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## Degradation and in-situ extraction of furfural during the reaction from xylose

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### PURPOSE OF THE ABSTRACT

Degradation and in-situ extraction of furfural during the reaction

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A deep eutectic solvent (DES) is a mixture of at least one hydrogen bond donor (HBD) and at least one hydrogen bond acceptor (HBA) with a much lower melting point than its constituents.[1] It is often reported that DESs provide the same advantages as ionic liquids (ILs), with the advantage that the DESs are easier and cheaper to prepare (mixing at moderate temperatures) and environmentally more benign.[2] As DESs are formed because of hydrogen bonding interactions, almost all DESs are hydrophilic (fully miscible with water).[1] The first hydrophobic (water-immiscible) DESs were discovered in 2015, which were a combination of decanoic acid and quaternary ammonium salts.[3]

In this study, new biobased solvents were prepared, characterized and screened for their extraction capability of furfural (FF). First, optimal reaction conditions for the production of FF from xylose and the influence of extraction solvents on the degradation of FF were investigated. Thereafter, the extraction performance for FF from the reaction mixture was determined and compared to commonly used organic extractants. The degradation of FF can be reduced and the production yield of FF can be increased by adding an extraction solvents. Detailed results will be presented and discussed at the conference.

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[2] M. Francisco, A. van den Bruinhorst, M.C. Kroon, Low-Transition-Temperature Mixtures (LTTMs): A New Generation of Designer Solvents, Angewandte Chemie International Edition, 2012, 52, 3074-3085.

[3] D. J. G. P. van Osch, L. F. Zubeir, A. van den Bruinhorst, M. A. A. Rocha, M. C. Kroon, Hydrophobic deep eutectic solvents as water-immiscible extractants, Green Chemistry, 2015, 17, 4518-4521.

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## FIGURES

FIGURE 1

FIGURE 2

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### KEYWORDS

degradation | in-situ extraction | deep eutectic solvents | furfural

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### BIBLIOGRAPHY