

Supplementary Information

Importance of Controlling Phosphate Concentration in Nitrification-Anammox

Reactor Operation

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Table S1. Phosphate concentrations in the test of the short-term impacts.

Conditions						
Trial1	20X dilution Pre-Ostara supernatant	4X dilution Pre-Ostara supernatant	2X dilution Pre-Ostara supernatant	Pre-Ostara supernatant	Pre-Ostara supernatant +110mgP/L of synthetic P	Pre-Ostara supernatant+2 10mg P/L synthetic P
Trial 2	2X dilution Post-Ostara supernatant	Post-Ostara supernatant+3 0 mgP/L synthetic P	Post-Ostara supernatant+9 0 mgP/L synthetic P	Post-Ostara supernatant+2 10 mgP/L synthetic P	Post-Ostara supernatant+3 20 mgP/L synthetic P	Post-Ostara supernatant+4 20 mgP/L synthetic P
Final Phosphorus concentration (mg/L)	12	60	120	240	350	450

Table S2. Primers required for q-PCR analysis and target genes.

	Primer	Nucleotides sequence 5'-3'	Target	References
Anammox	AnnirS379F	TCTATCGTTGCATCGCATTT	AMX nirS gene	1, 2
	AnnirS821R	GGATGGGTCTTGATAAACA		
AOB	amoA-1F	GGGGTTTCTACTGGTGGT	amoA gene of betaproteobacteria AOB	3
	amoA-2R	CCCCTCTGCAAAGCCTTCTTC		
NOB	Nitro 1198f	ACCCCTAGCAAATCTCAAAAAACCG	Nitrobacter spp. 16S rDNA	4
	Nitro 1423r	CTTCACCCCAGTCGCTGACC		

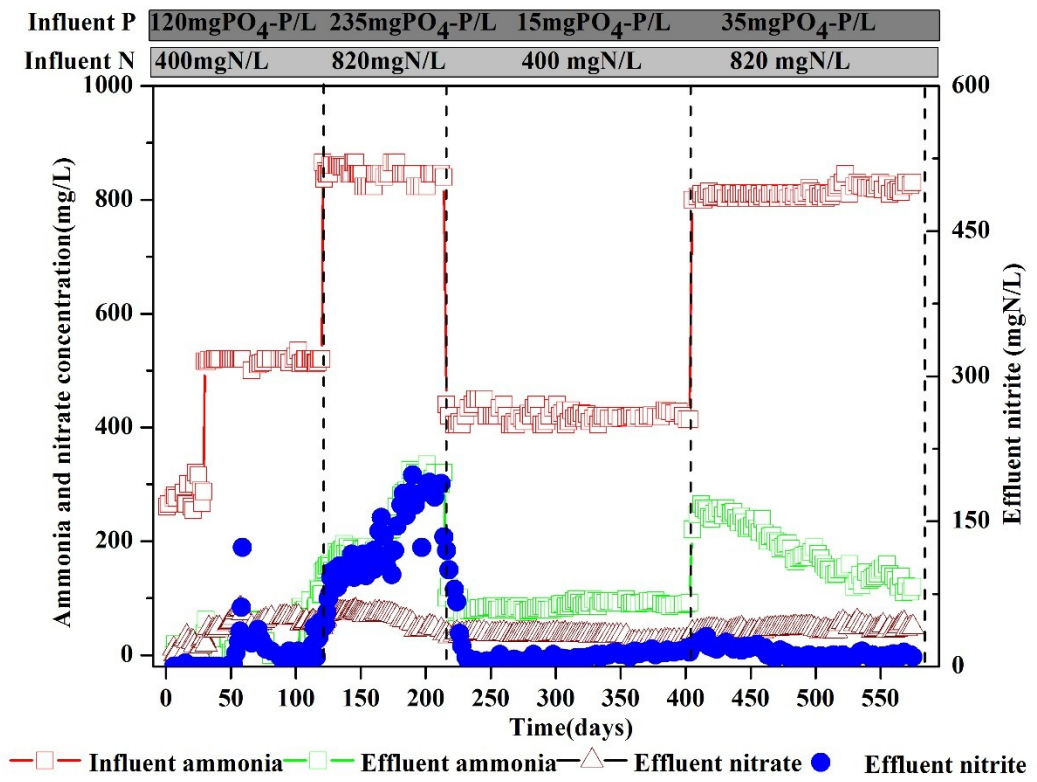


Figure S1. Influent and effluent concentrations of ammonia nitrogen, nitrite nitrogen, nitrate nitrogen during four different operational phases.

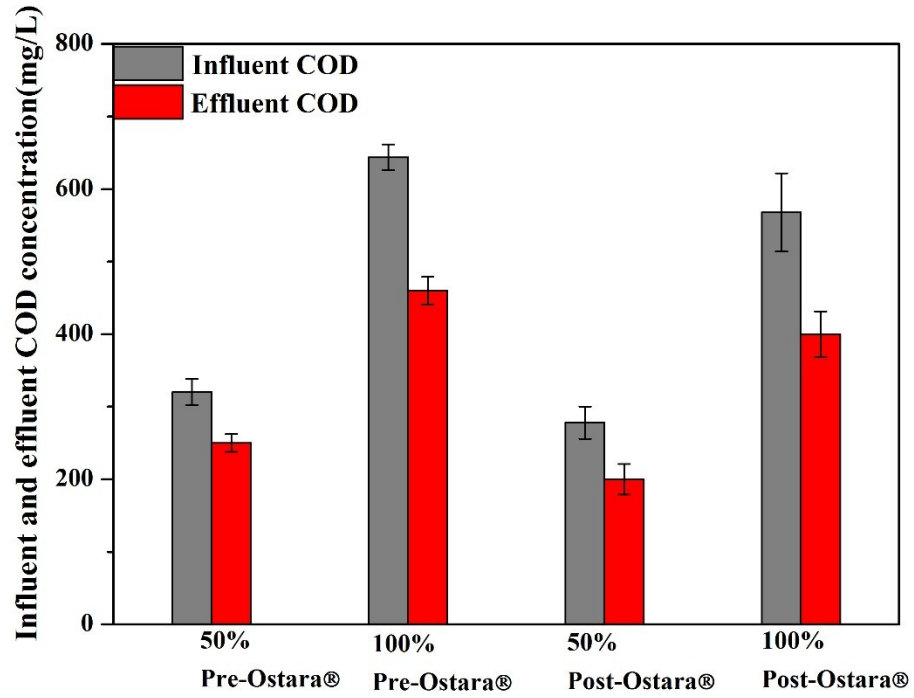


Figure S2. Average influent and effluent COD concentrations during four different operational phases.

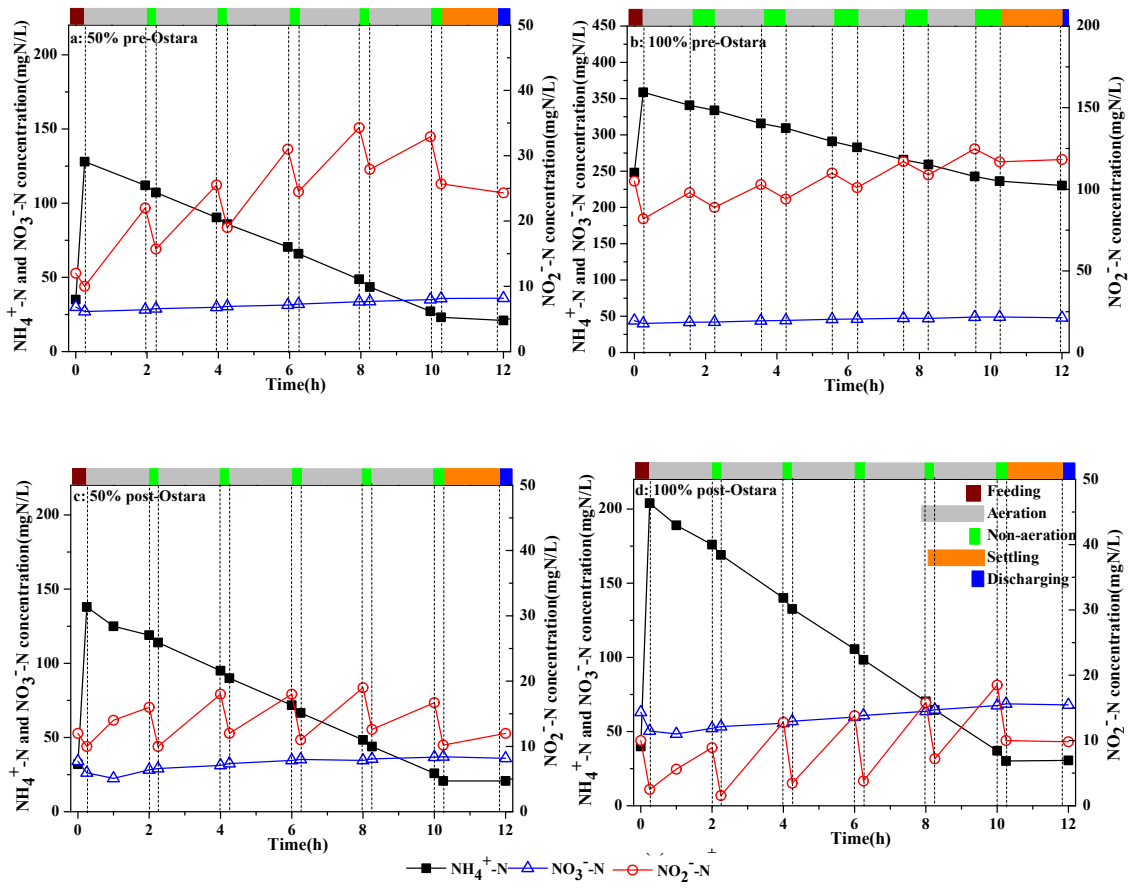


Figure S3. Inorganic nitrogen transformation concentrations in four typical SBR cycles with intermittent aeration applied during four different phases (a: 50% Pre-Ostara®; b: 100% Pre-Ostara®; c: 50% Post-Ostara® and d: 100% Post-Ostara®).

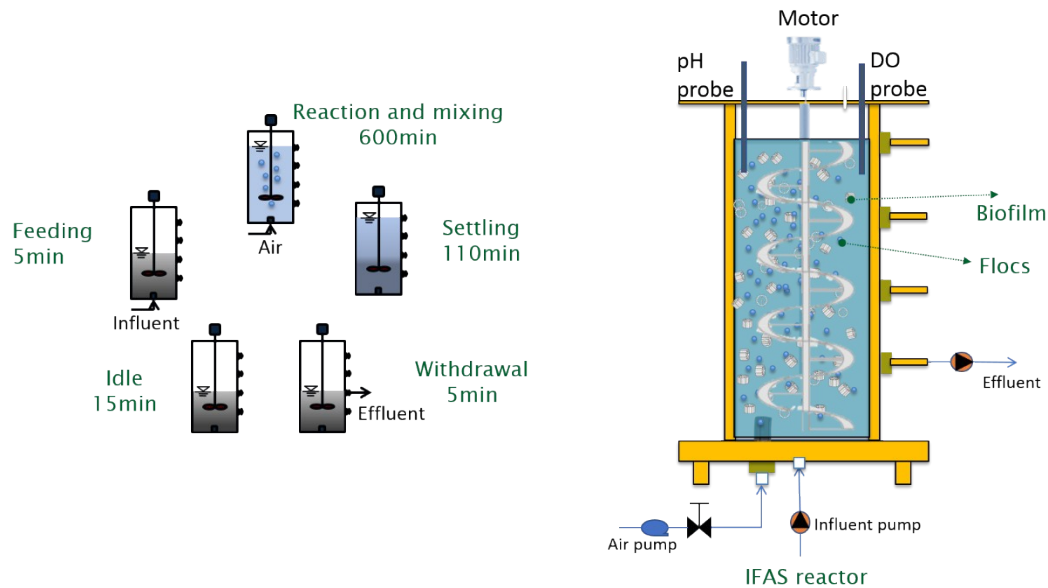


Figure S4. Schematic diagram of the IFAS reactor for one stage nitrification-anammox process

Reference

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