

SUPPLEMENTARY MATERIAL

Lipozyme 435-mediated synthesis of xylose oleate in methyl ethyl ketone

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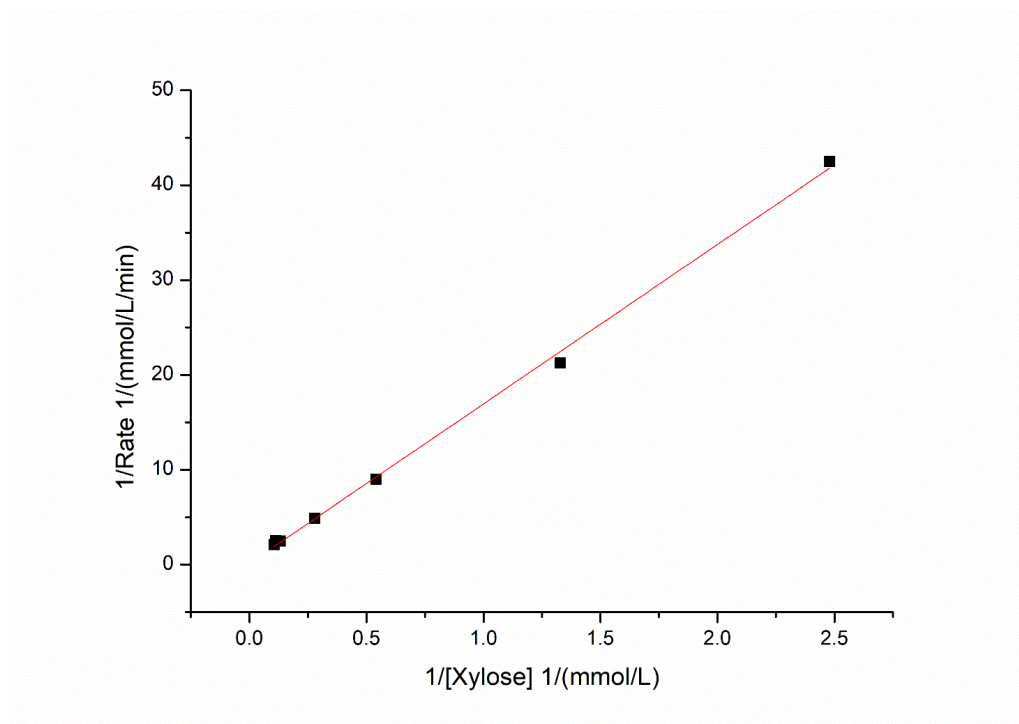


Figure S1. Lineweaver-Burk plot for the initial acylation rates of xylose with oleic acid catalyzed by Lipozyme 435. Reaction conditions: 1.4 mM oleic acid, 60 °C, 200 rpm, 15 min, enzyme load of 0.23% (w/v), with molecular sieves. The rates were calculated as percentage of xylose consumption.

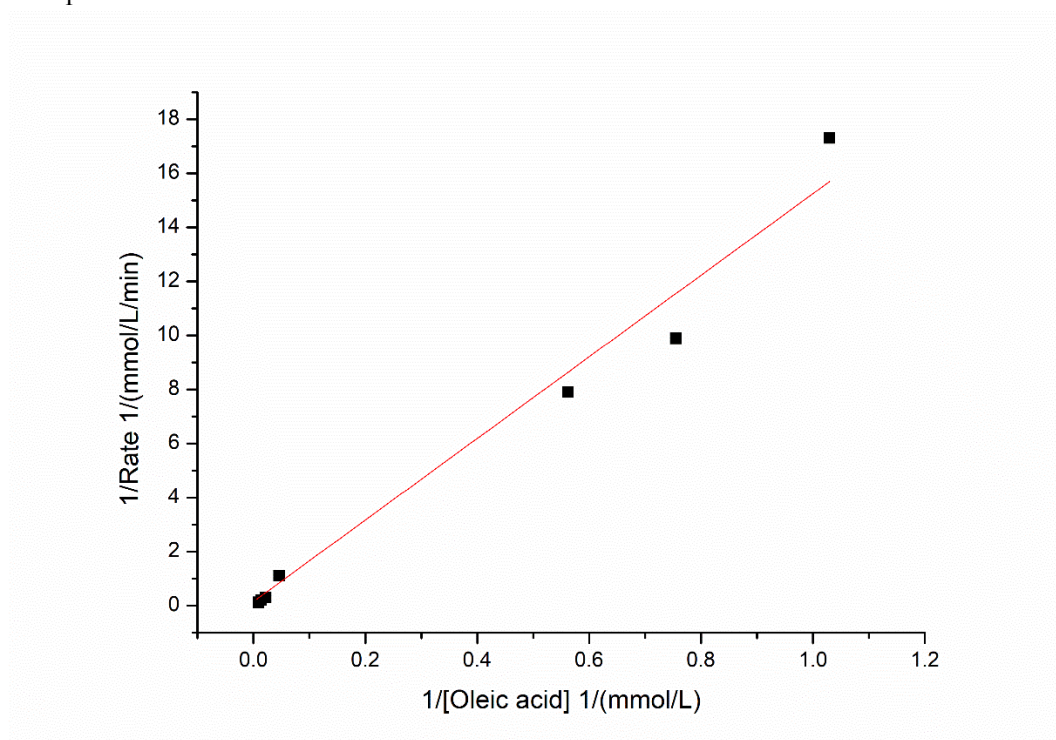


Figure S2. Lineweaver-Burk plot for the initial acylation rates of xylose with oleic acid catalyzed by Lipozyme 435. Reaction conditions: 7 mM xylose, 60 °C, 200 rpm, 15 min, enzyme load of 0.23% (w/v), with molecular sieves. The rates were calculated as percentage of oleic acid consumption.

Table S1. Kinetic constants of the esterification reaction catalyzed by Lipozyme 435. Reaction conditions: 15 min-reaction, 60 °C, 200 rpm, enzyme load of 0.23% (w/v), xylose: oleic acid molar ratio of 1:5, with molecular sieves.

Parameters	
V_{\max} (mmol/L/min)	6.59 ± 0.21
K_m (xyl) (mmol/L)	97.22
K_m (OA) (mmol/L)	113.24

Xylose monooleate $C_{23}H_{42}O_6$

1:5 [M-H]⁻ m/z 413.2 EC 20V

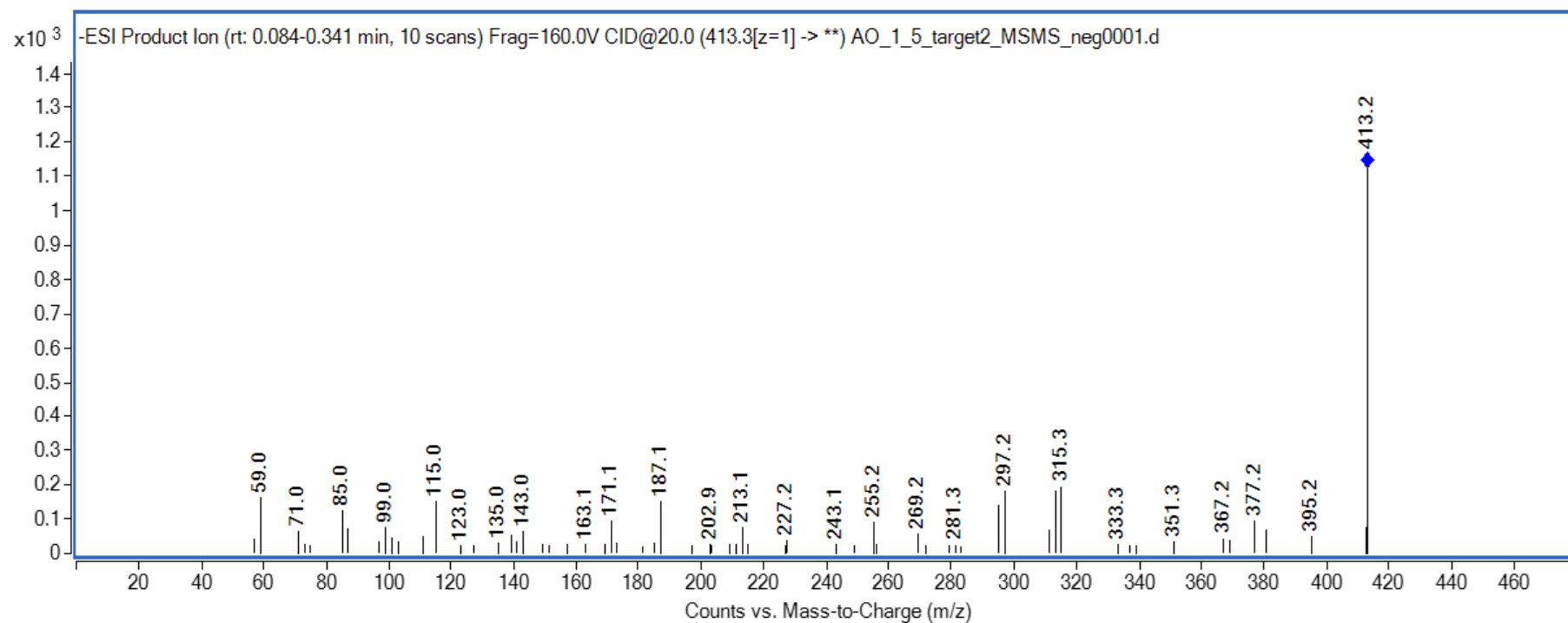


Figure S3. Mass spectrum of xylose monooleate with $m/z = 413.2$. Xylose: oleic acid molar ratio of 1:5.

Xylose dioleate $C_{41}H_{74}O_7$

1:5 [M-H]⁻ m/z 677.5 EC 22V

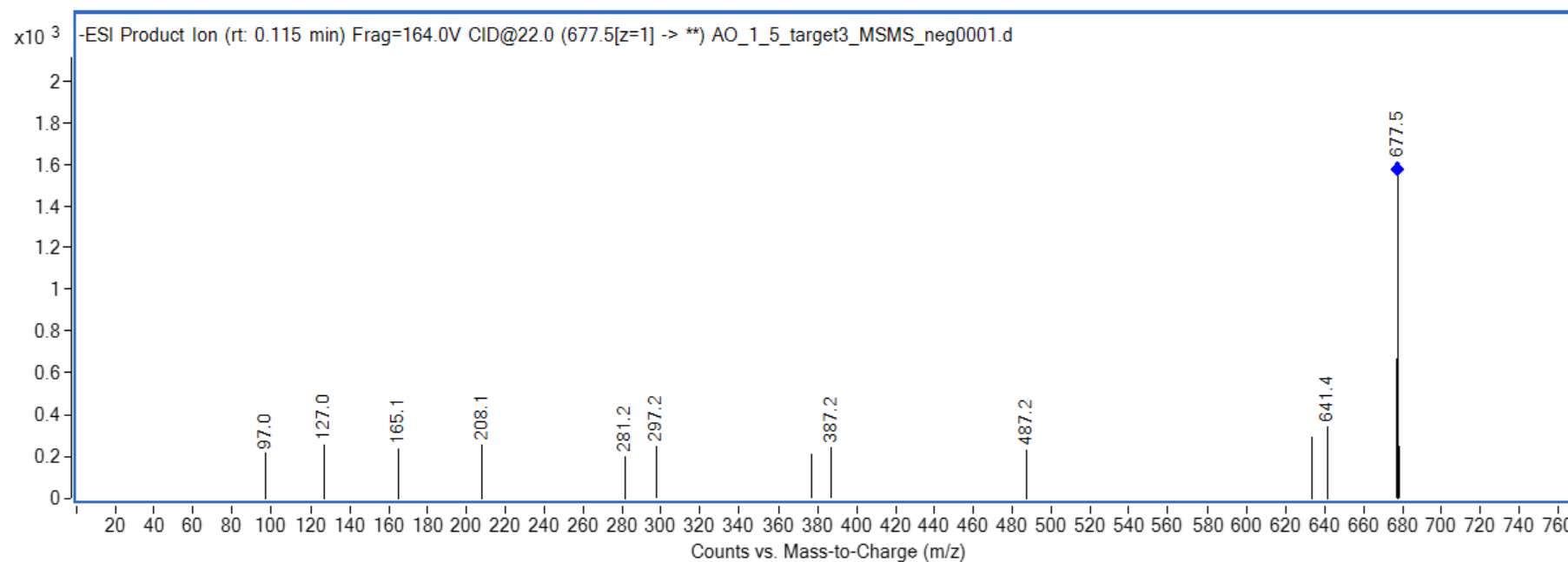


Figure S4. Mass spectrum of xylose dioleate with $m/z = 677.5$. Xylose: oleic acid molar ratio of 1:5.

Xylose trioleate $C_{59}H_{106}O_8$

1:5 [M-H]⁻ m/z 941.7 EC 20V

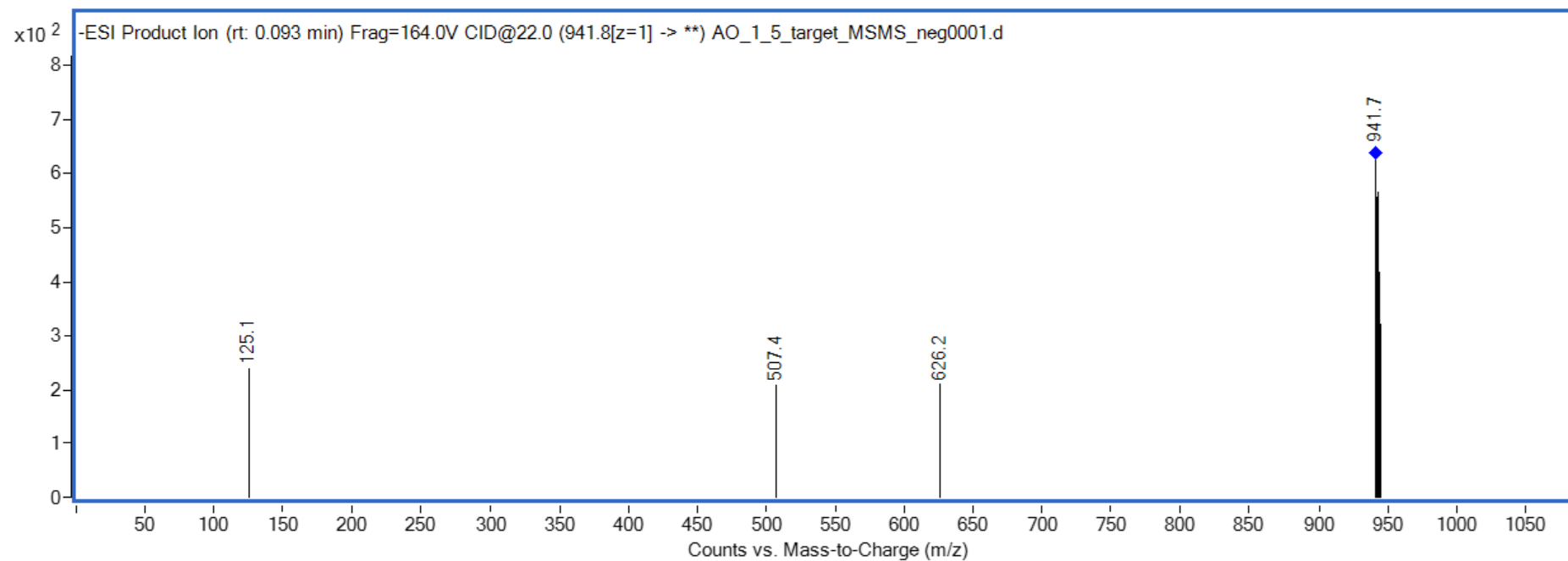


Figure S5. Mass spectrum of xylose trioleate with $m/z = 941.7$. Xylose: oleic acid molar ratio of 1:5.