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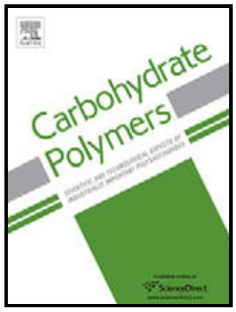

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Efficient Conversion of Lignocellulosic Biomass to Levulinic Acid Using Acidic Ionic Liquids

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Highlights

- Synthesis and characterization of anionic cluster based acidic ionic liquids.
- Efficient conversion of lignocellulose biomass to levulinic acid using acidic ionic liquids.
- Optimizations of process parameters for conversion of lignocellulosic biomass to levulinic acid.
- Up to 47.52 % yield of LA from bamboo biomass obtained at 100 ^{o}C in 60 min.

Abstract

In the present research work, dicationic ionic liquids, containing 1,1-Bis(3-methylimidazolium-1-yl) butylene ([$C_4(Mim)_2$]) cation with counter anions [$(2HSO_4)(H_2SO_4)_0$], [$(2HSO_4)(H_2SO_4)_2$] and [$(2HSO_4)(H_2SO_4)_4$] were synthesised. ILs structures were confirmed using ^{1}H NMR spectroscopy. Thermal stability, Hammett acidity, density and viscosity of ILs were determined. Various types of lignocellulosic biomass such as