

Accepted Manuscript

Bioelectrochemical approach for control of methane emission from wetlands

Shentan Liu, Xiaojuan Feng, Xianning Li

PII: S0960-8524(17)30918-5

DOI: <http://dx.doi.org/10.1016/j.biortech.2017.06.031>

Reference: BITE 18268

To appear in: *Bioresource Technology*

Received Date: 1 April 2017

Revised Date: 4 June 2017

Accepted Date: 6 June 2017



Please cite this article as: Liu, S., Feng, X., Li, X., Bioelectrochemical approach for control of methane emission from wetlands, *Bioresource Technology* (2017), doi: <http://dx.doi.org/10.1016/j.biortech.2017.06.031>

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.

Bioelectrochemical approach for control of methane emission from wetlands

Shentan Liu^{a,b,*}, Xiaojuan Feng^c, Xianning Li^b,

^a School of Environment, Beijing Key Laboratory for Emerging Organic Contaminants Control, State Key Joint Laboratory of Environmental Simulation and Pollution Control, Key Laboratory for Solid Waste Management and Environment Safety, Ministry of Education of China, Tsinghua University, Beijing 100084, China

^b School of Energy and Environment, Southeast University, Nanjing 210096, China

^c Center for Environmental Remediation, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, Beijing 100101, China

*Corresponding author.

E-mail address: liushentan@seu.edu.cn

Tel.: +86 18611706816.

Abstract

To harvest electricity and mitigate methane emissions from wetlands, a novel microbial fuel cell coupled constructed wetland (MFC-CW) was assembled with an anode placing in the rhizosphere and a cathode on the water surface. Plant-mediated methane accounted for 71-82% of the total methane fluxes. The bioanode served as an inexhaustible source of electron acceptors and resulted in reduced substantial methane emissions owing to electricigens outcompeting methanogens for carbon and electrons when substrate was deficient. However, when supplying sufficient organic carbon, both electricity and methane increased, indicating that electrogenesis and

Download English Version:

<https://daneshyari.com/en/article/4997062>

Download Persian Version:

<https://daneshyari.com/article/4997062>

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