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PII: S0960-8524(18)30350-X
DOI: https://doi.org/10.1016/j.biortech.2018.03.012
Reference: BITE 19651

To appear in: *Bioresource Technology*

Received Date: 17 January 2018
Revised Date: 26 February 2018
Accepted Date: 1 March 2018

Please cite this article as: Zhao, H., Kong, C-H., Elimination of pyraclostrobin by simultaneous microbial degradation coupled with the Fenton process in microbial fuel cells and the microbial community, *Bioresource Technology* (2018), doi: https://doi.org/10.1016/j.biortech.2018.03.012

# Elimination of pyraclostrobin by simultaneous microbial degradation coupled with the Fenton process in microbial fuel cells and the microbial community

**Huanhuan Zhao, Chui-Hua Kong***

College of Resources and Environmental Sciences, China Agricultural University, Beijing 100193, China.

* Corresponding author: C. H. Kong, Tel: +86-10-62732752; Fax: +86-10-62731016.

E-mail address: kongch@cau.edu.cn

**Abstract:** The elimination of pyraclostrobin by simultaneous microbial degradation and Fenton oxidation was achieved in a microbial fuel cell (MFC) system. After 12 h of incubation, the removal rate of pyraclostrobin was 1.4 mg/L/h at the anode and 1.7 mg/L/h at the cathode. The pyraclostrobin concentration was less than the detection limit (0.1 mg/L) after 72 h at the anode and 24 h at the cathode. The air flow rate, temperature, and pH of the catholyte had significant effects on the generation of $H_2O_2$. The maximum production of $H_2O_2$ was 1.2 mg/L after reaction for 20 h during the Fenton process. Microbial community analysis indicated that functional bacteria in the genera *Chryseobacterium*, *Stenotrophomonas*, *Arcobacter*, and *Comamonas* were predominant in the anodic biofilm. In conclusion, the MFC-Fenton system provides an effective approach for treating environmental contaminants.

**Keywords:** Microbial fuel cell; Microbial degradation; Fenton process; Pyraclostrobin; Microbial community