

Supplementary Material

Operational taxonomic units were clustered at a similarity level of 0.97. As shown in Table 2, the entire coverage indexes of the eight samples was >0.99, suggesting that the degree of coverage of the Miseq sequencing was high. The rarefaction curves derived from the eight samples all nearly reached a plateau, indicating that most microorganisms in the sludge samples had been detected by the Miseq sequencing (Fig. S3).

Table S1 OUR of ammonia oxidizing bacteria and heterotrophic bacteria at different phases

Phase	Time (day)	OUR _T mg O ₂ /(L·min)	OUR _H mg O ₂ /(L·min)	Rate %	OUR _A mg O ₂ /(L·min)	Rate %
I	19	8.568	0.54	3.3	8.028	96.7
II	27	8.712	0.288	7.8	8.424	92.2
	35	7.884	0.612	11.1	7.272	88.9
III	43	8.748	0.972	15.6	7.776	84.4
	49	8.640	1.35	23.6	7.29	76.4
IV	57	10.716	2.532	34.0	8.184	66.0
	64	9.606	3.27	27.8	6.336	72.0
	77	10.140	2.82	53.0	7.32	47.0
V	85	13.020	6.9	51.3	6.12	48.7
	91	11.592	5.946	52.8	5.646	47.2
	95	10.818	5.712	40.5	5.106	59.5
	103	9.780	3.96	51.0	5.82	49.0

Table S2 Relative abundance of the main bacteria in sludge samples H1–H8

Sample	Planctomycetes	Proteobacteria	Chloroflexi	Bacteroidetes	Chlorobi	Abundance
H1	35.65%	21.03%	19.36%	1.31%	7.72%	85.07%
H2	31.41%	26.55%	20.27%	2.44%	4.62%	85.28%
H3	17.66%	27.70%	21.64%	10.65%	12.11%	89.76%
H4	9.93%	26.61%	22.58%	19.06%	14.56%	92.74%
H5	16.23%	27.21%	11.22%	31.29%	7.90%	93.85%
H6	34.15%	25.39%	10.06%	20.63%	5.69%	95.92%
H7	34.97%	21.47%	9.32%	19.50%	11.27%	96.53%
H8	45.45%	20.53%	8.85%	16.53%	6.40%	97.77%

Note: The influent COD/N ratios of samples H1, H2, H3 and H4 were 0.10, 0.28, 0.59, and 0.82, respectively, while H5, H6, H7 and H8 were collected at a COD/N ratio of 1.07.



Fig. S1 Effluent subsidence surface at day 78 (SVI=155 mg/L).

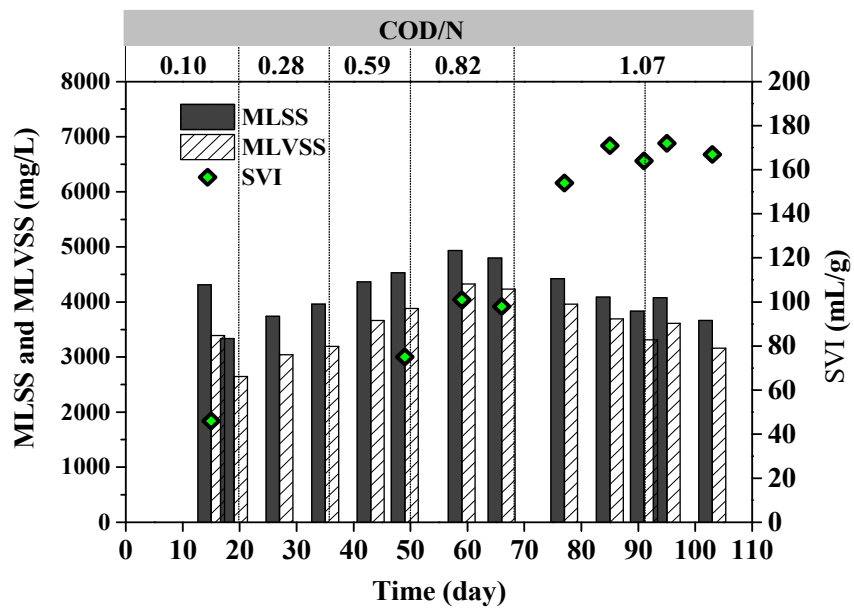


Fig. S2 Variations in the MLSS, MLVSS and SVI in the studied CANON system at different COD/N ratios.

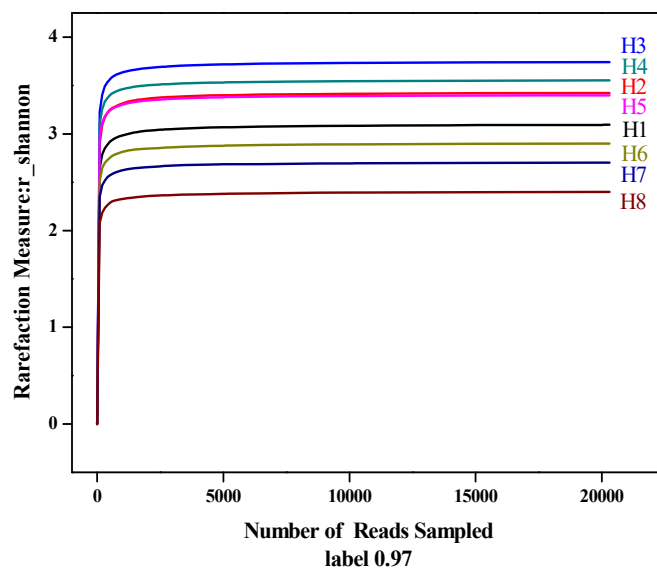


Fig. S3 Shannon-Wiener curve of sludge samples H1–H8. The influent COD/N ratios of samples H1, H2, H3 and H4 were 0.10, 0.28, 0.59, and 0.82, respectively, while H5, H6, H7 and H8 were collected at a COD/N ratio of 1.07.