SUPPLEMENTARY MATERIAL

Experimental and theoretical studies on glucose conversion in ethanol solution to

5-Ethoxymethylfurfural and Ethyl Levulinate catalyzed by Brønsted acid

Shijie Wang ^a, Yihang Chen ^a, Yu Jia ^a, Guizhuan Xu ^{a*}, Chun Chang ^{b,c}, Qianhui Guo ^a, Hongge Tao ^{a*}, Caihong Zou ^a, Kai Li ^a

^a College of Mechanical and Electrical Engineering, Henan Agricultural University, Henan Province, Zhengzhou 450002, China.

^b School of Chemical Engineering and Energy, Zhengzhou University, Zhengzhou 450001, Henan, China.

^c Henan Key Laboratory of Green Manufacturing of Biobased Chemicals, Puyang 457000, China.

^{*}Corresponding authors: xuguizhuan@126.com, thg0218@163.com, Tel.: +86 13653860867

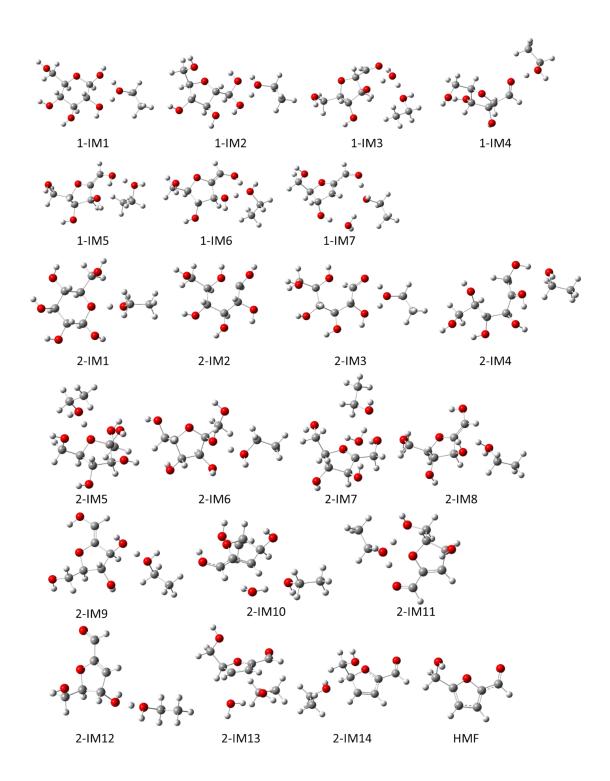


Fig. S1. The geometry structures of the reactants for glucose alcoholysis to HMF catalyzed by Brønsted acid in ethanol solution. Red: oxygen, gray: carbon, white: hydrogen.

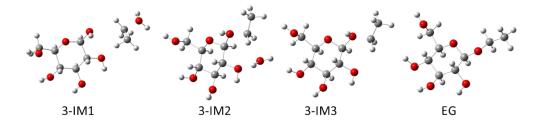


Fig. S2. The geometry structures of the reactants for glucose to EG catalyzed by Brønsted acid in ethanol solution. Red: oxygen, gray: carbon, white: hydrogen.

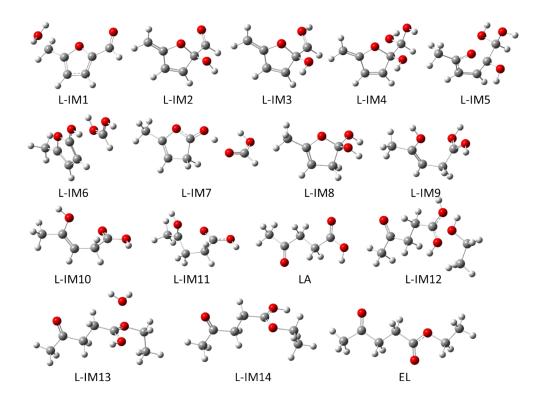


Fig. S3. The geometry structures of the reactants for HMF to EL through LA catalyzed by Brønsted acid in ethanol solution. Red: oxygen, gray: carbon, white: hydrogen.

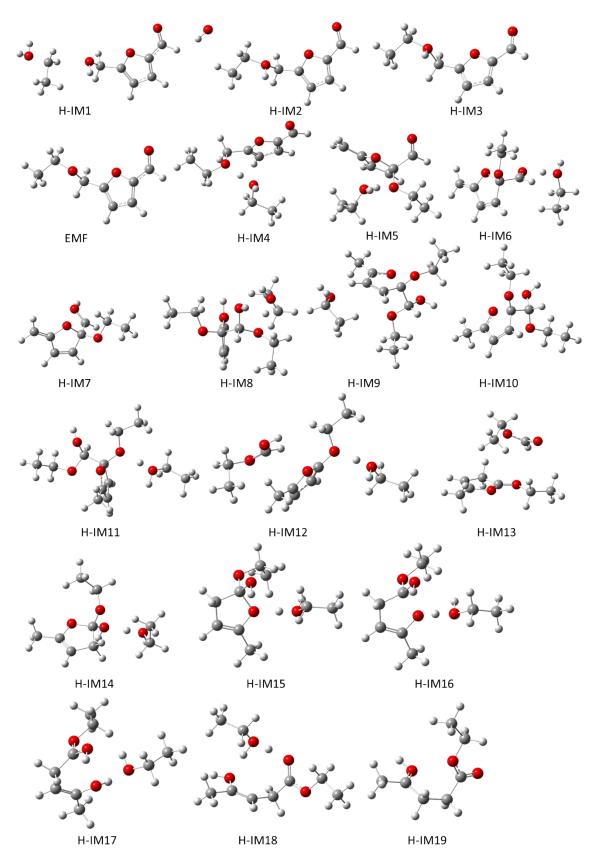


Fig. S4. The geometry structures of the reactants for HMF alcoholysis to EL though EMF catalyzed by Brønsted acid in ethanol solution. Red: oxygen, gray: carbon, white: hydrogen.