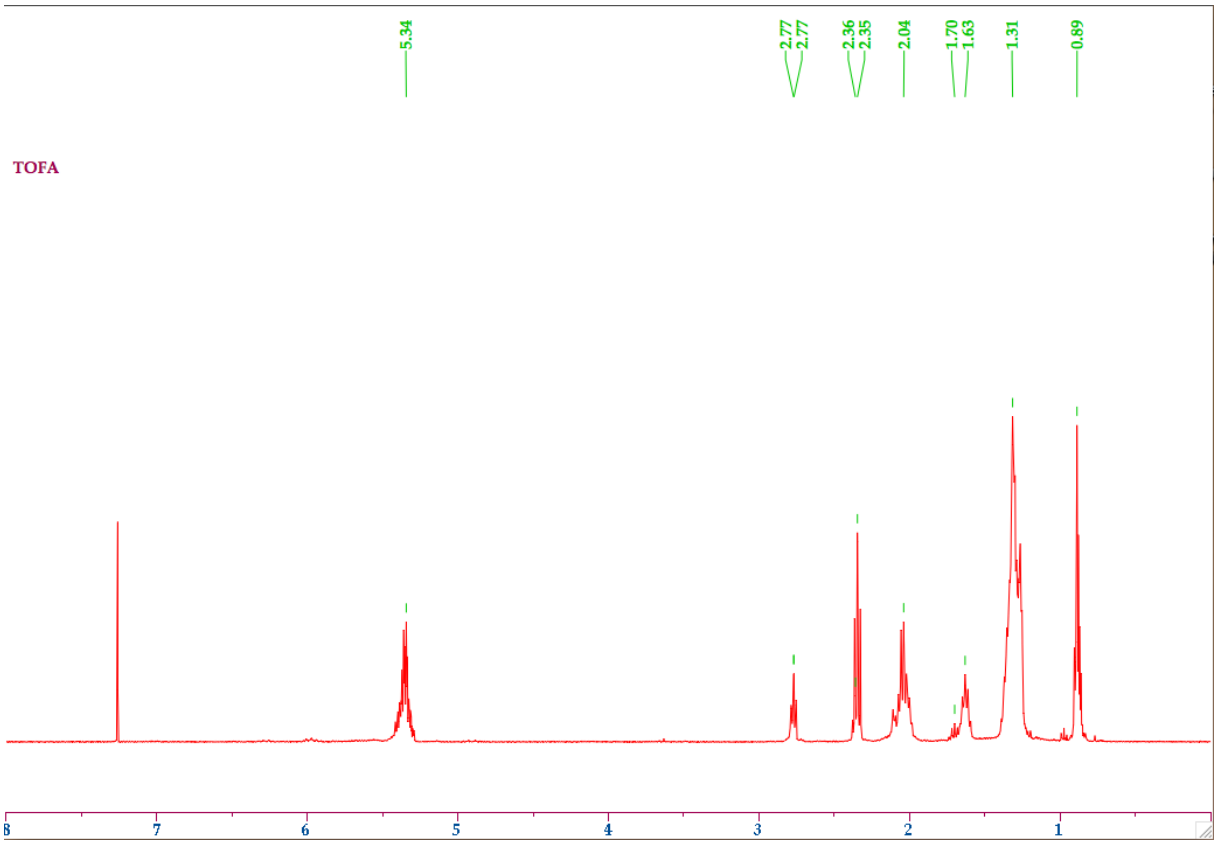
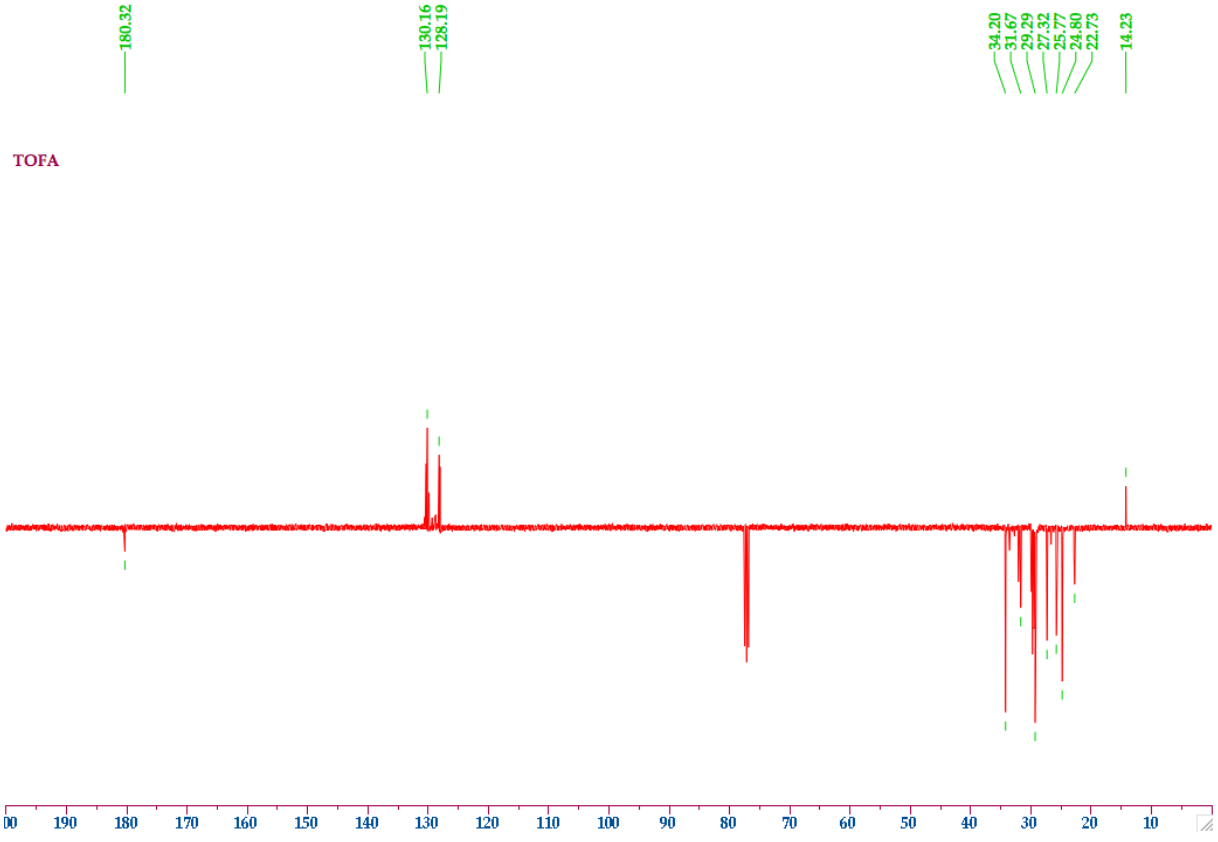
Supplementary materials

Tall Oil

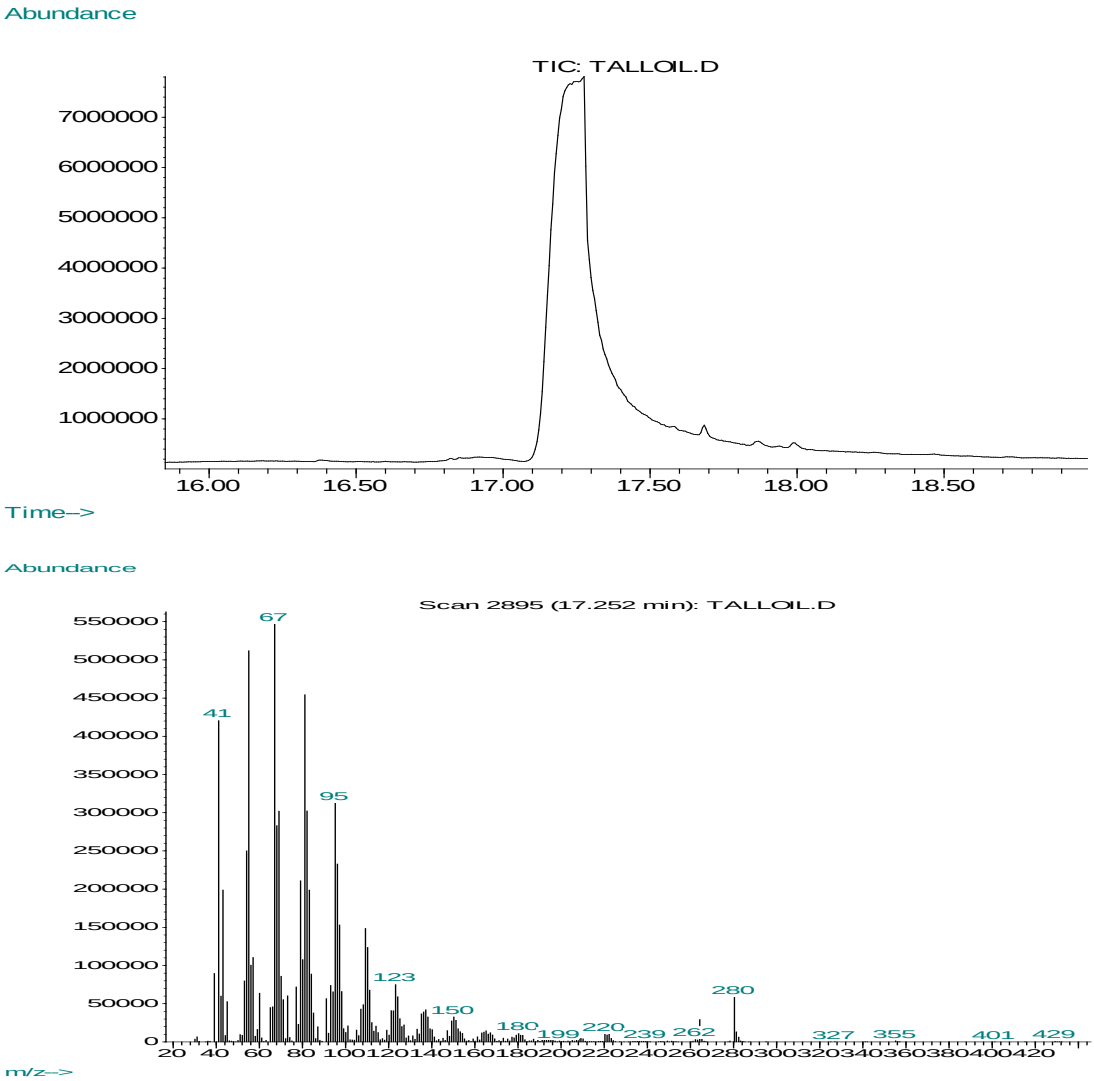
^{1}H-NMR



^{13}C-NMR

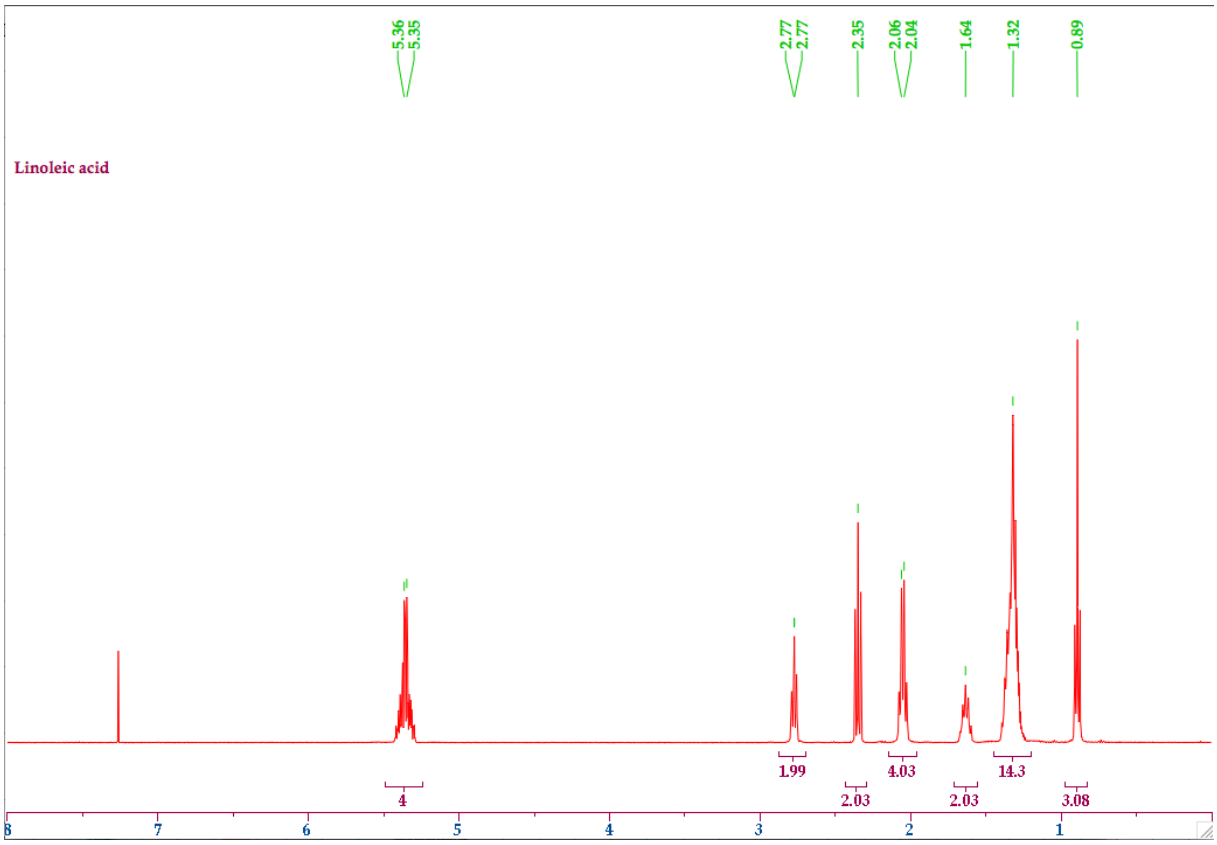


GCMS

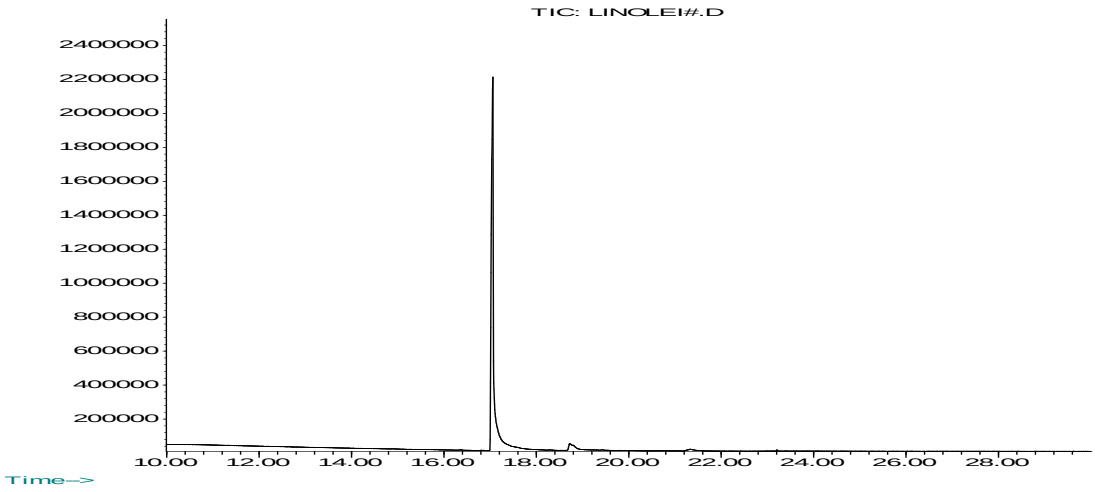

Abundance
TIC: TALLOIL.D
7000000
6000000
5000000
4000000
3000000
2000000
1000000
16.00
16.50
17.00
17.50
18.00
18.50
Time-->
Abundance
Scan 2895 (17.252 min): TALLOIL.D
550000
500000
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
67
41
95
123
150
180
199
220
239
262
280
327
355
401
429
20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380 400 420
m/z-->

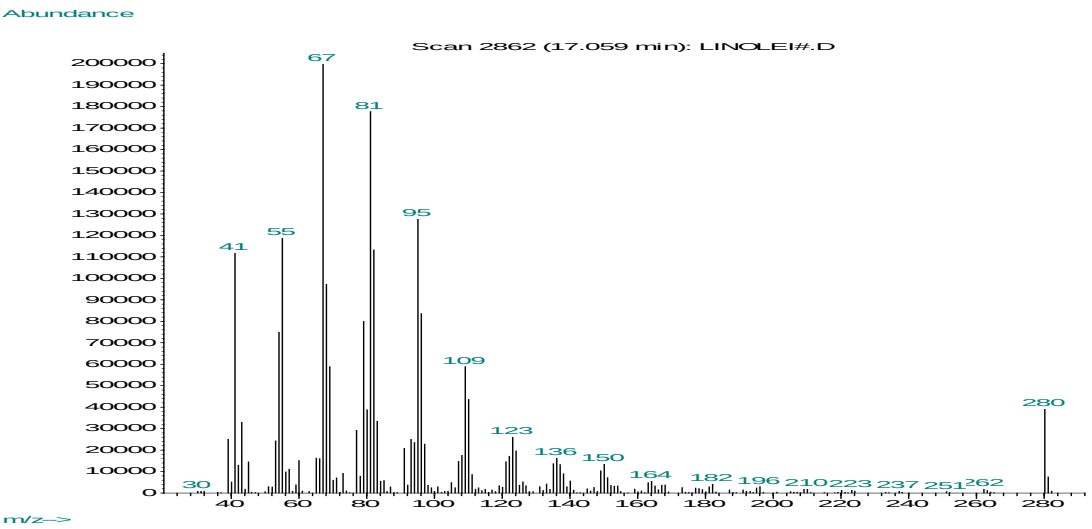
Linoleic acid

^{1}H- NMR



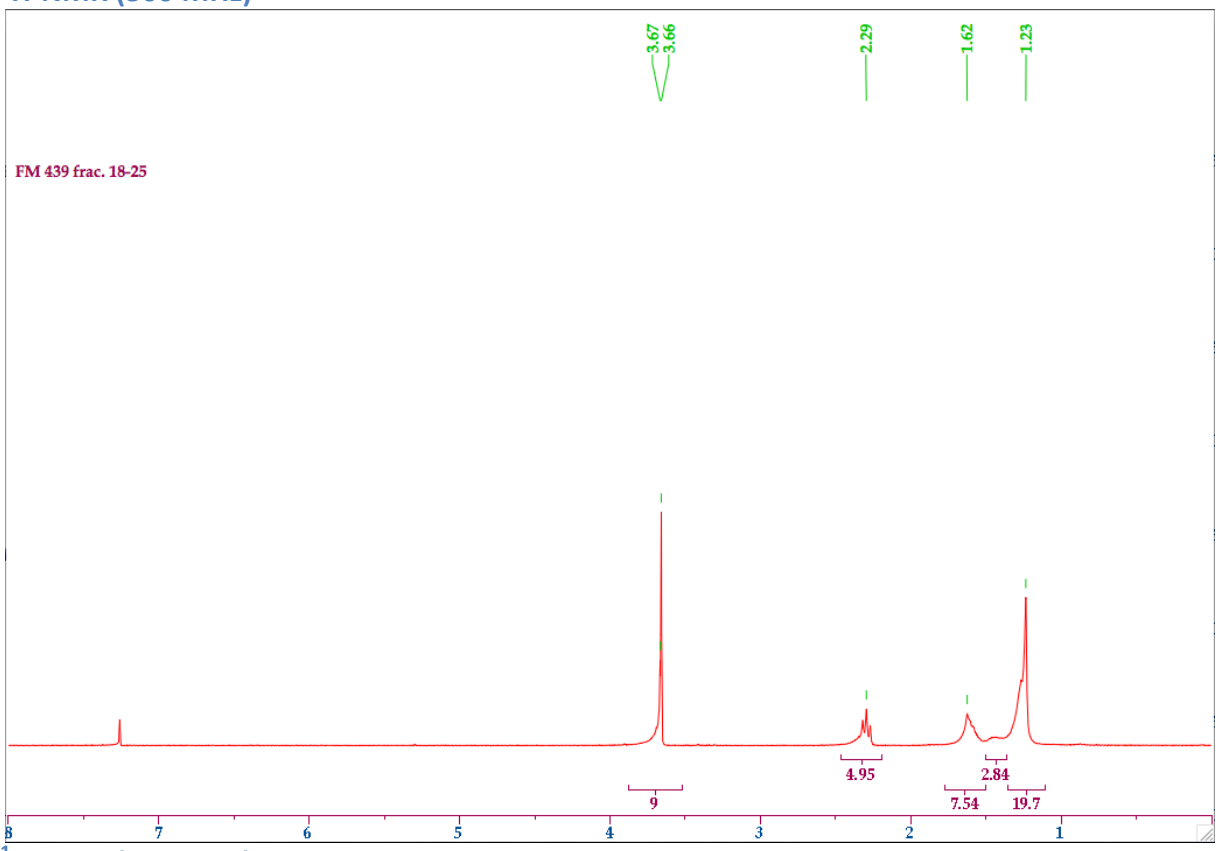
GCMS



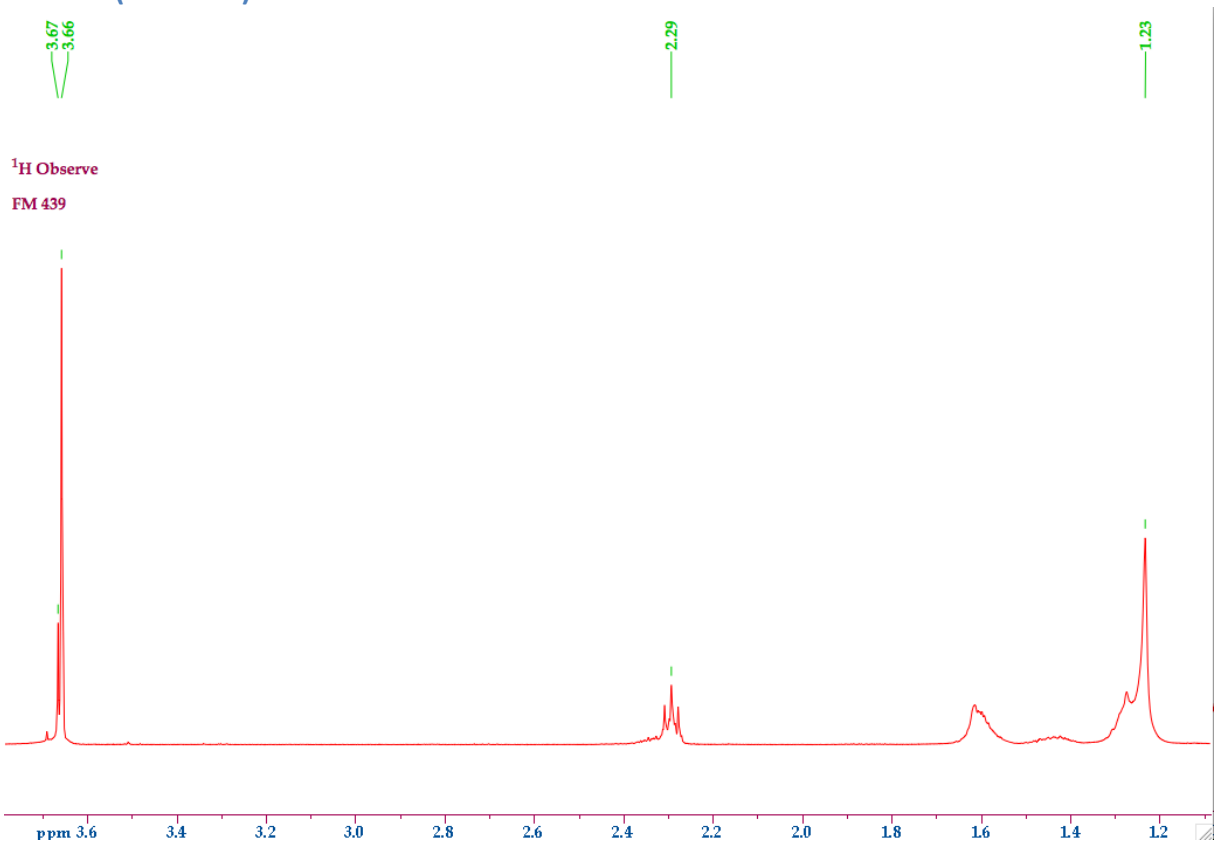


Trimethyl heptadecane-1,n,17-tricarboxylate

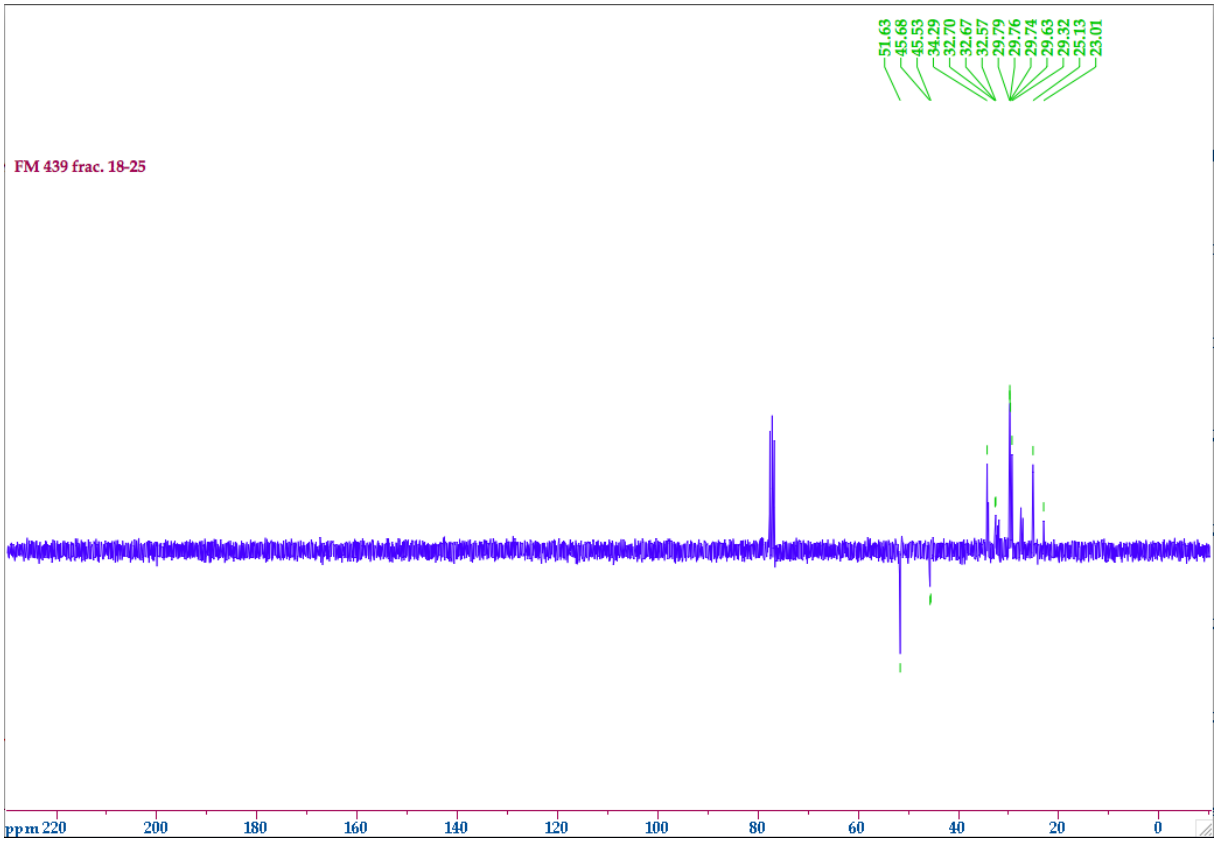
^{1}H-NMR (300 MHz)



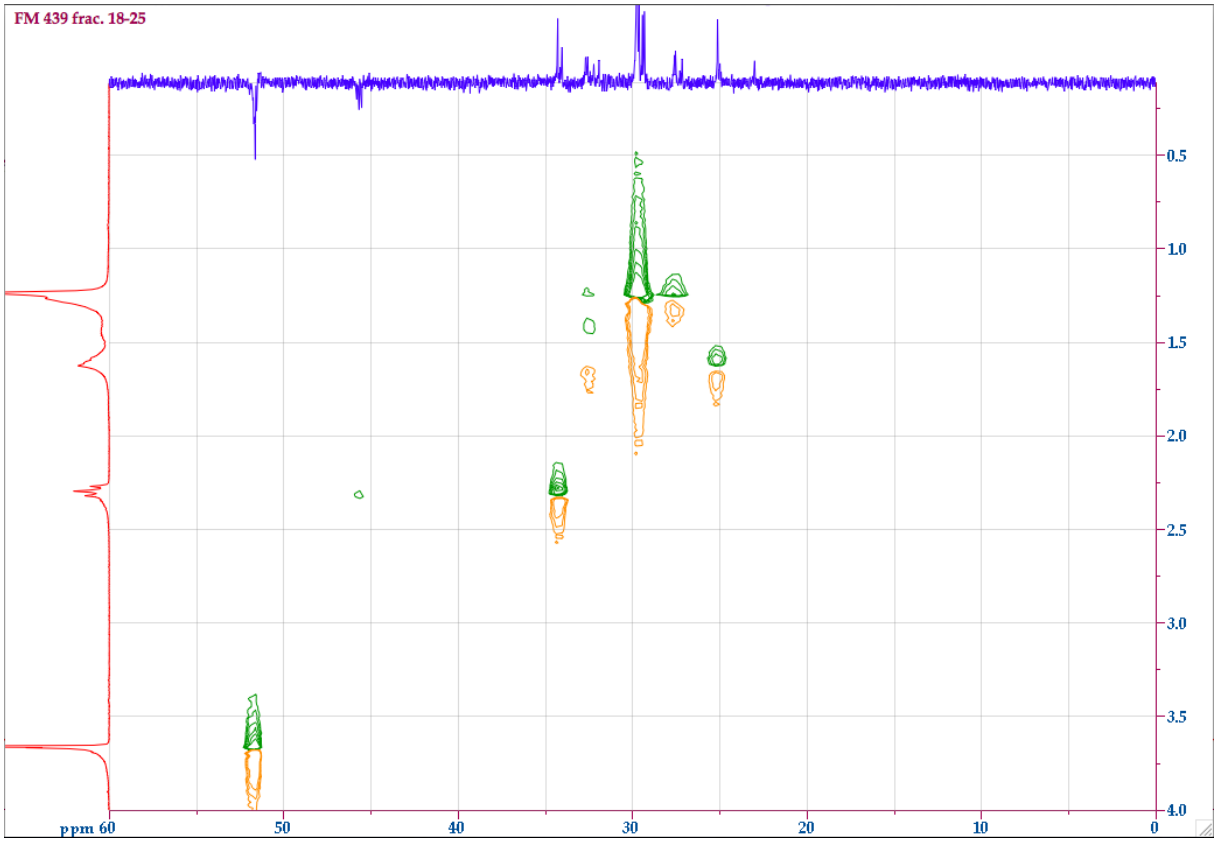
^{1}H-NMR (500 MHz)



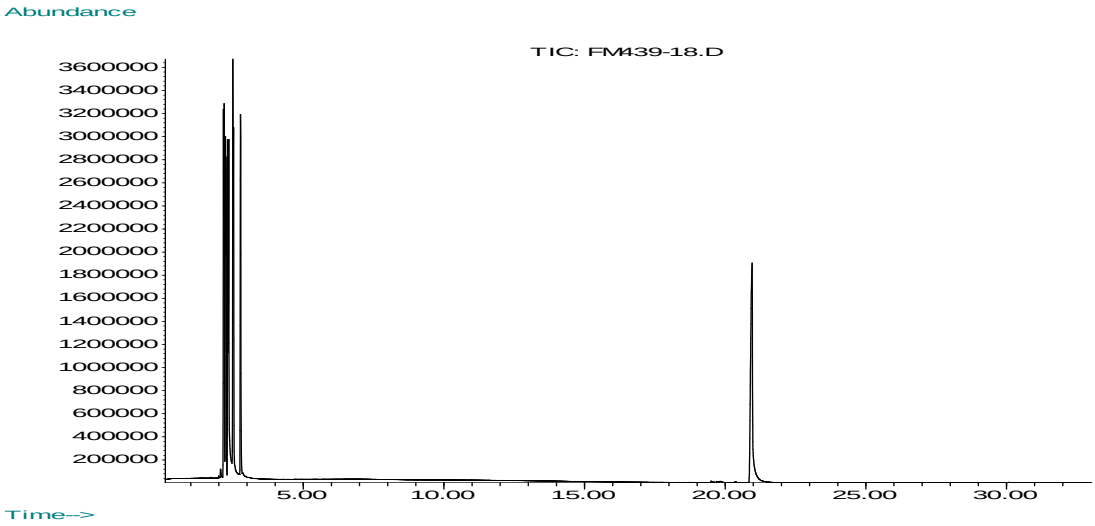
^{13}C-NMR

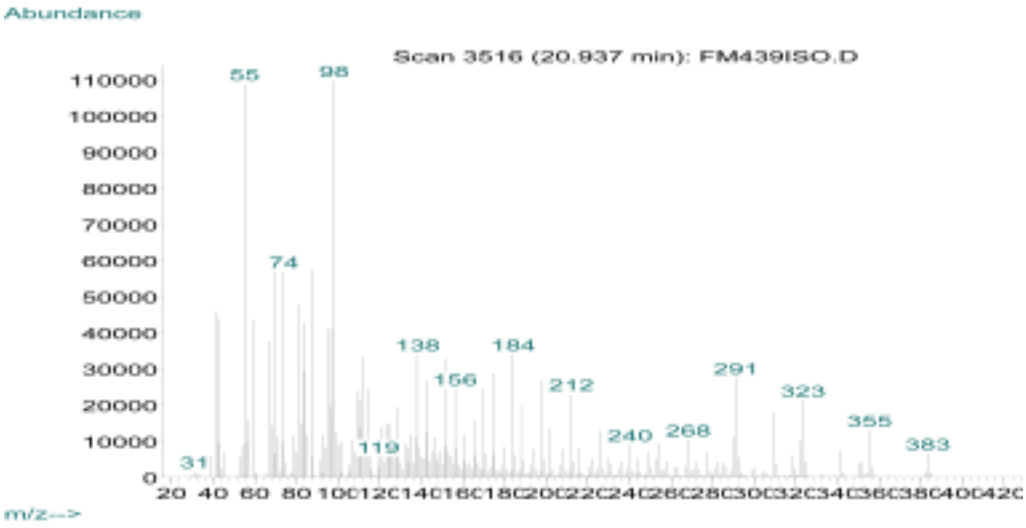

51.63
45.68
45.53
34.29
32.70
32.67
32.57
29.79
29.76
29.74
29.63
29.32
25.13
23.01
FM 439 frac. 18-25
ppm 220
200
180
160
140
120
100
80
60
40
20
0

HSQC


FM 439 frac. 18-25
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
ppm 60
50
40
30
20
10
0

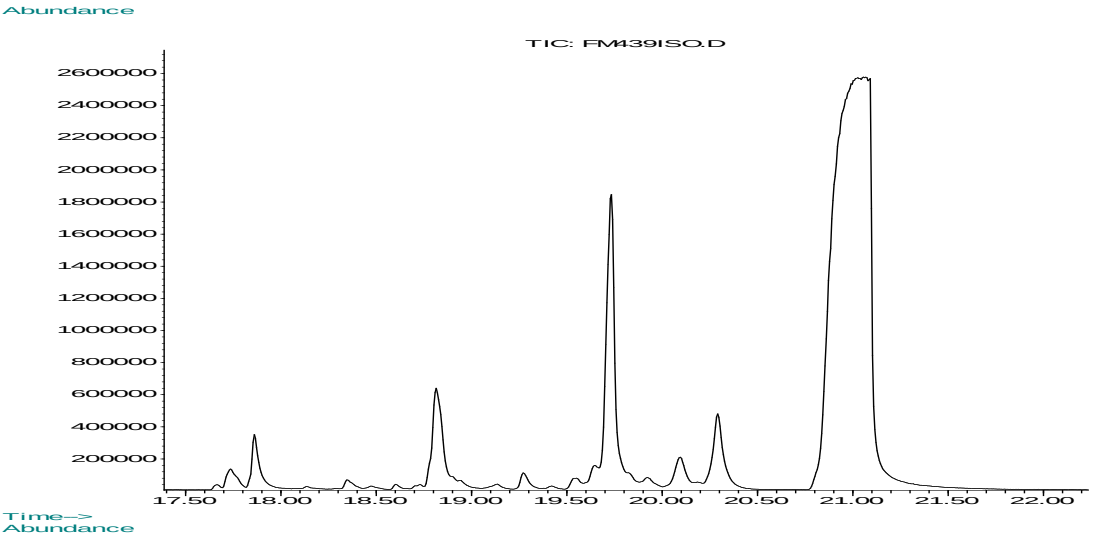
GCMS

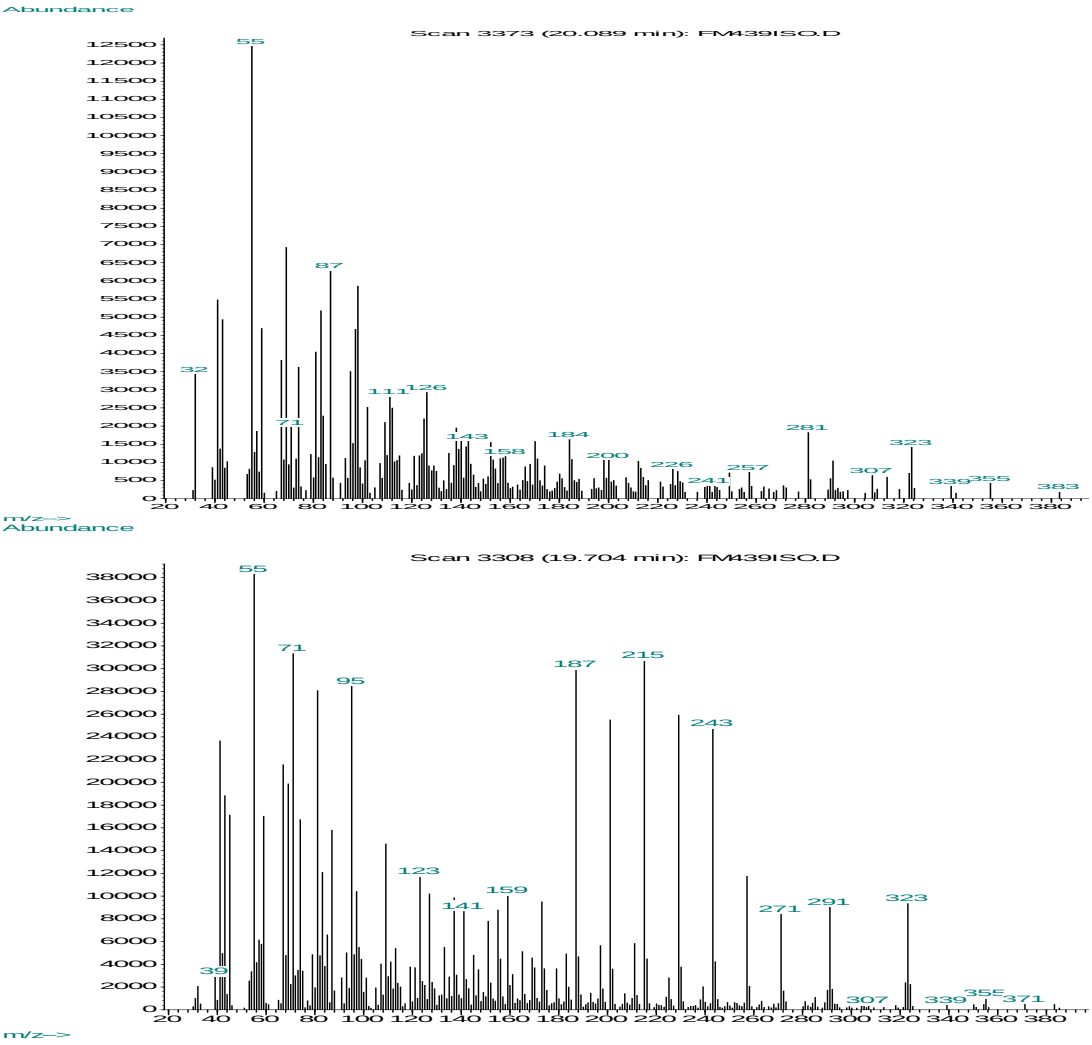

Abundance
TIC: FM439-18.D
3600000
3400000
3200000
3000000
2800000
2600000
2400000
2200000
2000000
1800000
1600000
1400000
1200000
1000000
800000
600000
400000
200000
5.00
10.00
15.00
20.00
25.00
30.00
Time-->


Abundance
Scan 3516 (20.937 min): FM439ISO.D
110000
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
55
98
74
138
184
156
212
291
323
355
383
240
268
119
31
20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380 400 420
m/z-->

Products from methoxycarbonylation of linoleic acid

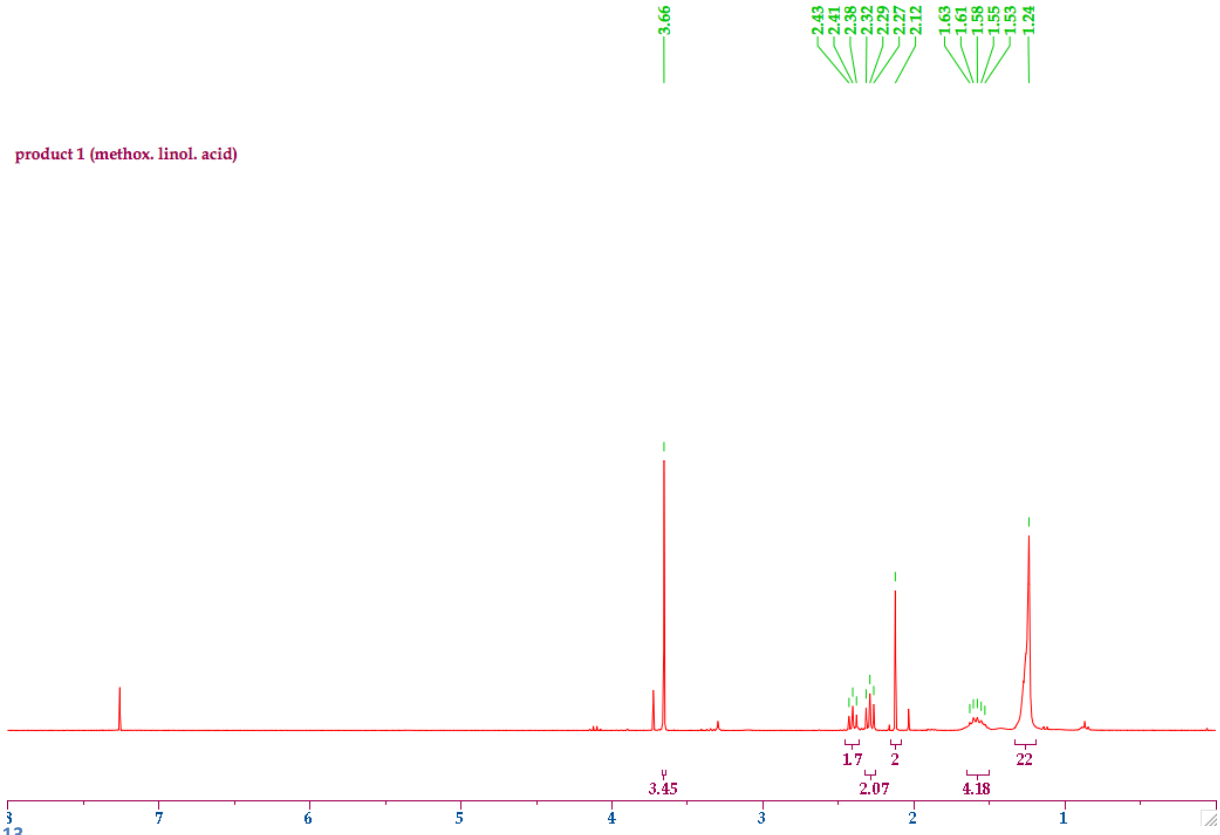
GCMS of crude mixture



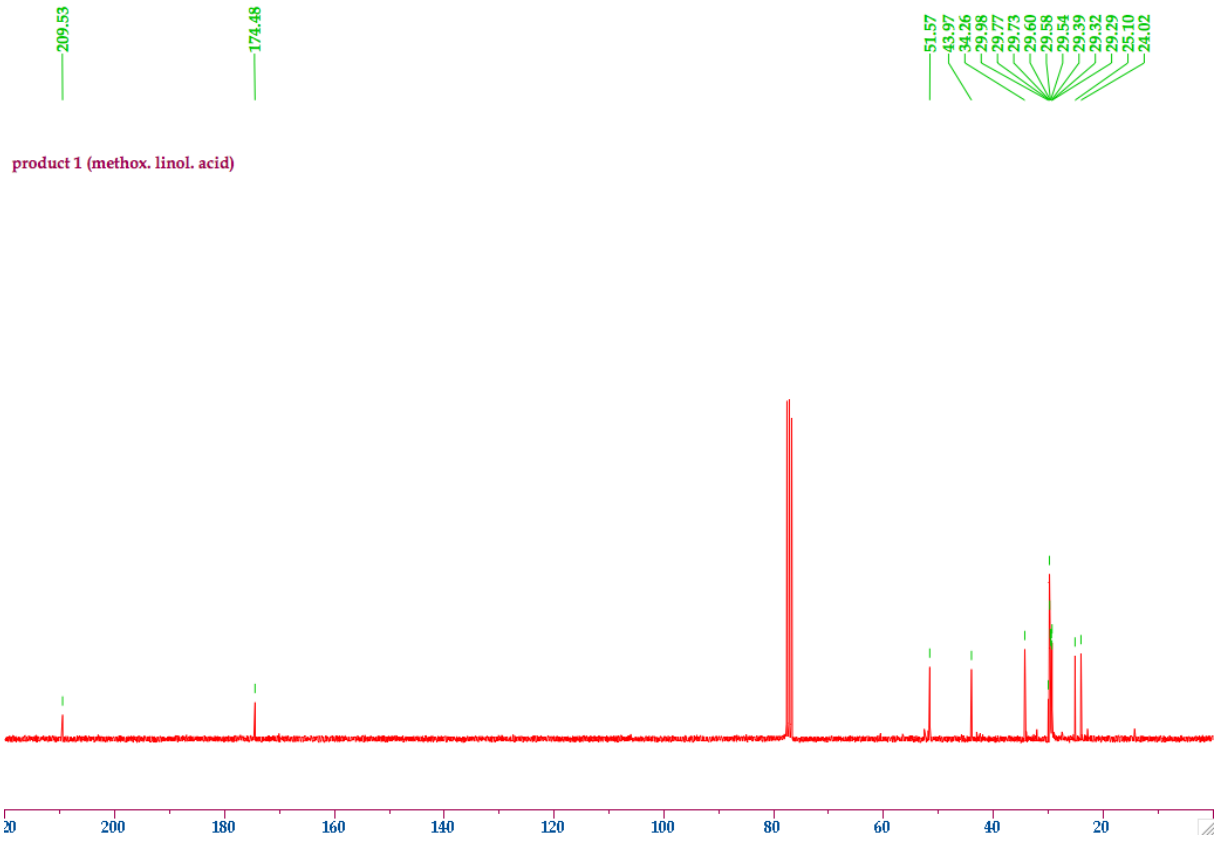

Abundance
Scan 3373 (20.089 min): FM439ISO.D
m/z-->
Abundance
Scan 3308 (19.704 min): FM439ISO.D
m/z-->

Methyl 17-oxooctadecanoate

^{1}H-NMR

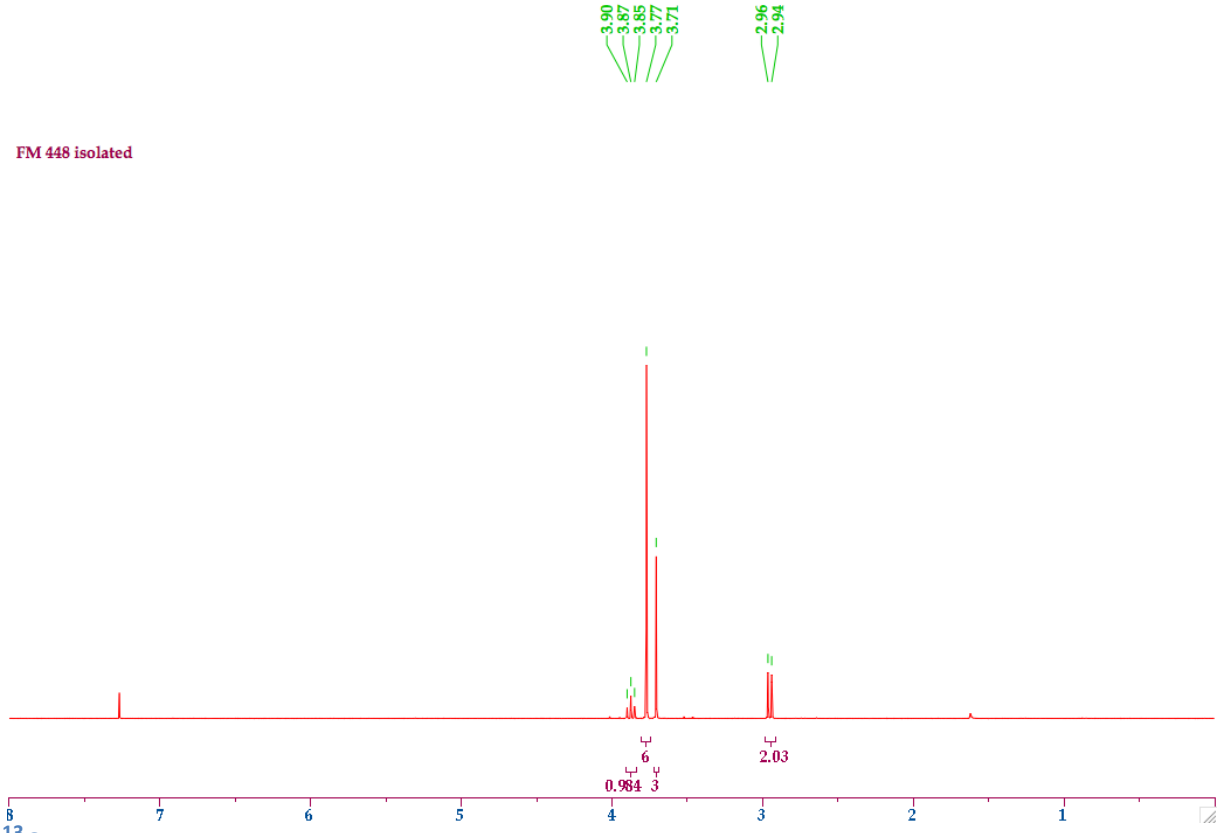


^{13}C-NMR

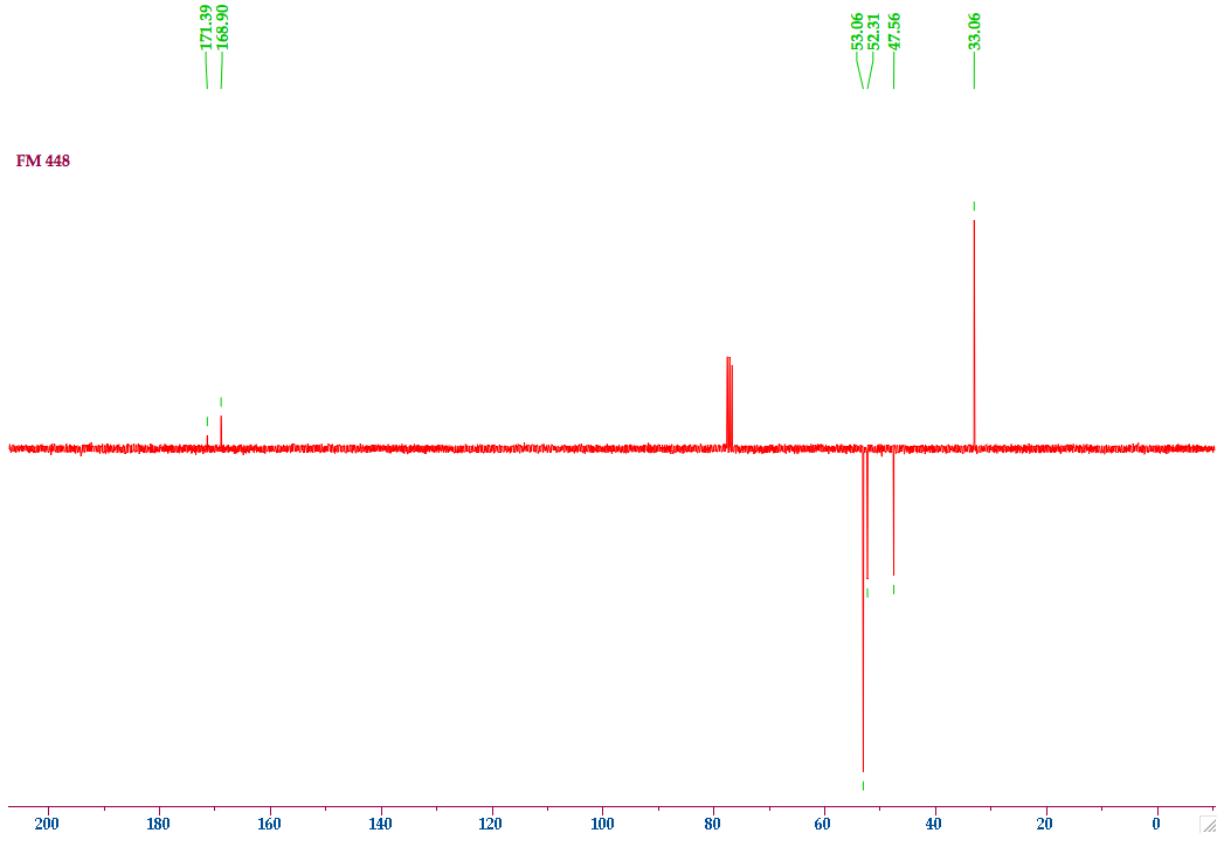


Products from methoxycarbonylation of dimethyl maleate

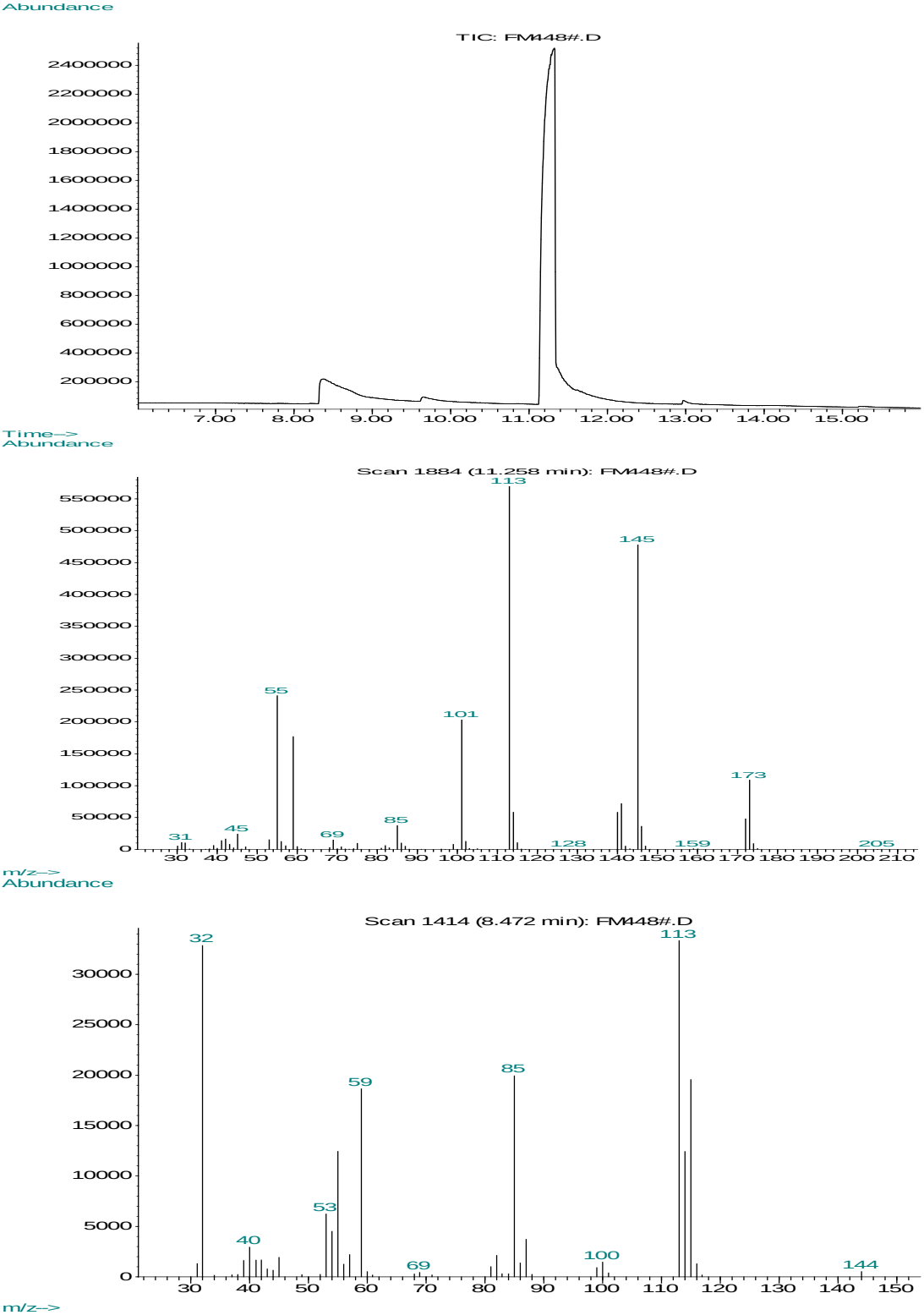
^{1}H-NMR



^{13}C-NMR

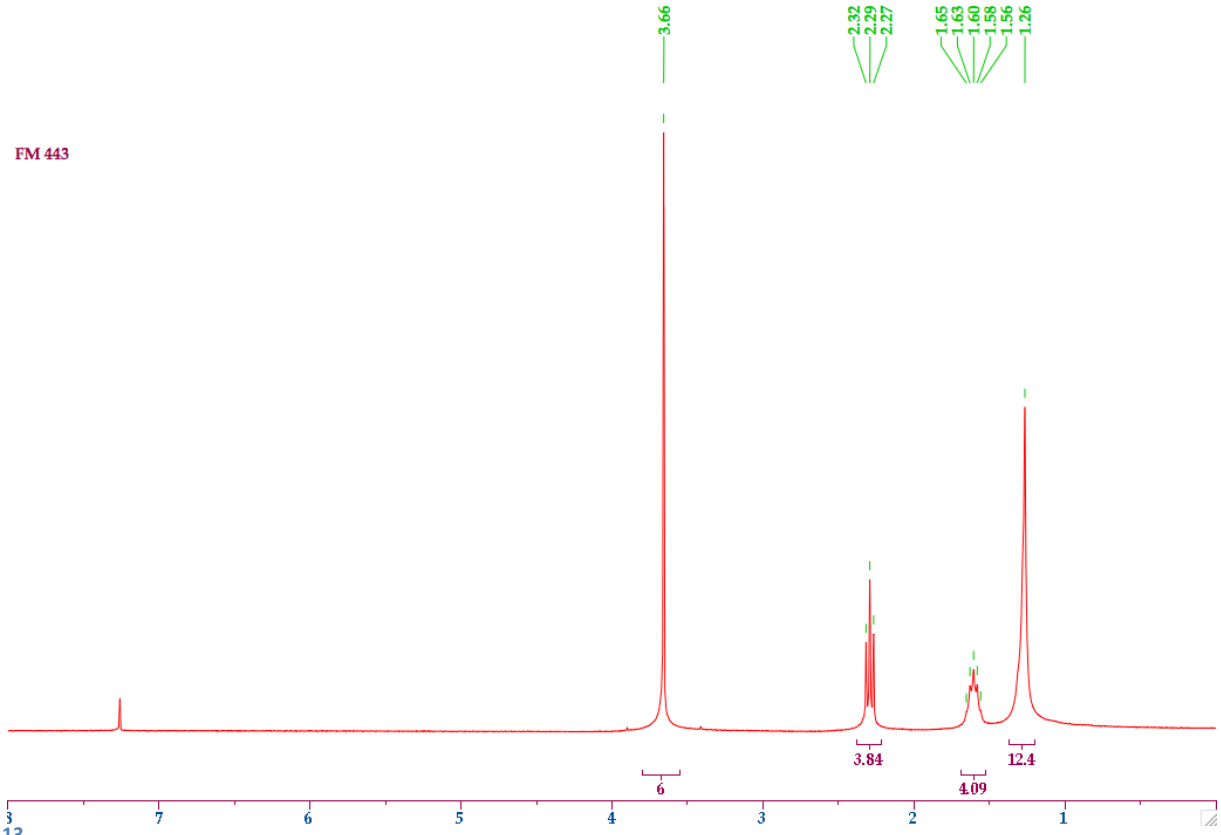


GCMS of crude mixture



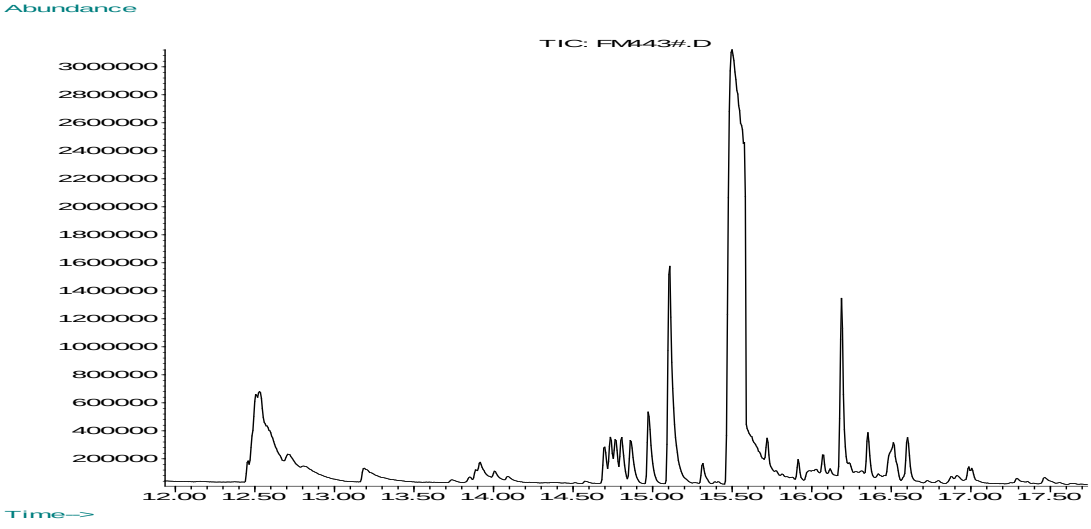
Products from methoxycarbonylation of 2-undecenoic acid

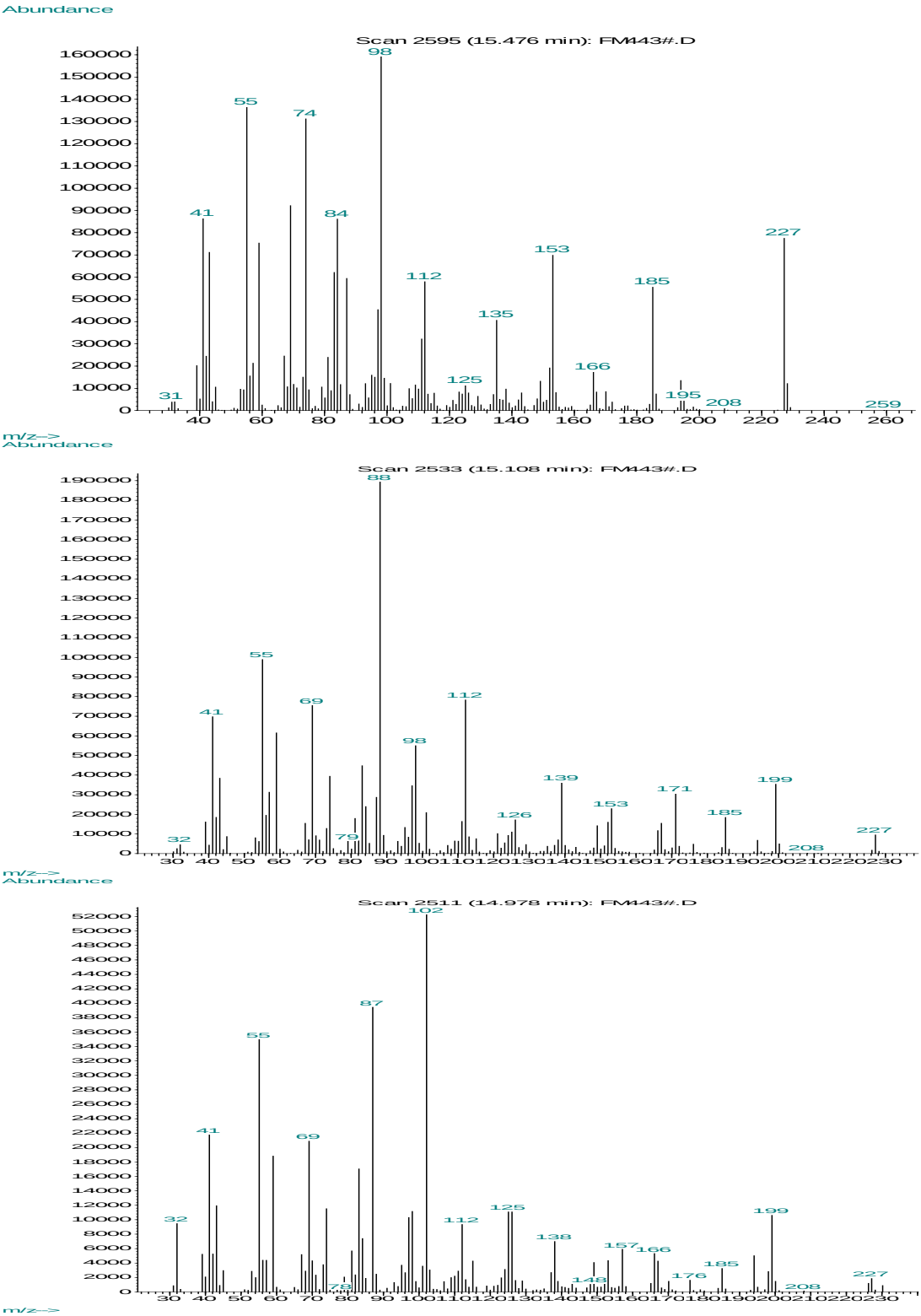
^{1}H-NMR

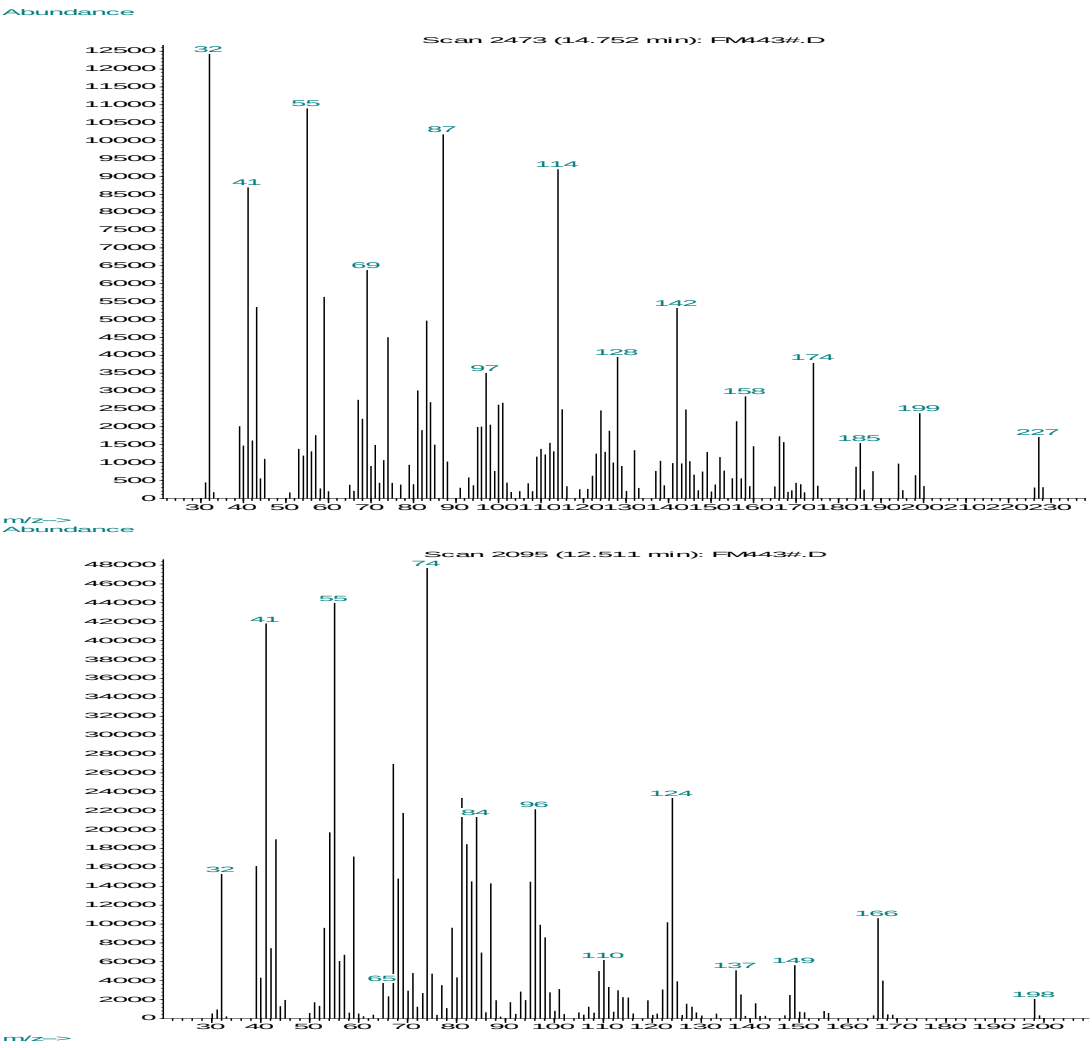


^{13}C-NMR

GCMS of crude mixture

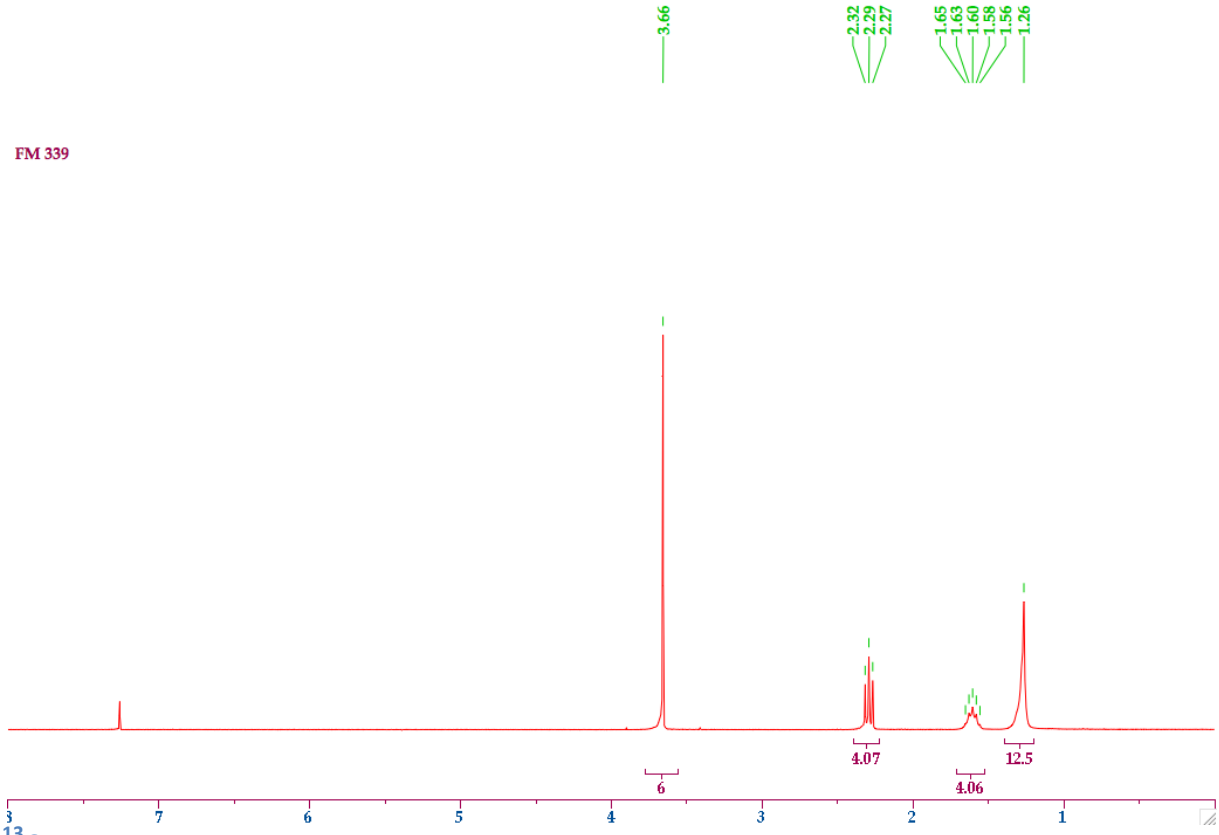



Abundance
Scan 2595 (15.476 min): FM443#.D
m/z-->
Abundance
Scan 2533 (15.108 min): FM443#.D
m/z-->
Abundance
Scan 2511 (14.978 min): FM443#.D
m/z-->

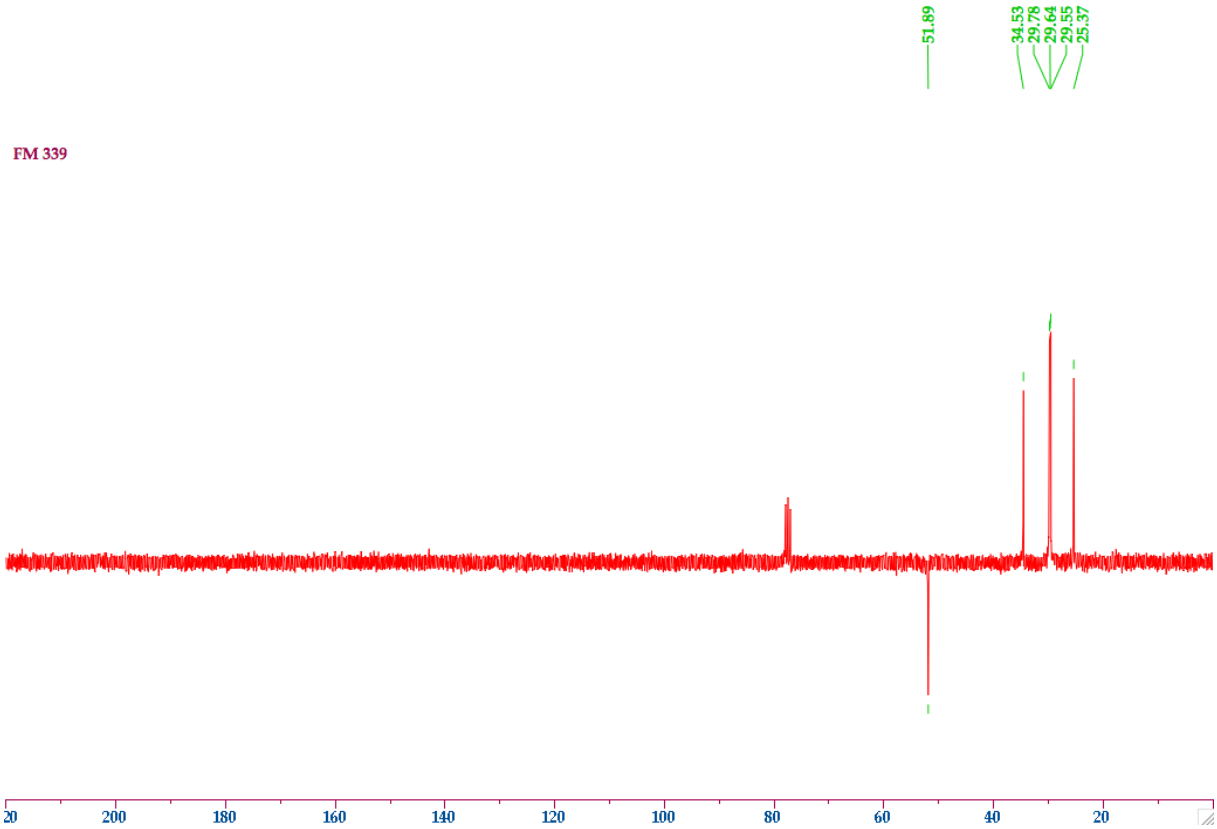

Abundance
Scan 2473 (14.752 min): FM443#.D
m/z-->
Abundance
Scan 2095 (12.511 min): FM443#.D
m/z-->

Products from methoxycarbonylation of 11-undecenoic acid

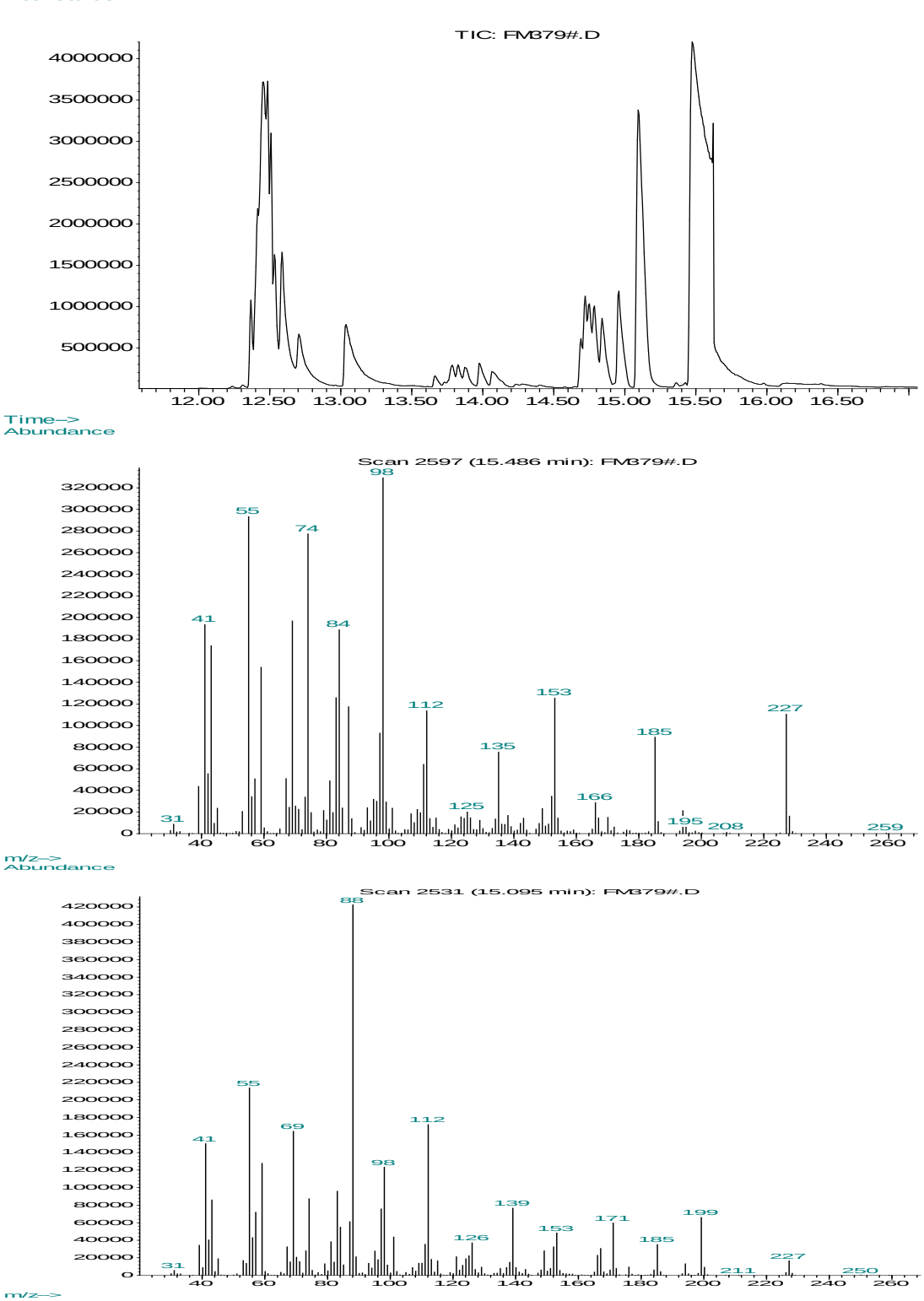
^{1}H-NMR

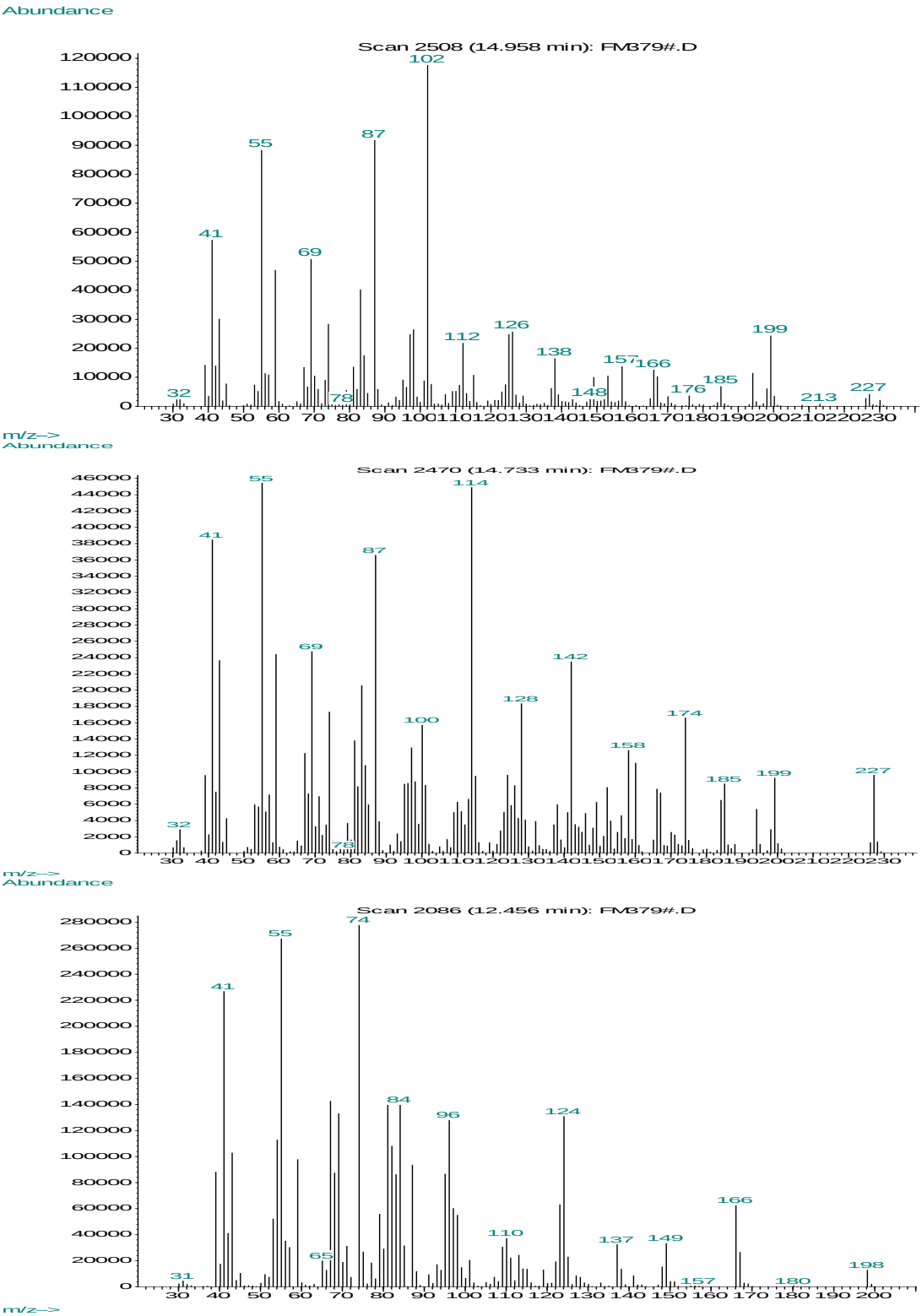


^{13}C-NMR



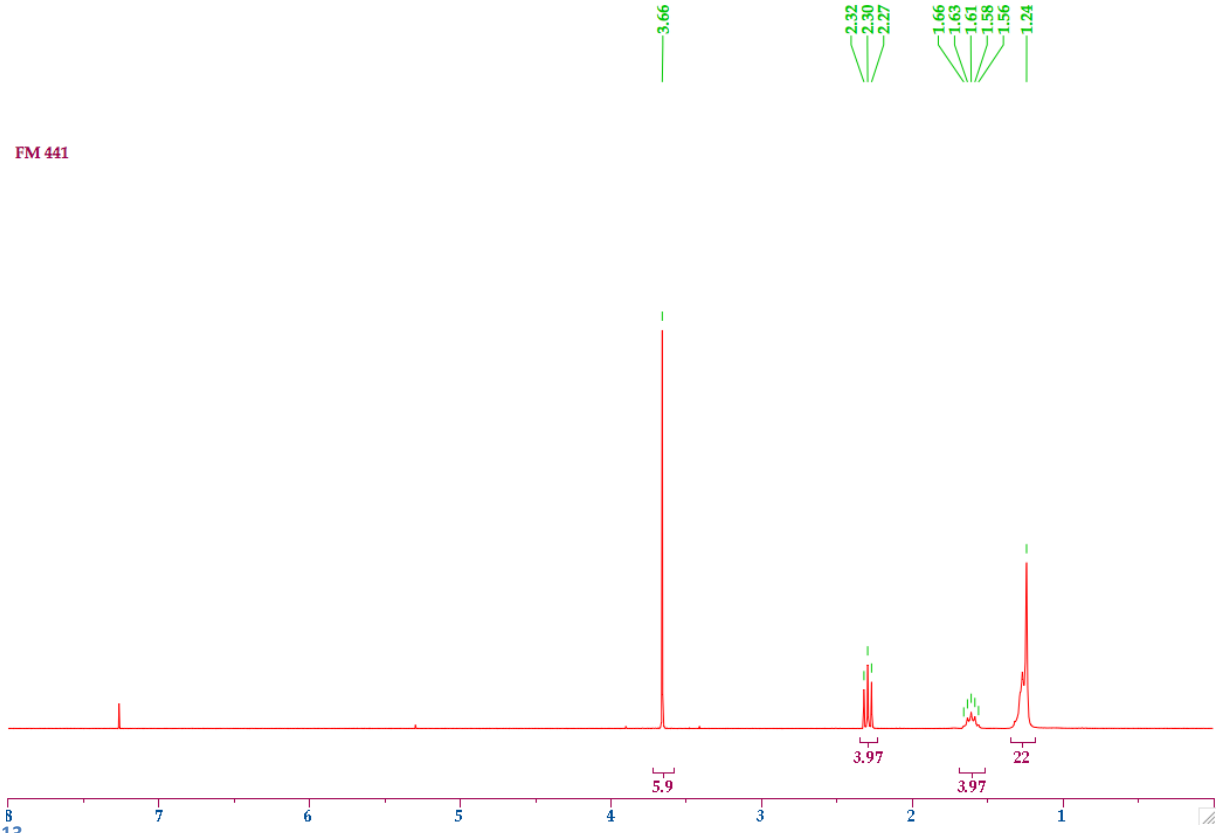
GCMS of crude mixture




Abundance
Scan 2508 (14.958 min): FM379#.D
m/z-->
Abundance
Scan 2470 (14.733 min): FM379#.D
m/z-->
Abundance
Scan 2086 (12.456 min): FM379#.D
m/z-->

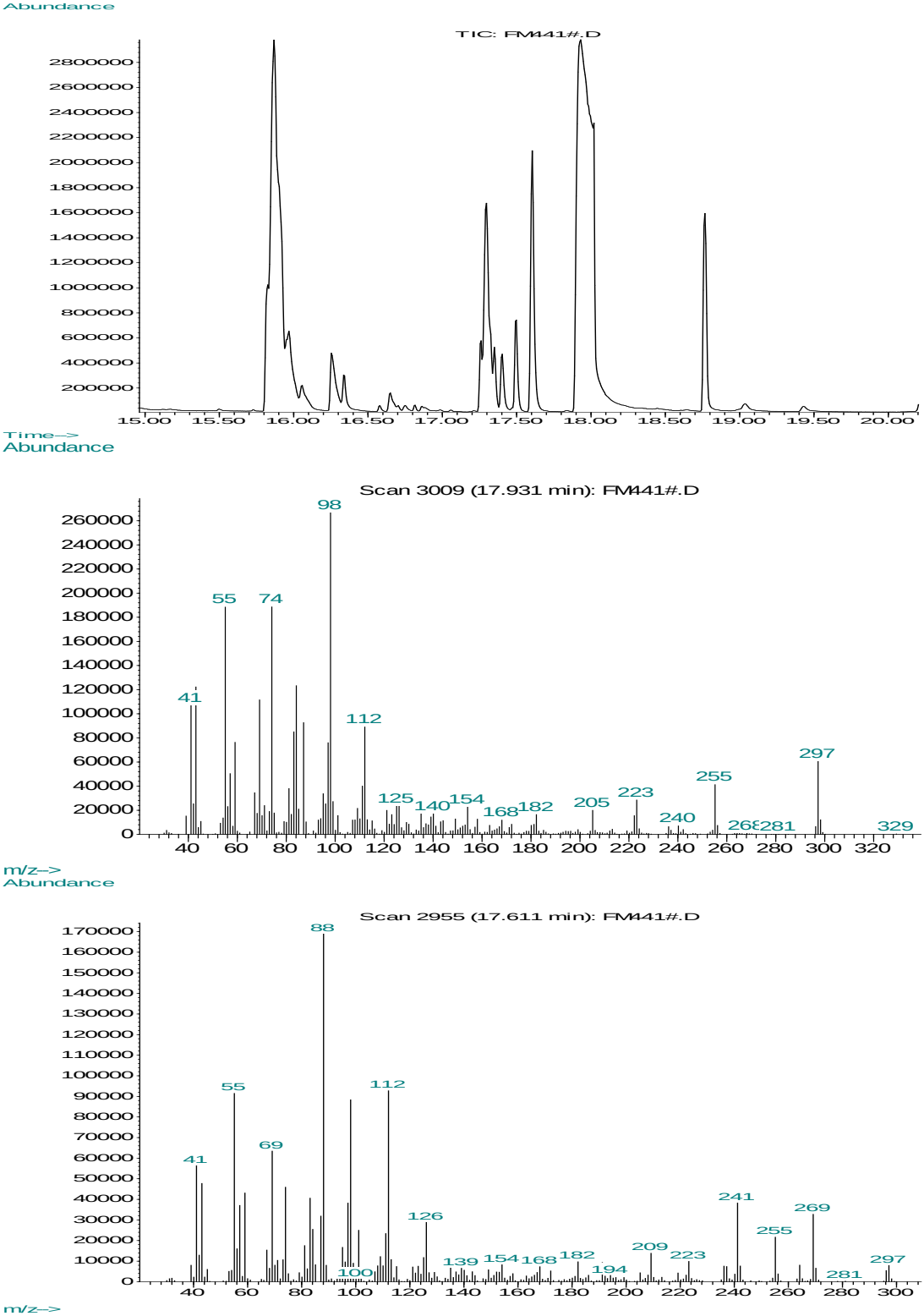
Products from methoxycarbonylation of 2-hexadecenoic acid

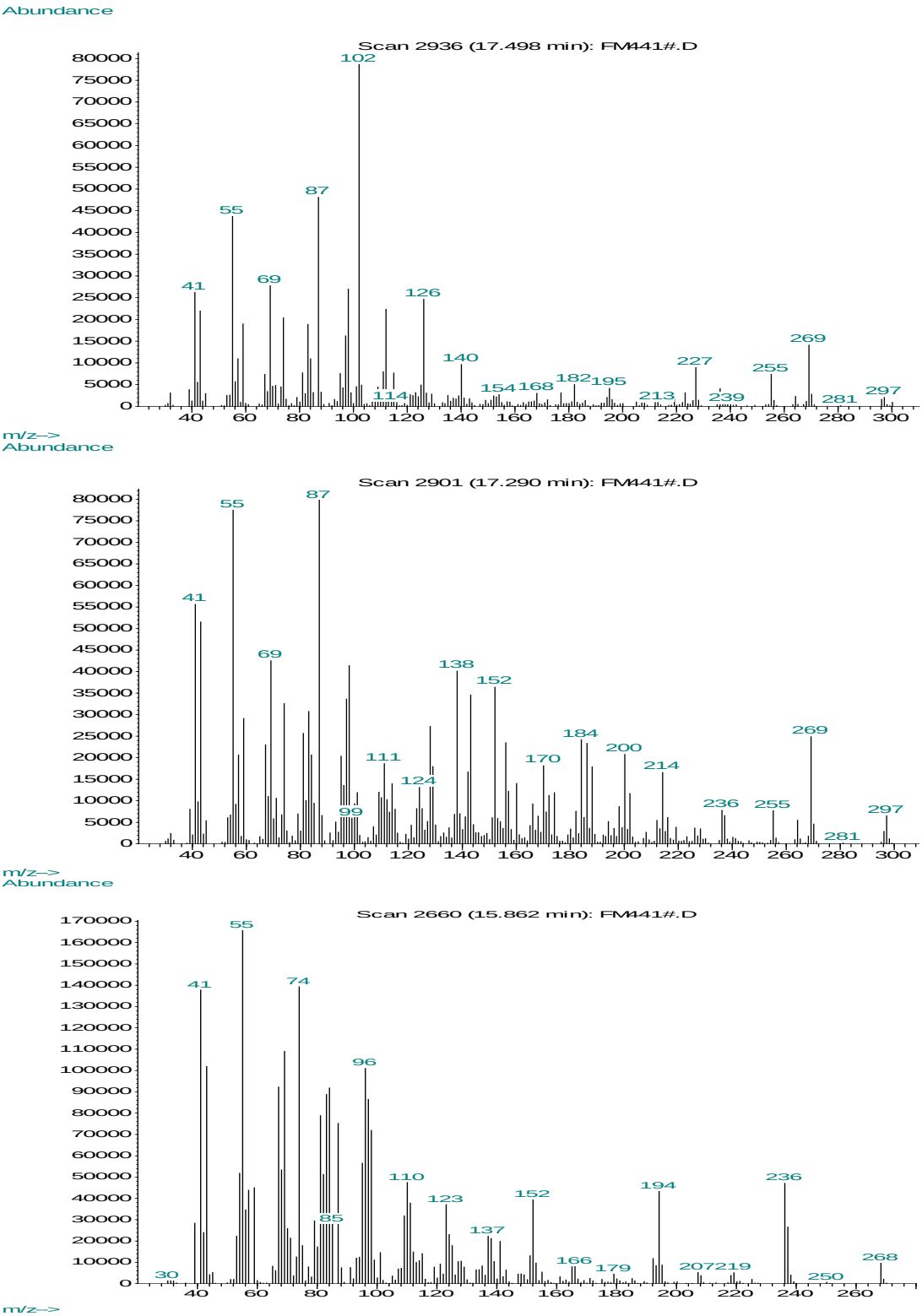
^{1}H-NMR



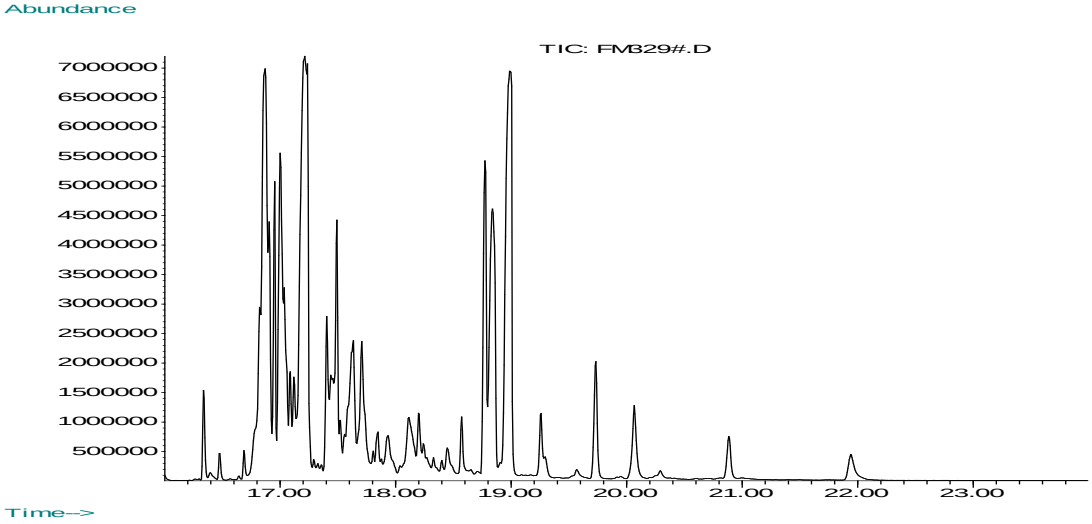
^{13}C-NMR

GCMS of crude mixture

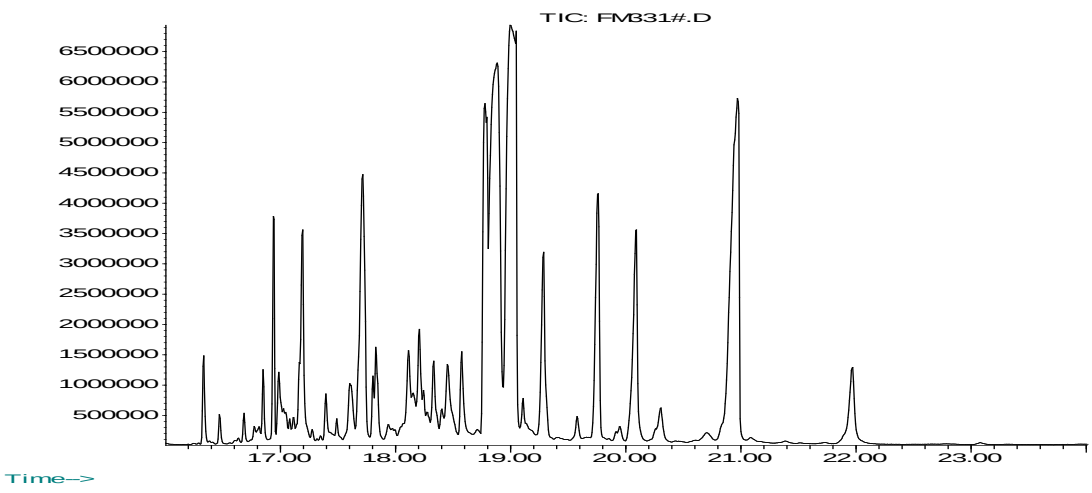




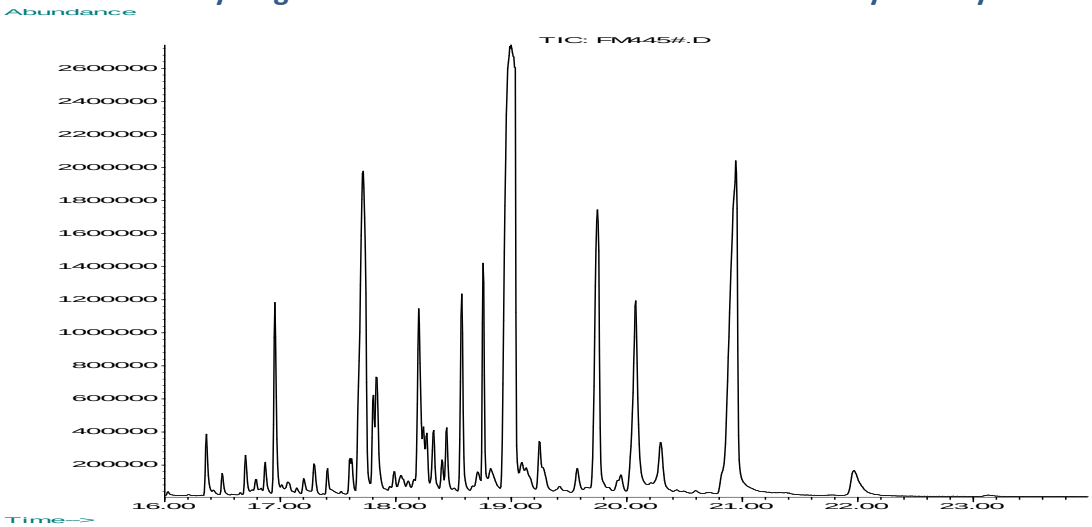
Products from methoxycarbonylation of tofa using syngas



Products from methoxycarbonylation of tofa using CO

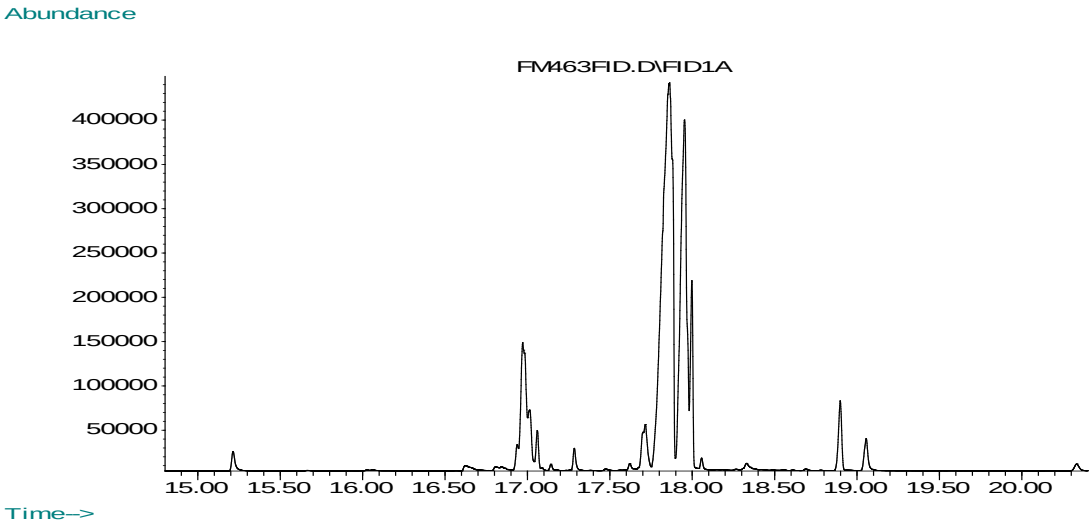


Products from hydrogenation of the crude mixture of the methoxycarbonylation of tofa



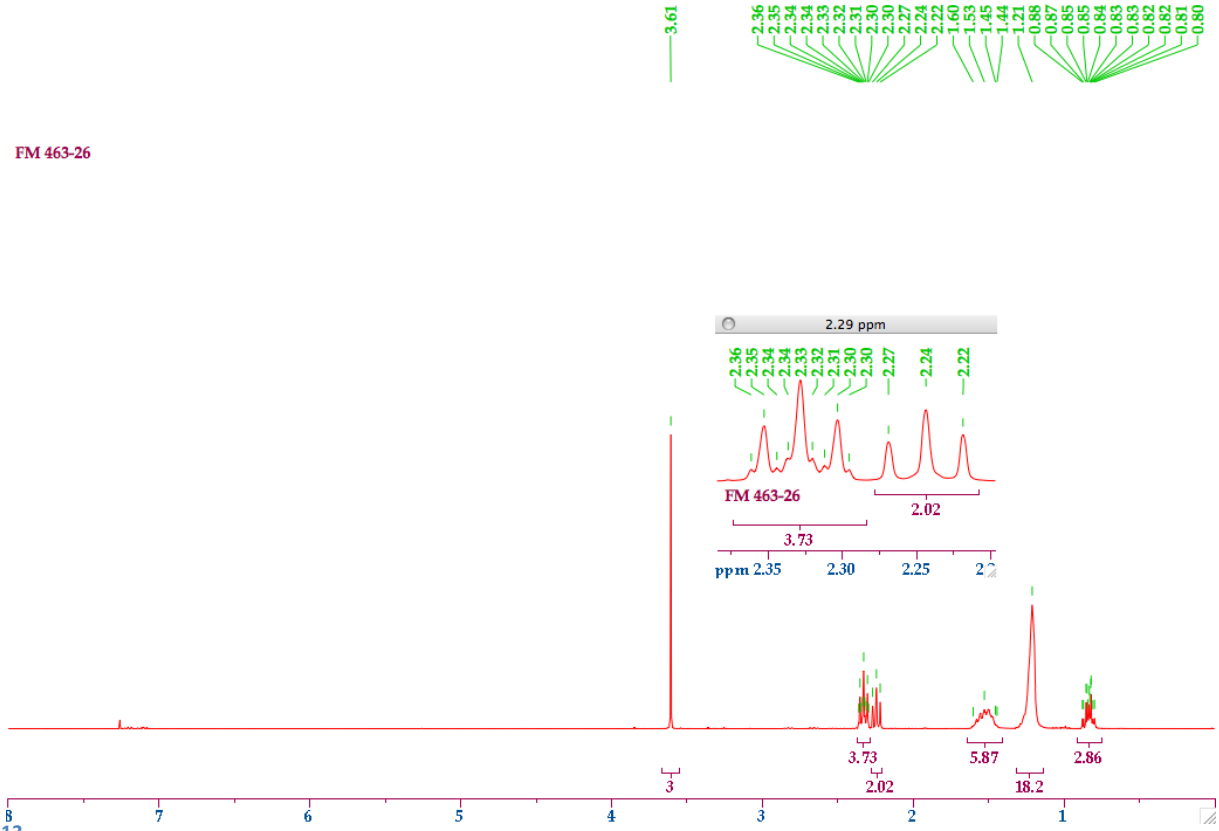
''Methoxycarbonylation" of linoleic acid without CO (atmosphere of nitrogen)

GCFID of crude mixture

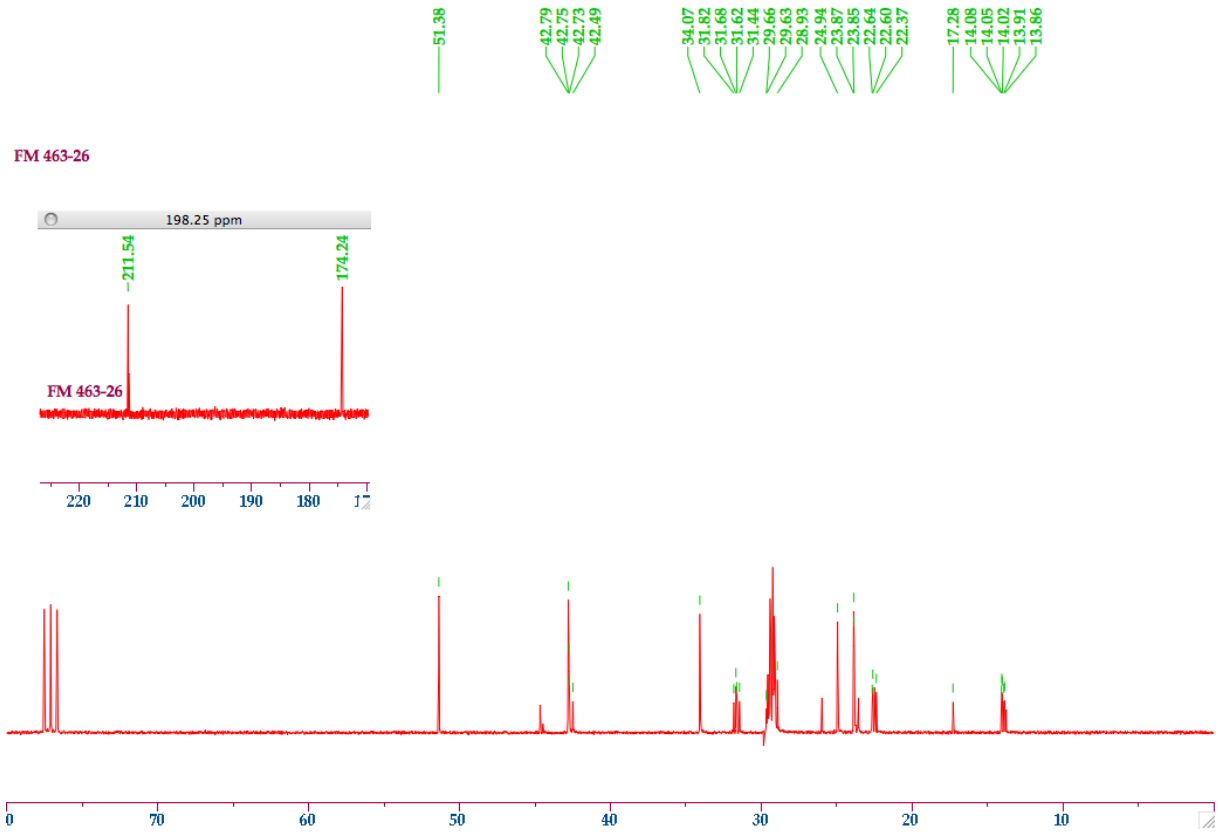


Methyl n-oxooctadecanoate

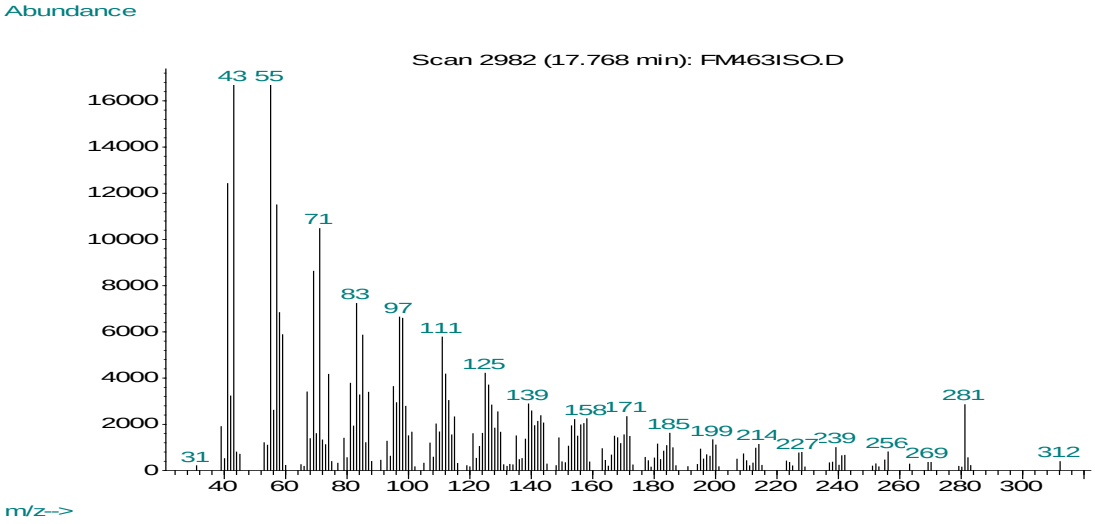
^{1}H-NMR



^{13}C-NMR



GCMS


Abundance
Scan 2982 (17.768 min): FM463ISO.D
16000
14000
12000
10000
8000
6000
4000
2000
0
43 55
71
83
97
111
125
139
158
171
185
199
214
227
239
256
269
281
312
31
40 60 80 100 120 140 160 180 200 220 240 260 280 300
m/z-->