

Table S1. GenBank accession numbers of *Mucor* and *Backusella* strains in this study.

Species	Strains	GenBank accession numbers		
		ITS	LSU	<i>RPB1</i>
<i>M. abundans</i>	CBS 521.66	JN206110	JN206457	NA
<i>M. abundans</i>	CBS 388.35*	JN206111	NG_063979	MT500100
<i>M. albicolonina</i>	CNUFC CY2027*	PP844894	PP851426	NA
<i>M. albicolonina</i>	CNUFC CY2028	PP844895	PP851427	NA
<i>M. albicolonina</i>	CNUFC CY2311	PP844896	PP851428	NA
<i>M. aligarensis</i>	CBS 993.70*	NR_103634	NG_057920	MT500089
<i>M. atramentarius</i>	XY07583	OL620123	NA	NA
<i>M. aseptatophorus</i>	MFLU 21–0040*	MZ433252	MZ433249	NA
<i>M. atramentarius</i>	CBS 202.28*	JN205994	JN206418	MF495236
<i>M. atramentarius</i>	XY06751	OL620124	NA	NA
<i>M. bacilliformis</i>	CBS 251.53*	JN206083	JN206451	MT500067
<i>M. bacilliformis</i>	CBS 573.70	JN206084	JN206452	NA
<i>M. breviphorus</i>	CGMCC 3.16135*	OL678183	NA	NA
<i>M. cheongyangensis</i>	CNUFC ICL1 *	MN592639	MN592643	NA
<i>M. cheongyangensis</i>	CNUFC ICL2	MN592640	MN592644	NA
<i>M. chuxiongensis</i>	NYNU 174111*	NR_185548	NG_228784	NA
<i>M. cryophilus</i>	CNUFC CHS1*	PP844923	PP852708	PP886119
<i>M. donglingensis</i>	CGMCC 3.16139*	OL678190	NA	NA
<i>M. donglingensis</i>	XY08501	OL678191	NA	NA
<i>M. durus</i>	CBS 156.51*	JN206112	JN206456	MT500101
<i>M. endophyticus</i>	CBS 385.95*	JN206159	JN206448	MT500068
<i>M. flavus</i>	CBS 230.35	JN206061	JN206464	MT500088
<i>M. flavus</i>	CBS 234.35*	JN206051	JN206468	MT500091
<i>M. flavus</i>	CBS 126.70	JN206049	JN206469	MT500092
<i>M. fusiformisporus</i>	CGMCC 3.16141*	OL678194	NA	NA
<i>M. fusiformisporus</i>	XY08153	OL678195	NA	NA
<i>M. fusiformisporus</i>	XY08154	OL678196	NA	NA
<i>M. fusiformisporus</i>	XY08117	OL678197	NA	NA
<i>M. gigasporus</i>	CBS 566.91*	JN206247	JN206494	NA
<i>M. gigasporus</i>	CBS 383.95	JN206246	NA	NA
<i>M. glutinatus</i>	CNUFC CY2012*	PP844899	PP852710	PP886121
<i>M. glutinatus</i>	CNUFC CY2016	PP844900	PP852711	PP886122
<i>M. guilliermondii</i>	CBS 174.27*	JN206082	JN206475	MT5000.64
<i>M. globosporus</i>	CGMCC 3.28970*	PV819211	PV833754	PX048331
<i>M. globosporus</i>	XG09770-10-2	PV819212	PV833755	PX048332
<i>M. hemisphaericum</i>	CGMCC 3.16143*	OL678200	NA	NA
<i>M. heterogamus</i>	CBS 405.58*	JN206167	JN206487	NA
<i>M. heterogamus</i>	CBS 338.74	JN206169	JN206488	NA
<i>M. hiemalis</i>	CBS 201.65*	JN206125	HM849683	MT500073
<i>M. homothallicus</i>	CGMCC 3.16144*	OL678201	NA	NA

<i>M. homothallicus</i>	XY06967	OL678202	NA	NA
<i>M. irregularis</i>	CBS 700.71*	JN206154	JN206450	MT500065
<i>M. irregularis</i>	CBS 103.93	JN206150	HM849684	NA
<i>M. multimorphus</i>	CGMCC 3.28968*	PV819207	PV833750	PV889321
<i>M. multimorphus</i>	XG00398-8-2	PV819208	PV833751	PV889322
<i>M. japonicus</i>	CBS 154.69	JN206158	JN206446	MT500071
<i>M. lobatus</i>	CGMCC 3.16146*	OL678204	NA	NA
<i>M. lobatus</i>	XY07029	OL678205	NA	NA
<i>M. luteus</i>	CBS 243.35*	NR_120224	HM849685	JX976289
<i>M. merdicola</i>	URM 7222*	KT960374	KT960372	MT500070
<i>M. minutus</i>	CBS 586.67	JN206048	JN206463	MT500085
<i>M. moelleri</i>	CBS 444.65	JN206114	HM849682	MT500098
<i>M. moniliformis</i>	CGMCC 3.16147*	OL678206	NA	NA
<i>M. moniliformis</i>	XY07458	OL678207	NA	NA
<i>M. mucedo</i>	CBS 836.73	JN206092	NA	NA
<i>M. mucedo</i>	CBS 640.67*	JN206085	HM849687	MT500079
<i>M. nidicola</i>	XY08161	OL620143	NA	NA
<i>M. orantomantidis</i>	CNUFC-MID1-1*	MH594737	MH591457	NA
<i>M. orantomantidis</i>	CNUFC-MID1-2	MH594738	MH591458	NA
<i>M. orientalis</i>	CGMCC 3.16148*	OL678208	NA	NA
<i>M. paraorantomantidis</i>	CNUFC CY205*	PP844901	PP851431	PP893224
<i>M. paraorantomantidis</i>	CNUFC CY206	PP844902	PP851432	PP893225
<i>M. piriformis</i>	CBS 169.25*	JN206028	HM849681	MT500077
<i>M. piriformis</i>	CBS 527.68	JN206034	JN206476	NA
<i>M. plasmaticus</i>	CBS 275.49	JN206078	JN206483	MT500084
<i>M. plasmaticus</i>	CBS 402.73	JN206081	NA	NA
<i>M. polymorphus</i>	CGMCC 3.28969*	PV819209	PV833752	PV948857
<i>M. polymorphus</i>	XG09597-11-2	PV819210	PV833753	PV948858
<i>M. robustus</i>	CGMCC 3.16151*	OL678212	NA	NA
<i>M. robustus</i>	XY08976	OL678213	NA	NA
<i>M. robustus</i>	XY09024	OL678214	NA	NA
<i>M. rongii</i>	CICC 41725*	MK903014	MK903013	MT815281
<i>M. saturninus</i>	CBS 974.68*	JN206072	JN206458	MT500086
<i>M. saturninus</i>	CNUFC IO1	PP843591	PP851433	PP886123
<i>M. silvaticus</i>	CBS 249.35	JN206122	JN206455	NA
<i>M. silvaticus</i>	CBS 412.71*	JN206124	NA	MT500066
<i>M. sino-saturninus</i>	CGMCC 3.16152*	OL678215	NA	NA
<i>M. sp.</i>	CBS 334.71	JN206248	JN206518	MT500056
<i>M. strictus</i>	CBS 100.66	JN206035	JN206477	NA
<i>M. xizangensis</i>	CGMCC 3.28971*	PV819213	PV833756	PV973985
<i>M. xizangensis</i>	XG10424-13-2	PV819214	PV833757	PV973986
<i>M. zonatus</i>	CBS 148.69*	JN206104	JN206454	MT500105
<i>B. lamprospora</i>	CBS 118.08*	JN206268	JN206531	OP832467

Notes: New species discovered herein are shown in bold. The asterisk "*" indicates the ex-type or ex-holotype strains. The "NA" stands for "not available".