Supplementary information

For

Gradient reducing aeration in enhanced aerobic granular sludge process optimizes the dominant microbial community and its function

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Table.S1 Operational condition of the aerobic granular reactors

Operation strategy	Cycle (h)	Feeding (min)	Idle (min)	Aeration (min)	Settlement (min)	Outlet (min)
Reducing the aeration directly Reducing the aeration gradually	3	10	25	137	5	3

Table.S2 Components of the synthetic organic wastewater

Component	Content（$mg \cdot L^{-1}$）	Component	Conten（$mg \cdot L^{-1}$）
Sodium acetate	201	H_3BO_3	0.05
Sucrose	37	$CuSO_4 \cdot 5H_2O$	0.05
NH_4Cl	96	$ZuSO_4 \cdot 7H_2O$	0.05
KH_2PO_4	22	$AlCl_3$	0.09
K_2HPO_4	28	$CoCl_2$	0.05
Yeast	100	$MnSO_4 \cdot H_2O$	0.05
Peptone	150	$(NH_4)_2Mo_7O_{24}$	0.05
$CaCl_2$	80	$NiCl_2 \cdot 6H_2O$	0.09
$MgSO_4$	30	$FeSO_4 \cdot 7H_2O$	0.05

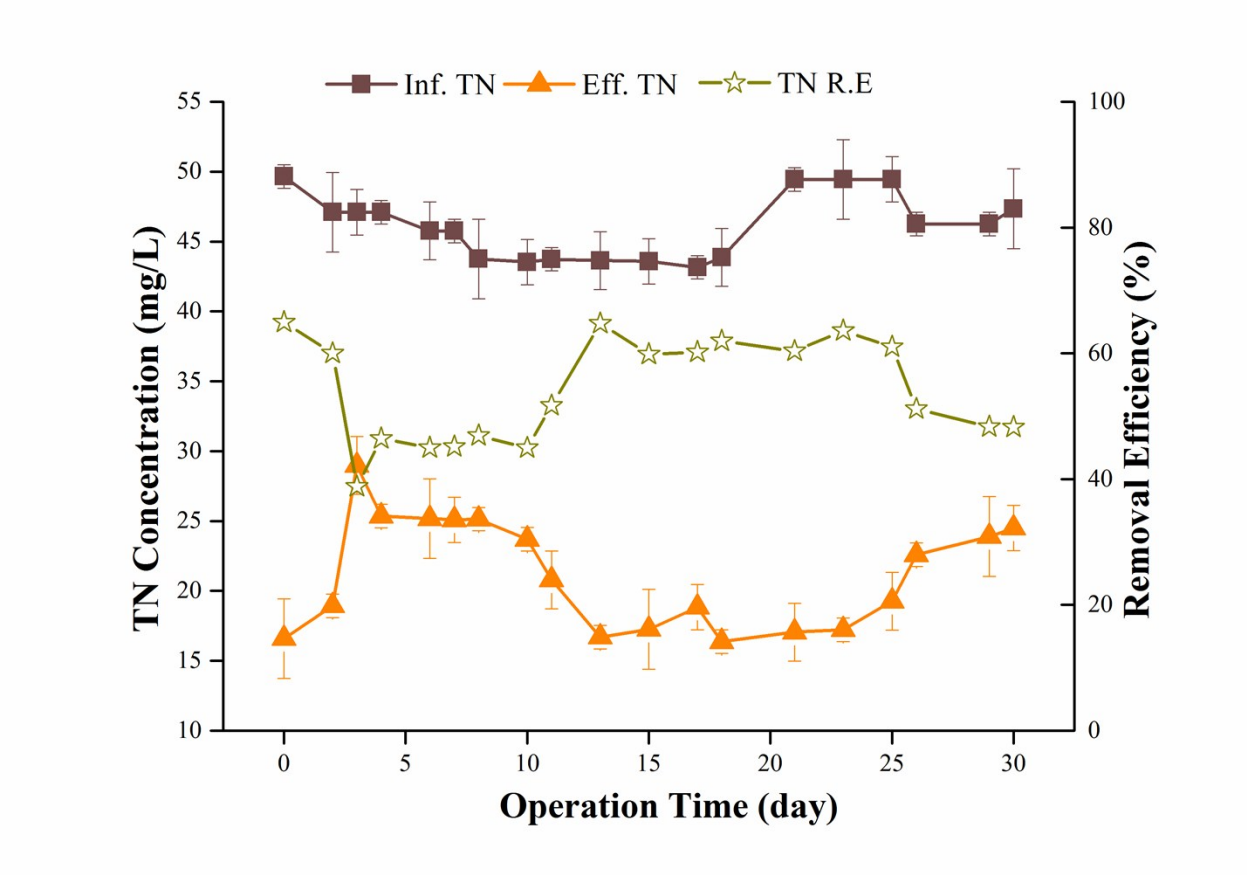

Fig. S1 TN removal under directly reducing aeration strategy

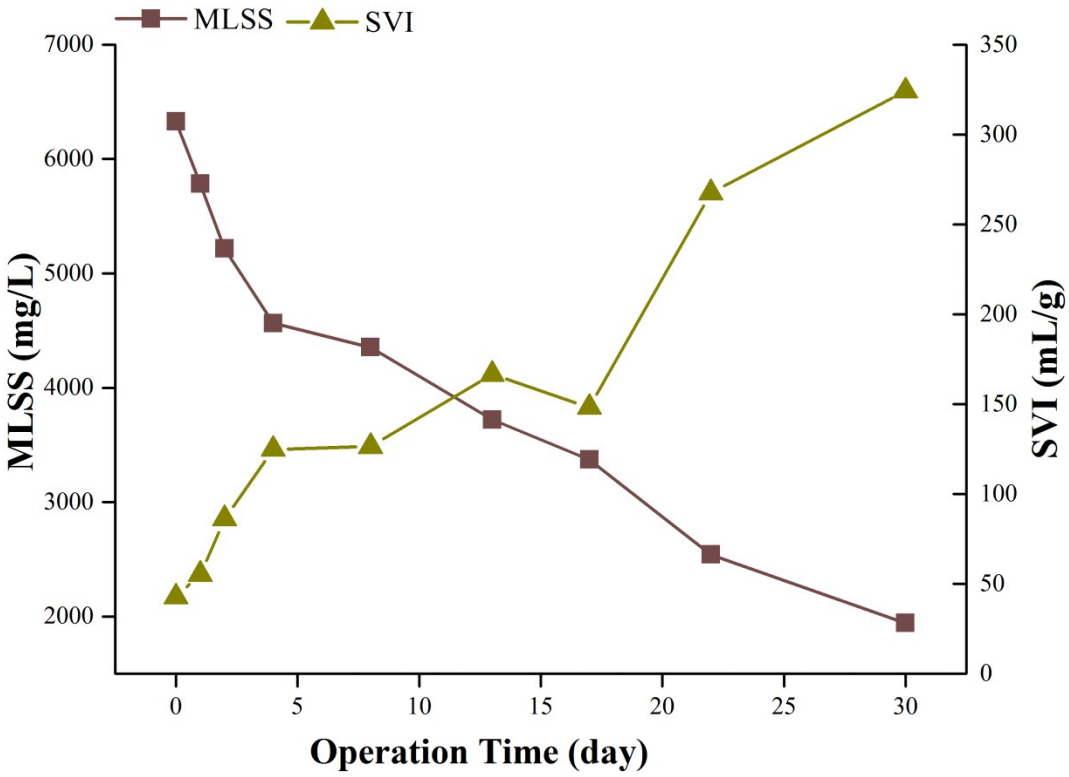

Fig. S2 Sludge characteristics under directly reducing aeration strategy

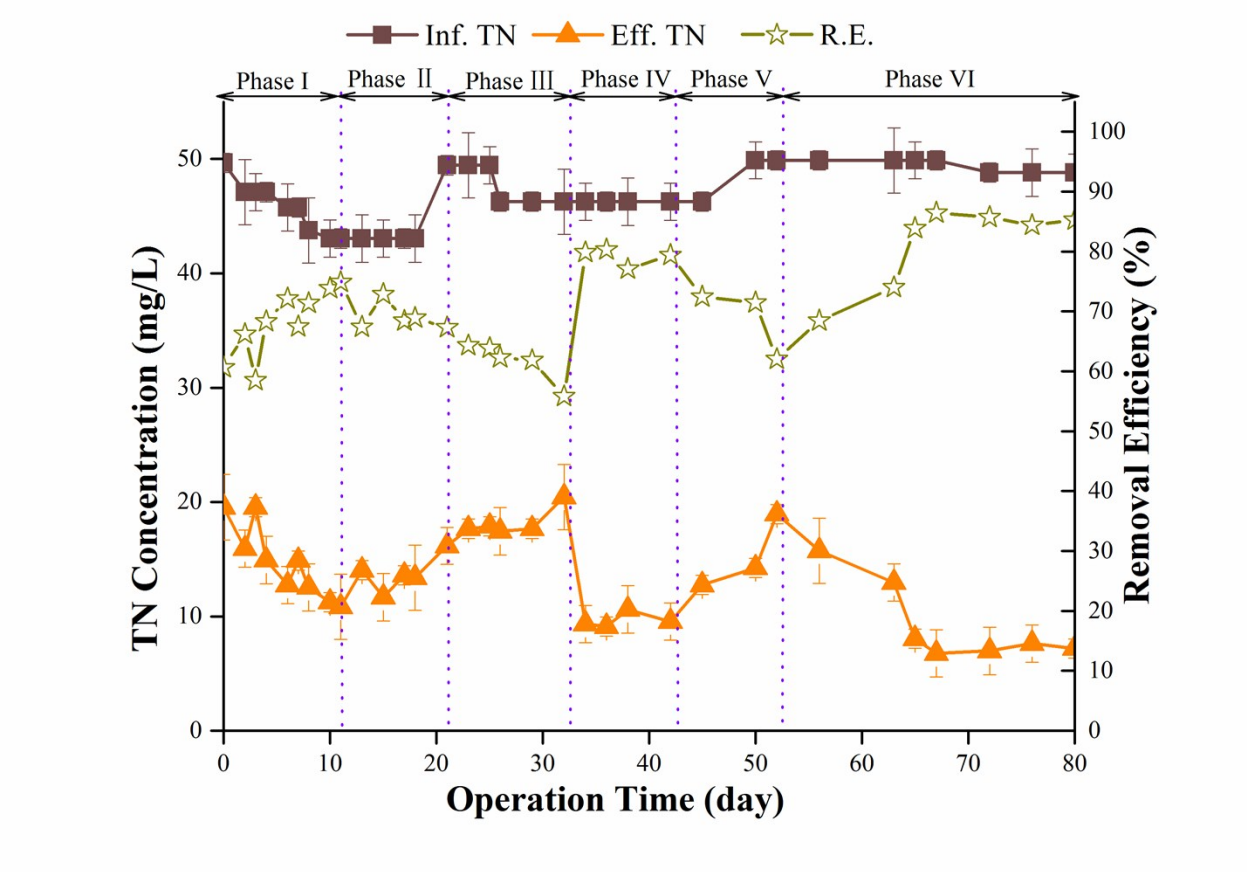

Fig. S3 TN removal under gradient reducing aeration strategy

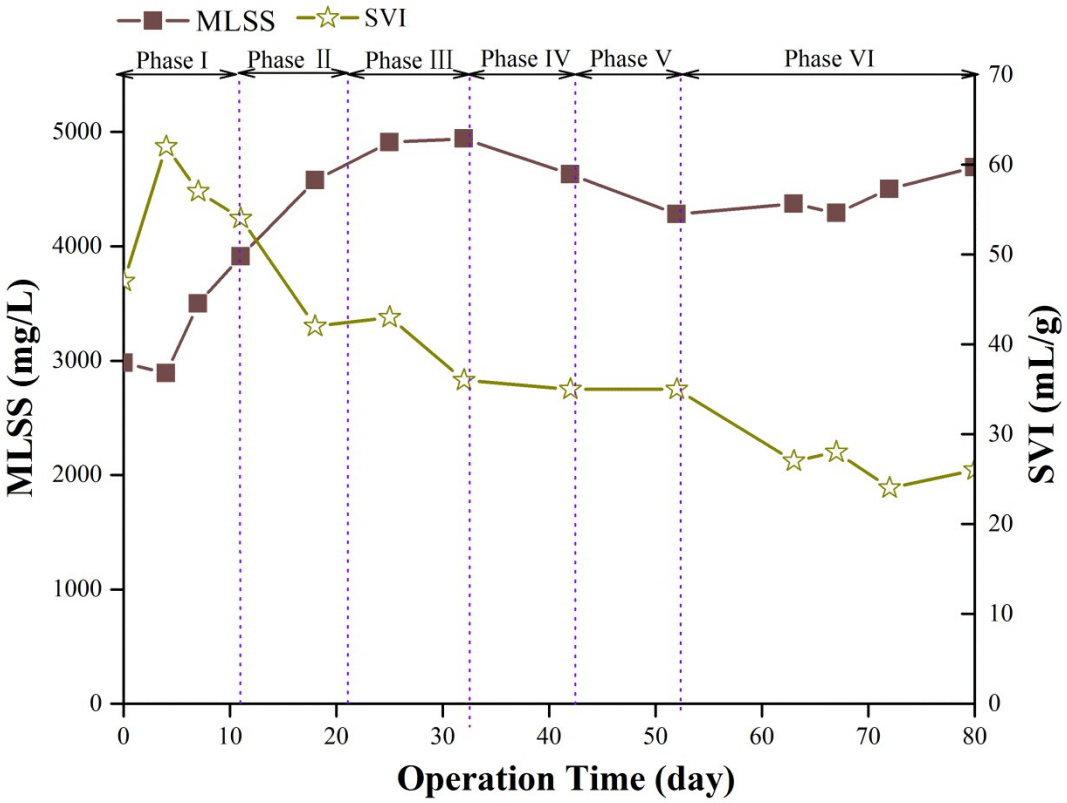

Fig. S4 Sludge characteristics under gradient reducing aeration strategy

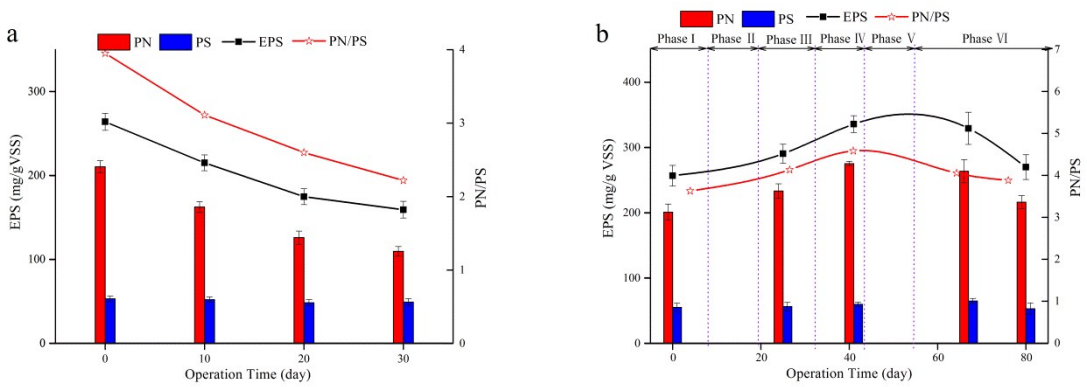

Fig. S5 Changes in EPS content under directly decrease (a) and gradient decrease (b) of aeration intensity