

## Accepted Manuscript

Multi-objective Regulation in Autohydrolysis Process of Corn Stover by Liquid Hot Water Pretreatment

Huisheng Lü, Xingfang Shi, Yonghui Li, Fanmei Meng, Shuangyan Liu, Li Yan

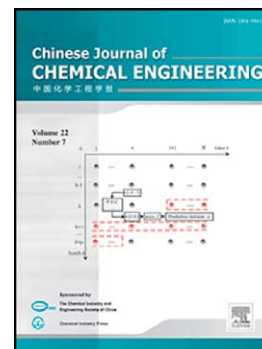
PII: S1004-9541(16)30529-8  
DOI: doi:[10.1016/j.cjche.2017.01.007](https://doi.org/10.1016/j.cjche.2017.01.007)  
Reference: CJCHE 745

To appear in:

Received date: 1 June 2016  
Revised date: 28 December 2016  
Accepted date: 2 January 2017

Please cite this article as: Huisheng Lü, Xingfang Shi, Yonghui Li, Fanmei Meng, Shuangyan Liu, Li Yan, Multi-objective Regulation in Autohydrolysis Process of Corn Stover by Liquid Hot Water Pretreatment, (2017), doi:[10.1016/j.cjche.2017.01.007](https://doi.org/10.1016/j.cjche.2017.01.007)

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.



*Biotechnology and Bioengineering*

## **Multi-objective Regulation in Autohydrolysis Process of Corn Stover by Liquid Hot Water Pretreatment**

Huisheng Lü\*, Xingfang Shi, Yonghui Li, Fanmei Meng, Shuangyan Liu, Li Yan

Key Laboratory for Green Chemical Technology of Ministry of Education, Tianjin University R&D Center for Petrochemical Technology, Tianjin University, Tianjin 300072, China

\*Corresponding author. Phone: 86-22-27406119

Fax: 86-22-27406119

E-mail:tdshzhang@163.com

**Abstract** Increasing reducing sugars (xylose and glucose) yield for bioethanol from corn stover depends strongly on optimization of pretreatment conditions. The optimum reaction conditions of two-stage liquid hot water (LHW) pretreatment based on total sugars yield were investigated. Under optimal conditions, the recovery of glucose of corn stover after two-stage LHW pretreatment and 72 h enzymatic digestion, reached 89.55%. In addition, acetic acid-rich spent liquor pretreatment and one-stage LHW pretreatment have been carried out to make comparisons with two-stage LHW treatment. Glucose yield 89.55% is superior to the recovery 83.38% using acetic acid-rich spent liquor pretreatment or 80.58% using one-stage LHW pretreatment. The production of total sugars was increased by 7.8% when compared with one-stage pretreatment. Moreover, the structural features of the treated corn stover solid residues were also investigated by XRD and SEM technology in order to clarify the effects of the reaction on corn stover. The results indicated that the two-stage LHW pretreatment was an effective pretreatment method of corn stover to get most massive resource utilization, and it could be successfully applied to corn stover.

**Key words:** Bioethanol; Corn stover; Liquid hot water; Pretreatment; Enzyme hydrolysis

Download English Version:

<https://daneshyari.com/en/article/4764101>

Download Persian Version:

<https://daneshyari.com/article/4764101>

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