

Accepted Manuscript

Combined photoelectrocatalytic microbial fuel cell (PEC-MFC) degradation of refractory organic pollutants and in-situ electricity utilization

Manman Zhang, Ying Wang, Peng Liang, Xu Zhao, Mingxing Liang, Bin Zhou



PII: S0045-6535(18)31740-5

DOI: [10.1016/j.chemosphere.2018.09.085](https://doi.org/10.1016/j.chemosphere.2018.09.085)

Reference: CHEM 22165

To appear in: *ECSN*

Received Date: 14 May 2018

Revised Date: 14 September 2018

Accepted Date: 15 September 2018

Please cite this article as: Zhang, M., Wang, Y., Liang, P., Zhao, X., Liang, M., Zhou, B., Combined photoelectrocatalytic microbial fuel cell (PEC-MFC) degradation of refractory organic pollutants and in-situ electricity utilization, *Chemosphere* (2018), doi: <https://doi.org/10.1016/j.chemosphere.2018.09.085>.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

1 **Combined photoelectrocatalytic microbial fuel cell (PEC-MFC) degradation of**
2 **refractory organic pollutants and in-situ electricity utilization**

3 Manman Zhang¹, Ying Wang*¹, Peng Liang², Xu Zhao³, Mingxing Liang¹, Bin Zhou⁴

4 ¹ The Key Laboratory of Water and Sediment Sciences, Ministry of Education, School
5 of Environment, Beijing Normal University, Beijing 100875, P.R. China

6 ² Environment Simulation and Pollution Control State Key Joint Laboratory,
7 Department of Environmental Science and Engineering, Tsinghua University, Beijing
8 100084, P.R. China

9 ³ State Key Laboratory of Environmental Aquatic Chemistry, Research Center for
10 Eco-Environmental Sciences, Beijing, 100085, P.R. China

11 ⁴ The Administrative Center for China's Agenda 21, Beijing, 100038, P.R. China

12
13 **Abstract**

14 A new photoelectrocatalytic (PEC) and microbial fuel cell (MFC) process was
15 developed and applied to simultaneously remove refractory organic pollutants (i.e.,
16 phenol and aniline) from wastewater while recovering energy for in-situ utilization.
17 The current generated by the MFC process was applied to drive the PEC reaction.
18 Compared with single PEC or MFC processes, the PEC-MFC combined process
19 showed higher pollutant and chemical oxygen demand (COD) removal capacities and

* Corresponding author
Tel.: +86-10-5880 2851
E-mail: yingwang@bnu.edu.cn

Download English Version:

<https://daneshyari.com/en/article/11025192>

Download Persian Version:

<https://daneshyari.com/article/11025192>

[Daneshyari.com](https://daneshyari.com)