Supplementary Material (ESI) for Green Chemistry

Cross-metathesis of fatty acid derivatives with methyl acrylate: renewable raw materials for the chemical industry

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1. Additional gas chromatography results.

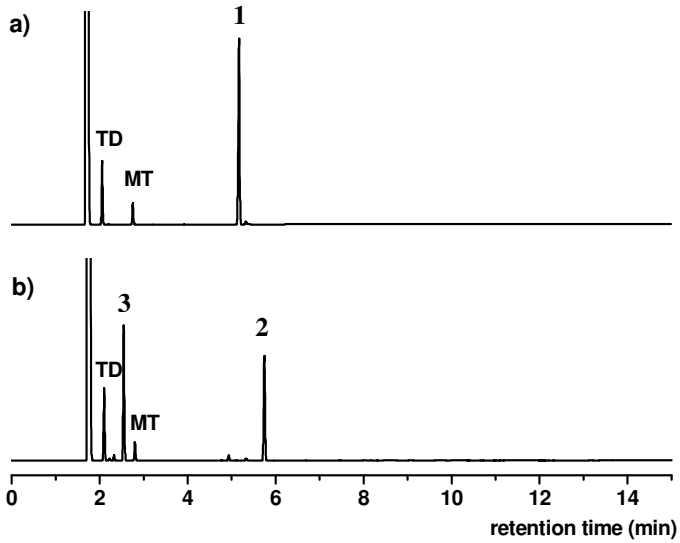


Fig. 1 Gas chromatograms (GC/FID) of a) methyl oleate **1** starting material and b) cross-metathesis crude reaction mixture of **2** and **3** after 30 minutes reaction time (x = 10, 5 mol% **C3**); TD: tetradecane (internal standard), MT: (methyl-THF, solvent impurity).

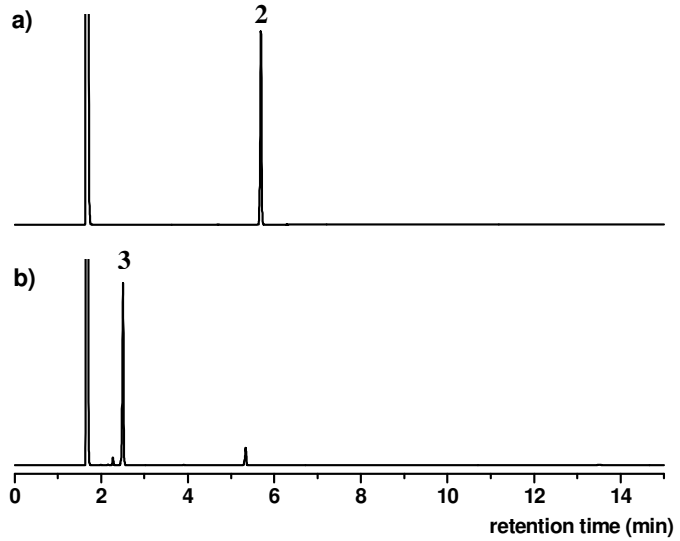
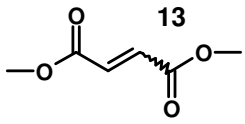


Fig. 2 Gas chromatograms of cross-metathesis products after isolation *via* column chromatography; a) 1,11-Dimethyl-undec-2-enedioate **2** and b) 1-Methyl-undec-2-enoate **3**.

2. Analytic data.

1,4-Dimethyl-but-2-enedioate (13)



The isolated yield of **13** in all scale-up syntheses was 0.5-0.7 g (2.2-3.0 %).

IR (CH_2Cl_2): ν 2929, 2857, 1714, 1441, 1303, 1202, 1158, 991 cm^{-1}.

^1H NMR (300 MHz, $CDCl_3$): δ = 6.87 (s, 2H, -C*H*=C*H*-), 3.81 (s, 6H, 2COOCH_3) ppm.

^{13}C NMR (75.5 MHz, $CDCl_3$): δ = 165.3 (s, -*C*OOCH$_3$), 133.4 (s, -*C*H=*C*H-),
52.2 (s, COO*C*H$_3$) ppm.

MS (EI): m/z (%) 144.1 ($M^{+\cdot}$, 9), 113.0 (10), 84.0 (88), 58.1 (4), 49.0 (100).

MS (ESI-positive, CH_2Cl_2): m/z 145.0 (MH^+, calc. 145.05).