Dominant Tree Species Shape Soil Microbial Community via Regulating Assembly Processes in Planted Subtropical Forests

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Table 1. Significant tests of the differences of soil bacterial community structure between each two of a 2-year-old and a 4-year-old Eucalyptus plantations (EP-2-year and EP-4-year) and a 3-year-old and a 5-year-old Rubber plantations (RP-3-year and RP-5-year) with permutational multivariate analysis of variance (Adonis) and analysis of similarity (ANOSIM) methods. The tests were performed based on Unweighted Unifrac dissimilarities among samples.

	EP-2-year		**EP-4-year**		**RP-3-year**		**RP-5-year**	
Adonis								
	F	P	F	P	F	P	F	P
EP-2-year	--	--	--	**	--	**	--	**
EP-4-year	2.97	0.002	--	--	--	**	--	**
RP-3-year	7.01	0.001	6.82	0.001	--	--	--	Na
RP-5-year	7.77	0.001	8.14	0.001	1.39	0.091	--	--

	EP-2-year		EP-4-year		RP-3-year		RP-5-year	
ANOSIM								
	R	P	R	P	R	P	R	P
EP-2-year	--	--	--	**	--	**	--	**
EP-4-year	0.29	0.001	--	--	--	**	--	**
RP-3-year	0.77	0.001	0.86	0.001	--	--	--	Na
RP-5-year	0.82	0.001	0.90	0.001	0.11	0.09	--	--

Table S2. Significant tests of the differences of soil bacterial community structure between each two of a 2-year-old and a 4-year-old Eucalyptus plantations (EP-2-year and EP-4-year) and a 3-year-old and a 5-year-old Rubber plantations (RP-3-year and RP-5-year) with permutational multivariate analysis of variance (Adonis) and analysis of similarity (ANOSIM) methods. The tests were performed based on Bray Curtis dissimilarities among samples.

	EP-2-year		**EP-4-year**		**RP-3-year**		**RP-5-year**	
Adonis								
	F	P	F	P	F	P	F	P
EP-2-year	--	--	--	**	--	**	--	**
EP-4-year	3.46	0.006	--	--	--	**	--	**
RP-3-year	9.33	0.001	7.04	0.001	--	--	--	Na
RP-5-year	7.13	0.001	8.09	0.001	2.12	0.057	--	--

	EP-2-year		EP-4-year		RP-3-year		RP-5-year	
ANOSIM								
	R	P	R	P	R	P	R	P
EP-2-year	--	--	--	*	--	**	--	**
EP-4-year	0.18	0.019	--	--	--	**	--	**
RP-3-year	0.66	0.001	0.66	0.001	--	--	--	*
RP-5-year	0.58	0.001	0.63	0.001	0.16	0.045	--	--

Table S3. Significant tests of the differences of soil fungal community structure between each two of a 2-year-old and a 4-year-old Eucalyptus plantations (EP-2-year and EP-4-year) and a 3-year-old and a 5-year-old Rubber plantations (RP-3-year and RP-5-year) with permutational multivariate analysis of variance (Adonis) and analysis of similarity (ANOSIM) methods. The tests were performed based on Unweighted Unifrac dissimilarities among samples.

	EP-2-year		**EP-4-year**		**RP-3-year**		**RP-5-year**	
Adonis								
	F	P	F	P	F	P	F	P
EP-2-year	--	--	--	**	--	**	--	**
EP-4-year	2.79	0.001	--	--	--	**	--	**
RP-3-year	5.51	0.001	4.93	0.001	--	--	--	**
RP-5-year	4.99	0.001	4.81	0.001	2.01	0.001	--	--

	EP-2-year		EP-4-year		RP-3-year		RP-5-year	
ANOSIM								
	R	P	R	P	R	P	R	P
EP-2-year	--	--	--	**	--	**	--	**
EP-4-year	0.53	0.001	--	--	--	**	--	**
RP-3-year	0.94	0.001	0.98	0.001	--	--	--	*
RP-5-year	0.95	0.001	0.99	0.001	0.42	0.004	--	--

Table S4. Significant tests of the differences of soil fungal community structure between each two of a 2-year-old and a 4-year-old Eucalyptus plantations (EP-2-year and EP-4-year) and a 3-year-old and a 5-year-old Rubber plantations (RP-3-year and RP-5-year) with permutational multivariate analysis of variance (Adonis) and analysis of similarity (ANOSIM) methods. The tests were performed based on Bray Curtis dissimilarities among samples.

	EP-2-year		**EP-4-year**		**RP-3-year**		**RP-5-year**	
Adonis								
	F	P	F	P	F	P	F	P
EP-2-year	--	--	--	**	--	**	--	**
EP-4-year	5.97	0.001	--	--	--	**	--	**
RP-3-year	7.86	0.001	8.30	0.001	--	--	--	**
RP-5-year	8.30	0.001	8.57	0.001	1.97	0.006	--	--

	EP-2-year		EP-4-year		RP-3-year		RP-5-year	
ANOSIM								
	R	P	R	P	R	P	R	P
EP-2-year	--	--	--	**	--	**	--	**
EP-4-year	0.76	0.001	--	--	--	**	--	**
RP-3-year	1	0.002	0.99	0.001	--	--	--	*
RP-5-year	0.99	0.001	0.99	0.001	0.22	0.01	--	--

Table S5. Properties of soil bacterial species co-occurrence networks in a 2-year-old and a 4-year-old Eucalyptus plantations (EP-2-year and EP-4-year) and a 3-year-old and a 5-year-old Rubber plantations (RP-3-year and RP-5-year). Both the properties from Empirical and Random networks were presented.

	EP-2-year	EP-4-year	RP-3-year	RP-5-year
Empirical network				
Similarity threshold	0.91	0.90	0.92	0.93
Total nodes	321	385	429	530
Total links	937	1244	816	913
Average connectivity	5.838	6.462	3.804	3.445
Average clustering coefficient	0.364	0.351	0.298	0.247
Average path distance	5.816	5.317	7.335	7.168

Average geodesic distance	4.162		4.080		5.599		5.520		
Modularity	0.663		0.601		0.788		0.821		
Random network									
Average clustering coefficient	0.044	±	0.042	±	0.012	±	0.010	±	
(SD)	0.007		0.005		0.003		0.003		
Average path distance (SD)	3.392	±	3.352	±	4.331	±	4.584	±	
	0.042		0.032		0.046		0.045		
Average geodesic distance	3.057	±	3.037	±	3.901	±	4.141	±	
	0.028		0.022		0.029		0.033		
Modularity (SD)	0.370	±	0.348	±	0.523	±	0.564	±	
	0.006		0.004		0.006		0.006		

Table S6. Properties of soil fungal species co-occurrence networks in a 2-year-old and a 4-year-old Eucalyptus plantations (EP-2-year and EP-4-year) and a 3-year-old and a 5-year-old Rubber plantations (RP-3-year and RP-5-year). Both the properties from Empirical and Random networks were presented.

	EP-2-year	EP-4-year	RP-3-year	RP-5-year
Empirical network				
Similarity threshold	0.83	0.83	0.83	0.89
Total nodes	59	29	99	188
Total links	60	23	208	294
Average connectivity	2.034	1.586	4.202	3.128
Average clustering coefficient	0.107	0.109	0.383	0.156
Average path distance	4.787	2.386	4.894	6.639
Average geodesic distance	3.503	1.741	3.63	4.951
modularity	0.759	0.715	0.698	0.729
Random network				
Average clustering coefficient (SD)	0.024 ± 0.016	0.065 ± 0.024	0.047 ± 0.013	0.016 ± 0.007
Average path distance (SD)	4.945 ± 0.509	3.051 ± 0.679	3.291 ± 0.060	4.467 ± 0.094
Average geodesic distance	3.650 ± 0.280	2.121 ± 0.344	2.841 ± 0.041	3.866 ± 0.058

Modularity (SD)	0.693 ± 0.020	0.706 ± 0.052	0.435 ± 0.014	0.580 ± 0.009

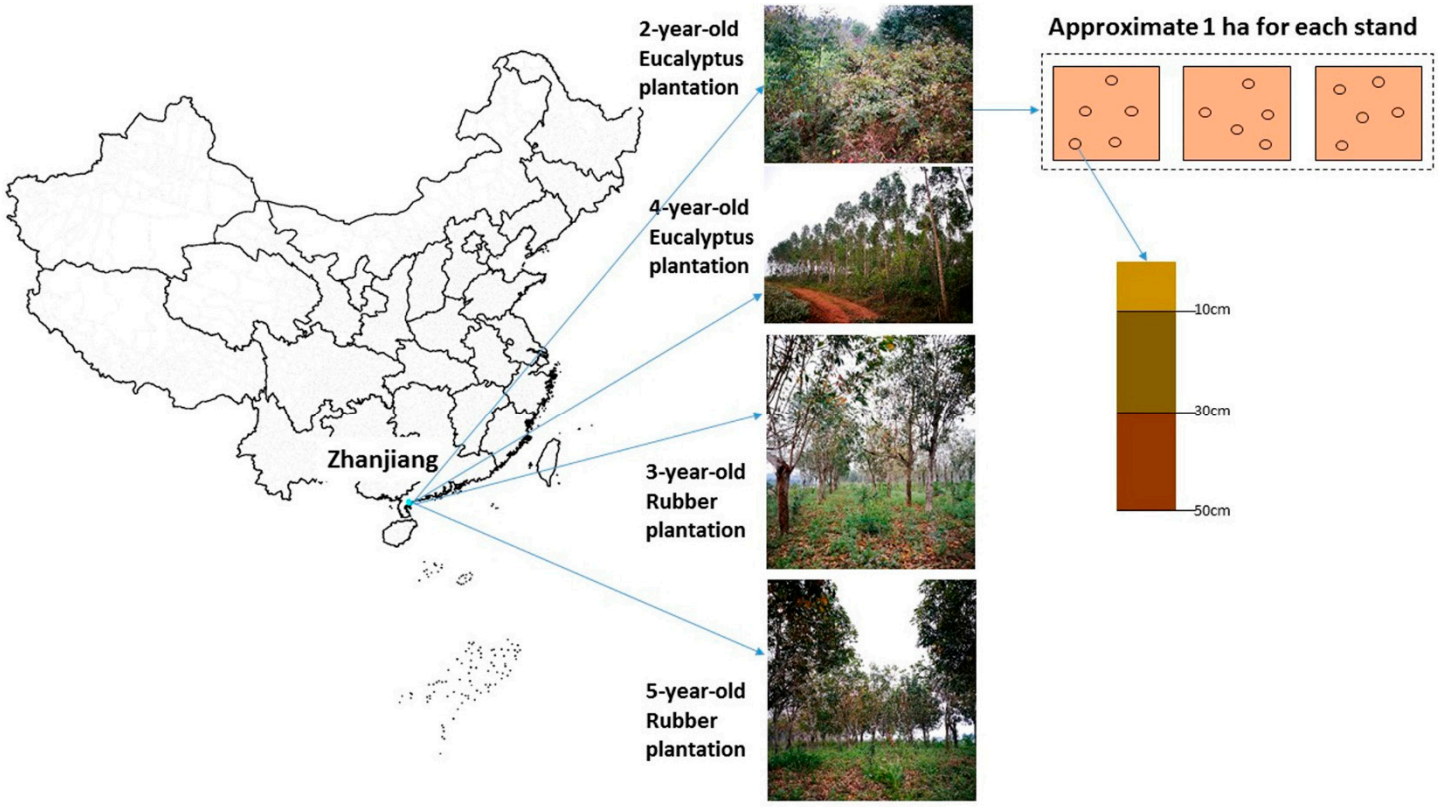

Figure S1 The layout of the studied plantations and the sampling scheme.

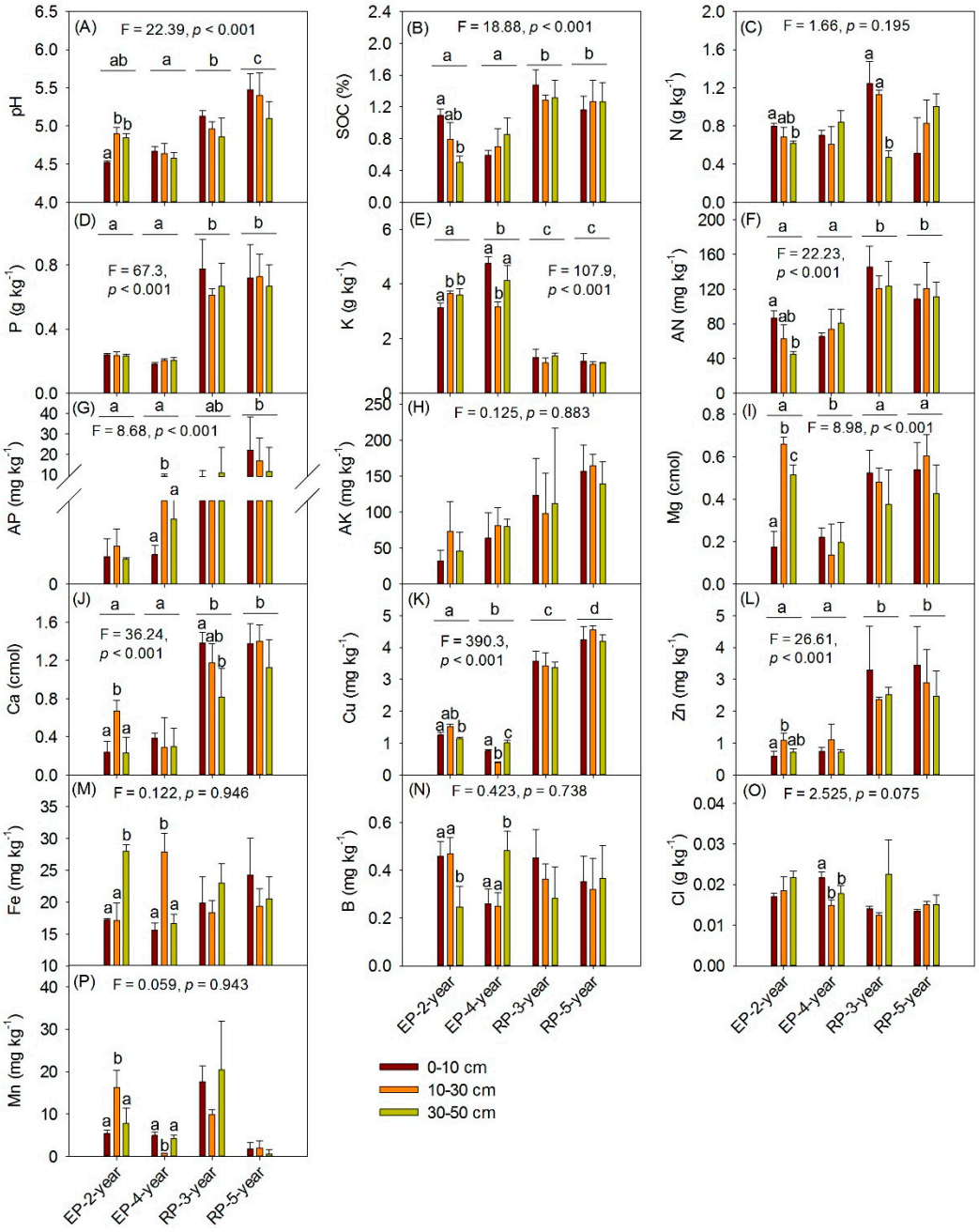

Figure S2. Soil properties in three soil depths (0-10 cm, 10-30 cm, 30-50 cm) under a 2-year-old and a 4-year-old Eucalyptus plantations (EP-2-year and EP-4-year) and a 3-year-old and a 5-year-old Rubber plantations (RP-3-year and RP-5-year). Lowercase letters above the error bars show the differences among the three soil layers (i.e., 0–10 cm, 10–30 cm, and 30–50 cm). Lowercase letters above the grouped bars indicate the differences among the four

plantations. F and *p* values represent the overall difference among the four plantations based on one-way ANOVA analysis. Abbreviations: soil organic carbon (SOC), total nitrogen (N), total phosphorus (P), total potassium (K), available nitrogen (AN), available phosphorus (AP), available potassium (AK), magnesium (Mg), calcium (Ca), copper (Cu), zinc (Zn), iron (Fe), boron (B), chlorine (Cl), and manganese (Mn).

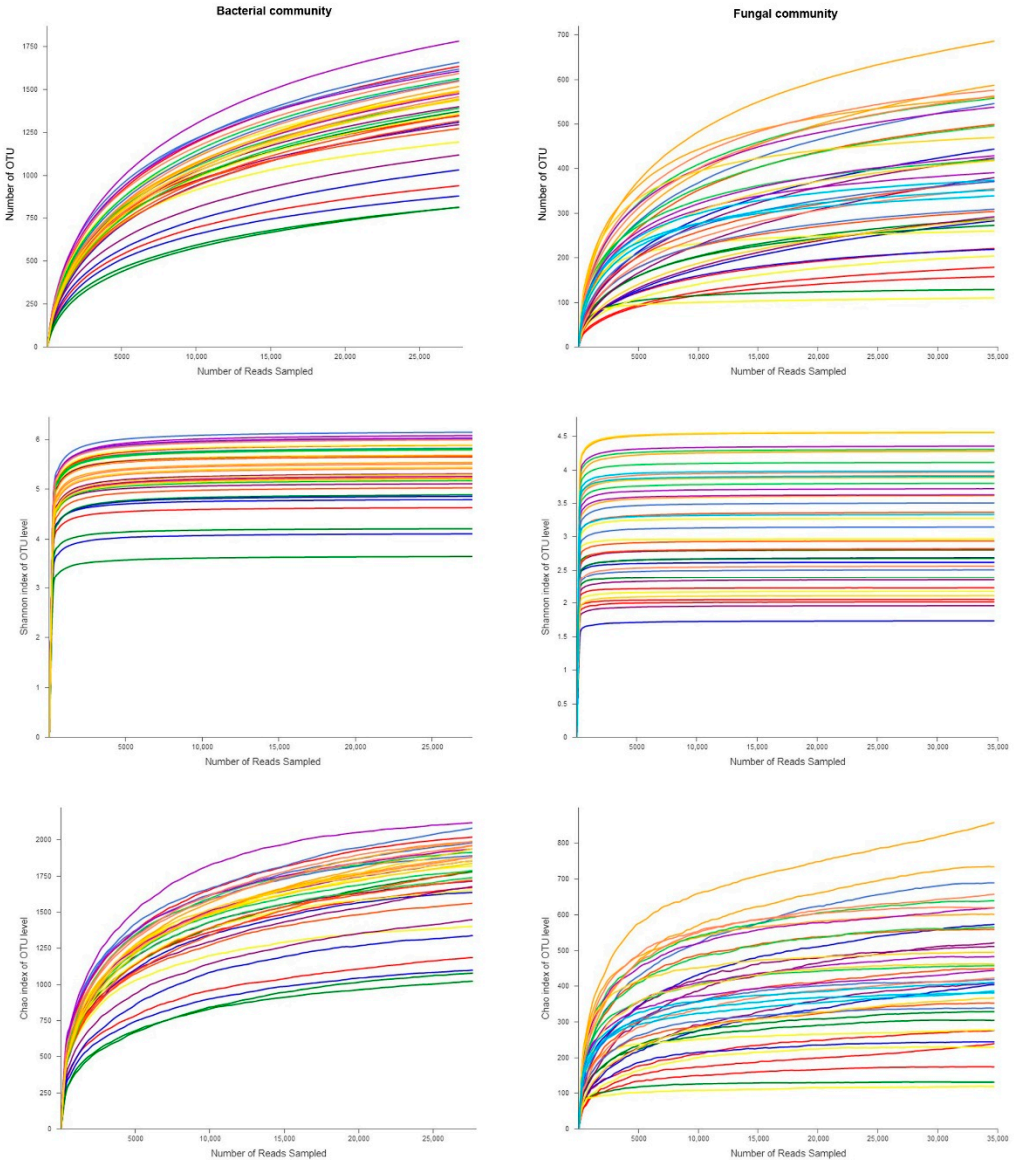

Figure S3. The rarefaction curves of microbial OTU numbers, Shannon index and Chao index against the number of reads for each sample.

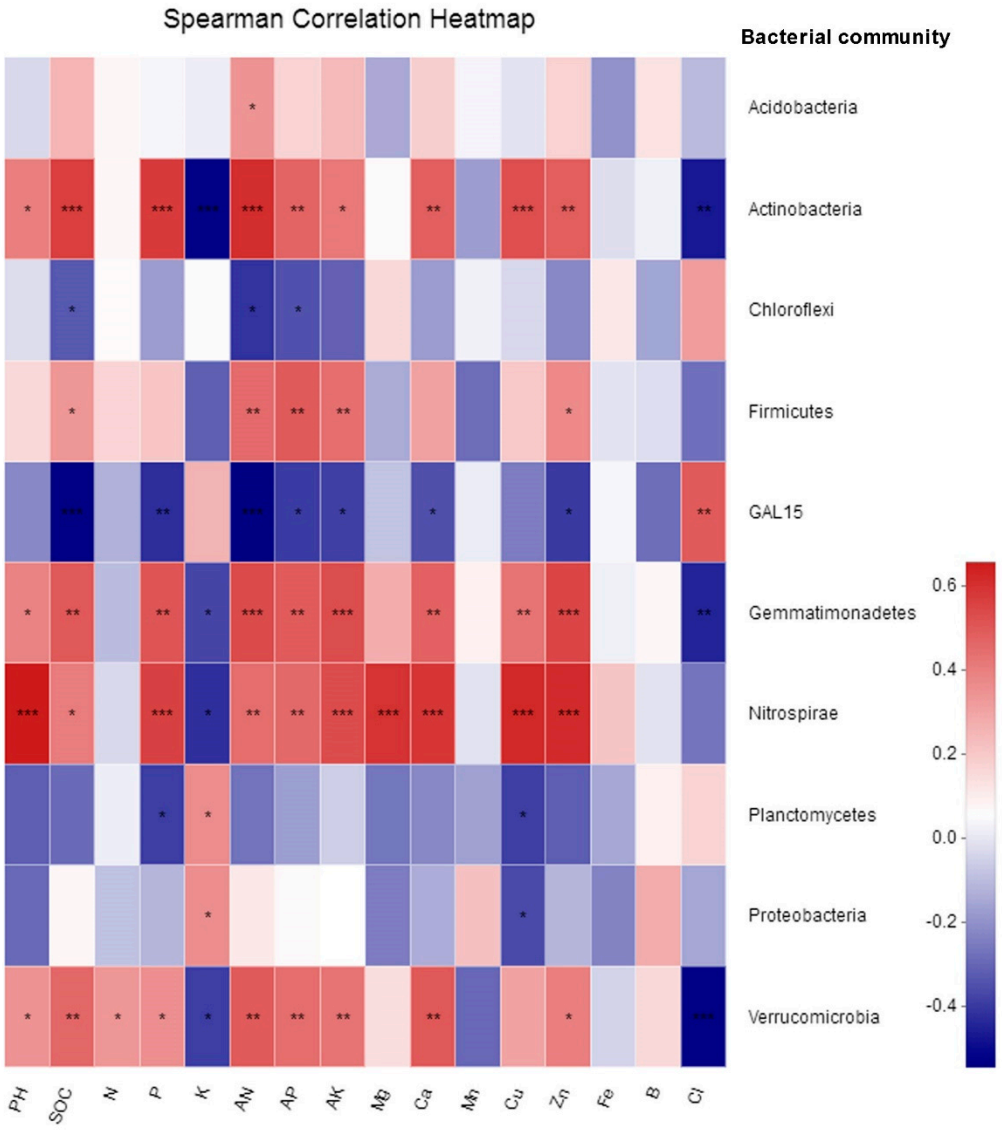

Figure S4. Spearman correlations between the top bacterial phyla abundance and environmental variables. The significance level was indicated as *** when $p < 0.001$, ** when $p < 0.01$, * when $p < 0.05$. Please see Figure S1 for the abbreviations of environmental variables.

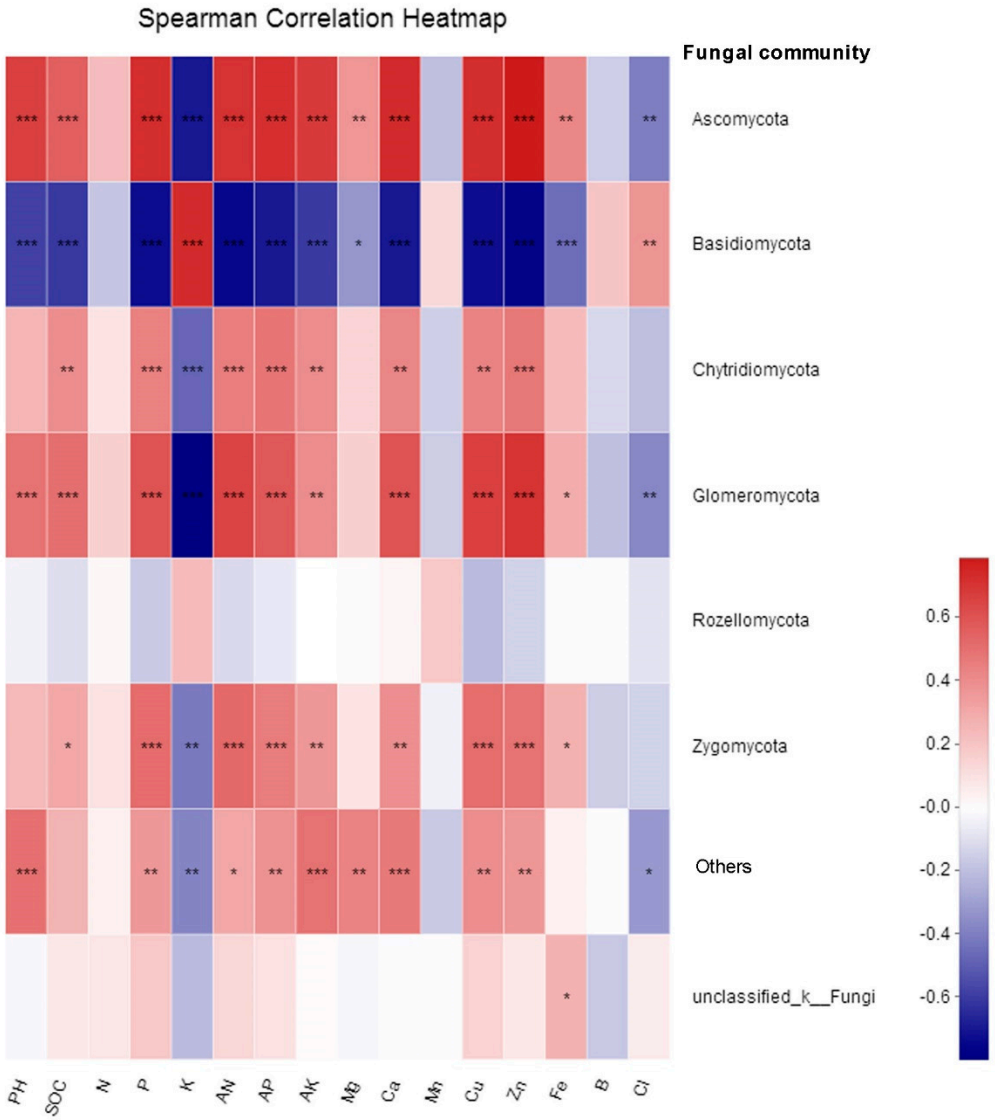

Figure S5. Spearman correlations between the top fungal phyla abundance and environmental variables. The significance level was indicated as *** when $p < 0.001$, ** when $p < 0.01$, * when $p < 0.05$. Please see Figure S1 for the abbreviations of environmental variables.

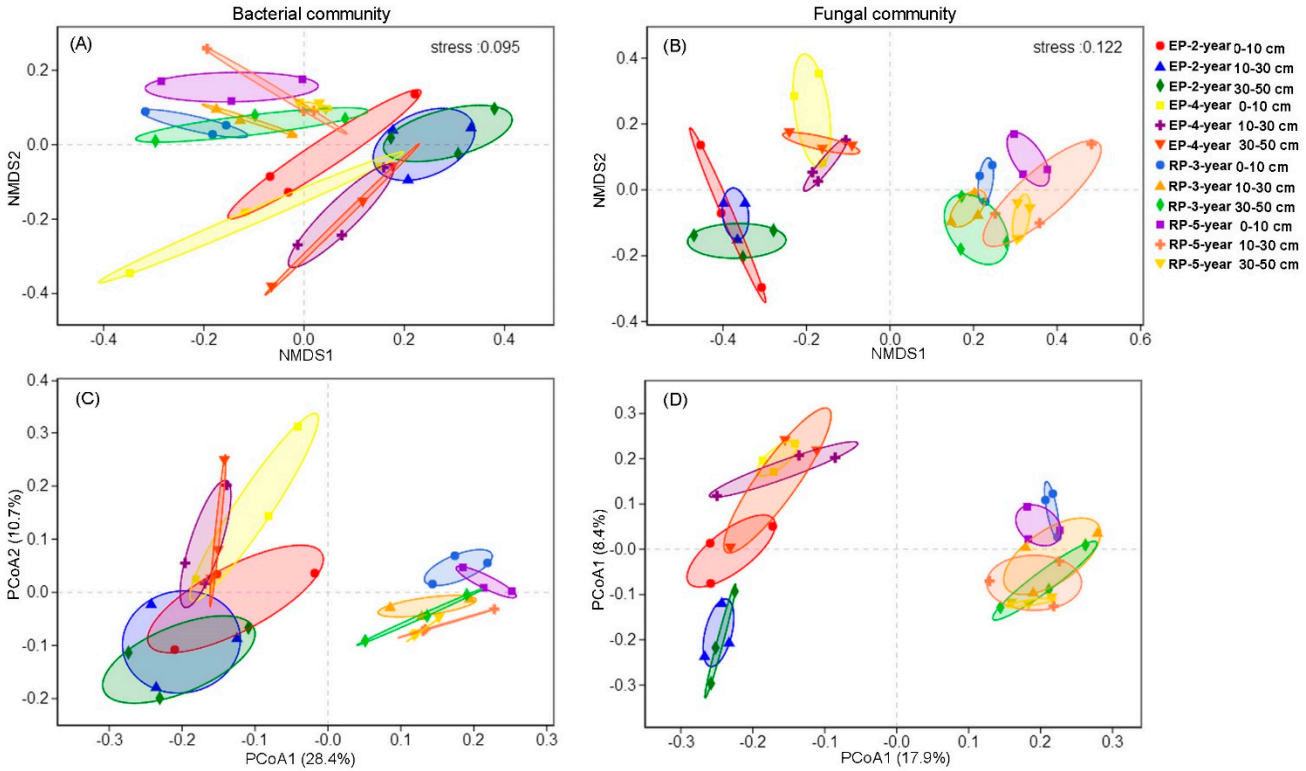

Figure S6. Non-metric multidimensional scaling (NMDS) ordination and principal coordinates analysis (PCoA) showing the structural differences of bacterial (AC) and fungal (BD) communities along 0-50 cm soil profile among the four studied plantations,

namely, a 2-year-old and a 4-year-old Eucalyptus plantations (EP-2-year and EP-4-year) and a 3-year-old and a 5-year-old Rubber plantations (RP-3-year and RP-5-year). The NMDS analysis was performed based on Bray-Curtis dissimilarity matrix, and the PCoA was conducted with the Unweighted Unifrac dissimilarity matrix.