

Supporting Information: Efficient synthesis of 5-hydroxymethylfurfural by modified MCM-41 with multiple acid sites

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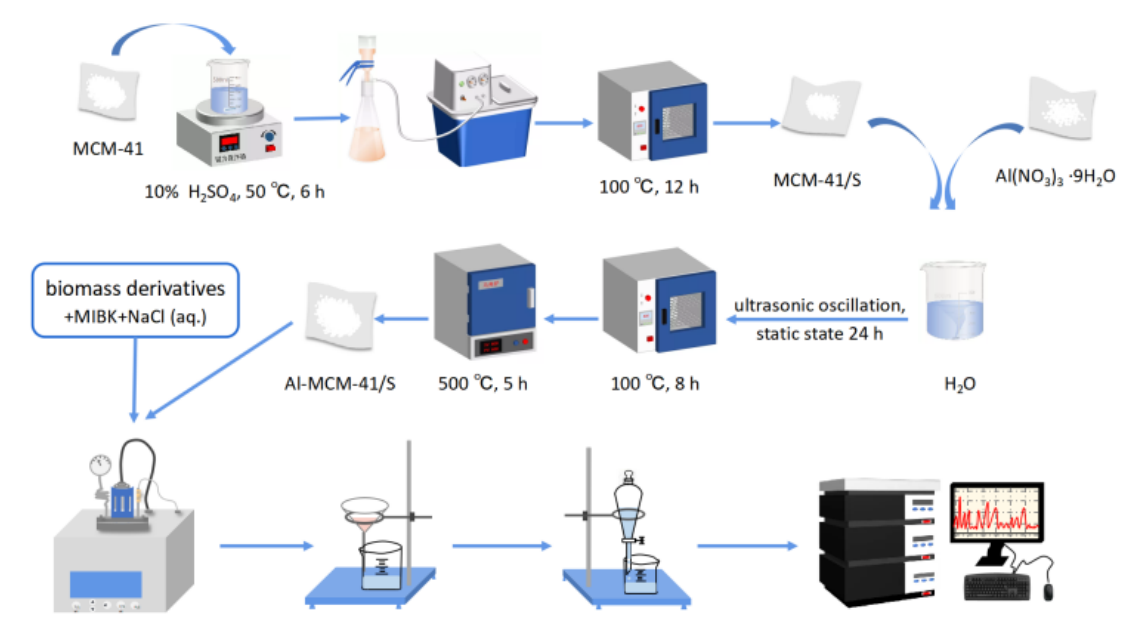


Figure S1. Catalysts preparation and reaction procedure of this research.

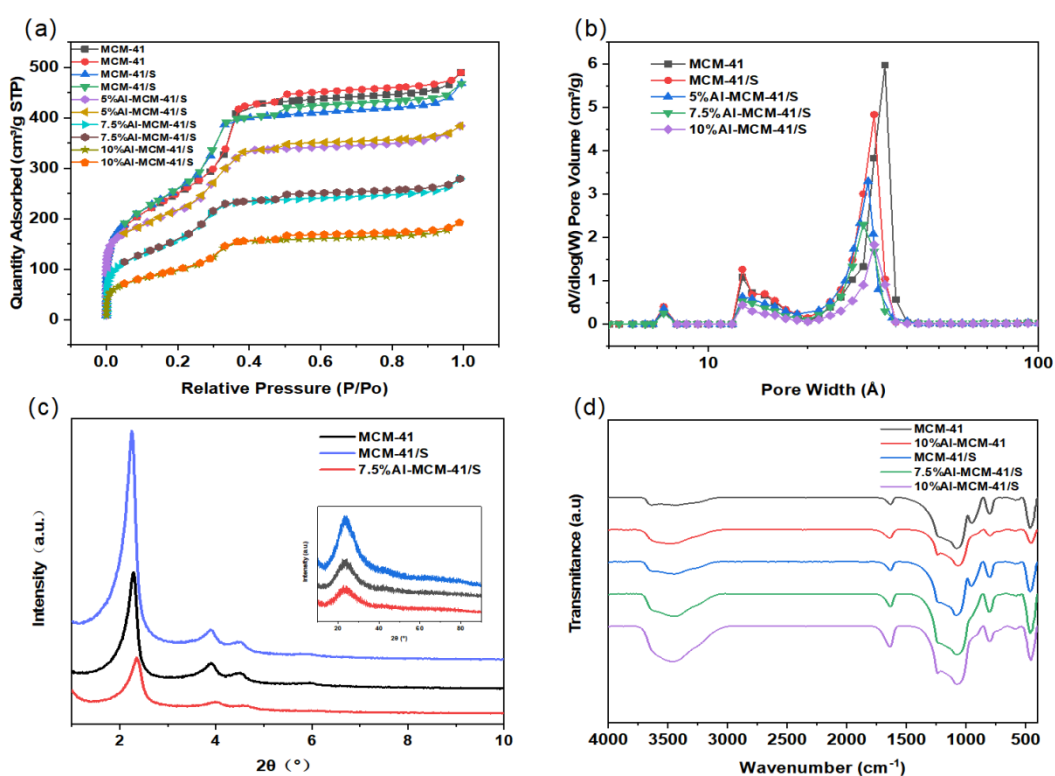


Figure S2. (a) N₂ adsorption-desorption isotherms. (b) Pore size distributions curves. (c) XRD patterns at different angle. (d) FT-IR spectra of samples.

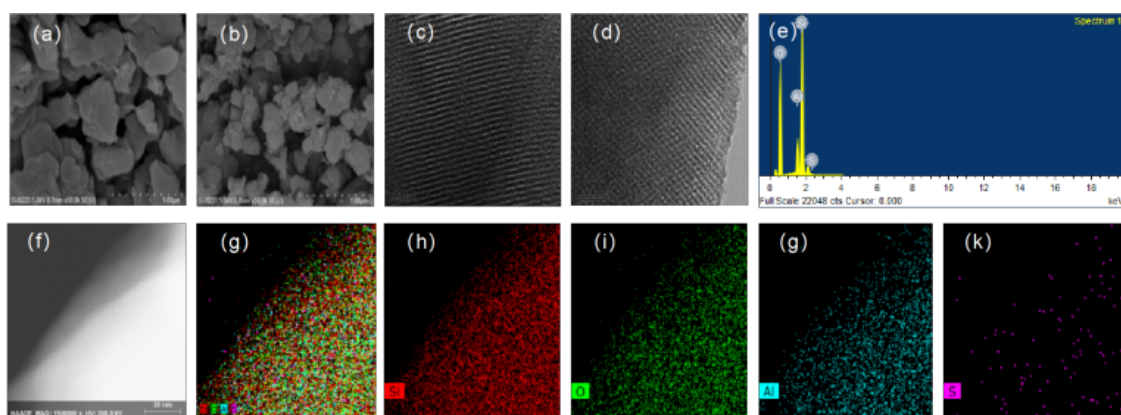


Figure S3. (a) SEM of MCM-41. (b) SEM of 7.5%Al-MCM-41/S. (c) TEM of MCM-41. (d) TEM of 7.5%Al-MCM-41/S. (e) SEM-EDS of 7.5%Al-MCM-41/S. (f-k) The elemental mapping images.

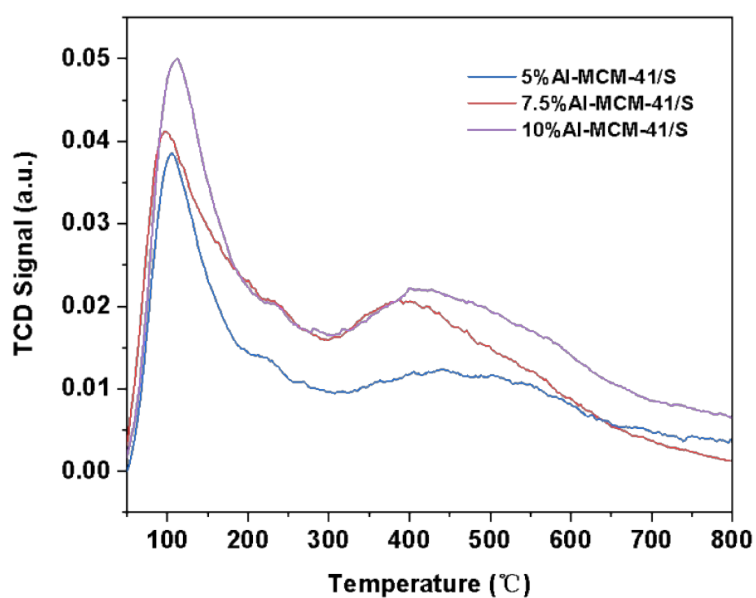


Figure S4. NH₃-TPD profiles of different samples.

Figure S5. Effect of temperature (0.075 g 7.5%Al-MCM-41/S(left), 0.075 g 7.5%Al-MCM-41(right), 0.1 g glucose, 1 h, 5 mL 20 % NaCl (aq.), 20 mL MIBK).

Figure S6. Effects of reaction temperature and time on HMF yield (0.075 g catalysts, 0.1 g glucose, 5 mL 20 % NaCl (aq.), 20 mL MIBK).

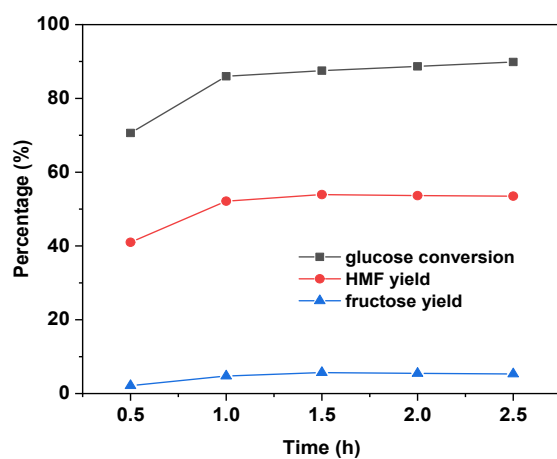


Figure S7. Effect of reaction time (0.075 g 7.5%Al-MCM-41, 0.1 g glucose, 190 °C, 5 mL 20 % NaCl (aq.), 20 mL MIBK).