ABSTRACT

To alleviate the environmental stress and meet the increasingly strict regulation requirements for total nitrogen (TN) and total phosphorus (TP) discharge, hybrid system of Fe–Cu shavings with activated sludge was studied in a lab-scale to treat actual municipal wastewater. The results showed that Fe–Cu shavings could enhance TN and TP removal from municipal wastewater without external carbon source addition. Compared with the simple biological system, TP and TN removal efficiency raised about 30 and 10%, respectively, in the hybrid system at temperature of 3–26.5°C, while the improvement of COD removal was not obvious. Moreover, total ferrum concentration of the effluent was lower than 0.6 mg/L, no additional metal pollution appeared. Therefore, a new N&P removal technology is proposed, which provides an easy implementation and effective upgrading to the existing wastewater treatment plants.

Keywords: Fe–Cu shavings; Hybrid system; TP and TN removal; Municipal wastewater