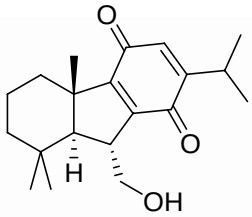
Supporting Information

Antiproliferative Activity of Natural Taiwaniaquinoids and Related Compounds

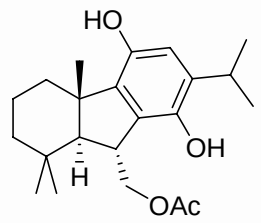
Juan J. Guardia,[†] Rubén Tapia,[†] Soumicha Mahdjour,[#] Fernando Rodriguez-Serrano,[§] Nuria Mut-Salud, [§] Rachid Chahboun[†,*] and Enrique Alvarez-Manzaneda[†,*]

[†]Departamento de Química Orgánica, Facultad de Ciencias, Instituto de Biotecnología, [§]and Instituto de Biopatología y Medicina Regenerativa (IBIMER), Universidad de Granada, 18071 Granada, Spain.

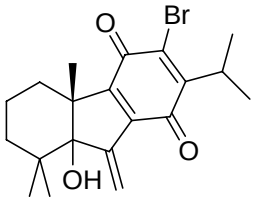
[#]Laboratory Productions, Plant and Microbial Valuations (LP2VM), Department of Biotechnology, University of Sciences and Technology of Oran Mohamed Boudiaf, BP 1525, EL M'Naouer. Oran, Algeria



10

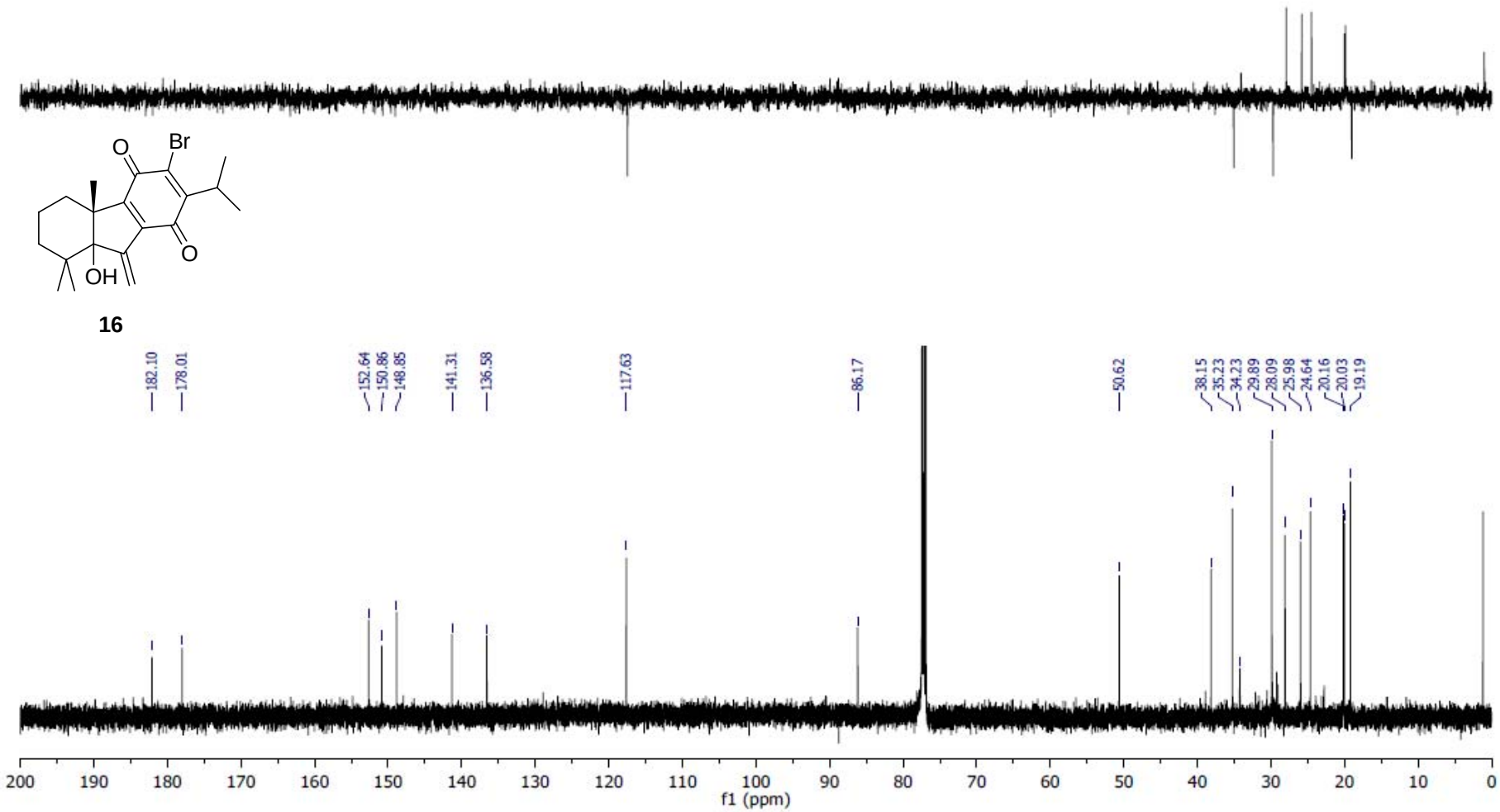


13

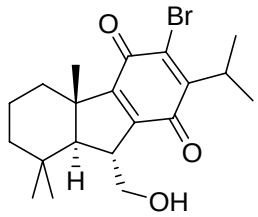

O
Br
O
OH

16

1.00
1.01
1.11
1.10
6.84
3.16
2.94
2.78
7.5
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6.5
6.0
5.5
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f1 (ppm)

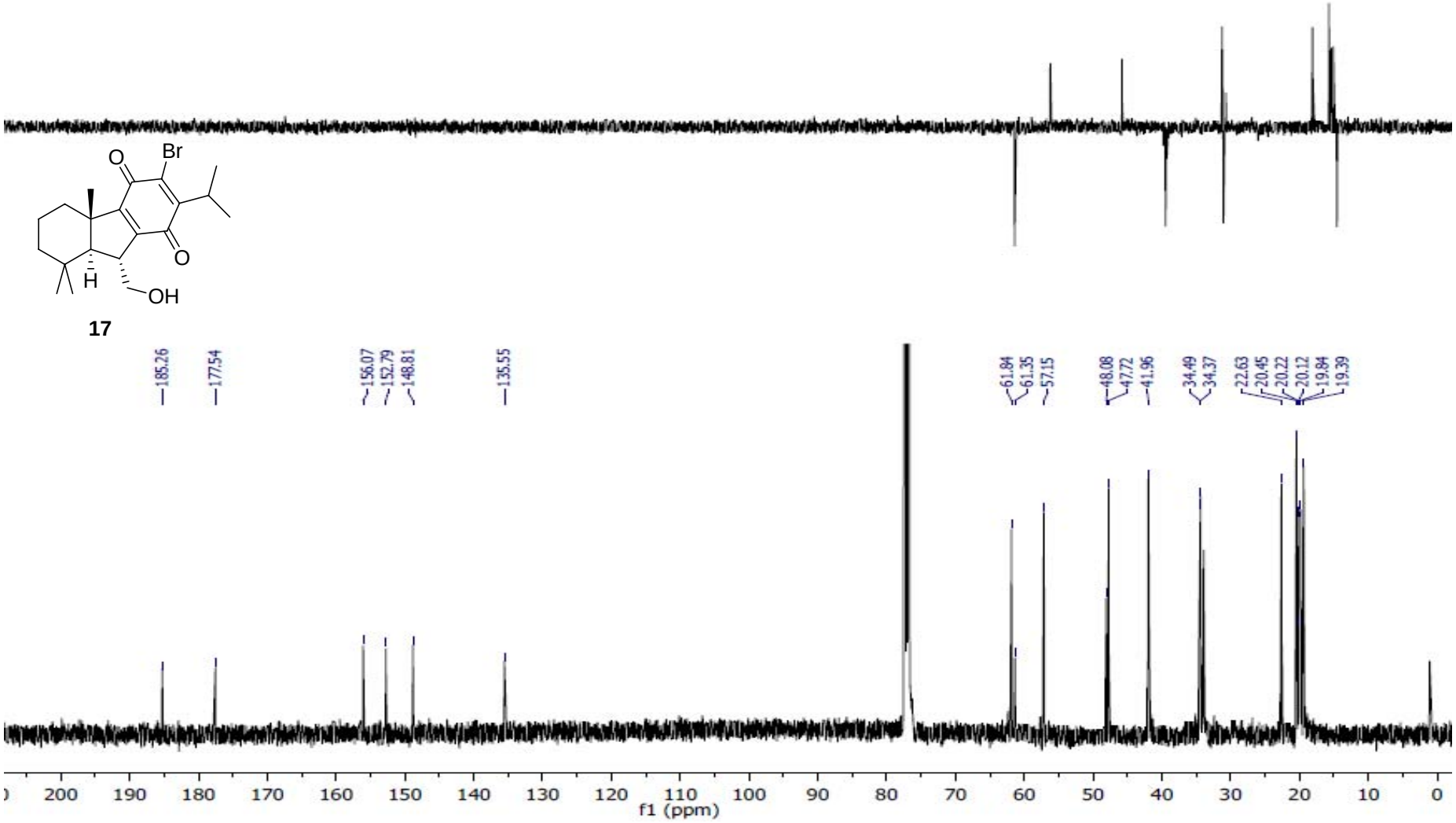

O
Br
O
OH
182.10
178.01
152.64
150.86
148.85
141.31
136.58
117.63
86.17
50.62
38.15
35.23
34.23
29.89
28.09
25.98
24.64
20.16
20.03
19.19
200
190
180
170
160
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30
20
10
0
f1 (ppm)

16

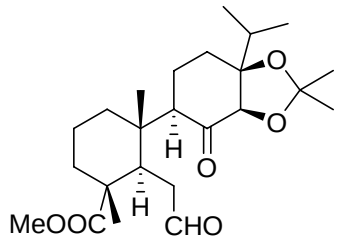

O
Br
O
H
OH

17

1.00
1.18
1.17
1.16
1.24
3.87
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6.5
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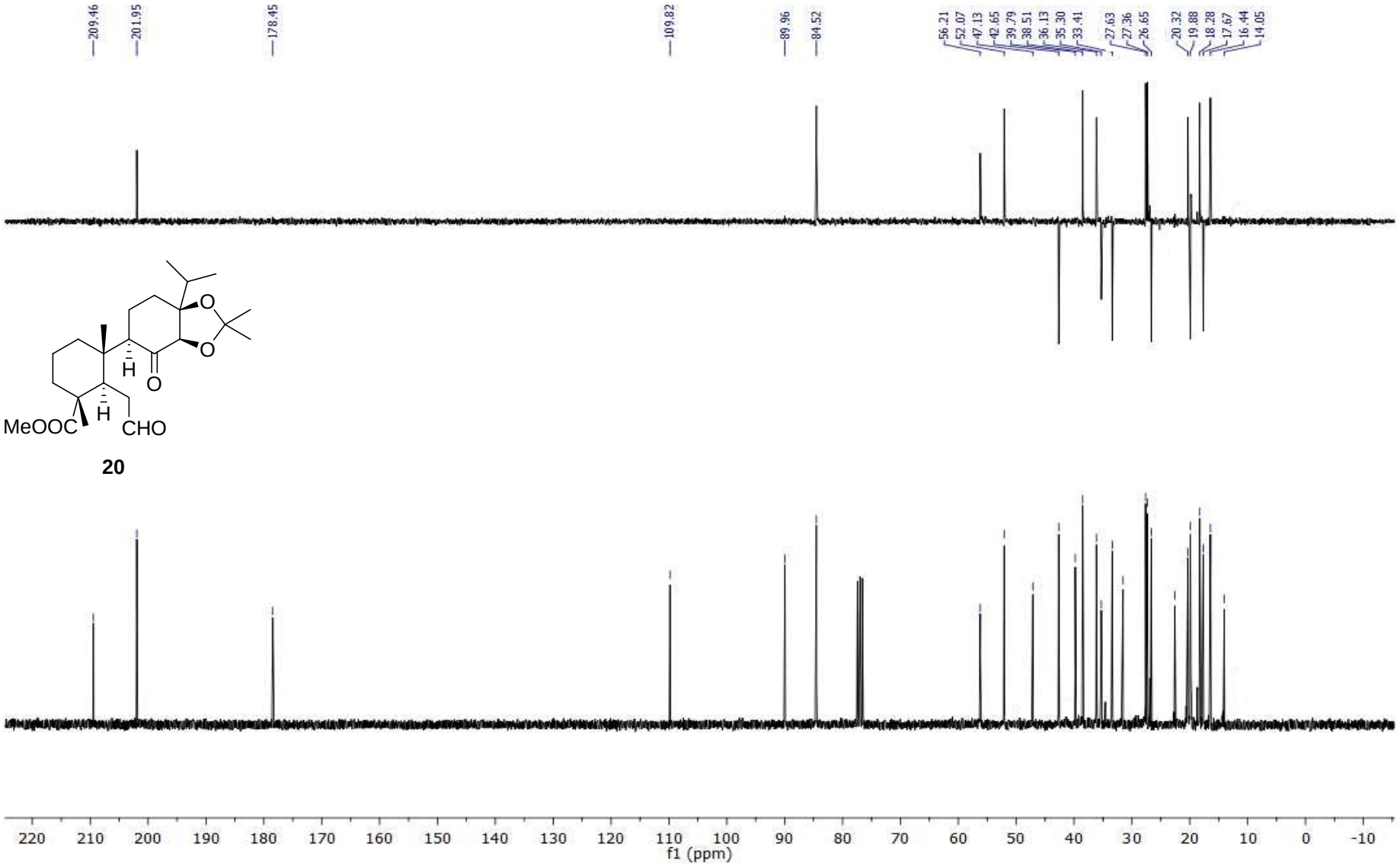

O
Br
O
H
OH
185.26
177.54
156.07
152.79
148.81
135.55
61.84
61.35
57.15
48.08
47.72
41.96
34.49
34.37
22.63
20.45
20.22
20.12
19.84
19.39
200
190
180
170
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40
30
20
10
0
f1 (ppm)

17

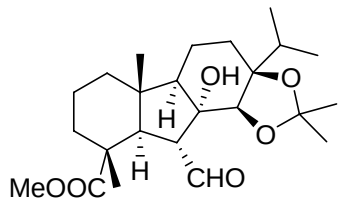

MeOOC
CHO
H
H
O
O
O

20

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4.04
3.64
2.95
2.94
2.92
1.48
1.43
1.28
1.14
1.01
0.99
0.93
0.90
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
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1.0
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f1 (ppm)

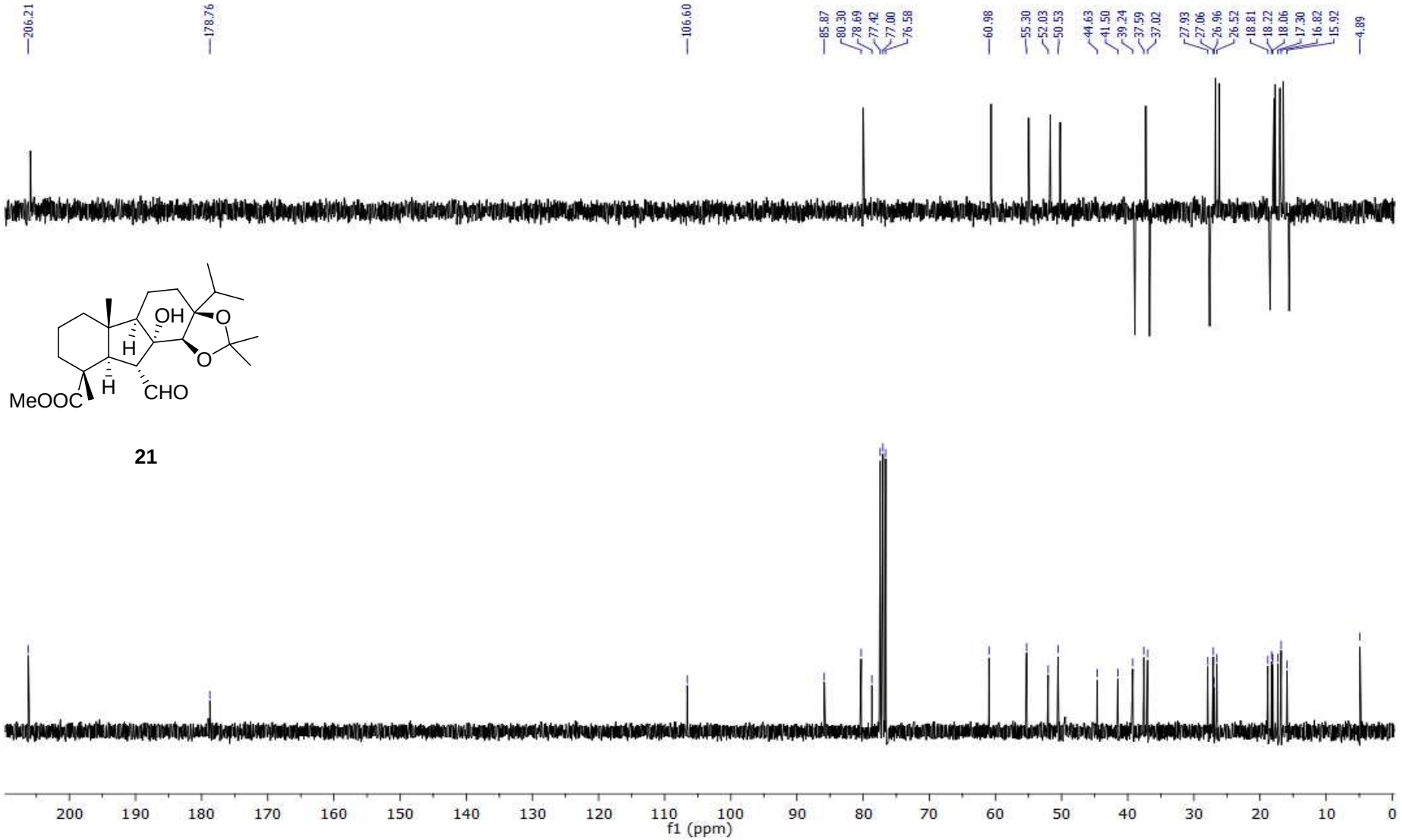

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201.95
178.45
109.82
89.96
84.52
56.21
52.07
47.13
42.65
39.79
38.51
36.13
35.30
33.41
27.63
27.36
26.65
20.32
19.88
18.28
17.67
16.44
14.05
O
O
H
O
H
MeOOC
CHO
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)

20

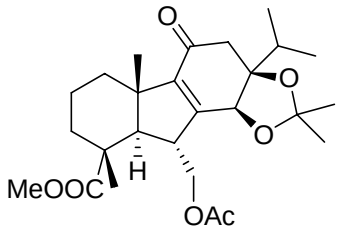

OH
O
O
H
H
MeOOC
CHO

21

9.57
9.57
4.02
3.62
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2.97
2.94
2.93
2.67
2.63
1.96
1.93
1.91
1.89
1.87
1.42
1.41
1.32
1.04
1.01
0.99
0.97
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
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4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)

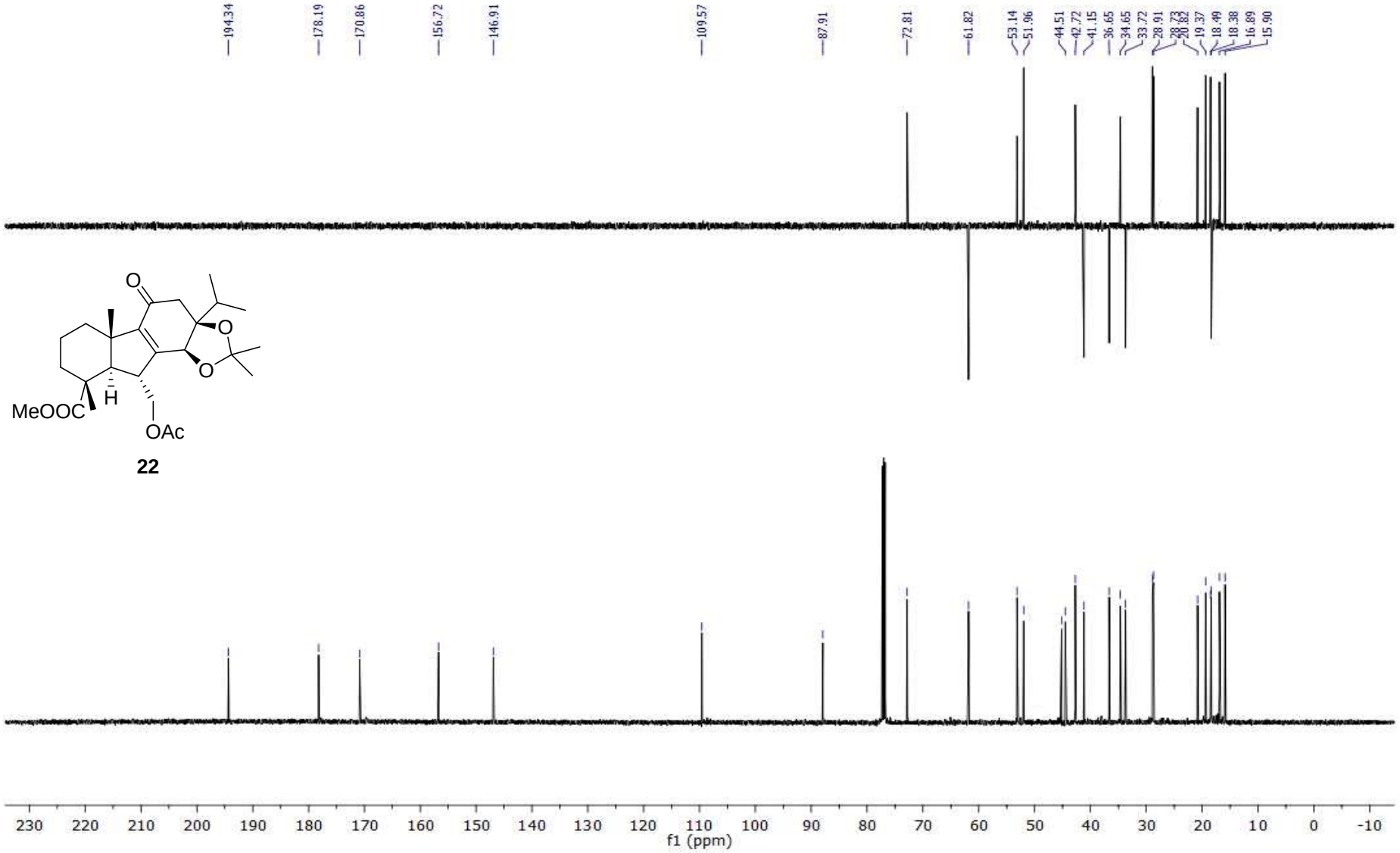

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52.03
50.53
44.63
41.50
39.24
37.59
37.02
27.93
27.06
26.96
26.52
18.81
18.22
18.06
17.30
16.82
15.92
4.89
OH
O
O
H
H
MeOOC
CHO
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
f1 (ppm)

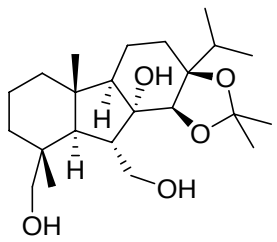
21


O
O
O
H
MeOOC
OAc

22

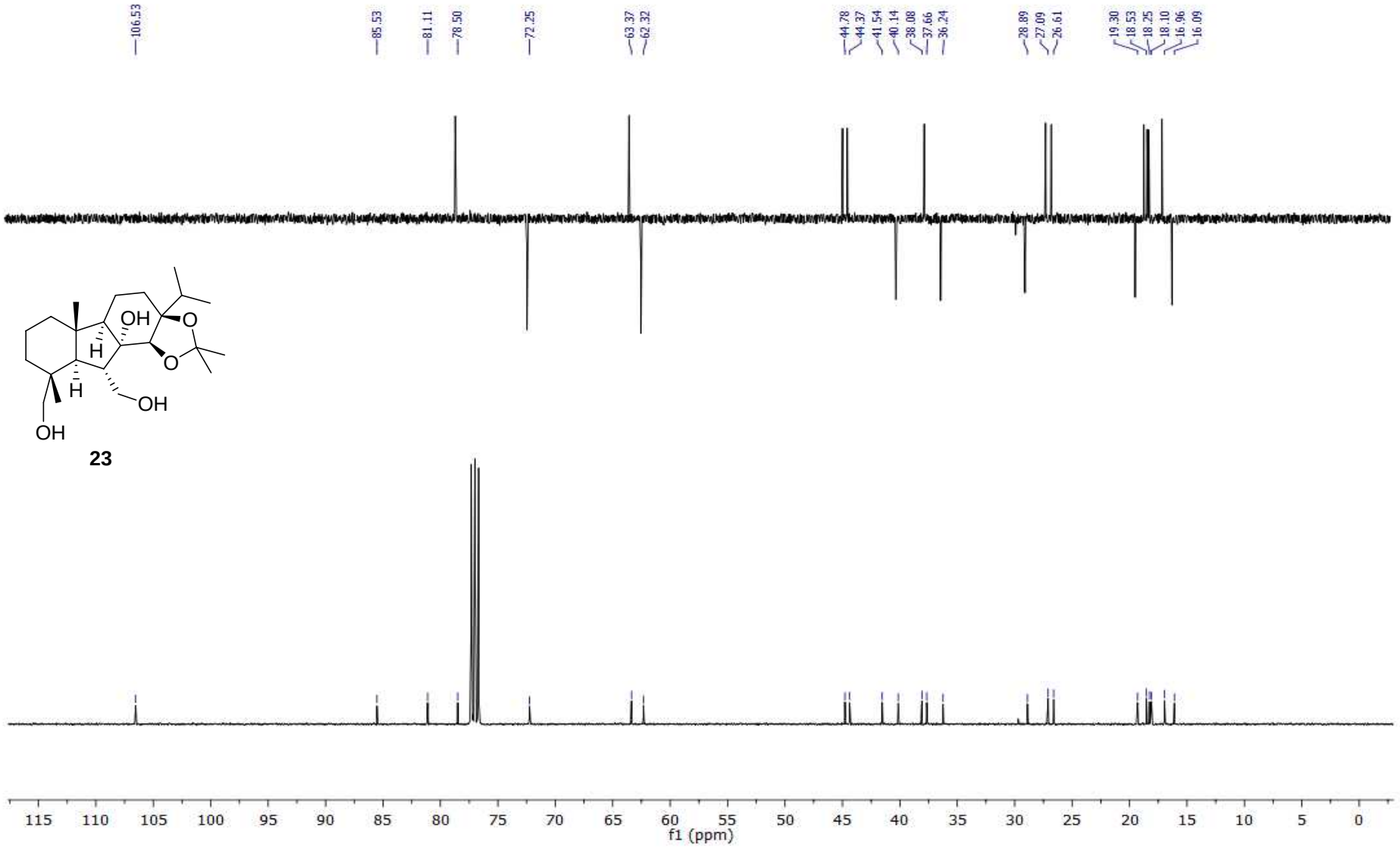
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1.40
1.35
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1.12
0.99
0.97
0.91
0.90
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)


194.34
178.19
170.86
156.72
146.91
109.57
87.91
72.81
61.82
53.14
51.96
44.51
42.72
41.15
36.65
34.65
33.72
28.91
28.73
28.62
20.82
19.37
18.49
18.38
16.89
15.90
O
O
O
H
MeOOC
OAc
22
230
220
210
200
190
180
170
160
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140
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120
110
100
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80
70
60
50
40
30
20
10
0
-10
f1 (ppm)

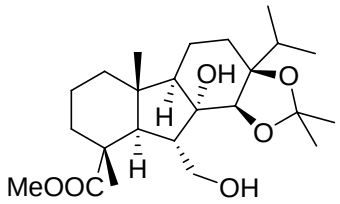

OH
O
H
O
H
OH
OH

23

1.42
1.35
1.07
1.05
1.01
0.99
0.92
0.81
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)

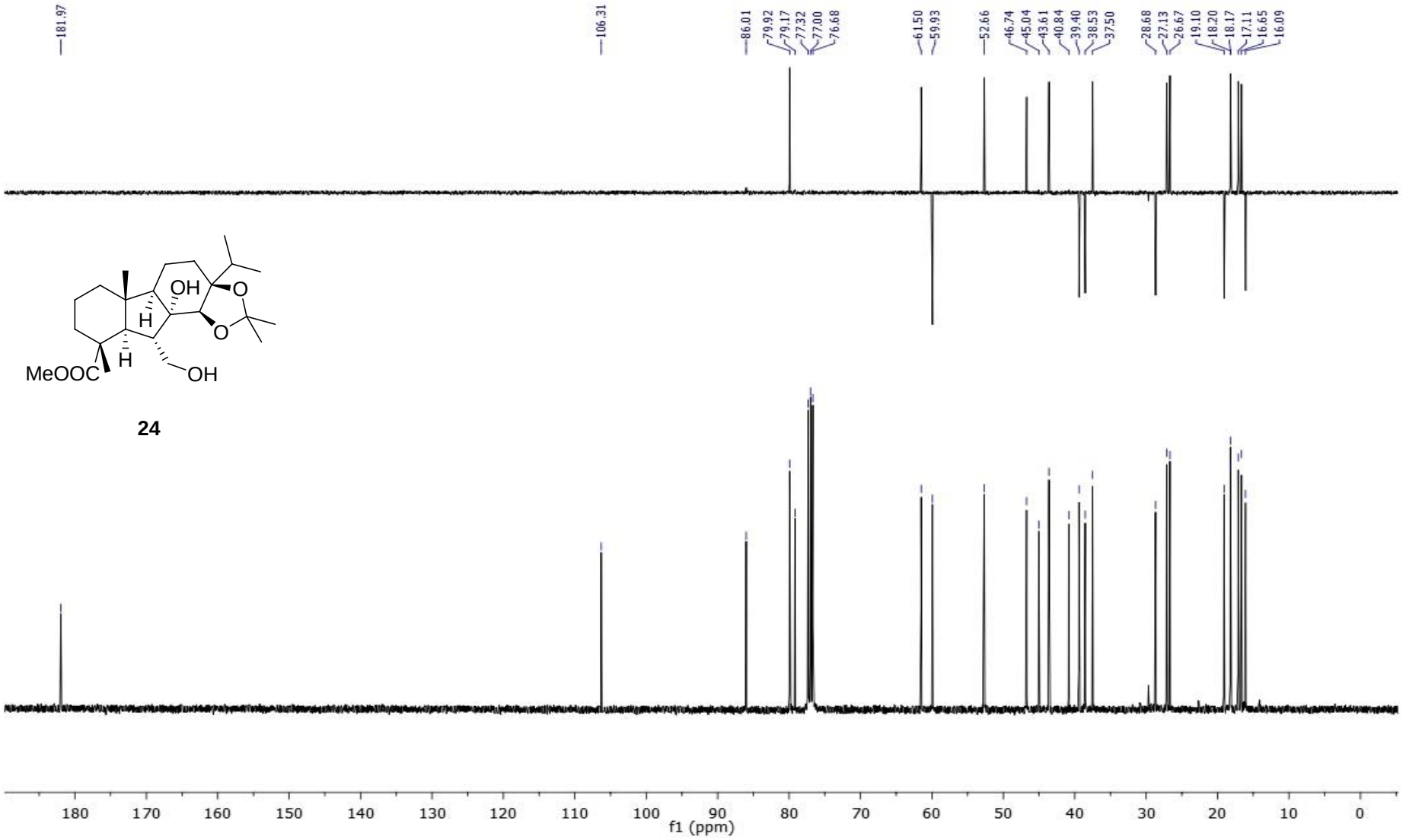

106.53
85.53
81.11
78.50
72.25
63.37
62.32
44.78
44.37
41.54
40.14
38.08
37.66
36.24
28.89
27.09
26.61
19.30
18.53
18.25
18.10
16.96
16.09
OH
O
H
O
H
OH
OH
115 110 105 100 95 90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0
f1 (ppm)

23

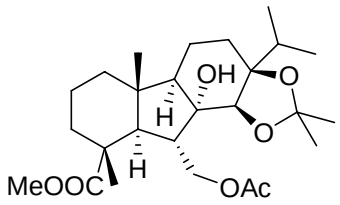

OH
O
H
O
H
MeOOC
OH

24

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1.42
1.34
1.29
1.05
1.03
1.01
0.99
0.92
7.5
7.0
6.5
6.0
5.5
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f1 (ppm)

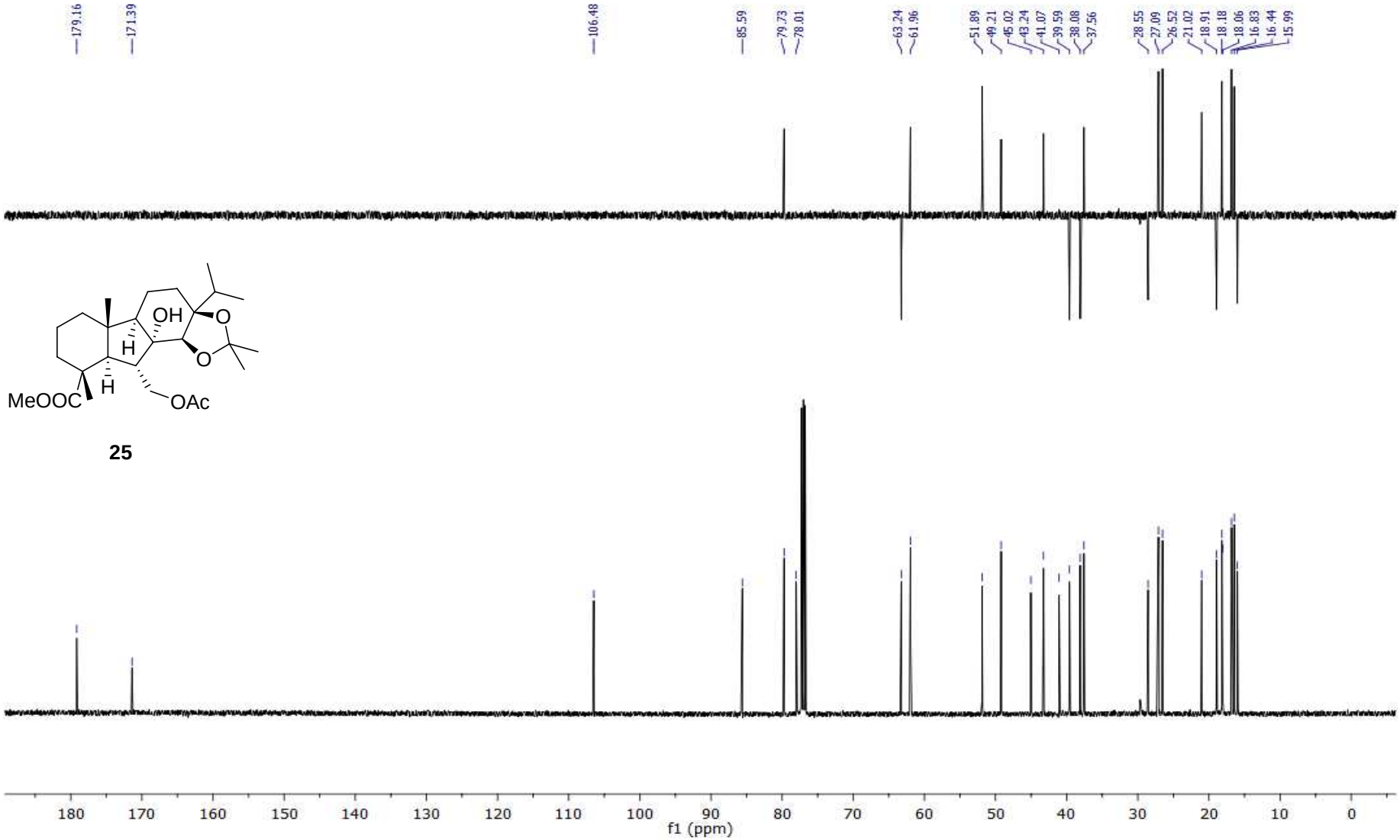

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79.17
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77.00
76.68
61.50
59.93
52.66
46.74
45.04
43.61
40.84
39.40
38.53
37.50
28.68
27.13
26.67
19.10
18.20
18.17
17.11
16.65
16.09
OH
O
O
H
H
MeOOC
OH
180
170
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130
120
110
100
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80
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60
50
40
30
20
10
0
f1 (ppm)

24

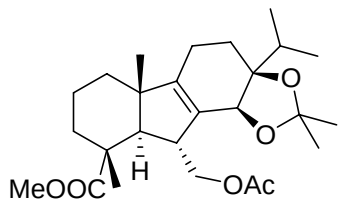

OH
O
O
H
H
MeOOC
OAc

25

3.63
2.02
1.44
1.34
1.33
1.03
1.01
0.97
0.95
7.5
7.0
6.5
6.0
5.5
5.0
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2.5
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1.0
0.5
0.0
f1 (ppm)

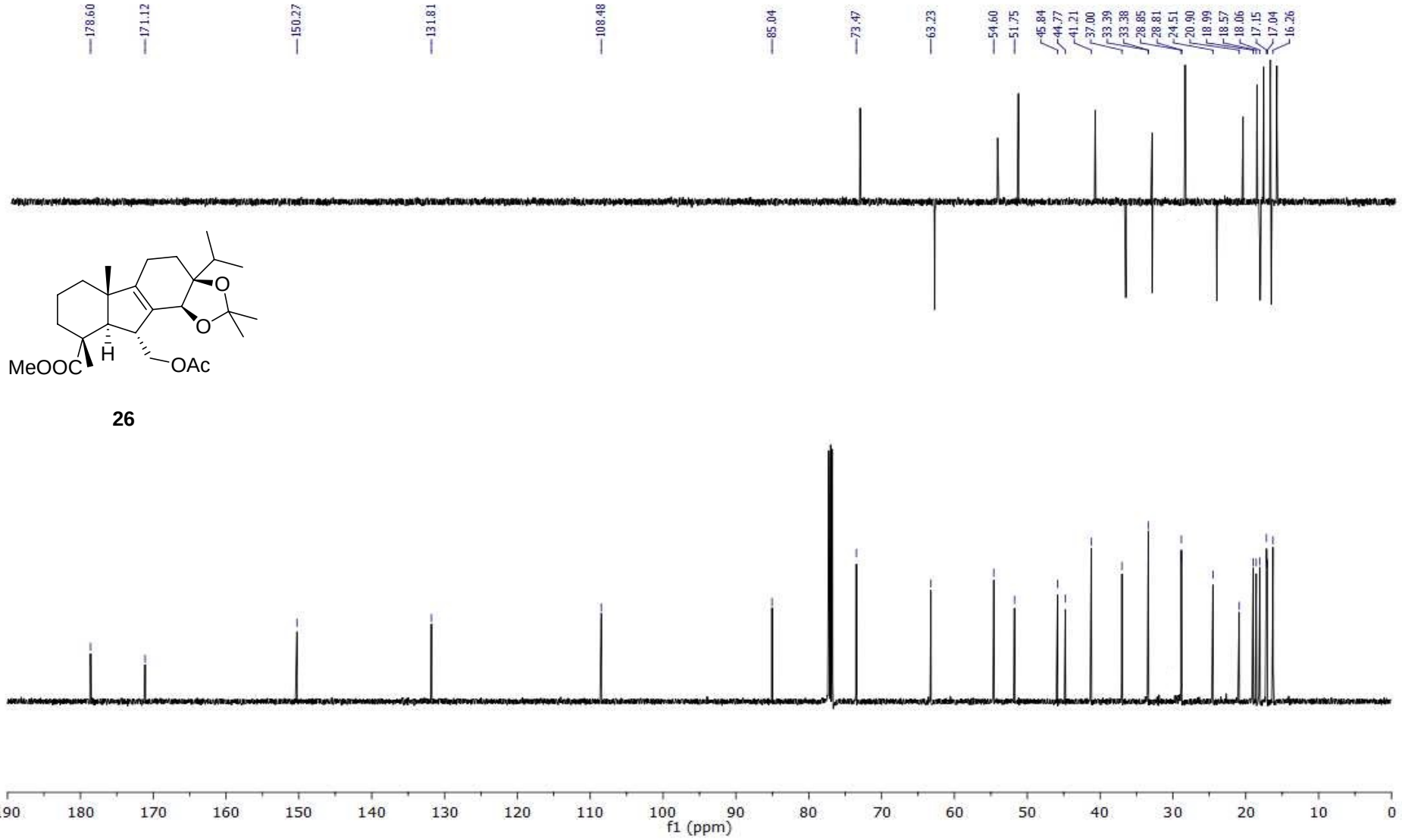

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171.39
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85.59
79.73
78.01
63.24
61.96
51.89
49.21
45.02
43.24
41.07
39.59
38.08
37.56
28.55
27.09
26.52
21.02
18.91
18.18
18.06
16.83
16.44
15.99
OH
O
O
H
H
MeOOC
OAc
180
170
160
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120
110
100
90
80
70
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50
40
30
20
10
0
f1 (ppm)

25

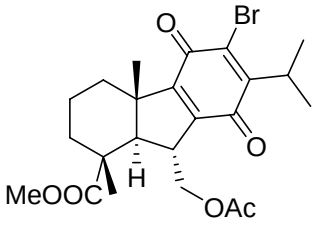

MeOOC
H
OAc
O
O

26

3.59
3.59
2.02
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1.35
1.30
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0.99
0.96
0.89
0.87
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
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3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)

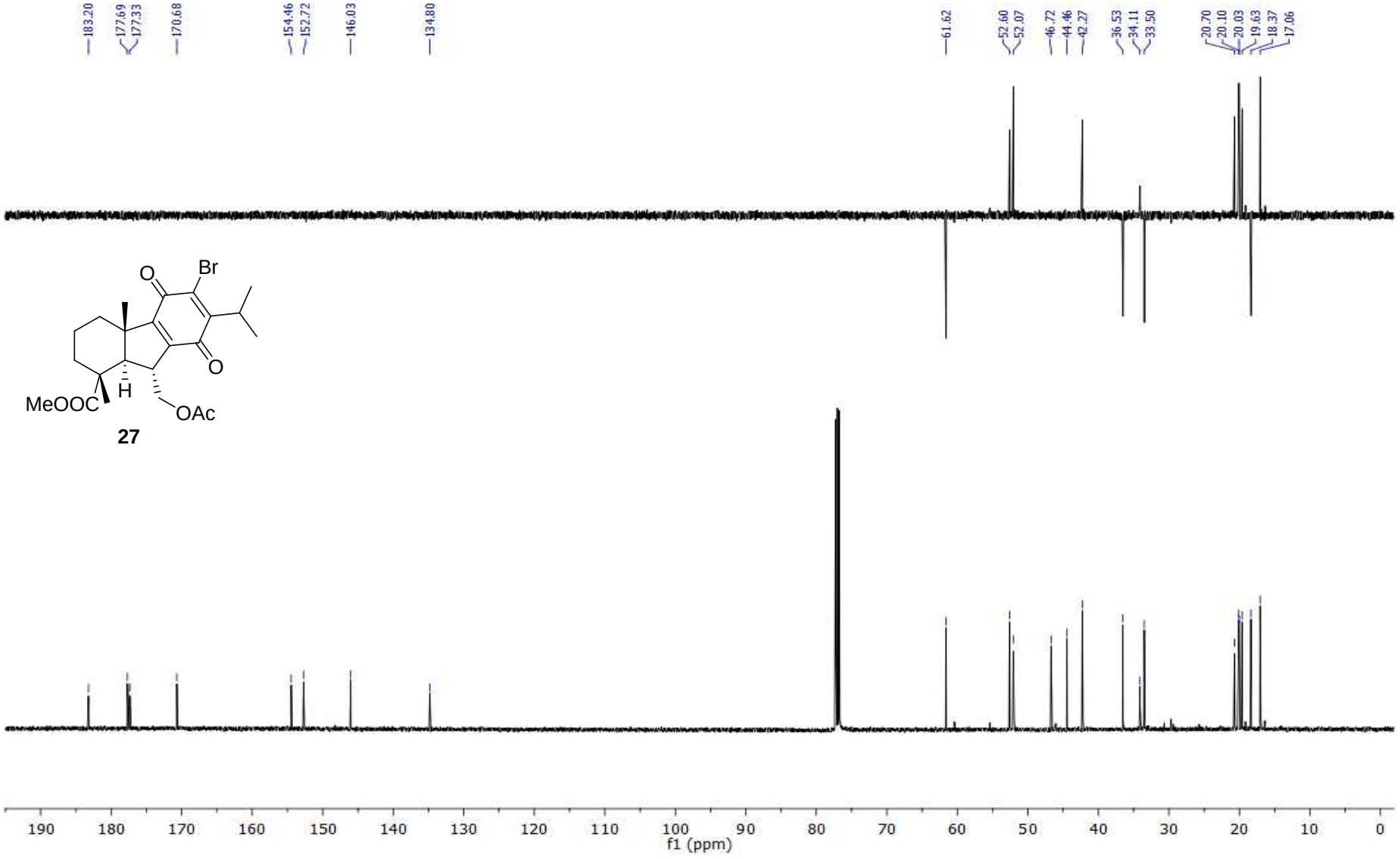

178.60
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85.04
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45.84
44.77
41.21
37.00
33.39
33.38
28.85
28.81
24.51
20.90
18.99
18.57
18.06
17.15
17.04
16.26
O
O
H
MeOOC
OAc
190
180
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0
f1 (ppm)

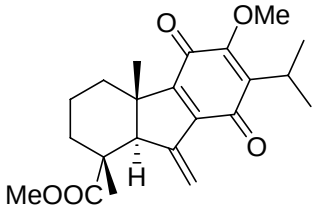
26


O
Br
O
H
MeOOC
OAc

27

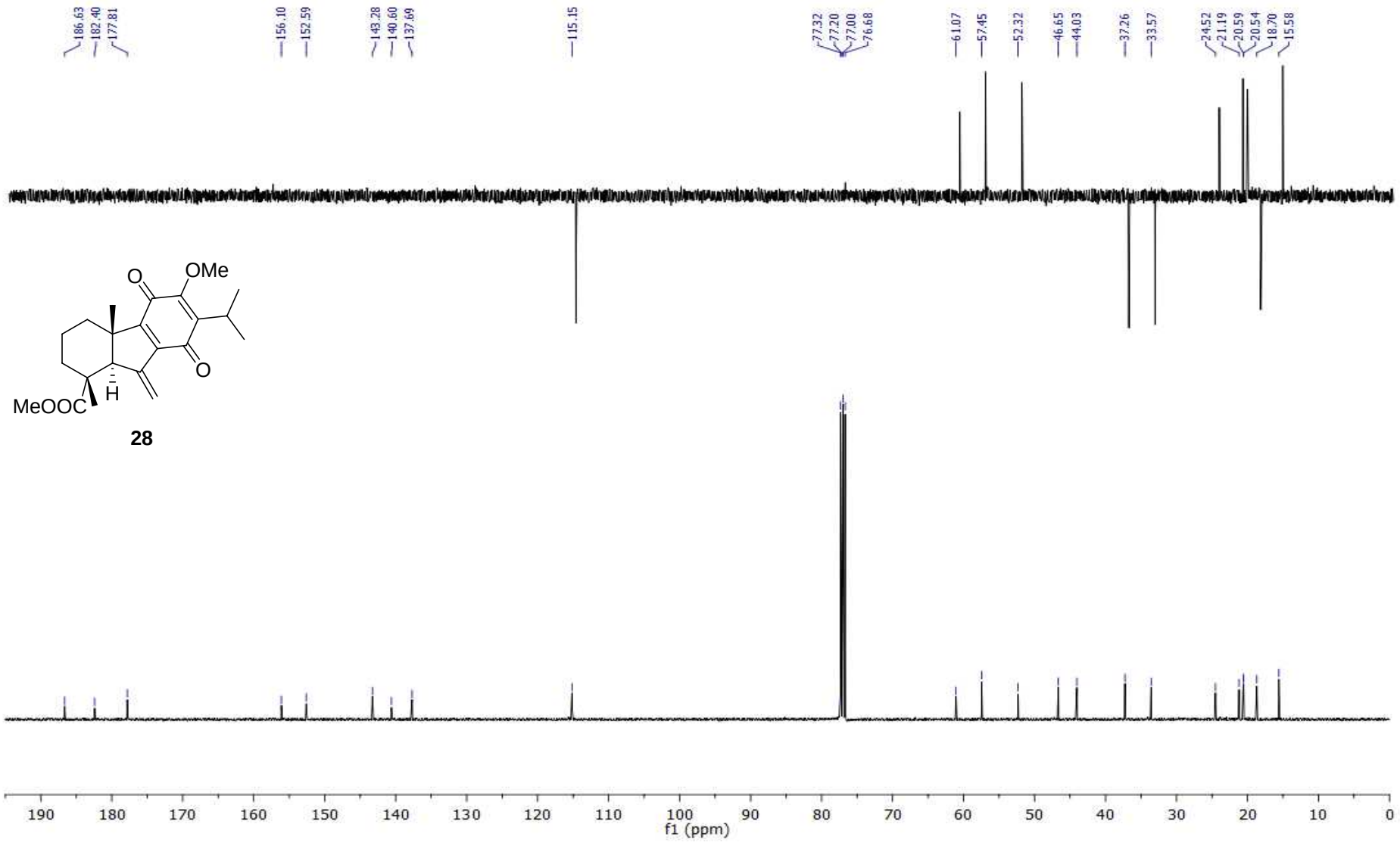
3.60
1.99
1.37
1.32
1.31
1.25
1.24
1.15
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
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1.0
0.5
0.0
f1 (ppm)

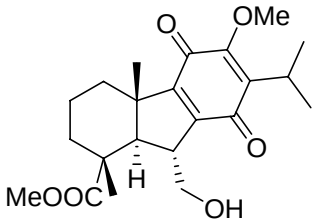

183.20
177.69
177.33
170.68
154.46
152.72
146.03
134.80
61.62
52.60
52.07
46.72
44.46
42.27
36.53
34.11
33.50
20.70
20.10
20.03
19.63
18.37
17.06
O
Br
O
H
MeOOC
OAc
27
190
180
170
160
150
140
130
120
110
100
90
80
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60
50
40
30
20
10
0
f1 (ppm)


O
OMe
O
H
MeOOC

28

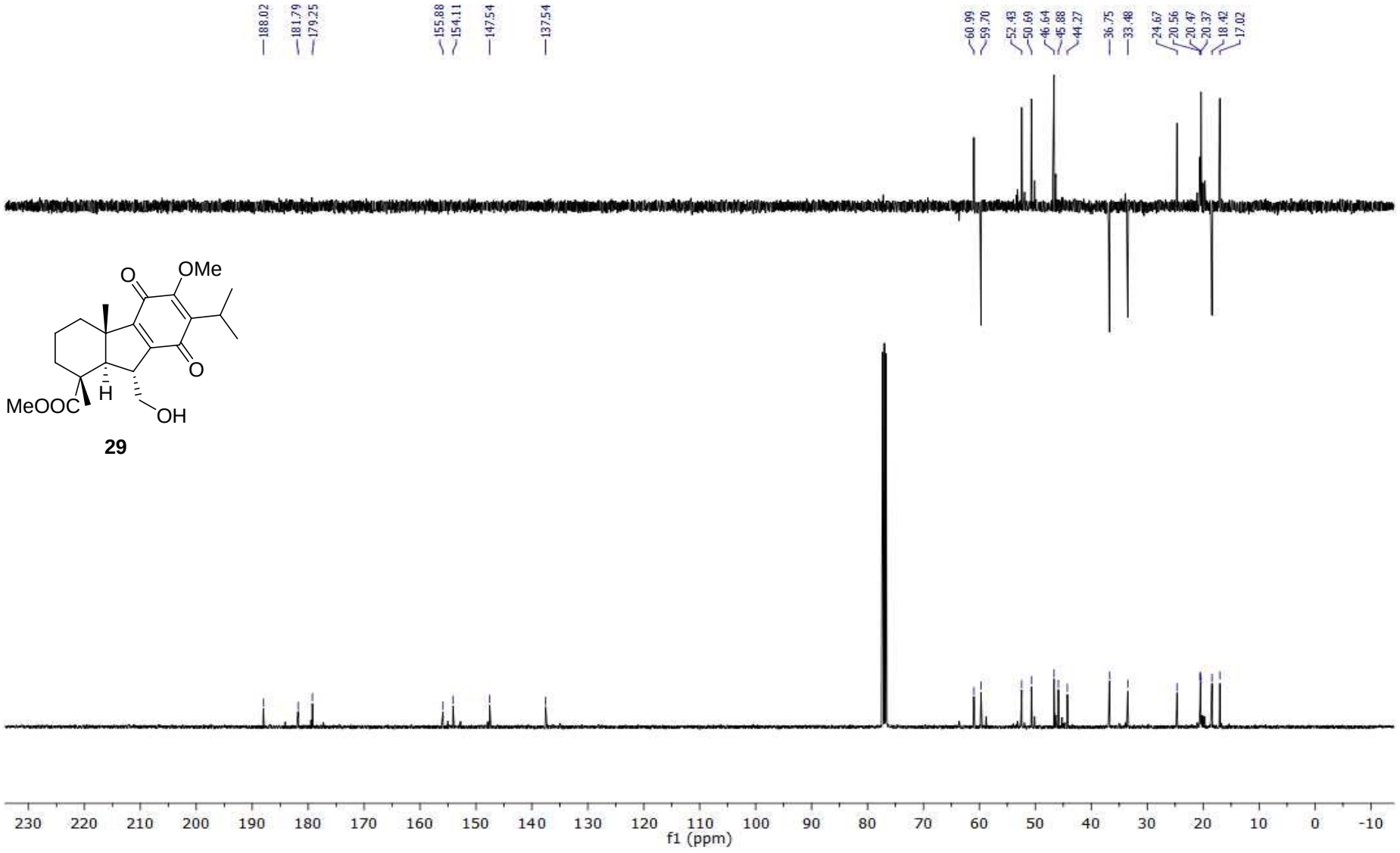
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3.69
1.43
1.23
1.22
1.21
1.21
1.14
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)

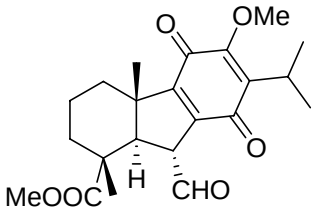

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182.40
177.81
156.10
152.59
143.28
140.60
137.69
115.15
77.32
77.20
77.00
76.68
61.07
57.45
52.32
46.65
44.03
37.26
33.57
24.52
21.19
20.59
20.54
18.70
15.58
O
OMe
O
H
MeOOC
28
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
f1 (ppm)


O
OMe
O
H
MeOOC
OH

29

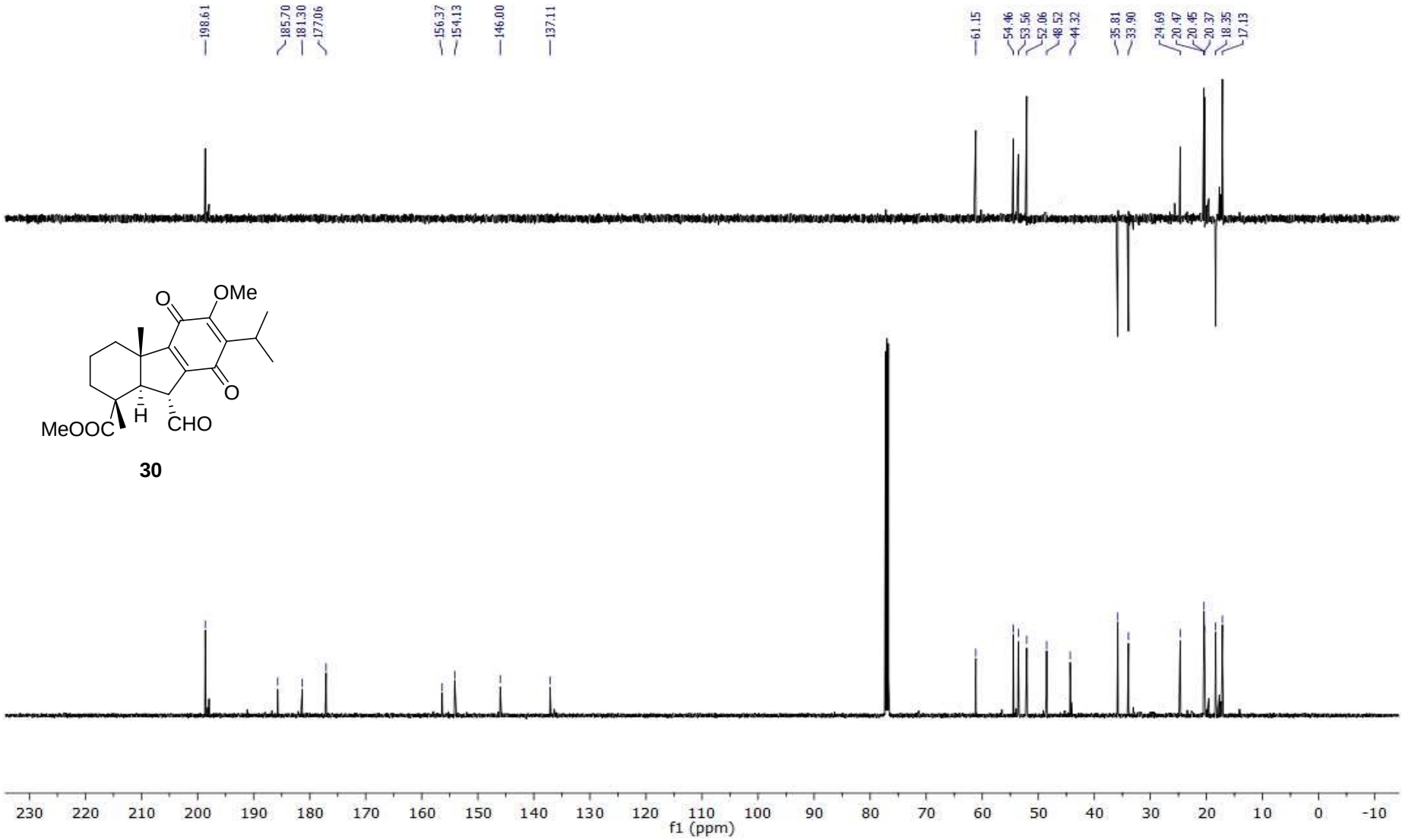
3.95
3.72
3.71
1.38
1.23
1.21
1.20
1.18
1.17
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)


188.02
181.79
179.25
155.88
154.11
147.54
137.54
60.99
59.70
52.43
50.69
46.64
45.88
44.27
36.75
33.48
24.67
20.56
20.47
20.37
18.42
17.02
O
OMe
O
H
MeOOC
OH
29
230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

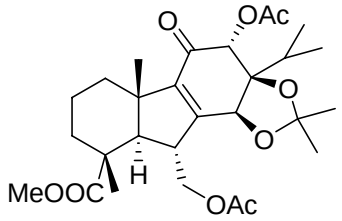

O
OMe
O
H
MeOOC
CHO

30

3.94
3.56
1.37
1.18
1.17
1.16
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)

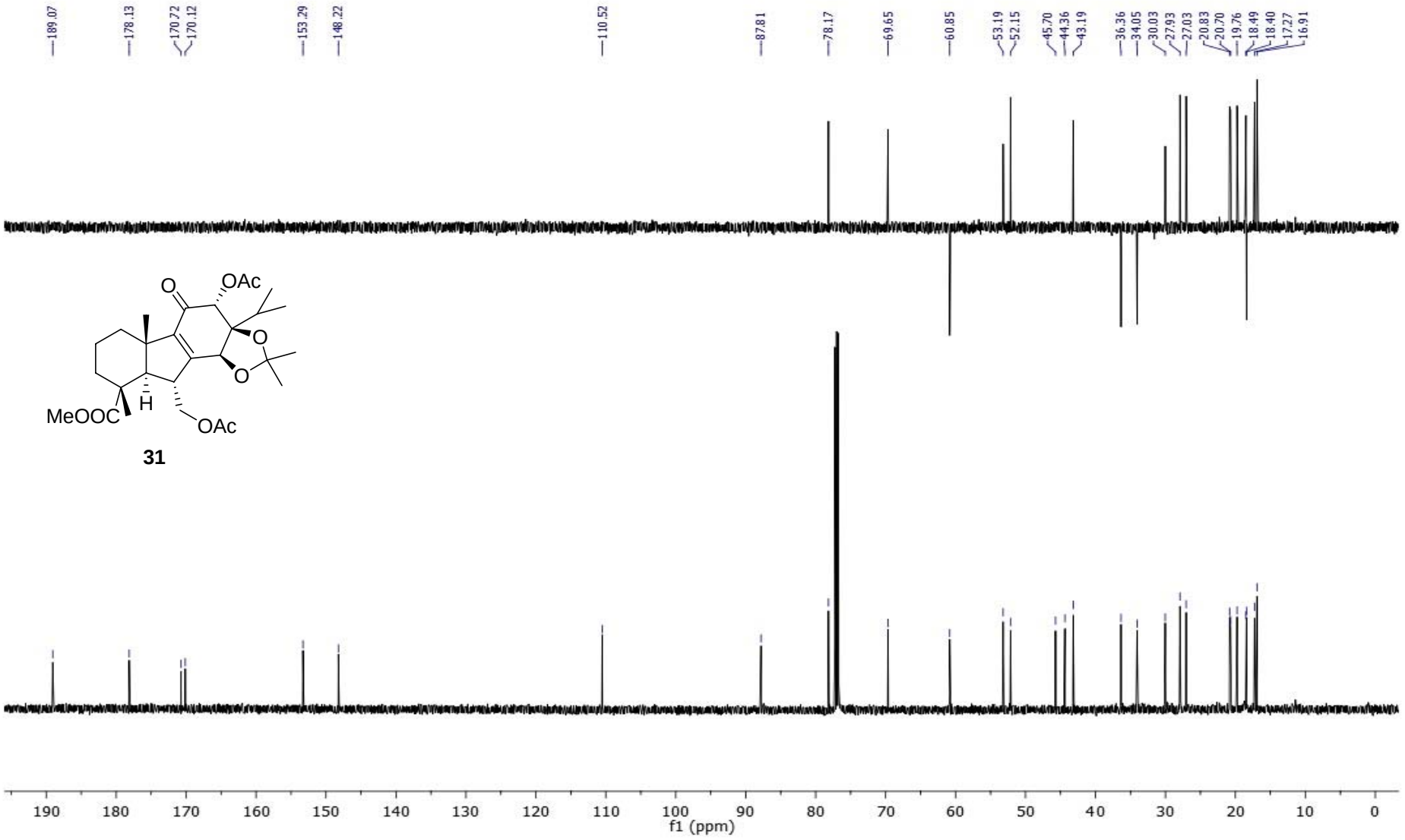

198.61
185.70
181.30
177.06
156.37
154.13
146.00
137.11
61.15
54.46
53.56
52.06
48.52
44.32
35.81
33.90
24.69
20.47
20.45
20.37
18.35
17.13
O
OMe
O
H
MeOOC
CHO
230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

30

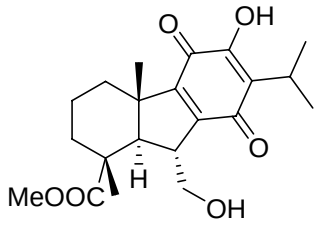

O
OAc
O
O
H
MeOOC
OAc

31

3.63
2.24
2.07
1.53
1.41
1.36
1.11
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)

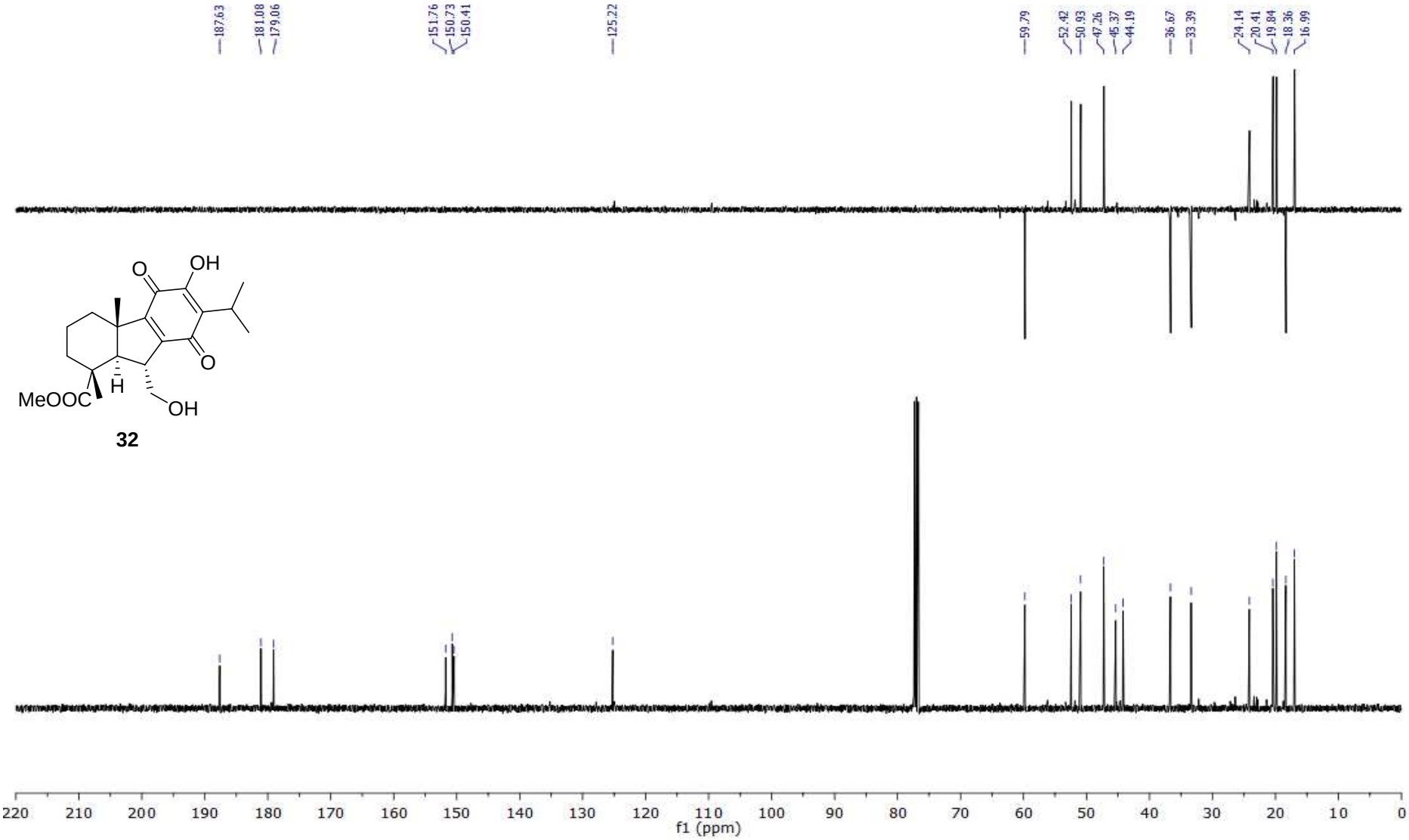

189.07
178.13
170.72
170.12
153.29
148.22
110.52
87.81
78.17
69.65
60.85
53.19
52.15
45.70
44.36
43.19
36.36
34.05
30.03
27.93
27.03
20.83
20.70
19.76
18.49
18.40
17.27
16.91
O
OAc
O
O
H
MeOOC
OAc
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
f1 (ppm)

31

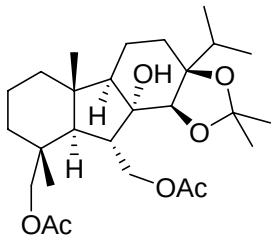

O
OH
O
H
MeOOC
OH

32

3.70
1.37
1.23
1.21
1.19
1.16
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)

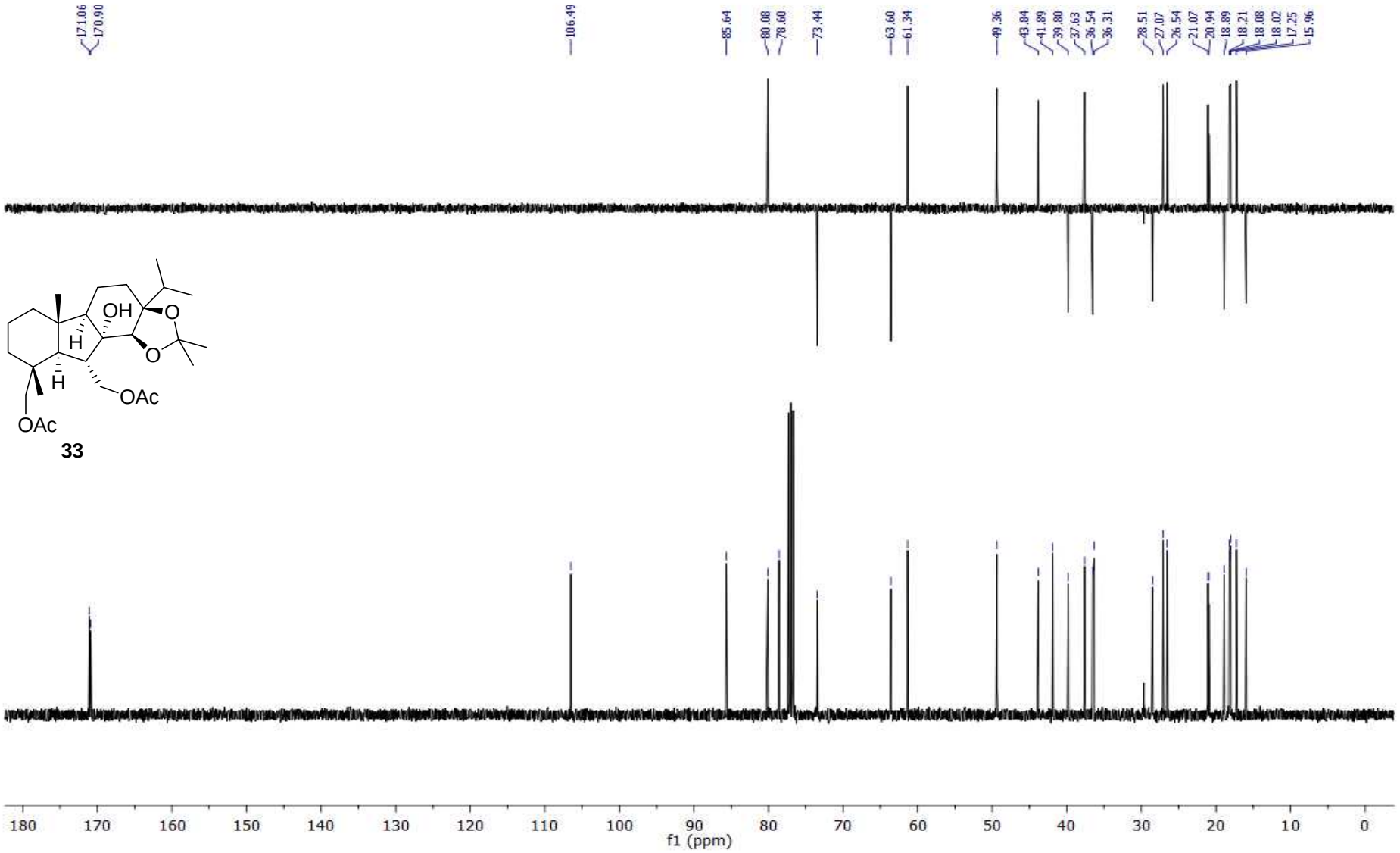

187.63
181.08
179.06
151.76
150.73
150.41
125.22
59.79
52.42
50.93
47.26
45.37
44.19
36.67
33.39
24.14
20.41
19.84
18.36
16.99
O
OH
O
H
MeOOC
OH
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
f1 (ppm)

32

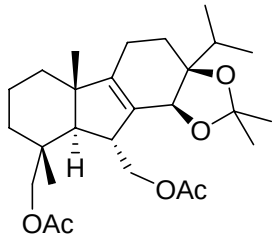

OH
O
O
H
H
OAc
OAc

33

2.07
2.05
1.44
1.34
1.04
1.02
1.00
0.98
0.96
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)

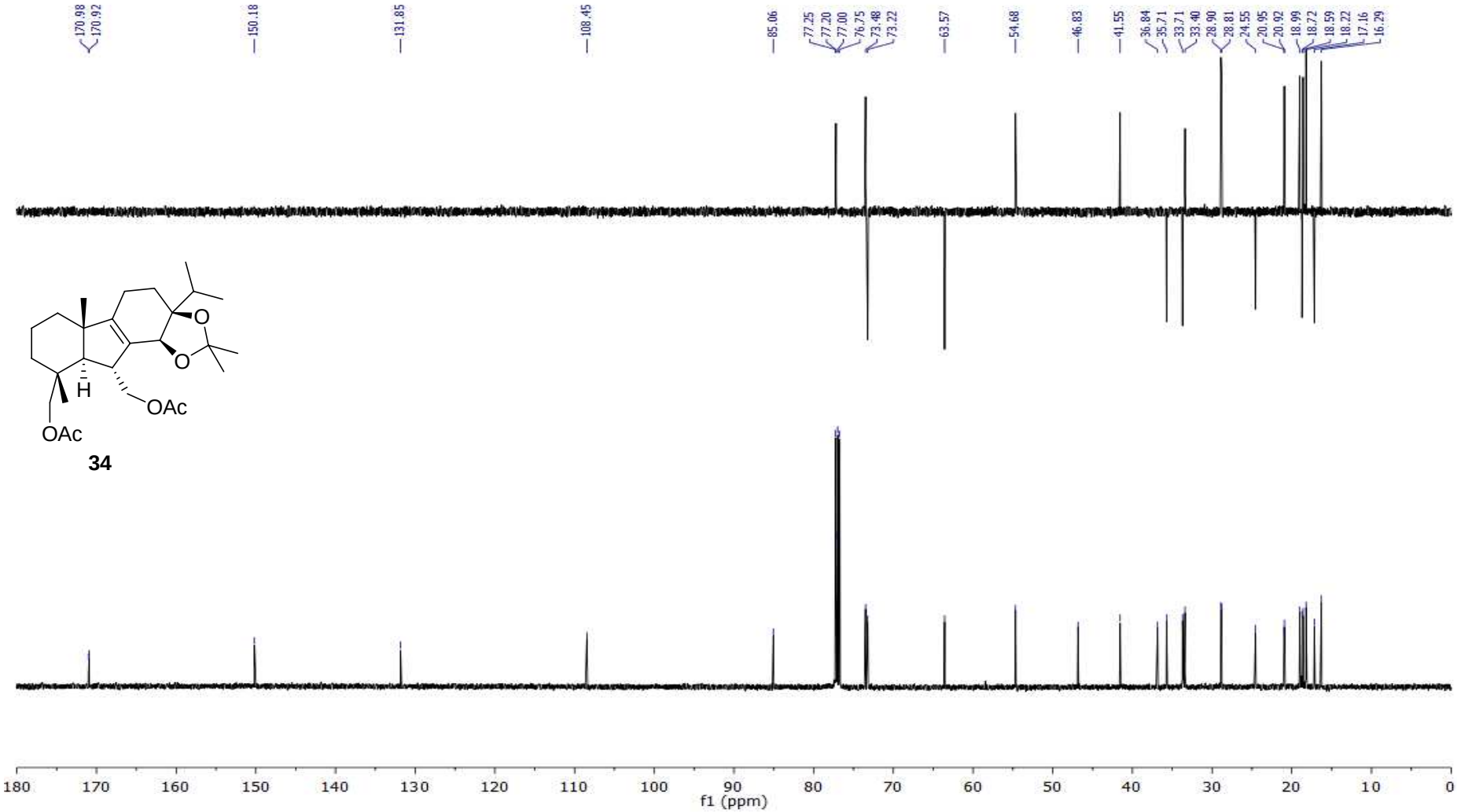

171.06
170.90
106.49
85.64
80.08
78.60
73.44
63.60
61.34
49.36
43.84
41.89
39.80
37.63
36.54
36.31
28.51
27.07
26.54
21.07
20.94
18.89
18.21
18.08
18.02
17.25
15.96
OH
O
H
O
H
OAc
OAc
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
f1 (ppm)

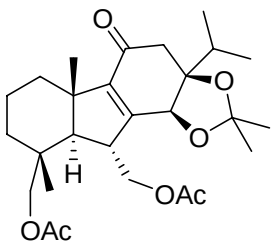
33


O
O
H
OAc
OAc

34

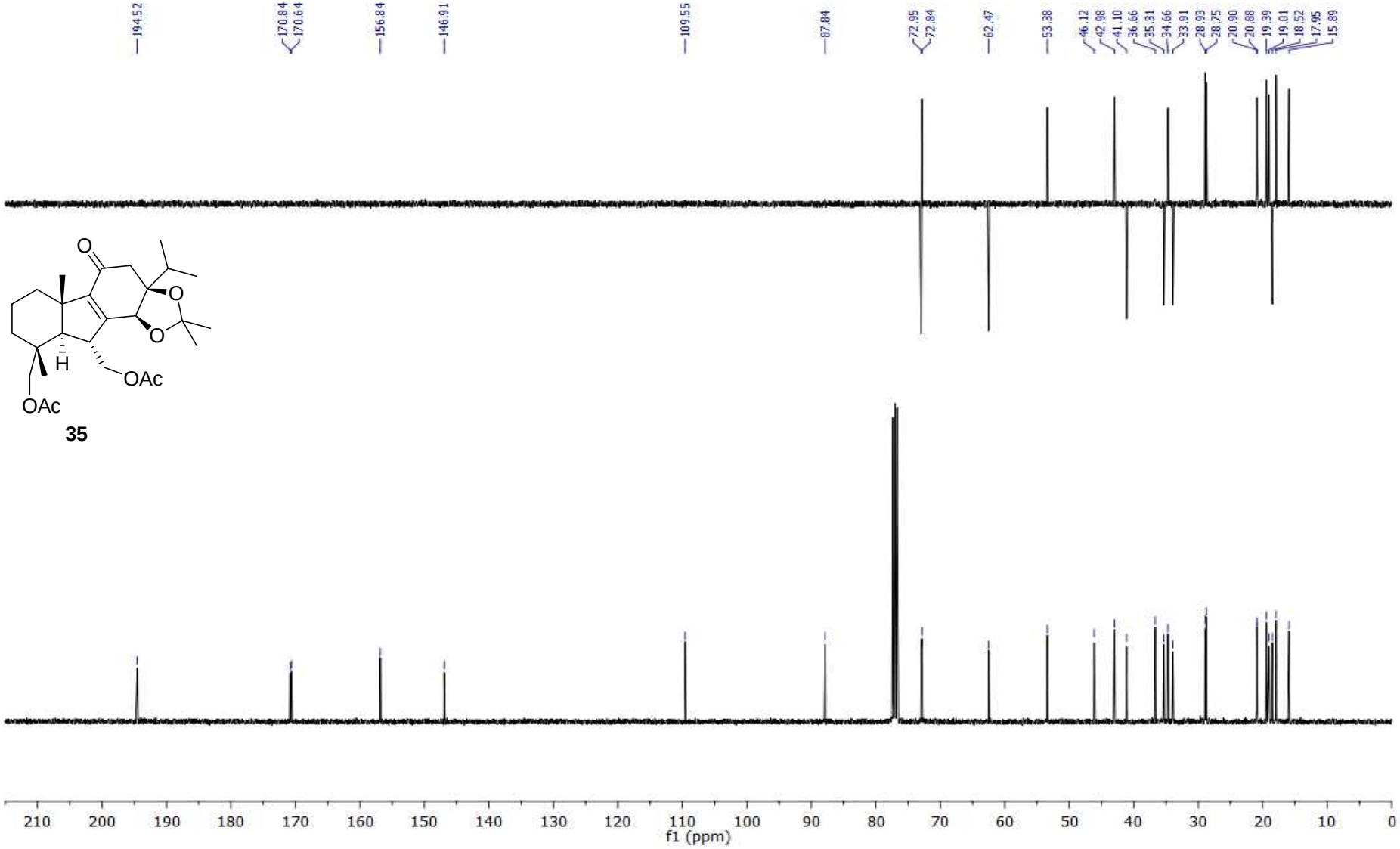
2.07
2.05
1.44
1.34
1.04
1.02
1.00
0.98
0.96
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)


170.98
170.92
150.18
131.85
108.45
85.06
77.25
77.20
77.00
76.75
73.48
73.22
63.57
54.68
46.83
41.55
36.84
35.71
33.71
33.40
28.90
28.81
24.55
20.95
20.92
18.99
18.72
18.59
18.22
17.16
16.29
O
O
H
OAc
OAc
34
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
f1 (ppm)

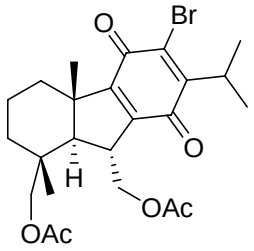

O
O
O
H
OAc
OAc

35

2.06
2.05
1.41
1.28
1.12
1.06
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)

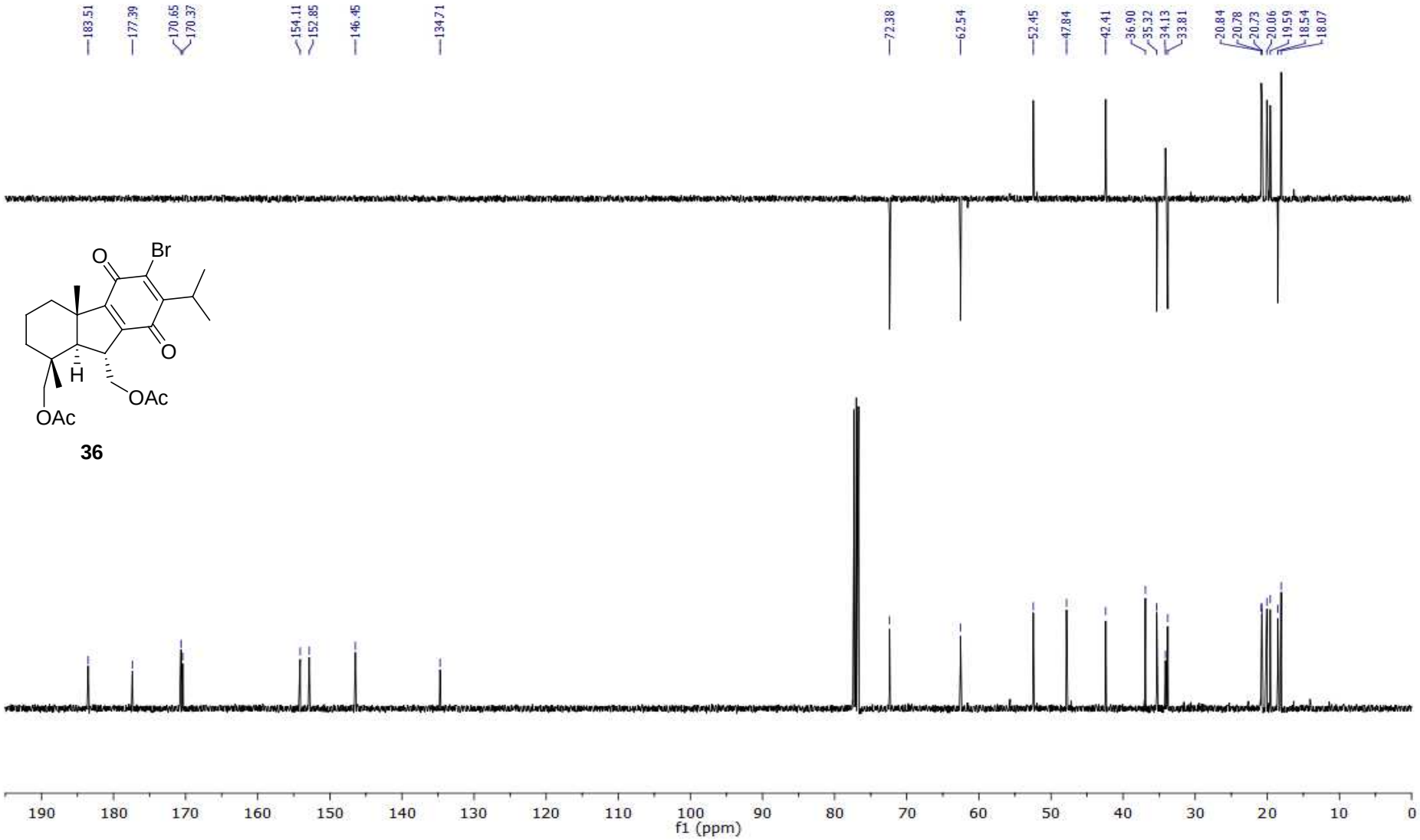

194.52
170.84
170.64
156.84
146.91
109.55
87.84
72.95
72.84
62.47
53.38
46.12
42.98
41.10
36.66
35.31
34.66
33.91
28.93
28.75
20.90
20.88
19.39
19.01
18.52
17.95
15.89
O
O
O
H
OAc
OAc
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
f1 (ppm)

35


O
Br
O
H
OAc
OAc

36

2.02
1.98
1.33
1.31
1.25
1.24
1.15
1.07
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)


183.51
177.39
170.65
170.37
154.11
152.85
146.45
134.71
72.38
62.54
52.45
47.84
42.41
36.90
35.32
34.13
33.81
20.84
20.78
20.73
20.06
19.59
18.54
18.07
O
Br
O
H
OAc
OAc
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
f1 (ppm)

36