

Accepted Manuscript

Bioethanol production from sodium hydroxide/hydrogen peroxide-pretreated water hyacinth via simultaneous saccharification and fermentation with a newly isolated thermotolerant *Kluyveromyces marxianu* strain

Jinping Yan, Zhilei Wei, Qiaoping Wang, Manman He, Shumei Li, Chagan Irbis

PII: S0960-8524(15)00860-3

DOI: <http://dx.doi.org/10.1016/j.biortech.2015.06.069>

Reference: BITE 15149

To appear in: *Bioresource Technology*

Received Date: 20 April 2015

Revised Date: 13 June 2015

Accepted Date: 15 June 2015

Please cite this article as: Yan, J., Wei, Z., Wang, Q., He, M., Li, S., Irbis, C., Bioethanol production from sodium hydroxide/hydrogen peroxide-pretreated water hyacinth via simultaneous saccharification and fermentation with a newly isolated thermotolerant *Kluyveromyces marxianu* strain, *Bioresource Technology* (2015), doi: <http://dx.doi.org/10.1016/j.biortech.2015.06.069>

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.



Title: Bioethanol production from sodium hydroxide/hydrogen peroxide-pretreated water hyacinth via simultaneous saccharification and fermentation with a newly isolated thermotolerant *Kluyveromyces marxianu* strain

Author: Jinping Yan^{a, §}, Zhilei Wei^{a, b, §}, Qiaoping Wang^a, Manman He^a, Shumei Li^a, Chagan Irbis^{a, *}

Affiliations:

^a Laboratory of Bioconversion, Life Science and Technology College, Kunming University of Science and Technology, Kunming, 650500, PR China;

^b Changdu Institute of Agriculture Science, Changdu, 854000, PR China.

Abstract

In this study, bioethanol production from NaOH/H₂O₂-pretreated water hyacinth was investigated. Pretreatment of water hyacinth with 1.5% (v/v) H₂O₂ and 3% (w/v) NaOH at 25 °C increased the production of reducing sugars (223.53 mg/g dry) and decreased the cellulose crystallinity (12.18%), compared with 48.67 mg/g dry and 22.80% in the untreated sample, respectively. The newly isolated *Kluyveromyces marxianu* K213 showed greater ethanol production from glucose (0.43 g/g glucose) at 45 °C than did the control *Saccharomyces cerevisiae* angel yeast. The maximum ethanol concentration (7.34 g/L) achieved with *K. marxianu* K213 by simultaneous saccharification and fermentation (SSF) from pretreated water hyacinth at 42 °C was 1.78-fold greater than that produced by angel yeast *S. cerevisiae* at 30 °C. The present work demonstrates that bioethanol production achieved via SSF of NaOH/H₂O₂-pretreated water hyacinth with *K. marxianu* K213 is a promising

Download English Version:

<https://daneshyari.com/en/article/7074133>

Download Persian Version:

<https://daneshyari.com/article/7074133>

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