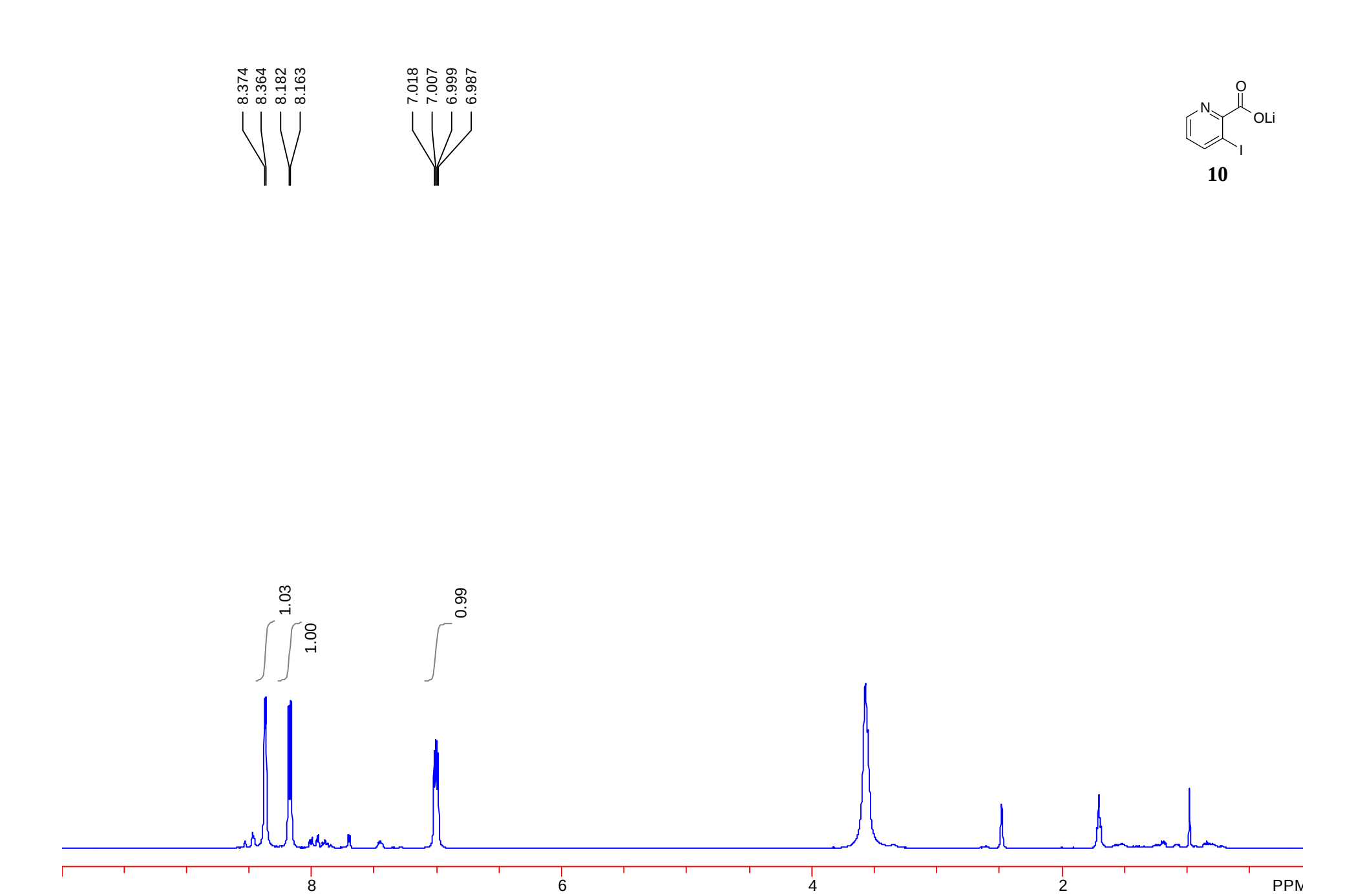
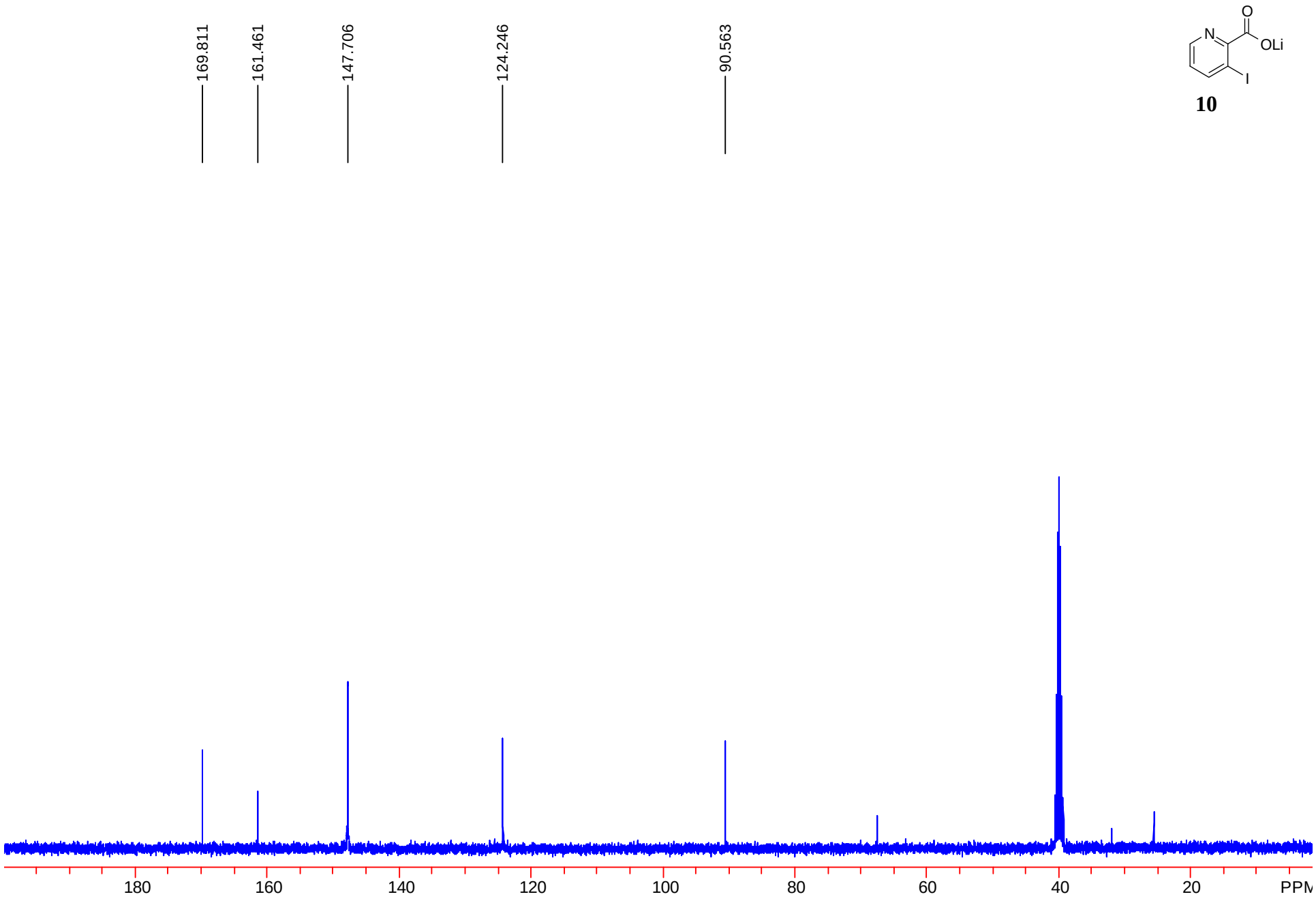
An Intra/Intermolecular Suzuki Sequence to Benzopyridyloxepines Containing Geometrically Pure Exocyclic Tetra-substituted Alkenes

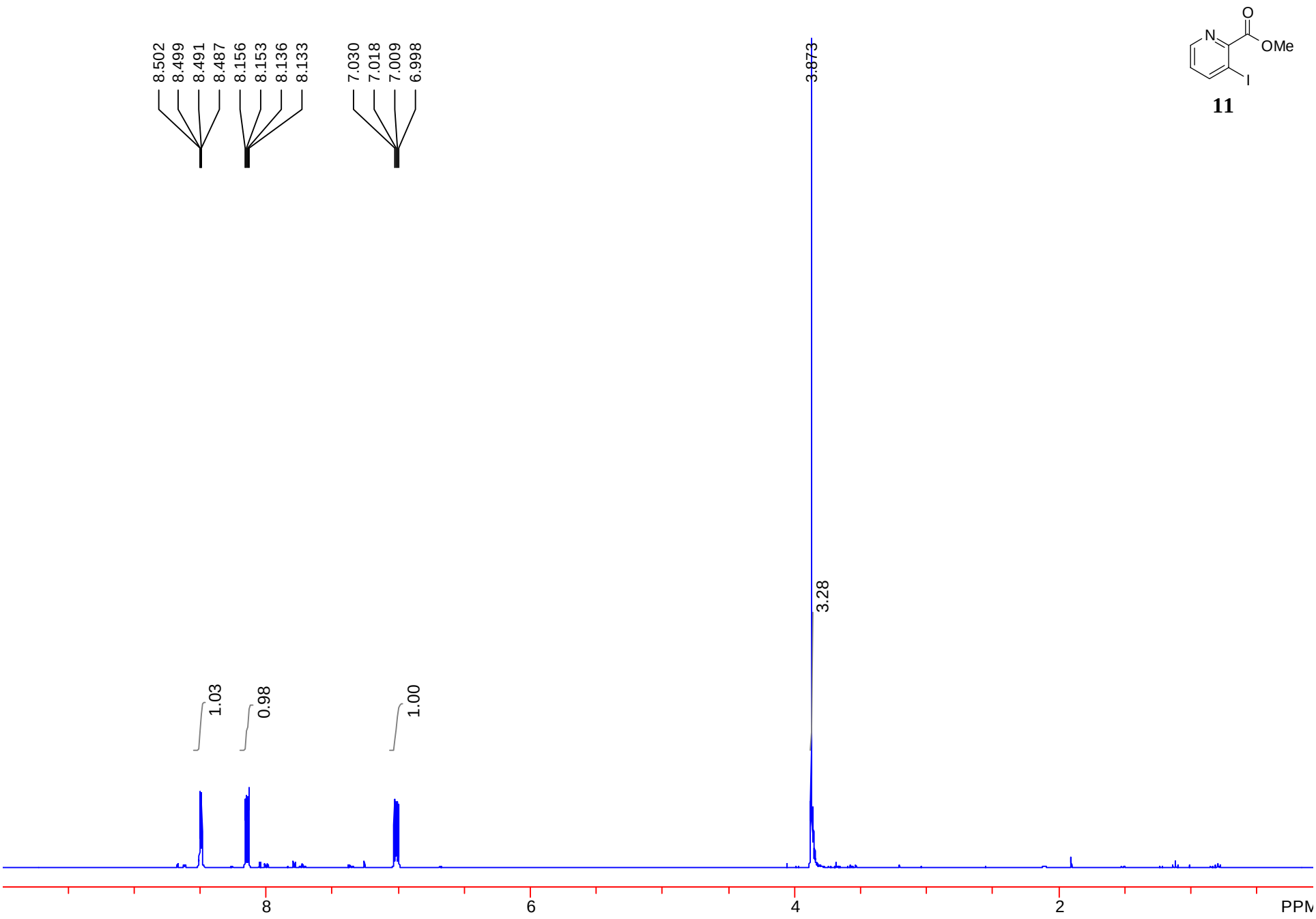
Supporting Information (NMR Spectra)

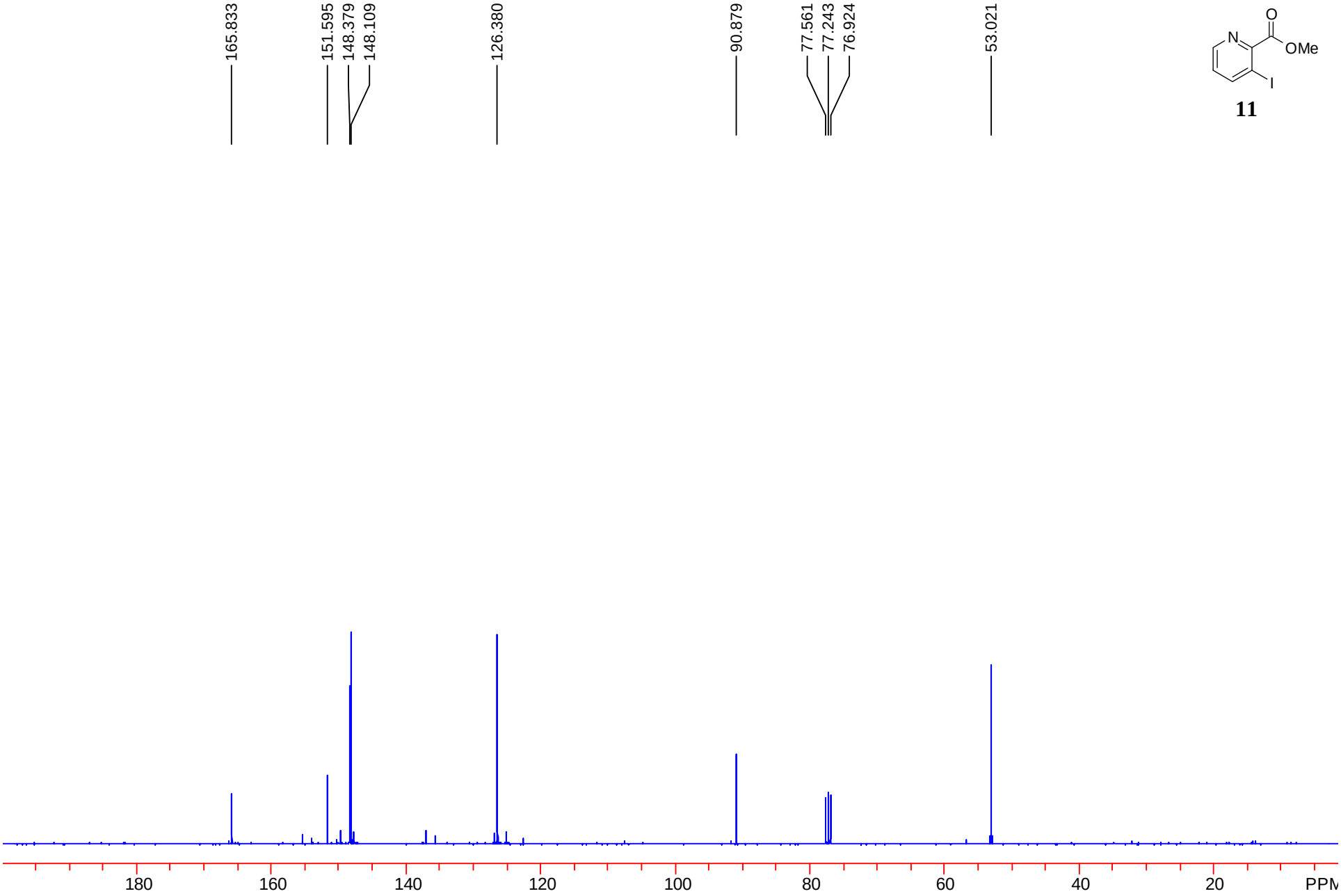
Matthew W. Carson, Matthew W. Giese, and Michael J. Coghlan

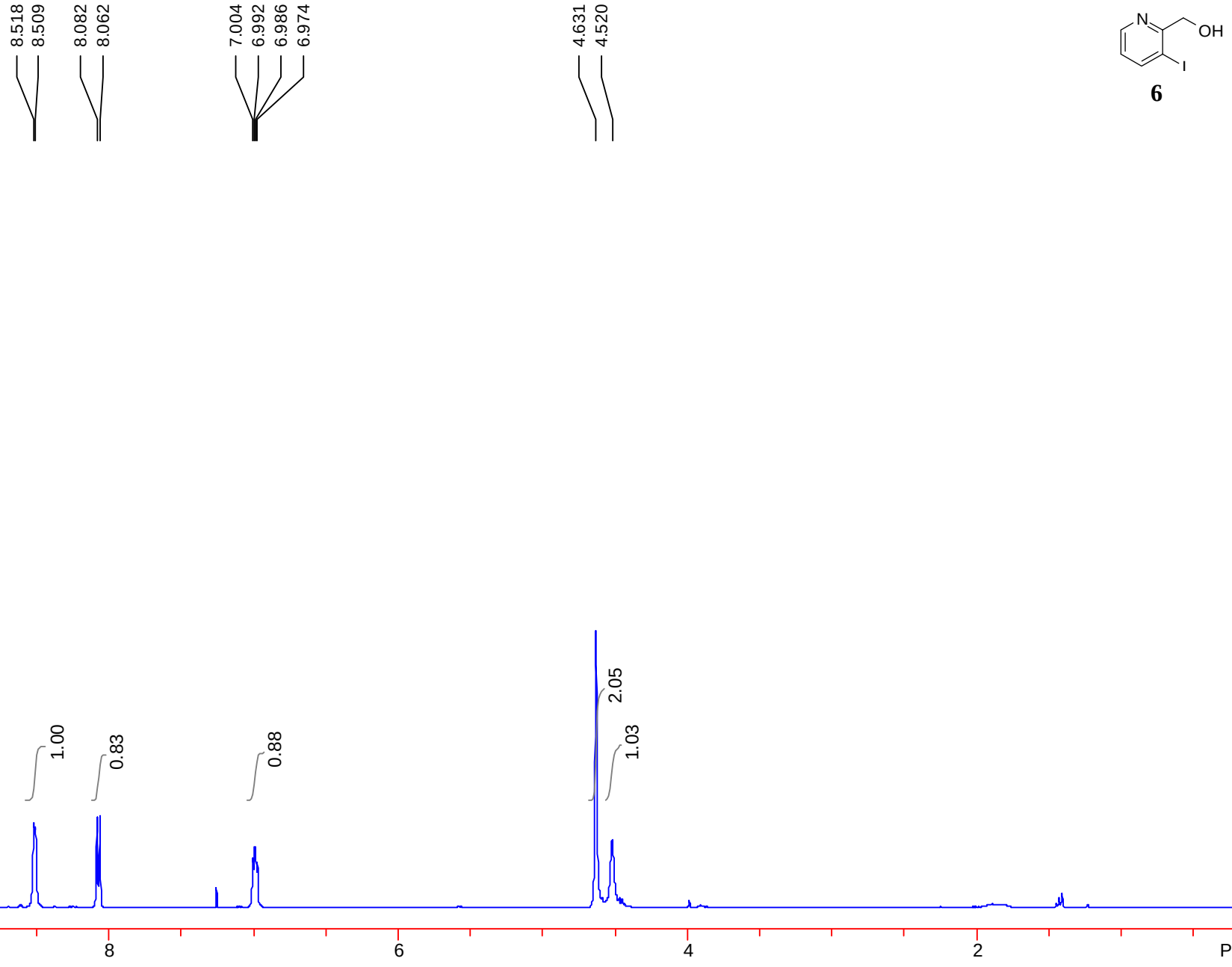
Discovery Chemistry Research and Technology
Lilly Research Laboratories
Eli Lilly and Company
Lilly Corporate Center
Indianapolis IN, 46285

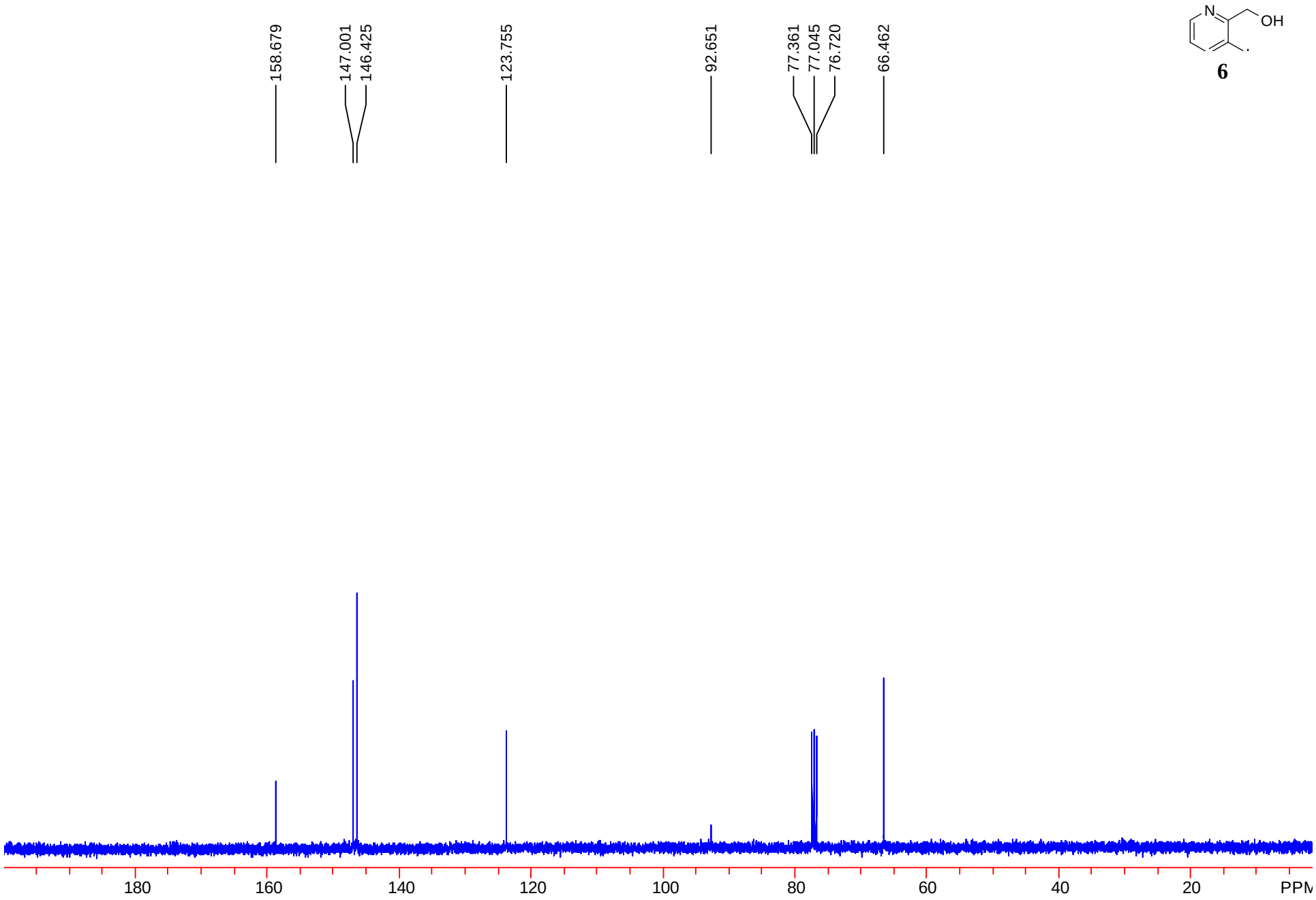

8.374
8.364
8.182
8.163
7.018
7.007
6.999
6.987
O
N
OLi
I
10
1.03
1.00
0.99
8
6
4
2
PPM

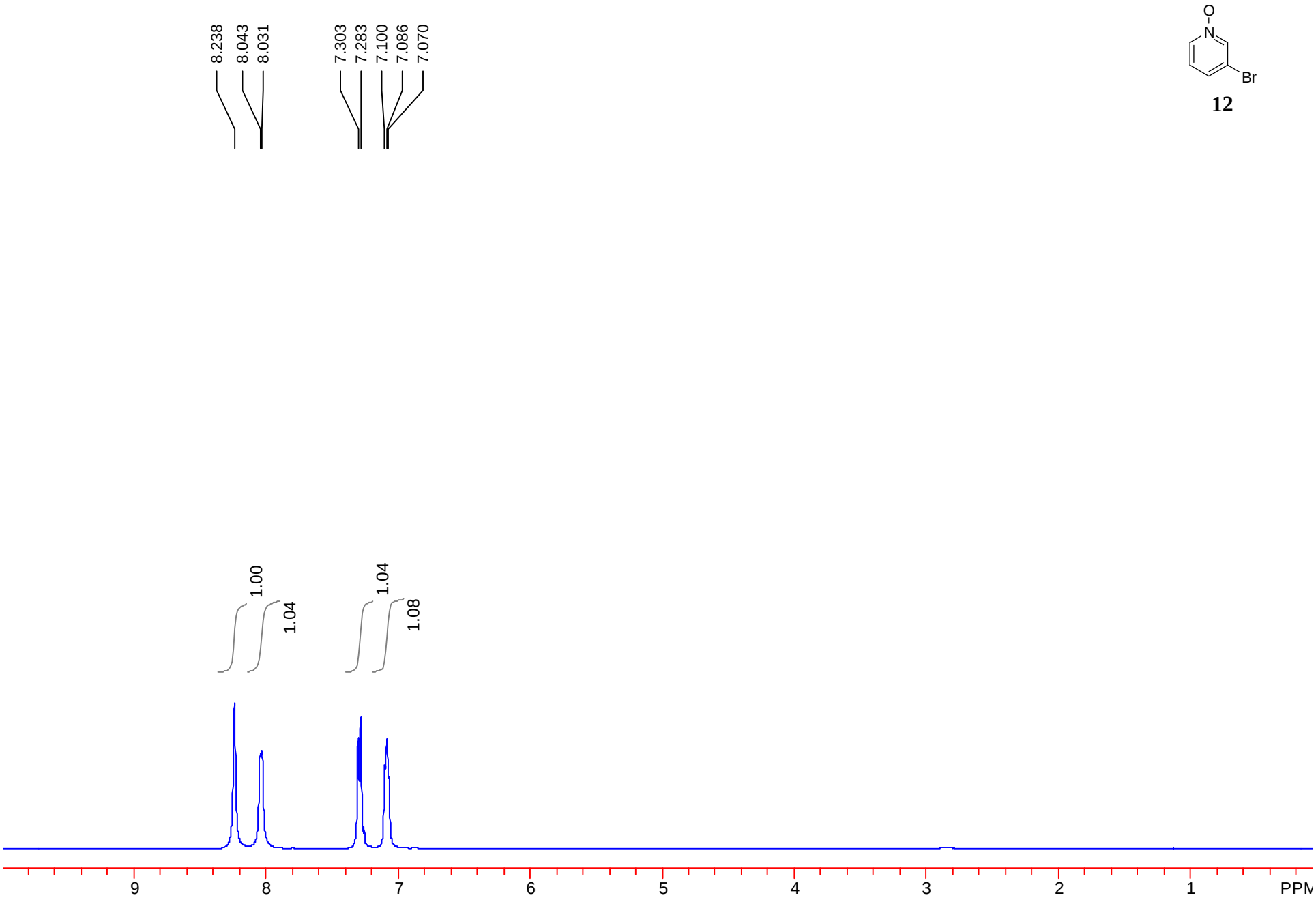

169.811
161.461
147.706
124.246
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OLi
I
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140
120
100
80
60
40
20
PPM

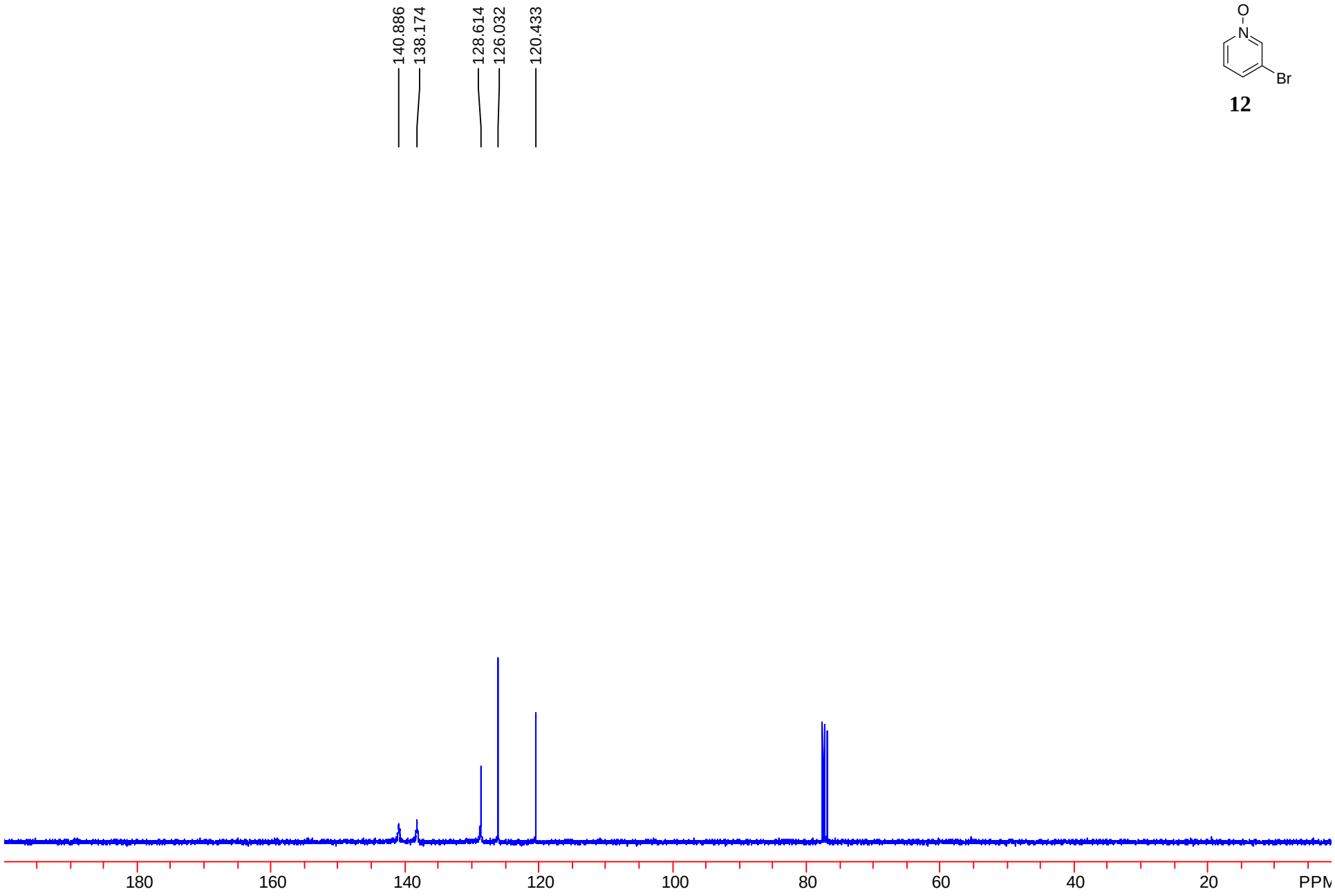

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8.499
8.491
8.487
8.156
8.153
8.136
8.133
7.030
7.018
7.009
6.998
3.873
3.28
1.03
0.98
1.00
O
N
OMe
I
11
8
6
4
2
PPM


165.833
151.595
148.379
148.109
126.380
90.879
77.561
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N
OMe
I
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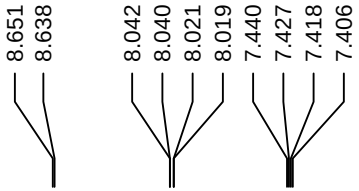

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8.509
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8.062
7.004
6.992
6.986
6.974
4.631
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OH
I
6
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1.03
8
6
4
2
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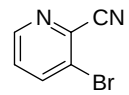

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77.361
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76.720
66.462
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OH
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160
140
120
100
80
60
40
20
PPM


8.238
8.043
8.031
7.303
7.283
7.100
7.086
7.070
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1.04
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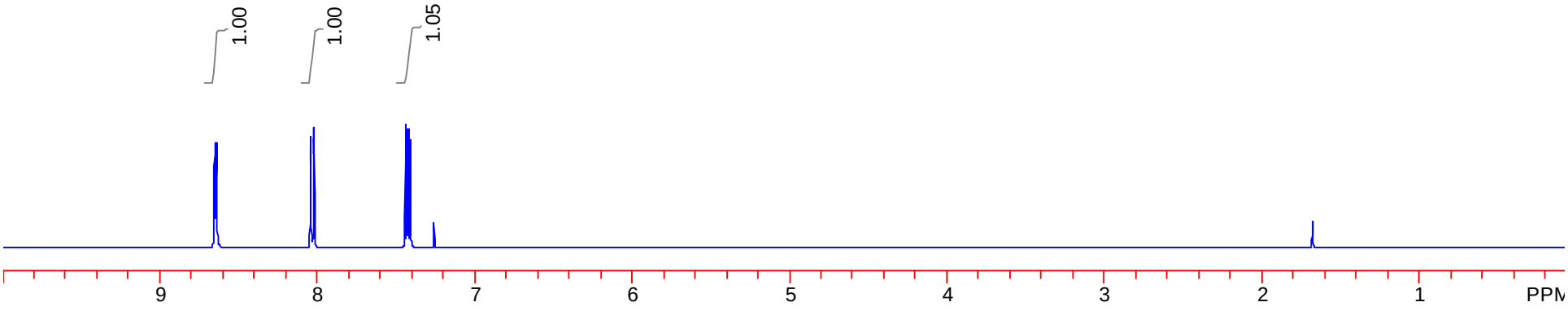

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20
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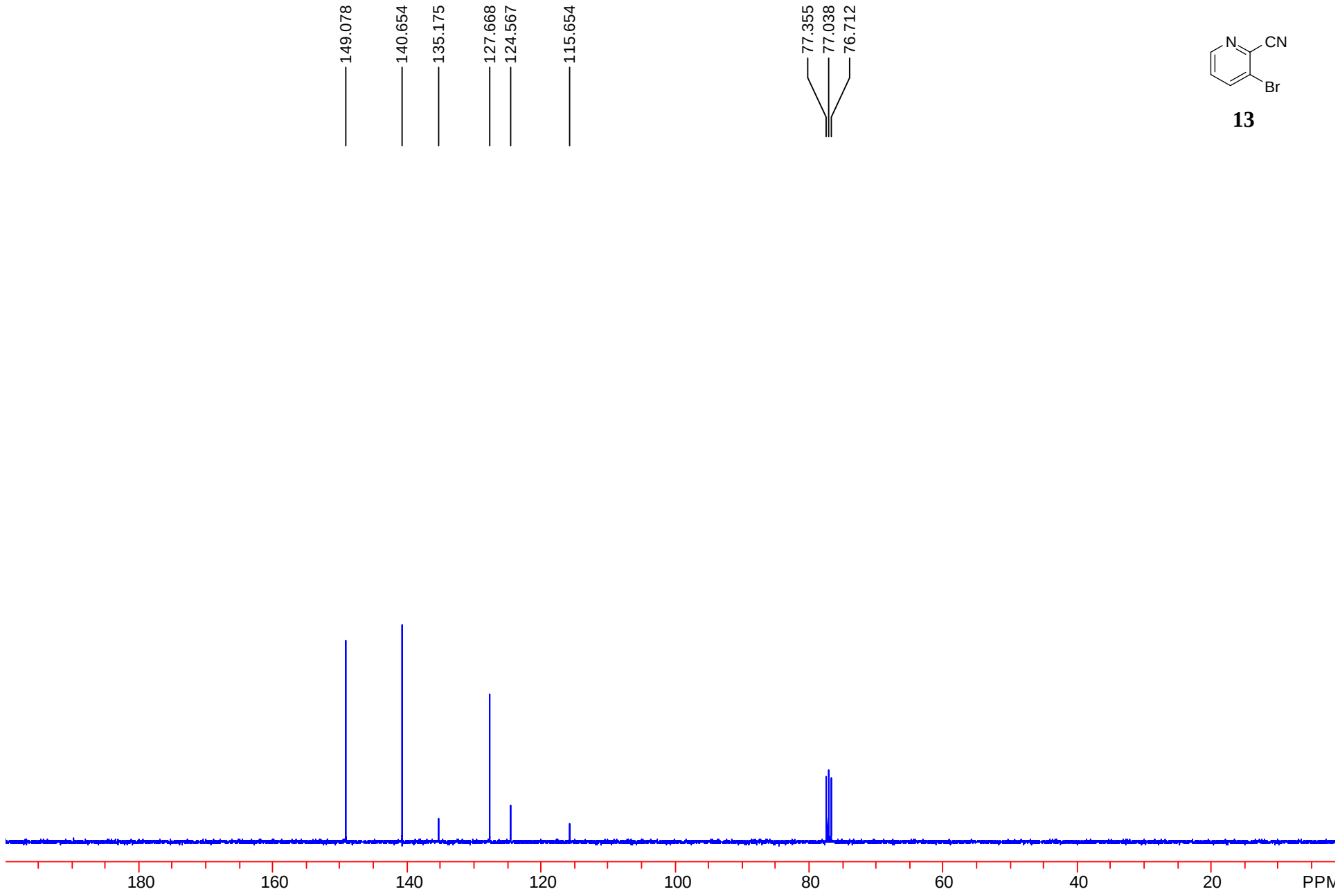
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7.406

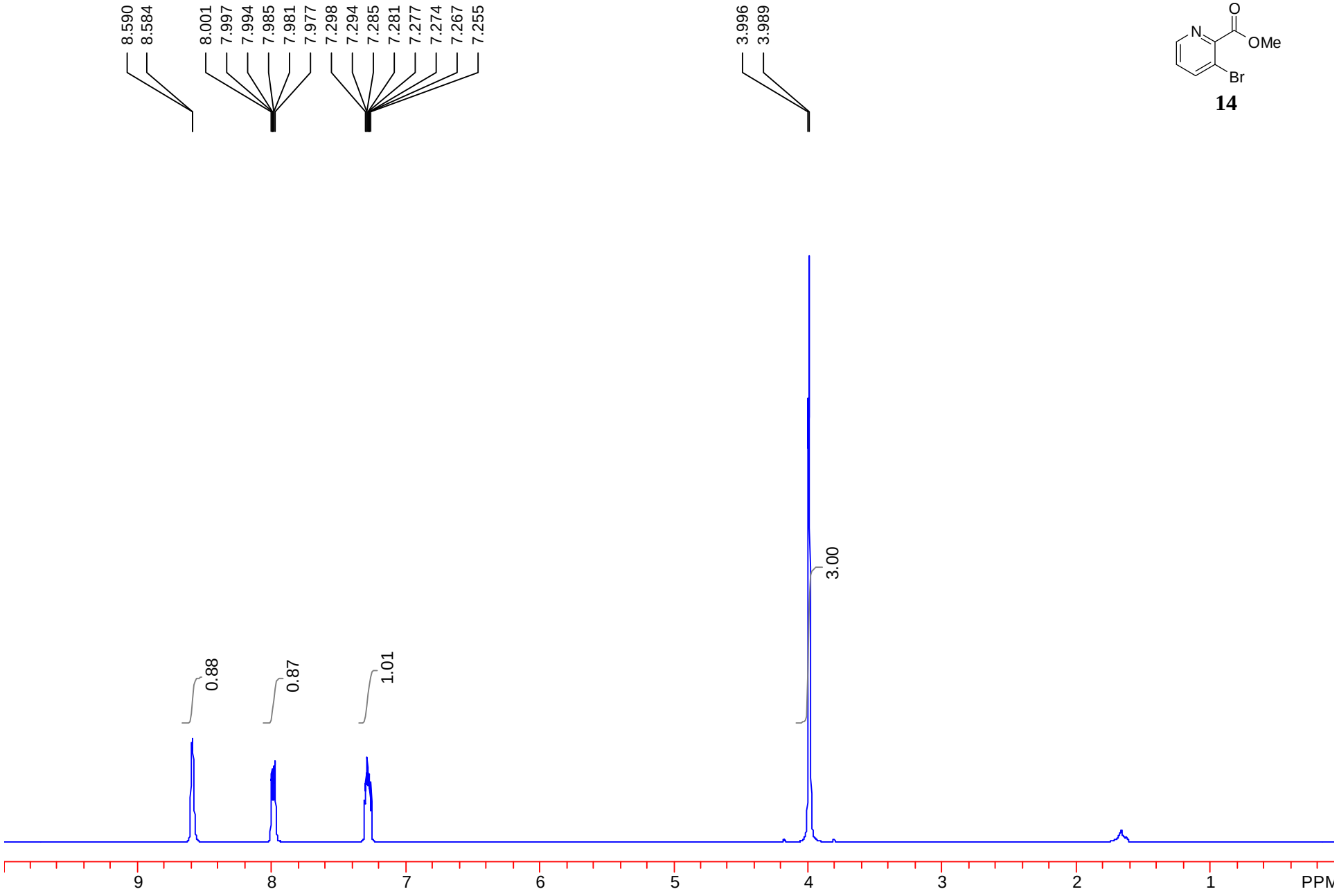

N
CN
Br

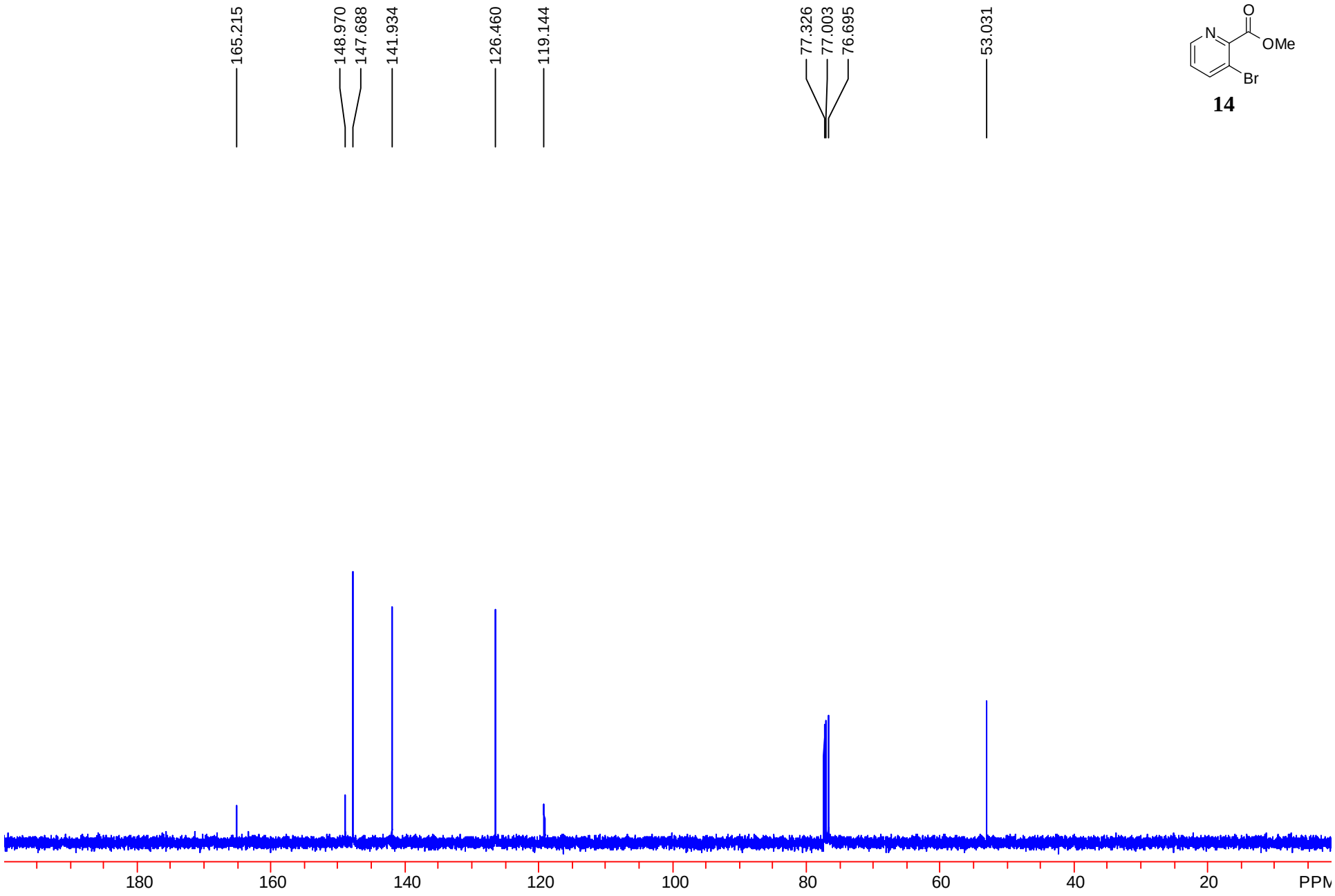
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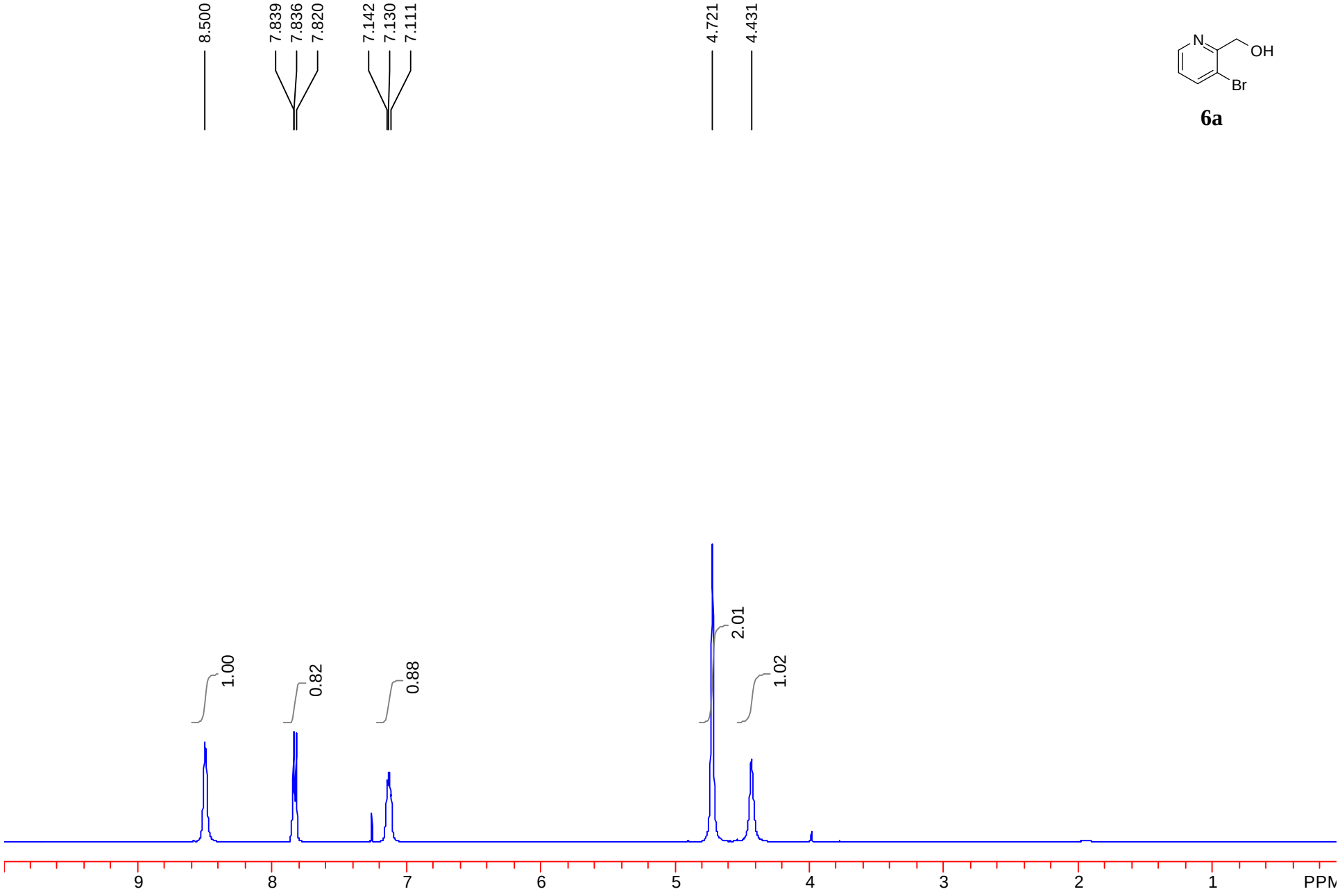

1.00
1.00
1.05
9
8
7
6
5
4
3
2
1
PPM

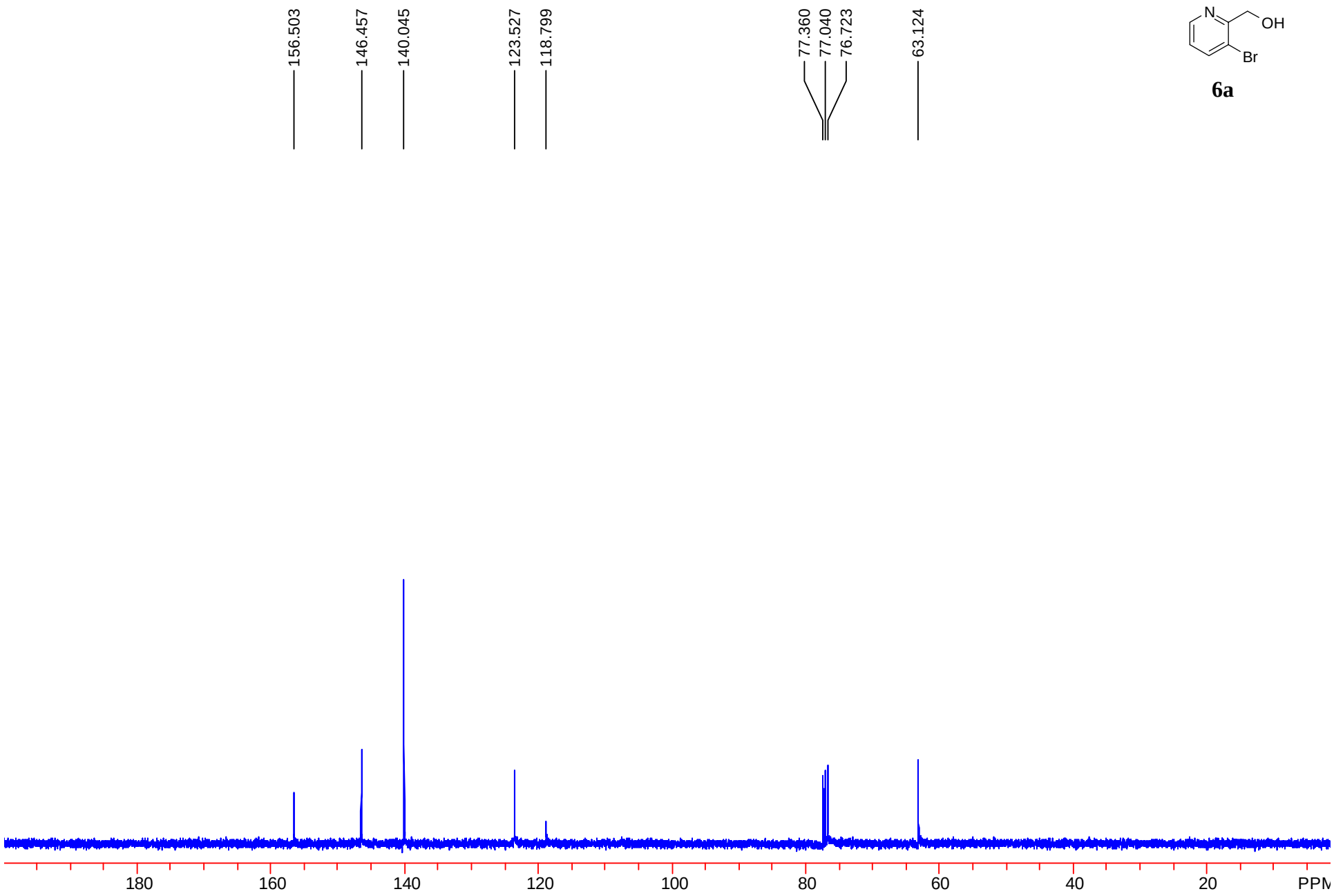

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127.668
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77.038
76.712
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CN
Br
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40
20
PPM

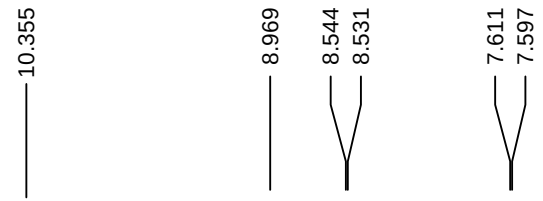
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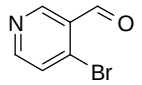

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7.281
7.277
7.274
7.267
7.255
3.996
3.989
O
N
OMe
Br
14
3.00
0.88
0.87
1.01
9
8
7
6
5
4
3
2
1
PPM


165.215
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147.688
141.934
126.460
119.144
77.326
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Br
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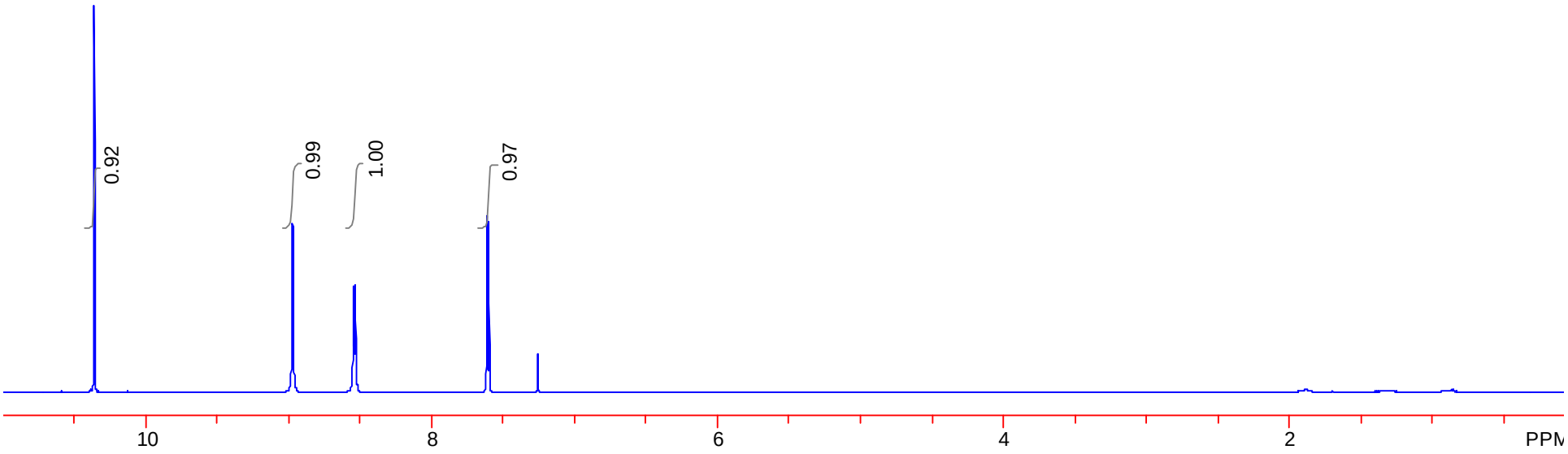

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7.130
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4.721
4.431
N
OH
Br
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0.88
2.01
1.02
9
8
7
6
5
4
3
2
1
PPM

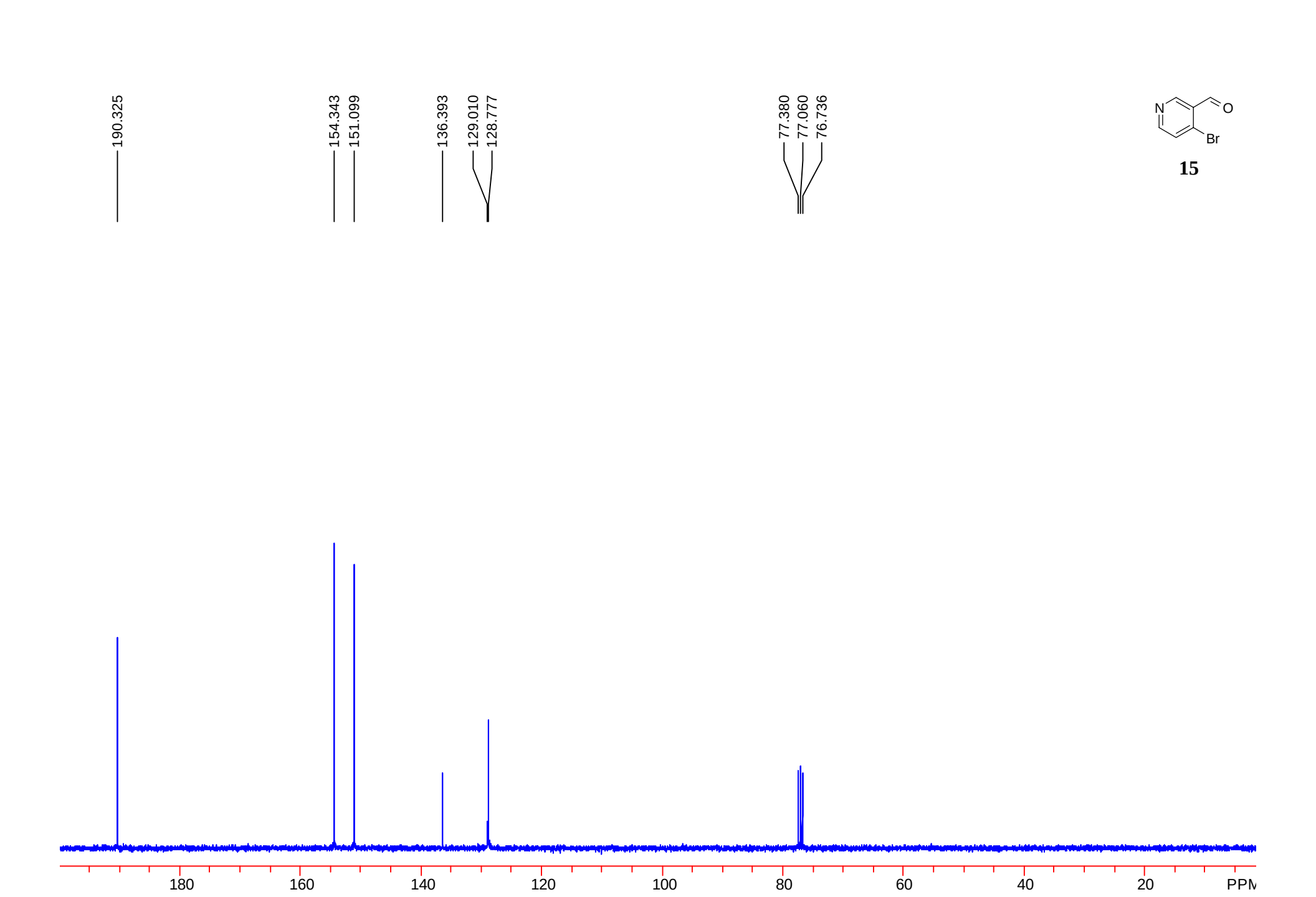

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123.527
118.799
77.360
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20
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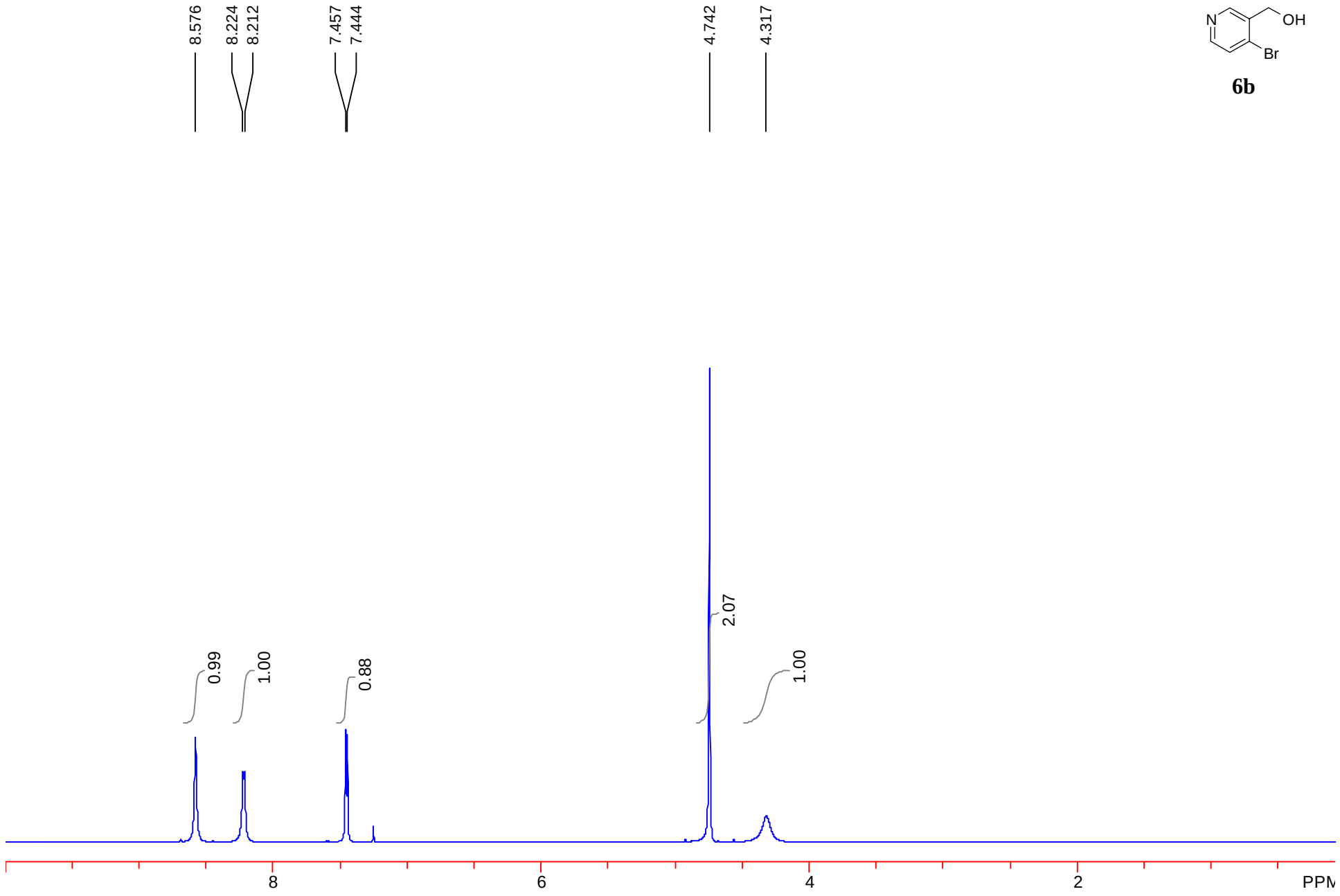

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7.597

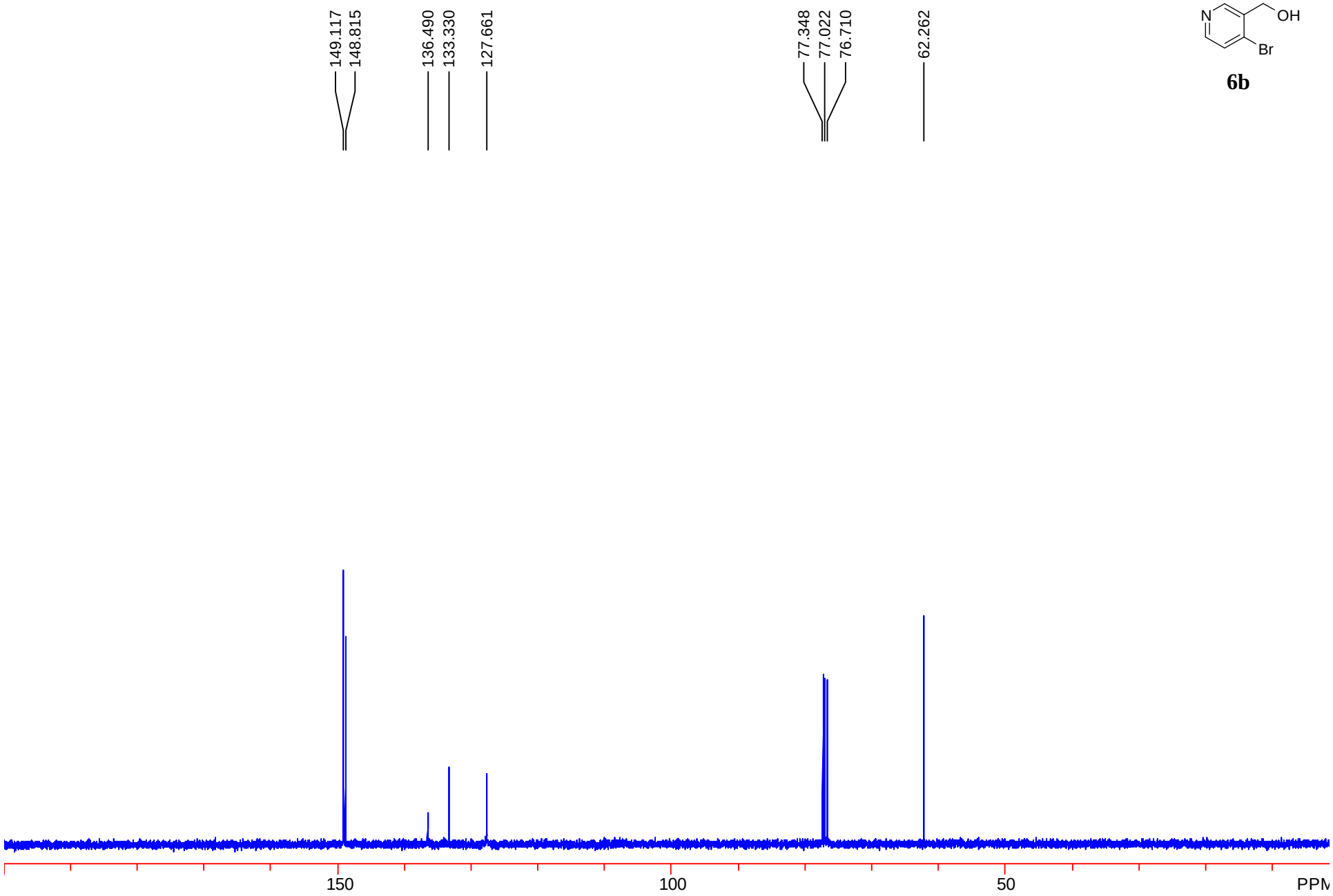

N
O
Br

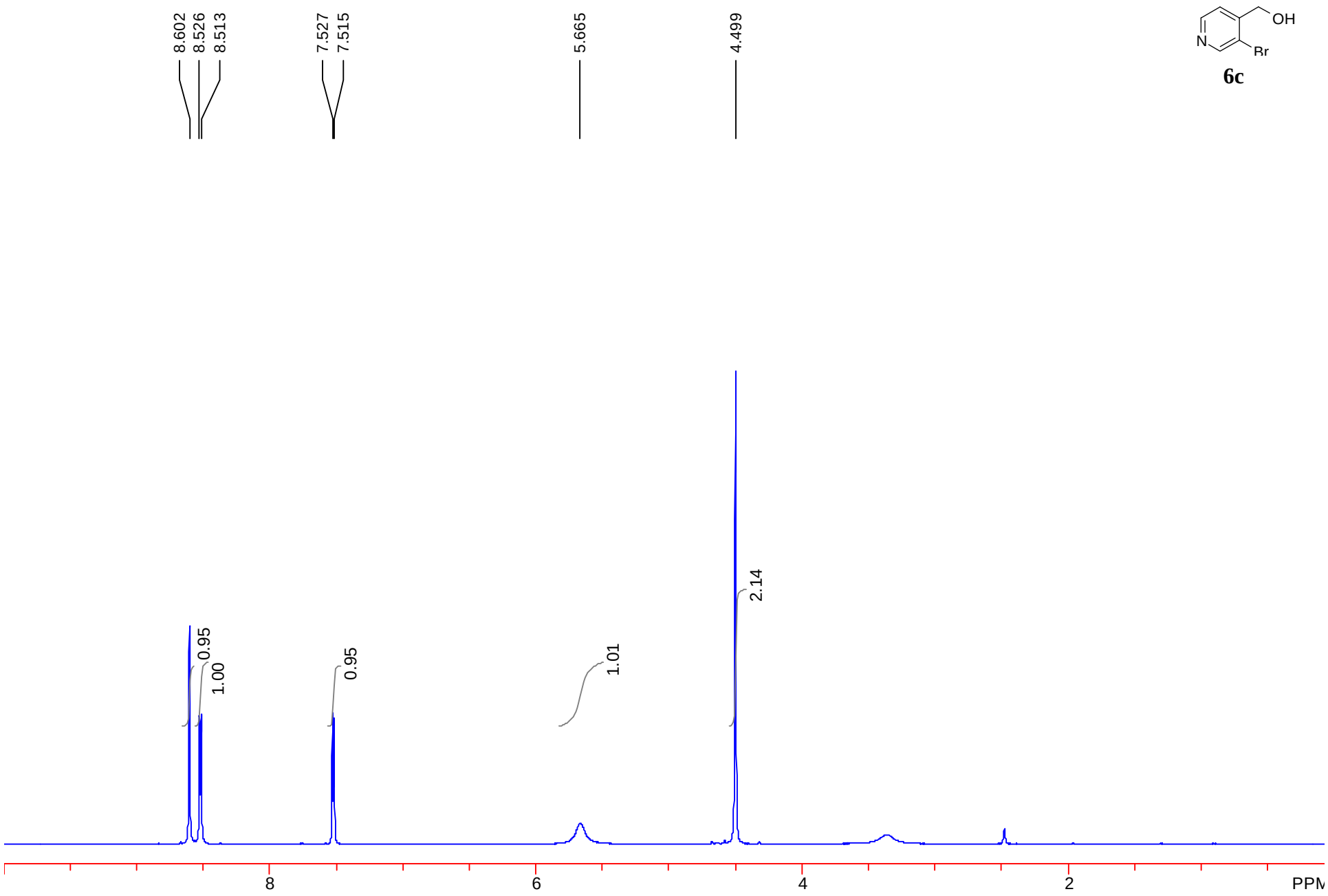
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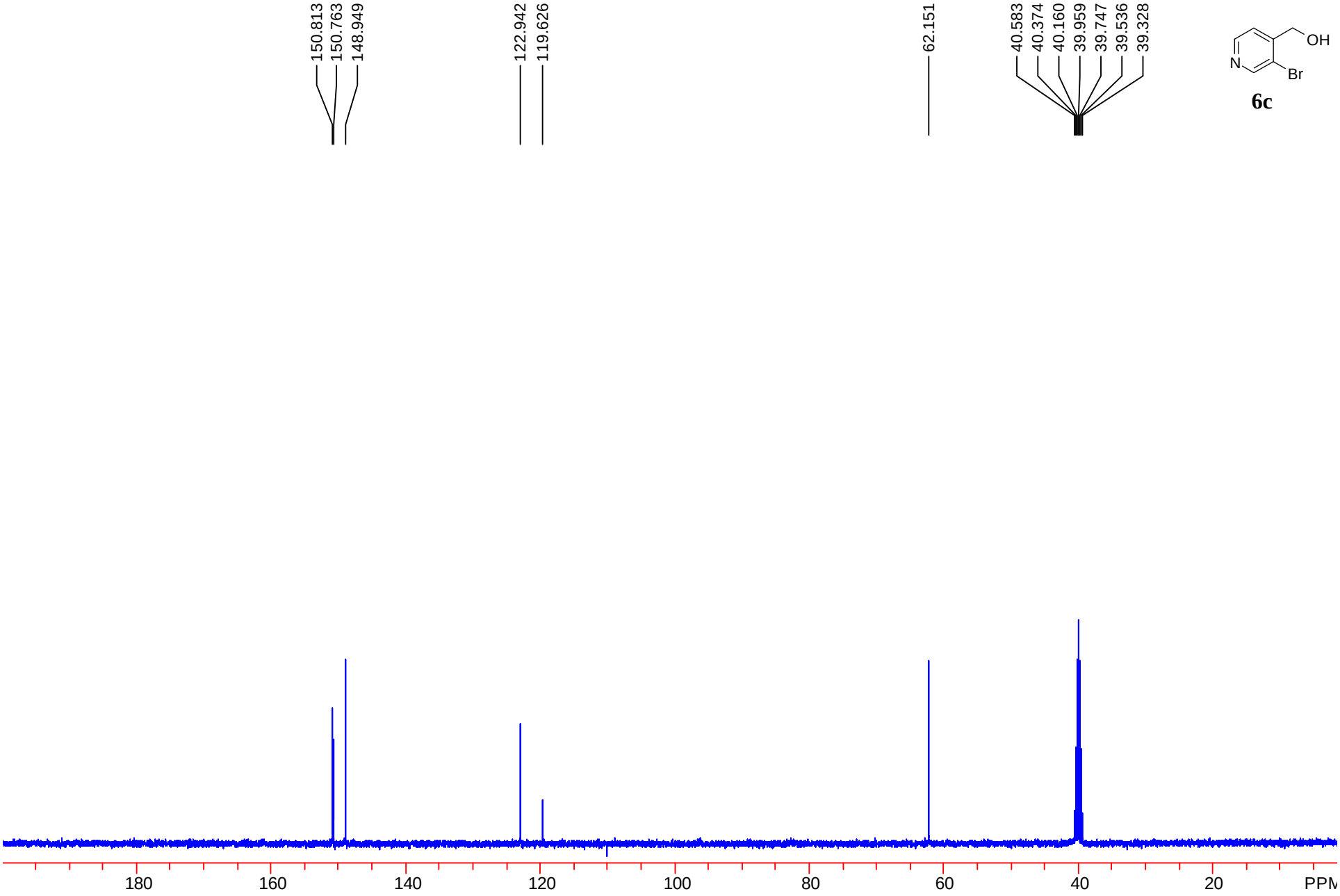

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4
2
PPM

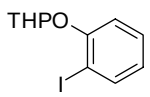

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136.393
129.010
128.777
77.380
77.060
76.736
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O
Br
15
180
160
140
120
100
80
60
40
20
PPM


8.576
8.224
8.212
7.457
7.444
4.742
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Br
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1.00
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PPM

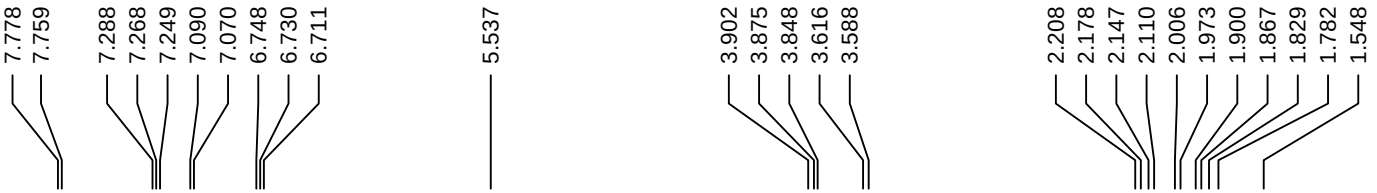

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76.710
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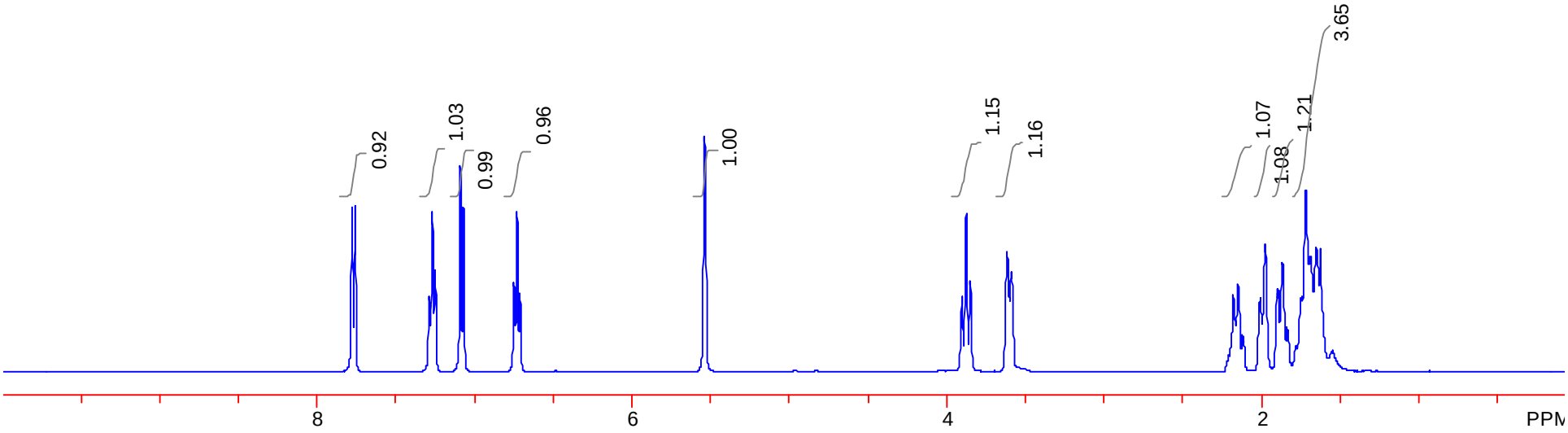

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7.527
7.515
5.665
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Br
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2
PPM

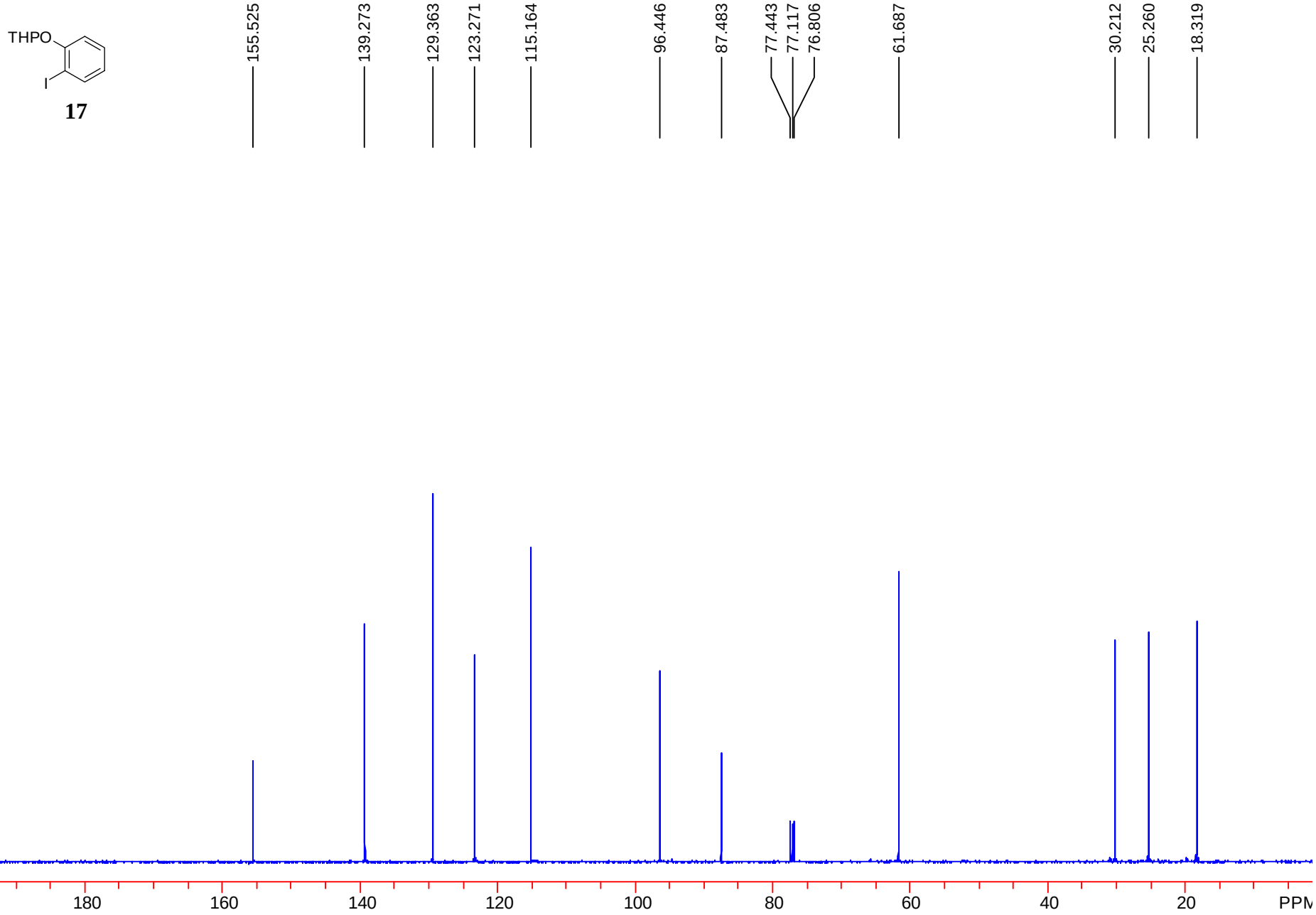

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62.151
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40.160
39.959
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PPM

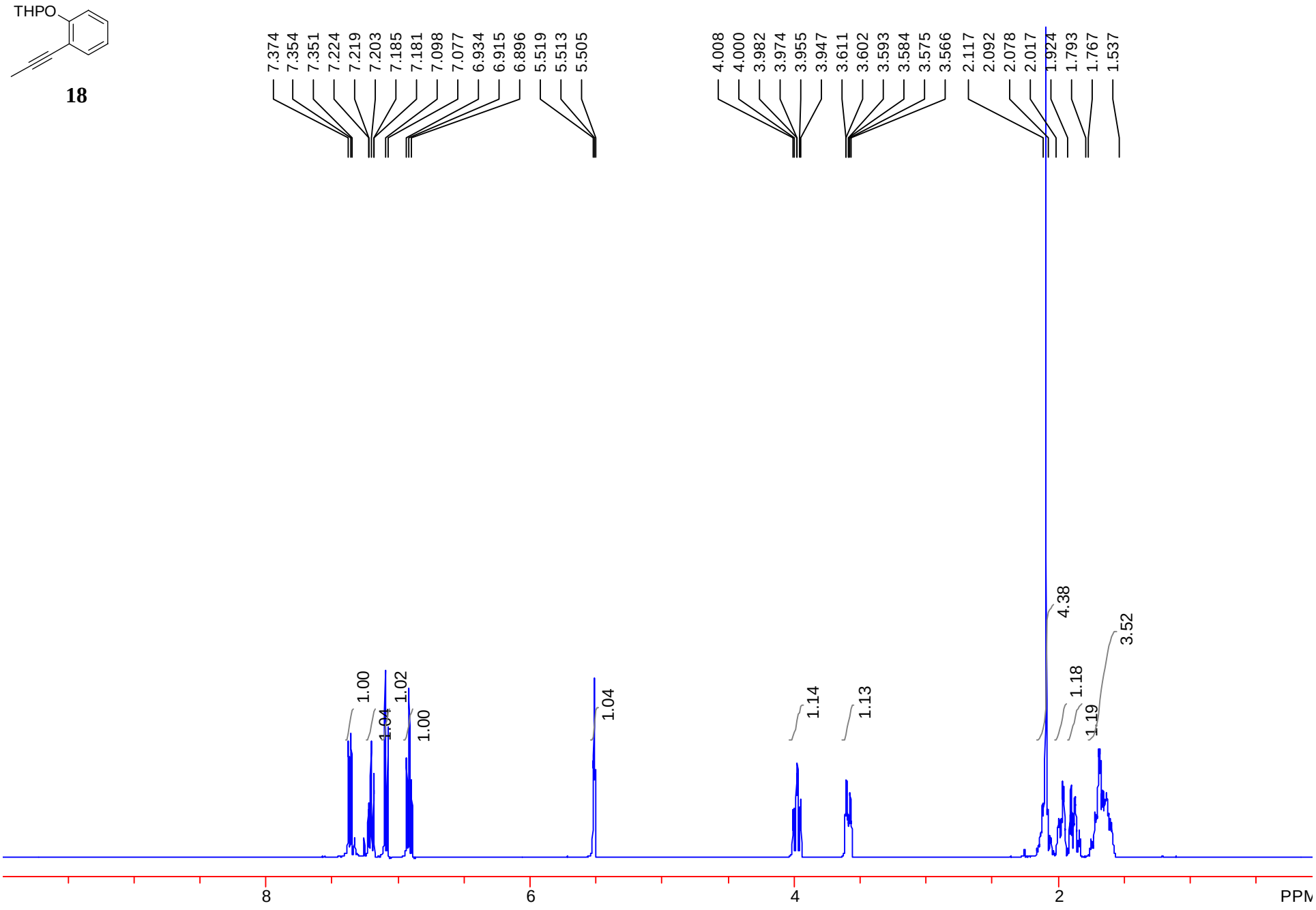

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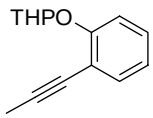
17


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3.875
3.848
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0.92
1.03
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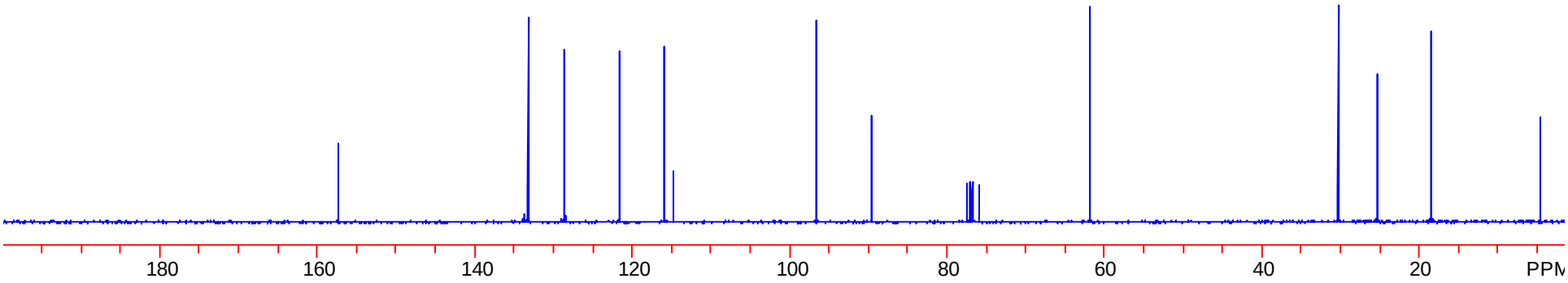

THPO
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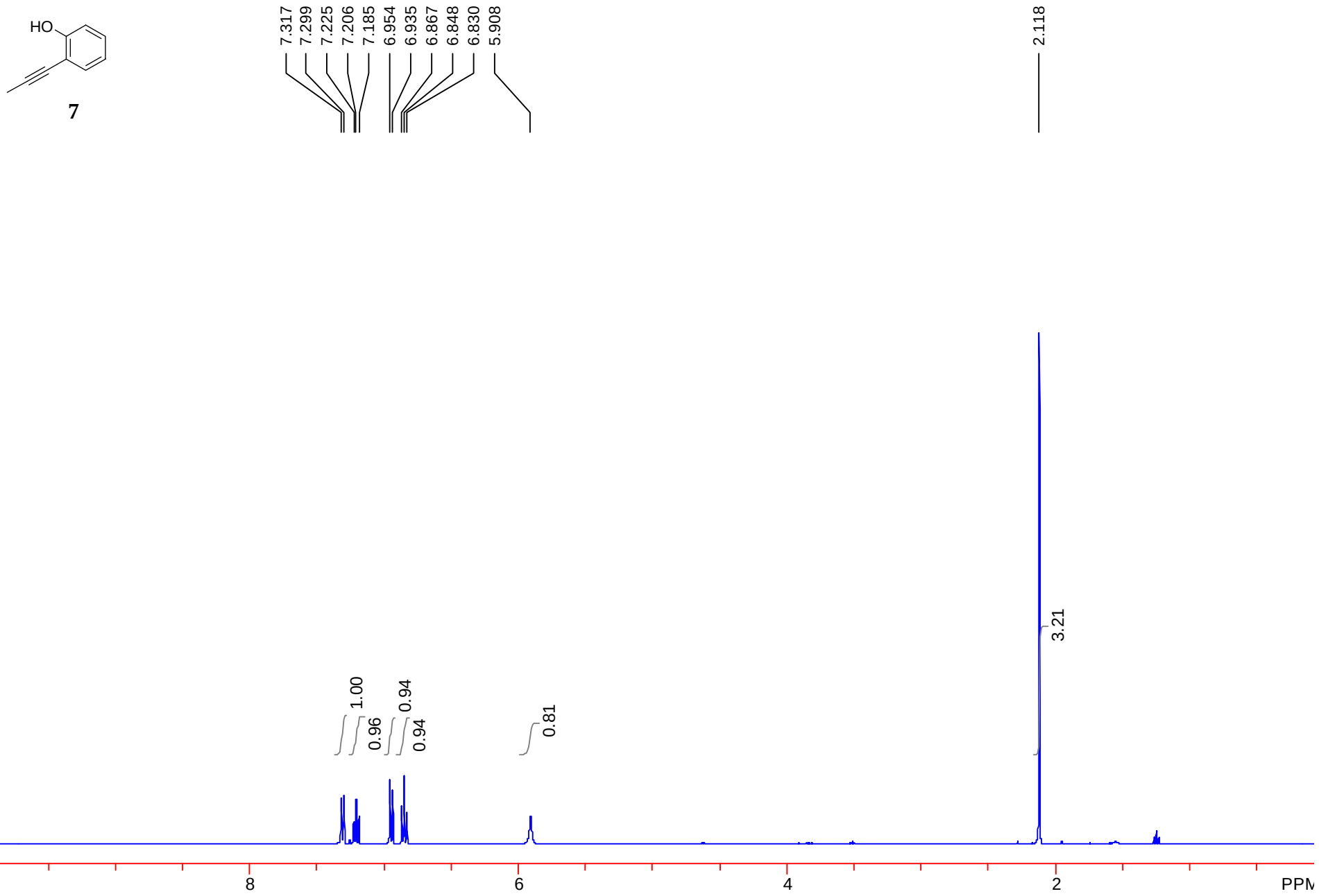

THPO
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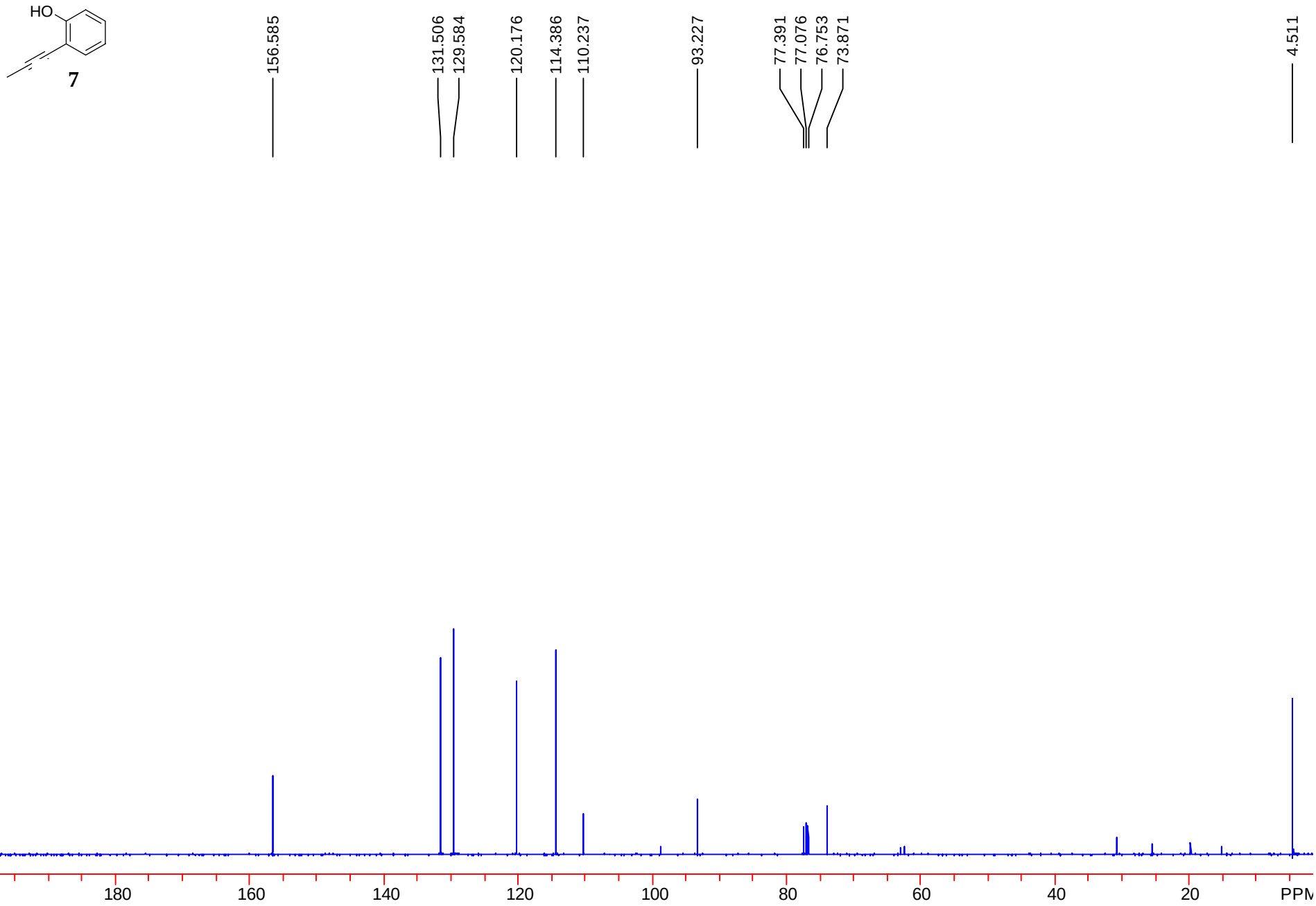


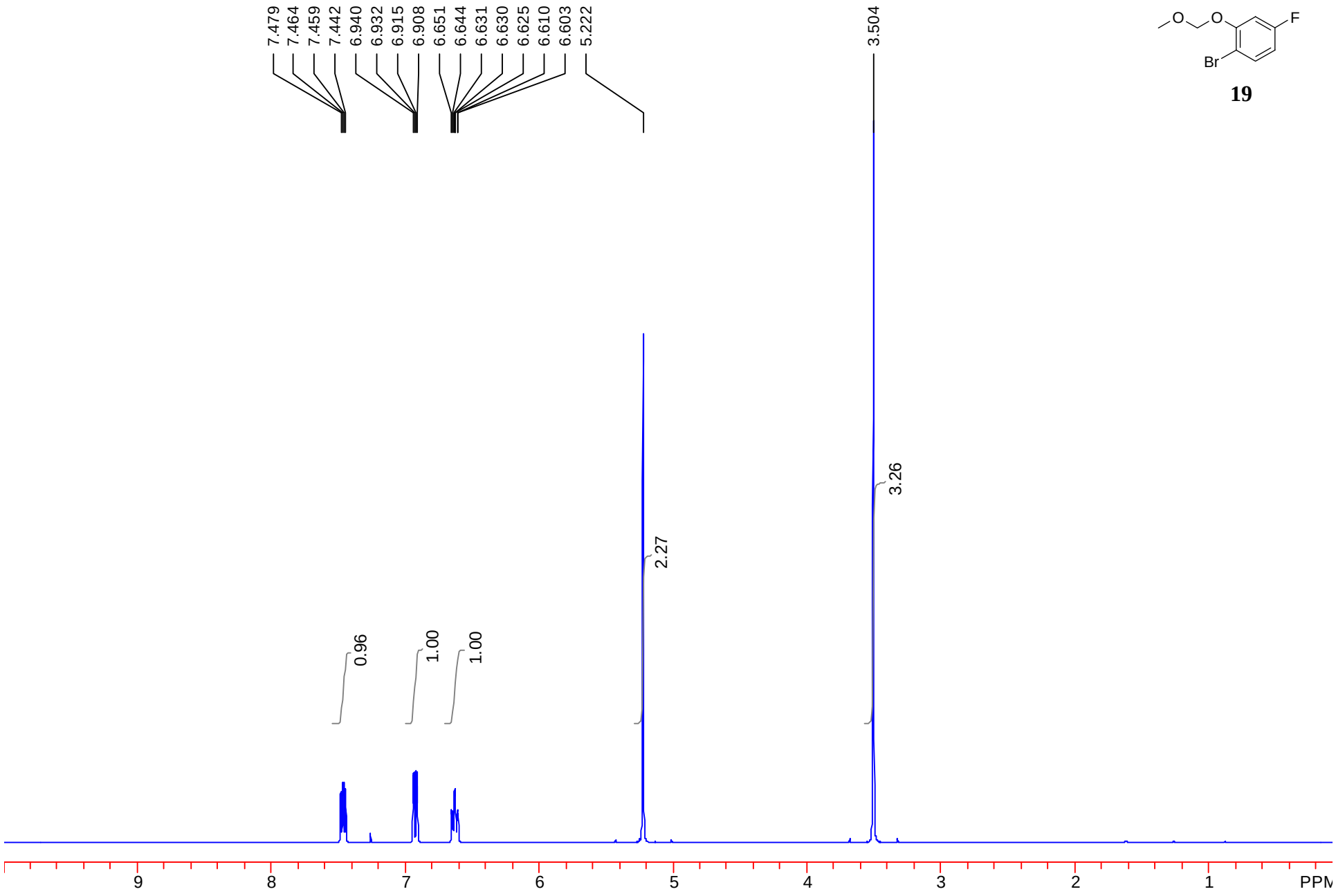
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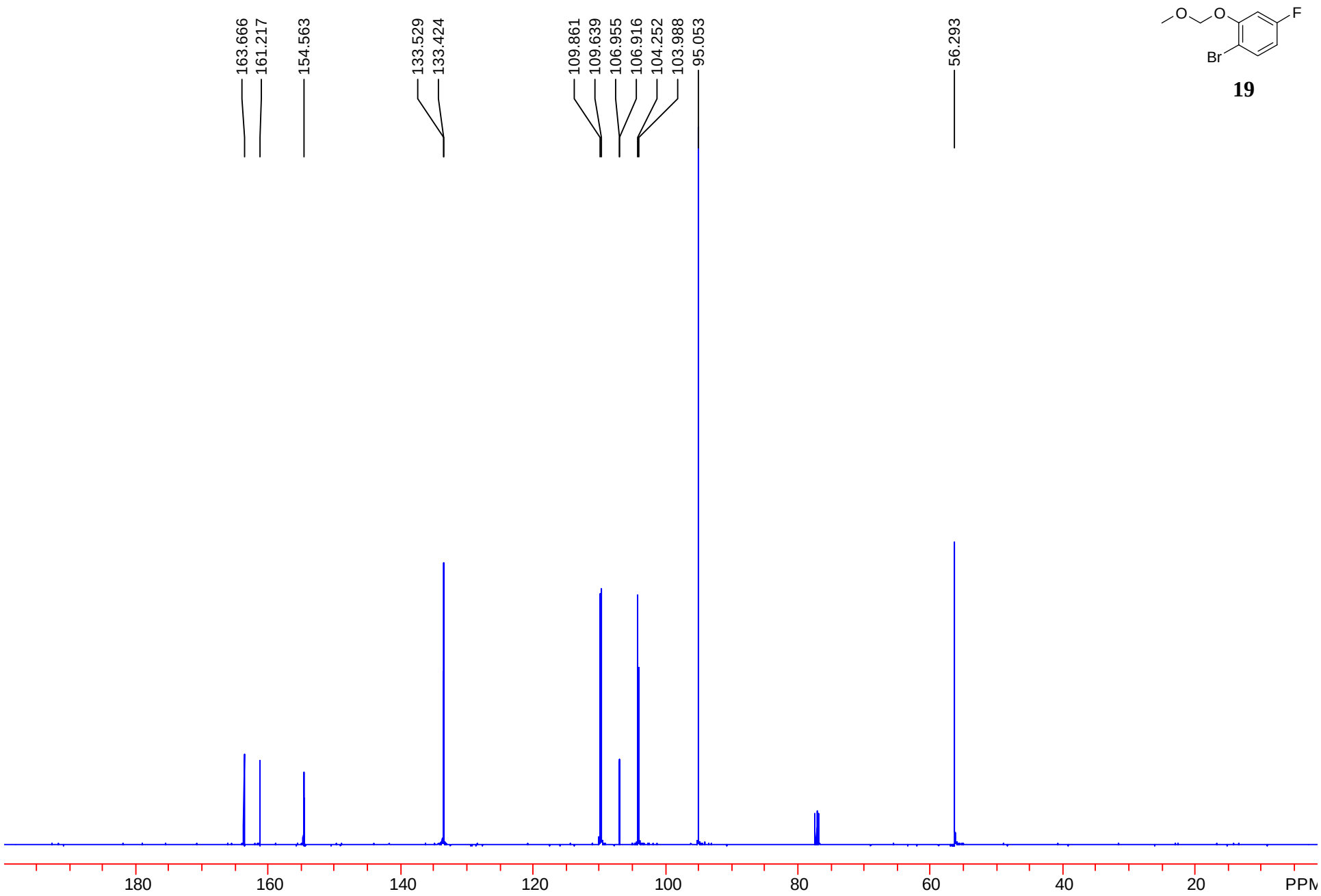

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6.935
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6.848
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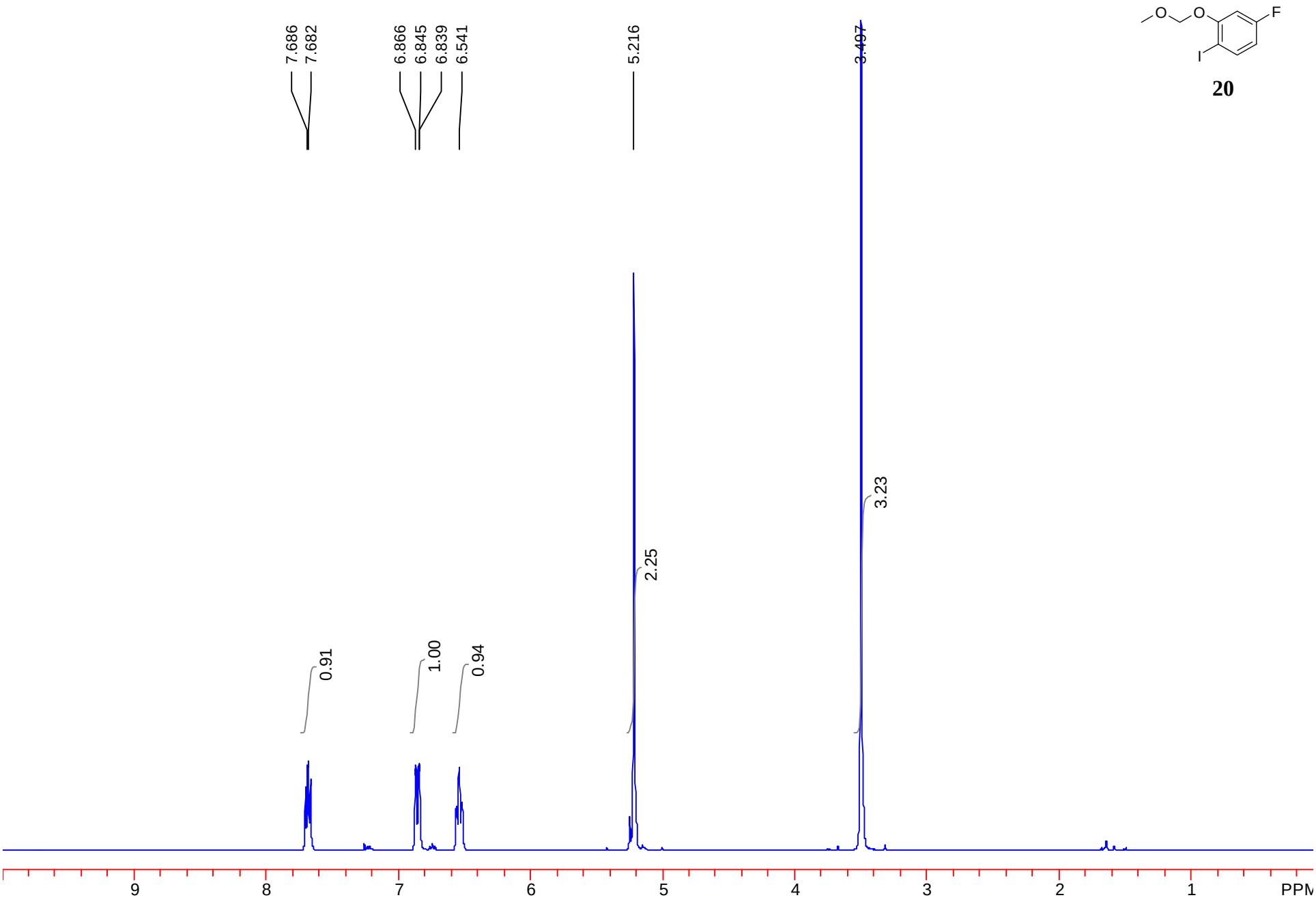

HO
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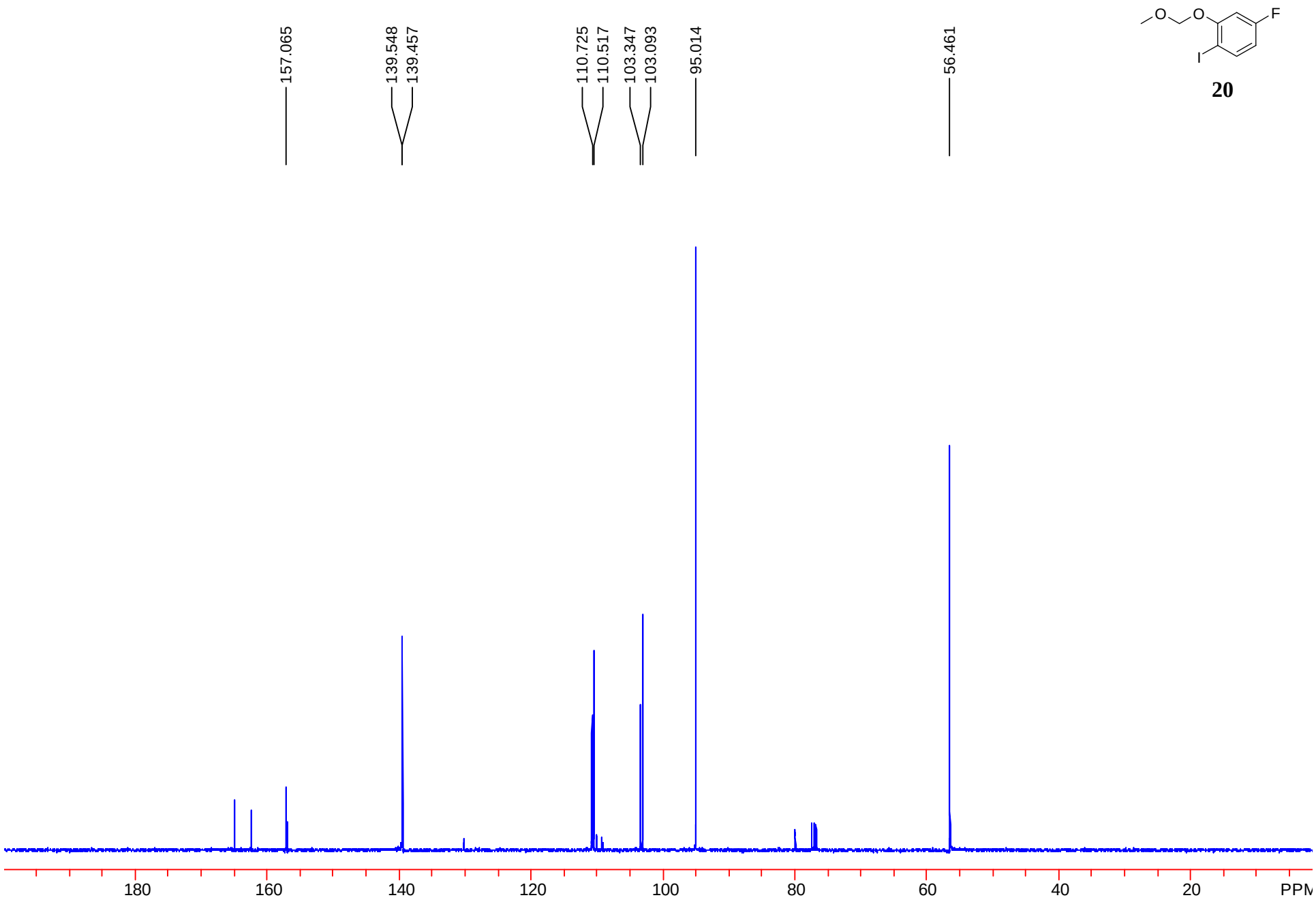

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3.26
9
8
7
6
5
4
3
2
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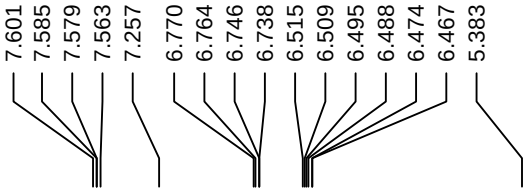
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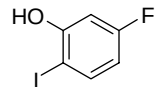
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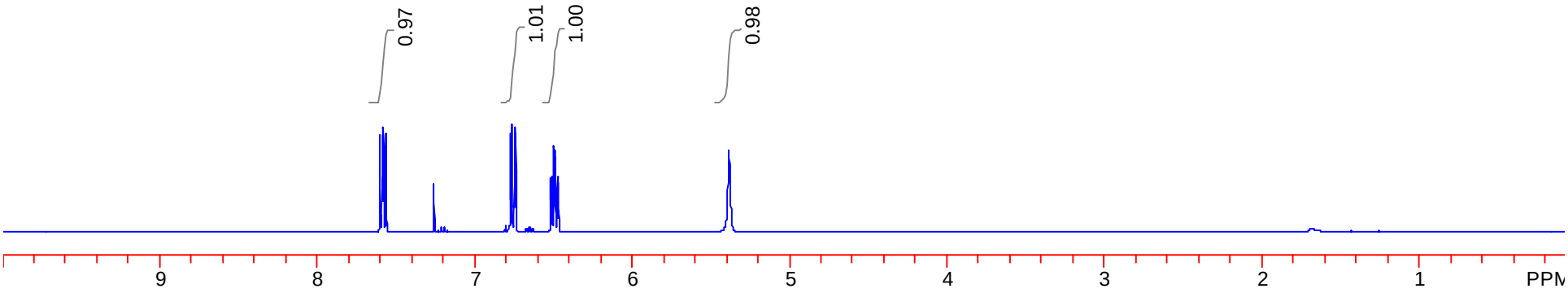

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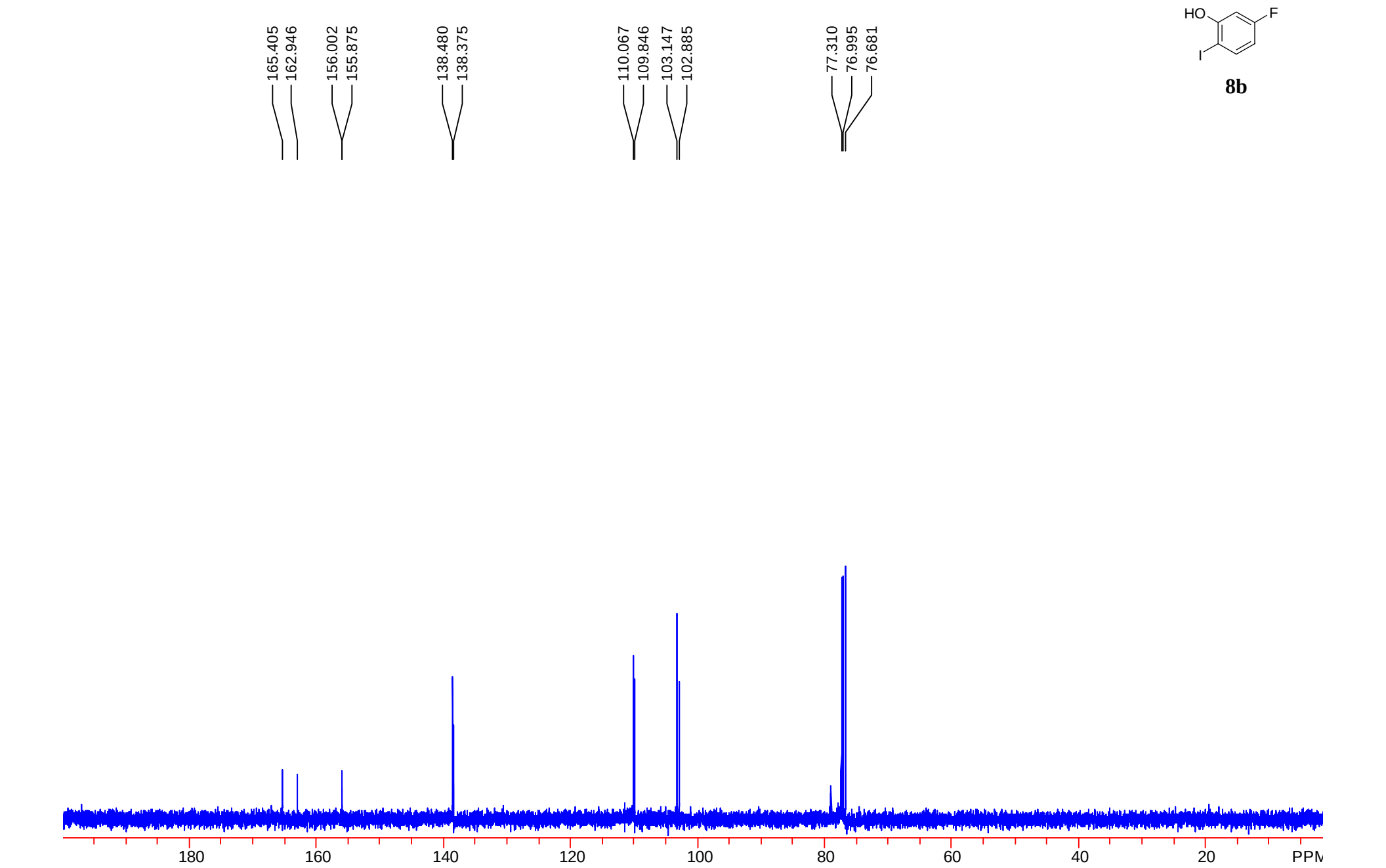

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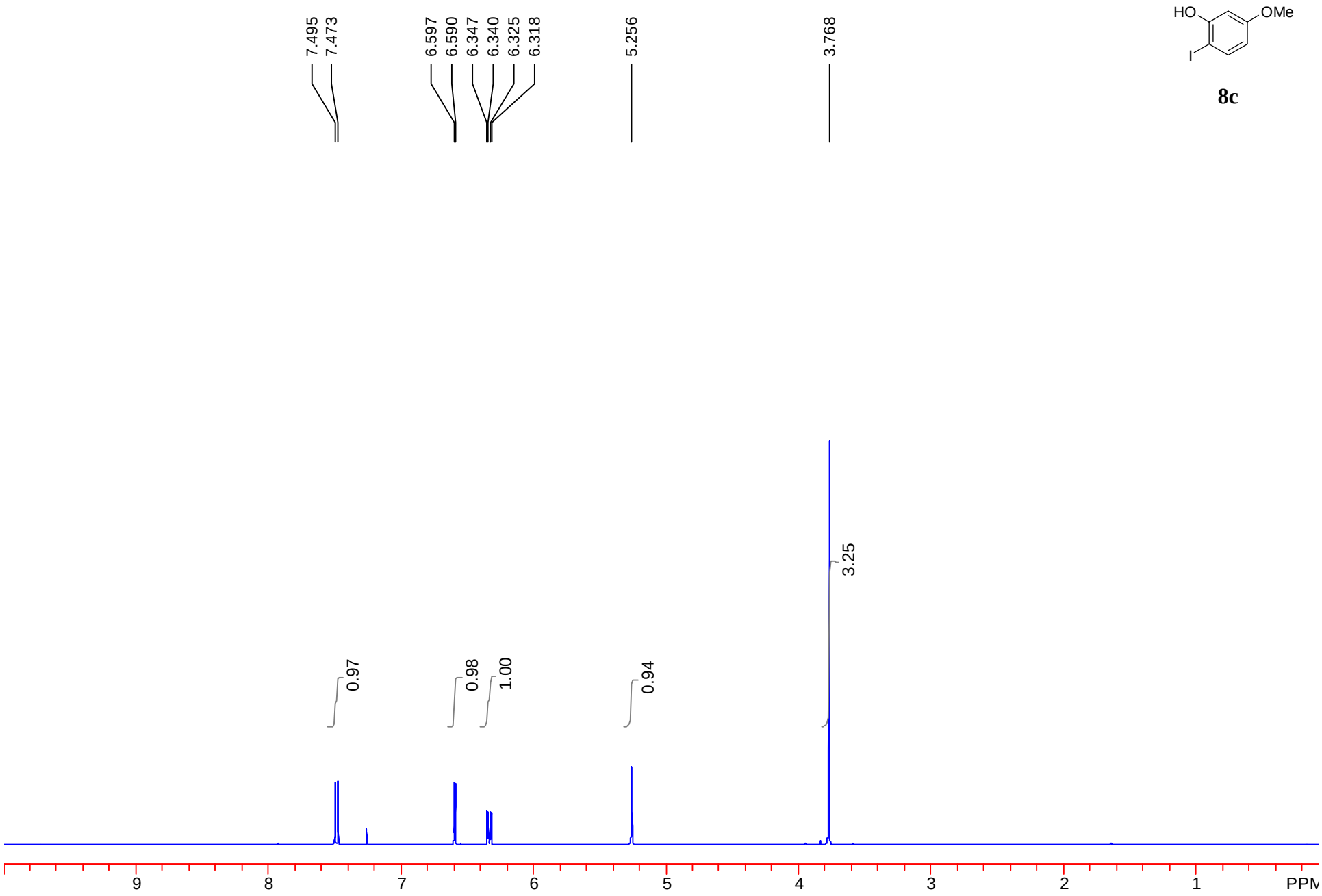

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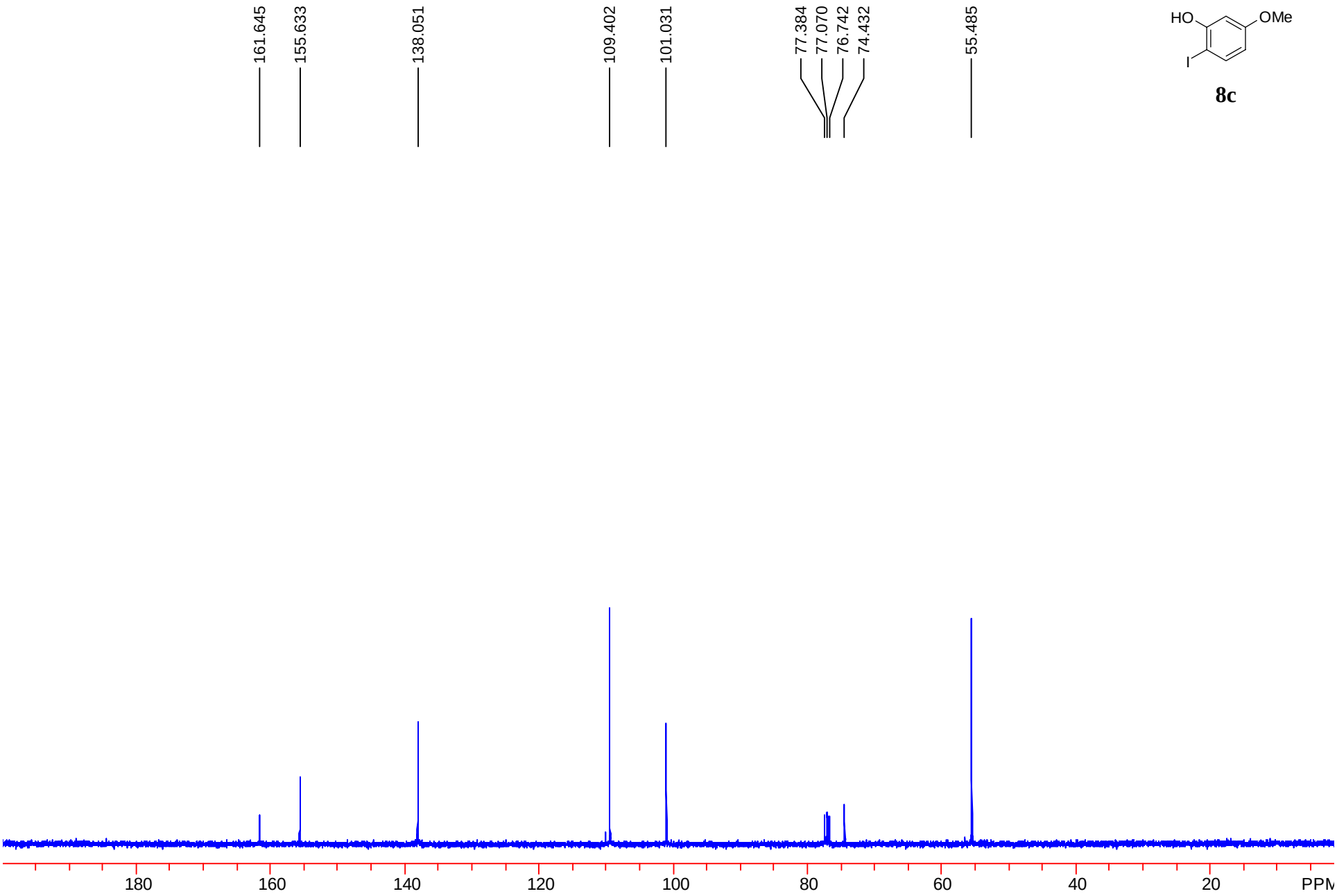

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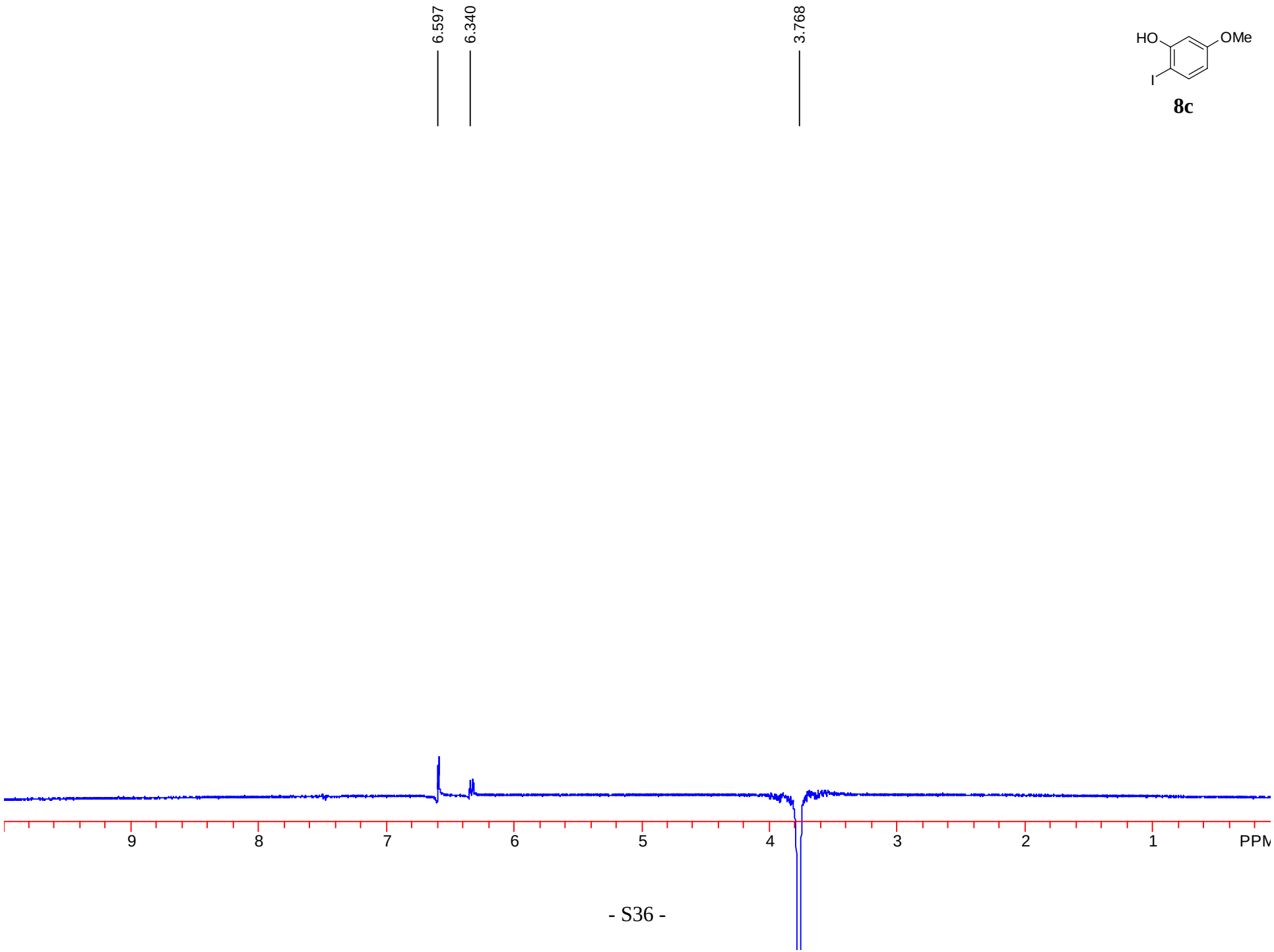
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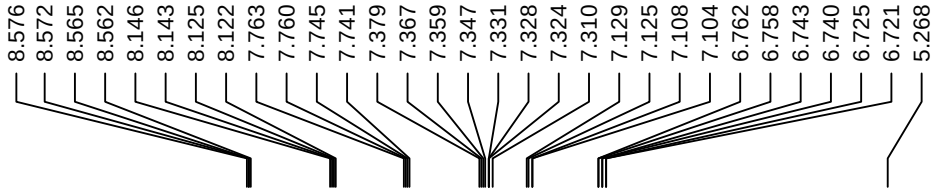

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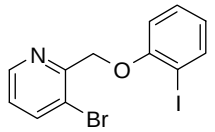

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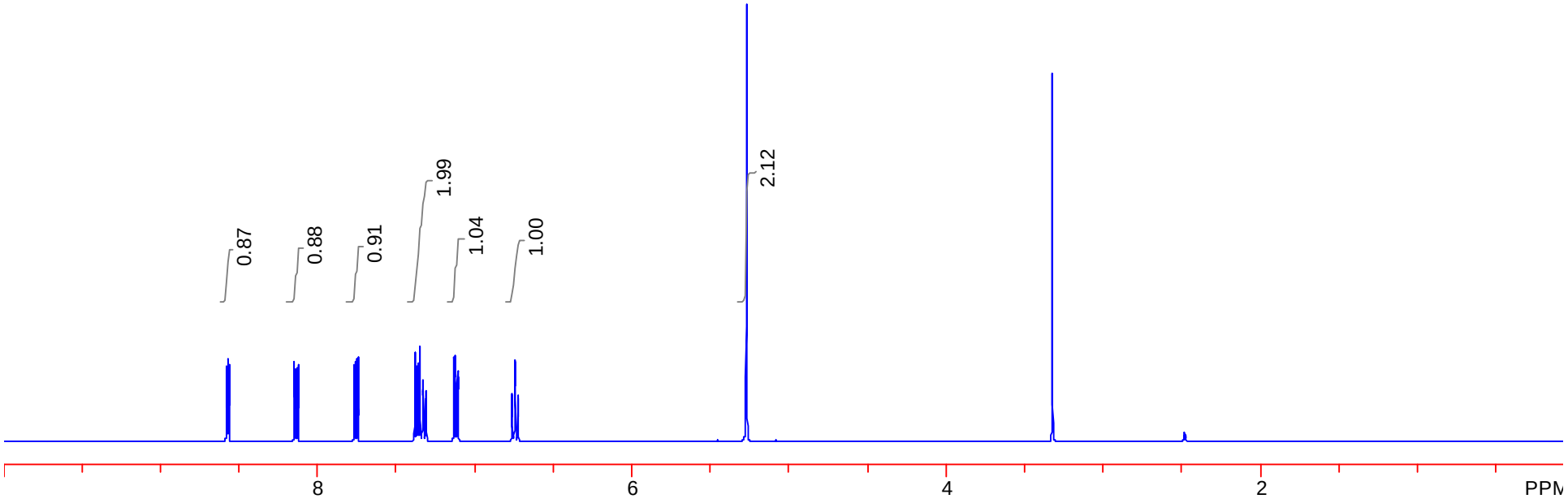

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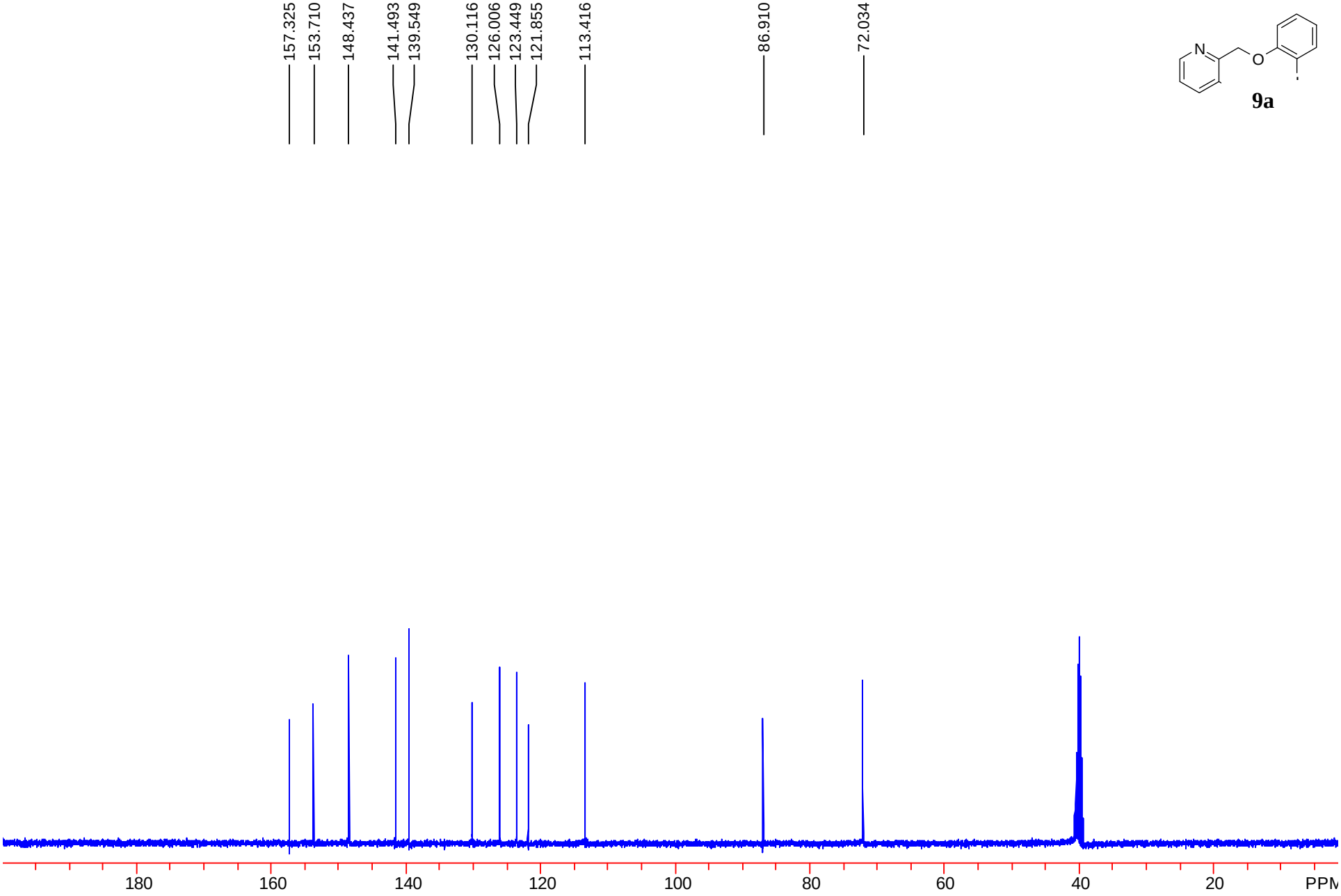

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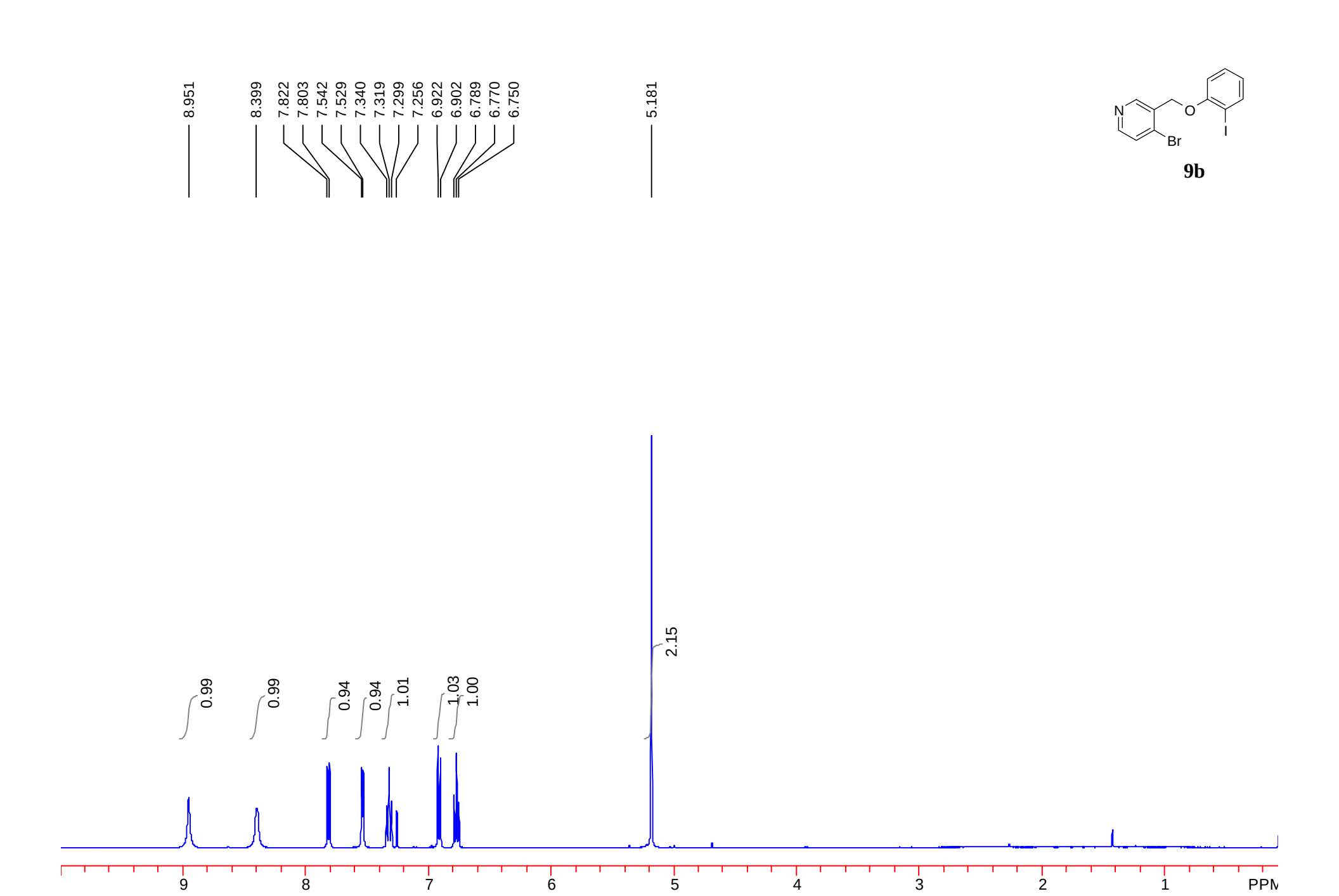
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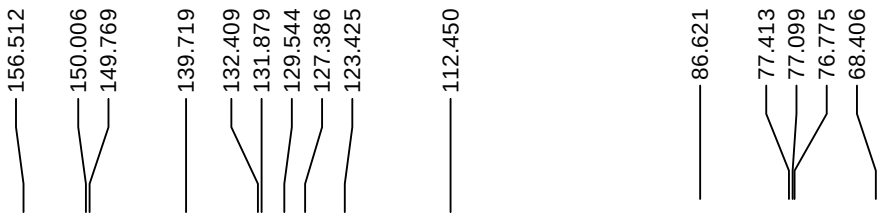

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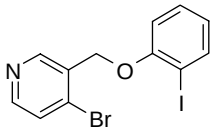
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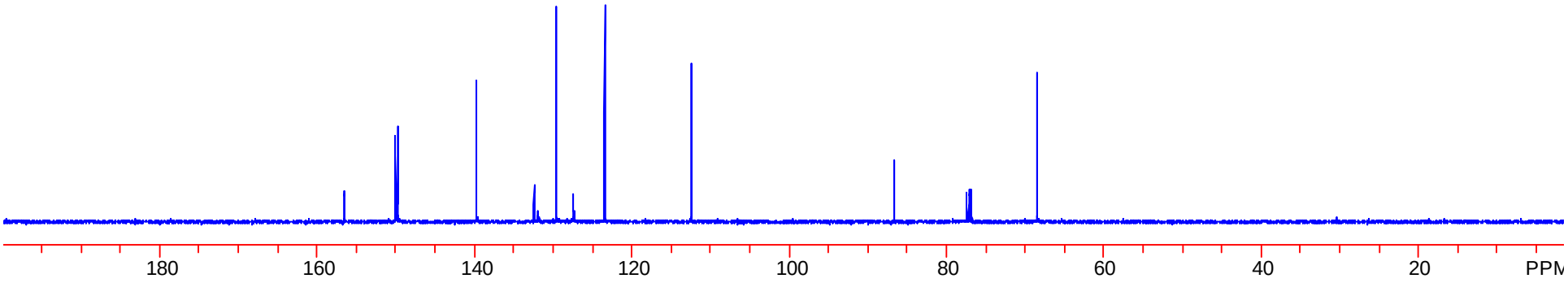

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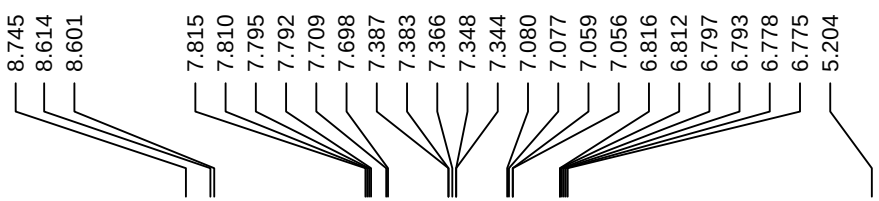

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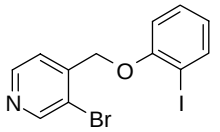

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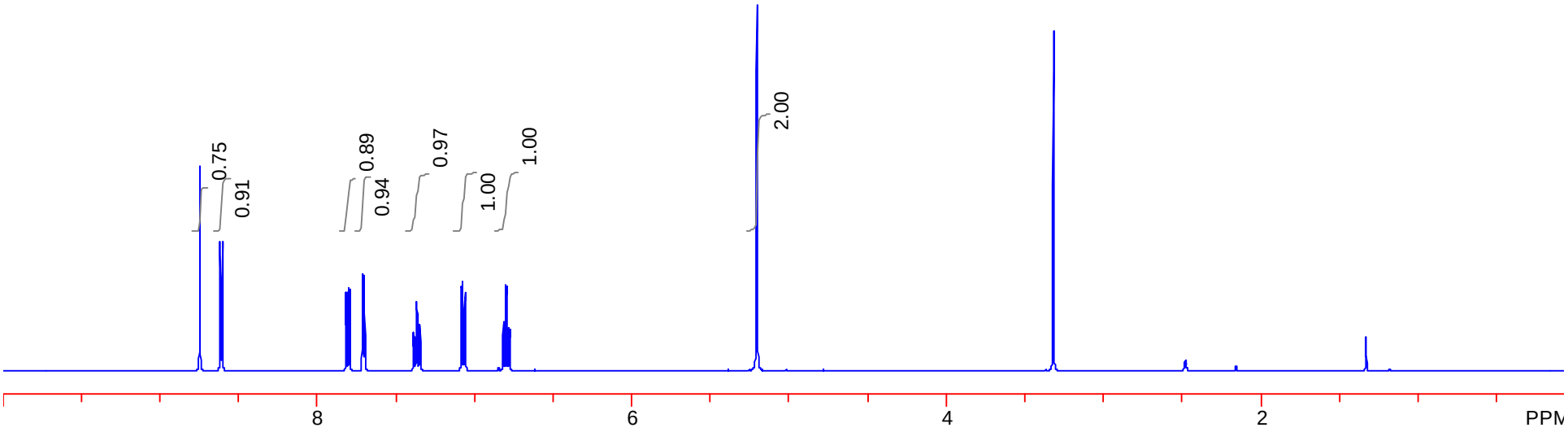
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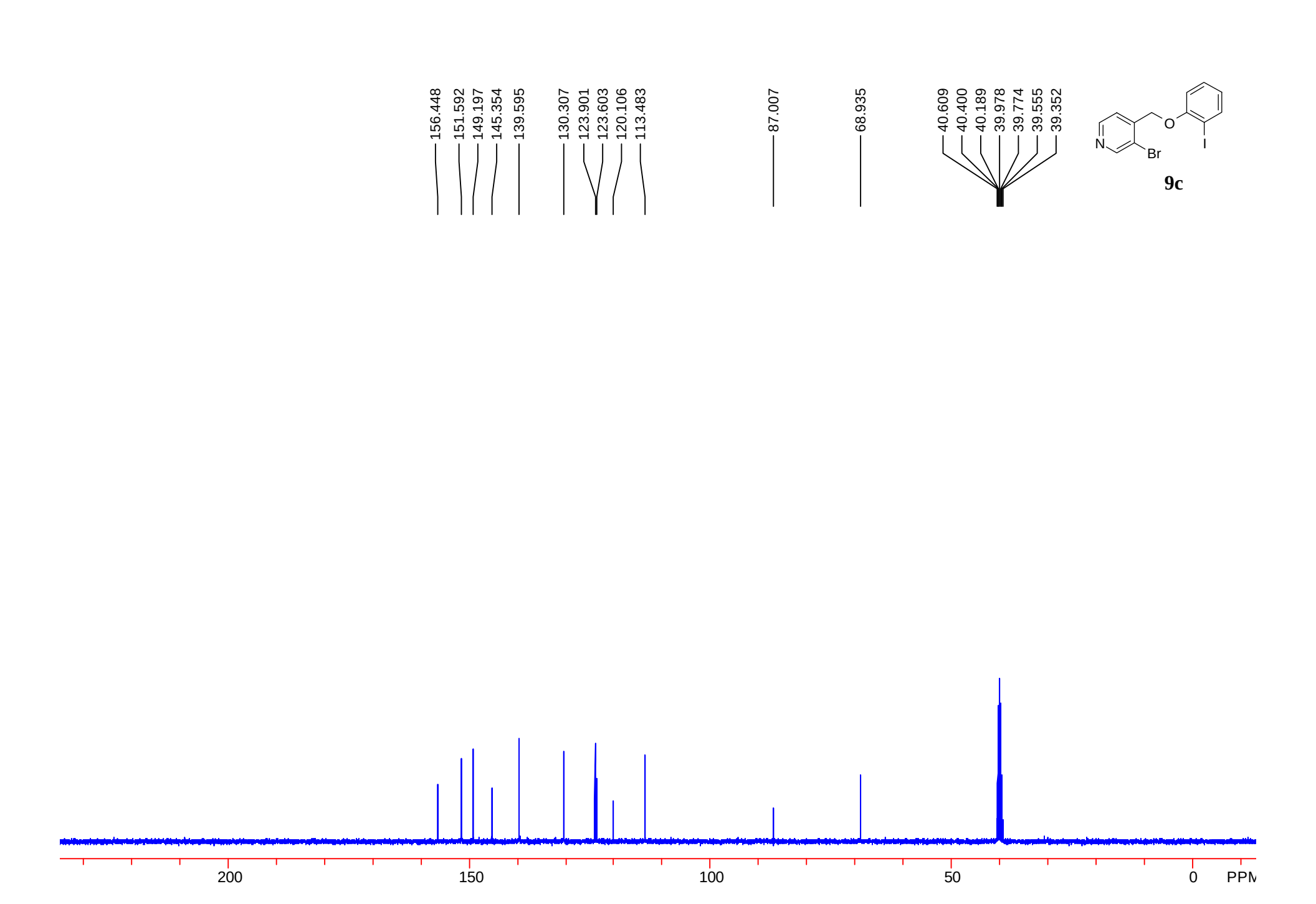

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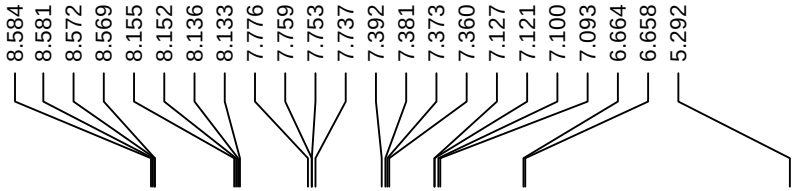

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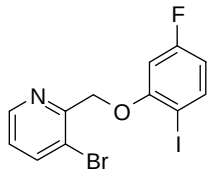

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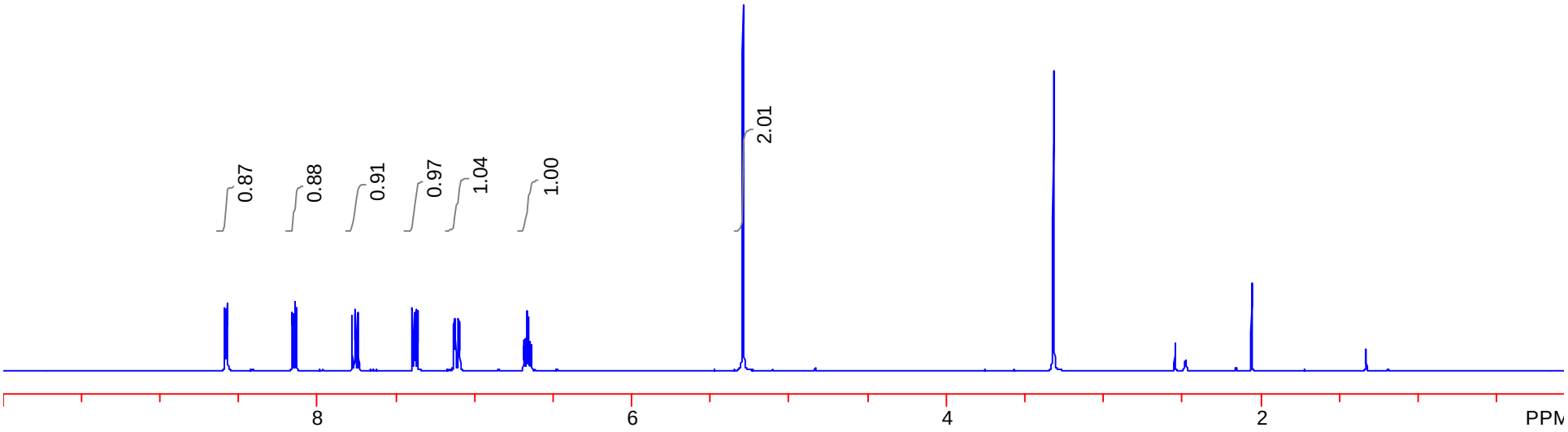

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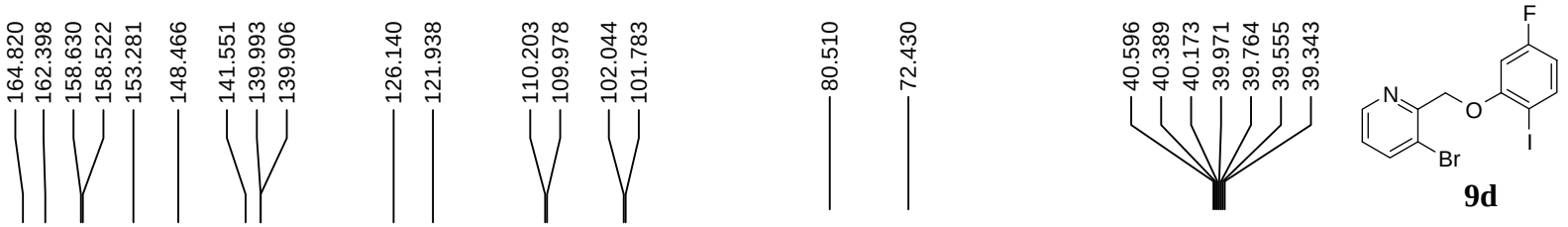

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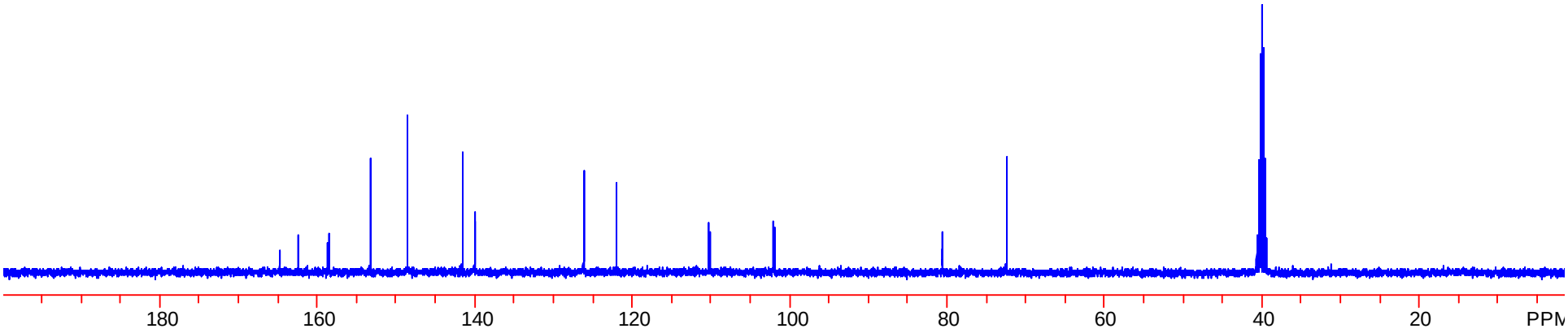

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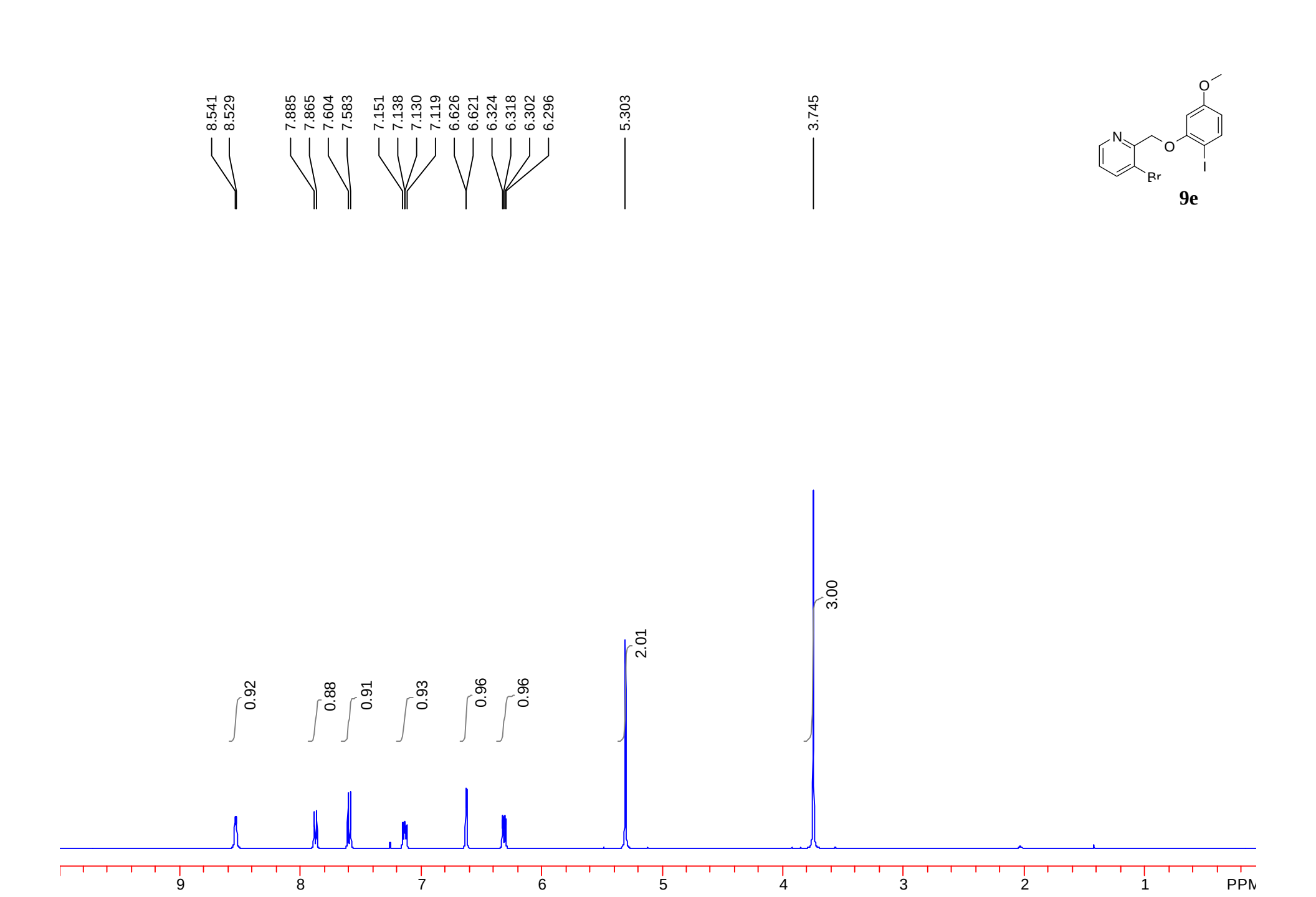
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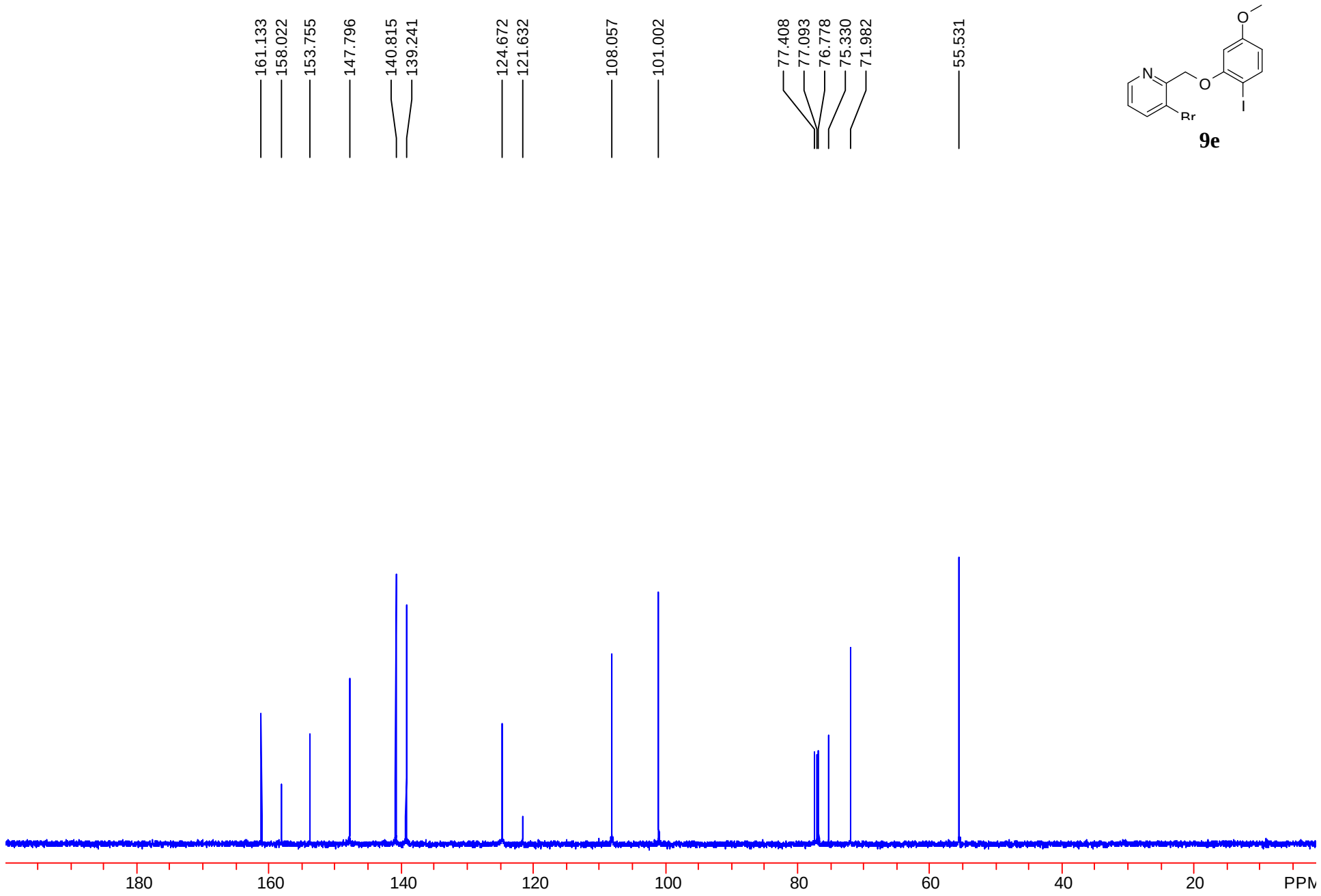

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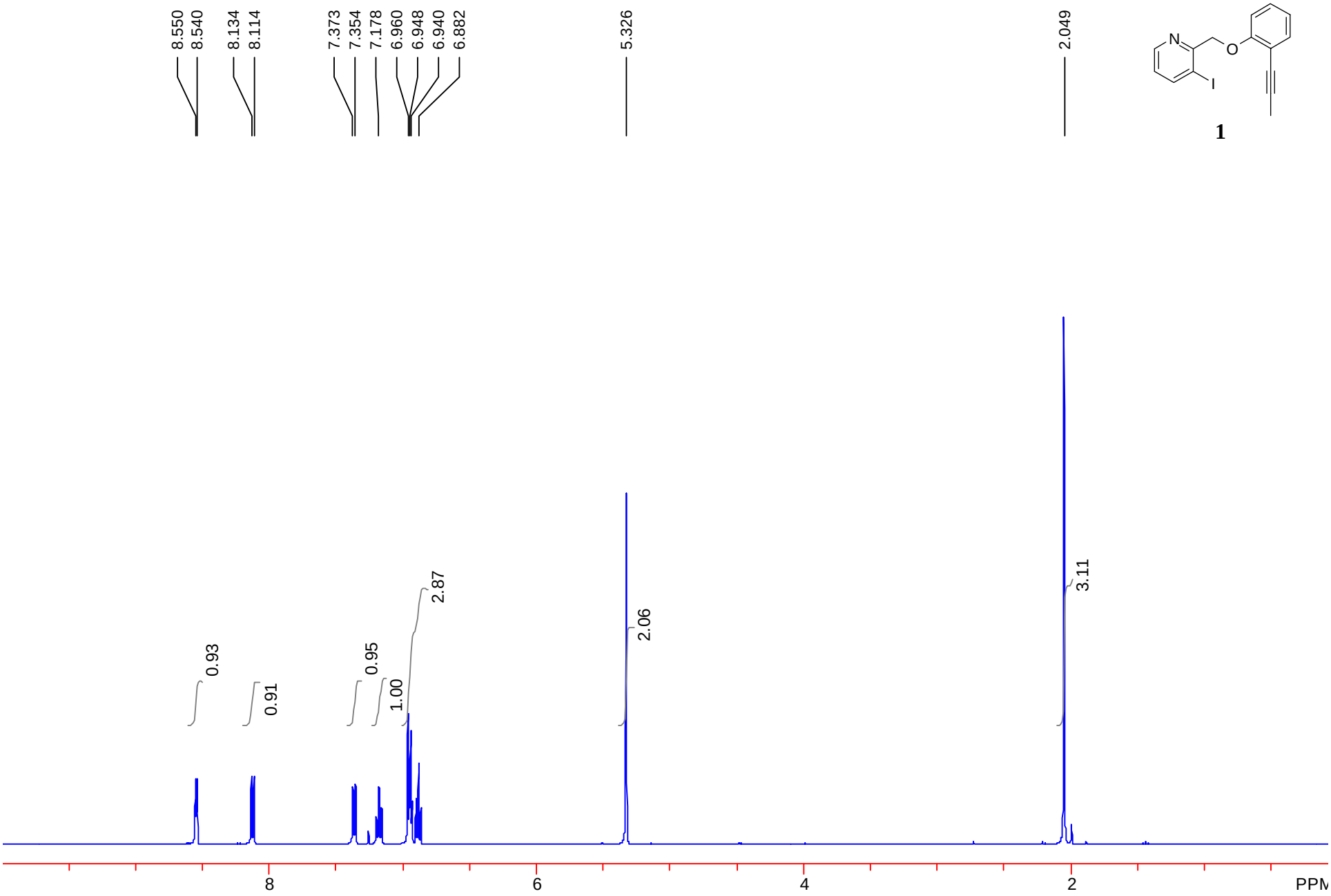

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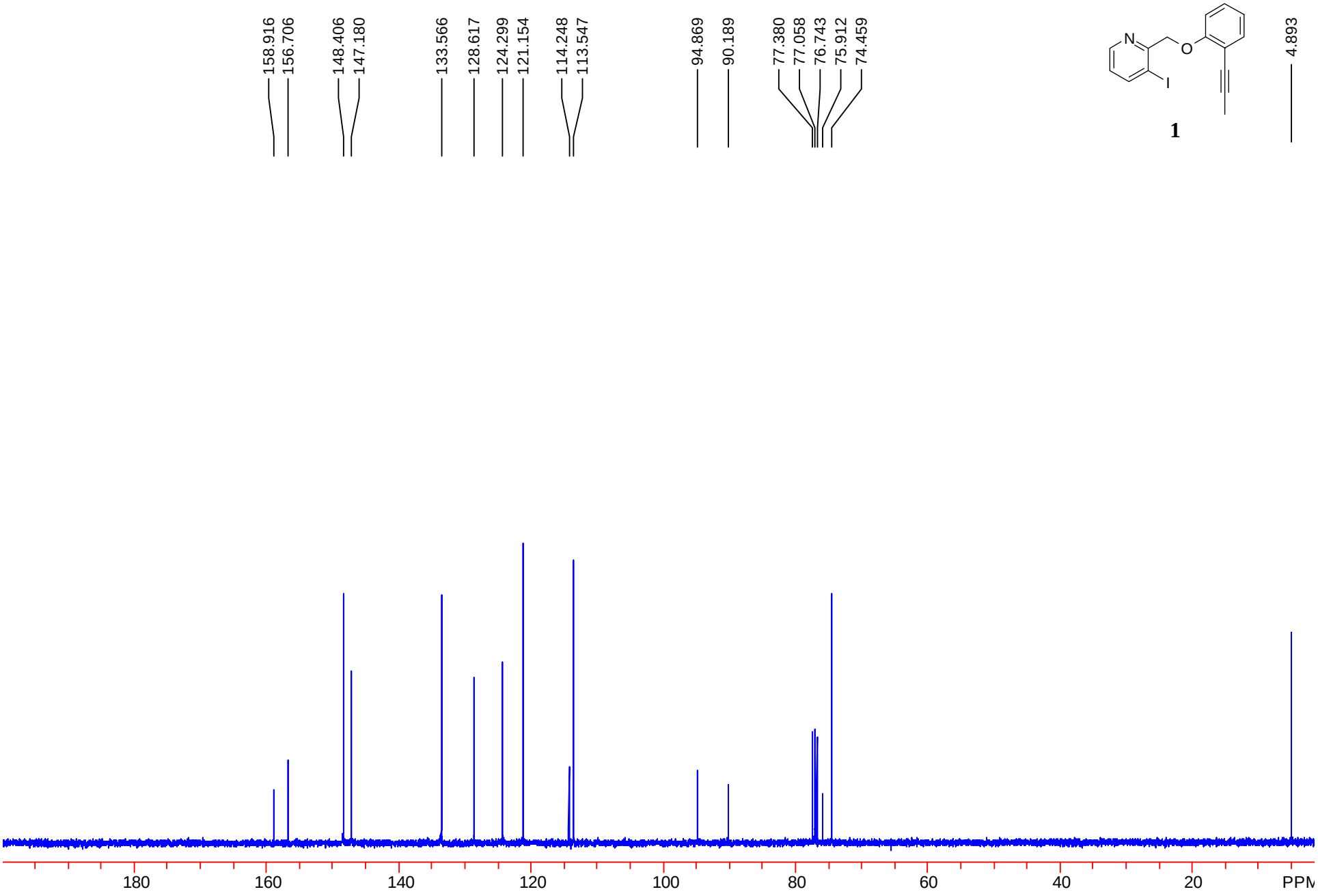
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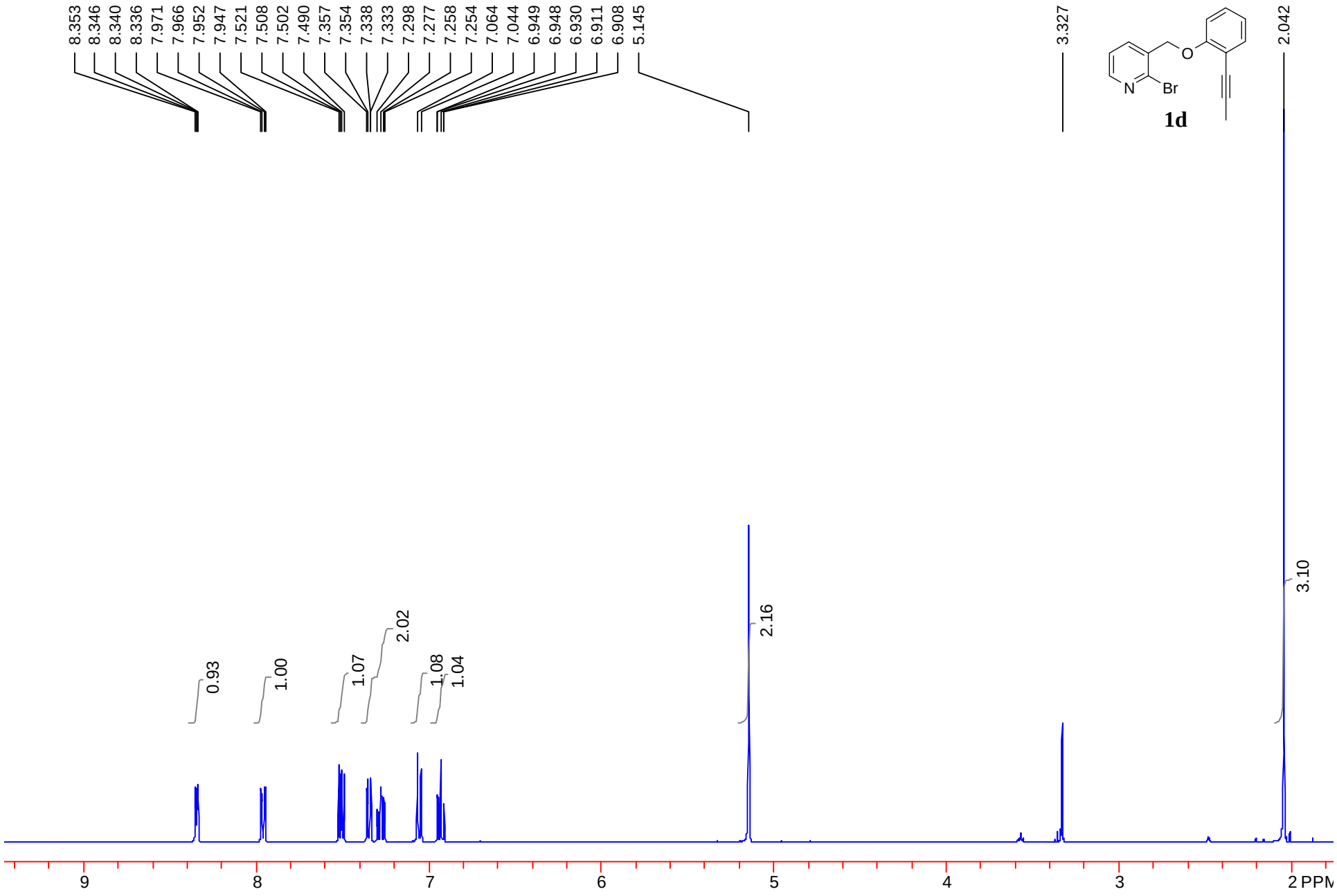

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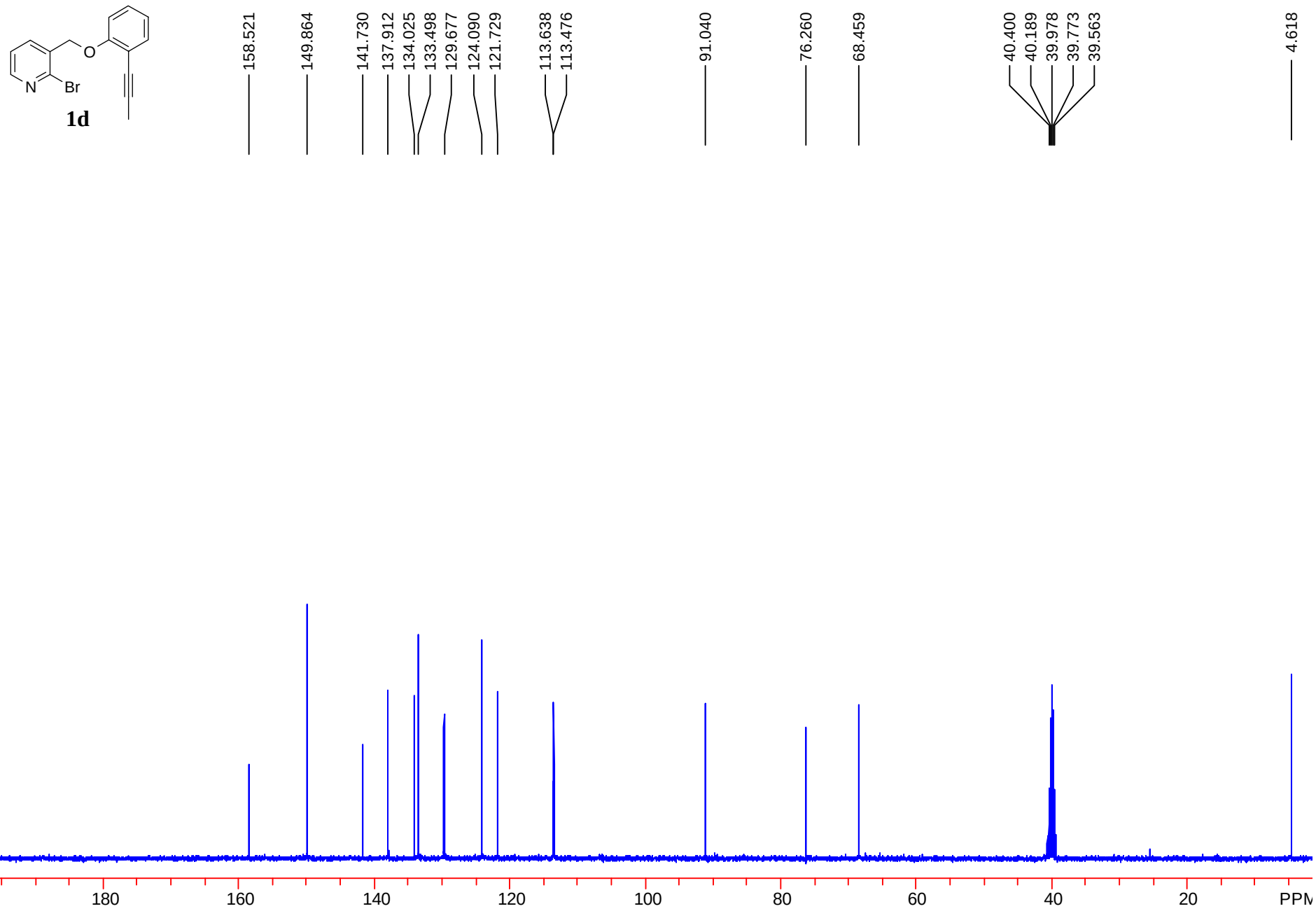

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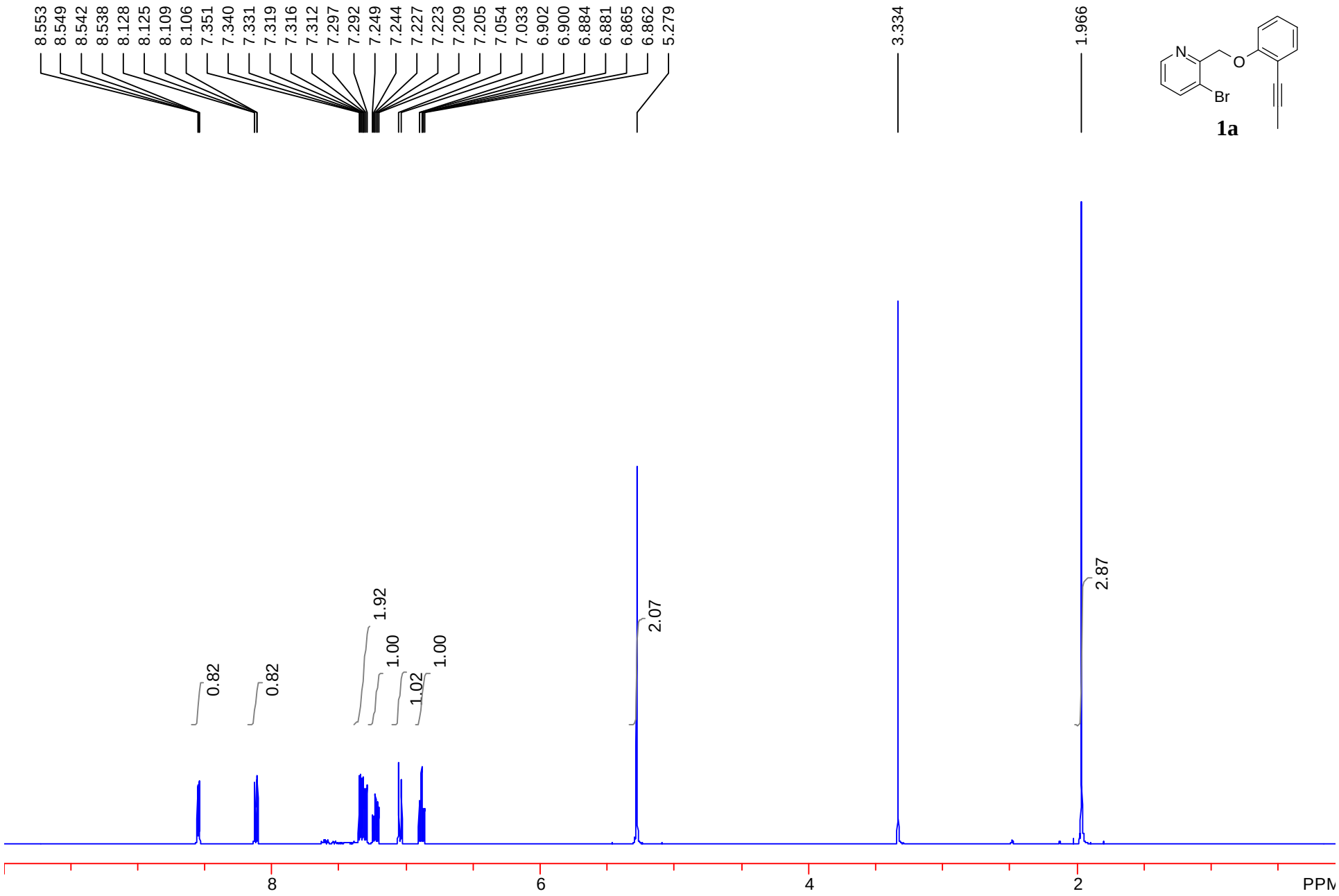

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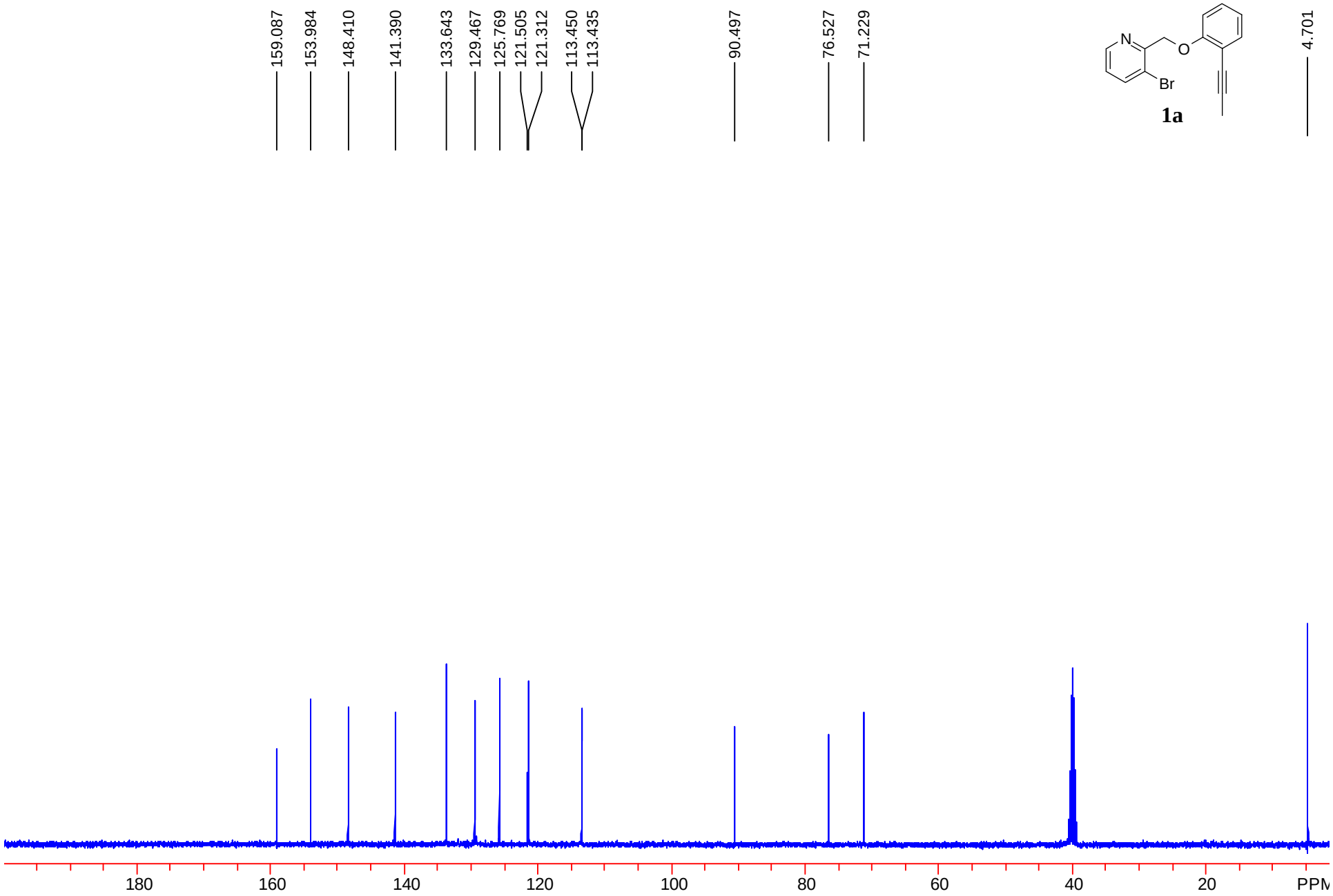

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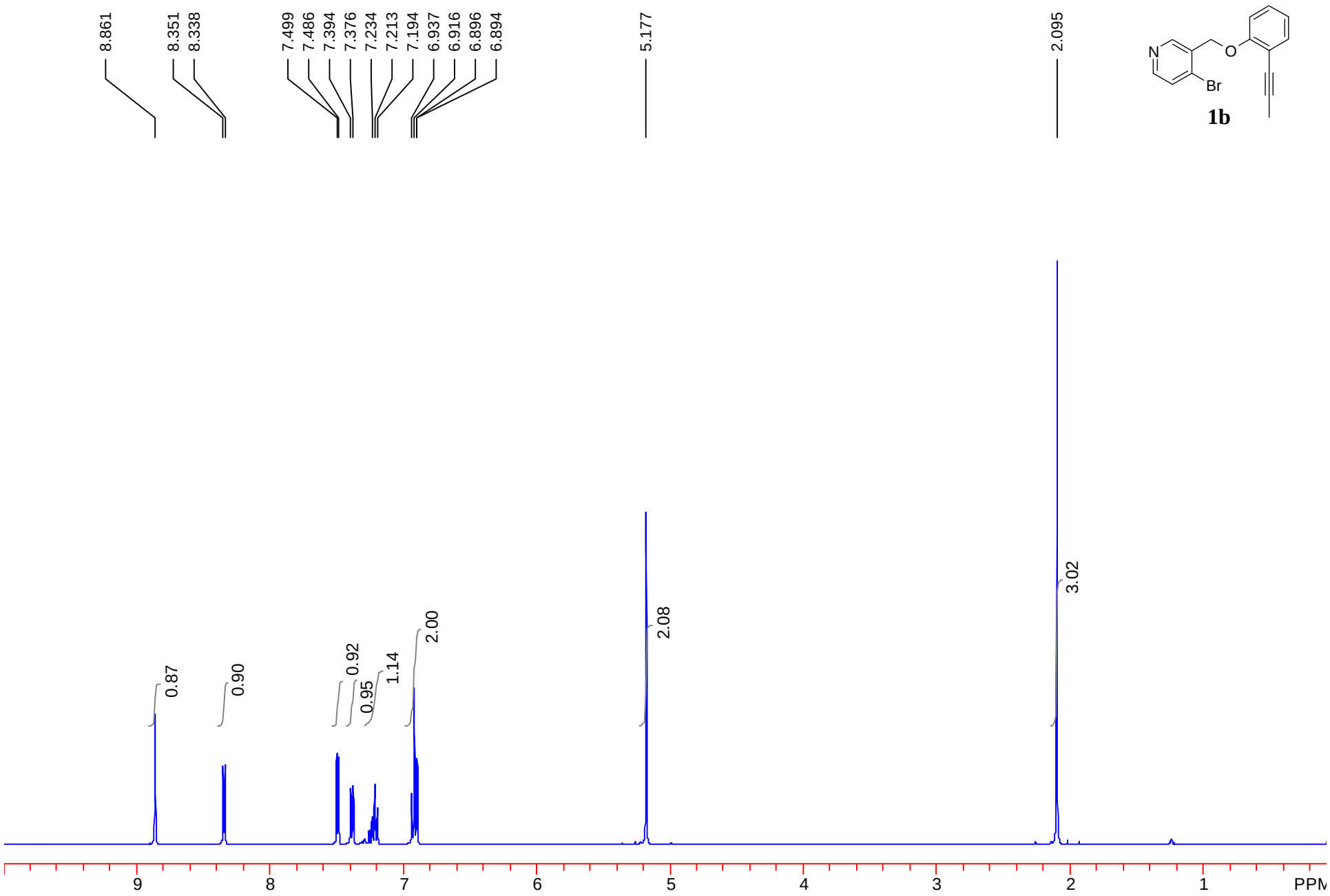

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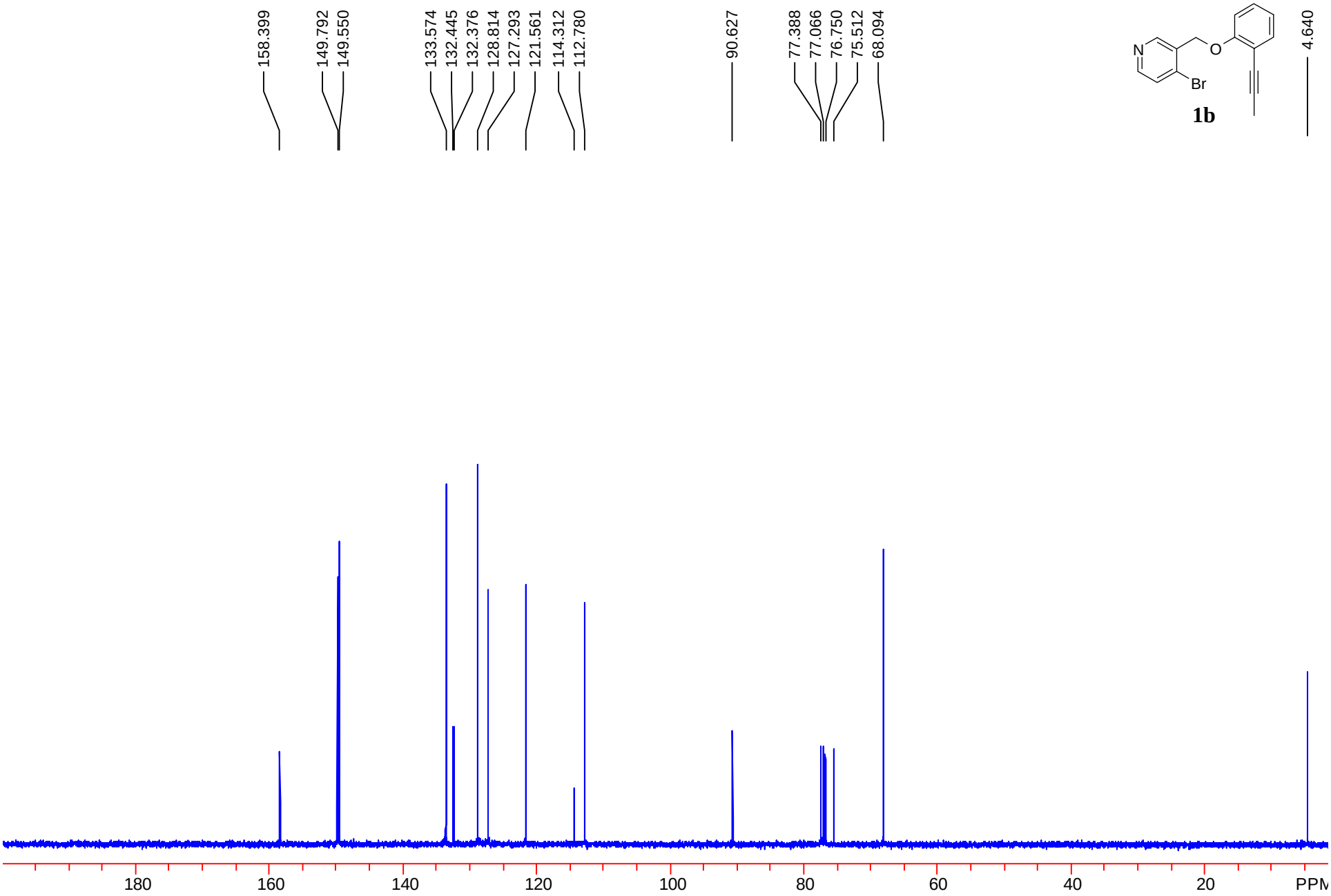

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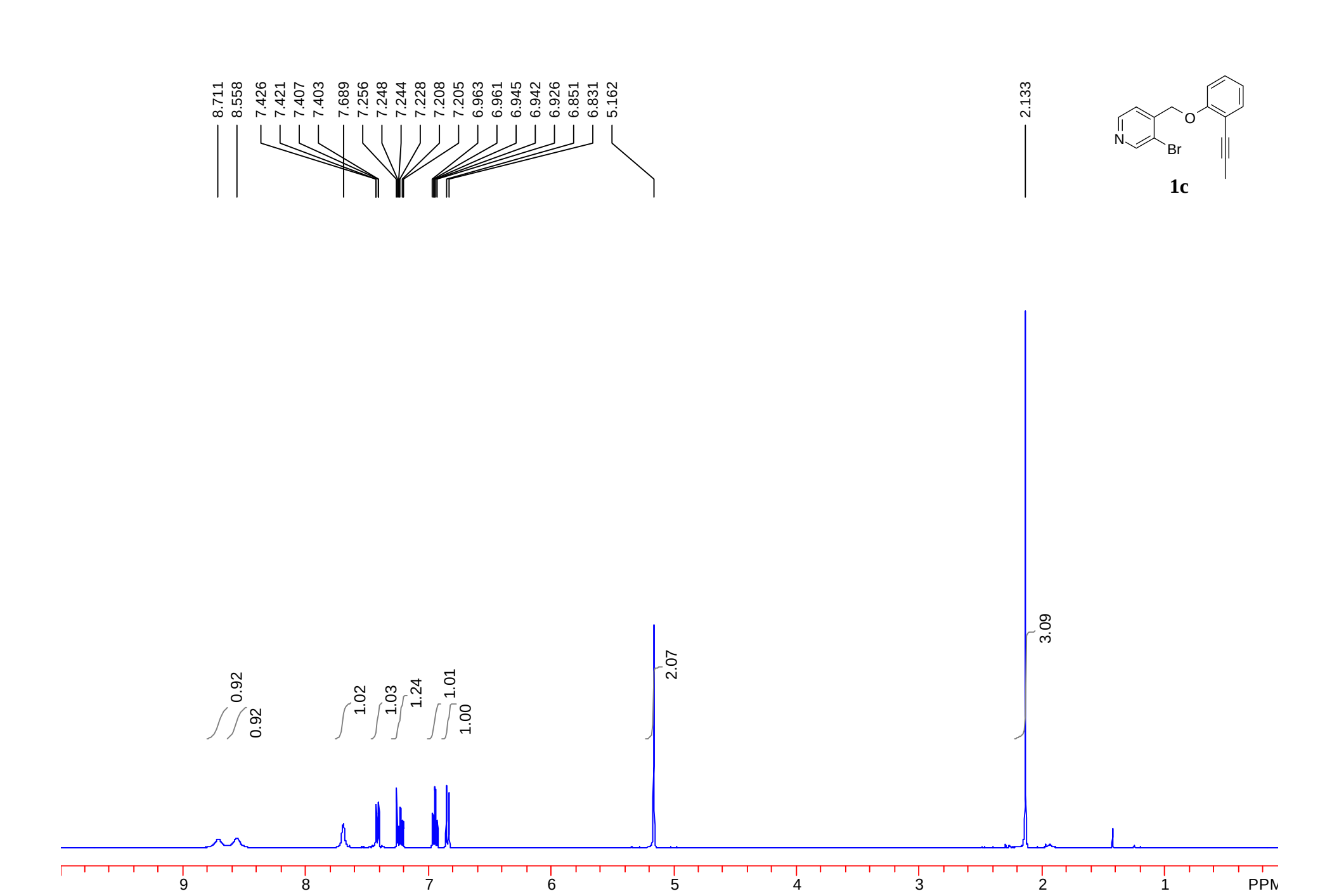

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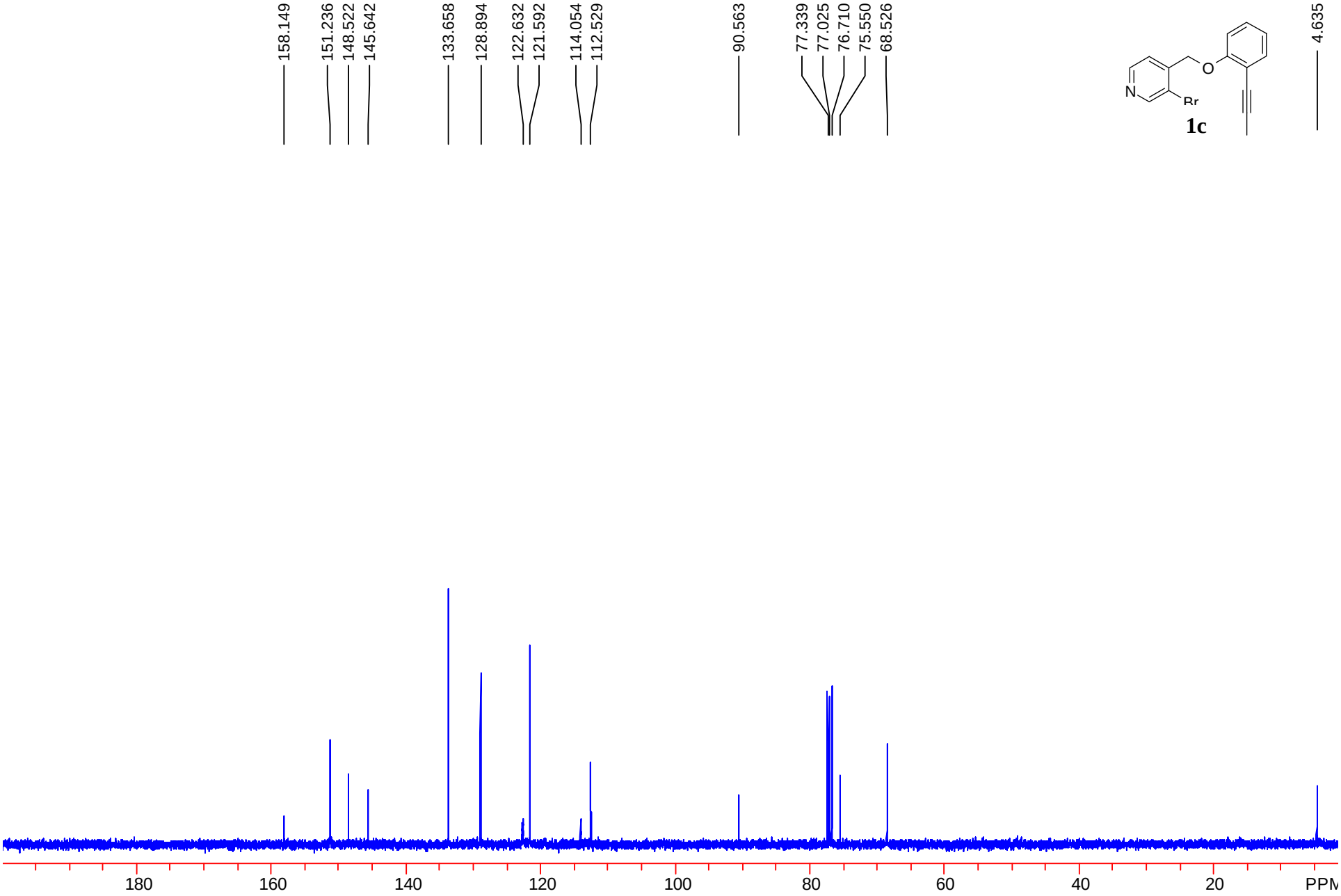

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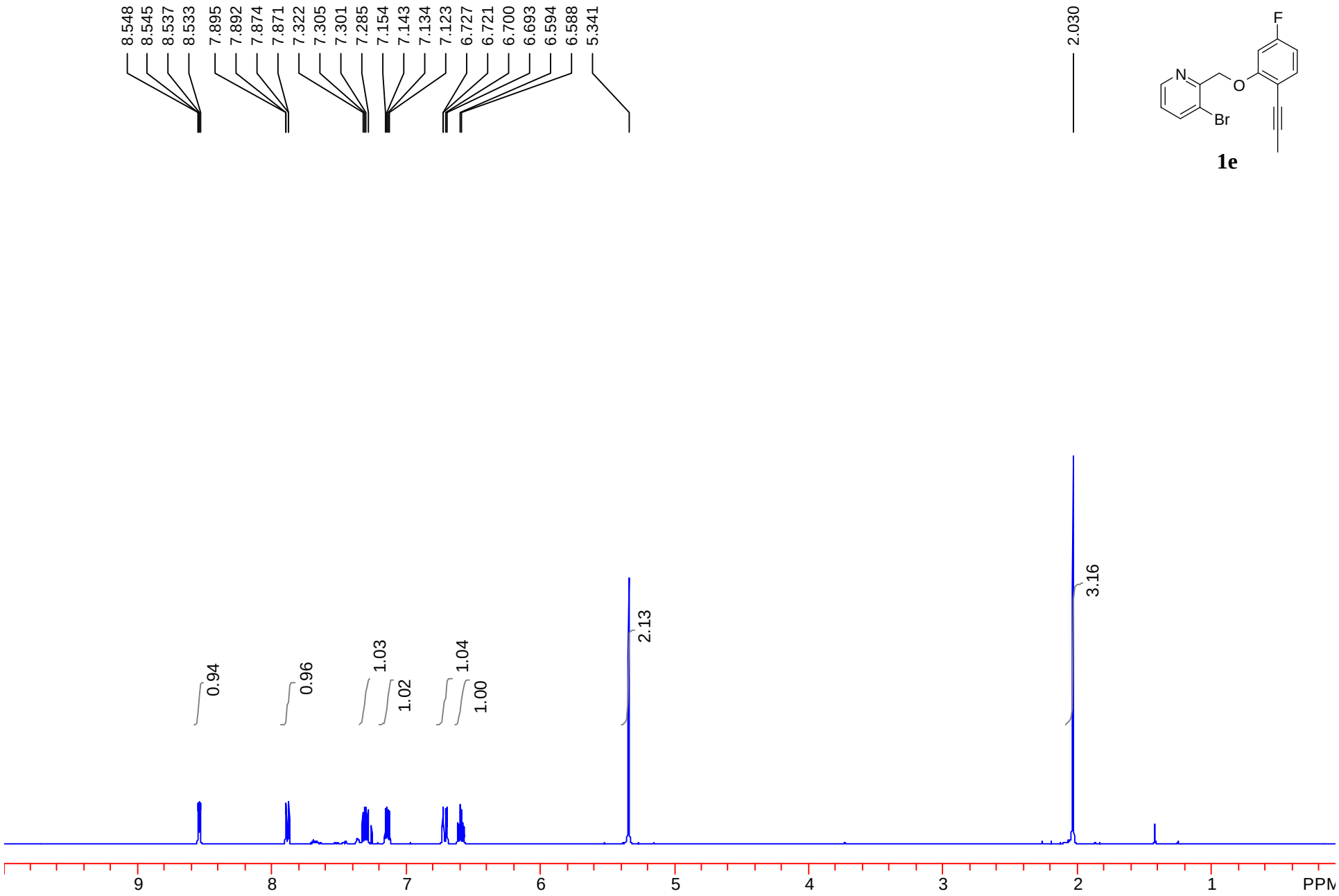

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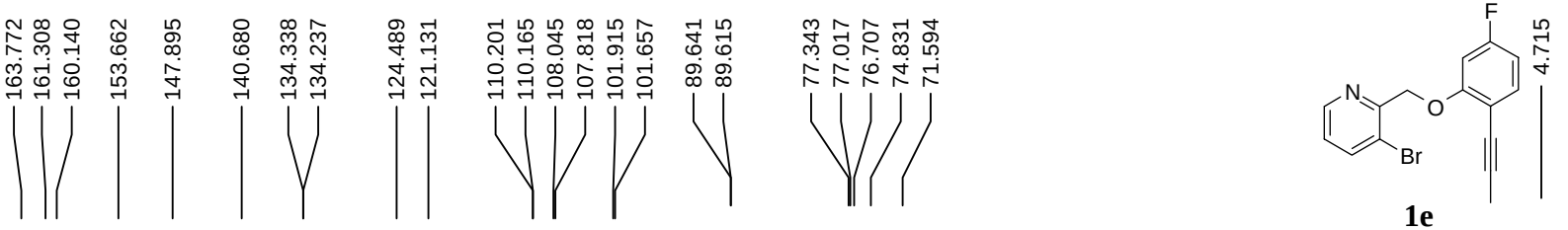

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PPM


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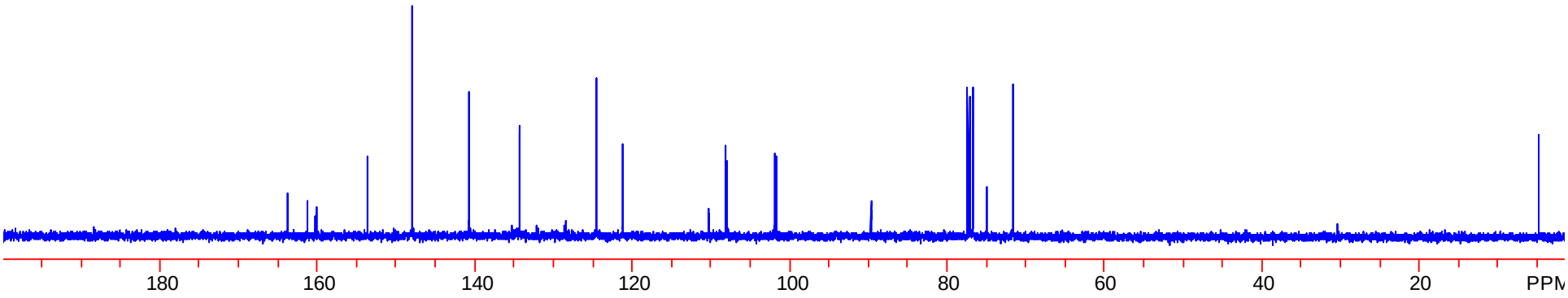

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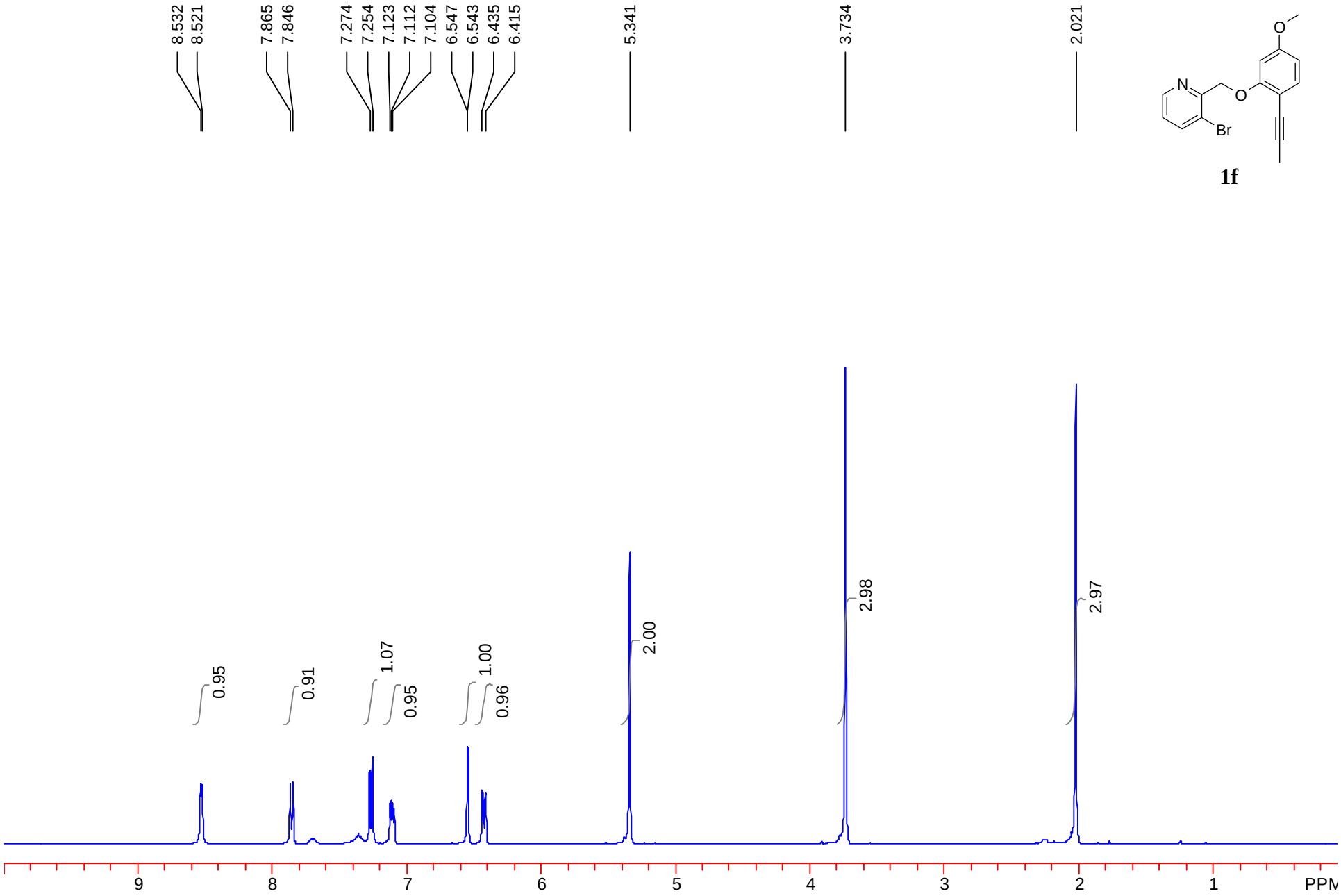

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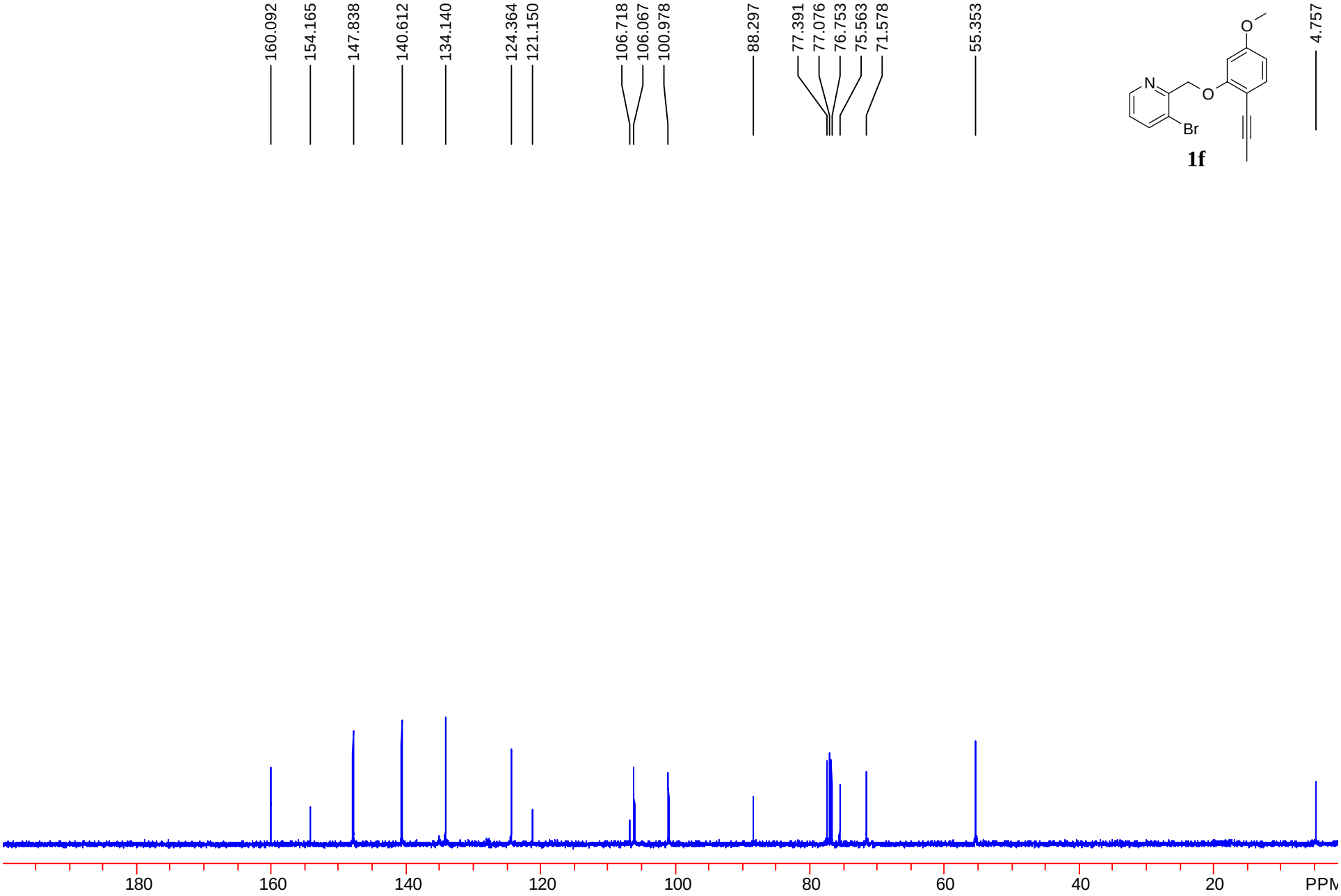

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F
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O
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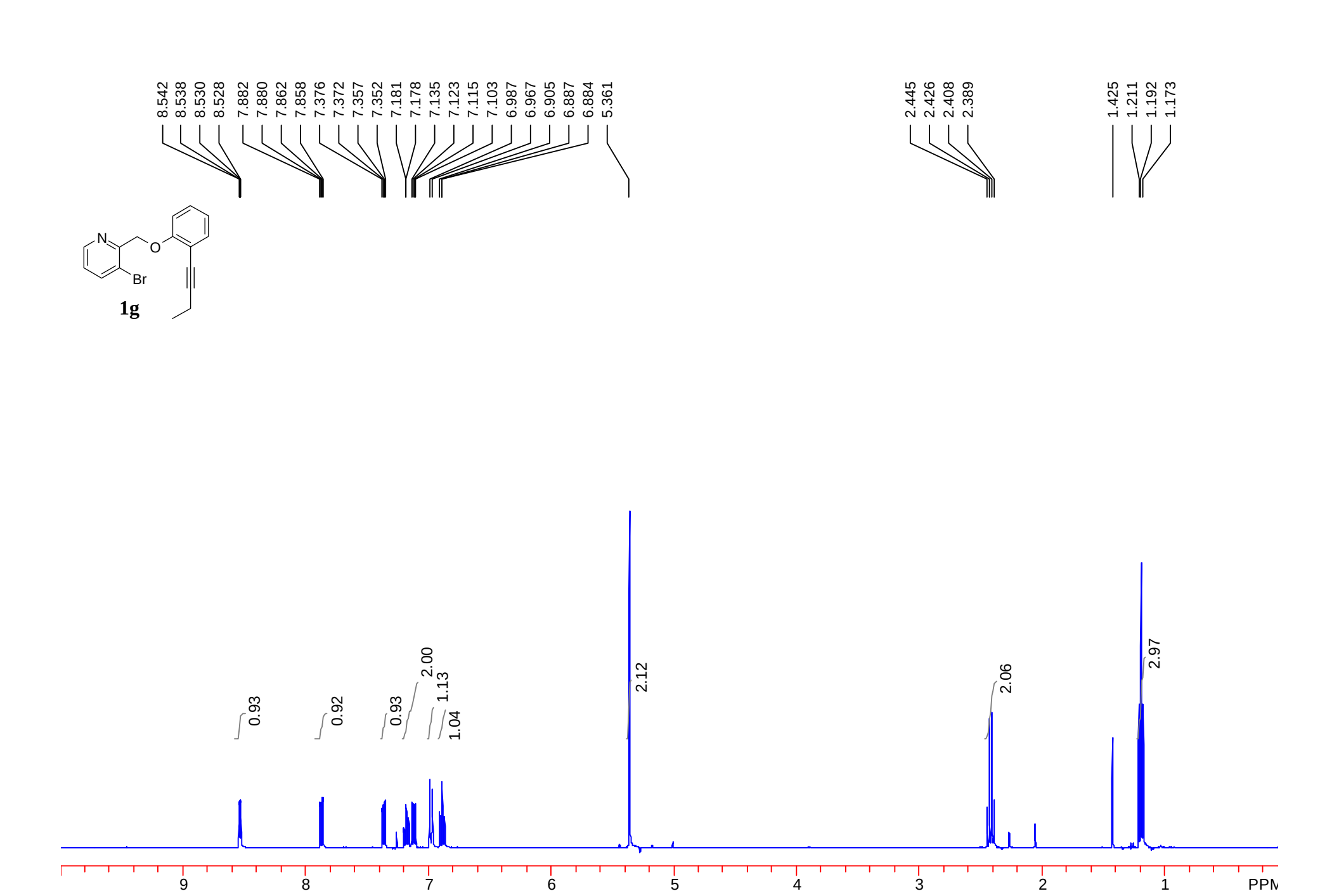

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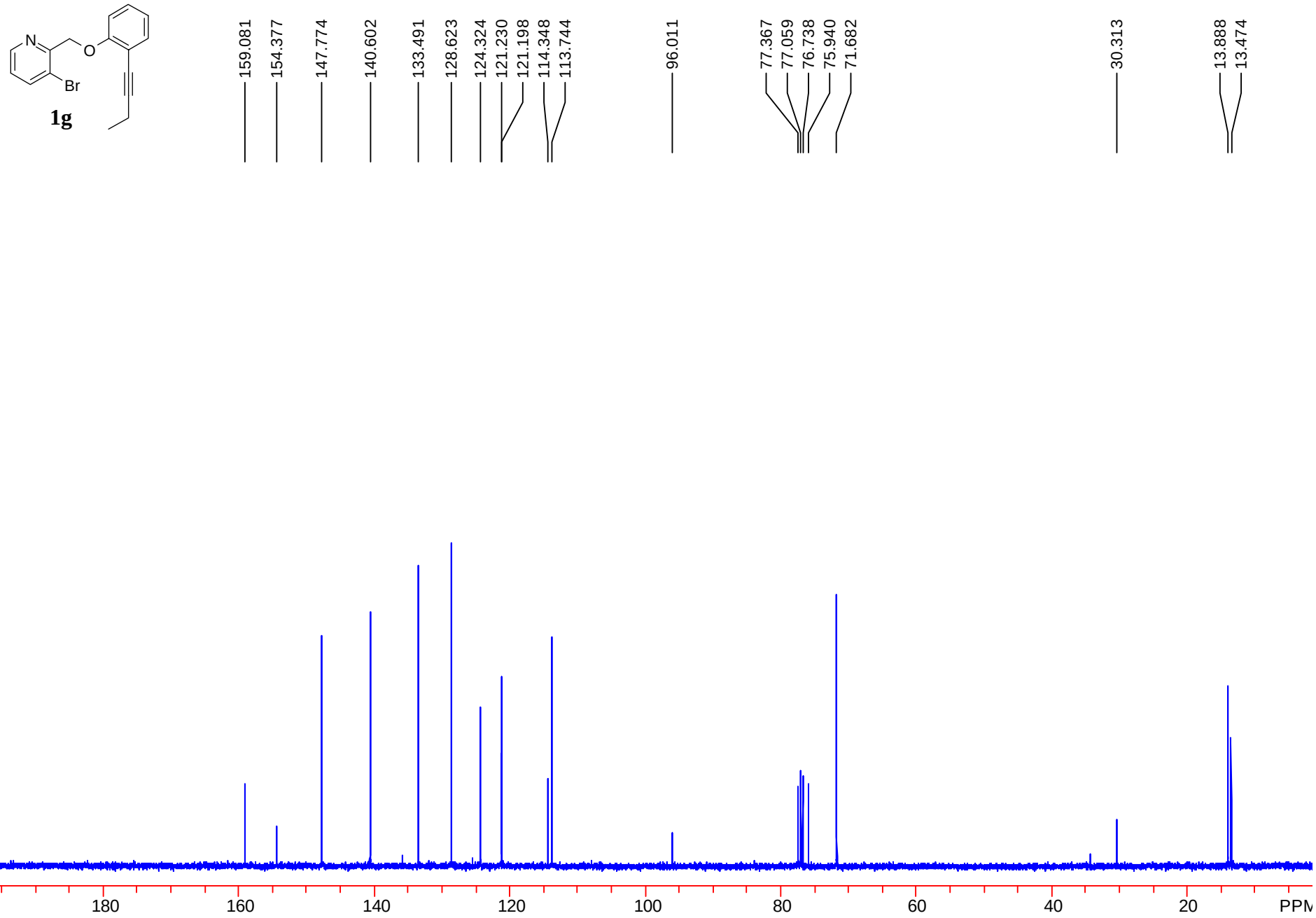
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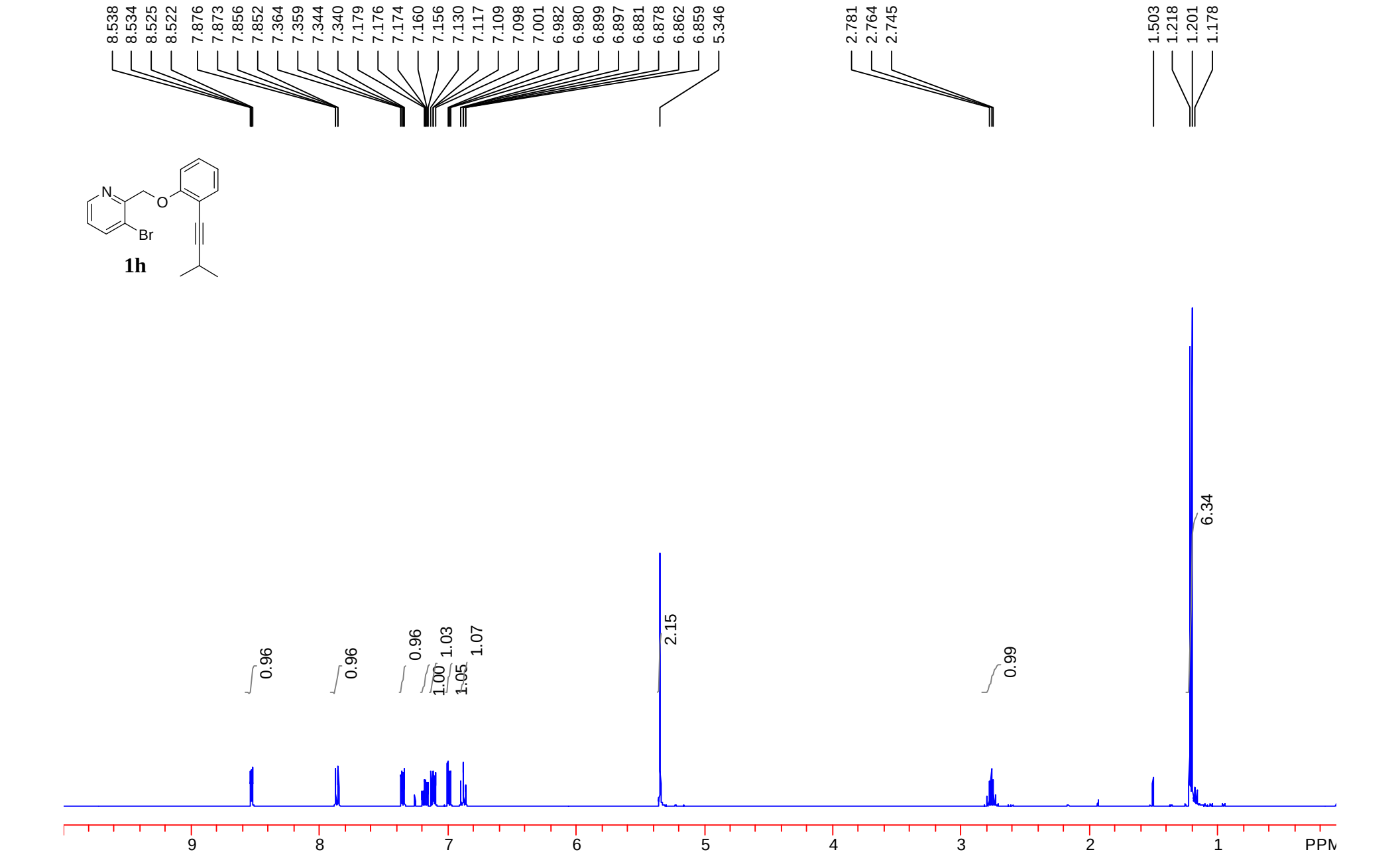

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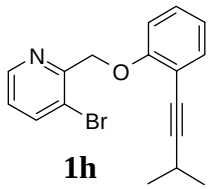

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7.135
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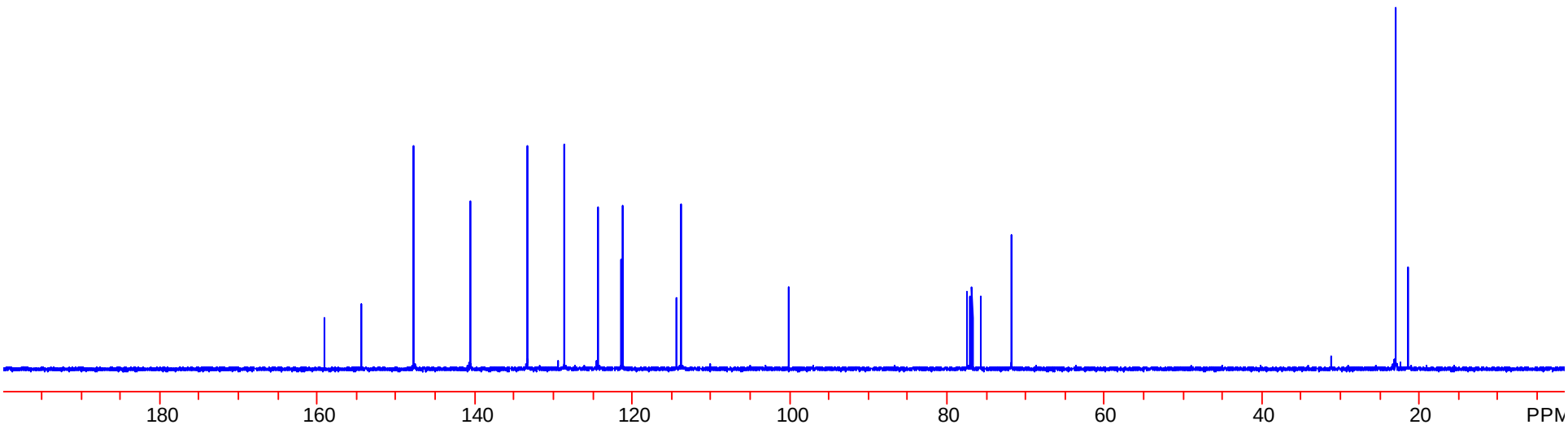

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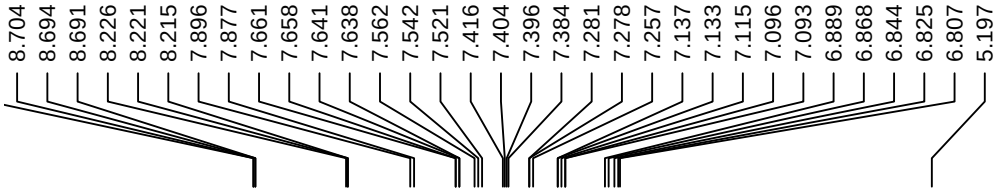

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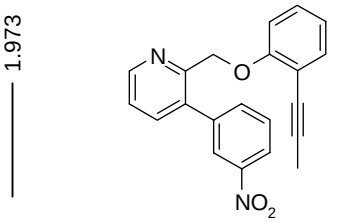


1h

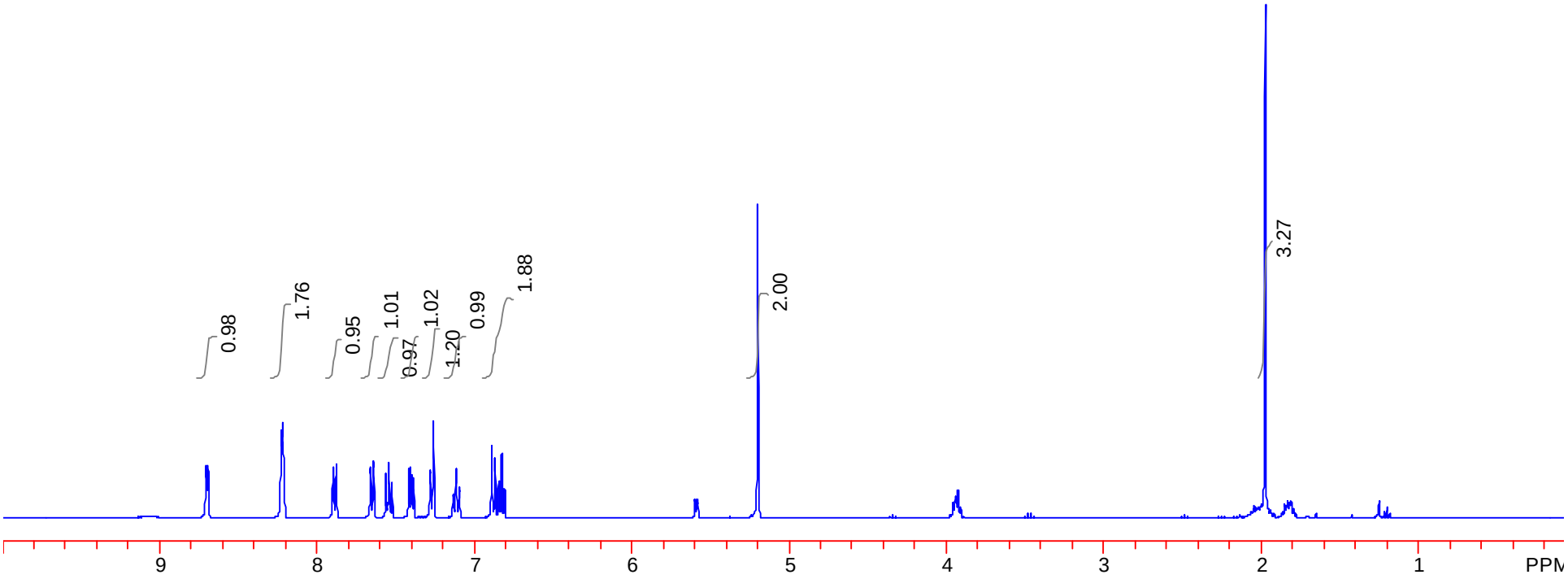
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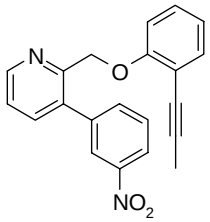



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7.278
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NO2

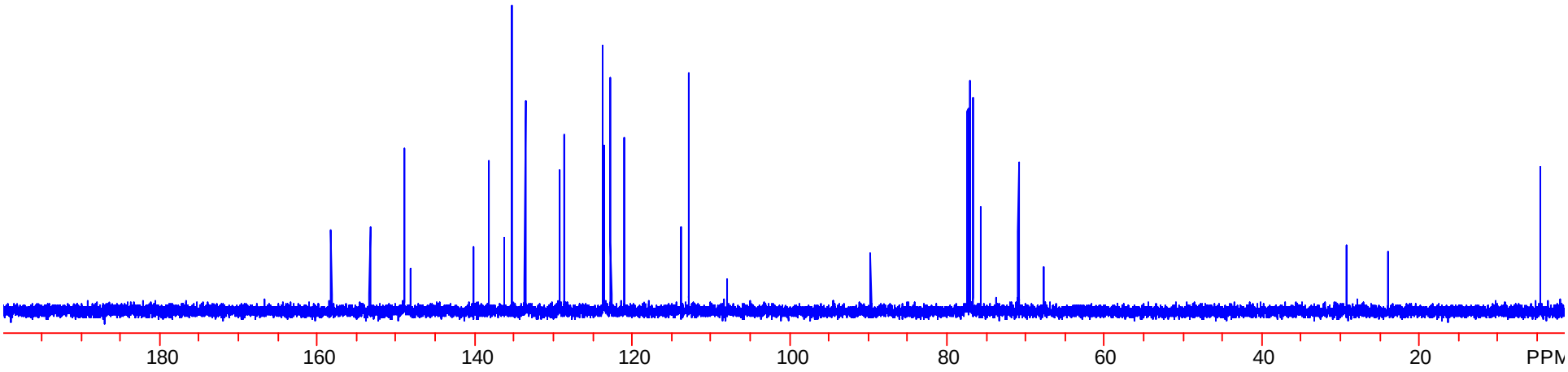
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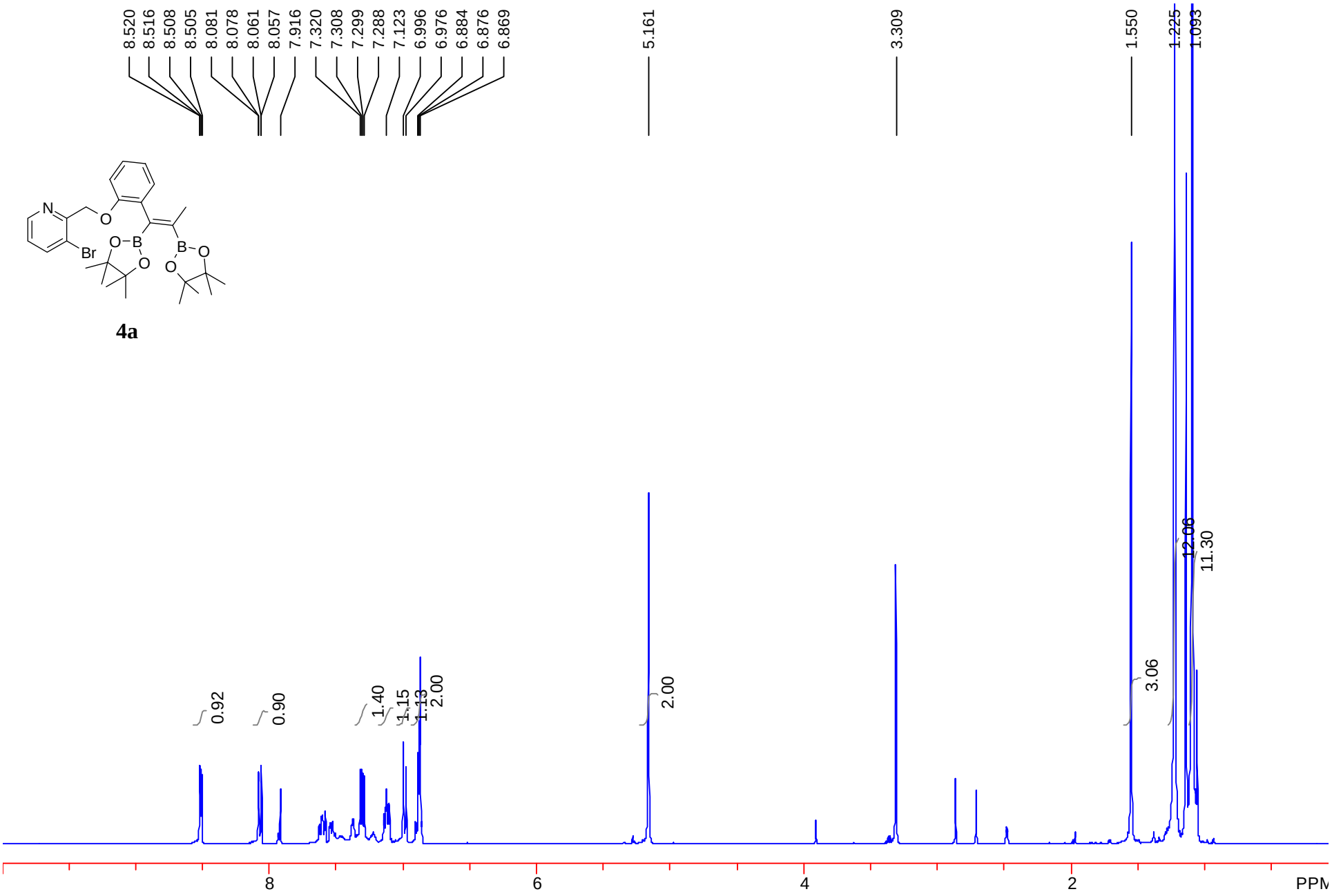

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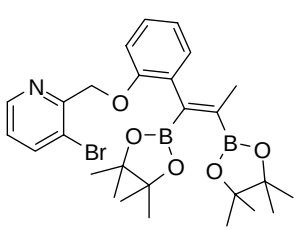
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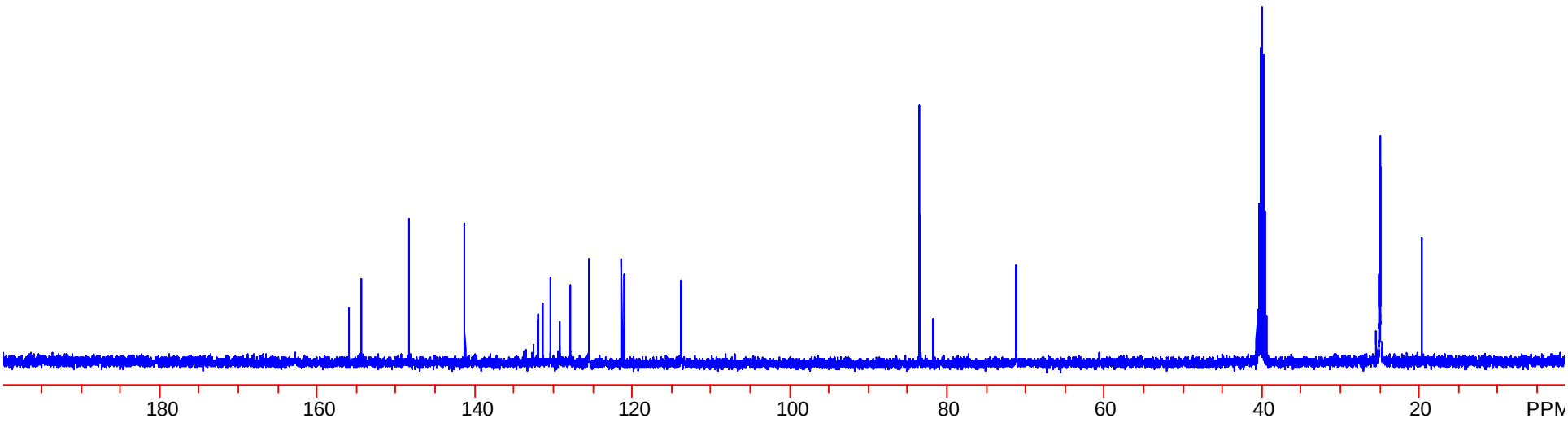

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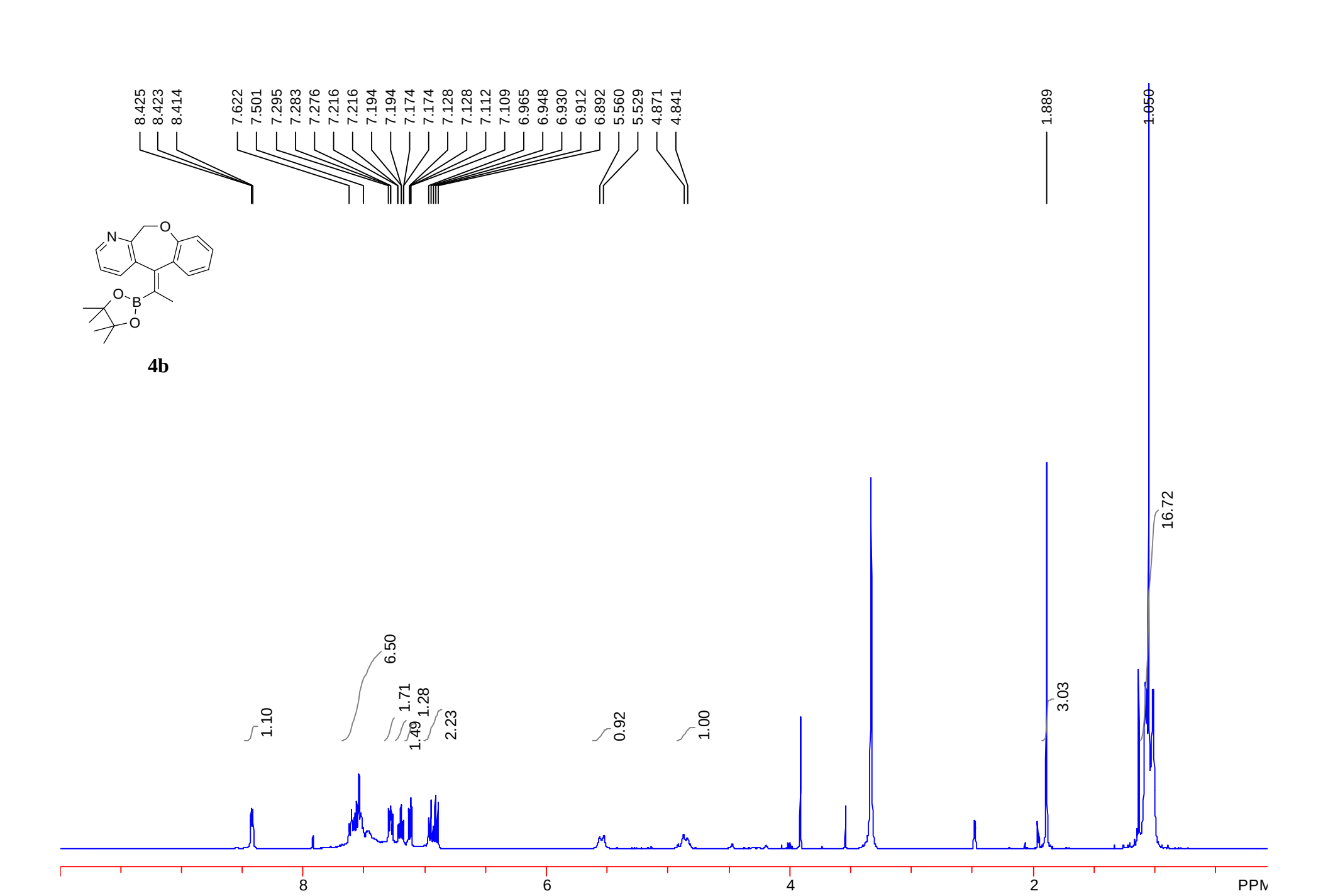
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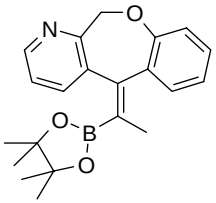


4a

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113.735
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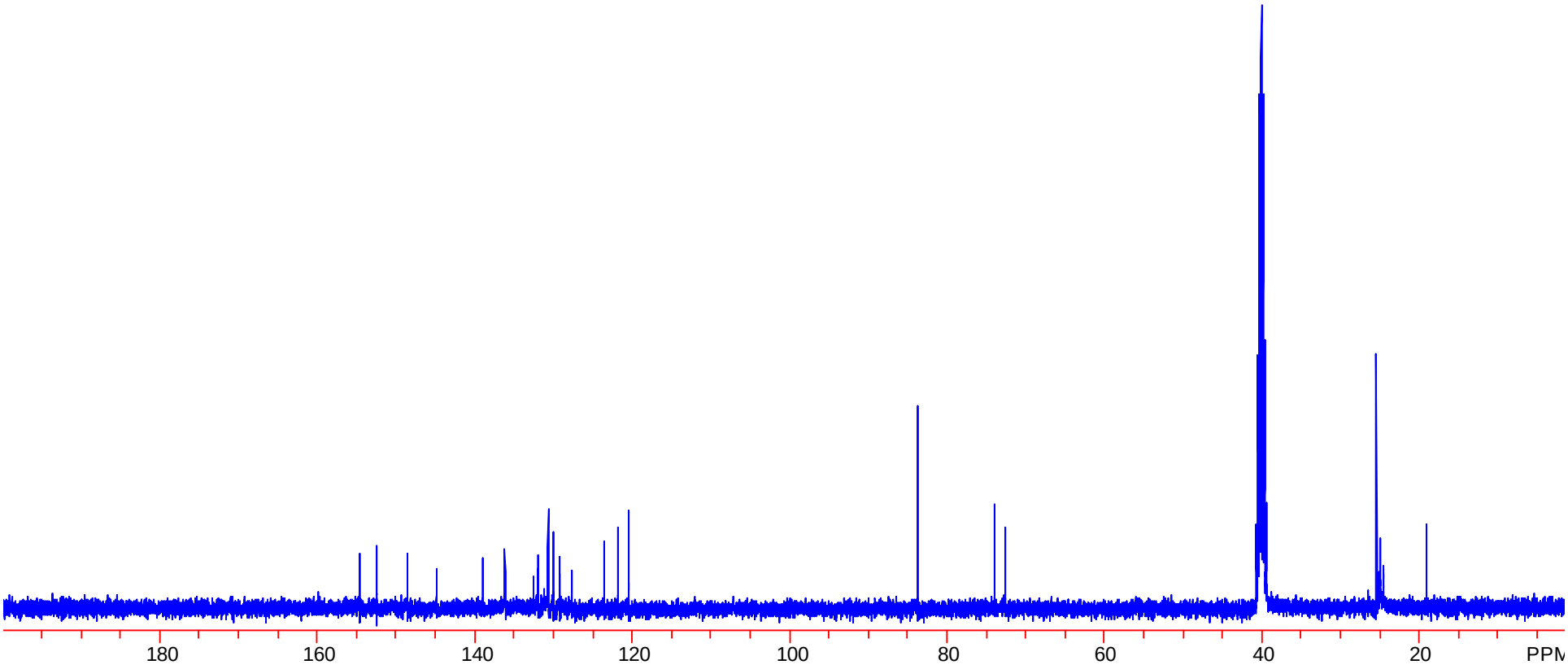


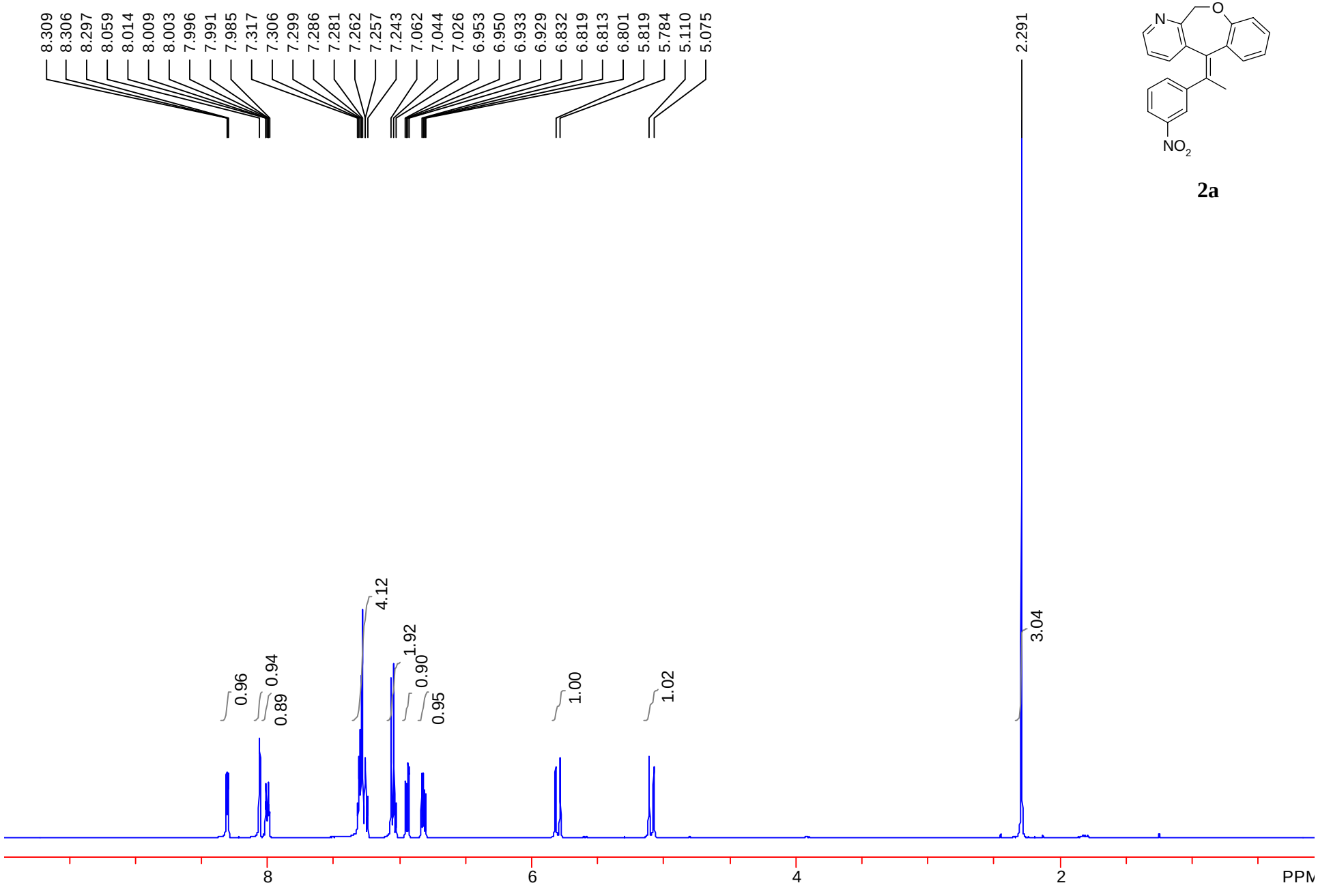

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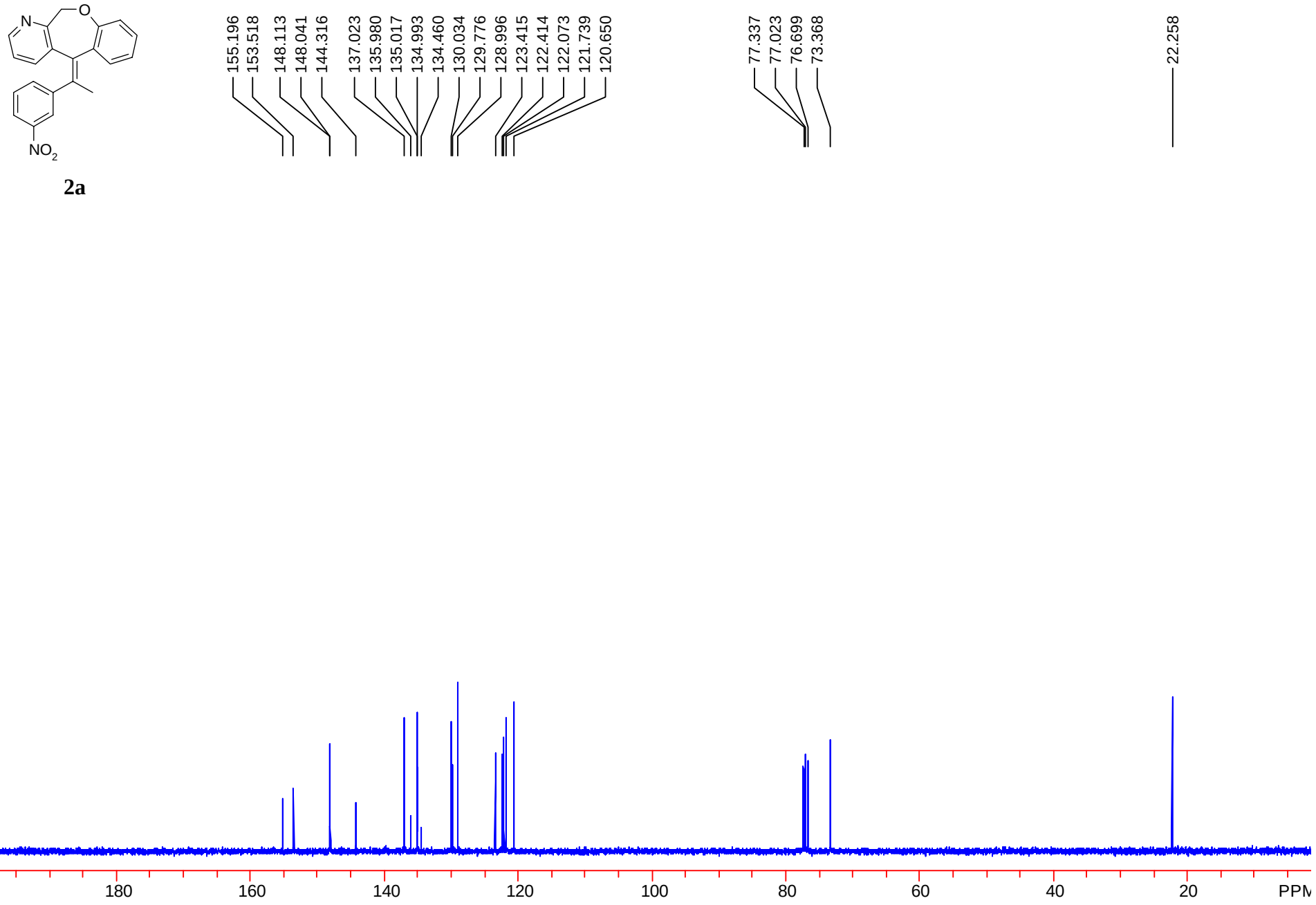


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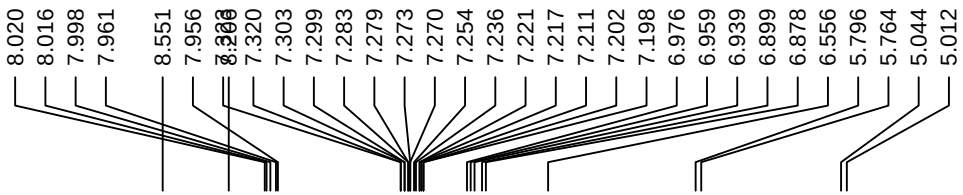
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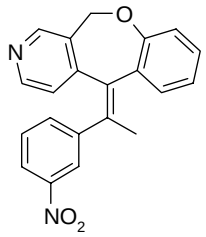

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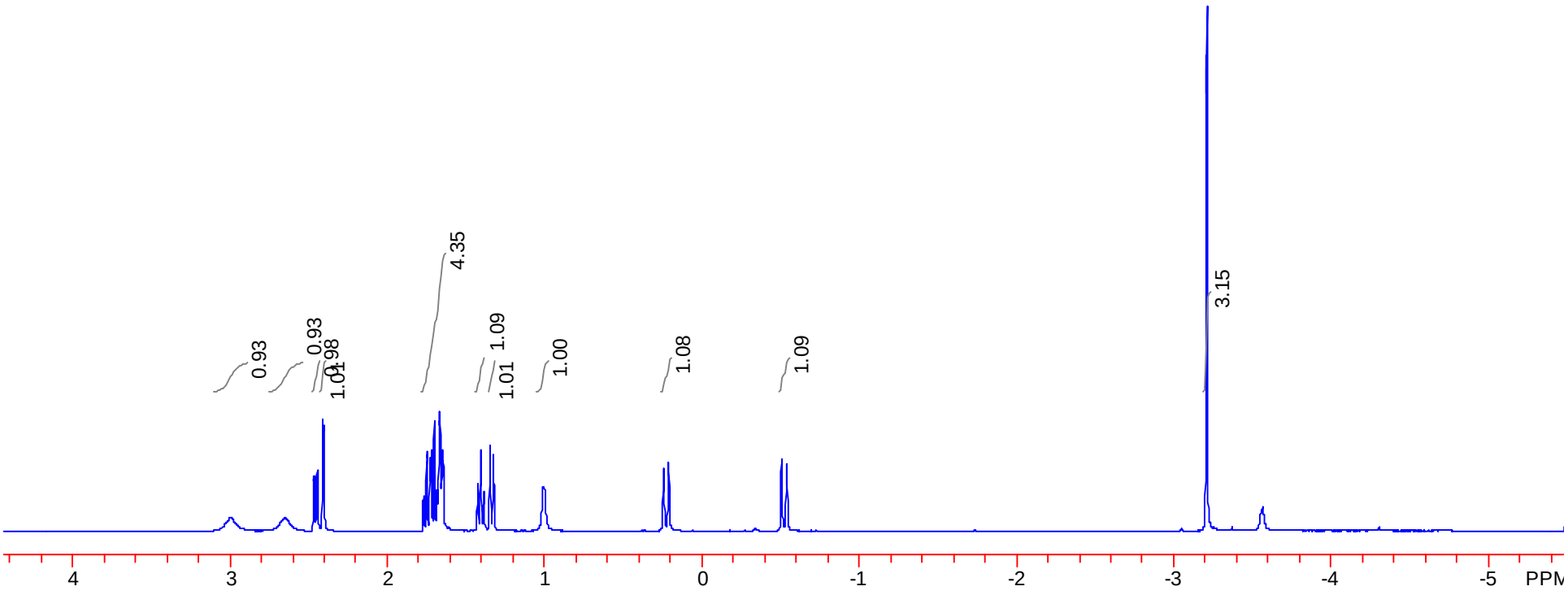
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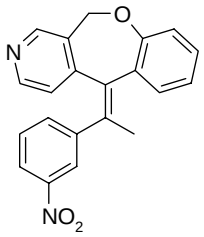

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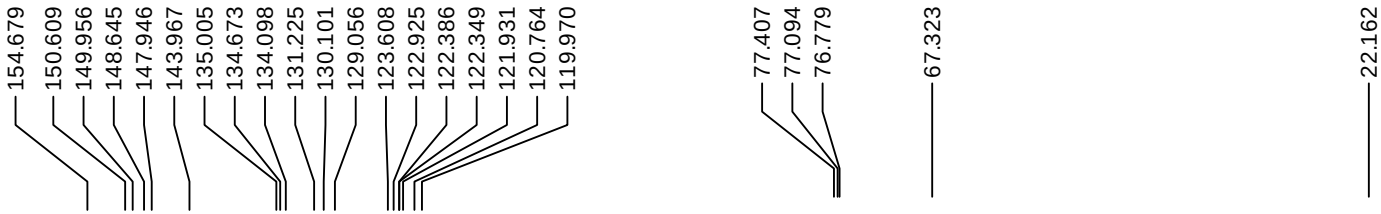

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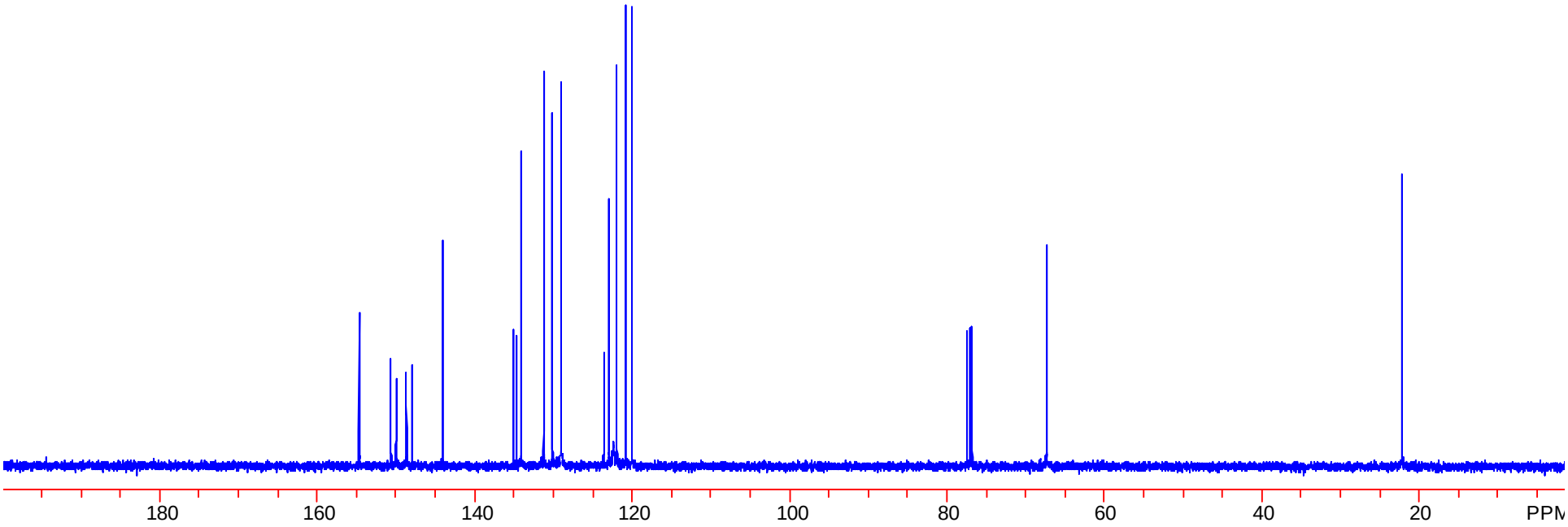
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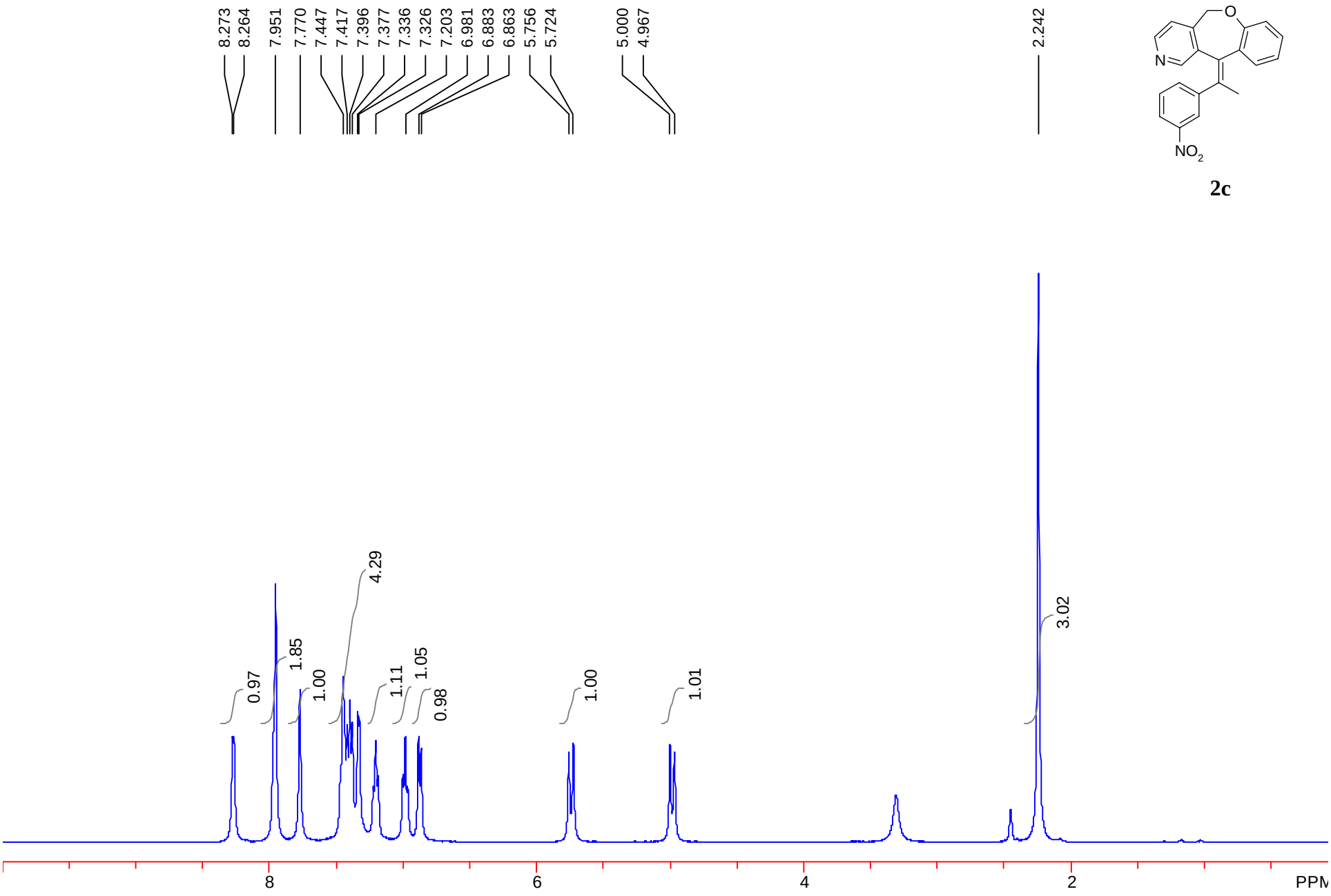

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NO2

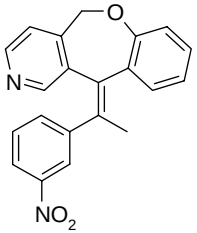
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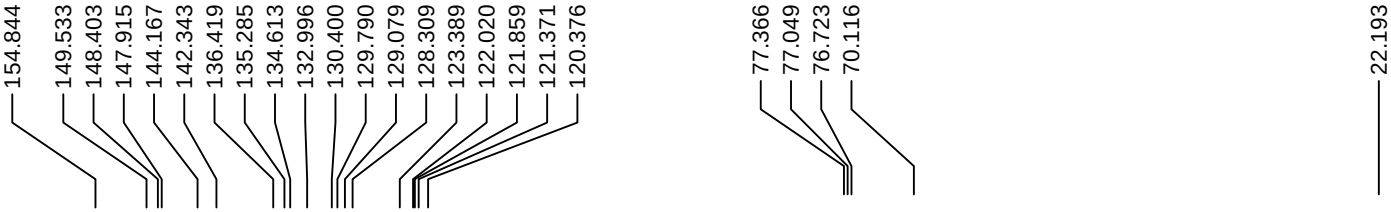

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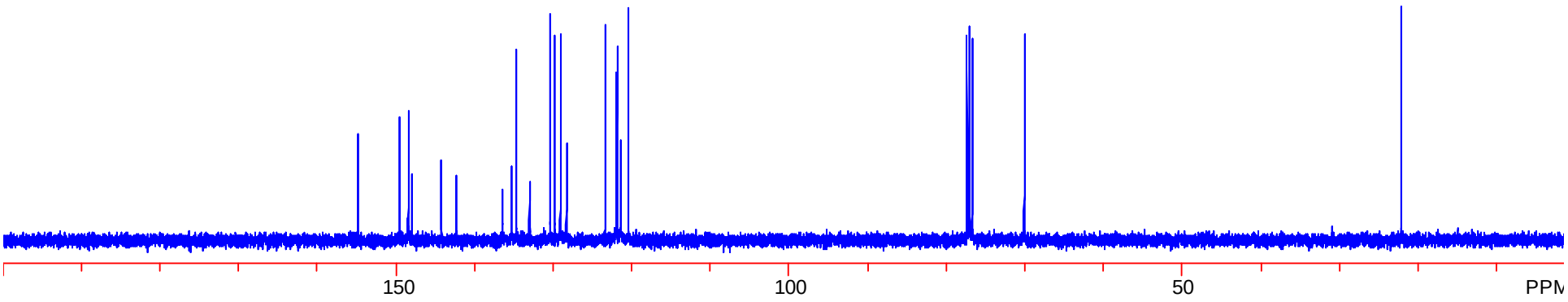

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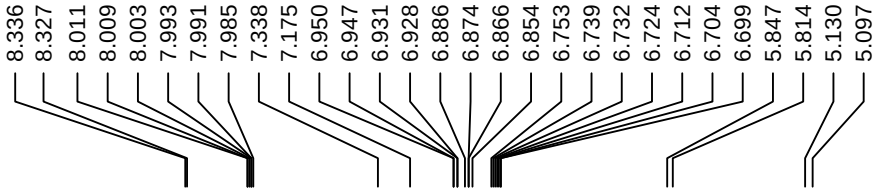
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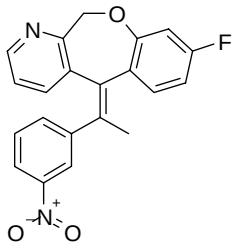
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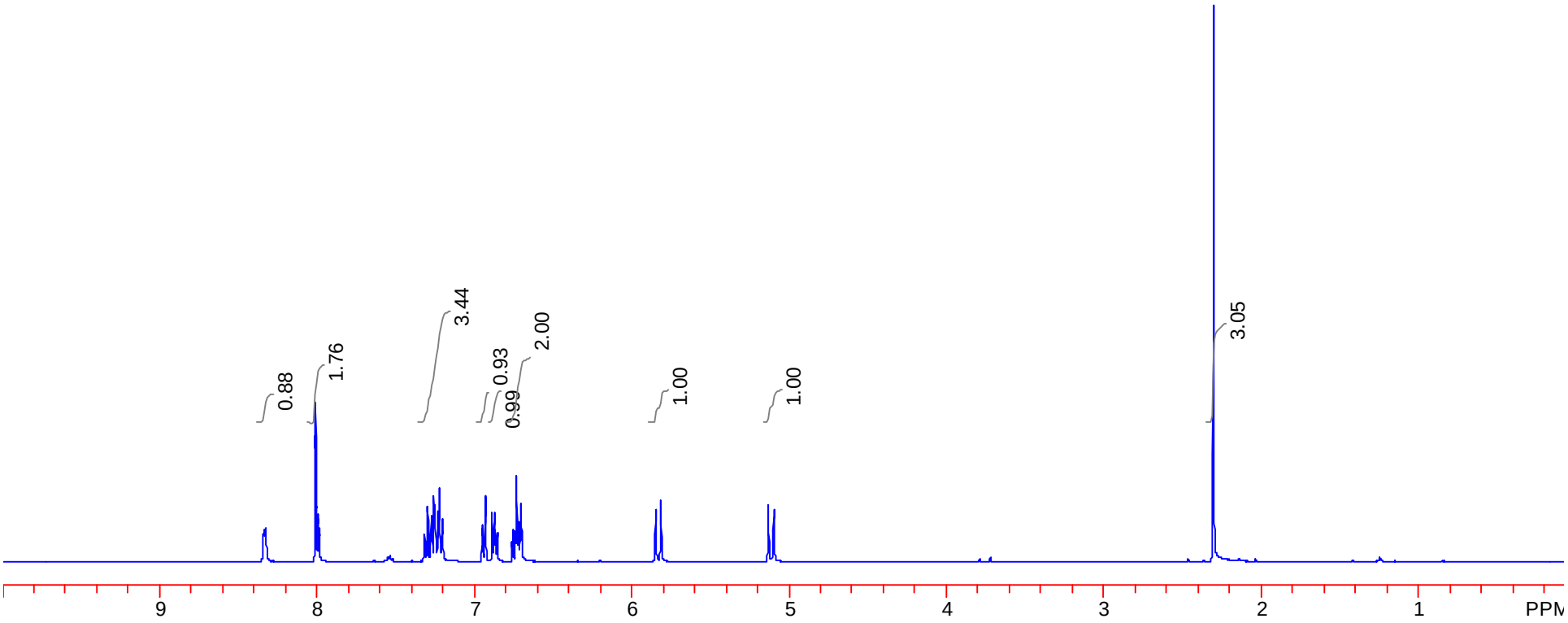

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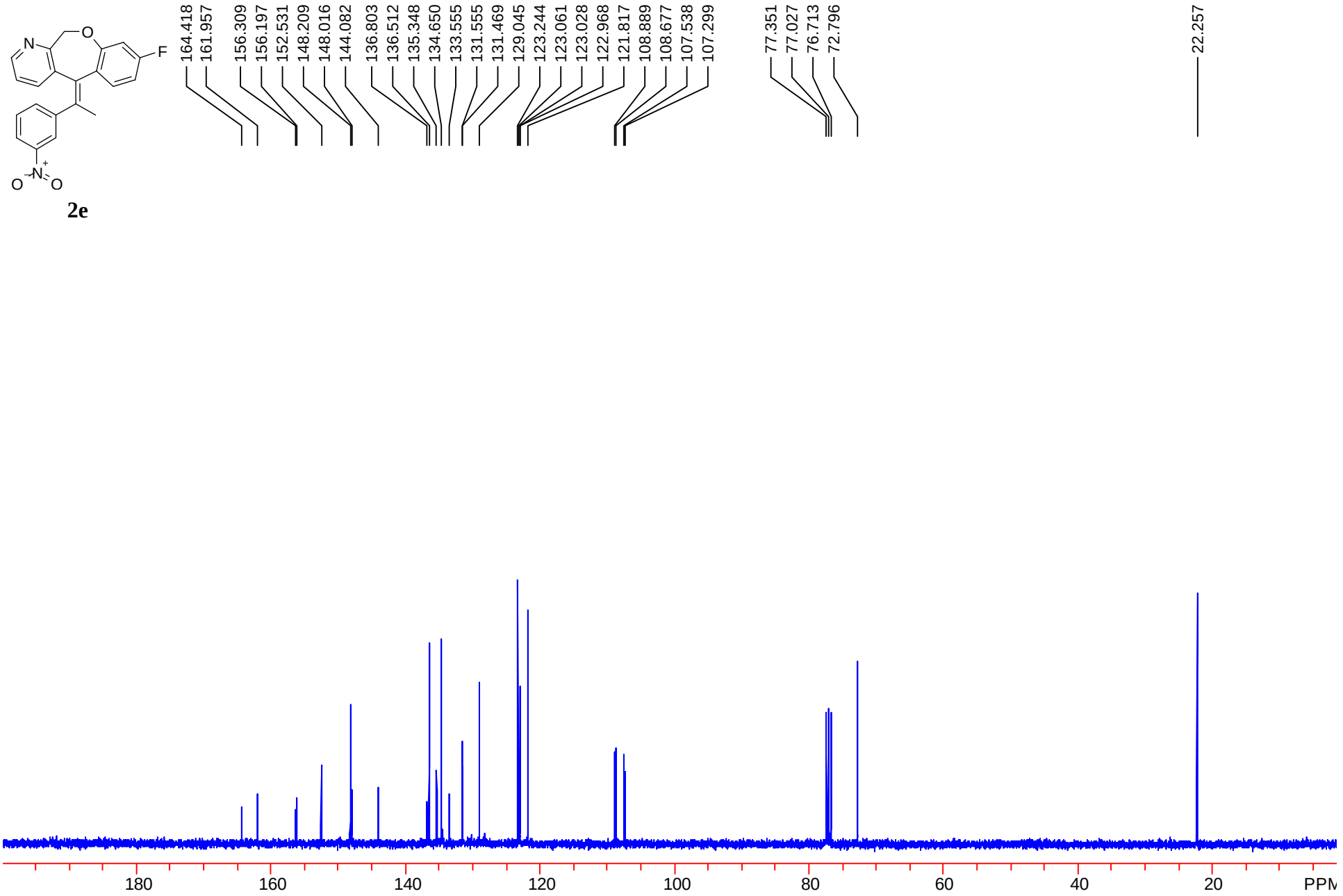

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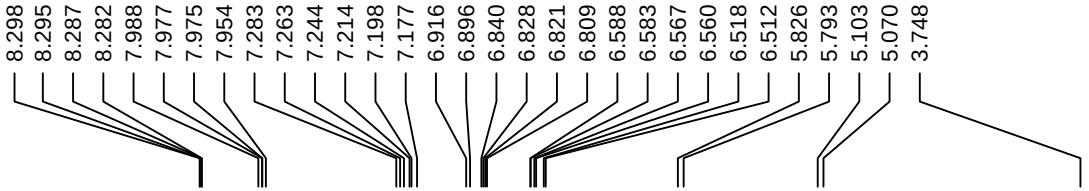

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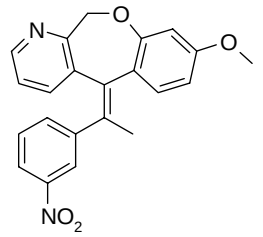
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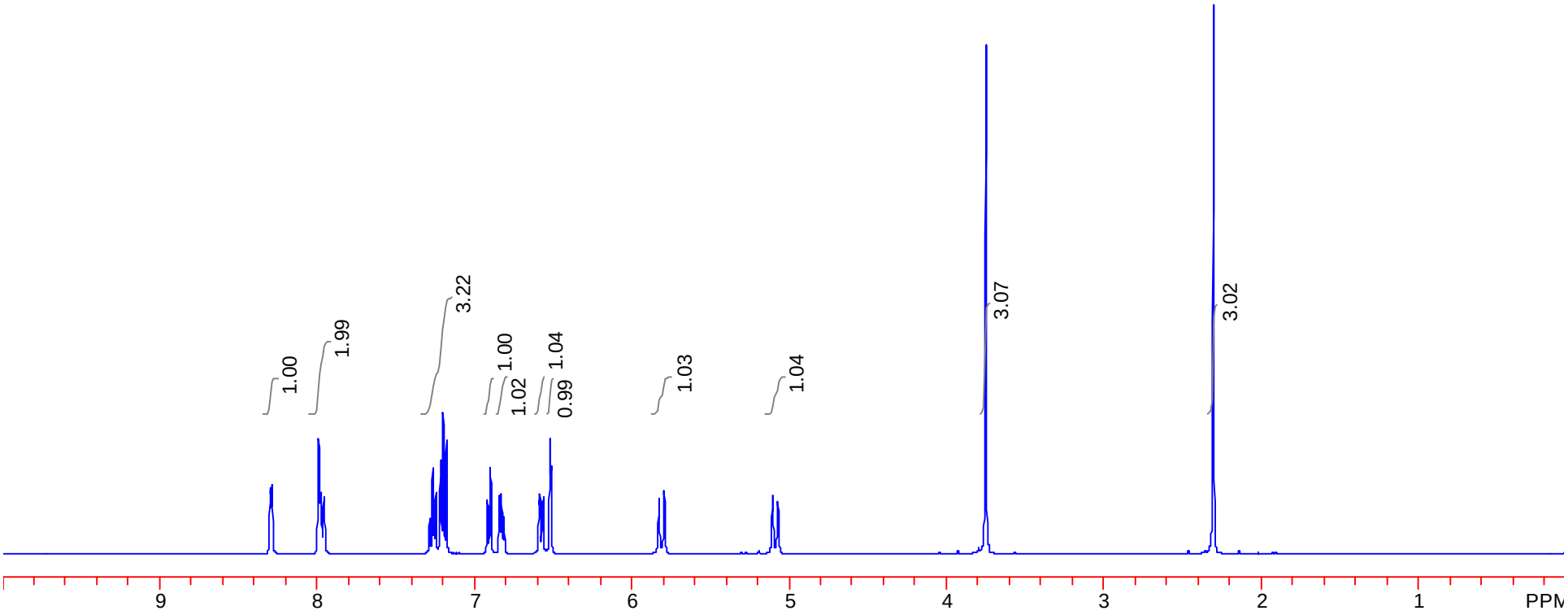

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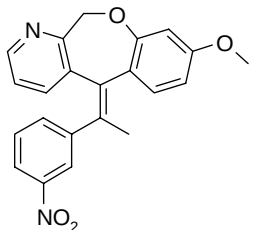
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7.198
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NO2

2f


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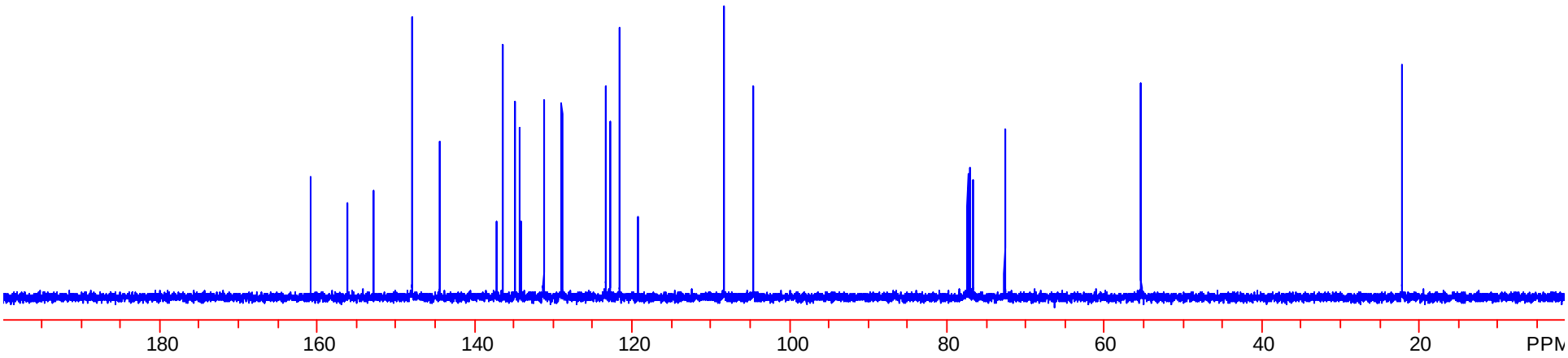
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104.598

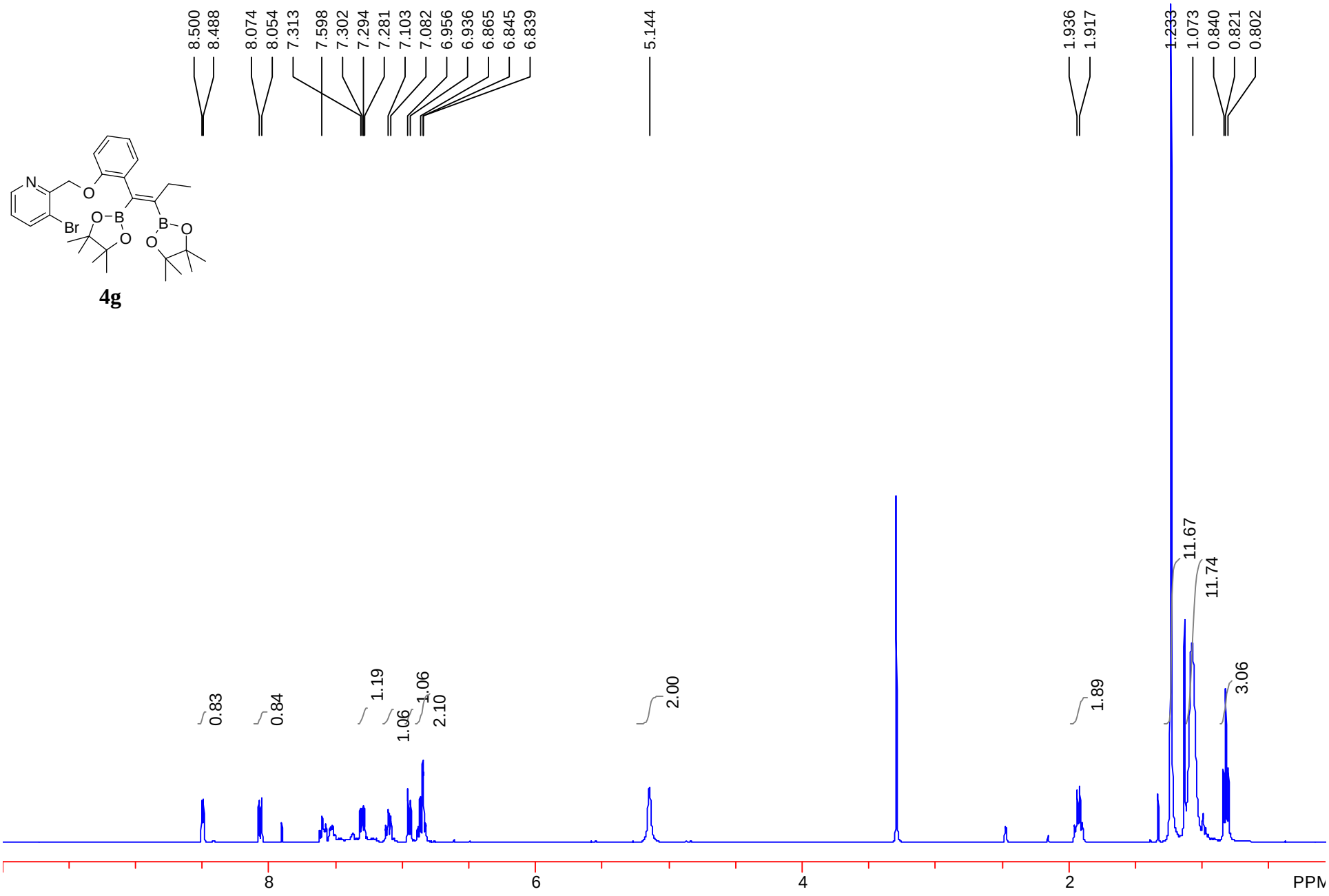
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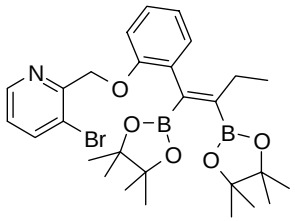
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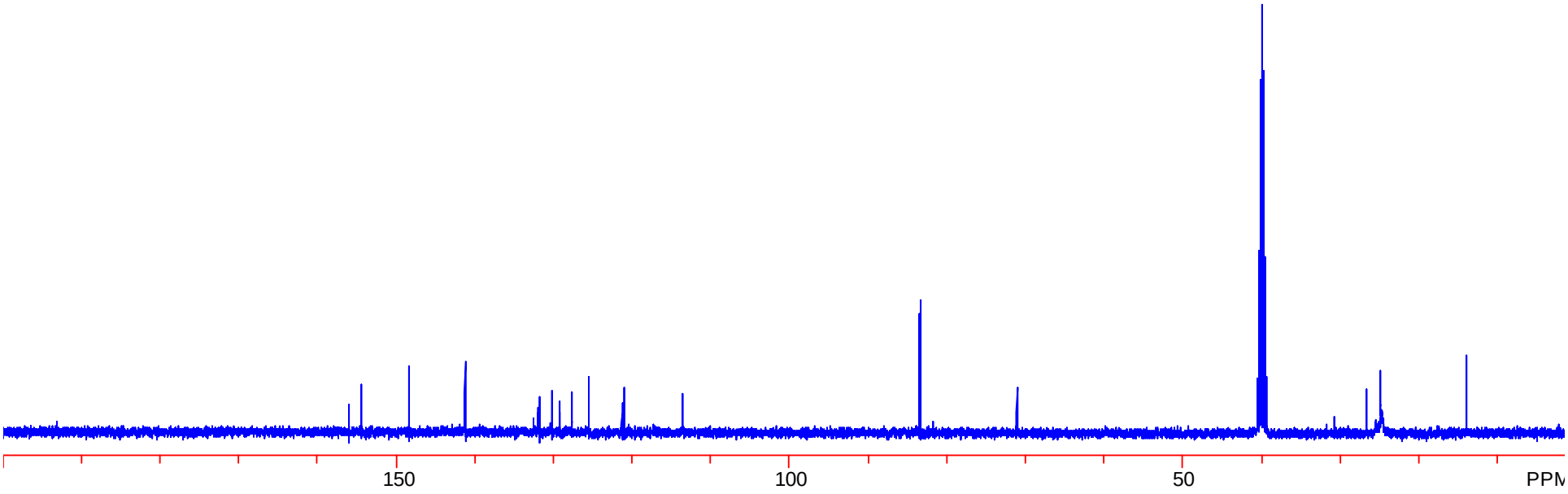


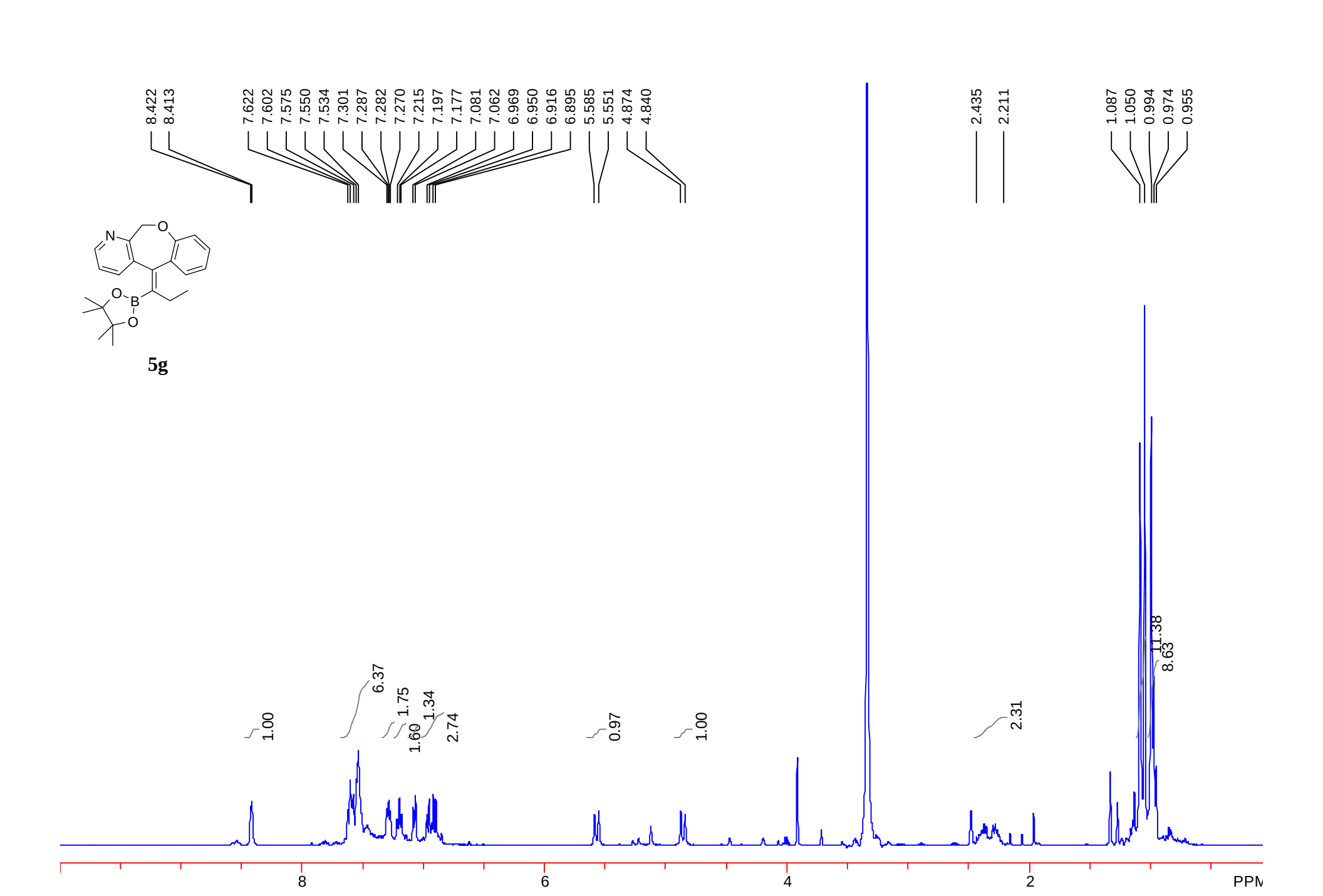

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0.802
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O
B
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B
O
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4g
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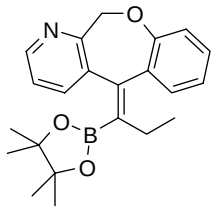


4g

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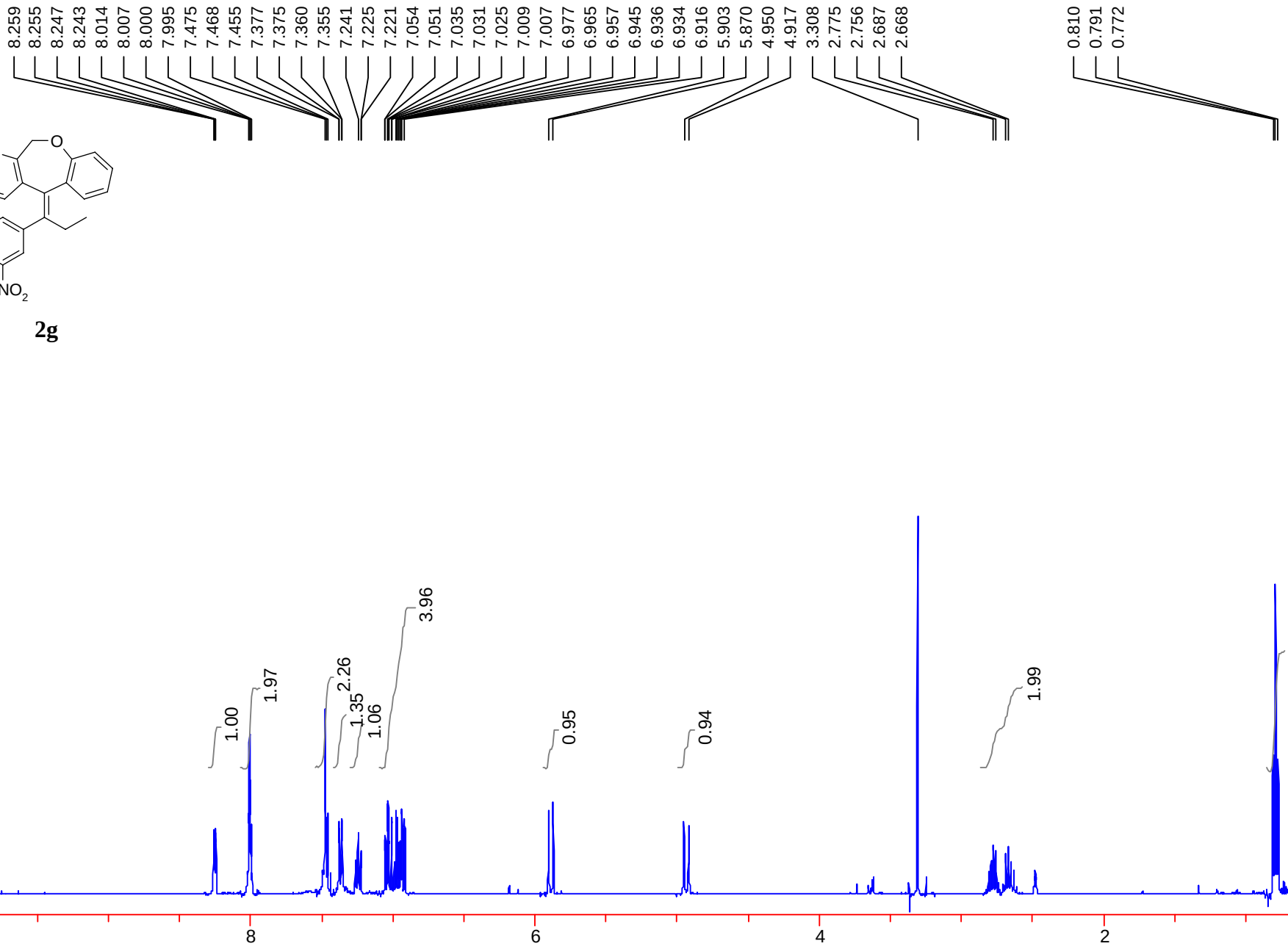



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B
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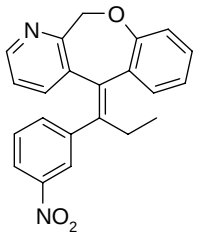

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B
O

5g

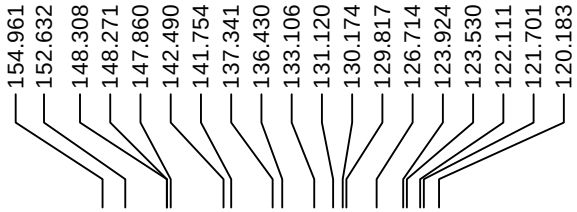
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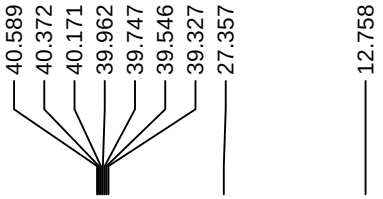
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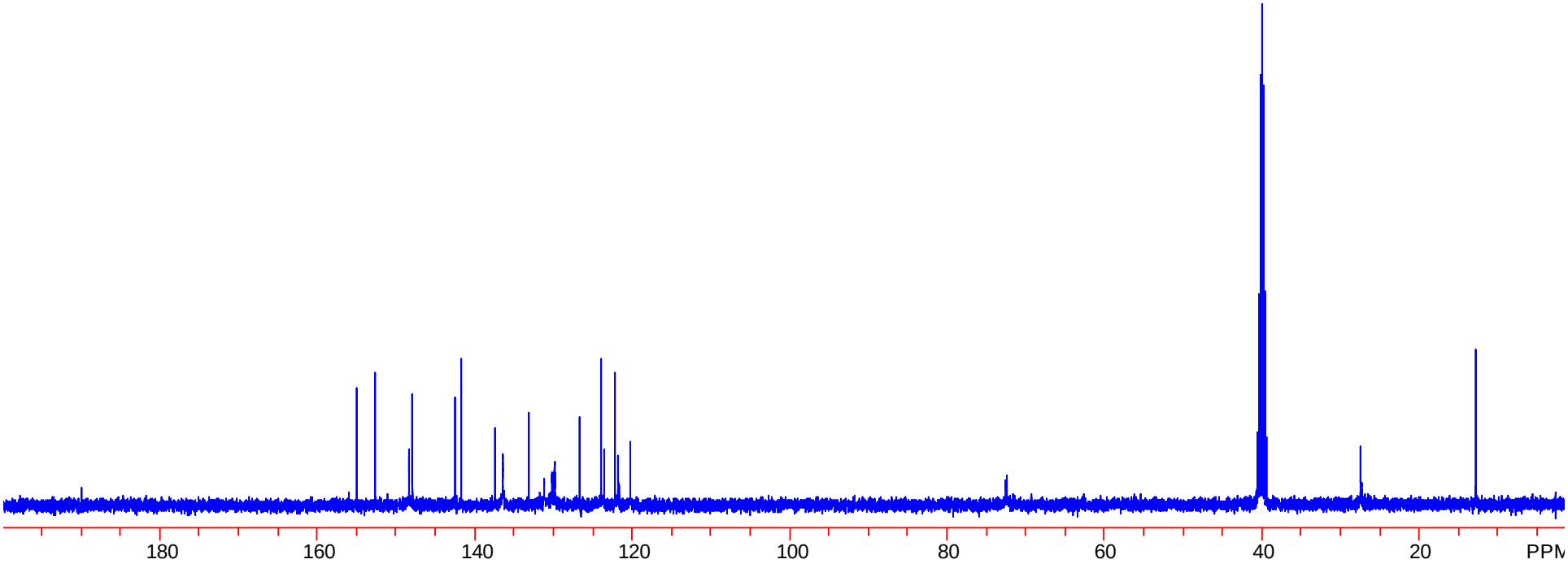

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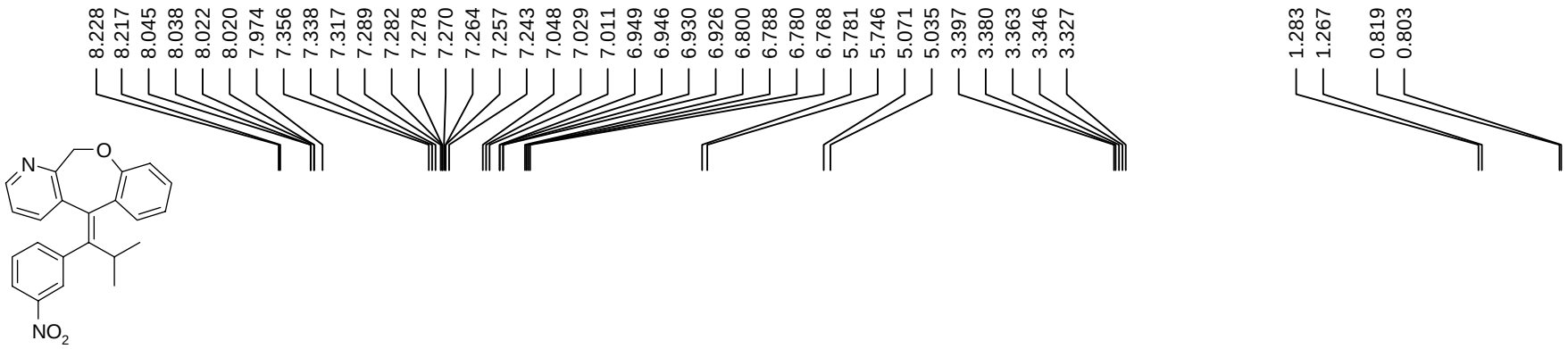
2g


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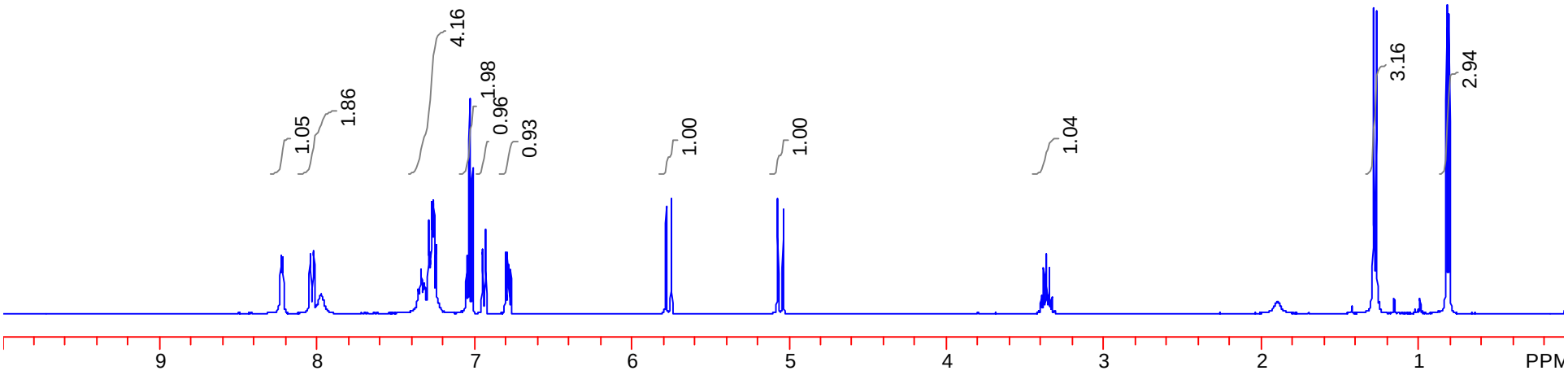
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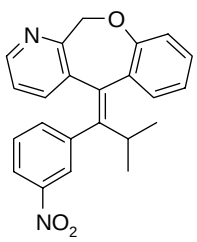

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27.357
12.758


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160
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120
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80
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40
20
PPM


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2h


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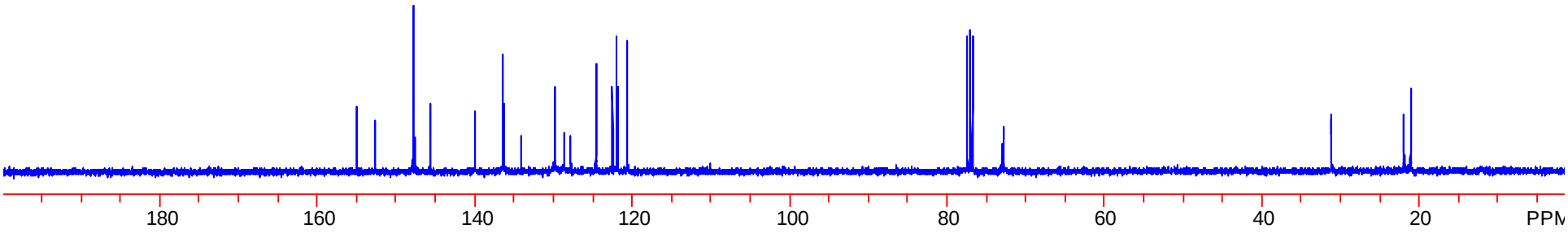
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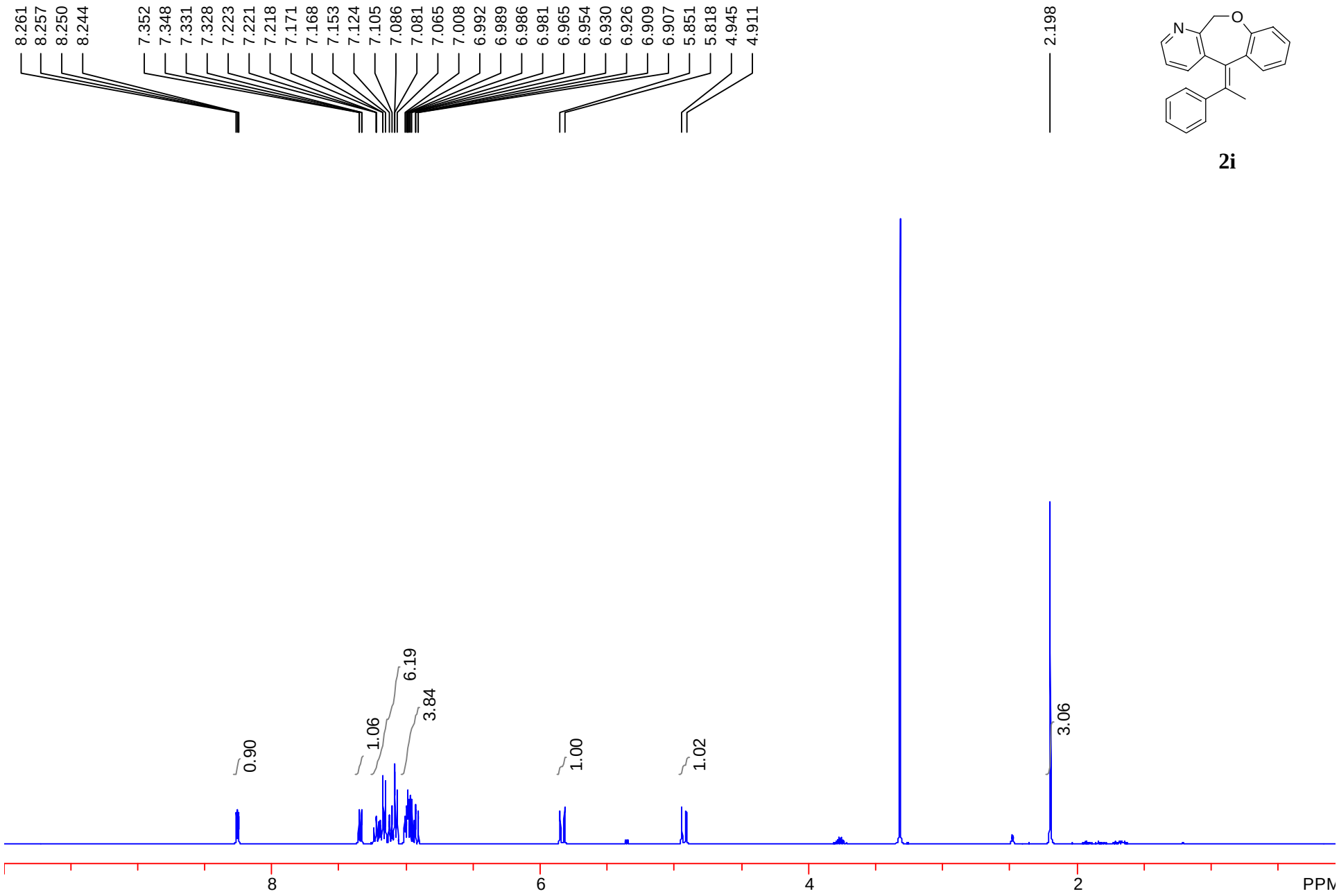
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76.728
72.886

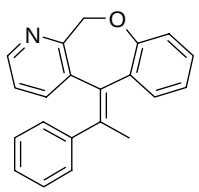
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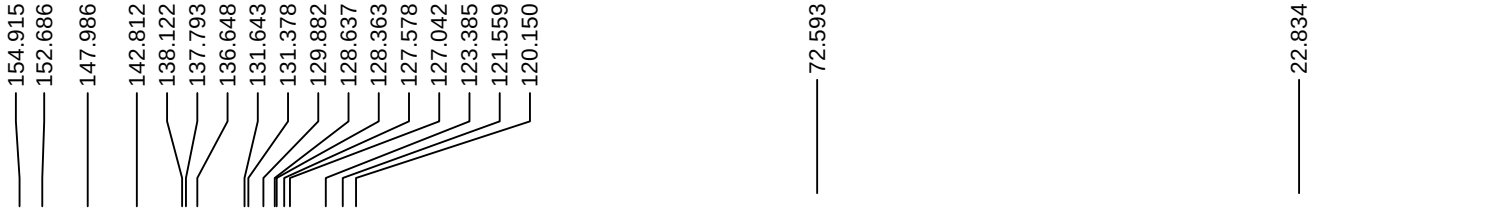


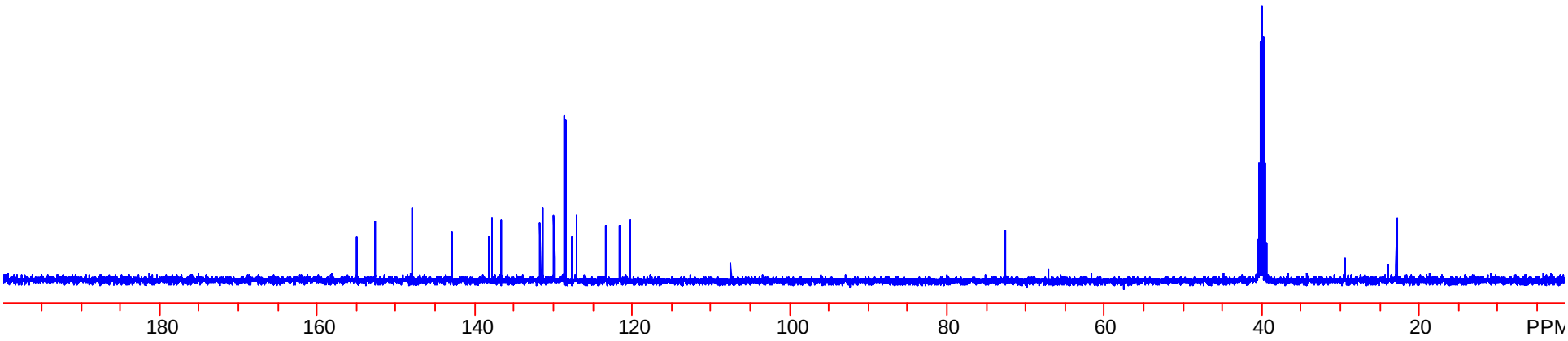

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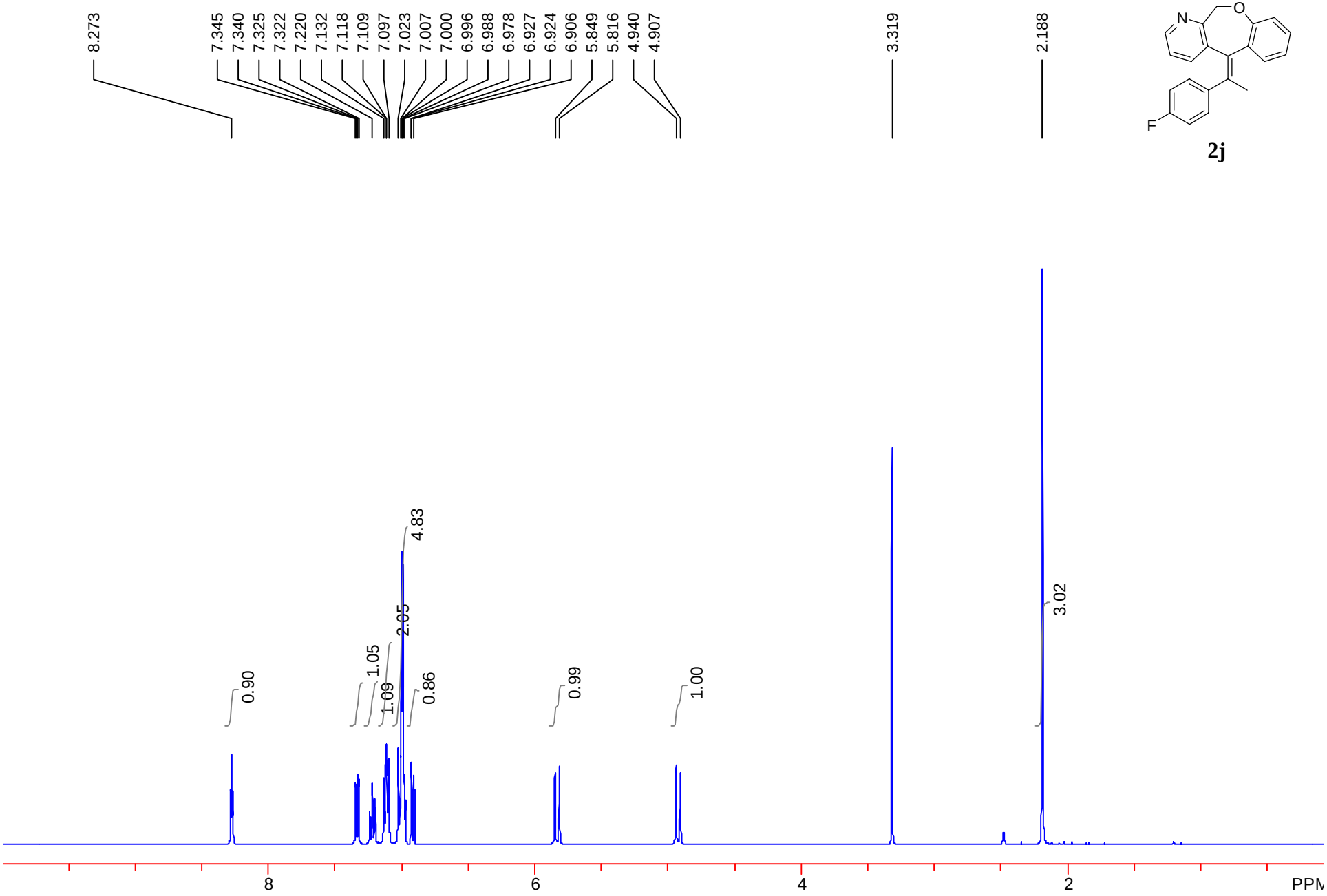
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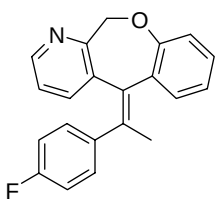

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2i

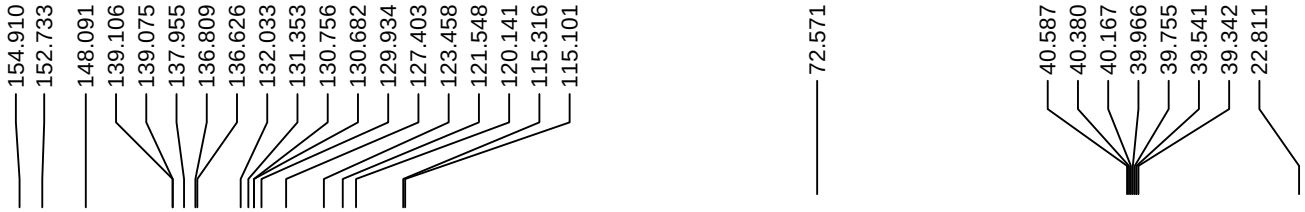

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127.042
123.385
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120.150
72.593
22.834

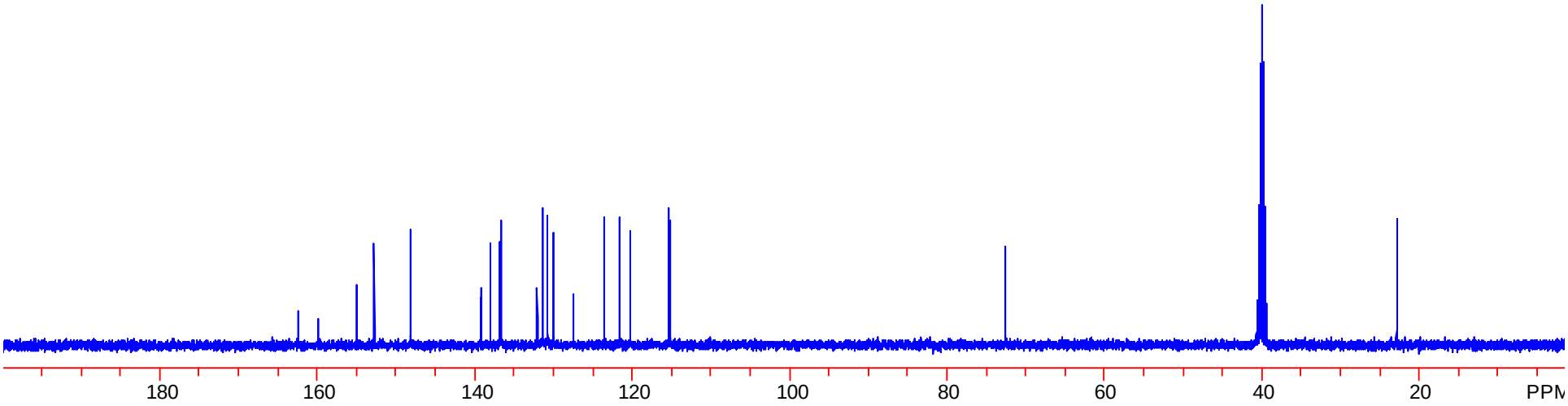

180
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140
120
100
80
60
40
20
PPM

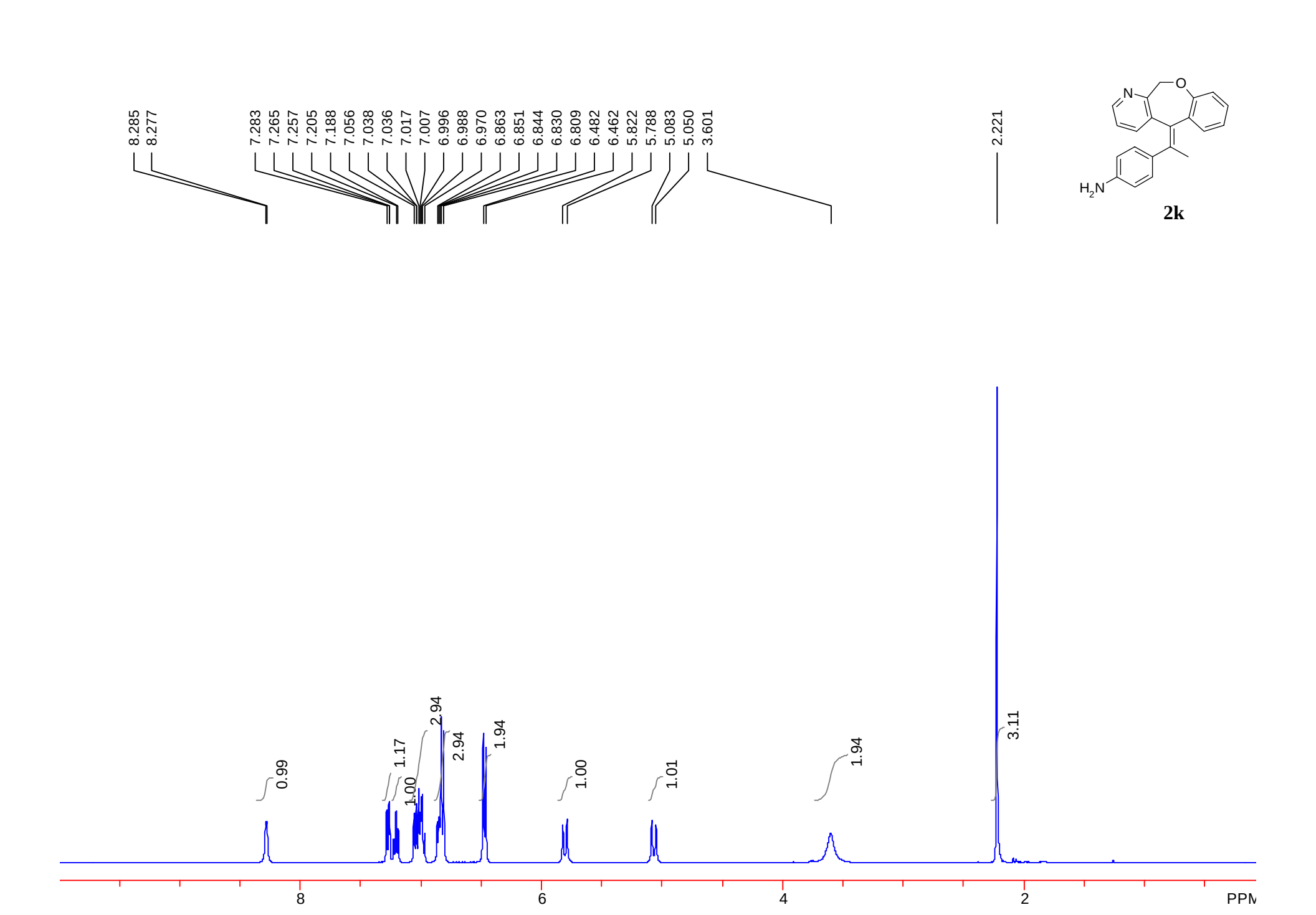

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7.340
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7.322
7.220
7.132
7.118
7.109
7.097
7.023
7.007
7.000
6.996
6.988
6.978
6.927
6.924
6.906
5.849
5.816
4.940
4.907
3.319
2.188
N
O
F
2j
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1.09
2.05
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1.00
3.02
8
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4
2
PPM

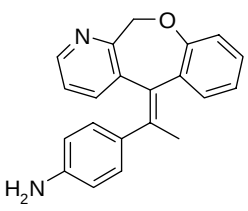

N
O
F

2j


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40.167
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39.342
22.811


180
160
140
120
100
80
60
40
20
PPM


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8.277
7.283
7.265
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7.205
7.188
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7.038
7.036
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5.083
5.050
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1.94
3.11
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2
PPM

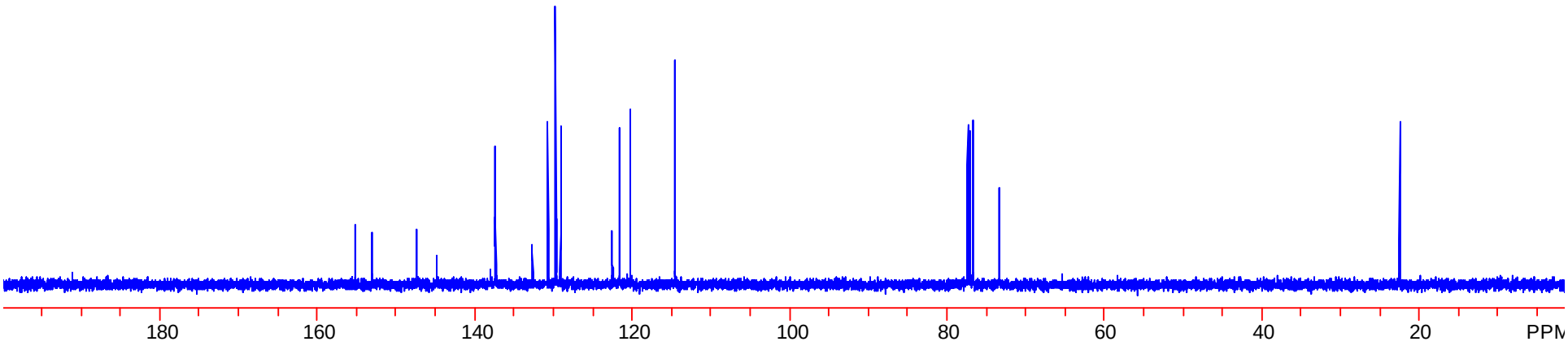


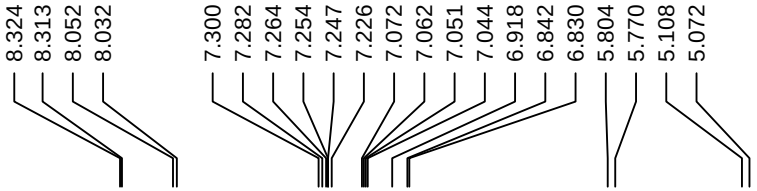
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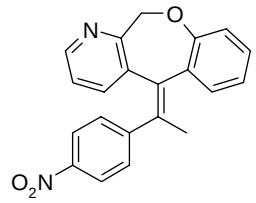
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114.483

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76.700
73.321

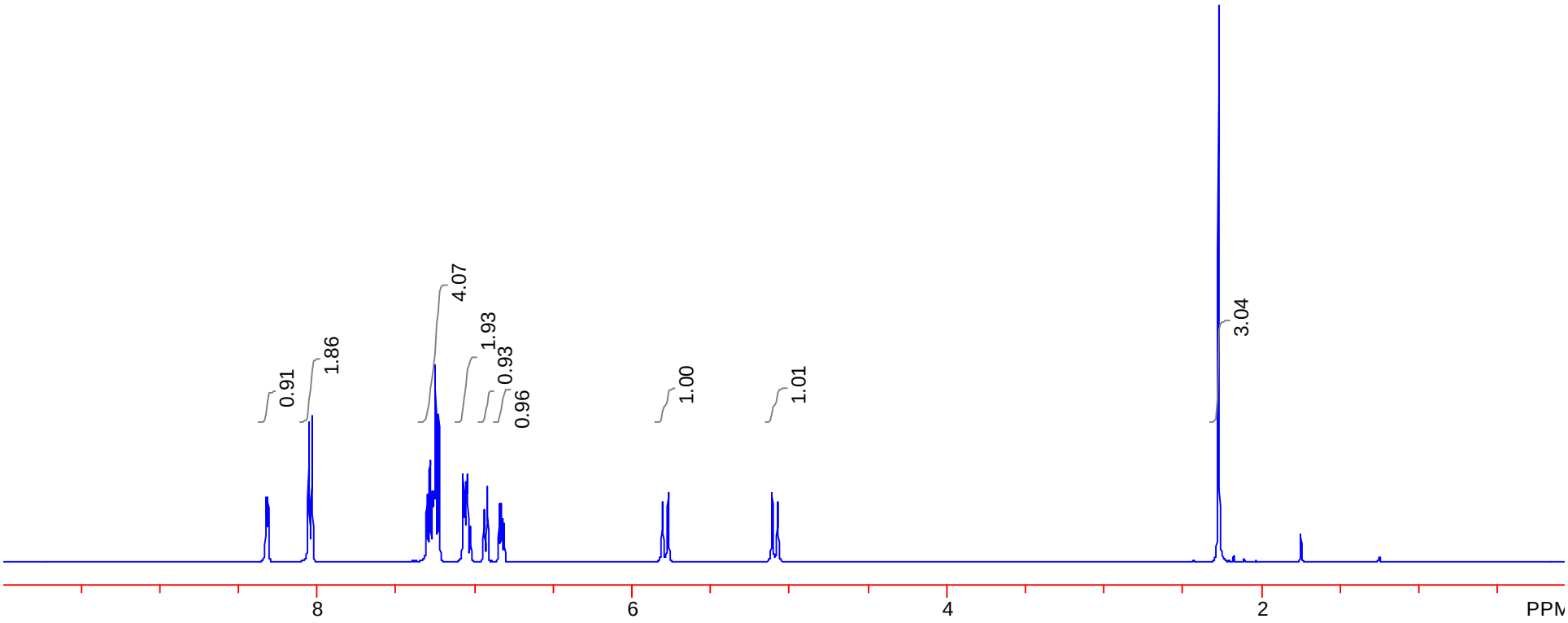
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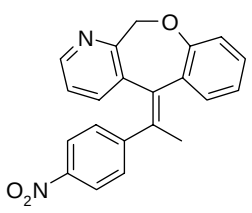



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7.254
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7.062
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N
O
O2N

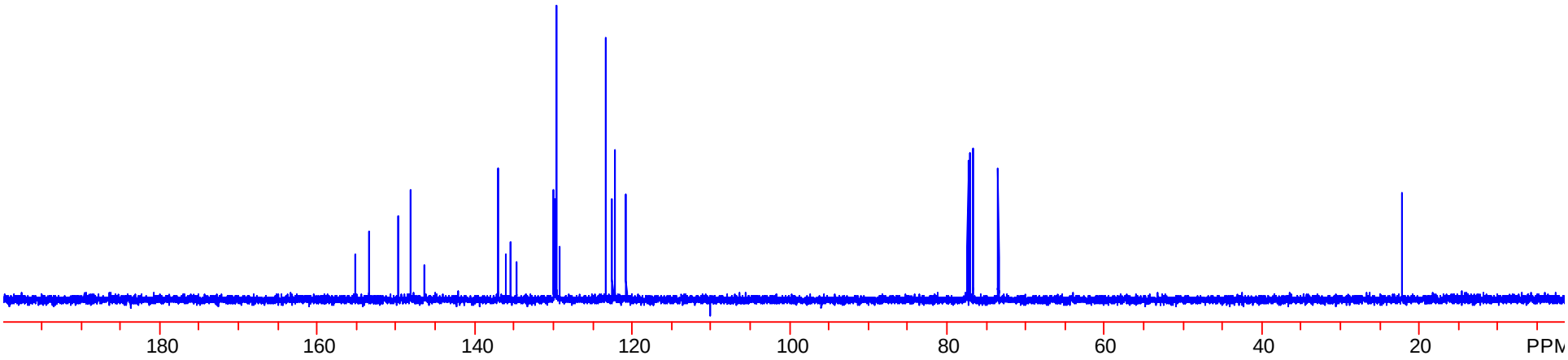
E-2l

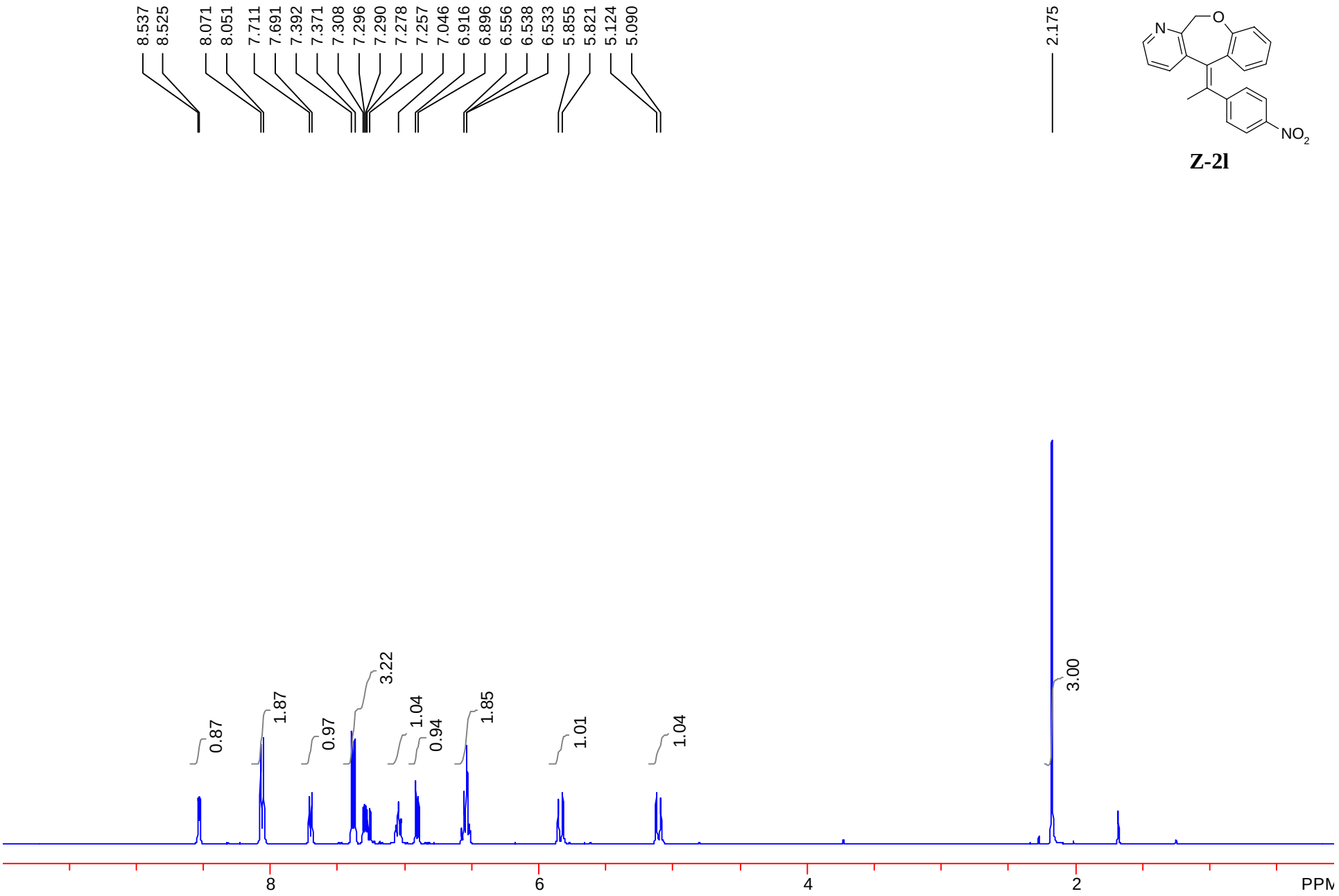

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8
6
4
2
PPM



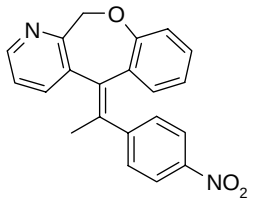
E-2l

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77.011
76.695
73.437
22.132



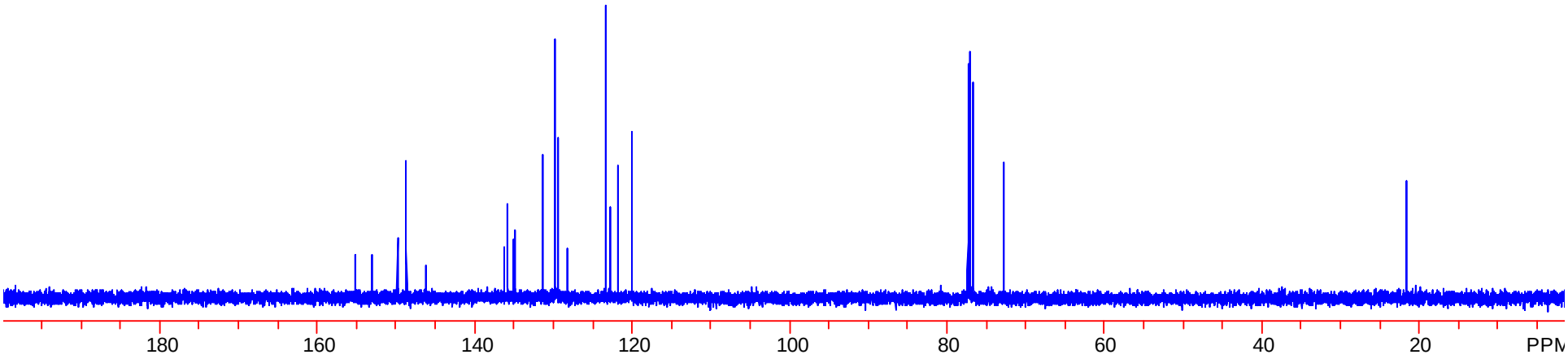

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8.071
8.051
7.711
7.691
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7.371
7.308
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7.290
7.278
7.257
7.046
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6.896
6.556
6.538
6.533
5.855
5.821
5.124
5.090
2.175
N
O
NO2
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3.00
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2
PPM

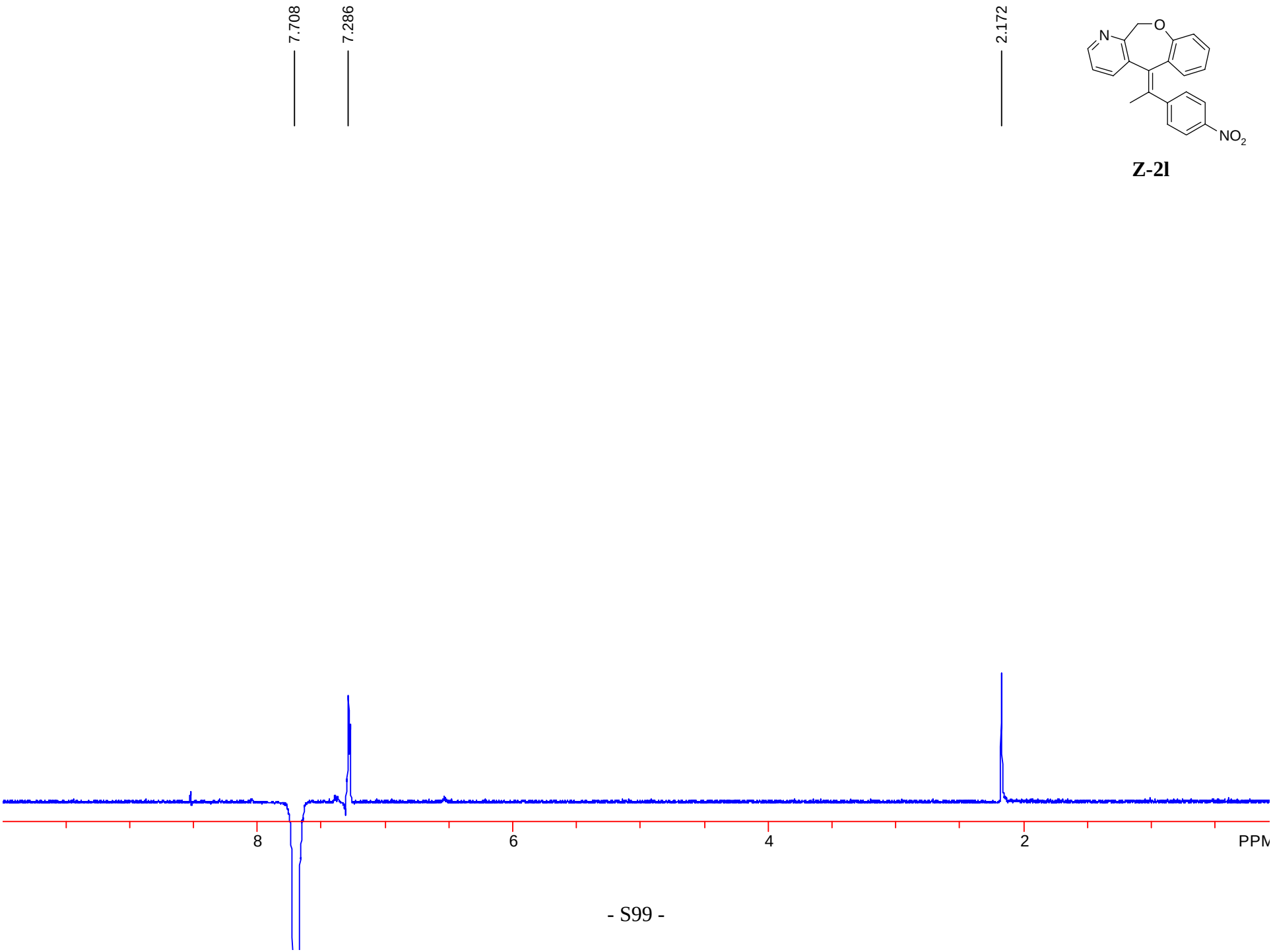
Z-2l



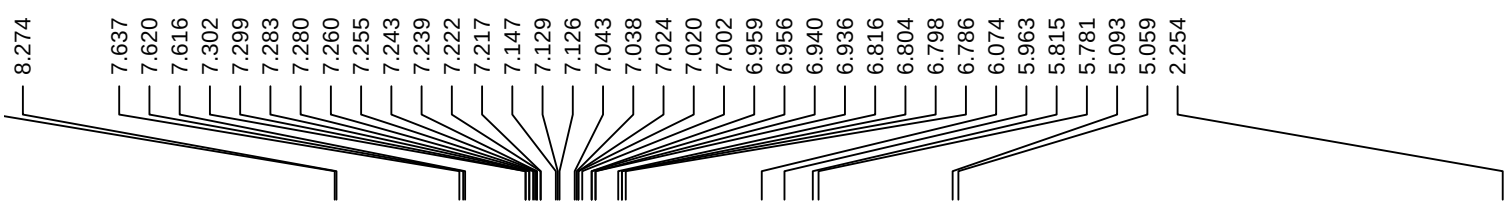
Z-2l

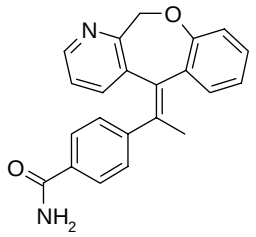
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72.698
21.615



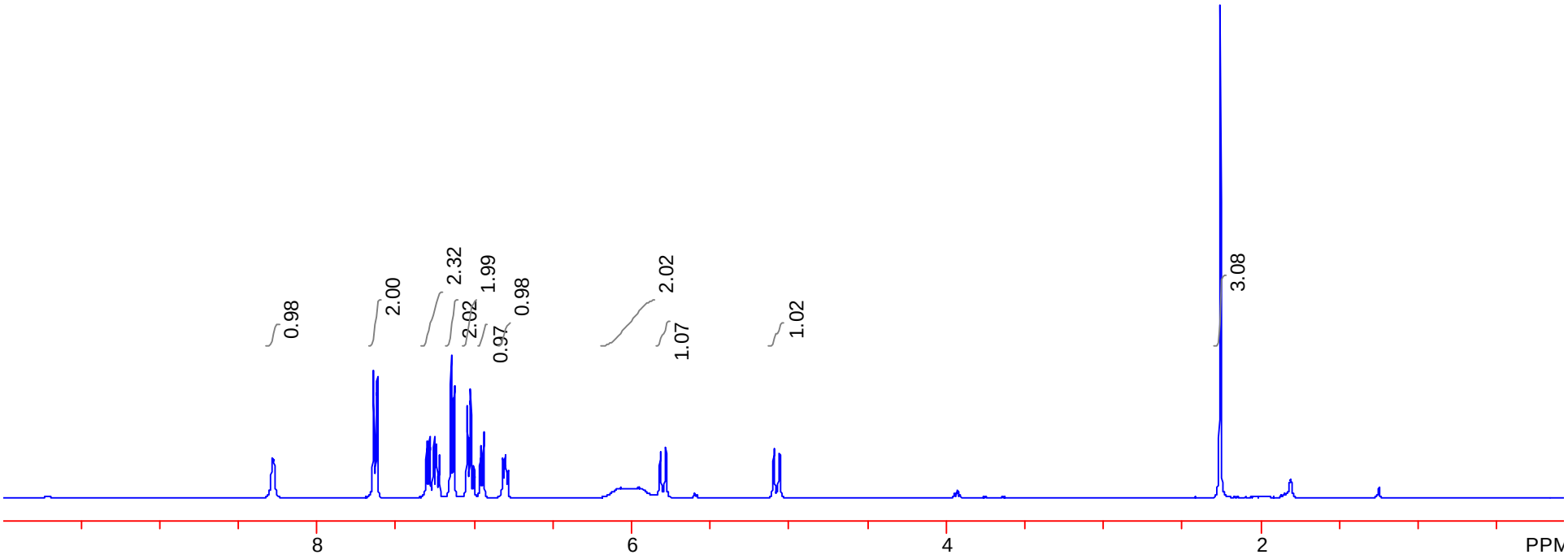


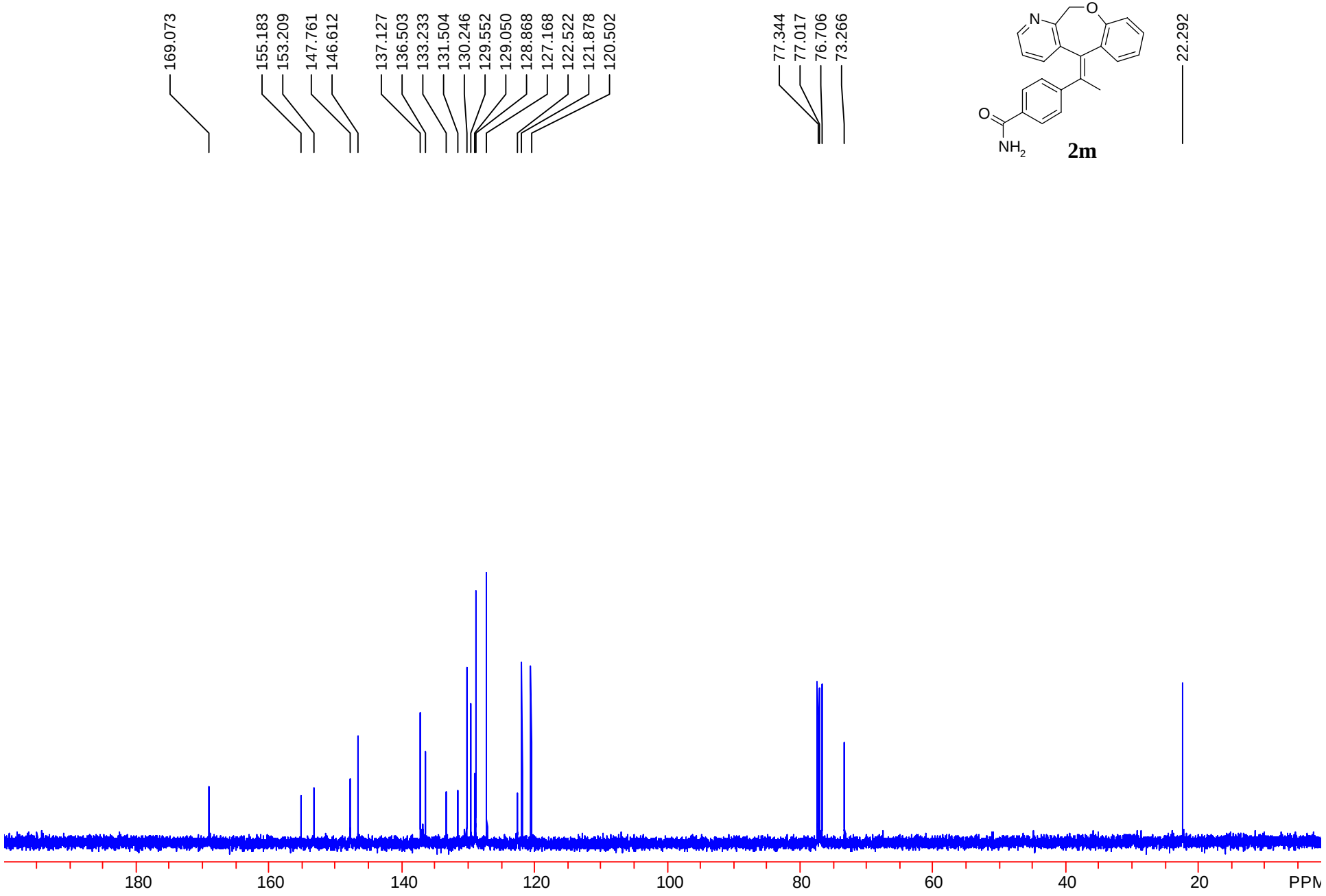
Z-2l


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7.239
7.222
7.217
7.147
7.129
7.126
7.043
7.038
7.024
7.020
7.002
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6.956
6.940
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6.816
6.804
6.798
6.786
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5.963
5.815
5.781
5.093
5.059
2.254


N
O
O
NH2

2m


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0.97
0.98
2.02
1.07
1.02
3.08
8
6
4
2
PPM


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133.233
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73.266
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N
O
O
NH2
2m
180
160
140
120
100
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60
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20
PPM