Enhanced degradation of azo dye by a stacked microbial fuel cell-biofilm electrode reactor coupled system

Xian Cao, Hui Wang, Xiao-qi Li, Zhou Fang, Xian-ning Li

PII: S0960-8524(16)31713-8
DOI: http://dx.doi.org/10.1016/j.biortech.2016.12.043
Reference: BITE 17419

To appear in: *Bioresource Technology*

Received Date: 10 November 2016
Revised Date: 8 December 2016
Accepted Date: 11 December 2016

Please cite this article as: Cao, X., Wang, H., Li, X-q., Fang, Z., Li, X-n., Enhanced degradation of azo dye by a stacked microbial fuel cell-biofilm electrode reactor coupled system, *Bioresource Technology* (2016), doi: http://dx.doi.org/10.1016/j.biortech.2016.12.043

Enhanced degradation of azo dye by a stacked microbial fuel cell-biofilm electrode reactor coupled system

Xian Cao, Hui Wang, Xiao-qi Li, Zhou Fang, Xian-ning Li[*]

School of Energy and Environment, Southeast University, Nanjing 210096, China.

[*]Corresponding author address: School of Energy and Environment, Southeast University, Nanjing 210096, China. Tel.: +86 13776650963; fax: +86 025 83795618.

E-mail addresses: lxnseu@163.com (X.-n. Li)

Corresponding Author

[*] Xian-ning Li.

Tel.: +86 13776650963; fax: +86 025 83795618. *E-mail addresses:* lxnseu@163.com

Abstract

In this study, a microbial fuel cell (MFC)-biofilm electrode reactor (BER) coupled system was established for degradation of the azo dye Reactive Brilliant Red X-3B. In this system, electrical energy generated by the MFC degrades the azo dye in the BER without the need for an external power supply, and the effluent from the BER was used as the inflow for the MFC, with further degradation. The results indicated that the X-3B removal efficiency was 29.87% higher using this coupled system than in a control group. Moreover, a method was developed to prevent voltage reversal in stacked MFCs. Current was the key factor influencing removal efficiency