Supplementary Materials

Microscale Constructed Wetlands with Different Particulate Matters in their Substrates Exhibit Opposite Nitrogen Removal Performances

Lele Cui [1], Huijun Xie [1], Shiwen Zhang [1], Zhen Hu [2], Shuang Liang [2,*] and Jian Zhang [2,3]

[1] Environmental Research Institute, Shandong University, Binhai Road 72, Qingdao 266237, China
[2] Shandong Provincial Key Laboratory of Water Pollution Control and Resource Reuse, Shandong Key
Laboratory of Environmental Processes and Health, School of Environmental Science and Engineering, Shandong University, Qingdao 266237, China
[3] College of Safety and Environmental Engineering, Shandong University of Science and Technology, Qingdao 266590, China
* Correspondence: liangshuang@sdu.edu.cn

Contents

Text S1 Measurements of the key enzymes activities of N-transformation

The activity of AMO was determined by the oxidation of NH_4^+-N to NO_2^--N, and the activity of NXR was determined by the oxidation of NO_2^--N to NO_3^--N. Specifically, 1 g sand sample was added to the CW into a 50 mL centrifuge tube containing 5 mL mixture 0.01 M PBS (containing 1 mM $(NH_4)_2SO_4$ and 10 mM $KClO_3$, pH = 7.4) for the determination of AMO activity. 5 mL mixture 0.01 M PBS (containing 1 mM $NaNO_2$, pH = 7.4) was used to determine NXR activity. NAR activity was measured by reducing NO_3^--N to NO_2^--N under anaerobic conditions, and NIR activity was measured by reducing NO_2^--N to NO under anaerobic conditions. Specifically, the activity of NAR was determined by adding 1 g of sand sample into 10 mL mixed solution containing 5 mL and 0.01 M PBS (containing 2 mM KNO_3, 15 mM $C_6H_{12}O_6$, pH = 7.4) anaerobic tube. NIR activity was determined with 5 mL mixed solution 0.01 M PBS (containing 2 mM $NaNO_2$, 15 mM $C_6H_{12}O_6$, pH = 7.4).

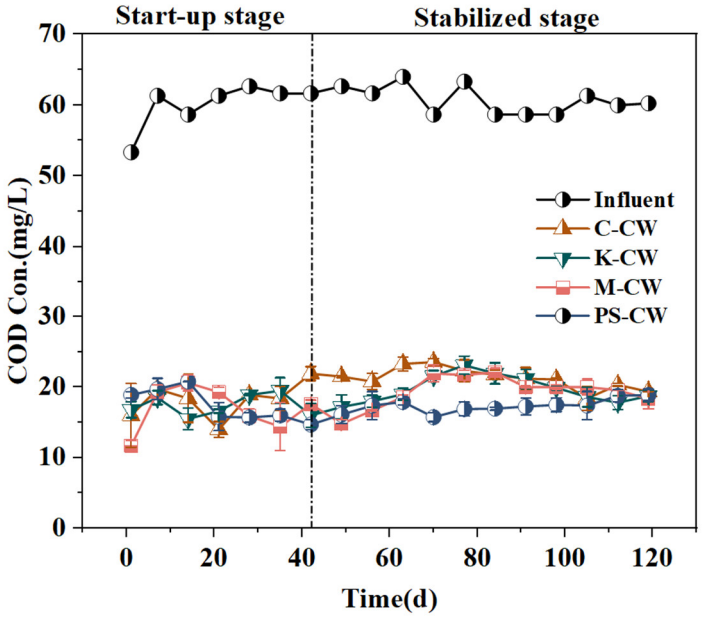

Figure S1. The carbon source consumption, represented by the difference of COD concentrations in influent and effluent in C-CW, K-CW, M-CW and PS-CW.