

Supporting Material

Investigation of the catalytic activity and reaction kinetic modeling of two antimony catalysts in the synthesis of poly(ethylene furanoate)

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Table S1. Calculated conversions with Sb₂O₃ catalyst.

Time (h)	160 °C		170 °C		190 °C	
	Titration	NMR	Titration	NMR	Titration	NMR
0	0	0	0	0	0	0
0.5	23.8	23.1	30.6	26.1	53.2	65.8
1.0	31.9	33.2	42.1	51.4	72.3	78.7
1.5	40.2	44.3	58.3	66.6	83.5	86.7
2.0	47.8	52.7	66.9	72.1	88.1	89.8
2.5	55.3	61.1	73.4	78.9	91.7	92.2
3.0	61.3	66.1	77.7	81.0	92.1	92.6
3.5	65.6	70.9	80.9	83.6	95.7	95.5
4.0	69	74	84.2	86.2	96.8	96.6

Table S2. Calculated conversions with Sb(CH₃COO)₃ catalyst.

Time (h)	160 °C		170 °C		190 °C	
	Titration	NMR	Titration	NMR	Titration	NMR
0	0	0	0	0	0.0	0
0.5	10.3	12.5	29.9	35.3	61.6	61.8
1.0	15.4	16.6	45.0	49.7	77.8	79.0
1.5	24.2	30.6	58.6	65.5	84.1	83.8
2.0	34.4	41.2	66.5	73.3	89.0	87.9
2.5	41.3	49.2	71.2	78.2	90.3	93.3
3.0	53.1	58.1	77.0	81.1	93.3	95.2
3.5	60.5	67.9	80.9	83.3	94.3	96.6
4.0	65.6	71.3	82.0	84.1	96.1	97.7

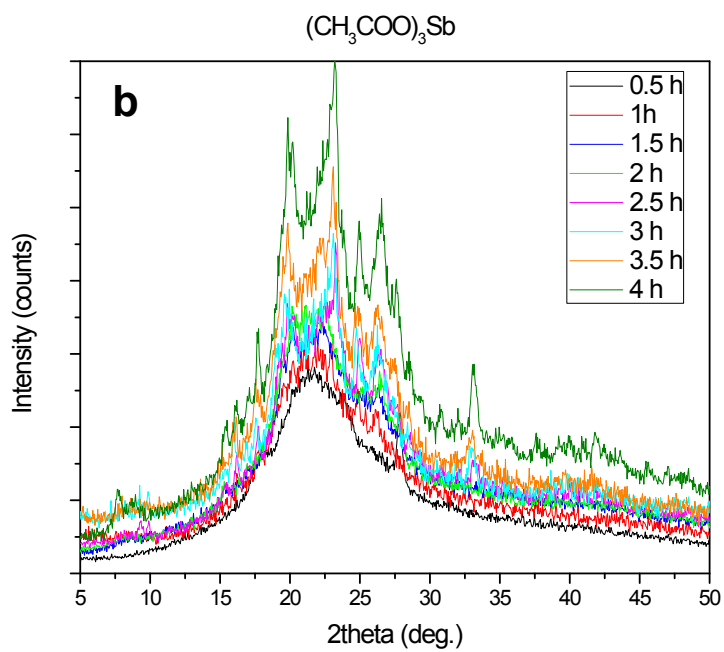
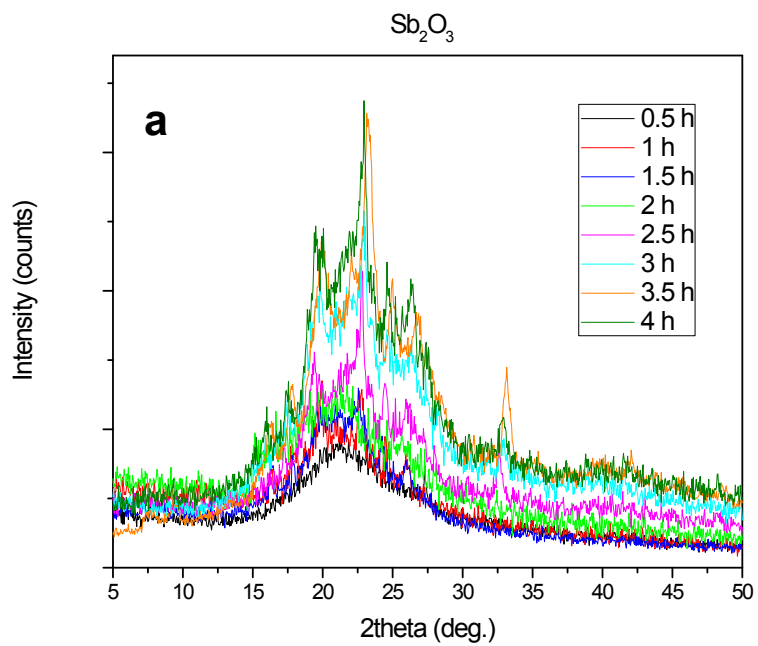
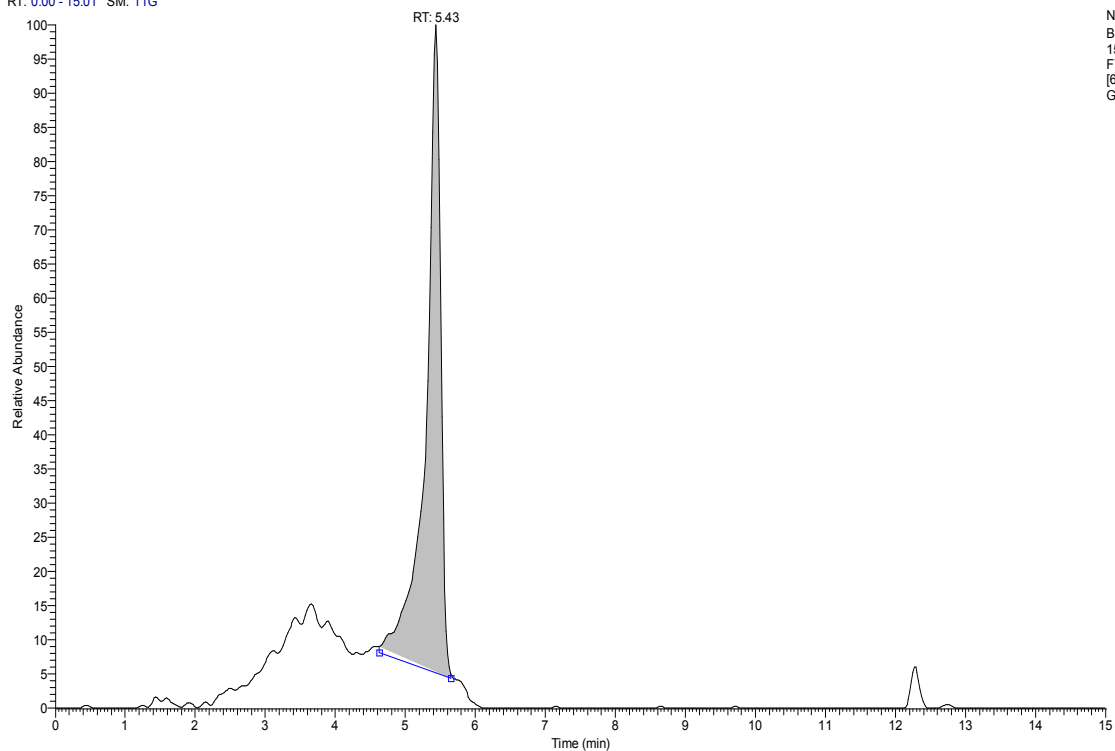


Figure S1. XRD patterns of collected oligomers for different esterification times at 190°C for a) Sb_2O_3 and b) $(\text{CH}_3\text{COO})_3\text{Sb}$ catalysts.

FDCA

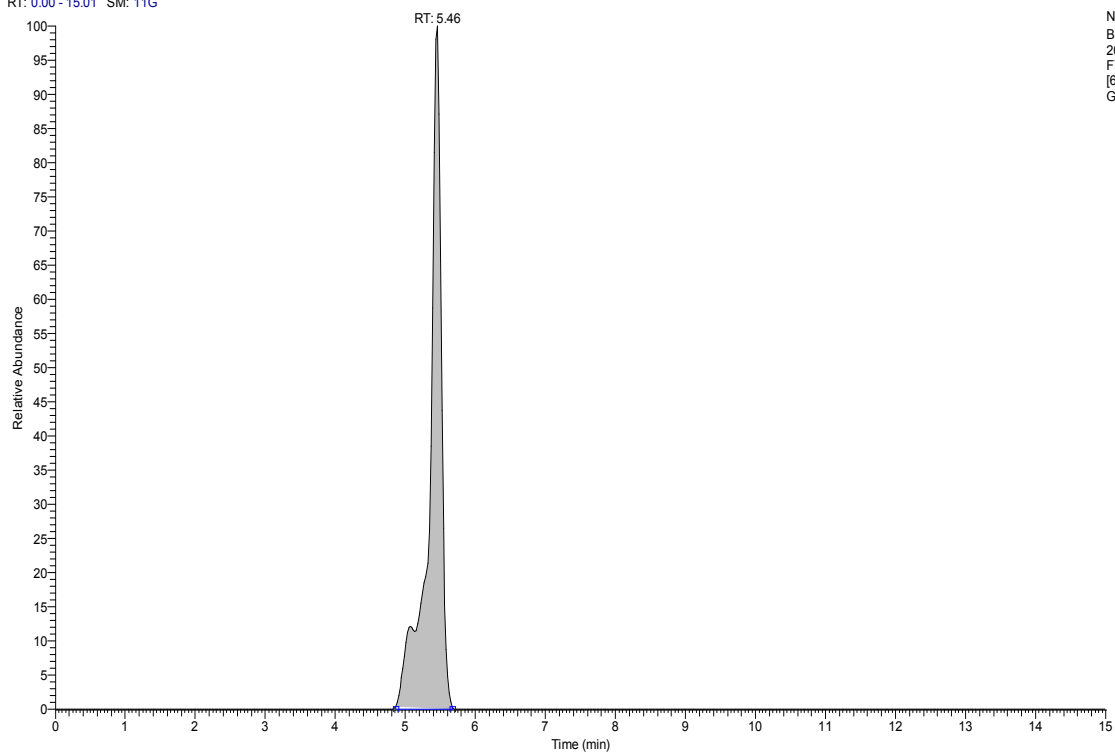
RT: 0.00 - 15.01 SM: 11G



NL: 1.05E6
Base Peak m/z:
157.0124-157.0140 F:
FTMS + p ESI Full ms
[60.0000-900.0000] MS
Genesis 190_120min

C₈H₈O₆ (Monomer)

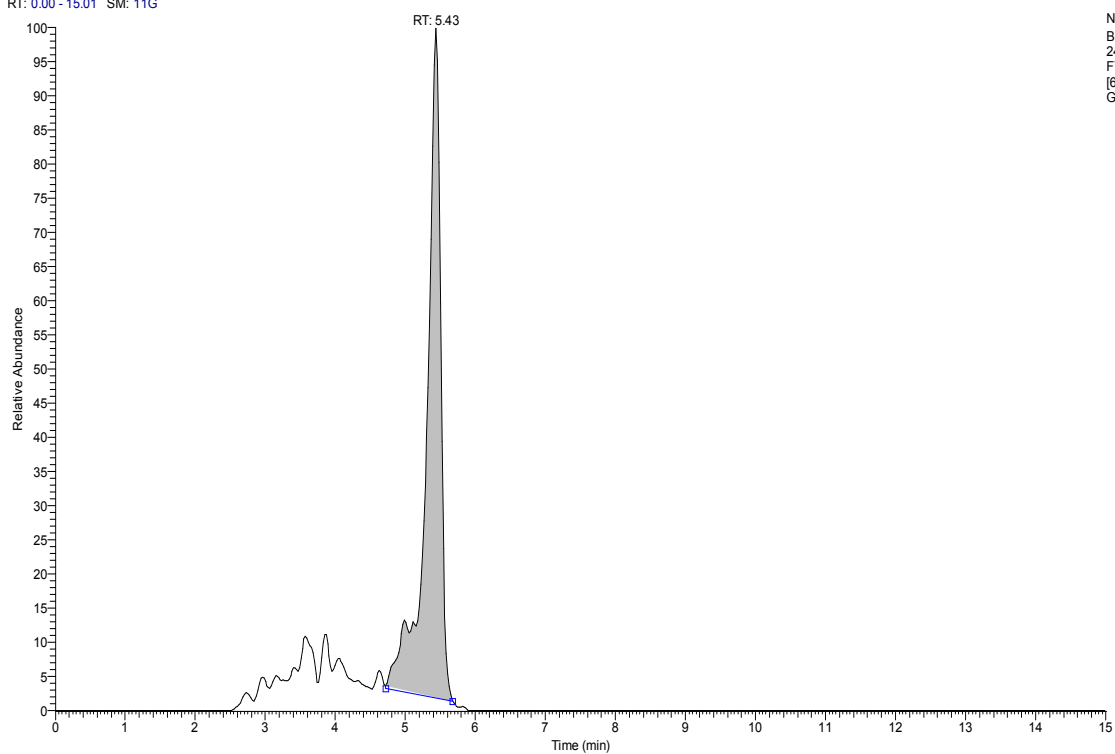
RT: 0.00 - 15.01 SM: 11G



NL: 4.67E5
Base Peak m/z:
201.0390-201.0398 F:
FTMS + p ESI Full ms
[60.0000-900.0000] MS
Genesis 190_120min

C₁₀H₁₂O₇ (Monomer)

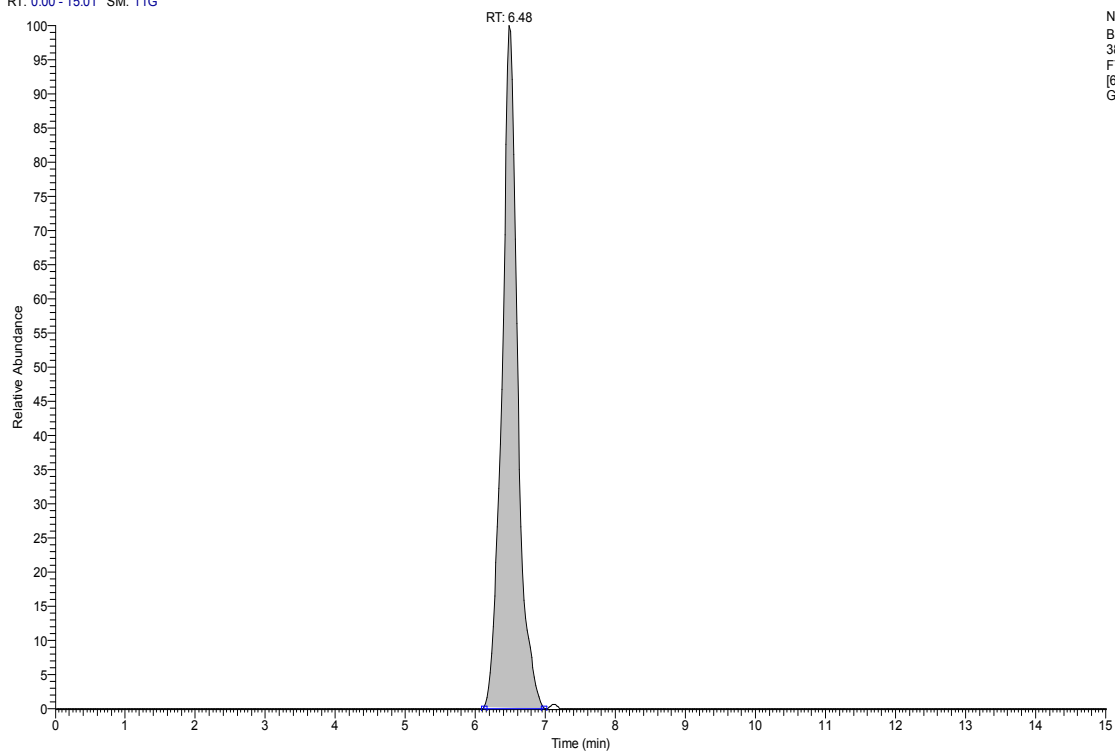
RT: 0.00 - 15.01 SM: 11G



NL: 7.76E5
Base Peak m/z=
245.0651-245.0661 F:
FTMS + p ESI Full ms
[60.0000-900.0000] MS
Genesis 190_120min

C₁₆H₁₄O₁₁ (Dimer)

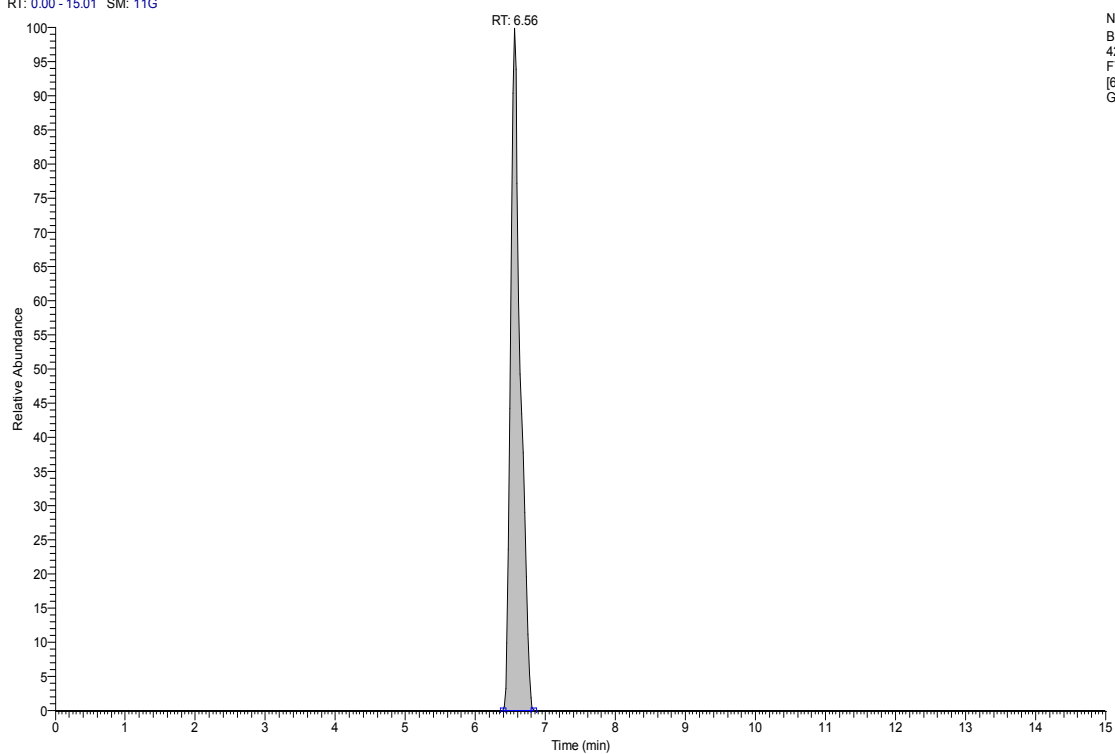
RT: 0.00 - 15.01 SM: 11G



NL: 1.02E5
Base Peak m/z=
381.0455-381.0471 F:
FTMS - p ESI Full ms
[60.0000-900.0000] MS
Genesis 190_120min

$C_{18}H_{18}O_{12}$ (Dimer)

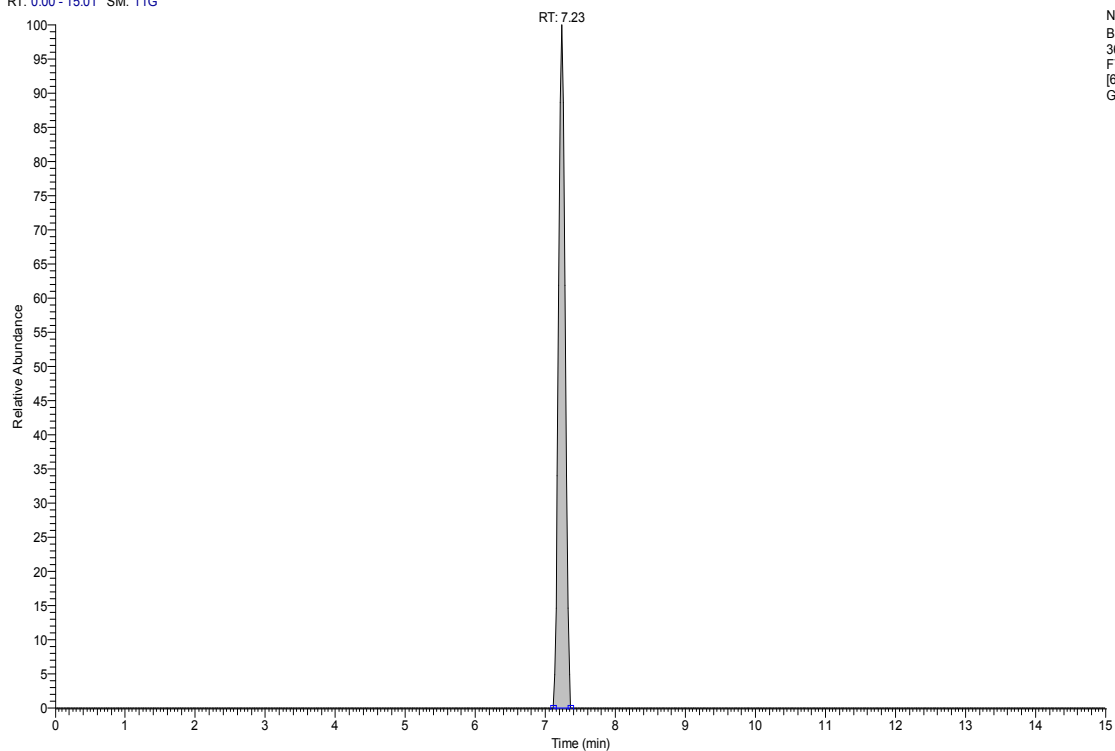
RT: 0.00 - 15.01 SM: 11G



NL: 1.95E5
Base Peak m/z=
427.0862-427.0880 F:
FTMS + p ESI Full ms
[60.0000-900.0000] MS
Genesis 190_120min

$C_{16}H_{12}O_{10}$ (Dimer)

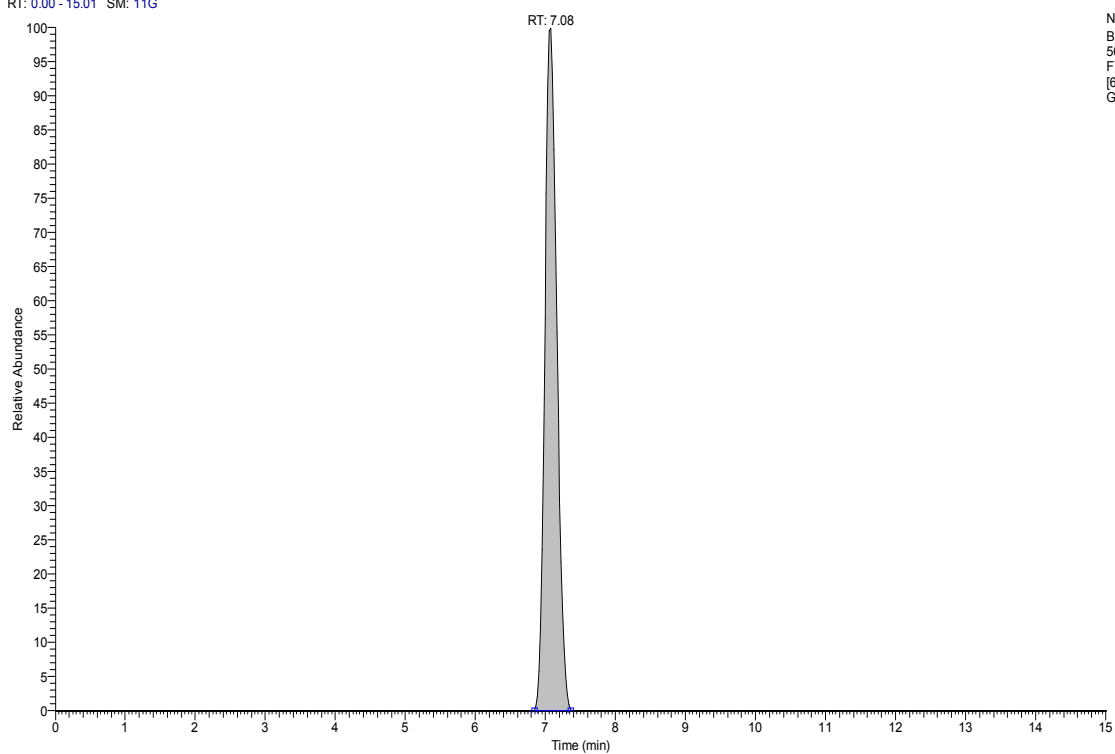
RT: 0.00 - 15.01 SM: 11G



NL: 4.70E3
Base Peak m/z=
365.0496-365.0510 F:
FTMS + p ESI Full ms
[60.0000-900.0000] MS
Genesis 190_120min

$C_{24}H_{20}O_{16}$ (Trimer)

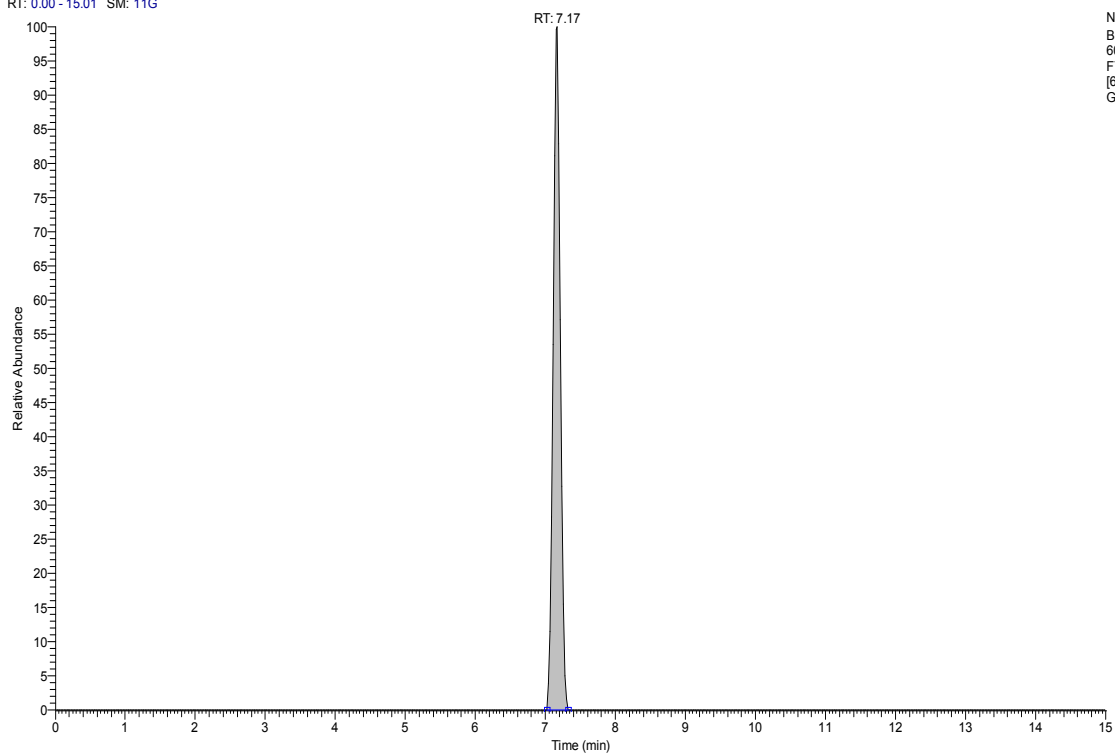
RT: 0.00 - 15.01 SM: 11G



NL: 3.13E4
Base Peak m/z=
563.0668-563.0690 F:
FTMS - p ESI Full ms
[60.0000-900.0000] MS
Genesis 190_120min

$C_{26}H_{24}O_{17}$ (Trimer)

RT: 0.00 - 15.01 SM: 11G



NL: 3.27E4
Base Peak m/z=
609.1074-609.1098 F:
FTMS + p ESI Full ms
[60.0000-900.0000] MS
Genesis 190_120min

Figure S2. Total Ion chromatograms for FDCA and the detected oligomers.