

## Supporting Information

### Remarkable Catalytic Activity of Sulfonated Mesoporous Polymer (MP-SO<sub>3</sub>H) for the Synthesis of Solketal at Room Temperature

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**Table S1.** Physiochemical properties of various solid acid catalysts

Sample	S <sub>BET</sub> (m <sup>2</sup> g <sup>-1</sup> )	S <sub>Meso</sub> <sup>a</sup> (m <sup>2</sup> g <sup>-1</sup> )	Pore size (nm) <sup>b</sup>	Average Pore size <sup>b</sup> (nm)	S content (mmol/g) <sup>c</sup>	Acidity (mmol/g) <sup>d</sup>
Amberlyst-15	39	-	23.3	16.1	4.3	4.7
H-ZSM-5	425 <sup>e</sup>	-	-	-	-	2.0 <sup>f</sup>
H-Beta	465	-	-	-	-	1.5 <sup>f</sup>
Montmorillonite K-10	250 <sup>e</sup>	-	-	-	-	1.1
MoO <sub>3</sub> /SiO <sub>2</sub>	180 <sup>g</sup>	-	-	-	-	1.6 <sup>f</sup>
SO <sub>4</sub> <sup>2-</sup> /ZrO <sub>2</sub>	57	-	-	3.2	-	1.1 <sup>f</sup>

a = from t-plot method

b = Pore size distribution by BJH method

c = Measured by elemental analysis

d = Measured by acid-base titration

e = from the manufacturer

f = from TPD-NH<sub>3</sub>

g= from reference <sup>[1]</sup>

**Table S2.** Comparison of TOF of various catalysts

MP-SO<sub>3</sub>H-24 catalyst outperformed other screened catalysts and showed higher TOF of 5682/h. The high activity of MP-SO<sub>3</sub>H-24 catalyst is attributed to its easy accessibility of active sites due to the presence of the mesoporous nature and high surface area.

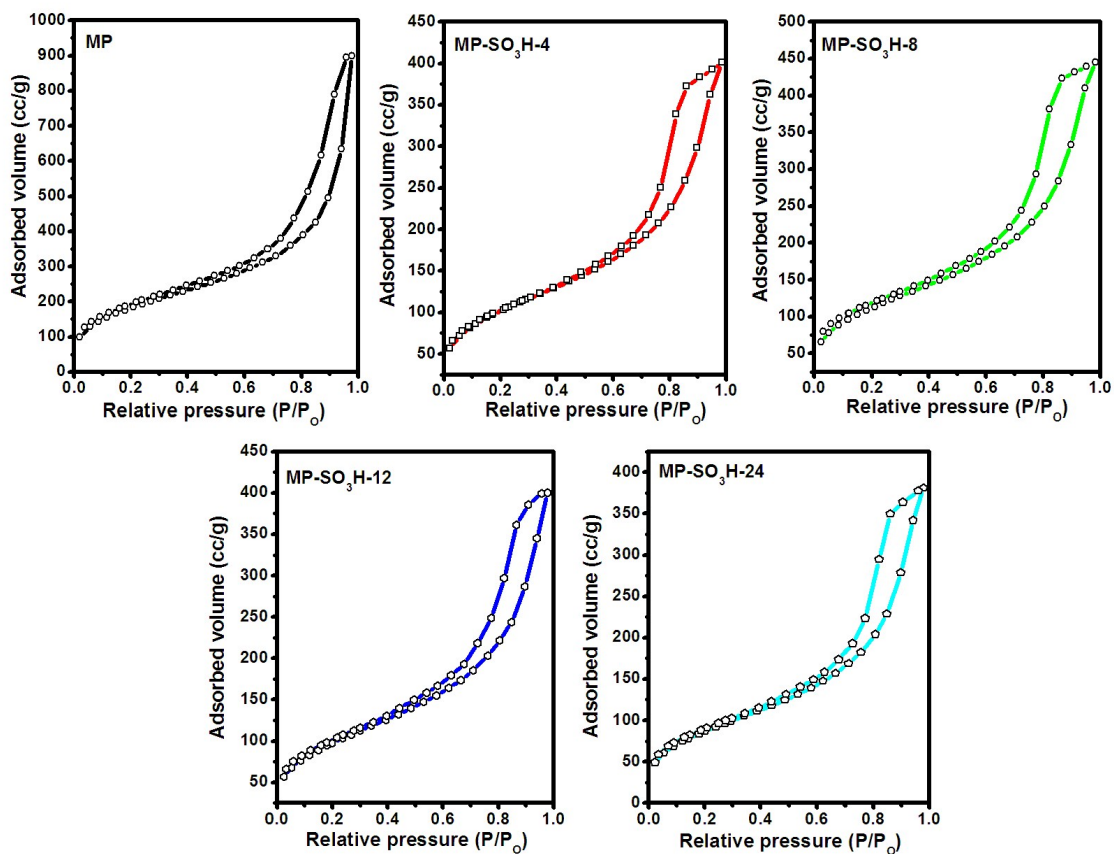
Catalyst <sup>[a]</sup>	Glycerol conversion (wt %)	Solketal selectivity (wt %)	TOF/h <sup>[b]</sup>
A-15	15.0	78	689
MoO <sub>3</sub> /SiO <sub>2</sub>	0.5	70	68
K-10	1.2	81	236
H-ZSM-5	1.0	80	108
H-Beta	11.5	76	1656
MP-SO <sub>3</sub> H-24	60.5	97.5	5682
SO <sub>4</sub> <sup>2-</sup> /ZrO <sub>2</sub>	3.5	89.6	687

<sup>[a]</sup> Reaction conditions: Glycerol = 2.5g, Acetone = 1.6g, Glycerol: acetone = 1:1, catalyst = 0.1wt% (referred to glycerol weight), reaction temperature = 30 °C, time = 30 min.

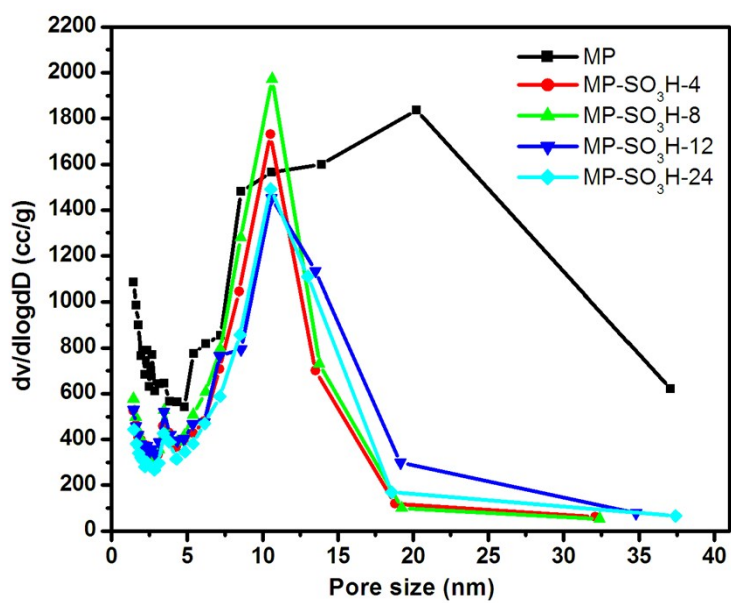
<sup>[b]</sup> TOF = TON<sup>[c]</sup>/ Time (h)

<sup>[c]</sup> TON = moles of glycerol converted per mole of active sites

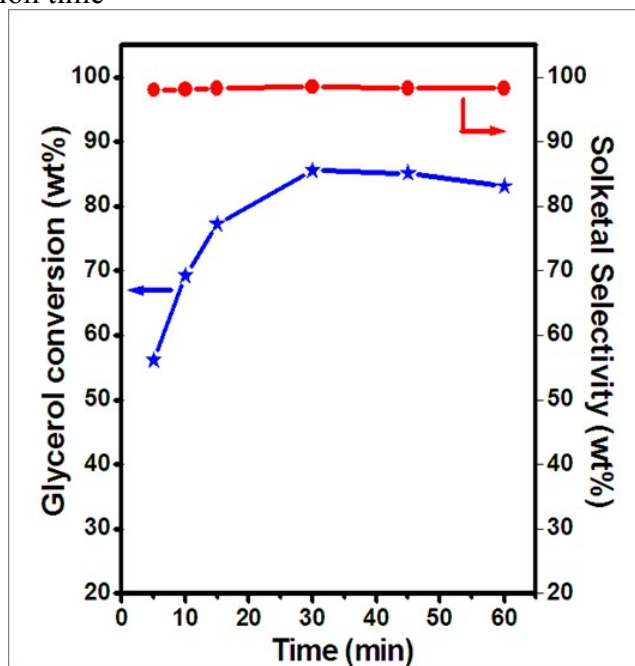
**Fig. S1.** Nitrogen adsorption-desorption isotherm of unmodified and sulfonated mesoporous polymer



**Fig. S2.** Pore size distribution of unmodified and sulfonated mesoporous polymer



**Fig. S3:** Effect of reaction time



**Reaction condition:** Glycerol: acetone = 1:2, Catalyst = 0.5wt% (referred to glycerol wt), reaction temperature = 30 °C.

### Reference

- [1] A. P. Amrute, A. Bordoloi, N. Lucas, K. Palraj, S. Halligudi, *Catalysis letters* **2008**, *126*, 286-292.