Short Communication

Isolation and heterotrophic cultivation of mixotrophic microalgae strains for domestic wastewater treatment and lipid production under dark condition

Zhang Tian-Yuan, Wu Yin-Hu, Zhu Shu-feng, Li Feng-Min, Hu Hong-Ying

PII: S0960-8524(13)01538-1
DOI: http://dx.doi.org/10.1016/j.biortech.2013.09.106
Reference: BITE 12471

To appear in: *Bioresource Technology*

Please cite this article as: Tian-Yuan, Z., Yin-Hu, W., Shu-feng, Z., Feng-Min, L., Hong-Ying, H., Isolation and heterotrophic cultivation of mixotrophic microalgae strains for domestic wastewater treatment and lipid production under dark condition, *Bioresource Technology* (2013), doi: http://dx.doi.org/10.1016/j.biortech.2013.09.106

Isolation and heterotrophic cultivation of mixotrophic microalgae strains for domestic wastewater treatment and lipid production under dark condition

ZHANG Tian-Yuan[a], WU Yin-Hu[a], ZHU Shu-feng[a], LI Feng-Min[b], HU Hong-Ying[a,c*]

[a] Environmental Simulation and Pollution Control State Key Joint Laboratory, School of Environment, Tsinghua University, Beijing 100084, P.R. China.

[b] College of Environmental Science and Engineering, Ocean University of China, Qingdao 266100, PR China

[c] State Environmental Protection Key Laboratory of Microorganism Application and Risk Control (MARC), Graduate School at Shenzhen, Tsinghua University, Shenzhen 518055, P.R. China.

Abstract

Cultivating microalgae heterotrophicly could overcome the light dependency, and thus increase the yield of microalgal lipid per unit area. In this study, three newly isolated strains of microalgae (*Scenedesmus* sp. ZTY2, *Scenedesmus* sp. ZTY3 and *Chlorella* sp. ZTY4) from a domestic wastewater treatment plant were heterotrophicly cultivated in domestic wastewater with no illumination. During the cultivation, the algal densities of *Scenedesmus* species and *Chlorella* species were increased by 203.0% and 60.5% comparing with the initial densities, respectively. After 11-day cultivation, the lipid contents of *Scenedesmus* sp. ZTY2, *Scenedesmus* sp. ZTY3 and

* Corresponding author. Tel.: +86-10-62794005; Fax: +86-10-62797265.
E-mail addresses: hyhu@tsinghua.edu.cn