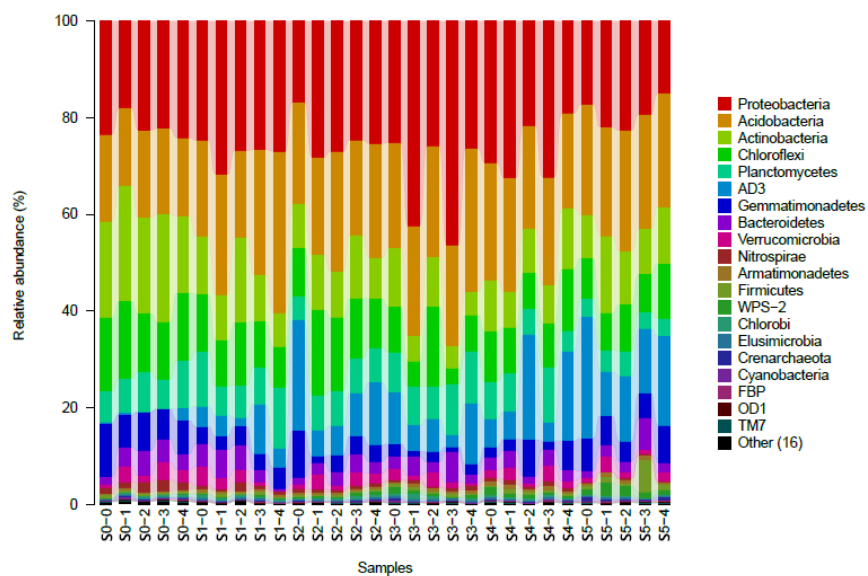


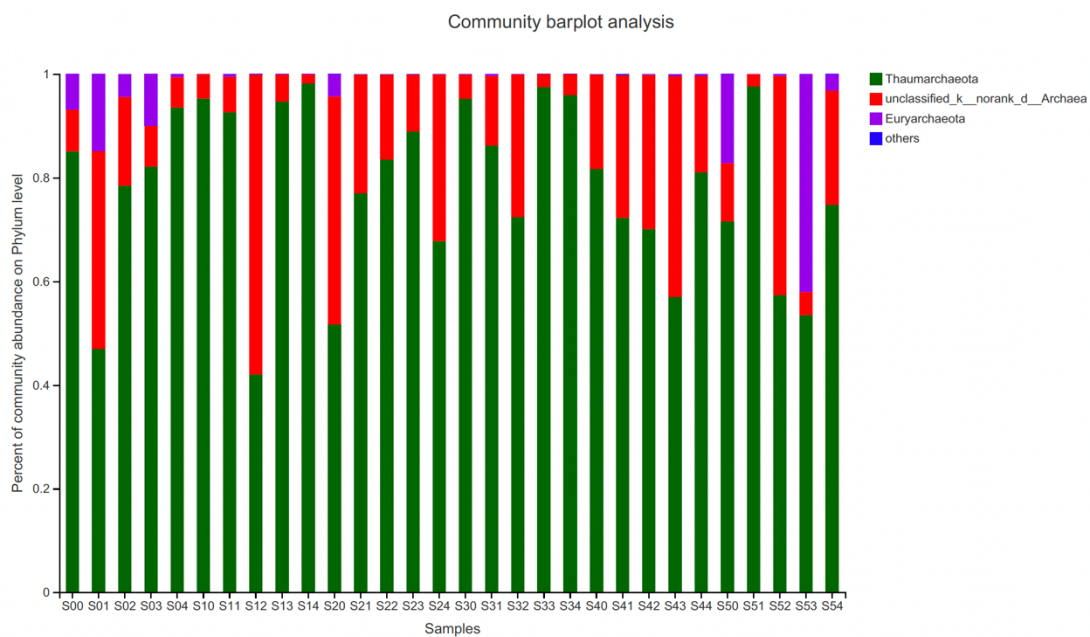
# Supplementary Material

## Figure

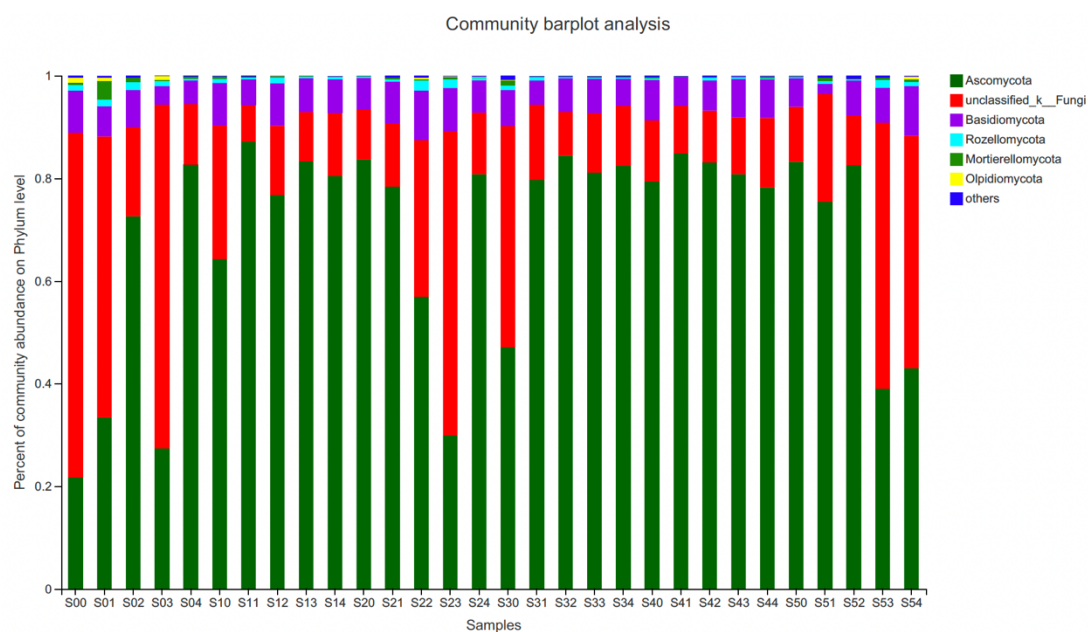
(A)



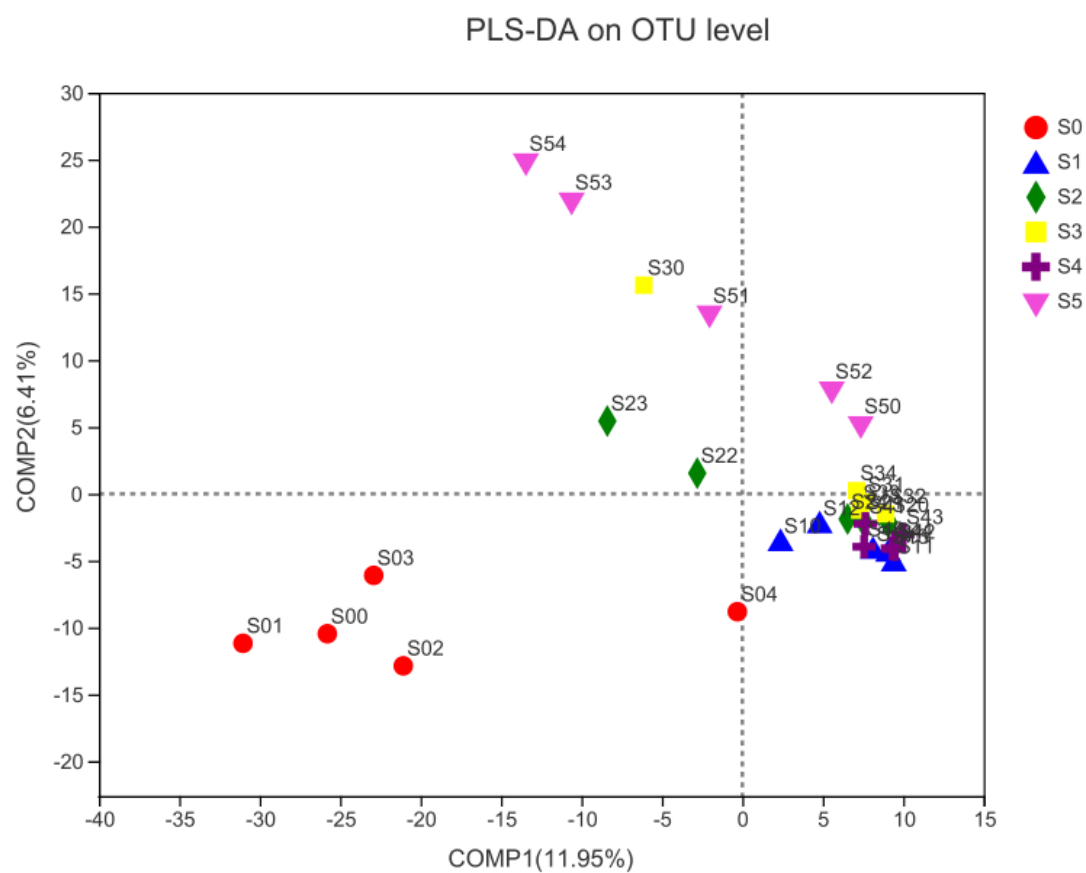
(B)

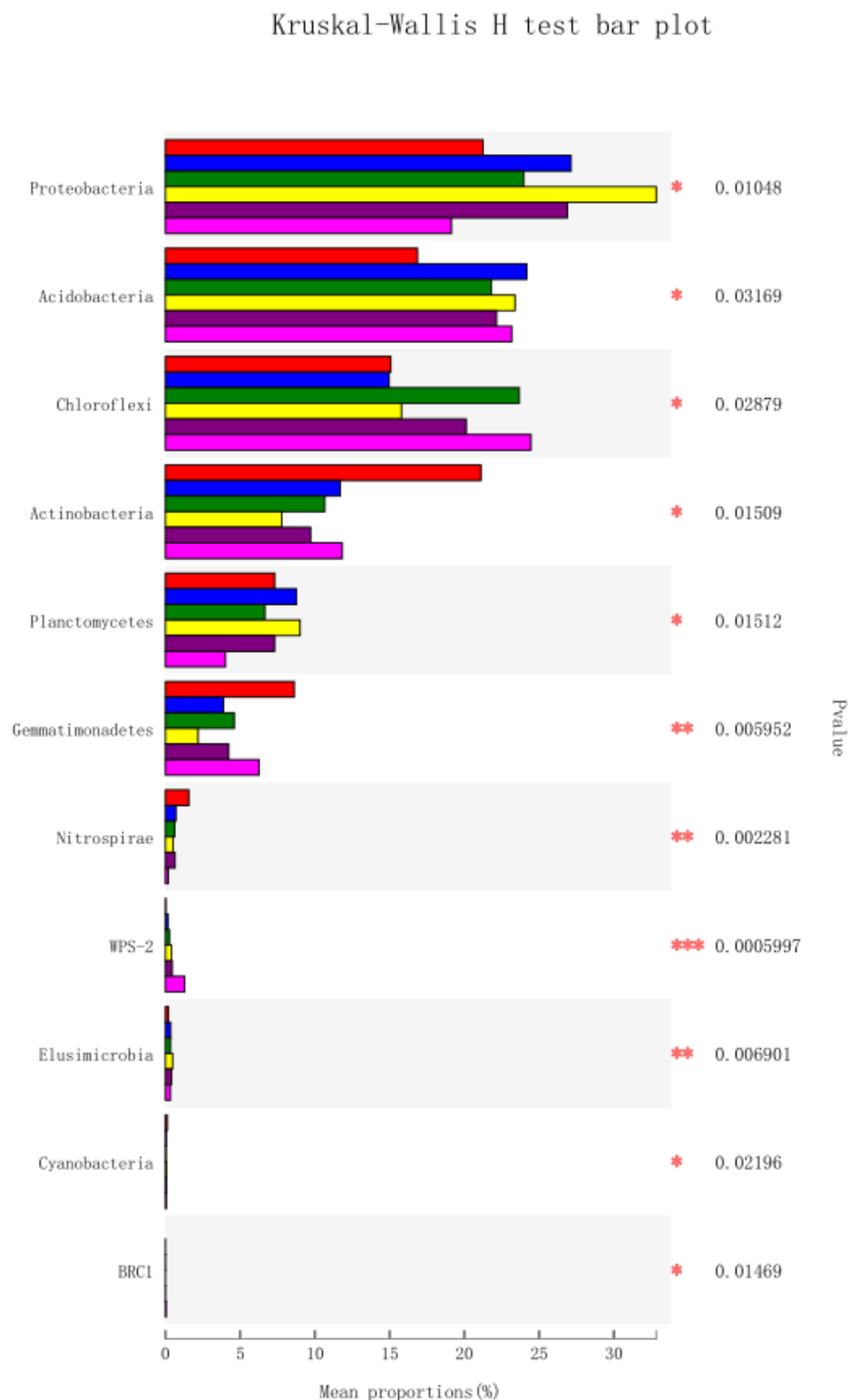


(C)

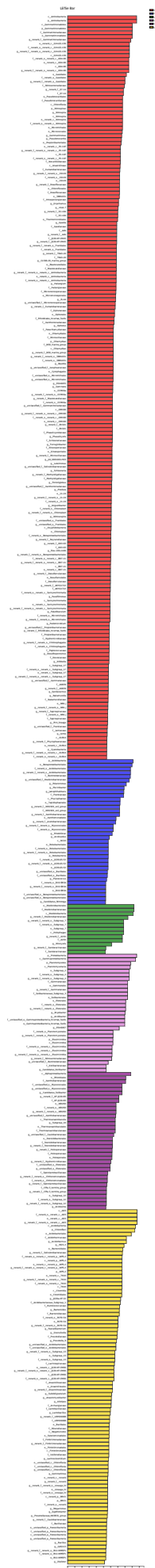


**Supplementary Figure 1.** Microbial communities composition in terrace soils shown as relative abundance (%) of taxa at the phylum level. **(A)** Bacterial community composition, **(B)** Archaeal community composition, **(C)** Fungal community composition.



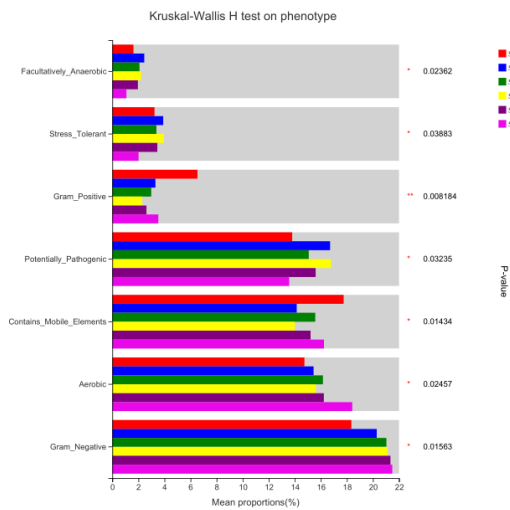


**Supplementary Figure 3.** Differential bacterial phyla levels comparison between different successional stages. \*  $0.01 < P \leq 0.05$ , \*\*  $0.001 < P \leq 0.01$ , and \*\*\*  $P \leq 0.001$ .

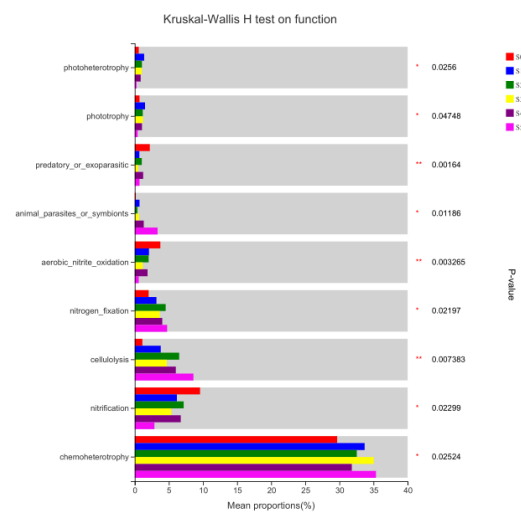


**Supplementary Figure 4.** LefSe analysis. The histogram of the Linear discriminant analysis (LDA) scores illustrates the differentially abundant bacterial communities along successional stages.

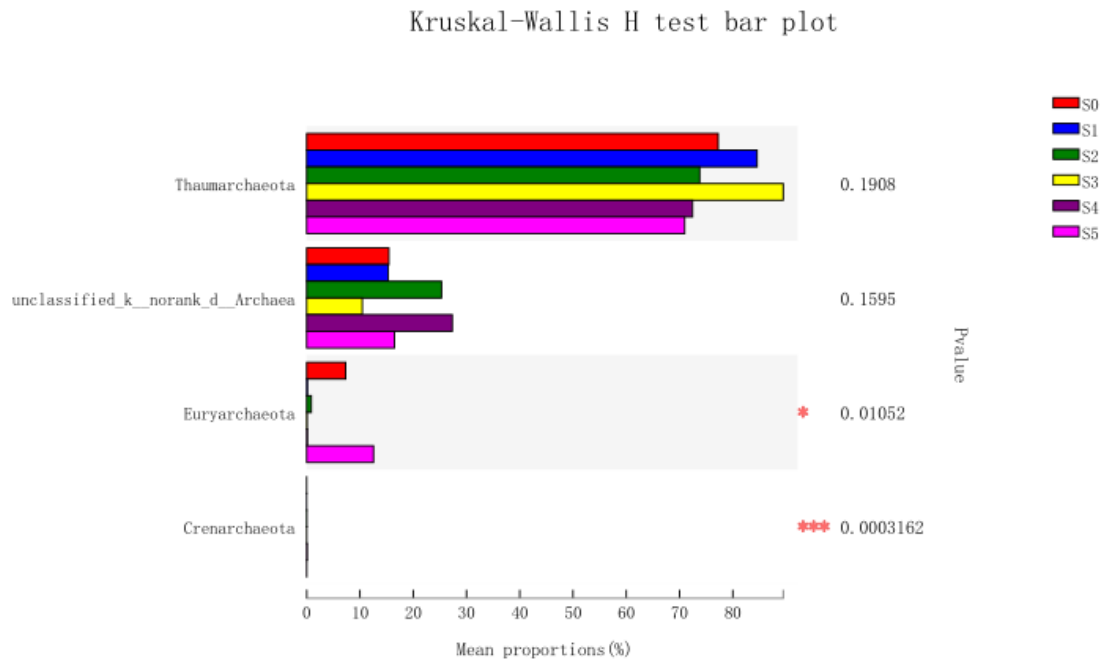
(A)



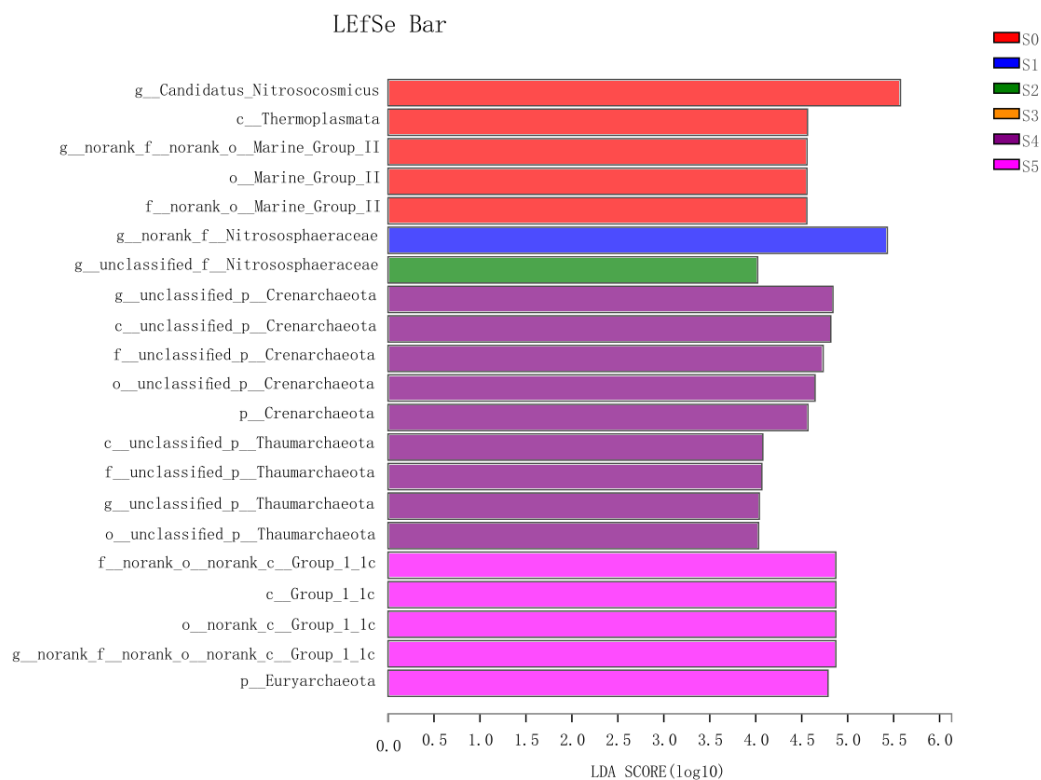
(B)



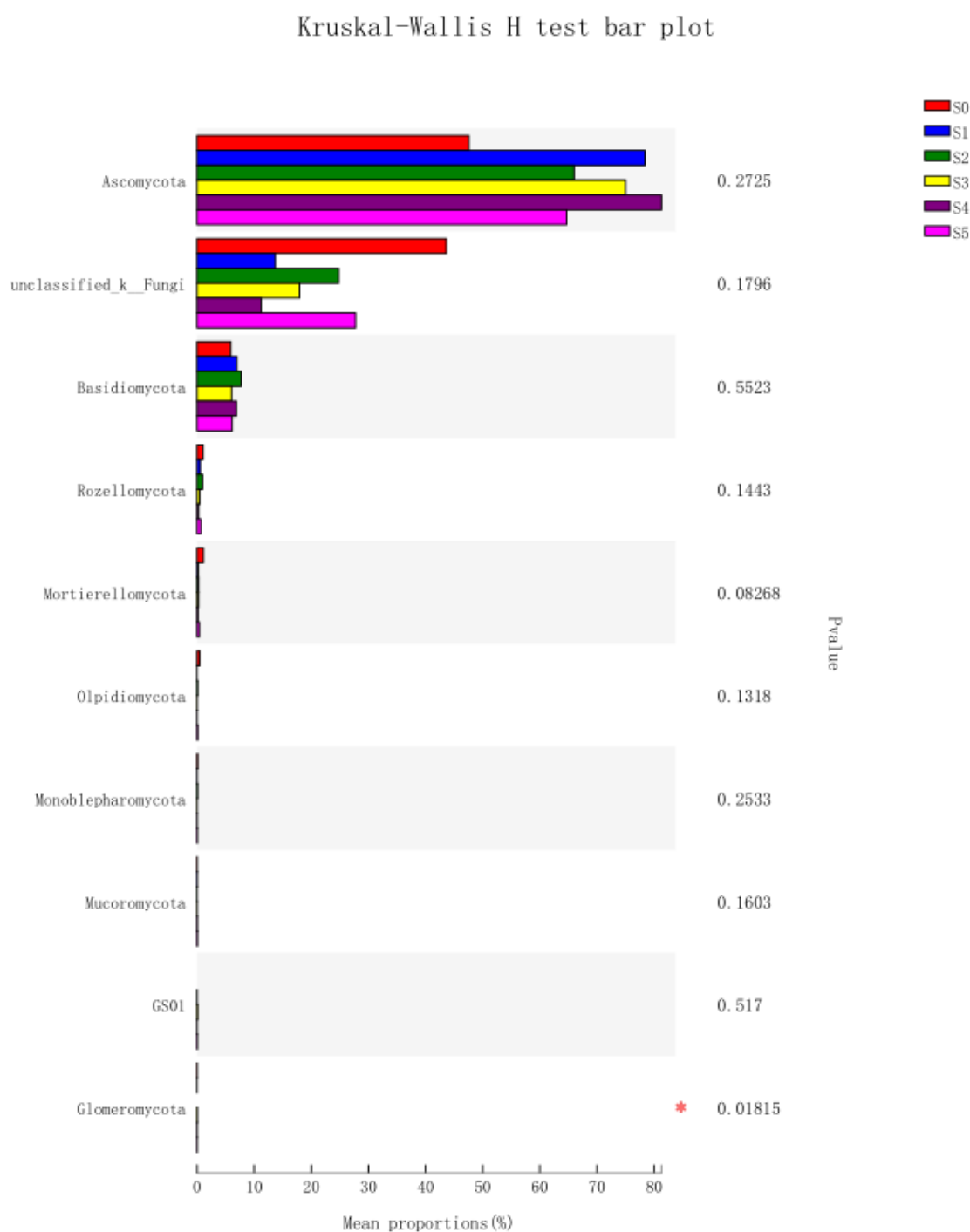
**Supplementary Figure 5.** Bacterial community phenotype and function prediction. (A) BugBase bacterial community phenotype prediction and difference detection, (B) Prediction of bacterial community functions based on FAPROTAX database. \*  $0.01 < P \leq 0.05$ , \*\*  $0.001 < P \leq 0.01$ , and \*\*\*  $P \leq 0.001$ .



**Supplementary Figure 6.** Differential archaeal phyla levels comparison between different successional stages. \*  $0.01 < P \leq 0.05$ , \*\*  $0.001 < P \leq 0.01$ , and \*\*\*  $P \leq 0.001$ .

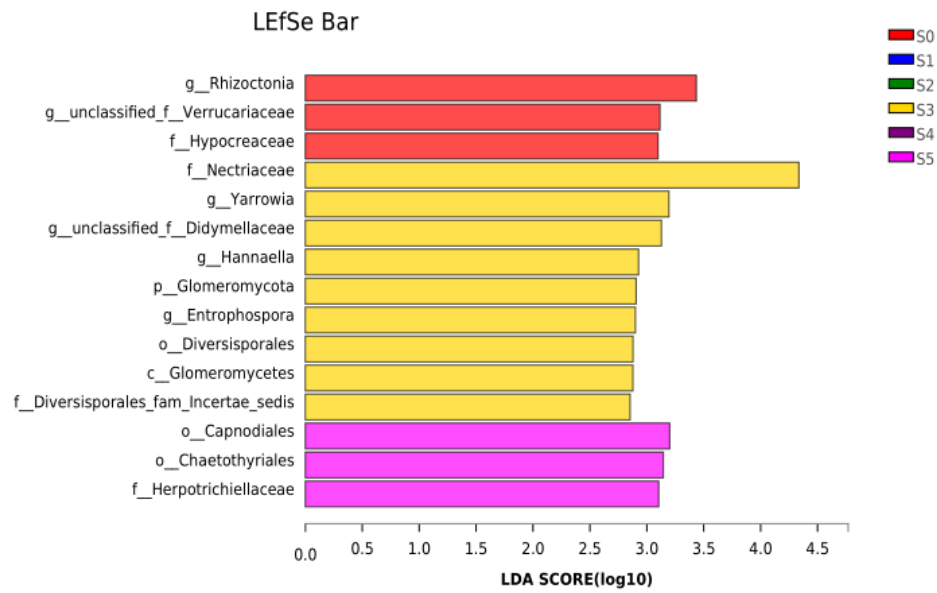


**Supplementary Figure 7.** LEfSe analysis. The histogram of the Linear discriminant analysis (LDA) scores illustrates the differentially abundant archaeal communities along successional stages.



**Supplementary Figure 8.** Differential fungal phyla levels comparison between different successional stages. \*  $0.01 < P \leq 0.05$ , \*\*  $0.001 < P \leq 0.01$ , and \*\*\*  $P \leq 0.001$ .





**Supplementary Figure 9.** LEfSe analysis. The histogram of the Linear discriminant analysis (LDA) scores illustrates the differentially abundant fungal communities along successional stages.