Supplementary Materials

Influence of Low Air Pressure on the Partial Denitrification-Anammox (PD/A) Process

Wen Dai [1], Zhenpeng Han [1], Yongze Lu [1], Shuping Li [2,3], Gangyin Yan [2,3] and Guangcan Zhu [1,2,*]

[1] Department of Environmental Science and Engineering, School of Energy and Environment, Southeast University, Nanjing 210096, China
[2] Key Laboratory of Water Pollution Control and Ecological Restoration of Xizang, National Ethnic Affairs Commission, Xizang Minzu University, Xianyang 712082, China
[3] Information Engineer College, Xizang Minzu University, Xianyang 712082, China
* Correspondence: gc-zhu@seu.edu.cn

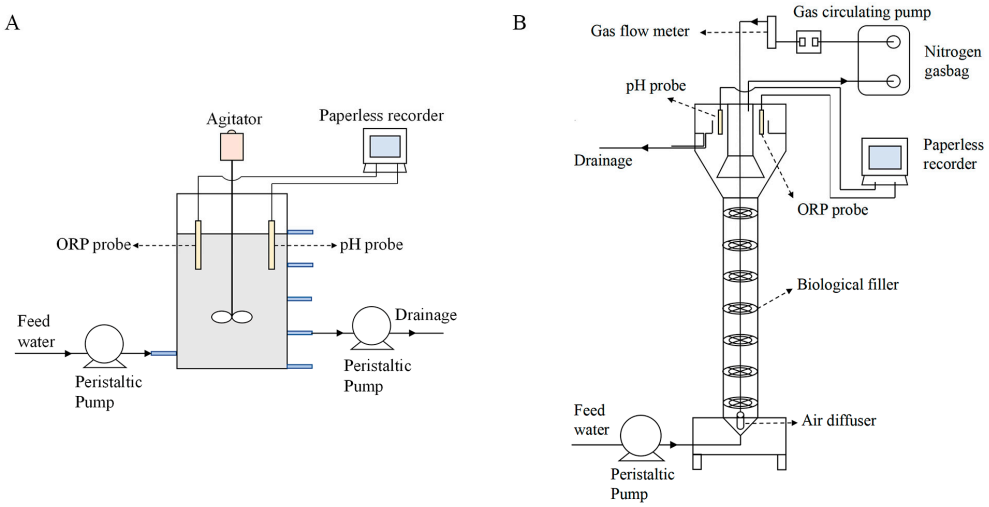

Figure S1. Schematic diagram of (A)SBR system (B)USR system.

Table S1. The composition of synthetic wastewater for (a) SBR-PD (b) SBR-A (c) USR-PD/A.

(a)

Component	Concentration (mg/L)	Component	Concentration (mg/L)
NO_3^-–N	50	KI	0.18
COD(CH_3COONa)	140	H_3BO_4	0.15
NH_4^+–N	5	$CoCl_2 \cdot 6H_2O$	0.15
PO_4^{3-}–P	5	$ZnSO_4 \cdot 7H_2O$	0.12
$CaCl_2 \cdot 2H_2O$	0.03	$MnCl_2 \cdot 4H_2O$	0.12
$MgSO_4 \cdot 7H_2O$	0.06	$NaMoO_4 \cdot 2H_2O$	0.06
$FeCl_3 \cdot 6H_2O$	1.5	$CuSO_4 \cdot 5H_2O$	0.06

(b)

Component	Concentration (mg/L)	Component	Concentration (mg/L)
NH_4^+–N	50	$ZnSO_4 \cdot 7H_2O$	0.43
NO_2^-–N	65	$CoCl_2 \cdot 6H_2O$	0.24
$KHCO_3$	500	$MnCl_2 \cdot 4H_2O$	0.99
$CaCl_2 \cdot 2H_2O$	180	$CuSO_4 \cdot 5H_2O$	0.25

$MgSO_4·7H_2O$	300	$NaMoO_4·2H_2O$	0.22
KH_2PO_4	30	$NiCl_2·6H_2O$	0.19
$FeSO_4$	5.0	H_3BO_4	0.014

(c)

Component	Concentration (mg/L)	Component	Concentration (mg/L)
NH_4^+–N	50	$ZnSO_4·7H_2O$	0.43
NO_3^-–N	65	$CoCl_2·6H_2O$	0.24
COD(CH_3COONa)	195	$MnCl_2·4H_2O$	0.99
$KHCO_3$	500	$CuSO_4·5H_2O$	0.25
$CaCl_2·2H_2O$	180	$NaMoO_4·2H_2O$	0.22
$MgSO_4·7H_2O$	300	$NiCl_2·6H_2O$	0.19
KH_2PO_4	30	H_3BO_4	0.014
$FeSO_4$	5.0		

Table S2. The operation conditions of reactors.

Reactor	Start-up (96 kPa)	Phase 96 kPa	Phase 72 kPa	Phase 65 kPa
SBR-PD	120 d	1-10 d	11-35 d	36-60 d
SBR-A	35 d	1-35 d	36-70 d	71-105 d
USR-PD/A	50 d	1-10 d	11-40 d	41-70 d

Table S3. Microbial community richness and diversity of the PD/A system in end stage of different phases. R.96 kPa: sample at Phase 96 kPa (day 10); R.72 kPa: sample at Phase 72 kPa (day 45); R.65 kPa: sample at Phase 65 kPa (day 70).

Sample description	OTUs	Richness		Diversity	Coverage
		Chao	Ace	Shannon	
R.96 kPa	104	115.50	121.78	3.66	0.994
R.72 kPa	158	240.88	203.99	4.39	0.986
R.65 kPa	131	147.73	151.65	3.87	0.992

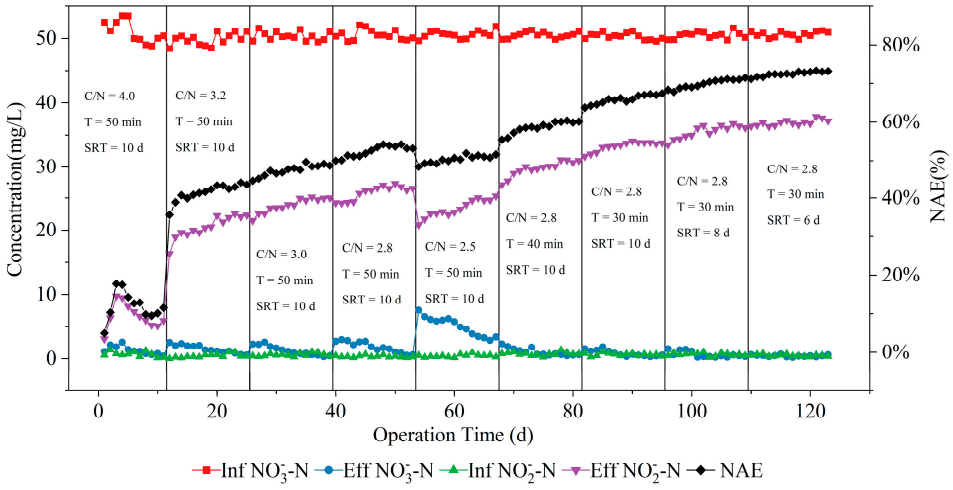

Figure S2. Nitrogen removal performance of SBR-PD during the start-up period.

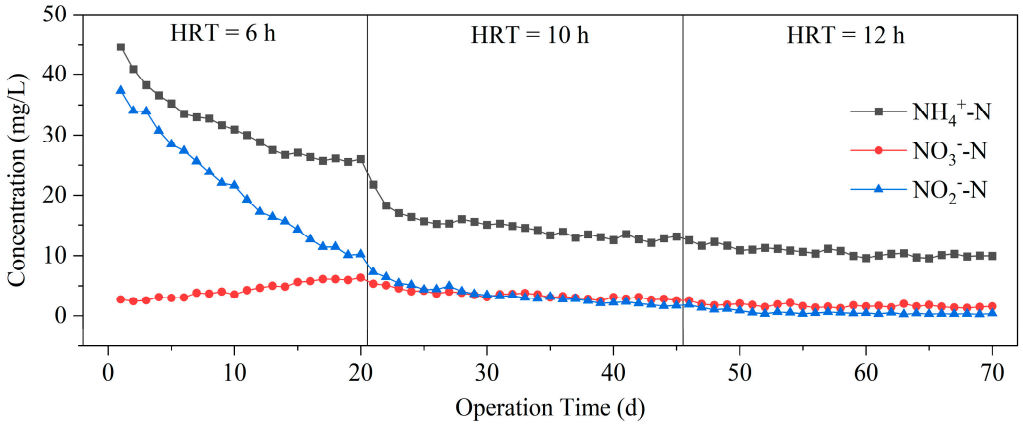

Figure S3. Nitrogen removal performance of PD/A system during the start-up period.