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Supporting Information

Effects of Water and Alcohols on the Polymerization of Furan during its Acid-Catalyzed Conversion into Benzofuran

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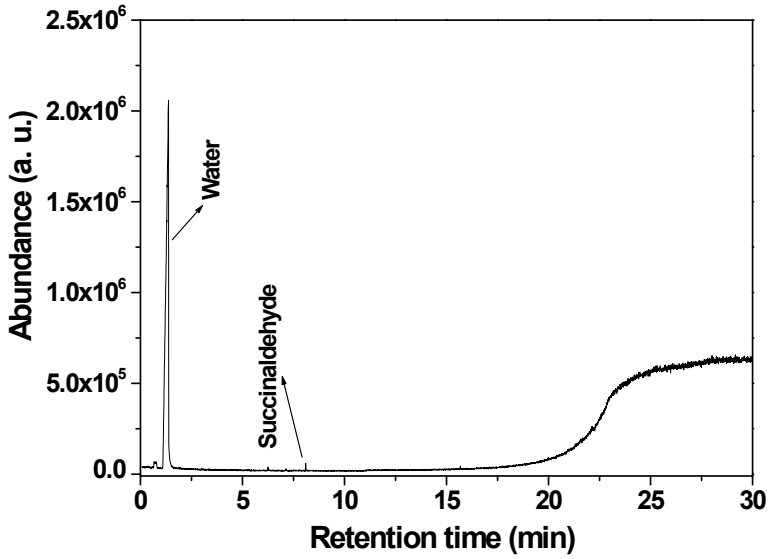

Figure S1 GC-MS spectrum for acid-catalyzed conversion of furan in water. Reaction conditions: residence time: 20 min; furan: 3 g, water: 100 ml; catalyst: A70, 3 g; stirring rate: 350 rpm; pressure: autogenous vapor pressure.

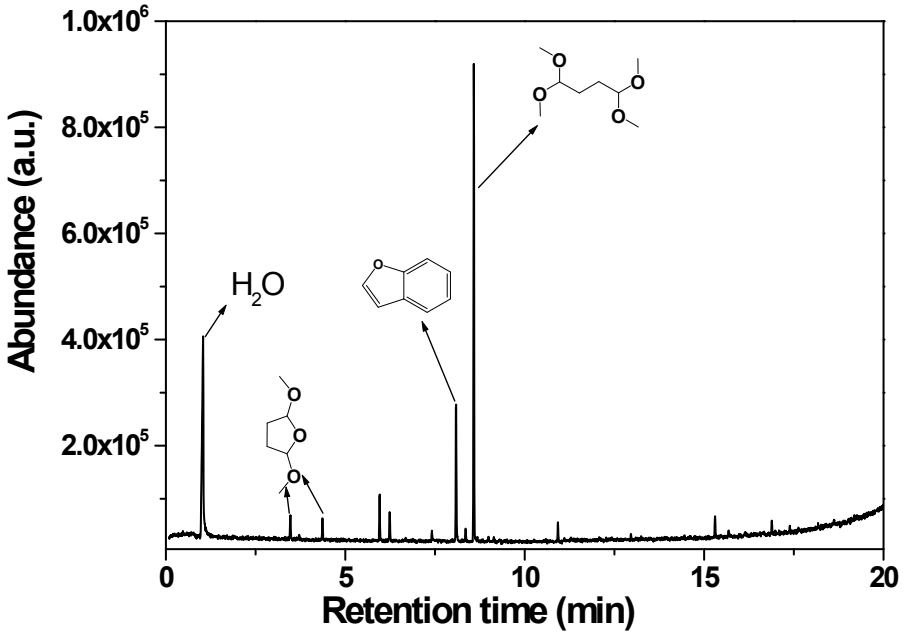

Figure S2 GC-MS spectrum for acid-catalyzed conversion of furan in methanol. Reaction conditions: residence time: 20 min; furan: 3 g, methanol: 100 ml; catalyst: A70, 3 g; stirring rate: 350 rpm; pressure: autogenous vapor pressure.

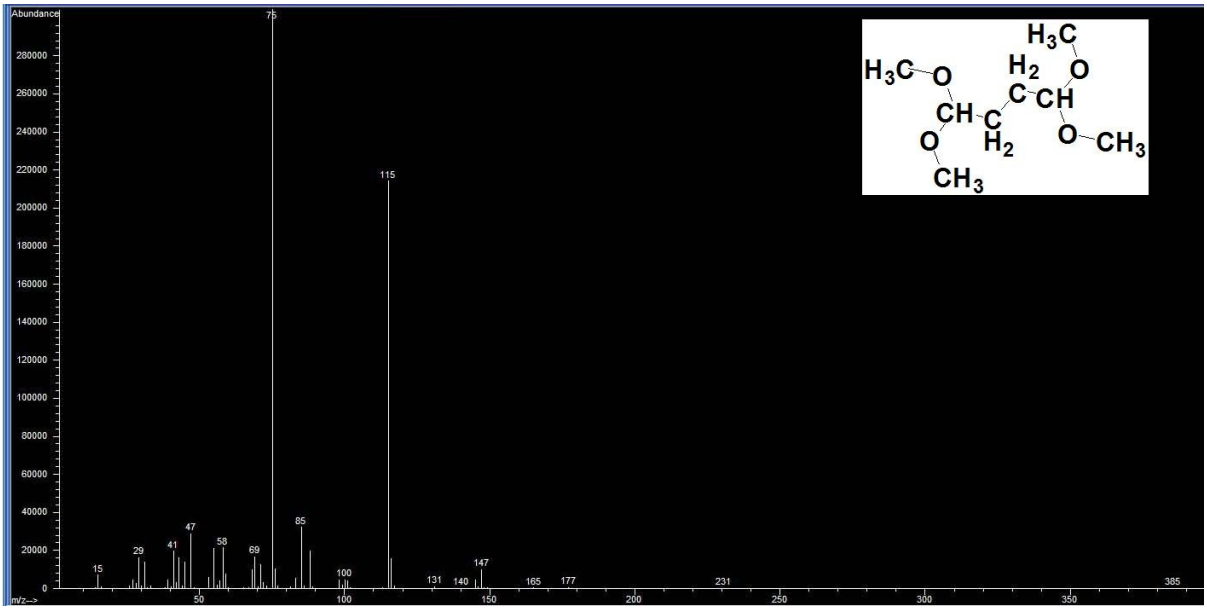

Figure S3 Mass spectrum of 1,1,4,4-tetramethoxybutane.

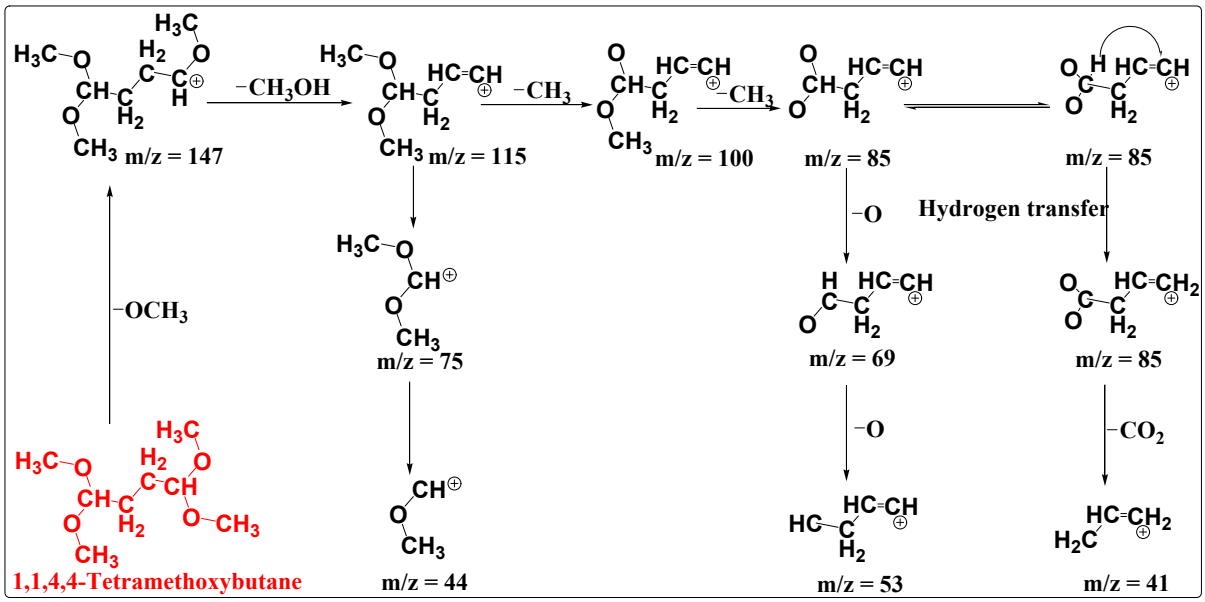

Figure S4 Proposed reaction pathways for the dissociation of 1,1,4,4-tetramethoxybutane in the mass spectrometer.

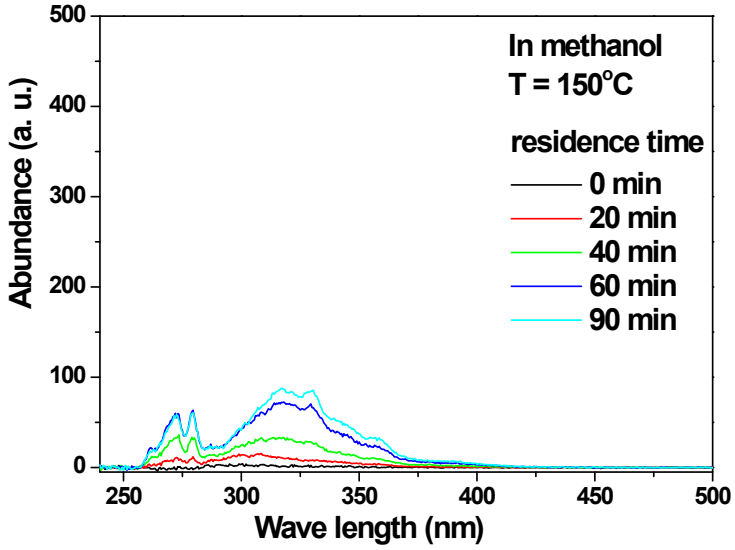

Figure S5 Constant energy (− 2800 cm^{-1}) synchronous spectra for determination of the soluble polymer formed in acid-catalyzed conversion of furan in methanol. Reaction conditions: T = 150°C; furan: 3 g, methanol: 100 ml; catalyst: A70, 3 g; stirring rate: 350 rpm; pressure: autogenous vapor pressure.

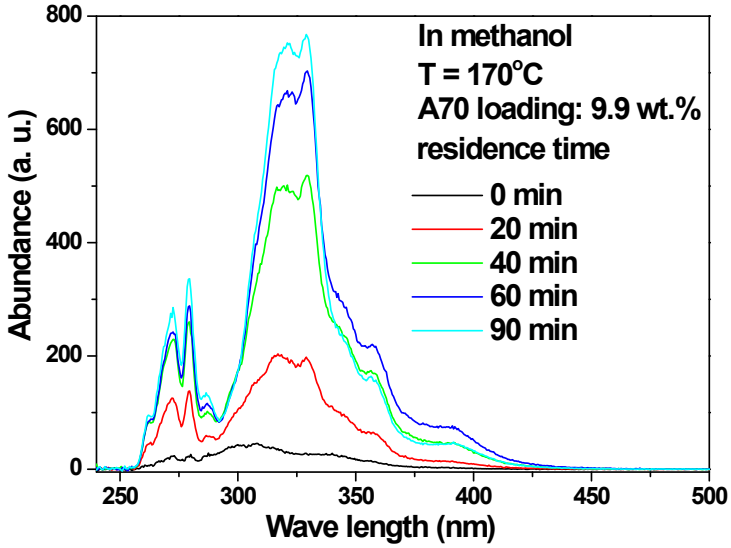

Figure S6 Constant energy ($-2800\ cm^{-1}$) synchronous spectra for determination of the soluble polymer formed in acid-catalyzed conversion of furan in methanol. Reaction conditions: furan: 3 g, methanol: 100 ml; stirring rate: 350 rpm; pressure: autogenous vapor pressure.

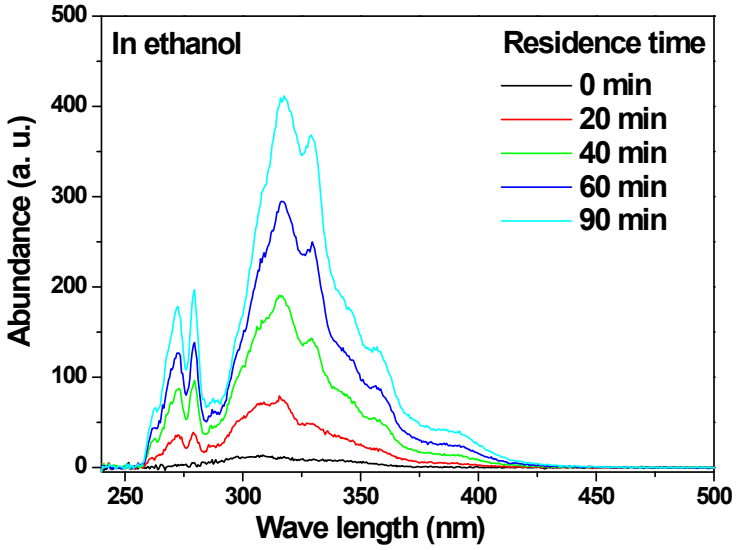

Figure S7 Constant energy ($-2800\ cm^{-1}$) synchronous spectra for determination of the soluble polymer formed in acid-catalyzed conversion of furan in ethanol. Reaction conditions: T = 170°C; furan: 3 g, ethanol: 100 ml; catalyst: A70, 3 g; stirring rate: 350 rpm; pressure: autogenous vapor pressure. Residence time of 0 min means the reaction temperature just reached the required temperature in 10 to 14 min.

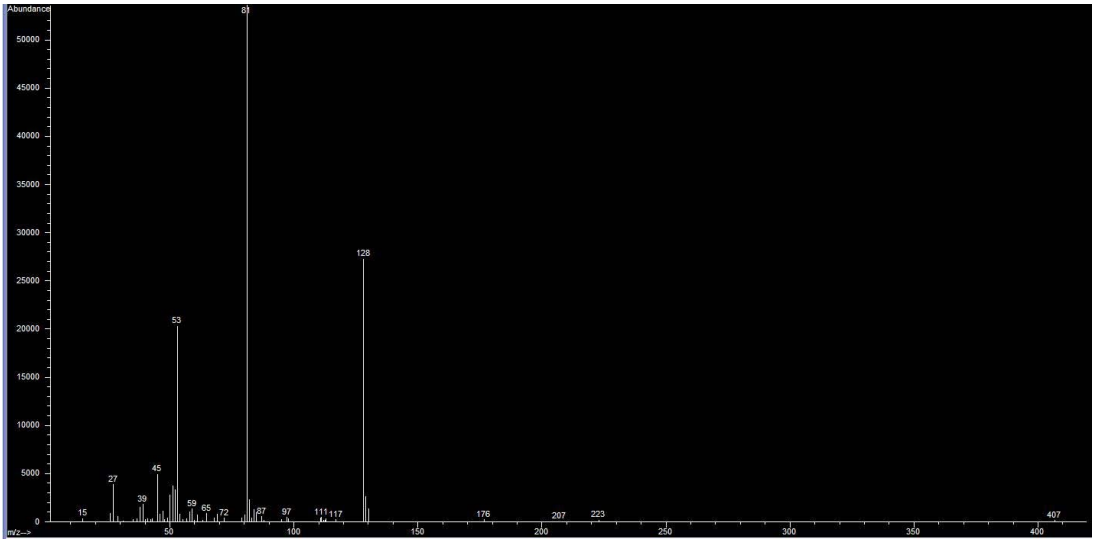

Figure S8 Mass spectrum for furfuryl methyl sulfide.

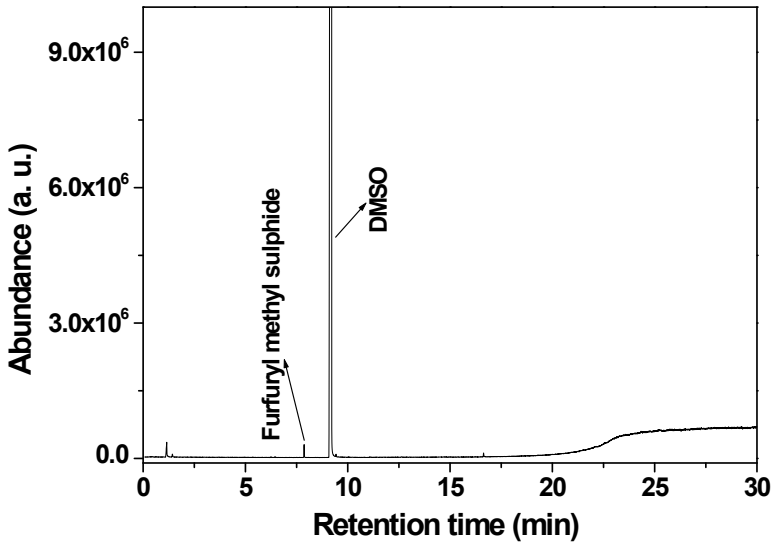

Figure S9 GC-MS spectrum for acid-catalyzed conversion of furan in DMSO. Reaction conditions: residence time: 20 min; furan: 3 g, methanol: 100 ml; catalyst: A70, 3 g; stirring rate: 350 rpm; pressure: autogenous vapor pressure.