

New Journal of Chemistry

Supporting information

Tin oxide coated transition metal oxide molecular wires for biomass conversion

Zhenxin Zhang,^{a*} Haruka Tateno,^b Michikazu Hara,^c Wataru Ueda^{b*}

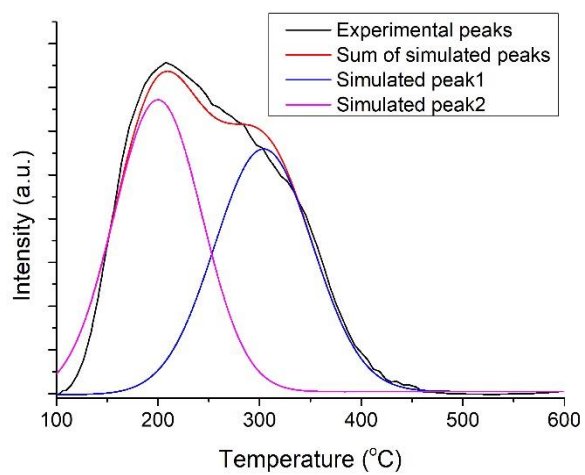


Figure S1. NH₃-TPD profile of **SnWSeO**.

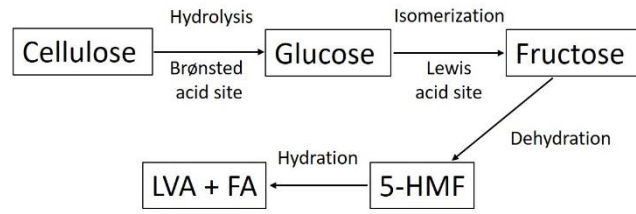


Figure S2. The proposed reaction mechanism of LVA production from cellulose.

Table S1. Yield of each products from cellulose catalyzed by SnO₂ and reused catalysts

Catalyst	Glucose (%)	Mannose (%)	FA (%)	AA (%)	HMF (%)	LVA (%)	Total (%)
Reused SnWTeO	0.8	0.3	2.1	0.9	0.6	6.8	11.6
SnO ₂	0	0	0.1	0	0.1	0	0.2

Reaction conditions: cellulose: 0.05 g, catalyst: 0.05 g, water 0.5 mL, 175 °C, 8 h.

Table S2. Catalytic activities of different catalysts.

Catalyst	Catalyst weight (g) /cellulose weight (g)	Solvent	T (°C)	t (h)	LVA yield(%)	Ref.
D008	1.2/0.5	Water	110	2	0	1
Amberlyst-70	3/1	Water	258	16	19	2
H-ZSM-5	0.4/0.5	Water	180	24	ca. 28	3
Al-NbOPO ₄	0.4/0.5	Water	180	24	ca. 50	3
Fe/HY	0.1/0.1	BMIMBr	140	5	ca. 11	4
ChH ₄ AlW ₁₂ O ₄₀	0.239/0.1	Water	120	10	6.4	5
Ga ₂ O ₃ -UiO-66	0.125/5	Water	240	6	ca. 32	6
5-F-SHPAOs	0.039/0.04	Water	165	5	47	7
Al ₂ (SO ₄) ₃ ·18H ₂ O	0.2/0.34	methanol	160	5	5.9	8
SnWTeO	0.05/0.05	Water	175	8	26	This work
SnWSeO	0.05/0.05	Water	175	8	25.2	This work

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