

Supplementary Materials: Conversion of Carbohydrates into Platform Chemicals Catalyzed by Alkaline Ionic Liquids

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The NMR characterizations of all the ionic liquids in this paper.

Structures of ionic liquid (IL) [BMIM]OH used in our study were confirmed by ¹H NMR (500MHz, CDCl₃, room temperature):

The NMR spectra results (¹H results of the ILs, using CDCl₃ solvent with tetramethylsilane as an internal standard) are shown as follows: 1.18 (t, 3H), 1.49 (m, 2H), 1.97 (m, 2H), 4.14 (s, 3H), 4.37 (t, 2H), 7.50 (s, 1H), 7.62 (s, 1H), 10.36 (s, 1H).

Structures of IL [BMIM]OAc used in our study were confirmed by ¹H NMR (500MHz, CDCl₃, room temperature):

The NMR spectra results (¹H results of the ILs, using CDCl₃ solvent with tetramethylsilane as an internal standard) are shown as follows: 1.14 (t, 3H), 1.50 (m, 2H), 2.02 (m, 2H), 2.17 (s, 3H), 4.03 (s, 3H), 4.46 (t, 2H), 7.44 (s, 1H), 7.50 (s, 1H), 10.13 (s, 1H).

Structures of IL [BMIM]2CO₃ used in our study were confirmed by ¹H NMR (500MHz, CDCl₃, room temperature):

The NMR spectra results (¹H results of the ILs, using CDCl₃ solvent with tetramethylsilane as an internal standard) are shown as follows: 1.18 (t, 3H), 1.29 (m, 2H), 1.82 (m, 2H), 4.06 (s, 3H), 4.30 (t, 2H), 7.61 (s, 1H), 7.85 (s, 1H), 10.34 (s, 1H).

Structures of IL [BMIM]PHCOO used in our study were confirmed by ¹H NMR (500MHz, CDCl₃, room temperature):

The NMR spectra results (¹H results of the ILs, using CDCl₃ solvent with tetramethylsilane as an internal standard) are shown as follows: -0.55 (t, 3H), 1.12 (m, 2H), 1.46 (m, 2H), 3.65 (s, 3H), 3.76 (t, 2H), 6.84 (s, 3H), 7.17 (s, 1H), 7.39 (s, 1H), 7.50 (s, 2H), 10.18 (s, 1H).

Structures of IL [MEA]BF₄ used in our study were confirmed by ¹H NMR (600MHz, D₂O, room temperature):

The NMR spectra results (¹H results of the ILs, using D₂O solvent with tetramethylsilane as an internal standard) are shown as follows: 2.57 (t, 2H), 3.44 (t, 2H).

Structures of IL [TMG]BF₄ used in our study were confirmed by ¹H NMR (400MHz, CDCl₃, room temperature):

The NMR spectra results (¹H results of the ILs, using CDCl₃ solvent with tetramethylsilane as an internal standard) are shown as follows: 2.65 (s, 12H), 4.94 (s, 1H).

The characterization results reveal that the ionic liquids in this study were all in pure form. All of the chemical shifts of hydrogen atoms were characterized using a Bruker spectrometer.