Supplementary material for the article: Gastroprotective activity of *Parastrephia quadrangularis* (Meyen), Cabrera from the Atacama Desert

Alejandro Ardiles[1], Ruth Barrientos[2], Mario J. Simirgiotis[2,3*], Jorge Bórquez[4], Beatriz Sepulveda[5], Carlos Areche[6*]

[1]Departamento de Química y Farmacia, Facultad de Ciencias, Universidad Católica del Norte, Angamos 0610, Antofagasta, Chile.

[2]Instituto de Farmacia, Facultad de Ciencias, Universidad Austral de Chile, Casilla 567, Valdivia, 5090000, Chile

[3]Center for Interdisciplinary Studies on the Nervous System (CISNe), Universidad Austral de Chile, Valdivia 5090000, Chile

[4]Laboratorio de Productos Naturales, Departamento de Química, Facultad de Ciencias Básicas, Universidad de Antofagasta, Casilla 170, Antofagasta, 1240000, Chile

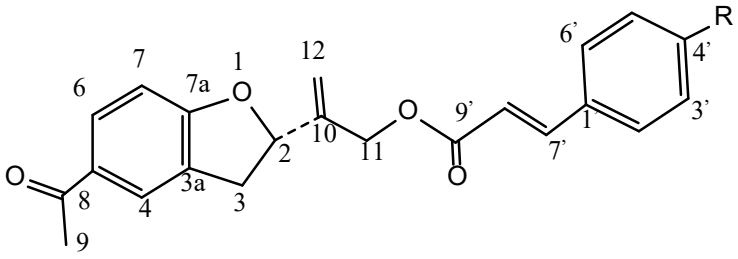
[5]Departamento de Ciencias Químicas, Universidad Andres Bello, Campus Viña del Mar, Quillota 980, Viña del Mar, 2520000, Chile

[6]Departamento de Química, Facultad de Ciencias, Universidad de Chile, Santiago, 8320198, Chile

Table S1. ^{1}H NMR data, HMBC and COSY correlations for compound **6** in $CDCl_3$ (J in Hz in parentheses)

Proton	δ_H mult. (J in Hz)	COSY (H→H)	HMBC (H→C)
2 β	5.46 d (8.8)	H-3α, H-3β	
3 α	3.28 dd (15.9, 7.8)	H-3β, H-2β	
3 β	3.50 dd (15.9, 9.8)	H-3α, H-2β	

4	7.85 s		
6	7.83 d (8.5)	H-7	C-4, 7a
7	6.84 d (8.3)	H-6	C-5, 7a
9	2.50 s		C-5,8
11	4.84 (13.4)	H-12	C-12,10
12	5.38 d (8.8)	H-11	C-11,2,10
2'	7.40 d (8.6)		
3'	7.53 d (8.6)		
4'	7.40 m		
5'	7.53 d (8.6)		
6'	7.40 d (8.6)		
7'	7.65 d (15.9)	H-8'	C-9', 1'
8'	6.39 (15.9)	H-7'	



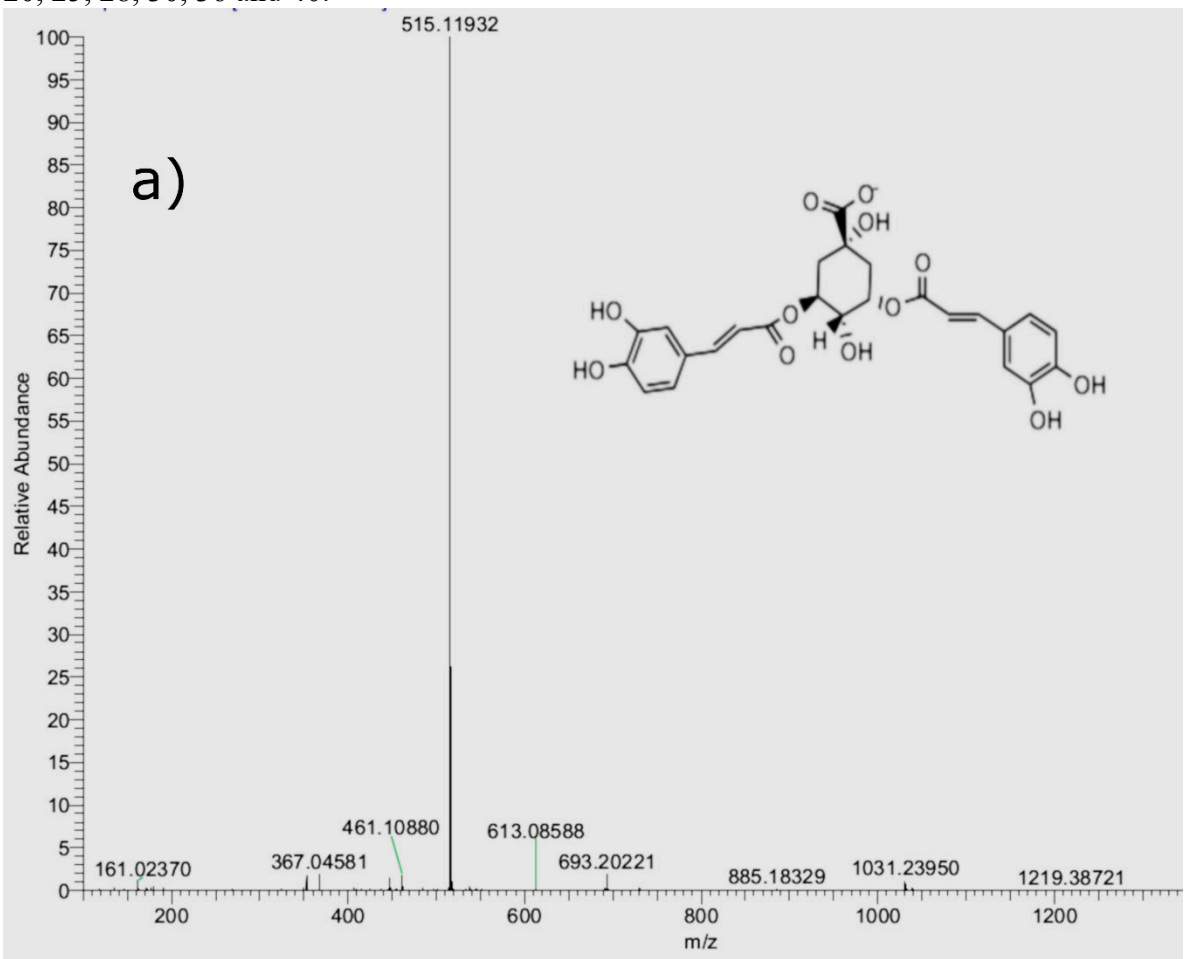
Compound **6** R= H
Compound **7** R= OH

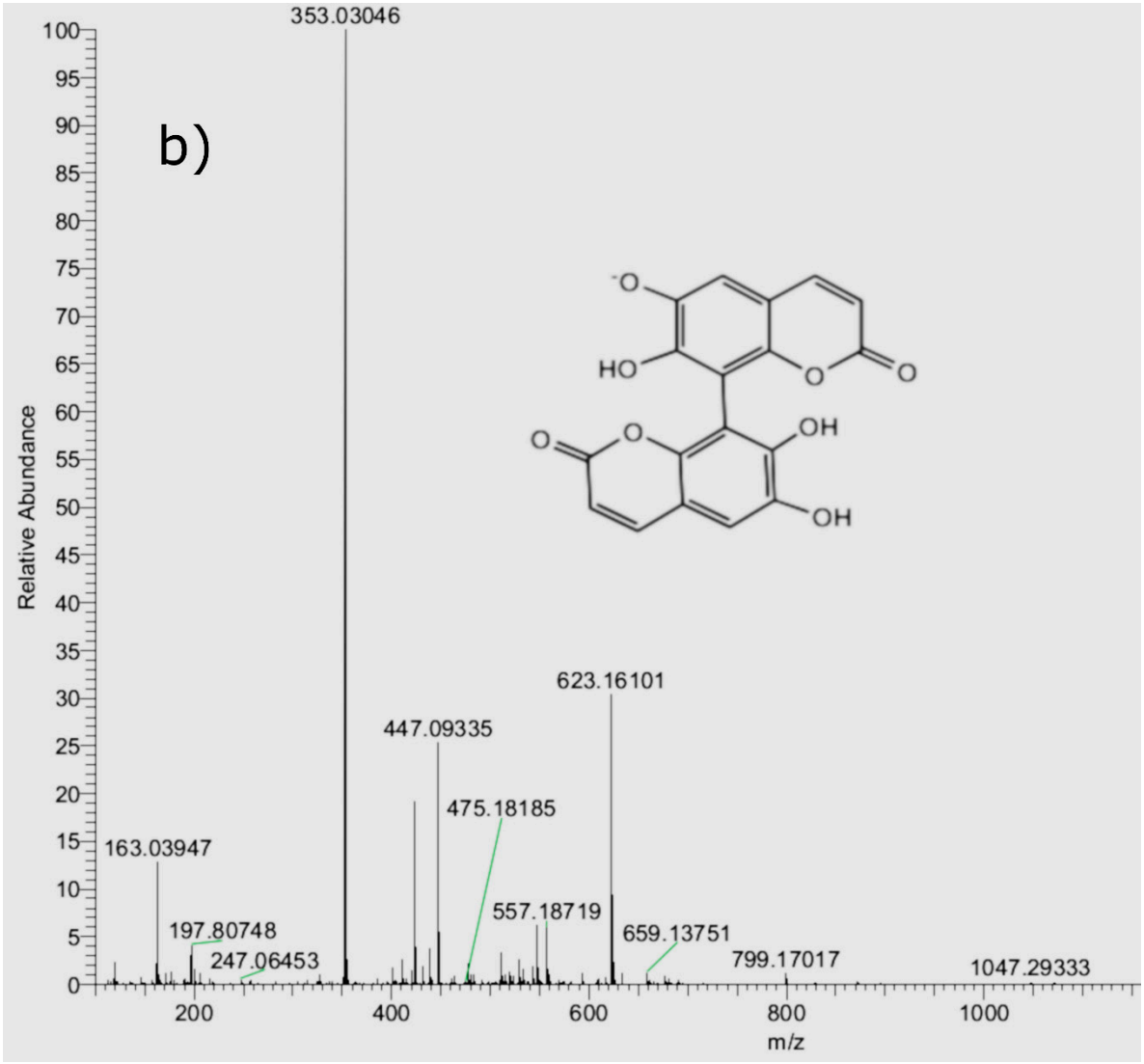
Table S2.[13]C NMR data (100.25 MHz) for compounds **6** and **7**

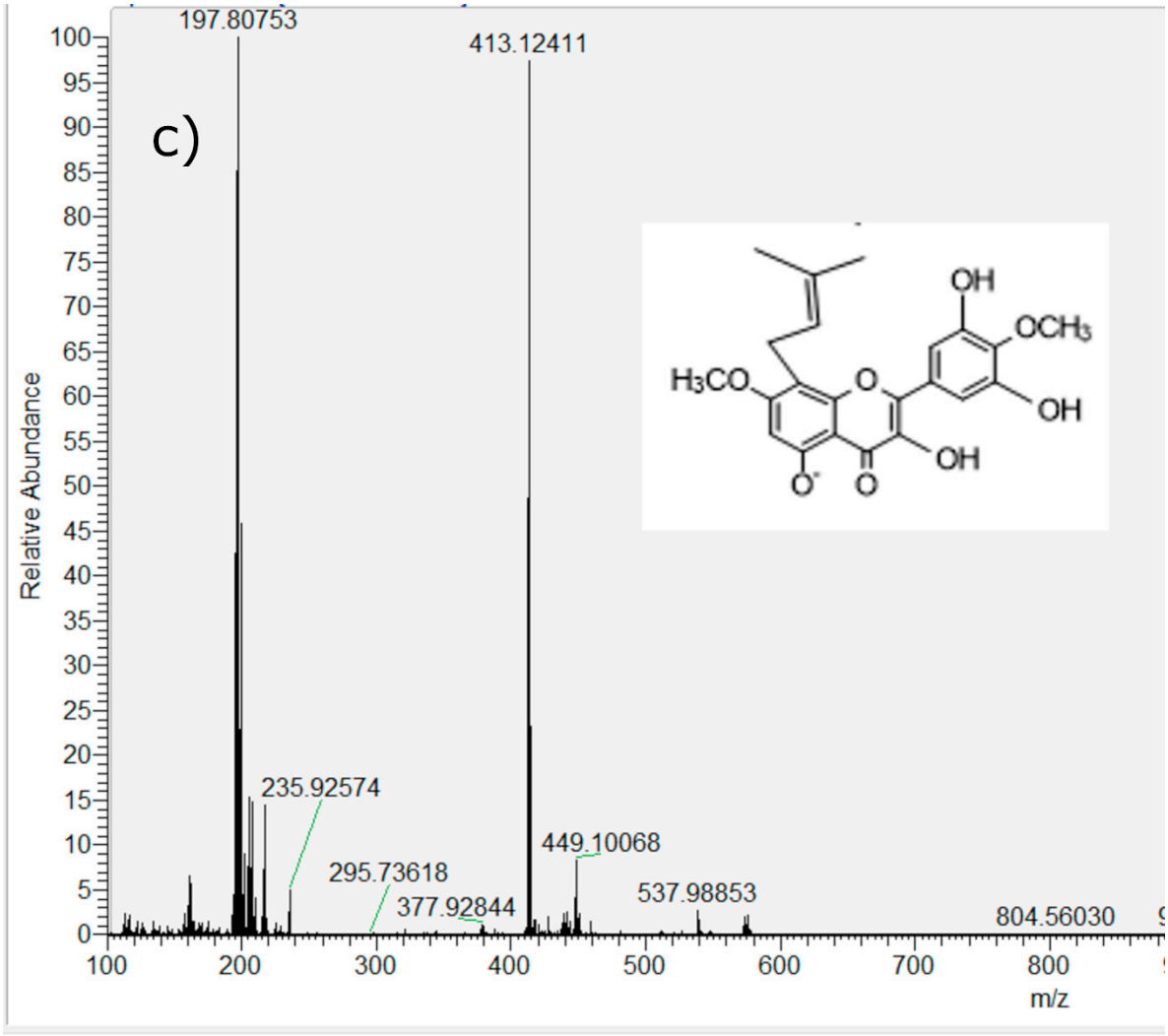
C#	6	7
2	84.6 d	84.5 d
3	35.1 t	34.7 t
3a	129.0 s	127.4 s
4	125.5 d	125.7 d
5	134.4 s	130.7 s
6	130.6	130.8 d
7	109.4 d	114.4 d
7a	162.8 s	163.9 s
8	196.8 s	197.7 s
9	26.4 q	26.3 q

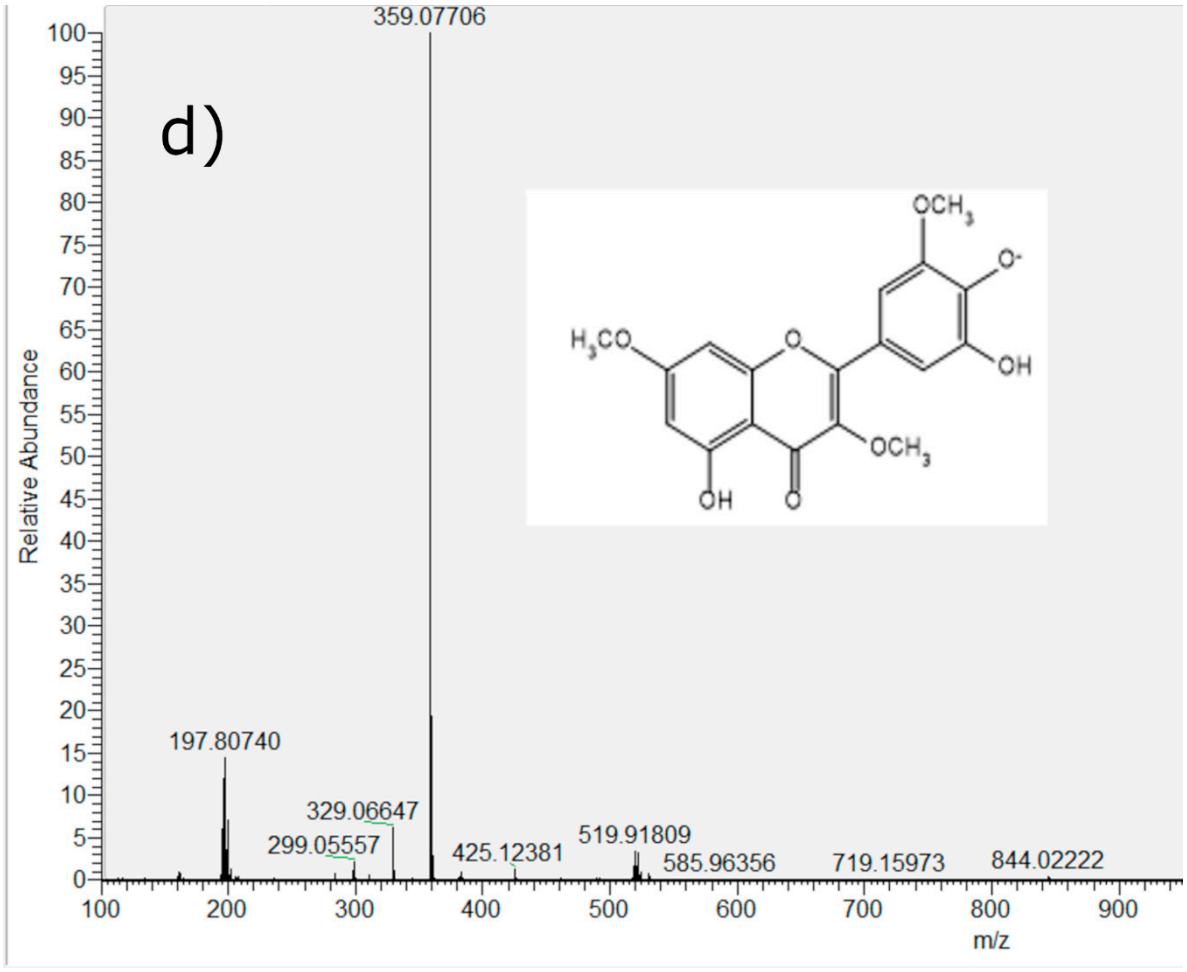
10	141.8 s	142.6 s
11	63.8 t	63.8 t
12	114.8 t	115.3 t
1'	127.2 s	126.3 s
2'	128.2 d	116.0 d
3'	129.0 d	130.1 d
4'	128.5 d	158.5 s
5'	129.0 d	130.1 d
6'	128.2 d	116.0 d
7'	145.5 d	145.4 d
8'	117.8 d	108.9 d
9'	166.9 s	167.1 s

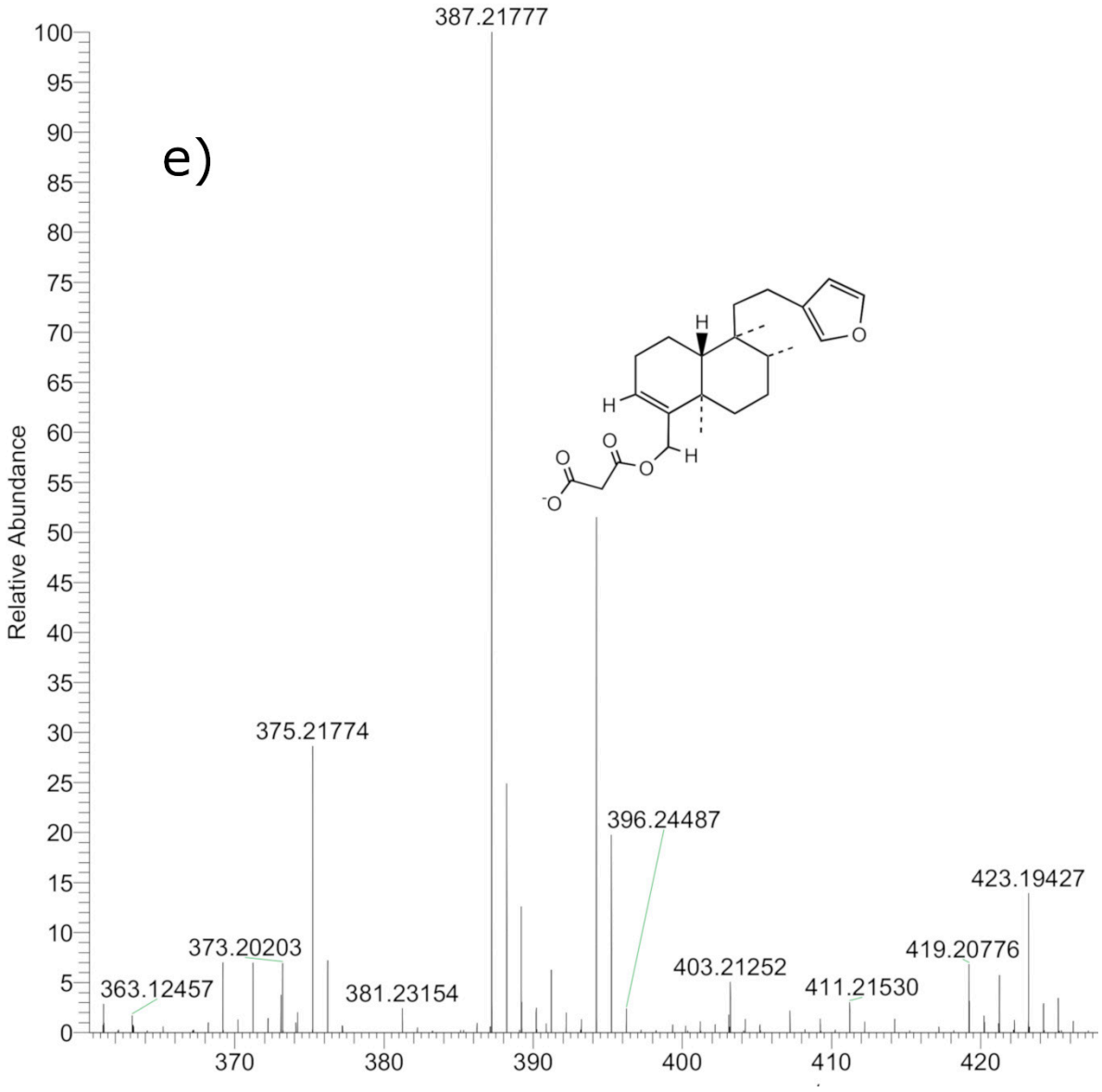
Figure S1a-i). Full high-resolution mass spectra and structures of peaks 1, 2, 10, 16, 17, 18, 20, 25, 28, 30, 36 and 40.

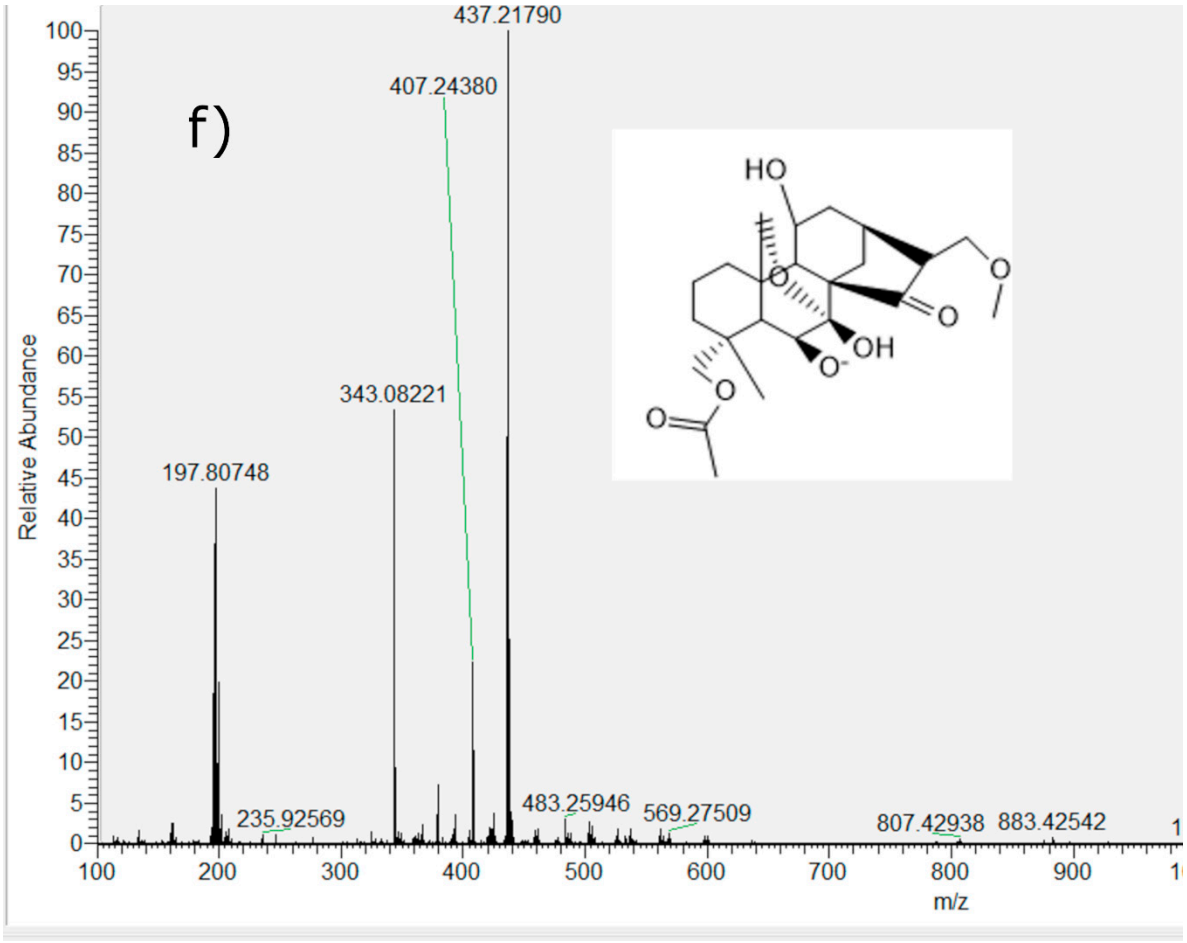


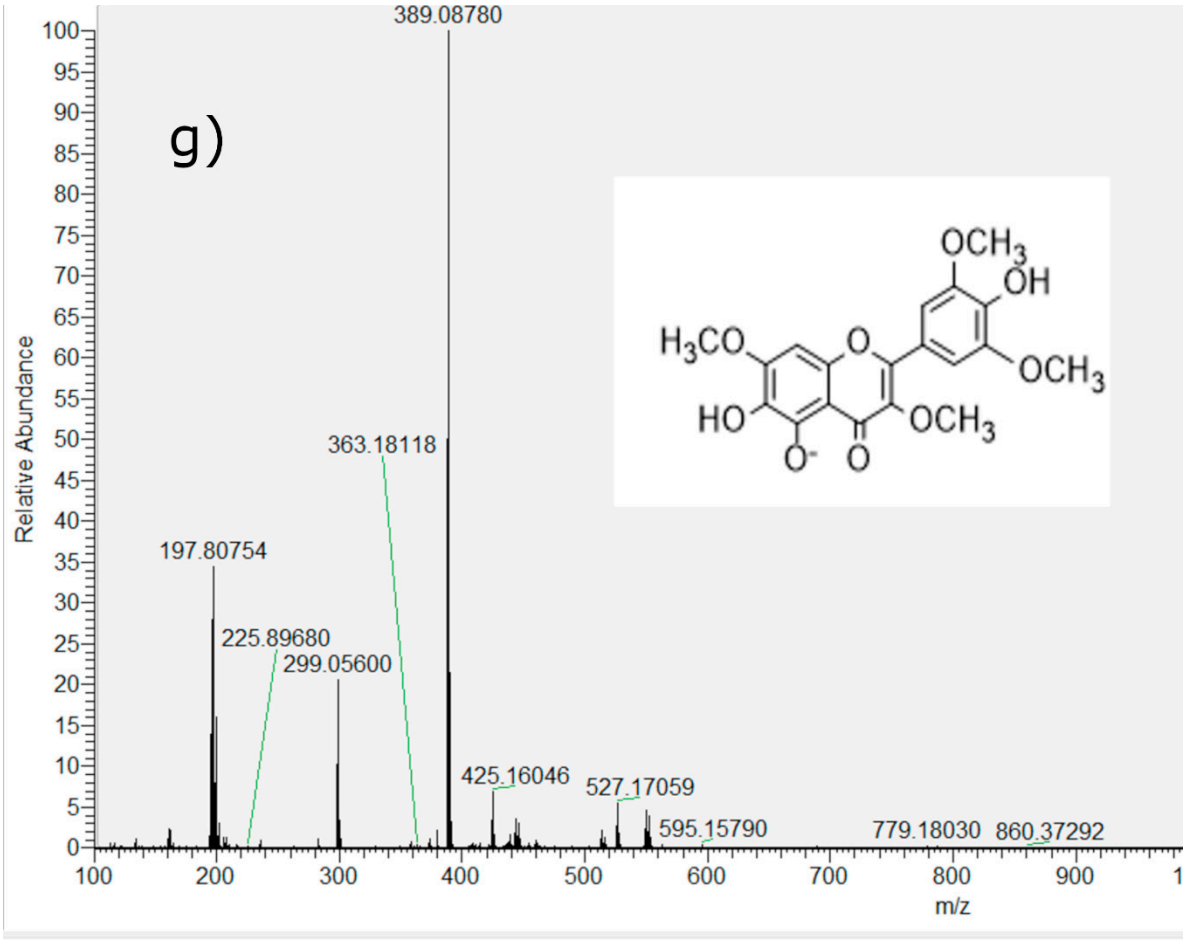

b)
353.03046
623.16101
447.09335
475.18185
163.03947
557.18719
197.80748
659.13751
247.06453
799.17017
1047.29333
Relative Abundance
m/z
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
200
400
600
800
1000
HO
O
OH
OH

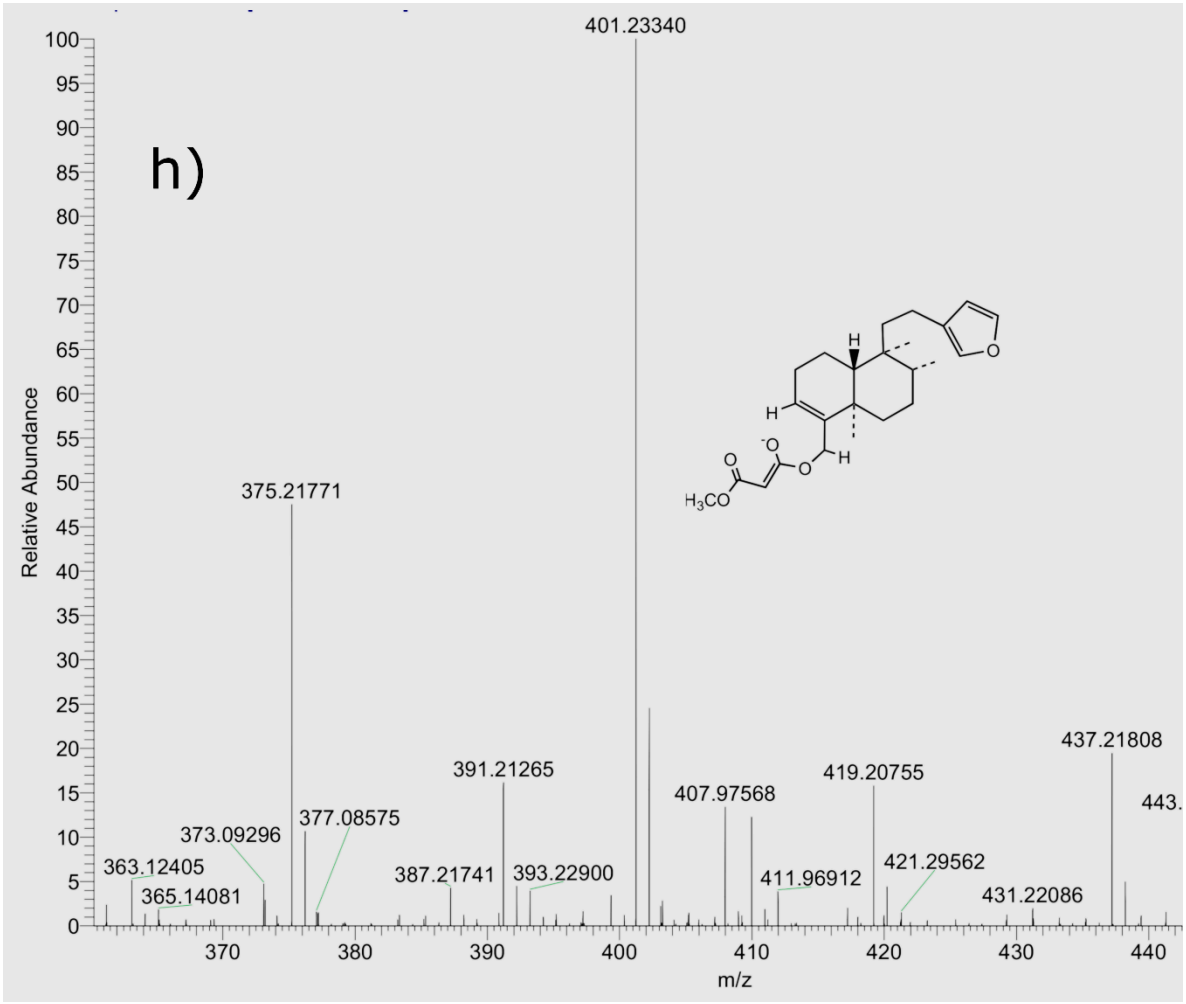

c)
197.80753
413.12411
235.92574
295.73618
377.92844
449.10068
537.98853
804.56030
Relative Abundance
m/z
OH
OCH3
H3CO
O
OH
OH
O
O

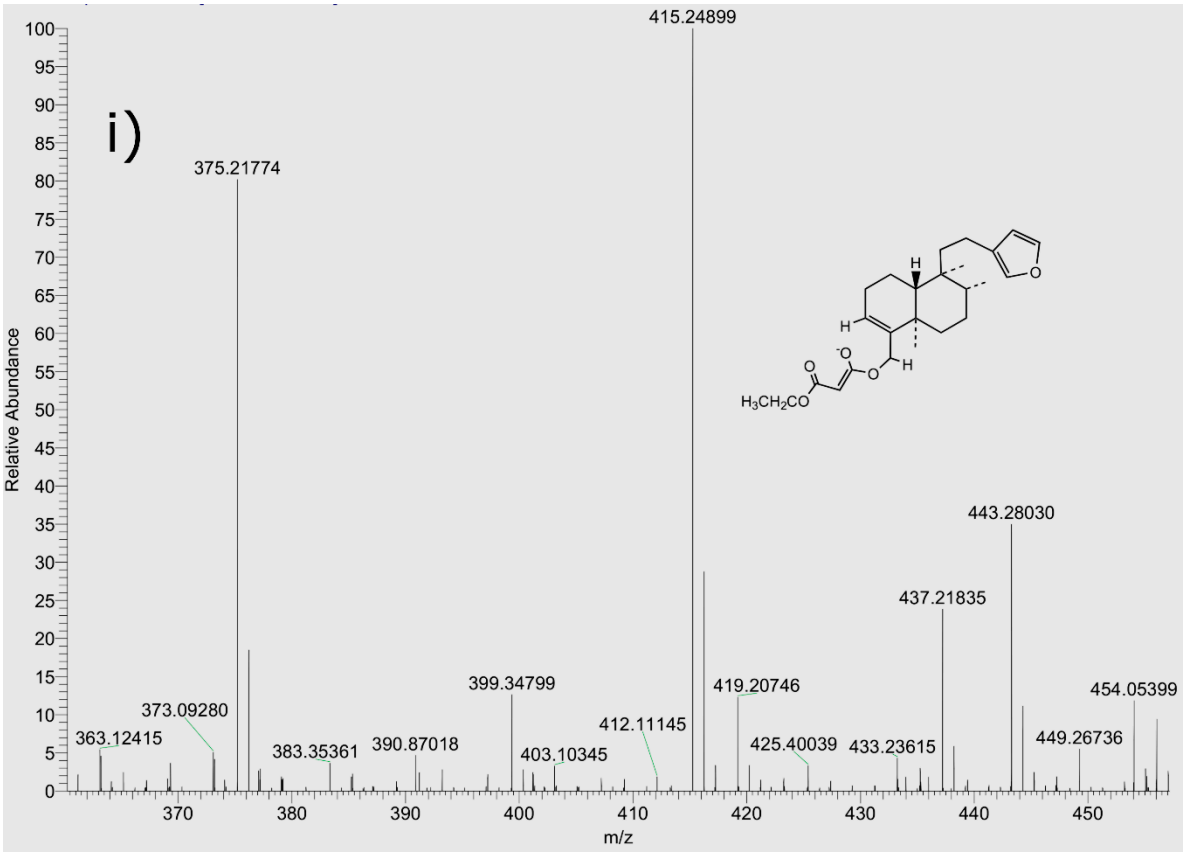

d)
359.07706
197.80740
329.06647
299.05557
425.12381
519.91809
585.96356
719.15973
844.02222
Relative Abundance
m/z
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
100
200
300
400
500
600
700
800
900
OCH3
O-
H3CO
O
OH
OCH3
OH
O

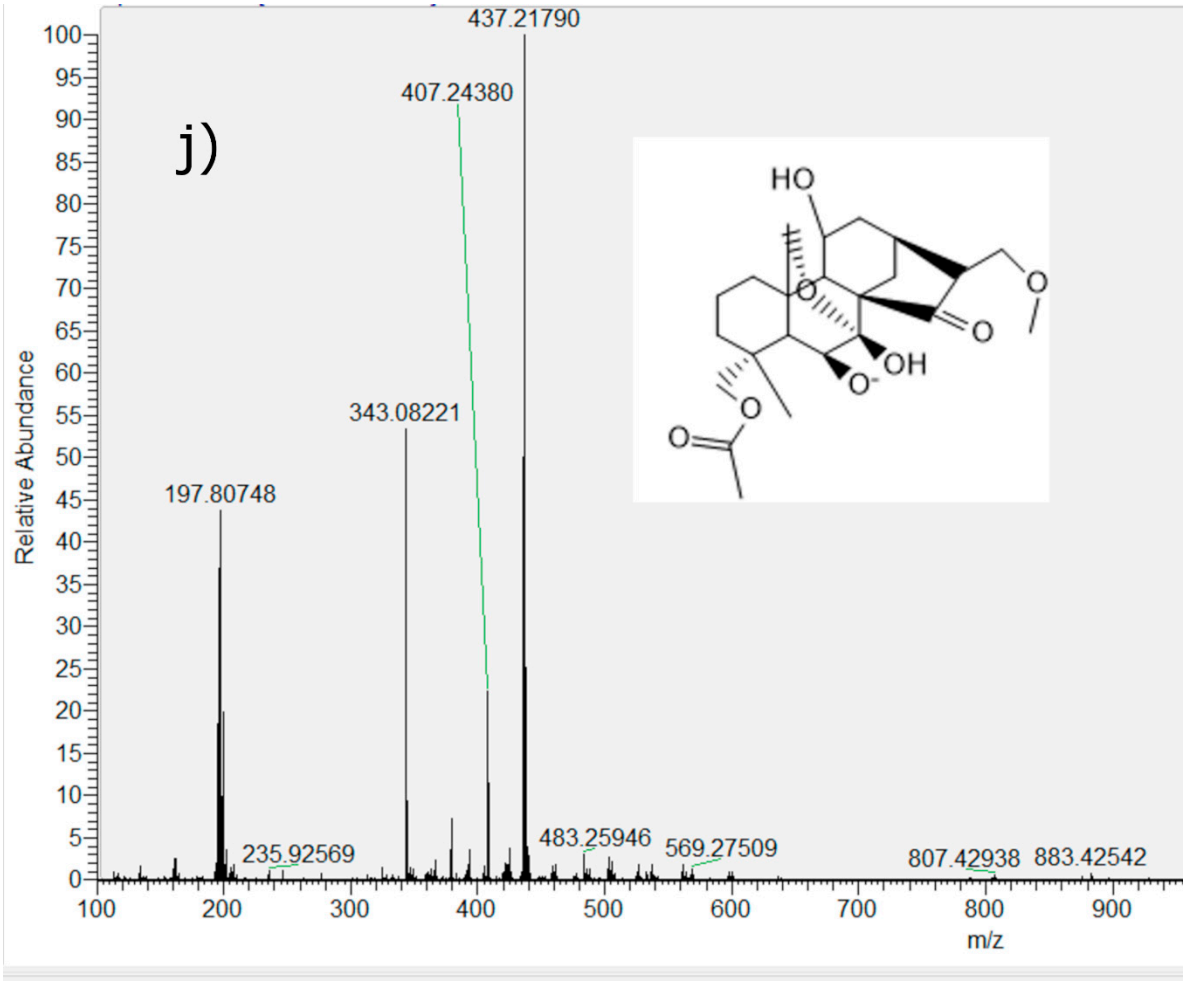

e)
Relative Abundance
387.21777
375.21774
396.24487
423.19427
373.20203
419.20776
403.21252
411.21530
363.12457
381.23154
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
370
380
390
400
410
420
H
O
H
O
O
O
H
O

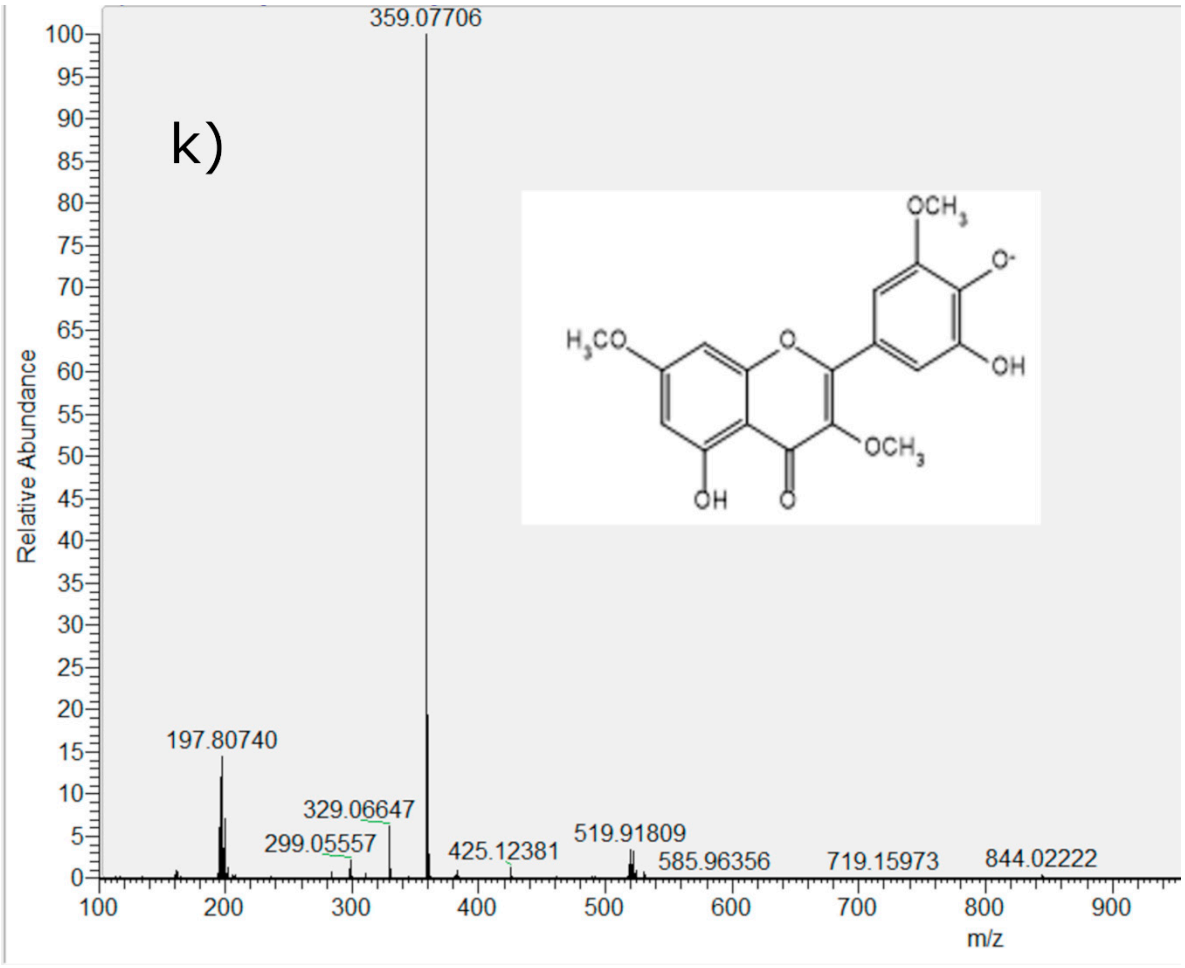

f)
437.21790
407.24380
343.08221
197.80748
235.92569
483.25946
569.27509
807.42938
883.42542
Relative Abundance
m/z
HO
O
O
OH
O-
O
O

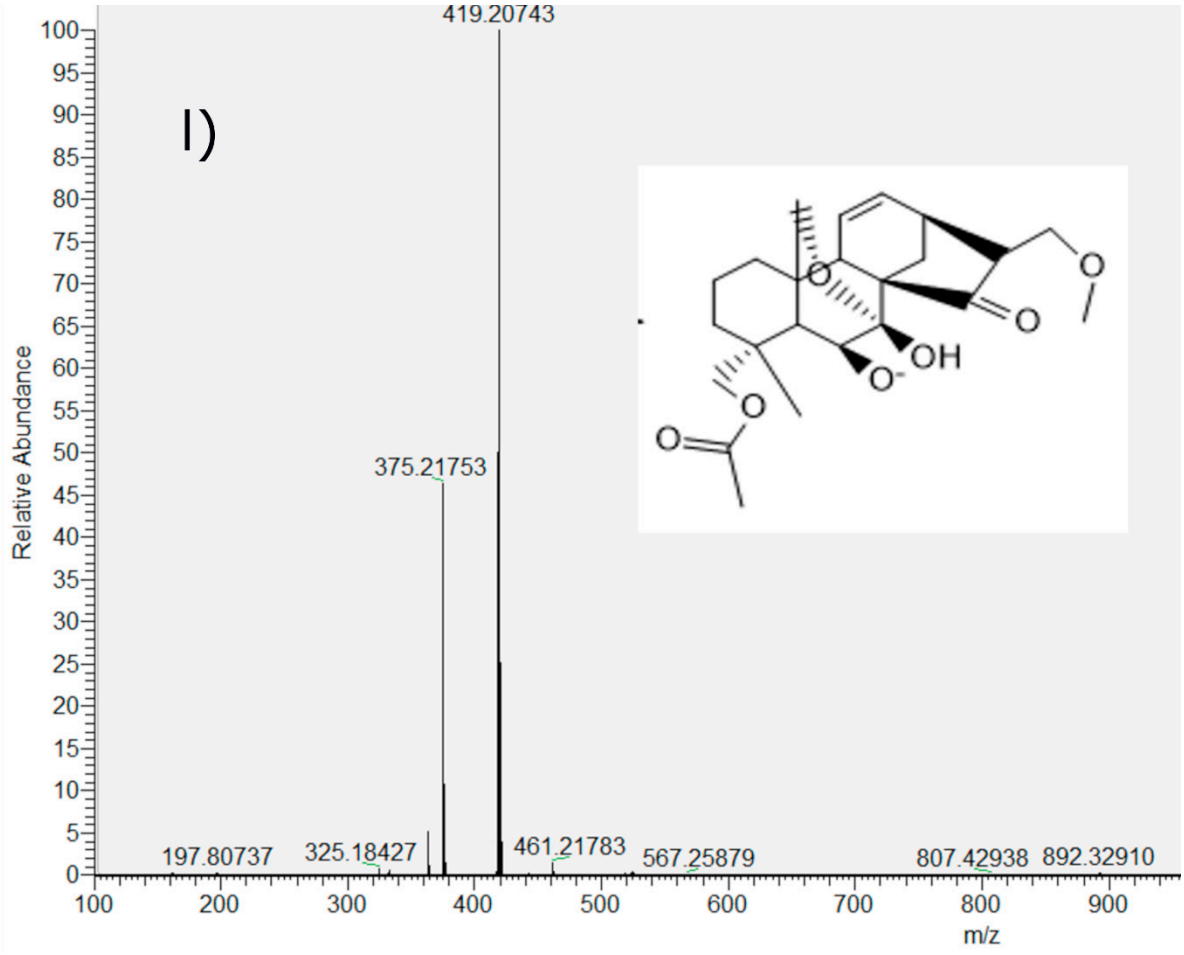

g)
389.08780
363.18118
197.80754
225.89680
299.05600
425.16046
527.17059
595.15790
779.18030
860.37292
Relative Abundance
m/z
OCH3
OH
H3CO
O
OCH3
HO
OCH3
O-
O

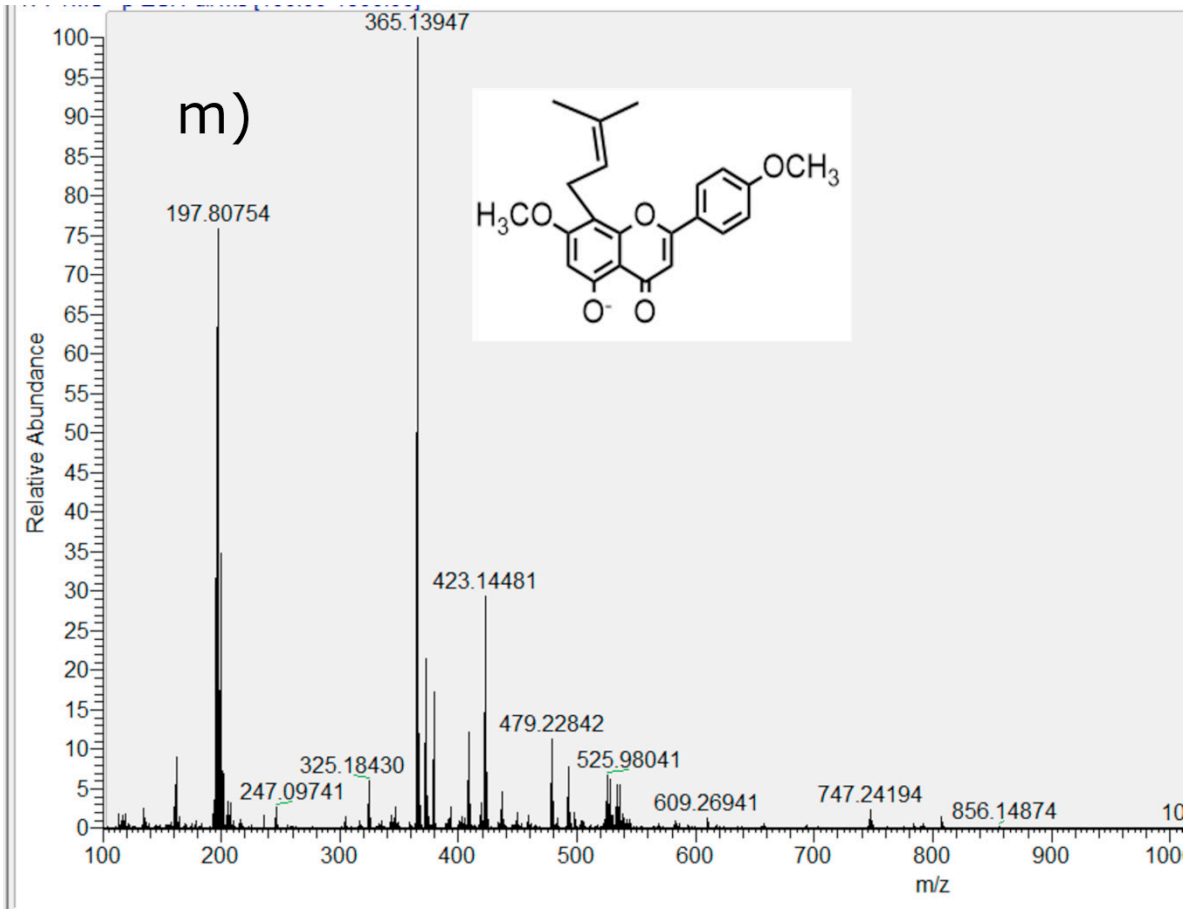

h)
401.23340
375.21771
391.21265
437.21808
419.20755
407.97568
373.09296
377.08575
363.12405
365.14081
387.21741
393.22900
411.96912
421.29562
431.22086
443.
Relative Abundance
m/z
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
370
380
390
400
410
420
430
440
H
O
H
O
O
H
O
H3CO


i)
Relative Abundance
m/z
415.24899
375.21774
443.28030
437.21835
454.05399
399.34799
419.20746
373.09280
412.11145
363.12415
383.35361
390.87018
403.10345
425.40039
433.23615
449.26736
H
O
H
O
O
O
H
H3CH2CO


j)
437.21790
407.24380
343.08221
197.80748
235.92569
483.25946
569.27509
807.42938
883.42542
Relative Abundance
m/z
HO
O
O
O
OH
O-
O
O


k)
359.07706
197.80740
329.06647
299.05557
425.12381
519.91809
585.96356
719.15973
844.02222
Relative Abundance
m/z
OCH3
O-
H3CO
O
OH
OCH3
OH
O


I)
419.20743
375.21753
197.80737
325.18427
461.21783
567.25879
807.42938
892.32910
Relative Abundance
m/z
OH
O
O-


m)
365.13947
197.80754
423.14481
479.22842
525.98041
325.18430
247.09741
609.26941
747.24194
856.14874
Relative Abundance
m/z
H3CO
OCH3
O
O-
O

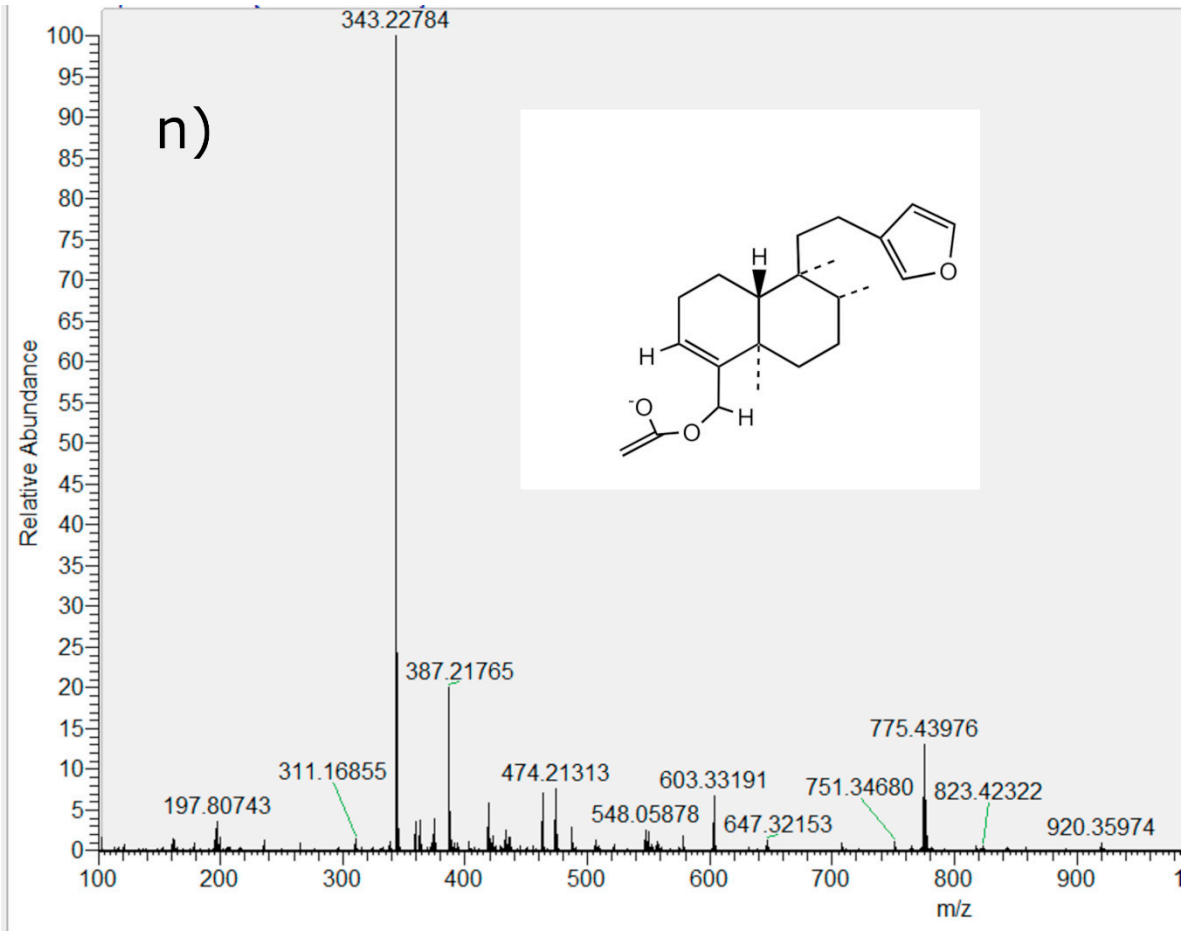
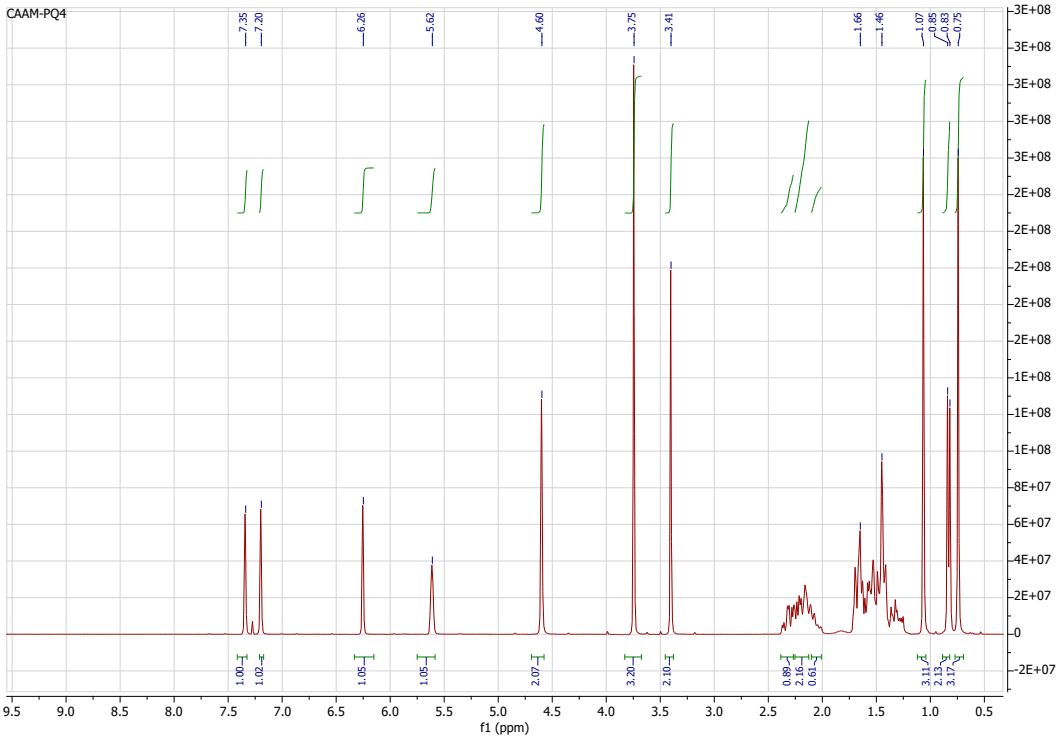
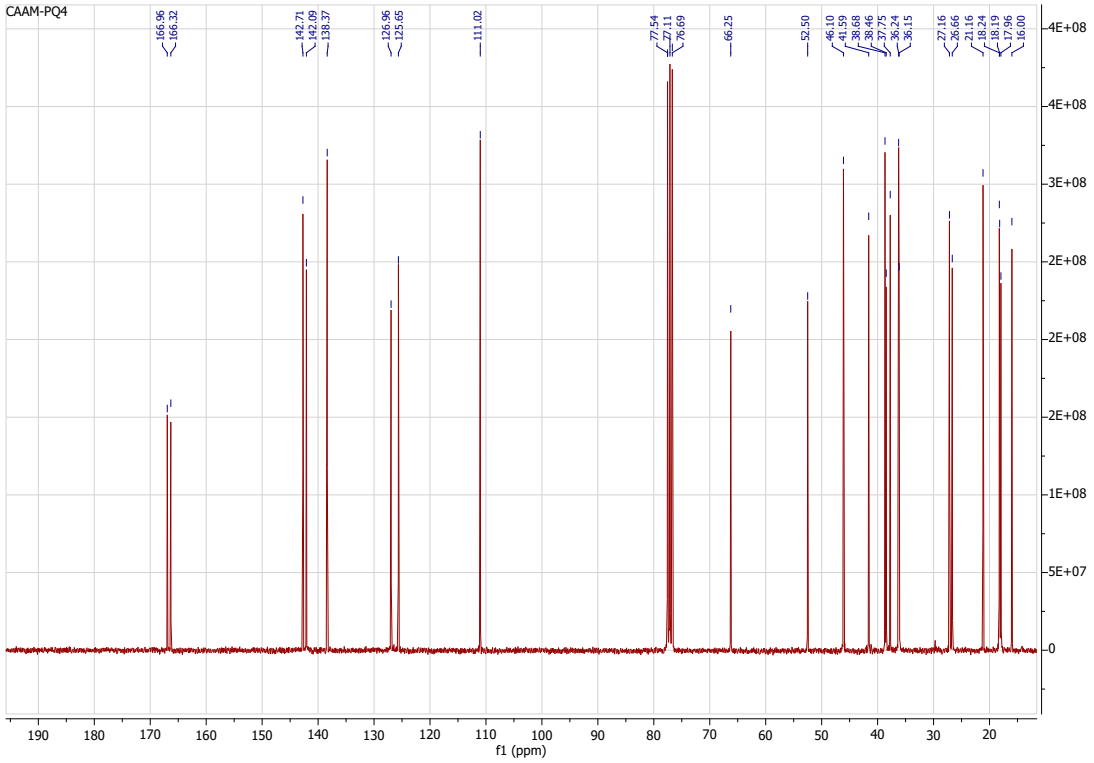

n)
343.22784
387.21765
311.16855
474.21313
603.33191
775.43976
751.34680
823.42322
197.80743
548.05878
647.32153
920.35974
Relative Abundance
m/z
H
O
H
O
O
H

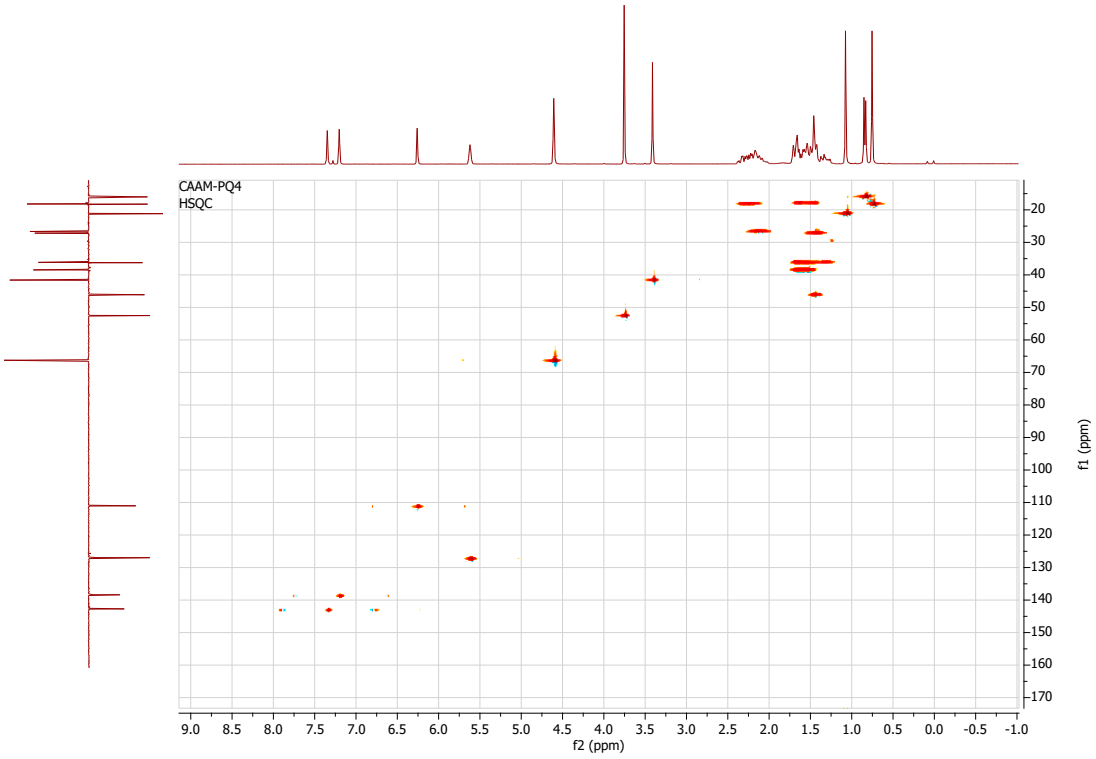
Fig. S2. NMR spectra of a malonyl diterpene (compound **4**) and tremetones **6** and **7**.
S2a.Proton NMR spectra of compound **4**.



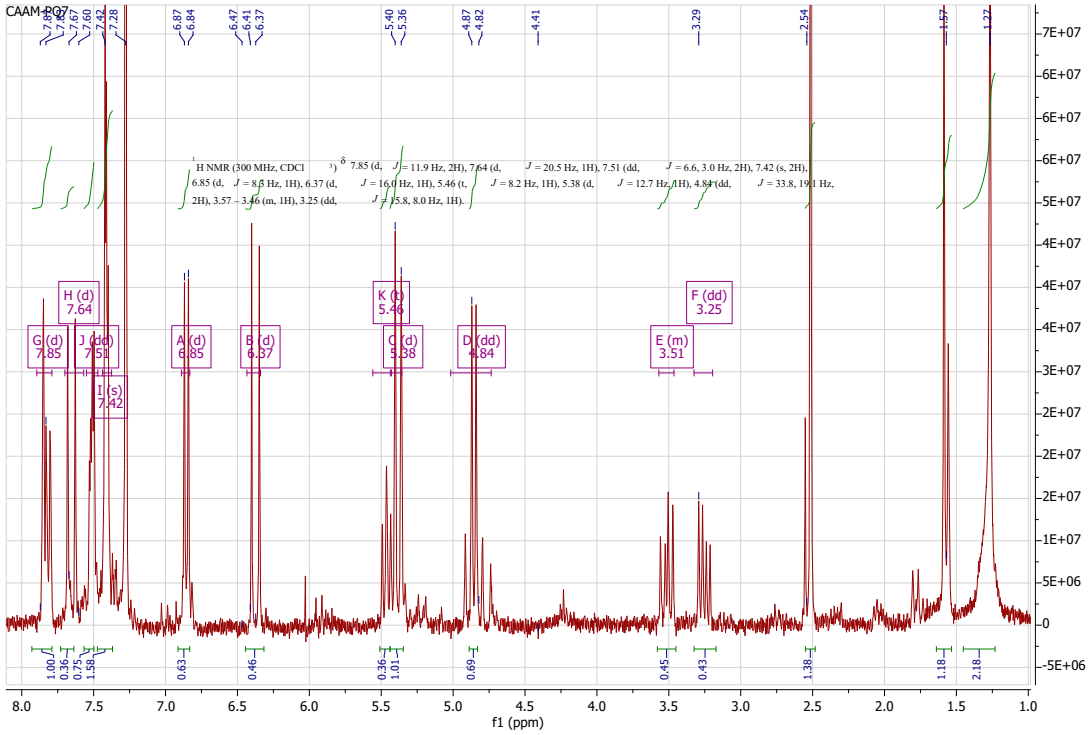
S2b. Carbon NMR spectra of compound **4**.



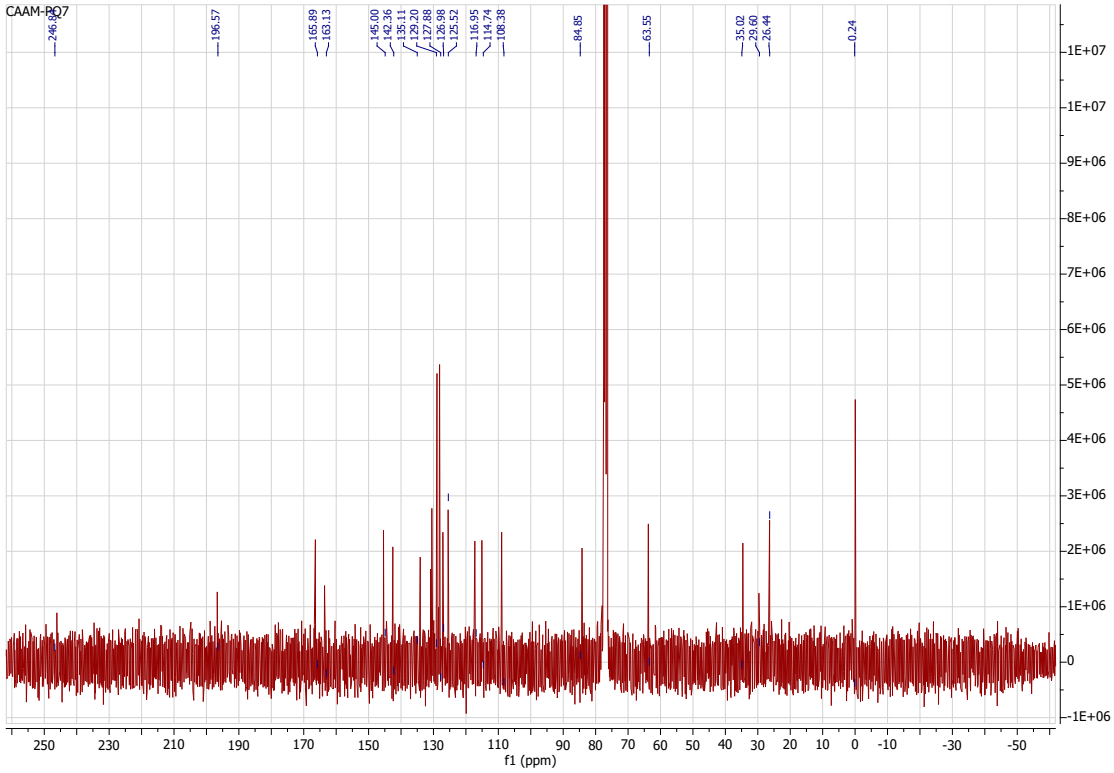
S2c. HSQC spectra of compound **4**.



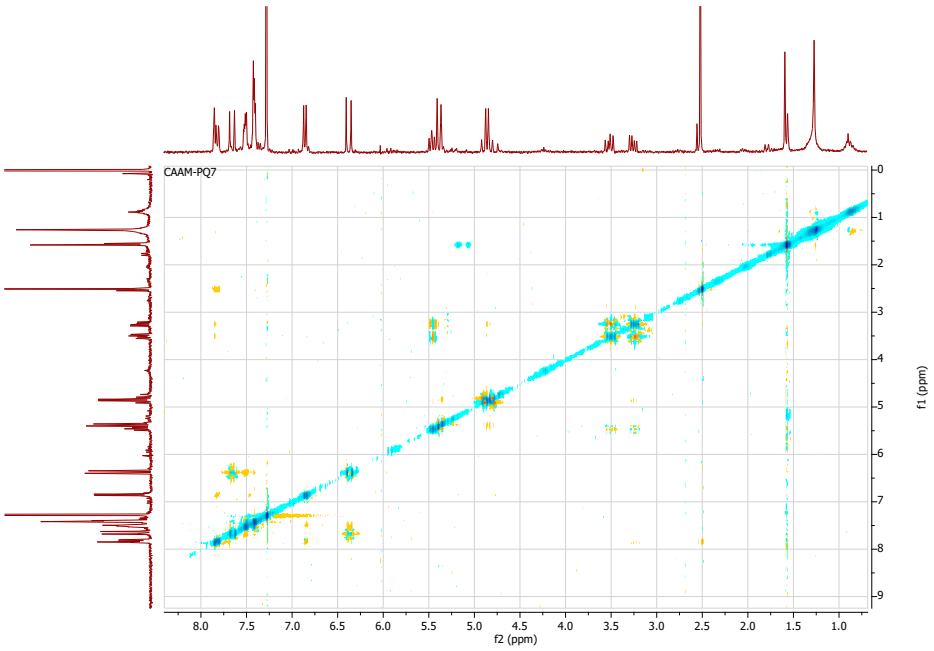
S2d. Proton NMR spectra of compound **4**.



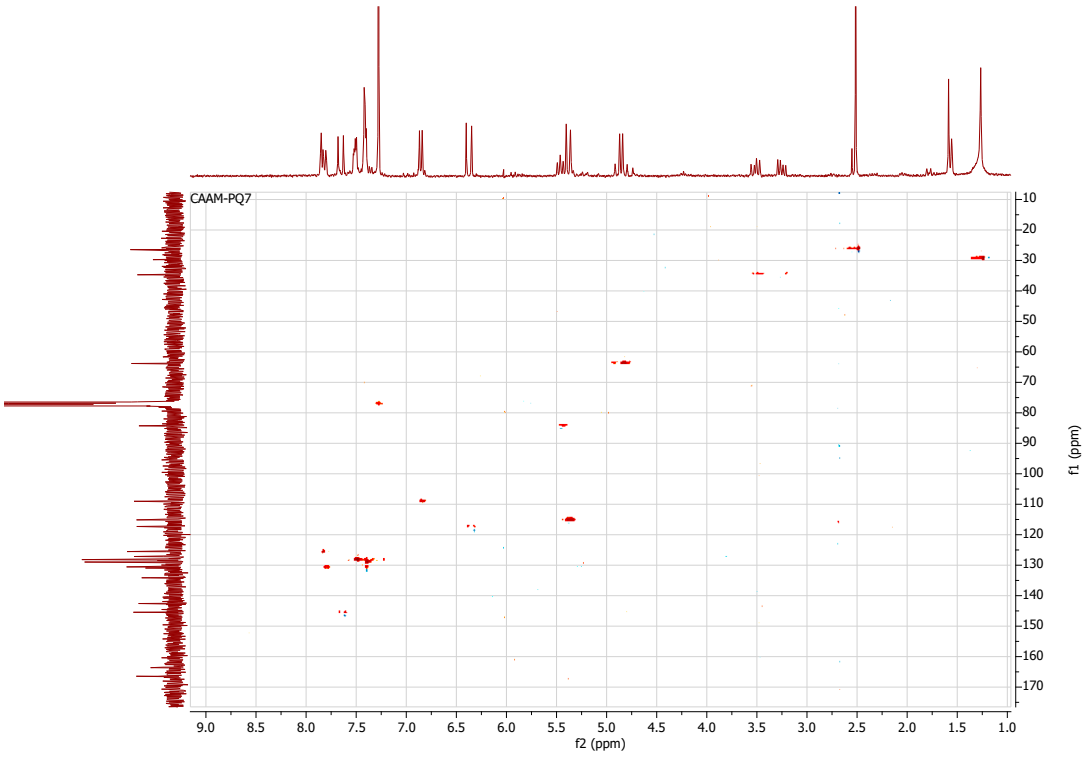
S2f.Carbon NMR spectra of compound **6**.



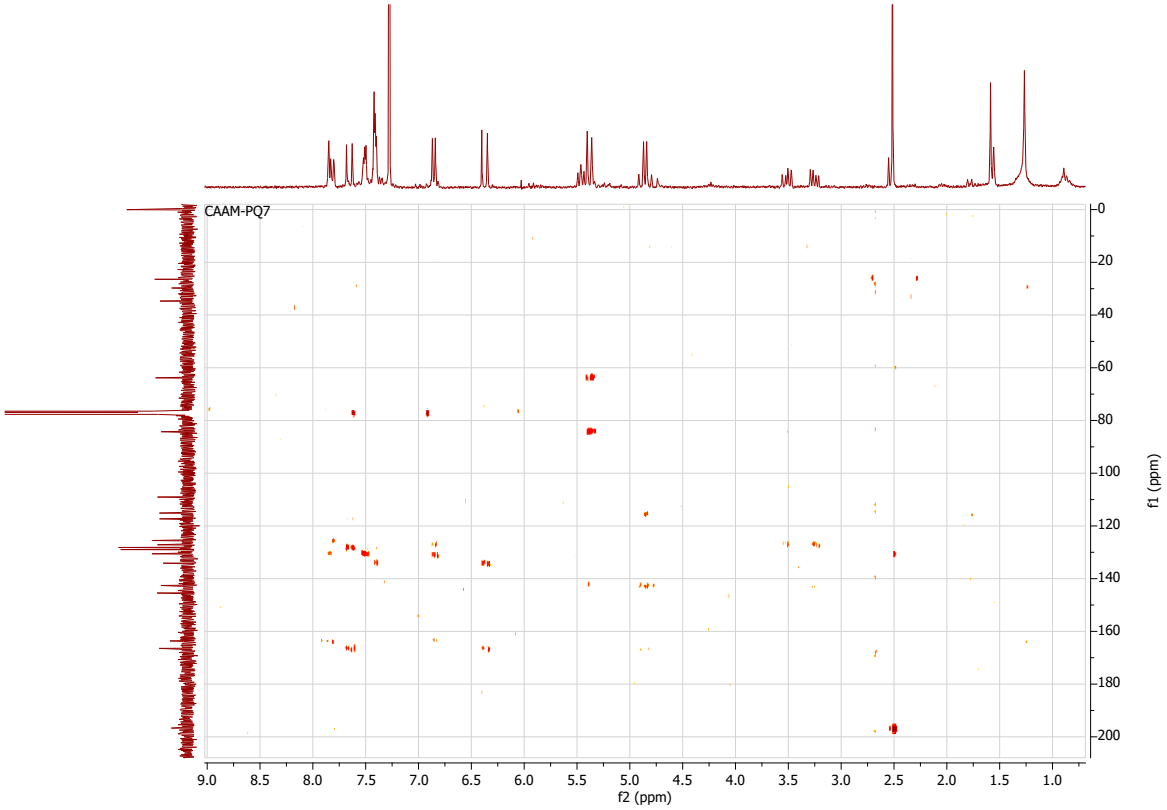
S2g. COSY spectra of compound **6**.



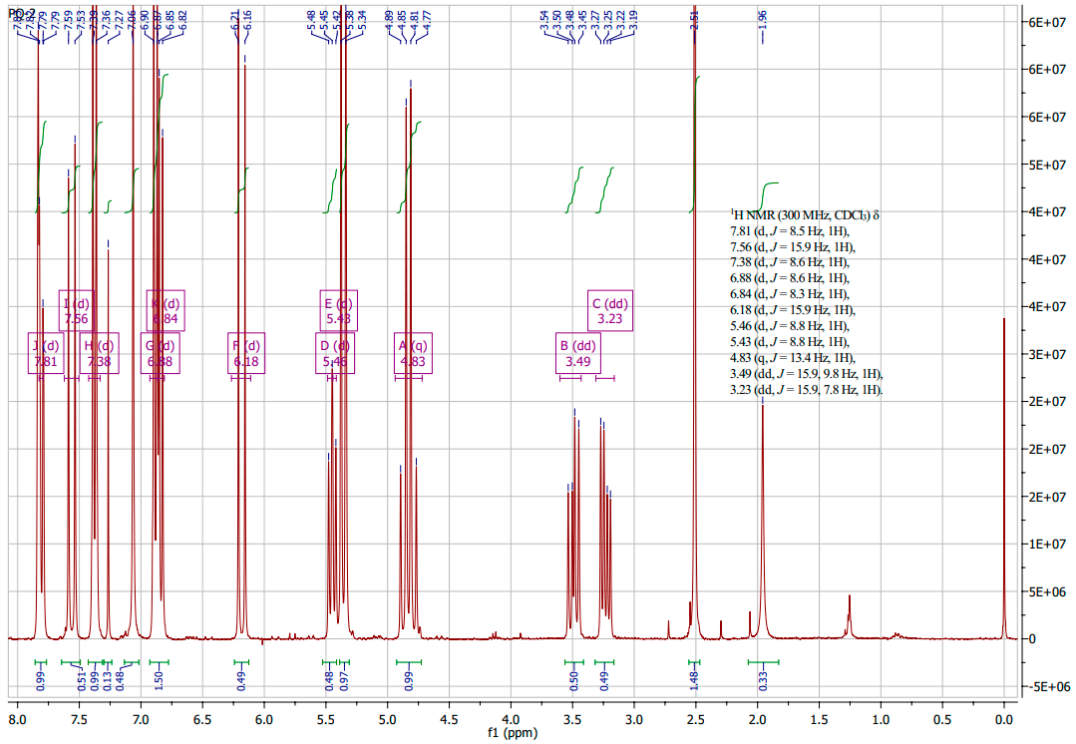
S2h. HSQC spectra of compound **6**.



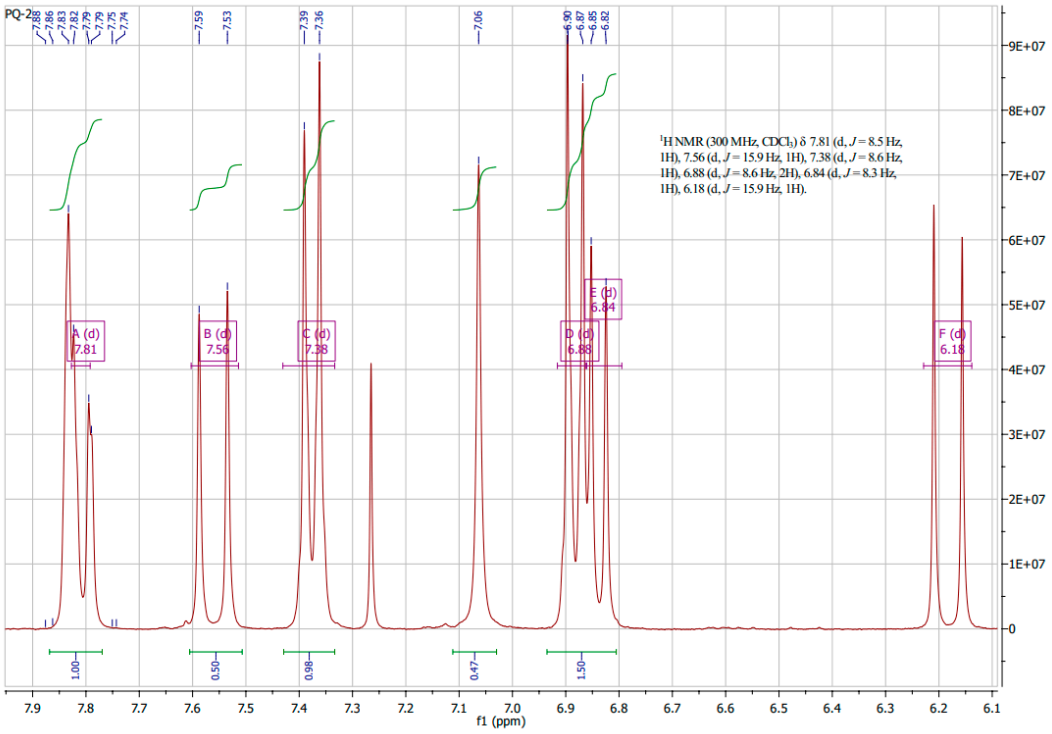
S2i. HMBC spectra of compound **6**.



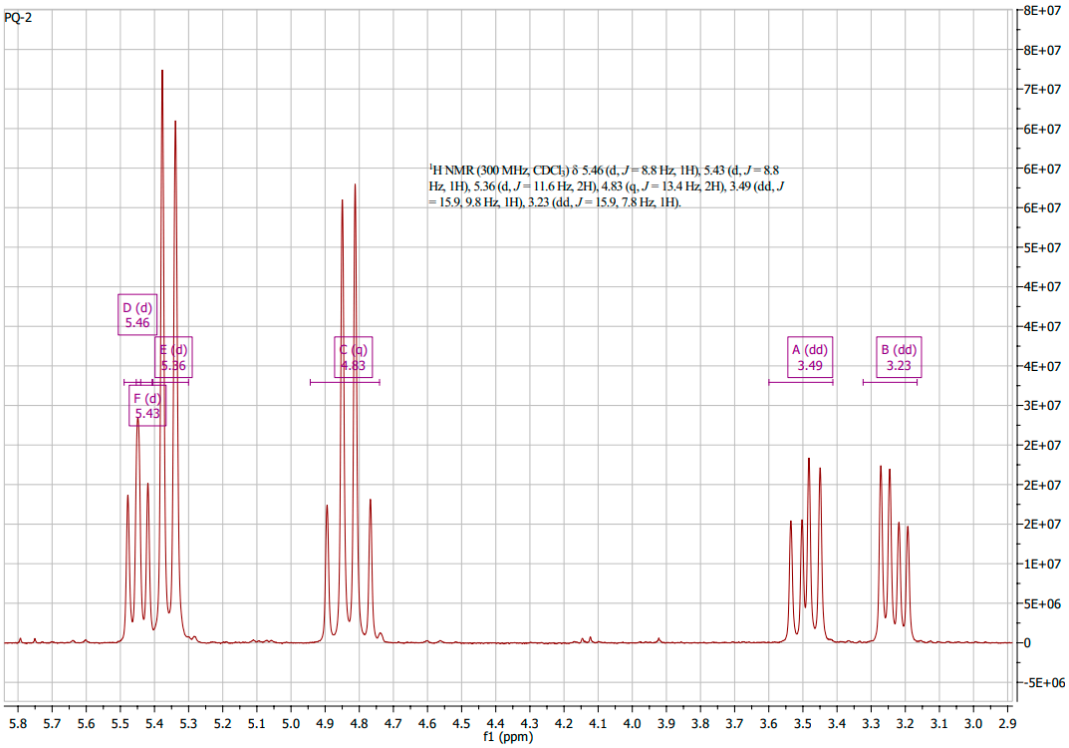
S2j.Proton NMR spectra of compound **7**.



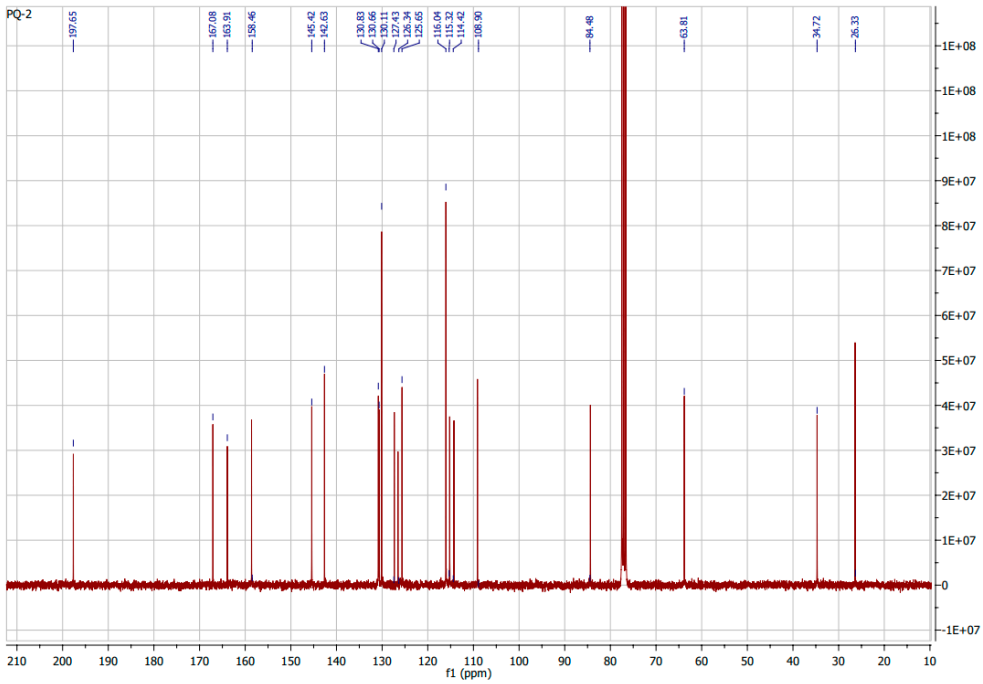
S2k.Proton NMR spectra of compound **7 (zoom)**.



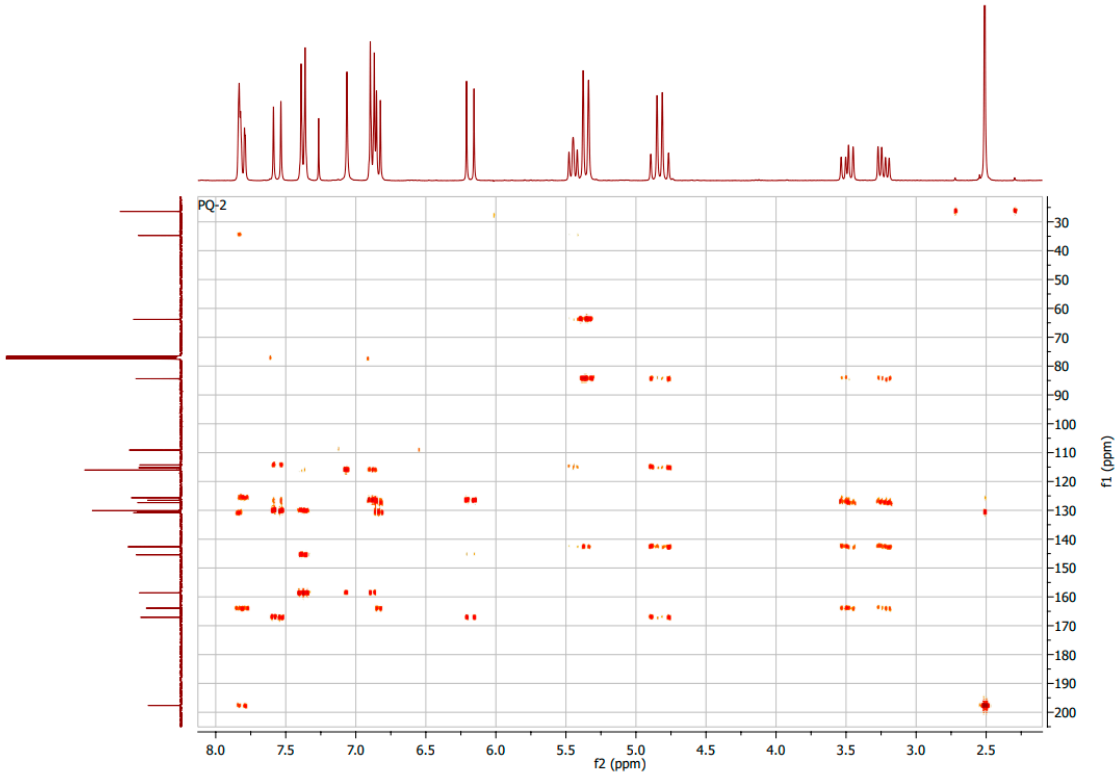
S2l. Proton NMR spectra of compound **7 (zoom)**.



S2m.Carbon NMR spectra of compound **7.**



S2n.HMBC spectra of compound **7**



S2o. HSQC spectra of compound **7**