2nd International Conference on
Nanostructured Materials & Nanochemistry
November 02-03, 2018 | San Francisco, USA

Complete degradation of ciprofloxacin over g-C_3N_4/iron oxide composite via heterogeneous fenton reaction

Qiqi Ding
The Hong Kong University of Science and Technology, Hong Kong

The extensive utilization of antibiotic makes it continually flow into the environment which could induce many far-reaching hazards to the society. Ciprofloxacin (CIP), one of the most commonly used broad-spectrum fluoroquinolone antibiotics, has been detected from the effluent of wastewater treatment plants (WWTPs), indicating that conventional wastewater treatment method is not suitable for CIP removal. Therefore, it is significant to develop new techniques to degrade CIP effectively. In this work, g-C_3N_4/iron oxide composites (CN@IO composites) were first fabricated with a facile one-pot method to synthesis g-C_3N_4 *in situ* onto iron oxide. The obtained composites were acted as non-toxic and high-efficient catalysts in Fenton system for CIP degradation. With the proper ratio between iron oxide and the precursor of g-C_3N_4, the as-prepared CN@IO-2 could achieve completely CIP degradation and 48.5% of mineralization within 2h. In addition, the operation conditions for CIP degradation were also studied by altering the pH value, dosage of the catalyst, initial CIP and H_2O_2 concentration. Compared with sole g-C_3N_4 and iron oxide, the enhanced performance on CIP degradation is attributed to the synergic effect of g-C_3N_4 and iron oxide. This work provides a new thought to develop environmentally friendly and more highly efficient heterogeneous fenton catalysts for refractory organic pollutants degradation.

Biography

Qiqi Ding is a PhD candidate of Chemical and Biological Engineering of HKUST. She has gotten her bachelor degree from Pharmaceutical Engineering of Sichuan University and Master degree from Chemical and Biomolecular Engineering of HKUST. She worked as an assistant engineer at the Hong Kong Productivity Council from 2014 to 2015. And now, she is doing her PhD degree in HKUST and her research interest is to prepare nanomaterials for antibiotics degradation with heterogeneous Fenton-like reaction or semiconductor photocatalysis.

qdingaa@connect.ust.hk

Notes: