

**Table S1**

Box-Behnken design matrix and the responses of the dependent variables nitrate removal efficiency

Run order	Independent variables, coded levels			Dependent variables, NO <sub>3</sub> <sup>-</sup> -N removal efficiency (%)	
	X <sub>1</sub> <sup>a</sup>	X <sub>2</sub> <sup>b</sup>	X <sub>3</sub> <sup>c</sup>	Predicted	Experimental
	1	0	1	-1	0.1109
2	0	0	0	0.4803	0.5071±0.046
3	-1	-1	0	0.494	0.5050±0.041
4	0	1	1	0.104	0.1050±0.016
5	0	-1	1	0.428	0.4254±0.052
6	1	-1	0	0.2703	0.2630±0.072
7	0	0	0	0.4803	0.4574±0.050
8	1	1	0	0.0663	0.0553±0.089
9	1	0	1	0.2727	0.2825±0.018
10	1	0	-1	0.3069	0.3153±0.018
11	0	0	0	0.4803	0.4223±0.058
12	0	-1	-1	0.4337	0.4326±0.043
13	-1	0	1	0.4049	0.3964±0.021
14	0	0	0	0.4803	0.5071±0.046
15	-1	1	0	0.0592	0.0665±0.020
16	0	0	0	0.4803	0.5071±0.046
17	-1	0	-1	0.3914	0.3815±0.047

<sup>a</sup> refers to NO<sub>3</sub><sup>-</sup>-N concentration: -1 (60 mg L<sup>-1</sup>), 0 (70 mg L<sup>-1</sup>), +1 (80 mg L<sup>-1</sup>);

<sup>b</sup> refers to initial pH: -1 (6), 0 (7.5), +1 (9);

<sup>c</sup> refers to initial DO concentration: -1 (6 mg L<sup>-1</sup>), 0 (7.5 mg L<sup>-1</sup>), +1 (9 mg L<sup>-1</sup>).