Catalytic transfer hydrogenation of levulinic acid to γ-valerolactone over Sn/Al-SBA-15 catalysts

Sakthivel Kumaravel [a], Sivakumar Thiripuranthagan [a]*, Mani Durai [b], Elangovan Erusappan[a], and Thanigaivel Vembuli [a]

[a] *Catalysis Laboratory, Department of Applied Science and Technology, Anna University, Chennai, India*

[b]*Centre for Nanoscience and Technology, Anna University, Chennai, India*

******Corresponding author Email: tssivakumar@yahoo.com*

Table S1. Comparison of the activity of Sn/Al-SBA-15 (25) catalyst with other heterogeneous catalysts.

Catalyst	Substrate	Solvent	Reaction Conditions	Conversion (%)	Selectivity (%)	Ref.
SnO_2/SBA-15	LA	2-PrOH	140 mg , 140 ºC, 8h	85.1	95.2	29
UiO-66-S_{60}	LA	2-PrOH	100 mg, 140 ºC, 9h	69	37	81
10Cu-5Ni/Al_2O_3	EL	2-PrOH	100 mg, 150 ºC,12h	100	97	82
$ZrOCl_2 \cdot 8H_2O$	LA	2-PrOH	240 °C, 1 MPa N_2, 1 h	99.9	83.1	83
Zr-Beta-100	LA	2-PrOH	200 mg, 118 ºC, 5 bar He, 10 h	100	96	84
Sn/Al-SBA-15 (25)	LA	2-PrOH	100 mg,200 ºC, 3h, ambient N_2 pressure	99	100	This work