Supplementary Material

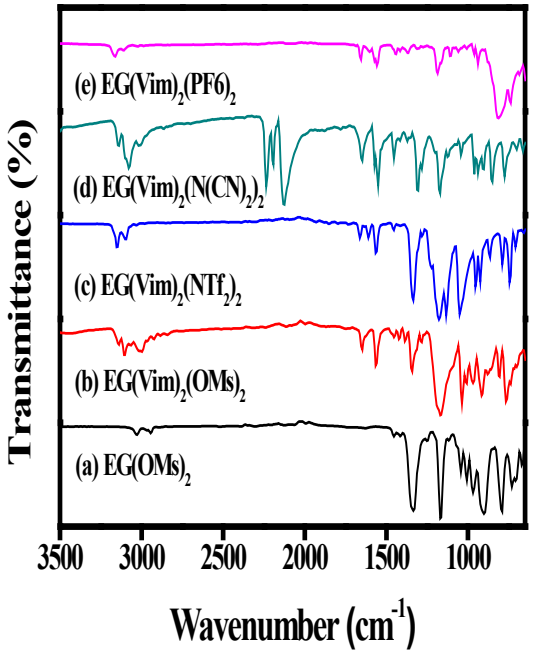

Figure 1: FT-IR spectrum of ethylene glycol based ILs.

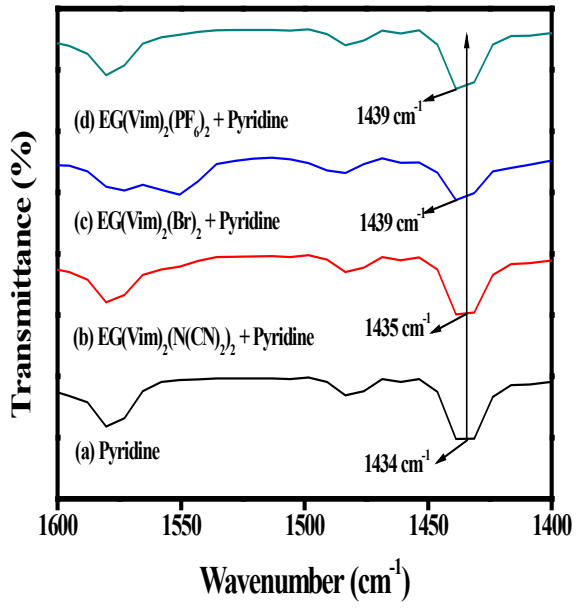

Figure 2: Acidity measurements of ethylene glycol based ILs.

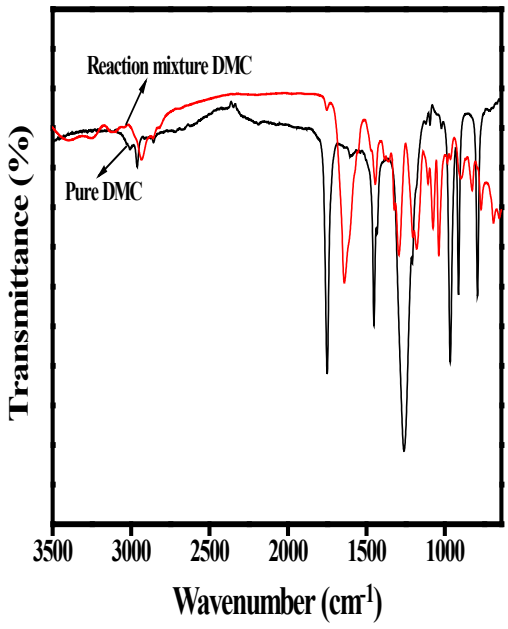

Figure 3: FT-IR spectrum of reaction mixture DMC and pure DMC.

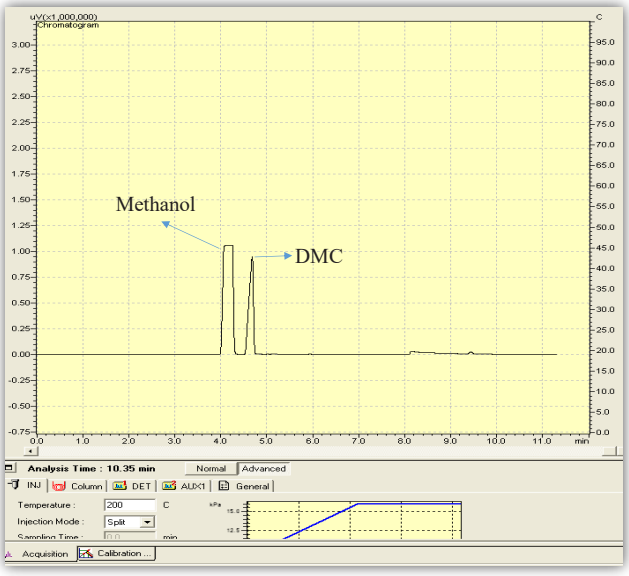

Figure 4: Gas chromatograph of reaction mixture DMC.

Table caption

Solvents screening for ILs synthesis

In a typical synthesis, 1.0 mmol di-mesylate precursor and 2.1 mmol 1-vinyl-imidazole was added in round bottom flask containing 30 mL of ethanol (For the solvent study we used here the excess amount of solvent to checked the complete solubility of the precursor. In order to that the precursor amount used is also higher for the optimization of reaction conditions) is then, reaction mixture refluxed under inert gas atmosphere at 80°C for 72 h, then slowly reaction mixture was cool down at room temperature furthermore, excess solvent were removed out under high vacuum followed by ethyl acetate washing to removed out starting material and dried under vacuum oven at 30°C up to 12 h. Further the IL was synthesized using a similar protocol as explained above except Tolune was used instead of ethanol (Table 3 entry 1-6).

Table 3: Solvents screening for ILs synthesis.

Entry	Solvents	Time (h)	Isolated yield (%)
1	Ethanol	72	48.4
2	Tolune	72	55.3
3	Ethyl acetate	72	62.1
4	DMSO	72	68.5
5	DCE	72	75.8
6	Acetonitrile	72	90.4

Reaction conditions: Dimesylate precursor 1.0 mmol, 1-vinyl imidazole 2.1 mmol, solvent 30 mL, 80°C.