

Supplementary Table S1.

Details of sequences used in phylogenetic analysis.

Taxon	Collection/ isolate/ voucher/ strain	GenBank accession number	
		ITS	LSU
<i>Pluteus chandrasrikuliae</i>	BKF10214 ^T	MN492649	OM250115
<i>Pluteus chandrasrikuliae</i>	NW1565	OM257409	OM250229
<i>Pluteus aurantiorugosus</i>	AJ219	HM562041	—
<i>Pluteus podospileus</i>	TNSF12398	HM562122	—
<i>Pluteus podospileus</i>	AJ782	KM983687	—
<i>Pluteus inconspiuus</i>	PDD 72485 ^T	MN738614	—
<i>Pluteus podospilloides</i>	LE 313230 ^T	MT611236	—
<i>Pluteus necopinatus</i>	FK1701	KM983693	—
<i>Pluteus brunneocrinitus</i>	MC4535	KM983692	—
<i>Pluteus crinitus</i>	FK2064 ^T	KM983691	—
<i>Pluteus seticeps</i>	SF23	HM562191	—
<i>Pluteus seticeps</i>	Shaffer798	HM562199	—
<i>Pluteus pygmaeus</i>	LE 313236 ^T	MT611235	—
<i>Pluteus flavidus</i>	LE 313526 ^T	MT611242	—
<i>Pluteus flavidus</i>	LE 313527	MT611243	—
<i>Pluteus diptychocystis</i>	NMJ184	KM983674	—
<i>Pluteus hirtellus</i>	SFSU:DED 8259 ^T	MG968804	—
<i>Pluteus albotomentosus</i>	LE 289394	KM658284	—
<i>Pluteus tomentosulus</i>	MO93719	KM983672	—
<i>Pluteus tomentosulus</i>	MO163564	KM983673	—
<i>Pluteus squamulososulcatus</i>	LE 313237 ^T	MT611234	—
<i>Pluteus ephebeus</i>	10151	JF908621	—
<i>Pluteus ephebeus</i>	9823	JF908620	—
<i>Pluteus halonatus</i>	FK2084	KM983680	—
<i>Pluteus halonatus</i>	NK17	KM983679	—
<i>Pluteus castaneorugosus</i>	LE 313071 ^T	MT611237	—
<i>Pluteus stenotrichus</i>	AJ352	JN603201	—
<i>Pluteus paucicystidiatus</i>	SP394383	HM562173	—
<i>Pluteus romellii</i>	LE 303660	KX216326	—
<i>Pluteus romellii</i>	AJ232	HM562062	HM562238
<i>Pluteus brunneosquamulosus</i>	K12794	JN603204	—
<i>Pluteus eliae</i>	FLAS-F-61639	MH212018	—
<i>Pluteus eliae</i>	Isaacs2460	HM562076	—
<i>Pluteus atypicus</i>	LE 313057 ^T	MT611239	—
<i>Pluteus extremiorientalis</i>	LE 262872 ^T	KM658280	—
<i>Pluteus extremiorientalis</i>	LE 303463	KM658282	—
<i>Pluteus fluminensis</i>	SP393711	FJ816664	FJ816650
<i>Pluteus beniensis</i>	RSPF 0299	JQ065029	—
<i>Pluteus jamaicensis</i>	SP393706	FJ816657	—
<i>Pluteus sapiicola</i>	SP394382	HM562148	—

<i>Pluteus rimosoaffinis</i>	SP416740	KM983706	–
<i>Pluteus floccipes</i>	X113	LN794642	–
<i>Pluteus cinereofuscus</i>	AJ324	HM562124	–
<i>Pluteus podospileus</i>	KA12-1285	KR673523	–
<i>Pluteus ludwigii</i>	MCVE30136 ^T	MK834525	MK834527
<i>Pluteus multiformis</i>	AC4249	HM562201	–
<i>Pluteus keselakii</i>	PAM99052202	MN250224	–
<i>Pluteus keselakii</i>	X126 ^T	MN250223	–
<i>Pluteus hispidilacteus</i>	PDD 108758	MN738667	MN738602
<i>Pluteus liliputianus</i>	LE 312868	MK982288	MK982304
<i>Pluteus varius</i>	LE 313238 ^T	MT611231	–
<i>Pluteus varius</i>	LE 313528	MT611232	–
<i>Pluteus exiguus</i>	LE 226543	FJ774083	–
<i>Pluteus exiguus</i>	LE 253673	MK982301	–
<i>Pluteus hispidulopsis</i>	NMJ179	KM983684	–
<i>Pluteus bizioi</i>	MCVE:29363 ^T	MG946813	–
<i>Pluteus bizioi</i>	MCVE:29417	MG947206	–
<i>Pluteus karstedtia</i>	FK637	KM983683	–
<i>Pluteus karstedtia</i>	FK1700 ^T	KM983682	–
<i>Pluteus spurius</i>	LE 312866 ^T	MK982290	MK982303
<i>Pluteus phlebophorus</i>	LE 312918	KX216338	–
<i>Pluteus phlebophorus</i>	AJ228	HM562138	–
<i>Pluteus pallidus</i>	Smith62487 ^T	HM562193	–
<i>Pluteus brunneovelutinus</i>	LE 313240 ^T	MT611233	–
<i>Pluteus diettrichii</i>	GM2581	KM983714	–
<i>Pluteus diettrichii</i>	JLS1624	HM562143	–
<i>Pluteus fenzlii</i>	TNSF12376	HM562091	–
<i>Pluteus mammillatus</i>	EIU ASM 7916	NR119874	–
<i>Pluteus mammillatus</i>	Minnis309202	HM562086	–
<i>Pluteus poliocnemis</i>	GM2190	KM983715	–
<i>Pluteus griseodiscus</i>	GDGM42280 ^T	KR350490	–
<i>Pluteus losulus</i>	SFSU:DED 8313 ^T	MG968803	–

Superscript T in the collection/ isolate/ voucher/ strain column indicates a type species.

Details of *Pluteus* sect. *Hispidoderma* sequences used for phylogenetic analysis.

Taxon	Collection/ isolate/ voucher/ strain	GenBank accession number	
		ITS	LSU
<i>Pluteus saisamorniae</i>	BKF10213 ^T	MN492646	OM250111
<i>Pluteus saisamorniae</i>	NW1567	OM257410	OM250370
<i>Pluteus semibulbisus</i>	OKA-TR06	MK123344	–
<i>Pluteus semibulbisus</i>	LE 312914	KX216353	–
<i>Pluteus semibulbisus</i>	A5058211	KR022020	–
<i>Pluteus minor</i>	JAC14348	MN738650	–
<i>Pluteus minor</i>	JAC14793	MN738660	–
<i>Pluteus longistriatus</i>	KA17-0331	MN294886	–
<i>Pluteus plautus</i>	UBCF23774	KC581304	–
<i>Pluteus plautus</i>	UBC F23908	KJ146724	–
<i>Pluteus diana</i>	PR 629413 ^T	MH656433	–
<i>Pluteus diana</i>	LE 312950	MH656430	–
<i>Pluteus decoloratus</i>	PDD 110522	MN738677	MN738609
<i>Pluteus decoloratus</i>	JAC14640	MN738654	–
<i>Pluteus punctatus</i>	PRM 682743 ^T	MH656438	–
<i>Pluteus punctatus</i>	JHC04 298	MH656480	–
<i>Pluteus granulatus</i>	OKA-349	MG544916	–
<i>Pluteus granulatus</i>	AJ203	HM562048	HM562226
<i>Pluteus granulatus</i>	LE 212990	FJ774086	–
<i>Pluteus pulcherrimus</i>	MCVE30061 ^T	MK446327	–
<i>Pluteus heteromarginatus</i>	AJ172	HM562058	HM562249
<i>Pluteus pantherinus</i>	TNSF12882	HM562089	–
<i>Pluteus pantherinus</i>	ASIS25041	KF692077	–
<i>Pluteus granularis</i>	SF20	HM562189	–
<i>Pluteus umbrosoides</i>	LE 312735 ^T	KX216321	–
<i>Pluteus umbrosus</i>	SAT-16-238-13	MW597168	–
<i>Pluteus umbrosus</i>	LE 312840	KX216345	–
<i>Pluteus velutinus</i>	LE 289495	KX216341	–
<i>Pluteus velutinus</i>	TNSF12372	HM562127	–
<i>Pluteus velutinus</i>	K12851	JN603205	–
<i>Pluteus readiarum</i>	PDD 103772	MN738644	MN738592
<i>Pluteus readiarum</i>	JAC11228	MN738638	–
<i>Pluteus pallidosquamulosus</i>	LE 313056 ^T	MT611240	–
<i>Pluteus fibrillosus</i>	FK1903	KR022018	–
<i>Pluteus chrysaegis</i>	FLAS-F-60411	MF153092	–
<i>Pluteus chrysaegis</i>	K13587	JN603206	–
<i>Pluteus conizatus</i>	Thoen 5250	HM562142	–
<i>Pluteus variabilicolor</i>	OKA-106	MG544909	–
<i>Pluteus variabilicolor</i>	OKA-116	MG544908	–
<i>Pluteus castroae</i>	TNSF17602 ^T	HM562092	–

<i>Pluteus roseipes</i>	UC1998535	KF306003	–
<i>Pluteus roseipes</i>	OKA-440	MG544912	–
<i>Pluteus leoninus</i>	FG25092016021	MK446319	–
<i>Pluteus leoninus</i>	AJ212	HM562045	–
<i>Pluteus griseodiscus</i>	GDGM42280 ^T	KR350490	–
<i>Pluteus losulus</i>	SFSU:DED 8313 ^T	MG968803	–

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Details of *Pluteus* sect. *Pluteus* sequences used for phylogenetic analysis.

Taxon	Collection/ isolate/ voucher/ strain	GenBank accession number	
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<i>Pluteus hibbettii</i>	AJ794 ^T	KJ009685	–
<i>Pluteus eos</i>	AJ589 ^T	KJ009683	–
<i>Pluteus eos</i>	LE289379	KJ009675	–
<i>Pluteus cervinus</i>	REG 13641 ^T	HM562152	–
<i>Pluteus cervinus</i>	AJ590	KJ009628	–
<i>Pluteus exilis</i>	N5105 ^T	KJ009778	–
<i>Pluteus exilis</i>	MSSF87	KF306020	–
<i>Pluteus rangifer</i>	LE203210 ^T	KJ009650	–
<i>Pluteus hongoi</i>	Singer A4070 ^T	KJ009564	–
<i>Pluteus hongoi</i>	Tenn48297	KJ009613	–
<i>Pluteus concentricus</i>	PDD 72493	MN738615	MN738589
<i>Pluteus concentricus</i>	PDD 72484	MN738613	MN738588
<i>Pluteus elaphinus</i>	AJ783 ^T	KJ009663	–
<i>Pluteus elaphinus</i>	MSP 018	KJ009782	–
<i>Pluteus olivaceofibrillosus</i>	LE313059	MT611230	–
<i>Pluteus leucoborealis</i>	LE289421 ^T	KJ009746	–
<i>Pluteus leucoborealis</i>	LE289424	KJ009743	–
<i>Pluteus xylophilus</i>	SP393707	HM562163	–
<i>Pluteus xylophilus</i>	NMJ147	FJ816660	FJ816646
<i>Pluteus petasatus</i>	LE289372 ^T	KJ009705	–
<i>Pluteus petasatus</i>	LOU:7570	KJ009701	–
<i>Pluteus pellitus</i>	AJ72	HM562036	HM562222
<i>Pluteus pellitus</i>	LE289374	KJ009698	–
<i>Pluteus brunneidiscus</i>	LE289397	KJ009693	–
<i>Pluteus brunneidiscus</i>	AJ586	KJ009694	–
<i>Pluteus shikae</i>	TNSF12349 ^T	HM562093	–
<i>Pluteus shikae</i>	LE289383	KJ009696	–
<i>Pluteus microspermus</i>	JAC15434	MN738680	–
<i>Pluteus microspermus</i>	PDD 108760	MN738669	MN738604
<i>Pluteus septocystidiatus</i>	S.D. Russell MycoMap # 7201	MN906259	–
<i>Pluteus septocystidiatus</i>	AJ154	HM562057	–
<i>Pluteus septocystidiatus</i>	BKF10212	MN483327	OM250115
<i>Pluteus septocystidiatus</i>	BRNM761662 ^T	HG964401	–
<i>Pluteus subcervinus</i>	LE 313525	MT611238	–
<i>Pluteus subcervinus</i>	K90736	KJ009752	–
<i>Pluteus purpureofuscus</i>	HKAS48956	KR350489	–
<i>Pluteus allostipitatus</i>	SFSU:DED 8250	MG968801	–
<i>Pluteus allostipitatus</i>	GF 5374	HM562130	–
<i>Pluteus densifibrillosus</i>	SP393696 ^T	HM562159	–
<i>Pluteus salicinus</i>	LE 215427	FJ774087	–

<i>Pluteus americanus</i>	AHS57842 ^T	KJ009762	—
<i>Pluteus sepiicolor</i>	LE289365 ^T	NR153242	—
<i>Pluteus oreibatus</i>	ECV.4183 ^T	NR153241	—
<i>Pluteus harrisii</i>	SP393709	FJ816666	FJ816652
<i>Pluteus harrisii</i>	SP393708	FJ816654	FJ816644
<i>Pluteus glaucotinctus</i>	GF 5274	HM562131	—
<i>Pluteus glaucotinctus</i>	FLAS-F-61484	MH211921	—
<i>Pluteus atrofibrillosus</i>	ECV4153a ^T	KJ009774	—
<i>Pluteus atrofibrillosus</i>	ECV4207	KJ009773	—
<i>Pluteus atromarginatus</i>	LE 246081	FJ774075	—
<i>Pluteus atromarginatus</i>	AJ76	HM562040	—
<i>Pluteus losulus</i>	SFSU:DED 8313	MG968803	—
<i>Pluteus losulus</i>	SDBR-CMUNK0842	OM250105	OM250110
<i>Pluteus losulus</i>	GDGM47122	MH231231	—
<i>Pluteus losulus</i>	GF 5273	HM562129	HM562250
<i>Pluteus griseodiscus</i>	GDGM42280 ^T	KR350490	—
<i>Pluteus griseodiscus</i>	GDGM42373	KR350492	—
<i>Pluteus aurantiorugosus</i>	AJ219	HM562041	—
<i>Pluteus romellii</i>	Shaffer3715	HM562078	—

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