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Facile pretreatment of lignocellulosic biomass using deep eutectic solvents

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Highlights

- Three kinds of DESs used in the pretreatment of corncob.
- Improved delignification and enzymatic hydrolysis efficiency.
- Removal of lignin and hemicellulose.
- Optimization of pretreatment temperature and time.

Abstract: In this work, three kinds of deep eutectic solvents (DESs) were facilely prepared and used in the pretreatment of corncob, including monocarboxylic acid/ choline chloride, dicarboxylic acid/ choline chloride and polyalcohol/ choline chloride.

The enhanced delignification and subsequent enzymatic hydrolysis efficiency were found to be related to the acid amount, acid strength and the nature of hydrogen bond acceptors. The XRD, SEM and FT-IR results consistently indicated that the structures of corncob were disrupted by the removal of lignin and hemicellulose in the pretreatment process. In addition, the optimal pretreatment temperature and time were 90 °C and 24 h,

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