

ONLINE RESOURCE 1

Supplementary Material

Kombucha Microbiome as a Potential Plant Architecture-Supporting Biostimulant: Metabarcoding Characterization of Its Bacterial and Fungal Community Structure

Plant Growth Regulation

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This supplementary file is provided as Online Resource 1 and contains the complete supplementary tables and figures cited in the manuscript.

SUPPLEMENTARY TABLES

Supplementary Table S1. Complete 16S OTU abundance and taxonomy table

OTU	KP reads	KS reads	Domain	Phylum	Class	Order	Family	Genus	Species	KP (%)	KS (%)	QC flagged
OTU1	20,866	222,377	Bacteria	Proteobacteria	Alphaproteobacteria	Acetobacterales	Acetobacteraceae	<i>Komagataeibacter</i>	?	6.51	42.18	No
OTU2	541	50,987	Bacteria	Proteobacteria	Alphaproteobacteria	Acetobacterales	Acetobacteraceae	<i>Komagataeibacter</i>	<i>Komagataeibacter saccharivorans</i>	0.17	9.67	No
OTU3	1,245	38,603	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Neisseriaceae	<i>Neisseria</i>	?	0.39	7.32	No
OTU4	23,804	11,238	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Burkholderiaceae	<i>Burkholderia-Caballeronia-Paraburkholderia</i>	?	7.43	2.13	No
OTU5	1,027	26,170	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Neisseriaceae	<i>Neisseria</i>	?	0.32	4.96	No
OTU6	16,012	5,485	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Burkholderiaceae	<i>Burkholderia-Caballeronia-Paraburkholderia</i>	uncultured beta proteobacterium	5.00	1.04	No
OTU7	15,977	3,496	Bacteria	Proteobacteria	Gammaproteobacteria	Enterobacteriales	Enterobacteriaceae	<i>Escherichia-Shigella</i>	<i>Escherichia coli</i>	4.99	0.66	No
OTU8	2,588	16,623	Bacteria	Proteobacteria	Gammaproteobacteria	Enterobacteriales	Pasteurellaceae	<i>Haemophilus</i>	uncultured organism	0.81	3.15	No
OTU9	536	14,995	Bacteria	Firmicutes	Bacilli	Staphylococcales	Gemellaceae	<i>Gemella</i>	?	0.17	2.84	No
OTU10	0	11,470	Bacteria	Proteobacteria	Alphaproteobacteria	Acetobacterales	Acetobacteraceae	?	?	0	2.18	No
OTU11	0	11,073	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	2.10	No
OTU12	9,232	1,220	Bacteria	Proteobacteria	Alphaproteobacteria	Acetobacterales	Acetobacteraceae	<i>Asaia</i>	?	2.88	0.23	No
OTU13	1	10,157	Bacteria	Proteobacteria	Alphaproteobacteria	Acetobacterales	Acetobacteraceae	<i>Komagataeibacter</i>	<i>Komagataeibacter saccharivorans</i>	0.00	1.93	No
OTU14	4,533	5,045	Bacteria	Proteobacteria	Alphaproteobacteria	Acetobacterales	Acetobacteraceae	<i>Acetobacter</i>	?	1.41	0.96	No
OTU15	0	9,304	Bacteria	Proteobacteria	Alphaproteobacteria	Acetobacterales	Acetobacteraceae	<i>Komagataeibacter</i>	?	0	1.76	No
OTU16	436	8,453	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Neisseriaceae	<i>Neisseria</i>	<i>Neisseria meningitidis</i>	0.14	1.60	No
OTU17	6,921	1,873	Bacteria	Proteobacteria	Gammaproteobacteria	Enterobacteriales	?	?	?	2.16	0.36	No
OTU18	8,346	325	Bacteria	Proteobacteria	Alphaproteobacteria	Acetobacterales	Acetobacteraceae	<i>Asaia</i>	?	2.60	0.06	No
OTU19	5,879	2,398	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Comamonadaceae	<i>Delftia</i>	?	1.83	0.45	Yes
OTU20	0	7,766	Bacteria	Proteobacteria	Alphaproteobacteria	Acetobacterales	Acetobacteraceae	<i>Komagataeibacter</i>	<i>Komagataeibacter saccharivorans</i>	0	1.47	No
OTU21	7,438	125	Bacteria	Firmicutes	Bacilli	Staphylococcales	Staphylococcaceae	<i>Staphylococcus</i>	<i>Staphylococcus aureus</i>	2.32	0.02	No
OTU22	6,678	97	Bacteria	Firmicutes	Bacilli	Staphylococcales	Staphylococcaceae	<i>Staphylococcus</i>	<i>Staphylococcus aureus</i>	2.08	0.02	No
OTU23	6,336	309	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Comamonadaceae	<i>Delftia</i>	?	1.98	0.06	Yes
OTU24	4,943	1,251	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Burkholderiaceae	<i>Burkholderia-Caballeronia-Paraburkholderia</i>	?	1.54	0.24	No
OTU25	4,256	1,511	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Burkholderiaceae	<i>Burkholderia-Caballeronia-Paraburkholderia</i>	?	1.33	0.29	No

OTU	KP reads	KS reads	Domain	Phylum	Class	Order	Family	Genus	Species	KP (%)	KS (%)	QC flagged
OTU26	156	5,286	Bacteria	Proteobacteria	Gammaproteobact eria	Burkholderiales	Neisseriaceae	<i>Neisseria</i>	?	0.05	1.00	No
OTU27	4,119	969	Bacteria	Proteobacteria	Alphaproteobacteri a	Rhizobiales	Beijerinckiaceae	<i>Methylobacterium- Methyloburbrum</i>	?	1.29	0.18	No
OTU28	619	4,105	Bacteria	Proteobacteria	Alphaproteobacteri a	Acetobacterales	Acetobacteraceae	?	?	0.19	0.78	No
OTU29	3,419	927	Bacteria	Proteobacteria	Alphaproteobacteri a	Acetobacterales	Acetobacteraceae	<i>Komagataeibacter</i>	?	1.07	0.18	No
OTU30	4,240	65	Bacteria	Firmicutes	Bacilli	Bacillales	Planococcaceae	?	?	1.32	0.01	No
OTU31	775	3,141	Bacteria	Proteobacteria	Alphaproteobacteri a	Acetobacterales	Acetobacteraceae	<i>Acetobacter</i>	?	0.24	0.60	No
OTU32	3,722	181	Bacteria	Actinobacteriota	Actinobacteria	Corynebacteriales	Corynebacteriaceae	<i>Lawsonella</i>	?	1.16	0.03	No
OTU33	2,923	863	Bacteria	Proteobacteria	Gammaproteobact eria	Burkholderiales	Burkholderiaceae	?	?	0.91	0.16	No
OTU34	3,639	75	Bacteria	Firmicutes	Bacilli	Staphylococcales	Staphylococcaceae	<i>Staphylococcus</i>	?	1.14	0.01	No
OTU35	1	3,686	Bacteria	Proteobacteria	Alphaproteobacteri a	Acetobacterales	Acetobacteraceae	?	?	0.00	0.70	No
OTU36	1,305	2,154	Bacteria	Proteobacteria	Alphaproteobacteri a	Acetobacterales	Acetobacteraceae	?	?	0.41	0.41	No
OTU37	974	2,388	Bacteria	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	<i>Streptococcus</i>	<i>Streptococcus sanguinis</i>	0.30	0.45	Yes
OTU38	3,237	10	Bacteria	Firmicutes	Bacilli	Bacillales	Planococcaceae	<i>Planomicrobium</i>	<i>Planomicrobium glaciei</i>	1.01	0.00	No
OTU39	2,894	237	Bacteria	Proteobacteria	Gammaproteobact eria	Enterobacterales	Enterobacteriaceae	<i>Salmonella</i>	<i>Salmonella enterica</i>	0.90	0.04	No
OTU40	2,978	137	Bacteria	Firmicutes	Bacilli	Bacillales	Planococcaceae	?	?	0.93	0.03	No
OTU41	2,609	395	Bacteria	Proteobacteria	Alphaproteobacteri a	Rhizobiales	Beijerinckiaceae	<i>Methylobacterium- Methyloburbrum</i>	?	0.81	0.07	No
OTU42	1,354	1,444	Bacteria	Proteobacteria	?	?	?	?	?	0.42	0.27	No
OTU43	1,684	984	Bacteria	?	?	?	?	?	?	0.53	0.19	No
OTU44	118	2,305	Bacteria	Proteobacteria	Alphaproteobacteri a	Acetobacterales	Acetobacteraceae	<i>Komagataeibacter</i>	<i>Komagataeibacter saccharivorans</i>	0.04	0.44	No
OTU45	2,365	52	Bacteria	Actinobacteriota	Actinobacteria	Micrococcales	Micrococcaceae	<i>Kocuria</i>	<i>Kocuria rhizophila</i>	0.74	0.01	Yes
OTU46	2,376	2	Bacteria	Actinobacteriota	Actinobacteria	Micrococcales	Micrococcaceae	<i>Kocuria</i>	?	0.74	0.00	Yes
OTU47	1,053	1,213	Bacteria	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	<i>Streptococcus</i>	<i>Streptococcus pneumoniae</i>	0.33	0.23	Yes
OTU48	2,243	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.70	0	No
OTU49	889	1,265	Bacteria	Firmicutes	Bacilli	Bacillales	Planococcaceae	?	?	0.28	0.24	No
OTU50	2,014	44	Bacteria	Proteobacteria	Alphaproteobacteri a	Rhizobiales	Rhizobiaceae	?	?	0.63	0.01	No
OTU51	886	1,168	Bacteria	Proteobacteria	Alphaproteobacteri a	Acetobacterales	Acetobacteraceae	<i>Acetobacter</i>	?	0.28	0.22	No
OTU52	1,769	131	Bacteria	Actinobacteriota	Actinobacteria	Micrococcales	Micrococcaceae	<i>Micrococcus</i>	?	0.55	0.02	Yes
OTU53	1,650	137	Bacteria	Firmicutes	Bacilli	Bacillales	Bacillaceae	<i>Bacillus</i>	?	0.51	0.03	No
OTU54	154	1,602	Bacteria	Proteobacteria	Alphaproteobacteri a	Acetobacterales	Acetobacteraceae	<i>Komagataeibacter</i>	?	0.05	0.30	No
OTU55	1,217	508	Bacteria	Proteobacteria	Alphaproteobacteri a	Sphingomonadales	Sphingomonadace ae	<i>Sphingomonas</i>	?	0.38	0.10	Yes
OTU56	1,657	6	Bacteria	Actinobacteriota	Actinobacteria	Micrococcales	Micrococcaceae	<i>Kocuria</i>	?	0.52	0.00	Yes
OTU57	697	949	Bacteria	Proteobacteria	Gammaproteobact eria	Burkholderiales	Burkholderiaceae	<i>Burkholderia- Caballeronia- Paraburkholderia</i>	?	0.22	0.18	No
OTU58	1,551	20	Bacteria	Actinobacteriota	Actinobacteria	Micrococcales	Micrococcaceae	<i>Kocuria</i>	?	0.48	0.00	Yes

OTU	KP reads	KS reads	Domain	Phylum	Class	Order	Family	Genus	Species	KP (%)	KS (%)	QC flagged
OTU59	1,371	154	Bacteria	Proteobacteria	Gammaproteobact eria	Pseudomonadales	Moraxellaceae	<i>Enhydrobacter</i>	?	0.43	0.03	Yes
OTU60	1,058	383	Bacteria	Proteobacteria	Alphaproteobacteri a	Acetobacterales	Acetobacteraceae	<i>Asaia</i>	?	0.33	0.07	No
OTU61	1,416	13	Bacteria	Firmicutes	Bacilli	Staphylococcales	Staphylococcaceae	<i>Staphylococcus</i>	?	0.44	0.00	No
OTU62	81	1,346	Bacteria	Proteobacteria	Alphaproteobacteri a	Acetobacterales	Acetobacteraceae	<i>Komagataeibacter</i>	?	0.03	0.26	No
OTU63	1,413	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.44	0	No
OTU64	1,389	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.43	0	No
OTU65	1,088	213	Bacteria	Proteobacteria	Gammaproteobact eria	Burkholderiales	Burkholderiaceae	<i>Burkholderia- Caballeronia- Paraburkholderia</i>	?	0.34	0.04	No
OTU66	1,265	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.39	0	No
OTU67	436	815	Bacteria	Proteobacteria	Alphaproteobacteri a	Acetobacterales	Acetobacteraceae	<i>Komagataeibacter</i>	<i>Komagataeibacter saccharivorans</i>	0.14	0.15	No
OTU68	17	1,221	Bacteria	Proteobacteria	Gammaproteobact eria	Burkholderiales	Neisseriaceae	<i>Neisseria</i>	?	0.01	0.23	No
OTU69	72	1,154	Bacteria	Proteobacteria	Alphaproteobacteri a	Acetobacterales	Acetobacteraceae	<i>Komagataeibacter</i>	<i>Komagataeibacter saccharivorans</i>	0.02	0.22	No
OTU70	1,220	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.38	0	No
OTU71	1,150	20	Bacteria	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	<i>Streptococcus</i>	<i>Streptococcus salivarius</i>	0.36	0.00	Yes
OTU72	869	297	Bacteria	?	?	?	?	?	?	0.27	0.06	No
OTU73	1,158	0	Bacteria	Actinobacteriota	Actinobacteria	Propionibacteriales	Propionibacteriace ae	<i>Cutibacterium</i>	<i>Cutibacterium acnes</i>	0.36	0	Yes
OTU74	1,147	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.36	0	No
OTU75	1,146	0	Bacteria	Proteobacteria	Alphaproteobacteri a	Sphingomonadales	Sphingomonadace ae	<i>Sphingomonas</i>	?	0.36	0	Yes
OTU76	1,125	14	Bacteria	Actinobacteriota	Actinobacteria	Corynebacteriales	Corynebacteriaceae	<i>Corynebacterium</i>	<i>Corynebacterium ureicelerivorans</i>	0.35	0.00	No
OTU77	1,138	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.36	0	No
OTU78	1,136	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.35	0	No
OTU79	996	135	Bacteria	Proteobacteria	Gammaproteobact eria	Burkholderiales	Burkholderiaceae	<i>Burkholderia- Caballeronia- Paraburkholderia</i>	?	0.31	0.03	No
OTU80	1,131	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.35	0	No
OTU81	1,117	0	Bacteria	Actinobacteriota	Actinobacteria	Micrococcales	Micrococcaceae	<i>Kocuria</i>	?	0.35	0	Yes
OTU82	977	117	Bacteria	Firmicutes	Bacilli	Bacillales	Bacillaceae	<i>Bacillus</i>	?	0.30	0.02	No
OTU83	1,073	0	Bacteria	Actinobacteriota	Actinobacteria	Micrococcales	Micrococcaceae	<i>Kocuria</i>	?	0.33	0	Yes
OTU84	1,031	0	Bacteria	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	<i>Streptococcus</i>	<i>Streptococcus salivarius</i>	0.32	0	Yes
OTU85	969	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.30	0	No
OTU86	177	765	Bacteria	?	?	?	?	?	?	0.06	0.15	No
OTU87	874	67	Bacteria	Proteobacteria	Gammaproteobact eria	Pseudomonadales	Moraxellaceae	<i>Enhydrobacter</i>	<i>Moraxella osloensis</i>	0.27	0.01	Yes
OTU88	910	19	Bacteria	Actinobacteriota	Actinobacteria	Corynebacteriales	Corynebacteriaceae	<i>Lawsonella</i>	?	0.28	0.00	No
OTU89	739	189	Bacteria	Proteobacteria	Gammaproteobact eria	Pseudomonadales	Moraxellaceae	<i>Acinetobacter</i>	<i>Acinetobacter radiorensistens</i>	0.23	0.04	Yes
OTU90	910	0	Bacteria	Actinobacteriota	Actinobacteria	Micrococcales	Micrococcaceae	?	?	0.28	0	No
OTU91	801	105	Bacteria	Proteobacteria	Gammaproteobact eria	Pseudomonadales	Moraxellaceae	<i>Acinetobacter</i>	?	0.25	0.02	Yes
OTU92	856	41	Bacteria	Actinobacteriota	Actinobacteria	Corynebacteriales	Corynebacteriaceae	<i>Lawsonella</i>	?	0.27	0.01	No
OTU93	793	91	Bacteria	Firmicutes	Bacilli	Bacillales	Bacillaceae	<i>Bacillus</i>	?	0.25	0.02	No

OTU	KP reads	KS reads	Domain	Phylum	Class	Order	Family	Genus	Species	KP (%)	KS (%)	QC flagged
OTU94	878	4	Bacteria	Proteobacteria	Gammaproteobact eria	Burkholderiales	Comamonadaceae	<i>Delftia</i>	?	0.27	0.00	Yes
OTU95	812	68	Bacteria	Proteobacteria	Alphaproteobacteri a	Rhizobiales	Xanthobacteraceae	<i>Bradyrhizobium</i>	?	0.25	0.01	Yes
OTU96	873	6	Bacteria	Proteobacteria	Alphaproteobacteri a	Rhizobiales	Rhizobiaceae	<i>Allorhizobium- Neorhizobium- Pararhizobium- Rhizobium</i>	?	0.27	0.00	No
OTU97	2	868	Bacteria	Firmicutes	Clostridia	Oscillospirales	Ruminococcaceae	?	?	0.00	0.16	No
OTU98	867	0	Bacteria	Actinobacteriota	Actinobacteria	Micrococcales	Micrococcaceae	?	?	0.27	0	No
OTU99	163	702	Bacteria	Proteobacteria	Alphaproteobacteri a	Acetobacterales	Acetobacteraceae	<i>Komagataeibacter</i>	<i>Komagataeibacter saccharivorans</i>	0.05	0.13	No
OTU100	861	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.27	0	No
OTU101	715	117	Bacteria	Proteobacteria	Gammaproteobact eria	Enterobacterales	Erwiniaceae	<i>Pantoea</i>	?	0.22	0.02	No
OTU102	0	818	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	0.16	No
OTU103	0	809	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	0.15	No
OTU104	809	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.25	0	No
OTU105	735	70	Bacteria	Proteobacteria	Gammaproteobact eria	Enterobacterales	Enterobacteriaceae	<i>Escherichia- Shigella</i>	<i>Escherichia coli</i>	0.23	0.01	No
OTU106	779	25	Bacteria	Proteobacteria	Gammaproteobact eria	Burkholderiales	Neisseriaceae	<i>Neisseria</i>	?	0.24	0.00	No
OTU107	26	777	Bacteria	Firmicutes	Bacilli	Staphylococcales	Gemellaceae	<i>Gemella</i>	<i>Gemella haemolysans</i>	0.01	0.15	No
OTU108	777	18	Bacteria	Actinobacteriota	Actinobacteria	Corynebacteriales	Corynebacteriaceae	<i>Lawsonella</i>	?	0.24	0.00	No
OTU109	607	181	Bacteria	Proteobacteria	Gammaproteobact eria	Enterobacterales	Enterobacteriaceae	<i>Escherichia- Shigella</i>	<i>Escherichia coli</i>	0.19	0.03	No
OTU110	775	0	Bacteria	Actinobacteriota	Actinobacteria	Propionibacteriales	Propionibacteriace ae	<i>Cutibacterium</i>	<i>Cutibacterium acnes</i>	0.24	0	Yes
OTU111	768	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.24	0	No
OTU112	598	168	Bacteria	Proteobacteria	Gammaproteobact eria	Pseudomonadales	Moraxellaceae	<i>Acinetobacter</i>	?	0.19	0.03	Yes
OTU113	756	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.24	0	No
OTU114	700	55	Bacteria	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	<i>Streptococcus</i>	<i>Streptococcus salivarius</i>	0.22	0.01	Yes
OTU115	455	288	Bacteria	Patescibacteria	Saccharimonadia	Saccharimonadales	Saccharimonadace ae	?	?	0.14	0.05	No
OTU116	649	77	Bacteria	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	<i>Streptococcus</i>	?	0.20	0.01	Yes
OTU117	652	74	Bacteria	Actinobacteriota	Actinobacteria	Micrococcales	Micrococcaceae	<i>Micrococcus</i>	?	0.20	0.01	Yes
OTU118	216	509	Bacteria	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	<i>Streptococcus</i>	?	0.07	0.10	Yes
OTU119	724	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.23	0	No
OTU120	718	1	Bacteria	Actinobacteriota	Actinobacteria	Micrococcales	Micrococcaceae	<i>Kocuria</i>	?	0.22	0.00	Yes
OTU121	709	2	Bacteria	Proteobacteria	Gammaproteobact eria	Burkholderiales	Comamonadaceae	<i>Diaphorobacter</i>	?	0.22	0.00	No
OTU122	709	0	Bacteria	Deinococcota	Deinococci	Deinococcales	Deinococcaceae	?	?	0.22	0	No
OTU123	695	12	Bacteria	Actinobacteriota	Actinobacteria	Corynebacteriales	Corynebacteriaceae	<i>Corynebacterium</i>	<i>Corynebacterium matruchotii</i>	0.22	0.00	No
OTU124	702	0	Bacteria	Actinobacteriota	Actinobacteria	Propionibacteriales	Propionibacteriace ae	<i>Cutibacterium</i>	<i>Cutibacterium acnes</i>	0.22	0	Yes
OTU125	693	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.22	0	No
OTU126	691	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.22	0	No
OTU127	679	12	Bacteria	Bacteroidota	Bacteroidia	Bacteroidales	Prevotellaceae	<i>Prevotella 9</i>	?	0.21	0.00	No
OTU128	670	13	Bacteria	Firmicutes	Clostridia	Oscillospirales	Ruminococcaceae	<i>Faecalibacterium</i>	?	0.21	0.00	No
OTU129	681	1	Bacteria	Actinobacteriota	Actinobacteria	Micrococcales	Micrococcaceae	?	?	0.21	0.00	No

OTU	KP reads	KS reads	Domain	Phylum	Class	Order	Family	Genus	Species	KP (%)	KS (%)	QC flagged
OTU130	681	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.21	0	No
OTU131	678	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.21	0	No
OTU132	676	0	Bacteria	Proteobacteria	Gammaproteobact eria	Pseudomonadales	Halomonadaceae	<i>Candidatus Portiera</i>	?	0.21	0	No
OTU133	660	10	Bacteria	Actinobacteriota	Actinobacteria	Propionibacteriales	Propionibacteriace ae	<i>Cutibacterium</i>	<i>Cutibacterium acnes</i>	0.21	0.00	Yes
OTU134	618	49	Bacteria	Actinobacteriota	Actinobacteria	Micrococcales	Micrococcaceae	<i>Micrococcus</i>	?	0.19	0.01	Yes
OTU135	666	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.21	0	No
OTU136	662	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.21	0	No
OTU137	606	52	Bacteria	Actinobacteriota	Actinobacteria	Corynebacteriales	Corynebacteriaceae	<i>Corynebacterium</i>	?	0.19	0.01	No
OTU138	0	654	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	0.12	No
OTU139	646	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.20	0	No
OTU140	634	10	Bacteria	Firmicutes	Clostridia	Lachnospirales	Lachnospiraceae	[Ruminococcus] torques group	<i>Ruminococcus torques</i>	0.20	0.00	No
OTU141	644	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.20	0	No
OTU142	552	90	Bacteria	Actinobacteriota	Actinobacteria	Corynebacteriales	Corynebacteriaceae	<i>Corynebacterium</i>	?	0.17	0.02	No
OTU143	638	0	Bacteria	Actinobacteriota	Actinobacteria	Propionibacteriales	Propionibacteriace ae	<i>Cutibacterium</i>	<i>Cutibacterium acnes</i>	0.20	0	Yes
OTU144	114	509	Bacteria	Proteobacteria	Alphaproteobacteri a	Acetobacterales	Acetobacteraceae	?	?	0.04	0.10	No
OTU145	623	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.19	0	No
OTU146	103	513	Bacteria	Proteobacteria	Gammaproteobact eria	Burkholderiales	Neisseriaceae	<i>Neisseria</i>	<i>Neisseria sp. oral clone AP015</i>	0.03	0.10	No
OTU147	39	560	Bacteria	Proteobacteria	Gammaproteobact eria	Burkholderiales	Burkholderiaceae	<i>Burkholderia- Caballeronia- Paraburkholderia</i>	?	0.01	0.11	No
OTU148	596	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.19	0	No
OTU149	594	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.19	0	No
OTU150	590	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.18	0	No
OTU151	515	72	Bacteria	Proteobacteria	Gammaproteobact eria	Burkholderiales	Comamonadaceae	<i>Tepidimonas</i>	?	0.16	0.01	No
OTU152	577	0	Bacteria	Proteobacteria	Gammaproteobact eria	Pseudomonadales	Halomonadaceae	<i>Candidatus Portiera</i>	<i>Candidatus Portiera</i>	0.18	0	No
OTU153	0	576	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	0.11	No
OTU154	558	3	Bacteria	Proteobacteria	Gammaproteobact eria	Burkholderiales	Neisseriaceae	<i>Neisseria</i>	?	0.17	0.00	No
OTU155	498	62	Bacteria	Proteobacteria	Gammaproteobact eria	Burkholderiales	Burkholderiaceae	<i>Pandoraea</i>	uncultured beta proteobacterium	0.16	0.01	No
OTU156	8	551	Bacteria	Proteobacteria	Gammaproteobact eria	Enterobacteriales	Enterobacteriaceae	<i>Citrobacter</i>	?	0.00	0.10	No
OTU157	0	556	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	0.11	No
OTU158	537	6	Bacteria	Firmicutes	Clostridia	Oscillospirales	Ruminococcaceae	<i>Faecalibacterium</i>	?	0.17	0.00	No
OTU159	198	343	Bacteria	?	?	?	?	?	?	0.06	0.07	No
OTU160	0	539	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	0.10	No
OTU161	488	46	Bacteria	Proteobacteria	Alphaproteobacteri a	Rhizobiales	Xanthobacteraceae	<i>Bradyrhizobium</i>	?	0.15	0.01	Yes
OTU162	533	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.17	0	No
OTU163	530	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.17	0	No
OTU164	0	528	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	0.10	No
OTU165	526	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.16	0	No
OTU166	500	25	Bacteria	Firmicutes	Bacilli	Bacillales	Bacillaceae	<i>Bacillus</i>	?	0.16	0.00	No
OTU167	523	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.16	0	No

OTU	KP reads	KS reads	Domain	Phylum	Class	Order	Family	Genus	Species	KP (%)	KS (%)	QC flagged
OTU168	522	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.16	0	No
OTU169	477	45	Bacteria	Actinobacteriota	Actinobacteria	Corynebacteriales	Corynebacteriaceae	<i>Corynebacterium</i>	?	0.15	0.01	No
OTU170	518	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.16	0	No
OTU171	513	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.16	0	No
OTU172	507	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.16	0	No
OTU173	497	0	Bacteria	Proteobacteria	Gammaproteobacteria	Pseudomonadales	Moraxellaceae	<i>Acinetobacter</i>	?	0.16	0	Yes
OTU174	496	0	Bacteria	Proteobacteria	Gammaproteobacteria	Pseudomonadales	Moraxellaceae	<i>Acinetobacter</i>	?	0.15	0	Yes
OTU175	471	24	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Alcaligenaceae	<i>Achromobacter</i>	?	0.15	0.00	No
OTU176	26	468	Bacteria	Proteobacteria	Alphaproteobacteria	Acetobacterales	Acetobacteraceae	<i>Komagataeibacter</i>	?	0.01	0.09	No
OTU177	492	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.15	0	No
OTU178	0	486	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	0.09	No
OTU179	484	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.15	0	No
OTU180	0	468	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	0.09	No
OTU181	467	1	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.15	0.00	No
OTU182	465	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.15	0	No
OTU183	451	14	Bacteria	Proteobacteria	Alphaproteobacteria	Rhodobacterales	Rhodobacteraceae	<i>Defluviimonas</i>	<i>metagenome</i>	0.14	0.00	No
OTU184	464	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.14	0	No
OTU185	458	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.14	0	No
OTU186	437	18	Bacteria	Actinobacteriota	Actinobacteria	Propionibacteriales	Nocardioidaceae	<i>Nocardioides</i>	<i>Nocardioides ginkgobilobae</i>	0.14	0.00	No
OTU187	0	452	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	0.09	No
OTU188	450	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.14	0	No
OTU189	405	45	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Comamonadaceae	<i>Tepidimonas</i>	?	0.13	0.01	No
OTU190	431	15	Bacteria	Proteobacteria	Alphaproteobacteria	Rhodobacterales	Rhodobacteraceae	<i>Paracoccus</i>	?	0.13	0.00	No
OTU191	398	48	Bacteria	Cyanobacteria	Cyanobacteriia	Chloroplast	?	?	?	0.12	0.01	No
OTU192	394	50	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Comamonadaceae	<i>Delftia</i>	?	0.12	0.01	Yes
OTU193	435	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.14	0	No
OTU194	422	4	Bacteria	Actinobacteriota	Actinobacteria	Micrococcales	Micrococcaceae	?	?	0.13	0.00	No
OTU195	426	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.13	0	No
OTU196	334	79	Bacteria	Patescibacteria	Saccharimonadia	Saccharimonadales	Saccharimonadaceae	<i>TM7x</i>	?	0.10	0.01	No
OTU197	39	374	Bacteria	Proteobacteria	Gammaproteobacteria	Enterobacteriales	Pasteurellaceae	<i>Haemophilus</i>	?	0.01	0.07	No
OTU198	409	0	Bacteria	Proteobacteria	Gammaproteobacteria	Pseudomonadales	Halomonadaceae	<i>Candidatus Portiera</i>	<i>Candidatus Portiera</i>	0.13	0	No
OTU199	0	407	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	0.08	No
OTU200	0	404	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	0.08	No
OTU201	0	403	Bacteria	Proteobacteria	Gammaproteobacteria	Pseudomonadales	Pseudomonadaceae	<i>Pseudomonas</i>	?	0	0.08	Yes
OTU202	159	237	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Neisseriaceae	?	?	0.05	0.04	No
OTU203	46	350	Bacteria	Proteobacteria	Gammaproteobacteria	Pseudomonadales	Pseudomonadaceae	<i>Pseudomonas</i>	?	0.01	0.07	Yes
OTU204	112	283	Bacteria	Proteobacteria	Gammaproteobacteria	Enterobacteriales	?	?	?	0.03	0.05	No

OTU	KP reads	KS reads	Domain	Phylum	Class	Order	Family	Genus	Species	KP (%)	KS (%)	QC flagged
OTU205	387	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.12	0	No
OTU206	387	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.12	0	No
OTU207	136	244	Bacteria	Proteobacteria	Alphaproteobacteria	Acetobacterales	Acetobacteraceae	?	?	0.04	0.05	No
OTU208	0	367	Bacteria	Deinococcota	Deinococci	Thermales	Thermaceae	<i>Thermus</i>	<i>Thermus scotoductus</i>	0	0.07	No
OTU209	365	0	Bacteria	Firmicutes	Bacilli	Bacillales	Planococcaceae	<i>Planomicrobium</i>	<i>Planomicrobium glaciei</i>	0.11	0	No
OTU210	191	173	Bacteria	Proteobacteria	Alphaproteobacteria	Acetobacterales	Acetobacteraceae	?	?	0.06	0.03	No
OTU211	325	37	Bacteria	Firmicutes	Bacilli	Staphylococcales	Staphylococcaceae	<i>Staphylococcus</i>	?	0.10	0.01	No
OTU212	310	48	Bacteria	Proteobacteria	Gammaproteobacteria	Pseudomonadales	Moraxellaceae	<i>Acinetobacter</i>	?	0.10	0.01	Yes
OTU213	350	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.11	0	No
OTU214	349	0	Bacteria	Deinococcota	Deinococci	Deinococcales	Deinococcaceae	?	?	0.11	0	No
OTU215	347	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.11	0	No
OTU216	338	8	Bacteria	Proteobacteria	Alphaproteobacteria	Sphingomonadales	Sphingomonadaceae	<i>Sphingomonas</i>	?	0.11	0.00	Yes
OTU217	310	29	Bacteria	Firmicutes	Clostridia	Lachnospirales	Lachnospiraceae	<i>Lachnoclostridium</i>	?	0.10	0.01	No
OTU218	325	12	Bacteria	Proteobacteria	Alphaproteobacteria	Rhizobiales	Rhizobiaceae	<i>Allorhizobium-Neorhizobium-Pararhizobium-Rhizobium</i>	<i>Rhizobium sp.</i>	0.10	0.00	No
OTU219	337	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.11	0	No
OTU220	274	63	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Burkholderiaceae	<i>Burkholderia-Caballeronia-Paraburkholderia</i>	?	0.09	0.01	No
OTU221	335	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.10	0	No
OTU222	324	9	Bacteria	Bacteroidota	Bacteroidia	Bacteroidales	Prevotellaceae	<i>Prevotella</i>	<i>Prevotella nanceiensis</i>	0.10	0.00	No
OTU223	277	55	Bacteria	Proteobacteria	Gammaproteobacteria	Pseudomonadales	Pseudomonadaceae	<i>Pseudomonas</i>	?	0.09	0.01	Yes
OTU224	322	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.10	0	No
OTU225	321	0	Bacteria	Bacteroidota	Bacteroidia	Bacteroidales	Prevotellaceae	<i>Prevotella 9</i>	?	0.10	0	No
OTU226	149	171	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Neisseriaceae	?	?	0.05	0.03	No
OTU227	316	0	Bacteria	Bacteroidota	Ignavibacteria	SJA-28	?	?	?	0.10	0	No
OTU228	313	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.10	0	No
OTU229	309	1	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Sutterellaceae	<i>Parasutterella</i>	<i>Parasutterella excrementihominis</i>	0.10	0.00	No
OTU230	41	268	Bacteria	Firmicutes	Bacilli	Staphylococcales	Gemellaceae	<i>Gemella</i>	?	0.01	0.05	No
OTU231	307	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.10	0	No
OTU232	306	0	Bacteria	Proteobacteria	Alphaproteobacteria	Rhizobiales	Devosiaceae	<i>Devosia</i>	?	0.10	0	No
OTU233	305	0	Bacteria	Actinobacteriota	Acidimicrobiia	?	?	?	?	0.10	0	No
OTU234	92	209	Bacteria	Firmicutes	Bacilli	Staphylococcales	Gemellaceae	<i>Gemella</i>	?	0.03	0.04	No
OTU235	298	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.09	0	No
OTU236	295	3	Bacteria	Firmicutes	Bacilli	Staphylococcales	Staphylococcaceae	<i>Staphylococcus</i>	<i>Staphylococcus aureus</i>	0.09	0.00	No
OTU237	266	32	Bacteria	Firmicutes	Bacilli	Bacillales	Bacillaceae	<i>Bacillus</i>	?	0.08	0.01	No
OTU238	297	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.09	0	No
OTU239	296	1	Bacteria	Patescibacteria	Saccharimonadia	Saccharimonadales	?	?	?	0.09	0.00	No
OTU240	297	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.09	0	No
OTU241	293	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.09	0	No

OTU	KP reads	KS reads	Domain	Phylum	Class	Order	Family	Genus	Species	KP (%)	KS (%)	QC flagged
OTU242	292	0	Bacteria	Firmicutes	Bacilli	Bacillales	Bacillaceae	<i>Bacillus</i>	<i>Bacillus funiculus</i>	0.09	0	No
OTU243	288	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.09	0	No
OTU244	287	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.09	0	No
OTU245	286	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.09	0	No
OTU246	284	0	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Comamonadaceae	<i>Diaphorobacter</i>	?	0.09	0	No
OTU247	241	41	Bacteria	Proteobacteria	Gammaproteobacteria	Pseudomonadales	Moraxellaceae	<i>Acinetobacter</i>	?	0.08	0.01	Yes
OTU248	280	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.09	0	No
OTU249	279	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.09	0	No
OTU250	72	206	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Burkholderiaceae	<i>Burkholderia-Caballeronia-Paraburkholderia</i>	?	0.02	0.04	No
OTU251	271	5	Bacteria	Actinobacteriota	Actinobacteria	Corynebacteriales	Corynebacteriaceae	<i>Corynebacterium</i>	?	0.08	0.00	No
OTU252	273	3	Bacteria	Proteobacteria	Gammaproteobacteria	Pseudomonadales	Pseudomonadaceae	<i>Pseudomonas</i>	?	0.09	0.00	Yes
OTU253	275	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.09	0	No
OTU254	274	0	Bacteria	Firmicutes	Clostridia	Lachnospirales	Lachnospiraceae	?	?	0.09	0	No
OTU255	270	0	Bacteria	Proteobacteria	Alphaproteobacteria	Rhizobiales	Devosiaceae	<i>Devosia</i>	?	0.08	0	No
OTU256	80	189	Bacteria	Firmicutes	Clostridia	Oscillospirales	Ruminococcaceae	<i>Subdoligranulum</i>	?	0.02	0.04	No
OTU257	127	141	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Neisseriaceae	?	?	0.04	0.03	No
OTU258	264	0	Bacteria	Actinobacteriota	Actinobacteria	Corynebacteriales	Corynebacteriaceae	<i>Turicella</i>	?	0.08	0	No
OTU259	238	25	Bacteria	Proteobacteria	Alphaproteobacteria	Caulobacterales	Caulobacteraceae	<i>Brevundimonas</i>	?	0.07	0.00	Yes
OTU260	258	4	Bacteria	Actinobacteriota	Actinobacteria	Micrococcales	Micrococcaceae	?	?	0.08	0.00	No
OTU261	246	9	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Alcaligenaceae	<i>Achromobacter</i>	?	0.08	0.00	No
OTU262	240	12	Bacteria	Bacteroidota	Bacteroidia	Bacteroidales	Prevotellaceae	<i>Alloprevotella</i>	?	0.07	0.00	No
OTU263	248	4	Bacteria	Bacteroidota	Bacteroidia	Bacteroidales	Prevotellaceae	<i>Prevotella 9</i>	?	0.08	0.00	No
OTU264	75	176	Bacteria	Proteobacteria	Gammaproteobacteria	Pseudomonadales	Moraxellaceae	<i>Acinetobacter</i>	<i>Acinetobacter radioresistens</i>	0.02	0.03	Yes
OTU265	188	62	Bacteria	Proteobacteria	Alphaproteobacteria	Rhizobiales	Beijerinckiaceae	<i>Methylobacterium-Methylobacterium</i>	?	0.06	0.01	No
OTU266	246	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.08	0	No
OTU267	246	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.08	0	No
OTU268	0	244	Bacteria	Deinococcota	Deinococci	Thermales	Thermaceae	<i>Thermus</i>	<i>Thermus scotoductus</i>	0	0.05	No
OTU269	243	0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	<i>Candidatus Chloroploca</i>	?	0.08	0	No
OTU270	239	0	Bacteria	Bacteroidota	Ignavibacteria	SJA-28	?	?	?	0.07	0	No
OTU271	231	0	Bacteria	Bacteroidota	Bacteroidia	Bacteroidales	Bacteroidaceae	<i>Bacteroides</i>	<i>Bacteroides intestinalis</i>	0.07	0	No
OTU272	229	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.07	0	No
OTU273	218	7	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Comamonadaceae	?	?	0.07	0.00	No
OTU274	224	0	Bacteria	Actinobacteriota	Actinobacteria	Propionibacteriales	Propionibacteriaceae	<i>Cutibacterium</i>	?	0.07	0	Yes
OTU275	220	3	Bacteria	Bacteroidota	Bacteroidia	Bacteroidales	Prevotellaceae	<i>Prevotella</i>	<i>Prevotella nanceiensis</i>	0.07	0.00	No
OTU276	223	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.07	0	No
OTU277	203	19	Bacteria	Cyanobacteria	Cyanobacteriia	Chloroplast	?	?	?	0.06	0.00	No

OTU	KP reads	KS reads	Domain	Phylum	Class	Order	Family	Genus	Species	KP (%)	KS (%)	QC flagged
OTU278	222	0	Bacteria	Bacteroidota	Bacteroidia	Bacteroidales	Bacteroidaceae	<i>Bacteroides</i>	<i>Bacteroides eggerthii</i>	0.07	0	No
OTU279	217	0	Bacteria	Bacteroidota	Bacteroidia	Bacteroidales	Bacteroidaceae	<i>Bacteroides</i>	?	0.07	0	No
OTU280	98	116	Bacteria	Firmicutes	Clostridia	Oscillospirales	Ruminococcaceae	<i>Subdoligranulum</i>	?	0.03	0.02	No
OTU281	0	212	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	0.04	No
OTU282	211	0	Bacteria	Firmicutes	Bacilli	Bacillales	Planococcaceae	<i>Domibacillus</i>	<i>Domibacillus robiginosus</i>	0.07	0	No
OTU283	211	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.07	0	No
OTU284	75	133	Bacteria	Firmicutes	Clostridia	Peptostreptococcales-Tissierellales	Family XI	<i>Finegoldia</i>	?	0.02	0.03	No
OTU285	197	10	Bacteria	Actinobacteriota	Actinobacteria	Micrococcales	Micrococcaceae	<i>Arthrobacter</i>	?	0.06	0.00	No
OTU286	99	106	Bacteria	Firmicutes	Clostridia	Oscillospirales	Ruminococcaceae	<i>Subdoligranulum</i>	?	0.03	0.02	No
OTU287	203	1	Bacteria	Actinobacteriota	Actinobacteria	Corynebacteriales	Corynebacteriaceae	<i>Corynebacterium</i>	?	0.06	0.00	No
OTU288	197	5	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Comamonadaceae	?	?	0.06	0.00	No
OTU289	202	0	Bacteria	Bacteroidota	Ignavibacteria	SJA-28	?	?	?	0.06	0	No
OTU290	187	10	Bacteria	Proteobacteria	Alphaproteobacteria	Sphingomonadales	Sphingomonadaceae	<i>Sphingomonas</i>	<i>Sphingomonas</i> sp.	0.06	0.00	Yes
OTU291	122	74	Bacteria	Firmicutes	Negativicutes	Veillonellales-Selenomonadales	Veillonellaceae	<i>Veillonella</i>	<i>Veillonella parvula</i>	0.04	0.01	No
OTU292	190	0	Bacteria	Deinococcota	Deinococci	Deinococcales	Deinococcaceae	<i>Deinococcus</i>	?	0.06	0	No
OTU293	189	0	Bacteria	Actinobacteriota	Actinobacteria	Corynebacteriales	Corynebacteriaceae	<i>Corynebacterium</i>	<i>Corynebacterium</i> sp. enrichment culture clone TVH007.03.3	0.06	0	No
OTU294	156	27	Bacteria	Proteobacteria	Gammaproteobacteria	Enterobacterales	Enterobacteriaceae	?	?	0.05	0.01	No
OTU295	179	1	Bacteria	Firmicutes	Clostridia	Lachnospirales	Lachnospiraceae	[Ruminococcus] torques group	<i>Ruminococcus torques</i>	0.06	0.00	No
OTU296	7	171	Bacteria	Proteobacteria	Gammaproteobacteria	Pseudomonadales	Moraxellaceae	<i>Acinetobacter</i>	?	0.00	0.03	Yes
OTU297	172	0	Bacteria	Firmicutes	Bacilli	Bacillales	Planococcaceae	?	?	0.05	0	No
OTU298	172	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.05	0	No
OTU299	11	157	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Neisseriaceae	<i>Neisseria</i>	<i>Neisseria meningitidis</i>	0.00	0.03	No
OTU300	148	19	Bacteria	Proteobacteria	Gammaproteobacteria	Pseudomonadales	Pseudomonadaceae	<i>Pseudomonas</i>	?	0.05	0.00	Yes
OTU301	165	0	Bacteria	Patescibacteria	Saccharimonadia	Saccharimonadales	uncultured Candidatus Saccharibacteria bacterium	?	?	0.05	0	No
OTU302	164	0	Bacteria	Bacteroidota	Bacteroidia	Bacteroidales	Bacteroidaceae	<i>Bacteroides</i>	?	0.05	0	No
OTU303	161	0	Bacteria	Actinobacteriota	Actinobacteria	Micrococcales	Intrasporangiaceae	?	?	0.05	0	No
OTU304	160	1	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	?	?	?	0.05	0.00	No
OTU305	161	0	Bacteria	Chloroflexi	Chloroflexia	Thermomicrobiales	JG30-KF-CM45	?	?	0.05	0	No
OTU306	158	0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	<i>Candidatus Chloroploca</i>	?	0.05	0	No
OTU307	104	51	Bacteria	Patescibacteria	Saccharimonadia	Saccharimonadales	Saccharimonadaceae	<i>TM7x</i>	?	0.03	0.01	No
OTU308	139	15	Bacteria	Proteobacteria	Alphaproteobacteria	Rhizobiales	Beijerinckiaceae	<i>Methylobacterium-Methyloburum</i>	?	0.04	0.00	No
OTU309	153	0	Bacteria	Proteobacteria	Alphaproteobacteria	Caulobacterales	Caulobacteraceae	<i>Brevundimonas</i>	?	0.05	0	Yes
OTU310	139	11	Bacteria	Firmicutes	Clostridia	Oscillospirales	Ruminococcaceae	<i>Faecalibacterium</i>	?	0.04	0.00	No

OTU	KP reads	KS reads	Domain	Phylum	Class	Order	Family	Genus	Species	KP (%)	KS (%)	QC flagged
OTU311	145	0	Bacteria	Actinobacteriota	Actinobacteria	Micromonosporales	Micromonosporaceae	<i>Actinoplanes</i>	<i>Actinoplanes friuliensis</i>	0.05	0	No
OTU312	7	138	Bacteria	Proteobacteria	Gammaproteobacteria	Enterobacterales	Pasteurellaceae	<i>Haemophilus</i>	<i>Haemophilus influenzae</i>	0.00	0.03	No
OTU313	143	1	Bacteria	Actinobacteriota	Actinobacteria	Corynebacteriales	Corynebacteriaceae	<i>Corynebacterium</i>	?	0.04	0.00	No
OTU314	0	144	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	0.03	No
OTU315	142	1	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Oxalobacteraceae	?	?	0.04	0.00	No
OTU316	136	1	Bacteria	Bacteroidota	Bacteroidia	Bacteroidales	Bacteroidaceae	<i>Bacteroides</i>	<i>Bacteroides intestinalis</i>	0.04	0.00	No
OTU317	137	0	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Sutterellaceae	<i>Parasutterella</i>	<i>Parasutterella excrementihominis</i>	0.04	0	No
OTU318	99	38	Bacteria	Proteobacteria	Gammaproteobacteria	Enterobacterales	Erwiniaceae	<i>Pantoea</i>	?	0.03	0.01	No
OTU319	54	82	Bacteria	Proteobacteria	Alphaproteobacteria	Acetobacterales	Acetobacteraceae	<i>Komagataeibacter</i>	?	0.02	0.02	No
OTU320	0	135	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	0.03	No
OTU321	128	0	Bacteria	Actinobacteriota	Actinobacteria	Pseudonocardiales	Pseudonocardaceae	<i>Pseudonocardia</i>	?	0.04	0	No
OTU322	18	108	Bacteria	Proteobacteria	Alphaproteobacteria	Acetobacterales	Acetobacteraceae	<i>Komagataeibacter</i>	<i>Komagataeibacter saccharivorans</i>	0.01	0.02	No
OTU323	125	0	Bacteria	Proteobacteria	Gammaproteobacteria	Pseudomonadales	Cellvibrionaceae	?	?	0.04	0	No
OTU324	121	1	Bacteria	Firmicutes	Clostridia	Oscillospirales	?	?	?	0.04	0.00	No
OTU325	63	55	Bacteria	Proteobacteria	Gammaproteobacteria	Enterobacterales	?	?	?	0.02	0.01	No
OTU326	117	0	Bacteria	Actinobacteriota	Actinobacteria	?	?	?	?	0.04	0	No
OTU327	115	0	Bacteria	Chloroflexi	Chloroflexia	Thermomicrobiales	JG30-KF-CM45	?	?	0.04	0	No
OTU328	115	0	Bacteria	Chloroflexi	Chloroflexia	Thermomicrobiales	JG30-KF-CM45	uncultured Chloroflexi bacterium	?	0.04	0	No
OTU329	113	0	Bacteria	Actinobacteriota	Actinobacteria	Bifidobacteriales	Bifidobacteriaceae	<i>Scardovia</i>	<i>Scardovia wiggisiae</i>	0.04	0	No
OTU330	108	0	Bacteria	Firmicutes	Negativicutes	Veillonellales-Selenomonadales	Veillonellaceae	<i>Dialister</i>	<i>Dialister succinatiphilus</i>	0.03	0	No
OTU331	103	4	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Oxalobacteraceae	<i>Massilia</i>	<i>Massilia</i> sp. YMA4	0.03	0.00	Yes
OTU332	104	0	Bacteria	Bacteroidota	Bacteroidia	Bacteroidales	Prevotellaceae	<i>Alloprevotella</i>	<i>Prevotellaceae bacterium</i>	0.03	0	No
OTU333	101	0	Bacteria	Actinobacteriota	Thermoleophila	Solirubrobacterales	Solirubrobacteraceae	<i>Solirubrobacter</i>	?	0.03	0	No
OTU334	89	10	Bacteria	Proteobacteria	Alphaproteobacteria	Acetobacterales	Acetobacteraceae	<i>Asaia</i>	?	0.03	0.00	No
OTU335	99	0	Bacteria	Firmicutes	Bacilli	Staphylococcales	Staphylococcaceae	<i>Salinicoccus</i>	?	0.03	0	No
OTU336	82	9	Bacteria	Actinobacteriota	Actinobacteria	Corynebacteriales	Corynebacteriaceae	<i>Lawsonella</i>	?	0.03	0.00	No
OTU337	0	91	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	0.02	No
OTU338	82	7	Bacteria	Proteobacteria	Alphaproteobacteria	Rhizobiales	Beijerinckiaceae	<i>Methylobacterium-Methylobacterium</i>	?	0.03	0.00	No
OTU339	87	0	Bacteria	Actinobacteriota	Thermoleophila	Solirubrobacterales	Solirubrobacteraceae	<i>Solirubrobacter</i>	uncultured actinobacterium	0.03	0	No
OTU340	84	0	Bacteria	Firmicutes	Bacilli	Paenibacillales	Paenibacillaceae	<i>Paenibacillus</i>	?	0.03	0	Yes
OTU341	0	84	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	0.02	No
OTU342	82	0	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Comamonadaceae	<i>Kinneretia</i>	<i>Pelomonas</i> sp.	0.03	0	No

OTU	KP reads	KS reads	Domain	Phylum	Class	Order	Family	Genus	Species	KP (%)	KS (%)	QC flagged
OTU343	39	43	Bacteria	Firmicutes	Clostridia	Peptostreptococcales-Tissierellales	Family XI	<i>Finegoldia</i>	<i>Finegoldia magna</i>	0.01	0.01	No
OTU344	0	81	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	0.02	No
OTU345	81	0	Bacteria	Actinobacteriota	Actinobacteria	0319-7L14	?	?	?	0.03	0	No
OTU346	59	15	Bacteria	Proteobacteria	Alphaproteobacteria	Tistrellales	Geminococcaceae	<i>Candidatus Alysiosphaera</i>	?	0.02	0.00	No
OTU347	35	38	Bacteria	Firmicutes	Clostridia	Peptostreptococcales-Tissierellales	Family XI	<i>Finegoldia</i>	<i>Finegoldia magna</i>	0.01	0.01	No
OTU348	70	1	Bacteria	Proteobacteria	Alphaproteobacteria	Rhizobiales	Rhizobiaceae	<i>Ensifer</i>	?	0.02	0.00	No
OTU349	65	0	Bacteria	Cyanobacteria	Cyanobacteriia	Chloroplast	?	?	?	0.02	0	No
OTU350	65	0	Bacteria	Chloroflexi	Anaerolineae	RBG-13-54-9	?	?	?	0.02	0	No
OTU351	58	5	Bacteria	Firmicutes	Bacilli	Bacillales	Bacillaceae	<i>Bacillus</i>	?	0.02	0.00	No
OTU352	61	0	Bacteria	Chloroflexi	KD4-96	metagenome	?	?	?	0.02	0	No
OTU353	50	6	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Burkholderiaceae	<i>Burkholderia-Caballeronia-Paraburkholderia</i>	?	0.02	0.00	No
OTU354	50	0	Bacteria	Bacteroidota	Bacteroidia	Flavobacteriales	Flavobacteriaceae	<i>Flavobacterium</i>	<i>Flavobacterium sp.</i>	0.02	0	Yes
OTU355	45	0	Bacteria	Chloroflexi	Chloroflexia	Thermomicrobiales	JG30-KF-CM45	uncultured Chloroflexi bacterium	?	0.01	0	No
OTU356	31	13	Bacteria	Actinobacteriota	Actinobacteria	Micrococcales	Micrococcaceae	<i>Micrococcus</i>	?	0.01	0.00	Yes
OTU357	0	40	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	0.01	No
OTU358	39	0	Bacteria	Planctomycetota	Brocadia	Brocadiales	Brocadaceae	<i>Candidatus Kuenenia</i>	?	0.01	0	No
OTU359	5	21	Bacteria	Proteobacteria	Gammaproteobacteria	Pseudomonadales	Pseudomonadaceae	<i>Pseudomonas</i>	?	0.00	0.00	Yes
OTU360	22	0	Bacteria	Patescibacteria	Berkelbacteria	?	?	?	?	0.01	0	No
OTU361	0	13	Bacteria	Verrucomicrobiota	Verrucomicrobiae	Verrucomicrobiales	Akkermansiaceae	<i>Akkermansia</i>	<i>Akkermansia muciniphila</i>	0	0.00	No
OTU362	0	11	Bacteria	Myxococcota	Myxococcia	Myxococcales	Myxococcaceae	<i>Myxococcus</i>	?	0	0.00	No
OTU363	5	2	Bacteria	Firmicutes	Clostridia	Oscillospirales	Ruminococcaceae	<i>Faecalibacterium</i>	?	0.00	0.00	No

Note. KP, dried cellulosic pellicle fraction; KS, fermentation liquid fraction; OTU, operational taxonomic unit. QC flagged = potential reagent/kit-contaminant flag from the provider-based QC screen. Taxonomic labels are retained exactly at the resolved rank; '?' denotes unresolved assignment.

Supplementary Table S2. Complete ITS OTU abundance and taxonomy table

OTU	KP reads	KS reads	Domain	Phylum	Class	Order	Family	Genus	Species	KP (%)	KS (%)
OTU1	989	331,323	Fungi	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Dekkera</i>	<i>Dekkera bruxellensis</i>	0.16	46.26
OTU2	678	168,186	Fungi	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Dekkera</i>	<i>Dekkera bruxellensis</i>	0.11	23.48
OTU3	77,470	5,124	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	<i>Fusarium hostae</i>	12.52	0.72
OTU4	0	75,554	Fungi	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Dekkera</i>	?	0	10.55
OTU5	0	35,356	Fungi	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Dekkera</i>	<i>Dekkera anomala</i>	0	4.94
OTU6	30,881	3,757	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	?	4.99	0.52
OTU7	110	30,681	Fungi	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Dekkera</i>	<i>Dekkera bruxellensis</i>	0.02	4.28
OTU8	24,389	4,132	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	?	3.94	0.58
OTU9	24,381	14	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Penicillium</i>	?	3.94	0.00
OTU10	23,334	2	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Aspergillus</i>	?	3.77	0.00
OTU11	19,785	1,843	Fungi	Basidiomycota	Malasseziomycetes	Malasseziales	Malasseziaceae	<i>Malassezia</i>	<i>Malassezia restricta</i>	3.20	0.26
OTU12	21,596	0	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Aspergillus</i>	?	3.49	0
OTU13	21,005	175	Fungi	Basidiomycota	Tremellomycetes	Filobasidiales	Filobasidiaceae	<i>Filobasidium</i>	<i>Filobasidium wieringae</i>	3.40	0.02
OTU14	16,898	679	Fungi	Basidiomycota	Malasseziomycetes	Malasseziales	Malasseziaceae	<i>Malassezia</i>	<i>Malassezia restricta</i>	2.73	0.09
OTU15	14,253	841	Fungi	Ascomycota	Dothideomycetes	?	?	?	?	2.30	0.12
OTU16	14,838	0	Fungi	?	?	?	?	?	?	2.40	0
OTU17	14,819	0	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Aspergillus</i>	?	2.40	0
OTU18	14,254	0	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Aspergillus</i>	?	2.30	0
OTU19	14,239	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Bionectriaceae	<i>Clonostachys</i>	<i>Clonostachys rosea</i>	2.30	0
OTU20	35	13,656	Fungi	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Dekkera</i>	<i>Dekkera bruxellensis</i>	0.01	1.91
OTU21	12,684	1,006	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	?	2.05	0.14
OTU22	13,171	7	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Penicillium</i>	?	2.13	0.00
OTU23	11,856	251	Fungi	Basidiomycota	Tremellomycetes	Filobasidiales	Filobasidiaceae	<i>Filobasidium</i>	<i>Filobasidium wieringae</i>	1.92	0.04
OTU24	10,653	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Bionectriaceae	<i>Clonostachys</i>	<i>Clonostachys rosea</i>	1.72	0
OTU25	10,303	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	<i>Fusarium croci</i>	1.67	0
OTU26	10,178	118	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Aspergillus</i>	?	1.65	0.02
OTU27	9,859	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	<i>Fusarium croci</i>	1.59	0
OTU28	9,725	0	Fungi	Fungi phy Incertae sedis	Fungi cls Incertae sedis	Fungi ord Incertae sedis	Fungi fam Incertae sedis	Fungi gen Incertae sedis	<i>Fungi sp</i>	1.57	0
OTU29	9,714	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	?	?	1.57	0
OTU30	28	9,443	Fungi	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Dekkera</i>	?	0.00	1.32
OTU31	23	8,799	Fungi	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Dekkera</i>	<i>Dekkera bruxellensis</i>	0.00	1.23
OTU32	8,458	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	?	1.37	0
OTU33	0	8,159	Fungi	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Dekkera</i>	<i>Dekkera anomala</i>	0	1.14
OTU34	7,608	0	Fungi	?	?	?	?	?	?	1.23	0
OTU35	7,510	83	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Cordycipitaceae	<i>Lecanicillium</i>	<i>Lecanicillium antillanum</i>	1.21	0.01
OTU36	7,542	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	?	1.22	0
OTU37	7,309	200	Fungi	Basidiomycota	Malasseziomycetes	Malasseziales	Malasseziaceae	<i>Malassezia</i>	<i>Malassezia arunalokei</i>	1.18	0.03
OTU38	7,389	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	<i>Fusarium sp</i>	1.19	0
OTU39	6,971	1	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Aspergillus</i>	?	1.13	0.00
OTU40	6,953	0	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Penicillium</i>	?	1.12	0
OTU41	6,882	0	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Aspergillus</i>	<i>Aspergillus flavus</i>	1.11	0
OTU42	6,806	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	?	1.10	0
OTU43	6,040	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	?	0.98	0
OTU44	5,852	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	<i>Fusarium croci</i>	0.95	0
OTU45	5,444	0	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Aspergillus</i>	?	0.88	0

OTU	KP reads	KS reads	Domain	Phylum	Class	Order	Family	Genus	Species	KP (%)	KS (%)
OTU46	4,196	1,136	Fungi	Basidiomycota	Malasseziomycetes	Malasseziales	Malasseziaceae	<i>Malassezia</i>	<i>Malassezia arunalokei</i>	0.68	0.16
OTU47	5,147	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Cordycipitaceae	<i>Lecanicillium</i>	<i>Lecanicillium antillanum</i>	0.83	0
OTU48	36	4,811	Fungi	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Dekkera</i>	<i>Dekkera bruxellensis</i>	0.01	0.67
OTU49	4,824	0	Fungi	Fungi phy Incertae sedis	Fungi cls Incertae sedis	Fungi ord Incertae sedis	Fungi fam Incertae sedis	Fungi gen Incertae sedis	<i>Fungi sp</i>	0.78	0
OTU50	4,768	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	?	0.77	0
OTU51	4,016	449	Fungi	Basidiomycota	Malasseziomycetes	Malasseziales	Malasseziaceae	<i>Malassezia</i>	<i>Malassezia globosa</i>	0.65	0.06
OTU52	4,464	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	?	?	0.72	0
OTU53	3,678	447	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	?	0.59	0.06
OTU54	47	3,485	Fungi	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Dekkera</i>	<i>Dekkera bruxellensis</i>	0.01	0.49
OTU55	3,419	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	?	0.55	0
OTU56	3,345	0	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Aspergillus</i>	?	0.54	0
OTU57	3,308	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	<i>Fusarium hostae</i>	0.53	0
OTU58	3,239	2	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Penicillium</i>	?	0.52	0.00
OTU59	2,964	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	<i>Fusarium croci</i>	0.48	0
OTU60	2,772	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Cordycipitaceae	<i>Lecanicillium</i>	<i>Lecanicillium antillanum</i>	0.45	0
OTU61	2,736	2	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Bionectriaceae	<i>Clonostachys</i>	<i>Clonostachys rosea</i>	0.44	0.00
OTU62	2,528	0	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Aspergillus</i>	<i>Aspergillus flavus</i>	0.41	0
OTU63	0	2,484	Fungi	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Dekkera</i>	<i>Dekkera anomala</i>	0	0.35
OTU64	2,439	0	Fungi	Ascomycota	Dothideomycetes	Capnodiales	Cladosporiaceae	<i>Cladosporium</i>	?	0.39	0
OTU65	1,985	349	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	?	0.32	0.05
OTU66	1,952	364	Fungi	Basidiomycota	Malasseziomycetes	Malasseziales	Malasseziaceae	<i>Malassezia</i>	<i>Malassezia restricta</i>	0.32	0.05
OTU67	2,284	0	Fungi	Ascomycota	Dothideomycetes	Dothideomycetes ord Incertae sedis	Dothideomycetes fam Incertae sedis	Dothideomycetes gen Incertae sedis	<i>Dothideomycetes sp</i>	0.37	0
OTU68	2,209	28	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	?	0.36	0.00
OTU69	2,130	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	?	?	0.34	0
OTU70	2,067	0	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Aspergillus</i>	?	0.33	0
OTU71	607	1,398	Fungi	Basidiomycota	Malasseziomycetes	Malasseziales	Malasseziaceae	<i>Malassezia</i>	<i>Malassezia arunalokei</i>	0.10	0.20
OTU72	1,982	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	?	0.32	0
OTU73	1,974	3	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Penicillium</i>	?	0.32	0.00
OTU74	1,930	0	Fungi	Ascomycota	Dothideomycetes	Dothideomycetes ord Incertae sedis	Dothideomycetes fam Incertae sedis	Dothideomycetes gen Incertae sedis	<i>Dothideomycetes sp</i>	0.31	0
OTU75	1,454	428	Fungi	Basidiomycota	Malasseziomycetes	Malasseziales	Malasseziaceae	<i>Malassezia</i>	?	0.24	0.06
OTU76	1,875	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	?	?	?	0.30	0
OTU77	1,734	2	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Penicillium</i>	?	0.28	0.00
OTU78	1,586	8	Fungi	Basidiomycota	Tremellomycetes	Filobasidiales	Filobasidiaceae	<i>Filobasidium</i>	<i>Filobasidium wieringae</i>	0.26	0.00
OTU79	1,581	0	Fungi	?	?	?	?	?	?	0.26	0
OTU80	1,523	0	Fungi	Ascomycota	Sordariomycetes	Glomerellales	Plectosphaerellaceae	<i>Plectosphaerella</i>	?	0.25	0
OTU81	2	1,410	Fungi	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Dekkera</i>	<i>Dekkera bruxellensis</i>	0.00	0.20
OTU82	1,235	0	Fungi	Ascomycota	Sordariomycetes	Glomerellales	Plectosphaerellaceae	<i>Plectosphaerella</i>	?	0.20	0
OTU83	1,232	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	<i>Fusarium hostae</i>	0.20	0
OTU84	1,073	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Bionectriaceae	<i>Clonostachys</i>	?	0.17	0
OTU85	820	0	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Penicillium</i>	?	0.13	0
OTU86	789	0	Fungi	Ascomycota	Dothideomycetes	Dothideomycetes ord Incertae sedis	Dothideomycetes fam Incertae sedis	Dothideomycetes gen Incertae sedis	<i>Dothideomycetes sp</i>	0.13	0
OTU87	725	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Bionectriaceae	<i>Clonostachys</i>	<i>Clonostachys rosea</i>	0.12	0
OTU88	689	0	Fungi	Basidiomycota	Malasseziomycetes	Malasseziales	Malasseziaceae	<i>Malassezia</i>	<i>Malassezia globosa</i>	0.11	0

OTU	KP reads	KS reads	Domain	Phylum	Class	Order	Family	Genus	Species	KP (%)	KS (%)
OTU89	582	0	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Bionectriaceae	<i>Clonostachys</i>	?	0.09	0
OTU90	352	0	Fungi	Basidiomycota	Malasseziomycetes	Malasseziales	Malasseziaceae	<i>Malassezia</i>	<i>Malassezia globosa</i>	0.06	0
OTU91	324	0	Fungi	Ascomycota	Sordariomycetes	Glomerellales	Plectosphaerellaceae	<i>Plectosphaerella</i>	?	0.05	0
OTU92	280	0	Fungi	?	?	?	?	?	?	0.05	0
OTU93	260	0	Fungi	?	?	?	?	?	?	0.04	0
OTU94	151	0	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Penicillium</i>	?	0.02	0
OTU95	130	15	Fungi	Ascomycota	Sordariomycetes	Hypocreales	Nectriaceae	<i>Fusarium</i>	?	0.02	0.00
OTU96	135	0	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Penicillium</i>	<i>Penicillium chrysogenum</i>	0.02	0
OTU97	101	25	Fungi	Ascomycota	Sordariomycetes	Hypocreales	?	?	?	0.02	0.00
OTU98	75	0	Fungi	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	<i>Aspergillus</i>	?	0.01	0

Note. KP, dried cellulosic pellicle fraction; KS, fermentation liquid fraction; OTU, operational taxonomic unit. Taxonomic labels are retained at the resolved rank; '?' denotes unresolved assignment.

Supplementary Table S3. Complete 18S OTU abundance and taxonomy table

OTU	KP reads	KS reads	Domain	Phylum	Class	Order	Family	Genus	Species	KP (%)	KS (%)
OTU1	62,617	172,664	Eukaryota	MAST-12	MAST-12C	?	?	?	?	56.25	40.98
OTU2	37	28,975	Eukaryota	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Brettanomyces</i>	<i>Brettanomyces bruxellensis</i>	0.03	6.88
OTU3	9,438	14,986	Eukaryota	MAST-12	MAST-12C	?	?	?	?	8.48	3.56
OTU4	31	23,015	Eukaryota	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Brettanomyces</i>	?	0.03	5.46
OTU5	19	22,819	Eukaryota	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Brettanomyces</i>	?	0.02	5.42
OTU6	29	22,748	Eukaryota	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Brettanomyces</i>	?	0.03	5.40
OTU7	24	22,448	Eukaryota	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Brettanomyces</i>	<i>Brettanomyces bruxellensis</i>	0.02	5.33
OTU8	41	21,502	Eukaryota	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Brettanomyces</i>	<i>Brettanomyces bruxellensis</i>	0.04	5.10
OTU9	14	20,575	Eukaryota	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Brettanomyces</i>	?	0.01	4.88
OTU10	34	16,820	Eukaryota	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Brettanomyces</i>	<i>Brettanomyces bruxellensis</i>	0.03	3.99
OTU11	12	14,719	Eukaryota	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Brettanomyces</i>	<i>Brettanomyces bruxellensis</i>	0.01	3.49
OTU12	3,673	10,952	Eukaryota	MAST-12	MAST-12C	?	?	?	<i>Stramenopile sp.</i>	3.30	2.60
OTU13	5,306	5,127	Eukaryota	MAST-12	MAST-12C	?	?	?	?	4.77	1.22
OTU14	11	8,546	Eukaryota	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Brettanomyces</i>	?	0.01	2.03
OTU15	7,236	24	Eukaryota	MAST-12	MAST-12C	?	?	?	?	6.50	0.01
OTU16	6,905	102	Eukaryota	MAST-12	MAST-12C	?	?	?	?	6.20	0.02
OTU17	4,196	1,980	Eukaryota	MAST-12	MAST-12C	?	?	?	?	3.77	0.47
OTU18	2,266	2,271	Eukaryota	MAST-12	MAST-12C	?	?	?	?	2.04	0.54
OTU19	2,594	1,921	Eukaryota	MAST-12	MAST-12C	?	?	?	<i>Stramenopile sp.</i>	2.33	0.46
OTU20	914	2,503	Eukaryota	MAST-12	MAST-12C	?	?	?	?	0.82	0.59
OTU21	7	3,175	Eukaryota	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Brettanomyces</i>	<i>Brettanomyces bruxellensis</i>	0.01	0.75
OTU22	3,098	12	Eukaryota	MAST-12	MAST-12C	?	?	?	?	2.78	0.00
OTU23	2,398	4	Eukaryota	MAST-12	MAST-12C	?	?	?	?	2.15	0.00
OTU24	2	1,375	Eukaryota	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Brettanomyces</i>	<i>Brettanomyces anomalus</i>	0.00	0.33
OTU25	0	1,313	Eukaryota	Ascomycota	Saccharomycetes	Saccharomycetales	Pichiaceae	<i>Brettanomyces</i>	<i>Brettanomyces anomalus</i>	0	0.31
OTU26	398	780	Eukaryota	MAST-12	MAST-12C	?	?	?	<i>Stramenopile sp.</i>	0.36	0.19
OTU27	0	15	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0	0.00
OTU28	9	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.01	0
OTU29	9	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.01	0
OTU30	8	0	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	unclassified	0.01	0

Note. KP, dried cellulosic pellicle fraction; KS, fermentation liquid fraction; OTU, operational taxonomic unit. 18S was treated as a complementary marker. KP-18S was not used for quantitative fungal-community interpretation because of low genus-level resolution and cross-pipeline incongruence.

Supplementary Table S4. Complete read-processing funnel for all libraries

Marker	Sample	Raw read pairs	Adapter-trimmed pairs	LoTUS2 QC accepted	Final OTU-table reads	Final/Raw (%)
16S	KP	1,022,108	982,817	852,425	320,487	31.36
16S	KS	1,559,325	1,496,179	1,313,288	527,261	33.81
ITS	KP	1,514,979	1,454,098	1,055,942	618,666	40.84
ITS	KS	1,158,418	1,109,652	873,231	716,236	61.83
18S	KP	269,369	229,901	171,154	111,326	41.33
18S	KS	633,241	589,035	495,108	421,371	66.54

Note. KP, dried cellulosic pellicle fraction; KS, fermentation liquid fraction; OTU, operational taxonomic unit.

Supplementary Table S5. 16S OTUs flagged as potential reagent/kit contaminants

OTU	Genus	Species	KP reads	KS reads	Total reads	KP share (%)	KS share (%)
OTU19	<i>Delftia</i>	?	5,879	2,398	8,277	1.83	0.45
OTU23	<i>Delftia</i>	?	6,336	309	6,645	1.98	0.06
OTU37	<i>Streptococcus</i>	<i>Streptococcus sanguinis</i>	974	2,388	3,362	0.30	0.45
OTU45	<i>Kocuria</i>	<i>Kocuria rhizophila</i>	2,365	52	2,417	0.74	0.01
OTU46	<i>Kocuria</i>	?	2,376	2	2,378	0.74	0.00
OTU47	<i>Streptococcus</i>	<i>Streptococcus pneumoniae</i>	1,053	1,213	2,266	0.33	0.23
OTU52	<i>Micrococcus</i>	?	1,769	131	1,900	0.55	0.02
OTU55	<i>Sphingomonas</i>	?	1,217	508	1,725	0.38	0.10
OTU56	<i>Kocuria</i>	?	1,657	6	1,663	0.52	0.00
OTU58	<i>Kocuria</i>	?	1,551	20	1,571	0.48	0.00
OTU59	<i>Enhydrobacter</i>	?	1,371	154	1,525	0.43	0.03
OTU71	<i>Streptococcus</i>	<i>Streptococcus salivarius</i>	1,150	20	1,170	0.36	0.00
OTU73	<i>Cutibacterium</i>	<i>Cutibacterium acnes</i>	1,158	0	1,158	0.36	0
OTU75	<i>Sphingomonas</i>	?	1,146	0	1,146	0.36	0
OTU81	<i>Kocuria</i>	?	1,117	0	1,117	0.35	0
OTU83	<i>Kocuria</i>	?	1,073	0	1,073	0.33	0
OTU84	<i>Streptococcus</i>	<i>Streptococcus salivarius</i>	1,031	0	1,031	0.32	0
OTU87	<i>Enhydrobacter</i>	<i>Moraxella osloensis</i>	874	67	941	0.27	0.01
OTU89	<i>Acinetobacter</i>	<i>Acinetobacter radioresistens</i>	739	189	928	0.23	0.04
OTU91	<i>Acinetobacter</i>	?	801	105	906	0.25	0.02
OTU94	<i>Delftia</i>	?	878	4	882	0.27	0.00
OTU95	<i>Bradyrhizobium</i>	?	812	68	880	0.25	0.01
OTU110	<i>Cutibacterium</i>	<i>Cutibacterium acnes</i>	775	0	775	0.24	0
OTU112	<i>Acinetobacter</i>	?	598	168	766	0.19	0.03
OTU114	<i>Streptococcus</i>	<i>Streptococcus salivarius</i>	700	55	755	0.22	0.01
OTU116	<i>Streptococcus</i>	?	649	77	726	0.20	0.01
OTU117	<i>Micrococcus</i>	?	652	74	726	0.20	0.01
OTU118	<i>Streptococcus</i>	?	216	509	725	0.07	0.10
OTU120	<i>Kocuria</i>	?	718	1	719	0.22	0.00
OTU124	<i>Cutibacterium</i>	<i>Cutibacterium acnes</i>	702	0	702	0.22	0
OTU133	<i>Cutibacterium</i>	<i>Cutibacterium acnes</i>	660	10	670	0.21	0.00
OTU134	<i>Micrococcus</i>	?	618	49	667	0.19	0.01
OTU143	<i>Cutibacterium</i>	<i>Cutibacterium acnes</i>	638	0	638	0.20	0
OTU161	<i>Bradyrhizobium</i>	?	488	46	534	0.15	0.01
OTU173	<i>Acinetobacter</i>	?	497	0	497	0.16	0
OTU174	<i>Acinetobacter</i>	?	496	0	496	0.15	0
OTU192	<i>Delftia</i>	?	394	50	444	0.12	0.01
OTU201	<i>Pseudomonas</i>	?	0	403	403	0	0.08
OTU203	<i>Pseudomonas</i>	?	46	350	396	0.01	0.07
OTU212	<i>Acinetobacter</i>	?	310	48	358	0.10	0.01
OTU216	<i>Sphingomonas</i>	?	338	8	346	0.11	0.00
OTU223	<i>Pseudomonas</i>	?	277	55	332	0.09	0.01
OTU247	<i>Acinetobacter</i>	?	241	41	282	0.08	0.01

OTU	Genus	Species	KP reads	KS reads	Total reads	KP share (%)	KS share (%)
OTU252	<i>Pseudomonas</i>	?	273	3	276	0.09	0.00
OTU259	<i>Brevundimonas</i>	?	238	25	263	0.07	0.00
OTU264	<i>Acinetobacter</i>	<i>Acinetobacter radioresistens</i>	75	176	251	0.02	0.03
OTU274	<i>Cutibacterium</i>	?	224	0	224	0.07	0
OTU290	<i>Sphingomonas</i>	<i>Sphingomonas</i> sp.	187	10	197	0.06	0.00
OTU296	<i>Acinetobacter</i>	?	7	171	178	0.00	0.03
OTU300	<i>Pseudomonas</i>	?	148	19	167	0.05	0.00
OTU309	<i>Brevundimonas</i>	?	153	0	153	0.05	0
OTU331	<i>Massilia</i>	<i>Massilia</i> sp. YMA4	103	4	107	0.03	0.00
OTU340	<i>Paenibacillus</i>	?	84	0	84	0.03	0
OTU354	<i>Flavobacterium</i>	<i>Flavobacterium</i> sp.	50	0	50	0.02	0
OTU356	<i>Micrococcus</i>	?	31	13	44	0.01	0.00
OTU359	<i>Pseudomonas</i>	?	5	21	26	0.00	0.00

Note. KP, dried cellulosic pellicle fraction; KS, fermentation liquid fraction; OTU, operational taxonomic unit. These flags are cautionary because a sequenced negative control was unavailable; flagged taxa were not automatically removed. Manual caution: OTU193 was independently reported by the provider as a 100% BLAST match to *Cutibacterium acnes* but remained 'unclassified' in the LoTUS2 taxonomy table. It is therefore not in the automated flagged TSV and should nevertheless be treated as contamination-sensitive.

Supplementary Table S6. LoTUS2 versus Kraken2–Bracken genus-level comparison for 16S

Sample	Genus	LoTUS2 reads	Own Kraken2–Bracken reads	Extra-folder Kraken2–Bracken reads	Agreement note
KP	(no genus - see taxonomy table for rank actually resolved)	76,751	0	0	LoTUS2 only
KP	<i>Burkholderia-Caballeronia-Paraburkholderia</i>	52,231	153,103	155,047	Detected by both
KP	<i>Komagataeibacter</i>	25,949	48,456	46,162	Detected by both
KP	<i>Staphylococcus</i>	19,791	28,374	28,477	Detected by both
KP	<i>Asaia</i>	18,725	45,466	46,087	Detected by both
KP	<i>Escherichia-Shigella</i>	17,319	45,229	45,171	Detected by both
KP	<i>Delftia</i>	13,487	0	0	LoTUS2 only
KP	<i>Kocuria</i>	10,857	0	0	LoTUS2 only
KP	<i>Methylobacterium-Methylorubrum</i>	7,137	16,320	16,318	Detected by both
KP	<i>Lawsonella</i>	6,347	0	0	LoTUS2 only
KP	<i>Acetobacter</i>	0	66,692	67,033	Bracken only
KP	<i>Pseudomonas</i>	0	22,566	22,568	Bracken only
KP	<i>Corynebacterium</i>	0	19,929	19,882	Bracken only
KP	<i>Planomicrobium</i>	0	14,847	14,799	Bracken only
KS	<i>Komagataeibacter</i>	310,100	971,967	972,010	Detected by both
KS	<i>Neisseria</i>	80,431	106,382	106,424	Detected by both
KS	(no genus - see taxonomy table for rank actually resolved)	51,141	0	0	LoTUS2 only
KS	<i>Burkholderia-Caballeronia-Paraburkholderia</i>	21,617	22,579	22,801	Detected by both
KS	<i>Haemophilus</i>	17,135	50,291	50,510	Detected by both
KS	<i>Gemella</i>	16,249	46,991	47,003	Detected by both
KS	<i>Acetobacter</i>	9,354	13,913	13,919	Detected by both
KS	<i>Streptococcus</i>	4,262	0	0	LoTUS2 only
KS	<i>Escherichia-Shigella</i>	3,747	10,215	10,268	Detected by both
KS	<i>Delftia</i>	2,761	0	0	LoTUS2 only
KS	<i>Pseudomonas</i>	0	10,158	10,188	Bracken only
KS	<i>Klebsiella</i>	0	9,551	9,503	Bracken only
KS	<i>Kingella</i>	0	7,332	7,201	Bracken only

Note. KP, dried cellulosic pellicle fraction; KS, fermentation liquid fraction; OTU, operational taxonomic unit. 'Extra-folder' refers to the separate provider cross-validation output retained in the final analysis archive. Cross-pipeline agreement indicates taxonomic reproducibility, not biological origin or viability.

Supplementary Table S7. LoTUS2 versus Kraken2–Bracken genus-level comparison for ITS

Sample	Genus	LoTUS2 reads	Own Kraken2–Bracken reads	Extra-folder Kraken2–Bracken reads	Agreement note
KP	<i>Fusarium</i>	233,348	429,070	598,317	Detected by both
KP	<i>Aspergillus</i>	111,493	184,949	215,708	Detected by both
KP	<i>Malassezia</i>	57,258	145,068	145,427	Detected by both
KP	(no genus - see taxonomy table for rank actually resolved)	57,104	0	0	LoTUS2 only
KP	<i>Penicillium</i>	52,558	177,010	127,356	Detected by both
KP	<i>Filobasidium</i>	34,447	137,167	50,245	Detected by both
KP	<i>Clonostachys</i>	30,008	35,410	41,891	Detected by both
KP	<i>Lecanicillium</i>	15,429	55,580	0	Detected by both
KP	Fungi gen Incertae sedis	14,549	18,664	17,625	Detected by both
KP	Dothideomycetes gen Incertae sedis	5,003	15,174	0	Detected by both
KP	Nectriaceae gen Incertae sedis	0	74,343	0	Bracken only
KP	<i>Gibberella</i>	0	0	34,399	Extra-folder only / summary discrepancy
KP	<i>Neocosmospora</i>	0	0	24,694	Extra-folder only / summary discrepancy
KP	<i>Trichoderma</i>	0	0	9,779	Extra-folder only / summary discrepancy
KS	<i>Dekkera</i>	693,347	904,569	985,635	Detected by both
KS	<i>Fusarium</i>	14,858	9,713	7,504	Detected by both
KS	<i>Malassezia</i>	6,497	15,739	16,163	Detected by both
KS	(no genus - see taxonomy table for rank actually resolved)	866	0	0	LoTUS2 only
KS	<i>Filobasidium</i>	434	958	0	Detected by both
KS	<i>Aspergillus</i>	121	0	0	LoTUS2 only
KS	<i>Lecanicillium</i>	83	0	0	LoTUS2 only
KS	<i>Penicillium</i>	28	0	0	LoTUS2 only
KS	<i>Clonostachys</i>	2	0	0	LoTUS2 only
KS	<i>Plectosphaerella</i>	0	0	0	Extra-folder only / summary discrepancy
KS	<i>Cyrtophymena</i>	0	55,007	0	Bracken only
KS	Chlorophyta gen Incertae sedis	0	11,527	0	Bracken only
KS	Nectriaceae gen Incertae sedis	0	8,905	0	Bracken only
KS	<i>Candida</i>	0	635	6,712	Bracken only
KS	Ascomycota gen Incertae sedis	0	459	0	Bracken only
KS	<i>Pichia</i>	0	429	808	Bracken only
KS	<i>Talaromyces</i>	0	0	2,961	Extra-folder only / summary discrepancy
KS	<i>Diutina</i>	0	0	1,855	Extra-folder only / summary discrepancy
KS	<i>Saccharomyces</i>	0	0	1,176	Extra-folder only / summary discrepancy
KS	<i>Melanogaster</i>	0	0	405	Extra-folder only / summary discrepancy
KS	Fungi gen Incertae sedis	0	0	398	Extra-folder only / summary discrepancy

Note. KP, dried cellulosic pellicle fraction; KS, fermentation liquid fraction; OTU, operational taxonomic unit. 'Extra-folder' refers to the separate provider cross-validation output retained in the final analysis archive. Pipeline-specific assignments were not automatically incorporated into the main biological narrative.

Supplementary Table S8. LoTUS2 versus Kraken2–Bracken genus-level comparison for 18S

Sample	Genus	LoTUS2 reads	Own Kraken2–Bracken reads	Extra-folder Kraken2–Bracken reads	Agreement note
KP	(no genus - see taxonomy table for rank actually resolved)	111,065	0	0	LoTUS2 only
KP	<i>Brettanomyces</i>	261	824	863	Detected by both
KP	<i>Ulnaria</i>	0	49,399	49,151	Bracken only
KP	<i>Myrionecta</i>	0	11,433	11,548	Bracken only
KP	<i>Platyophryides</i>	0	4,814	4,776	Bracken only
KP	<i>Malassezia</i>	0	3,749	3,872	Bracken only
KP	<i>Pteridomonas</i>	0	2,537	3,285	Bracken only
KP	<i>Ficus</i>	0	2,047	2,137	Bracken only
KP	uncultured	0	1,160	1,166	Bracken only
KP	<i>Tetraselmis</i>	0	1,157	1,338	Bracken only
KS	(no genus - see taxonomy table for rank actually resolved)	213,341	0	0	LoTUS2 only
KS	<i>Brettanomyces</i>	208,030	252,288	251,043	Detected by both
KS	<i>Ulnaria</i>	0	23,055	23,150	Bracken only
KS	<i>Debaryomyces</i>	0	3,391	3,368	Bracken only
KS	uncultured	0	566	573	Bracken only
KS	<i>Myrionecta</i>	0	2,550	2,547	Bracken only
KS	<i>Bolidomonas</i>	0	1,244	1,253	Bracken only
KS	<i>Pichia</i>	0	804	729	Bracken only
KS	<i>Gyrodinium</i>	0	354	358	Bracken only
KS	Candida-Lodderomyces clade	0	337	0	Bracken only
KS	Candida tanzawaensis clade	0	0	1,717	Extra-folder only / summary discrepancy

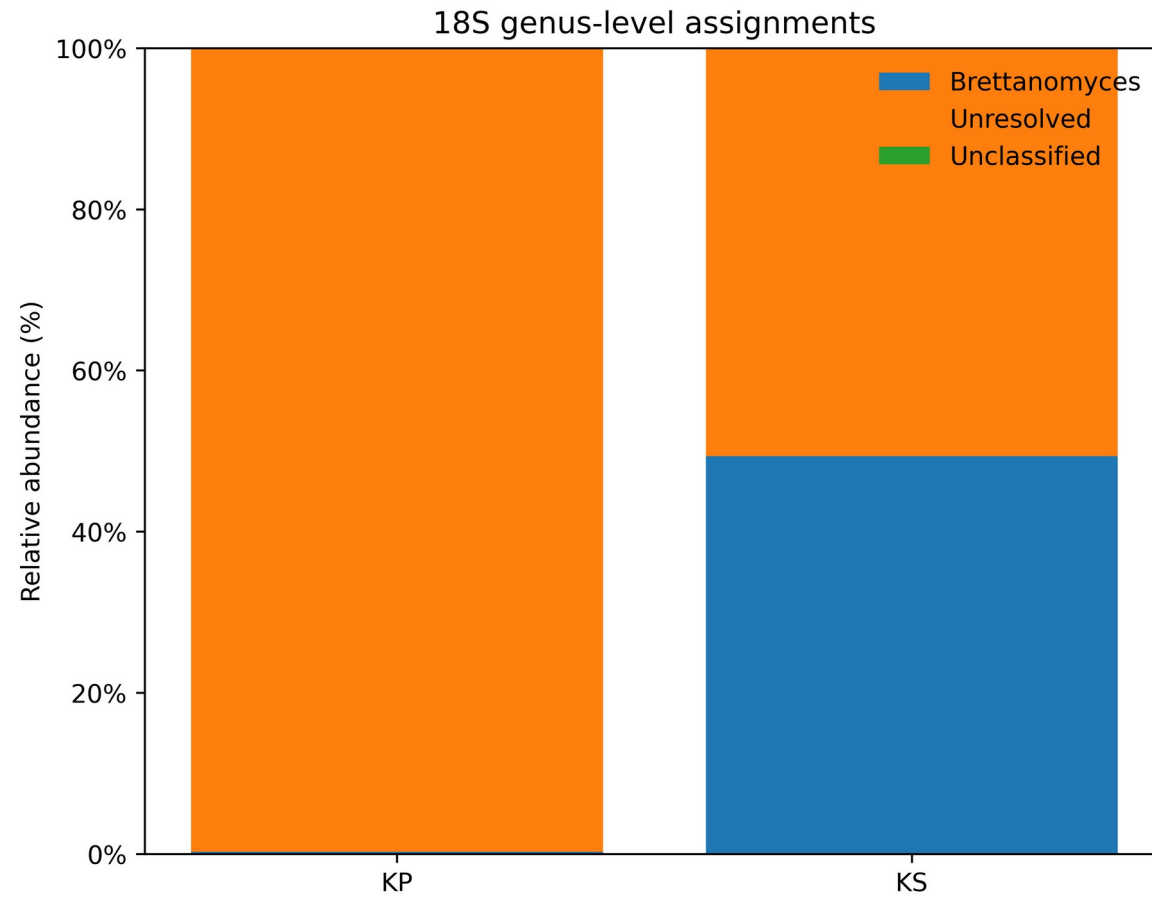
Note. KP, dried cellulosic pellicle fraction; KS, fermentation liquid fraction; OTU, operational taxonomic unit. 18S was used only as a complementary marker; KP-18S remained unsuitable for quantitative fungal-community interpretation.

Supplementary Table S9. QC and algorithmic cross-check summary

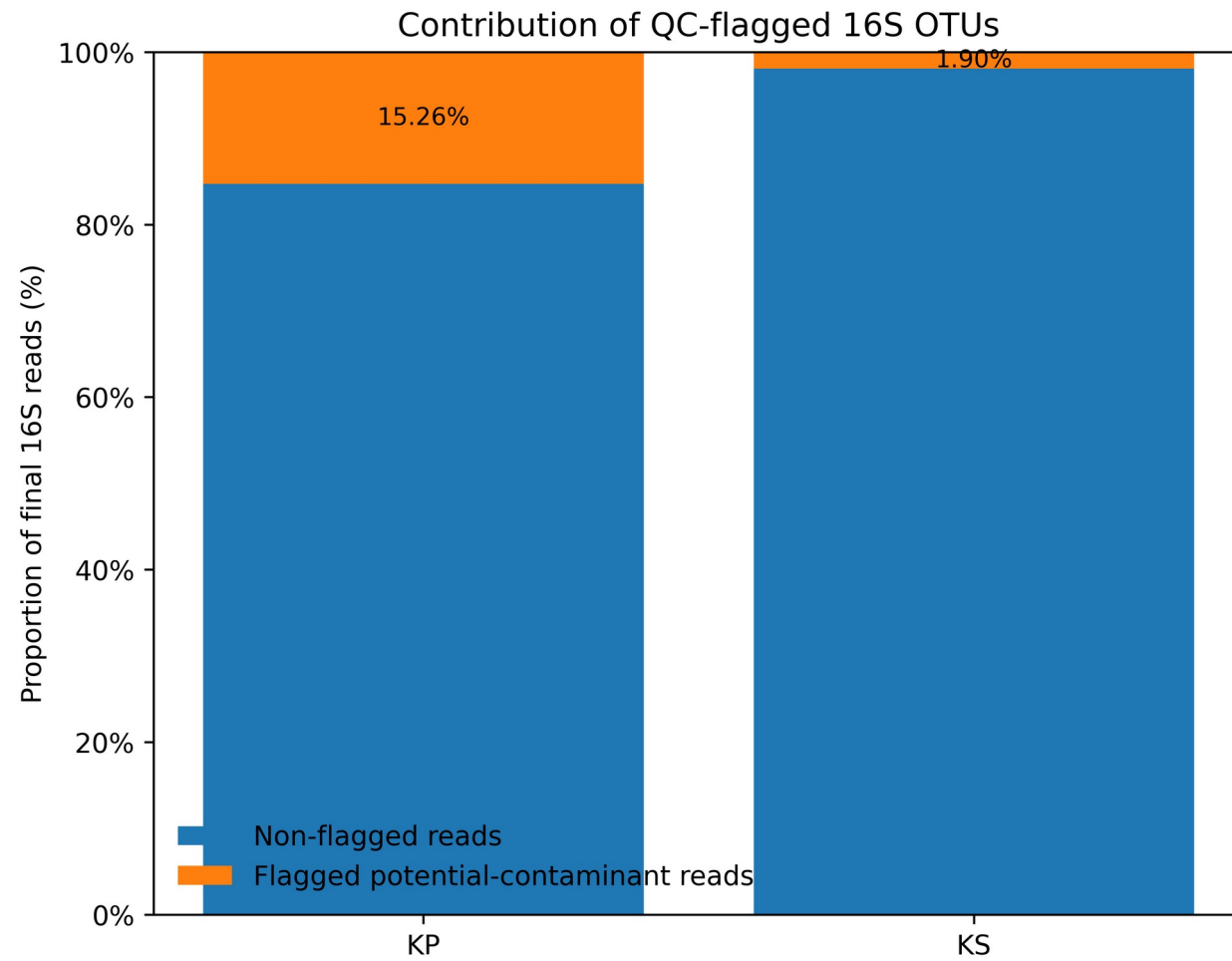
Item	16S	ITS	18S	Interpretation
Final OTUs	363	98	30	Final OTU tables and trees are internally consistent.
Unclassified OTUs	89	0	4	Taxonomic resolution differs by marker.
Flagged potential-contaminant OTUs	56	0	0	Provider QC flags were confined to 16S.
Flagged reads (%)	6.950	0	0	Negative sequencing control was unavailable; flags are cautionary.
Algorithmic cross-check	Kraken2–Bracken genus level	Kraken2–Bracken genus level	Kraken2–Bracken genus level	Used as an algorithmic cross-check of taxonomic reproducibility.
Bracken species-level	Failed: no reads found	Not used	Not used	No species-level Bracken confirmation is claimed.
Primary 18S interpretation	—	—	KS supportive; KP excluded from quantitative fungal interpretation	KP-18S showed mostly unresolved/non-fungal or incongruent eukaryotic assignments.

Note. KP, dried cellulosic pellicle fraction; KS, fermentation liquid fraction; OTU, operational taxonomic unit. The absence of a sequenced negative control limits definitive contamination attribution.

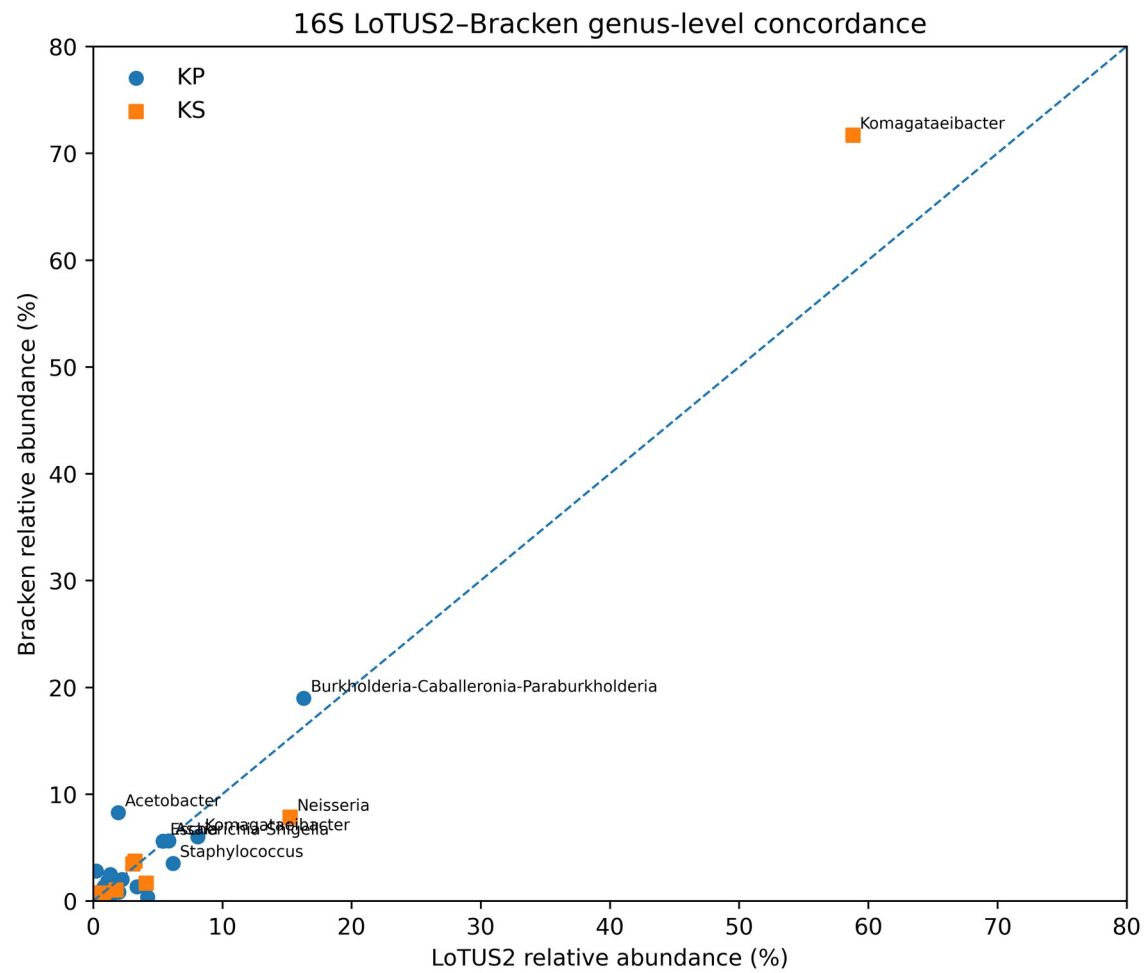
SUPPLEMENTARY FIGURES



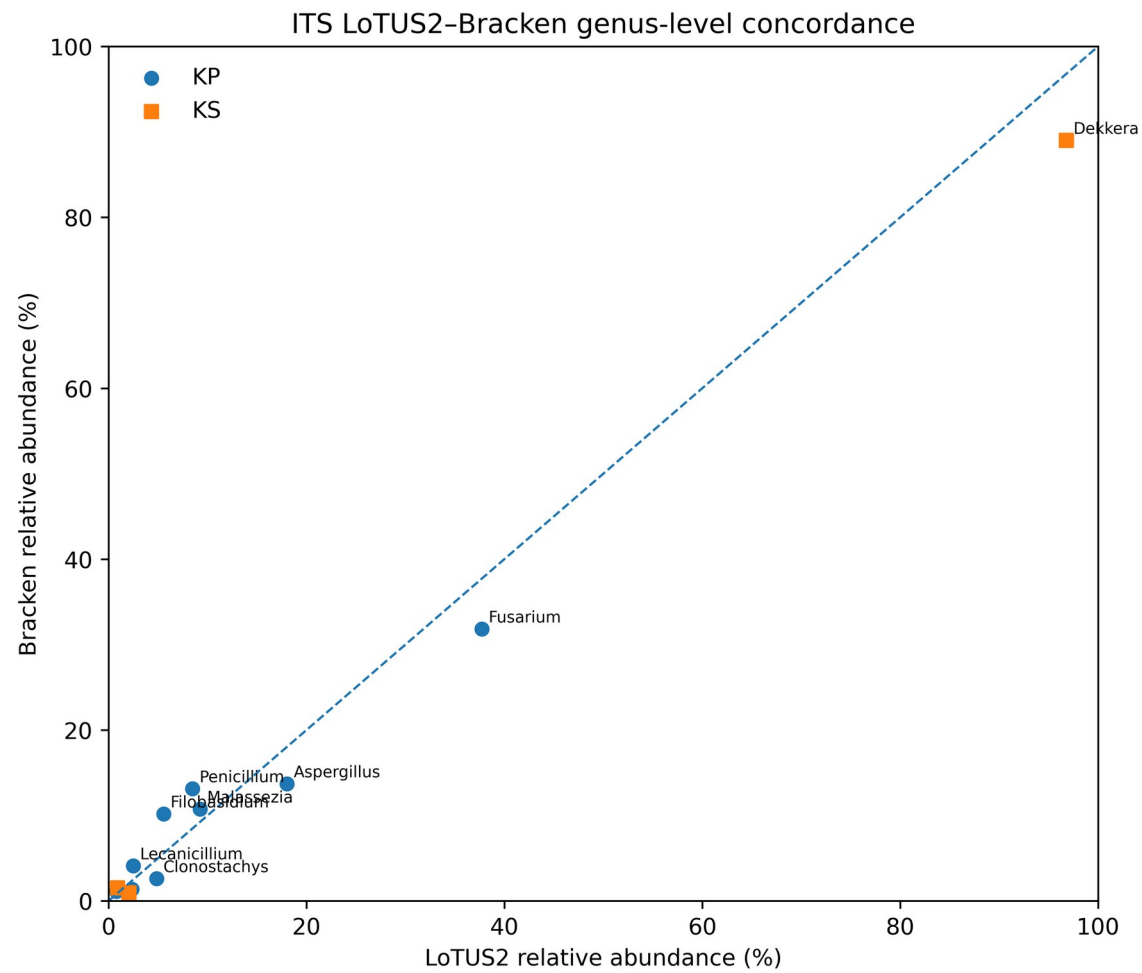
Supplementary Figure S1. Genus-level 18S assignments in KP and KS. Brettanomyces was strongly represented in KS, whereas KP was dominated by unresolved genus-level assignments; therefore KP-18S was not used for quantitative interpretation of the fungal community.



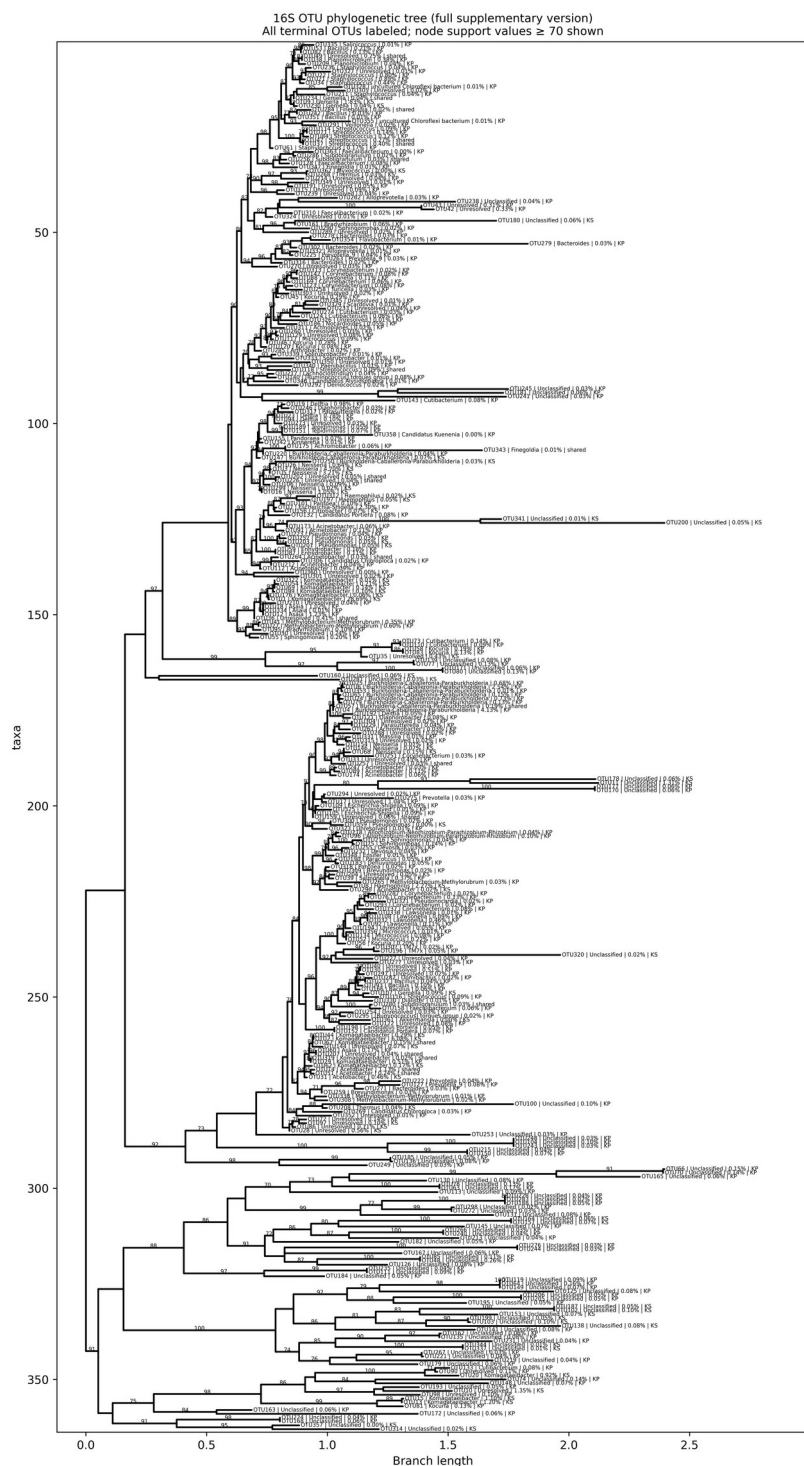
Supplementary Figure S2. Contribution of provider-QC-flagged potential-contaminant OTUs to the final 16S read pool in KP and KS. Because no sequenced negative control was available, flagged taxa were retained but interpreted cautiously rather than automatically removed.



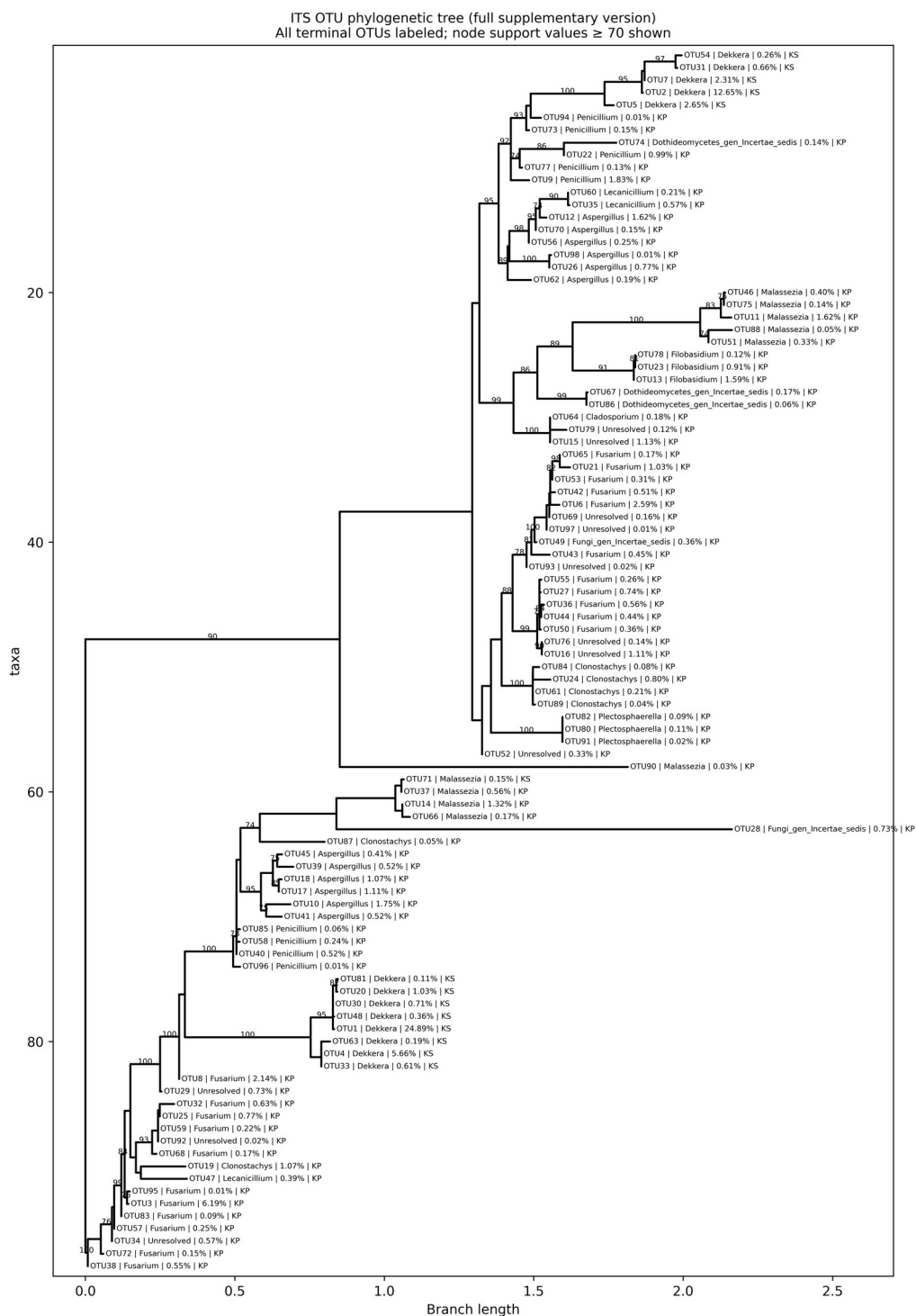
Supplementary Figure S3. Genus-level concordance between LoTUS2 and Kraken2-Bracken for the 16S datasets. The diagonal line indicates equal relative abundance estimates between workflows.



Supplementary Figure S4. Genus-level concordance between LoTUS2 and Kraken2-Bracken for the ITS datasets. The diagonal line indicates equal relative abundance estimates between workflows.

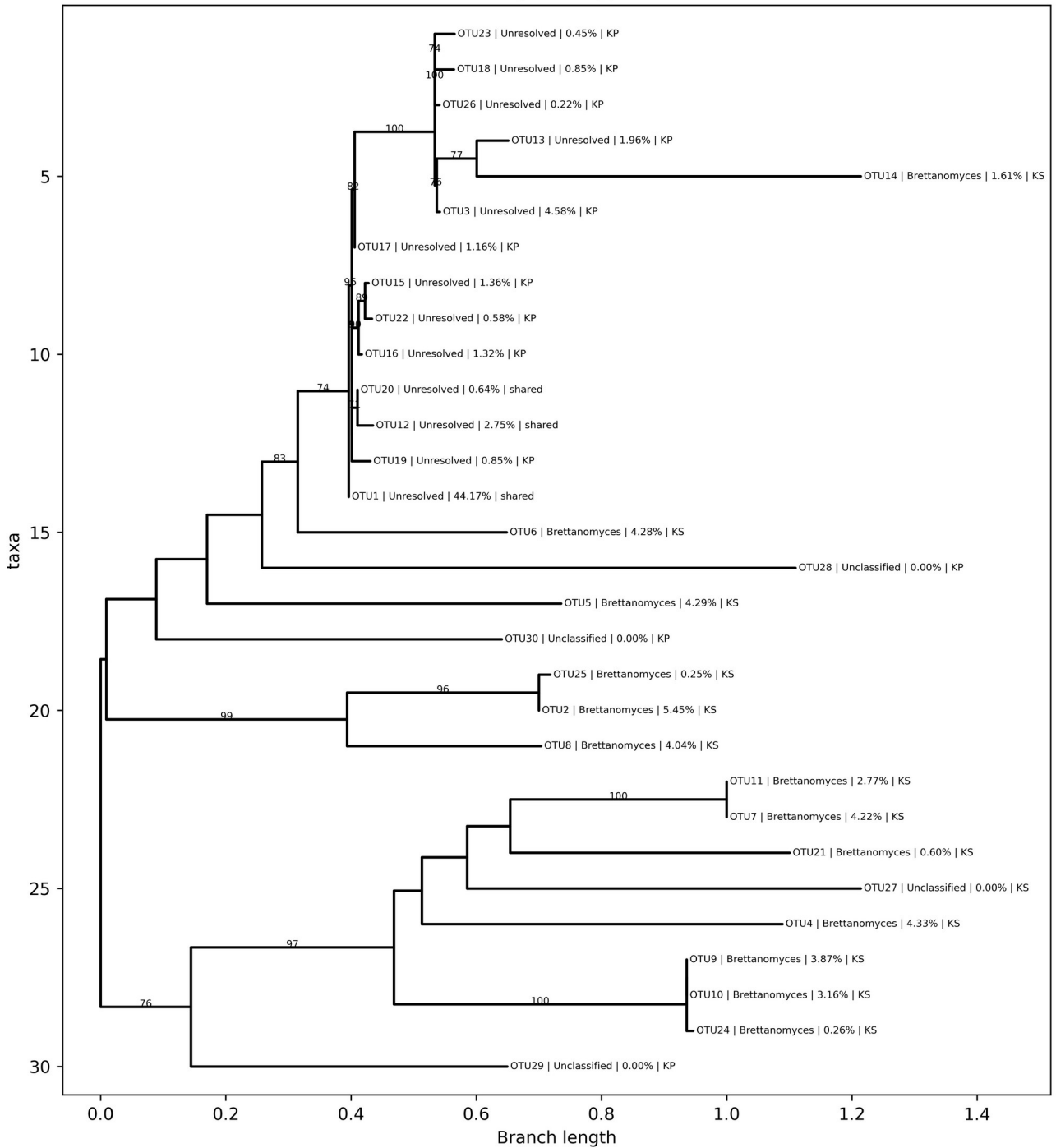


Supplementary Figure S5. Complete phylogenetic tree containing all 363 16S OTUs retained in the final LoTUS2 dataset. Terminal labels show OTU identifier, genus-level assignment, combined relative abundance, and dominant fraction category. Node support values of 70 or greater encoded in the provider-supplied Newick file are displayed.

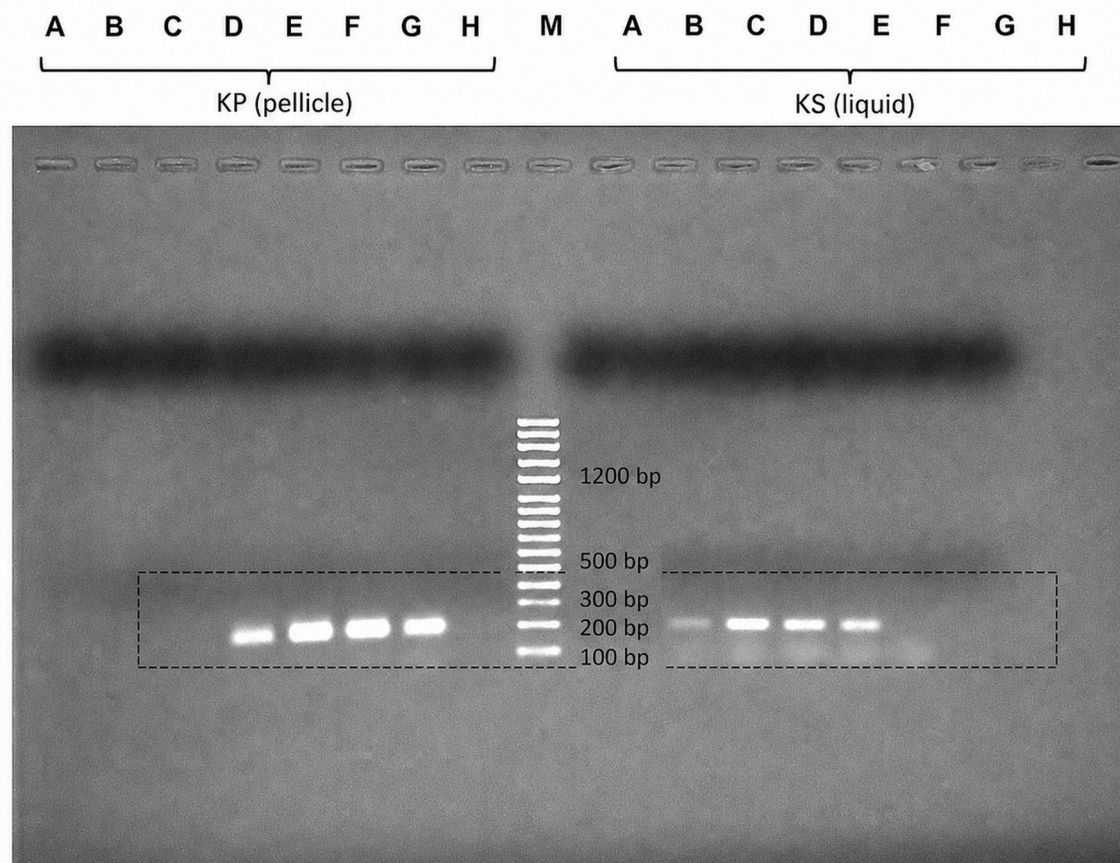


Supplementary Figure S6. Complete phylogenetic tree containing all 98 ITS OTUs retained in the final LoTUS2 dataset. Terminal labels show OTU identifier, genus-level assignment, combined relative abundance, and dominant fraction category. Node support values of 70 or greater encoded in the provider-supplied Newick file are displayed.

18S OTU phylogenetic tree (full supplementary version)
All terminal OTUs labeled; node support values ≥ 70 shown



Supplementary Figure S7. Complete phylogenetic tree containing all 30 18S OTUs retained in the final LoTUS2 dataset. Terminal labels show OTU identifier, genus-level assignment, combined relative abundance, and dominant fraction category. Node support values of 70 or greater encoded in the provider-supplied Newick file are displayed. The KP-18S library is shown for completeness but is not used for quantitative fungal-community interpretation.



Gradient annealing temperatures: A, 62.0°C; B, 60.8°C; C, 58.9°C; D, 56.2°C; E, 52.7°C; F, 49.8°C; G, 48.0°C; H, 47.0°C. M, Genesta 100 bp DNA ladder.

Supplementary Figure S8. *Candida*-targeted gradient PCR screening of the KP and KS fractions. Lanes A–H correspond to annealing temperatures of 62.0°C, 60.8°C, 58.9°C, 56.2°C, 52.7°C, 49.8°C, 48.0°C, and 47.0°C, respectively; M indicates the Genesta 100 bp DNA ladder. Distinct amplification products were observed in both KP and KS within the approximately 100–200 bp region at several gradient temperatures. The assay was used as a targeted complementary screen. Because the PCR products were not independently sequenced, the bands were not interpreted as genus- or species-level confirmation of *Candida*.