

## Supporting Information

### **Oxidation of levulinic acid for the production of maleic anhydride: breathing new life into biochemicals**

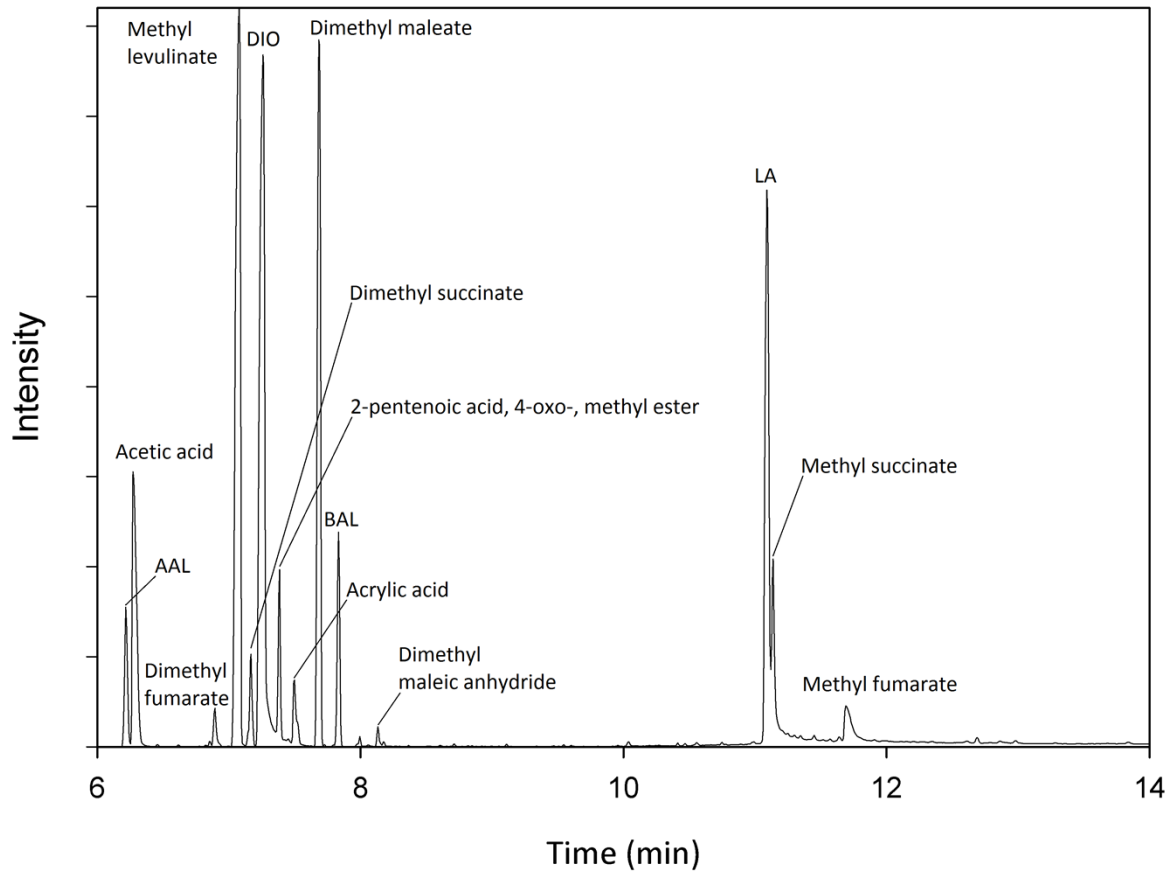
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#### **Esterification of product stream**

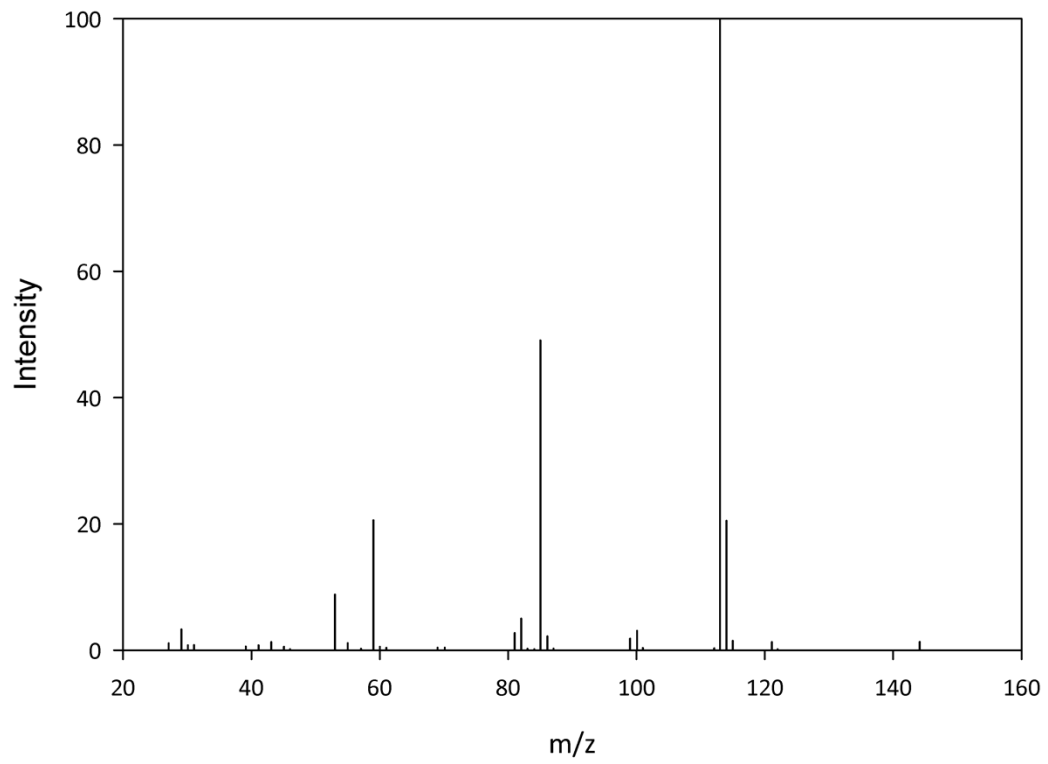
Diacids and their respective anhydrides were elusive when it came to positive identification through our chromatography setup. Instead, we ran our gaseous product stream through a methanol bath with the purpose of esterifying the acids and diacids of our stream. The products were analyzed through a 7890 Agilent GC equipped with a 5975C MS detector and an Agilent HP-INNOWAX column. Esters of maleic, succinic and fumaric acid were positively identified against the “Japan AIST/NIMC Database” as shown in Figure S1. Figures S2-S7 depict the recorded mass spectra for the recovered esters.

# GC-MS Chromatogram



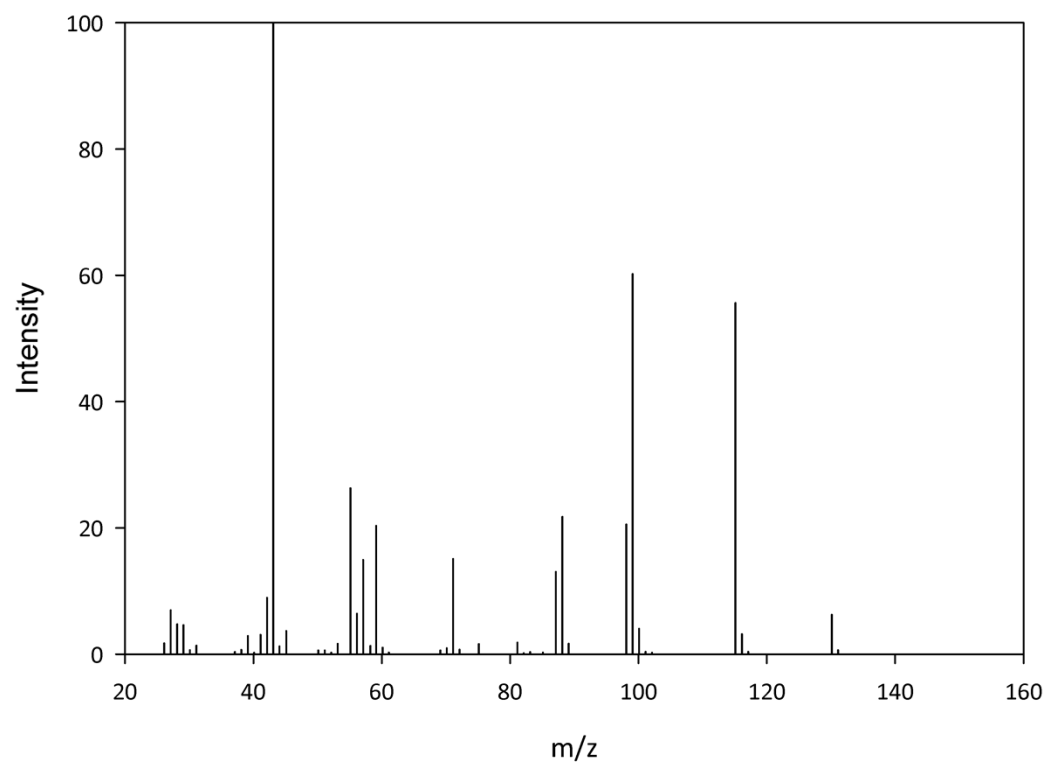
**Figure S 1:** GC-MS chromatogram of esterified product stream

Dimethyl fumarate



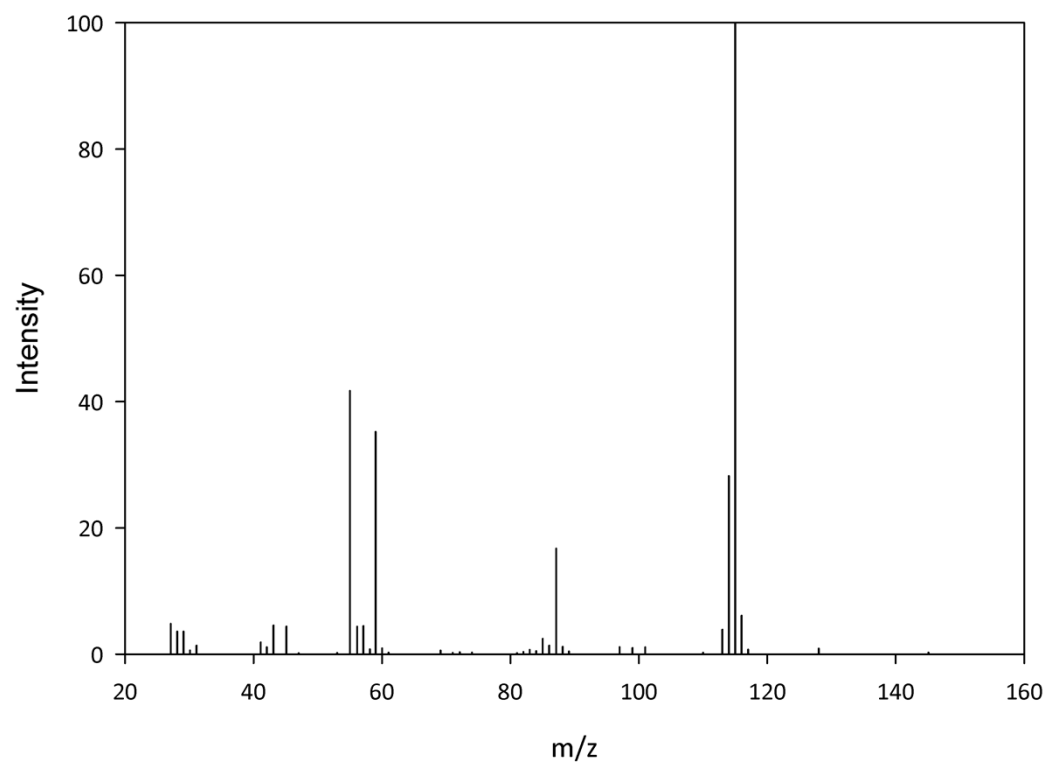
**Figure S 2:** Mass spectrum of dimethyl fumarate.

### Methyl levulinate



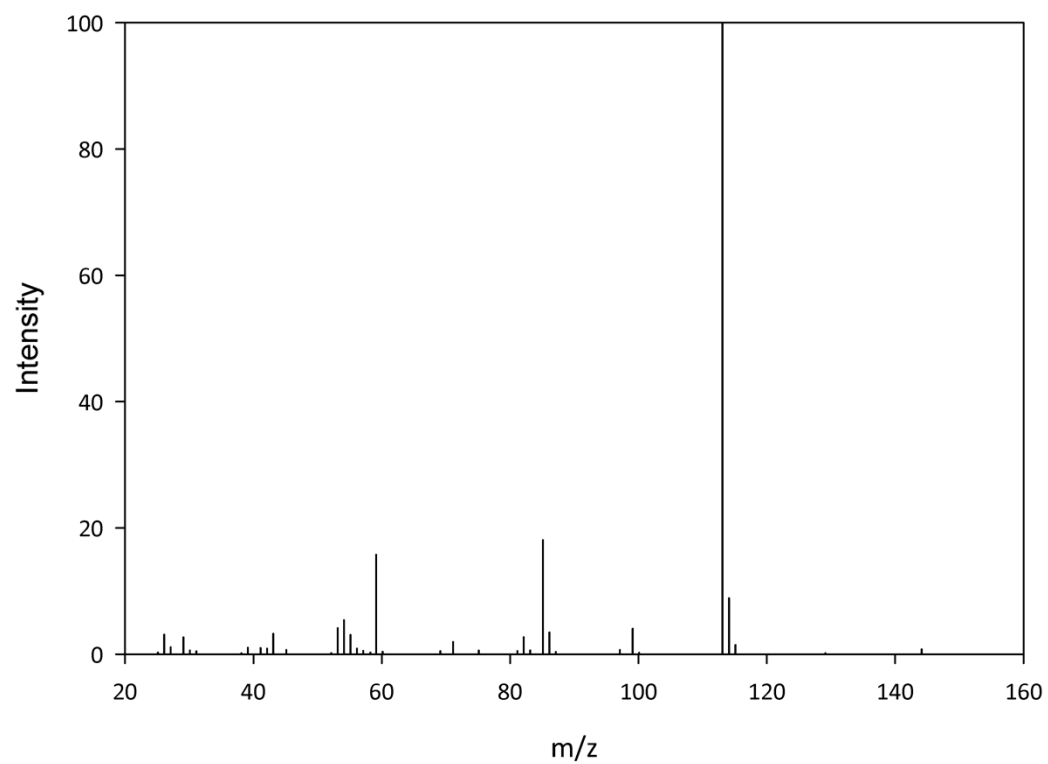
**Figure S 3:** Mass spectrum of methyl levulinate.

### Dimethyl succinate



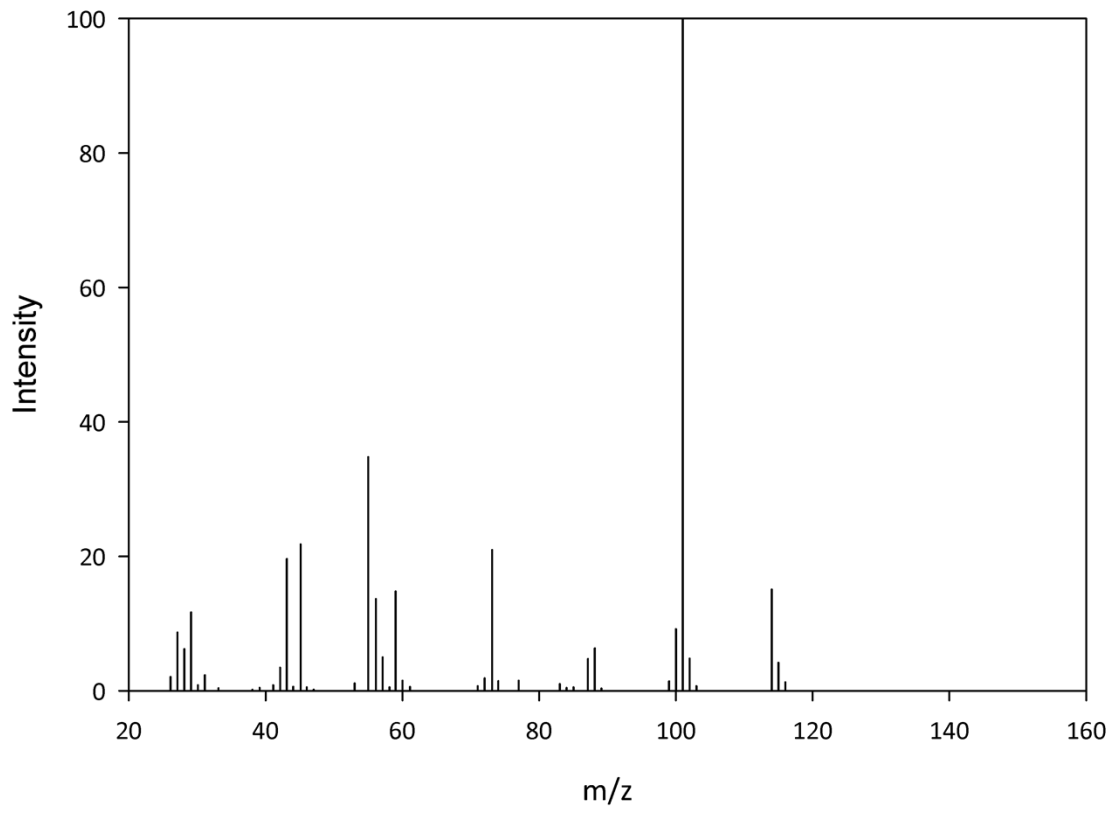
**Figure S 4:** Mass spectrum of dimethyl succinate.

### Dimethyl maleate



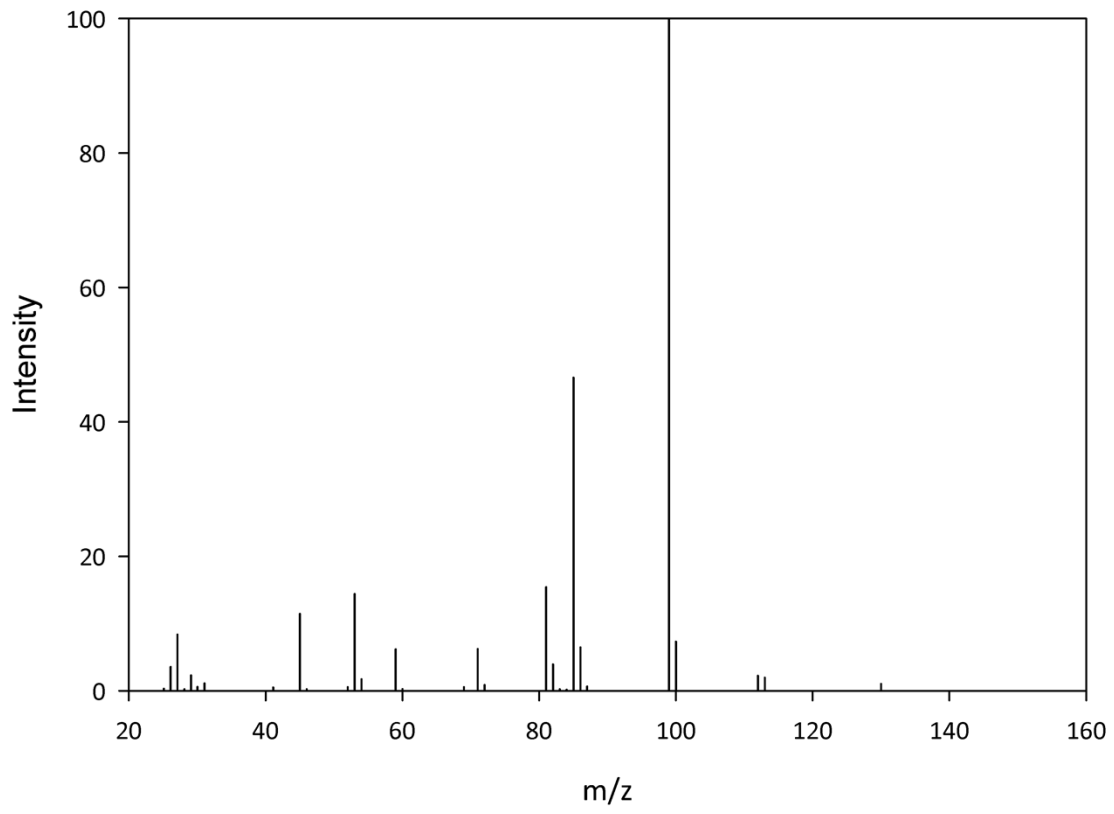
**Figure S 5:** Mass spectrum of dimethyl maleate.

# Methyl succinate



**Figure S 6:** Mass spectrum for methyl succinate

# Methyl fumarate



**Figure S 7:** Mass spectrum for methyl fumarate