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Improving enzymatic hydrolysis efficiency of wheat straw through**sequential autohydrolysis and alkaline post-extraction**

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Abstract

In this work, a two-step pretreatment process of wheat straw was established by combining autohydrolysis pretreatment and alkaline post-extraction. The results showed that employing alkaline post-extraction to autohydrolyzed wheat straw could significantly improve its enzymatic hydrolysis efficiency from 36.0% to 83.7%. Alkaline post-extraction lead to the changes of the structure characteristics of autohydrolyzed wheat straw.

Associations between enzymatic hydrolysis efficiency and structure characteristics were also studied. The results showed that the factors of structure characteristics such as delignification, xylan removal yield, crystallinity, accessibility and hydrophobicity are positively related to enzymatic hydrolysis efficiency within a certain range for alkaline post-extracted wheat straw.

The results demonstrated that autohydrolysis coupled with alkaline post-extraction is an

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