

Accepted Manuscript

The Adsorption Properties of Endoglucanase to Lignin and their Impact on Hydrolysis

Xianqin Lu, Xiaoting Feng, Xuezhi Li, Jian Zhao

PII: S0960-8524(18)30810-1
DOI: <https://doi.org/10.1016/j.biortech.2018.06.031>
Reference: BITE 20048

To appear in: *Bioresource Technology*

Received Date: 28 April 2018
Revised Date: 10 June 2018
Accepted Date: 12 June 2018

Please cite this article as: Lu, X., Feng, X., Li, X., Zhao, J., The Adsorption Properties of Endoglucanase to Lignin and their Impact on Hydrolysis, *Bioresource Technology* (2018), doi: <https://doi.org/10.1016/j.biortech.2018.06.031>

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.



The Adsorption Properties of Endoglucanase to Lignin and their Impact on

Hydrolysis

*Xianqin Lu, XiaotingFeng, Xuezhi Li, Jian Zhao**

State Key Laboratory of Microbial Technology, Shandong University, No.72,

Binhai Road, Qingdao, 266237, P.R. China

* Corresponding author: Jian Zhao

Tel.: +86-531-88364690

E-mail: zhaojian@sdu.edu.cn

Abstract

Nonproductive adsorption of cellulase to lignin dramatically influenced the hydrolysis efficiency of lignocellulose. By comparing the adsorption behaviors of CBH and EG, we found that the adsorption of EG to lignin showed lower adsorption velocity and capacity versus CBH. During the adsorption of EG to lignin, carbohydrate binding domain (CBM) and catalytic domain (CD) both played an important role by a two-step adsorption process, in which CD slowly bond on lignin and developed stronger interaction with lignin. The optimal binding position of EG on lignin was consistent with that on polysaccharide located in the open catalytic tunnel. So, the adsorption of EG to lignin not only limited the movement of enzyme, but also restricted the catalytic ability of enzyme, which dramatically influenced enzymatic

Download English Version:

<https://daneshyari.com/en/article/7066105>

Download Persian Version:

<https://daneshyari.com/article/7066105>

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