Electronic Supplementary Material (ESI) for Catalysis Science & Technology.

Supporting Information

Superior performance of mesoporous tin oxide over nano and bulk in activation of carbonyl group: Conversion of bio-renewable feedstock

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Figure S1 Nitrogen sorption isotherm of mesostructured tin oxide catalysts at different calcination temperatures.

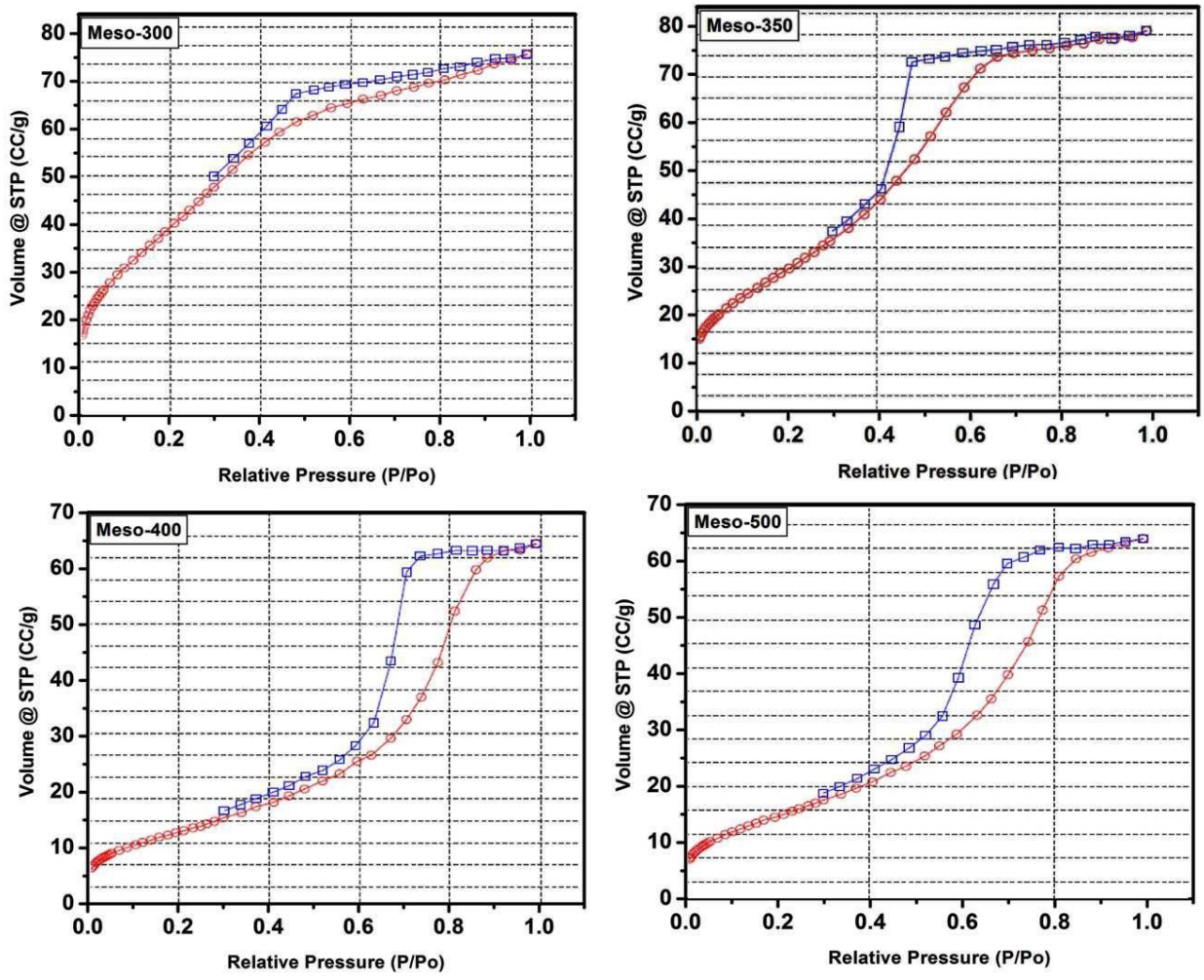


Figure S2 TGA profile of mesoporous tin oxide catalysts.

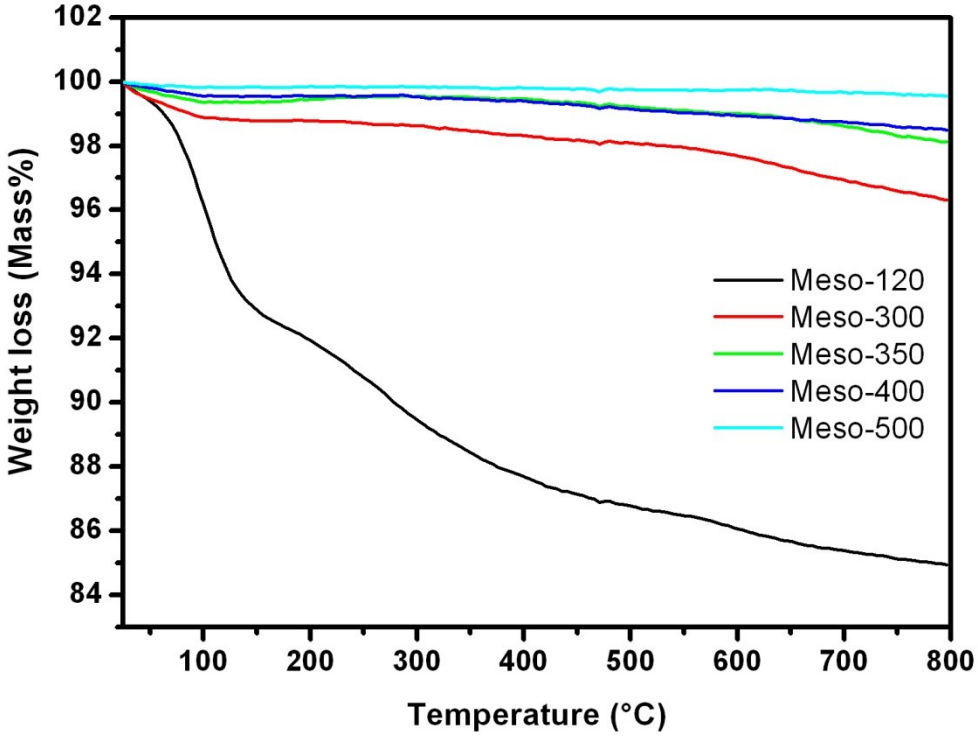
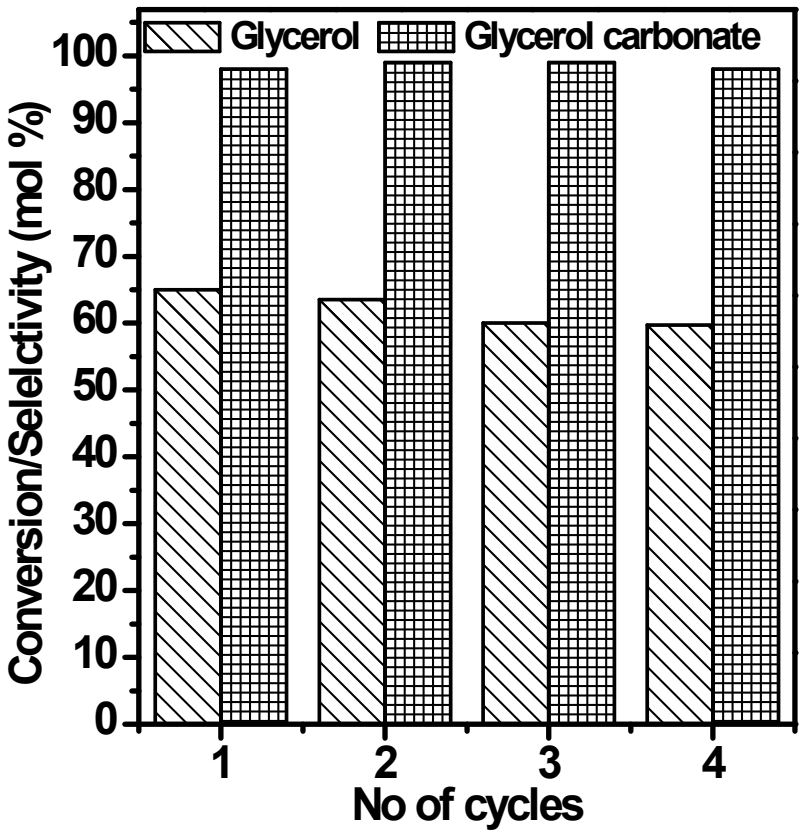


Figure S3 Recyclability of meso-500 tin oxide catalyst for carbonylation of glycerol reaction.



Reaction conditions: Glycerol = 2 g, urea =1.30 g, catalyst amount = 0.66 g, reaction temperature = 160 º C, reaction time 4 h.

Figure S4 TPD Profile of Blank meso-350 in absence of NH_3 treatment.

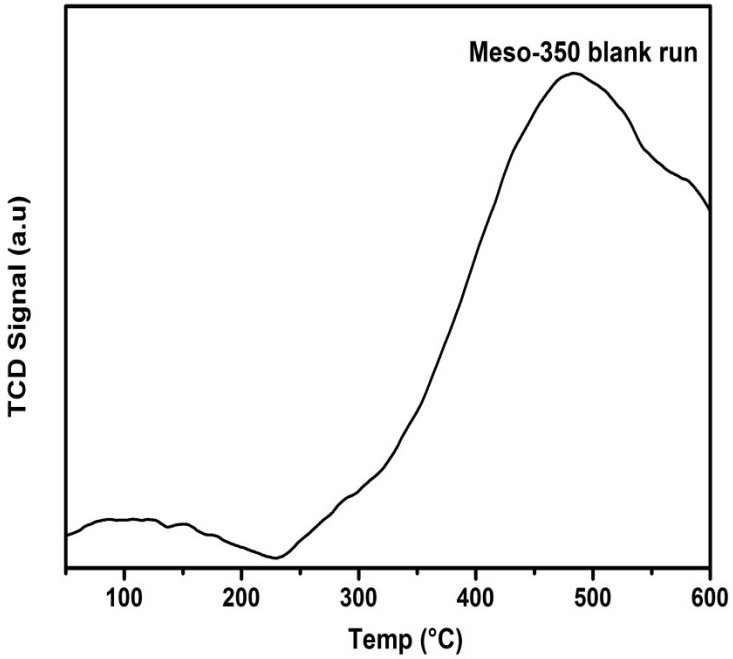
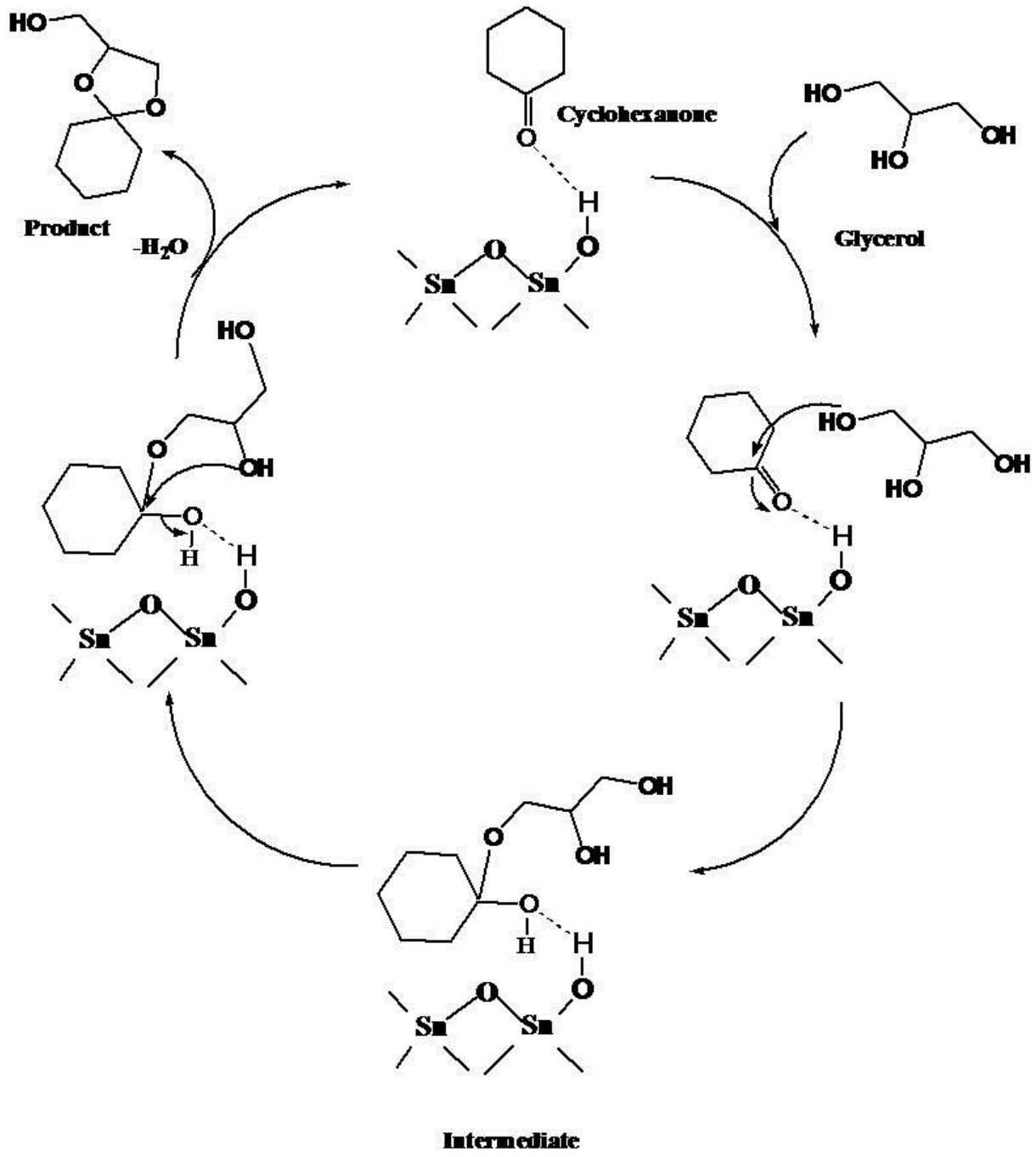


Table S1 Catalyst recyclability of meso-350 catalyst for Prins reaction

Catalysts	ß-pinene conversion (mol %)	Nopol selectivity (mol %)
Recycle-1	76	94
Recycle-2	74	93
Recycle-3	73	93

Reaction conditions: ß-pinene = 1.36 g, Paraformaldehyde =0.6 g, Benzonitrile = 5 ml, catalyst amount = 0.78 g, reaction temperature = 90 °C, reaction time = 10 h.

Scheme S1 Plausible reaction mechanism of ketalization of glycerol with cyclohexanone over tin oxide catalysts.



Scheme S2 Plausible reaction mechanism of acetylation of glycerol with acetic anhydride over tin oxide catalysts.