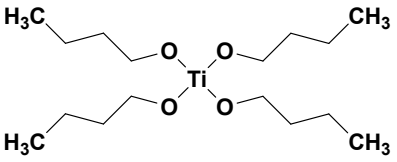
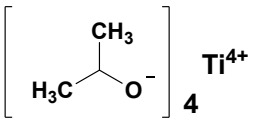
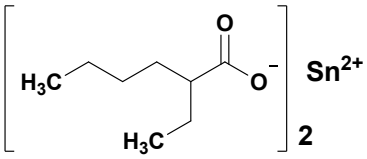
Supplementary Information



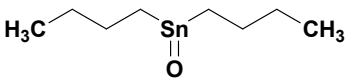
TBT: Tetrabutoxytitanate



TIS: Titanium isopropoxide



TEH: Tin-2-ethylhexanoate



DBTO: Dibutyltin(IV)oxide

Scheme S1. Molecular structure and names of used catalysts

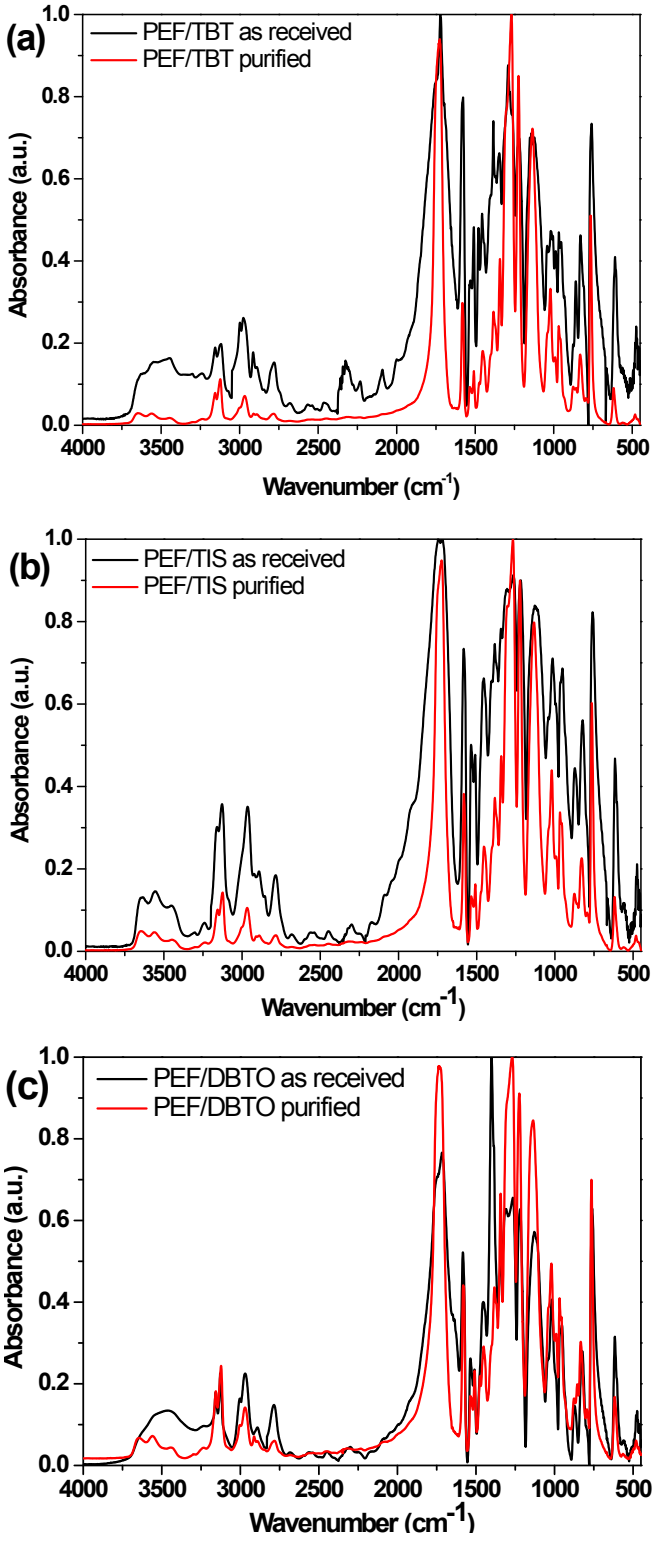


Figure S1. FTIR spectra PEF samples prepared using different catalysts, before and after purification.

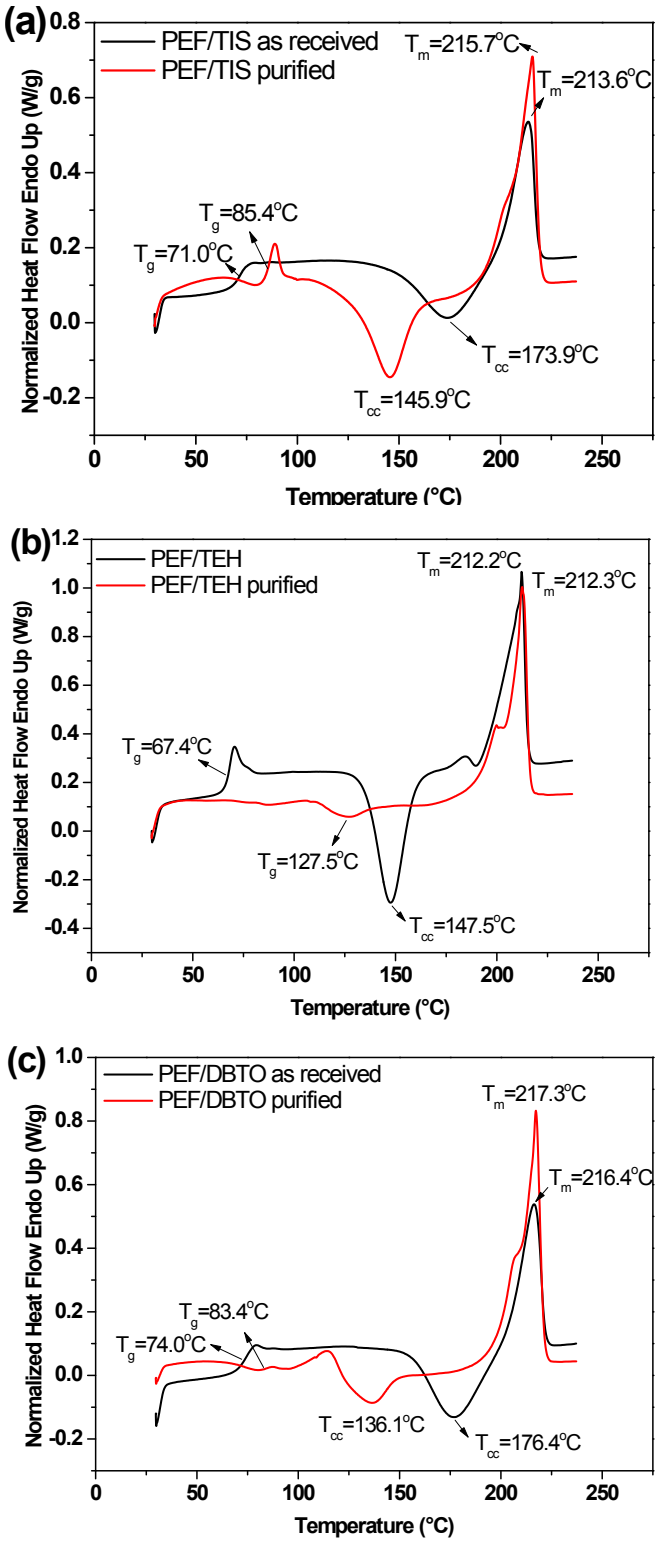


Figure S2. DSC thermographs of PEF samples prepared using different catalysts, before and after purification.

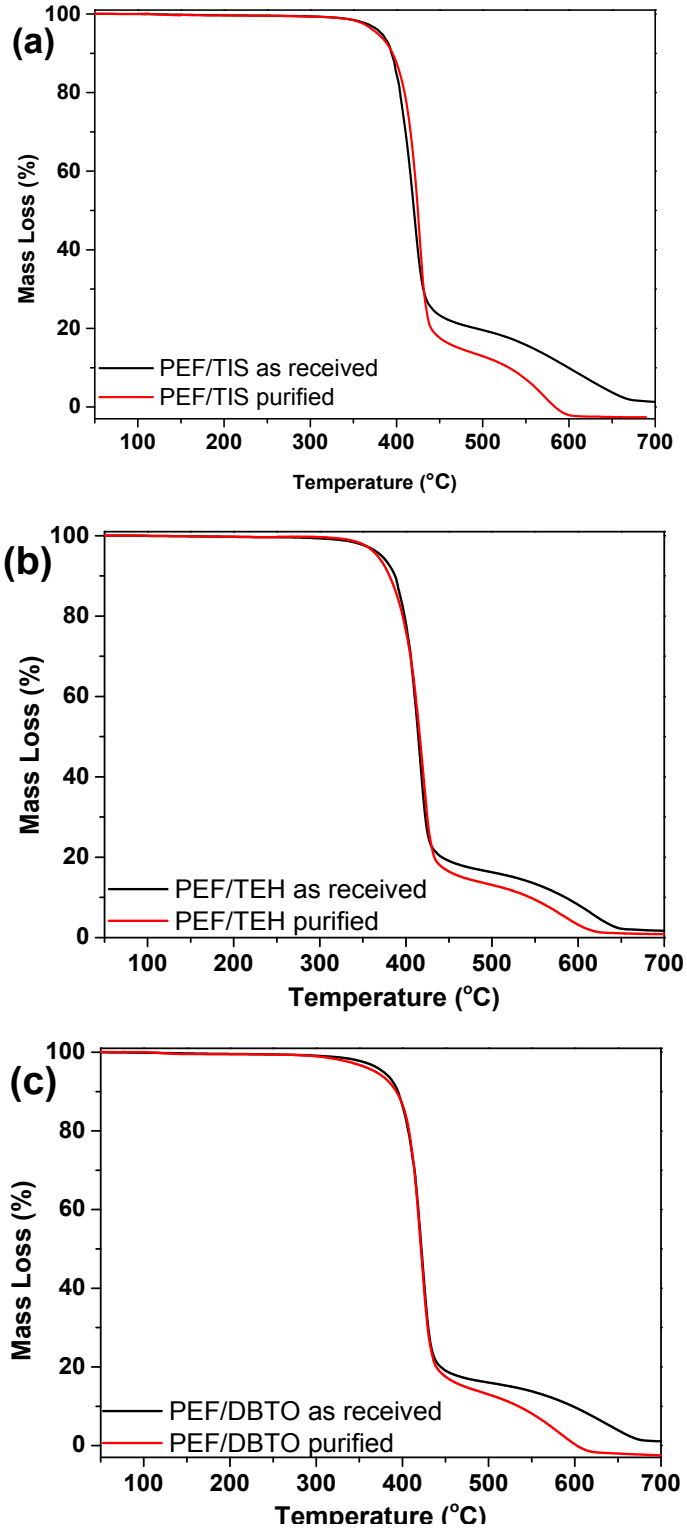
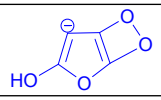
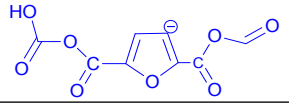
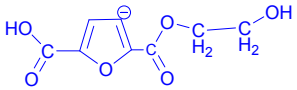
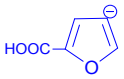
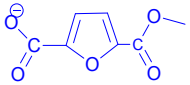
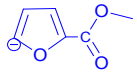
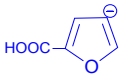
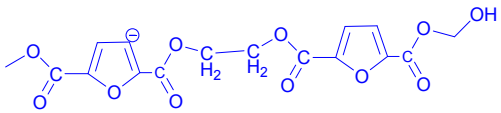
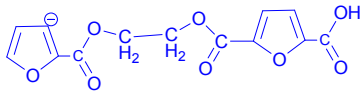
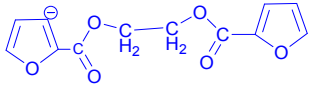
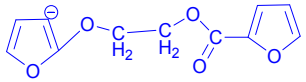
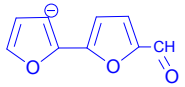
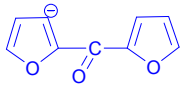
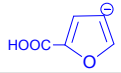
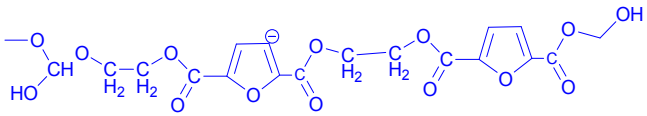
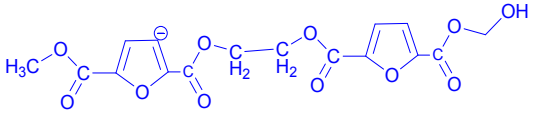
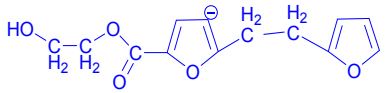
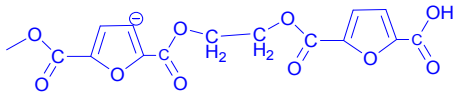
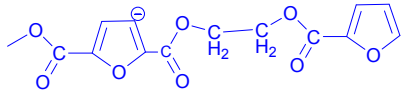
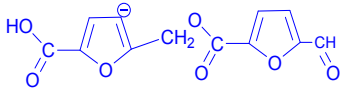
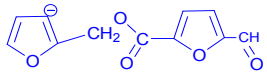
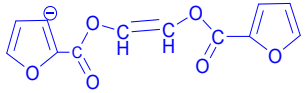
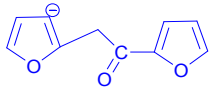
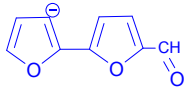
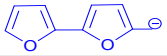
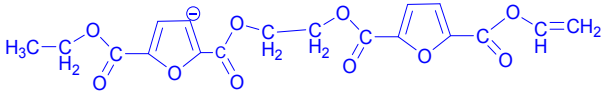
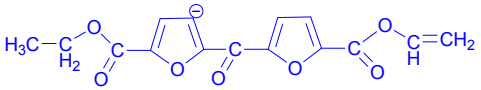
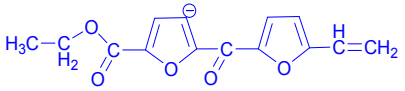


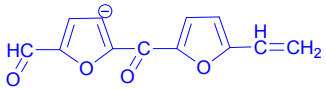
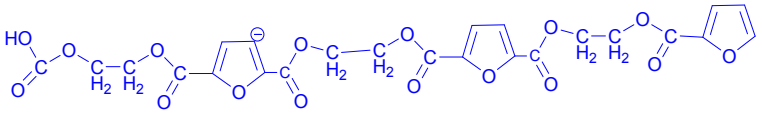
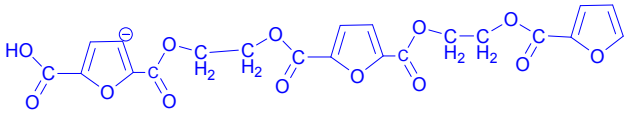
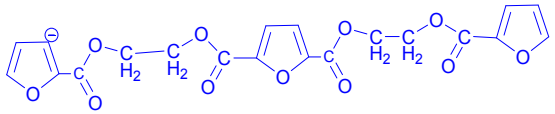
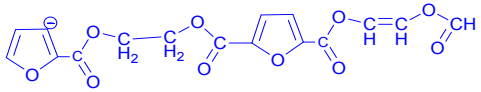
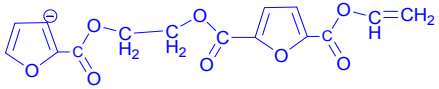
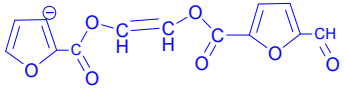
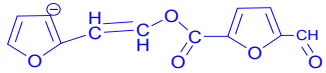
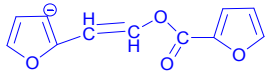
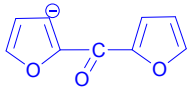
Figure S3. TGA thermographs of PEF samples prepared using different catalysts, before and after purification.

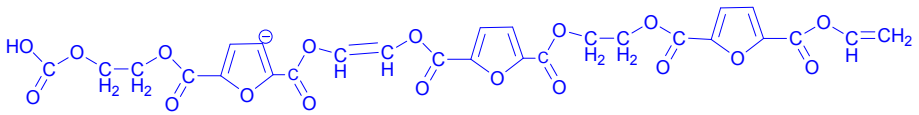
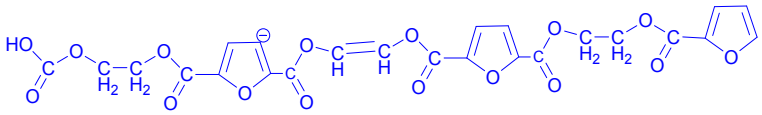
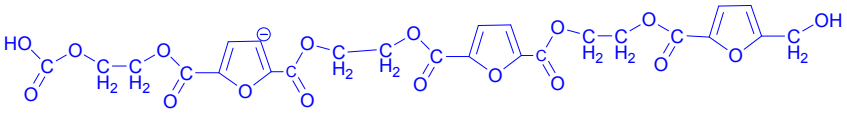
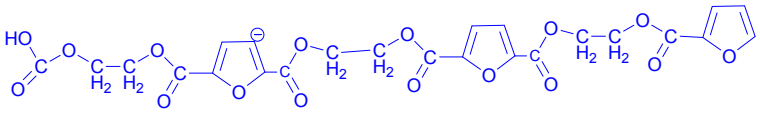
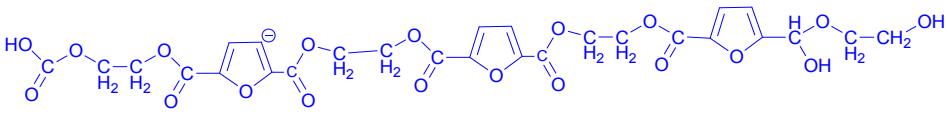
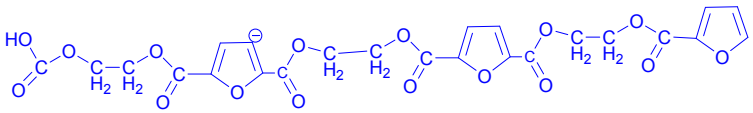
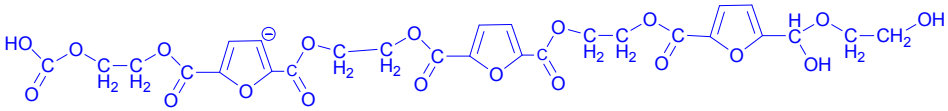
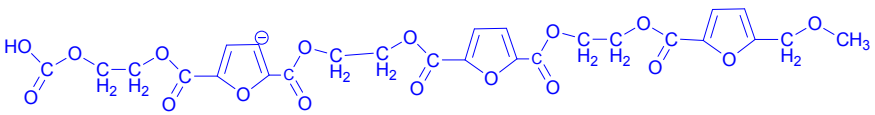
Table S1. Corresponding retention times, tentative structure, elemental composition, experimental and theoretical mass information, mass error deviation and double bond and ring equivalent number (RDB) of the detected byproducts.

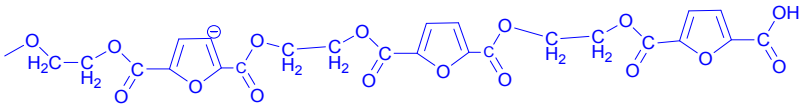
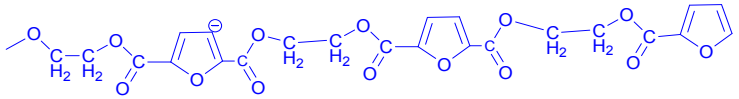
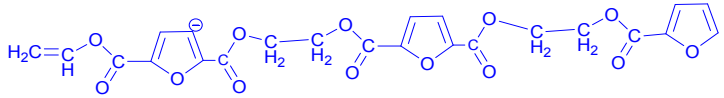
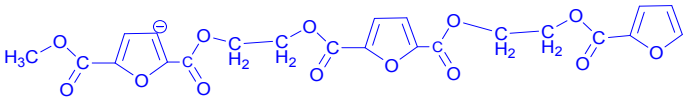
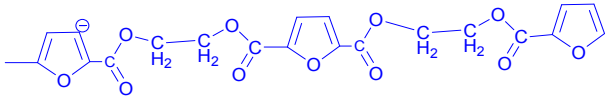
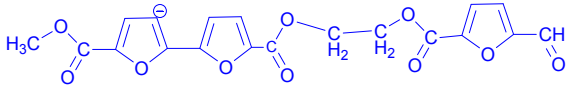
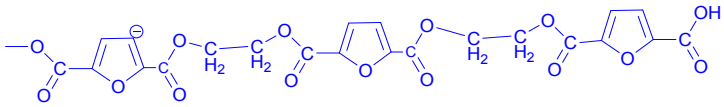
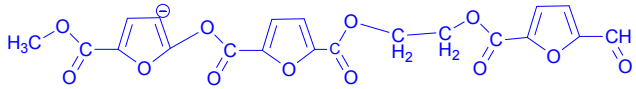
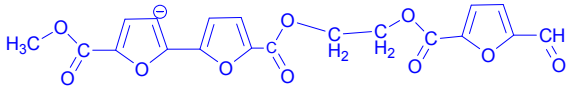
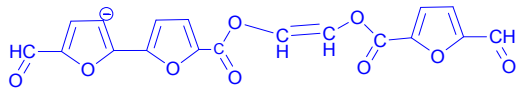
Degradation products	RT (min)	Tentative Structure	Elemental composition	Accurate Mass			
				Experimental	Theoretical	RDB	Error (ppm)
DP1	**1.25**		**$C_4HO_4^-$**	**112.9856**	**112.9880**	**4.5**	**-2.432**
DP2	**1.27**		**$C_8H_3O_8^-$**	**226.9788**	**226.9833**	**7.5**	**-4.454**
DP 3	**5.86-6.1(**		**$C_8H_7O_6^-$**	**199.0248**	**199.0248**	**5.5**	**-0.011**
			$C_5H_3O_3^-$	111.0087	111.0088	4.5	-0.067
DP 4	**7.18**		**$C_7H_5O_5^-$**	**169.0139**	**169.0142**	**5.5**	**-0.347**
			$C_6H_5O_3^-$	125.0244	125.0244	4.5	-0.017
			$C_5H_3O_3^-$	111.001	111.0091	4.5	0.333
DP 5	**9.32**		**$C_{16}H_{13}O_{11}^-$**	**381.0457**	**381.0463**	**10.5**	**-0.634**

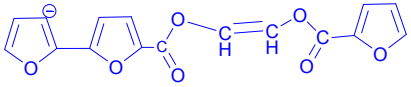
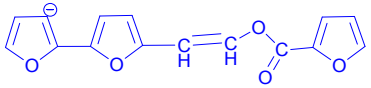
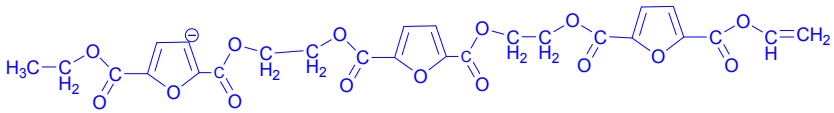
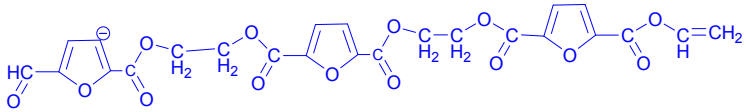
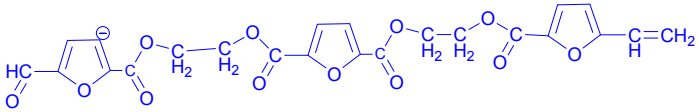
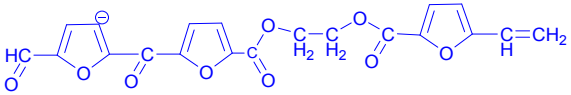
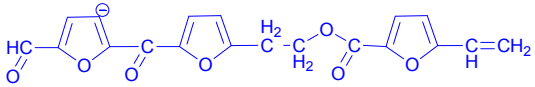
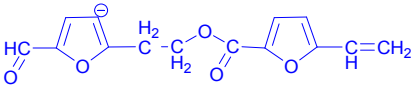
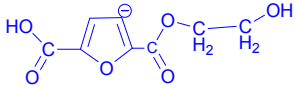
			$C_{13}H_9O_8$-	293.0297	293.0303	10.5	-0.634
			$C_{12}H_9O_6$-	249.0403	249.0405	8.5	-0.161
			$C_{11}H_9O_5$-	221.0456	221.0455	7.5	-0.053
			$C_9H_5O_3$-	161.0246	161.0244	7.5	-0.183
			$C_8H_5O_2$-	133.0287	133.0295	6.5	-0.803
			$C_5H_3O_3$-	111.0074	11.0088	4.5	-1.360
DP6	**9.61**		**$C_{19}H_{19}O_{14}$-**	**471.0777**	**471.0780**	**10.5**	**-0.328**
			$C_{16}H_{13}O_{11}$-	381.0458	381.0463	10.5	-0.534
			$C_{13}H_{13}O_5$-	249.0805	249.0768	7.5	3.653

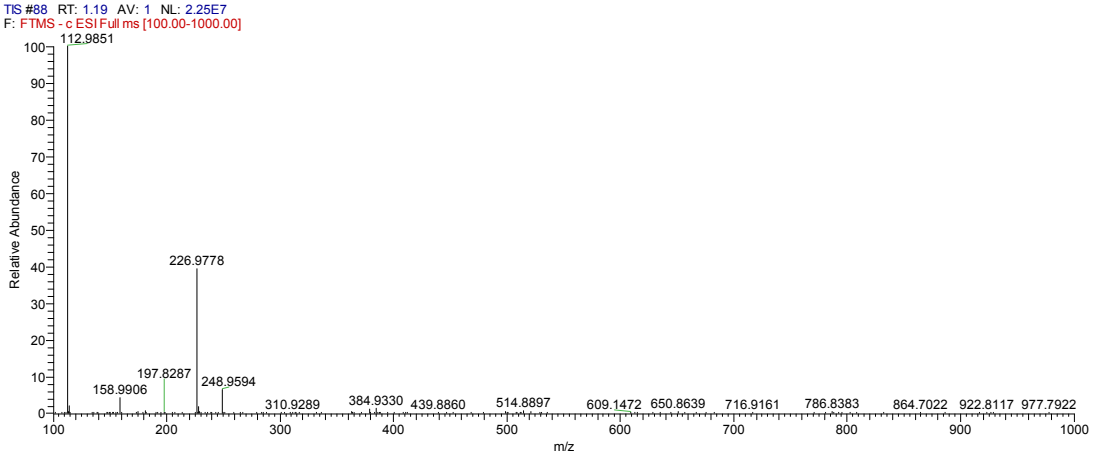
DP7	**10.26-10.5(**		**$C_{15}H_{11}O_{10}$-**	**351.0349**	**351.0358**	**10.5**	**-0.870**
			$C_{14}H_{11}O_8$-	307.0454	307.0459	9.5	-0.541
			$C_{12}H_7O_7$-	263.0193	263.0197	9.5	-0.426
			$C_{11}H_7O_5$-	219.0298	219.0299	8.5	-0.097
			$C_{12}H_7O6$-	247.0253	247.0248	9.5	0.489
			$C_{10}H_7O_3$-	175.0401	175.401	7.5	0.033
			$C_9H_5O_3$-	161.0240	161.0244	7.5	-0.417
			$C_9H_7O_2$-	147.0461	147.0452	6.5	0.947
DP8	**10.84**		**$C_{18}H_{15}O_{10}$-**	**391.0658**	**391.0671**	**11.5**	**-1.270**
			$C_{15}H_{11}O_7$-	303.0510	303.0510	10.5	-0.026
			$C_{14}H_{11}O_5$-	259.0607	259.0612	9.5	-0.497

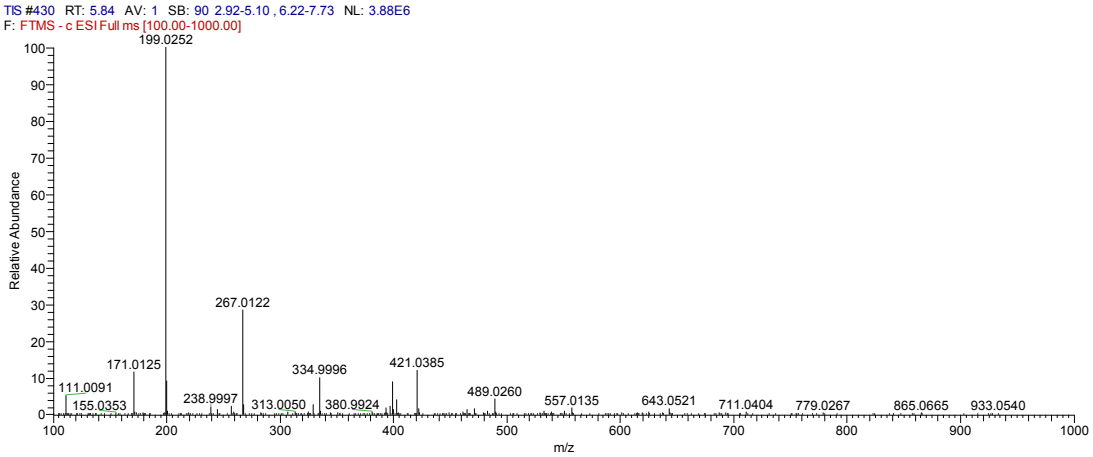
			$C_{12}H_7O_4$-	215.0346	215.0350	9.5	-0.382
DP9	**10.98**		**$C_{24}H_{19}O_{16}$-**	**563.0671**	**563.0679**	**15.5**	**-0.758**
			$C_{21}H_{15}O_{13}$-	475.0511	475.0518	14.5	-0.717
			$C_{20}H_{15}O_{11}$-	431.0614	431.0620	13.5	-0.584
			$C_{16}H_{11}O_{10}$-	363.0356	363.0358	11.5	-0.170
			$C_{15}H_{11}O_8$-	319.0456	319.0459	10.5	-0.341
			$C_{13}H_7O_7$-	275.0297	275.0197	10.5	9.974
			$C_{12}H_7O_5$-	231.0299	231.0299	9.5	-0.003
			$C_{11}H_7O4$-	203.0354	203.0350	8.5	0.418
			$C_9H_5O_3$-	161.0245	161.0244	7.5	0.083

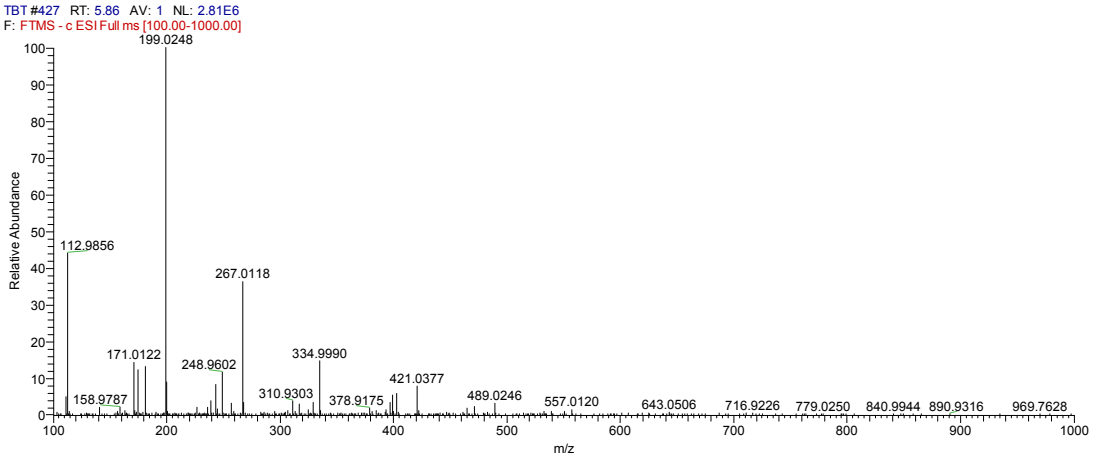
DP10	**11.00**		**$C_{27}H_{19}O_{18}$-**	**631.0535**	**631.0577**	**18.5**	**-4.187**
			$C_{24}H_{17}O_{16}$-	561.0522	561.0522	16.5	-4.187
DP11	**11.02**		**$C_{25}H_{21}O_{17}$-**	**593.0769**	**593.0784**	**15.5**	**-1.522**
			$C_{24}H_{19}O_{16}$-	563.0657	563.0679	15.5	-2.158
DP12	**11.025**		**$C_{27}H_{25}O_{19}$-**	**653.0979**	**653.0996**	**15.5**	**-1.652**
			$C_{24}H_{19}O_{16}$-	563.0690	563.0679	15.5	1.142
DP13	**11.27**		**$C_{27}H_{23}O_{19}$-**	**651.0817**	**651.0839**	**16.5**	**-2.205**
			$C_{26}H_{23}O_{17}$-	607.0944	607.0941	15.5	0.228

DP14	**11.74**		**$C_{25}H_{21}O_{16}$-**	**577.0829**	**577.0835**	**15.5**	**-0.608**
			$C_{24}H_{21}O_{14}$-	533.0930	533.0937	14.5	-0.678
			$C_{23}H_{17}O_{13}$-	501.0671	501.0675	15.5	-0.364
			$C_{22}H_{17}O_{13}$-	489.0667	489.0675	14.5	-0.764
			$C_{21}H_{17}O_{11}$-	445.0749	445.0776	13.5	-2.375
			$C_{19}H_{13}O_{10}$-	401.0512	401.0514	13.5	-0,220
DP15	**11.8**		**$C_{23}H_{17}O_{15}$-**	**533.0562**	533.0573	15.5	-1.093
			$C_{20}H_{13}O_{12}$-	445.0413	445.0412	14.5	0.051
			$C_{19}H_{13}O_{10}$-	401.0510	401.0514	13.5	-0.420
			$C_{18}H_9O_9$-	369.0254	369.0252	14.5	0.195

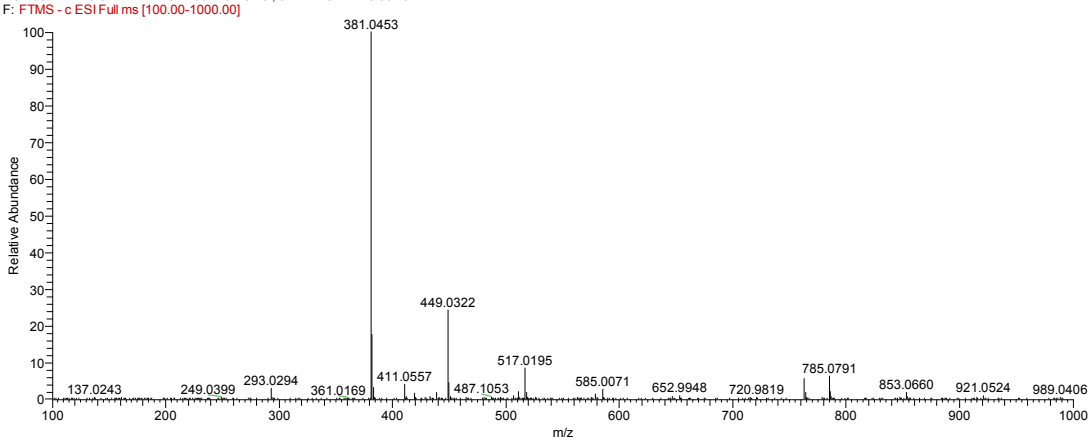
			$C_{16}H_9O_7$-	313.0348	313.0354	12.5	-0.576
			$C_{15}H_9O_5$-	269.0452	269.0455	11.5	-0.342
DP16	**12.27**		**$C_{26}H_{21}O_{15}$-**	**573.0876**	573.0886	16.5	-0.993
			$C_{24}H_{17}O_{14}$-	529.0616	529.0624	16.5	-0.778
			$C_{23}H_{17}O_{12}$-	485.0717	485.0725	15.5	-0.849
			$C_{20}H_{13}O_9$-	397.0560	397.0565	14.5	-0.505
			$C_{19}H_{13}O7$-	353.0661	353.0667	13.5	-0.576
			$C_{14}H_{11}O5$-	259.0600	259.0612	9.5	-1.197
			$C_8H_7O_6$-	199.0247	199.0248	5.5	-0.111


TIS #88 RT: 1.19 AV: 1 NL: 2.25E7
F: FTMS - c ESI Full ms [100.00-1000.00]
112.9851
226.9778
197.8287
158.9906
248.9594
310.9289
384.9330
439.8860
514.8897
609.1472
650.8639
716.9161
786.8383
864.7022
922.8117
977.7922
Relative Abundance
m/z

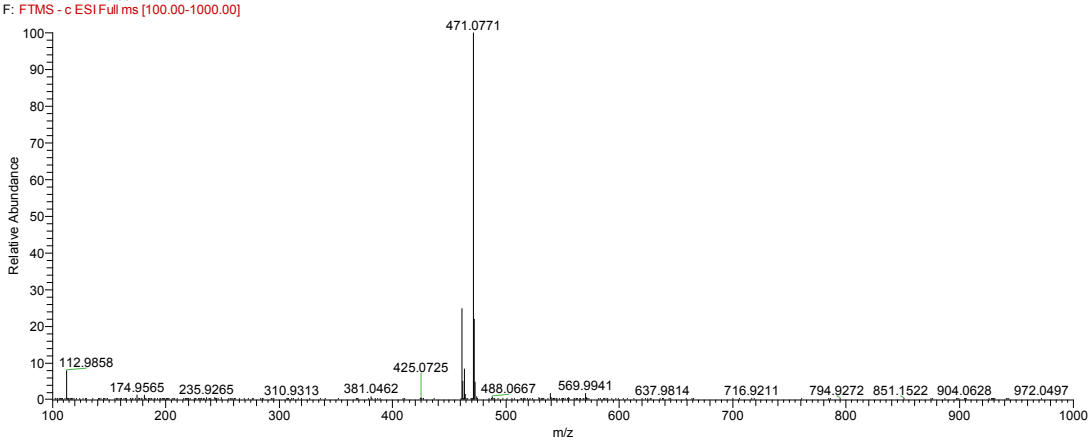

TIS #430 RT: 5.84 AV: 1 SB: 90 2.92-5.10 , 6.22-7.73 NL: 3.88E6
F: FTMS - c ESI Full ms [100.00-1000.00]
199.0252
267.0122
171.0125
334.9996
421.0385
111.0091
155.0353
238.9997
313.0050
380.9924
489.0260
557.0135
643.0521
711.0404
779.0267
865.0665
933.0540
Relative Abundance
m/z


TBT #427 RT: 5.86 AV: 1 NL: 2.81E6
F: FTMS - c ESI Full ms [100.00-1000.00]
199.0248
112.9856
267.0118
171.0122
248.9602
334.9990
421.0377
158.9787
310.9303
378.9175
489.0246
557.0120
643.0506
716.9226
779.0250
840.9944
890.9316
969.7628
Relative Abundance
m/z

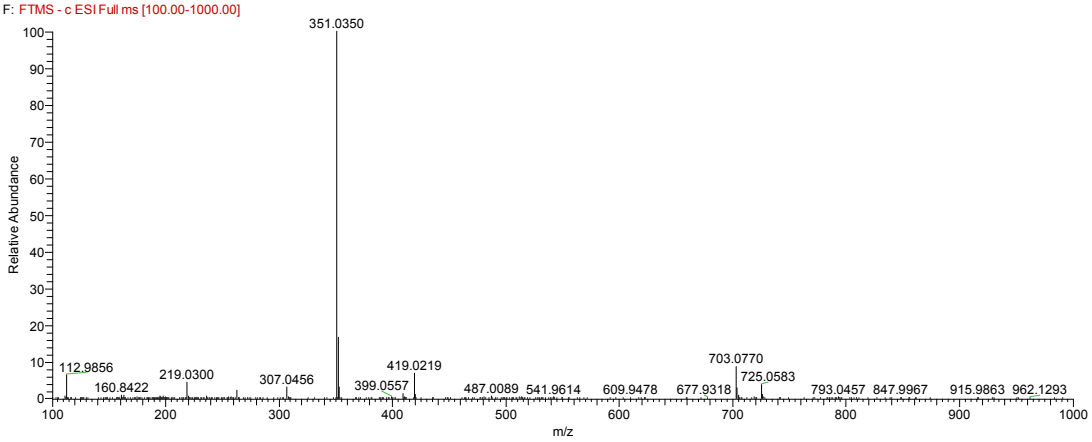
TIS #682 RT: 9.34 AV: 1 SB: 90 2.92-5.10 , 6.22-7.73 NL: 6.89E6
F: FTMS - c ESI Full ms [100.00-1000.00]



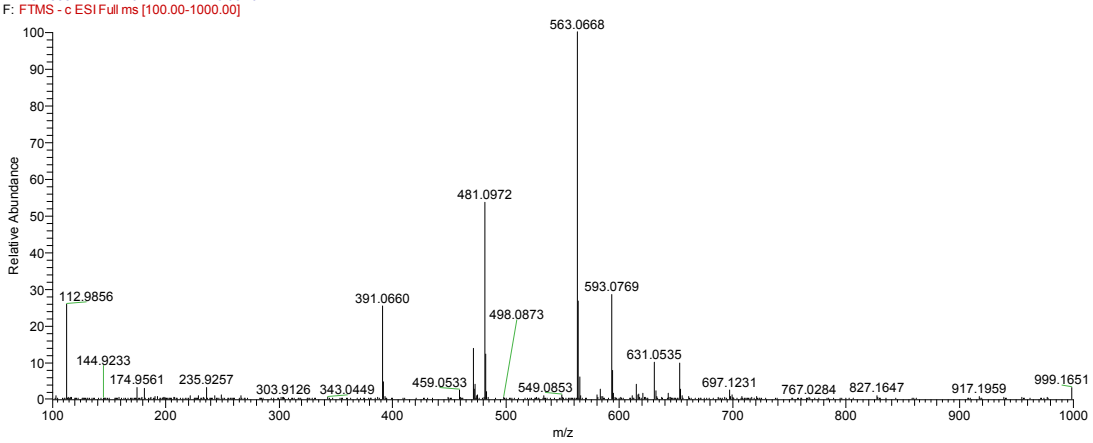
DBTO #742 RT: 9.89 AV: 1 NL: 1.21E7
F: FTMS - c ESI Full ms [100.00-1000.00]



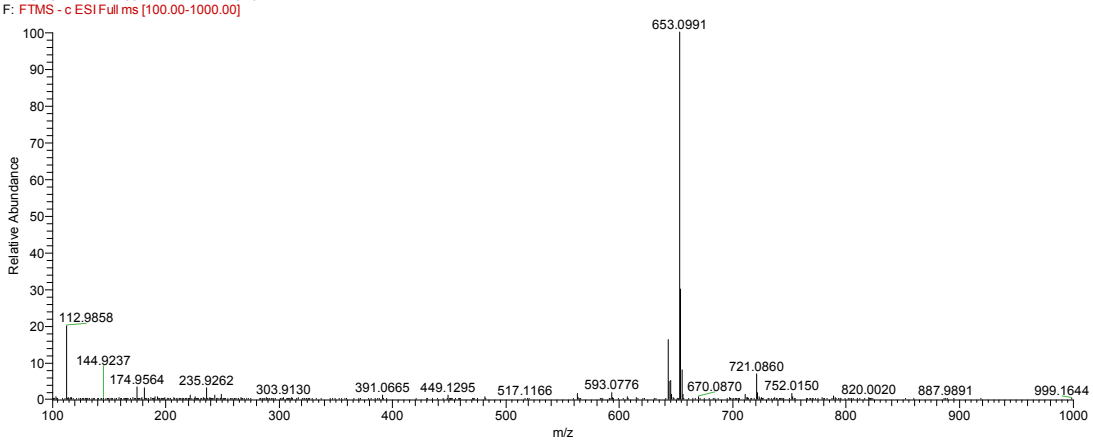
TEH #790 RT: 10.54 AV: 1 NL: 1.28E7
F: FTMS - c ESI Full ms [100.00-1000.00]



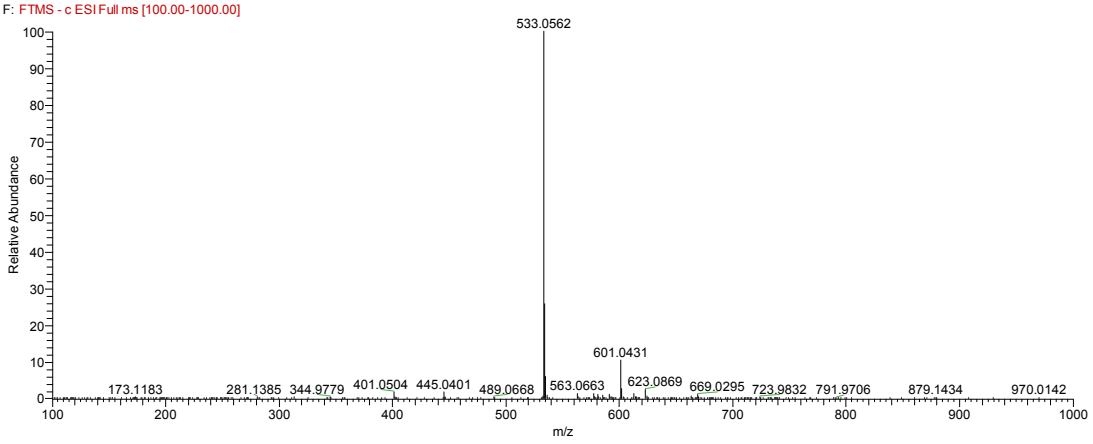
DBTO #838 RT: 11.20 AV: 1 NL: 3.93E6
F: FTMS - c ESI Full ms [100.00-1000.00]



DBTO #847 RT: 11.33 AV: 1 NL: 4.76E6
F: FTMS - c ESI Full ms [100.00-1000.00]



TEH #886 RT: 11.89 AV: 1 SB: 133 5.87-11.26 NL: 9.35E6
F: FTMS - c ESI Full ms [100.00-1000.00]



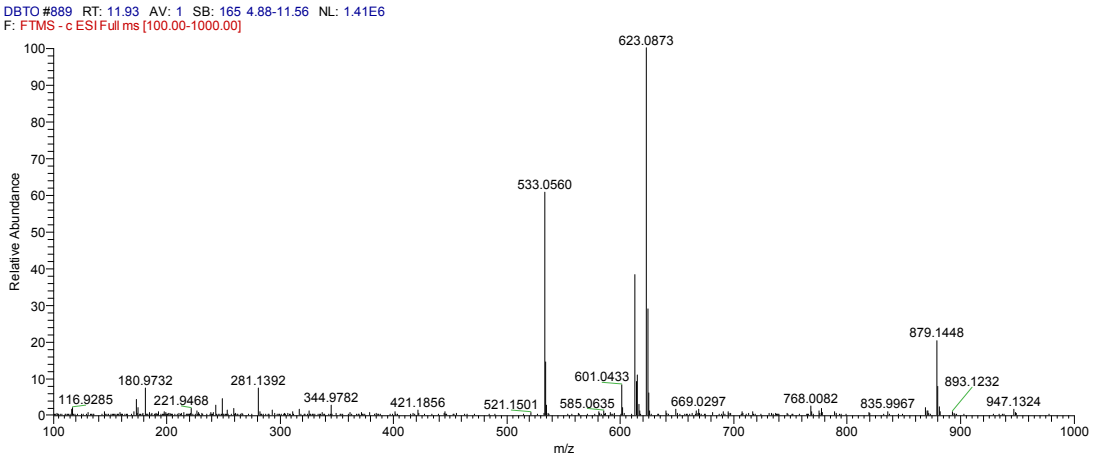


Figure S4. ESI-LTQ Orbitrap-MS and MS/MS spectra of DP recorded at different retention times.