Electronic Supplementary Information

Simultaneous hydrogenation and acid-catalyzed conversion of the biomass-derived furans in the solvents with distinct polarities

Xun Hu, Sri Kadarwati, Yao Song and Chun-Zhu Li*

Fuels and Energy Technology Institute, Curtin University of Technology,

GPO Box U1987, Perth, WA 6845, Australia

Number of pages: 19.

Number of Figures: 18.

*Corresponding author. Tel: (+) 61 8 9266 1131; Fax: (+) 61 8 9266 1138; E-mail: chun-zhu.li@curtin.edu.au

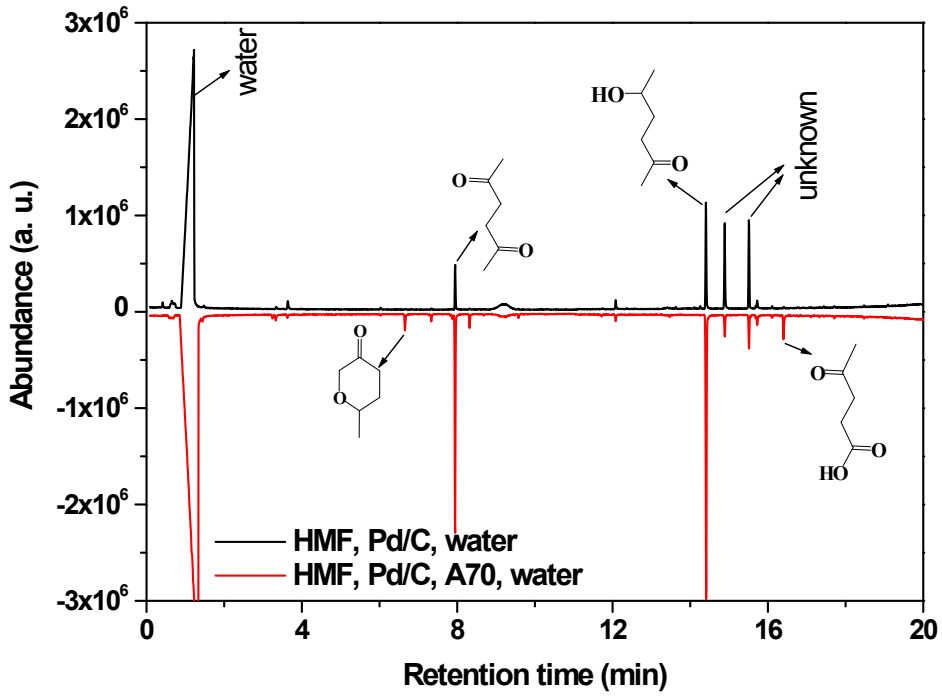

Figure S1 GC-MS spectra for the products in hydrogenation of HMF in water in the absence and presence of A70 catalyst.

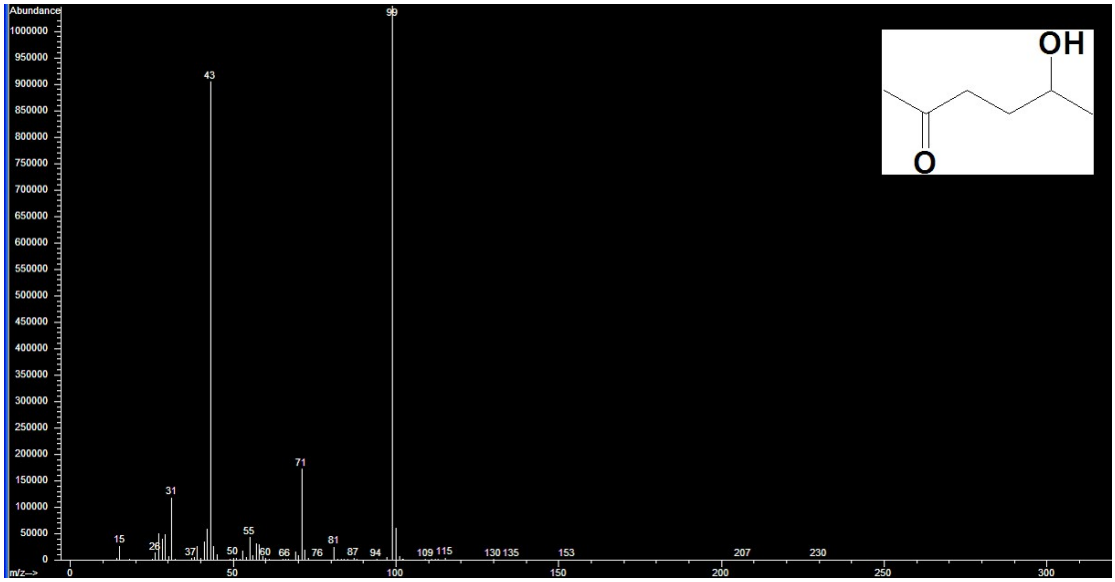

Figure S2 MS spectrum for 5-hydroxy-2-hexanone.

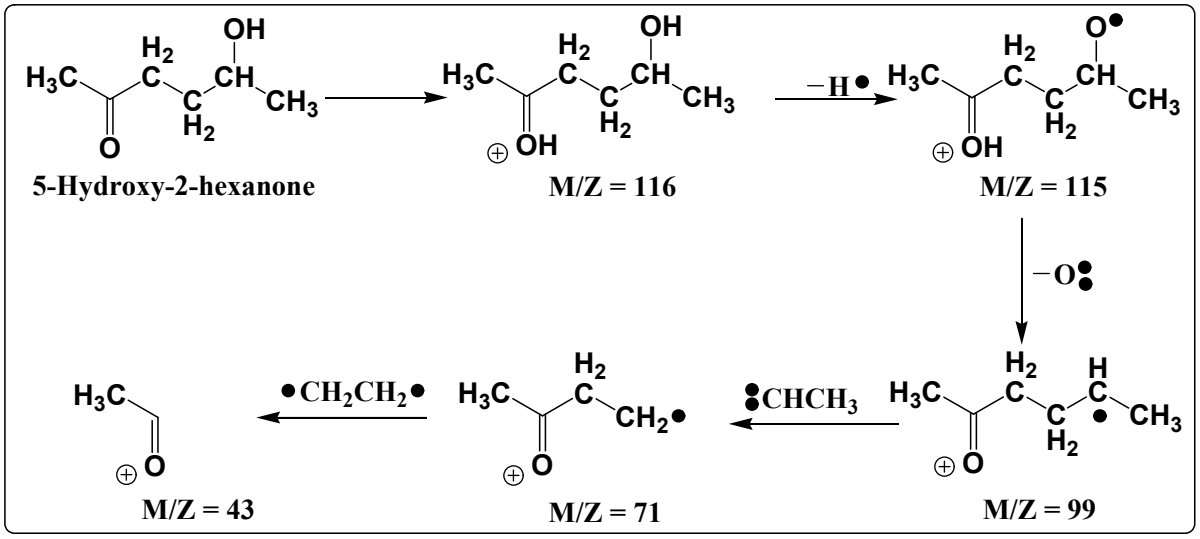

Figure S3 Proposed reaction pathways for the degradation of 5-hydroxy-2-hexanone in the mass spectrometer.

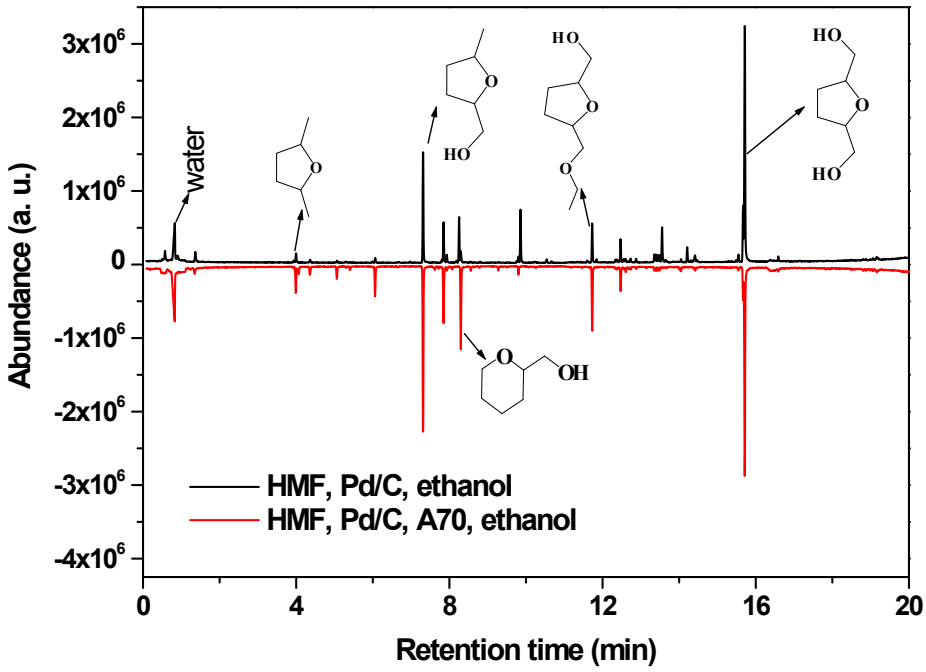

Figure S4 GC-MS spectra for the products in hydrogenation of HMF in ethanol in the absence and presence of A70 catalyst.

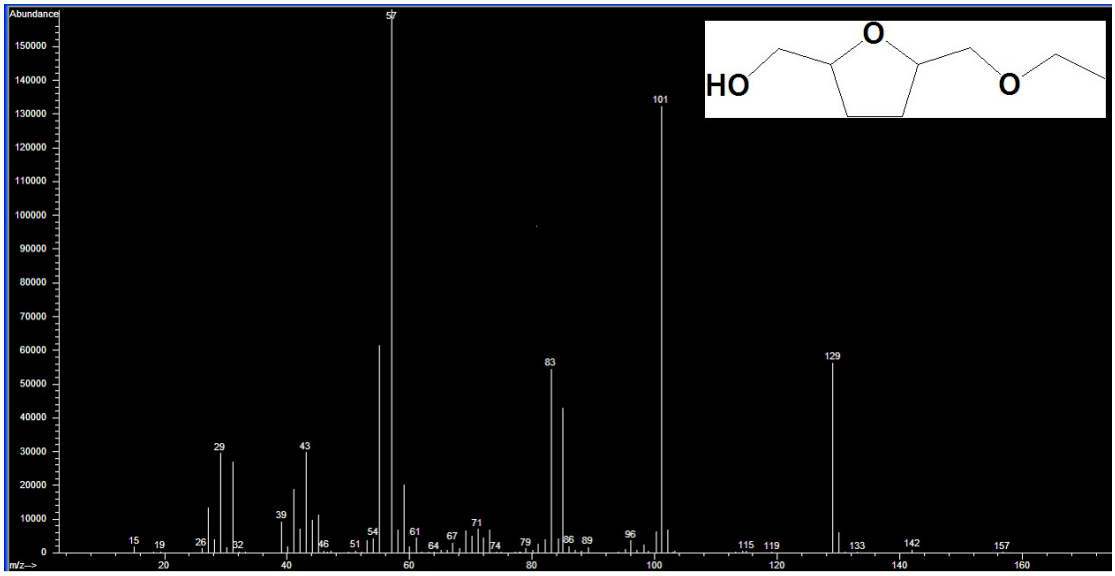

Figure S5 MS spectrum for 5-ethoxymethyl-tetrahydrofurfuryl-methanol (ETHM).

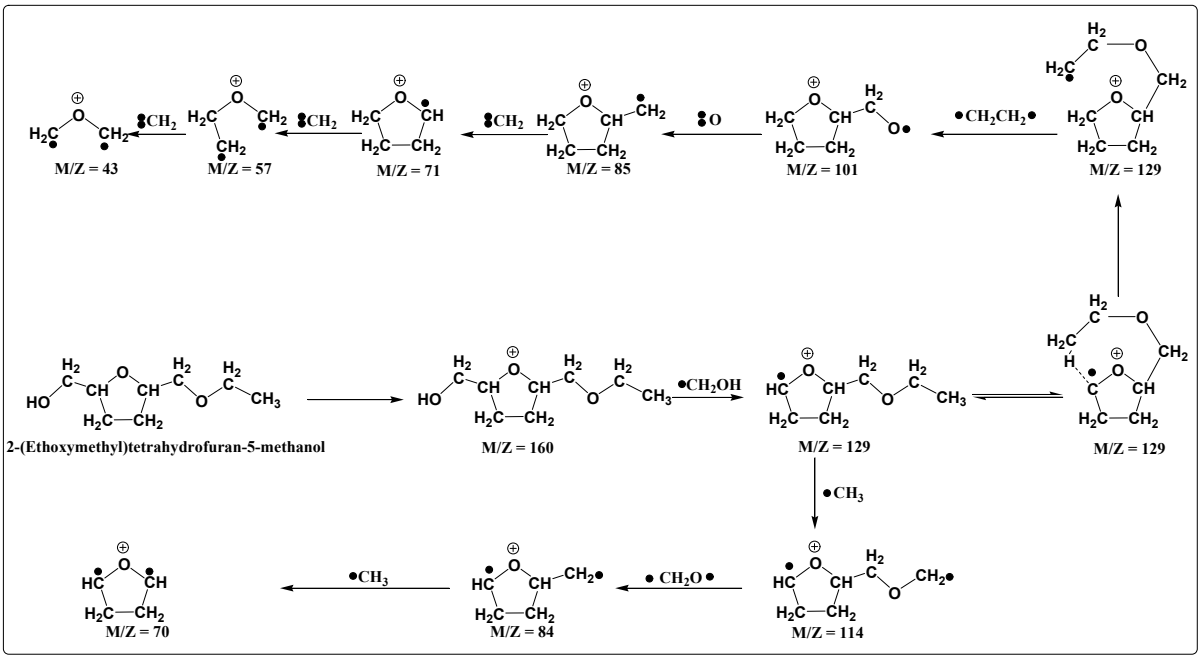

Figure S6 Proposed reaction pathways for the degradation of 5-ethoxymethyl-tetrahydrofurfuryl-methanol in the mass spectrometer.

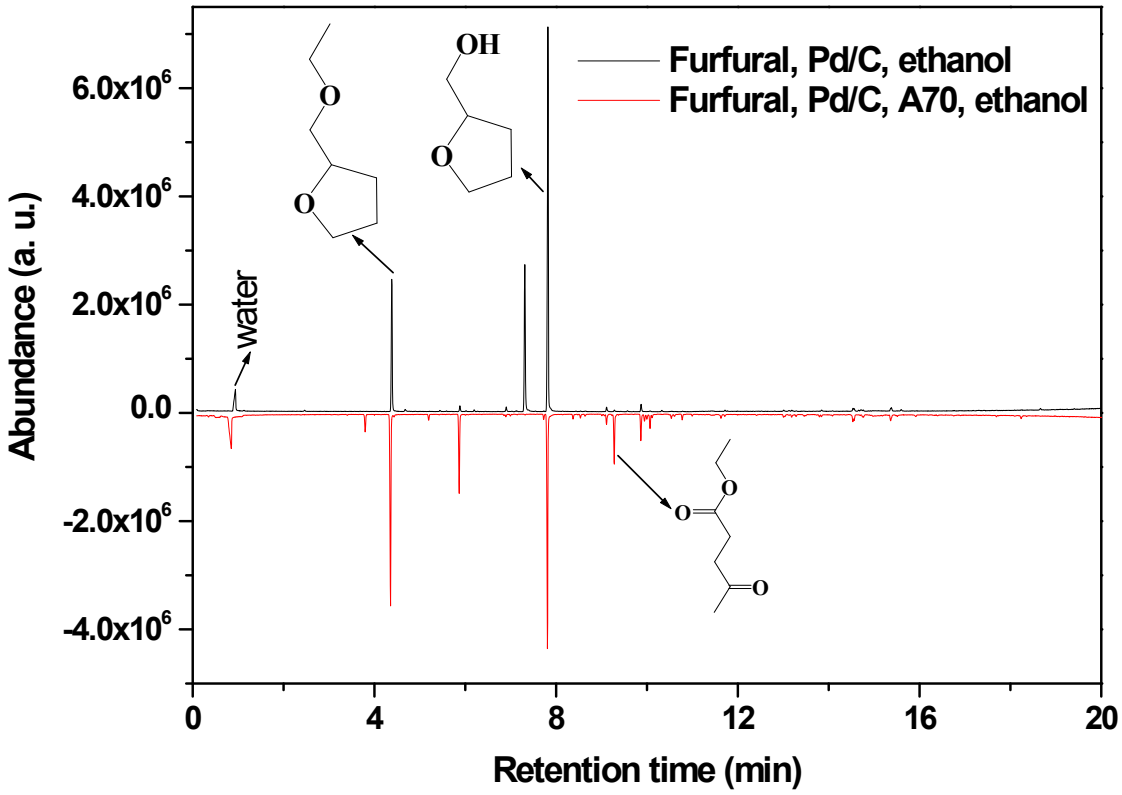

Figure S7 GC-MS spectra for the products in hydrogenation of furfural in ethanol in the absence and presence of A70 catalyst.

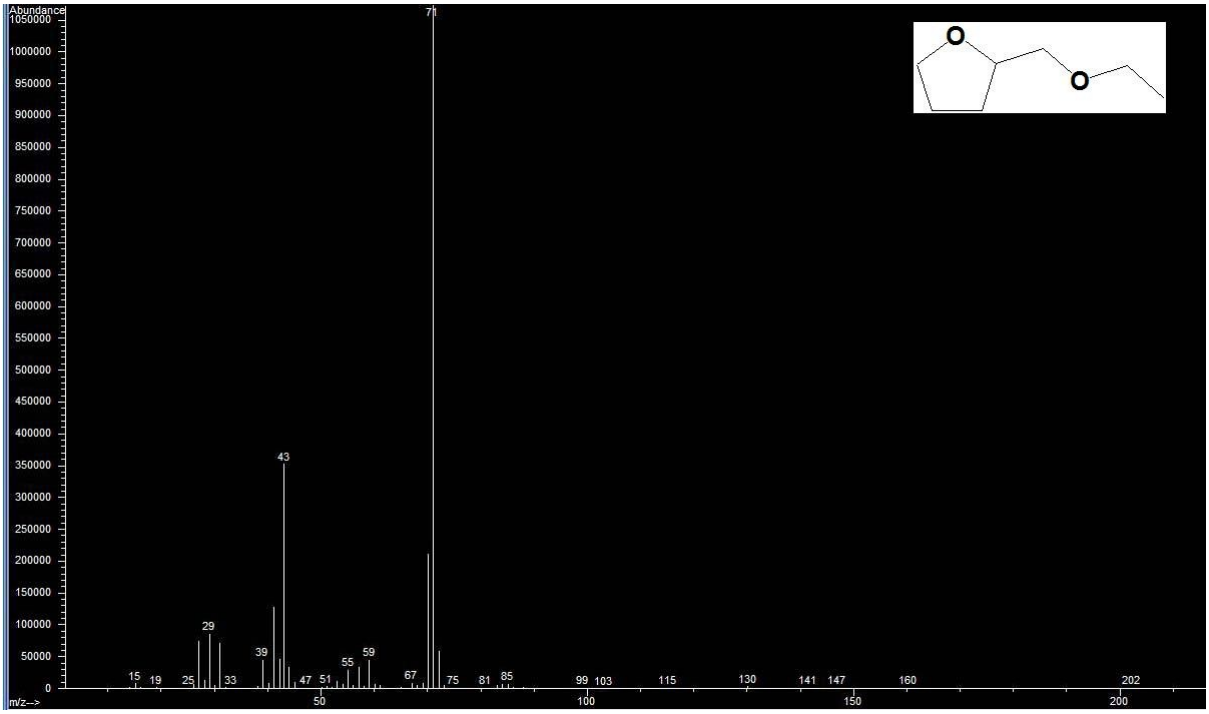

Figure S8 MS spectrum for 2-ethoxymethyl-tetrahydrofuran (EMTF).

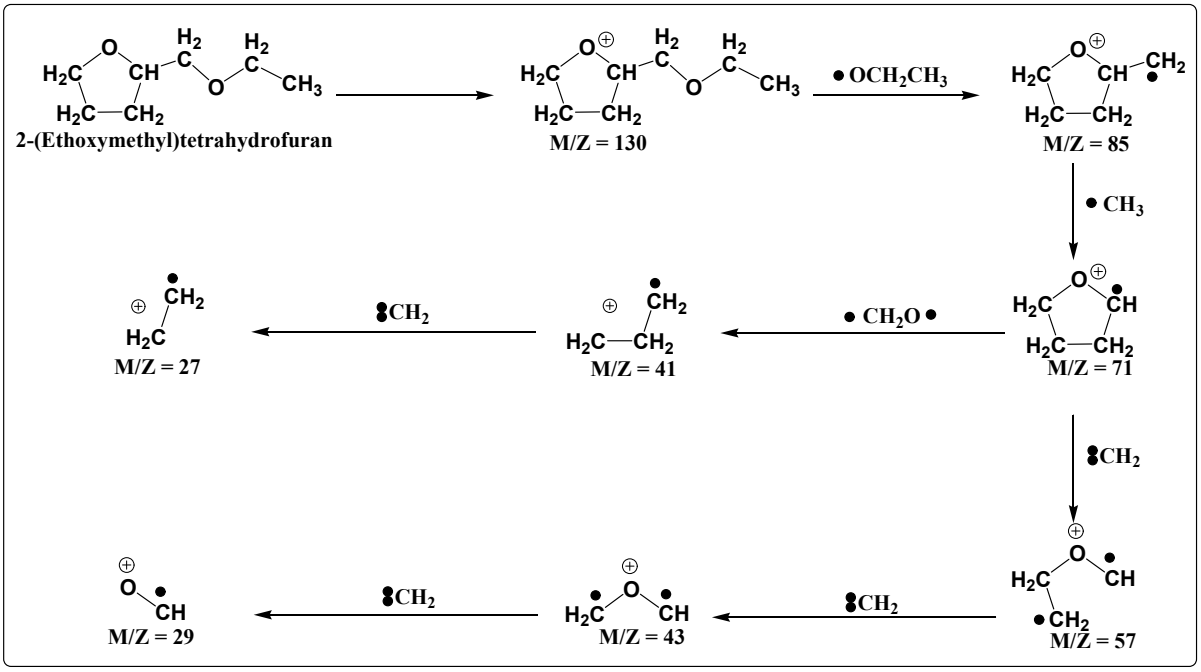

Figure S9 Proposed reaction pathways for the degradation of 2-ethoxymethyl-tetrahydrofuran in the mass spectrometer.

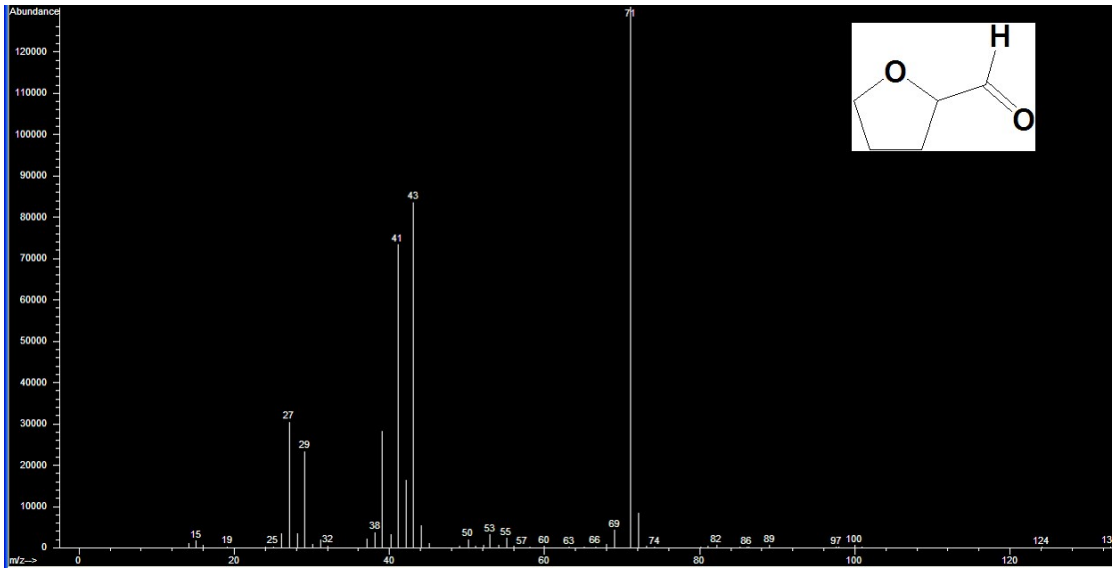

Figure S10 MS spectrum for tetrahydrofuran-2-carbaldehyde (THFC).

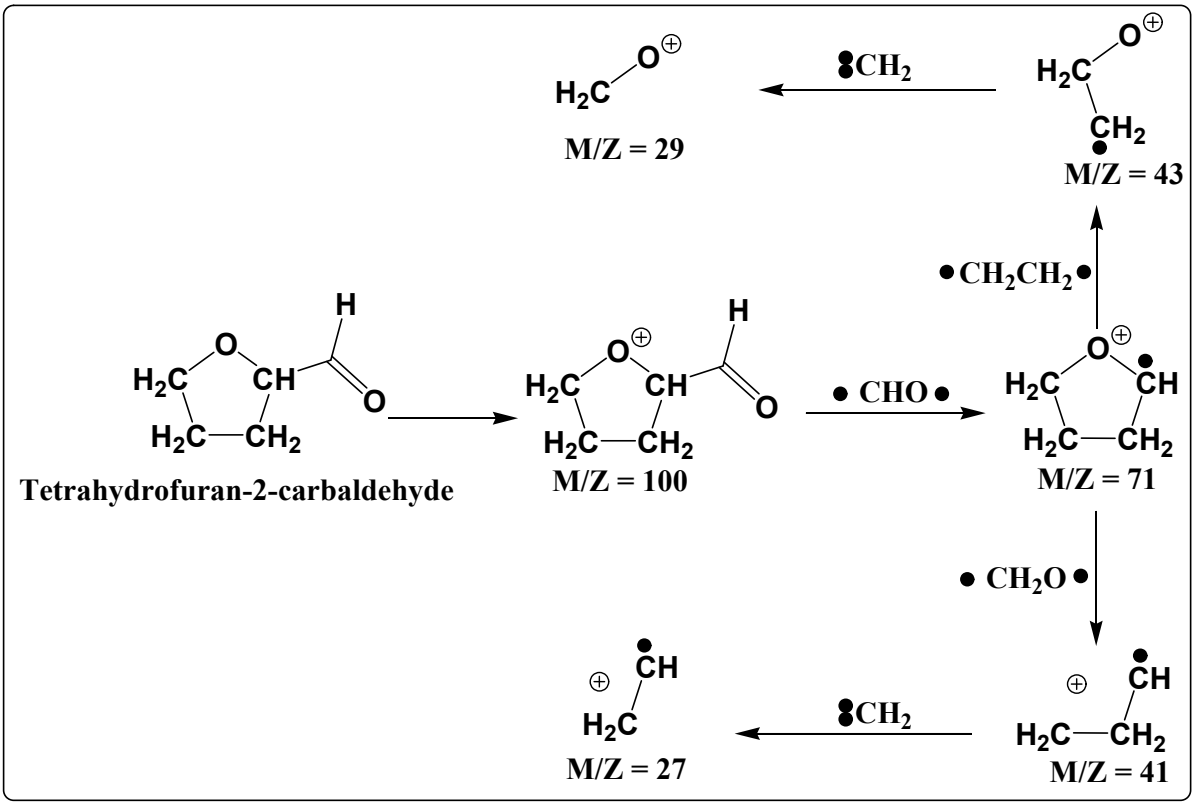

Figure S11 Proposed reaction pathways for the degradation of tetrahydrofuran-2-carbaldehyde in the mass spectrometer.

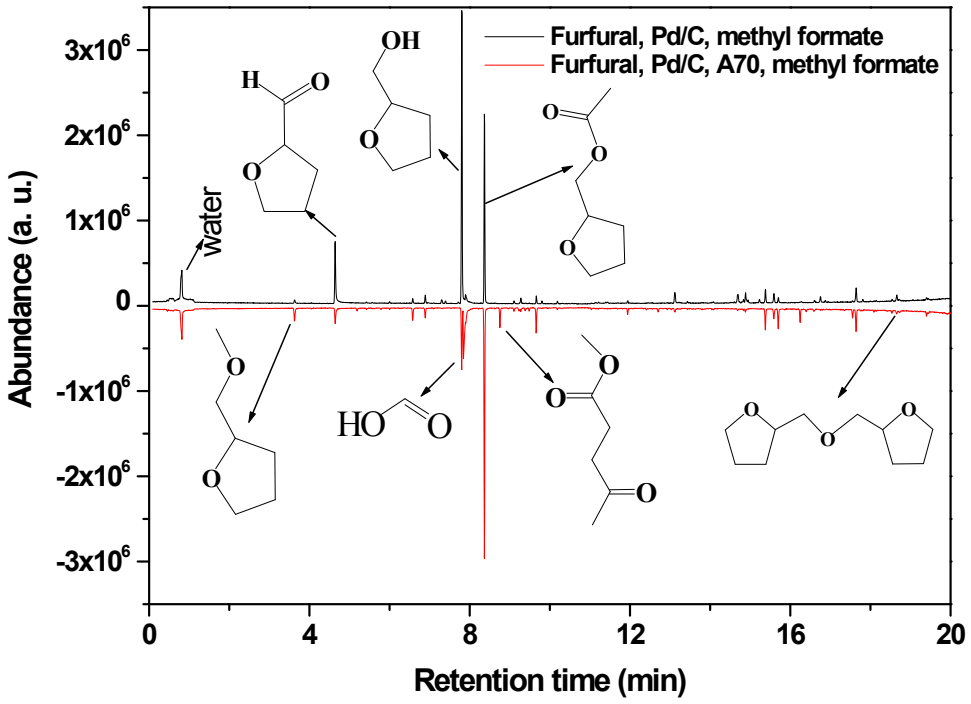

Figure S12 GC-MS spectra for the products in hydrogenation of furfural in methyl formate in the absence and presence of A70 catalyst.

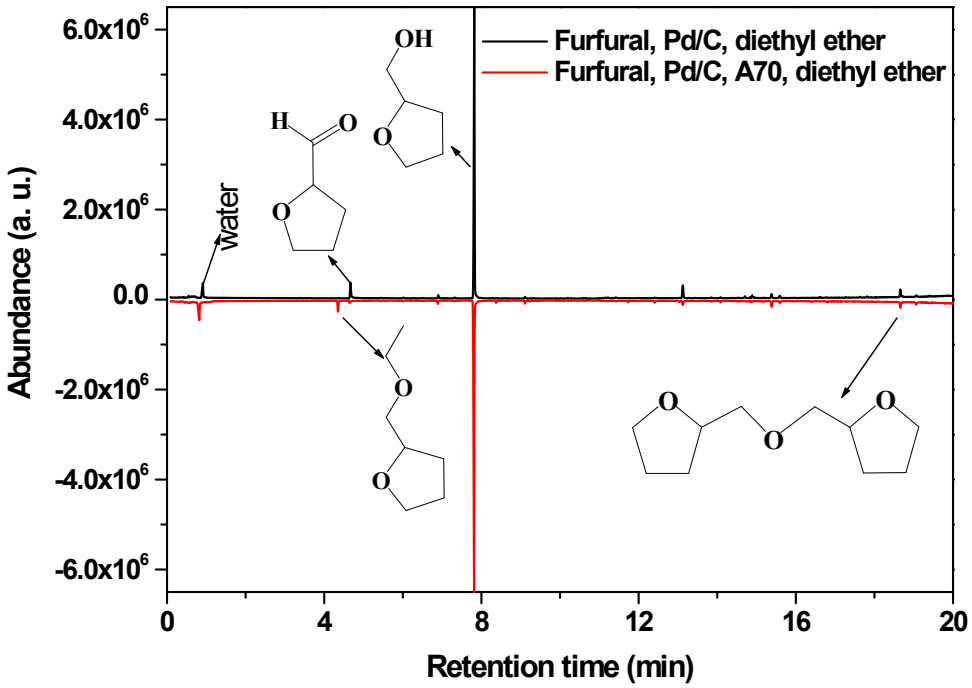

Figure S13 GC-MS spectra for the products in hydrogenation of furfural in diethyl ether in the absence and presence of A70 catalyst.

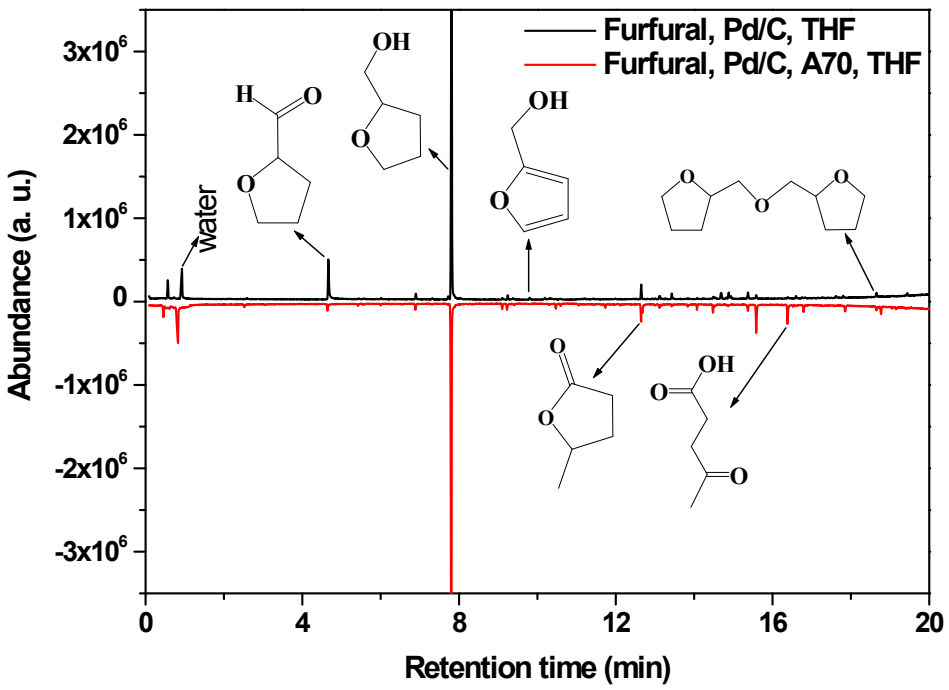

Figure S14 GC-MS spectra for the products in hydrogenation of furfural in THF in the absence and presence of A70 catalyst.

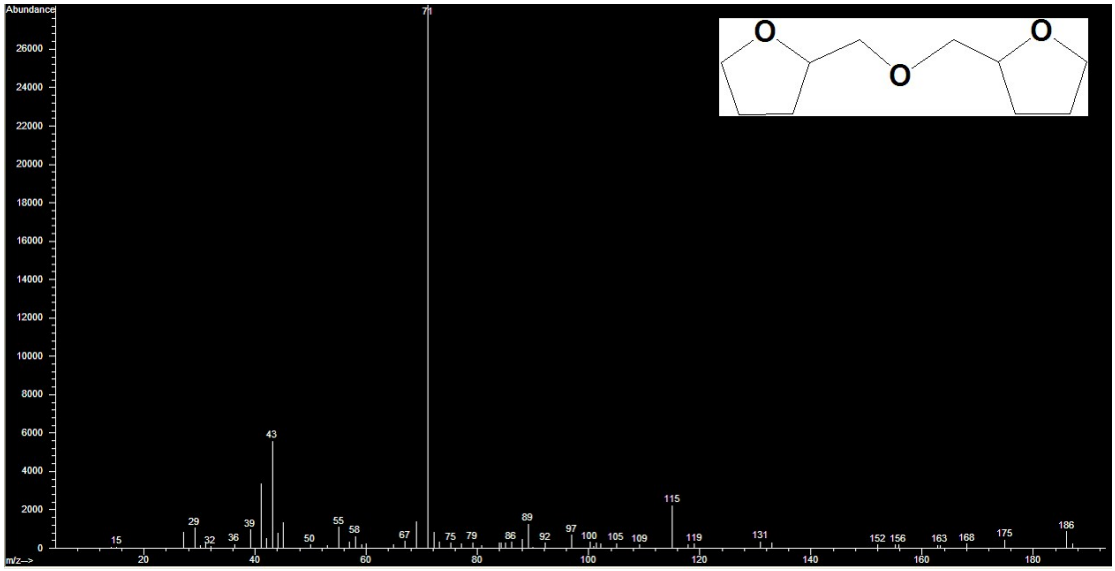

Figure S15 MS spectrum for di-tetrahydrofuran methyl ether.

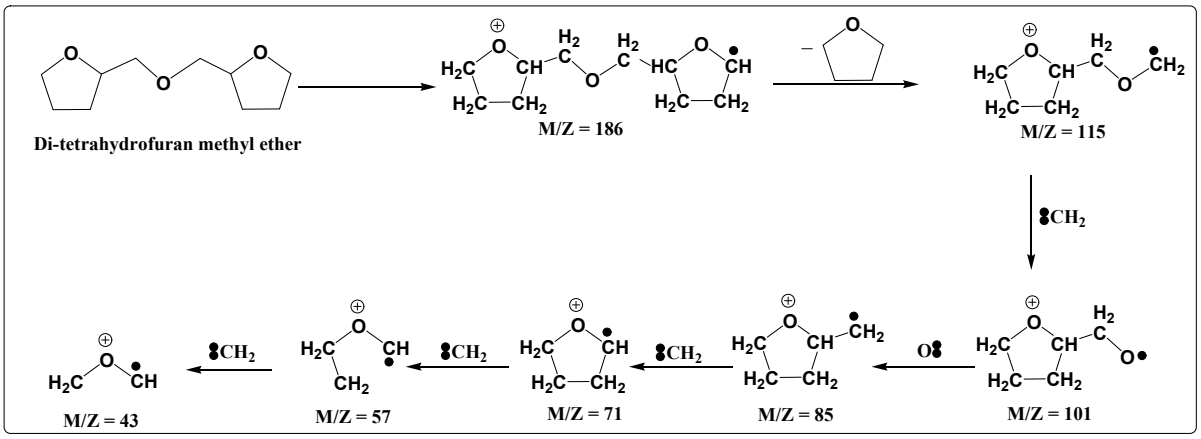

Figure S16 Proposed reaction pathways for the degradation of di-tetrahydrofuran methyl ether in the mass spectrometer.

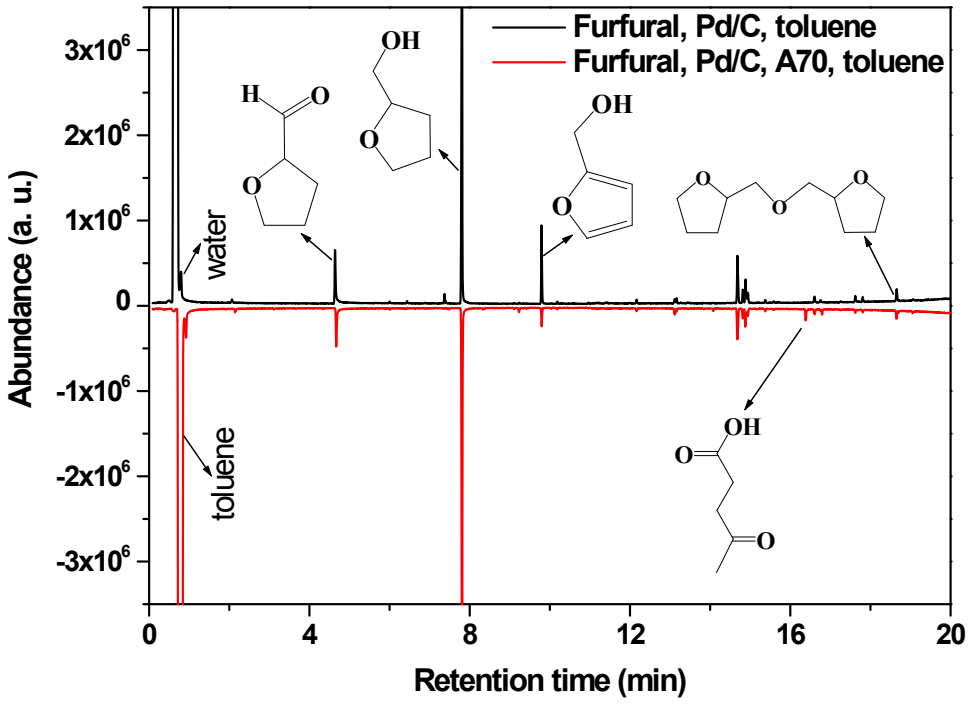

Figure S17 GC-MS spectra for the products in hydrogenation of furfural in toluene in the absence and presence of A70 catalyst.

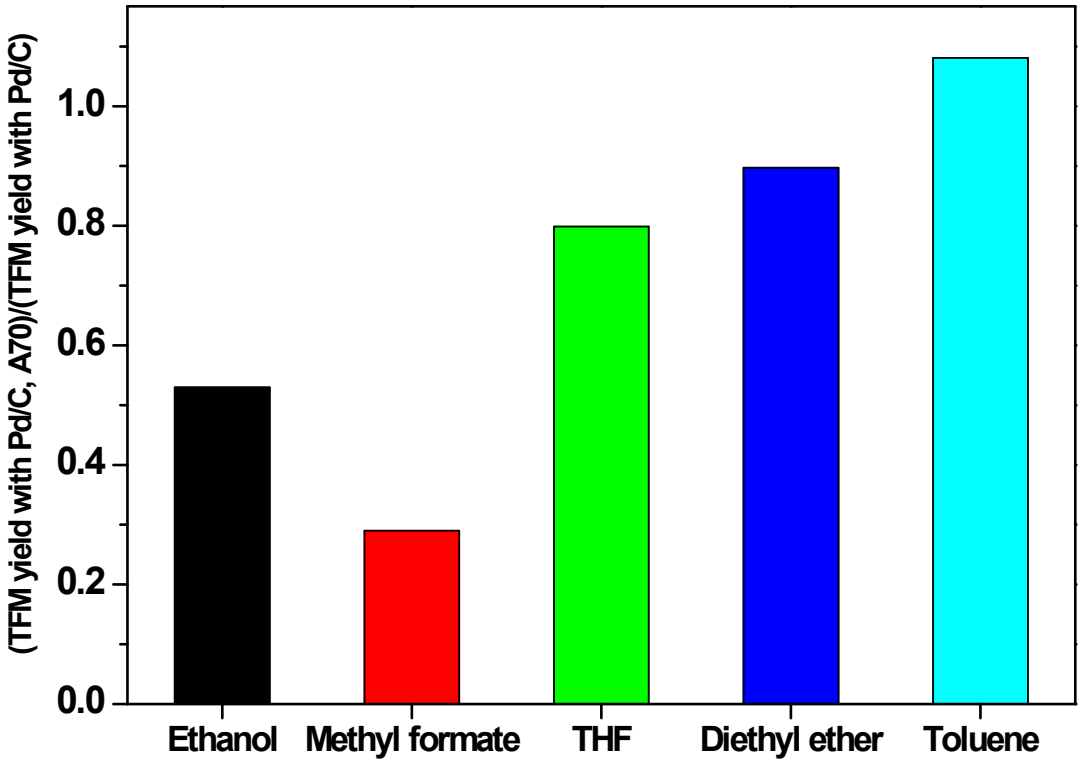

Figure S18 Ratio of TFM yields in the presence of Pd/C and A70 to the TFM yields in the presence of Pd/C in the various solvents.