

Table S1. Taxa, isolate information and accession numbers for sequences retrieved from GenBank. Taxonomic novelties are given in bold.

Taxon <sup>1</sup>	Strain	Status <sup>2</sup>	Country	Host	Substrate	GenBank accessions		
						ITS	28S	tef1-α
<i>Adautomilanezia caesalpiniae</i>	CC-LAMIC 102/12	T	Brazil	<i>Caesalpinia echinata</i>	wood	KX821777	KU170671	—
<i>Anacacumisporium appendiculatum</i>	HMAS 245593	T	China	broad-leaved tree	dead stems	KP347129	KT001553	—
<i>Anacacumisporium appendiculatum</i>	HMAS 245602		China	broad-leaved tree	dead stems	KT001556	KT001554	—
<i>Brunneodinemasporium brasiliense</i>	CBS 112007	T	Brazil	unidentified	decaying leaf	JQ889272	JQ889288	—
<i>Brunneodinemasporium jonesii</i>	GZCC 16-0050	T	China	unidentified	decaying wood	KY026058	KY026055	—
<i>Cacumisporium capitulatum</i>	FMR 11339	T	Spain	unidentified	decaying wood	HF677176	HF677190	—
<i>Calvolachnella guayuninis</i>	CBS 134695	T	Uruguay	<i>Myrcianthes pungens</i>	bark	KJ834524	KJ834525	—
<i>Catenularia cubensis</i>	S.M.H. 3258		Costa Rica	unidentified	decaying wood	MW987826	AF466067	—
<i>Catenularia catenulata</i>	DLUCC 0891	T	China	unidentified	submerged wood	MK828637	MK835838	—
<i>Chaetosphaeria fusiformis</i>	CBS 101429		Czech Republic	<i>Abies alba</i>	decaying bark	AF178554	AF178554	—
<i>Chaetosphaeria innumera</i>	M.R. 1175		Czech Republic	<i>Fagus sylvatica</i>	decaying wood	AF178551	AF178551	—
<i>Chaetosphaeria lignomollis</i>	S.M.H. 3015	T	Puerto Rico	unknown	decaying wood	EU037896	AF466073	—
<i>Chaetosphaeria myriocarpa</i>	CBS 264.76	N	The Netherlands	unidentified	decaying wood	AF178552	AF178552	—
<i>Chaetosphaeria pygmaea</i>	M.R. 1365		Czech Republic	<i>Fagus sylvatica</i>	decaying wood	AF178545	AF178545	—
<i>Chloridium caesium</i>	CBS 102339		Austria	<i>Salix cinerea</i>	decaying wood	AF178564	AF178564	—
<i>Chloridium virescens</i>	CBS 152.53		France	<i>Acer</i> sp.	unknown	MH857142	MH868678	—
<i>Chloridium gonytrichii</i>	CBS 195.60		South Africa	unidentified	unknown	MH857954	MH869503	—
<i>Chloridium submersum</i>	MFLUCC 16-1344	T	China	unidentified	submerged wood	MN860551	MN860556	—
<b><i>Codinaea ellipsoidea</i></b>	MFLUCC 18-1574	T	China	unidentified	submerged wood	MK828628	MK835828	—
<b><i>Codinaea ellipsoidea</i></b>	DLU 0104		China	unidentified	submerged wood	MK828626	MK835826	—
<b><i>Codinaea ellipsoidea</i></b>	KUMCC 15-0279		China	unidentified	submerged wood	MK828627	MK835827	—
<b><i>Codinaea ellipsoidea</i></b>	DLU 229		China	unidentified	submerged wood	MK828629	MK835829	—
<b><i>Codinaea lignicola</i></b>	DLUCC 0899	T	China	unidentified	submerged wood	MK828630	MK835830	MN194081
<b><i>Codinaea pandanicola</i></b>	KUMCC 16-0153	T	China	<i>Pandanus</i> sp.	dead leaf	MH388338	MH376710	MH388373
<b><i>Codinaea siamensis</i></b>	MFLUCC 15-0614	T	Thailand	unidentified	submerged twig	KX609955	KX609952	—
<b><i>Codinaea siamensis</i></b>	MFLUCC 16-0371		Thailand	<i>Pandanus</i> sp.	dead leaf	MH388339	MH376711	MH388374
<b><i>Codinaea terminalis</i></b>	GZCC 18-0085	T	China	unidentified	decaying leaves	MN104613	MN104624	—
<b><i>Codinaea vermispora</i></b>	CGMCC 3.19632	T	China	unidentified	submerged leaves	MH758194	MH758207	—
<b><i>Codinaea lutea</i></b>	GZCC 18-0017		China	unidentified	decaying leaves	MN104609	MN104620	—
<b><i>Codinaea yunnanensis</i></b>	MFLUCC 17-0468	T	China	unidentified	submerged wood	MK828623	MK835823	MN194076
<i>Coniomyces pseudotransvaalensis</i>	HHUF 29956	T	Japan	<i>Machilus japonica</i>	dead twig	LC001710	LC001708	—
<i>Cryptophiale hamulata</i>	MFLUCC 18-0098	E	Thailand	unknown	decaying leaf	—	MG386756	—
<i>Cryptophiale udagawae</i>	GZCC 18-0047		China	unidentified	decaying wood	MN104608	MN104619	—
<i>Cryptophialoidea fasciculata</i>	MFLU 18-1499		Thailand	unknown	submerged wood	MH758195	MH758208	—
<i>Dictyocheata brevis</i>	GZCC 18-0096	T	China	unidentified	decaying wood	MN104614	MN104625	—
<i>Dictyocheata callimorpha</i>	ICMP 15155		New Zealand	unidentified	decaying wood	MT454484	MT454499	MT454674
<i>Dictyocheata fuegiana</i>	ICMP 15153	T	New Zealand	unidentified	decaying wood	MT454487	EF063574	MT454677
<i>Dictyocheata querna</i>	CBS 145503		Czech Republic	<i>Quercus cerris</i>	acorn	MT454489	MT454503	MT454679
<i>Dictyocheata montana</i>	CBS 145342	E	Czech Republic	<i>Fagus sylvatica</i>	decaying cupule	MT454488	MT454502	MT454678
<i>Dictyocheata detriticola</i>	ICMP 14948	T	New Zealand	<i>Metrosideros</i> sp.	fallen leaves	MT454486	MT454501	MT454676
<i>Dinemasporium cruciferum</i>	HHUF 30001		Japan	<i>Arundo donax</i>	unknown	AB900895	AB934039	AB934089
<i>Dinemasporium decipiens</i>	CBS 592.73		Suriname	<i>Elaeis guineensis</i>	soil under	JQ889275	JQ889291	—
<i>Dinemasporium pseudoindicum</i>	CBS 127402	T	USA	tallgrass prairie	soil under	JQ889277	JQ889293	—
<i>Ellisembia aurea</i>	CBS 144403	T	France	<i>Sambucus nigra</i>	decaying wood	MH836375	MH836376	—
<i>Eucalyptostroma eucalypti</i>	CBS 142074	T	Malaysia	<i>Eucalyptus pellita</i>	leaf spots	KY173408	KY173500	—
<i>Exserticlavula vasiformis</i>	TAMA 450		Japan	unidentified	plant debris	—	AB753846	—
<i>Fuscocatenua submersa</i>	MFLUCC 18-1342	T	China	unidentified	submerged wood	MK828634	MK835835	MN194085
<i>Infundibulomyces cupulatus</i>	BCC 11929	T	Thailand	<i>Lagerstroemia</i> sp.	dead leaf	EF113976	EF113979	—
<i>Infundibulomyces oblongisporus</i>	BCC 13400	T	Thailand	unidentified, angiosperm	leaf litter	EF113977	EF113980	—
<i>Kionochaeta castaneae</i>	GZCC 18-0025	T	China	<i>Castanea mollissima</i>	decaying seed she	MN104610	MN104621	—
<i>Kionochaeta microspora</i>	GZCC 18-0036	T	China	unidentified	decaying wood	MN104607	MN104618	—
<i>Menisporopsis anisopora</i>	CBS 109475	T	Venezuela	<i>Wettinia praemorsa</i>	decaying petiole	MH862827	MH74421	—
<i>Menisporopsis breviseta</i>	GZCC 18-0071	T	China	unknown	decaying leaves	MN104612	MN104623	—
<i>Menisporopsis dushanensis</i>	GZCC 18-0084	T	China	unidentified	decaying leaves	MN104615	MN104626	—
<i>Nawawia filiformis</i>	MFLUCC 17-2394		Thailand	unidentified	decaying wood	MH758196	MH758209	—
<i>Neopseudolachnella acutispora</i>	MAFF 244358	T	Japan	<i>Pleioblastus chino</i>	dead twigs	AB934065	AB934041	AB934091
<i>Neopseudolachnella magnispora</i>	MAFF 244359	T	Japan	<i>Sasa kurlensis</i>	dead twigs	AB934066	AB934042	AB934092
<i>Paliphora intermedia</i>	CBS 896.97	I	Australia	unidentified	leaf litter	MH862682	EF204501	—
<i>Paragaumannomyces garethjonesii</i>	MFLUCC 15-1012	T	Thailand	Fabaceae	seed pod	KY212751	KY212759	—
<i>Paragaumannomyces sabinianus</i>	ILLS121384	T	USA	unidentified	decaying wood	MT118243	MT118225	—
<i>Paragaumannomyces panamensis</i>	S.M.H. 3596	T	Panama	unidentified	decaying wood	AY906948	MT118218	—
<i>Paragaumannomyces rubicundus</i>	S.M.H. 3221	T	Costa Rica	unidentified	decaying wood	MT118242	MT118224	—
<i>Paragaumannomyces raciborskii</i>	S.M.H. 3119		Puerto Rico	unidentified	decaying wood	AY906953	AY436402	—
<i>Phaeostalagnus cyclosporus</i>	CBS 663.70		The Netherlands	<i>Quercus</i> sp.	decaying bark	MH589892	—	—
<i>Phialosporostilbe scutiformis</i>	MFLUCC 17-0227	T	China	unidentified	submerged wood	MH758194	MH758207	—
<i>Phialogeniculata guadalcanalensis</i> <sup>o</sup>	MFLUCC 18-0260	T	Thailand	unidentified	decaying wood	MK828625	MK835825	MN194078
<i>Phialoturbella aseptata</i>	GZCC 18-0044	T	China	unidentified	decaying wood	MN104611	MN104622	—
<i>Phialoturbella lunata</i>	MFLUCC 18-0642	T	China	unidentified	submerged wood	MK828624	MK835824	MN194077
<i>Polynema podocarp</i>	CBS 144415	T	New Zealand	<i>Podocarpus totara</i>	unknown	MH327797	MH327833	—
<i>Pseudodinemasporium fabiforme</i>	CBS 140010	T	Malaysia	<i>Acacia mangium</i>	leaf spots	KR611889	KR611906	—
<i>Pseudolachnea fraxini</i>	CBS 113701, HHUF 30116	T	Sweden	<i>Fraxinus excelsior</i>	unknown	JQ889287	JQ889301	AB934096
<i>Pseudolachnea hispidula</i>	MAFF 244365		Japan	<i>Morus bombycis</i>	dead twig	AB934072	AB934048	AB934098
<i>Pseudolachnella asymmetrica</i>	MAFF 244366		Japan	<i>Phyllostachys nigra</i> var. <i>henonis</i>	dead twig	AB934073	AB934049	AB934099
<i>Pseudolachnella scolecospora</i>	MAFF 244379		Japan	<i>Sasa</i> sp.	dead twigs	AB934086	AB934062	AB934112
<i>Pyrgemulla aurantiaca</i>	CBS 126743	T	Hungary	<i>Vitis vinifera</i>	bark	HM241692	HM241692	—
<i>Rattania aquatica</i>	MFLUCC 21-0006	T	Thailand	unidentified	submerged wood	MW260331	MW287235	—
<i>Rattania setulifera</i>	GUFCC 15-501	T	India	<i>Calamus thwaitesii</i>	leaves	GU191794	HM171322	—
<i>Sporoschisma hemipilum</i>	MUCL 56487		Martinique	unidentified	wood	MW987829	MW987824	—
<i>Sporoschisma longicatenatum</i>	MFLUCC 16-0180	T	Thailand	unidentified	submerged wood	KX505871	KX358077	—
<i>Sporoschisma mirabile</i>	CBS 144794		France	<i>Alnus glutinosa</i>	submerged wood	MW987830	MW987825	—
<b><i>Stilbochaeta aquatica</i></b>	MFLUCC 15-0983	T	Thailand	unidentified	submerged wood	MH476572	MH476569	—
<b><i>Stilbochaeta cangshanensis</i></b>	MFLUCC 17-2214	T	China	unidentified	submerged wood	MK828632	MK835832	MN194083
<b><i>Stilbochaeta septata</i></b>	CBS 143386	E	Chile	<i>Eucalyptus grandis</i>	leaves	MH107889	MH107936	MH108015
<b><i>Stilbochaeta submersa</i></b>	DLUCC 1014	T	China	unidentified	submerged wood	MK828631	MK835831	MN194082
<i>Striatosphaeria castanea</i>	CBS 145352	T	French Guinea	woody liana	decaying periderm	MT118244	MT118229	—
<i>Striatosphaeria codinaeophora</i>	M.R. 1230		Puerto Rico	<i>Dacryodes excelsa</i>	decaying wood	AF178546	AF178546	—
<i>Tainosphaeria crassiparves</i>	S.M.H. 1934	T	Puerto Rico	<i>Hymenaea</i> sp.	seed pod	—	AF466089	—
<i>Tainosphaeria jonesii</i>	GZCC 16-0065	P	China	unidentified	submerged wood	KY026060	KY026057	—
<i>Tainosphaeria jonesii</i>	GZCC 16-0053		China	unidentified	decaying wood	KY026059	KY026056	—
<i>Tainosphaeria siamensis</i>	MFLUCC 15-0607	T	Thailand	unidentified	submerged wood	KX609956	KX609953	—
<b><i>Tainosphaeriella aquatica</i></b>	MFLUCC 17-2370	T	Thailand	unidentified	submerged wood	MZ161197	MZ161195	MZ170694
<b><i>Tainosphaeriella thailandense</i></b>	MFLUCC 18-1282	T	Thailand	unidentified	submerged wood	MZ161196	MZ161198	MZ170695
<i>Verhulstia trisororum</i>	CBS 143234	T	The Netherlands	n/a	soil	MG022160	MG022181	—
<i>Zanclospora iberica</i>	CBS 130426	T	Spain	unidentified	decaying wood	KY853480	KY853544	MW147327
<i>Zanclospora novae-zelandiae</i>	ICMP 15781	E	New Zealand	<i>Fuscospora cliffortioides</i>	decaying wood	MW144429	MW144411	MW147330
<i>Zanclospora ramifera</i>	ICMP 22738	T	New Zealand	unidentified	decaying wood	MW144433	MW144415	MW147334

Notes: <sup>1</sup> holotype of *Tainosphaeria obclavata*; <sup>2</sup> T, E, I, N and P denote ex-type, ex-epitype, ex-isotype, ex-neotype and ex-paratype strains.