

1,8-diazabicyclo[5.4.0]-undec-7-ene based protic ionic liquids and their binary systems with molecular solvents catalyzed Michael addition reaction

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Electronic Supplementary Information (ESI)

Fig. S1 Spotting and labeling of a TLC plate: (a) prior to developing; (b) developed at the initial stage of the reaction, and (c) after completion of the reaction.

Fig. S2 FTIR spectra for (A) [HDBU]OH and (B) [HDBU]CH₃COO.

Fig S3 ¹H NMR spectra for (A) [HDBU]OH and (B) [HDBU]CH₃COO.

Fig. S4 ¹³C NMR spectra for (A) [HDBU]OH and (B) [HDBU]CH₃COO.

Fig. S5 The change in conductivity and degradation temperature with mole fraction of DBU for binary systems of [HDBU]CH₃COO with DBU and water.

Fig. S6 The change in conductivity, degradation temperature and average reaction rate for the Michael addition reaction with mole fraction of DBU for binary systems of [HDBU]OH with DBU and water.

Table S1 Reaction completion time and average rate for different systems as catalyst and reaction medium in the Michael addition reaction.

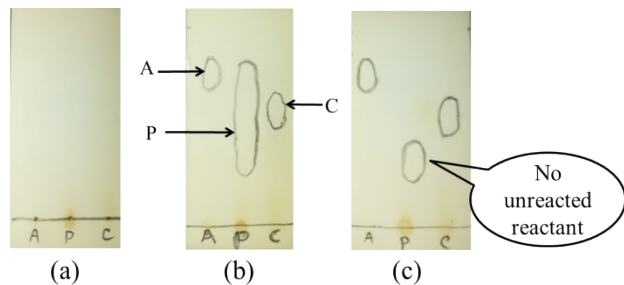


Fig. S1 Spotting and labeling of a TLC plate: (a) prior to developing; (b) developed at the initial stage of the reaction, and (c) after completion of the reaction.

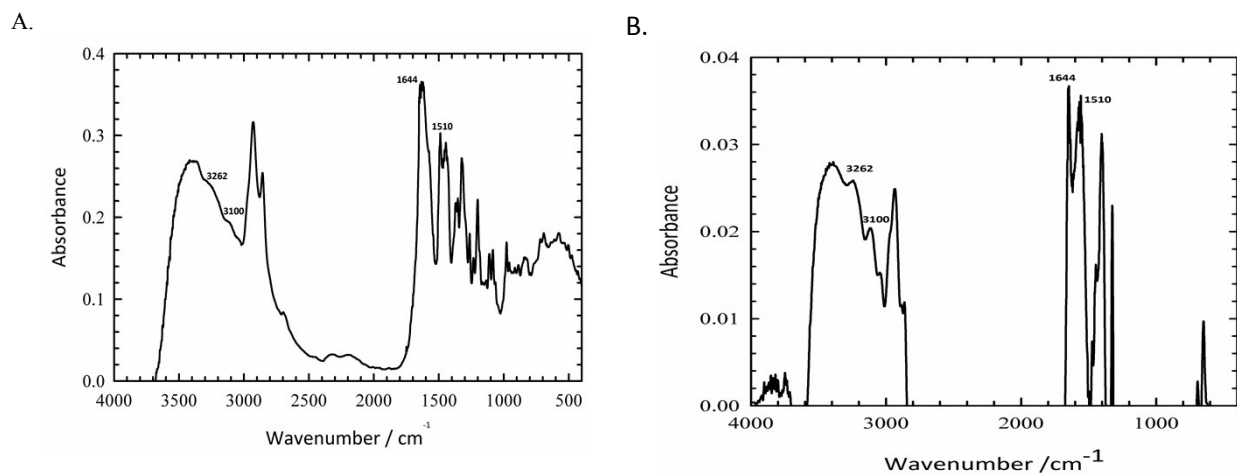


Fig. S2 FTIR spectra for (A) [HDBU]OH and (B) [DBU]CH₃COO.

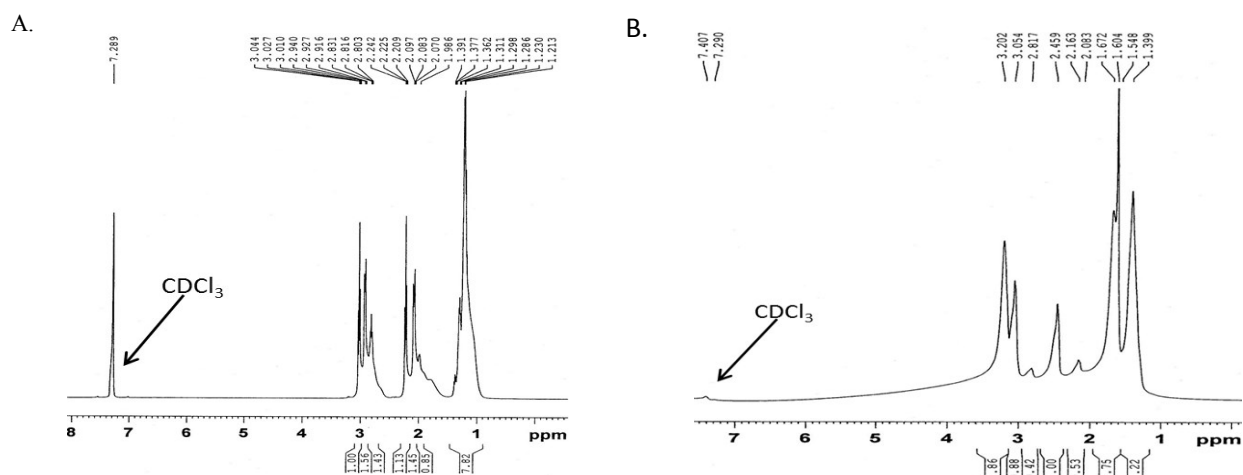


Fig. S3 ¹H NMR spectra for (A) [HDBU]OH and (B) [HDBU]CH₃COO.

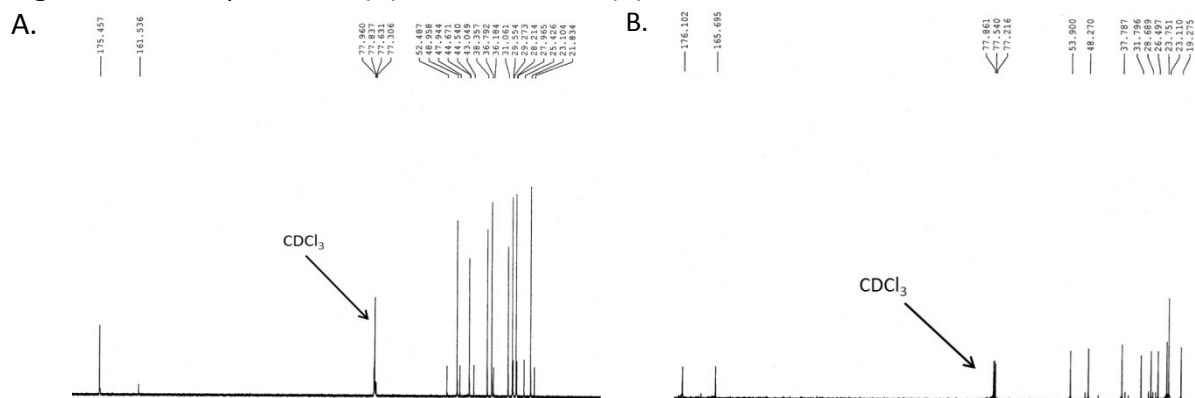


Fig. S4 ^{13}C NMR spectra for (A) [HDBU]OH and (B) [HDBU]CH₃COO.

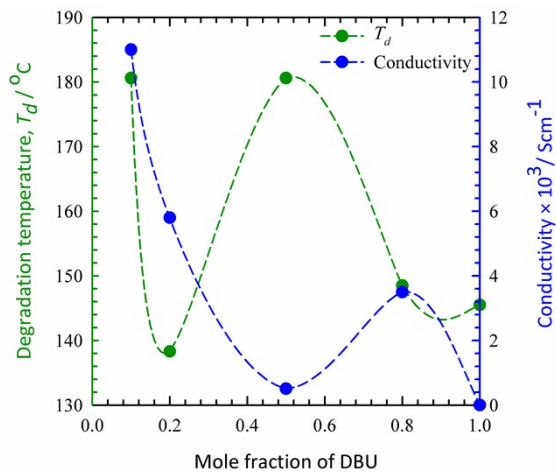


Fig. S5 The change in conductivity and degradation temperature with mole fraction of DBU for binary systems of [HDBU]CH₃COO with DBU and water.

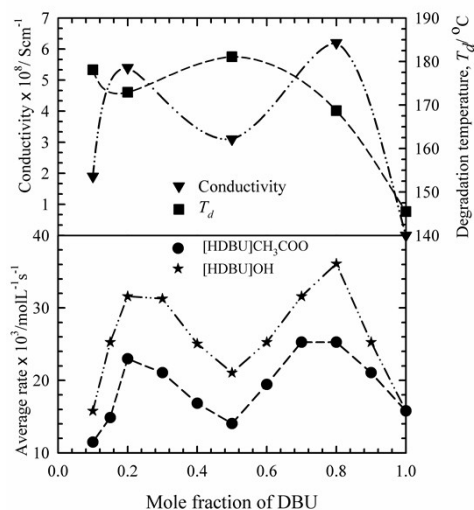


Fig. S6 The change in conductivity, degradation temperature and average reaction rate for the Michael addition reaction with mole fraction of DBU for binary systems of [HDBU]OH with DBU and water.

Table S1 Reaction completion time and average rate for different systems as catalyst and reaction medium in the Michael addition reaction.

Chemical Systems (0.5 mmol)	Reaction Completion Time (min)	Average Rate (v) ($\text{molL}^{-1}\text{s}^{-1}$)$\times 10^4$
NaOH	250	2.53
DBU	240	2.63
[HDBU]OH	180	3.51
[HDBU]CH ₃ COO	270	2.34
Binary systems of [HDBU]OH with H ₂ O and DBU	110 - 120	5.27-5.74
Binary systems of [HDBU]CH ₃ COO with CH ₃ COOH and DBU	160-152	3.95-4.16