

Electronic Supplementary Information

**Highly selective esterification of bioderived itaconic acid to
monobutyl itaconate: Kinetic analysis of a reusable 20% (w/w)**

$\text{Rb}_{0.5}\text{Cs}_{2.0}\text{H}_{0.5}\text{PW}_{12}\text{O}_{40}$ /MCF catalyst system

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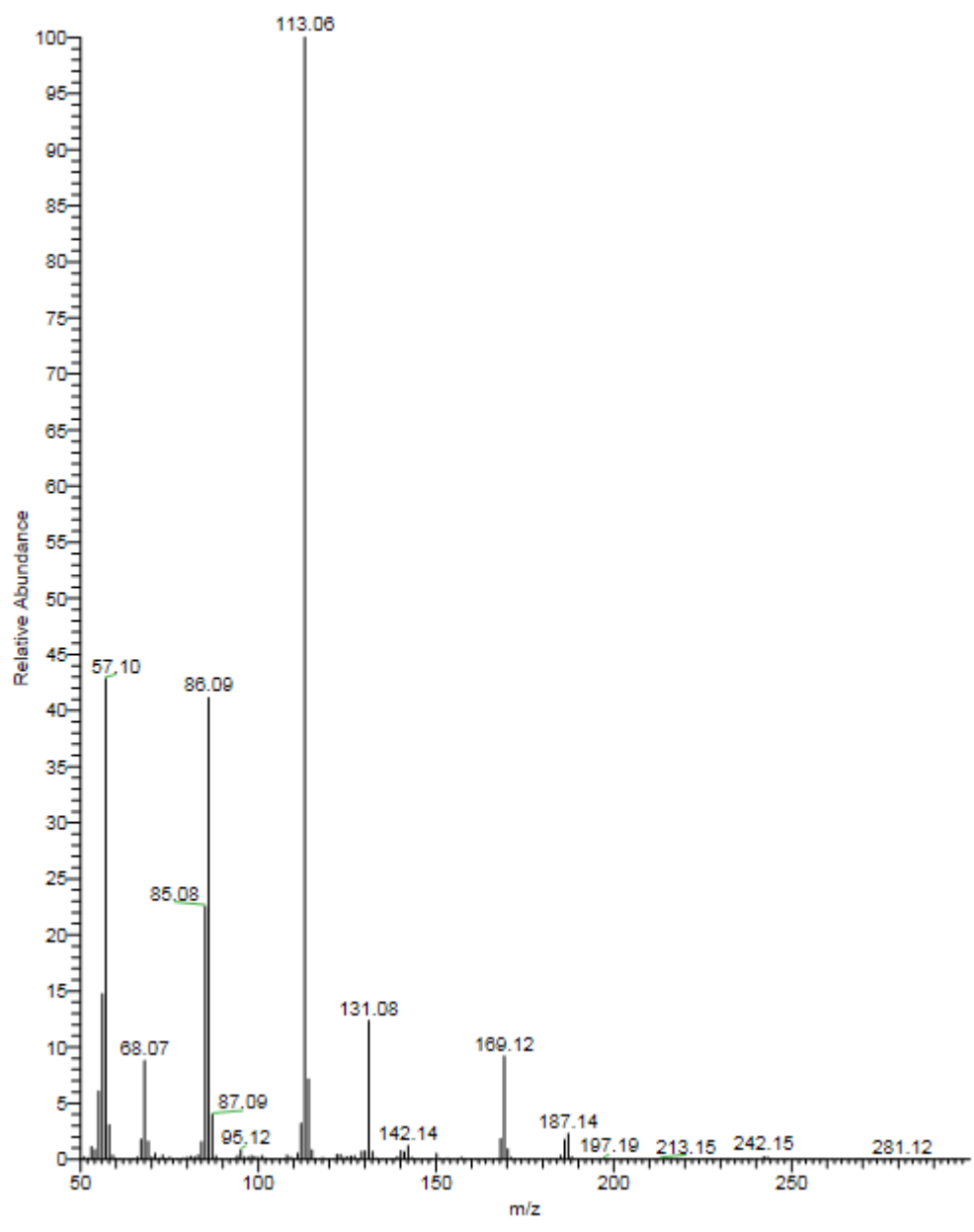


Figure S1. GC-MS for product (mono-butyl itaconate) formation confirmation

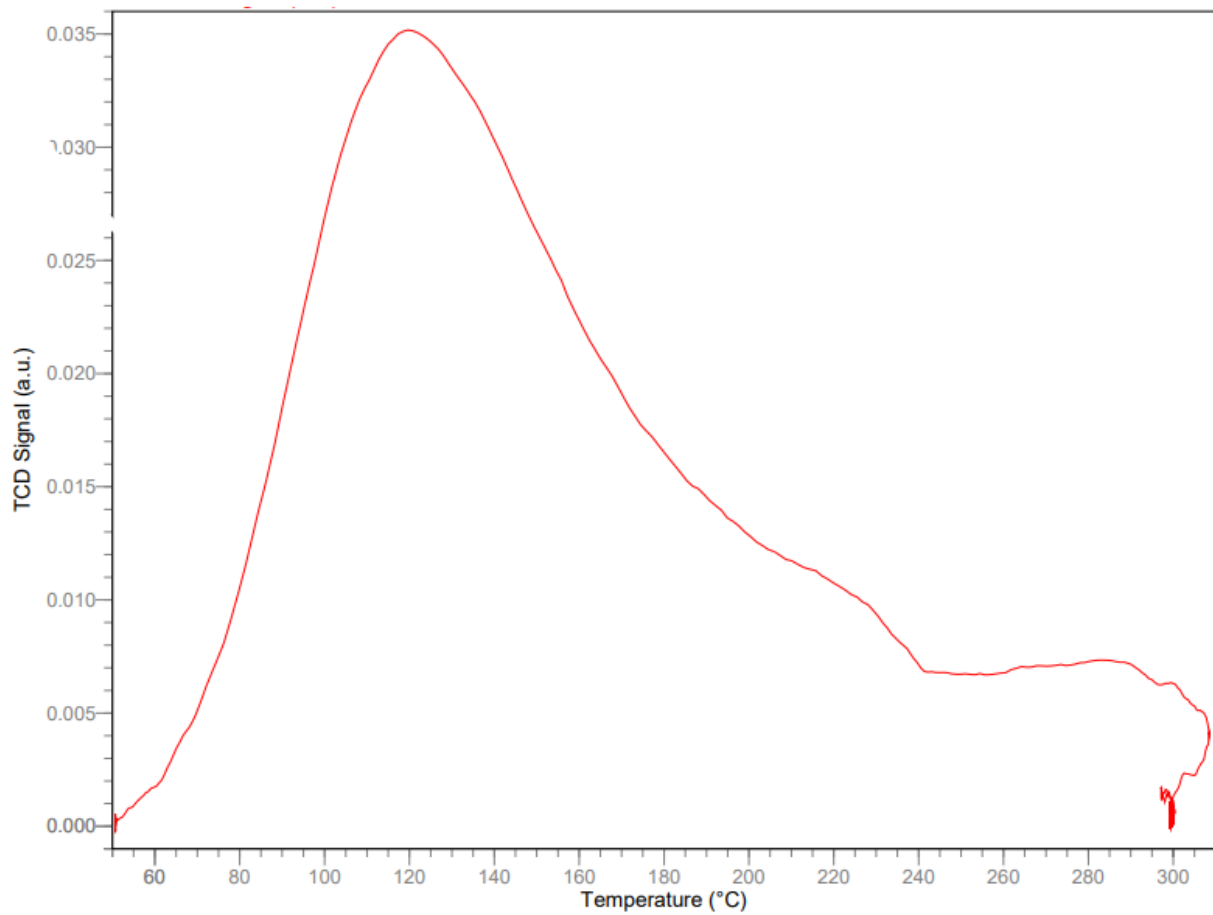


Figure S2. Ammonia-TPD profile of Cs-DTP/Bulk

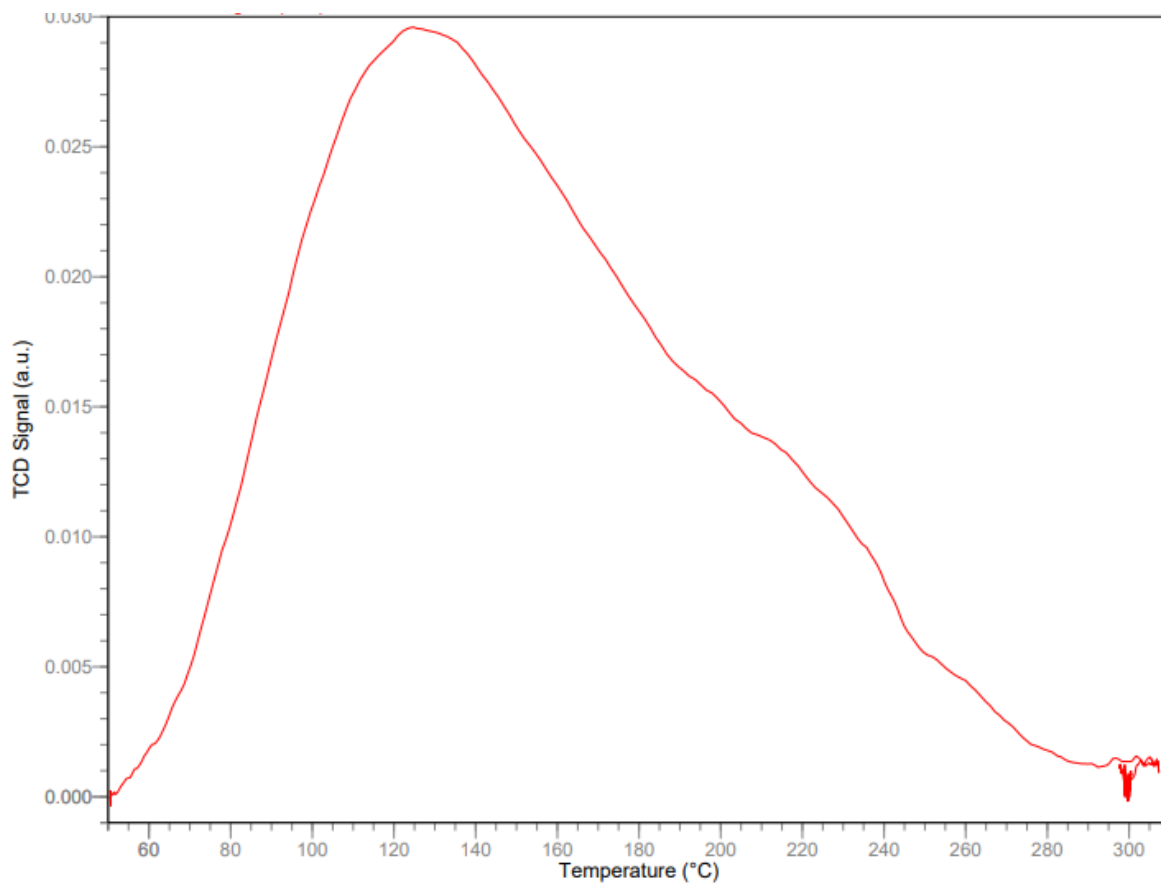


Figure S3. Ammonia-TPD profile of Cs-Rb-DTP/Bulk

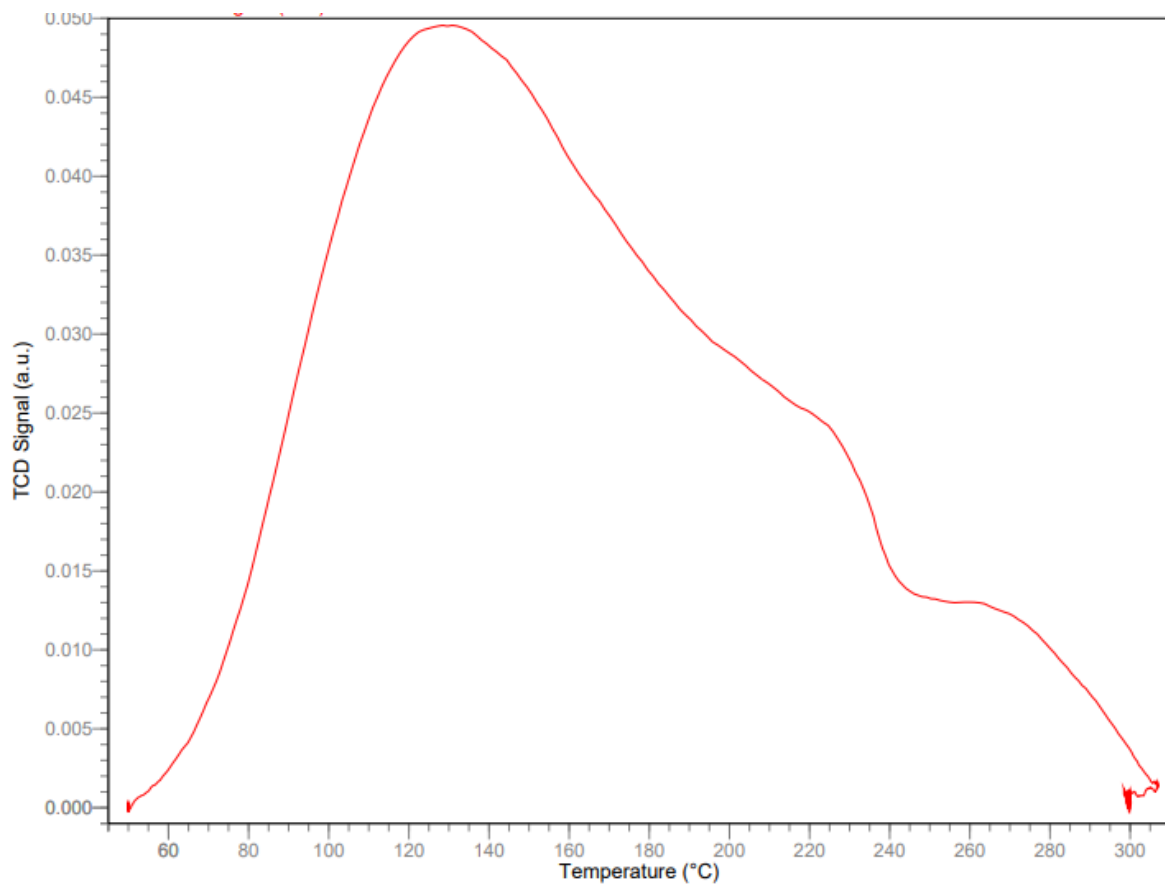


Figure S4. Ammonia-TPD profile of Rb-Cs-DTP/Bulk

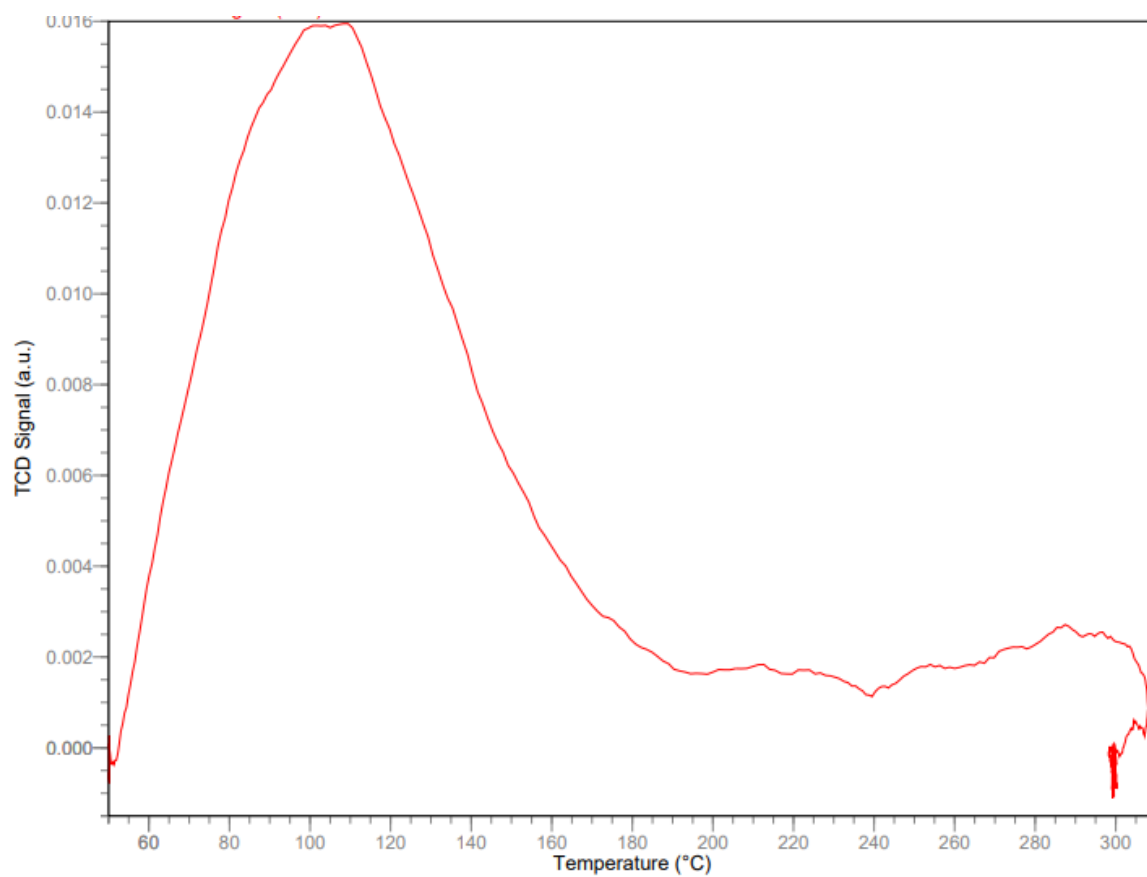


Figure S5. Ammonia-TPD profile of 20% (w/w) Rb-Cs-DTP/MCF (Fresh)

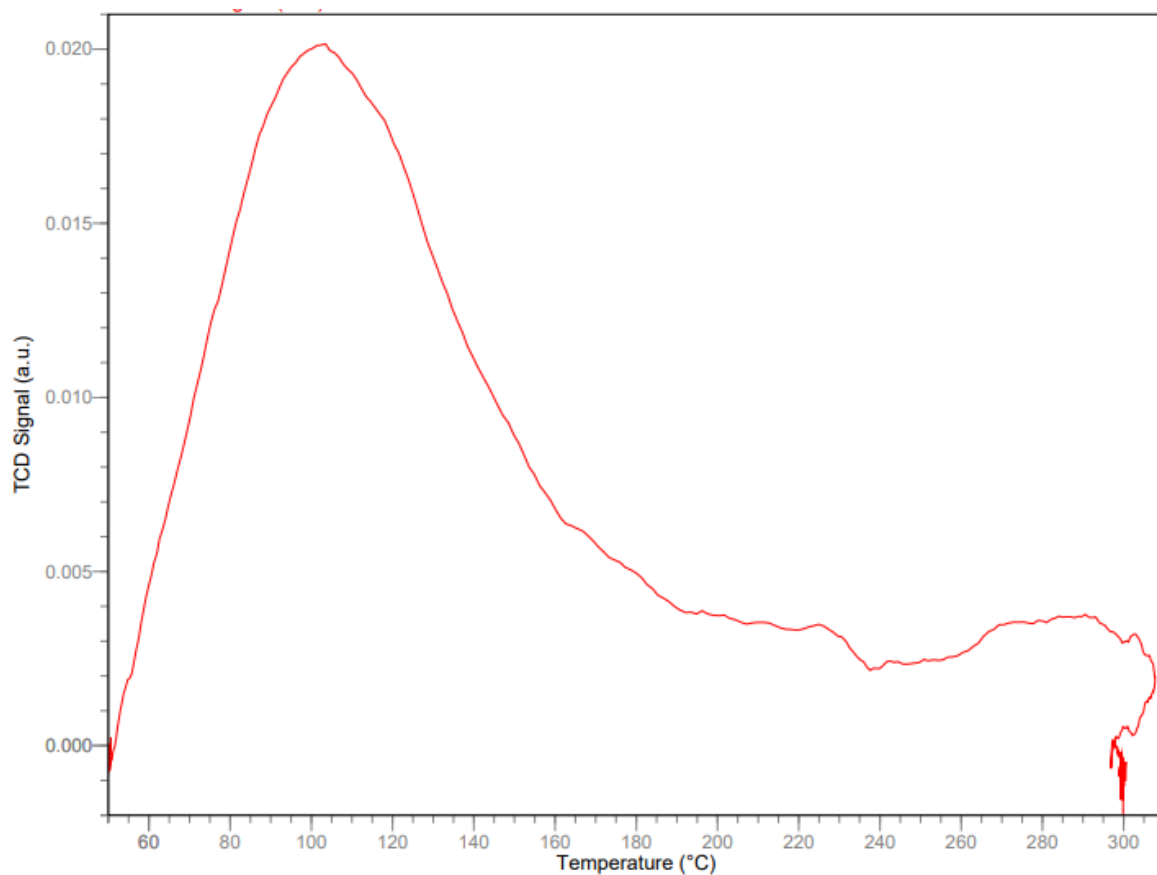


Figure S6. Ammonia-TPD profile of 20% (w/w) Rb-Cs-DTP/MCF (Spent)

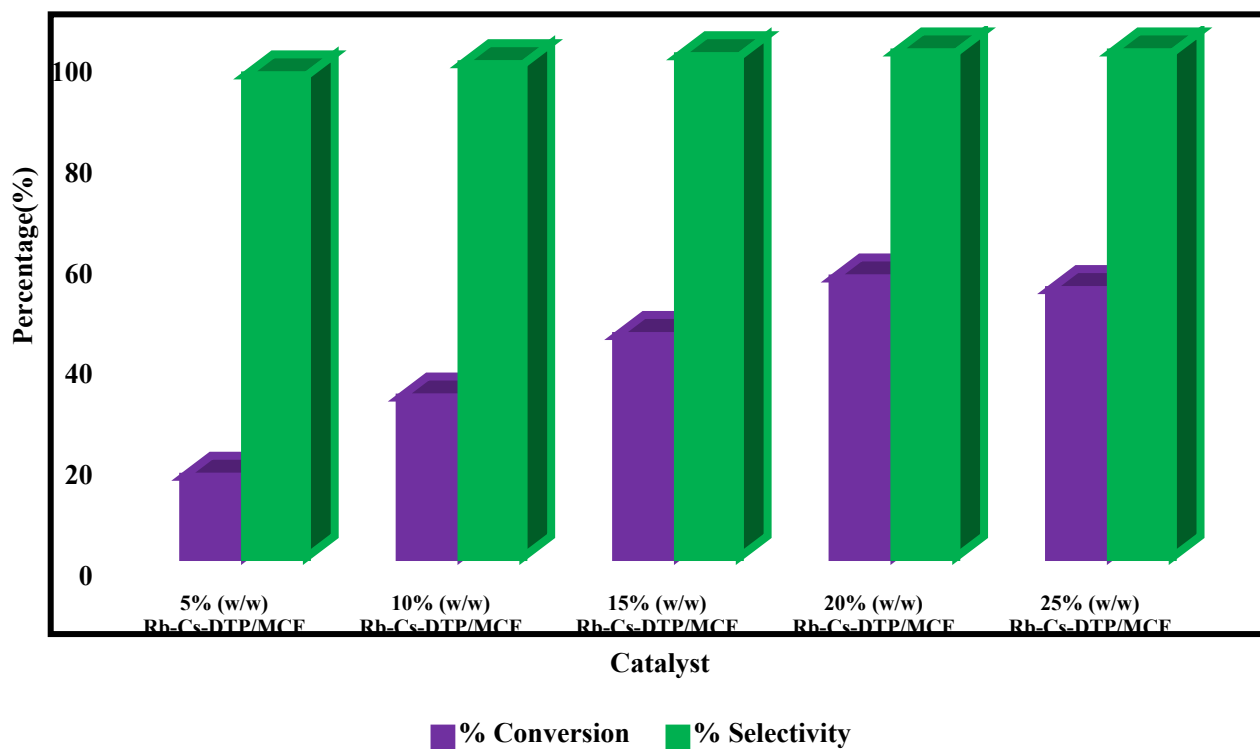


Figure S7. Effectiveness of different supported catalysts with varied loading for selective esterification of itaconic acid. Reaction conditions – Itaconic acid (0.00546 mol), n-butyl

alcohol (0.1092 mol); catalyst amount - (0.05 g/mL); total reaction volume-10.1mL;
temperature-118 °C; speed of agitation-1000 rpm, time-120 min