

Supplementary Table S1. Fungi isolated from the relict charcoal hearths (RCH) soil and control soil; National Center for Biotechnology Information (NCBI) accession numbers assigned to the sequences generated in this study.

Taxon	Strain	Isolation source	GenBank accession no.		
			ITS	TUB2	TEF1- α .
<i>Absidia coerulea</i>	P1272	Control soil	OK584484		
<i>Absidia cylindrospora</i> var. <i>cylindrospora</i>	P565	RCH soil	OK571344		
<i>Ascocoryne</i> sp.	P735	RCH soil	OK584485		
<i>Aspergillus inflatus</i>	P687	RCH soil	OK584486		
	P683	RCH soil	OK584487		
	P724	RCH soil	OK584488		
<i>Cladosporium</i> sp.	P725	RCH soil	OK584489		
<i>Dermataceae</i>	P680	RCH soil	OK584490		
<i>Geomyces auratus</i>	P739	RCH soil	OK584491		
<i>Helotiales</i> sp. 1	P721	RCH soil	OK584492		
	P734	Control soil	OK584493		
	P782	RCH soil	OK584494		
<i>Helotiales</i> sp. 2	P765	RCH soil	OK584495		
<i>Herpotrichiellaceae</i> sp.	P729	RCH soil	OK584496		
<i>Humicolopsis cephalosporioides</i>	P717	RCH soil	OK584497		
	P767	Control soil	OK584498		
	P1277	Control soil	OK584499		
<i>Hyaloscypha</i> sp.	P745	RCH soil	OK584500		
<i>Hyaloscyphaceae</i> sp.	P1281	RCH soil	OK584501		
<i>Infundichalara</i> sp. 1	P696	RCH soil	OK584502		
	P705	RCH soil	OK584503		
	P733	RCH soil	OK584504		
	P762	RCH soil	OK584505		
<i>Infundichalara</i> sp. 2	P776	RCH soil	OK584506		
<i>Infundichalara</i> sp. 3	P1267	RCH soil	OK584507		
<i>Leptobacillium</i> sp.	P709	RCH soil	OK584508		
<i>Metapochonia bulbilosa</i>	P543	RCH soil	OK584509		
	P562	RCH soil	OK584510		
<i>Microsphaeropsis olivacea</i>	P736	RCH soil	OK584511		
	P719	RCH soil	OK584512		
<i>Mortierella alliacea</i>	P553	RCH soil	OK584513		
	P1284	Control soil	OK584514		
<i>Mortierella alpina</i>	P556	RCH soil	OK584515		
<i>Mortierella macrocystis</i>	P538	RCH soil	OK584516		
	P539	RCH soil	OK584517		
	P540	RCH soil	OK584518		
	P545	RCH soil	OK584519		
	P546	RCH soil	OK584520		
	P557	RCH soil	OK584521		
	P674	RCH soil	OK584522		
	P679	RCH soil	OK584523		
	P710	RCH soil	OK584524		
	P1260	RCH soil	OK584525		
	P1282	RCH soil	OK584526		
<i>Mortierella parvispora</i>	P548	RCH soil	OK584527		
	P563	Control soil	OK584528		
<i>Mortierella sossauensis</i>	P559	Control soil	OK584529		
	P550	Control soil	OK584530		
	P554	Control soil	OK584531		
	P555	RCH soil	OK584532		
	P560	RCH soil	OK584533		
	P564	RCH soil	OK584534		
	P567	RCH soil	OK584535		
<i>Mortierellaceae</i> sp.	P561	RCH soil	OK584536		
<i>Mortierellales</i>	P547	Control soil	OK584537		
<i>Mucor hiemalis</i> f. <i>silvaticus</i>	P1288	Control soil	OK584538		
<i>Mucor moelleri</i>	P1271	Control soil	OK584539		
<i>Mucoromycetes</i>	P566	RCH soil	OK584540		
<i>Oberwinklerozyma</i> sp.	P691	RCH soil	OK584541		
<i>Oidiodendron flavum</i>	P681	RCH soil	OK584542		
	P784	RCH soil	OK584543		
<i>Oidiodendron maius</i>	P786	RCH soil	OK584544		
<i>Oidiodendron pilicola</i>	P764	RCH soil	OK584545		

<i>Oidiodendron rhodogenum</i>	P702	RCH soil	OK584546	
<i>Oidiodendron</i> sp. 1	P692	RCH soil	OK584547	
	P693	RCH soil	OK584548	
	P699	RCH soil	OK584549	
	P700	RCH soil	OK584550	
	P748	RCH soil	OK584551	
	P755	RCH soil	OK584552	
	P1263	Control soil	OK584553	
<i>Oidiodendron</i> sp. 2	P697	RCH soil	OK584554	
	P737	RCH soil	OK584555	
	P1278	RCH soil	OK584556	
	P1259	RCH soil	OK584557	
	P1265	RCH soil	OK584558	
<i>Oidiodendron</i> sp. 3	P704	RCH soil	OK584559	
	P731	RCH soil	OK584560	
	P728	RCH soil	OK584561	
	P744	RCH soil	OK584562	
	P763	RCH soil	OK584563	
	P781	RCH soil	OK584564	
	P785	RCH soil	OK584565	
<i>Oidiodendron</i> sp. 4	P773	RCH soil	OK584566	
<i>Oidiodendron</i> sp. 5	P695	RCH soil	OK584567	
<i>Oidiodendron</i> sp. 6	P694	RCH soil	OK584568	
	P761	RCH soil	OK584569	
	P689	RCH soil	OK584570	
	P759	RCH soil	OK584571	
	P751	RCH soil	OK584572	
	P1273	RCH soil	OK584573	
	P1275	Control soil	OK584574	
	P1276	Control soil	OK584575	
<i>Oidiodendron</i> sp. 7	P768	RCH soil	OK584576	
	P774	RCH soil	OK584577	
<i>Oidiodendron</i> sp. 8	P754	RCH soil	OK584578	
	P775	RCH soil	OK584579	
	P703	RCH soil	OK584580	
	P757	RCH soil	OK584581	
	P1264	RCH soil	OK584582	
<i>Penicillium adametzii</i>	P1242	Control soil	OK584583	OK572513
	P1243	Control soil	OK584584	
	P1254	RCH soil	OK584585	
<i>Penicillium albidum</i>	P1270	RCH soil	OK584586	
<i>Penicillium cosmopolitanum</i>	P1248	RCH soil	OK584587	
	P1249	RCH soil	OK584588	OK572514
<i>Penicillium fuscum</i>	P1247	RCH soil	OK584589	OK572515
<i>Penicillium</i> sp. section <i>Thysanophora</i>	P778	RCH soil	OK584590	OK572516
	P779	RCH soil	OK584591	
<i>Penicillium janczewskii</i>	P1245	RCH soil	OK584592	OK572517
	P1289	Control soil	OK584593	OK572518
<i>Penicillium lividum</i>	P1293	Control soil	OK584594	OK572519
<i>Penicillium melinii</i>	P1256	RCH soil	OK584595	
<i>Penicillium montanense</i>	P1244	RCH soil	OK584596	OK572520
	P1253	RCH soil	OK584597	
	P1292	Control soil	OK584598	
<i>Penicillium subspinulosum</i>	P1250	RCH soil	OK584599	OK572521
<i>Penicillium thomii</i>	P1251	RCH soil	OK584600	OK572522
<i>Penicillium</i> sp. 1	P1241	Control soil	OK584601	OK572523
<i>Penicillium</i> sp. 2	P1252	RCH soil	OK584602	OK572524
	P1255	RCH soil	OK584603	
	P1268	RCH soil	OK584604	
<i>Penicillium</i> sp. 3	P1290	Control soil	OK584605	
<i>Phialocephala</i> cf. <i>fortinii</i>	P718	RCH soil	OK584606	
	P726	RCH soil	OK584607	
	P738	RCH soil	OK584608	
	P746	RCH soil	OK584609	
<i>Pleuroascaceae</i> sp.	P727	RCH soil	OK584610	
	P760	RCH soil	OK584611	
<i>Pochonia cordycepsociata</i>	P678	RCH soil	OK584612	
<i>Pseudogymnoascus pannorum</i> var. <i>asperulatus</i>	P1286	Control soil	OK584613	
<i>Pseudogymnoascus</i> sp.	P743	RCH soil	OK584614	
<i>Saccharomycetes</i> sp.	P771	RCH soil	OK584615	

<i>Sagenomella griseoviridis</i>	P708	RCH soil	OK584616	
	P750	RCH soil	OK584617	
	P690	RCH soil	OK584618	
	P741	RCH soil	OK584619	
<i>Sagenomella verticillata</i>	P747	Control soil	OK584620	
	P770	RCH soil	OK584621	
	P676	RCH soil	OK584622	
	P682	RCH soil	OK584623	
	P698	RCH soil	OK584624	
	P701	RCH soil	OK584625	
	P722	RCH soil	OK584626	
	P730	RCH soil	OK584627	
	P732	RCH soil	OK584628	
	P749	RCH soil	OK584629	
	P753	RCH soil	OK584630	
	P780	RCH soil	OK584631	
	P742	RCH soil	OK584632	
	P756	RCH soil	OK584633	
	P769	RCH soil	OK584634	
	P706	RCH soil	OK584635	
	P1274	RCH soil	OK584636	
	P1291	Control soil	OK584637	
<i>Saitozyma podzolica</i>	P740	Control soil	OK584638	
<i>Sarocladium strictum</i>	P544	Control soil	OK584639	
<i>Talaromyces kendrickii</i>	P670	Control soil	OK584640	
<i>Talaromyces proteolyticus</i>	P671	RCH soil	OK584641	
<i>Tolypocladium album</i>	P673	RCH soil	OK584642	
	P684	RCH soil	OK584643	
	P1283	Control soil	OK584644	
	P1285	Control soil	OK584645	
<i>Tolypocladium geodes</i>	P711	Control soil	OK584646	
<i>Trichoderma parapiluliferum</i>	P723	RCH soil	OK584647	OK556672
<i>Trichoderma paraviridescens</i>	P579	RCH soil	OK584648	OK556673
	P578	RCH soil	OK584649	OK556674
	P1287	Control soil	OK584650	
<i>Trichoderma polysporum</i>	P716	RCH soil	OK584651	OK556675
<i>Trichoderma viride</i>	P568	RCH soil	OK584652	OK556676
	P569	RCH soil	OK584653	OK556677
	P570	RCH soil	OK584654	
	P571	RCH soil	OK584655	
	P572	RCH soil	OK584656	
	P573	RCH soil	OK584657	
	P574	RCH soil	OK584658	
	P575	RCH soil	OK584659	
	P576	RCH soil	OK584660	
	P580	Control soil	OK584661	OK556678
	P581	RCH soil	OK584662	
	P582	RCH soil	OK584663	
	P584	RCH soil	OK584664	
<i>Trichoderma</i> sp.	P549	RCH soil	OK584665	
	P583	RCH soil	OK584666	
	P1258	Control soil	OK584667	
	P1261	RCH soil	OK584668	OK556679
<i>Umbelopsis changbaiensis</i>	P552	RCH soil	OK584669	
<i>Umbelopsis isabellina</i>	P541	RCH soil	OK584670	
<i>Umbelopsis nana</i>	P542	RCH soil	OK584671	
	P675	RCH soil	OK584672	
<i>Umbelopsis vinacea</i>	P672	RCH soil	OK584673	
	P677	RCH soil	OK584674	
	P685	RCH soil	OK584675	
	P686	RCH soil	OK584676	
	P720	RCH soil	OK584677	
	P551	RCH soil	OK584678	

Supplementary Table S2. Frequencies (%) of culturable fungi from relict charcoal hearths (RCH) soil and control soil.

Taxon	Relict charcoal hearths soils					Control soils		
	RCH1	RCH2	RCH3	RCH4	RCH5	C1	C2	C3
<i>Mucoromycota</i>								
<i>Absidia coerulea</i>						2.9	0.3	
<i>Absidia cylindrospora</i> var. <i>cylindrospora</i>				1.6				
<i>Mortierella alliacea</i>					0.5	2.6	7.5	18.3
<i>Mortierella alpina</i>				1.6	1.1			
<i>Mortierella macrocystis</i>	3.7	1.1	10.6	14.6	11.4	0.7	6.3	8.3
<i>Mortierella parvispora</i>						1.8		
<i>Mortierella sossauensis</i>	2.4	1.7	6.5	0.8	4.3	17.6	2.6	4.0
<i>Mortierellaceae</i> sp.				2.4		0.7		
<i>Mortierellales</i> sp.				0.8		0.4		
<i>Mucor hiemalis</i> f. <i>silvaticus</i>		0.6					0.3	1.7
<i>Mucor moelleri</i>						0.4		
<i>Mucoromycetes</i>		0.6						
<i>Umbelopsis isabellina</i>		11.3					0.6	0.3
<i>Umbelopsis nana</i>		0.6		1.6		1.5	5.5	5.0
<i>Umbelopsis changbaiensis</i>								0.3
<i>Umbelopsis vinacea</i>				20.3		0.4		
<i>Ascomycota</i>								
<i>Ascocoryne</i> sp.		0.6						
<i>Aspergillus inflatus</i>	1.2		1.6	4.1	10.8			
<i>Cladosporium</i> sp.					0.5			
<i>Dermateaceae</i> sp.				0.8				
<i>Geomyces auratus</i>			0.8		1.6			
<i>Helotiales</i> sp. 1			0.8	0.8				
<i>Helotiales</i> sp. 2	0.6							
<i>Herpotrichiellaceae</i> sp.					0.5			
<i>Humicolopsis cephalosporioides</i>	1.2	1.1	0.8			0.7	0.3	
<i>Hyaloscypha</i> sp.					0.5			
<i>Hyaloscyphaceae</i> sp.				0.8				
<i>Infundichalara</i> sp. 1	0.6	4.0		0.8	0.5			
<i>Infundichalara</i> sp. 2		0.6		0.8				
<i>Infundichalara</i> sp. 3					1.1			
<i>Leptobacillum</i> sp.					1.6			
<i>Metapochonia bulbilosa</i>		1.1			0.5			
<i>Microsphaeropsis olivacea</i>		0.6						
<i>Oidiodendron flavum</i>				3.3				
<i>Oidiodendron maius</i>					0.5			
<i>Oidiodendron pilicola</i>	0.6							
<i>Oidiodendron rhodogenum</i>			1.6					
<i>Oidiodendron</i> sp. 1		1.1	0.8	0.8				
<i>Oidiodendron</i> sp. 2		1.1	16.3					
<i>Oidiodendron</i> sp. 3	1.2		0.8	2.4				
<i>Oidiodendron</i> sp. 4			0.8					
<i>Oidiodendron</i> sp. 5	1.2	1.1	1.6	3.3				
<i>Oidiodendron</i> sp. 6	3.0	4.0		21.6		2.6		
<i>Oidiodendron</i> sp. 7		0.6	0.8	0.8				
<i>Oidiodendron</i> sp. 8			2.4	2.4				
<i>Penicillium adametzii</i>			3.3			11.8	16.1	1.7
<i>Penicillium albidum</i>					3.2			
<i>Penicillium cosmopolitanum</i>		0.6			3.8	0.4		
<i>Penicillium fuscum</i>		0.6						
<i>Penicillium janczewskii</i>	57.3	22.6	17.9	13.0	33.5	26.1	23.1	28.7
<i>Penicillium lividum</i>								0.3
<i>Penicillium melinii</i>		0.6			0.5		1.4	0.7
<i>Penicillium montanense</i>	0.6	1.7	8.9		1.6		0.3	5.0
<i>Penicillium subspinulosum</i>	4.3	10.2	3.3		2.7	4.0	9.2	1.3
<i>Penicillium thomii</i>		1.1						
<i>Penicillium</i> sp. sect. <i>Thysanophora</i>		1.1						
<i>Penicillium</i> sp. 1						0.4		
<i>Penicillium</i> sp. 2		10.2		0.8	4.3			
<i>Penicillium</i> sp. 3							5.5	
<i>Phialocephala</i> cf. <i>fortinii</i>		0.6	0.8					
<i>Pleuroascaceae</i> sp.			0.8					
<i>Pochonia cordycepsociata</i>				0.8				

<i>Pseudogymnoascus pannorum</i> var. <i>asperulatus</i>					0.8		0.3	
<i>Pseudogymnoascus</i> sp.					0.8			
<i>Saccharomycetes</i>		1.1						
<i>Sagenomella griseoviridis</i>	2.4	0.6	1.6		1.1		0.3	
<i>Sagenomella verticillata</i>	3.7	4.0	4.9	3.3				
<i>Sarocladium strictum</i>	0.6							
<i>Talaromyces kendrickii</i>								0.3
<i>Talaromyces proteolyticus</i>						0.4		
<i>Tolypocladium album</i>	1.2	4.5	2.4	0.8	8.1	8.5	11.0	11.0
<i>Tolypocladium geodes</i>	2.4				0.5			1.7
<i>Trichoderma parapiluliferum</i>					0.5			
<i>Trichoderma paraviridescens</i>		5.1						1.3
<i>Trichoderma polysporum</i>							0.3	
<i>Trichoderma viride</i>*	11.6	4.0	6.5	11.4	5.4	14.7	5.2	6.3
<i>Trichoderma</i> sp.				1.6		0.4	4.0	3.7
Basidiomycota								
<i>Oberwinklerozyma</i> sp.						1.1		
<i>Saitozyma podzolica</i>			3.3		0.5			
Number of CFU	164	177	123	123	185	272	347	300
Number of taxa	19	33	25	30	27	22	20	19

Species detected also in NGS analysis are marked in bold type, the combined number of reads in all samples subjected to NGS analysis is given in brackets.

* OTU identified as *Trichoderma* sp.

Supplementary Table S3. Frequencies (%) of culturable fungal genera from relict charcoal hearths (RCH) soil and control soil *

Genus	Relict charcoal hearths soil					Control soil		
	RCH1	RCH2	RCH3	RCH4	RCH5	C1	C2	C3
<i>Absidia</i>				1,6		2,9	0,3	
<i>Aspergillus</i>	1,2		1,6	4,1	10,8			
<i>Geomyces</i>			0,8		1,6			
<i>Humicolopsis</i>	1,2	1,1	0,8			0,7	0,3	
<i>Infundichalara</i>	0,6	4,5		1,6	1,6			
<i>Leptobacillium</i>					1,6			
<i>Metapochonia</i>		1,1			0,5			
<i>Mortierella</i>	6,1	2,8	17,1	17,1	17,3	22,8	16,4	30,7
<i>Mucor</i>		0,6				0,4	0,3	1,7
<i>Oberwinklerozyma</i>						1,1		
<i>Oidiodendron</i>	6,1	7,9	25,2	14,6	0,5	2,6		
<i>Penicillium</i>	62,2	48,6	33,3	13,8	48,1	42,6	55,6	37,7
<i>Pseudogymnoascus</i>				1,6			0,3	
<i>Sagenomella</i>	6,1	4,5	6,5	3,3	1,1		0,3	
<i>Saitozyma</i>			3,3		0,5			
<i>Tolypocladium</i>	3,7	4,5	2,4	0,8	8,6	8,5	11,0	12,7
<i>Trichoderma</i>	11,6	9,0	6,5	13,0	5,9	15,1	9,5	11,3
<i>Umbelopsis</i>		11,9		22,0		1,8	6,1	5,7

* genera that occurred only as a single CFU were omitted