Supplementary materials for

Sulfidation Attenuates the Adverse Impacts of Metallic Nanoparticles on Anammox from the Perspective of Chronic Exposure

Zheng-Zhe Zhang[a,b], Yu Zhang[b], Ya-Fei Cheng[a], Ren-Cun Jin[a*]

[a] Laboratory of Water Pollution Remediation, School of Life and Environmental Sciences, Hangzhou Normal University, Hangzhou 311121, China

[b] State Key Laboratory of Pollution Control and Resources Reuse, School of Environmental Science and Engineering, Tongji University, Shanghai 200092, China

[*]Corresponding author: Ren-Cun Jin

Tel.: +86-571-28861265; Fax: +86-571-28865333

E-mail address: jrczju@aliyun.com

Table S1 Composition of the synthetic wastewater.

Composition	Concentration
$MgSO_4 \cdot 7H_2O$	58.6 mg L^{-1}
NaH_2PO_4	10 mg L^{-1}
$NaHCO_3$	840 mg L^{-1}
$CaCl_2 \cdot 2H_2O$	73.5 mg L^{-1}
Trace element I[a]	1.25 mL L^{-1}[c]
Trace element II[b]	1.25 mL L^{-1}[c]
$(NH_4)_2SO_4$	Add as required[d]
$NaNO_2$	Add as required[d]

[a] The composition of trace element solution I was 5 g L^{-1} EDTA and 9.14 g L^{-1} $FeSO_4 \cdot 7H_2O$.

[b] The trace element solution II was composed of 15 g L^{-1} EDTA, 0.014 g L^{-1} H_3BO_4, 0.99 g L^{-1} $MnCl_2 \cdot 4H_2O$, 0.25 g L^{-1} $CuSO_4 \cdot 5H_2O$, 0.43 g L^{-1} $ZnSO_4 \cdot 7H_2O$, 0.21 g L^{-1} $NiCl_2 \cdot 6H_2O$, 0.22 g L^{-1} $NaMoO_4 \cdot 2H_2O$ and 0.24 g L^{-1} $CoCl_2 \cdot 6H_2O$.

[c] 1.25 mL of trace element solutions I and II were added per liter of wastewater.

[d] Equimolar ammonium and nitrite were supplied.

Table S2 Primers used for quantitative PCR.

Target gene	Primer	Sequence (5'-3')	Annealing Temperature (∘C)
Bacterial 16S rRNA	338F	ACTCCTACGGGAGGCAGCAG	55
	518R	ATTACCGCGGCTGCTGG	
Anammmox 16S rRNA	368F	TTCGCAATGCCCGAAAGG	56
	820R	AAAACCCCTCTACTTAGTGCCC	
hdh	*hdh*_1F	GGTGGTTTGAGGGGTTCCAA	55
	*hdh*_2R	TATGGCGACCTCTGTGCATC	