Supplementary Information

Efficient and selective conversion of lactic acid into acetaldehyde using the mesoporous aluminum phosphate catalyst

Congming Tang, Jiansheng Peng, Xinli Li, Zhanjie Zhai, Wei Bai, Ning Jiang, Hejun Gao, Yunwen Liao

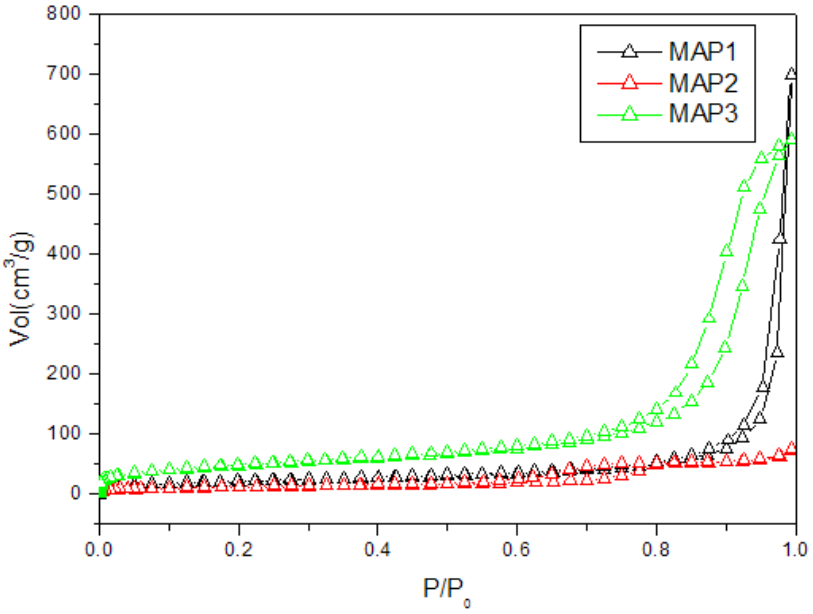

Figure S1 N_2 adsorption-desorption isotherms curves of catalysts

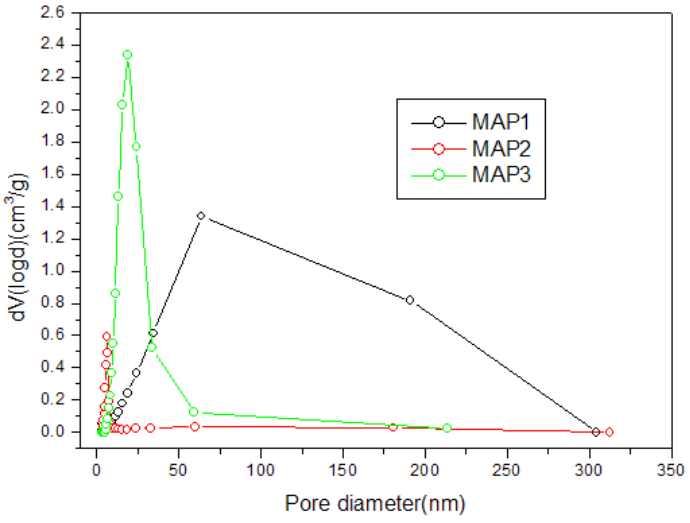

Figure S2 Pore size distribution curves of catalysts

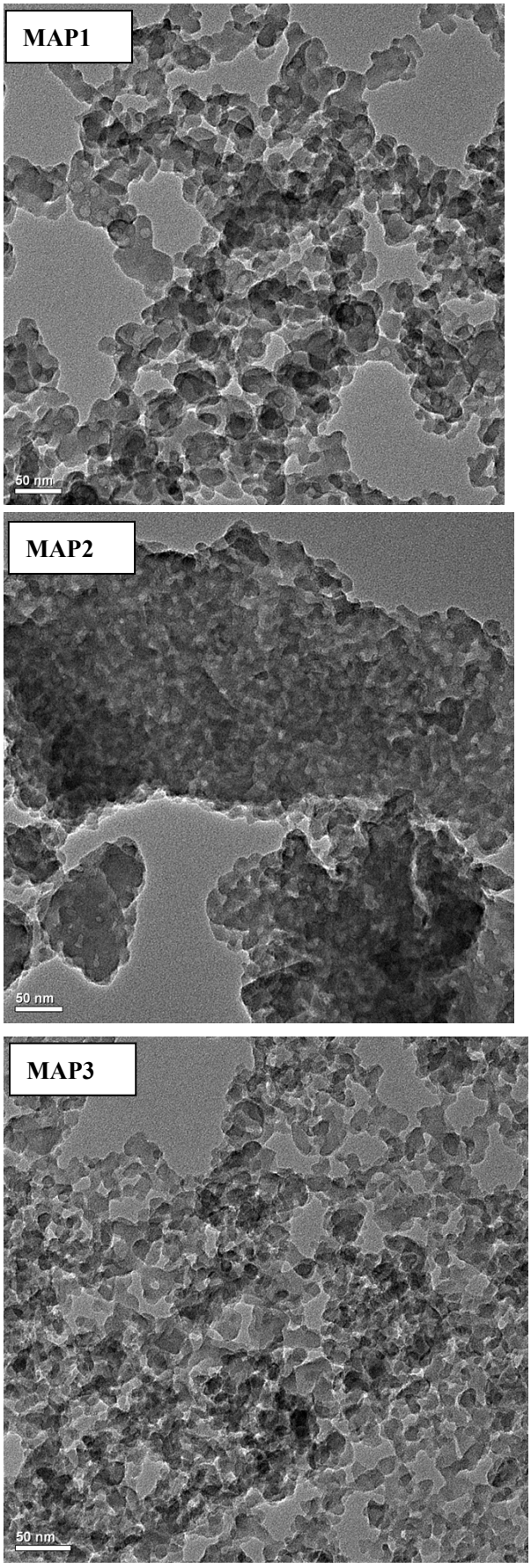

Figure S3 TEM images of catalysts

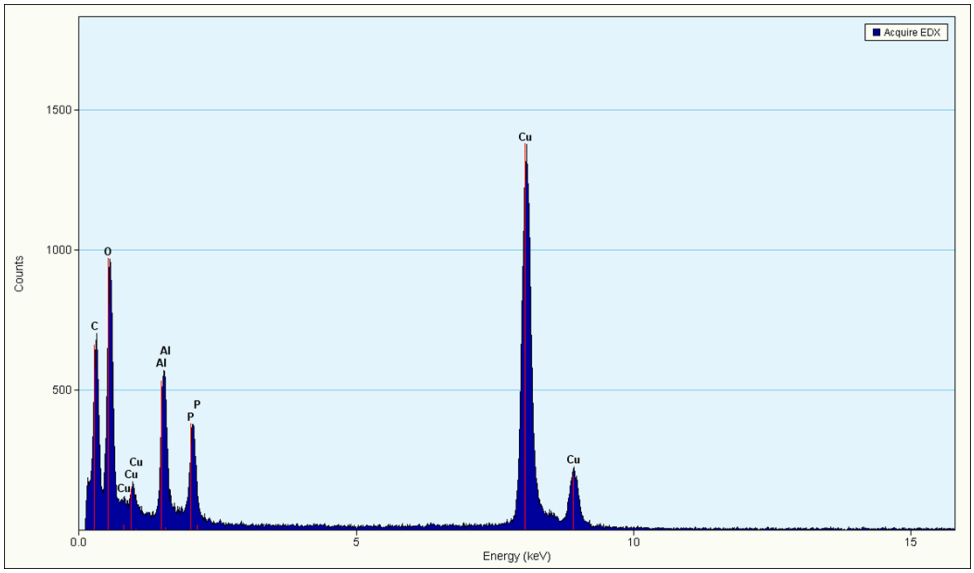

Figure S4 Energy dispersive X-ray Spectroscopy (EDS) analysis of catalyst

Table S1 Surface acid density data of aluminum phosphate catalysts

Catalyst[a]	S_{BET} (m^2/g)	Weak-medium acid density($mmol/m^2$)
MAP1	74.8	0.014
MAP2	40.8	0.053
MAP3	171.1	0.020

Table S2 Surface specific reaction rate over MAP2 and MAP3 catalysts at 250°C, 275°C.

Catalyst	Reaction temperature(°C)	Area-specific catalytic rate ($\mu mol \cdot h^{-1} \cdot m^{-2}$)	
		LA consumption	AD formation
MAP2	250	78	74
	275	277	266
MAP3	250	30	28
	275	88	84

a: Conditions: catalyst: MAP2, 0.1355g, MAP3, 0.1360g, particle size: 20~40 meshes, carrier gas N_2: 1mL/min, feed flow rate: 1mL/h, LA(lactic acid) feedstock: 20wt% in water.