

The following supplementary information appendix covers one main sections.

The first section presents are the supplementary in the section **2.3 Synthetic Wastewater** of the text content about synthetic wastewater:

Trace elements were added to the influent, including 0.05, 0.2, 0.15, 10, 1.5, 0.15, 0.15, 0.22, 0.15, 0.15, 10, and 20 mg L⁻¹ H₃BO₃, ZnSO₄·7H₂O, CoCl₂·6H₂O, EDTA-Na₂·2H₂O, FeCl₃·6H₂O, MnCl₂·4H₂O, CuSO₄·5H₂O, Na₂MoO₄·2H₂O, NiCl₂·6H₂O, KI, CaCl₂, and MgSO₄, respectively.

The second section presents are the supplementary table (Table S1).

Table S1 Summary of identified denitrification bacteria and main functional genes in the literature.

phylum	Genus	Function	References
<i>Proteobacteria</i>	<i>Comamonas</i>	Aerobic denitrification	This study
<i>Proteobacteria</i>	<i>Acinetobacter</i>	EPS secretion	
<i>Proteobacteria</i>	<i>Zoogloea</i>	EPS secretion	
<i>Firmicutes</i>	<i>Bacillus</i>	Aerobic denitrification	
<i>Proteobacteria</i>	<i>Acidovorax</i>	denitrification	
<i>Actinobacteria</i>	<i>Actinobacteria</i>	denitrification	(Thomsen et al., 2007)
<i>Proteobacteria</i>	<i>Pseudomonas</i>	Aerobic denitrification	
<i>Proteobacteria</i>	<i>Thiothrix</i>	Aerobic denitrification	
<i>Proteobacteria</i>	<i>Alphaproteobacteria</i>	Aerobic denitrification	
<i>Proteobacteria</i>	<i>Deltaproteobacteria</i>	Aerobic denitrification	
<i>Proteobacteria</i>	<i>Zoogloea ramigera</i>	Aerobic denitrification	(Thomsen et al., 2007)
<i>Proteobacteria</i>	<i>Dyella</i>	Aerobic denitrification	(Yao and Peng, 2017)
<i>Proteobacteria</i>	<i>Rhodanobacter</i>	Autotrophic denitrification	
<i>Nitrospirae</i>	<i>Nitrospira defluvii</i>	Nitrification	(Starkenburger et al., 2008)
<i>Bacteroidetes</i>	<i>Mizugakiibacter</i>	Heterotrophic denitrification	(Yao and Peng, 2017)
<i>Planctomycetes</i>	<i>Planctomycetes</i>	Aerobic denitrification	(Zielinska et al., 2013)
<i>Chloroflexi</i>	<i>Chloroflexi</i>	denitrification	
<i>Firmicutes</i>	<i>Ferruginibacter</i>	denitrification	(Zhao et al., 2015)
<i>Gemmatimonadetes</i>	<i>Gemmatimonadetes</i>	Aerobic denitrification	(Mao et al., 2014)
<i>Verrucomicrobia</i>	<i>Verrucomicrobia</i>	denitrification	(Zielinska et al., 2013)

The third section presents are the supplementary figures.

Figure S1. principal component analysis (PCA); A: R1 and B: R2

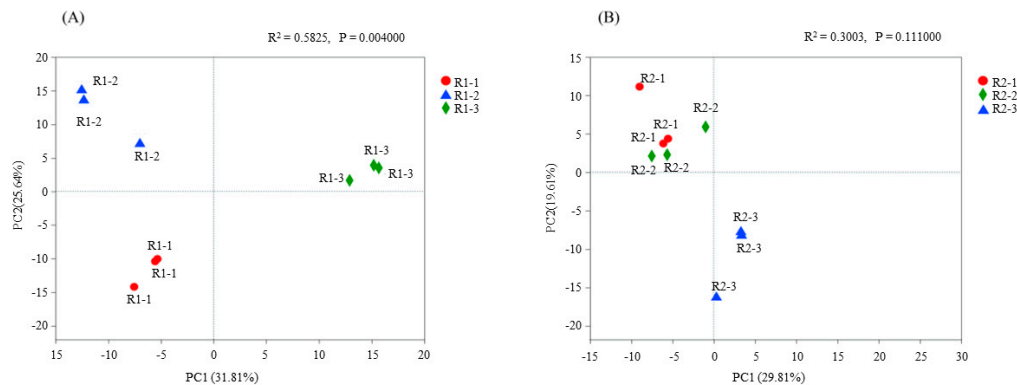


Figure S1.