

**Table S2.** Correlations between relative abundance of fungal phyla and soil properties. Coefficients were determined by Pearson test. \*, \*\*, and \*\*\* indicate significant correlations at  $P < 0.05$ ,  $0.01$ , and  $0.001$ , respectively.

	Ascomycota	Zygomycota	Basidiomycota	Chytridiomycota	Glomeromycota	Neocallimastigomycota
SOC	0.393 ***	-0.459 ***	0.096	0.604 ***	0.123	0.167
TN	0.366 ***	-0.427 ***	0.084	0.560 ***	0.144	0.147
TP	0.099	-0.168	0.154	0.229 *	-0.020	0.081
C:N ratio	0.283 *	-0.300 **	0.086	0.270 *	-0.070	0.138
TK	-0.149	0.128	0.001	-0.097	0.098	-0.186
AN	0.376 ***	-0.452 ***	0.143	0.540 ***	0.123	0.135
AP	0.186	-0.336 **	0.387 ***	0.316 **	-0.068	0.190
Fe	-0.426 ***	0.551 ***	-0.415 ***	-0.377 ***	0.111	-0.072
pH	-0.162	0.245 *	-0.109	-0.400 ***	-0.173	-0.222
CEC	0.156	-0.118	-0.179	0.285 *	0.130	0.083