

• SUPPLEMENTARY MATERIAL

Manuscript “Tackling fungal diversity in lichen symbioses: molecular and morphological data recognize new lineages in *Chaetothyriales* (*Eurotiomycetes*, *Ascomycota*)”

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**Table S1** Samples of *Rhizoplaca melanophthalma* and *Tephromela atra* were reported with their thallus ID and the geographic origins; localities are identified by numbers (1–25).

Lichen host	Thallus ID	Altitude (m a.s.l.)	Substrate	Geographic origin	ID populations
<i>Rhizoplaca melanophthalma</i>	L2383-L2391	1450	basaltic boulders	Argentina, prov. Mendoza, dep. Malargue, Laguna de Llanquanelo, RP186, 20 km after the crossroad with RN40; S/SW-exposed, scattered in dry pampa vegetation, ca. 35°42'50" S/ 69°27'18" W ( <i>L. Muggia</i> ).	1
<i>Rhizoplaca melanophthalma</i>	L2392-L2400	2000	basaltic boulders	Argentina, prov. Mendoza, dep. Malargue, El Sosneado valley, Laguna el Sosneado, S/SW-exposed, dry pampa vegetation, ca. 34°50'43" S /69°54'55" W ( <i>L. Muggia</i> ).	2
<i>Rhizoplaca melanophthalma</i>	L2411-L2434	2000	basaltic boulders	Argentina, prov. Mendoza, Tunuyan, Cordillera del los Andes (E side), road 94 towards portillo Argentino, camp "Yareta", 3550 m a.s.l., on acid big boulder, E/S-exposed ( <i>L. Muggia</i> ).	3
<i>Rhizoplaca melanophthalma</i>	L2436-L2455	3550	acid big boulders	Argentina, prov. Mendoza, Tunuyan, Cordillera del los Andes (E side), road 94 towards portillo Argentino, camp "Yareta", 3550 m a.s.l., on acid big boulder, E/S-exposed ( <i>L. Muggia</i> ).	4
<i>Rhizoplaca melanophthalma</i>	L2557-L2470	3330	acid rocks	Argentina, prov. Mendoza, Cordillera de los Andes (E side), Las Cuevas, lowest border of Mt. Tolosa glacier, S-W exposed ( <i>L. Muggia</i> ).	5
<i>Rhizoplaca melanophthalma</i>	L2471-L2502	3643	acid rock	Argentina, prov. Mendoza, Potrerillo, Cordillera de los Andes (E side), Cordon del Plata Range, Quebrada del Salto, Refuge I.A.N.I.GLA, E-exposed, ca. 32.92382 S/ 69.36543 W ( <i>L. Muggia</i> ).	6
<i>Rhizoplaca melanophthalma</i>	L2503-L2512	4813	acid rocks	Argentina, prov. Mendoza, Potrerillo, Cordillera de los Andes (E side), Cordon del Plata Range, Quebrada del Salto, ridge between Cerro El Salto and Cerro Blanco, E-exposed, ca. 32.91376 S/ 69.40169 W ( <i>L. Muggia</i> ).	7
<i>Rhizoplaca melanophthalma</i>	L2513-L2525	5100		Argentina, prov. Catamarca, dep. Fiambalà, Ojo del el Salado, road towards the Ojo del el Salado ( <i>A.E. Armesto</i> ).	8

<i>Rhizoplaca melanophthalma</i>	L2526-L2544	3300	on acid rock	Chile, prov. Santiago de Chile, Valle (valley) del Yeso, Cordillera del Los Andes (W side), on the path going from the Bano del Plomo to the Laguna de los Patos, S-exposed ( <i>J. Orlando &amp; D.Leiva</i> ).	9
<i>Tephromela atra</i>	L2545-L2565	600		Chile, Region de Aysén del General Carlos Ibanez del Campo, prov. Capitan Prat, dep. Cochran, Tamango National Reserve ( <i>J. Orlando &amp; D.Leiva</i> ).	10
<i>Rhizoplaca melanophthalma</i>	L2566-L2568				11
		2080	siliceous-granitic boulders	Europa, Spain, prov. Madrid, Miraflores del la Sierra, Puerto de la Morquera, summit of Pico Najarra, ca. 40°48'55" N/3°49'34" W ( <i>L. Muggia &amp; S. Perez-Ortega</i> ).	
<i>Tephromela atra</i>	L2569-L2582				12
<i>Tephromela atra</i>	L2583-L2584				13
		1900	siliceous-granitic boulders	Europe, Spain, prov. Madrid, Miraflores del la Sierra, Puerto de la Morquera, towards Pico Najarra, about 150 m above Puerto de la Morquera, ca. 40°49'22" N/3°49'49" W ( <i>L. Muggia &amp; S. Perez-Ortega</i> ).	
<i>Rhizoplaca melanophthalma</i>	L2585-L2594				14
<i>Tephromela atra</i>	L2595- L2603	545	dolorite boulders	Australia, Tasmania, three Thumbs, summit area, 42°36'S/147°52'E, Grid; 570752828/ Grid. Sq.: 5728; in dry sclerophyll forest ( <i>G. Kantvilas</i> ).	15
<i>Rhizoplaca melanophthalma</i>	L2635-L2667	1700	Quartzite	USA , Utah, Utah Co., Rock Canyon, ca. 2 km from trailhead, on exposed quartzite outcrop on north-facing side of canyon; 40.2649, -111.6179 ( <i>Leavitt 19-303</i> ).	16
<i>Rhizoplaca melanophthalma</i>	L2668-L2685	1665	sandstone boulders	USA, Utah, Emery County, vic. of Horse Canyon Rest Area along US Highway 6, on sandstone in Pinyon/Juiper woodland: 39.4123, -110.4320 ( <i>Leavitt 19-235</i> ).	17
<i>Rhizoplaca melanophthalma</i>	L2686-L2703	2020	Wasatch Formation	USA, Utah, Rich Co., southeast of Bear Lake along Highway 30 and west of Sage Creek Junction, on rock in sage-steppe habitat; 41.7905, -111.2129 ( <i>Leavitt 19-157</i> ).	18
<i>Rhizoplaca melanophthalma</i>	L2704-L2721	2490	sandstone boulder	USA, Utah, Duchesne Co.; Ashley National Forest; South Unit, on Nutter's Ridge, on sandstone outcrop north-east of exlosure site ( <i>SD Leavitt</i> ).	19
<i>Rhizoplaca melanophthalma</i>	L2722-L2731	1845	basalt/volcanic rocks	USA, Idaho, Owyhee Co. Along Mud Flat Rd, 27.7 miles from Highway 78. 42.704228-166.3832 ( <i>Leavitt 19.233</i> )	20

<i>Rhizoplaca melanophthalma</i>	L2732-L2752	2210	silicic ash flow tuff	USA, Nevada, Nye Co., Humboldt-Toiyabe National Forest, Table Mountain Wilderness Area, near boundary of Table Mountain Wilderness Area, along USFS Road No. 4409b, at Mosquito Creek Trailhead.; 38.80717 -116.682	21
<i>Tephromela atra</i>	L2753-L2763	555		Mauritius; Port Louis and Moka Districts; along the trail from Moka to Le pouce, 20°12'04" S (± 100 m), 57°31'26" E (± 100 m).	22
<i>Rhizoplaca melanophthalma</i>	L2786-L2799	2700	acidic rocks	Argentina, prov. Mendoza, road RP52, near to Paramillo, ca. 30 m above the road, ca. 32°30'13" S/ 69°03'18" W ( <i>L. Muggia</i> ).	23
<i>Rhizoplaca melanophthalma</i>	L2800-L2821	4300	acidic rocks	Argentina, prov. Mendoza, dep. Tunuyan, valley towards Portillo Argentino (RN86), summit of Cerro Punta Negra ( <i>L. Muggia</i> ).	24
<i>Rhizoplaca melanophthalma</i>	L2822-L2844	3650	basic granitic rocks	Argentina, prov. Mendoza, dep. Tunuyan, valley towards Portillo Argentino (RN86), ca. 100 height m above the bridge/bifurcation with the road towards Manantiales Valley ( <i>L. Muggia</i> ).	25

**Table S2** List of taxa included in the phylogenetic analysis of *Eurotiomycetes* (*Chaetothyriales*) and their NCBI accessions.

Species	ID	ITS	LSU
<i>Aculeata aquatica</i>	MFLUCC 11-0529	MG922571	MG922575
<i>Anthracinomyces petraeus</i>	CGMCC 37315	KP174843	KP174924
<i>Aphanophora eugeniae</i>	CBS 124105 (T)	FJ839617	NG056965
<i>Arthrocladium caudatum</i>	CBS 457.67 (T)	MH859032	NG_057084
<i>Arthrocladium fulminans</i>	CBS 136243 (T)	KT337439	NG057088
<i>Arthrocladium tropicale</i>	CBS 134926 (T)	KX822543	p
<i>Bagliettoa baldensis</i>	RCH48178	KM371431	-
<i>Bagliettoa calciseda</i>	WRB46575	KM371440	-
<i>Bradymyces alpinus</i>	CCFEE 5493 (T)	HG793052	GU250396
<i>Camptophora hylomeconis</i>	CBS 113311 (T)	EU035415	EU035415
<i>Capronia acutisetata</i>	CBS 618.96 (T)	NR_154744	NG058859
<i>Capronia kleinmondensis</i>	CBS 122671 (T)	MH863226	EU552107
<i>Capronia mansonii</i>	CBS 101.67 (T)	AF050247	AY004338
<i>Capronia</i> sp.	97003a	EU139134	-
<i>Capronia</i> sp.	97003b	EU139135	-
<i>Ceramothyrium aquaticum</i>	VTCCF-1210 (T)	LC360299	LC360296
<i>Ceramothyrium carniolicum</i>	CBS 175.95	KC978733	KC455251
<i>Ceramothyrium podocarpi</i>	CPC 19826 (T)	KC005773	NG042751
<i>Ceramothyrium thailandicum</i>	MFLUCC 10-0008 (T)	HQ895838	NG058817
<i>Chaetothyriales</i> sp.	A872	MT193584	KT270601
<i>Chaetothyriales</i> sp.	A941	-	KT270646
<i>Chaetothyriales</i> sp.	A957	MT193583	KT270659
<i>Chaetothyriales</i> sp.	A983	-	KT270674
<i>Chaetothyriales</i> sp.	CBS 129049	KX822531	KX822531
<i>Chaetothyriales</i> sp.	CBS 132039	KX822517	KX822342
<i>Chaetothyriales</i> sp.	ES37	MN218810	-
<i>Chaetothyriales</i> sp.	KhNk32	KX822512	KX822337
<i>Chaetothyriales</i> sp.	L1993	KT263084	KT263084
<i>Chaetothyriales</i> sp.	T171	KF614875	KF614875
<i>Chaetothyriales</i> sp.	L1994	KT263085	KT263085
<i>Chaetothyriales</i> sp.	16708	JQ342183	JQ342185
<i>Chaetothyriales</i> sp.	A543	-	KT263148
<i>Chaetothyriales</i> sp.	A925	-	KT270636
<i>Chaetothyriales</i> sp.	A955	-	KT270657
<i>Chaetothyriales</i> sp.	A968	-	KT270664
<i>Chaetothyriales</i> sp.	CBS 128959	KX822542	KX822542
<i>Chaetothyriales</i> sp.	CBS 128963	KX822501	KX822328
<i>Chaetothyriales</i> sp.	CBS 128973	KX822547	KX822354
<i>Chaetothyriales</i> sp.	CBS 134920	KX822495	KX822324
<i>Chaetothyriales</i> sp.	Cecr4	KX822476	KX822476
<i>Chaetothyriales</i> sp.	L1992	KT263083	KT263083
<i>Chaetothyriales</i> sp.	Pet5a	KX822546	KX822353
<i>Chaetothyriales</i> sp.	T13	KF614778	KF614778
<i>Chaetothyriales</i> sp.	A896	-	KT270620
<i>Chaetothyriales</i> sp.	CBS 128948	KX822492	KX822492
<i>Chaetothyriales</i> sp.	T333	KF614873	KF614873
<i>Chaetothyriales</i> sp.	A933	MT193581	KT270641
<i>Chaetothyriales</i> sp.	A568	-	KT263157
<i>Chaetothyriales</i> sp.	A956	-	KT270658
<i>Chaetothyriales</i> sp.	A581	MT193582	KT263163
<i>Chaetothyriales</i> sp.	131b	KM056296	-
<i>Chaetothyriales</i> sp.	97001a	EU139141	-
<i>Chaetothyriales</i> sp.	01001a	EU139137	-

<i>Chaetothyriales</i> sp.	L204	FJ265765	-
<i>Chaetothyriales</i> sp.	L474	FJ265772	-
<i>Chaetothyriales</i> sp.	Sh25	FJ265771	-
<i>Chaetothyriales</i> sp.	SH9	FJ265770	-
<i>Cladophialophora boppii</i>	CBS 126.86 (T)	MH861932	NG058762
<i>Cladophialophora carrionii</i>	CBS_160.54	KF928453	LC192080
<i>Cladophialophora devriesii</i>	CBS 147.84 (T)	EU103985	KC809989
<i>Cladophialophora humicola</i>	CBS 117536 (T)	EU035408	NG058850
<i>Cladophialophora lanosa</i>	KNU 16032 (T)	LC387460	LC387461
<i>Cladophialophora matsushimae</i>	MFC1-P384 (T)	FN549916	FN400758
<i>Cladophialophora minourae</i>	CBS 556.83 (T)	AY251087	NG058763
<i>Cladophialophora mycetomatis</i>	CBS 122637 (T)	FJ385276	NG058960
<i>Cladophialophora parmeliae</i>	CBS 129337	JQ342180.2	JQ342182
<i>Cladophialophora potulentorum</i>	CBS 114772	EU035410	EU035410
<i>Cladophialophora proteae</i>	CBS 111667 (T)	EU035411	EU035411
<i>Cladophialophora psammophila</i>	CBS 110553 (T)	AY857517	NG058955
<i>Cladophialophora samoensis</i>	CBS 259.83 (T)	MH861581	NG058854
<i>Cladophialophora</i> sp.	131	KM056295	-
<i>Cladophialophora</i> sp.	A670B	KP889119	-
<i>Cladophialophora</i> sp.	L359	FJ265750	-
<i>Cladophialophora</i> sp.	S5	FJ265746	-
<i>Cladophialophora</i> sp.	Sh20	FJ265753	-
<i>Cladophialophora</i> sp.	SH8	FJ265747	-
<i>Cladophialophora</i> sp.	SYPF 8340	-	MF588879
<i>Cladophialophora</i> sp.	A1044	-	KT263082
<i>Cladophialophora</i> sp.	A1069	-	MF071385
<i>Cladophialophora subtilis</i>	CBS 122642 (T)	FJ385273	NG058961
<i>Cladophialophora tumbae</i>	JCM 28746 (T)	LC192125	LC192090
<i>Cladophialophora yegresii</i>	CBS 114405 (T)	EU137322	NG058855
<i>Cyphellophora eucalypti</i>	CBS 124764 (T)	KC455238	GQ303305
<i>Cyphellophora laciniata</i>	CBS 190.61 (T)	EU035416	KF928547
<i>Cyphellophora olivacea</i>	CBS 122.74 (T)	KC455247	KC455260
<i>Cyphellophora pluriseptata</i>	CBS 286.85 (T)	MH861881	KC455255
<i>Cyphellophora sessilis</i>	CBS 243.85 (T)	AY857542	EU514700
<i>Endocarpon adscendens</i>	CG671	KF959777	EF643751
<i>Epibryon bryophilum</i>	CBS 126278	MH863955	MH875414
<i>Epibryon turfosorum</i>	CBS 126587	MH864165	MH875627
<i>Exophiala alcalophila</i>	CBS 520.82 (T)	MH861524	NG059189
<i>Exophiala bonariae</i>	CCFEE 5792 (T)	JX681046	KR781083
<i>Exophiala castellanii</i>	CBS 158.58 (T)	MH857734	KF928522
<i>Exophiala dermatitidis</i>	CBS 207.35 (T)	MH855649	NG059225
<i>Exophiala eucalypticola</i>	CBS 143412 (T)	MH107891	NG_063955
<i>Exophiala italica</i>	MFLUCC 16-0245	KY496744	KY496723
<i>Exophiala mesophila</i>	CBS 402.95	MH862536	KX712349
<i>Exophiala nigra</i>	CBS 535.94 (T)	KY115191	NG059253
<i>Exophiala pisciphila</i>	CBS 537.73 (T)	DQ826739	MH872483
<i>Exophiala polymorpha</i>	CBS 138920 (T)	KP070763	NG059237
<i>Exophiala salmonis</i>	CBS 157.67 (T)	JF747137	AY213702
<i>Exophiala</i> sp.	SYPF 8334	MF588877	MF588894
<i>Exophiala spinifera</i>	D22I	MH010942	MH012097
<i>Fonsecaea minima</i>	CBS 125757 (T)	MH863743	KF928520
<i>Fonsecaea pedrosoi</i>	CBS 271.37 (T)	AB114127	
<i>Fumagopsis stellae</i>	CBS 145078 (T)	NR_161138	NG_066293
Fungal sp.	CCFEE 5323	FJ392866	GU250378
Fungal sp.	CCFEE 5324	FJ392867	GU250379
<i>Herpotrichiellaceae</i> sp.	MUT 5408	KR014371	KP671741
<i>Knufia marmoricola</i>	CCFEE 6201	KP791790	KR781077
<i>Knufia mediterranea</i>	CCFEE 6205	KP791794	KR781081

<i>Knufia peltigerae</i>	CGMCC 37283	KP174864	KP174935
<i>Knufia petricola</i>	CBS 726.95 (T)	MH862556	NG042775
<i>Knufia separata</i>	CGMCC:37294	KP174855	-
<i>Knufia separata</i>	CGMCC:37337	KP174856	NG_075199
<i>Knufia tsunedae</i>	FMR 10621 (T)	NR_132842	HG003672
<i>Lichenodiplis lecanorae</i>	L-Ertz19202	-	KT285909
<i>Lithohypha aloicola</i>	CPC 35996(T)	NR_166313	MN567611
<i>Melanina gundecimermaniae</i>	A1111	-	MF071401
<i>Melanoctona tectonae</i>	MFLUCC 12-0389 (T)	KX258778	KX258779
<i>Metulocladosporiella musicola</i>	CBS 110960 (T) MFLUCC 15-0237	MH862870	DQ008153
<i>Minimelanolocus asiaticus</i>	(T)	NR_154179	KR215610
<i>Minimelanolocus rousselianus</i>	CBS 126086	MH863784	MH875246
<i>Neophaeococcomyces aloes</i>	CBS 136431	NR_132069	NG_070373
<i>Neophaeococcomyces aloes</i>	FJII_L3_CM_P2	MT704886.	-
<i>Paracladophialophora cyperacearum</i>	CPC 33046 (T)	NR_160625	MH327844
<i>Paracladophialophora carceris</i>	CPC 27596 (T)	NR_154360	KY173488
<i>Phaeoannellomyces elegans</i>	CBS 101597	NR_155687	KY115194
<i>Phaeosaccardinula dendrocalami</i>	IFRDCC 2649 (T)	NR_137820	NG060116
<i>Phialophora attae</i>	CBS 132767	KF928464	KF928528
<i>Phialophora verrucosa</i>	CBS 286.47	KF928455	KF928519
<i>Placopyrenium bucekii</i>	AFTOL-ID 2238	EU010246	EF643768
<i>Pleostigma alpinum</i>	A1125	-	MF071409
<i>Pleostigma alpinum</i>	A584	-	KT263164
<i>Pleostigma alpinum</i>	A879	-	KT270608
<i>Pleostigma frigidum</i>	A989	-	KT270678
<i>Pleostigma frigidum</i>	A980	-	KT270672
<i>Pleostigma lichenophilum</i>	A926	-	KT270637
<i>Pleostigma lichenophilum</i>	A952	-	KT270655
<i>Pleostigma sp.</i>	A511	-	KT263126
<i>Pleostigma sp.</i>	A570	-	KT263158
<i>Pleostigma sp.</i>	A865	-	KT270594
<i>Pleostigma sp.</i>	A866	-	KT270595
<i>Pleostigma sp.</i>	A903	-	KT270624
<i>Polyblastia abscondita</i>	SS068	EU553507	EU598718
<i>Pyrenula aspistea</i>	RAMK17277	KT820129	KT808563
<i>Pyrenula cruenta</i>	CBS 132373	KC592269	-
<i>Pyrenula macrospora</i>	CG1520a	JQ927455	JQ927473
<i>Pyrenula reebia</i>	AFTOL-ID	DQ782845	-
<i>Pyrgillus javanicus</i>	AFTOL-ID 342	DQ826741	DQ823103
<i>Rhinocladiella aquaspersa</i>	CBS 122635	GU017732	KX822357
<i>Rhinocladiella atrovirens</i>	CBS 264.49 (T)	MH856518	EU041869
<i>Rhinocladiella fasciculata</i>	CBS 132.86 (T)	NR_145356	NG_057784
<i>Rhinocladiella quercus</i>	CPC 26621 (T)	KX306769	NG059698
<i>Rhinocladiella similis</i>	PW3041	LC158611	LC158635
<i>Rhinocladiella sp.</i>	L214	FJ265762	-
<i>Sclerococcum striatum</i>	PDD:119538	OL709434	-
<i>Sclerococcum martynii</i>	F-1570b	MZ221616	MZ221623
<i>Sclerococcum simplex</i>	MFLU 21-0117	-	MZ655912
<i>Sclerococcum tardum</i>	PDD:91756	OL709435	-
<i>Sorocybe oblongispora</i>	DAOMC 251618	NR_166300	NG_067905
<i>Sorocybe oblongispora</i>	NB-829	MN114116	MN114118
<i>Staurothele areolata</i>	CG378	JQ927448	EF643772
<i>Strelitziana albiziae</i>	CBS 126497 (T)	MH864122	HQ599585
<i>Strelitziana eucalypti</i>	CBS 128214	HQ599596	HQ599597
<i>Thysanorea aquatica</i>	MFLCC 15-0966 MFLUCC 10-0078	MG922572	MG922576
<i>Trichomerium foliicola</i>	(T)	JX313655	JX313661

Uncultured <i>Chaetothyriales</i>	NMF-OTU-121	MG707593	-
Uncultured <i>Chaetothyriales</i>	FM034.2	JF691080	-
Uncultured <i>Chaetothyriales</i>	A037C	KP889139	-
Uncultured <i>Chaetothyriales</i>	A459B	KP889117	-
<i>Veronea japonica</i>	CBS 776.83 (T)	MH861692	NG057789
<i>Verrucariales</i> sp.	A1143	-	MF071419
<i>Verrucariales</i> sp.	A993	-	KT263073
<i>Vonarxia vagans</i>	CBS 123533 (T)	FJ839636	NG057821

**Table S3** List of taxa included in the phylogenetic analysis of *Herpotrichiellaceae* (*Chaetothyriales*) and their NCBI accessions.

Species	ID	ITS	LSU
<i>Aculeata aquatica</i>	MFLUCC 11-0529	MG922571	MG922575
<i>Capronia acutiseta</i>	CBS 618.96 (T)	NR_154744	NG058859
<i>Capronia kleinmondensis</i>	CBS 122671 (T)	MH863226	EU552107
<i>Capronia mansonii</i>	CBS 101.67 (T)	AF050247	AY004338
<i>Chaetothyriales</i> sp.	ES37	MN218810	-
<i>Chaetothyriales</i> sp.	CBS 128948	KX822492	-
<i>Chaetothyriales</i> sp.	T171	KF614875	KF614875
<i>Chaetothyriales</i> sp.	L204	FJ265765	-
<i>Chaetothyriales</i> sp.	L474	FJ265772	-
<i>Chaetothyriales</i> sp.	S1	FJ265763	-
<i>Chaetothyriales</i> sp.	SH10	FJ265764	-
<i>Chaetothyriales</i> sp.	h12	FJ265769	-
<i>Chaetothyriales</i> sp.	Sh25	FJ265771	-
<i>Chaetothyriales</i> sp.	Sh36	FJ265767	-
<i>Chaetothyriales</i> sp.	Sh9	FJ265770	-
<i>Chaetothyriales</i> sp.	01001a	EU139137	-
<i>Chaetothyriales</i> sp.	01001b	EU139138	-
<i>Chaetothyriales</i> sp.	04001a	EU139139	-
<i>Chaetothyriales</i> sp.	h2	FJ265766	-
<i>Chaetothyriales</i> sp.	131b	KM056296	-
<i>Chaetothyriales</i> sp.	97001a	EU139141	-
<i>Cladophialophora</i> sp.	A1044	-	KT263082
<i>Cladophialophora</i> sp.	A1069	-	MF071385
<i>Cladophialophora</i> aff. <i>parmeliae</i>	KoLRI_053928	MZ855385	-
<i>Cladophialophora arxii</i>	CBS306.94	EU103986	KX822320
<i>Cladophialophora australiensis</i>	CBS 112793	EU137331	-
<i>Cladophialophora bantiana</i>	PWQ2419	KP131826	-
<i>Cladophialophora boppii</i>	CBS 126.86 (T)	MH861932	NG058762
<i>Cladophialophora bromeliacearum</i>	FCCUFG 04	MW794273	MW794275
<i>Cladophialophora carrionii</i>	CBS_160.54	KF928453	LC192080
<i>Cladophialophora chaetospira</i>	CBS 115468	EU137333	MH878422
<i>Cladophialophora chaetospira</i>	CBS:127573	MH864582	-
<i>Cladophialophora devriesii</i>	CBS 147.84 (T)	EU103985	KC809989
<i>Cladophialophora emmonsii</i>	CBS979	EU103996	KC809995

<i>Cladophialophora exuberans</i>	CMRP1204	KY680432	NG_060431
<i>Cladophialophora exuberans</i>	CMRP1227	KY680429	KY570931
<i>Cladophialophora hostae</i>	F-caf-cas341	MT852361	-
<i>Cladophialophora hostae</i>	CBS 121637	KX822478	ON543170
<i>Cladophialophora humicola</i>	CBS 117536 (T)	EU035408	NG058850
<i>Cladophialophora immunda</i>	CBS 834.96	EU137318	MH874242
<i>Cladophialophora immunda</i>	CBS 109797	FJ385271	MH875350
<i>Cladophialophora kellermaniana</i>	ATCC 28332	<b>AF393680</b>	-
<i>Cladophialophora lanosa</i>	KNU 16032 (T)	LC387460	LC387461
<i>Cladophialophora matsushimae</i>	MFC1-P384 (T)	FN549916	FN400758
<i>Cladophialophora minourae</i>	CBS 556.83 (T)	AY251087	NG058763
<i>Cladophialophora minutissima</i>	isolate 0043	MG597448	NG_058851
<i>Cladophialophora minutissima</i>	UAMH 10709	EF016381	KJ636047
<i>Cladophialophora modesta</i>	CBS 985.96	GU225939	NG_058764
<i>Cladophialophora mycetomatis</i>	CBS 122637 (T)	FJ385276	NG058960
<i>Cladophialophora nyingchiensis</i>	CGMCC3.17330	MG012699	MG197824
<i>Cladophialophora nyingchiensis</i>	CGMCC3.17514	MG012701	MG197826
<i>Cladophialophora parmeliae</i>	CBS 129337	JQ342180	JQ342182
<i>Cladophialophora potulentorum</i>	CBS 114772	EU035410	EU035410
<i>Cladophialophora potulentorum</i>	SREF159	MN660432	-
<i>Cladophialophora proteae</i>	CBS 111667 (T)	EU035411	EU035411
<i>Cladophialophora psammophila</i>	CBS 110553	AY857517	-
<i>Cladophialophora psammophila</i>	CBS 110553 (T)	AY857517	NG058955
<i>Cladophialophora samoensis</i>	CBS 259.83 (T)	MH861581	NG058854
<i>Cladophialophora saturnica</i>	CBS109628	EU103983	KC809993
<i>Cladophialophora saturnica</i>	CBS118724	EU103984	-
<i>Cladophialophora scillae</i>	CBS 116461	EU137329	-
<i>Cladophialophora</i> sp.	131	KM056295	-
<i>Cladophialophora</i> sp.	Sh20	FJ265753	-
<i>Cladophialophora</i> sp.	A670B	KP889119	-
<i>Cladophialophora</i> sp.	L359	FJ265750	-
<i>Cladophialophora</i> sp.	S5	FJ265746	-
<i>Cladophialophora</i> sp.	S5	FJ265746	-
<i>Cladophialophora</i> sp.	Sh20	FJ265753	-
<i>Cladophialophora</i> sp.	Sh8	FJ265747	-
<i>Cladophialophora</i> sp.	SYPF 8340	-	MF588879
<i>Cladophialophora subtilis</i>	CBS 122642 (T)	FJ385273	NG058961
<i>Cladophialophora sylvestris</i>	CBS 350.83	EU137330	MH873324
<i>Cladophialophora tengchongensis</i>	CGMCC3.15201	MG012702	MG197827
<i>Cladophialophora tumbae</i>	JCM 28746 (T)	LC192125	LC192090
<i>Cladophialophora yegresii</i>	CBS 114405 (T)	EU137322	NG058855
<i>Cyphellophora eucalypti</i>	CBS 124764 (T)	KC455238	GQ303305
<i>Cyphellophora laciniata</i>	CBS 190.61 (T)	EU035416	KF928547
<i>Cyphellophora olivacea</i>	CBS 122.74 (T)	KC455247	KC455260
<i>Cyphellophora pluriseptata</i>	CBS 286.85 (T)	MH861881	KC455255
<i>Cyphellophora sessilis</i>	CBS 243.85 (T)	AY857542	EU514700
<i>Exophiala alcalophila</i>	CBS 520.82 (T)	MH861524	NG059189
<i>Exophiala bonariae</i>	CCFEE 5792 (T)	JX681046	KR781083
<i>Exophiala castellanii</i>	CBS 158.58 (T)	MH857734	KF928522
<i>Exophiala dermatitidis</i>	CBS 207.35 (T)	MH855649	NG059225
<i>Exophiala eucalypticola</i>	CBS 143412 (T)	MH107891	NG_063955



<i>Exophiala italica</i>	MFLUCC 16-0245	KY496744	KY496723
<i>Exophiala mesophila</i>	CBS 402.95	MH862536	KX712349
<i>Exophiala nigra</i>	CBS 535.94 (T)	KY115191	NG059253
<i>Exophiala pisciphila</i>	CBS 537.73 (T)	DQ826739	MH872483
<i>Exophiala polymorpha</i>	CBS 138920 (T)	KP070763	NG059237
<i>Exophiala salmonis</i>	CBS 157.67 (T)	JF747137	AY213702
<i>Exophiala</i> sp.	SYPF 8334	MF588877	MF588894
<i>Exophiala spinifera</i>	D22I	MH010942	MH012097
<i>Fonsecaea minima</i>	CBS 125757 (T)	MH863743	KF928520
<i>Fonsecaea pedrosoi</i>	CBS 271.37 (T)	AB114127	-
<i>Herpotrichiellaceae</i> sp.	MUT 5408	KR014371	KP671741
<i>Melanoctona tectonae</i>	MFLUCC 12-0389 (T)	KX258778	KX258779
<i>Minimelanolocus asiaticus</i>	MFLUCC 15-0237 (T)	NR_154179	KR215610
<i>Minimelanolocus rousselianus</i>	CBS 126086	MH863784	MH875246
<i>Paracladophialophora cyperacearum</i>	CPC 33046 (T)	NR_160625	MH327844
<i>Paracladophialophora carceris</i>	CPC 27596 (T)	NR_154360	KY173488
<i>Phaeoannellomyces elegans</i>	CBS 101597	NR_155687	KY115194
<i>Phialophora attae</i>	CBS 132767	KF928464	KF928528
<i>Phialophora verrucosa</i>	CBS 286.47	KF928455	KF928519
<i>Rhinocladiella anceps</i>	CBS 181.65	AY163559	MH870171
<i>Rhinocladiella anceps</i>	CBS 157.54	EU041804	MH868811
<i>Rhinocladiella aquaspersa</i>	CBS 122635	GU017732	KX822357
<i>Rhinocladiella aquaspersa</i>	CBS 313.73	GU017733	MH872396
<i>Rhinocladiella aquaspersa</i>	FMR 7699	GU053606	MH876010
<i>Rhinocladiella atrovirens</i>	CBS 264.49 (T)	MH856518	EU041869
<i>Rhinocladiella atrovirens</i>	C78LM-UFPR	JN650538	MH872441
<i>Rhinocladiella atrovirens</i>	CBS 264.49	EU041812	MH868048
<i>Rhinocladiella atrovirens</i>	CBS:317.33	MH855447	MH866906
<i>Rhinocladiella atrovirens</i>	UM 234	JX966555	-
<i>Rhinocladiella basitona</i>	CBS 101460	EU041806	NG_057783
<i>Rhinocladiella basitona</i>	CMCC(F)D.37c	JX981676	EU041863
<i>Rhinocladiella coryli</i>	CPC 26654	KX306768	KX306793
<i>Rhinocladiella fasciculata</i>	CBS 132.86 (T)	NR_145356	NG_057784
<i>Rhinocladiella fasciculata</i>	CBS 132.86	EU041807	MH873622
<i>Rhinocladiella mackenziei</i>	CBS:125089	GQ863214	EU041865
<i>Rhinocladiella mackenziei</i>	CNRMA7.1487	KP132553	EU041867
<i>Rhinocladiella phaeophora</i>	CBS 496.78	MH861169	MH872933
<i>Rhinocladiella pyriformis</i>	CBS:469.94	MH862476	-
<i>Rhinocladiella quercus</i>	CPC 26621 (T)	KX306769	NG059698
<i>Rhinocladiella similis</i>	CBS 111763	EF551461	KU752195
<i>Rhinocladiella similis</i>	FMR 3986	KU705841	KU705858
<i>Rhinocladiella similis</i>	PW3041	LC158611	LC158635
<i>Rhinocladiella</i> sp.	isolate GI-486	OM307810	-
<i>Rhinocladiella</i> sp.	L214	FJ265762	-
<i>Rhinocladiella</i> sp.	LA1	HQ022436	-
<i>Rhinocladiella</i> sp.	LA111	HQ022438	-
<i>Rhinocladiella</i> sp.	LA132	HQ022437	-
<i>Rhinocladiella</i> sp.	LA60	HQ022440	-
<i>Rhinocladiella</i> sp.	LA60	JF682850	-
<i>Rhinocladiella</i> sp.	LA99	HQ022439	-

<i>Rhinocladiella</i> sp.	KJ502315	Igt-3	-
<i>Rhinocladiella</i> sp.	R205	JX559853	-
<i>Rhinocladiella</i> sp.	EXF-11381	MW031253	-
<i>Rhinocladiella</i> sp.	GLMC 1752 KNUF-20- NI005_ITS	MT156118	MT156303
<i>Rhinocladiella</i> sp.	VL270	OP503368	-
<i>Rhinocladiella</i> sp.	YH-2009a	JF440611	-
<i>Rhinocladiella</i> sp.	102	JX839531	-
<i>Rhinocladiella</i> sp.	16 PD-2-12	KM056298	-
<i>Rhinocladiella</i> sp.	A8-21-5-2	JX839456	-
<i>Rhinocladiella</i> sp.	A8-21-5-2	KX100400	-
<i>Rhinocladiella</i> sp.	EXP0525F	DQ914689	-
<i>Rhinocladiella</i> sp.	F74	GU067765	-
<i>Rhinocladiella</i> sp.	FMR 12063	KU705840	KU705857
<i>Rhinocladiella</i> sp.	HSAUP074099	FJ914711	-
<i>Rhinocladiella tropicalis</i>	CMRP1287	KX434723	KX583709
<i>Rhinocladiella tropicalis</i>	UFSM1	MH444804	-
<i>Thysanorea aquatica</i>	MFLCC 15-0966	MG922572	MG922576
Uncultured <i>Chaetothyriales</i>	NMF-OTU-121	MG707593	-
Uncultured <i>Chaetothyriales</i>	FM034.2	JF691080	-
<i>Veronaea japonica</i>	CBS 776.83 (T)	MH861692	NG057789

**Table S4** List of taxa included in the phylogenetic analysis of *Dothideomycetes* and their NCBI accessions.

Species	ID	ITS	LSU
<i>Abrothallus acetabuli</i>	SPO308	KF816165	-
<i>Abrothallus parmeliarum</i>	AB36	KF816172	KF816229
<i>Abrothallus parmotrematis</i>	AB1	KF816176	-
<i>Abrothallus secedens</i>	SPO305	KF816169	KF816231
<i>Ampelomyces</i> sp.	3 NK-2011	HQ846569	-
<i>Arthonia didyma</i>	O-L-197934	-	KJ851081 NG_05711
<i>Atrocalyx bambusae</i>	MFLU 11-0150	NR_153559	6
<i>Atrocalyx bambusae</i>	MFLUCC 10-0558	KX672149	KX672154 MW75037
<i>Atrocalyx nordicus</i>	CBS 147532	NR_172997	4 NG_05871
<i>Bhatiellae rosae</i>	MFLU 16-0872	NR_157505	8
<i>Bhatiellae rosae</i>	MFLUCC 17-0664	MG828873	MG828989 NG_02757
<i>Botryosphaeria dothidea</i>	CBS 115476	KF766151	7
<i>Bryochiton monascus</i>	CBS 126284	MH863957	MH875416
<i>Bryochiton monascus</i>	M219	KM186812	
<i>Capnobotryella renispora</i>	CBS 214.90	NR_121295	MH873888
<i>Capnodiales</i> sp.	A887	-	KT263454
<i>Capnodiales</i> sp.	A886	-	KT263453
<i>Capnodiales</i> sp.	UFMGCB8750	KP903341	-
<i>Capnodiales</i> sp.	A959	-	KT263460
<i>Capnodiales</i> sp.	A577	-	KT263459
<i>Capnodiales</i> sp.	A545	-	KT263458
<i>Capnodiales</i> sp.	A571	-	KT263457
<i>Capnodiales</i> sp.	A923	MF276907	KT263456

<i>Capnodiales</i> sp.	A888	-	KT263455
<i>Capnodiales</i> sp.	A960	-	KT263452
<i>Capnodiales</i> sp.	A863	-	KT263451
<i>Capnodiales</i> sp.	A913	-	KT263450
<i>Capnodiales</i> sp.	A997	-	KT263449
<i>Capnodiales</i> sp.	A951	-	KT263448
<i>Capnodiales</i> sp.	A557	-	KT263447
<i>Capnodiales</i> sp.	A1043	-	KT263446
<i>Capnodiales</i> sp.	A995	-	KT263445
<i>Capnodium coffeae</i>	CBS 147.52	MH856967	MH868489
<i>Catenulostroma</i> sp.	UFMGCB8746	KP903330	-
<i>Cladosporium cladosporioides</i>	CBS 170.54	MH857281	MH868815
<i>Columnosphaeria fagi</i>	CBS 171.93	KT693737	-
<i>Comoclathris lini</i>	GR1-3-20-1	LC514952	LC514952
<i>Comoclathris lini</i>	G3-20-1	-	LC514924
<i>Coniosporium</i> sp.	MP45	HM136653	-
<i>Coniosporium apollinis</i>	CBS 100218	-	GU250898
<i>Coniosporium</i> sp.	MCF2	KX688207	MF334941
<i>Coniothyrium ferrarisianum</i>	CBS 285.74	MH860854	MH872593
<i>Constantinomyces oldenburgensis</i>	T2.4	LT976554	LT976554
<i>Constantinomyces oldenburgensis</i>	T2.3	LT976553	LT976553
<i>Constantinomyces oldenburgensis</i>	CBS 144642	NR_159758	-
			NG_04265
<i>Cryomyces antarcticus</i>	ATCC MYA-4880	NR_111726	9
<i>Cryomyces minteri</i>	CBS 116302	DQ028270	-
			NG_05884
<i>Cryomyces minteri</i>			7
	CCFEE 5187	-	
<i>Cryomyces montanus</i>	CCFEE 5476	KC315849	GU250394
<i>Curreya grandicipis</i>	CPC 1852	JN712456	JN712520
<i>Delphinella strobiligena</i>	CBS 735.71	MH860318	MH872074
<i>Dendrographa leucophaea</i>	S-F205891	KF036008	-
<i>Dendrographa leucophaea</i>	Tehler 7500	AF066944	-
<i>Dendrographa minor</i>	AFTOL-ID 355	DQ842015	AF279382
<i>Devriesia strelitziae</i>	CBS 122379	EU436763	MH874737
			NG_06943
			9
<i>Didymella aquatica</i>	CGMCC 3.18349	KY742055	-
<i>Didymella glomerata</i>	LW5	MN075513	-
			NG_06944
<i>Didymella macrophylla</i>	CGMCC 3.18357	KY742070	1
			NG_06782
			7
<i>Didymocyrtis brachylaenae</i>	C10	OL891610	-
<i>Didymocyrtis brachylaenae</i>	CPC:32651	MH327821	MH327857
<i>Didymocyrtis cladoniicola</i>	Ertz 16464 (BR)	KT383810	-
<i>Didymocyrtis cladoniicola</i>	Ertz 16296 (BR)	KT383809	-
<i>Dothidea insculpta</i>	CBS 189.58	AF027764	MH869284
<i>Dothideales</i> sp.	CBS 122539	FJ415475	-
<i>Dothideales</i> sp. A1132	A1132	-	MF071373
<i>Dothideomycetes</i>	LTSP_EUKA_P5M16	FJ554180	-
<i>Dothideomycetes</i>	s_C03_05.ab1	GU931724	-
<i>Dothideomycetes</i> sp.	CGMMCC 3.17077	KF513515	-
<i>Dothideomycetes</i> sp.	A931	MF276909	KT263434
<i>Dothideomycetes</i> sp.	A595	-	KT263436
<i>Dothideomycetes</i> sp.	A583	-	KT263437
<i>Dothideomycetes</i> sp.	TRN 279	-	GU323983
<i>Dothideomycetes</i> sp.	CGMCC 3.17075	-	KF680785
<i>Dothideomycetes</i> sp.	CGMCC 3.17077	-	KF680783
<i>Dothideomycetes</i> sp.	PIMO_446	JF705950	-
<i>Dothideomycetes</i> sp.	AK1125	JQ759473	JQ759473
<i>Dothideomycetes</i> sp.	PIMO_109	JF749175	-
<i>Dothideomycetes</i> sp.	A552	MF276909	KT263435

<i>Dothideomycetes</i> sp.	TRN 245	-	GU323980
<i>Dothideomycetes</i> sp.	A1057	-	KT263439
<i>Dothideomycetes</i> sp.	A567	-	KT263438
<i>Dothideomycetes</i> sp.	A977	-	KT263433
<i>Dothideomycetes</i> sp.	A552	-	KT263435
<i>Dothideomycetes</i> sp.	TRN 142	-	GU323975
<i>Dothideomycetes</i> sp.	TRN 138	-	GU323974
<i>Dothideomycetes</i> sp.	TRN 137	-	GU323973
<i>Dothideomycetes</i> sp.	TRN 123	-	GU323970
<i>Dothideomycetes</i> sp.	TRN 42	-	GU323958
<i>Dothideomycetes</i> sp.	TRN 11	-	GU323957
<i>Dothideomycetes</i> sp.	TRN 437	-	GU323984
<i>Dothideomycetes</i> sp.	A565	-	KT263440
<i>Dothiorella gregaria</i>	BJ17	MN685280	-
<i>Elasticomyces elasticus</i>	CCFEE 5538	KF309957	KF310000
<i>Elasticomyces elasticus</i>	CCFEE 5537	KF309956	KF310001
<i>Elasticomyces elasticus</i>	CCFEE 5543	KF309958	KF309993
<i>Elasticomyces elasticus</i>	CBS 122538	MH863220	MH874750
<i>Elasticomyces elasticus</i>	CCFEE 5320	-	GU250376
<i>Elasticomyces elasticus</i>	CCFEE 5319	-	GU250375
<i>Elsinoe phaseoli</i>	CBS 165.31	MH855166	KX887026 NG_05919
<i>Elsinoe veneta</i>	CBS 164.29	KX887297	4 NG_05920
<i>Extremus antarcticus</i>	CCFEE 451	KF309978	4
<i>Friedmanniomyces endolithicus</i>	CCFEE 5001	JN885543	-
<i>Friedmanniomyces endolithicus</i>	CCFEE 524	JN885541	GU250364
<i>Friedmanniomyces endolithicus</i>	CCFEE 670	JN885542	GU250366
<i>Friedmanniomyces endolithicus</i>	CCFEE 5199	JN885547	-
Fungal sp.	agrD244	JN053109	-
Fungal sp.	agrD231	JN053103	-
Fungal sp.	PIMO_21	HQ535864	-
Fungal sp.	agrD242	JN053107	-
Fungal sp. TRN268	TRN268	AY843113	-
Fungal sp. TRN529	TRN529	AY843200	-
<i>Holmiella sabina</i>	voucher G.M.	-	MK546612
<i>Jeremyomyces labinae</i>	CBS:144617	MK442589	MK442529
<i>Lecanactis abietina</i>	Myllys (S)	AF138822	-
<i>Leptosphaeria</i>	plC11E	HM136635	-
<i>Leptosphaeria maculans</i>	AFTOL-ID 277	KT225526	DQ470946
<i>Leptosphaeria ogilviensis</i>	CBS 233.58	-	MH869298
<i>Leptospora rubella</i>	CBS 592.76	-	MH872781
<i>Lichenocodium erodens</i>	CBS 128704	MH864965	MH876415
<i>Lichenocodium usneae</i>	CBS 129239	MH865193	MH876629
<i>Lichenocodium usneae</i>	CBS 128708	MH864967	MH876417
<i>Lichenostigmatales</i> sp.	A930	-	KT263424
<i>Lichenothelia arida</i>	L2217	-	MH259001
<i>Lichenothelia calcarea</i>	L1324	-	KC015062
<i>Lichenothelia muriformis</i>	L2308	-	MH259023
<i>Lichenothelia papilliformis</i>	L2319	-	MH259032
<i>Lichenothelia</i> sp.	L2343	-	MH259039
<i>Lichenothelia</i> sp.	L2334	-	MH259036
<i>Lichenothelia</i> sp.	L2333	-	MH259035
<i>Lophiostoma cynaroidis</i>	CBS:123025	EU552138	EU552138
<i>Lophium mytilinum</i>	CBS 114111	EF596819	EF596819
<i>Melanomma sanguinarium strain</i>	CBS 125576	MH863713	- NG_05944
<i>Meristemomyces frigidus</i>	CCFEE 5508	-	4
<i>Monticola elongata</i>	CBS 136206	MH866090	MH877617
<i>Mycosphaerella punctiformis</i>	CBS 113265	AY490763	AY490776

<i>Mycosphaerella</i> sp.		Sh27	FJ265760	-
<i>Mycosphaerella</i> sp.		L357	FJ265759	-
<i>Mycosphaerellaceae</i> sp.		L1778	-	KC015079
<i>Mycosphaerellaceae</i> sp.		L1777	-	KC015078
<i>Myriangiales</i> sp.		A569	-	KT263443
<i>Myriangiales</i> sp.		A578	-	KT263442
<i>Myriangiales</i> sp.		A554	-	KT263441
<i>Myriangiium duriaei</i>		CBS 260.36	MH855793	-
<i>Mytilinidion resinicola</i>		CBS 304.34	MH855535	MH867038
<i>Neocatenulostroma abietis</i>		AFTOL-ID 2210	-	FJ267700
<i>Neocatenulostroma abietis</i>		CBS 459.93	MH862431	MH874081
<i>Neocatenulostroma microsporium</i>		CBS 110890	-	EU019255
<i>Neosetophoma salicis</i>		MFLU 17-0118	MK608025	MK608026
<i>Paradendryphiella arenariae</i>		CBS 181.58	NR_145170	MH869281
<i>Paraphaeosphaeria michotii</i>		FeF168	MZ492971	-
<i>Paraphaeosphaeria michotii</i>		ICMP 11777	MZ098686	-
<i>Paraphaeosphaeria michotii</i>		2015-F-275	KU751878	-
<i>Penidiella ellipsoidea</i>		CBS 128773	NR_137773	MH876539
<i>Periconia</i> sp.		MBD_3641	MK595571	-
<i>Phaeosphaeria</i>		SW_0_F12	JF449769	JF449769
<i>Phaeosphaeria</i> sp.		1715242	MW165855	-
<i>Phaeosphaeria</i> sp.		AC	KR909136	-
<i>Phaeosphaeriaceae</i> sp.		MUT 4404	KC339239	KF636781
<i>Phaeosphaeriopsis sansevieriae</i>		CBS:146984	MZ064438	MZ064495
<i>Phoma caloplacae</i>		CBS 129338	JQ238641	JQ238643
<i>Phoma caloplacae</i>		CBS 129140	JQ238635	MH876627
<i>Phoma cladoniicola</i>		CBS 128025	JQ238623	MH877975
<i>Phoma cladoniicola</i>		CBS 128023	JQ238620	JQ238622
<i>Phoma cladoniicola</i>		CBS 128026	JQ238626	JQ238628
<i>Phoma cladoniicola</i>		CBS 128027	JQ238629	MH877976
<i>Phoma cladoniicola</i>		FL14	JQ318026	JQ318028
<i>Phoma cladoniicola</i>		FL13	JQ318023	JQ318025
<i>Phoma cladoniicola</i>		FL5	JQ318014	JQ318016.
<i>Phoma herbarum</i>		p16	MN795752	
<i>Phoma</i> sp.		A1134	-	MF071374
<i>Phoma</i> sp.		A1130	-	MF071372
<i>Phoma</i> sp.		A1086	-	MF071370
<i>Phoma</i> sp.		A1077	-	MF071369
<i>Phoma</i> sp.		A1074	-	MF071368
<i>Phoma</i> sp.		A593	-	KT263432
<i>Phoma</i> sp.		A542	-	KT263431
<i>Phoma</i> sp.		A558	-	KT263430
<i>Phoma</i> sp.		A53	-	KT263429
<i>Pleospora ambigua</i>		CBS 366.52	-	AY787937
<i>Pleospora herbarum</i>		AFTOL-ID	DQ491516	DQ678049
<i>Pleospora leptosphaerulinoidea</i>		CBS 452.84	MH861757	MH873456
<i>Pleosporales</i> sp.		19 KB-2015	KR909182	-
<i>Pleosporales</i> sp.	A1193	-	MF071376	
<i>Pleosporales</i> sp.		A1038	-	KT263428
<i>Pleosporales</i> sp.		A1028	-	KT263427
<i>Pleosporales</i> sp.		A1011	-	KT263426
<i>Pleosporales</i> sp. A1039		A1039	-	KT263425
<i>Preussia terricola</i>		CBS 317.65	MH858589	MH870227
<i>Rachicladosporium antarcticum</i>		CCFEE 5527	NR_144970	KF309990
<i>Rachicladosporium eucalypti</i>		CBS:138900	KP004448	MH878629
<i>Racodium rupestre</i>		L424	GU067669	EU048582.
<i>Ramularia endophylla</i>		CBS 124831	MH863520	MH875006
<i>Ramularia vizellae</i>		CBS:117882	KP894300	-
<i>Ramularia vizellae</i>		CBS:117883	KP894301	KP894194
<i>Ramularia vizellae</i>		CPC:25736	KP894319	KP894213

<i>Ramularia vizellae</i>	CPC:15541	KP894310	KP894204
<i>Recurvomyces mirabilis</i>	CCFEE 5475	KF309962	KC315876
<i>Roccella phycopsis</i>	8295 (S)	AJ634033	EF081424
<i>Roccella phycopsis</i>	8148 (S)	AJ634027	-
<i>Saxomyces americanus</i>	L2310	-	MH259025
<i>Saxomyces americanus</i>	L2306	-	MH259021
<i>Saxomyces penninicus</i>	L2304	-	MH259019
<i>Saxomyces</i> sp.	L2338	-	MH259038
<i>Saxomyces</i> sp.	L2336	-	MH259037
<i>Saxomyces</i> sp.	LM-2018a	-	MH259003
<i>Saxomyces</i> sp. 'alpinus'	CCFEE 5466	-	GU250392
<i>Sclerostagonospora cycadis</i>	CBS 123538	MH863303	MH874827
<i>Spissiomycetes</i> sp.	SDBR-CMU319	MF990800	-
<i>Teichospora trabicola</i>	CBS 140730	NR_154635	-
<i>Teichospora trabicola</i>	C141	KU601592	KU601592
<i>Teratosphaeria encephalarti</i>	CBS 123540	FJ372395	MH874829
<i>Teratosphaeria parva</i>	CBS 114761	EU707874	KF902087
<i>Teratosphaeria parva</i>	AMR251	AY509782	-
<i>Teratosphaeria parva</i>	CPC 12419	EU707879	GQ852709
<i>Teratosphaeriaceae</i> sp.	CPC 12419	KM216368	-
<i>Teratosphaeriaceae</i> sp.	CBS 117932	-	GU323219
<i>Teratosphaeriaceae</i> sp.	A559	-	KT263444
Uncultured <i>Ascomycota</i>	PLC12C	HM136678	-
Uncultured fungus	M129	KF742583	-
Uncultured fungus	L042885-122-065-F09	GU054203	-
Uncultured fungus	112_NA4_P31_N4	KC966093	KC966093
Uncultured fungus	B3_1986	KU581691	-
Uncultured fungus	127_NA4_P32_L9	KC966349	-
Uncultured fungus	OTU569	MF971528	-
Uncultured fungus	CMH210	KF800301	-
Uncultured fungus	S241	FJ820729	-
Uncultured fungus	clone G2_CC10	JX043171	-
Uncultured fungus clone	99_NA9_P31_O2	KC965832	-
Uncultured soil fungus	FunN4_01B	-	EU861595
Uncultured soil fungus	FunN5_06G	-	EU861706
<i>Venturia albae</i>	CBS:471.61	MK810955	-
<i>Venturia caesia</i>	CBS:466.61	MK810959	EU035453
<i>Vermiconia flagrans</i>	CCFEE 5922	KP791753	KR781040
<i>Westerdykella cylindrica</i>	AFTOL-ID 1037	DQ491519	-

**Table S5** List of taxa included in the phylogenetic analysis of *Sordariomycetes* and their NCBI accessions.

Species	ID	ITS	LSU
<i>Acremonium acutatum</i>	CBS:682.71	-	MH872055
<i>Acremonium sordidulum</i>	CBS:385.73	-	MH872418
<i>Ambrosiella xylebori</i>	AFTOL 1285	-	DQ470979
<i>Ambrosiella xylebori</i>	JH12075	MK118929	-
<i>Amplistroma caroliniana</i>	DOI	-	FJ532376
<i>Amplistroma einaceum</i>	AH43902	NR_145379	KC907374
<i>Amplistroma longicollis</i>	AH37870	-	HQ901790
<i>Apiospora montagnei</i>	AFTOL 951	-	DQ471018
<i>Bertia moriformis</i>	SMH4320	-	AY695260
<i>Bertia moriformis</i>	K(M):250951	MZ159726	-
<i>Bertia tropicalis</i>	SMH1707	-	AY695262
<i>Bionectria ochroleuca</i>	CCFC226708/ AFTOL 187	KC460538	AY283558
<i>Bionectriaceae</i> sp.	UFMGCB 12389	MK889358	-

<i>Broomella rosae</i>	MFLU 16-0244	-	MG828990
<i>Camarops microspora</i>		-	AY083821
<i>Camarops petersii</i>	LE 323478	MN564897	AY346265
<i>Camarops tubulina</i>	ZT-Myc-64201	MW489535	AY346266
<i>Camarops ustulinoides</i>	AFTOL 72	-	DQ470941
<i>Ceratosphaeria lampadophora</i>		-	AY346270
<i>Cercophora caudata</i>	CBS 606.72	AY999135	AY999113
<i>Cercophora newfieldiana</i>	SMH3303	-	AY780062
<i>Cercophora septentrionalis</i>		-	U47823
<i>Cercophora terricola</i>	ATCC 200395	-	AY780067
<i>Ceriosporopsis halima</i>		EU557365	U47844
<i>Clavicipitaceae</i> sp.	DIS 226a	-	DQ674831
<i>Coniochaeta acaciae</i>	FeC152	MW447039	-
<i>Coniochaeta acaciae</i>	MFLUCC 18-0776	MT498810	MT501618
<i>Coniochaeta cipronana</i>	MYA1205	LC431571	-
<i>Coniochaeta marina</i>	MFLUCC:18-0408	MK458764	MK458765
<i>Coniochaeta ostrea</i>	AFTOL915	MH859821	-
<i>Coniochaeta</i> sp.	1 TKPB-2017	MZ493049	-
<i>Coniochaeta</i> sp.	GSH1_4_8	KF128810	-
<i>Coniochaeta</i> sp.	Y111C	MW791935	MW791935
<i>Coniochaeta taeniospora</i>	LTA	KU762324	KU762324
<i>Coniochaetales</i> sp.	A1007	-	KT263310
<i>Coniochaetales</i> sp.	A518	-	KT263315
<i>Coniochaetidium savoryi</i>		-	AY346276
<i>Cordyceps cardinalis</i>	OSC93620	-	AY184965
<i>Cordyceps cardinalis</i>	OSC93619	-	AY184964
<i>Cosmospora aurantiicola</i>	F-251,308	EU860062	EU860062
<i>Cryptodiaporthe aesculi</i>	AFTOL 1238	-	DQ836905
<i>Cryptodiaporthe aesculi</i>	CBS 109765	DQ323530	-
<i>Cryptosphaeria pullmanensis</i>	DTWIN100	-	KT425282
<i>Cryptosphaeria pullmanensis</i>	SUPCON4	-	KT425288
<i>Cryptosphaeria pullmanensis</i>	CFCC89942	KM588265	-
<i>Cryptosphaeria pullmanensis</i>	CFCC89936	KM588259	-
<i>Diaporthe phaseolorum</i>		HM347707	AY346279
<i>Diatrype disciformis</i>	AFTOL 927	-	DQ470964
<i>Elaphocordyceps ophioglossoides</i>	CBS 100.239	-	KJ878874
<i>Elaphocordyceps</i> sp.	INBio_4515H	-	KM242364
<i>Elaphocordyceps</i> sp.	JDF-2013g	KF753860	-
<i>Eutypa lata</i>	AFTOL 929	-	DQ836903
Fungal sp.	L003-02	KR004828	-
Fungal sp.	NLEndoHerit_007_2008N6-09-2I	JX978236	-
<i>Fusarium</i> sp.	F-267,620	EU860076	EU860076
<i>Fusarium</i> sp.	F-267,619	EU860075	EU860075
<i>Graphostroma platystoma</i>	AFTOL 1249	-	DQ836906
<i>Graphostroma platystoma</i>		-	AY083827
<i>Halosphaeria appendiculata</i>		-	U46885
<i>Heterotruncatella</i> sp.	STE-U 9128	MT316313	-
<i>Hyaloscypha hepaticola</i>	M171	JN943612	EU940118
<i>Hyalotiella spartii</i>	MFLUCC 13-0397	-	NG_059561
<i>Hyalotiella transvalensis</i>	CBS:300.66	-	MH870439
<i>Hypocrea citrina</i>		-	EU481408
<i>Hypocreales</i> sp.	A560	-	KT263318
<i>Immersiella immersa</i>	SMH2589	-	AY436408
<i>Lasiosphaeria ovina</i>	SMH3923/ M176	-	AY587950
<i>Lasiosphaeria sorbina</i>	GJSL555	-	AY436415
<i>Lasiosphaeriella nitida</i>	SMH1290	-	HM171283
<i>Lasiosphaeriella pseudobombarda</i>	SMH4365	-	HM171285
<i>Leotia lubrica</i>	OTA:61895	JX178635	AY789359
<i>Leptospora gregaria</i>		-	AY346290

<i>Leptospora gregaria</i>	SMH4867	-	HM171288
<i>Leucostoma niveum</i>	AR3512	-	AF408367
<i>Linocarpon clavatum</i>	HKUM1924	-	DQ810201
<i>Linocarpon appendiculatum</i>	HKUCC2986	-	DQ810199
<i>Linocarpon carinisporum</i>	HKUM7710	-	DQ810200
<i>Linocarpon elaeidis</i>	5458	-	DQ810222
<i>Linocarpon livistonae</i>	HKUCC2954	-	DQ810206
<i>Linocarpon livistonae</i>	HKUM6520	-	DQ810205
<i>Magnaporthe grisea</i>	AR3390	-	AF362554
<i>Melanconis alni</i>	D156	MN784966	-
<i>Melanconis carthusiana</i>	AR3581	-	EU255135
<i>Melanconis marginalis</i>		-	AF277144
<i>Melanconis marginalis</i>	MAFF 410218	JX522742	-
<i>Melanconis stilbostoma</i>	DMW 514.3	MN784990	-
<i>Melanconis stilbostoma</i>	AR3501	-	AF408374
<i>Melanconis stilbostoma</i>	E01051	-	AY577813
<i>Melanospora zamiae</i>	ATCC 96173	-	AY057906
<i>Melanospora zamiae</i>	CBS 628.71	KY628680	-
<i>Microascus giganteus</i>		-	AF275540
<i>Microascus trigonosporus</i>	AFTOL 914	DQ491513	DQ470958
<i>Microcera cf. rubra</i>	KoLRI_053251	MZ855423	-
<i>Microcera larvarum</i>	ICMP 5444	MT107902	-
<i>Microcera physciae</i>	CPC 41038	OK664728	OK663767
<i>Microcera rubra</i>	CBS:638.76	-	MH872790
<i>Nectria cinnabarina</i>		-	AF193237
<i>Nectria cinnabarina</i>	CBS 255.47	HM484710	-
<i>Nimbospora effusa</i>		-	U46892
<i>Ophioceras dolichostomum</i>	CBS 114.926	JX134677	JX134689
<i>Ophioceras sp.</i>	CMU 26633	-	EU571272
<i>Oxydothis fondicola</i>		-	AY083835
<i>Pestalotiopsis sp.</i>	AM257-P5T2T-2	KT264533	-
<i>Petriella setifera</i>	AFTOL 956	-	DQ470969
<i>Petriella setifera</i>	CBS 559.80	AY882356	-
<i>Phacidium lacerum</i>	Mz-F38	KU942438	DQ470976
<i>Podospora fibrinocaudata</i>	TRTC 48343	-	AY780074
<i>Podospora fibrinocaudata</i>	CBS:315.91	MH862255	-
<i>Poroconiochaeta discoidea</i>		-	AY346297
<i>Poroconiochaeta discoidea</i>	CBS 158.80	MH861253	-
<i>Sordariomycetes sp.</i>	TS1_1_5i	KY742564	-
<i>Sordariomycetes sp.</i>	n165.1	MF135148	-
<i>Sordariomycetes sp.</i>	A13	KX611007	-
<i>Stachybotrys chartarum</i>	CBS 363.49	KU846681	AY554249
<i>Strattonia carbonaria</i>		-	AY346302
<i>Thielavia sp.</i>	KoLRI_053268	MZ855452	-
<i>Tolypocladium pustulatum</i>	MF5368LR	-	AF373282
<i>Tolypocladium sp.</i>	M1-1-5U	MN096582	-
<i>Tolypocladium sp.</i>	MS217	LC482111	-
<i>Tolypocladium sp.</i>	GLMC 1695	-	MT156313
<i>Truncatella angustata</i>	S358	-	OL604502
Uncultured fungus	67_NA3_P31_O8	KC965446	KC965446
<i>Valsa ambiens</i>	AFTOL 2131	-	AF277146
<i>Valsa ambiens</i>	CBS:109491	MH862828	-
<i>Varicosporina ramulosa</i>		-	U44092
<i>Varicosporina ramulosa</i>	CBS:398.65	MH858634	-
<i>Wallrothiella congregata</i>	SMH1760	-	FJ532375
<i>Wallrothiella congregata</i>	ANM81	-	FJ532374
<i>Xylaria acuta</i>	AFTOL 63	DQ491493	AY544676
<i>Xylaria hypoxylon</i>	AFTOL 51	DQ491487	AY544648
<i>Xylaria hypoxylon</i>	303	-	NG_027599
<i>Xylariales sp.</i>	A588	-	KT263313



<i>Xylariales</i> sp.	A592	-	KT263312
<i>Xylariales</i> sp.	A1014	-	KT263311

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