Supporting Information

Adjusting the electroosmotic flow for CE separation of proteins by using mixed polycations/polyzwitterions poly(α-L-lysine)-based multilayer coatings

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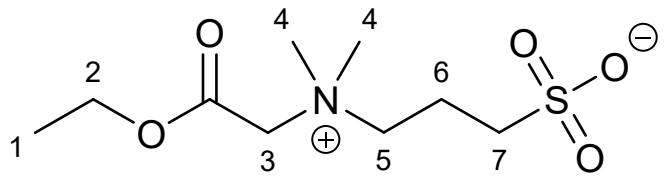
[b] Department of Chemistry, Bielefeld University, Bielefeld, Germany.

[c] IBMM, University of Montpellier, CNRS, ENSCM, Montpellier, France.

Content: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2
O
O
3
4
4
N
5
6
7
S
O
O
O

4

4.226
4.214
4.199
4.185
3.644
3.634
3.627
3.619
3.609
3.211
2.889
2.874
2.860
2.169
2.154
2.145
2.138
2.131
2.121
2.107
1.206
1.192
1.177
2,3
4
5
7
6
1
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
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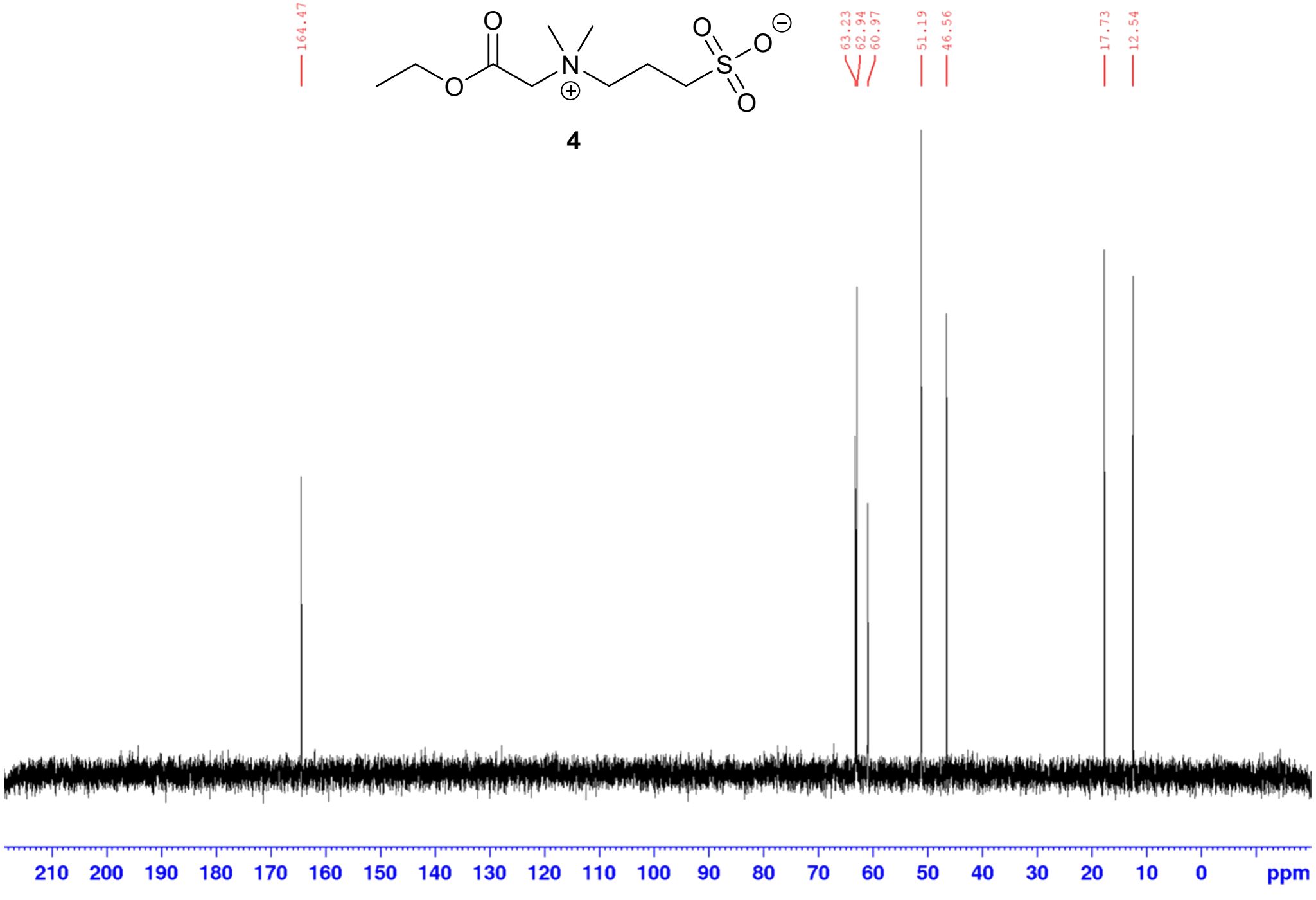
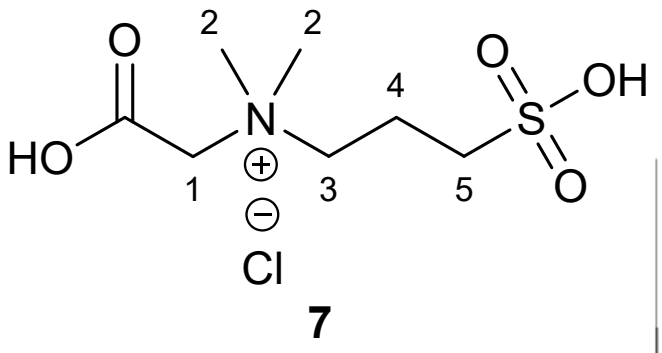
2.0
1.5
1.0
ppm
3.96
2.01
6.00
2.01
2.04
2.93


164.47
63.23
62.94
60.97
51.19
46.56
17.73
12.54
O
O
N
O
O
S
O
O
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 ppm

4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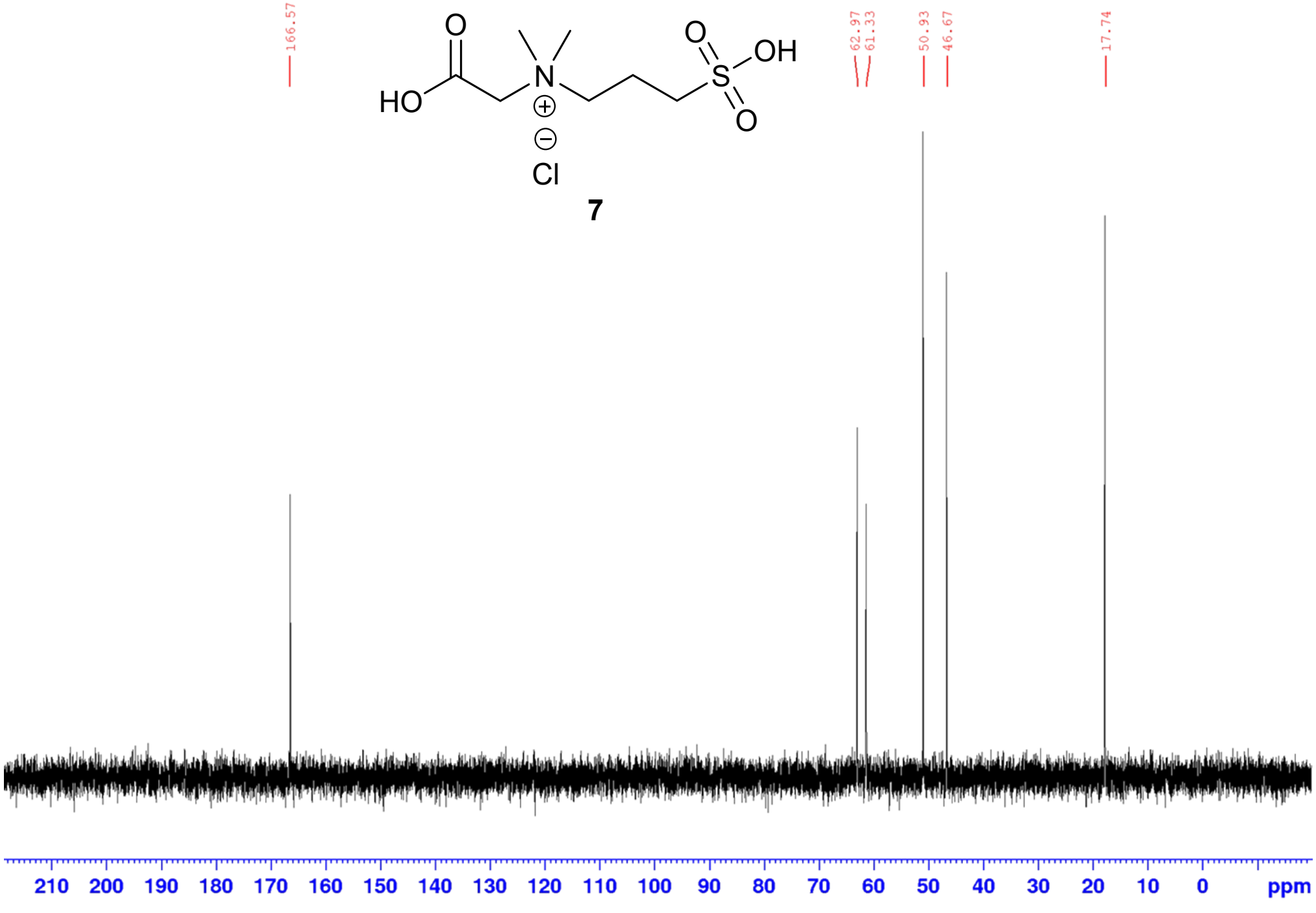
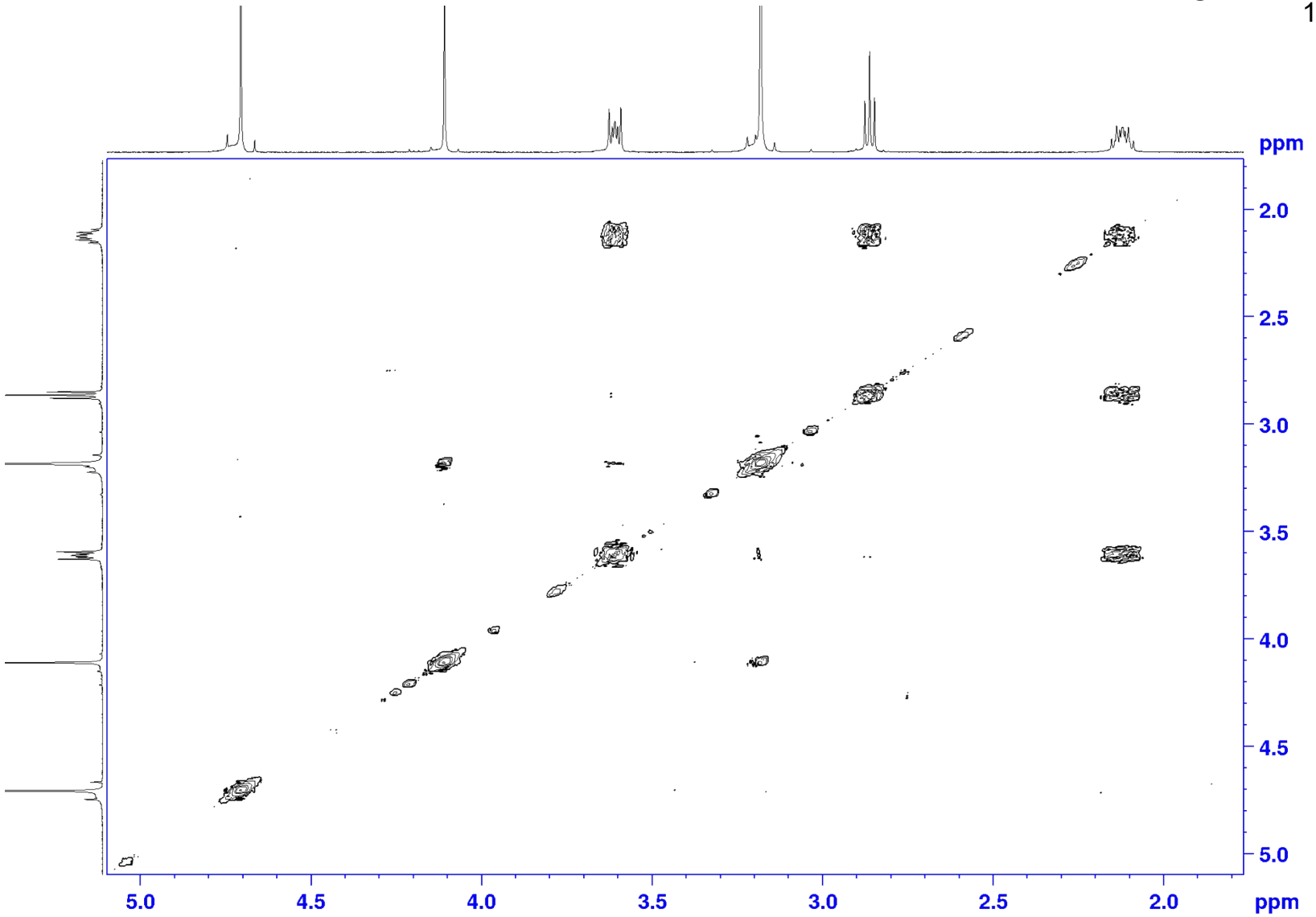
2
2
OH
HO
N
4
S
O
1
3
5
O
Cl

7

4.109
3.626
3.617
3.609
3.601
3.592
3.181
2.876
2.862
2.847
2.152
2.137
2.128
2.122
2.119
2.113
2.104
2.089
1
2
3
4
5
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
ppm
2.00
2.06
6.06
2.00
2.09


166.57
62.97
61.33
50.93
46.67
17.74
O
HO
N
O
OH
S
O
Cl
7
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 ppm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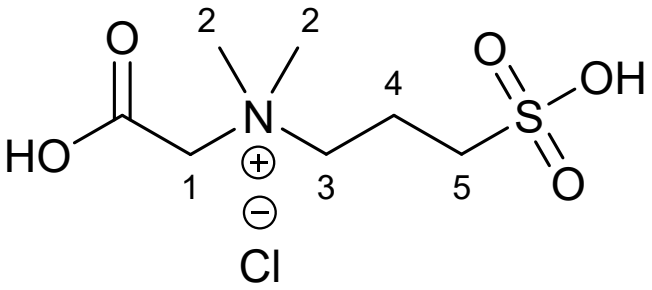
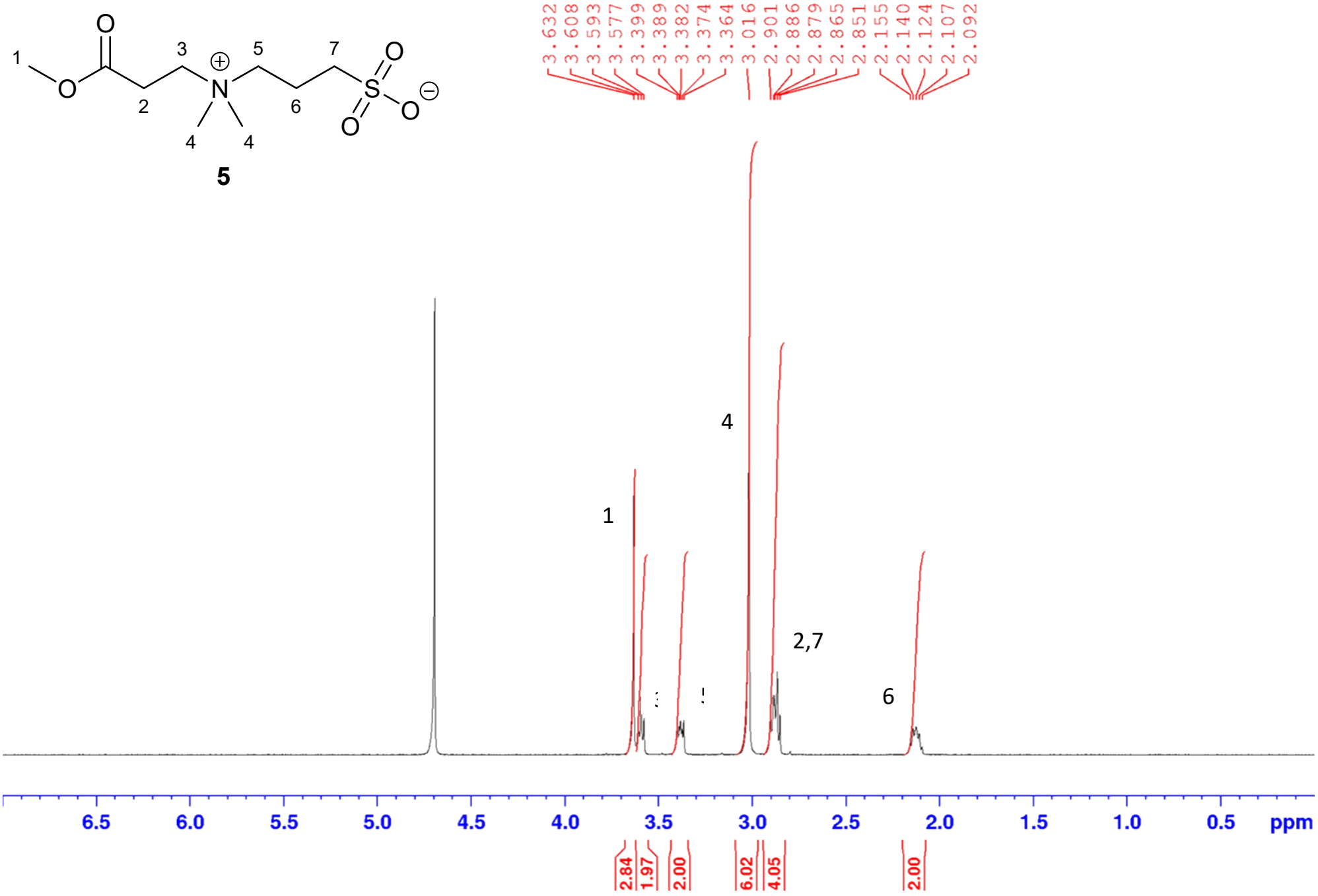
4.0
4.5
5.0
5.0
4.5
4.0
3.5
3.0
2.5
2.0
ppm


O
HO
2
2
N
4
O
OH
S
O
1
3
5
Cl

7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3.608
3.593
3.577
3.399
3.389
3.382
3.374
3.364
3.016
2.901
2.886
2.879
2.865
2.851
2.155
2.140
2.124
2.107
2.092
1
4
2,7
6
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
ppm
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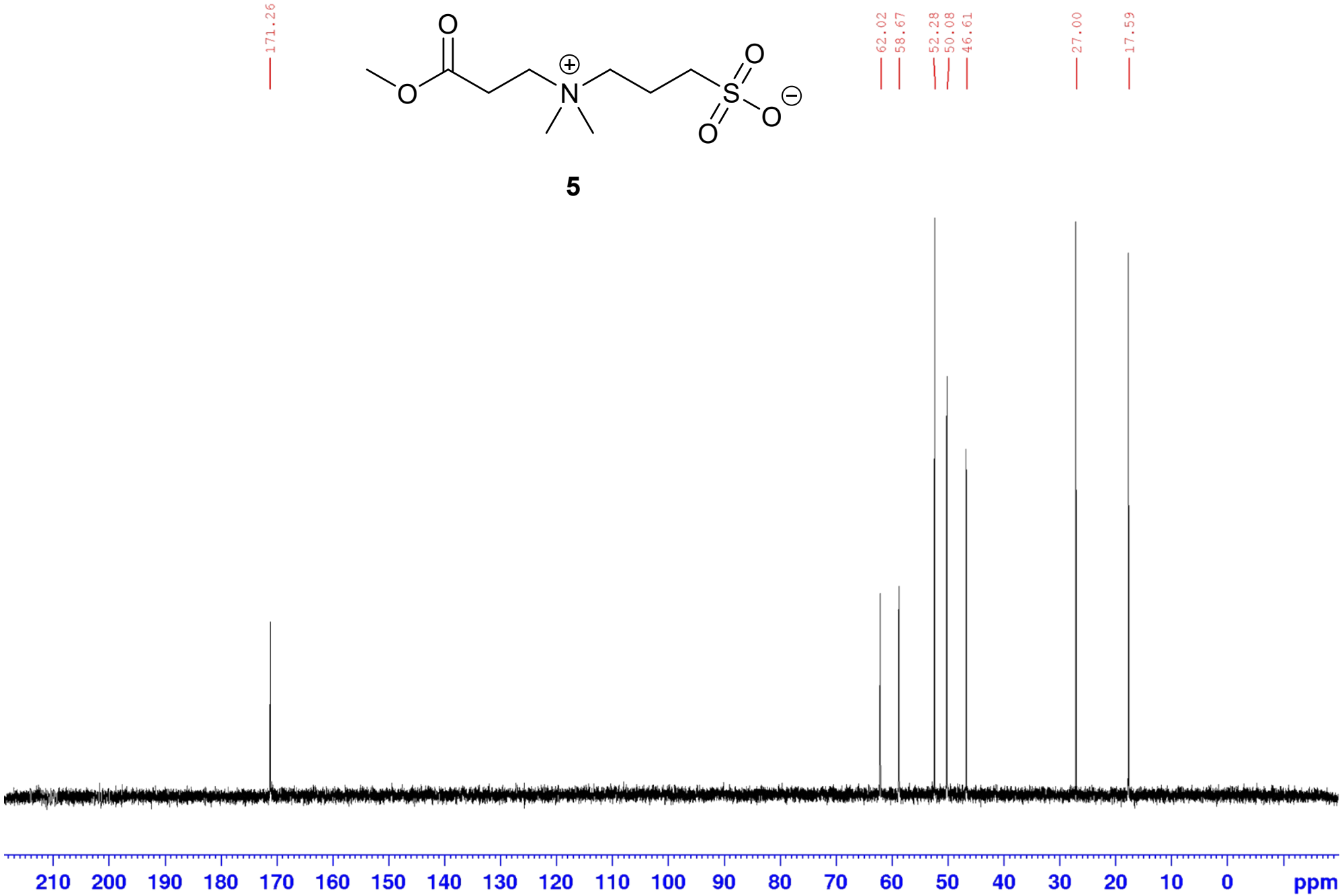
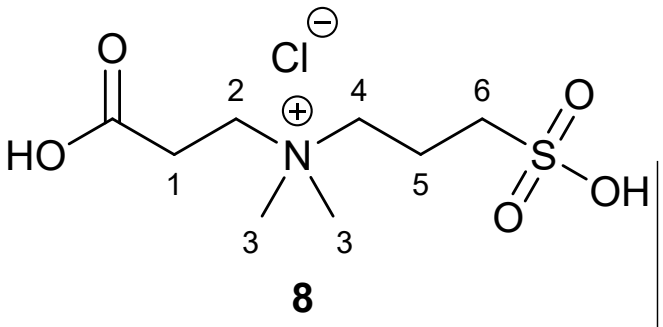
1.97
2.00
6.02
4.05
2.00

5

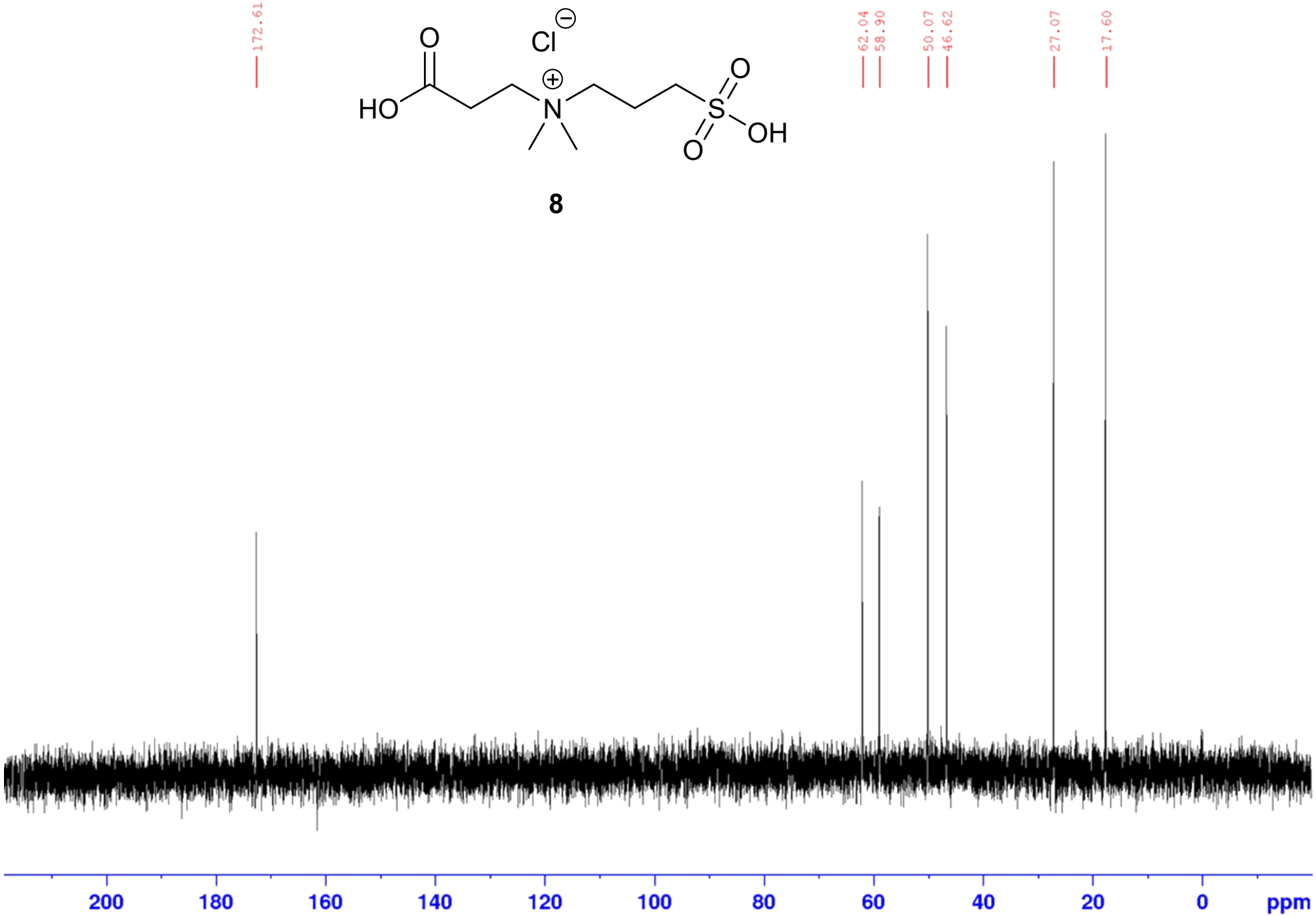

171.26
62.02
58.67
52.28
50.08
46.61
27.00
17.59
O
O
N
S
O
O
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 ppm

5

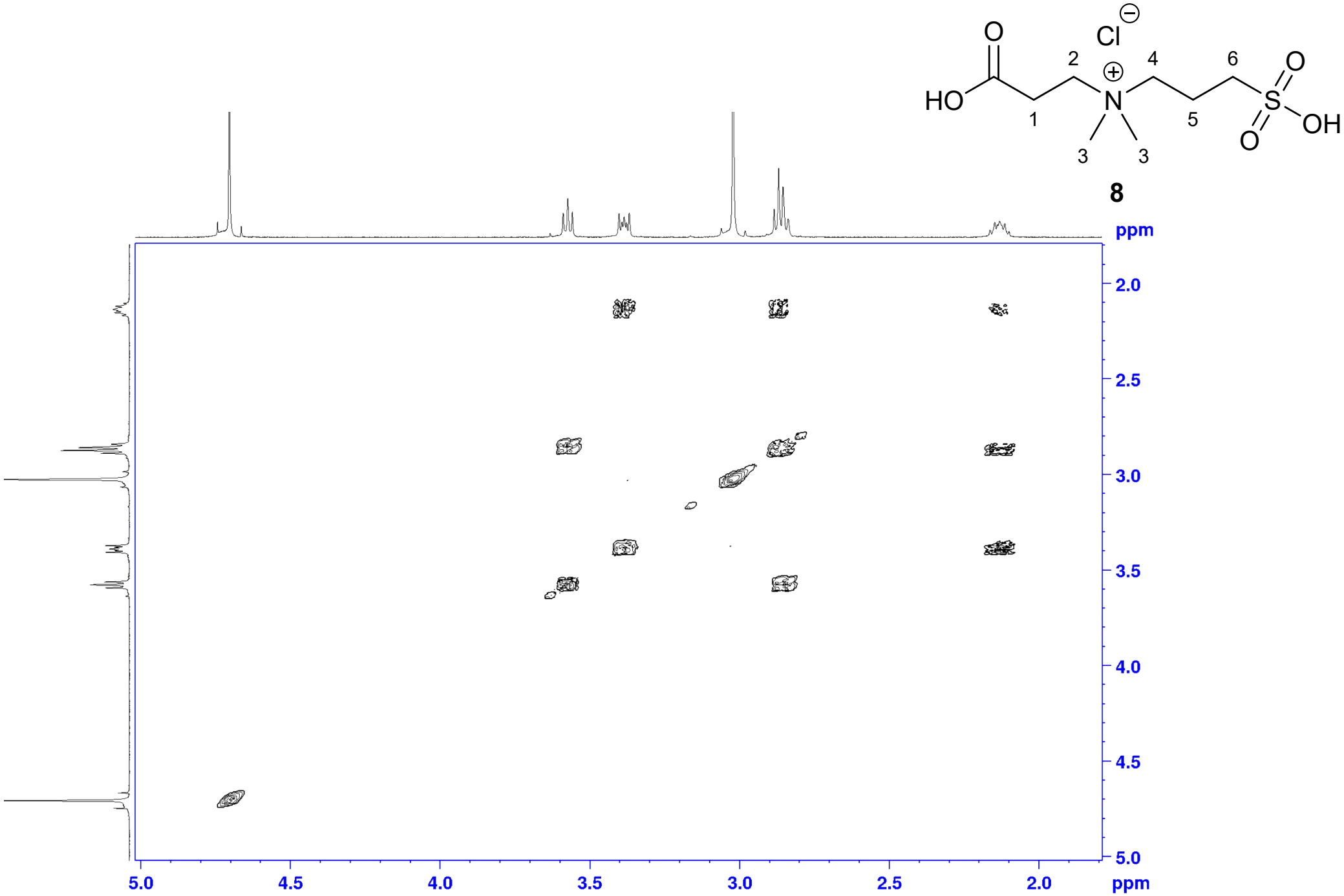

O
Cl
HO
2
4
6
O
N
S
OH
1
5
O
3
3

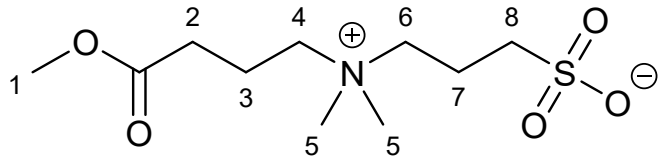
8

3.588
3.573
3.558
3.402
3.385
3.368
3.021
2.884
2.869
2.854
2.837
2.162
2.147
2.131
2.114
2.099
3
2
4
1,6
5
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
ppm
2.00
2.05
6.07
4.09
2.05

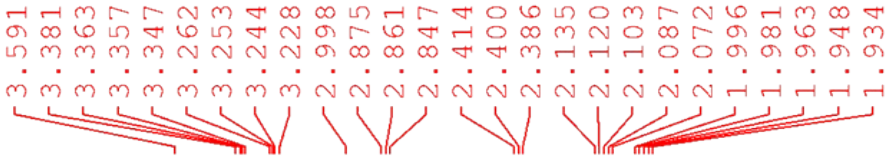

172.61
62.04
58.90
50.07
46.62
27.07
17.60
O
HO
Cl
N
S
O
O
OH
200
180
160
140
120
100
80
60
40
20
0
ppm

8


O
Cl
HO
2
4
6
O
N
S
OH
1
5
3
3
O
8
ppm
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.0
4.5
4.0
3.5
3.0
2.5
2.0
ppm


1
O
2
O
3
4
N
5
5
6
7
8
S
O
O
O

6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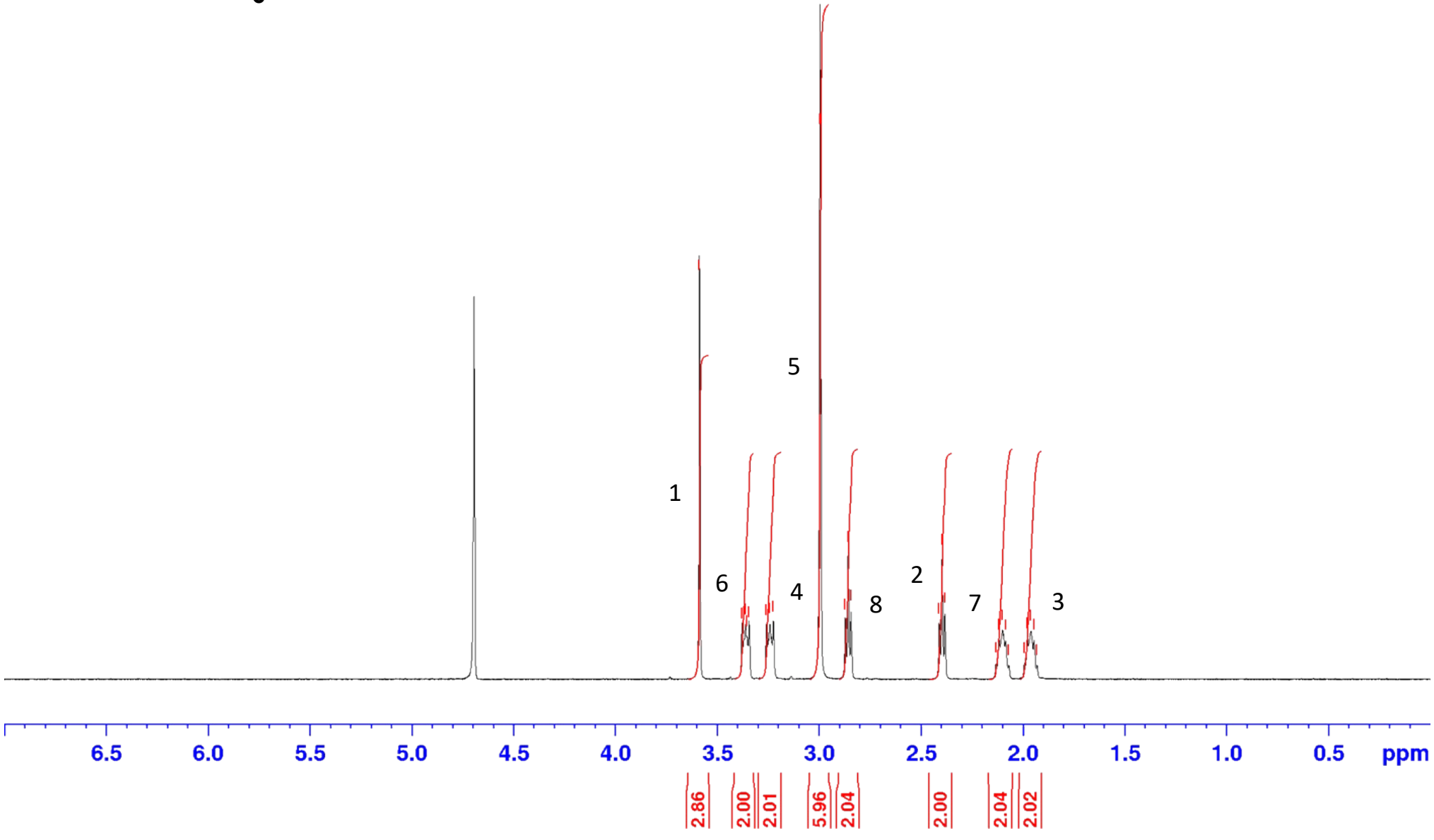
3.381
3.363
3.357
3.347
3.262
3.253
3.244
3.228
2.998
2.875
2.861
2.847
2.414
2.400
2.386
2.135
2.120
2.103
2.087
2.072
1.996
1.981
1.963
1.948
1.934


1
6
5
4
8
2
7
3
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
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0.5
ppm
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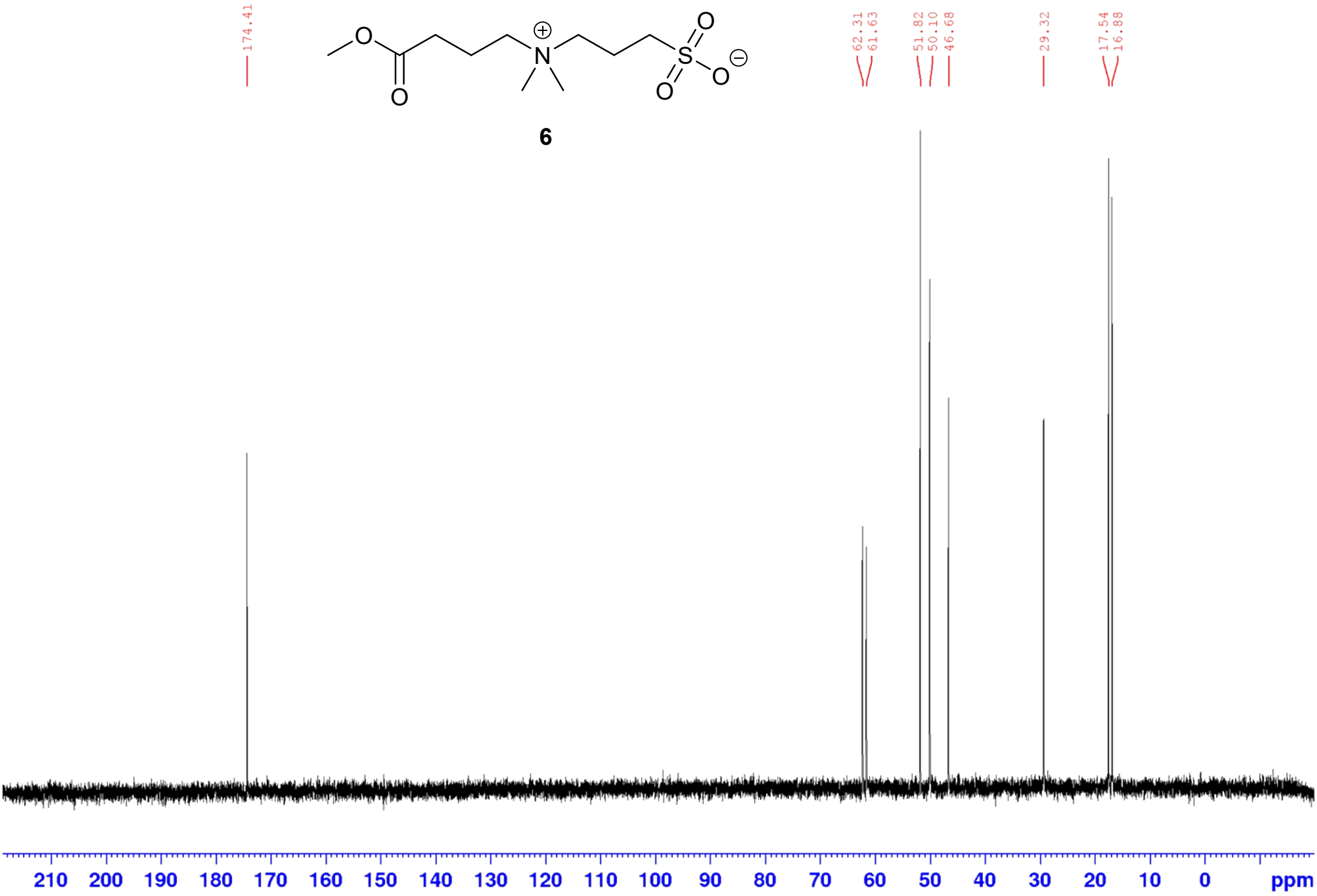
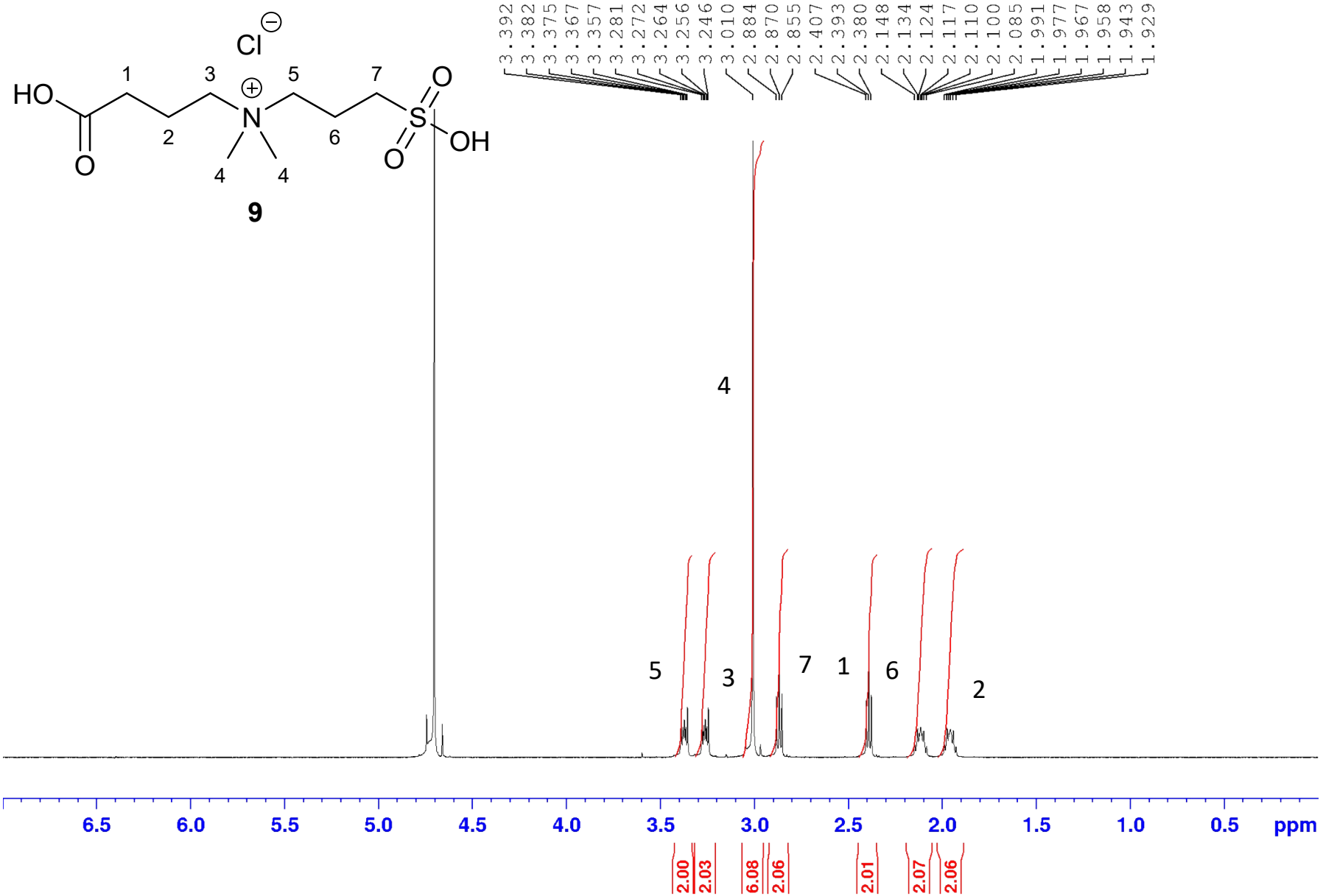
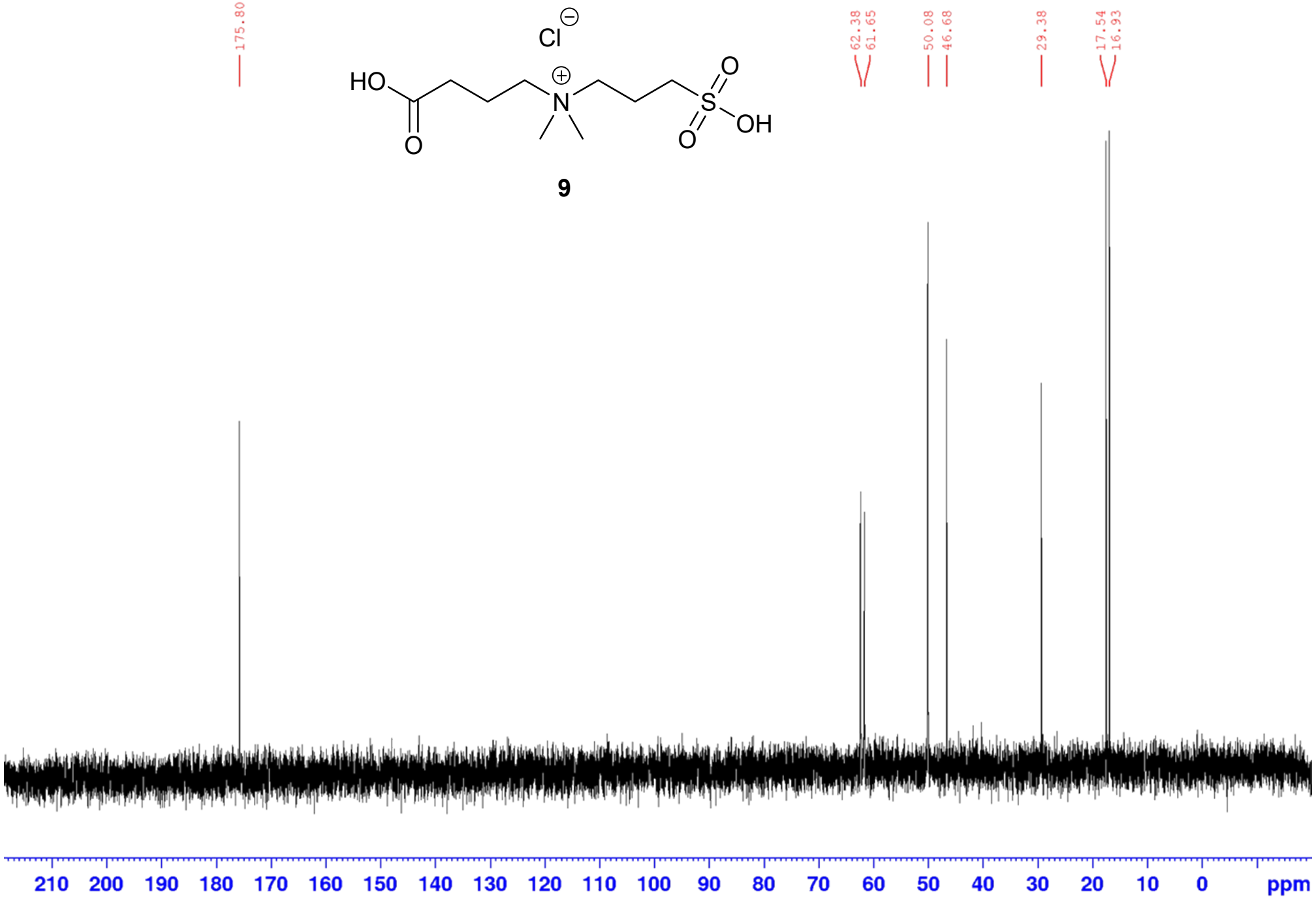
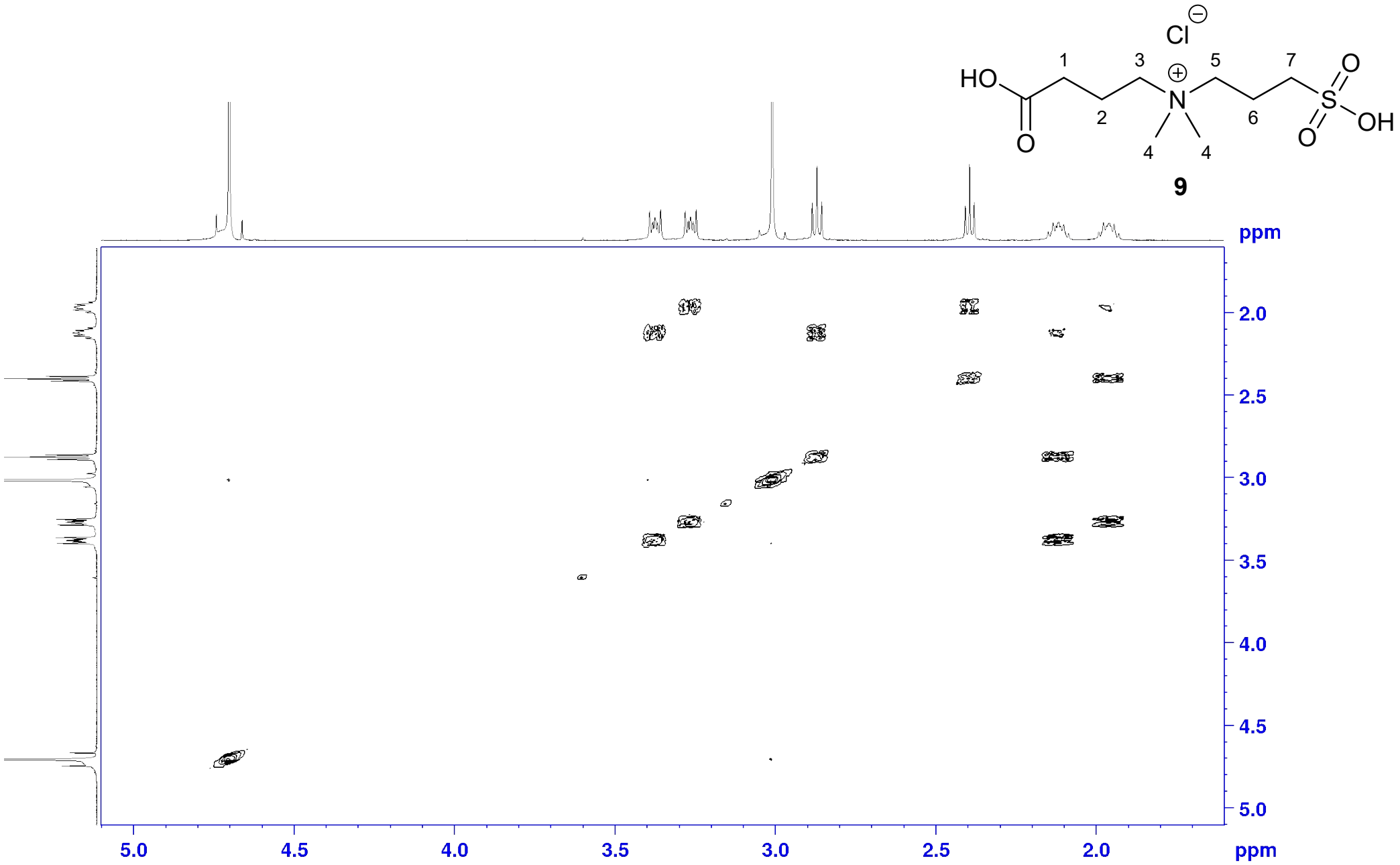
2.01
5.96
2.04
2.00
2.04
2.02

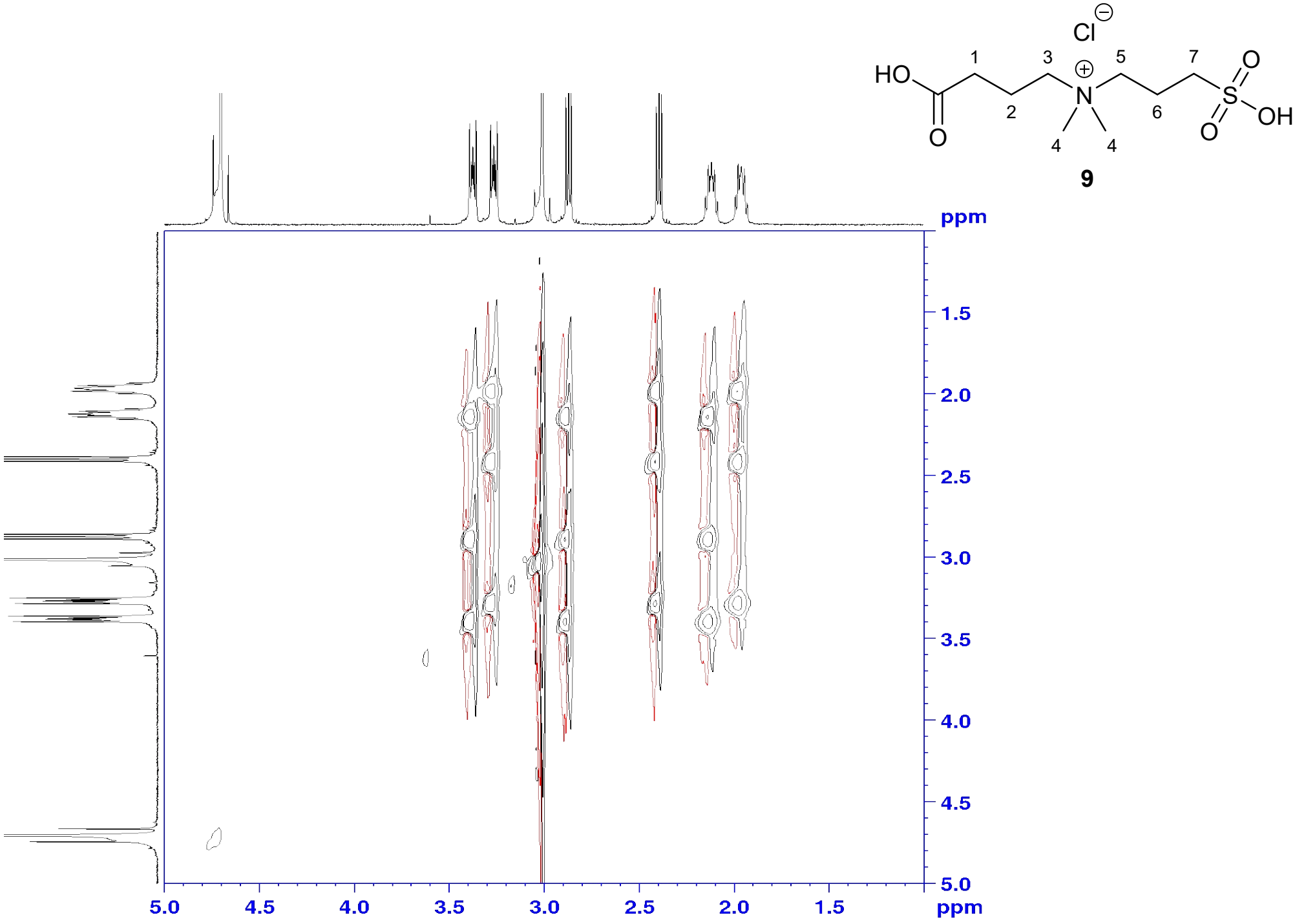

174.41
62.31
61.63
51.82
50.10
46.68
29.32
17.54
16.88
O
O
N
S
O
O
O
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
ppm

6


Cl
HO
1
3
5
7
O
N
S
OH
2
6
O
O
4
4
9
3.392
3.382
3.375
3.367
3.357
3.281
3.272
3.264
3.256
3.246
3.010
2.884
2.870
2.855
2.407
2.393
2.380
2.148
2.134
2.124
2.117
2.110
2.100
2.085
1.991
1.977
1.967
1.958
1.943
1.929
4
5
3
7
1
6
2
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
ppm
2.00
2.03
6.08
2.06
2.01
2.07
2.06


175.80
62.38
61.65
50.08
46.68
29.38
17.54
16.93
Cl
HO
O
N
S
O
O
OH
9
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 ppm

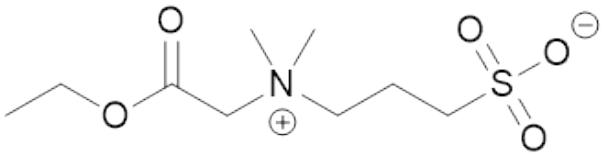

Cl
HO
O
1
2
3
N
4
4
5
6
7
S
O
O
OH
9
ppm
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.0
4.5
4.0
3.5
3.0
2.5
2.0
ppm


Cl
HO
O
1
2
3
N
4
4
5
6
7
S
O
O
OH
9
ppm
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
ppm

Mass Spectra (TIC)

Methode: CE-MS

Capillary length: 80 cm
Voltage: + 30 kV
Injection volume: 40 mbar, 10 s
BGE: 30 mM NH_4Ac (pH 8.5)
SL: 50:50 IPA:H_2O + 5 mM NH_4Ac
Coating: fused silica (none)
Sample: 100 µg/mL in H_2O



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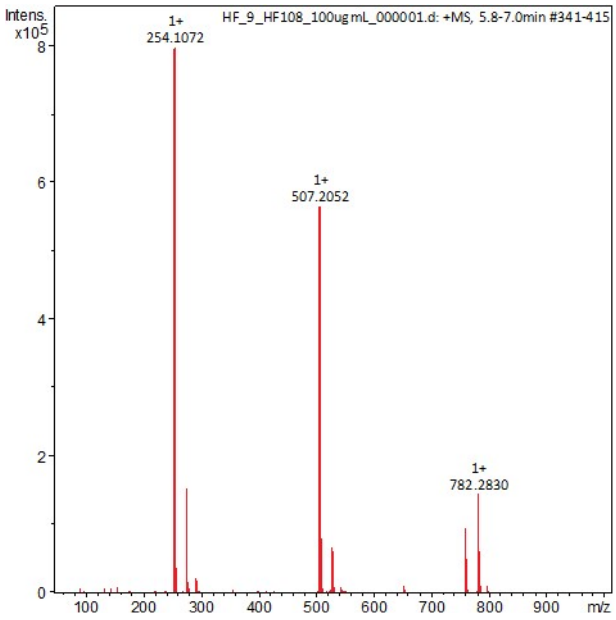

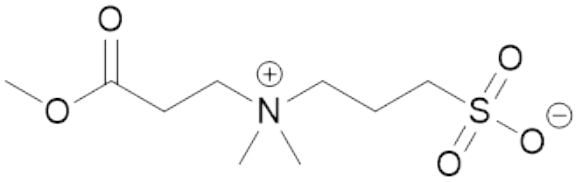

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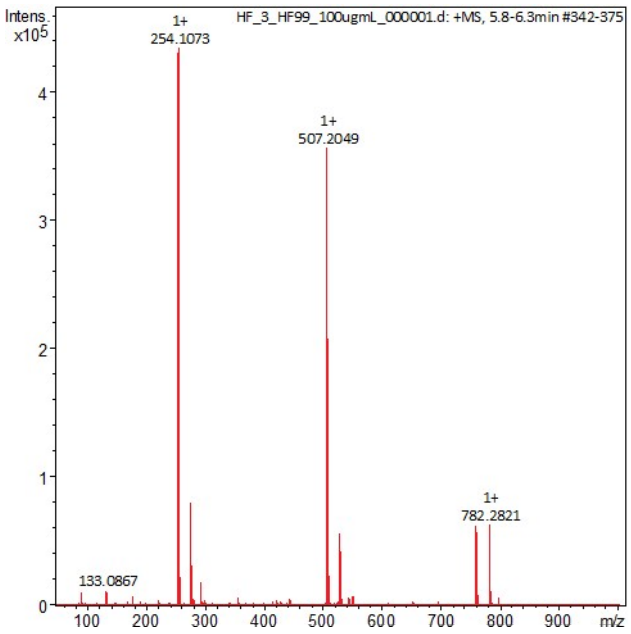
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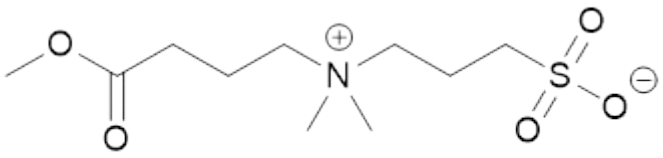
x10^5
HF_3_HF99_100ugmL_000001.d: +MS, 5.8-6.3min #342-375
1+
254.1073
1+
507.2049
1+
782.2821
133.0867
m/z



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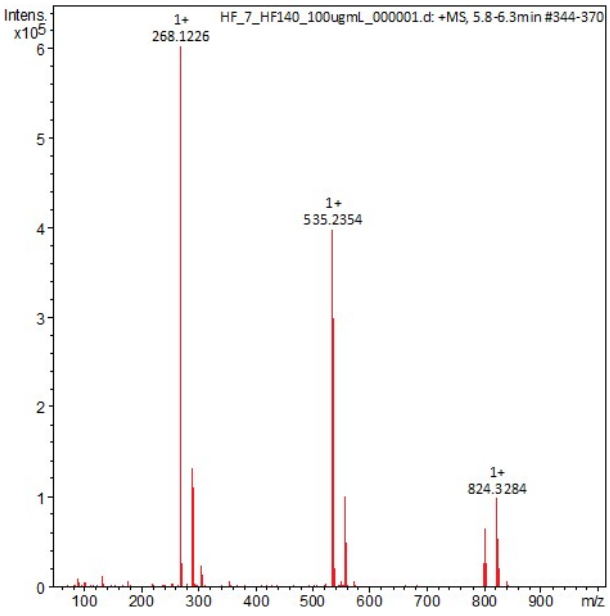
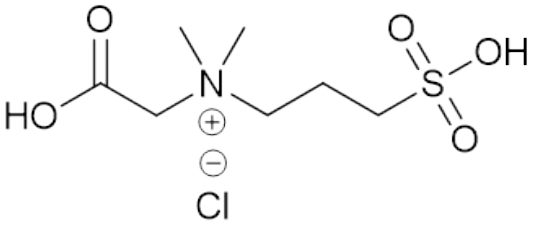
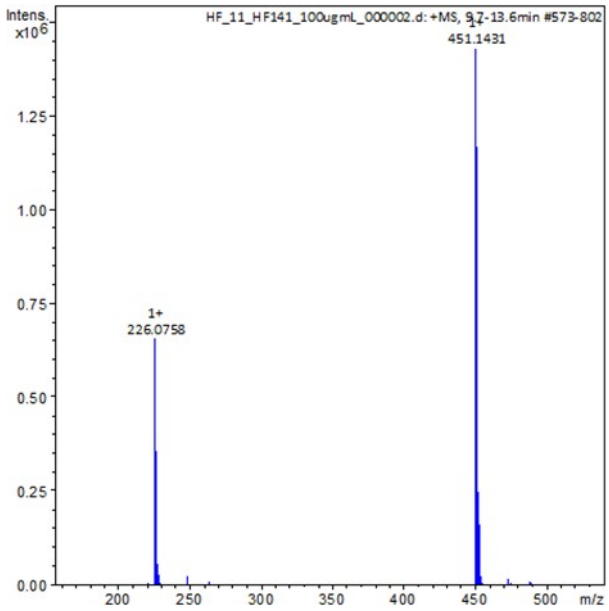
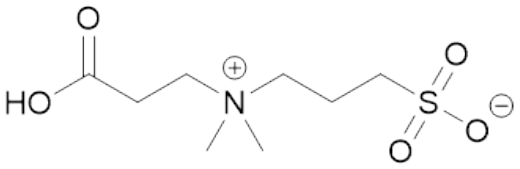

Intens.
x10^5
HF_7_HF140_100ugmL_000001.d: +MS, 5.8-6.3min #344-370
1+
268.1226
1+
535.2354
1+
824.3284
m/z

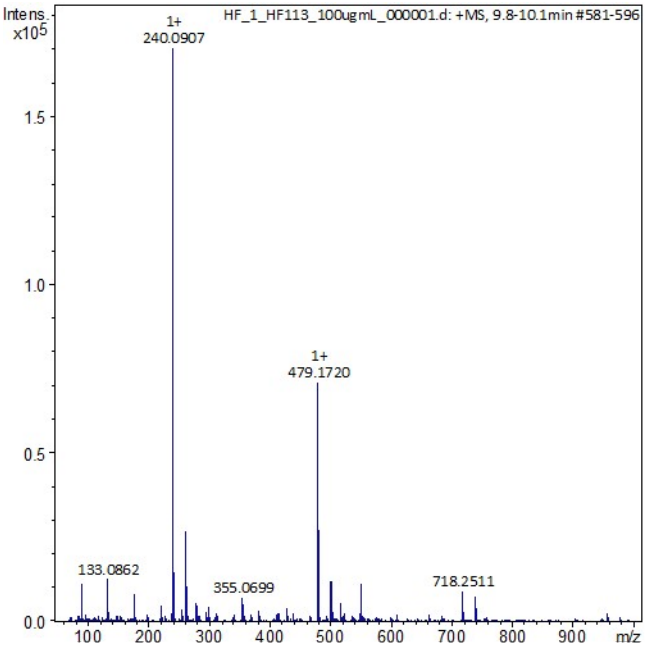

O
HO
N
O
S
OH
O
Cl

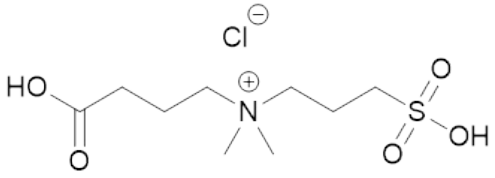
7


Intens.
x10^6
HF_11_HF141_100ugmL_000002.d: +MS, 9.7-13.6min #573-802
1+
451.1431
1.25
1.00
0.75
1+
226.0758
0.50
0.25
0.00
200
250
300
350
400
450
500
m/z

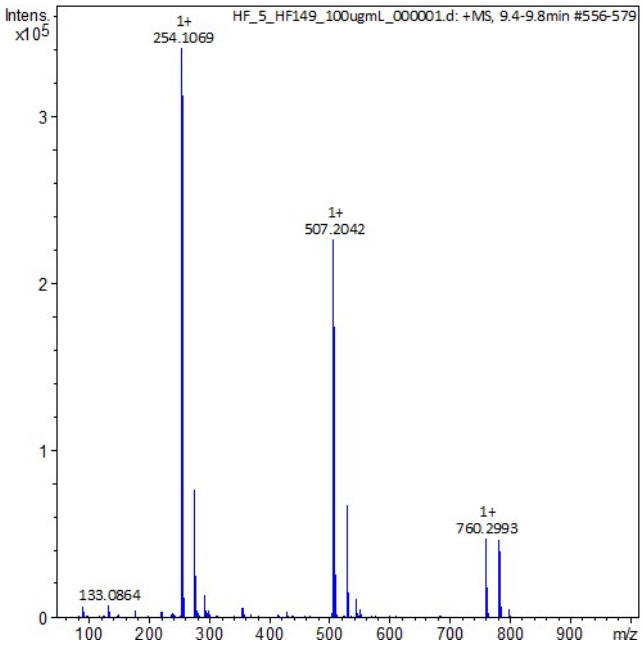

O
HO
N
O
S
O
O

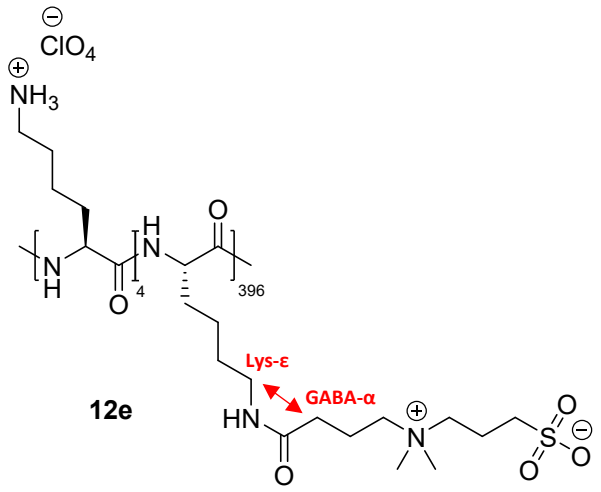
8


Intens.
x10^5
HF_1_HF113_100ugmL_000001.d: +MS, 9.8-10.1min #581-596
1+
240.0907
1.5
1.0
1+
479.1720
0.5
133.0862
355.0699
718.2511
0.0
100
200
300
400
500
600
700
800
900
m/z


Cl
HO
N
S
O
O
O
OH

9


Intens.
x10^5
HF_5_HF149_100ugmL_000001.d: +MS, 9.4-9.8min #556-579
1+
254.1069
1+
507.2042
1+
760.2993
133.0864
0
1
2
3
100
200
300
400
500
600
700
800
900
m/z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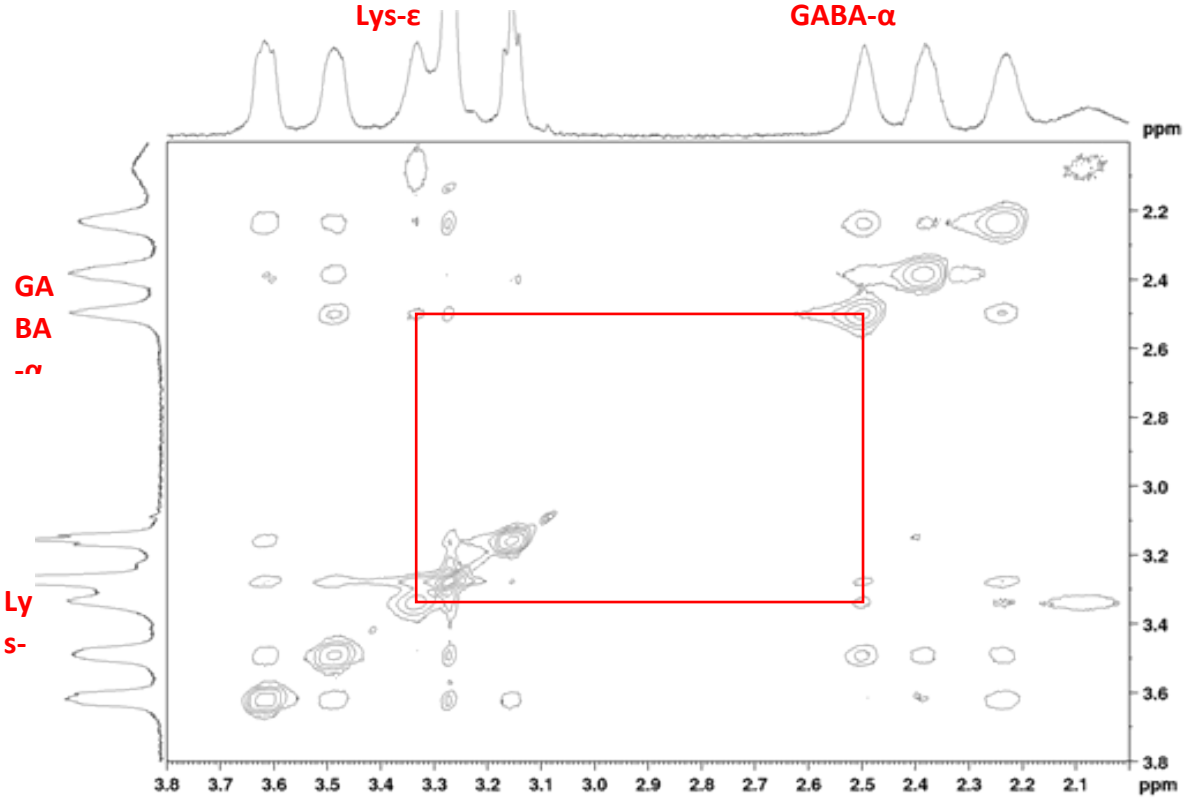
NH3
H
N
O
4
396
Lys-ε
GABA-α
HN
N
S
O

12e


Lys-ε
GABA-α
GA
BA
-α
Ly
s-
ppm
2.2
2.4
2.6
2.8
3.0
3.2
3.4
3.6
3.8
3.8 3.7 3.6 3.5 3.4 3.3 3.2 3.1 3.0 2.9 2.8 2.7 2.6 2.5 2.4 2.3 2.2 2.1
ppm