

Table S1 Information of taxa used in phylogenetic analyses

Order/family	Species	Voucher	ITS	LSU	mt-SSU	<i>teflα</i>	<i>rpb1</i>	<i>rpb2</i>	<i>atp6</i>
<i>Auriculariales/Auriculariaceae</i>	<i>Auricularia cornea</i>	LWZ 20190421-1 (HMAS)*	MT319406	MT319135	MT326526				
<i>Hymenochaetales/Claetophorales</i>	<i>Kneiffiella abdita</i>	Dai 15045	MW209700		MW221940				
	<i>K. abieticola</i>	GEL 2924	DQ340331						
		KHL 12498 [#]	DQ873601	DQ873601					
		UC2022838	KP814342						
	<i>K. alienata</i>	CBS 127219	MH864327	MH875772					
		EL 14-98	AY466401	AY586727					
	<i>K. alutacea</i>	GEL 2284	DQ340340						
		GEL 2937	DQ340338						
	<i>K. barba-jovis</i>	KHL 11730 [#]	DQ873609	DQ873610					
	<i>K. cineracea</i>	GEL 4875	DQ340335						
		GEL 4958	DQ340336						
	<i>K. decorticans</i>	SP 415980	KY081795						
	<i>K. efibulata</i>	GB-0151167	KY081796						
	<i>K. eucalypticola</i>	LWZ 20180509-11 (HMAS) ^{**}	MT319410	MT319142	MT326421				
		LWZ 20180512-7 (HMAS)	MT319409	MT319141	MT326420				
		LWZ 20180515-9 (HMAS)	MT319411	MT319143					
	<i>K. floccosa</i>	Berglund 150-02	DQ873618	DQ873618					
		UC2022896	KP814440						

		UC2022902	KP814441				
		UC2022919	KP814153				
	<i>K. microspora</i>	Hjortstam 18578	KY081792				
	= <i>K. palmae</i>	FR7	KP689185				
		GEL 3456	DQ340333				
	<i>K. pilaecystidiata</i>	Cui 13239	KY290984				
		Cui 13240	KY290985				
		MSK-F 4723	MK575208	MK598739			
	<i>K. stereicola</i>	Blackwell 2141	KY081797				
	<i>K. subalutacea</i>	GEL 2142	DQ340334				
		GEL 2196	DQ340341				
		KUC 20130726-11	KJ668514				
		LWZ 20170816-9	MT319407	MT319139			
		(IFP) [#]					
		UC2023092	KP814444				
	<i>K. subefibulata</i>	Dai 10526	KT989970				
		Dai 10803	KT989971				
	<i>K. subglobosa</i>	LWZ 20180416-6	MT319413	MT319145	MT326422		
		(HMAS)*					
		Wu 890805-2	KY081798				
	<i>Kneiffiella</i> sp.	LWZ 20171015-2	MT319412	MT319144	MT326527		
		(IFP) ^{#*}					
	<i>Kneiffiella</i> sp.	LWZ 20180510-31	MT319408	MT319140	MT326419		
		(HMAS)*					
/Coltriciaceae	<i>Coltricia perennis</i>	Cui 10319 [#]	KU360687	KU360653	KY693935	KX364848	KX364894
	<i>Coltriciella</i>	Dai 10944 [#]	KY693737	KY693757			KY693908

	<i>dependens</i>				
<i>/Hymenochaetaceae</i>	<i>Fomitiporia hartigii</i>	Cui 9914 (BJFC)*	KY750527	MT319381	MT326559
	<i>Fulvoderma</i>	LWZ 20170816-31	MT332135	MT319395	MT326509
	<i>scaurum</i>	(IFP)*			
	<i>Fuscoporia viticola</i>	LWZ 20130510-3	MT332136	MT319382	
		(IFP)			
	<i>Hymenochaete</i>	He 1049#*	JQ716407	JQ279667	KU978871
	<i>rubiginosa</i>				
	<i>Inonotus hispidus</i>	LWZ 20180703-1	MT332137	MT319383	MT326506
		(HMAS)*			
	<i>Mensularia radiata</i>	Yuan 6589 (IFP)*	MT332140	MT319386	MT326560
	<i>Onnia tomentosa</i>	Cui 10048 (BJFC)*	MT332141	MT319387	MT326561
	<i>Phellinidium</i>	Cui 10042 (BJFC)*	KR350573	MT319388	MT326562
	<i>ferrugineofuscum</i>				
	<i>Phellinus piceicola</i>	Cui 10440 (BJFC)*	JQ828908	MT319389	MT326563
	<i>Porodaedalea pini</i>	Dai 7624 (IFP)*	MT332142	MT319391	MT326565
	<i>Tropicoporus</i>	LWZ 20140729-10	KT223640	MT319393	
<i>/Hyphodontiaceae</i>	<i>boehmeriae</i>	(IFP)			
	<i>Hyphodontia</i>	KHL 11889	DQ873603	DQ873603	
	<i>alutaria</i>				
		KHL 11978	EU118631		
		UC2023078	KP814431		
	<i>H. arguta</i>	FR-0219450	KR349242		
		FR-0219451	KR349243		
	<i>H. borbonica</i>	FR-0219441	KR349240		
		FR-0219444	KR349241		

<i>H. densispora</i>	LWZ 20170908-5 (IFP) ^{#*}	MT319426	MT319160	MT326431		MT326350	MT326261
	LWZ 20180905-6 (HMAS)	MT319425	MT319159	MT326430			
<i>‘H. arguta’</i>	Hjm 18726	DQ873605	DQ873605				
<i>H. pallidula</i>	GEL 2097	DQ340317					
<i>H. subdetritica</i>	FR-0261085	KY081793					
	FR-0261087	KY081794					
<i>H. wongiae</i>	LWZ 20180414-16 (HMAS)	MT319414	MT319146				
	LWZ 20180417-8 (HMAS)	MT319415					
	LWZ 20180417-16 (HMAS)	MT319416	MT319147				
<i>H. zhixiangii</i>	LWZ 20160909-4 (IFP)	KY440396	MT319154	MT326426			
	LWZ 20160909-8 (IFP)	KY440397	MT319155	MT326427			
	LWZ 20160909-9 (IFP)	KY440398	MT319156	MT326428			
	LWZ 20170818-13 (IFP) ^{#*}	MT319420	MT319151	MT326424	MT326397	MT326361	MT326270
	LWZ 20170820-27 (IFP)	MT319421	MT319152	MT326425	MT326408		
	LWZ 20170820-31 (IFP)	MT319422	MT319153				

		LWZ 20180903-5 (HMAS)	MT319423	MT319158	MT326429	MT326398	MT326294
		LWZ 20180903-9 (HMAS)	MT319424	MT319157			
		LWZ 20180904-12 (HMAS)	MT319419	MT319150			
	<i>Hyphodontia</i> sp.	LWZ 20170814-15 (IFP) ^{#*}	MT319417	MT319148	MT326423		MT326269
	<i>Hyphodontia</i> sp.	LWZ 20180511-2 (HMAS)	MT319418	MT319149			
<i>/Neoantrodiaellaceae</i>	<i>Neoantrodiaella</i> <i>gypsea</i>	Cui 10372 ^{**}	KT203290	MT319396	MT326567		
	<i>N. thujae</i>	Dai 5065 [#]	KT203293	MT319397	MT326568		
<i>/Nigrofomitaceae</i>	<i>Nigrofomes</i> <i>melanoporus</i>	JV 1704/39 [#]	MF629835	MF629831			
	<i>N. sinomelanoporus</i>	Cui 5277 [#]	MF629836	MT319398			
<i>/Oxyporaceae</i>	<i>Bridgeoporus</i> <i>sinensis</i>	Cui 10013 [#]	KY131832	KY131891			
	<i>Leucophellinus</i> <i>hobsonii</i>	Cui 6468 ^{**}	KT203288	KT203309	KT203330		
	<i>L. irpicoides</i>	Yuan 2690 [*]	KT203289	KT203310	KT203331		
	<i>Rigidoporus</i> <i>corticola</i>	Dai 12632 [*]	KF111018	KF111020	KT203334		
	<i>R. cuneatus</i>	Dai 7339 [*]	KT203294	KT203315	KT203335		
	<i>R. ginkgonis</i>	Cui 5555 ^{**}	KT203295	KT203316	KT203336		
	<i>R. macroporus</i>	Dai 4044	KT203298	KT203319			

<i>/Schizoporaceae</i>	<i>R. obducens</i>	Dai 6451	KY131884	KY131941	
	<i>R. philadelphi</i>	Wei 1622*	KT203300	KT203321	KT203340
	<i>R. piceicola</i>	Dai 5033*	KT203301	KT203322	KT203341
	<i>R. populinus</i>	Dai 8908*	KY131887	KY131944	KT203342
	<i>R. subpopulinus</i>	Cui 2236*	KT203305	KT203326	KT203346
	<i>Fasciodontia</i>	MSK-F 7245a	MK575201	MK598734	
	<i>brasiliensis</i>				
	<i>F. bugellensis</i>	MSK-F 5548	MK575204	MK598736	
	<i>Fasciodontia</i> sp.	KUC 20121109-15	KJ668516	KJ668368	
	<i>Lyomyces</i>	FR-0249548	KY800397		
	<i>allantosporus</i>				
		GEL 4933	KY800401		
	<i>L. bambusinus</i>	CLZhao 3675	MN945969		
		CLZhao 4808	MN945970		
		CLZhao 4831	MN945968		
		CLZhao 4840	MN945971		
	<i>L. cremeus</i>	CLZhao 2812	MN945973		
		CLZhao 4138	MN945974		
		CLZhao 8295	MN945972		
	<i>L. crustosus</i>	CFMR 4572	KX065944		
		CLZhao 875	MH114730		
		CLZhao 1157	MG231629		
		GEL 2325	DQ340313		
		GEL 5336	DQ340314		
		GEL 5360	DQ340315		
		HHB 13100	MH260069		

KHL 11731	DQ873614	DQ873614					
KUC 20121109-18	KJ668519						
LWZ 20170814-22 (IFP)*	MT319464	MT319200	MT326445		MT326360	MT326293	MT326570
LWZ 20170815-23 (IFP)	MT319465	MT319201	MT326446	MT326400	MT326313	MT326275	MT326571
LWZ 20170815-32 (IFP)	MT319466	MT319202	MT326447	MT326402	MT326314	MT326276	MT326572
LWZ 20170815-46 (IFP)	MT319467			MT326401	MT326355		MT326574
LWZ 20170815-53 (IFP)	MT319670	MT319209					
LWZ 20170816-1 (IFP)	MT319671	MT319208					
LWZ 20170816-3 (IFP)	MT319472	MT319207	MT326451	MT326410	MT326315		MT326575
LWZ 20170816-20 (IFP)	MT319463	MT319199	MT326524				MT326573
LWZ 20180830-7 (HMAS)	MT319468	MT319203					
LWZ 20180904-2 (HMAS)	MT319469	MT319205	MT326449				
LWZ 20180904-11 (HMAS)	MT319470	MT319206	MT326450	MT326393	MT326316		
LWZ 20180904-31 (HMAS)	MT319471	MT319204	MT326448		MT326317		

	UC2022841	KP814310		
	Wu 0711-90	KC460312		
	Wu 1007-31	KC460313		
	YG-G39	MF382993		
<i>'L. juniperi'</i>	Wu 0308-26	KC460311		
<i>L. elaeidicola</i>	LWZ 20180411-2 (HMAS)	MT319454	MT319193	
	LWZ 20180411-17 (HMAS)	MT319455	MT319191	
	LWZ 20180411-18 (HMAS)	MT319456	MT319189	
	LWZ 20180411-19 (HMAS)	MT319457	MT319190	
	LWZ 20180411-20 (HMAS)*	MT319458	MT319192	MT326442
<i>L. erastii</i>	30SAMHYP	JX857796		
	32bSAMHYP	JX857798		
	36SAMHYP	JX857797		
	LWZ 20160907-5 (IFP)	MT319453	MT319188	
	MA-Fungi 34336	JX857800		
	YG 022	MF382992		
<i>L. fimbriatus</i>	Wu 911204-4	MK575210	MK598740	
<i>L. gatesiae</i>	LWZ 20180515-3 (HMAS)	MT319447	MT319181	
	LWZ 20180515-32	MT319448	MT319182	

	(HMAS)							
<i>L. griseliniae</i>	KHL 12971	DQ873651	DQ873651					
<i>L. juniperi</i>	GEL 4940	DQ340316						
	Wu 0910-95	JX175047						
<i>L. leptocystidiatus</i>	LWZ 20170814-8	MT319432	MT319166					
	(IFP)							
	LWZ 20170814-14	MT319429	MT319163	MT326512	MT326395	MT326341	MT326256	MT326576
	(IFP) ^{#*}							
	LWZ 20170815-2	MT319430	MT319164	MT326513			MT326257	MT326577
	(IFP)							
	LWZ 20170815-30	MT319427	MT319161	MT326510		MT326345	MT326259	MT326581
	(IFP)							
	LWZ 20170815-43	MT319428	MT319162	MT326511	MT326409	MT326343	MT326260	MT326582
	(IFP)							
	LWZ 20170818-1	MT319431	MT319165	MT326514		MT326342		MT326579
	(IFP)							
	LWZ 20170818-8	MT319433	MT319167			MT326344	MT326258	MT326580
	(IFP)							
	LWZ 20170818-9	MT319435	MT319169		MT326396	MT326346	MT326292	MT326578
	(IFP)							
	LWZ 20170908-14	MT319434	MT319168	MT326528				
	(IFP)							
<i>L. macrosporus</i>	CLZhao 3951	MN945976						
	CLZhao 4516	MN945977						
	CLZhao 4531	MN945978						
	CLZhao 8605	MN945975						

	LWZ 20170817-2 (IFP) [#]	MT319459	MT319194		MT326392	MT326349		
	LWZ 20180922-1 (HMAS)	MT319656	MT319195					
<i>L. mascarensis</i>	GEL 4833	KY800399						
	GEL 4908	KY800400						
<i>L. microfasciculatus</i>	CLZhao 4626	MK343568						
	CLZhao 5109	MN954311						
	GN 2370 (BJFC)	MT333854						
	LWZ 20170815-37 (IFP) ^{**}	MT319450	MT319184	MT326440		MT326356		MT326583
	LWZ 20170816-33a (IFP)	MT319449	MT319183	MT326439	MT326386			MT326585
	LWZ 20170820-18 (IFP)	MT319451	MT319185	MT326441	MT326387	MT326347	MT326264	MT326584
	LWZ 20180414-6 (HMAS)	MT319452	MT319186					
	LWZ 20180921-22 (HMAS)	MT319654	MT319187					
	TNM F24757	JN129976						
<i>L. orientalis</i>	GEL 3376	DQ340325						
	GEL 3400	DQ340326						
	LWZ 20170909-7 (IFP)*	MT319436	MT319170	MT326529				
<i>L. organensis</i>	MSK 7247	KY800403						
<i>L. pruni</i>	Ryberg 021018	DQ873624	DQ873625					

L. sambuci

18SAMHYP	JX857731					
80SAMHYP	JX857721					
83SAMHYP	JX857720					
112SAMHYP	JX857715					
125SAMHYP	JX857704					
174SAMHYP	JX857734					
176SAMHYP	JX857733					
JR 7	KY800402					
LWZ 20170908-13 (IFP)	MT319445	MT319179	MT326530			
LWZ 20180903-4 (HMAS)	MT319442	MT319176	MT326436	MT326411		MT326286
LWZ 20180903-11 (HMAS)	MT319440	MT319174	MT326434	MT326388		
LWZ 20180905-1 (HMAS)	MT319444	MT319178	MT326438	MT326391		MT326291
LWZ 20180905-2 (HMAS)	MT319438	MT319172	MT326433	MT326389		MT326287
LWZ 20180905-7 (HMAS) [#]	MT319439	MT319173			MT326348	
LWZ 20180905-8 (HMAS)*	MT319441	MT319175	MT326435	MT326390		MT326288
LWZ 20180906-7 (HMAS)	MT319443	MT319177	MT326437			MT326290
LWZ 20180906-10 (HMAS)	MT319437	MT319171	MT326432	MT326412		MT326289

	r112SAMHYP	JX857716			
	TAAM 104263	MF382989			
<i>L. cf. sambuci</i>	DLL 2011-052	KJ140574			
<i>L. cf. sambuci</i>	DLL 2011-304	KJ140776			
<i>L. stratosus</i>	LR 9798	KY081805			
	LR 10025	KY081806			
<i>L. vietnamensis</i>	TNM F9073	JX175044			
<i>L. wuliangshanensis</i>	CLZhao 4108	MN945980			
	CLZhao 4144	MN945981			
	CLZhao 4167	MN945979			
	CLZhao 4206	MN945982			
	CLZhao 4475	MN945983			
<i>Lyomyces</i> sp.	170SAMHYP	JX857770			
	GEL 2414	KY800398			
<i>Lyomyces</i> sp.	LWZ 20180512-6 (HMAS)	MT319446	MT319180		
<i>Lyomyces</i> sp.	LWZ 20180515-2 (HMAS)*	MT319460	MT319196	MT326443	
<i>Lyomyces</i> sp.	LWZ 20180515-17 (HMAS)	MT319461	MT319197		
<i>Lyomyces</i> sp.	LWZ 20180906-20 (HMAS) ^{#*}	MT319462	MT319198	MT326444	MT326318
<i>Xylodon acystidiatus</i>	LWZ 20180514-9 (HMAS)	MT319474	MT319211		
	LWZ 20180515-35 (HMAS)	MT319473	MT319210		

<i>X. apacheriensis</i>	Canfield 180	KY081800		
<i>X. asperus</i>	CLZhao 1168	MG231625		
	CLZhao 1070	MG231621		
	CLZhao 1076	MG231622		
	CLZhao 1183	MG231627		
	GN2418 (BJFC)	MT333855		
	KG Nilsson s. n.	DQ873606	DQ873607	
	UC2023169	KP814365		
<i>X. astrocystidiatus</i>	Wu 9211-71	JN129972	JN129973	
<i>X. attenuatus</i>	Spirin 8775	MH324476		
<i>X. australis</i>	LWZ 20180509-8	MT319503	MT319248	
	(HMAS)			
	LWZ 20180509-15	MT319500	MT319246	MT326519
	(HMAS)*			
	LWZ 20180509-20	MT319501	MT319245	MT326457
	(HMAS)			
	LWZ 20180510-26	MT319504	MT319250	MT326459
	(HMAS)			
	LWZ 20180512-14	MT319502	MT319247	MT326458
	(HMAS)			
	LWZ 20180513-6	MT319505	MT319249	
	(HMAS)			
<i>X. borealis</i>	Spirin 9416	MH317760	MH638259	
	UC2022850	KP814307		
<i>X. brevisetus</i>	KHL 12386	DQ873612	DQ873612	
	KUN 2352	MH307753		

	UC2023199	KP814485					
<i>X. cf. brevisetus</i>	UC2023212	KP814495					
	UC2023234	KP814497					
<i>X. crystalliger</i>	KUN 2312	MH324477					
	LWZ 20170815-7 (IFP) ^{#*}	MT319520	MT319268	MT326467	MT326383		MT326273
	LWZ 20170816-33 (IFP)	MT319521	MT319269	MT326468		MT326334	MT326253
<i>X. cystidiatus</i>	FR-0249200	MH880195	MH884896				
<i>X. damansaraensis</i>	LWZ 20180417-4 (HMAS)*	MT319496	MT319241	MT326525			
	LWZ 20180417-20 (HMAS)	MT319497	MT319242				
	LWZ 20180417-22 (HMAS)	MT319498	MT319243				
	LWZ 20180417-23 (HMAS)	MT319499	MT319244	MT326456			
<i>X. detriticus</i>	Zíbarová 26.05.17	MH320794	MH638264				
	Zíbarová 30.10.17	MH320793	MH651372				
<i>X. filicinus</i>	MSK-F 12869	MH880199	MH884899				
	MSK-F 12870	MH880200	MH884900				
<i>X. flaviporus</i>	CLZhao 2384	MH114732					
	Cui 11838 (BJFC)	MT319544	MT319271				
	Dai 9996 (IFP)	MT319554					
	Dai 12797 (BJFC)	MT319555	MT319278	MT326541	MT326413		MT326310
	Dai 12808 (BJFC)	MT319551	MT319275	MT326540	MT326414		MT326311

Dai 14651 (BJFC)	MT319542						
Dai 16248 (BJFC)	MT319557	MT319280					
DLL 2011-134	KJ140637						
FCUG 1053	AF145575						
FR-0249797	MH880201	MH884901					
GEL 3462	MH880202						
GEL 5047	MH880203						
ICMP 13836	AF145585						
JV 1808/40	MT319522	MT319290					
JV 1808/65	MT319523	MT319291					
JV 1808/137	MT319524	MT319292					
LWZ 20150707-8 (IFP)	MT319561	MT319283	MT326542				
LWZ 20150708-1 (IFP)	MT319553	MT319277	MT326473	MT326405	MT326328	MT326252	
LWZ 20150726-10 (IFP)	MT319560	MT319282					
LWZ 20150826-1 (IFP)	MT319548	MT319274	MT326472		MT326333		
LWZ 20160318-1 (IFP)	MT319558	MT319281					
LWZ 20160318-6 (IFP)	MT319559			MT326380			
LWZ 20170814-23 (IFP)	MT319543	MT319270	MT326469	MT326376	MT326331	MT326271	
LWZ 20170820-43	MT319556	MT319279	MT326474	MT326377	MT326329	MT326272	

	(IFP)						
	LWZ 20171014-2	MT319563	MT319284	MT326475	MT326381		
	(IFP)						
	LWZ 20171026-1	MT319546	MT319272	MT326470	MT326379	MT326330	
	(IFP)						
	LWZ 20171026-11	MT319547	MT319273	MT326471	MT326378	MT326332	MT326277
	(IFP) ^{#*}						
	LWZ 20180415-13	MT319552	MT319276				
	(HMAS)						
	MA-Fungi 79440	MH260071	MH260066				
	Yuan 4271 (IFP)	MT319550					
	Yuan 4314 (IFP)	MT319562					
	Yuan 4541 (IFP)	MT319549					
	Yuan 4544 (IFP)	MT319545					
	Yuan 4588 (IFP)	MT319564					
<i>'X. ovisporus'</i>	GC 1609-41	MF540764					
<i>'X. ovisporus'</i>	Wu 910322	MF540765					
<i>'X. ovisporus'</i>	Wu 1207-25	MF540766					
<i>X. follis</i>	FR-0249814	MH880204	MH884902				
<i>X. hastifer</i>	Ryvarden 19767	KY081801					
<i>X. heterocystidiatus</i>	LWZ 20171015-8	MT319513	MT319263	MT326465			
	(IFP)						
	LWZ 20171015-15	MT319514					
	(IFP)						
	LWZ 20171015-29	MT319516	MT319262	MT326464			MT326278
	(IFP)						

	LWZ 20171015-30 (IFP)*	MT319517	MT319261	MT326463		MT326336	
	LWZ 20171015-33 (IFP) [#]	MT319518	MT319264	MT326466	MT326382	MT326337	MT326285
	LWZ 20180921-19 (HMAS)	MT319676	MT319266				
	LWZ 20180922-45 (HMAS)	MT319659	MT319265	MT326538			
	Wu 9209-27	JX175045					
	Wu 9312-20	JX175046					
<i>X. hyphodontinus</i>	GEL 9222	MH880205	MH884903				
	GG-GUY13-044	MH880206	MH884904				
	GG-MAR12-238	MH880207	MH884905				
	GG-MAR15-127	MH880208	MH884906				
<i>X. kunmingensis</i>	CLZhao 230	MK404528					
	CLZhao 752	MK404529					
	CLZhao 755	MK404530					
	CLZhao 3010	MK404531					
	CLZhao 3019	MK404532					
	LWZ 20170820-41 (IFP) ^{#*}	MT319512	MT319259	MT326462	MT326399	MT326335	MT326274
	LWZ 20171026-14 (IFP)	MT319511	MT319258	MT326461			MT326284
<i>= X. exilis</i>	MSK-F 7381	MH880196					
	TUB-FO 42450	MH880197					
	TUB-FO 42565	MH880198	MH884898				

<i>X. lagenicystidiatus</i>	LWZ 20180513-16 (HMAS)	MT319634	MT319368	
	LWZ 20180515-1 (HMAS)	MT319632		
	LWZ 20180515-14 (HMAS)*	MT319633	MT319367	MT326499
<i>X. lenis</i>	Cui 5950	KT989972		
	Wu 0808-32	JX175043		
	Wu 890714-3	KY081802		
<i>X. mollissimus</i>	LWZ 20160318-3 (IFP)*	KY007517	MT319347	MT326555
	Yuan 4391 (IFP)	MT319609		
	Yuan 4562 (IFP)	MT319610		
	Yuan 4568 (IFP)	MT319611		
<i>X. nesporii</i>	B Nordén 030915	DQ873622	DQ873622	
	CLZhao 879	MH114737		
	CLZhao 898	MG231640		
	CLZhao 944	MH114738		
	CLZhao 958	MH114739		
	CLZhao 1181	MG231645		
	CLZhao 3988	MH114741		
	GEL 3290	DQ340309		
	GEL 3302	DQ340308		
	GEL 3309	DQ340307		
	JR 14	MH880210		
	KUC 20130712-14	KJ668518		

KUC 20161012-50	MF774797						
LWZ 20170815-13 (IFP)	MT319661	MT319239					
LWZ 20170815-13a (IFP)	MT319662	MT319240					
LWZ 20170909-9 (IFP)	MT319495	MT319236	MT326531	MT326403			
LWZ 20171016-12 (IFP)*	MT319493	MT319235	MT326455	MT326384	MT326353	MT326262	
LWZ 20171016-18 (IFP)	MT319494	MT319234	MT326454	MT326385	MT326354	MT326263	
LWZ 20180509-4 (HMAS)	MT319488	MT319229					
LWZ 20180509-14 (HMAS)	MT319492	MT319233					
LWZ 20180514-1 (HMAS)	MT319489	MT319230					
LWZ 20180514-12 (HMAS)	MT319490	MT319232					
LWZ 20180514-13 (HMAS)	MT319491	MT319231					
LWZ 20180804-27 (HMAS)	MT319647	MT319237	MT326532				
LWZ 20180921-35 (HMAS)	MT319655	MT319238	MT326533				
LWZ 20180922-31	MT319675						

	(HMAS)								
<i>X. niemelaei</i>	Cui 11116 (BJFC)	MT319631							
	Dai 15358 (BJFC)	MT319623	MT319359						
	Dai 16269 (BJFC)	MT319624	MT319360						
	FR-0219860	MH880211							
	FR-0249174	MH880212							
	GC 1508-146	KX857798							
	GEL 4998	EU583422							
	LWZ 20150707-13	MT319630	MT319365						
	(IFP)								
	LWZ 20150707-15	MT319627							
	(IFP)								
	LWZ 20150709-2	MT319626	MT319362		MT326406	MT326358	MT326254		
	(IFP)								
	LWZ 20171015-12	MT319625	MT319361	MT326498	MT326407	MT326359			
	(IFP) ^{#*}								
	Wu 1010-62	KX857799							
	Yuan 5730 (IFP)	MT319629	MT319364						
	Yuan 5773 (IFP)	MT319622	MT319358						
	Yuan 5891 (IFP)	MT319628	MT319363						
‘ <i>X. apacheriensis</i> ’	Wu 0910-58	KX857797							
= <i>X. jacobaeus</i>	MA-Fungi 91339	MH430072	MH430071						
	MA-Fungi 91340	MH430073							
	MA-Fungi 91338	MH430074							
= <i>X. reticulatus</i>	GC 1512-1	KX857808	KX857813						
	KUC 20160721B-26	MF774798							

= <i>X. rhizomorphus</i>	Wu 1109-178	KX857805		
	Dai 12354	KF917544		
	Dai 12367	KF917545		
	Dai 12389	KF917546		
<i>X. nongravis</i>	CHWC 1506-2	KX857800		
	CLZhao 3190	MH114745		
	CLZhao 3196	MH114747		
	Dai 11686 (BJFC)	MT319614	MT319350	
	Dai 15321	KT989969		
	GC 1412-22	KX857801	KX857818	
	LWZ 20150731-19 (IFP)	MT319613	MT319349	MT326394
	LWZ 20160318-5 (IFP)	MT319612	MT319348	
	Spirin 5763	MH324469		
	ICMP 13839	AF145582	MH260064	
<i>X. nothofagi</i>	ICMP 13842	AF145583		
	PDD 91630	GQ411524		
<i>X. ovisporus</i>	CLZhao 178	MG231651		
	CLZhao 240	MG231653		
	CLZhao 316	MH114922		
	CLZhao 321	MH114923		
	CLZhao 759	MG231668		
	CLZhao 1050	MG231674		
	CLZhao 1508	MG231691		
	CLZhao 4028	MH114774		

CLZhao 4739	MH114779			
CLZhao 4757	MH114786			
Cui 12060 (BJFC)	MT319581	MT319319	MT326549	MT326297
Cui 12304 (BJFC)	MT319596	MT319332		MT326306
Dai 13058 (BJFC)	MT319593			MT326295
Dai 13824 (BJFC)	MT319587	MT319325	MT326552	MT326301
Dai 14958 (BJFC)	MT319605			MT326299
Dai 15460 (BJFC)	MT319582	MT319320	MT326550	MT326300
Dai 15618 (BJFC)	MT319606	MT319339		MT326304
Dai 15626 (BJFC)	MT319575			MT326296
Dai 15627 (BJFC)	MT319576	MT319314		MT326302
Dai 15628 (BJFC)	MT319595			
Dai 15682 (BJFC)	MT319588	MT319326	MT326553	MT326307
Dai 15688 (BJFC)	MT319571	MT319312		MT326303
Dai 15699 (BJFC)	MT319572			
Dai 15722 (BJFC)	MT319594	MT319331		MT326305
Dai 15724 (BJFC)	MT319585	MT319323	MT326551	MT326308
Dai 15730 (BJFC)	MT319592	MT319329	MT326554	MT326298
Dai 16306 (BJFC)	MT319591			
GEL 3493	EU583421			
ICMP 13830	AF145584			
ICMP 13835	AF145586	MH260063		
KUC 20130725-29	KJ668513			
LWZ 20140726-7 (IFP)	MT319604		MT326367	
LWZ 20141122-1	MT319574		MT326404	MT326352 MT326240

(IFP)						
LWZ 20150622-6	MT319598	MT319333				
(IFP)						
LWZ 20150705-1	MT319573	MT319313				
(IFP)						
LWZ 20150708-15	MT319579	MT319317	MT326486		MT326319	MT326251
(IFP)						
LWZ 20150710-3	MT319580	MT319318	MT326548			
(IFP)						
LWZ 20150710-5	MT319602	MT319338				
(IFP)						
LWZ 20150727-1	MT319603	MT319337	MT326492			
(IFP)						
LWZ 20150802-7	MT319599	MT319334				
(IFP)						
LWZ 20150802-19	MT319577	MT319315				
(IFP)						
LWZ 20170814-6	MT319607	MT319340	MT326493	MT326374	MT326351	MT326247
(IFP)						
LWZ 20170814-12	MT319583	MT319321	MT326487	MT326368	MT326322	MT326246
(IFP)						
LWZ 20170814-18	MT319584	MT319322		MT326371	MT326323	MT326243
(IFP)						
LWZ 20170815-16	MT319663	MT319343				
(IFP)						
LWZ 20170815-31	MT319666	MT319346				

(IFP)							
LWZ 20170815-33	MT319589	MT319327	MT326523	MT326369	MT326325	MT326248	
(IFP)#*							
LWZ 20170815-39	MT319600	MT319335	MT326490		MT326324	MT326241	
(IFP)							
LWZ 20170815-41	MT319667	MT319345					
(IFP)							
LWZ 20170815-45	MT319669	MT319344					
(IFP)							
LWZ 20170816-13	MT319586	MT319324	MT326488	MT326370	MT326320	MT326245	
(IFP)							
LWZ 20170817-4	MT319578	MT319316			MT326357	MT326250	
(IFP)							
LWZ 20170818-7	MT319608	MT319341	MT326494	MT326373	MT326326	MT326244	
(IFP)							
LWZ 20170818-19	MT319601	MT319336	MT326491	MT326372	MT326321	MT326249	
(IFP)							
LWZ 20171015-9	MT319597	MT319330					
(IFP)							
LWZ 20171015-10	MT319590	MT319328	MT326489	MT326375	MT326327	MT326242	
(IFP)							
LWZ 20180919-12	MT319648	MT319342					
(HMAS)							
LWZ 20180920-1	MT319649	MT319289	MT326546				
(HMAS)							
LWZ 20180920-10	MT319650	MT319286	MT326543				

	(HMAS)				
	LWZ 20180920-22	MT319652	MT319287	MT326544	
	(HMAS)				
	LWZ 20180921-4	MT319653	MT319288	MT326545	
	(HMAS)				
<i>'X. flaviporus'</i>	GC 1509-71	MF540761			
	GC 1607-3	MF540762			
	Wu 0211-53	MF540763			
<i>X. paradoxus</i>	CBS 316.53	MH857217			
	CBS 317.53	MH857218			
	CBS 318.53	MH857219			
	CBS 319.53	MH857220			
	Dai 14983 (BJFC)*	MT319519	MT319267	MT326539	MT326416
	FCUG 1517	AF145572			
	FCUG 2425	AF145571	AY059067		
	JR 06	MH880219			
	MA-Fungi 70444	MH260070	MH260065		
	MA-Fungi 81294	MH260072			
	Miettinen 7978	FN907912			
<i>X. pseudotropicus</i>	Dai 10758	KF917542			
	Dai 10765	KT989974			
	Dai 10768	KF917543			
	Dai 16167 (BJFC)	MT319509	MT319255	MT326536	MT326312
	LWZ 20170817-1	MT319507	MT319254	MT326460	MT326255
	(IFP)*				
<i>X. pruinosis</i>	Spirin 2877	MH332700			

	UC2023108	KP814412							
<i>X. pseudolanatus</i>	FP-150922	MH880220	MH884909						
<i>X. quercinus</i>	H 6013352	KT361632							
	KHL 11076	KT361633	AY586678						
	Kotiranta 27060	MH320792							
	MA-Fungi 91311	MH260073	MH260067						
	Spirin 8565	MH316007							
	Spirin 8840	MH320791							
<i>X. ramicida</i>	Spirin 7664	KT361634							
<i>X. rhododendricola</i>	LWZ 20180512-4 (HMAS)*	MT319619	MT319355	MT326497					
	LWZ 20180513-3 (HMAS)	MT319620	MT319356						
	LWZ 20180513-9 (HMAS)	MT319621	MT319357						
<i>X. rimosissimus</i>	DLL 2011-081	KJ140600							
	Ryberg 021031	DQ873627	DQ873628						
	UC2022842	KP814311							
	UC2023109	KP814414							
	UC2023147	KP814193							
	UC2023148	KP814194							
<i>X. serpentiformis</i>	FO 40675	MH880228							
	FO 42688	MH880229	MH884913						
	GEL 3668	MH880227							
	LWZ 20170815-14 (IFP) ^{#*}	MT319477	MT319214	MT326517	MT326363	MT326362	MT326265	MT326586	

<i>X. spathulatus</i>	LWZ 20170815-17 (IFP)	MT319664	MT319216					
	LWZ 20170815-18 (IFP)	MT319478	MT319215	MT326518	MT326366	MT326338	MT326267	MT326588
	LWZ 20170815-29 (IFP)	MT319665	MT319220					
	LWZ 20170815-42 (IFP)	MT319668	MT319219					
	LWZ 20170816-11 (IFP)	MT319475	MT319212	MT326515	MT326364	MT326340	MT326266	MT326589
	LWZ 20170816-12 (IFP)	MT319672	MT319217					
	LWZ 20170816-15 (IFP)	MT319673	MT319218					
	LWZ 20170818-4 (IFP)	MT319476	MT319213	MT326516	MT326365	MT326339	MT326268	MT326587
	CLZhao 184	MG231628						
	Cui 6834 (BJFC)	MT319618						
	Cui 12887	KY290982						
	Cui 12888	KY290983						
	GEL 2690	KY081803						
	KHL 7085	KY081804						
	LWZ 20180804-10 (HMAS)	MT319646	MT319354	MT326556				
	LWZ 20180808-4 (HMAS) ^{#*}	MT319616	MT319352	MT326495			MT326280	

<i>X. subclavatus</i> <i>X. subflaviporus</i>	LWZ 20180808-5 (HMAS)	MT319617	MT319353	MT326496	MT326281
	LWZ 20180906-19 (HMAS)	MT319615	MT319351		
	MMS 7224	MH880230			
	MSK-F 12931	MH880231	MH884914		
	Wu 1307-42	KX857802			
	Wu 1407-105	KX857804	KX857811		
	FO 42167	MH880232			
	A46	KC414243			
	CLZhao 2160	MH114755			
	CLZhao 2176	MH114758			
	Dai 16413 (BJFC)	MT319567	MT319310	MT326547	MT326415
	Dollinger 698	KY264045			MT326309
	Dollinger 772	KY264046			
	FLAS-F-61200	MH399868			
	GC 1609-42	MF540767			
	GEL 3466	MH880233			
	ICMP 13837	AF145587			
	LWZ 20150731-11 (IFP)	MT319566	MT319309	MT326484	
	LWZ 20171014-9 (IFP)*	MT319569	MT319311	MT326485	
	LWZ 20180415-1 (HMAS)	MT319568			
	Wu 0809-76	KX857803	KX857815		

	Wu 0606-140	MF540768		
	Yuan 4399 (IFP)	MT319570		
<i>X. subserpentiformis</i>	LWZ 20180509-2 (HMAS)*	MT319481	MT319223	MT326452
	LWZ 20180512-16 (HMAS)	MT319486	MT319226	MT326453
	LWZ 20180513-28 (HMAS)	MT319480	MT319222	
	LWZ 20180515-15 (HMAS)	MT319482		
	LWZ 20180515-16 (HMAS)	MT319483	MT319224	
	LWZ 20180515-19 (HMAS)	MT319484	MT319225	
	LWZ 20180515-22 (HMAS)	MT319479	MT319221	
<i>X. subtropicus</i>	LWZ 20180509-1 (HMAS)	MT319526	MT319293	
	LWZ 20180509-3 (HMAS)	MT319532	MT319299	
	LWZ 20180509-6 (HMAS)*	MT319537	MT319305	MT326520
	LWZ 20180509-16 (HMAS)	MT319535	MT319303	
	LWZ 20180509-18 (HMAS)	MT319536	MT319302	MT326481

LWZ 20180509-21 (HMAS)	MT319530	MT319297	MT326478	
LWZ 20180509-22 (HMAS)	MT319531	MT319298	MT326479	
LWZ 20180510-3 (HMAS)	MT319538	MT319304	MT326482	MT326279
LWZ 20180510-15 (HMAS)	MT319527	MT319294	MT326476	
LWZ 20180510-24 (HMAS)	MT319541	MT319308		
LWZ 20180512-15 (HMAS)	MT319539	MT319306	MT326521	
LWZ 20180513-12 (HMAS)	MT319534	MT319301	MT326480	
LWZ 20180514-3 (HMAS)	MT319525			
LWZ 20180514-8 (HMAS)	MT319529	MT319296	MT326477	
LWZ 20180514-15 (HMAS)	MT319533	MT319300		
LWZ 20180514-21 (HMAS)	MT319540	MT319307	MT326483	
LWZ 20180515-12 (HMAS)	MT319528	MT319295		
NZFS 4546	MH409968			
P. CH-4	KF562013			

	UC2022947	KP814552			
	Wu 1508-2	KX857806	KX857812		
	Wu 9806-105	KX857807	KX857809		
= <i>X. laurentianus</i>	DLL 2009-049	JQ673187	KY962866	KY967075	
	HHB 719	KY962845	KY962865	KY967076	
= <i>X. novozelandicus</i>	ICMP 13829	AF145577	KY962850	KY967071	KY967067
	ICMP 13833	AF145580	KY962853	KY967073	KY967068
	ICMP 13838	AF145578	KY962851	KY967069	
	ICMP 13840	AF145576	KY962849	KY967070	KY967066
	ICMP 13841	AF145579	KY962852	KY967072	KY967065
	PDD 91616	GQ411525			
= <i>X. patagonicus</i>	ICMP 13832	AF145581	KY962848	KY967074	KY967058
	MA-Fungi 90702	KY962836	KY962854		KY967062
	MA-Fungi 90704	KY962840			KY967060
	MA-Fungi 90705	KY962835			KY967063
	MA-Fungi 90706	KY962838	KY962856		KY967064
	MA-Fungi 90707	KY962837	KY962855		KY967061
	MA-Fungi 90708	KY962839	KY962857		KY967059
= <i>X. raduloides</i>	Dai 12631	KT203307			
	JR 02	MH880221			
	JR 03	MH880222			
	JR 09	MH880223			
	JR 10	MH880224			
	JR 26	MH880225	MH884910		
	LR 18813	MH880226	MH884911		
	MA-Fungi 22499	KY962822	KY962861		

	MA-Fungi 22513	KY962823	KY962862		
	MA-Fungi 35643	KY962831	KY962858		KY967054
	MA-Fungi 75130	KY962824	KY962863	KY967079	KY967057
	MA-Fungi 75272	KY962829	KY962859	KY967077	KY967053
	MA-Fungi 75310	KY962825	KY962864	KY967080	KY967055
	MA-Fungi 90709	KY962844	KY962860	KY967078	KY967056
<i>X. ussuriensis</i>	KUN 1989	MH324468			
<i>X. verecundus</i>	KHL 12261	DQ873642			
<i>X. victoriensis</i>	LWZ 20180510-29 (HMAS)	MT319487	MT319228		
	LWZ 20180512-11 (HMAS)	MT319485	MT319227		
<i>X. yarraensis</i>	LWZ 20180509-7 (HMAS)	MT319640	MT319371		
	LWZ 20180510-4 (HMAS)*	MT319635	MT319370	MT326500	MT326282
	LWZ 20180510-5 (HMAS)	MT319639	MT319378	MT326505	
	LWZ 20180510-16 (HMAS)	MT319637	MT319373		
	LWZ 20180510-19 (HMAS)	MT319638	MT319377		
	LWZ 20180510-25 (HMAS)	MT319636	MT319369		
	LWZ 20180512-19 (HMAS)	MT319645			

	LWZ 20180512-21 (HMAS)	MT319641	MT319372	MT326501
	LWZ 20180512-22 (HMAS)	MT319642	MT319374	MT326502
	LWZ 20180512-23 (HMAS)	MT319643	MT319375	MT326503
	LWZ 20180512-29 (HMAS)	MT319644	MT319376	MT326504
<i>X. yunnanensis</i>	Cui 8129 (BJFC)	MT319506	MT319251	
	LWZ 20180920-12a (HMAS)*	MT319651	MT319252	MT326534
	LWZ 20180922-47 (HMAS)	MT319660	MT319253	MT326535
<i>Xylodon</i> sp.	Dai 12590 (BJFC)	MT319508	MT319256	
<i>Xylodon</i> sp.	H Berglund 1117	DQ873633	DQ873634	
<i>Xylodon</i> sp.	LWZ 20171015-26 (IFP)*	MT319515	MT319260	MT326537
<i>Xylodon</i> sp.	LWZ 20180517-34 (HMAS)	MT319565	MT319285	
<i>Xylodon</i> sp.	LWZ 20180518-8 (HMAS)	MT319510	MT319257	
<i>Xylodon</i> sp.	LWZ 20180904-28 (HMAS)	MT319674	MT319366	
<i>Xylodon</i> sp.	LWZ 20180922-19 (HMAS)*	MT319657	MT319379	MT326557
<i>Xylodon</i> sp.	LWZ 20180922-26	MT319658	MT319380	MT326558

		(HMAS)*			
	' <i>X. raduloides</i> '	FCUG 2433	AF145570	AJ406466	
/Incertae sedis	<i>Atheloderma</i>	TAA 169235	DQ873592	DQ873592	
	<i>mirabile</i>				
	<i>Basidioradulum</i>	AFTOL-ID 451	DQ234537	AY700184	
	<i>radula</i>				
	<i>Blasiphalia</i>	Lutzoni 930728-3	U66437	U66437	
	<i>pseudogrisella</i>				
	<i>Contumyces rosella</i>	Redhead 7501	U66452	U66452	
	<i>Cotylidia</i> sp.	AFTOL-ID 700	AY854079	AY629317	
	<i>Fibricium rude</i>	CBS 339.66	MH858815	MH870454	
	<i>Globulicium hiemale</i>	Hjm 19007	DQ873595	DQ873595	
	<i>Hastodontia</i>	HHB-17058 (CFMR)	MK575207	MK598738	
	<i>halonata</i>				
	<i>H. hastata</i>	GEL 2143	DQ340323		
		GEL 3124	DQ340311		
		KHL 14646	MH638232	MH638232	
	<i>Leifia brevispora</i>	LWZ 20170820-46	MK343469	MT319400	
	<i>Leifia</i> sp.	LWZ 20171015-36	MK343471	MT319402	MT326522
		(IFP)			
	<i>Leifia</i> sp.	LWZ 20171015-38	MK343472	MT319403	MT326569
		(IFP)			
	<i>Loreleia</i>	Lutzoni 930826-1	U66432	U66432	
	<i>marchantiae</i>				
	<i>Odonticium romellii</i>	1514b	DQ873639	DQ873639	
	<i>Peniophorella</i>	KHL 13164	DQ873597	DQ873597	

	<i>praetermissa</i>				
	<i>Repetobasidium</i>	KHL 12338	DQ873647	DQ873647	
	<i>conicum</i>				
	<i>Rickenella fibula</i>	AFTOL-ID 486	DQ241782	AY700195	
	<i>R. mellea</i>	Lamoure 74	U66438	U66438	
	<i>Sidera lunata</i>	JS 15063	DQ873593	DQ873593	
	<i>Skvortzovia</i>	KHL 11738	DQ873648	DQ873648	
	<i>furfuraceum</i>				
	<i>S. furfurella</i>	KHL 10180	DQ873649	DQ873649	
	<i>S. georgica</i>	KHL 12019	DQ873645	DQ873645	
	<i>S. pinicola</i>	KHL 12224	DQ873637	DQ873637	
	<i>Sphaerobasidium</i>	KHL 11714	DQ873652	DQ873653	
	<i>minutum</i>				
	<i>Sphagnomphalia</i>	Lutzoni 930826-1	U66441	U66441	
	<i>brevibasidiata</i>				
	<i>Trichaptum</i>	NH 12842	AF347104	AF347104	
	<i>abietinum</i>				
	<i>Tubulicrinis</i>	KHL 12133	DQ873655	DQ873655	
	<i>globisporus</i>				
	<i>T. hirtellus</i>	KHL 11717	DQ873657	DQ873657	
	<i>T. inornatus</i>	KHL 11763	DQ873659	DQ873659	
<i>Polyporales</i>	<i>Donkioporiella</i>	LWZ 20140622-12	KX258957	KX258955	
<i>/Incertae sedis</i>	<i>mellea</i>				
<i>/Phanerochaetaceae</i>	<i>Ceriporia</i> sp.	MEL 2400115	MT332133	MT319137	MT326417
	<i>Phanerochaete</i> sp.	MEL 2379809	MT332134	MT319138	MT326418
<i>Thelephorales/Thele</i>	<i>Lenzitopsis daii</i>	Yuan 2959	JN169799	JN169795	

phoraceae

‘Voucher’[#] means this specimen was used in estimating the divergence times of families within *Hymenochaetales*

‘Voucher’* means this specimen was used in exploring the evolution of hymenophore morphological characters within *Hymenochaetales*.

‘species name’ means this species name is misapplied for the sequence and the accepted species name for this sequence is the name in its previous line of the table.

= species name means this species name is a synonym of the name in its previous line of the table.

[generic name] means this generic name is uncertain.

Newly generated sequences are in bold.