Microbial diversity using Metataxonomic approach, associated with different coffee fermentation processes in the Department of Quindío, Colombia

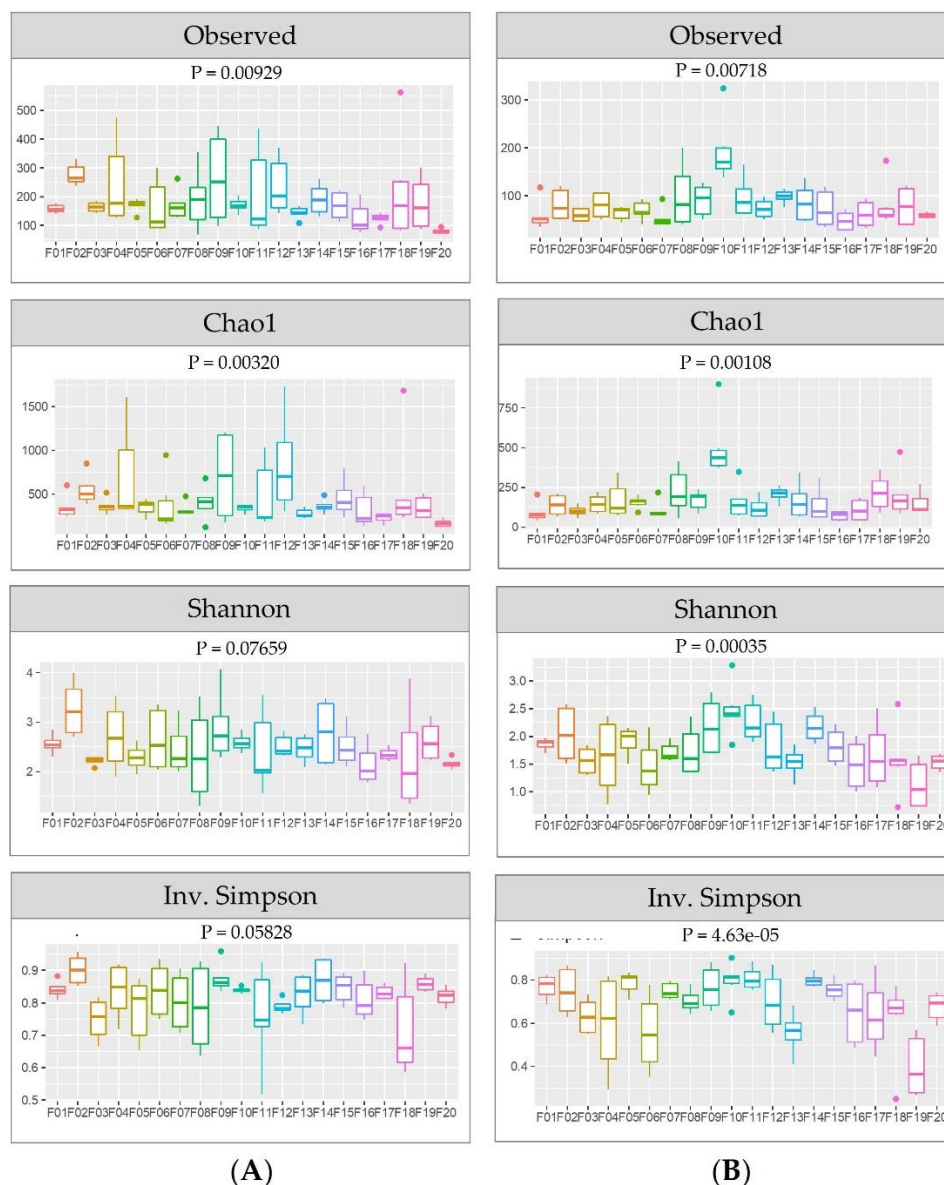## Supplementary Material

(A)   **(B)**

Figure S1. Boxplot of diversity indexes, namely Observed, Chao1, Shannon, and Inverse Simpson for bacterial communities (**A**), and as well as for yeast/fungal microbiota (**B**), from sampled studied farms.

Table S1. Information on fermentation type performed in each sampled farm, pH and temperature of the coffee bean mass and sensory quality.

Sample-id	Fermentation type	Time (h)	Beginning of fermentation		End of fermentation		Sensory Quality	
			pH	Temperature (°C)	pH	Temperature (°C)	SCA Score (points)	Deffects
F01	Mix of de-pulped coffee batches, Under water, Prolonged	72	5.61 ± 0.13	19.77 ± 0.49	4.28 ± 0.34	23.13 ± 0.85	42.0 ± 0.0	**Phenol**
F02	Under water	16	5.00 ± 0.19	20.8 ± 0.51	3.73 ± 0.05	20.13 ± 0.37	80.8 ± 0.3	None
F03	Traditional or spontaneous	14	5.72 ± 0.04	23.47 ± 0.30	3.21 ± 0.06	22.37 ± 0.37	80.1 ± 1.3	None
F04	Traditional or spontaneous	15	5.10 ± 0.17	22.00 ± 0.00	4.13 ± 0.11	22.00 ± 0.00	81.8 ± 0.9	None
F05	Mix of de-pulped coffee batches, Under water, Prolonged	48	5.07 ± 0.11	21.17 ± 0.28	3.83 ± 0.11	19.33 ± 0.57	81.7 ± 0.3	None
F06	Under Water	14	5.93 ± 0.02	19.13 ± 0.25	4.51 ± 0.13	17.70 ± 0.26	82.7 ± 1.9	None
F07	Under Water	21	5.07 ± 0.11	22.67 ± 0.57	4.23 ± 0.05	20.67 ± 0.57	80.2 ± 2.1	None
F08	Prolonged	39	5.05 ± 0.28	25.13 ± 0.15	3.50 ± 0.17	26.33 ± 1.52	82.5 ± 0.8	None
F09	Traditional or spontaneous	16	5.25 ± 0.26	23.93 ± 0.25	3.37 ± 0.06	19.67 ± 0.25	80.2 ± 1.7	None
F10	Traditional or spontaneous	22.5	5.90 ± 0.02	23.6 ± 0.36	4.45 ± 0.10	21.00 ± 0.20	42.0 ± 0.0	**Eartly**
F11	Traditional or spontaneous	16	5.65 ± 0.07	25.13 ± 0.15	3.00 ± 0.10	22.47 ± 0.28	80.8 ± 1.3	None
F12	Under Water, Prolonged	72	5.43 ± 0.14	20.67 ± 0.32	4.11 ± 0.17	22.20 ± 0.20	80.7 ± 0.6	None
F13	Traditional or spontaneous	16	5.54 ± 0.04	22.1 ± 0.43	4.50 ± 0.07	20.47 ± 0.11	80.8 ± 0.1	None
F14	Traditional or spontaneous	15	5.57 ± 0.09	24.77 ± 1.01	3.29 ± 0.12	22.33 ± 0.25	80.6 ± 0.9	None
F15	Traditional or spontaneous	17	5.66 ± 0.07	26.47 ± 0.23	3.35 ± 0.09	25.33 ± 1.19	53.0 ± 1.4	**Eartly**
F16	Traditional or spontaneous	19	5.95 ± 0.05	21.90 ± 0.69	3.54 ± 0.09	21.93 ± 0.40	79.0 ± 1.1	None
F17	Traditional or spontaneous	16	5.47 ± 0.09	24.60 ± 0.10	3.73 ± 0.076	18.43 ± 0.11	84.0 ± 0.2	None
F18	Traditional or spontaneous	15	5.50 ± 0.15	25.9 ± 0.00	3.51 ± 0.11	21.07 ± 0.35	52.0 ± 7.1	**Fermented**
F19	Traditional or spontaneous	15	5.72 ± 0.03	21.67 ± 0.15	4.49 ± 0.16	19.67 ± 0.05	79.8 ± 0.2	None
F20	Induced anaerobic	72	4.34 ± 0.04	24.90 ± 0.43	4.06 ± 0.02	22.30 ± 0.00	83.5 ± 0.4	None

Data are means of three replicates ± standard deviation

Table S2. Volatile organic compounds (GC-MS peak areas x 10^4) found in green coffee beans from studied sampled farms.

Compounds	Ret. Time (min)	GC-MS peak area (10^4)																		
		F01	F02	F03	F04	F06	F07	F08	F09	F10	F11	F12	F13	F14	F15	F16	F17	F18	F19	F20
Alcohols																				
2,3-Butanediol	34.2	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	18109.8
Phenylethyl Alcohol	34.4	122.4	95.3	230.4	83.5	251.7	267.8	119.1	209.0	133.7	207.4	114.4	122.2	256.1	237.6	110.5	177.6	258.8	382.1	505.6
1-Pentanol	15.6	97.7	n.d	n.d	n.d	n.d	286.4	317.0	n.d	n.d	159.9	n.d	n.d	508.5	446.2	n.d	392.6	n.d	365.7	n.d
1-Octen-3-ol	22.5	35.2	27.1	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	45.0	n.d	n.d	n.d	n.d	n.d	n.d
1-Nonen-3-ol	22.5	n.d	n.d	39.3	n.d	n.d	n.d	n.d	46.7	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d
3-methyl-1-butanol	16.6	n.d	n.d	n.d	n.d	395.7	n.d	n.d	205.6	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	382.3	n.d	828.3
4,7-dimethyl-4-octanol	18.0	n.d	n.d	n.d	n.d	276.1	n.d	n.d	n.d	n.d	n.d	n.d	203.8	308.1	n.d	n.d	243.9	n.d	n.d	n.d
Benzyl alcohol	35.8	n.d	n.d	n.d	n.d	n.d	54.1	n.d	48.4	n.d	n.d	n.d	n.d	n.d	52.3	n.d	n.d	n.d	60.8	340.2
Linalool	25.0	n.d	n.d	n.d	n.d	90.5	94.3	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	87.8	n.d	n.d	n.d
Amides & Amines																				
(2-Aziridinylethyl)amine	3.3	418.6	n.d	483.6	n.d	402.8	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	495.3	n.d	n.d
2-fluoro-ß,3-dihydroxy-N-methyl-benzeneethanamine	3.3	n.d	n.d	n.d	384.0	n.d	n.d	n.d	n.d	n.d	n.d	n.d	484.8	458.6	543.2	526.2	n.d	n.d	498.8	n.d
3-fluoro-ß,5-dihydroxy-N-methyl-benzeneethanamine	3.3	n.d	n.d	n.d	n.d	n.d	456.5	n.d	490.1	n.d	n.d	n.d	n.d	n.d	n.d	n.d	491.2	n.d	n.d	n.d
4-fluoro-ß,3-dihydroxy-N-methyl-benzeneethanamine	3.3	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	488.8	458.7	437.4	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d
Caffeine	42.0	n.d	125.5	191.1	409.7	372.5	330.4	246.4	354.0	311.0	381.1	444.5	952.9	840.6	898.1	778.2	1114.1	818.0	807.6	n.d
Esters & Ketones																				
Ethyl Acetate	4.2	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	1346.8
Methyl anthranilate	40.8	289.0	185.2	179.9	152.8	151.6	142.3	120.3	117.6	112.2	97.1	87.3	85.5	82.4	73.2	65.4	70.6	69.3	82.5	335.8
Methyl salicylate	43.8	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	963.7
Benzyl acetate	41.8	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	73.4
Ethyl salicylate	44.9	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	295.1
2-methyl-decyl ester, 2-propenoic acid	18.0	n.d	242.7	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d
2-methyl-, hexyl ester, 2-propenoic acid	18.1	n.d	n.d	n.d	155.7	n.d	212.6	n.d	n.d	n.d	n.d	n.d	n.d	n.d	241.5	n.d	n.d	n.d	n.d	n.d
2-methylbutyl ester, formic acid	15.6	n.d	n.d	281.9	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d

Compound	RT																			
2-acetoxymethyl-1,2,3-trimethylbutyl ester, acetic acid	18.0	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	261.4	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d
2-Hexanol, acetate	18.0	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	235.3	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d
Sec-butyl ester, cyanic acid	15.6	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	53.6	n.d	n.d	204.7	n.d	n.d	n.d	n.d	n.d
Nonyl ester, cyclopropanecarboxylic acid	18.1	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	325.1	n.d	n.d
3-hydroxybutanone	23.6	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	5856.1
6-methyl-(E)-3,5-Heptadien-2-one	23.5	n.d	n.d	n.d	n.d	n.d	n.d	52.6	23.0	15.0	n.d	n.d	n.d	n.d	19.7	n.d	n.d	29.1	n.d	n.d
Furans & Pyrazines																					
tetrahydro-2,5-dimethyl-cis-furan	27.3	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	21.8	n.d	n.d	n.d	42.9	n.d	n.d	n.d	n.d	n.d	n.d
tetrahydro-2,5-dimethyl-furan	27.3	n.d	n.d	29.0	n.d	n.d	n.d	n.d	42.6	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	49.0	n.d
Linalool oxide	31.2	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	101.0
2-methoxy-3-(2-methylpropyl)-pyrazine	24.6	418.6	296.6	447.1	291.7	212.6	286.1	247.4	437.1	296.5	451.7	215.5	318.8	315.7	418.5	442.5	261.6	388.3	364.1	n.d
tetramethyl-pyrazine	31.4	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	140.7
Aldehydes																					
2,5-Dihydroxybenzaldehyde, 2TMS derivative	24.2	115.4	47.8	58.2	62.6	68.1	60.7	61.2	68.3	68.6	74.9	75.1	n.d	76.3	84.2	79.8	81.3	89.6	89.8	n.d
4-propyl-benzaldehyde	32.1	24.6	30.5	36.0	30.6	50.1	24.8	31.3	23.0	52.9	54.3	55.4	52.2	n.d	45.4	n.d	n.d	n.d	n.d	n.d
2-ethyl-4-pentenal	15.6	n.d	110.0	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d
3-ethyl-benzaldehyde	31.9	n.d	n.d	n.d	8.4	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d
3,4-dimethyl-benzaldehyde	31.8	n.d	n.d	n.d	n.d	n.d	n.d	n.d	9.5	10.2	10.4	13.9	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d
Pyridines & Pyrrolidines																					
2,6-Lutidine	17.08	n.d	332.8	374.3	n.d	n.d	n.d	n.d	n.d	150.2	121.1	294.0	167.8	627.0	n.d	235.4	144.0	n.d	n.d	n.d
2,3-dimethyl-Pyridine	17.09	n.d	n.d	n.d	n.d	206.1	n.d	229.0	n.d	n.d	n.d	n.d	n.d	n.d	405.7	n.d	n.d	179.7	n.d	n.d
3-ethyl-1,3-dimethyl-2,5-pyrrolidinedione	31.1	n.d	37.1	41.6	n.d	42.2	36.5	36.7	34.4	42.5	36.7	44.9	46.7	34.7	38.0	44.3	57.9	44.4	51.5	n.d
Lactones																					
Butyrolactone	28.7	9.0	n.d	n.d	n.d	66.1	n.d	n.d	n.d	33.7	41.1	49.4	n.d	26.6	36.7	40.0	49.6	46.9	25.1	227.6
dihydro-5-methyl-2(3H)-furanone	27.3	25.2	35.7	n.d	24.7	n.d	n.d	50.3	n.d	n.d	53.0	n.d	42.2	n.d	49.5	24.3	28.7	40.8	n.d	n.d

dihydro-4-methyl-2(3H)-furanone	27.4	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	37.9	n.d	n.d	n.d	n.d	n.d	48.6	n.d	n.d
5-ethyldihydro-2(3H)-furanone	29.4	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	38.8	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d

Abbreviations: n.d, not detected

Table S3. Results of Illumina MiSeq amplicon sequencing of bacterial 16S and microbial community richness and diversity

Sample	Read Count	Q30 (%)	nseqs	Coverage	Observed (Sobs)	Chao1	Shannon	Simpson's Reciprocal	D	1-D
CD01R1	173692	74.41	4.42	0.98	155	255	2.3	5.2	0.192	0.808
CD01R2	166292	74.15	4.404	0.97	178	328.6	2.5	6.4	0.156	0.844
CD01R3	182106	74.77	4.413	0.97	174	348.8	2.8	8.5	0.118	0.882
CD02R1	247136	73.28	4.406	0.97	179	358	2.2	3.3	0.303	0.697
CD02R2	208022	74.66	4.422	0.97	187	379.6	2.2	3.5	0.286	0.714
CD02R3	212526	74.13	4.423	0.97	149	312.1	2	2.9	0.345	0.655
CD03R1	154348	74.38	4.432	0.97	183	385.9	2.4	6.8	0.147	0.853
CD03R2	202816	73.82	4.412	0.97	191	441.7	2.6	7.9	0.127	0.873
CD03R3	179298	75.32	4.429	0.97	172	417.2	2.3	6.4	0.156	0.844
CD04R1	189134	73.38	4.399	0.96	263	477	3.2	10.6	0.094	0.906
CD04R2	217598	74.83	4.418	0.97	177	307.2	2.3	6.3	0.159	0.841
CD04R3	190488	73.51	4.435	0.97	179	304.1	2.8	8.9	0.112	0.888
CD05R1	185172	74.58	4.617	0.94	447	1204	4	24.2	0.041	0.959
CD05R2	174110	73.13	4.604	0.93	408	1184	2.9	6	0.167	0.833
CD05R3	171270	74.95	4.583	0.94	377	1148	3.1	8.3	0.120	0.880
CD06R1	217300	73.31	4.392	0.98	133	218	1.5	2	0.500	0.500
CD06R2	239148	74.29	4.562	0.94	392	956.7	3.2	11	0.091	0.909
CD06R3	215262	74.5	4.562	0.93	438	1034	3.5	13.3	0.075	0.925
CD07R1	198040	74.08	4.366	0.98	146	230	2.6	7.6	0.132	0.868
CD07R2	174138	72.14	4.385	0.98	163	247.4	2.7	8.5	0.118	0.882
CD07R3	192356	74.65	4.382	0.98	167	357.5	2.7	8.8	0.114	0.886
CD08R1	198626	74.35	4.406	0.97	221	346	3.1	9.3	0.108	0.892
CD08R2	221032	74.8	4.396	0.96	219	566.5	2.7	8.5	0.118	0.882
CD08R3	244570	73.94	4.39	0.96	199	802	2.6	7.9	0.127	0.873
CD09R1	200872	72.37	4.405	0.98	137	271.5	2.2	5.5	0.182	0.818
CD09R2	208272	73.25	4.413	0.98	145	283	2.2	5.3	0.189	0.811
CD09R3	207598	73.62	4.37	0.98	121	194.6	2.3	6.8	0.147	0.853
CD10R1	161192	74.05	4.406	0.96	301	507	3.1	9.3	0.108	0.892
CD10R2	222002	74.89	4.373	0.97	224	381.7	2.9	8	0.125	0.875
CD10R3	211104	72.89	4.409	0.96	249	486.2	2.8	7.8	0.128	0.872
CD11R1	171006	74.58	4.428	0.96	254	450.2	2.7	6.8	0.147	0.853
CD11R2	212470	74.14	4.444	0.97	239	446.2	2.9	8	0.125	0.875
CD11R3	171444	73.52	4.434	0.96	252	550	2.7	7	0.143	0.857
CD12R1	262032	73.8	4.449	0.98	127	327.1	1.8	3.5	0.286	0.714
CD12R2	195444	74.01	4.447	0.98	134	330.8	2.2	4.4	0.227	0.773
CD12R3	164304	73.33	4.438	0.97	140	362.5	2.2	5	0.200	0.800
CD13R1	197588	73.88	4.456	0.98	91	197.2	2	4.2	0.238	0.762

CD13R2	165690	74.05	4.458	0.98	94	192	2	4	0.250	0.750
CD13R3	177104	74.16	4.439	0.98	92	165.9	2.1	4.3	0.233	0.767
CD14R1	165600	74.55	4.457	0.98	111	324.2	1.5	3	0.333	0.667
CD14R2	160404	73.42	4.462	0.99	69	124.5	1.3	2.7	0.370	0.630
CD14R3	201974	73.57	4.462	0.97	152	380	1.6	3.1	0.323	0.677
CD15R1	187036	74.15	4.425	0.97	163	372.3	2.4	6	0.167	0.833
CD15R2	128144	73.85	4.452	0.97	173	375.1	2.5	6.3	0.159	0.841
CD15R3	171930	75.34	4.441	0.98	137	267.7	2.3	5.8	0.172	0.828
CD16R1	194964	74.35	4.421	0.97	162	427.7	2.4	5	0.200	0.800
CD16R2	176962	74.24	4.427	0.97	162	465.1	2.3	4.3	0.233	0.767
CD16R3	181060	74.88	4.448	0.98	144	306.5	2.3	4.5	0.222	0.778
CD17R1	195584	75.84	4.444	0.98	132	274.5	2.1	5.1	0.196	0.804
CD17R2	164744	72.82	4.445	0.97	146	489.4	2.1	5.2	0.192	0.808
CD17R3	188858	73.24	4.446	0.97	152	330	2.2	4.9	0.204	0.796
CD18R1	201058	81.19	4.456	0.98	102	204.6	1.9	4.5	0.222	0.778
CD18R2	176912	81.64	4.455	0.99	78	183.1	1.7	3.9	0.256	0.744
CD18R3	189156	80.99	4.46	0.98	100	238.6	1.7	4.1	0.244	0.756
CD19R1	139458	78.9	4.46	0.98	100	301.6	1.5	2.5	0.400	0.600
CD19R2	222388	81.83	4.478	0.98	88	259.1	1.4	2.6	0.385	0.615
CD19R3	166034	81.51	4.48	0.98	82	236	1.3	2.4	0.417	0.583
CD20R1	198964	84.06	4.468	0.99	72	150.1	2.1	6.1	0.164	0.836
CD20R2	186136	82.13	4.464	0.99	76	124.4	2	4.5	0.222	0.778
CD20R3	196338	82.44	4.47	0.98	85	246.1	2.1	4.9	0.204	0.796
CF01R1	207418	75.3	4.379	0.96	313	612.5	3.7	17.1	0.058	0.942
CF01R2	184516	74.8	4.388	0.96	332	851.1	4	24.2	0.041	0.959
CF01R3	157132	73.59	4.416	0.97	275	384.4	3.5	14.1	0.071	0.929
CF02R1	197730	74.9	4.641	0.92	477	1605	3.5	11.5	0.087	0.913
CF02R2	213326	74.7	4.323	0.97	214	364	3.2	12.3	0.081	0.919
CF02R3	167338	75.19	4.571	0.93	383	1220	3.1	9.5	0.105	0.895
CF03R1	193450	74.75	4.481	0.96	267	487.6	3.3	10.6	0.094	0.906
CF03R2	200710	75.82	4.399	0.98	133	235.7	2.9	10.5	0.095	0.905
CF03R3	179928	73.12	4.545	0.95	302	947.4	3.3	15.2	0.066	0.934
CF04R1	190462	74.45	4.336	0.97	234	465.6	3.1	11.3	0.088	0.912
CF04R2	179782	74.32	4.392	0.96	229	456.5	2.8	9.2	0.109	0.891
CF04R3	223600	75.42	4.309	0.95	357	682.5	3.5	13.9	0.072	0.928
CF05R1	192506	74.99	4.401	0.98	162	382	2.7	6.2	0.161	0.839
CF05R2	176102	74.01	4.397	0.97	206	334.7	2.6	6.1	0.164	0.836
CF05R3	196922	73.32	4.351	0.97	188	321.6	2.8	6.8	0.147	0.853
CF06R1	216276	74.93	4.544	0.94	340	1732	2.8	5.6	0.179	0.821
CF06R2	179078	75.65	4.557	0.94	370	1141	2.7	4.6	0.217	0.783
CF06R3	182094	74.83	4.535	0.96	244	944.4	2.3	4.5	0.222	0.778

CF07R1	185230	75.3	4.39	0.97	228	368.6	3.3	15.9	0.063	0.937
CF07R2	166784	74.73	4.382	0.97	227	332.6	3.3	14.3	0.070	0.930
CF07R3	170518	74.3	4.389	0.97	263	390.6	3.4	15	0.067	0.933
CF08R1	151394	72.62	4.413	0.99	85	136.2	2	5	0.200	0.800
CF08R2	186264	74.15	4.512	0.96	208	593	2.7	9.9	0.101	0.899
CF08R3	187070	74.38	4.504	0.97	177	540	2.4	7.9	0.127	0.873
CF09R1	196030	74.71	4.611	0.91	563	1682	3.8	13	0.077	0.923
CF09R2	200606	75.07	4.374	0.97	236	392.5	2.3	3.3	0.303	0.697
CF09R3	176770	73.45	4.38	0.96	259	444	2.9	7.1	0.141	0.859
CF10R1	169138	73.08	4.439	0.98	156	322.1	2.5	5.9	0.169	0.831
CF10R2	161102	73.15	4.44	0.98	140	257.3	2.6	6.7	0.149	0.851
CF10R3	200342	73.68	4.443	0.98	147	603.8	2.4	5.8	0.172	0.828
CF11R1	227690	75.29	4.45	0.97	155	353	2.1	4.9	0.204	0.796
CF11R2	179838	75.86	4.437	0.98	142	272.5	2.2	5.5	0.182	0.818
CF11R3	187662	75.53	4.435	0.97	174	519	2.2	5	0.200	0.800
CF12R1	161318	74.64	4.46	0.98	128	208	2.1	4.5	0.222	0.778
CF12R2	145182	75.07	4.457	0.97	180	382	2.1	3	0.333	0.667
CF12R3	193192	74.63	4.438	0.97	168	271	1.9	2.8	0.357	0.643
CF13R1	172744	75.23	4.45	0.98	129	287.8	2.1	4.1	0.244	0.756
CF13R2	179302	75.02	4.444	0.98	130	280	2	3.4	0.294	0.706
CF13R3	139376	73.08	4.434	0.98	146	293.2	2	3.5	0.286	0.714
CF14R1	189536	75.14	4.45	0.98	128	282.5	2.4	7.6	0.132	0.868
CF14R2	174858	74.73	4.451	0.98	99	177.4	2.2	6.6	0.152	0.848
CF14R3	229568	76.04	4.445	0.98	128	247.4	2.4	7	0.143	0.857
CF15R1	175758	74.89	4.459	0.98	114	233.1	2	3.8	0.263	0.737
CF15R2	202004	75.61	4.469	0.98	98	238	1.9	3.6	0.278	0.722
CF15R3	182058	75.12	4.46	0.98	88	186	2	4	0.250	0.750
CF16R1	126600	74.39	4.415	0.98	140	333.6	2.3	5.1	0.196	0.804
CF16R2	133320	75.47	4.427	0.98	109	254.4	2	3.7	0.270	0.730
CF16R3	145842	74.49	4.43	0.98	142	262	2.2	4.6	0.217	0.783
CF17R1	185916	74.95	4.45	0.98	125	473.6	2.1	4.6	0.217	0.783
CF17R2	229354	82.41	4.446	0.98	113	235	2.2	5.9	0.169	0.831
CF17R3	150914	81.33	4.441	0.98	137	320.4	2.2	5	0.200	0.800
CF18R1	216914	83.21	4.456	0.99	93	140.8	2.2	5.3	0.189	0.811
CF18R2	209600	82.22	4.462	0.98	131	262.4	2.4	6.1	0.164	0.836
CF18R3	150292	82.32	4.46	0.98	120	238.1	2.5	7.2	0.139	0.861
CF19R1	169754	80.61	4.449	0.99	87	244.6	2.2	6.3	0.159	0.841
CF19R2	186194	82.57	4.459	0.98	98	233.1	2.3	6.2	0.161	0.839
CF19R3	215602	82.43	4.458	0.98	98	233	2.2	6	0.167	0.833
CF20R1	185496	84.19	4.463	0.98	95	193	2.3	6.9	0.145	0.855
CF20R2	197154	82.91	4.468	0.99	77	177.3	2.1	5.9	0.169	0.831

n	119	119	119	119	119	119	119	119	0.008	0.992
Sum	22,308,962.0	8,992.9	528.8	115.5	21,870.0	50,898.7	293.2	824.5	0.001	0.999
Mean	187,470.3	75.6	4.4	0.97	183.8	427.7	2.5	6.9	0.144	0.856
Deviation	24,791.4	3.0	0.1	0.01	95.1	311.9	0.6	3.9	0.256	0.744
Maximum	262,032.0	84.2	4.6	0.99	563.0	1,732.0	4.0	24.2	0.041	0.959
Minimum	126,600.0	72.1	4.3	0.91	69.0	124.4	1.3	2.0	0.500	0.500

Abbreviations: CD, beggining fermentation; CF, end fermentation; D, Simpson's Index; 1-D, Inverse Simpson index

Table S4. Results of Illumina MiSeq amplicon sequencing of fungal ITS region and microbial community richness and diversity

Sample	Read Count	Q30 (%)	nseqs	Coverage	Observed (Sobs)	Chao1	Shannon	Simpson's Reciprocal	D	1-D
CD01R1	185,428	85.17	4749	0.9956	51	74.3	1.97	5.67	0.176	0.824
CD01R2	174,502	86.20	4756	0.9971	41	54.0	1.92	5.46	0.183	0.817
CD01R3	164,502	86.40	4757	0.9977	35	42.9	1.79	4.88	0.205	0.795
CD02R1	180,800	85.95	4741	0.9924	75	123.5	1.77	3.22	0.311	0.689
CD02R2	160,860	85.48	4744	0.9918	75	149.1	1.84	3.77	0.265	0.735
CD02R3	139,118	84.89	4743	0.9939	68	101.8	1.76	3.34	0.299	0.701
CD03R1	138,166	86.91	4740	0.9958	69	81.7	2.15	6.01	0.166	0.834
CD03R2	162,406	86.51	4740	0.9930	76	128.8	2.09	5.56	0.180	0.820
CD03R3	168,214	87.27	4727	0.9939	71	111.6	2.07	5.55	0.180	0.820
CD04R1	163,092	84.48	4738	0.9899	93	218.3	1.96	4.82	0.207	0.793
CD04R2	163,164	85.85	4728	0.9958	48	79.7	1.88	4.91	0.204	0.796
CD04R3	200,994	85.49	4740	0.9958	43	74.7	1.64	4.05	0.247	0.753
CD05R1	171,092	88.15	4737	0.9886	127	192.0	2.80	8.44	0.118	0.882
CD05R2	173,530	87.31	4739	0.9888	117	203.1	2.62	6.84	0.146	0.854
CD05R3	215,170	87.35	4736	0.9882	118	199.1	2.54	5.82	0.172	0.828
CD06R1	138,110	82.13	4738	0.9897	100	178.4	2.28	4.97	0.201	0.799
CD06R2	128,076	82.22	4750	0.9888	119	172.0	2.65	8.91	0.112	0.888
CD06R3	149,286	86.07	4733	0.9818	165	347.8	2.75	6.72	0.149	0.851
CD07R1	166,754	87.81	4741	0.9861	110	236.2	1.86	3.16	0.316	0.684
CD07R2	202,218	88.36	4743	0.9871	114	205.5	1.68	2.45	0.408	0.592
CD07R3	192,332	88.64	4736	0.9873	102	262.9	1.66	2.53	0.396	0.604
CD08R1	190,962	87.49	4736	0.9924	86	123.1	1.96	4.24	0.236	0.764
CD08R2	171,434	87.42	4724	0.9875	119	196.8	2.22	5.67	0.176	0.824
CD08R3	195,548	86.32	4725	0.9860	115	310.0	2.11	4.58	0.218	0.782
CD09R1	156,160	85.49	4759	0.9924	72	177.0	1.68	2.75	0.364	0.636
CD09R2	143,112	83.07	4732	0.9918	94	143.4	2.51	7.57	0.132	0.868
CD09R3	171,400	84.26	4737	0.9907	90	184.6	2.15	4.48	0.223	0.777
CD10R1	149,748	83.35	4750	0.9878	117	195.7	1.65	2.32	0.431	0.569
CD10R2	162,948	83.51	4749	0.9832	122	473.1	1.55	2.25	0.444	0.556

CD10R3	143,228	82.81	4749	0.9878	107	204.2	1.31	1.81	0.553	0.447
CD11R1	168,500	84.21	4745	0.9941	56	103.3	1.74	3.21	0.312	0.688
CD11R2	143,092	80.50	4750	0.9952	52	75.0	1.55	2.68	0.373	0.627
CD11R3	178,322	83.98	4757	0.9958	50	67.3	1.51	2.83	0.353	0.647
CD12R1	156,814	82.23	4749	0.9941	61	98.8	1.17	1.83	0.546	0.454
CD12R2	153,522	83.51	4756	0.9950	54	84.7	1.10	1.75	0.571	0.429
CD12R3	158,014	84.75	4763	0.9943	50	100.1	0.77	1.42	0.706	0.294
CD13R1	154,502	85.78	4761	0.9937	62	93.1	1.05	1.64	0.608	0.392
CD13R2	125,482	85.69	4757	0.9958	41	136.0	0.94	1.54	0.648	0.352
CD13R3	147,840	86.88	4753	0.9926	64	163.2	1.39	2.06	0.484	0.516
CD14R1	181,654	83.18	4747	0.9962	40	57.0	1.36	3.01	0.332	0.668
CD14R2	139,638	84.56	4786	0.9937	44	131.0	1.40	3.33	0.301	0.699
CD14R3	134,470	83.32	4744	0.9939	51	152.5	1.36	2.81	0.356	0.644
CD15R1	154,982	85.57	4729	0.9776	184	415.9	2.44	5.54	0.180	0.820
CD15R2	169,684	86.31	4734	0.9816	156	376.1	2.38	4.49	0.223	0.777
CD15R3	181,574	85.07	4727	0.9757	204	376.5	2.56	5.50	0.182	0.818
CD16R1	173,234	82.57	4740	0.9954	58	77.3	1.37	2.25	0.444	0.556
CD16R2	176,644	82.45	4742	0.9960	57	69.2	1.41	2.30	0.434	0.566
CD16R3	172,242	82.0	4757	0.9964	51	66.1	1.47	3.16	0.317	0.683
CD17R1	174,612	86.07	4750	0.9958	48	79.7	1.87	4.33	0.231	0.769
CD17R2	134,168	83.59	4750	0.9960	56	67.4	1.96	4.56	0.220	0.780
CD17R3	142,056	86.90	4755	0.9962	47	77.6	1.96	4.49	0.223	0.777
CD18R1	211,170	80.86	4757	0.9971	28	73.5	1.07	2.00	0.499	0.501
CD18R2	159,418	79.66	4755	0.9981	27	34.2	1.01	1.95	0.514	0.486
CD18R3	262,566	86.03	4752	0.9979	31	36.6	1.17	2.25	0.445	0.555
CD19R1	181,020	81.49	4785	0.9939	51	101.8	1.45	2.77	0.360	0.640
CD19R2	228,264	82.08	4788	0.9887	76	362.2	1.56	2.96	0.338	0.662
CD19R3	193,152	83.98	4787	0.9916	58	214.0	1.57	3.52	0.284	0.716
CD20R1	269,076	86.35	4781	0.9944	55	113.5	1.35	2.42	0.413	0.587
CD20R2	202,976	85.75	4776	0.9943	56	106.1	1.50	3.32	0.301	0.699
CD20R3	181,290	84.39	4780	0.9914	67	272.0	1.40	2.55	0.392	0.608
CF01R1	171,926	88.09	4734	0.9873	120	204.3	2.58	7.47	0.134	0.866
CF01R2	184,936	87.72	4743	0.9903	92	178.3	2.29	4.85	0.206	0.794
CF01R3	166,396	88.16	4731	0.9873	118	211.2	2.58	7.61	0.131	0.869
CF02R1	165,016	88.05	4740	0.9899	101	187.8	2.17	4.81	0.208	0.792
CF02R2	169,998	87.08	4725	0.9896	108	192.0	2.37	5.53	0.181	0.819
CF02R3	117,404	88.65	4736	0.9884	107	221.2	2.23	4.88	0.205	0.795
CF03R1	140,270	87.94	4753	0.9914	90	172.0	2.16	4.50	0.222	0.778
CF03R2	149,784	88.16	4749	0.9891	92	202.5	1.88	3.69	0.271	0.729
CF03R3	181,436	87.94	4762	0.9912	67	162.7	1.36	2.35	0.425	0.575
CF04R1	141,128	88.58	4721	0.9814	150	362.7	2.13	3.87	0.259	0.741

CF04R2	136,258	88.35	4719	0.9860	112	231.2	1.80	3.17	0.316	0.684
CF04R3	143,864	89.23	4722	0.9748	200	412.8	2.36	4.56	0.219	0.781
CF05R1	171,474	88.20	4742	0.9812	138	494.0	1.85	2.86	0.349	0.651
CF05R2	150,772	87.99	4727	0.9568	324	899.2	3.29	10.33	0.097	0.903
CF05R3	97,110	87.65	4736	0.9799	157	454.7	2.36	5.26	0.190	0.810
CF06R1	132,058	87.43	4727	0.9909	97	157.2	2.45	7.74	0.129	0.871
CF06R2	181,432	86.83	4719	0.9924	89	137.5	2.37	6.46	0.155	0.845
CF06R3	165,054	87.42	4744	0.9901	84	219.1	1.79	3.16	0.316	0.684
CF07R1	133,316	87.97	4751	0.9878	109	345.1	2.53	6.46	0.155	0.845
CF07R2	167,210	89.19	4739	0.9880	112	211.8	2.33	5.33	0.188	0.812
CF07R3	179,508	88.08	4750	0.9863	137	204.1	2.38	5.22	0.192	0.808
CF08R1	179,348	88.24	4755	0.9941	64	98.4	1.80	4.31	0.232	0.768
CF08R2	174,666	89.29	4752	0.9949	61	88.6	1.88	4.69	0.213	0.787
CF08R3	130,370	88.23	4755	0.9939	72	103.2	2.01	4.97	0.201	0.799
CF09R1	133,900	86.53	4730	0.9822	173	318.3	2.59	4.40	0.227	0.773
CF09R2	154,744	87.62	4753	0.9935	57	212.0	0.72	1.33	0.750	0.250
CF09R3	157,686	87.02	4746	0.9943	61	92.9	1.58	3.13	0.320	0.680
CF10R1	123,254	82.59	4741	0.9960	52	76.4	1.71	3.19	0.314	0.686
CF10R2	154,956	83.55	4745	0.9958	54	92.0	1.89	4.35	0.230	0.770
CF10R3	154,824	82.06	4811	0.9875	117	205.5	1.90	3.60	0.278	0.722
CF11R1	135,518	86.83	4753	0.9950	48	82.5	1.30	2.22	0.450	0.550
CF11R2	163,138	87.94	4762	0.9966	46	56.9	1.33	2.25	0.445	0.555
CF11R3	169,730	87.61	4756	0.9952	47	97.6	1.37	2.31	0.432	0.568
CF12R1	156,682	87.44	4749	0.9958	47	74.1	1.75	3.86	0.259	0.741
CF12R2	174,894	87.50	4760	0.9947	44	344.0	1.93	5.23	0.191	0.809
CF12R3	170,704	87.93	4792	0.9887	74	278.4	1.51	3.43	0.291	0.709
CF13R1	162,764	85.77	4751	0.9962	41	92.0	1.57	3.46	0.289	0.711
CF13R2	198,488	88.54	4748	0.9949	51	78.6	1.59	3.55	0.282	0.718
CF13R3	152,230	85.73	4745	0.9962	41	92.0	1.65	3.62	0.276	0.724
CF14R1	154,896	87.58	4749	0.9954	57	85.9	1.69	3.15	0.317	0.683
CF14R2	151,288	87.17	4757	0.9922	74	240.5	1.71	2.92	0.342	0.658
CF14R3	148,676	87.46	4749	0.9962	51	102.0	1.72	3.20	0.313	0.687
CF15R1	147,372	88.19	4757	0.9958	61	73.7	2.02	4.75	0.210	0.790
CF15R2	192,734	88.10	4756	0.9937	72	105.5	1.98	4.10	0.244	0.756
CF15R3	171,154	87.03	4753	0.9956	61	73.4	1.90	4.17	0.240	0.760
CF16R1	182,168	86.85	4744	0.9888	97	183.1	1.42	2.07	0.484	0.516
CF16R2	170,206	88.37	4754	0.9914	77	128.3	1.12	1.70	0.588	0.412
CF16R3	167,814	87.46	4747	0.9880	92	225.0	1.43	2.19	0.456	0.544
CF17R1	166,292	88.65	4743	0.9964	40	74.0	1.47	3.35	0.298	0.702
CF17R2	183,940	86.19	4756	0.9966	42	55.3	1.52	3.58	0.279	0.721
CF17R3	202,878	87.03	4749	0.9973	35	61.0	1.64	3.91	0.256	0.744

CF18R1	219,428	86.59	4759	0.9973	46	59.0	1.41	2.45	0.408	0.592
CF18R2	206,672	86.82	4760	0.9981	36	42.0	1.08	1.81	0.554	0.446
CF18R3	208,824	86.82	4764	0.9979	33	40.5	1.12	2.02	0.496	0.504
CF19R1	193,336	85.19	4764	0.9943	47	134.8	0.73	1.36	0.733	0.267
CF19R2	181,020	85.17	4762	0.9962	37	88.0	0.76	1.38	0.723	0.277
CF19R3	193,634	85.80	4767	0.9956	38	108.0	0.74	1.39	0.719	0.281
CF20R1	189,956	86.31	4778	0.9929	62	202.3	1.65	3.80	0.263	0.737
CF20R2	236,916	81.72	4780	0.9935	62	108.5	1.68	3.91	0.256	0.744
CF20R3	266,442	86.78	4773	0.9954	53	99.2	1.61	3.19	0.314	0.686
n	**120**	**120**	**120**	**120**	**120**	**120.0**	**120.00**	**120.00**	**120.00**	**120.00**
Sum	20,262,224	10,322	569,925	119	9,601	20060.9	213.38	465.65	37.73	82.27
Mean	168,713	86	4,749	1	80	168.0	1.78	3.87	0.32	0.68
Deviation	28,548	2	16	0	44	122.6	0.50	1.74	0.15	0.15
Maximum	97,110	80	4,719	0.957	27	34.2	0.72	1.33	0.10	0.25
Minimum	269,076	89	4,811	0.998	324	899.2	3.29	10.33	0.75	0.90

Abbreviations: CD, beggining fermentation; CF, end fermentation; D, Simpson's Index; 1-D, Inverse Simpson index