

supplementary Data

Heterogenization of a homogenous catalyst: synthesis and characterization of imidazolium ionene/ $\text{OH}^-@ \text{SiO}_2$ as an efficient basic catalyst for biodiesel production

Neda Sammah^a, Mehran Ghiaci^{a,*}

^a*Department of Chemistry, Isfahan University of Technology, Isfahan, 8415683111, Iran*

^{*}mghiaci@cc.iut.ac.ir

Figure S1. ^1H NMR spectrum of *1,2-di(1H-imidazol-1-yl)ethane (I)*.

Figure S2. ^1H NMR spectrum of *3,3'-(ethane-1,2-diyl)bis(2-bromoethyl-1H-imidazol-3-ium)bromide (IL 1)*.

Figure S3. ^1H NMR spectrum of *1-(2(1H-imidazol-1-yl)ethyl)-3-benzyl-1H-imidazol-3-ium)bromide (IL 2)*.

Figure S4. ^1H NMR spectrum of *1,1'-(ethane-1,2-diyl)bis(3-propyl-1H-imidazol-3-ium) bromide (IL-3)*

Figure S5: GC Mass results.

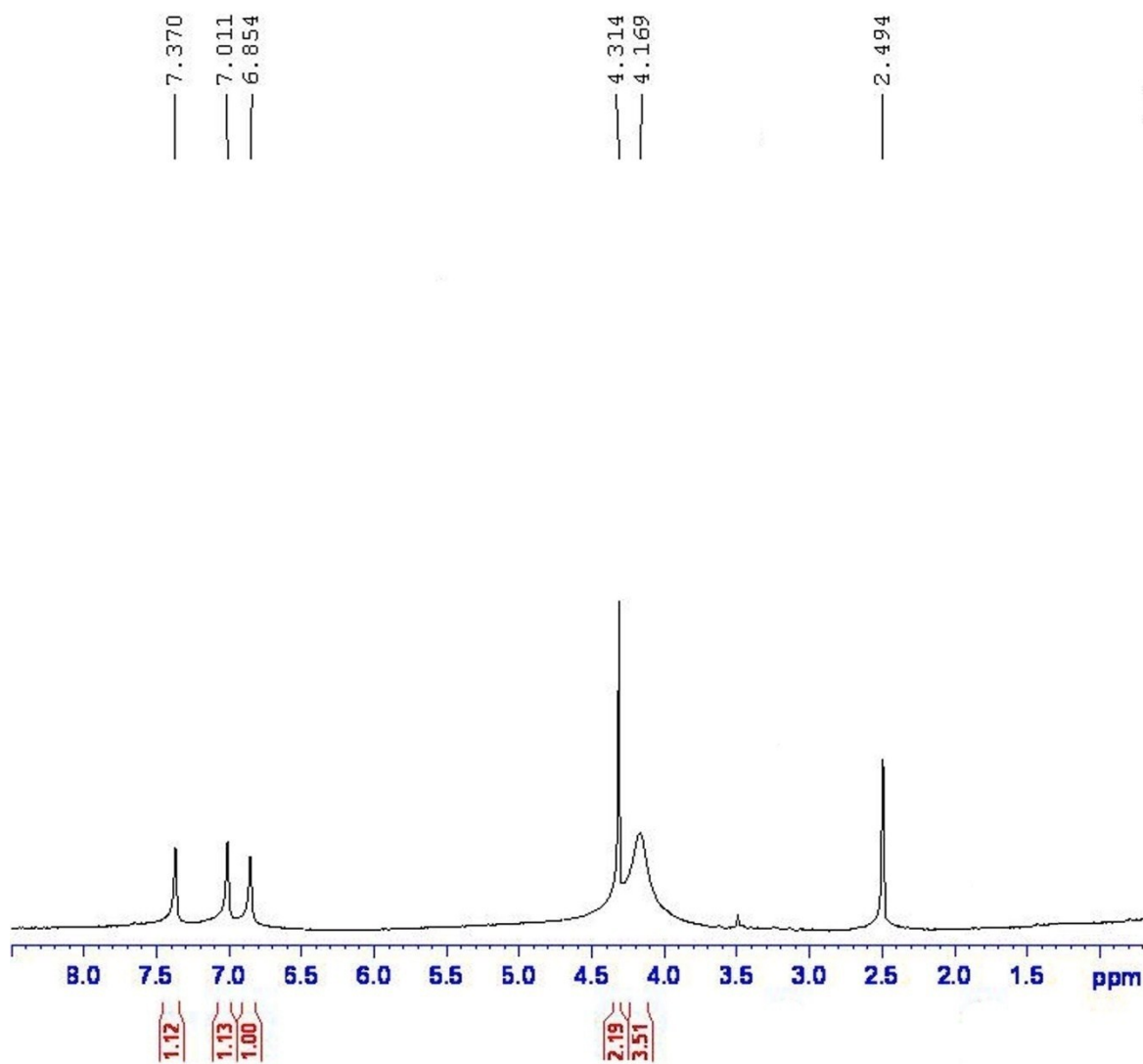


Figure S1. ^1H NMR spectrum of 1,2-di(1H-imidazol-1-yl)ethane (**1**).

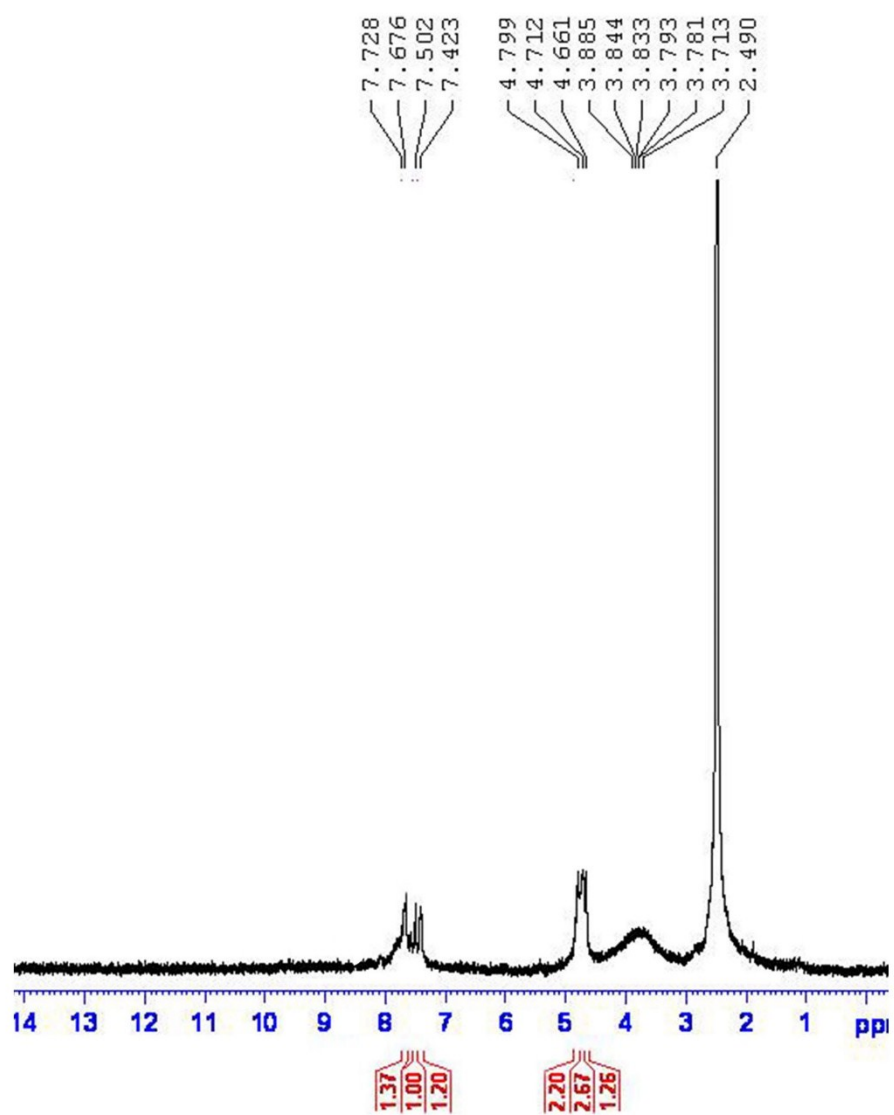


Figure S2: ^1H NMR spectrum of IL 1.

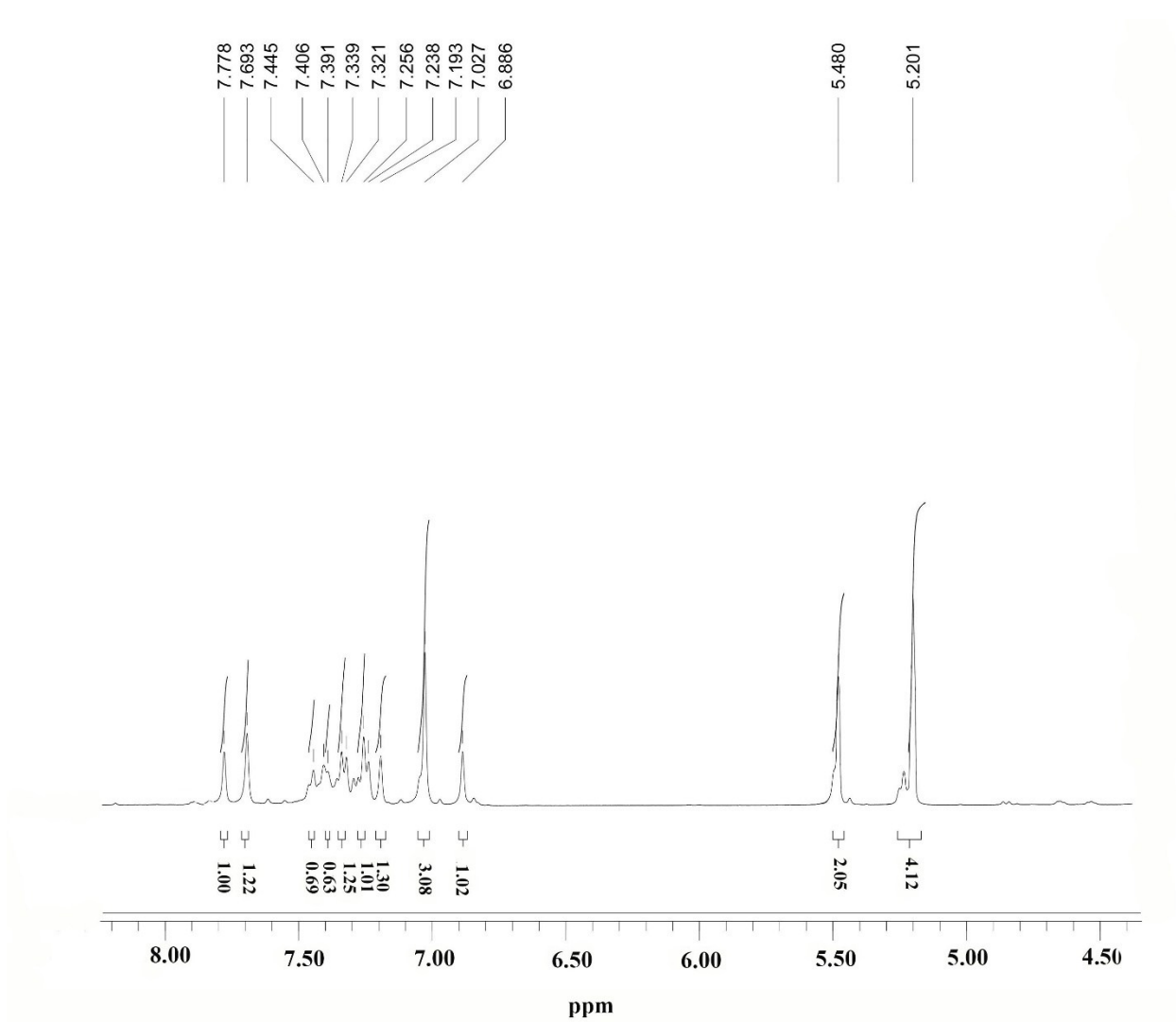


Figure S3: ^1H NMR spectrum of IL-2.

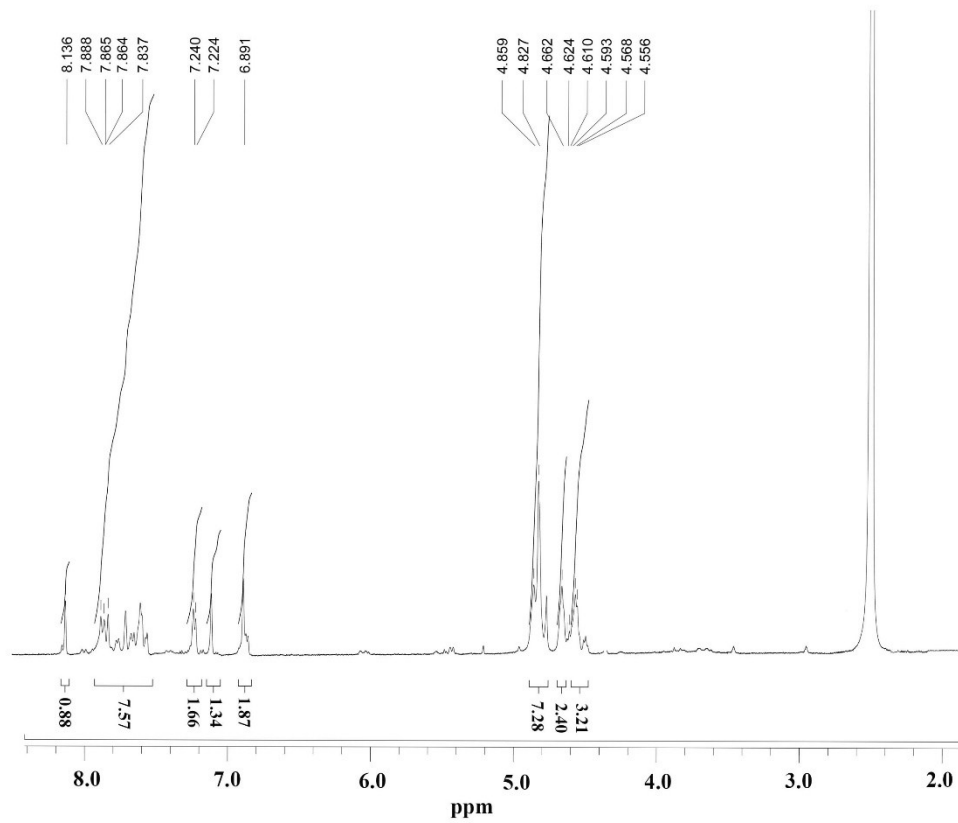
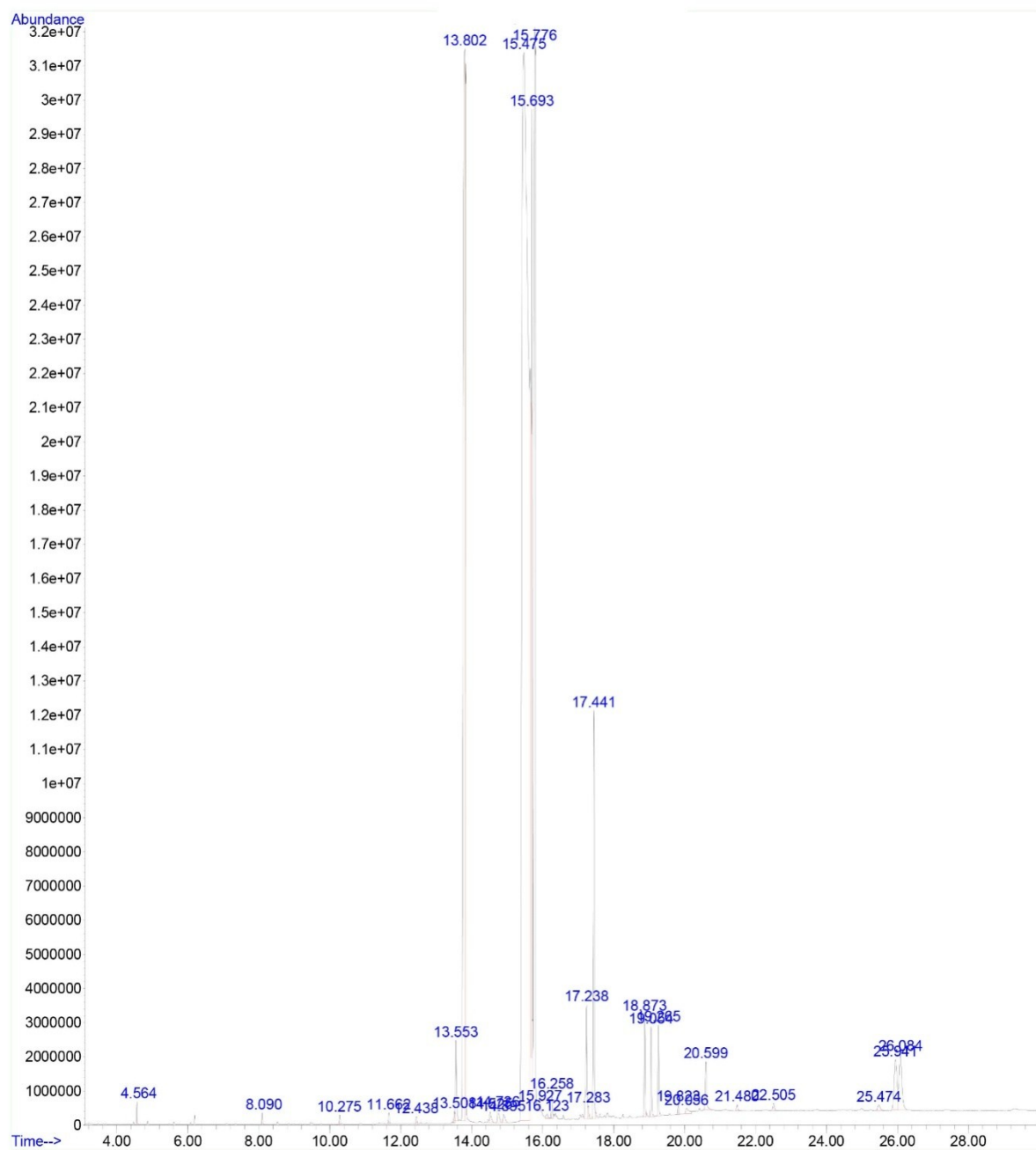


Figure S4: ^1H NMR spectrum of IL-3.



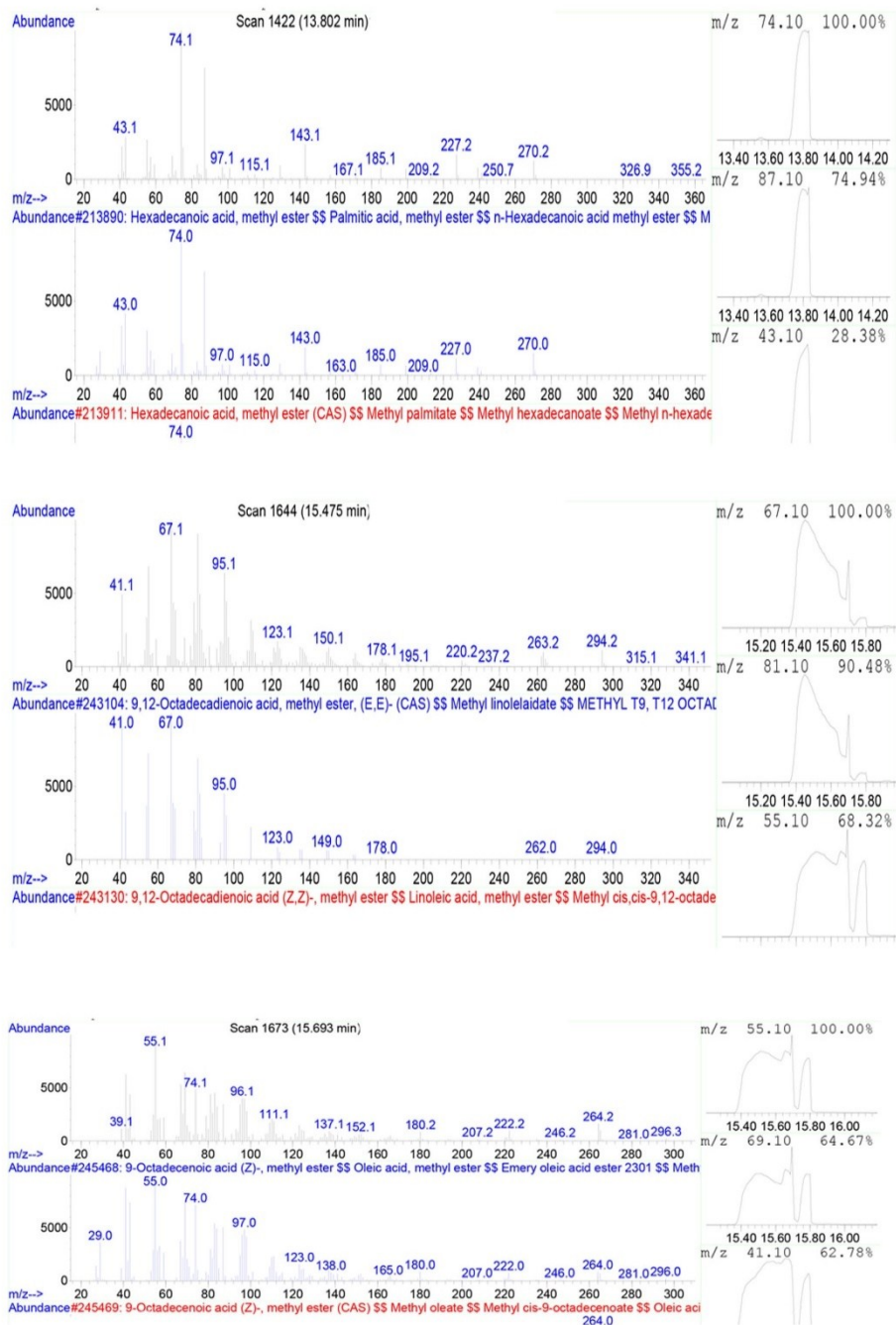


Fig 5: GC Mass results.