

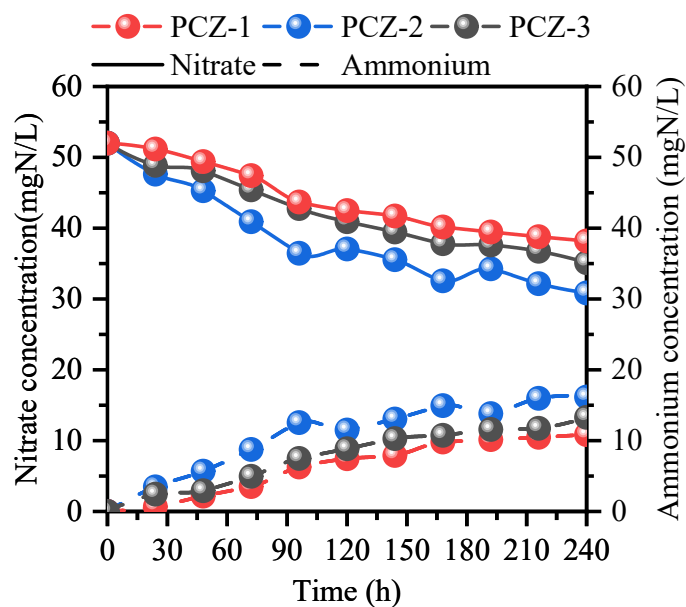


Fig. S1 Nitrate removal and ammonium accumulation without microorganisms.

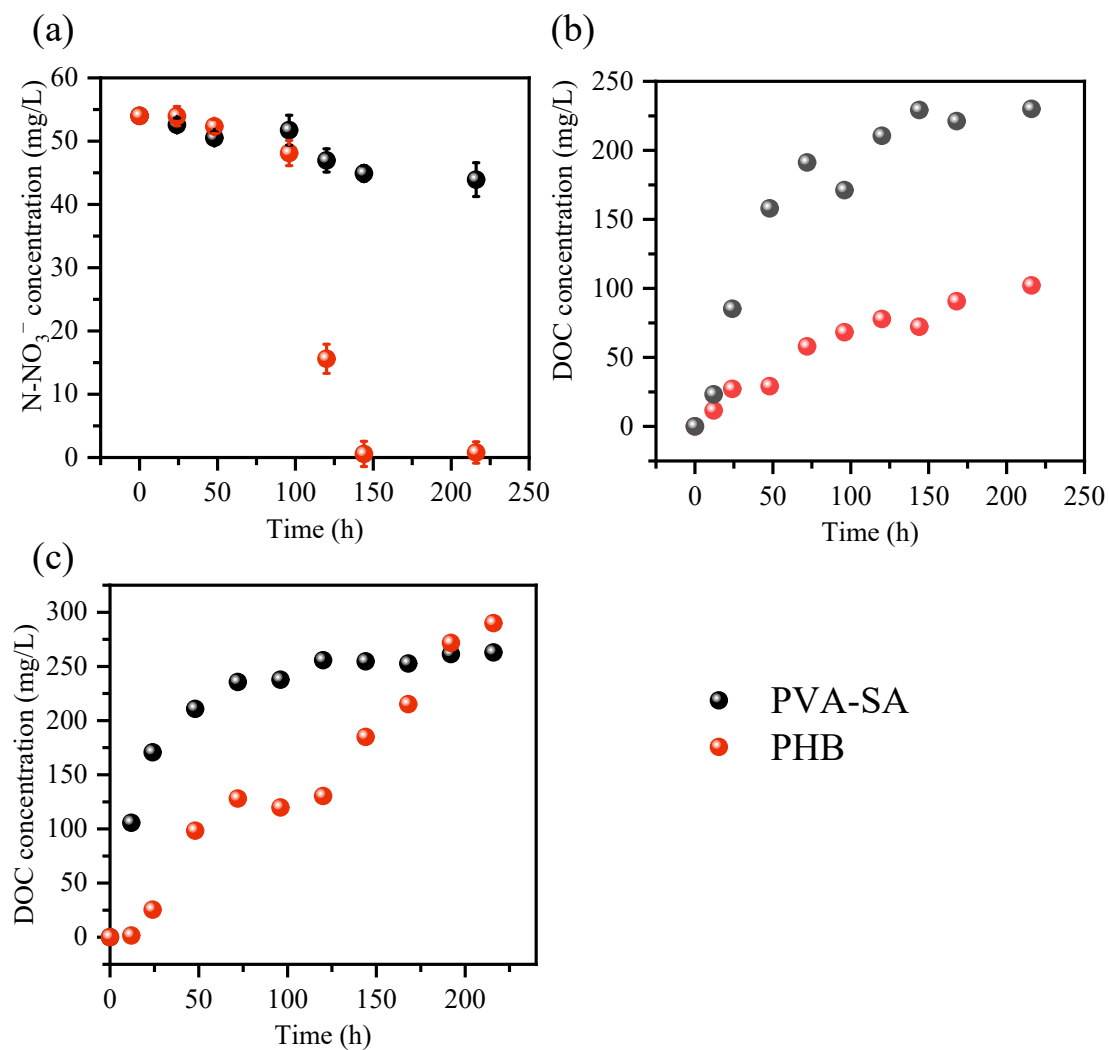


Fig. S2 Nitrate removal performance of PHB and PVA (a), DOC concentration of PVA-SA and PHB with (b) and without microbes (c).

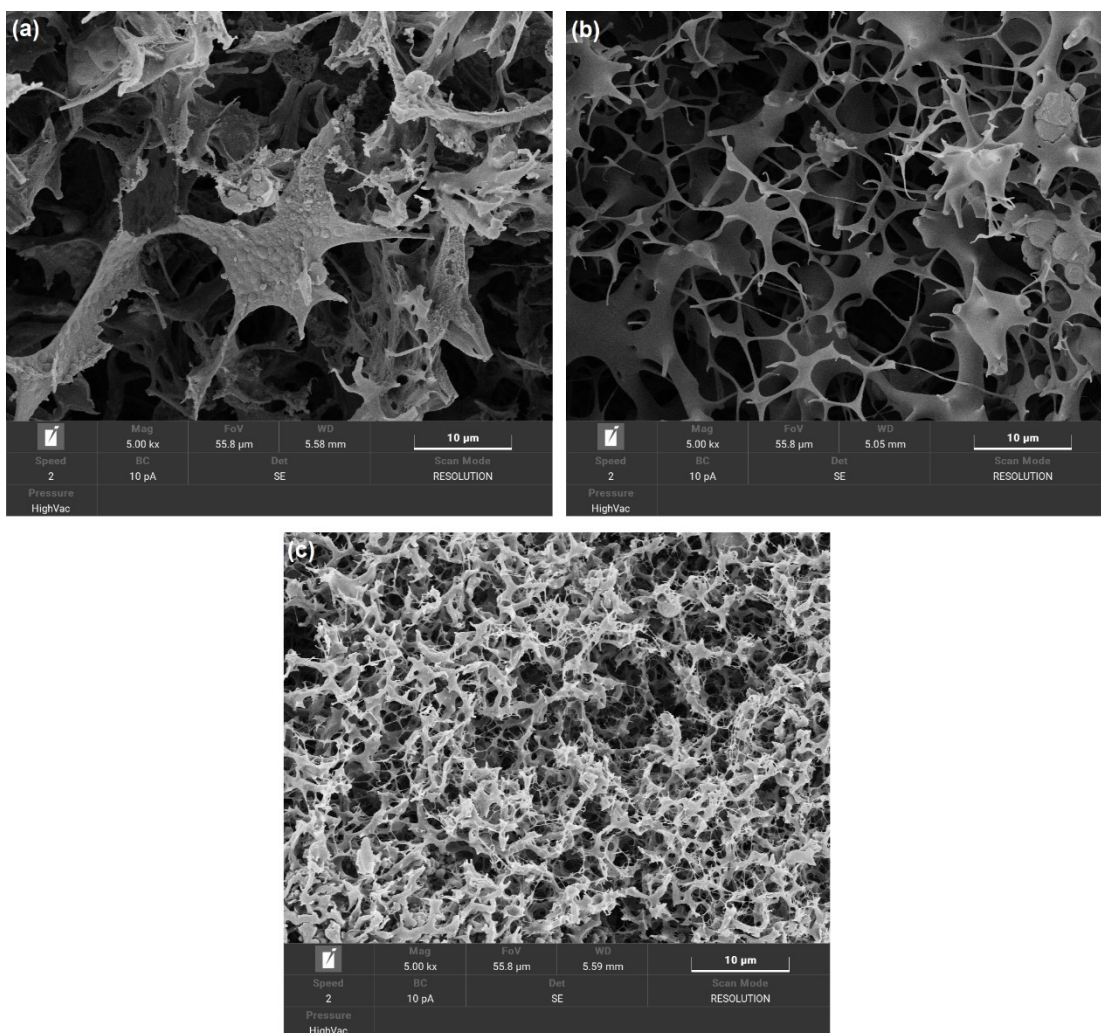


Fig. S3 SEM images of the PCZ-1, PCZ-2, and PCZ-3.

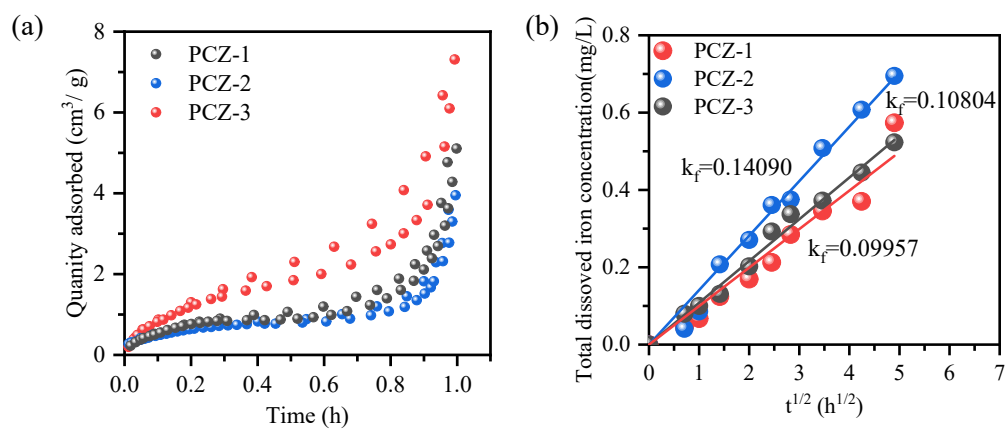


Fig. S4 N<sub>2</sub> adsorption- desorption curve (a) and intra-diffusion model (b) of the three hydrogels.



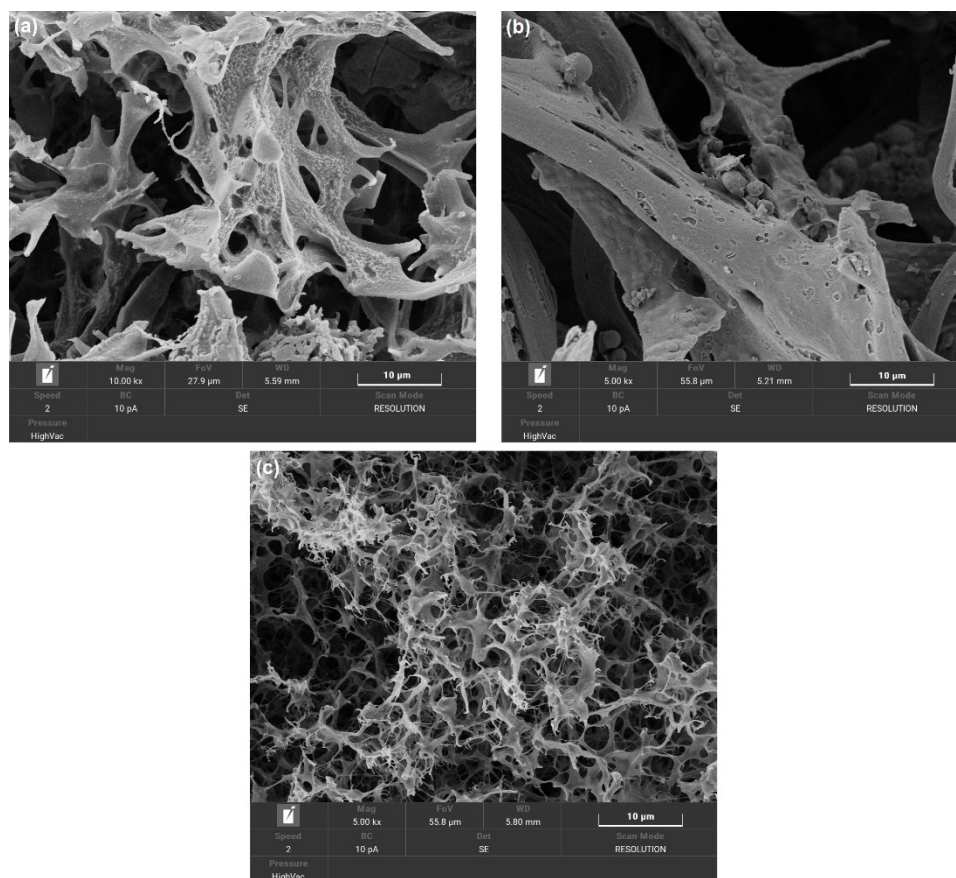


Fig. S5 SEM of the PCZ-1, PCZ-2, and PCZ-3 after denitrification.

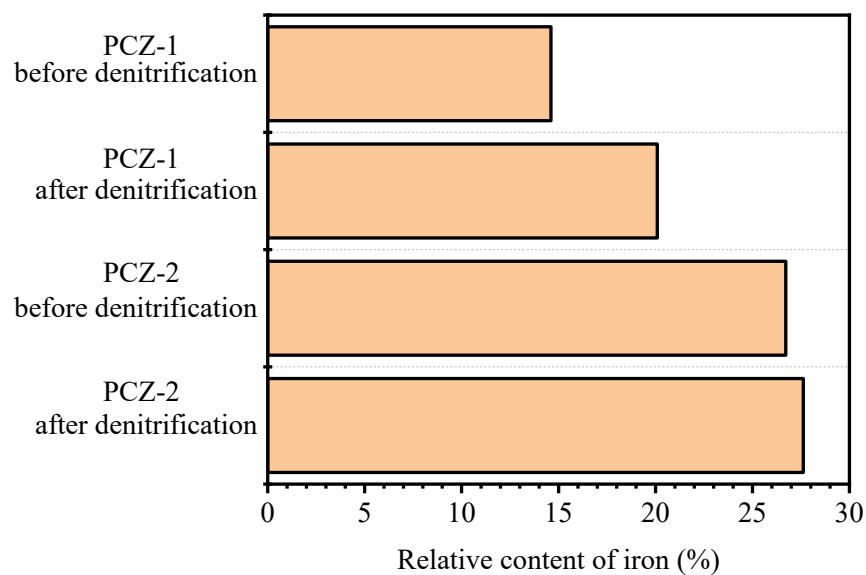


Fig. S6 Relative contents of iron in the PCZ-1 and PCZ-2 before and after denitrification.

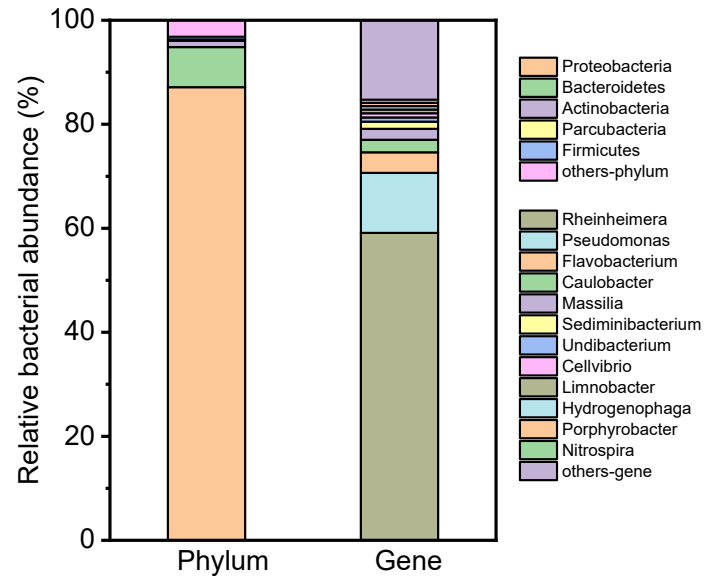


Fig. S7 Structure of the main phylum (a) and genus (b) level microbial communities in groundwater.