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Esterification of Biomass-Derived Levulinic Acid Using Molybdate- Intercalated Hydrotalcite Materials

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Electronic Supplementary Information

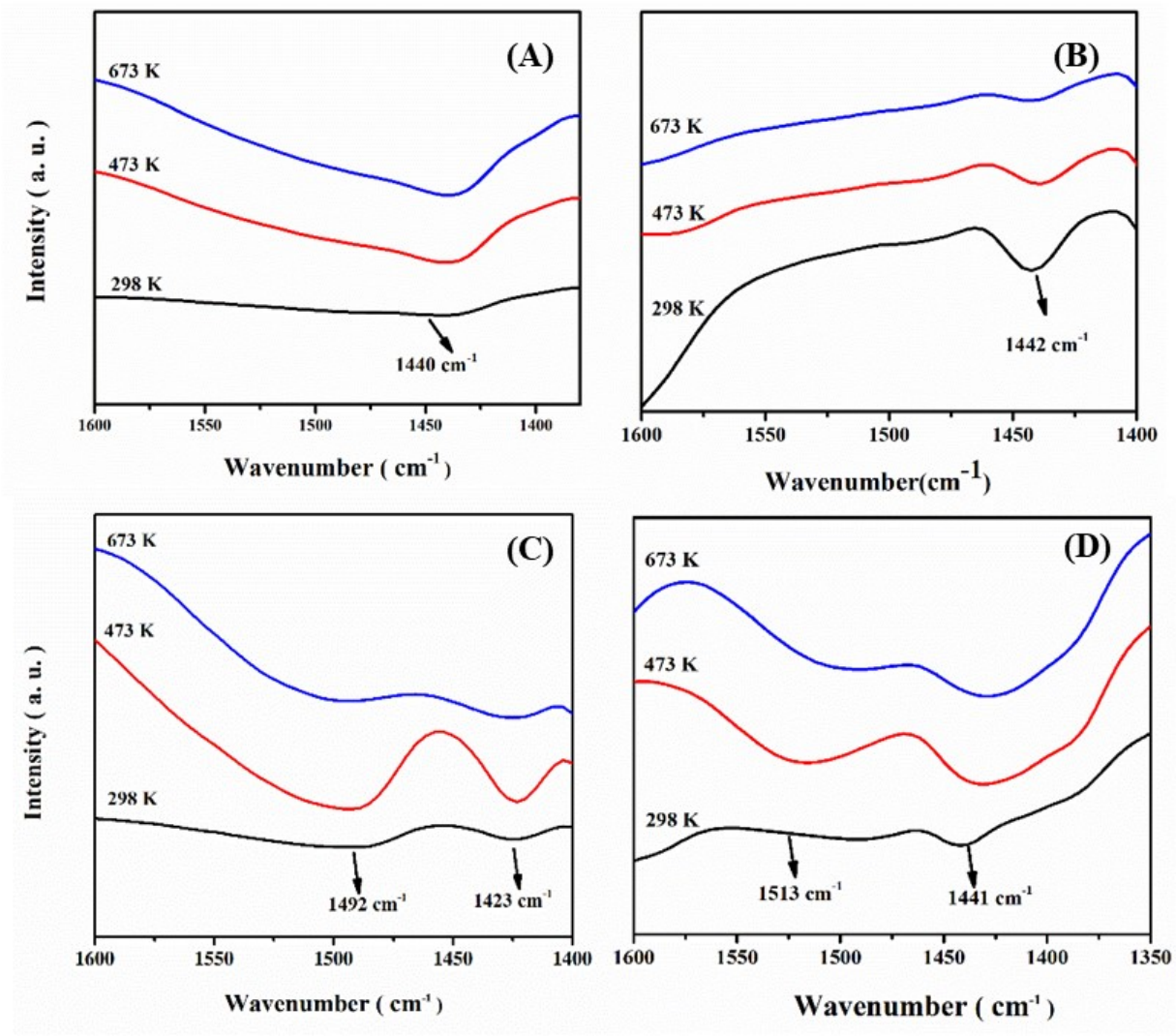

Fig. S1. Pyridine IR of (A) MgFe, (B) MgFeMo, (C) MgCr, and (D) MgCrMo.

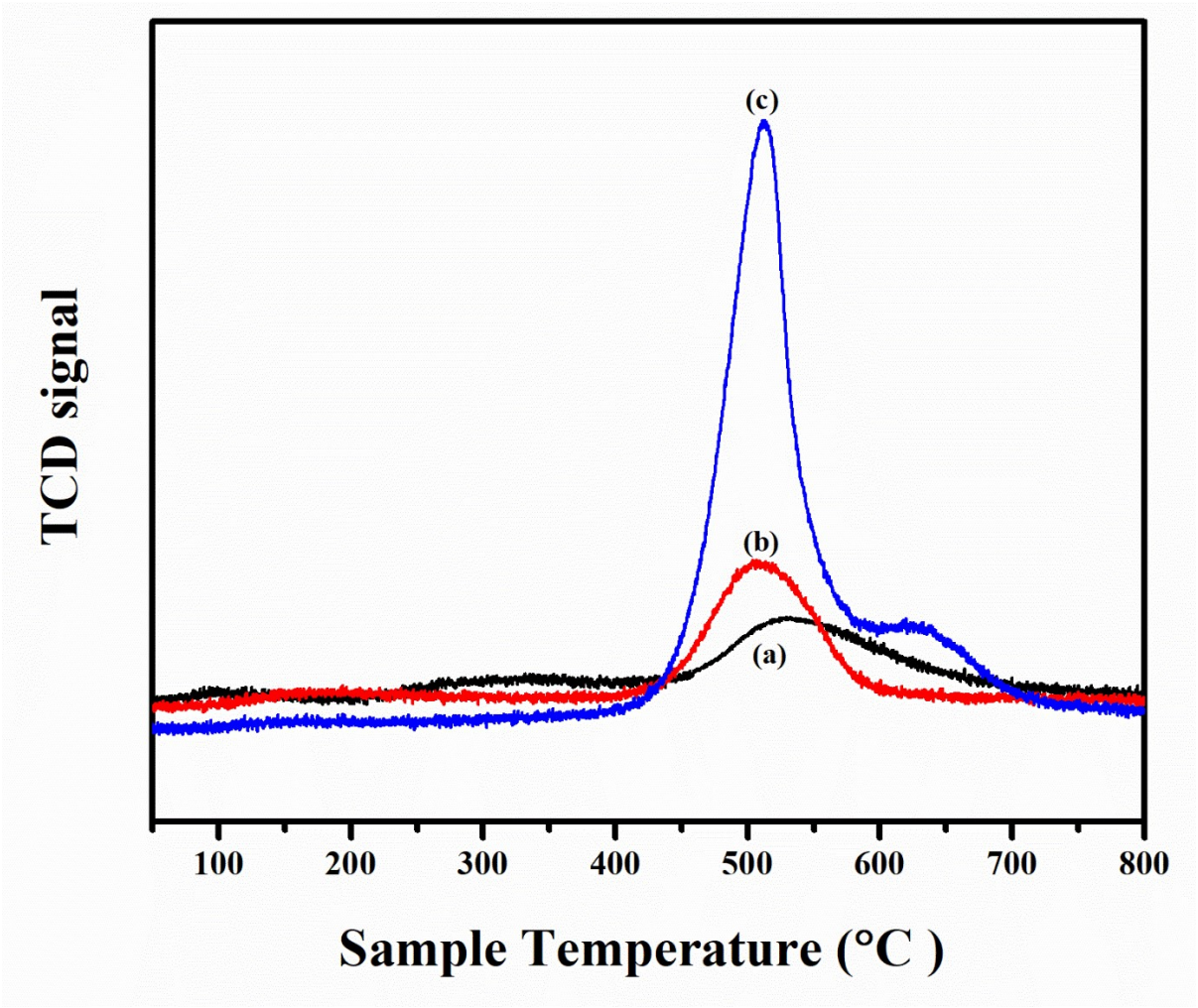

Fig. S2. CO_2 TPD of (a) MgFeMo (b) MgAlMo and (c) MgCrMo.

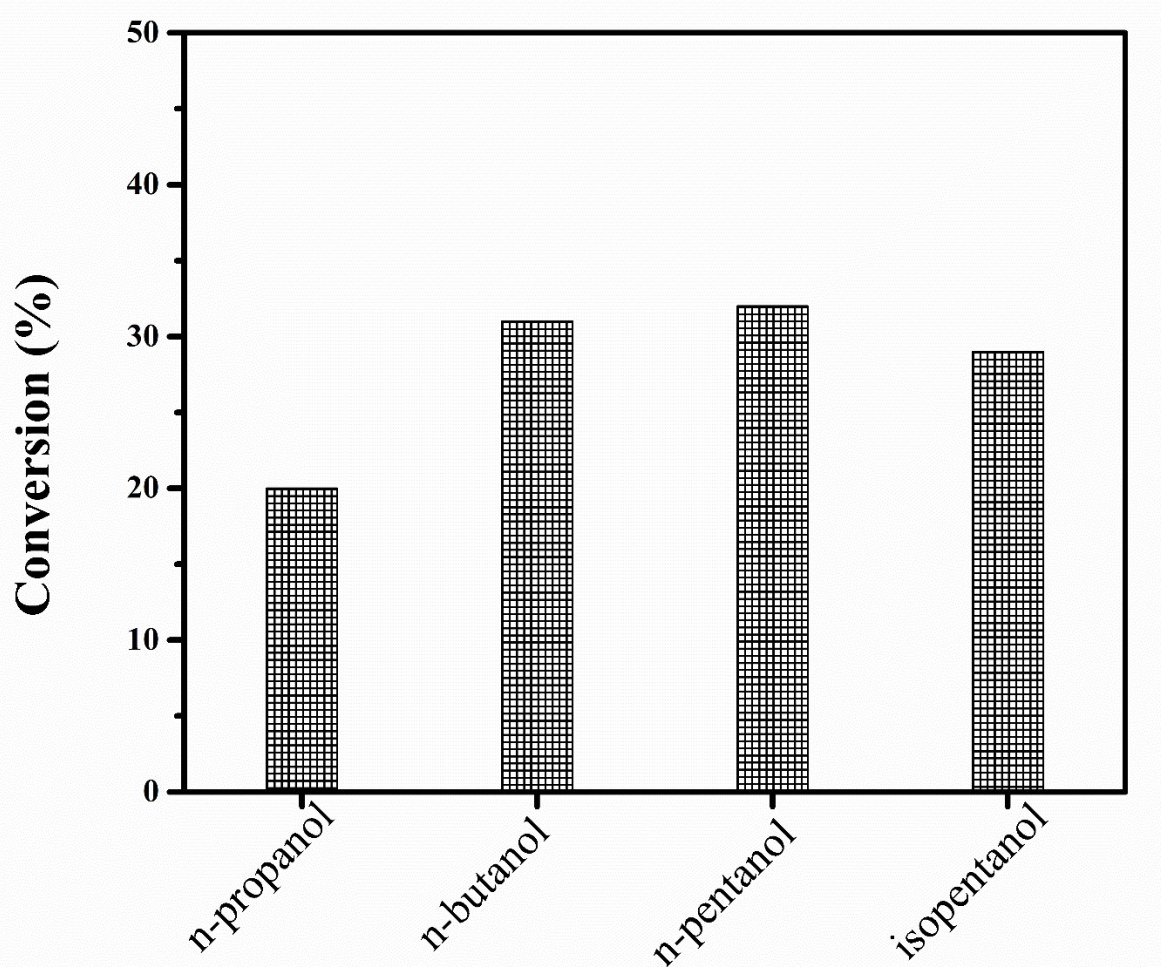

Fig. S3. Levulinic acid esterification using different alcohols without catalyst.

[#] Reaction conditions: 2 mmol levulinic acid, 10 mmol alcohol, 120℃, 5 hr.

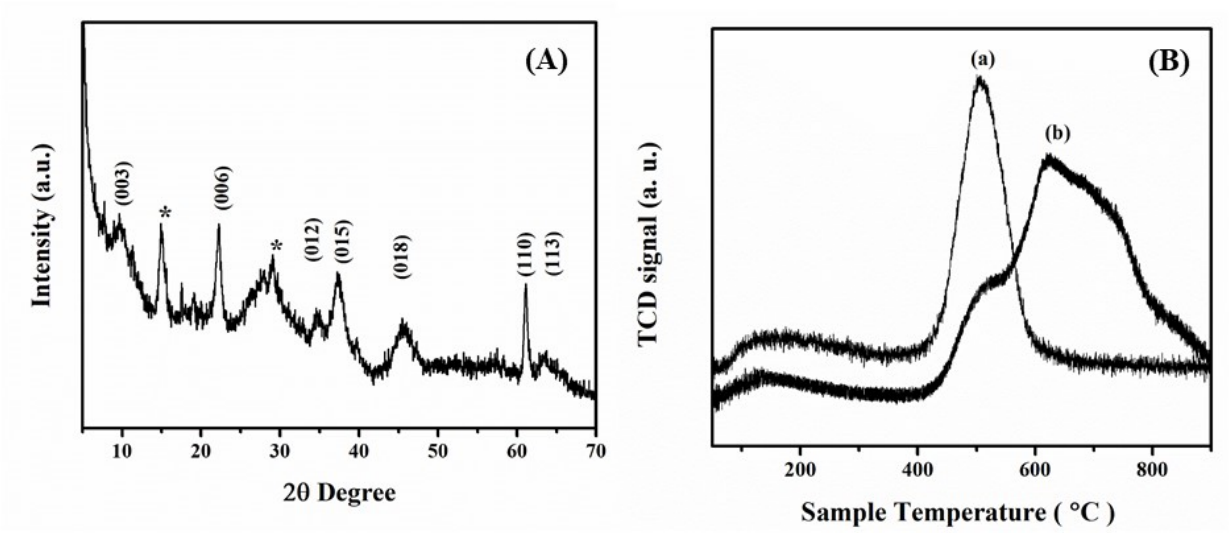

Fig. S4. (A) Powder XRD pattern of used MgAlMo; (B) NH_3 TPD of (a) fresh MgAlMo, and (b) used MgAlMo catalyst.

Table S1: Sizes of the crystal determined using Debye-Sherrer formula

Sample	Crystallite size (Å)
MgFeMo	19.2
MgAlMo	45.2
MgCrMo	36.7