name. Saccardo and Roumeguère (1884) defined *Phomopsis* as a group of *Phoma* species that could be separated by having beta conidia; he also recognised the link to the sexual morph *Diaporthe*. Bubák (1905) accepted Saccardo's concept of *Phomopsis* and transferred one species of *Phoma* (*Phoma lactucae*) to *Phomopsis*. He did not provide a generic description, but included a detailed description of a specimen collected in Tyrol. Later in the same year Saccardo raised *Phomopsis* to generic rank. Although Riedl and Wechtl (1981) formally proposed the retention of *Phomopsis* against *Myxolibertella* Hohnel (1903) with *P. lactucae* as the generic type, this has not been revisited in recent studies. However, a re-definition of the generic type of *Diaporthe*, *D. eres* Nitschke by Udayanga et al. (2014b), and in parallel, the proposal to conserve the name *D. eres* by Rossman et al. (2014) over its obscure synonyms will stabilise the use of the name. The limits of *Diaporthe* are now well-defined based on recent molecular data with respect to its type species and important phytopathogens (Udayanga et al. 2014b).

Until recently, host affiliated nomenclature has largely been applied in naming *Diaporthe* and *Phomopsis* species (Uecker 1988). The *Phomopsis* names are accumulated mostly in terms of gross morphology, resembling the conidial shapes, and some of them also later identified as *Phoma* like species (Udayanga et al. 2014a). Although the asexual *Phomopsis* morph is generally found in nature, and routinely isolated in plant pathological surveys, many of the important plant pathogens have also been linked to their *Diaporthe* names in modern treatments. Examples include *D. ampelina* (Berk. & M.A. Curtis) R.R. Gomes et al. (dead arm of grapes), *D. helianthi* Munt.-Cvetk. (sunflower canker), *D. citri* (citrus melanose), *D. longicolla* (Hobbs) J.M. Santos (soybean seed decay) and *D. vaccinii* Shear (blueberry cankers). Therefore it is practical to adopt in plant pathological studies *Diaporthe* names and it has been practiced in recent reports (Baumgartner et al. 2013; Elfar et al. 2013). Therefore we suggest using *Diaporthe* over *Phomopsis*, which will lead to resolution of nomenclatural problems in modern treatments largely based on molecular data and species epithets should be carefully selected (Rossman et al. 2013; Udayanga et al. 2014a).

Diatrypasimilis J.J. Zhou & Kohlm., in Chalkley et al., Mycologia 102(2): 432 (2010)

Chalkley et al. (2010) introduced this genus based on a culture that was isolated from decaying *Rhizophora* wood collected in Australian mangroves. Although the ribosomal DNA genes were sequenced and the fungus was characterized in culture, the authors did not fully describe the morphology of the fungus on natural substrates, apparently because of a lack of material. This species was recently collected on decayed wood in Saudi Arabia and fresh cultures established (Abdel-Wahab et al. 2014). LSU sequence data place this species in the *Diatrypaceae*.

Didymostilbe Henn., Hedwigia 41: 148 (1902)

Peethambara sundara Subram. & Bhat, the type species of *Peethambara*, has been linked to *Didymostilbe sundara* (Subram. & Bhat) Seifert by culture of single spores (Subramanian and Bhat 1978). Molecular studies also showed that *Didymostilbe echinofibrosa* (Finley) Rossman clustered together with *Peethambara sundara* in the *Bionectriaceae* (Rossman et al. 2001). The type of *Didymostilbe*, *D. coffeae* Henn., has however, not been linked to *Peethambara* and both names should therefore be retained pending further analysis.

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

Crous et al. (2012a) restudied the genus *Dinemasporium* and related genera with appendaged conidia and placed the genus in *Chaetosphaeriaceae* based on morphology and molecular data. They also epitypified the type speies, *D. strigosum* Lev., the type of this genus. *Brunneodinemasporium*, *Codinaeopsis*, *Dendrophoma*, *Dictyochaeta*, *Menispora*, *Pseudolachnea*, *Pyrigemmula*, *Thozetella* and *Zignoella* which also clustered in *Chaetosphaeriaceae*. Liu et al. (2015) introduced a new species, *D. nelliana* W.J. Li et al.

Diplococcium Grove, J. Bot., Lond. 23: 167 (1885)

Five *Helminthosphaeria* species have been associated with *Diplococcium* asexual morphs (Samuels et al. 1997; Réblová 1999a). However, the genus is polyphyletic and has included species having affinities with members of *Helotiales*, *Pleosporales* and *Venturiales*. The type species, *D. spicatum* Grove clusters within *Helotiales*, but the sequences are not from ex-type strains (Shenoy et al. 2010).

Discosia Lib., Pl. crypt. Arduenna, fasc. (Liège) 4: no. 346 (1837)

Molecular analysis of combined gene sequence data, showed *Discosia* was not monophyletic and separated into three distinct lineages, *Adisciso*, *Discosia* and *Immersidiscosia* (Tanaka et al. 2011).

Discosphaerina Höhn., Sber. Akad. Wiss. Wien, Math.-naturw. Kl., Abt. 1 126(4–5): 353 (1917)

The genus *Discosphaerina* was introduced by Von Höhnel (1917a, b) based on *D. discophora* Höhn. The placement of this genus is still confused as the unitunicate nature of *D. discophora* is unclear and some members of this genus have bitunicate asci (Sivanesan 1984a, b; Thambugala et al. 2014). Sivanesan (1984a, b) treated *Discosphaerina* in *Dothideaceae* (*Dothideales*) and some *Discosphaerina* species produce *Aureobasidium*, *Kabatia*, *Sarcophoma* and *Selenophoma* asexual morphs in culture (Sivanesan 1984a, b; Thambugala et al. 2014). Lumbsch and Huhndorf (2010) included *Discosphaerina* in *Hyponectriaceae*. The phylogenetic placement of *Discosphaerina* (= *Columnosphaeria fagi* (H.J. Huds.) M.E. Barr) was confirmed in *Dothideaceae* (*Dothideales*) (Schoch et al. 2006, 2009; Zalar et al. 2008; Thambugala et al. 2014). Thambugala et al. (2014) examined the types of *Discosphaerina* and *D. fagi* in order resolve this problem and suggested to place *Discosphaerina* in *Hyponectriaceae* based on its morphology. No molecular data is available in GenBank except for *Discosphaerina fagi*. Therefore, recollection, epitypification and molecular analysis are required to confirm the placement of *Discosphaerina* and its species.

Discostroma Clem., Gen. fung. (Minneapolis): 50, 173 (1909)

Species of *Discostroma* and *Seimatosporium* have been linked by molecular data (Tanaka et al. 2011), however the molecular links have not been proven for the types of either genera. Both names should therefore be retained pending fresh collections of the types and a molecular study.

Disculoides Crous et al., in Crous et al., Persoonia, Mol. Phyl. Evol. Fungi 28: 71 (2012)

The new coelomycetous genus has two species both causing leaf spots of *Eucalyptus*. Molecular data places this genus in *Diaporthales* genera *incertae sedis* (Crous et al. 2012d).

Diversimorbus S.F. Chen & Jol. Roux, Fungal Biology 117: 300 (2014)

Chen et al. (2013a) described this monotypic genus based on *D. metrosiderotis* S.F. Chen & Jol. Roux. Morphology and multi-gene phylogenetic analyses show it to group in the *Cryphonectriaceae* (Chen et al. 2014). It was observed on native *Metrosideros angustifolia* in Western Cape Province of South Africa and resembles a *Eucalyptus* pathogen. The species shares characteristics of taxa within *Cryphonectriaceae* in turning yellow in lactic acid and purple in 3 % KOH (Castlebury et al. 2002; Gryzenhout et al. 2009). In addition, isolates of the new genus had black conidiomata, which distinguishes it from most genera in the *Cryphonectriaceae* that have orange conidiomata (Gryzenhout et al. 2009, 2010; Begoude et al. 2010; Chen et al. 2011, 2012; Vermeulen et al. 2011). Genera in the *Cryphonectriaceae* with black conidiomata include *Aurapex*, *Celoporthe*, and *Chrysoporthe* (Gryzenhout et al. 2005, 2009; Nakabonge et al. 2006). Multi-gene phylogenetic analyses for this species also clearly represent a previously undescribed genus in *Cryphonectriaceae*.

Drechmeria W. Gams & H.-B. Jansson, Mycotaxon 22(1): 36 (1985)

This genus was introduced by Gams and Jansson (1985). In 2014, Quandt et al. showed in nematophagous subclade, the genus *Haptocillium* clusters together with *Drechmeria* and propose to protect older *Drechmeria* over *Haptocillium*.

Durotheca Læssøe et al., IMA Fungus 4(1): 62 (2013)

The genus *Durotheca* was introduced with *D. depressa* Læssøe & Srikitikulchai as the type species (Læssøe et al. 2013). Two further species described earlier in *Theissenia* were transferred as *D. comedens* (Ces.) Læssøe & Srikitik. and *D. rogersii* (Y.M. Ju & H.M. Hsieh) Læssøe & Srikitik. in the same study. This genus is characterized by bipartite carbonaceous stromata, erumpent through wood or bark, covered with white pruina. The asexual morph, where known, is reported as nodulisporium-like (Læssøe et al. 2013). A molecular phylogenetic study placed *Theissenia pyrenocrata* (Theiss.) Maubl. in a sister clade to isolates of *Durotheca* as a basal lineage. However, the phylogenetic placement within *Xylariaceae* in relation to either the subfamilies *Xylarioideae* or *Hypoxyloideae* is yet to be resolved (Læssøe et al. 2013).

Dyrithiopsis L. Cai et al., in Jeewon et al., Mycologia 95(5): 912 (2003)

Jeewon et al. (2003a) reported a new genus, *Dyrithiopsis* with an asexual morph, *Monochaetiopsis* (also a new genus) based on cultural studies. We propose to adopt the sexual typified name over the asexual typified.

Ebullia K.L. Pang, in Chu et al., Mycoscience 56: 40 (2015)

Chu et al. (2015) undertook a molecular reappraisal of *Nimbospora*, a genus with three marine species, including recent collections from Taiwan. The genus was shown to be polyphyletic with *Nimbospora octonae* Kohlm. distantly placed from the type species *N. effusa* and a second species *N. bipolaris*. Chu et al. (2015) therefore transferred *N. octonae* to the new genus *Ebullia* (*Halosphaeriaceae*) as *E. octonae* (Kohlm.) K.L. Pang. The genus has no known asexual morph.

Echinosphaeria A.N. Mill. & Huhndorf, Mycol. Res. 108(1): 29 (2004)

There are seven named species in the genus, but only the type, *Echinosphaeria canescens* (Pers.) A.N. Mill. & Huhndorf is represented by gene sequences (Miller et al. 2014) which places the genus in *Helminthosphaeriaceae*. Although *E. canescens* has been associated with *Endophragmiella* and *Selenosporella*-like synanamorphs (Hughes 1979; Sivanesan 1983), there is no molecular data to establish this connection.

Emericellopsis J.F.H. Beyma, Antonie van Leeuwenhoek 6: 264 (1940) [1939]

This genus was introduced by Beyma (1940), with *Emericellopsis terricola* J.F.H. Beyma as the type species, and placed in the *Bionectriaceae* (*Hypocreales*) and has both marine and terrestrial species (Rossman et al. 2001). *Emericellopsis terricola* clustered in a distinct clade within the *Sclerotigenum/Geosmithia*-clade in *Hypocreales* in Summerbell et al. (2011).

Engleromyces Henn., Bot. Jb. 28(3): 327 (1900)

Engleromyces (*Xylariaceae*) was introduced by Hennings (1900) for a single species, *E. goetzei* Henn.; the genus is characterized by massive, hard stromata (Whalley et al. 2010). Chinese collections, originally identified as *E. goetzei*, were later found to represent a second species, *E. sinensis* M.A. Whalley et al. (Whalley et al. 2010). *Engleromyces* produces cytochalasin D and 19, 20-epoxycytochalasin and a novel metabolite in *E. sinensis*, neoengleromycin, which is used for cancer treatments (Pedersen et al. 1980; Liu et al. 2002).

Equicapillimyces S.S.Y. Wong et al., Veterinary Microbiology 115(2–4): 406 (2012)

Wong et al. (2011) described this monotypic genus from brittle tail syndrome of horses, which causes weakening and breakage of the tail hairs; the type species is *E. hongkongensis* S.S.Y. Wong et al. Molecular studies showed that this taxon belongs in the *Ophiostomataceae*, however, in our analysis it belongs in *Lulworthiales*. This septate branching, hyaline mould, grows optimally at 30 C. Hyphae fill the core of infected hair shafts with short necked ascomata containing banana-shaped septate ascospores.

Erythrogloeum Petr., Sydowia 7(5–6): 378 (1953)

Crous et al. (2012d) recollected this genus from South and Central America where it causes leaf spots on *Hymenaea*. Molecular data placed the genus in *Diaporthales* genera *incertae sedis*. There are presently two species included in the genus (Index Fungorum 2015).

Escovopsis J.J. Muchovej & Della Lucia, Mycotaxon 37: 192 (1990)

The phylogenetic analyses of ITS and LSU by Augustin et al. (2013) demonstrate the monophyly of the genus *Escovopsis*, agreeing with other phylogenetic studies (Currie et al. 2003; Taerum et al. 2007). The type species *E. weberi* J.J. Muchovej & Della Lucia and other *Escovopsis* species cluster in the *Hypocreaceae*.

Escovopsioides H.C. Evans & J.O. Augustin, PLoS ONE 7(12): e51392, 6 (2013)

This genus was introduced by Augustin et al. (2013) based on *Escovopsioides nivea* H.C. Evans & J.O. Augustin isolated from the fungal garden of *Acromyrmex* (leaf cutting ants) in Brazil. In culture it produces a brush-like asexual morph with phialides on well-defined vesicles in culture. It differs from *Escovopsis* by the absence of pigmentation, the lageniform phialides produced on terminal and intercalary, globose vesicles, the hyaline, smooth conidia in long chains, as well as sequence data (Augustin et al. 2013). According to the phylogenetic analyses of ITS and LSU sequence data this genus belongs in *Hypocreaceae.*

Etheirophora Kohlm. & Volkm.-Kohlm., Mycol. Res. 92: 414 (1989)

A genus in the *Hypocreomycetidae* (order *incertae sedis*) (Jones et al. 2014), initially assigned to the *Sphaeriales* by Kohlmeyer and Volkmann-Kohlmeyer (1989) and to the *Halosphaeriales* by Hawksworth et al. (1995), and Kirk et al. (2001), and the TBM clade (*Hypocreomycetidae incertae sedis*) (Sakayaroj et al. 2005; Schoch et al. 2007).

Etheirophoraceae Rungjindamai et al., Cryptogamie Mycologie 35: 134 (2014)

This family was introduced to accommodate the genera: *Etheirophora* (*E. bijubata* Kohlm. & Volkm.-Kohlm., *E. blepharospora* (Kohlm. & E. Kohlm.) Kohlm. & Volkm.-Kohlm., *E. unijubata* Kohlm. & Volkm.-Kohlm.) and *Swampomyces* (*S. armeniacus* Kohlm. & Volkm.-Kohlm., *S. triseptatus* K.D. Hyde & Nakagiri), that grouped together in a well-supported clade based on LSU and SSU sequences (Jones et al. 2014). Further taxon sampling is required to determine its ordinal position within the *Hypocreomycetidae*.

Falcocladiaceae Somrithipol et al., Cryptogamie Mycologie 35: 134 (2014)

The family was introduced to accommodate four species of *Falcocladium*, that grouped with other taxa in *Hypocreomycetidae*, order *incertae sedis* (Jones et al. 2014), for which the order *Falcocladiales* is introduced in this paper.

Falcocladium S.F. Silveira et al., Mycotaxon 50: 447 (1994)

Falcocladium was introduced by Crous et al. (1994) with *F. multivesiculatum* S.F. Silveira et al. as the type species. Subsequently, three other species were described: *F. sphaeropedunculatum* Crous & Alfenas (Crous et al. 1997), *F. thailandicum* Crous & Himaman (Crous et al. 2007) and *F. turbinatum* Somrith. et al. (Somrithipol et al. 2007). This genus occurs on a wide range of substrata including *Eucalyptus grandis*, *E. camaldulensis* leaves, and leaf litter collected from tropical forests. The family *Falcocladiaceae* was recently introduced to accommodate the genus and *Falcocladiales* is introduced in this paper.

Fimetariella N. Lundq., Botaniska Notiser 117: 239 (1964)

A genus of *Lasiosphaeriaceae* with *Fimetariella rabenhorstii* N. Lundq. as the type species. Phylogenetically, based on LSU nrDNA and β-tubulin sequences, the type species groups on a long branch in a clade with significant support as a sister taxon to *Podospora appendiculata* (Auersw. ex Niessl) Niessl and *Cercophora scortea* (Cain) N. Lundq. (Kruys et al. 2015).

Fluminicola S.W. Wong et al., Fungal Diversity Res. Ser. 2: 190 (1999)

Wong et al. (1999) placed this genus in *Annulatascaceae* based on morphology. However, according to phylogenetic analyses using a combined LSU, SSU and RPB2 dataset *Fluminicola* clusters in the family *Papulosaceae* (Réblová 2013a).

Fluviatispora K.D. Hyde, Mycol. Res. 98(7): 720 (1994)

A genus of three species found growing on palm material in aquatic habitats, with no known asexual morph, and placed in the *Halosphaeriaceae*. However, molecular data are required to support this placement.

Frondicola K.D. Hyde, J. Linn. Soc., Bot. 110(2): 100 (1992)

A monotypic marine taxon based on morphological observations with no known asexual morph. *Frondicola* was introduced and placed in *Clypeosphaeriaceae* by Hyde (1992), while Lumbsch and Huhndorf placed it in *Annulatascaceae* and Jones et al. (2009b) placed it in *Hyponectriaceae*. Molecular data are required to establish its taxonomic position; Jones et al. (2009b) is followed here.

Fulvocentrum E.B.G. Jones & Abdel-Wahab, Cryptogamie Mycologie 35(2) 132 (2014)

The genus was introduced by Jones et al. (2014) to accommodate two species of *Swampomyces* that did not group with the type species (*S. armeniacus* Kohlm. & Volkm.-Kohlm.): *F. aegyptiacus* (Abdel-Wahab et al.) E.B.G. Jones & Abdel-Wahab and *F. clavatisporium* (Abdel-Wahab et al.) E.B.G. Jones & Abdel-Wahab. Both species are tropical marine taxa and are very common on intertidal wood of *Avicennia marina* in Red Sea mangroves, both on the Egyptian coast (Abdel-Wahab 2005) and from Arabian Gulf mangroves of the Saudi Arabia coast (Abdel-Wahab et al. 2014). The genus groups with high statistical support in the family *Juncigenaceae*, *Hypocreomycetidae* order *incertae sedis*, (Jones et al. 2014); it has no known asexual morph.

Funiliomyces Aptroot, Stud. Mycol. 50(2): 309 (2004)

The genus *Funiliomyces* contains a single species, *F. biseptatus* Aptroot, which was isolated from a *Bromeliaceae* leaf in Brazil and is characterized by the torpedo-shaped ascospores with two nearly central septa and one polar and one median appendage (Aptroot 2004). It is placed in *Amphisphaeriaceae* based on molecular data, grouping with *Rosellinia* and *Arecophila* in a moderately supported sister clade (Aptroot 2004), but further collections are required to confirm this position.

Fusarium Link, Mag. Gesell. naturf. Freunde, Berlin 3(1–2): 10 (1809)

Rossman et al. (2013) stated that there is no question that *Fusarium* and *Gibberella* are synonyms and proposed that *Gibberella* be suppressed in favour of *Fusarium*; this is followed here. *Fusarium* belongs in *Nectriaceae* and comprises several species complexes, not yet fully resolved (Hyde et al. 2014).

Geejayessia Schroers et al., in Schroers et al., Stud. Mycol. 68(1): 124 (2011)

This genus was introduced by Schroers et al. (2011) based on morphology and phylogenetic analysis and comprises five species, four transferred from *Nectria* sensu *lato*, and with *Geejayessia cicatricum* (Berk.) Schroers as the type species. Based on molecular studies the genus it is placed in *Nectriaceae*.

Gesasha Abdel-Wahab & Nagah., Nova Hedwigia 92(3–4): 501 (2011)

This is a genus of *Halosphaeriaceae* established by Abdel-Wahab and Nagahama (2011) to accommodate three marine species and is typified by *G. peditatus* Abdel-Wahab & Nagahama. Phylogenetic analyses of the SSU and LSU rDNA gene data placed these species in a well-supported basal clade in the family *Halosphaeriaceae* along with species of *Arenariomyces* and *Corollospora*; no asexual morph is known (Abdel-Wahab and Nagahama 2011).

Gibellulopsis Bat. & H. Maia, Anais da Sociedade de Biologia de Pernambuco 16 (1): 153 (1959)

The genus was introduced to accommodate *Verticillium piscis* (Bat. & H. Maia) Neish & G.C. Hughes, a fish pathogen, which did not group in *Verticillium* sensu stricto (type species *Verticillium dahliae* Kleb.) in the *Plectosphaerellaceae*. Further species assigned to the genus are *G. nigrescens* (Pethybr.) Zare et al. (Zare et al. 2007), and *G. chrysanthemi* Hirooka et al. (Hirooka et al. 2014). Other species may well be related taxa: *Acremonium furcatum* (Moreau & V. Moreau) ex W. Gams, *A. stromaticum* W. Gams & R.H. Stover, *A. nepalense* W. Gams, *Cephalosporium serrae* Mafei and *Gliocladium cibotii* J.F.H. Beyma (Zare et al. 2007).

Gliocephalotrichum J.J. Ellis & Hesselt., Bull. Torrey bot. Club 89: 21 (1962)

Leuconectria was introduced as the sexual morph of the type species of *Gliocephalotrichum* by Rossman et al. (1993). Rossman et al. (2013) proposed that as *Gliocephalotrichum* species are widely reported from soils and that *Leuconectria* is relatively obscure with only two species. *Leuconectria* is suppressed in favour of the older asexual morph-typified name *Gliocephalotrichum*.

Gliocladiopsis S.B. Saksena, Mycologia 46: 662 (1954)

Rossman et al. (2013) documented the history and usage of *Gliocladiopsis* versus *Glionectria* and concluded that the genus name *Gliocladiopsis* should be protected over the *Glionectria*, for these soil-borne fungi (Lombard and Crous 2012).

Gliomastix Guég., Bull. Soc. mycol. Fr. 21: 240 (1905)

Summerbell et al. (2011) revised *Gliomastix* with five species based on phylogenetic data which showed 14 strains clustering as a distinct clade in the *Bionectriaceae*.

Glomerellaceae Locq. ex Seifert & W. Gams, in Zhang et al., Mycologia 98(6): 1083 (2007) [2006]

The family *Glomerellaceae* was invalidly published by Locquin (1984), validated in Zhang et al. (2006), and it was accepted as one of the three families of *Glomerellales* in Réblová et al. (2011a).

Glomerulispora Abdel-Wahab & Nagah., in Abdel-Wahab et al., Mycol. Progr. 9(4): 552 (2010)

An asexual genus in the family *Torpedosporaceae* (*Hypocreomycetidae* order *incertae sedis*) based on an ex-type culture (Jones et al. 2014). Abdel-Wahab et al. (2010) introduced this genus for species with irregularly helicoid muriform conidia, which groups with species of *Torpedospora*, with variable support. However, it is not congeneric with *Torpedospora.*

Gondwanamyces G.J. Marais & M.J. Wingf., Mycologia 90(1): 139 (1998)

Asexual morphs of *Gondwanamyces* are distinct in possessing erect, darkly pigmented conidiophores, monoverticillate or divergently penicillate, with whorls of phialides, producing hyaline conidia. *Gondwanamyces proteae* has a *Custingophora* asexual morph (Mouton et al. 1993). Based on SSU and a combined dataset of LSU, SSU and RPB2, species of *Gondwanamyces* and their *Custingophora* asexual morphs form a highly monophyletic clade which is sister to *Ceratocystidaceae* (Réblová et al. 2011a).

Gondwanamycetaceae Réblová et al., Stud. Mycol. 68(1): 188 (2011)

This family is placed in *Microascales* based on SSU and a combined dataset of LSU, SSU and RPB2. Réblová et al. (2011a) includes also the asexual morph genus *Custingophora.*

Graphiaceae de Beer et al., CBS fungal biodiversity series 12: 1–19 (2013)

Based on the phylogenetic distance between *Graphium* and other families of *Microascales*, the family *Graphiaceae* was introduced by de Beer et al. (2013). The family is monophyletic (Lackner et al. 2014) and comprises *Graphium,* which is a synnematous hypomycete described by Corda (1837) with the type *G. penicillioides* Corda.

Graphostromataceae M.E. Barr et al., Mycotaxon 48: 533 (1993)

This family comprises *Graphostroma*, a genus introduced in the family *Calosphaeriaceae* by Barr (1985) together with seven other genera. Barr et al. (1993) assimilated information on these genera into a revised scheme for the classification of *Calosphaeriaceae* which gave rise to the introduction of a separate monotypic family *Graphostromataceae* in the order *Xylariales*. The presence of a nodulisporium-like conidial morph and a diatrype-like sexual morph featuring allantoid ascospores supported the introduction of the new family. Stadler et al. (2013, 2014) used ITS sequence data from *Graphostroma platystoma* (Schwein.) Piroz., the type species of the genus, to evaluate the relationship with other representative genera of *Xylariaceae* and showed it was basal and more closely related to *Biscogniauxia* and *Camillea* than to *Diatrype* (Stadler et al. 2013). However, to clarify the exact phylogenetic position of this genus further molecular studies are required, with inclusion of protein coding genes.

Greeneria Scribn. & Viala, C. r. hebd. Séanc. Acad. Sci., Paris 105: 473 (1887)

Tangthirasunun et al. (2014) introduced a new species of *Greeneria*, *G. saprophytica* Tangthirasunun et al., bringing the number of species in the genus to three (Index Fungorum 2015). Phylogenetic analysis placed the new species in *Diaporthales* genera *incertae sedis*.

Griphosphaerioma Höhn., Ber. dt. bot. Ges. 36: 312 (1918)

Shoemaker (1963) established the link between *Griphosphaerioma kansensis* (Ellis & Everh.) Shoemaker and its asexual morph *Labridella cornu-cervae* Brenckle, the type species of both genera. *Griphosphaerioma* is the oldest name and should have priority.

Groenhiella Jørg. Koch et al., Botanica Marina 26: 265 (1983)

Monotypic marine genus growing superficially on driftwood with no known asexual morph. Koch et al. (1983) referred the genus to the *Nitschkiaceae* (*Coronophorales*), but further collections, isolates and sequences are required to confirm this placement.

Gynonectria Döbbeler, Mycol. Progr. 11(2): 474 (2012)

Gynonectria is a monotypic genus of *Hypocreales* introduced by Döbbeler (2012) for a species with relatively large perithecia, forming individually within the perianths of the hepatic *Odontolejeunea* sp. (*Lejeuneaceae*, *Porellales*), which grow in the phyllosphere of living vascular plants in central American rainforests.

Gyrostroma Naumov, Bull. Soc. mycol. Fr. 30(3): 386 (1914)

Hirooka et al. (2012) examined the type specimen of *Gyrostroma*, *G. sinosum* Naumov, and determined it not to be a hypocrealean taxon and suggested that it may be a member of *Diaporthales*.

Haiyanga K.L. Pang & E.B.G. Jones, The Raffles Bull. Zool. 19: 8 (2008)

Haiyanga was introduced to accommodate the taxon *Arenariomyces salinus* Meyers, a species with a much confused taxonomy, as shown by its list of synonyms (Index Fungorum 2015). A molecular study of the genera *Antennospora* and *Halosphaeria* found that it forms a well-supported monophyletic clade with *Arenariomyces trifurcatus* Höhnk, the type species of the genus (Pang et al. 2008). A new genus *Haiyanga* was established by Pang et al. (2008) for *Antennospora salina* based on the morphological differences between it and *Arenariomyces trifurcatus*. Further collection and a wider range of genes need to be sequenced to resolve the taxonomic status of *Haiyanga salina*. No asexual morph is known.

Halazoon Abdel-Aziz et al., Mycol. Prog. 9: 545 (2010)

Asexual genus of *Lulworthiaceae* that was established by Abdel-Wahab et al. (2010) with the type species, *H. melhae* Abdel-Aziz et al. Molecular study based on SSU and LSU rDNA of an ex-type strain of *H. melhae* placed it in a well-supported clade within *Lulworthiaceae* with species of *Lulworthia* and *Cirrenalia fusca* I. Schmit. The latter species was transferred to *Halazoon* as *H. fuscus* (I. Schmidt) Abdel-Wahab et al. Species of *Halazoon* have been recorded on driftwood in the intertidal zone in marine habitats (Abdel-Wahab et al. 2010).

Haligena Kohlm., Nova Hedwigia 3: 87 (1961)

Monotypic genus of *Halosphaeriaceae* that was introduced by Kohlmeyer (1961) to accommodate the marine fungus, *H. elaterophora* Kohlm. Currently the genus is monotypic as other species have been transferred to other genera (Jones et al. 2009b). Molecular data confirms its position in the family *Halosphaeriaceae* in a basal clade, with *Nautosphaeria* and *Tubakiella* in a sister group (Sakayaroj et al. 2011a; Pang and Jheng 2012a, b).

Haloguignardia Cribb & J.W. Cribb, Univ. Queensl., Pap. Dept. Bot. 3: 97 (1956)

Genus of *Lulworthiaceae* that was established by Cribb and Cribb (1956) to accommodate *H. decidua* Cribb & J.W. Cribb. and three other species. Another two species were added later. Species of *Haloguignardia* are parasitic on brown seaweed in the *Fucales*, especially species of *Cystoseira*, *Halidrys* and *Sargassum*. Molecular study based on SSU rDNA placed *H. irritans* (Setch. & Estee) Cribb & J.W. Cribb in a highly supported clade within *Lulworthiaceae* along with *Lulwoana* and *Lulworthia* species (Inderbitzin et al. 2004; Campbell et al. 2009; Harvey and Goff 2010).

Halonectria E.B.G. Jones, Trans. Br. Mycol. Soc. 48: 287 (1965)

Monotypic marine genus in the family *Bionectriaceae* (Rossman et al. 1999; Jones et al. 2009b), although not typical of *Hypocreales* due to the immersed ascomata, with long necks and elongate non-septate ascospores. Further study and sequence data are required to confirm its assignment to *Bionectriaceae*. The asexual morph is pycnidial.

Halosarpheia Kohlm. & E. Kohlm., Trans Br. Mycol. Soc. 68: 208 (1977)

The genus was established by Kohlmeyer and Kohlmeyer (1977) to accommodate a marine fungus, *H. fibrosa* Kohlm. & E. Kohlm. Later, similar species with polar uncoiling appendages were described from both freshwater and marine habitats. Recent molecular phylogenetic studies showed that the genus is polyphyletic and several species were transferred to existing or new genera. Only one species, *H. japonica* Abdel-Wahab & Nagah. produced helicoid conidia as an asexual morph. The sexual/asexual connection was established at morphological and molecular level (Abdel-Wahab and Nagahama 2012). The genus is based on morphological observations and molecular data with the three species forming a monophyletic group with *Lignincola tropica* Kohlm. as a sister group (Sakayaroj et al. 2011a). Six *Halosarpheia* species have not been sequenced due to the lack of cultures. Since other *Halosarpheia* species have been transferred to new genera following molecular analysis, we refer to these six species as *Halosarpheia* sensu *lato* until further collections, isolations and sequences are generated to test their position in the genus.

Halosphaeria Linder, Farlowia 1:412 (1944)

Halosphaeria was introduced by Barghoorn and Linder (1944a) to accommodate a marine species, *H. appendiculata* Linder, growing on wood and is the type species of the *Halosphaeriaceae*. Molecular data show it grouping with *Lignincola laevis* Höhnk with moderate support (Sakayaroj et al. 2011a). No asexual morph is known.

Halosphaeriopsis T.W. Johnson, J. Elisha Mitchell scient. Soc. 74: 44 (1958)

A monotypic genus in the *Halosphaeriaceae* based on morphological and molecular data. *Culcitalna* is a monotypic genus synonymised under *Trichocladium* by Dixon (1968), with a sexual morph as *Halosphaeria mediosetigera* Cribb & J.W. Cribb (now *Halosphaeriopsis mediosetigera* (Cribb & J.W. Cribb) T.W. Johnson). *Culcitalna achraspora* Meyers & R.T. Moore was described as possessing conidia produced in sporodochia (Meyers and Moore 1960), but subsequent collections showed they produced conidia freely on the substrate, and the taxon was thus transferred to *Trichocladium alopallonellum* (Meyers & R.T. Moore) Kohlm. & Volkm.-Kohlm., the asexual morph of *Halosphaeriopsis mediosetigera* based on cultural studies and molecular data. We therefore treat *Culcitalna* as a synonym of *Halosphaeriopsis.*

Hapsidascus Kohlm. & Volkm.-Kohlm., Syst. Ascomycetum 10: 113 (1991)

A monotypic marine genus referred to *Ascomycota* genera *incertae sedis* (Jones et al. 2009b), which needs to be recollected, isolated and sequenced. Ascomata perithecoid, large, deeply embedded in mangrove roots of *Rhizophora mangle*. May not be a member of the *Sordariomycetes*.

Harknessiaceae Crous, in Crous et al., Persoonia, Mol. Phyl. Evol. Fungi 28: 55 (2012)

The family *Harknessiaceae* was introduced to accommodate species of *Harknessia* with their *Wuestneia*-like sexual morphs and belongs in the order *Diaporthales*. By establishing the family *Harknessiaceae*, Crous et al. (2012e) avoided replacing *Wuestneia*, as the family is based on the asexual genus *Harknessia*. The placement of *Wuestneia* with its type species, *W. aurea* Auersw. has not been established and is presently placed in *Melanconidaceae*.

Harposporium Lohde, Tagbl. Versamml. Ges. Deutsch. Naturf. 47: 206 (1874)

Harposporium is the largest and oldest nematode trapping asexual genus in *Hypocreales* (Quandt et al. 2014). Chaverri et al. (2005) observed the asexual-sexual link between *Harposporium* and *Podocrella. Harposporium* is the oldest name and considering several other reasons, Quandt et al. (2014) proposed to use *Harposporium* over *Podocrella.*

Hispidicarpomyces Nakagiri, *Mycologia* 85: 639 (1993)

Monotypic marine genus in the family *Hispidicarpomycetaceae* that needs recollection, isolation and sequencing to determine it phylogenetic position in the *Ascomycota* (Jones et al. 2009b). Ascomata very large (800–2100 μm), immersed in the thallus of the red alga *Galaxura falcata*. The genera *Spathulospora*, *Retrostium* (*Spathulosporaceae*) and *Hispidicarpomyces* (*Hispidicarpomycetaceae*) were referred to the *Spathulosporales*, but molecular data placed the genus *Spathulospora* (*S. adelpha*, *S. antartica*) in the order *Lulworthiales* (Inderbitzin et al. 2004). Consequently, the placement of *Hispidicarpomyces* and *Retrostium* cannot be resolved until further phylogenetic studies are undertaken. The asexual morph has verticillate spermodochia.

Humicola Traaen, Nytt Mag. Natur. 52: 31 (1914)

An asexual genus with the type species *Humicola fuscoatra* Traaen grouping in the *Chaetomiaceae*, however the genus has been shown to be polyphyletic with sexual morphs also in *Pseudolignincola* (*Halosphaeriaceae*) (Jones et al. 2006), and *Eurotiales* (Index Fungorum 2015). The *Humicola* species referred to the *Halosphaeriaceae* was not fully identified and was the asexual morph of *Pseudolignincola* (Jones et al. 2006).

Hyalorostratum Raja & Shearer, Mycosphere 1: 4 (2010)

This genus is described from Alaska and New Hampshire from freshwater habitats (Raja et al. 2010). The type species, *H. brunneisporum* Raja & Shearer, is placed in the *Diaporthales* based on combined SSU and LSU sequence data.

Hyalotiopsis Punith., Mycol. Pap. 119: 12 (1970) [1969]

Ellurema was introduced with the type species *Ellurema indica* (= *Massarina indica* Punith. by Nag Raj and Kendrick (1985). *Hyalotiopsis subramanianii* (Agnihothr. & Luke) Punith. was identified as the asexual morph of *Ellurema indica* in cultural studies (Nag Raj and Kendrick 1985). *Ellurema* is placed in *Amphisphaeriaceae* in phylogenetic analysis of DNA sequences of the 5.8 S rRNA gene (Kang et al. 1999a). *Hyalotiopsis*, the older asexual typified genus, has a single species epithet (Index Fungorum 2015) and *Ellurema* the younger sexually typified genus has only one species epithet. We propose to adopt the older asexual typified name (i.e. *Hyalotiopsis*) over sexual typified name (i.e. *Ellurema*).

Hydea K.L. Pang & E.B.G. Jones, Mycol. Prog. 9: 549 (2010)

Monotypic genus of *Lulworthiaceae* that was introduced by Abdel-Wahab et al. (2010) to accommodate *Cirrenalia pygmea* Kohlm. Molecular analysis of SSU and LSU rDNA sequence data placed *H. pygmea* (Kohlm.) K.L. Pang & E.B.G. Jones in a highly supported basal clade to the genera *Cumulospora*, *Kohlmeyeriella*, *Lindra*, *Lulworthia* and *Matsusporium* within *Lulworthiaceae* (Abdel-Wahab et al. 2010). The sexual morph is not known (Abdel-Wahab et al. 2010).

Hydromelitis A. Ferrer et al., Mycologia 104(4): 876 (2012)

This monotypic genus was introduced for a species from submerged woody debris in freshwater collected in Costa Rica (Ferrer et al. 2012). Molecular analysis placed the genus in *Sordariomycetidae incertae sedis.*

Hypocreodendron Henn., Hedwigia 36: 223 (1897)

Hypocreodendron was introduced based on *H. sanguineum* Henn. from Argentina (Hennings 1897). According to the protologue the genus has robust, highly branched, coralloid stromata and rod-shaped conidia. *Discoxylaria* is a monotypic genus introduced for insect-associate xylaroid species; the type species is *Discoxylaria myrmecophila* J.C. Lindq. & J.E. Wright (Lindqvist and J.E. Wright 1964). It was suggested that this perithecioid fungus is the sexual morph of *Hypocreodendron. Poroniopsis* is a possible synonym of *Hypocreodendron.* Rogers et al. (1995) obtained a collection from Mexico, which bore both the conidial and mature perithecial morphs. They compared the collection with the holotype and also obtained the asexual morph in culture. *Hypocreodendron* is an earlier name and therefore *Discoxylaria* should be a synonym. According to Stadler et al. (2013) the priority can be given to *Hypocreodendron* since it was the first to be described among the two morphs.

Hypomyces (Fr.) Tul. & C. Tul., Annls Sci. Nat., Bot., sér. 4 13: 11 (1860)

Rossman et al. (2013) discussed the link between *Hypomyces* and *Cladobotryum* and suggested that the use of *Hypomyces* should be retained even though *Cladobotryum* has priority as an older name. We follow this here. The asexual morph genera *Mycogone*, *Sepedonium* and *Stephanoma* may be more distantly related to the type species of *Hypomyces* than most members of *Cladobotryum*, and thus may not be congeneric (Rossman et al. 2013), thus we presently retain these as distinct genera in *Nectriaceae.*

Hypophloeda K.D. Hyde & E.B.G. Jones, Trans. Mycol. Soc. Japan 30(1): 61 (1989)

Monotypic genus of the *Melanconidaceae* that was introduced by Hyde and Jones (1989) to accommodate the marine species *H. rhizospora* K.D. Hyde & E.B.G. Jones; no asexual morph was recorded. The species is poorly known and requires further collection, isolation and sequencing to determine its taxonomic position.

Hypoxylon Bull., Hist. Champ. Fr. (Paris) 1: 168 (1791)

Nodulisporium is typified by *N. ochraceum* Preuss. Ju and Rogers (1996) have described the asexual morph of several xylariaceous taxa as “nodulisporium-like” and many authors avoided giving separate names to the asexual morphs encountered in nature or culture, especially in *Hypoxylon*. According to Stadler et al. (2013) the possibility of assigning *N. ochraceum* as the asexual morph of *Hypoxylon howeanum* which tends to be isolated frequently in Germany can be considered in forming the link between the asexual and sexual morphs. The same study suggested placing *Nodulisporium* as a synonym of *Hypoxylon*. *Triplicaria* with its type *T. hypoxyloides* P. Karst. is considered as one of the asexual genera assigned to the genus *Hypoxylon* by Stadler et al. (2013). Therefore we consider both asexual genera, *Nodulisporium* and *Triplicaria*, are synonyms of *Hypoxylon.*

Idriella P.E. Nelson & S. Wilh., Mycologia 48(4): 550 (1956)

Idriella was described to accommodate an important plant pathogen, *I. lunata* P.E. Nelson & S. Wilh. which causes extensive root rot in strawberry fields in California (Nelson and Wilhelm 1956). The taxon causes black sunken lesions and produce dark chlamydospores both in culture and in diseased roots. The cultures obtained from chlamydospores produced the asexual conidial morph (Nelson and Wilhelm 1956). Wijayawardene et al. (2012) listed *Idriella* in *Xylariales*, genera *incertae sedis* as the possible asexual morph of *Phomatospora*. However, molecular data shows it to belong in *Heliotales.*

Ilyonectria P. Chaverri & C. Salgado, in Chaverri et al., Stud. Mycol. 68(1): 69 (2011)

This genus was introduced with *I. radicicola* (Gerlach & L. Nilsson) P. Chaverri & C. Salgado as the type species and comprises ten species (Chaverri et al. 2011; Lombard et al. 2013). The genus was placed in *Nectriaceae* in Chaverri et al. (2011), which we follow here. Some species have been linked to *Cylindrocarpon* sensu *lato* asexual morphs.

Immersidiscosia Kaz. Tanaka et al., in Tanaka et al., Persoonia, Mol. Phyl. Evol. Fungi 26: 94 (2011)

Tanaka et al. (2011) showed *Discosia* separating in two segregates in molecular analysis. The second segregate was therefore renamed as the monotypic genus *Immersidiscosia* with the type species *I. eucalypti* (Pat.) Kaz. Tanaka et al. and placed in *Amphisphaeriaceae.*

Immersiporthe S.F. Chen et al., in Chen et al., Pl. Path. (2012)

This genus was introduced and typified by *Immersiporthe knoxdaviesiana* S.F. Chen et al. (Chen et al. 2012), the causal agent of stem cankers on *Rapanea melanophloeos*. Multi-gene phylogenetic analyses showed that the fungus represents a new genus in the family *Cryphonectriaceae*. Typical fruiting bodies characteristic of *Cryphonectriaceae* were observed on the surfaces of cankers (Chen et al. 2013b).

Infundibulomyces Plaingam et al., in Plaingam et al., Can. J. Bot. 81(7): 732 (2003)

The genus *Infundibulomyces* was introduced by Plaingam et al. (2003) to accommodate a single species, *I. cupulata* Plaingam et al., which was collected on leaves of *Lagerstroemia* species. Somrithipol et al. (2008) also introduced *I. oblongisporus* Somrithipol et al. and placement in the family *Chaetosphaeriaceae* was confirmed based on analysis of SSU and LSU gene data.

Iwilsoniella E.B.G. Jones, Syst. Ascomycetum 10: 8 (1991)

Monotypic marine genus in the *Halosphaeriaceae*, growing on submerged wood (Jones et al. 2009a); no asexual morph is known. A molecular study is required to confirm its current placement.

Jattaea Berl., Icon. fung. (Abellini) 3(1–2): 6 (1900)

Jattaea and *Wegelina* were published by Berlese (1900) as morphologically similar genera. Réblová (2011b) examined the lectotypes of *Jattaea algeriensis* Berl. and *Wegelina discreta* Berl. and correlated her studies with in vitro studies. Phylogenetic studies show that both species are congeneric. Twelve species are accepted in *Jattaea* with phialophora-like asexual morphs produced in culture. In the phylogenies, *Jattaea leucospermi* Marinc. et al. represents the phenotype characters, with septate, allantoid to suballantoid ascospores. This was formerly considered a diagnostic feature of the monotypic genus *Phragmocalosphaeria* (Petrak 1923). Molecular data confirm that ascospore septation is not a significant character suitable to distinguish genera in the *Calosphaeriales* and *Phragmocalosphaeria* is redued to a synonym of *Jattaea*.

Juncigena Kohlm. et al., Bot. Mar. 40(4): 291 (1997)

Juncigena was introduced to accommodate an ascomycete growing on the marsh plant *Juncus roemerianus* with *J. adarca* Kohlm. et al. as the type species. DNA sequences of two ribosomal nuclear loci confirm its position in the *Juncigenaceae*, *Hypocreomycetidae* family *incertae sedis* (Jones et al. 2014). *Juncigena* forms a well-supported clade with the marine genera *Fulvocentrum*, *Marinokulati*, and *Moheitospora.*

Juncigenaceae E.B.G. Jones et al. Cryptogamie Mycologie 35: 133 (2014)

This family was introduced by Jones et al. (2014) to accommodate the genera *Fulvocentrum*, *Juncigena*, *Marinokulati* and *Moheitospora.* It is currently placed in *Hypocreomycetidae* family *incertae sedis*. The asexual morph has helicoid conidia when present.

Kallichroma Kohlm. & Volkm.-Kohlm., Mycol. Res. 97: 759 (1993)

Marine genus placed in *Hypocreales* based on molecular data (Rossman et al. 2001; Schroers 2001; Jones et al. 2009b; Summerbell et al. 2011). Initially described as *Hydronectria*, but the type species of *Hydronectria* is a lichen with the alga phycobiont *Trentepohlia*. Subsequently, the taxon was transferred to *Kallichroma* by Kohlmeyer and Volkmann-Kohlmeyer (1993). No asexual morph is known.

Kitesporella J.S. Jheng & K.L. Pang, Bot. Mar. 55(5): 462 (2012)

This genus in the family *Halosphaeriaceae* was introduced for *Kitesporella keelungensis* Jheng & K.L. Pang collected on driftwood in Taiwan (Pang and Jheng 2012a). It resembles *Anisostagma*, *Iwilsoniella* and *Thalassogena* (all members of the *Halosphaeriaceae*). Sequence data are required to confirm the placement of this species in the *Halosphaeriaceae* (Pang and Jheng 2012a).

Kochiella Sakayaroj et al., Fungal Divers. 46: 96 (2011)

A phylogenetic evaluation of *Remispora,* based on three loci (nuclear small and large (LSU, SSU), the second largest RNA polymerase II subunit (RPB2)), demonstrated that the genus is polyphyletic. *Remispora maritima* Linder (type species), *R. pilleata* Kohlm., *R. quadri-remis* (Höhnk) Kohlm., *R. spitsbergenensis* K.L. Pang & Vrijmoed and *R. stellata* Kohlm., form a monophyletic group (*Remispora* sensu stricto) with *Sablicola chinensis* E.B.G. Jones et al. as a sister taxon with good support, in the family *Halosphaeriaceae* (Sakayaroj et al. 2011a). *Remispora crispa* Kohlm. was distantly placed from *Remispora* in a clade with *Ocostaspora apilongissima* E.B.G. Jones et al., but they are not considered conspecific. The genus *Kochiella* was therefore introduced to include this species as *Kochiella crispa* (Kohlm.) Sakayaroj et al., based on morphological and molecular data (Sakayaroj et al. 2011a).

Kohlmeyeriella E.B.G. Jones et al., Bot. Linn. Soc. 87: 210 (1983)

Genus of *Lulworthiaceae* that was introduced by Jones et al. (1983) to accommodate a *Corollospora* species, *C. tubulata* Kohlm., based on a TEM study. A phylogenetic study based on SSU and LSU rDNA placed *K. tubulata* (Kohlm.) E.B.G. Jones et al. in *Lulworthiaceae*, along with *Lulworthia crassa* Nakagiri that has thus been transferred to this genus (Campbell et al. 2005). No asexual morph has been recorded for *Kohlmeyeriella* species.

Kretzschmaria Fr., Summa veg. Scand., Section Post. (Stockholm): 409 (1849)

Holttumia is typified by *H. congregata* Lloyd in Lloyd (1924b). This genus is now considered as a synonym of *Kretzschmaria* (Rogers and Ju 1998). Rogers and Ju (1998) observed the holotype material of *Holttumia congregata* (located at BPI) and noted the close morphological characters with *Kretzschmaria. Holttumia* is considered as a synonym of *Kretzschmaria*, while *H. congregata* is a synonym of *K. macrosperma* (Mont.) J.D. Rogers & Y.M. Ju (Rogers and Ju 1998).

Lanceispora Nakagiri et al., Mycoscience 38(2): 208 (1997)

Accepted name for an aquatic genus referred to the *Xylariales* (Jones et al. 2009b) with recollection, isolation and sequencing required to resolve its taxonomic position.

Lanspora K.D. Hyde & E.B.G. Jones, Can J. Bot. 64: 1581 (1986)

Accepted monotypic marine genus, placed in *Ophiostomatales*, based on morphology and preliminary molecular data (Schoch pers. comm.), which grows on wood. Initially referred to the *Halosphaeriaceae*, because of similar morphological features to that family. No asexual morph is known.

Lasiadelphia Réblová & W. Gams, in Réblová et al., Fungal Diversity 46(‘1’): 82 (2011)

This monotypic genus was introduced by Réblová et al. (2011b) and is the asexual morph of *Lasiosphaeris*.

Lasiosphaeriaceae Nannf., Nova Acta Regiae Societatis Scientiarum Upsaliensis 8 (2): 50 (1932)

A large family in the *Sordariales* with 71 genera listed in MycoBank (October 2014) and we list 35 genera. Molecular data indicates that the family is paraphyletic, with many genera polyphyletic e.g. *Arnium*, and the family requires wider sampling with an increased number of loci sequenced (Kruys et al. 2015). A phylogenetic study based on LSU nrDNA and β-tubulin sequences highlights four lineages of *Lasiosphaeriaceae* (Kruys et al. 2015).

Lasiosphaeriella Sivan., Trans. Br. Mycol. Soc. 64(3): 443 (1975)

Lasiosphaeriella was introduced by Sivanesan (1975) with *Lasiosphaeriella dennisii* Sivan. as the type species. The genus presently includes five species (Index Fungorum 2015). Sequence data is available for three species which show the genus to cluster as a group in *Chaetosphaeriales* (Huhndorf and Miller 2011).

Lasmenia Speg., Anal. Soc. cient. argent. 22(4): 199 (1886)

Lasmenia causes rot and lesions on leaves and inflorescences of tropical fruits, especially rambutan (Serrato-Diaz et al. 2011). Analysis of combined ITS and LSU sequence data indicates a closer affinity of *Lasmenia* to the family *Cryphonectriaceae* (Serrato-Diaz et al. 2011).

Latruncellus M. Verm. et al., in Vermeulen et al., Mycologia 103(3): 562 (2011)

This genus, from Swaziland, on bark of *Galpinia transvaalica*, was introduced and typified by *Latruncellus aurorae* M. Verm. et al. (Vermeulen et al. 2011). The taxon is similar to members of *Cryphonectriaceae* that have uniformly orange stromatic tissues for both sexual and asexual morphs (Gryzenhout et al. 2009). This taxon has many similar characters with *Aurifilum marmelostoma* Begoude et al. and phylogenetically they are also closely related. However, conidiomata of *Latruncellus aurorae* have uniformly orange, constricted, fattened necks and *Aurifilum marmelostoma* does not form necks and has blackened ostiolar openings. Analysis of LSU and BT exon gene sequences also showed *Latruncellus aurorae* to be a separate genus in the family *Cryphonectriaceae*, and closely related to *Aurifilum marmelostoma* (Vermeulen et al. 2011).

Lautisporiopsis E.B.G. Jones et al., Can. J. Bot. 72l: 1558 (1994)

Monotypic marine ascomycete genus in *Halosphaeriaceae* growing on submerged wood (Jones et al. 2009b), variously referred to *Halosphaeria* (Kohlmeyer 1960) and *Ceriosporopsis* (Jones et al. 1995), but separated from these genera by the ultrastructure of its appendaged ascospores (Yusoff et al. 1994a, b). No asexual morph is known, but this species frequently produces chlamydospores.

Lecanicillium W. Gams & Zare, Nova Hedwigia 72(3–4): 332 (2001)

Zare and Gams (2001b) transferred 12 species formerly under *Verticillium* to the new genus *Lecanicillium*, and also introduced three new species, based on morphology and phylogenetic analysis. The genus is placed in *Cordycipitaceae* (Index Fungorum 2015).

Lectera P.F. Cannon, in Cannon et al., MycoKeys 3: 28 (2012)

Cannon et al. (2012), based on rDNA ITS and GAPDH sequences, showed that *Lectera colletotrichoides* (J.E. Chilton) P.F. Cannon belongs in *Plectosphaerellaceae* rather than *Hypocreales*, to which other species are assigned. Currently two species are referred to this genus. *Lectera* is characterised by brightly coloured sporodochia surrounded by brown setae, and may be a sister group to *Verticillium*, but bootstrap support is weak.

Leiosphaerella Höhn., Sber. Akad. Wiss. Wien, Math.-naturw. Kl., Abt. 1 128: 579 (1919)

Jaklitsch and Voglmayr (2012) recollected the type species of *L. praeclara* (Rehm) Höhn. and their sequence data placed *Leiosphaerella* in *Xylariales*. *Leiosphaerella* sensu stricto and *Pseudomassaria* sensu stricto were shown to be closely related.

Leptosporella Penz. & Sacc., Malpighia 11(9–10): 406 (1897)

Leptosporella gregaria Penz. & Sacc., the generic type, clusters in a well-supported group in *Chaetosphaeriales* (Huhndorf and Miller 2011).

Lignincola Höhnk, Veröff. Inst. Meeresforch. Bremerhaven 3: 216 (1955)

Genus of *Halosphaeriaceae* with freshwater and marine species, growing on submerged wood or palm fronds (Jones et al. 2009a). No sexual morph is known. Phylogenetic studies place this genus in *Halosphaeriaceae*, but further sequence data is required for some of the species before they can be referred to the genus with confidence.

Limacospora Jørg. Koch & E.B.G. Jones, Can. J. Bot. 73(7): 1011 (1995)

Monotypic marine ascomycete genus growing on submerged wood, and referred to the *Halosphaeriaceae*. Further collections, are required for isolation and sequencing to determine its phylogenetic relationship with the genera *Ceriosporopsis* and *Marinsopora*.

Lindra I.M. Wilson, Trans. Br. Mycol. Soc. 39: 411 (1956)

Genus of *Lulworthiaceae* introduced by Wilson (1956) to accommodate *L. inflata* I.M. Wilson. The genus currently contains five marine species, of which *L. obtusa* Nakagiri & Tubaki has *Anguillospora marina* Nakagiri & Tubaki as its asexual morph. Preliminary phylogenetic analyses of the SSU and LSU rDNA showed that *Lindra* species are polyphyletic (Campbell et al. 2005; Jones et al. 2008; Abdel-Wahab et al. 2010).

Longicollum Zelski et al., in Zelski et al., Mycosphere 2(5): 540 (2011)

Longicollum is a monotypic genus described from submerged woody debris from a river in Peru (Zelski et al. 2011b). Morphologically, *Longicollum* exhibits all of the characters of *Annulatascaceae* and in addition has ascospores with verruculose wall ornamentation. *Longicollum biappendiculatum* Zelski et al. shares many characteristics with *Submersisphaeria aquatica* K.D. Hyde (Hyde 1996) and shows some similarities to many of the currently accepted genera in the family *Annulatascaceae* sensu *lato* (Zelski et al. 2011b). No molecular analysis was carried out to support the placement of this genus in *Annulatascaceae*.

Lopadostoma (Nitschke) Traverso, Fl. ital. crypt., Pars 1: Fungi. Pyrenomycetae. *Xylariaceae*, *Valsaceae*, *Ceratostomataceae* 1(2): 169 (1906)

Genus of *Xylariaceae* that was first introduced by Nitschke (1867) as *Anthostoma* subg. *Lopadostoma* Nitschke and later elevated to generic rank by Traverso (1906). Twelve species were recognized during a revision of this genus (Jaklitsch et al. 2014). Combined molecular phylogenetic analysis based on ITS, LSU, RPB2 revealed 10 distinct taxa within the genus which were also recognized at the species level. A phylogenetic analysis based on nuLSU rDNA confirmed that the genus appeared as a monophyletic clade within the family *Xylariaceae*, with moderate bootstrap support (Jaklitsch et al. 2014).

Lulwoana Kohlm. et al., Mycol. Res. 109: 62 (2005)

Monotypic genus of *Lulworthiaceae* introduced by Campbell et al. (2005) to accommodate *L. uniseptata* (Nakagiri) Kohlm. et al. The asexual morph is *Zalerion maritima* (Linder) Anastasiou.

Lulwoidea Kohlm. et al., Mycol. Res. 109: 164 (2005)

Monotypic genus of *Lulworthiaceae* introduced by Campbell et al. (2005) to accommodate *L. lignoarenaria* (Jørg. Koch & E.B.G. Jones) Kohlm. et al. *Lulwoidea* *lignoarenaria* along with *Orbimyces spectabilis* Linder formed a highly supported basal clade in *Lulworthiaceae* (Campbell et al. 2005). The genus forms black ascomata on sand grains. No asexual morph has been recorded for *L. lignoarenaria* (Koch and Jones 1984).

Lulworthia G.K. Sutherl., Trans. Br. Mycol. Soc. 5: 259 (1916)

Genus of *Lulworthiaceae* that was introduced by Sutherland (1915) to accommodate the type species *Lulworthia fucicola* G.K. Sutherl. Several new *Lulworthia* species were described from marine habitats and the genus became one of the largest genera in marine habitats. The placement of the genus in *Lulworthiaceae*, *Lulworthiales* was confirmed at the morphological and molecular level (Kohlmeyer et al. 2000). Campbell et al. (2005) re-evaluated the taxonomy of the genus at the molecular level and introduced two new genera *Lulwoana* Kohlm. et al. (based on *Lulworthia uniseptata* Nakagiri) and *Lulwoidea* Kohlm. et al. (based on *Lulworthia lignoarenaria* Jørg. Koch & E.B.G. Jones). No type material was available for the type species *L. fucicola* Sutherl., therefore, Campbell et al. (2005) neotypified a collection of *L. fucicola* from Chile growing on wood. No asexual morph has been reported for *Lulworthia* sensu stricto.

Lunatiannulus Daranagama et al., Fungal Diversity (in press) (2015)

Lunatiannulus was introduced by Daranagama et al. (2015) with *L. irregularis* Daranagama et al. as the type species. This genus is morphologically related to *Diatrype*-like genera in having a libertella-like asexual morph and allantoid ascospores. However, *L. irregularis* differs in having 4 or 8-spored asci, whereas most of the diatrypaceous asci are either polysporous or multiples of 8, and ascospores are falcate and hyaline (Daranagama et al. 2015; Liu et al. 2015). Multi-gene analysis shows this new genus has close affinities with *Eupixylon* and *Nemania* in *Xylariaceae* (Daranagama et al. 2015).

Luteocirrhus C.F. Crane et al., IMA Fungus 4(1): 115 (2013)

Luteocirrhus was isolated from canker lesions in several *Banksia* species plus *Lambertia echinata* subsp. *citrina* and was introduced as a monotypic genus with *Luteocirrhus shearii* C.F. Crane et al. as its type. It is placed within *Cryphonectriaceae* (*Diaporthales*) based on morphology and molecular data (Crane and Burgess 2013). Morphologically it is characterized by pulvinate to globose, black, semi-immersed conidiomata, with paraphyses. Its sexual morph is unknown. This pathogen of native *Proteaceae* causes canker lesions and is considered as an emerging threat towards *Banksia* species in South West Australia.

Luttrellia Shearer, *Mycologia* 70: 692 (1978)

Genus of *Halosphaeriaceae* (Jones et al. 2009a) that was established by Shearer (1978) to accommodate the type species, *L. estuarina* Shearer from decayed balsa wood submerged in Patuxent River, USA. Another three species were described from freshwater habitats (Ferrer and Shearer 2007). No molecular study has been carried out to establish the phylogenetic position of the genus. *Luttrellia* is distinguished from other genera in the family by hyaline, phragmoseptate and thick-walled ascospores, with or without a gelatinous sheath. No asexual morph is known.

Macgarvieomyces Klaubauf et al., Stud. Mycol. 79: 107 (2014)

MacGarvie introduced the genus *Diplorhinotrichum* based on two species occurring on *Juncus* spp (Klaubauf et al. 2014). de Hoog and Van Oorschot (1985) treated *Diplorhinotrichum* as a synonym of *Dactylaria*, and retained the species in *Pyricularia*. However, based on a LSU, ITS, RPB1, actin and calmodulin dataset, Klaubauf et al. (2014) showed the above species do not belong in *Pyricularia* and a new genus, *Macgarvieomyces*, was introduced in the family *Pyriculariaceae* to accommodate them.

Macroconia (Wollenw.) Gräfenhan et al., in Gräfenhan et al., Stud. Mycol. 68(1): 101 (2011)

A section of *Nectria*, *Macroconia*, was raised to generic rank for five species all producing sexual morphs and macroconidial asexual morphs. The type species is *M. leptosphaeriae* (Niessl) Gräfenhan & Schroers, which is based on *Nectria leptosphaeriae* Niessl. Members of this genus mostly grow on the stromata of other ascomycetes on herbaceous plants or deciduous trees. In the phylogenetic analyses, *Macroconia* species are placed in *Nectriaceae* (Gräfenhan et al. 2011).

Magnaporthiopsis J. Luo & N. Zhang Mycologia 105(4): 1024 (2013)

A study on the family *Magnaporthaceae* by Luo and Zhang (2013) based on multiple genes including SSU, ITS, LSU, MCM7, RPB1 and TEF data showed that *Magnaporthe* and *Gaeumannomyces* are polyphyletic. Furthermore their members divided into four major groups and considering morphological, biological and molecular data, a new genus, *Magnaporthiopsis* was introduced. Species in this genus are necrotrophic parasites infecting roots of grasses (Luo and Zhang 2013). The genus is typified with *Magnaporthiopsis poae* J. Luo & N. Zhang and presently there are four species in *Magnaporthiopsis.*

Magnisphaera J. Campb. et al., Mycologia 95: 546 (2003)

Genus of *Halosphaeriaceae* introduced by Campbell et al. (2003) to accommodate the type species, *M. spartinae* (E.B.G.

Jones) J. Campb. et al. *Halosarpheia spartinae* (E.B.G. Jones) Shearer & J.L. Crane was transferred to *Magnisphaera* based on phylogenetic analyses of SSU and LSU rDNA sequence data (Campbell et al. 2003). Another new species, *M. stevemossago* J. Campb. et al. was described from decayed wood in freshwater habitats in the same study. No asexual morph is known (Campbell et al. 2003). *Matsusphaeria* (Pang et al. 2004) is a synonym of *Magnisphaera* J. Campb. et al., which is an earlier name.

Marinokulati E.B.G. Jones & K.L. Pang, Cryptogamie Mycologie 35: 132 (2014)

A genus introduced to accommodate the marine ascomycete *Chaetosphaeria chaetosa* Kohlm. as Jones et al. (2014) showed that *Chaetosphaeria* was polyphyletic, with most species grouping in the order *Chaetosphaeriales*. Two sequences of *Ch. chaetosa* formed a monophyletic group with *Juncigena adarca* Kohlm. et al., *Moheitospora fruticosa* Abdel-Wahab et al. and two *Fulvocentrum* species, with high bootstrap support in the family *Juncigenaceae*, *Hypocreomycetidae* order *incertae sedis* (Jones et al. 2014).

Marinosphaera K.D. Hyde, Can J. Bot. 67: 3080 (1989)

Monotypic marine genus, whose taxonomic position is not resolved at the molecular level (Jones et al. 2009b) and further sampling, is required. Initially referred to the *Phyllachoraceae* (Hyde 1989), while Jones et al. (2009b) showed it grouping as a separate clade to the *Microascaceae* and *Halosphaeriaceae,* but it shows little affinities with either of these families. However, depending on the molecular analysis of SSU and LSU rRNA gene sequence data the genus *Marinosphaera* is currently palced in *Phyllachorales* genus *incertae sedis* (Jones et al. 2009b). No asexual morph is known.

Marinospora A.R. Caval., Nova Hedwigia 11: 548 (1966)

Genus introduced to accommodate two lignicolous marine ascomycetes grouping in the *Halosphaeriaceae* (*Microascales*) with high support and forming a sister group to the genera *Ondiniella* and *Toriella* (Sakayaroj et al. 2011a). No asexual morph is known.

Matsusporium E.B.G. Jones & K.L. Pang, in Abdel-Wahab et al., Mycol. Progr. 9(4): 550 (2010)

Monotypic marine asexual genus in the *Lulworthiales* (Abdel-Wahab et al. 2010), and forming a sister clade to *Lulworthia grandispora* Meyers (*Lulworthia* sensu *lato*). The type species is *M. tropicale* (Kohlm.) E.B.G. Jones & K.L. Pang, initially described as *Cirrenalia tropicalis* Kohlm., but in a molecular study was found to be distantly placed from the type species of *Cirrenalia* (*C. macrocephala* (Kohlm.) Meyers & R.T. Moore), *Halosphaeriaceae* (Abdel-Wahab et al. 2010). No sexual morph is known.

Mattirolia Berl. & Bres., Microm. Trid.: 55 (1889)

After examining the type species of *Balzania*, *Mattirolia*, *Thyridium*, and *Thyronectroidea*, only *Mattirolia* (with 5 species) and *Thyridium* (with 4 species) are accepted within the class *Thyridiaceae. Balzania* and *Thyronectroidea* are considered as synonyms of *Mattirolia* (Checa et al. 2013).

Melanconiella Sacc., Syll. fung. (Abellini) 1: 740 (1882)

Voglmayr et al. (2012) confirmed that *Melanconiella* is monophyletic and distinct from *Melanconis* based on LSU sequence data. The type species for *Melanconiella* is *M. spodiaea* (Tul. & C. Tul.) Sacc. *Melanconiella* was shown to comprise 13 species based on combined phylogenetic analyses of SSU, ITS, LSU, TEF and RPB2 sequence data. The genus is confined to host family *Betulaceae. Melanconiella* has previously been placed in *Melanconidaceae* as it was considered as a synonym of *Melanconis*. A characteristic melanconium- or discosporina-like asexual morph was produced by each species of *Melanconiella*.

Melanopsamma Niessl, Verh. nat. Ver. Brünn 14: 200 (1876)

Three bitunicate species are exclude from the genus by Wang (2011).

Melogrammataceae G. Winter [as 'Melogrameae'], Rabenh. Krypt.-Fl., Edn 2 (Leipzig) 1.2: 797 (1886)

Jaklitsch and Voglmayr (2012) recollected the type species, *Melogramma campylosporum* Fr., which clustered in *Xylariales* in a monophyletic lineage. The family name was therefore retrieved to accommodate this sole taxon.

Menisporopsis S. Hughes, Mycol. Pap. 48: 59 (1952)

Menisporopsis is typified by *Menisporopsis theobromae* S. Hughes and a sequence of this putative name is listed under *Ascomycota* genera *incertae sedis* in GenBank and *Chaetothyriaceae* in Index Fungorum (2014). *Menisporopsis kobensis* Matsush. was linked to *Menisporopascus kobensis* Matsush. (Index Fungorum 2015; Matsushima 2001), however no sequence data is available for these taxa. We treat *Menisporopsis* in *Ascomycota* genera *incertae sedis* pending a molecular study.

Metapochonia Kepler et al., in Kepler et al., Mycologia 106(4): 820 (2014)

This genus was proposed based on molecular analyses of TUB, RPB1, RPB2 and TEF gene sequences (Kepler et al. 2014). No sexual morph is know for this genus.

Mirannulata Huhndorf et al., Sydowia 55(2): 173 (2003)

This genus was described by Huhndorf et al. (2003), they placed this genus in *Sordariomycetes* genera *incertae sedis* based on morphology. Boonyuen et al. (2012) in their phylogenetic analyses using a LSU and SSU gene dataset placed it in *Sordariomycetidae* genera *incertae sedis*.

Moana Kohlm. & Volkm.-Kohlm., Mycol. Res. 92: 418 (1989)

Monotypic genus of *Halosphaeriaceae* that was established by Kohlmeyer and Volkmann-Kohlmeyer (1989) to accommodate the marine fungus, *M. turbinulata* Kohlm. & Volkm.-Kohlm. No molecular study has been carried out on the genus and further studies are required to confirm its assignment to the *Halosphaeriaceae*. No asexual morph is known (Kohlmeyer and Volkmann-Kohlmeyer 1989).

Moheitospora Abdel-Wahab et al., in Abdel-Wahab et al., Mycol. Progr. 9(4): 551 (2010)

The asexual genus that groups in *Juncigenaceae* with the marine genera *Juncigena*, *Fulvocentrum*, and *Marinokulati* (Jones et al. 2014). It is distinct from, but forms a sister group to *Juncigena* with high support and we maintain these as distinct genera. The fungus has coiled conidia with small cells that distinguish it from *Cirrenalia* species (Abdel-Wahab et al. 2010). No sexual morph has been observed.

Moleospora Abdel-Wahab et al., in Abdel-Wahab et al., Mycol. Progr. 9(4): 547 (2010)

A monotypic marine asexual genus in the *Lulworthiales* (Abdel-Wahab et al. 2010) isolated from *Phragmites australis* collected in Egypt. Morphologically it is similar to *Halenospora varia* (Anastasiou) E.B.G. Jones and *Cumulospora marina* I. Schmidt, but differs in conidial dimensions (Abdel-Wahab et al. 2010). No sexual morph is known.

Monilochaetes Halst. ex Harter, J. Agric. Res., Washington 5: 791 (1916)

The type species of *Dischloridium*, *D. laeënse* (Matsush.) B. Sutton was synonymised under *Monilochaetes*, but molecular data shows it forms a sister clade to the generic type of *Monilochaetes*, *M. infuscans* Harter in *Australiasca* (Réblová et al. 2011a).

Monochaetia (Sacc.) Allesch., Rabenh. Krypt.-Fl., Edn 2 (Leipzig) 1(7): 665 (1902) [1903]

Steyaert (1949) treated *Monochaetia* (Sacc.) Allesch. and placed species with single setula in section Monosetulatae of *Pestalotiopsis* and *Truncatella*. However, *Monochaetia* was retained as a distinct genus by Guba (1961) based on its single apical appendage. *Monochaetia* is not linked to a sexual morph and so far more than 120 taxa have been described in *Monochaetia*, and these mostly comprise 4 septate and 5 septate species. Based on LSU sequence data Maharachchikumbura et al. (2014) show that *Monochaetia* represents a genus that is distinct from *Pestalotiopsis*, *Seiridium* and *Truncatella*. However, it is essential to incorporate molecular data and more taxon sampling in future analyses as *Monochaetia* includes 3-, 4-, and 6-celled conidial forms (Maharachchikumbura et al. 2014).

Monochaetinula Muthumary et al., Trans. Br. mycol. Soc. 87(1): 104 (1986)

The genus is typified by *M. terminalae* (Bat. & Bezerra) Muthumary et al., an asexual coelomycete genus in the *Amphisphaeriaceae*, which includes *M. ampelophila* (Speg.) Nag Raj, *M. caffra* Matsush, *M. ceratoniae* (Sousa da Câmara) Nag Raj, *M. geoffroeana* Bianchin. and *M. sterculiae* Nag Raj. A molecular study is required to ascertain its taxonomic position in the Ascomycota.

Morakotiella Sakay., Mycologia 97(4): 806 (2005)

Monotypic genus of *Halosphaeriaceae* that was introduced by Sakayaroj (2005) to accommodate *Haligena salina* C.A. Farrant & E.B.G. Jones. Phylogenetic analyses of the LSU rDNA of the two *Haligena* species showed that it was polyphyletic with the type species (*H. elaterophora*) forming a basal clade to the family. Subsequently, Sakayaroj et al. (2011a) showed that *Morakotiella salina* (C.A. Farrant & E.B.G. Jones) Sakay. grouped as a sister taxon to the genera *Kochiella* and *Ocostospora* with high statistical support. No asexual morph is known.

Morinia Berl. & Bres., Annuario Soc. Alpinisti Trident., 1887–88: 82 (1889) [1887–88]

The genus *Morinia* is based on *M. pestalozzioides* Berl. & Bres. and comprises an asexual fungus forming appendage and muriform conidia in acervular conidiomata (Collado et al. 2006). ITS sequence data indicate that *Morinia* belongs in *Amphisphaeriaceae* with the highest similarity to *Bartalinia* and *Truncatella* (Collado et al. 2006).

Moromyces Abdel-Wahab et al., in Abdel-Wahab et al., Mycol. Progr. 9(4): 555 (2010)

Marine monotypic asexual genus in the order *Lulworthiales* (Abdel-Wahab et al. 2010) forming a sister clade to the monophyletic genus *Lulwoana*. The genus was introduced for the species *Cumulospora varia* Chatmala & Somrith., as it was distantly placed from the type species of *Cumulospora* (*C. marina*). No sexual morph is known.

Muscodor Worapong et al., Mycotaxon 79: 71 (2001)

The genus *Muscodor* was introduced by Worapong et al. (2001) for the placement of *M. albus* Worapong et al., an endophytic fungus that produces volatile antibiotics. It is an asexual genus that has tentatively been referred to the *Xylariaceae*. However, the possibility of the inclusion of this genus in the family has been addressed by Stadler et al.

(2013). The phylogenetic analysis by Worapong et al. (2001) was inadequate to support the family placement because they compared only ribosomal RNA gene sequences of a limited number of taxa. Later on, with the availability of reliable sequence data for important taxa, Stadler et al. (2013) carried out a molecular analysis using only ITS data and *Muscodor* nested in the xylarioid *Xylariaceae*. Thus they represent a monophyletic basal clade to other xylarioid *Xylariaceae* especially as an in-group of the heterogeneous group *Xylaria*.

Musicillium Zare & W. Gams, in Zare et al., Nova Hedwigia 85(3–4): 482 (2007)

Verticillium theobromae Turconi is not congeneric with *Verticillium* sensu stricto, as shown in cladograms based on LSU and ITS sequences, and the genus *Musicillium* was introduced to accommodate it (Zare et al. 2007). The genus is accommodated in *Plectosphaerellaceae*. *Musicillium theobromae* (Turconi) Zare & W. Gams is the causal agent of cigar-end rot of bananas.

Myceliophthora Costantin, C. r. hebd. Séanc. Acad. Sci., Paris 114: 849 (1892)

Myceliophthora is typified by *Myceliophthora lutea* Costantin and *Corynascus* is typified by *Corynascus sepedonium* (C.W. Emmons) Arx and both genera are linked by molecular data (van den Brink et al. 2012). *Myceliophthora* is the earlier described genus and it is commonly used in publications. Van den Brink et al. (2012) proposed to place all *Corynascus* species under *Myceliophthora*.

Myrothecium Tode, Fung. mecklenb. sel. (Lüneburg) 1: 25 (1790)

Based on DNA sequences analysis, Castlebury et al. (2004) showed that species of *Stachybotrys*, species of *Myrothecium* and two hypocrealean species form a previously unknown monophyletic lineage within the *Hypocreales*. In recent studies Crous et al. (2014) introduced the family *Stachybotriaceae* to accommodate this undescribed family and the genus *Myrothecium*.

Nais Kohlm., Nova Hedwigia 4: 409 (1962)

Genus of *Halosphaeriaceae* that was established by Kohlmeyer (1962) to accommodate *N. inornata* Kohlm. Another species, *N. aquatica* K.D. Hyde was described from a freshwater habitat. Phylogenetic analyses of the LSU rDNA confirmed its placement in the family and showed that *N. inornata*, has a close relationship with *Aniptodera* (Sakayaroj 2005, Sakayaroj et al. 2011a). No asexual morph is known (Shearer and Crane 1978).

Nalanthamala Subram., J. Indian bot. Soc. 35: 478 (1956)

The genus *Nalanthamala* was shown to be linked to *Rubrinectria* by Schroers et al. (2005) in *Nectriaceae*. As *Rubrinectria* has a single species, Rossman et al. (2013) proposed using the older name *Nalanthamala* with *Rubrinectria* as a synonym. This is followed here.

Natantispora J. Campb. et al., Mycologia 95(3): 543 (2003)

Genus with two aquatic species that was introduced by Campbell et al. (2003) to accommodate two *Halosarpheia* species, *H. lotica* Shearer and *H. retorquens* Shearer & J.L. Crane and another marine species (*N. unipolarae*) described by K.L. Pang et al. in Liu et al. (2015). The genus formed a well-supported clade that is distant from the type species, *H. fibrosa* Kohlm. & E. Kohlm. (Jones et al. 2009a), based on phylogenetic analyses of SSU and LSU rDNA. No asexual morph is known.

Naufragella Kohlm. & Volkm.-Kohlm., Syst. Ascomycetum 16: 19 (1998)

Abdel-Wahab (2011) concluded, based on LSU sequence data, that the genera *Naufragella* and *Nohea* were congeneric and *Naufragella spinibarbata* (Jørg. Koch) Kohlm. & Volkm.-Kohlm. was consequently transferred to *Nohea*. However, Chu et al. (2015) in a phylogenetic reappraisal of *Nimbospora*, showed that *N. spinibarbata* formed a sister group to two *Nimbospora* species with high statistical support. Their data places *Nohea umiumi* Kohlm. & Volkm.-Kohlm. as a sister clade to the *Nimbospora/Naufragella* clade with weak support. Unfortunately both studies used different genes and species so that the placement of these genera needs re-evaluation. Therefore, the transfer of *Naufragella spinibarbata* to *Nohea* requires further sampling of related taxa and a wider range of genes before the relationships of these genera are resolved.

Nautosphaeria E.B.G. Jones, Trans. Br. Mycol. Soc. 47(1): 97 (1964)

Monotypic marine ascomycete genus growing on submerged wood, with its placement in the *Halosphaeriaceae* confirmed by 28S rDNA sequences (Sakayaroj 2005, Sakayaroj et al. 2011a). No asexual morph is known.

Nectria (Fr.) Fr., Summa veg. Scand., Section Post. (Stockholm): 387 (1849)

The genus was revisited by Hirooka et al. (2012) with *N. cinnabarina* (Tode) Fr., the generic type and 29 additional species. *Tubercularia* was considered to be the asexual morph and listed as a synonym. *Nectria* clustered with 16 other genera in *Nectriaceae*. Rossman et al. (2013) proposed that the generic name *Nectria* be protected against *Tubercularia* by suppression of the latter generic name and this is followed here.

Nectriaceae Tul. & C. Tul. [as 'Nectriei'], Select. fung. carpol. (Paris) 3: 3 (1865)

Chaverri et al. (2011) showed *Nectriaceae* to comprise seven genera. The family was revisited by Hirooka et al. (2012) with a monograph of *Allantonectria*, *Nectria* and *Pleonectria.* Besides these genera, *Calonectria*, *Cosmospora*, *Cyanonectria*, *Corallomycetella*, *Lanatonectria*, *Leuconectria*, *Neocosmospora*, *Ophionectria*, *Pseudonectria*, *Rodentomyces*, *Rugonectria*, *Thelonectria* and *Viridispora* clustered in *Nectriaceae.*

Nemania Gray, Nat. Arr. Brit. Pl. (London) 1: 508, 516 (1821)

Geniculisynnema termiticola Okane & Nakagiri, was introduced to accommodate the asexual morph of *Xylaria angulosa* J.D. Rogers et al. *Geniculisynnema termiticola* was obtained from a piece of a termite nest incubated in a moist chamber and another fungus isolated on Oatmeal agar (OA) from the same termite nest produced the sexual morph (Okane and Nakagiri 2007). This upright, upper part branched stromata were identical with *X. angulosa* found from soil in Indonesia by Rogers et al. (1987). The sexual morph and the asexual morph were different in their morphology and colony characteristics (Okane and Nakagiri 2007). *Geniculisynnema termiticola* has never formed its stromata on media. Nevertheless the phylogenetic analysis by Okane and Nakagiri (2007) showed that *G. termiticola* nested with *Nemania*, which has close affinities to the *Xylaria.* Thus it can be assumed that its sexual morph should be linked to *Nemania.* As mentioned in Stadler et al. (2013) *Geniculisynnema* can be considered as the younger synonym of *Nemania.* The genus *Geniculosporium* was introduced by Chesters and Greenhalgh (1964) and typified by *G. serpens* Chesters & Greenh., which is currently named as *Nemania serpens* (Pers.) Gray, which is also the type species of the sexual genus *Nemania* S.F. Gray (Stadler et al. 2013). Kenerley and Rogers (1976) found that three *Nemania* species produced *Geniculosporium* asexual morphs in culture (Petrini and Rogers 1986). Therefore, *Geniculosporium* can be suppressed in favour of *Nemania* (Stadler et al. 2013).

Neochaetosphaerella Lar.N. Vassiljeva et al., in Vasiljeva et al., Fungal Diversity 52(1): 192 (2012)

This monotypic genus was introduced by Vasilyeva et al. (2012) based on morphology. The type species is *N. thaxteriospora* Lar.N. Vassiljeva et al. This genus shares similarity to members of *Nitschkiaceae* sensu *lato* but no molecular data is available.

Neolinocarpon K.D. Hyde, Bot. J. Linn. Soc. 110: 104 (1992) (1992)

Based on morphology, the genus *Neolinocarpon* cannot be placed in any family within *Xylariales* with certainty and thus is placed as *Xylariales* genera *incertae sedis* (Jones et al. 2009a, b).

Neonectria Wollenw., Annls mycol. 15(1/2): 52 (1917)

Chaverri et al. (2011) placed *Neonectria* sensu stricto in *Nectriaceae* with *Cylindrocarpon* sensu stricto asexual morphs. Rossman et al. (2013) recommended, given the broad classical concept of *Cylindrocarpon* and that it is well-circumscribed and includes a number of plant pathogenic species, that the generic name *Neonectria* is protected against *Cylindrocarpon. Cylindrodendrum* was considered not to be congeneric with *Neonectria*, while the synonymy of *Heliscus* was doubtful.

Neopestalotiopsis Maharachch. et al., Stud. Mycol. 79: 135 (2014)

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 introduced. *Neopestalotiopsis protearum* (Crous & L. Swart) Maharachch. et al., which was isolated from living leaves of *Leucospermum cuneiforme* in Zimbabwe, was assigned as the generic type. Morphologically *Neopestalotiopsis* can easily be distinguished from *Pseudopestalotiopsis* and *Pestalotiopsis* by its versicolorous median cells. Furthermore, in *Neopestalotiopsis*, conidiophores are indistinct and often reduced to conidiogenous cells (Maharachchikumbura et al. 2014). In their phylogenetic analysis Maharachchikumbura et al. (2014) included 24 ex-type/ex-epitype strains for species of *Neopestalotiopsis*.

Neopyricularia Klaubauf et al., Stud. Mycol. 79: 109 (2014)

Neopyricularia is a newly introduced genus in the family *Pyriculariaceae*, with the type species *Pyricularia commelinicola* Klaubauf et al., which was isolated from *Commelina communis* in South Korea (Klaubauf et al. 2014). Phylogenetically (combined LSU, ITS, RPB1, actin and calmodulin dataset), *P. commelinicola* does not cluster within clades corresponding to species of *Pyricularia* sensu stricto and hence Klaubauf et al. (2014) introduced the genus *Neopyricularia.*

Neptunella K.L. Pang & E.B.G. Jones, Mycol. Prog. 2 (1): 35 (2003)

A taxon previously referred to *Gnomonia* (Cribb and Cribb 1956) and *Lignincola* (Kohlmeyer 1984), but morphological and molecular data confirms its placement in the *Halosphaeriaceae* (Pang et al. 2003; Jones et al. 2009a, b). The genus is monotypic and resembles *Lignincola.* No asexual morph is known.

Nereiospora E.B.G. Jones et al., Bot. J. Linn. Soc. 87 (2): 204 (1983)

An ascomycete genus well placed at the morphological and molecular level in the *Halosphaeriaceae*, with a monodictys-like asexual morph (Mouzouras and Jones

1985; Sakayaroj et al. 2011a). *Nereiospora* forms a well-supported clade in the *Halosphaeriaceae* (Sakayaroj et al. 2011a).

Neurospora Shear & B.O. Dodge, J. Agric. Res., Washington 34: 1025 (1927)

The type species of *Chrysonilia*, *C. sitophila* (Mont.) Arx is linked to the type species of *Neurospora*, *N. sitophila* Shear & B.O. Dodge (Francuz et al. 2010). *Neurospora* is the older and more commonly used name and therefore *Chrysonilia* should be a synonym.

Niesslia Auersw., in Gonnermann & Rabenhorst, Myc. Europ. Pyren. 5–6: 30 (1869)

Whitton et al. (2012) introduced four new species in *Niesslia* (*N. cinctiostiolata* Whitton et al., *N. kapitiae* Whitton et al., *N. pacifica* Whitton et al., *N. vaginata* Whitton et al.) from *Pandanaceae*, while Etayo et al. (2013) introduced a lichenicolous species *N. echinoides* Etayo et al., all based on morphology. There are 11 hits in GenBank for a putative strain of *N. exilis* (Alb. & Schwein.) G. Winter, but the generic type species *N. exosporioides* (Desm.) G. Winter (= *N. chaetomium* (Corda) Auersw. has not been sequenced.

Nigrocornus Ryley & Langdon, in Ryley, Mycology Series (New York) 19: 266 (2003)

This genus *Nigrocornus* was introduced to accommodate a species of *Balansia* which was significantly different from that of the type and all other *Balansia* species (Ryley 2003). The genus belongs in the family *Clavicipitaceae*.

Nimbospora Jørg. Koch, Nordic J. Bot. 2 (2): 166 (1982)

Genus in the *Halosphaeriaceae* based on morphological and molecular evidence, with Chu et al. (2015) showing two *Nimbospora* species forming a sister clade to *Naufragella spinibarbata* (Jørg. Koch) Kohlm. & Volkm.-Kohlm. with high statistical support. No asexual morph is known for species assigned to this genus.

Nitschkiaceae Höhn., Nova Acta R. Soc. Scient. upsal., Ser. 4 8(no. 2): 56 (1932)

Mugambi and Huhndorf (2010) revisited the order *Coronophorales* with DNA sequence data and showed *Nitschkiaceae* to be paraphyletic with *Fracchiaea* species not consistently grouping together or with *Nitschkia* and *Acanthonitschkea*.

Nohea Kohlm. & Volkm.-Kohlm., Syst. Ascomycetum 19: 121 (1991)

Monotypic genus in the *Halosphaeriaceae* supported by morphological and molecular data (Sakayaroj et al. 2011a; Chu et al. 2015). The type species (*N. umiumi* Kohlm. & Volkm.-Kohlm.) forms a sister clade to the *Nimbospora/Naufragella* clade with moderate support. A unique feature of *Nohea umiumi* is the ascospores with two types of appendages (Kohlmeyer and Volkmann-Kohlmeyer 1991). No asexual morph is known.

Occultocarpon L.C. Mejía & ZhuL. Yang, in Mejía et al., Fungal Diversity 52(1): 101 (2012)

This monotypic genus is placed in *Gnomoniaceae*, *Diaporthales* based on a dataset of LSU, RPB2 and TEF gene sequence data (Mejía et al. 2012). The type species is *O. ailaoshanense* L.C. Mejía & Zhu L. Yang and was isolated from the bark of *Alnus nepalensis* in Yunnan, China (Mejía et al. 2012).

Oceanitis Kohlm., Revue Mycol., Paris 41(2): 193 (1977)

Ascosalsum was introduced by Campbell et al. (2003) to accommodate two *Halosarpheia* and one *Haligena* species. Molecular study of SSU and LSU rDNA confirmed that *Ascosalsum* is congeneric with *Oceanitis* (Dupont et al. 2009). Consequently all species assigned to *Ascosalsum* were reduced to synonymy in *Oceanitis*. These species formed a highly supported clade in the *Halosphaeriaceae* with *Ophiodeira monosemeia* Kohlm. & Volkm.-Kohlm.

Ocostaspora E.B.G. Jones et al., Bot. Mar. 26(7): 353 (1983)

Monotypic genus in the *Halosphaeriaceae* (*Microascales*) with *Kochiella* as a sister group in a statistically well support clade (Sakayaroj et al. 2011a). No asexual morph is known.

Oedemium Link, in Willdenow, Willd., Sp. pl., Edn 4 6(1): 42 (1824)

Oedemium minus (Link) S. Hughes was reported as the asexual morph of the type species of *Chaetosphaerella*, i.e. *C. phaeostroma* (Durieu & Mont.) E. Müll. & C. Booth by Réblová (1999b). The conidia of *Oedemium minus* develop in a cluster at the apex of apical swelling of the terminal polytretic conidiogenous cell (Hughes and Hennebert 1963). Conidia of *O. didymum* (J.C. Schmidt) S. Hughes which is reported as the asexual morph of *Chaetosphaerella fusca* (Fuckel) E. Müll. & C. Booth (Ellis 1971) are produced in acropetal chains of the apex of polytretic conidiogenous cells; not more than two chains occur on a conidiogenous cell (Réblová 1999b). *Veramycina elegans* Subram. was described on the basis of culture studies of *Oedemium minus* (Subramanian 1993). Réblová (1999b) observed that conidiophores of *Veramycina elegans* synanamorphs were found among conidiophores of *Oedemium minus* developing from the same mycelium in a collection made on *Carpinus betulus* in the Czech Republic (Herbarium – M. Réblová 866/96). Since, *Veramycina* was published as a new genus, based on the culture of *Oedemium minus*; we consider *O. minus* and

Veramycina elegans as synonyms. However, the types of these genera have not been linked and therefore *Chaetosphaerella* and *Oedemium* are maintained as distinct genera until shown otherwise.

Okeanomyces K.L. Pang & E.B.G. Jones, Bot. J. Linn. Soc. 146(2): 228 (2004)

Monotypic genus in the *Halosphaeriaceae*, that was introduced by Pang et al. (2004) to accommodate *Halosphaeria cucullata* (Kohlm.) Kohlm. In their study, phylogenetic analyses of LSU rDNA placed *H. cucullata* in a distant clade from the type species of the genus *Halosphaeria* (*H. appendiculata*). *Periconia prolifica* Anast. which is not the type of *Periconia*, is the asexual morph of the type species, *Okeanomyces cucullatus* (Kohlm.) K.L. Pang & E.B.G. Jones.

Ondiniella E.B.G. Jones et al., Bot. Mar. 27(3): 136 (1984)

Monotypic genus in the *Halosphaeriaceae* that was introduced by Jones et al. (1984) to accommodate *Halosphaeria torquata* Kohlm. The fungus was excluded from the genus *Halosphaeria* based on the nature and mode of development of the appendages at the ultrastructure level. Multi-gene phylogeny confirmed its position in *Halosphaeriaceae* with *O. torquata* in a distant clade from the type species, *Halosphaeria appendiculata. Ondiniella torquata* (Kohlm.) E.B.G. Jones et al. forms a well supported clade with *Toriella tubulifera* (Kohlm.) Sakay.et al. as a sister group (Sakayaroj et al. 2011a, b). No asexual morph is known.

Ophioceraceae Klaubauf et al., Stud. Mycol. 79: 104 (2014)

Ophioceraceae includes the single genus *Ophioceras* (Klaubauf et al. 2014). Based on the sequence data Klaubauf et al. (2014) showed *Ophioceras* clearly clusters separate from the *Magnaporthaceae*, and hence introduce a new family *Ophioceraceae*

Ophioceras Sacc., Syll. fung. (Abellini) 2: 358. 1883.

Morphologically *Ophioceras* is somewhat similar to *Gaeumannomyces*, however the two genera can easily be distinguished by the aquatic habit of *Ophioceras*, occurring on wood and herbaceous material, versus the plant pathogenic nature of *Gaeumannomyces* (Chen et al. 1999; Klaubauf et al. 2014). In addition based on sequence analysis of LSU, ITS, RPB1, actin and calmodulin gene data, Klaubauf et al. (2014) showed that *Ophioceras* clearly clusters separate to the family *Magnaporthaceae* and hence a new family, *Ophioceraceae*, was introduced.

Ophiodeira Kohlm. & Volkm.-Kohlm., Can. J. Bot. 66(10): 2062 (1988)

Monotypic genus of *Halosphaeriaceae* that was introduced by Kohlmeyer and Volkmann-Kohlmeyer (1988) to accommodate the marine fungus, *O. monosemeia* Kohlm. & Volkm.-Kohlm. Multi-gene phylogeny confirms its position in *Halosphaeriaceae* with *O. monosemeia* in a well-supported clade with *Oceanitis* species as a sister group (Sakayaroj et al. 2011a). No asexual morph is known (Kohlmeyer and Volkmann-Kohlmeyer 1988).

Ophiodiaporthe Y.M. Ju et al., Mycologia 105(4): 868 (2013)

This monotypic genus was introduced by Fu et al. (2013) for a pathogen causing a wilt disease of *Cyathea lepifera* in Taiwan with *Ophiodiaporthe cyatheae* Y.M. Ju et al. as the type species. Phylogenetic analyses based on combined gene sequences placed *O. cyatheae* in *Diaporthaceae*.

Ophiodothella (Henn.) Höhn., Sber. Akad. Wiss. Wien, Math.-naturw. Kl., Abt. 1 119: 940 [64 repr.] (1910)

Boyd (1934) described the asexual morph of *Ophiodothella vaccinii* Boyd as an acervulus, without assigning it to a particular genus (Hanlin 1990a). The asexual morph of *Ophiodothella vaccinii* Boyd was later assigned to a new monotypic genus *Acerviclypeatus* as *A. poriformans* Hanlin (Hanlin 1990b). This connection was based on cultural studies. Barr (1990) indicated that *Septoria angustissima* Peck (Peck 1911) was probably an earlier name for *Ophiodothella vaccinii*. Hanlin (2013) examined the type species of *Acerviclypeatus poriformans*, *Ophiodothella vaccinii* and *Septoria angustissima* and suggested they represent the same taxon. Then he suggested a new name as *Ophiodothella angustissima* (Peck) Hanlin & M.C. González. *Acerviclypeatus* has not been linked to *O. atromaculans* (Henn.) Höhn., which is the generic type of *Ophiodothella* and therefore both genera should be currently retained. *Ophiodothella* is placed in *Phyllachoraceae.*

Orbimyces Linder, Farlowia 1: 404 (1945)

Monotypic asexual marine genus that groups in the *Lulworthiales* with low support (Jones et al. 2009b). Further molecular studies are required to determine its taxonomic affinities within the order. The fungus sporulates in culture but no sexual morph was observed (Jones, pers. comm.).

Orbiocrella D. Johnson et al., Mycol. Res. 113(3): 286 (2009)

This genus was introduced to accommodate *Torrubiiella petchiii* Hywel-Jones which was recognized as a distinct lineage of pathogens of scale insect in *Clavicipitaceae*, based on morphological characters and phylogenetic analysis of nrSSU, nrLSU, TEF, RPB1 and RPB2 gene data (Johnson et al. 2009).

Orcadia G.K. Sutherl., Trans. Br. mycol. Soc. 5(1): 151 (1915) [1914]

Monotypic marine ascomycete genus growing on seaweeds based on morphological observations, and requiring further collection, isolation and sequencing to determine its relationship (Jones et al. 2009b). Sutherland (1915) referred the genus to the *Hyponectriaceae* (*Xylariales*), in having interthecial elements. Rossman et al. (1999) suggested retention in the *Pezizales* based on its operculate asci. However, Jones et al. (2009b) decided to place the genus *Orcadia* as *Sordariomycetes* genera *incertae sedis* which we follow here. No asexual morph is known.

Oxydothis Penz. & Sacc., Malpighia 11: 505 (1898)

Genus of ascomycetes with ascomata immersed in palm tissues beneath the host epidermis. Kang et al. (1999a) referred the genus to the *Clypeosphaeriaceae*, while Jones et al. (2009b) placed marine species in *Xylariales* genera *incertae sedis* which we follow here. Further molecular studies are required to determine its taxonomic position.

Panorbis J. Campb. et al., Mycologia 95(3): 544 (2003)

Monotypic genus in *Halosphaeriaceae* that was introduced by Campbell et al. (2003) based on phylogenetic analyses of SSU and LSU rDNA to accommodate one *Halosarpheia* species, *H. viscosa* (I. Schmidt) Shearer & J.L. Crane that did not group with the type species *H. fibrosa* Kohlm. & E. Kohlm . Sakayaroj et al. (2011a) showed that the species groups with *Halosarpheia marina* (Cribb & J.W. Cribb) Kohlm. with weak support. No asexual morph is known (Campbell et al. 2003).

Papulosa Kohlm. & Volkm.-Kohlm., Syst. Ascomycetum 11: 96 (1993)

Monotypic marine genus, referred to the family *Papulosaceae* (*Diaportheomycetidae*, *Sordariomycetes*) and supported by morphological and molecular data (Eriksson and Winka 1997).

Paracremonium Lombard & Crous, in Lombard et al., Studies in Mycology 80: 233 (2015)

The genus *Paracremonium* was introduced to accommodate different strains from a group of fungi previously treated as *Acremonium recifei* (Leão & Lôbo) W. Gams. This genus is morphologically different from other acremonium-like genera by the formation of sterile coils from radiate conidiophores and hyphae with inconspicuously swollen septa (Lombard et al. 2015). Phylogenetic studies showed this genus belongs to family *Nectriaceae* (Lombard et al. 2015). This genus is typified by *P. inflatum* L. Lombard & Crous.

Payosphaeria W.F. Leong, Bot. Mar. 33: 511 (1990)

Monotypic marine ascomycete genus in *Hypocreales*, genera *incertae sedis*, growing on submerged wood and introduced by Leong et al. (1990) *based on morphological observations. The species requires further collection, isolation and sequencing to determine its phylogenetic* placement *in the Ascomycota (*Jones et al. 2009b*)*. The type species *Payosphaeria minuta* W.F. Leong was collected from mangrove wood in Malaysia and Singapore. No asexual morph is known.

Pedumispora K.D. Hyde & E.B.G. Jones, Mycol. Res. 96: 78 (1992)

Pedumispora was introduced by Hyde and Jones (1992) for a marine ascomycete. It was tentatively referred to the order *Diaporthales*. Phylogenetic analyses reveal that *Pedumispora rhizophorae* K.D. Hyde & E.B.G. Jones is distantly placed from the *Diaporthales*, and groups in the *Diatrypaceae*, *Xylariales* with strong support (Klaysuban et al. 2014). *Pedumispora rhizophorae* shares many features with members of the *Diatrypaceae*, including its saprobic habitat on decaying plant material, ascomata embedded in a pseudostroma, the presence of paraphyses and pigmented ascospores. However, *P. rhizophorae* differs from other members of the *Diatrypaceae* in a number of aspects. In species of *Diatrypaceae* most ascospores are allantoid and unicellular, whereas *P. rhizophorae* has septate, filiform ascospores with the apical cells lacking contents and appearing as a hook-like appendage (Klaysuban et al. 2014). No asexual morph is known.

Peethambara Subram. & Bhat, Revue Mycol., Paris 42(1): 52 (1978)

The genus *Peethambara* as typified by *P. sundara* Subram. & Bhat and was isolated from *Macaranga indica* in India. *Peethambara* was earlier classified as *Hypocreales* order *incertae sedis* (Castlebury et al. 2004). In their revision, Crous et al. (2014) showed *Peethambara* and related genera form a monophyletic lineage with *Stachybotrys* and introduced the novel family, *Stachybotriaceae* and this is supported in Wang et al. (2015).

Periconia Tode, Fung. mecklenb. sel. (Lüneburg) 2: 2 (1791)

Periconia prolifica is an asexual morph linked to *Okeanomyces cucullatus* (Kohlm.) K.L. Pang & E.B.G. Jones (= *Remispora cucullata* Kohlm.; *Halosphaeria cucullata* (Kohlm.) Kohlm.) by cultural observations and molecular data (Sakayaroj et al. 2011a). According to the data included in online databases such as MycoBank (Robert et al. 2005) and Index Fungorum, the genus *Periconia* comprises with about 183 published names and more than 20 have been transferred to other genera. Presently only about 40 species belong to this genus. The type species is *Periconia lichenoides* (Carmarán and Novas 2003; Kirk et al. 2008) and this and some other species, cluster in the order *Pleosporales* family *incertae sedis.*

Periglandula U. Steiner et al., in Steiner et al., Mycologia 103(5): 1137 (2011)

This genus was introduced with *Periglandula ipomoeae* U. Steiner et al. as the type species which was isolated from *Ipomoea asarifolia* in Ecuador. Species live on the adaxial leaf surface of plants belonging to the family *Convolvulaceae* and apparently are epibionts. Phylogenetic study based on sequence analysis of b-tubulin, RNA Polymerase II subunit 1 (rpbA), and the mitochondrial gene for ATP synthase F0 subunit A, grouped the *Periglandula* in the family *Clavicipitaceae* (Steiner et al. 2011).

Pestalotiopsis Steyaert, Bull. Jard. bot. État Brux. 19: 300 (1949)

The sexual morph of *Pestalotiopsis* is *Pestalosphaeria* and only 13 species are known as compared to the asexual morph (254 species names). *Pestalotiopsis* has been related to *Neobroomella* Petr. which was introduced by Petrak (1947). As such, the primal name is *Neobroomella*, but no sequence data has linked with the asexual *Pestalotiopsis* morph. Maharachchikumbura et al. (2011) pointed out that the common *Pestalotiopsis* name should be applied to both morphs and this is followed in this paper.

Phaeonectriella Eaton & E.B.G. Jones, Nova Hedwigia 19 (3–4): 779 (1971)

A genus of *Halosphaeriaceae* based on morphological and molecular evidence (Sakayaroj et al. 2011a), forming a sister group to *Panorbis* and *Halosarpheia*. No asexual morph is known.

Phialemoniopsis Perdomo et al., Mycologia 105(2): 408 (2013)

Perdomo et al. (2013) proposed the new genus *Phialemoniopsis* based on *Phialemoniopsis ocularis* (Gené & Guarro) Perdomo et al. (= *Sarcopodium oculorum* Gené & Guarro) and *Phialemoniopsis curvata* (W. Gams & W.B. Cooke) Perdomo et al. (= *Phialemonium curvatum* W. Gams & W.B. Cooke and two new species, *Phialemoniopsis cornearis* Perdomo et al. and *P. pluriloculosa* Perdomo et al. The genus comprises human pathogens and can be distinguished from *Phialemonium* in having phialides and adelophialides, both with collarettes, and in the development of sporodochium- or pycnidium-like conidiomata, unlike in *Phialemonium* sensu stricto. The relationships of *Phialemoniopsis* has not been completely resolved and the genus is placed in *Sordariomycetes* genera *incertae sedis*. Molecular analyses indicate that *Phialemoniopsis* species are distant from the type species of the genera *Phialemonium*, *Sarcopodium* and *Volutella*, and the orders *Sordariales* and *Hypocreales*.

Phlogicylindrium Crous et al., in Summerell et al., Fungal Diversity 23: 340 (2006)

The genus *Phlogicylindrium* was introduced for *P. eucalypti* Crous et al., a species associated with *Eucalyptus* leaves (Summerell et al. 2006; Crous et al. 2011). *Phlogicylindrium* is characterised by erect flame-like conidiomatal tufts (Summerell et al. 2006). ITS sequence data showed it clusters within the family *Amphisphaeriaceae* (Summerell et al. 2006).

Phomatospora Sacc., Grevillea 3: 22 (1875)

Genus of *Magnaporthaceae* (*Magnaporthales*) based on molecular analyses (18S rDNA) (Cai et al. 2006a). This genus is probably polyphyletic and further studies are required with a wider sampling of taxa and genes.

Phragmitensis M.K.M. Wong et al., Bot. Mar. 41: 379 (1998)

Genus of *Hyponectriaceae* (*Xylariales*) based on morphological observations and requiring a molecular study to confirm its taxonomic position. Ascomata occur on *Phragmites* in the intertidal zone of salt marshes (Wong et al. 1998b). No asexual morph is known.

Pileomyces K.L. Pang & Jheng, Botanical Studies 53: 536 (2012)

Monotypic marine genus in the *Halosphaeriaceae* described from a bamboo culm collected at Yingkeshih, Taiwan (Pang and Jheng 2012b). Ascospores of *P. formosanus* K.L. Pang & Jheng are similar to those of *Aniptodera* and *Phaeonectriella*. No asexual morph is known.

Pisorisporiaceae Réblová & J. Fourn., Persoonia 34: 43 (2015)

Réblová et al. (2015) placed *Pisorisporium* and *Achroceratosphaeria* in the family *Pisorisporiaceae* based on LSU, SSU and RPB2 sequence data and morphology. This family is placed in the order *Pirisporiales*.

Pisorisporium Réblová & J. Fourn., Persoonia 34: 45 (2015)

This genus has two species which were found on submerged deciduous wood. Molecular analysis and morphology studies place this genus in the family *Pisorisporiaceae* (Réblová et al. 2015). No asexual morph is known.

Plagiostoma Fuckel, Jb. nassau. Ver. Naturk. 23–24: 118 (1870) [1869–70]

The genus was revisited by Mejía et al. (2011) with 25 accepted species. The sexual genera *Cryptodiaporthe* and *Rostrocoronophora* and asexual genus *Diplodina* were considered synonyms. *Diplodina* is the older name and has priority and thus the mycological community must decide which name to retain. The genus is placed in *Gnomoniaceae* (Fig. 2).

Platytrachelon Réblová, Mycologia 105(2): 466 (2013)

Réblová (2013a) introduced this new genus with a single species, previously named *Ceratosphaeria abietis* Réblová, based on morphology and phylogenetic analyses. This wood-inhabiting fungus has a simple and inconspicuous morphology. Phylogenetic analyses of combined genes (LSU, SSU and RPB2) indicated that *C. abietis* has a relationship with *Papulosaceae* and is better placed in *Diaportheomycetidae*, genera *incertae sedis*.

Plectosphaerella Kleb., Phytopathologische Zeitschrift 1: 43 (1930)

A polyphyletic genus with various species assigned to *Dothideales*, *Phyllachorales*, *Pleosporales*, and *Xylariales* (Index Fungorum 2015). *Plectosphaerella* was introduced to accommodate the type species *Plectosphaerella cucumeris* Kleb., and currently some 13 species are assigned to the genus. The type species of the asexual genus *Spermosporina* is *S. alismatis* (Oudem.) U. Braun with a sexual morph in *Plectosphaerella* which has priority and is a Nom. rejic., see Art. 14.7 (Carlucci et al. 2012) and thus *Spermosporina* is treated as a synonym.

Plectosphaerellaceae W. Gams et al., Nova Hedwigia 85 (3–4): 476 (2007)

The family was introduced by Zare et al. (2007) to accommodate the genera *Acrostalagmus*, *Gibellulopsis* and *Musicillium* based on LSU and ITS sequences, and forms a well-supported clade within the *Microascales* (Réblová et al. 2011a). Subsequently, *Stachylidium* has also been referred to the family. The family includes many asexual genera that are linked to their putative sexual morphs: *Acrostalagmus*, *Plectosporium* and *Stachylidium*.

Pleurotheciella Réblová et al., Mycologia 104(6): 1304 (2012)

Réblová et al. (2012) described this genus from decaying wood submerged in freshwater with two new species *Pleurotheciella rivularia* Réblová et al. and *P. centenaria* Réblová et al. Phylogenetic analyses of combined genes indicated that *Pleurotheciella* is closely related to the genera *Pleurothecium* and *Sterigmatobotrys*, but forms a well-supported monophyletic clade. The genus is placed in *Hypocreomycetidae* genera *incertae sedis*.

Pleurothecium Höhn., Ber. dt. bot. Ges. 37: 154 (1919)

Pleurothecium is considered as a hyphomycete genus, with six accepted species (Seifert et al. 2011); only *P. recurvatum* has a sexual morph, described as *Carpoligna pleurothecii* (Fernández et al. 1999). *Pleurothecium* is typified by *P. recurvatum* (Morgan) Höhn. Réblová et al. (2012) showed the type species to cluster near *Sterigmatobotrys* and *Phaeoisaria* species. The genus is placed in *Hypocreomycetidae* genera *incertae sedis*. *Pleurothecium semifecundum* Réblová et al. is placed in *Savoryellales* family *incertae sedis* and the genus is presently polyphyletic.

Poronia Willd., Fl. berol. prodr.: 400 (1787)

Rogers and Læssøe (1992) introduced *Podosordaria ingii* J.D. Rogers & Læssøe, which was later synonymised as *Poronia ingii* (J.D. Rogers and Læssøe) J.D. Rogers et al., which has an asexual morph belonging to *Lindquistia*. *Lindquistia* was introduced to accommodate *Lindquistia indica* Subram. & Chandrash. As reported by Rogers and Læssøe (1992) the sexual and asexual morphs are similar. The asexual morph was also produced in cultures from ascospores. Therefore the sexual–asexual link between *Lindquistia* and *Poronia ingii* were established (Rogers and Læssøe 1992). Since, *Poronia* was introduced before *Lindquistia*, the latter name should be suppressed (Stadler et al. 2013).

Proxipyricularia Klaubauf et al., Stud. Mycol. 79: 110 (2014)

Proxipyricularia is a plant pathogenic genus in the family *Pyriculariaceae* which is typified by *P. zingiberis* (Klaubauf et al. 2014). *Proxipyricularia* is morphologically similar to *Pyricularia*, but phylogenetically distinct based on combined sequence analysis of LSU, ITS, RPB1, actin and calmodulin gene data (Klaubauf et al. 2014).

Pseudocatenomycopsis Crous & L.A. Shuttlew., in Crous et al., Persoonia, Mol. Phyl. Evol. Fungi 31: 221 (2013)

This monotypic genus known only by its asexual morph was introduced by Crous et al. (2013) with *P. rothmanniae* Crous & L.A. Shuttlew. as the type species and placed in *Coronophorales* genera *incertae sedis* based on sequence data.

Pseudocosmospora C. Herrera & P. Chaverri, Mycologia 105: 1291 (2013)

Herrera et al. (2013b) described this genus to accommodate the type species *Pseudocosmospora eutypellae* C. Herrera & P. Chaverri and nine additional species based on molecular analyses (ITS, LSU, MCM7, RPB1, TEF, *tub*) which indicated this group is phylogenetically distinct from other previously segregated genera under *Nectriaceae*.

Pseudoidriella Crous & R.G. Shivas, in Crous et al., Persoonia, Mol. Phyl. Evol. Fungi 27: 135 (2011)

The monotypic genus was introduced by Crous et al. (2011) for an idriella-like taxon, but with similarities to *Microdochium*. Based on the sequence data Crous et al. (2011) placed it in *incertae sedis*.

Pseudomassaria Jacz., Bull. Herb. Boissier 2: 663 (1894)

Jaklitsch and Voglmayr (2012) recollected the type species of *Pseudomassaria*, *P. chondrospora* (Ces.) Jacz., and their molecular analyses placed the genus in *Hyponectriaceae*, *Xylariales*. *Pseudomassaria* and *Leiosphaerella praeclara* (Rehm) Höhn. are closely related (Jaklitsch and Voglmayr 2012).

Pseudopestalotiopsis Maharachch. et al. Stud. Mycol. 79: 180 (2014)

The new genus *Pseudopestalotiopsis*, which segregates from *Pestalotiopsis* was proposed based on the type

Pseudopestalotiopsis theae (Sawada) Maharachchikumbura et al. by Maharachchikumbura et al. (2014). The epitype of *Pestalotiopsis theae* (Sawada) Steyaert was designated from fresh leaves of *Camellia sinensis* collected in Thailand (Maharachchikumbura et al. 2013b). *Pseudopestalotiopsis* can be distinguished from *Neopestalotiopsis* and *Pestalotiopsis* by sequence data and generally dark-coloured concolourous median cells with indistinct conidiophores (Maharachchikumbura et al. 2014). The genus belongs in the family *Amphisphaeriaceae.*

Pseudopyricularia Klaubauf et al., Stud. Mycol. 79: 110 (2014)

Based on sequence analysis of a combined dataset of LSU, ITS, RPB1, ACT and CAL sequences, Klaubauf et al. (2014) placed three related species (*Pseudopyricularia cyperi* Klaubauf et al., *P. higginsii* (Luttr.) Klaubauf et al. and *P. kyllingae* Klaubauf et al.) in the new genus *Pseudopyricularia* in the family *Pyriculariaceae.* Species in *Pseudopyricularia* are primarily distinguished from *Pyricularia* by having short, determinate, brown conidiophores, with an apical rachis with flat-tipped denticles (Klaubauf et al. 2014).

Purpureocillium Luangsa-ard et al., in Luangsa-ard et al., FEMS Microbiol. Lett. 321(2): 144 (2011)

This genus was introduced by Luangsa-ard et al. (2011) to accommodate a species of *Paecilomyces* which has frequently been found as the causal agent of infections in man and other vertebrates. Molecular data showed it was not related to *Paecilomyces* but could be placed in *Ophiocordycipitaceae***.** A second species was added by Perdomo et al. (2013).

Pustulomyces D.Q. Dai et al., in Dai et al., Cryptog. Mycol. 35(1): 64 (2014)

Pustulomyces is a monotypic genus introduced by Dai et al. (2014) with *Pustulomyces bambusicola* Dai et al., as the type species from bamboo. A combined data set of LSU and TEF sequences showed that *Pustulomyces* is a new genus in *Diaporthaceae* (Dai et al. 2014).

Pyricularia Sacc., Michelia 2(no. 6): 20. 1880.

In the recent revision of Klaubauf et al. (2014), *Pyricularia* was placed as the type of the newly introduced family *Pyriculariaceae.* Species belonging to *Pyricularia* are plant pathogens (Klaubauf et al. 2014). Presently there are 78 species epithets in the genus including the type *P. grisea* Sacc.

Pyriformiascoma Daranagama et al., Fungal Diversity (in press) (2015)

Pyriformiascoma was introduced to accommodate the type species *Pyriformiascoma trilobatum* Daranagama et al. (Daranagama et al. 2015). *Pyriformiascoma* produces simple, brown conidiophores with terminal conidiogenesis cells bearing brown globose conidia in culture. Phylogenetic analysis place *P. trilobatum* as a basal clade to both hypoxyloid and xylaroid *Xylariaceae* parallel to *Creosphaeria sassafras* (Schwein.) Y.M. Ju et al. and *Barrmaelia macrospora* (Nitschke) Rappaz with high bootstrap support (Daranagama et al. 2015).

Pyrigemmula D. Magyar & Shoemaker, in Magyar et al., Mycol. Progr. 10(3): 310 (2011)

This monotypic genus was introduced by Magyar et al. (2011) for *P. aurantiaca* D. Magyar & Shoemaker which was collected from inner bark of living woody hosts in Hungary. Molecular data place the genus in *Chaetosphaeriaceae.*

Rectifusarium Lombard et al., in Lombard et al., Studies in Mycology 80: 229 (2015)

Lombard et al. (2015) introduced this genus to accommodate fusarium-like species lacking sporodochia, previously treated as *F. ventricosum.* DNA sequence data confirmed that they formed a well-supported distinct clade in the family *Nectriaceae*. The genus *Rectifusarium* is typified by *R. ventricosum* (Appel & Wollenw.) L. Lombard & Crous.

Regiocrella P. Chaverri & K.T. Hodge, Mycologia 97(6): 1232 (2006) [2005]

This genus was described from samples collected in Cameroon and China (Chaverri et al. 2005). Morphological and molecular evidence place this genus under *Clavicipitaceae* (Chaverri et al. 2005).

Remispora Linder, Farlowia 1(3): 409 (1944)

A phylogenetic evaluation of *Remispora*, based on three loci (LSU, SSU and RPB2), demonstrated that the genus was polyphyletic (Sakayaroj et al. 2011a). Consequently, species not grouping in *Remispora* sensu stricto were moved to new genera (*Kochiella*, *Tubakiella*), see elsewhere. This genus is based on the type species *R. maritima* which forms a well-supported monophyletic clade with *Sablicola* as a sister clade (Sakayaroj et al. 2011a). No asexual morph is known.

Reticulascaceae Réblová & W. Gams, in Réblová et al., Stud. Mycol. 68(1): 180 (2011)

Cylindrotrichum (= *Reticulascus*) and *Porosphaerellopsis* are presently included in the family *Reticulascaceae*. This family was introduced by Réblová et al. (2011a) based on molecular analysis of ITS, LSU, SSU and RPB2 sequence data. The dematiaceous *Cylindrotrichum*, *Kylindria* and *Sporoschismopsis*, linked as anamorphs with the *Reticulascaceae* (Réblová et al. 2011a).

Retrostium Nakagiri & Tad. Ito, Mycologia 89: 485 (1997)

Monotypic marine genus in the *Spathulosporaceae*, order *incertae sedis*, *Sordariomycetes* (Jones et al. 2009b).

Spathulospora (an algal-inhabiting species) and the type of the family has been shown to be well-placed in the *Lulworthiales* (Inderbitzin et al. 2004). Further collections, isolation and sequencing required to resolve its taxonomic position.

Rhopalostroma D. Hawksw., Kew Bull. 31(3): 422 (1977)

A study conducted by Stadler et al. (2010) showed that the genus *Ropalostroma*, exclusively reported from the palaeotropics, was closely related to the daldinoid *Xylariaceae* and the two predominantly neotropical genera *Phylacia* and *Thamnomyces*. The study included the use of microscopic methods, secondary metabolite profiling and ITS nrDNA sequences of cultures obtained from fresh material collections of the species *R. angolense* (Welw. & Curr.) D. Hawksw. Daranagama et al. (2014) studied the affinities of *R. lekae* Whalley et al. with *R. angolense* and other members of Xylariaceae using a polythetic approach. According to the multigene analysis *Phylacia*, *Rhopalostroma* and *Thamnomyces* form a separate clade and the monophyletic origin of *Thamnomyces* and *Rhopalostroma* is supported by high statistical support (Darnagama et al. 2014). Stadler et al. (2010) and Daranagama et al. (2014) observed the nodulisporium–like asexual morph from both *R. angolense* and *R. lekae*.

Rimaconus Huhndorf et al., Mycologia 93(6): 1073 (2001)

Rimaconus was introduced by Huhndorf et al. (2001) for the type species *R. jamaicensis* (Seaver) Huhndorf et al. and presently comprises two species (Huhndorf and Miller 2011). Phylogenetic study (Huhndorf and Miller 2011) placed *Rimaconus* in a group close to *Helminthosporiaceae* and in our analysis (Fig. 2) the genus forms a separate clade close to *Cephalothecaceae*, *Chaetosphaeriales* and *Meliolales*. Currently *Rimaconus* is placed in *Chaetosphaeriales* genera *incertae sedis.*

Riomyces A. Ferrer et al., Mycologia 104(4): 876 (2012)

This monotypic genus was introduced from submerged woody debris in freshwater collected in Costa Rica (Ferrer et al. 2012). Molecular analysis placed the genus in *Sordariomycetidae* genera *incertae sedis.*

Rodentomyces Doveri et al., in Doveri et al., Fungal Diversity 42: 61 (2010)

This monotypic genus was introduced by Doveri et al. (2010) based on morphology and phylogenetic analysis. *Rodentomyces*, type species *R. reticulatus* Doveri et al., is placed in *Nectriaceae*, based on ITS and LSU sequence data analysis. It has trichothecium-like asexual morphs similar to asexual morphs of a few other hypocrealean taxa.

Rosasphaeria Jaklitsch & Voglmayr, Fungal Diversity 52(1): 93 (2012)

This monotypic genus was introduced by Jaklitsch and Voglmayr (2012) based on multi-gene phylogenetic analyses of ITS, LSU, RPB2 and TEF gene data. Its type species is *Rosasphaeria moravica* (Petr.) Jaklitsch & Voglmayr. It has a pycnidial asexual morph that was seen in culture. Phylogenetically it is close to *Eucasphaeria* and is placed in the family *Niessliaceae*.

Rosellinia De Not., G. bot. ital. 1(1): 334 (1844)

The genus *Rosellinia* was introduced by De Notaris (1844) to accommodate species with uniperitheciate, gregarious, stromata and revised to include species with superficial, conspicuous, carbonaceous, ostiolate stromata with subicula (Petrini 2013). Their asexual morphs are geniculosporium-like, nodulisporium-like and *Dematophora* which are typical of *Xylariaceae* (Petrini 2013). Petrini (2013) accepted 142 species in *Rosellinia*.

Dematophora was described by Hartig (1883) with *D. necatrix* R. Hartig as the type species. Viala (1891) and later Prillieux (1904) observed ascocarps apparently associated with *D. necatrix* on diseased vine roots. Hansen et al. (1937) described perithecia on diseased apple roots infected by *D. necatrix*, which they happened to keep in moist chambers for a long time. A connection between germinating conidia of *D. necatrix* and *Rosellinia* was established in culture. Thus the perithecial morph of *D. necatrix* was *Rosellinia necatrix* Berl. ex Prill. The same study proved that the conidial morphs developed in the cultures of *Rosellinia buxi* Fabre, and were either mononematus or synnematous as in *Dematophora.* The asexual morph *Dematophora* is linked to the sexual morph *Rosellinia* and was synonymised under *Rosellinia* by Stadler et al. (2013).

Roselliniella Vain., Acta Soc. Fauna Flora fenn. 49(no. 2): 77 (1921)

Based on newly obtained LSU sequences from *Roselliniella atlantica* Matzer & Hafellner and *R. euparmeliicola* Millanes & D. Hawksw., Hawksworth et al. (2010) noted that *Roselliniella* had to be placed in *Hypocreales* genera *incertae sedis* and not in *Sordariales* genera *incertae sedis*. Thus, the family placement could not be resolved from the sequences obtained.

Rostrohypoxylon J. Fourn. & M. Stadler, in Fournier et al., Fungal Diversity 40: 24 (2010)

This monotypic genus introduced by Fournier et al. (2010) was based on a new combination of asexual-sexual morph characters. The type species is *R. terebratum* J. Fourn. & M. Stadler. The status of this taxon is supported by secondary metabolite profiling. Morphologically, it is characterized by erumpent, strongly carbonaceous stromata with stout ostiolar necks and deep cylindrical holes. *Rostrohypoxylon* produced a sporothrix-like to virgariella-like asexual morph in culture. It is presently placed in family *Xylariaceae*.

Rostrupiella Jørg. Koch et al., Bot. Mar. 50(5–6): 295 (2007)

A monotypic marine genus in *Lulworthiales* with the type species *R. danica* Jørg. Koch et al., grouping with *Lulwoana uniseptata* (Nakagiri) Kohlm. and various *Lulworthia* sensu *lato* species as a sister clade (Koch et al. 2007; Jones et al. 2009a). No asexual morph is known.

Rugonectria P. Chaverri & Samuels, in Chaverri et al., Stud. Mycol. 68(1): 73 (2011)

This genus was introduced by Chaverri et al. (2011) with *R. rugulosa* (Pat. & Gaillard) Samuels et al. as the type species. The genus clustered in *Nectriaceae* and has cylindrocarpon-like asexual morphs.

Ruwenzoria J. Fourn. et al., in Stadler et al., Mycol. Progr. 9(2): 171 (2010)

Ruwenzoria was introduced to accommodate *R. pseudoannulata* J. Fourn. et al., which is characterized by hemispherical to peltate, superficial, sessile stromata with indistinct perithecial outlines and raised ostiolar areas. The asexual morph is either sporothrix-like or less frequently nodulisporium-like (Stadler et al. 2010). Apart from morphology both chemotaxonomic and ITS sequence data were obtained by Stadler et al. (2010). *Ruwenzoria* belongs to the hypoxyloid *Xylariaceae*, and has particularly close affinities to the genus *Daldinia*.

Ruzenia O. Hilber, The Genus *Lasiosphaeria* and Allied Taxa (Kelheim): 7 (2002)

This is a monotypic genus in *Helminthosphaeriaceae* typified by *Ruzenia spermoides* (Hoffm.) O. (Miller et al. 2014).

Saagaromyces K.L. Pang & E.B.G. Jones, Mycol. Prog. 2: 35 (2003)

In a phylogenetic evaluation of genera with polar unfurling appendages the genus *Halosarpheia* was found to be polyphyletic and taxa not grouping with the type species *H. fibrosa* Kohlm. & E. Kohlm. were transferred to new genera. *Saagaromyces* accommodates the marine ascomycete *S. ratnagiriensis* (S.D. Patil & Borse) K.L. Pang & E.B.G. Jones (Pang and Jones 2004) in the family *Halosphaeriaceae* (Jones et al. 2009a). No asexual morph is known. *Littispora* is a synonym of *Saagaromyces*, both taxa were described at the same time, but the latter name has priority (Pang and Jones 2004; Jones et al. 2009a).

Sablicola E.B.G. Jones et al., Can. J. Bot. 82: 486 (2004)

Monotypic marine ascomycete growing on submerged wood, with its placement in the *Halosphaeriaceae* confirmed by 28S rDNA sequences (Pang et al. 2004). The genus forms a sister group to *Remispora* sensu stricto (Pang et al. 2004; Sakayaroj et al. 2011a). No asexual morph is known.

Samuelsia P. Chaverri & K.T. Hodge, in Chaverri et al., Stud. Mycol. 60: 59 (2008)

Chaverri et al. (2008) introduced this new genus based on morphology and analysis of 28S, TEF and RPB1 gene data and placed it in *Clavicipitaceae*. The asexual morph of this genus is aschersonia-like (Chaverri et al. 2008).

Sarocladium W. Gams & D. Hawksw., Kavaka 3: 57 (1976) [1975]

Sarocladium was extended by Summerbell et al. (2011) to include all members of the *Acremonium strictum* W. Gams and *A. bacillisporum* (Onions & G.L. Barron) W. Gams clades and groups in *Hypocreales* genera, *incertae sedis*.

Savoryella E.B.G. Jones & R.A. Eaton, Trans. Br. mycol. Soc. 52(1): 161 (1969)

A widespread genus of lignicolous ascomycetes in freshwater and marine habitats, referred variously to *Microascales* (as *Halosphaeriales*), *Sordariales* and *Xylariales*, and to the *Hypocreales* based on an 18S phylogenetic study (Cai et al. 2006a). However, a subsequent study, using a wider range of loci (LSU, SSU, 5.8S rRNA genes, RPB1, RPB2, TEF), showed it formed a new lineage in the *Hypocreomycetidae* (*Sordariomycetes*). *Savoryella* species form a monophyletic group in the order *Savoryellales* with high statistical support (Boonyuen et al. 2011). The genus has no known asexual morph.

Savoryellaceae Jaklitsch & Réblová, Index Fungorum 209: 1 (2015)

The family *Savoryellaceae* was introduced by Jaklitsch and Réblová (2015). Asexual morphs are dematiaceous hyphomycetes, e.g., *Canalisporium* linked to *Ascothailandia* and *Monotosporella* and *Helicoon* linked to *Ascotaiwania*. Species of *Savoryellaceae* are predominantly found in aquatic habitats such as freshwater, marine and brackish environments, particularly on submerged wood (Jaklitsch and Réblová 2015). The order *Savoryellales* was introduced by Boonyuen et al. (2011) to include *Ascotaiwania*, *Canalisporium* and *Savoryella. Savoryellales* is an order which includes family *Savoryellaceae.* In the current study, the order *Savoryellales* also includes *Carpoligna pleurothecii* F.A. Fernández & Huhndorf (generic type), *Conioscypha japonica* Udagawa & Toyaz. and *C. varius* Réblová & Seifert and *Pleurothecium semifecundum* Réblová et al., which are placed in *Savoryellales* family *incertae sedis*.

Scortechinia Sacc., Atti Inst. Veneto Sci. lett., ed Arti, Sér. 6 3: 713 (1885)

See under ***Scortechiniaceae.***

Scortechiniaceae Huhndorf et al., in Huhndorf et al., Mycol. Res. 108(12): 1387 (2004)

Mugambi and Huhndorf (2010) revisited the order *Coronophorales* with DNA sequence data and showed *Scortechiniaceae* to be monophyletic with the genera *Biciliospora*, *Cryptosphaerella*, *Tympanopsis*, *Scortechinia*, *Scortechiniella* and *Scortechiniellopsis*. *Biciliospora*, *Scortechiniella* and *Scortechiniellopsis* may be congeneric, but *Tympanopsis* and *Scortechinia* are distinct genera (Mugambi and Huhndorf 2010).

Scortechiniella Arx & E. Müll., Beitr. Kryptfl. Schweiz 11(no. 1): 382 (1954)

See under *Scortechiniaceae*.

Sedecimiella K.L. Pang et al., in Pang et al., Bot. Mar. 53(6): 495 (2010)

Pang et al. (2010) described *Sedecimiella taiwanensis* K.L. Pang et al. from twigs of *Kandelia obovata* collected in Taiwan and a further collection on unidentified mangrove wood at Futian Nature Reserve, Shenzhen, China. Phylogenetic analyses did not resolve its familial position in the *Hypocreales* and therefore it is placed in *Hypocreales*, genera *incertae sedis*. A distinguishing feature of the ascomycete is its cylindrical unitunicate asci with 16 hyaline globose ascospores.

Seiridium Nees, Syst. Pilze (Würzburg): 22 (1816) [1816–17]

Sequence data reveal *Seiridium* to represent a distinct genus in the family *Amphisphaeriaceae*, which is characterised by 6-celled conidia (Jeewon et al. 2003b; Maharachchikumbura et al. 2014). *Blogiascospora* and *Lepteutypa* have been identified as the sexual morph of *Seiridium*. However, *Seiridium* is the oldest and most commonly used name and therefore, should be applied to represent both morphs. Maharachchikumbura et al. (2014) suggested the monotypic genus *Pestalotia* (1839) may be a synonym of *Seiridium* (1816), since both genera have similar morphologies. Presently 39 species epithets for *Seiridium* in Index Fungorum (2015).

Septofusidium W. Gams, Cephalosporium-artige Schimmelpilze (Stuttgart): 147 (1971)

Gams (1971) placed the genus *Septofusidium* in the family *Nectriaceae* based on morphological characters. Lombard et al. (2015) placed this genus in family *Tilachlidiaceae* based on phylogenetic analysis. It is typified by *S. elegantulum* (Pidopl.) W. Gams.

Simplicillium W. Gams & Zare, Nova Hedwigia 73(1–2): 38 (2001)

This genus was introduced based on morphology and phylogenetic analysis (Zare and Gams 2001a, b). Four taxa and one combination were placed in this genus because of mainly solitary phialides (Zare and Gams 2001b). According to morphological and 28S, ITS rDNA sequences analysis, a novel species was proposed by Liu and Cai (2012). They also provided a key for *Simplicillium*. Five new species were discovered from soil samples by Nonaka et al. (2013). The sexual morphs of this genus are mostly *Torrubiella*. species which belong in the family *Cordycipitaceae* (Zare and Gams 2001a, b; Liu and Cai 2012; Nonaka et al. 2013; Index Fungorum 2015).

Sirococcus Preuss, Linnaea 26: 716 (1855)

Rossman et al. (2007) showed, using molecular data that the genus *Sirococcus* with the species *S. conigenus* (Pers.) P.F. Cannon & Minter (type species), *S. piceiola* Rossman et al. and *S. tsugae* Castl. et al. belongs in *Gnomoniaceae*.

Sodiomyces A.A. Grum-Grzhim. et al., Persoonia 31: 154 (2013)

Grum-Grzhimaylo et al. (2013) introduced the genus to accommodate *Helecoccum alkalinum* Bilanenko & M. Ivanova which does not group in *Hypocreales*, based on a multi-locus gene phylogeny (ITS, 5.8S rDNA, 28S rDNA, 18S rDNA, RPB2 and TEF). *Sodiomyces alkalinus* (Bilanenko & M. Ivanova) A.A. Grum-Grzhimaylo is the only species in the genus, a holomorphic alkaliphilic ascomycete within the *Plectosphaerellaceae*. Many other species in the *Plectosphaerellaceae* are also known to be alkaliphilic, for example, *Acremonium alcalophilum* G. Okada.

Spadicoides S. Hughes, Can. J. Bot. 36: 805 (1958)

This asexual genus has been associated with *Tengiomyces* (Réblová 1999b), but there is no molecular data to establish the connection. *Spadicoides* is polyphyletic and has affinities with divergent lineages of *Dothideomycetes* (*Pleosporales*) and *Sordariomycetes.* A LSU sequence generated for *S. bina* (Corda) S. Hughes (the type species) was found to be sister to *Chaetosphaeriales*, but the sequence is from a non type strain (Shenoy et al. 2010). The genus is therefore tentatively placed in *Sordariomycetidae* genera *incertae sedis*.

Spataporthe Bronson et al., Int. J. Pl. Sci. 174(3): 278–292 (2013)

The fossil genus of *Gnomoniaceae* was introduced by Bronson et al. (2013) and is one of the earliest representatives of *Diaporthales* providing a minimum age of 136 Ma for the order.

Spathulospora A.R. Caval. & T.W. Johnson, Mycologia 57: 927 (1965)

Marine genus with *Spathulospora phycophila* A.R. Caval. & T.W. Johnson as the type species and referred to the *Spathulosporomycetes*, *Spathulosporomycetidae* (Locquin 1984), *Spathulosporales* (Kohlmeyer 1973), *Spathulosporaceae* (Kohlmeyer 1973) based on morphological observations. However, two *Spathulospora* species (*S. antarctica* Kohlm., *S. adelpha* Kohlm.) have been showen to group in the order *Lulworthiales* with weak support (Inderbitzin et al. 2004; Campbell et al. 2005; Jones et al. 2009b). Further collections, isolation and sequencing are required to determine the phylogenetic placement of this genus in the Ascomycota, especially as the type species has yet to be sequenced. We presently prefer *Spathulospora* to be placed in *Spathulosporaceae* until the type species has been sequenced.

Sphaerostilbella (Henn.) Sacc. & D. Sacc., Syll. fung. (Abellini) 17: 778 (1905)

Sphaerostilbella and *Gliocladium* are most likely the same genera and thus Rossman et al. (2013) proposed to protect the younger name *Sphaerostilbella* against *Gliocladium*, which they thought would favour clarity of communication; this is followed here. The genus belongs in *Hypocreaceae*.

Sporidesmium Link, Mag. Gesell. naturf. Freunde, Berlin 3(1–2): 41 (1809)

Sporidesmium is in its traditional sense, is a specious genus, with around 330 species (Seifert et al. 2011). Réblová and Winka (2001) employed gene sequence-data to connect *Ellisembia folliculata* (Corda) Subram. (as *Sporidesmium folliculatum* Corda) with *Lecythothecium duriligni* Réblová & Winka and *Stanjehughesia hormiscioides* (Corda) Subram. (as *Sporidesmium hormiscioides* Corda) with (*Umbrinosphaeria caesariata* (Clinton & Peck) Réblová) in *Chaetosphaeriaceae. Sporidesmium* sensu *lato* has also been associated with other sexual morphs in *Asterinaceae* (*Eupelte rapaneae* Hansf., *E. amicta* Syd. and *Placosoma nothopanacis* Syd.), *Chaetosphaeriaceae* (*Chaetosphaeria capitata* Sivan. & H.S. Chang, *Miyoshiella fusispora* Kawam., *M. larvata* Réblová and *M. triseptata* (Shoemaker & G.P. White) Réblová), *Cucurbitariaceae* (*Cucurbitaria varians* Hazsl.), *Micropeltidaceae* (*Akaropeltella kielmeyerae (*Bat. & J.L. Bezerra) M.L. Farr) and *Trichosphaeriaceae* (*Eriosphaeria aggregata* E. Müll. & Munk) (detailed in Shenoy et al. 2006). Some species of *Sporidesmium* reportedly produce *Chloridium*, *Idriella*, selenosporella-like and unnamed phialidic synanamorphs (detailed in Seifert et al. 2011). The associations are yet to be supported by DNA-sequence data.

In a phylogenetic study, Shenoy et al. (2006) employed multi-gene phylogenetic analysis to connect *Sporidesmium* and morphologically similar genera such as *Ellisembia*, *Linkosia*, *Repetophragma*, *Sporidesmiella* and *Stanjehughesia* with “sexual morph” families and their study concluded that *Sporidesmium* is polyphyletic and species are phylogenetically distributed in multiple families of *Dothideomycetes* and *Sordariomycetes*. There are nine *Sporidesmium* species, including one undesignated species (Groenewald et al. 2008; Shearer et al. 2009; Shenoy et al. 2006) that have been sequenced, but the type species, *Sporidesmium atrum* Link is yet to be sequenced and thus the genus is placed in *Ascomycota* genera *incertae sedis*.

Sporoschismopsis Hol.-Jech. & Hennebert, Bull. Jard. Bot. natn. Belg. 42(4): 385 (1972)

Réblová et al. (2014) introduced *Sporoschismopsis angustata* Réblová with a *Porosphaerellopsis* sexual morph. This represents the second known and experimentally proven sexual-asexual morph link between *Porosphaerellopsis* and *Sporoschismopsis*. In the same study; *Porosphaerellopsis* is synonymised under *Sporoschisma* as the latter genus is the older name. *Sporoschismopsis* was positioned in *Reticulascaceae* where it is transferred here (Réblová 2013b).

Stachybotrys Corda, Icon. fung. (Prague) 1: 21 (1837)

Stachybotrys albipes (Berk. & Broome) S.C. Jong & Davis, has been linked to a sexual morph reported as *Melanopsamma pomiformis* (Pers.) Sacc. (type) based on gene sequence data (Castlebury et al. 2004). *Stachybotrys* is the oldest name and is frequently used in literature and adopted by Wang et al. (2015). *Ornatispora* is also a synonym. The genus *Stachybotrys* was earlier classified as *incertae sedis* in the order *Hypocreales* and based on sequence data. Crous *et al.* (2014) transferred it to newly established family *Stachybotriaceae.*

Stachylidium Link, Magazin der Gesellschaft Naturforschenden Freunde Berlin 3: 15 (1809)

Stachylidium is an asexual genus variously classified in *Bionectriaceae*, *Xylariaceae*, and anamorphic Pezizomycotina (Index Fungorum 2015) with *Stachylidium bicolor* Link, an alkalophilic fungus as the type species. Réblová et al. (2011a) showed that the type species groups in the *Plectosphaerellaceae* with high statistical support.

Staphylotrichum J. Mey. & Nicot, Bull. trimest. Soc. mycol. Fr. 72: 322 (1957) [1956]

A new species, *Staphylotrichum boninense* K. Nonaka et al. and the type species, *S. coccosporum* J. Mey. & Nicot, were found to be related to *Chaetomiaceae* (Nonaka et al. 2012).

Sterigmatobotrys Oudem., Ned. kruidk. Archf, 2 sér. 4: 548 (1886)

Réblová and Seifert (2011d) reported the sexual morph of the hyphomycete genus *Sterigmatrobotrys.* Fertile conidiophores of *S. macrocarpa* (Corda) S. Hughes. formed on perithecial ascomata and an identical asexual morph developed from ascospores isolated in axenic culture. Phylogenetic relationships based on LSU sequence data reveal that *Sterigmatrobotrys macrocarpa* clustered in a clade with *Carpoligna pleurothecii* F.A. Fernández & Huhndorf. *Carpoligna* and *Chaetosphaeria* are morphologically similar to *Sterigmatobotrys.* Réblová et al. (2012) indicated that *Pleurotheciella* is closely related to *Pleurothecium* and *Sterigmatobotrys*, and can be placed in *Hypocreomycetidae* genera *incertae sedis*. However, in the current study *Carpoligna pleurothecii* and *Pleurothecium semifecundum* sit in the order *Savoryellales.*

Stromatonectria Jaklitsch & Voglmayr, Mycologia 103(2): 435 (2011)

Jaklitsch and Voglmayr (2011) redescribed *Myrmaeciella caraganae* Höhn., in the new genus *Stromatonectria* as *S. caraganae* (Höhn.) Jaklitsch & Voglm. based on morphology and phylogenetic analyses. It was recollected on branches of *Caragana* spp., *Colutea arborescens* and *Laburnum anagyroides* (*Fabaceae*) around Vienna, Austria. Phylogenetic analyses of LSU also indicated this genus belongs to a separate clade in *Bionectriaceae*.

Swampomyces Kohlm. & Volkm.-Kohlm., Botanica Marina 30: 198 (1987)

Sakayaroj (2005) and Schoch et al. (2007) showed that genus was polyphyletic separating into two clades: *Swampomyces* sensu stricto (type *S. armeniacus* Kohlm. & Volkm.-Kohlm. grouping with *S. triseptatus* K.D. Hyde & Nakagiri) in the family *Etheirophoraceae*, *Hypocreomycetideae* order *incertae sedis,* while *S. aegyptiacus* Abdel-Wahab et al. and *S. clavatispora* Abdel-Wahab et al. group in the *Juncigenaceae* for which a new genus *Fulvocentrum* has been introduced to accommodate these taxa (Jones et al. 2014).

Synaptospora Cain, Beih. Sydowia 1: 4 (1957) [1956]

One of four named species of *Synaptospora*, *S. plumbea* Huhndorf et al. is represented by gene sequences which place the genus in *Helminthosphaeriaceae* (Miller et al. 2014). *Synaptospora olandica* Réblová has been associated with a dactylaria-like asexual morph (Réblová 2002), but there is no molecular data to prove this connection.

Thalassogena Kohlm. & Volkm.-Kohlm., Syst. Ascomycetum 6: 223 (1987)

Monotypic marine ascomycete genus growing on submerged wood, with its placement in the *Halosphaeriaceae*, but confirmation at the molecular level is required. No asexual morph is known.

Thalespora Chatmala & E.B.G. Jones, Nova Hedwigia 83 (1–2): 228 (2006)

Monotypic marine ascomycete genus growing on submerged wood, with its placement in the *Halosphaeriaceae* confirmed at the molecular level, with *Okeanomyces* as a sister group (Jones et al. 2006; Sakayaroj et al. 2011a). *Thalespora* differs from *Okeanomyces* in having polar tetraradiate appendages formed after release from the ascomata. No asexual morph is known.

Thyronectria Sacc., Grevillea 4(no. 29): 21 (1875)

Based on type studies and freshly collected material, Jaklitsch and Voglmayr (2014) re-instated the genus *Thyronectria*. Molecular phylogenies based on ACT, ITS, LSU rDNA, RPB1, RPB2, TEF, and TUB gene sequences also confirmed the placement of *Thyronectria* in family *Nectriaceae* (Hypocreales) (Jaklitsch and Voglmayr 2014)

Thelonectria P. Chaverri & C. Salgado, in Chaverri et al., Stud. Mycol. 68(1): 76 (2011)

This genus was introduced by Chaverri et al. (2011) with *Thelonectria discophora* (Mont.) P. Chaverri & C. Salgado as the generic type. The genus clusters in *Nectriaceae* and has cylindrocarpon-like asexual morphs. The genus presently comprises 22 species (Chaverri et al. 2011, Salgado-Salazar et al. 2012, Luo and Zhang 2013).

Tilachlidiaceae L. Lombard & Crous, in Lombard et al., Studies in Mycology 80: 237 (2015)

The family *Tilachlidiaceae* was introduced based on multi-gene analysis using combined gene datasets and placed in the order *Hypocreales* (Lombard et al. 2015). The family comprises two asexual genera *Septofusidium* and *Tilachlidium*, previously classified in the family *Nectriaceae*. Phylogenetic analysis showed that representatives of both genera clustered together in a well-supported clade leading to introduction of the new family *Tilachlidiaceae* (Lombard et al. 2015).

Tilachlidium Preuss, Linnaea 24: 126 (1851)

The genus *Tilachlidium* typified by *T. pinnatum* Preuss was classified in *Hypocreales* genus *incertae sedis* (Gams 1971). This genus was placed in the family *Tilachlidiaceae* by Lombard et al. (2015) based on molecular analysis.

Tirispora E.B.G. Jones & Vrijmoed, Can J. Bot. 72 (9): 1373 (1994)

Genus in the *Halosphaeriaceae* supported by morphological and molecular data, forming a sister group with *Halosarpheia* and *Panorbis* (Jones et al. 2009a, b). It shares some common features with these genera, in particularly the polar unfurling appendages (Jones et al. 2009b). No asexual morph is known.

Togniniella Réblová et al., Stud. Mycol. 50(2): 543 (2004)

Réblová et al. (2004) linked and established two monotypic genera: *Togniniella acerosa* Réblová et al. and *Phaeocrella acerosa* Réblová et al. using cultural studies. However, *T. acerosa* is now regarded as a synonym of *T. microspora*

(Ellis & Everh.) Réblová (Réblová 2011) and *Phaeocrella* is a synonym. The genus is placed in *Calosphaeriaceae*.

Tolypocladium W. Gams, Persoonia 6(2): 185 (1971)

This genus was introduced by Gams (1971). Based on sequence analysis, Quandt et al. (2014), proposed to use *Tolypocladium* over *Elaphocordyceps* and *Chaunopycnis*.

Toriella Sakay. et al., Fungal Diversity 46: 99 (2011)

Sakayaroj et al. (2011a) carried out a multi-gene phylogeny of the *Halosphaeriaceae* with 36 taxa. *Ceriosporopsis* was shown to be polyphyletic and *Ceriosporopsis tubulifera* Kohlm. did not cluster with the type species of the genus (*C. halima* Linder). The genus *Toriella* was introduced to accommodate *C. tubulifera*, as *Toriella tubulifera* (Kohlm.) Sakay. et al. Earlier studies noted that morphologically the ascospores did not conform to those described for the type species, where the polar appendages pierce through an exosporic sheath (Johnson et al. 1984). No asexual morph is known.

Torpedospora Meyers, Mycologia 49: 496 (1957)

The genus has been referred to various higher order placement: *Hypocreales incertae sedis* (Jones et al. 2009b), a sister group to the *Bionectriaceae* (Sakayaroj et al. 2005) and TBM clade (Schoch et al. 2007). *Torpedospora* species form a well-supported monophyletic clade in *Torpedosporaceae*, with *Glomerulispora mangrovis* (Jones et al. 2014).

Torpedosporaceae E.B.G. Jones & K.L. Pang, Cryptogamie Mycologie 35: 135 (2014)

The family was introduced to accommodate two *Torpedospora* species and *Glomerulispora mangrovis* Abdel-Wahab & Nagah. that formed a highly supported clade in *Hypocreomycetidae* family *incertae sedis*. Asexual morphs are helicoid conidia when present.

Tortulomyces Lar.N. Vassiljeva et al., Mycoscience 54(1): 110–115 (2013)

This monotypic genus was introduced for *Tortulomyces thailandicus* Lar.N. Vassiljeva et al., collected on dead branches of an unidentified tree in Thailand. *Tortulomyces* is similar in appearance to *Spinulosphaeria*, but a quellkörper and setae on the ascomata are absent. The genus is placed in *Nitschkiaceae*.

Trailia G.K. Sutherl., Trans. Br. mycol. Soc. 5(1): 149 (1915) [1914]

Monotypic genus in the *Halosphaeriaceae* (Jones et al. 2009b) growing on the brown seaweed *Ascophyllum nodosum*, infrequently collected and its placement in the family requires a molecular study. No asexual morph is known.

Trichocladium Harz, Bull. Soc. Imp. nat. Moscou 44(1): 125 (1871)

A polyphyletic genus with some species grouping in the *Hypocreomycetidae*: *Trichocladium acharosporum* (Meyers & R.T. Moore) M. Dixon was shown by culturing to be the asexual morph of *Halosphaeriopsis mediosetigera* (*Halosphaeriaceae*) (Shearer and Crane 1977), while at the molecular level *T. melhae* E.B.G. Jones et al. also grouped in the *Halosphaeriaceae* (Abdel-Wahab 2012) with *Antennospora salina* (Meyers) Yusoff, in a sister clade. Some species have been linked to sexual morphs of *Chaetomium*. The generic type of *Trichocladium*, *T. asperum* Harz (strain DAOM 232342) was shown to group in *Ascomycota* genera *incertae sedis* by Hambleton et al. (2005) so the name should be retained.

Trichoderma Pers., Neues Mag. Bot. 1: 92 (1794)

The type species of the genus *Hypocrea* (*Hypocreaceae*), *H. rufa* (Pers.) Fr., was re-defined and epitypified using a combination of phenotype and phylogenetic analyses. Its asexual morph *Trichoderma viride* Pers., the type species of *Trichoderma*, was re-described and epitypified (Jaklitsch et al. 2006). Samuels et al. (2012) described the new *Trichoderma* species, *T. gillesii* Samuels and *T. pinnatum* Samuels with *Hypocrea* sexual morphs (with culture and molecular data). These genera are clearly linked and Rossman et al. (2013) proposed the use of *Trichoderma* over *Hypocrea*, because *Trichoderma* has high usage in the literature and few *Hypocrea* species have been reported more than once. We follow this here.

Trichomaris Hibbits et al., Can. J. Bot. 59(11): 2123 (1981)

Monotypic genus requiring further study at the molecular level and tentatively assigned to *Halosphaeriaceae*. The asexual morph is a coelomycete.

Tubakiella Sakay. et al. Fungal Diversity 46:87–109 (2011)

A genus well-supported by molecular data in the *Halosphaeriaceae* (Sakayaroj et al. 2011a), with *T. galerita* (Tubaki) Sakay. et al. (= *Remispora galerita* Tubaki as the type species. A genus segregated from *Remispora* sensu stricto, and distantly placed within the family, with the two sequenced strains forming a monophyletic group with *Nautosphaeria cristaminuta* and *Haligena elaterophora* as a sister group with weak support (Sakayaroj et al. 2011a). No asexual morph is known.

Tunicatispora K.D. Hyde, Aust. Syst. Bot. 3(4): 712 (1990)

Monotypic genus referred to the *Halosphaeriaceae* based on morphological observations, and requires further study at the molecular level to confirm its position in the family. No asexual morph is known. *Buxetroldia* is a synonym of *Tunicatispora* based on morphological observations (Jones et al. 2009b).

Tympanopsis Starbäck, Bih. K. svenska VetenskAkad. Handl., Afd. 3 19(no. 3): 24 (1894)

See under ***Scortechiniaceae.***

Tyrannicordyceps Kepler & Spatafora, Index Fungorum 12: 1 (2012)

This genus has five species (Index Fungorum 2015) which live on sclerotia of *Claviceps.* Molecular analysis placed this genus in *Clavicipitaceae* in the Plant-Hemiptera clade (Kepler et al. 2012).

Ustilaginoidea Bref., Unters. Gesammtgeb. Mykol. (Liepzig) 12: 194 (1895)

Villosiclava was introrcued as the asexual morph of *Ustilaginoidea* and is thus a synonym (Tanaka et al. 2008). The genus is placed in *Clavicipitaceae.*

Valsalnicola D.M. Walker & Rossman, Persoonia, Mol. Phyl. Evol. Fungi 29: 149 (2012)

This genus was introduced in Crous et al. (2012f) for *Valsalnicola oxystoma* (Rehm) D.M. Walker & Rossman, and causes linear cankers and lesions on *Alnus*. Although it resembles *Valsa* in having allantoid ascospores, the species in *Valsalnicola* are 1-septate, while the majority of *Valsa* species have aseptate spores. Mega blast similarity of ITS sequence with Genbank place *Valsalnicola oxystoma* in close affinity with genera of *Gnomoniaceae*, *Melanconidaceae* and *Valsaceae*. However there is no clear phylogenetic family placement within *Diaporthales* and hence it is placed in *Diaporthales*, genera *incertae sedis*

Varicosporina Meyers & Kohlm., Can. J. Bot. 43: 916 (1965)

Three *Varicosporina* species have been shown to be the asexual morphs of various *Corollospora* species: *C. anglusa* Abdel-Wahab & Nagah. (= *V. anglusa* Abdel-Wahab & Nagah.), *C. intermedia* E.B.G. Jones (= *V. prolifera* Nakagiri) and *Corollospora* sp. (= *V. ramulosa* Meyers & Kohlm.) (Abdel-Wahab 2012). Since the type species, *Varicosporina ramulosa* Meyers & Kohlm. has not been linked to a specific *Corollospora* species, thus the name *Varicosporina* should be retained and the genus is tentatively placed in *Halosphaeriaceae.*

Vermisporium H.J. Swart & M.A. Will., Trans. Br. mycol. Soc. 81(3): 491 (1983)

An asexual genus introduced by Swart and Williamson (1983) for leaf-inhabiting coelomycetous taxa on *Eucalyptus* leaves, currently with some 13 species (Index Fungorum 2015). *Vermisporium* was chiefly distinguished from *Seimatosporium* on the basis of a short exogenous basal appendage, and the absence of a recognisable apical appendage. Barber et al. (2011) showed the genus to be a synonym of *Seimatosporium* based on DNA sequence data analysis of the nrDNA-ITS and 28S nrRNA genes, and transferred eight species to *Seimatosporium.*

Verrucostoma Hirooka et al., in Hirooka et al., Mycologia 102(2): 422 (2010)

Hirooka et al. (2010) described this monotypic genus based on *Verrucostoma freycinetiae* Hirooka et al. using morphological differences and molecular analyses. The taxon was collected on dead leaves of *Freycinetia boninensis* (*Pandanaceae*) in Bonin (Ogasawara) Islands, Japan. Molecular analyses indicated that the genus is distinct from other genera among the nectria-like taxa under *Bionectriaceae.*

Verticillium Nees, System der Pilze und Schwämme: 56 (1817)

The asexual genus *Verticillium* comprises a group of plant pathogenic fungi including some 190 documented names and with *V. dahliae* Kleb. as the type species. The genus has been shown to be polyphyletic with various taxa assigned to new genera: *Gibellulopsis*, *Lectera* and *Musicillium*. Most species group in the *Plectosphaerellaceae* based on sequence analysis (Inderbitzin et al. 2011). No sexual morph is known. Hyde et al. (2014) provided a backbone tree for *Verticillium* species.

Vialaea Sacc., Bull. Soc. mycol. Fr. 12: 66 (1896)

A genus introduced by Saccardo (1896) and currently with five species (Index Fungorum 2015). Senanayake et al. (2014) introduced a new species of *Vialaea*, *V. mangiferae* I.C. Senanayake & K.D. Hyde from mango and provide phylogenetic evidence to support the introduction of this new species.

Vialaeaceae P.F. Cannon Mycological Research 99: 368 (1995)

A family introduced by Cannon (1995) for species with isthmoid ascospores. Shoemaker et al. (2013), McTaggart et al. (2013) and Senanayake et al. (2014) provided new data and phylogenetic evidence to show that this is a well-supported family in *Xylariales*. The grouped ascomata with a single fused neck, J+, ascal apical ring and unusual ascospores with two fusiform parts joined by a narrow, long isthmus are characteristic of the family. The asexual morph is coelomycetous (Senanayake et al. 2014).

Virgaria Nees, Syst. Pilze (Würzburg): 54 (1816) [1816–17]

Virgaria nigra (Link) Nees, the type species of the genus is a commonly encountered hyphomycete. *Ascovirgaria* was introduced to accommodate stromatic *Xylariaceae* with rudimentary blackened stromata in decayed wood. The type species *Ascovirgaria occulta* J.D. Rogers & Y.M. Ju was isolated from Hawaii, and produced the asexual morph, *Virgaria nigra* in culture (Rogers and Ju 2002). According to Rogers and Ju (2002), *Virgaria nigra* is cosmopolitan and was long recognized before its respective sexual morph and commonly grows in the absence of its sexual morph. Therefore, the earlier described name *Virgaria* is used and the sexual morph *Ascovirgaria* becomes a synonym (Rogers and Ju 2002; Stadler et al. 2013).

Volutellonectria J. Luo & W.Y. Zhuang, Phytotaxa 44: 3 (2012)

This genus with three new species was introduced in Luo and Zhuang (2012) with the type based on *Dialonectria consors* Ellis & Everh. (= *Cosmospora consors* (Ellis & Everh.) Rossman & Samuels). Species have volutella-like asexual morphs and cosmospora-like sexual morphs, but phylogenetic analyses of ITS and 28S sequence data showed *Volutellonectria* and *Cosmospora* to be distinct genera in *Nectriaceae*.

Woswasia Jaklitsch et al., Mycologia 105(2): 479 (2013)

This monotypic genus is represented by *Woswasia atropurpurea* Jaklitsch et al. which is a wood-inhabiting and mycotrophic taxon (Jaklitsch et al. 2013). Analysis of sequence data showed the genus to cluster in *Sordariomycetidae* close to the genus *Ceratolenta*, but could not be placed in any family.

Xenoacremonium Lombard & Crous, in Lombard et al., Studies in Mycology 80: 234 (2015)

This genus is established by Lombard et al. (2015) based on phylogenetic studies of combined sequence data to include a group of fungi previously treated as *Acremonium recifei* (Leão & Lôbo) W. Gams. *Xenoacremonium* species can be distinguish from *Paracremonium* by a phenomenon of readily releasing a pale luteous to luteous pigment into the growth medium and not forming sterile coils in culture. The genus *Xenoacremonium* is typified by *X. recifei* (Leão & Lôbo) L. Lombard & Crous and clusters in *Nectriaceae*.

Xenopyricularia Klaubauf et al., Stud. Mycol. 79: 117 (2014)

A monotypic genus of *Pyriculariaceae* that was introduced by Klaubauf et al. (2014) to accommodate the type species *Xenopyricularia zizaniicola* Klaubauf et al., which was isolated from *Zizania latifolia* in Japan (Klaubauf et al. 2014). Phylogenetic analysis based on a combined dataset LSU, ITS, RPB1, ACT and CAL sequences revealed *Xenopyricularia* to represent a distinct genus in *Pyriculariaceae* (Klaubauf et al. 2014).

Xylaria Hill ex Schrank, Baier. Fl. (München) 1: 200 (1789)

Padixonia was introduced by Subramanian (1972) to accommodate *Padixonia bispora* Subram. from Ghana. The author mentioned this hyphomycete as the conidial morph of *Xylaria furcata* Fr. (Subramanian 1972). Since the older name has priority, *Xylaria* should be retained (Stadler et al. 2013). Another asexual genus, *Xylocoremium* was introduced by Rogers (1984) to accommodate the coremial conidial morph of *Xylaria* species. *Xylaria cubensis* (Mont.) Fr. was identified as the corresponding sexual morph of *Xylocoremium flabelliforme* (Schwein.) J.D. Rogers (Rogers 1984). *Xylaria allantoidea* (Berk.) Fr. and *X. castorea* Berk. have also been cited as connected with *Xylocoremium flabelliforme*, but not as synonyms. Stadler et al. (2013) suggested priority can be given to the older name and the asexual name can be suppressed. *Arthroxylaria* was introduced by Seifert et al. (2002), and typified by *A. elegans* Seifert & W. Gams. This xylarioid asexual morph has been connected to *Xylaria* (Stadler et al. 2013). The asexual name has the possibility to be suppressed in favour of *Xylaria* as it is the older name and the cosmopolitan morph frequently encountered in nature (Stadler et al. 2013). Möller (1901) described *Moelleroclavus* and believed the fungus to be *Xylaria*. Hennings (1902) introduced the genus *Moelleroclavus* and designated the type species as *M. penicilliopsis* Henn. and a specimen from the same locality as Möller's material, which is listed as the type. Rogers et al. (1997) collected *Xylaria moelleroclavus* J.D. Rogers et al. from Hawaii, which has the asexual morph which is the same as Möller's description in 1901. *Xylaria moelleroclavus* was identified as the respective sexual morph because they obtained the asexual morph in culture derived from ascospores (Rogers et al. 1997). The authors however believed the name *Moelleroclavus penicilliopsis* Henn. should remain available for the asexual morph of *X. moelleroclavus*. Stadler et al. (2013) proposed these names can be either synonymised or retained if the large genus *Xylaria* will be split into further groups to accommodate the certainly diverse *Xylaria*.

Zalerion R.T. Moore & Meyers, Can. J. Microbiol. 8: 408 (1962)

Moore and Meyers (1962) established the genus *Zalerion* based on helicoid, subhyaline to fuscous conidia, which are coiled irregularly in three dimensions and constricted at the septa. Although they included the two helicoid species described by Barghoorn and Linder (1944b) under *Helicoma*, they did not select one of these as the type species. Instead *Zalerion nepura* R.T. Moore & Meyers, was selected as the type species. They described four species based on morphology, conidial pigmentation and their cellulolytic ability (reducing sugar determinations of Raycord). Herbarium material was deposited at the Farlow Herbarium (FH), but no cultures were deposited as far as can be ascertained. Subsequently, Anastasiou (1963) reduced the two marine *Helicoma* species and four *Zalerion* species under *Zalerion maritima* (Linder) Anastasiou, and described a second species *Z. varia* Anastasiou (= *Halenospora varia* (Anastasiou) E.B.G. Jones). Molecular data generated by Campbell et al. (2005) showed that *Z. maritima* grouped with *Lulwoana uniseptata* (Nakagiri) Kohlm. et al., with 100 % support, with

Moromyces varius (Chatmala & Somrith.) Abdel-Wahab et al. (= *Cumulospora varia* Chatmala & Somrith.) as a sister group (Abdel-Wahab et al. 2010). This link has also been shown by cultural studies. The name *Zalarion* should be retained as there is no molecular data for the type species and the genus is tentatively placed in *Sordariomycetes* genera *incertae sedis*.

Zopfiella G. Winter, Rabenh. Krypt.-Fl., Edn 2 (Leipzig) 1.2: 56 (1884)

A polyphyletic genus with the type species, *Zopfiella tabulata* (Zopf) G. Winter placed in the family *Chaetomiaceae* (Cai et al. 2006b). The genus sensu *lato* is widely distributed with some 27 records listed in Index Fungorum (2015). Guarro et al. (1999) have reported an asexual morph with humicola-like conidia produced on a peg-like structure on undifferentiated hyphae for marine collections of *Z. latipes* (N. Lundq.) Malloch & Cain and *Z. marina* Furuya & Udagawa.

Zygospermella Cain, Mycologia 27 (2): 227 (1935)

Genus in the *Lasiosphaeriaceae* with *Zygospermella setosa* Cain as the type species Three strains of *Z. insignis* (Mouton) Cain form a monophyletic clade grouping with moderate support with *Cercophora sordarioides* based on a molecular study of LSU nrDNA and β-tubulin sequences (Kruys et al. 2015).

Genera of uncertain placement in *Sordariomycetes*

In this part we list 829 genera that are classified in *Sordariomycetes* in Index Fungorum (2014) as on 31 December 2014. These genera were not listed in *Sordariomycetes* in Lumbsch and Huhndorf (2010) and have not been listed in subsequent publications as belonging in *Sordariomycetes*. The data was extracted from a database provided by Paul Kirk. These genera may need further study.

Abaphospora Kirschst.
Acanthorhynchus Shear
Acanthotheca Clem. & Shear
Acanthothecium Speg.
Acaulium Sopp
Achaetomiella Arx
Acontiopsis Negru
Acrosphaeria Corda
Acrostaphylus G. Arnaud ex Subram.
Acrostaphylus G. Arnaud
Actinodothis Syd. & P. Syd.
Actinonemella Höhn.
Actinopelte Sacc.
Adea Petr.
Ahmadinula Petr.
Akrophyton Lebert
Albocrustum Lloyd
Aleurisma Link
Allantospora Wakker
Allantozythiella Danilova
Allelochaeta Petr.
Allescherina Berl.
Alphitomyces Reissek
Amazoniella Bat. & H. Maia
Amphichaeta McAlpine
Amphitiarospora Agnihothr.
Amphorula Grove
Ampullaria A.L. Sm.
Andreaea Palm & Jochems
Andreaeana Palm & Jochems
Andreanszkya Tóth
Anisochora Theiss. & Syd.
Anisostomula Höhn.
Anixiella Saito & Minoura
Anixiella Saito & Minoura ex Cain
Antenaglium F.C. Albuq.
Anthasthoopa Subram. & K. Ramakr.
Apiocrea Syd. & P. Syd.
Apiosporella Höhn. ex Theiss.
Apiothecium Lar.N. Vassiljeva
Aplacodina Ruhland
Aponectria (Sacc.) Sacc.
Aporhytisma Höhn.
Aposphaeriella Died.
Aposphaeriopsis Died.
Apotemnoum Corda
Ariefia Jacz.
Arnoldia D.J. Gray & Morgan-Jones
Arnoldiomyces Morgan-Jones
Artallendea Bat. & H. Maia
Aschersoniopsis Henn.
Ascocollumdensa K.D. Hyde et al.
Ascostroma Bonord.
Asordaria Arx, Guarro & Aa
Asteridium (Sacc.) Speg. ex Sacc.
Asterothecium Wallr.
Bacillispora Sv. Nilsson
Bagnisiopsis Theiss. & Syd.
Bahupaathra Subram. & Lodha
Bakeromyces Syd. & P. Syd.
Balansiella Henn.
Balansiopsis Höhn.
Bartaliniopsis S.S. Singh
Barya Fuckel
Baryeidamia H. Karst.
Baryella Rauschert

Basifimbria Subram. & Lodha
Basipilus Subram.
Basisporium Molliard
Basitorula G. Arnaud
Batschiella Kirschst.
Beejasamuha Subram. & Chandrash.
Belaina Bat. & Peres
Benedekiella Negru & Verona
Berkeleyna Kuntze
Bidenticula Deighton
Bioporthe Petr.
Biotyle Syd.
Bisporomyces J.F.H. Beyma
Bitrimonospora Sivan. et al.
Bivonella (Sacc.) Sacc.
Bizzozeria Speg.
Bizzozeria Sacc. & Berl.
Blennorella Kirschst.
Bolacotricha Berk. & Broome
Bolinia (Nitschke) Sacc.
Bonordenia Schulzer
Bostrychia Fr.
Botryocrea Petr.
Botryodiplis Clem. & Shear
Botryodiplodia (Sacc.) Sacc.
Botryosphaerostroma Petr.
Botrypes Preuss
Bovilla Sacc.
Boydia A.L. Sm.
Brachydesmium (Sacc.) Costantin
Bresadolella Höhn.
Bryonectria Döbbeler
Byssitheca Bonord.
Byssostilbe Petch
Cacosphaeria Speg.
Cainea S. Hughes
Calopactis Syd. & P. Syd.
Calospora Nitschke ex Fuckel
Calospora Sacc.
Calyculosphaeria Fitzp.
Camptoum Link
Campylothecium Ces.
Candelospora Rea & Hawley
Cantharosphaeria Thaxt.
Capnostysanus Speg.
Carnostroma Lloyd
Carothecis Clem.
Castagnella G. Arnaud
Catacauma Theiss. & Syd.
Cateractispora Ranghoo et al.
Caudosporella Höhn.
Caulochora Petr.
Causalis Theiss.
Cephalodiplosporium Kamyschko
Cephalosporiopsis Peyronel
Cephalosporium Corda
Cephalothecium Corda
Cepsiclava J. Walker
Cerastomis Clem.
Ceratocladium Pat.
Ceratopodium Corda
Ceratostoma Pers.
Ceratostoma Fr.
Cercosporula G. Arnaud
Cerillum Clem.
Ceuthocarpon P. Karst.
Chaetapiospora Petr.
Chaetoceratostoma Turconi & Maffei
Chaetoceris Clem. & Shear
Chaetodimerina Hansf.
Chaetolentomita Maubl.
Chaetomelasmia Danilova
Chaetomeliola (Cif.) Bat. et al.
Chaetomiotricha Peyronel
Chaetonaemosphaera Schwarzman
Chailletia Jacz.
Chailletia Fuckel
Cheilariopsis Petr.
Cheiropodium Syd. & P. Syd.
Chiajaea (Sacc.) Höhn.
Chiloella Syd.
Chilonectria Sacc.
Chitinonectria M. Morelet
Chlorospora Speg.
Chondroplea Kleb.
Chorostate (Nitschke ex Sacc.) Traverso
Chorostella (Sacc.) Clem. & Shear
Chromocrea Seaver
Chromocreopsis Seaver
Chromocytospora Speg.
Chromostylium Giard
Chrysogluten Briosi & Farneti
Ciliciopodium Corda
Ciliciopus Clem. & Shear
Ciliofusa Clem. & Shear
Ciliofusarium Rostr.
Ciliomyces Höhn.
Circinaria Pers.
Circinaria Bonord.
Circinostoma Gray
Cryptoderis Auersw.
Cryptosordaria De Not. ex Sacc.
Cryptosphaerina Lambotte & Fautrey ex Sacc. & P. Syd.
Cryptospora Tul. & C. Tul.

Cryptostictella Grove
Cryptostictis Fuckel
Cryptothamnium Wallr.
Cryptothecium Penz. & Sacc.
Cucurbitariella Petr.
Cucurbitula Fuckel
Curreyella (Sacc.) Lindau
Cyclocytospora Höhn.
Cyclodomella P.N. Mathur et al.
Cyclophomopsis Höhn.
Cylicogone Emden & Veenb.-Rijks
Cylindrium Bonord.
Cylindrocladiopsis J.M. Yen
Cyphellopycnis Tehon & G.L. Stout
Cytodiplospora Oudem.
Cytophoma Höhn.
Cytosporopsis Höhn.
Dactylina G. Arnaud
Daedala Hazsl.
Dapsilosporium Corda
Dasyphthora Clem.
Debarya Schulzer
Debaryella Höhn.
Dendrodochium Bonord.
Desmotrichum Lév.
Detonina Kuntze
Dialytes Nitschke
Diatrypeopsis Speg.
Dichitonium Berk. & M.A. Curtis
Dichotomella Sacc.
Dicladium Ces.
Didymariopsis Speg.
Didymocladium Sacc.
Didymopsamma Petr.
Diheterospora Kamyschko
Diheterospora Kamyschko ex G.L. Barron & Onions
Dimera Fr.
Diploceras (Sacc.) Died.
Diplocladium Bonord.
Diploplenodomopsis Petr.
Diplosclerophoma Petr.
Diplosporis Clem.
Diplosporium Link
Disaeta Bonar
Discodiaporthe Petr.
Discomycopsella Henn.
Discosiopsis Edward, Kr.P. Singh et al.
Discosiospora A.W. Ramaley
Discosphaera Dumort.
Discostromopsis H.J. Swart
Disperma Theiss.
Dochmolopha Cooke
Dothideovalsa Speg.
Dothidina Theiss. & Syd.
Dozya P. Karst.
Dryadomyces Gebhardt
Dubiomyces Lloyd
Echinodothis G.F. Atk.
Echinopodospora B.M. Robison
Echinospora Mirza
Echusias Hazsl.
Ectomyces P. Tate
Ectosphaeria Speg.
Edmundmasonia Subram.
Eidamia Lindau
Ellisiella Sacc.
Ellisiellina Sousa da Câmara
Ellisiopsis Bat.
Embolidium Bat.
Endocreas Samuels & Rogerson
Endodothella Theiss. & Syd.
Endogloea Höhn.
Endophyllachora Rehm
Endotrabutia Chardón
Engizostoma Gray
Entosordaria Speg.
Entosordaria (Sacc.) Höhn.
Eolichen Zukal
Eolichenomyces Cif. & Tomas.
Ephedrosphaera Dumort.
Epheliopsis Henn.
Ephemeroascus Emden
Epinectria Syd. & P. Syd.
Ergotaetia E.J. Quekett
Eriomene (Sacc.) Clem. & Shear
Eriomenella Peyronel
Erionema Maire
Eriosphaerella Höhn.
Erostella (Sacc.) Sacc.
Erostrotheca G.H. Martin & Charles
Erythrosphaera Sorokīn
Esfandiaria Petr.
Euhypoxylon Füisting
Euricoa Bat. & H. Maia
Europhium A.K. Parker
Eusordaria Zopf
Eutypopsis P. Karst.
Exomassarinula Teng
Fabreola Kuntze
Fairmania Sacc.
Fellneria Fuckel
Fimetaria D.A. Griffiths & Seaver
Fioriella Sacc.
Fitzpatrickia Cif.

Flagellospora Ingold
Flageoletia (Sacc.) Höhn.
Fleischeria Penz. & Sacc.
Fominia Girz.
Fragosoella Petr. & Syd.
Frankia Brunch.
Frankiella Speschnew
Frondisphaeria K.D. Hyde
Fuckelia (Nitschke ex Sacc.) Cooke
Fuckelina Sacc.
Fusicytospora Gutner
Fusidium Link
Fusidomus Grove
Fusisporium Link
Fusisporium Fr.
Gaeumannia Petr.
Galeraicta Preuss
Gamosphaera Dumort.
Gerlachia W. Gams & E. Müll.
Germslitospora Lodha
Gibberellulina Sousa da Câmara
Gibsonia Massee
Gliobotrys Höhn.
Gloeocercospora D.C. Bain & Edgerton ex Deighton
Gloeocercospora D.C. Bain & Edgerton
Gloeosporidium Höhn.
Gloeosporina Höhn.
Gloeosporiopsis Speg.
Glomerularia H. Karst.
Gnomonina Höhn.
Godroniella P. Karst.
Gonatosporium Corda
Gonatotrichum Corda
Gongromeriza Preuss
Gongylocladium Wallr.
Goniosporium Link
Gonytrichella Emoto & Tubaki
Graphilbum H.P. Upadhyay & W.B. Kendr.
Graphiocladiella H.P. Upadhyay
Griphosphaerella Petr.
Griphosphaeria Höhn.
Guttularia W. Oberm.
Halstedia F. Stevens
Hansenia Zopf
Haplochalara Linder
Haplomela Syd.
Haplophoma Riedl & Ershad
Haplostroma Syd. & P. Syd.
Haplothecium Theiss. & Syd.
Haplotrichella G. Arnaud
Hartiella Massee
Harziella Kuntze
Heimiodiplodia Zambett.
Helicosporangium H. Karst.
Hemisphaeria Klotzsch
Hendersoniopsis Woron.
Henningsina Möller
Herminia R. Hilber
Heteronectria Penz. & Sacc.
Heteropera Theiss.
Hindersonia Moug. & Nestl. ex J. Schröt.
Hiogispora Abdel-Wahab & Nagah.
Hormosperma Penz. & Sacc.
Hormospora De Not.
Hyalobotrys Pidopl.
Hyaloceras Durieu & Mont.
Hyaloflorea Bat. & H. Maia
Hyalomelanconis Naumov
Hyalopesotum H.P. Upadhyay & W.B. Kendr.
Hyalopus Corda
Hyalostachybotrys Sriniv.
Hyalotia Guba
Hymenopleella Munk
Hymenopodium Corda
Hyphelia Fr.
Hyphoderma Fr.
Hyphonectria (Sacc.) Petch
Hypocreophis Speg.
Hypodiscus Lloyd
Hypoplasta Preuss
Hypopteris Berk.
Hypostegium Theiss.
Hypoxylina Starbäck
Hypoxylum Juss.
Hysterodothis Höhn.
Hystrix Alstrup & Olech
Indiella Brumpt
Innatospora J.F.H. Beyma
Insecticola Mains
Institale Fr.
Irene Theiss., Syd. & P. Syd.
Irenina F. Stevens
Ixodopsis P. Karst.
Jacobaschella Kuntze
Jongiella M. Morelet
Kaskaskia Born & J.L. Crane
Keissleria Höhn.
Kellermanniopsis Edward et al.
Kentrosporium Wallr.
Kirschsteinia Syd. & P. Syd.
Knyaria Kuntze
Kommamyce Nieuwl.
Kubinyia Schulzer
Laaseomyces Ruhland

Lachnidium Giard
Laestadia Auersw.
Lageniformia Plunkett
Lamyella Berl.
Lamyella Fr.
Larseniella Munk
Lasiella Quél.
Lasiosordaria Chenant.
Lasiosordariella Chenant.
Lasiosordariopsis Chenant.
Lasiostroma Griffon & Maubl.
Leiosepium Sacc.
Leiostigma Kirschst.
Lennisia Nieuwl.
Lentomita Niessl
Lepidonectria Speg.
Lepra Willd.
Lepteutypella Petr.
Leptina Bat. & Peres
Leptocoryneum Petr.
Leptocrea Syd. & P. Syd.
Leptodiscus Gerd.
Leptosporium (Sacc.) Höhn.
Leucocrea Sacc. & P. Syd. ex Lindau
Leucocytospora (Höhn.) Höhn.
Leucophomopsis Höhn.
Leucosphaera Arx, Mukerji & N. Singh
Leveillea Fr.
Leveillinopsis F. Stevens
Libertina Höhn.
Lichenagaricus P. Micheli
Lichenoverruculina Etayo
Ligniella Naumov
Lilliputia Boud. & Pat.
Linearistroma Höhn.
Linostoma Höhn.
Linostomella Petr.
Lisea Sacc.
Lisiella (Cooke & Massee) Sacc.
Lithomyces Viala & Marsais
Litschaueria Petr.
Lohwagiella Petr.
Lomentospora Hennebert & B.G. Desai
Longoa Curzi
Lophodiscella Tehon
Luxuriomyces R.F. Castañeda
Lysipenicillium Bref.
Macrothelia M. Choisy
Magnusia Sacc.
Malacosphaeria Syd.
Malacostroma Höhn.
Malinvernia Rabenh.
Masonia G. Sm.
Masoniella G. Sm.
Massalongiella Speg.
Massariella Speg.
Massariopsis Niessl
Mastigocladium Matr.
Mastigonetron Kleb.
Maurinia Niessl
Megalonectria Speg.
Megathecium Link
Melanconidium (Sacc.) Kuntze
Melanogone Wollenw. & H. Richt.
Melanopelta Kirschst.
Melanoporthe Wehm.
Melanopsammina Höhn.
Melanosporopsis Naumov
Meliolaster Doidge
Menisporella Agnihothr.
Meringosphaeria Peyronel
Merrilliopeltis Henn.
Mesobotrys Sacc.
Metachora Syd., P. Syd. & E.J. Butler
Microbasidium Bubák & Ranoj.
Micronectriopsis Höhn.
Microphiodothis Speg.
Microstoma Auersw.
Microthecium Corda
Microtypha Speg.
Milowia Massee
Mitrasphaera Dumort.
Miyoshia Kawam.
Moelleria Bres.
Moeszia Bubák
Monoceras Guba
Monochaetina Subram.
Monoconidia Roze
Monopycnis Naumov
Monosporella S. Hughes
Monostachys G. Arnaud
Montemartinia Curzi
Morrisiella Saikia & A.K. Sarbhoy
Mothesia Oddo & Tonolo
Mucrosporium Preuss
Munkiodothis Theiss. & Syd.
Murogenella Goos & E.F. Morris
Mycobanche Pers.
Mycophaga F. Stevens
Mycophycophila Cribb & J.W. Cribb
Mycorhynchella Höhn.
Mycothyridium E. Müll.
Myriogenis Clem. & Shear
Myrmaecium Sacc.

Myrotheciella Speg.
Myxolibertella Höhn.
Myxormia Berk. & Broome
Myxothecium Kunze
Naemaspora Willd.
Neesiella Kirschst.
Nematomyces Faurel & Schotter
Neoarcangelia Berl.
Neohenningsia Koord.
Neokeissleria Petr.
Neoskofitzia Schulzer
Neozimmermannia Koord.
Nephrospora Loubière
Neuronectria Munk
Nigrosphaeria N.L. Gardner
Notarisiella (Sacc.) Clem. & Shear
Nothopatella Sacc.
Nothopodospora Mirza
Nummularia Tul. & C. Tul.
Nummulariella Eckblad & Granmo
Nummularioidea (Cooke & Massee) Lloyd
Numulariola House
Ochraceospora Fiore
Ollula Lév.
Oostroma Bonord.
Ophiodothis Sacc.
Ophiostomella Petr.
Ophiotexis Theiss.
Ophiovalsa Petr.
Oplotheciopsis Bat. & Cif.
Oramasia Urries
Oswaldia Rangel
Pachnodium H.P. Upadhyay & W.B. Kendr.
Pachybasium Sacc.
Paidania Racib.
Papularia Fr.
ParacesatiellaPe tr.
Paradidymella Petr.
Paradiplodiella Zambett.
Paraeutypa Subram. & Ananthap.
Paragaeumannomyces Matsush.
Paralaestadia Sacc. ex Vain.
Paramazzantia Petr.
Paranthostomella Speg.
Parascorias J.M. Mend.
Parasteridiella H. Maia
Patouillardea Roum.
Peckiella (Sacc.) Sacc.
Pedisordaria Clem.
Peloronectriella Yoshim. Doi
Penzigia Sacc.
Penzigina Kuntze
Peresia H. Maia
Periaster Theiss. & Syd.
Peridoxylon Shear
Peripherostoma Gray
Perisphaeria Roussel
Perisporiella (Henn.) Clem. & Shear
Peristomium Lechmere
Peroneutypella Berl.
Perrotiella Naumov
Pestalozzina (Sacc.) Sacc.
Pestalozzina P. Karst. & Roum.
Petasodes Clem.
Petelotia Pat.
Petriellidium Malloch
Peyronellula Malan
Peziotrichum (Sacc.) Lindau
Phaeaspis Kirschst.
Phaeidium Clem.
Phaeoapiospora (Sacc. & P. Syd.) Theiss. & Syd.
Phaeoconis Clem.
Phaeodiaporthe Petr.
Phaeoharziella Loubière
Phaeonectria (Sacc.) Sacc. & Trotter
Phaeophomatospora Speg.
Phaeoscopulariopsis M. Ota
Phaeosperma Nitschke ex Fuckel
Phaeostagonosporopsis Woron.
Phaeostilbella Höhn.
Phaeostoma Arx & E. Müll.
Phaeotrabutia Orejuela
Phaeotrabutiella Theiss. & Syd.
Phaeotrype Sacc.
Phanerocoryneum Höhn.
Phellomyces A.B... Frank
Phenacopodium Debey
Phialicorona Subram.
Phialocladus Kreisel
Phialocorona Subram.
Phialophoropsis L.R. Batra
Philocopra Speg.
Phoenicostroma Syd.
Phoma Fr.
Phomatosporopsis Petr.
Phomopsella Höhn.
Phomopsioides M.E.A. Costa & Sousa da Câmara
Phorcys Niessl
Phragmocarpella Theiss. & Syd.
Phragmocauma Theiss. & Syd.
Phragmodothella Theiss. & Syd.
Phruensis Pinruan
Physalosporina Woron.
Physosporella Höhn.

Phytocordyceps C.H. Su & H.H. Wang
Piminella G. Arnaud
Pionnotes Fr.
Pithoascus Arx
Pithospermum Mont.
Placophomopsis Grove
Placostroma Theiss. & Syd.
Plagiolagynion Schrantz
Plagiostomella Höhn.
Plagiothecium Schrantz
Pleosporopsis Oerst.
Pleurage Fr.
Pleuronaema Höhn.
Pleurosordaria Fernier
Podocrea (Sacc.) Lindau
Podostroma P. Karst.
Pogonospora Petr.
Poikiloderma Füisting
Polistophthora Lebert
Polycytella C.K. Campb.
Polylagenochromatia Sousa da Câmara
Polynema Lév.
Polystigmella Jacz. & Natalina
Poroconiochaeta Udagawa & Furuya
Porodiscella Viégas
Poroniopsis Speg.
Porosphaeria Samuels & E. Müll.
Porphyrosoma Pat.
Prachtflorella Matr.
Proboscispora S.W. Wong & K.D. Hyde
Psalidosperma Syd. & P. Syd.
Psecadia Fr.
Pseudapiospora Petr.
Pseudhaplosporella Speg.
Pseudobasidium Tengwall
Pseudodiplodia Speg.
Pseudodiplodiella Bender
Pseudofusarium Matsush.
Pseudofusidium Deighton
Pseudoguignardia Gutner
Pseudohaplis Clem. & Shear
Pseudomassariella Petr.
Pseudomelasmia Henn.
Pseudomicrocera Petch
Pseudopatella Speg.
Pseudophomopsis Höhn.
Pseudophysalospora Höhn.
Pseudotrype Henn.
Psilobotrys Sacc.
Psilonia Fr.
Psiloniella Costantin
Puiggarina Speg.
Putagraivam Subram. & Bhat
Pycnidiochaeta Sousa da Câmara
Pycnofusarium Punith.
Pycnostroma Clem.
Pyreniopsis Kuntze
Pyrenium Tode
Pyrenodermium Bonord.
Pyrenodochium Bonord.
Racemella Ces.
Racemosporium Moreau & V. Moreau
Rachidicola K.D. Hyde & J. Fröhl.
Rachisia Lindner
Radulum Fr.
Rehmiella G. Winter
Rehmiomyces (Sacc. & P. Syd.) Syd.
Rhabdostroma Syd. & P. Syd.
Rhaphidophora Ces. & De Not.
Rhaphidospora Fr.
Rheumatopeltis F. Stevens
Rhexographium M. Morelet
Rhinocephalum Kamyschko
Rhodoseptoria Naumov
Rhodothrix Vain.
Rhopalopsis Cooke
Rhopographina Theiss. & Syd.
Rhynchomelas Clem.
Rhynchophoma P. Karst.
Rhynchostomopsis Petr. & Syd.
Ribaldia Cif.
Rinia Penz. & Sacc.
Rinomia Nieuwl.
Rizaliopsis Bat. et al.
Rostrella Zimm.
Rostrella Fabre
Rostrocoronophora Munk
Rostronitschkia Fitzp.
Rostrospora Subram. & K. Ramakr.
Rubromadurella Talice
Saccardomyces Henn.
Sarcopyreniomyces Cif. & Tomas.
Sarcopyreniopsis Cif. & Tomas.
Sarcostromella Boedijn
Saturnomyces Cain
Sauvageautia Har.
Schizocapnodium Fairm.
Schizotrichella E.F. Morris
Sciniatosporium Kalchbr. ex Morgan-Jones
Scirrhiella Speg.
Scleropycnium Heald & C.E. Lewis
Scleroramularia Batzer & Crous
Scolecoccoidea F. Stevens
Scolecodothis Theiss. & Syd.

Scolecodothopsis F. Stevens
Scoleconectria Seaver
Scoptria Nitschke
Scopulina Lév.
Seimatoantlerium Strobel et al.
Seiridina Höhn.
Selenosporium Corda
Seliniana Kuntze
Septomazzantia Theiss. & Syd.
Septomyxa Sacc.
Septorella Allesch.
Sesquicillium W. Gams
Shiraiella Hara
Shropshiria F. Stevens
Simoninus Roum.
Singera Bat. & J.L. Bezerra
Sinosphaeria J.Z. Yue & O.E. Erikss.
Sirentyloma Henn.
Solenoplea Starbäck
Spermatodermia Wallr.
Spermodermia Tode
Spermoedia Fr.
Sphaceliopsis Speg.
Sphaeria Haller
Sphaeria Tode
Sphaeroderma Fuckel
Sphaerodermatella Seaver
Sphaerodermella Höhn.
Sphaeromycetella G. Arnaud
Sphaeronemopsis Speg.
Sphaeropyxis Bonord.
Sphaerosperma Preuss
Sphinctrosporium Kunze
Spilobolus Link
Spirogramma Ferd. & Winge
Sporhelminthium Speg.
Sporoderma Mont.
Sporophleum Nees ex Link
Sporotheca Corda
Sporotrichella P. Karst.
Sporotrichopsis Guég.
Stagonostroma Died.
Starkeyomyces Agnihothr.
Stegastroma Syd. & P. Syd.
Steirochaete A. Braun & Casp.
Stelechotrichum Ritgen
Stevensiella Trotter
Stictosphaeria Tul. & C. Tul.
Stigmatopsis Traverso
Stilbonectria P. Karst.
Stromateria Corda
Stromatosphaeria Grev.
Stromatostilbella Samuels & E. Müll.
Stromne Clem.
Styloletendraea Weese
Stylonectriella Höhn.
Stysanopsis Ferraris
Stysanus Corda
Subramanella H.C. Srivast.
Sucinaria Syd.
Sulcospora Kohlm. & Volkm.-Kohlm.
Sydowinula Petr.
Synchaetomella Decock & Seifert
Synnemadiplodia Zambett.
Synpenicillium Costantin
Synsporium Preuss
Synsterigmatocystis Costantin
Telemeniella Bat.
Telimenopsis Petr.
Teratonema Syd. & P. Syd.
Termitaria Thaxt.
Tetracytum Vanderw.
Tettigorhyza G. Bertol.
Thielaviella Arx & T. Mahmood
Tolediella Viégas
Thozetellopsis Agnihothr.
Thozetia Berk. & F. Muell.
Thysanopyxis Rabenh. ex Bonord.
Tilakomyces Sathe & Vaidya
Titaeosporina Luijk
Titania Berl.
Tolypomyria Preuss
Tonduzia F. Stevens
Torrubia Lév.
Torsellia Fr.
Torulina Sacc. & D. Sacc.
Torulopsis Oudem.
Trabutiella Theiss. & Syd.
Trabutiella F. Stevens
Trematostoma (Sacc.) Shear
Tretendophragmia Subram.
Trichocollonema Höhn.
Trichoconium Corda
Trichodermia Hoffm.
Trichofusarium Bubák
Trichohleria Sacc.
Trichophysalospora Lebedeva
Trichotheciopsis J.M. Yen
Trigonia J.F.H. Beyma
Tripterospora Cain
Tureenia J.G. Hall
Tylodon Banker
Typhodium Link
Umbellula E.F. Morris

Uncigera Sacc.
Underwoodina Kuntze
Urnularia P. Karst.
Urospora Fabre
Ustilaginoidella Essed
Ustilaginula Clem.
Ustilagopsis Speg.
Ustulina Tul. & C. Tul.
Vakrabeeja Subram.
Vanhallia L. Marchand
Veramyces Subram.
Vermicularia Tode
Vermiculariopsis Höhn.
Verruculina Etayo
Verticicladiella S. Hughes
Verticilliastrum Dasz.
Verticilliodochium Bubák
Verticillis Clem. & Shear
Vestergrenia (Sacc. & P. Syd.) Died.
Vittadinula (Sacc.) Clem. & Shear
Volutina Penz. & Sacc.
Winteria Sacc.
Winterina Sacc.
Woronichina Naumov
Xanthopsora Speg.
Xenostilbum Petr.
Xylariodiscus Henn.
Xylariopsis F.L. Tai
Xylopezia Höhn.
Xylosphaera Dumort.
Yukonia R. Sprague
Zygospermum Cain

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