

Supporting Information

Highly efficient oxidation of ethyl lactate to ethyl pyruvate with molecular oxygen over V_xO_y /SBA-15 catalyst

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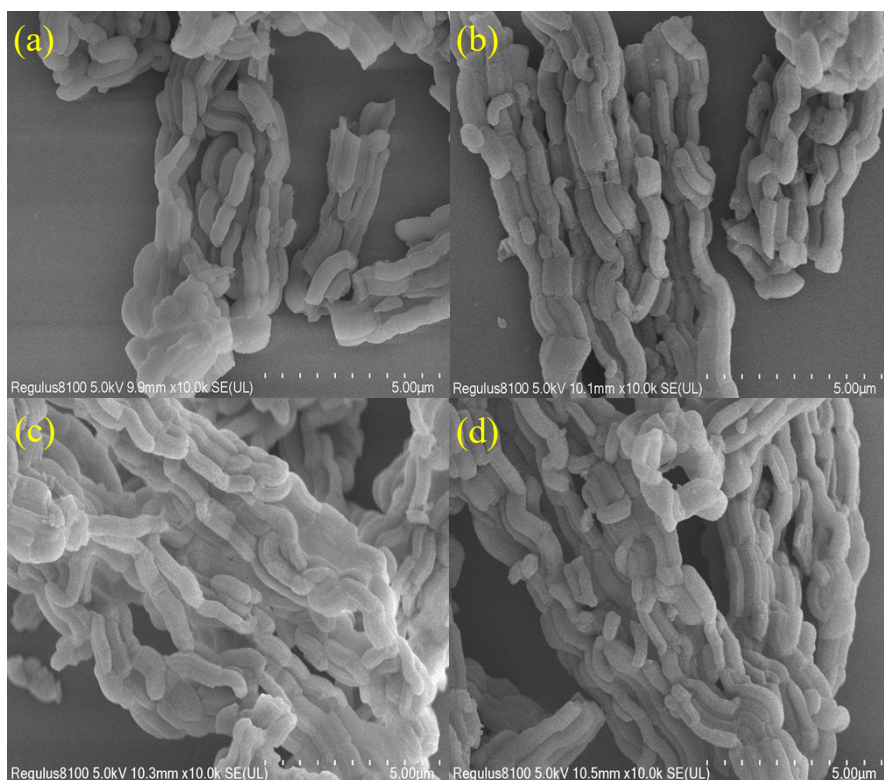


Figure S1. SEM image of SBA-15 (a), $0.5V_xO_y/SBA-15$ (b), $2.7V_xO_y/SBA-15$ (c), $5.9V_xO_y/SBA-15$ (d)

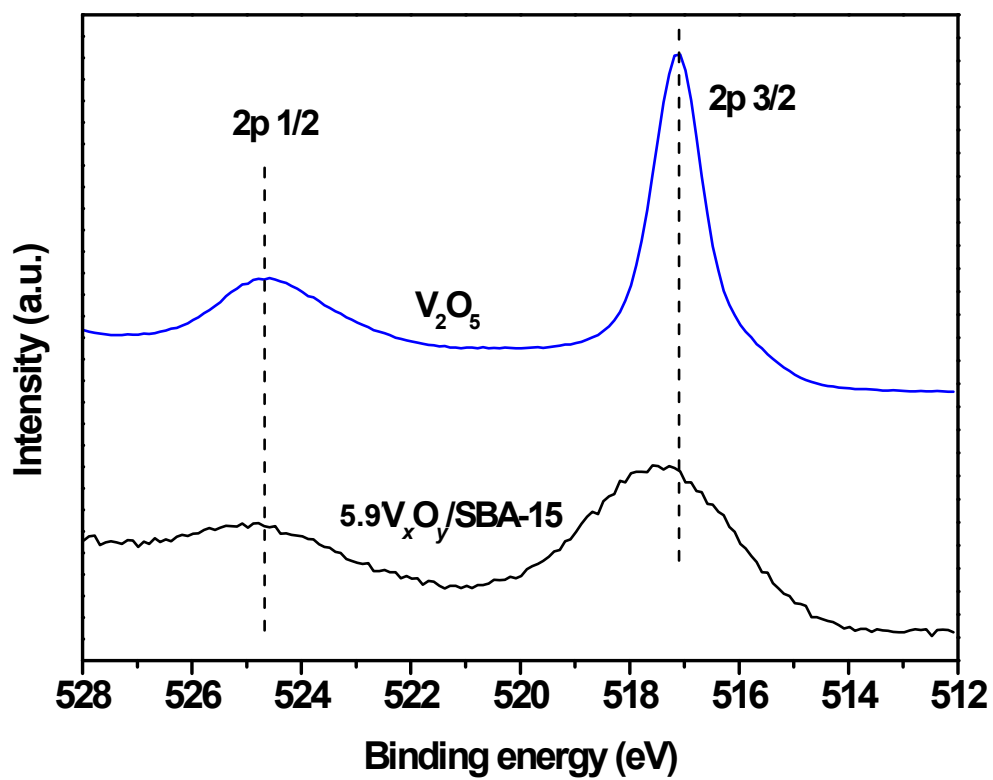


Figure S2. V 2p spectra of V_2O_5 and $5.9V_xO_y/SBA-15$

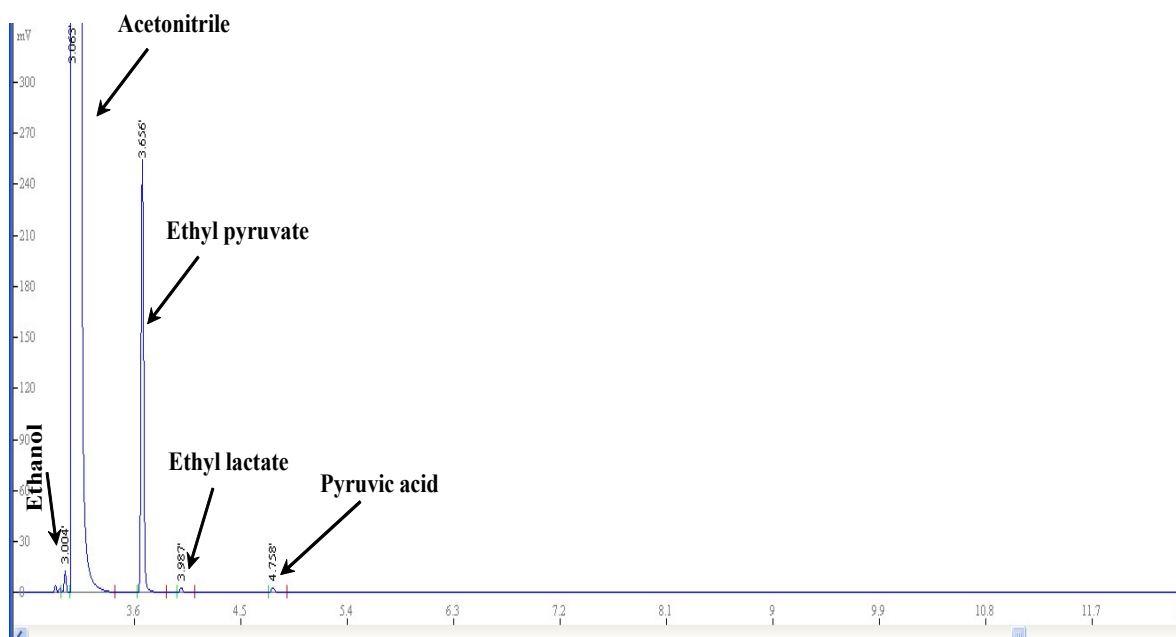


Figure S3. The GC-FID spectra of the EL conversion over $5.9V_xO_y/SBA-15$ catalyst.

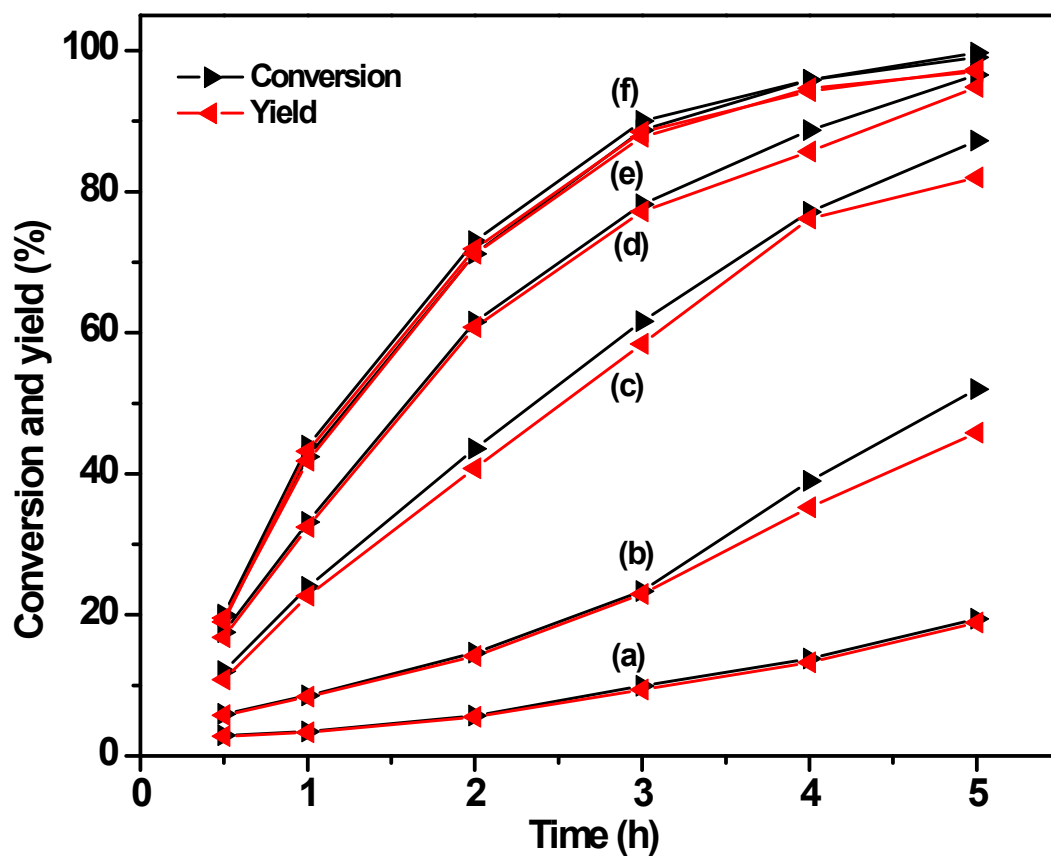


Figure S4. Time effect of $0.5SBA-15$ (a), $0.9V_xO_y/SBA-15$ (b), $2.7V_xO_y/SBA-15$ (c), $4.5V_xO_y/SBA-15$ (d), $5.9V_xO_y/SBA-15$ (e), $6.9V_xO_y/SBA-15$ (f) on EL reaction.

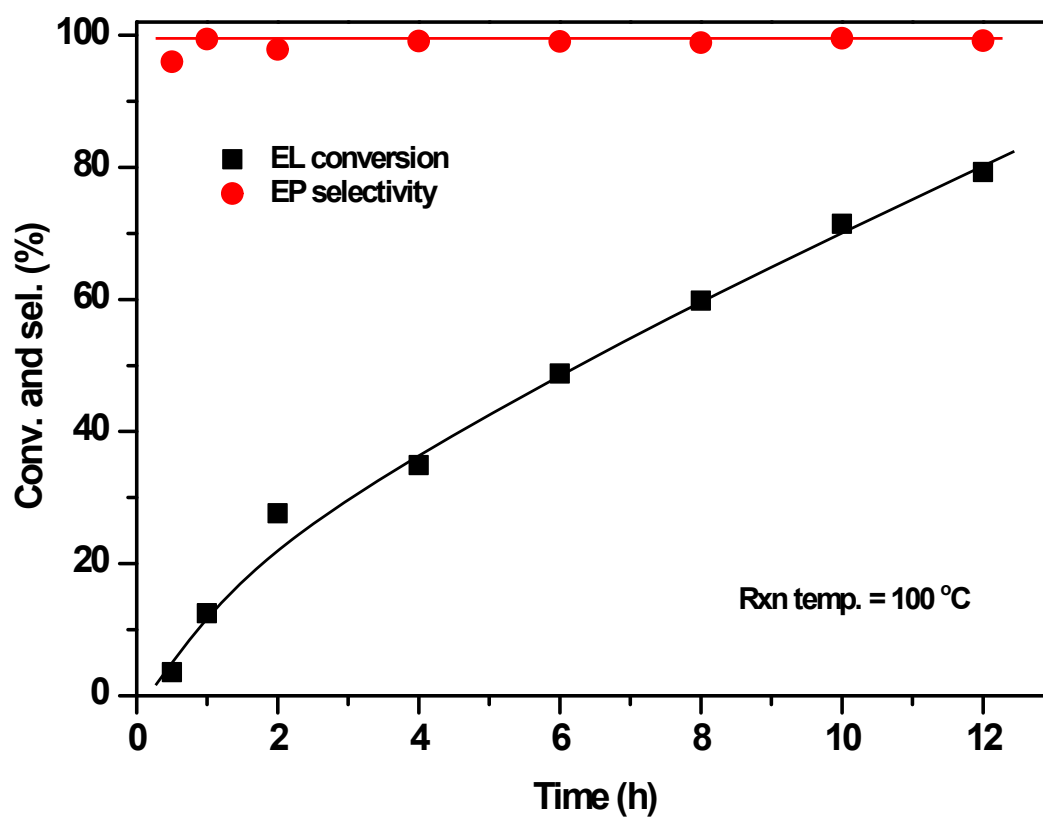


Figure S5. First-order kinetic fit (A) and Arrhenius plot of conversion of EL over $5.9V_xO_y/SBA-15$ (B)

Table S1. The effect of H_2O_2 or HBHP on catalytic performance of $5.9V_xO_y/SBA-15$ catalyst.

Oxygen donor	EL conversion (%)	EP selectivity (%)	EP yield (%)
H_2O_2	28	94	23
TBHP	52	93	48

Reaction conditions: 2 mmol EL, 15 mL acetonitrile, 50 mg catalyst, EL: Oxygen donor = 1:2, $T = 130\text{ }^\circ\text{C}$, $t = 4\text{ h}$.

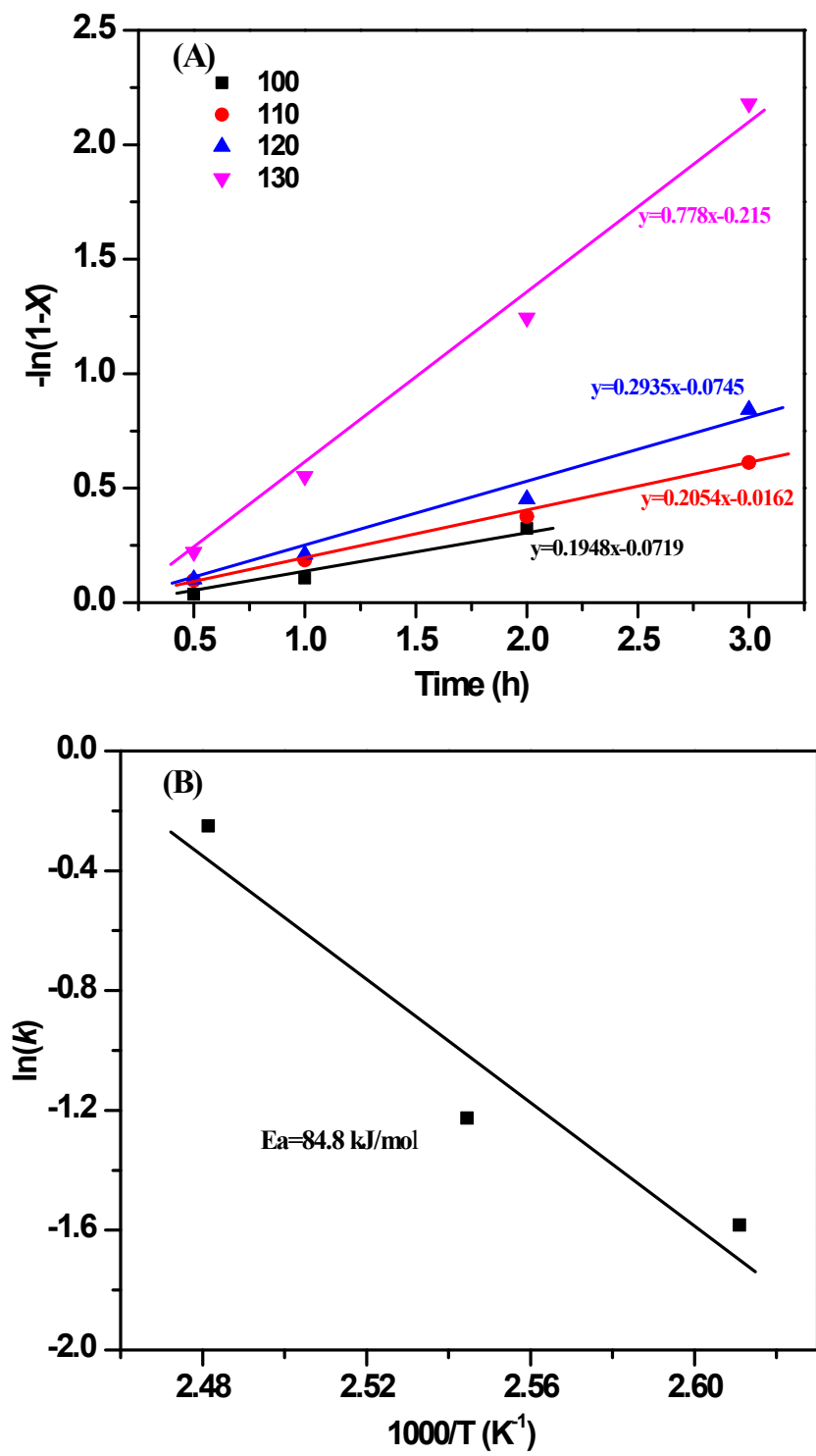


Figure S6. First-order kinetic fit (A) and Arrhenius plot of conversion of EL over 5.9V_xO_y/SBA-15 (B)