Supplementary Materials

Linking nitrite accumulation to shift in carbon utilization of denitrification: from single to composite electron donor

Qingtao Liu, Rui Du (✉), Jiarui Fan, Yongzhen Peng

National Engineering Laboratory for Advanced Municipal Wastewater Treatment and Reuse Technology, Engineering Research Center of Beijing, Beijing University of Technology, Beijing 100124, China

Number of pages: 5

Number of tables: 3

Number of figures: 1

✉ Corresponding author
E-mail: durui@bjut.edu.cn

Table S1 Operational strategies of PD-SBR in different phases.

Phase	Time (day)	Carbon source	COD/NO_3^--N	HRT (h)
I	1-35	Acetate	3.2 (day 1-32), 3.0 (day 33-35)	2.5
II	36-65	Propionate	2.8	2.5
III	66-96	Acetate+Propionate+Butyrate	3.2	1.67

Table S2 Performance of PD-SBR in different operational phases.

Phase	Time (day)	Influent concentration (mg/L)			Effluent concentration (mg/L)			Removal efficiency (%)		Nitrate-to-nitrite transformation ratio (%)
		NO_3^--N	NO_2^--N	COD	NO_3^--N	NO_2^--N	COD	NO_3^--N	COD	
I	1-35	30.8±4.3	20.6±5.1	100.5±7.7	7.1±2.9	37.2±4.1	49.3±11.5	77.0±8.2	51.0±10.4	69.5±4.7
II	36-65	33.1±2.7	12.1±3.1	86.0±8.1	16.2±3.0	23.7±4.2	42.9±8.7	50.9±8.0	50.2±8.5	69.4±12.9
III	66-96	27.0±1.4	10.7±2.3	85.9±10.3	8.6±2.0	25.3±1.5	49.2±11.1	68.3±6.5	42.6±12.5	79.1±8.1

Table S3 Changes of Alpha diversity indicators.

Samples	Ace	Chao	Shannon	Simpson
Phase I	16071	16071	4.13	0.06519
Phase II	15942	15942	4.34	0.05836
Phase III	15254	15254	4.45	0.04666

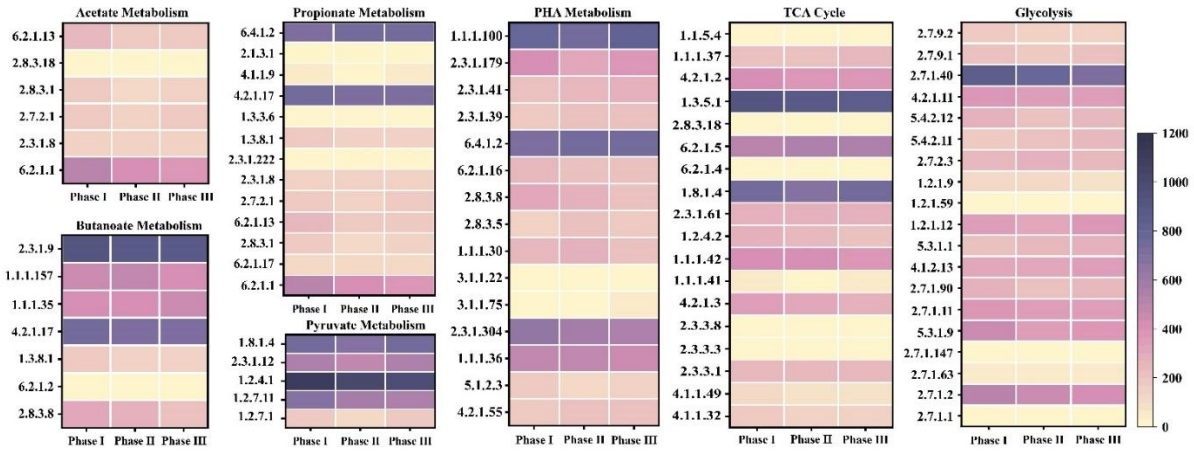

Fig. S1 Relative abundance of key enzymes in each carbon metabolic pathway.