

Accepted Manuscript

Title: Integrated biorefinery based on hydrothermal and alkaline treatments: Investigation of sorghum hemicelluloses

Author: Shao-Long Sun Jia-Long Wen Ming-Guo Ma
Xian-Liang Song Run-Cang Sun



PII: S0144-8617(14)00463-9
DOI: <http://dx.doi.org/doi:10.1016/j.carbpol.2014.04.099>
Reference: CARP 8860

To appear in:

Received date: 27-1-2014
Revised date: 19-4-2014
Accepted date: 25-4-2014

Please cite this article as: Sun, S.-L., Wen, J.-L., Ma, M.-G., Song, X.-L., & Sun, R.-C., Integrated biorefinery based on hydrothermal and alkaline treatments: Investigation of sorghum hemicelluloses, *Carbohydrate Polymers* (2014), <http://dx.doi.org/10.1016/j.carbpol.2014.04.099>

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.

1 **Integrated biorefinery based on hydrothermal and alkaline**
2 **treatments: Investigation of sorghum hemicelluloses**

3

4 Shao-Long Sun, Jia-Long Wen, Ming-Guo Ma, Xian-Liang Song, Run-Cang Sun*

5 *Beijing Key Laboratory of Lignocellulosic Chemistry, College of Material Science and Technology,*

6 *Beijing Forestry University, Beijing, 100083, China*

7

8

Highlights

9 An integrated process based on HTP and alkaline treatments was used to obtain
10 ASHs.

11 The ASH with the highest yield was obtained from HTP residue (130 °C, 1.0 h).

12 The M_w and M_n of the ASHs were decreased as the increasing HTP temperature.

13 ASHs had a more linear and homogeneous structure with the increasing HTP
14 temperature.

15 The isolated ASHs were assumed to be L-arabino-4-*O*-methyl-D-glucurono-D-xylan.

16

17

18 **ABSTRACT**

19 An integrated process based on hydrothermal pretreatment (HTP) and alkaline
20 post-treatment was proposed to treat sweet sorghum stem. The structural features of
21 the alkali-soluble hemicelluloses (ASHs) obtained from the un-pretreated and
22 hydrothermally pretreated materials were comprehensively investigated by HPAEC,
23 GPC, NMR, FT-IR, and TGA techniques. The ASH with the highest yield (60.6%)
24 was obtained from the HTP residue performed at 130 °C for 1.0 h. All the results

Download English Version:

<https://daneshyari.com/en/article/7791755>

Download Persian Version:

<https://daneshyari.com/article/7791755>

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