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Xinfei Chen, Xiaoqian Ma, Xiaowei Peng, Yousheng Lin, Jingjing Wang, Chupeng Zheng

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Xinfei Chen, Xiaoqian Ma^{*}, Xiaowei Peng, Yousheng Lin, Jingjing Wang, Chupeng Zheng

Guangdong Province Key Laboratory of Efficient and Clean Energy Utilization,
South China University of Technology, Guangzhou 510640, China

Postal address: School of Electric Power, South China University of Technology, No. 381, Wushan Road, Tianhe District, Guangzhou, 510640, China

*Corresponding author Tel.: +86 20 87110232; fax: +86 20 87110613

E-mail address: epqxma@scut.edu.cn

Abstract: Aqueous phase recirculation was investigated in hydrothermal carbonization of sweet potato waste at 220 °C for 60 min. The result showed that the aqueous phase reuse significantly increased the hydrochar yield. The lower H/C and O/C ratios indicated that decarboxylation reaction was promoted. The C=C vibration of the benzene backbone became intense, suggesting the occurrence of aromatization and polymerization reactions. Thus, the carbon content and HHV were improved.

After recirculation, hydrochar showed a decrease in combustion ignition temperature whereas an increase in pyrolysis initial decomposition temperature. The burnout temperatures in combustion and terminated temperature in pyrolysis both showed an increase trend. The hydrochars obtained from the recirculation step possessed lower emissions of NO_x or SO₂ than that from reference step. The pyrolysis emission result

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