Supporting information

Green and efficient approach of selective conversion of xylose and biomass hemicellulose into furfural in aqueous media using high-pressure CO$_2$ as sustainable catalyst

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The reaction (heating and holding time) profiles

Effect of water/organic solvent biphasic systems

Reaction conditions: 180 °C, 60 min, 50 bar of initial CO$_2$ pressure and 12.5 g/L of xylose concentration in the feed, with equal volume (7.5 mL) of each solvent.

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### Effect of amount of extracting agent on the furfural production

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**Effect of temperature and reaction time**

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Influence of CO₂ pressure on catalytic dehydration

Reaction conditions: 180 °C, 60 min of holding time and 12.5 g/L of xylose concentration in the feed and 7.5 mL water/7.5 mL THF/7.5 mL MIBK system.

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Furfural from hemicellulose hydrolysate as feed

1st step

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Reaction conditions: 50 bar of initial \( \text{CO}_2 \) pressure, mixture loading of 10 (75 g of \( \text{H}_2\text{O} \)/ 7.5 g of dry wheat straw)

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