

Accepted Manuscript

Co-immobilization of cellulase and lysozyme on amino-functionalized magnetic nanoparticles: An activity-tunable biocatalyst for extraction of lipids from microalgae

Qingtai Chen, Dong Liu, Chongchong Wu, Kaisheng Yao, Zhiheng Li, Nan Shi, Fushan Wen, Ian D. Gates

PII: S0960-8524(18)30594-7
DOI: <https://doi.org/10.1016/j.biortech.2018.04.071>
Reference: BITE 19851

To appear in: *Bioresource Technology*

Received Date: 24 February 2018
Revised Date: 17 April 2018
Accepted Date: 18 April 2018

Please cite this article as: Chen, Q., Liu, D., Wu, C., Yao, K., Li, Z., Shi, N., Wen, F., Gates, I.D., Co-immobilization of cellulase and lysozyme on amino-functionalized magnetic nanoparticles: An activity-tunable biocatalyst for extraction of lipids from microalgae, *Bioresource Technology* (2018), doi: <https://doi.org/10.1016/j.biortech.2018.04.071>

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.



Co-immobilization of cellulase and lysozyme on amino-functionalized magnetic nanoparticles: An activity-tunable biocatalyst for extraction of lipids from microalgae

Qingtai Chen^a, Dong Liu^{a1*}, Chongchong Wu^b, Kaisheng Yao^c, Zhiheng Li^a, Nan Shi^a,
Fushan Wen^d, Ian D. Gates^b

^a State Key Laboratory of Heavy Oil Processing, and College of Chemical Engineering, China University of Petroleum, Qingdao, Shandong 266580, China;

^b Department of Chemical and Petroleum Engineering, University of Calgary, T2N 1N4, Calgary, Alberta, Canada;

^c School of Chemical Engineering and Pharmaceutics, Henan University of Science and Technology, Luoyang, Henan 471003, China;

^d College of Science, China University of Petroleum, Qingdao, Shandong 266580, China

Abstract

An activity-tunable biocatalyst for *Nannochloropsis* sp. cell-walls degradation was prepared by co-immobilization of cellulase and lysozyme on the surface of amino-functionalized magnetic nanoparticles (MNPs) employing glutaraldehyde. The competition between cellulase and lysozyme during immobilization was caused by the limited active sites of the MNPs. The maximum recovery of activities (cellulase: 78.9% and lysozyme: 69.6%) were achieved due to synergistic effects during dual-enzyme

* Corresponding author.
E-mail address: Liudong@upc.edu.cn (D. L)

Download English Version:

<https://daneshyari.com/en/article/7066703>

Download Persian Version:

<https://daneshyari.com/article/7066703>

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