

Accepted Manuscript

Process characteristics for microwave assisted hydrothermal carbonization of cellulose

Junting Zhang, Ying An, Aiduan Borrion, Wenzhi He, Nan Wang, Yirong Chen, Guangming Li

PII: S0960-8524(18)30348-1
DOI: <https://doi.org/10.1016/j.biortech.2018.03.010>
Reference: BITE 19649

To appear in: *Bioresource Technology*

Received Date: 29 January 2018
Revised Date: 28 February 2018
Accepted Date: 1 March 2018

Please cite this article as: Zhang, J., An, Y., Borrion, A., He, W., Wang, N., Chen, Y., Li, G., Process characteristics for microwave assisted hydrothermal carbonization of cellulose, *Bioresource Technology* (2018), doi: <https://doi.org/10.1016/j.biortech.2018.03.010>

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.



Process characteristics for microwave assisted hydrothermal carbonization of cellulose

Junting Zhang^{a,c}, Ying An^b, Aiduan Borrion^c, Wenzhi He^a, Nan Wang^a, Yirong Chen^d, Guangming Li^{a*}

^{a*} College of Environmental Science and Engineering, Tongji University, 1239 Siping Road, Shanghai, 200092, China

^b Shanghai Shendi Institute, Shanghai, 200120, China

^c Department of Civil, Environmental and Geomatic Engineering, University College London, Gower Street, London, WC1E 6BT, UK

^d College of Natural Resources, University of California, Berkeley, 260 Mulford Hall, CA, 94704, USA

1. Introduction

Hydrothermal carbonization (HTC) as a promising technology for biomass enhancement (Kambo and Dutta, 2014; Kim et al., 2016; Lynam et al., 2014), and organic waste treatment (Berge et al., 2011; Goto et al., 2004; Lu et al., 2012) has gained significant attention in recent years. HTC is a novel thermal conversion process under relatively low temperature (180-350°C) for conversion of waste streams to value-added products (Berge et al., 2015). During this process, energy is maintained within solid product known as 'hydrochar' (Lu et al., 2012) to obtain better energy properties and maximize the added value of recovery products (Fava et al., 2015). Cellulose as the most copious natural raw material and one of the basic constituents of lignocellulosic materials (Suhas et al., 2016), has been studied widely as an ideal feedstock for process analysis (Lu et al., 2013) and kinetics study (Álvarez-Murillo et al., 2016) of HTC treatment.

The early mechanism of HTC proposed by Sevilla and Fuertes (2009) indicated that the formation of hydrochar from HTC of cellulose generally followed a series of reactions,

Download English Version:

<https://daneshyari.com/en/article/7067460>

Download Persian Version:

<https://daneshyari.com/article/7067460>

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