Chemistry of Heterocyclic Compounds **2024**, *60*(3/4), 156–160

A reaction of 2-carbonyl-substituted 1*H*-benzo[*f*]chromenes with *N*-arylamides of cyanoacetic acid

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244 Molodogvardeyskaya St., Samara 443100, Russia;
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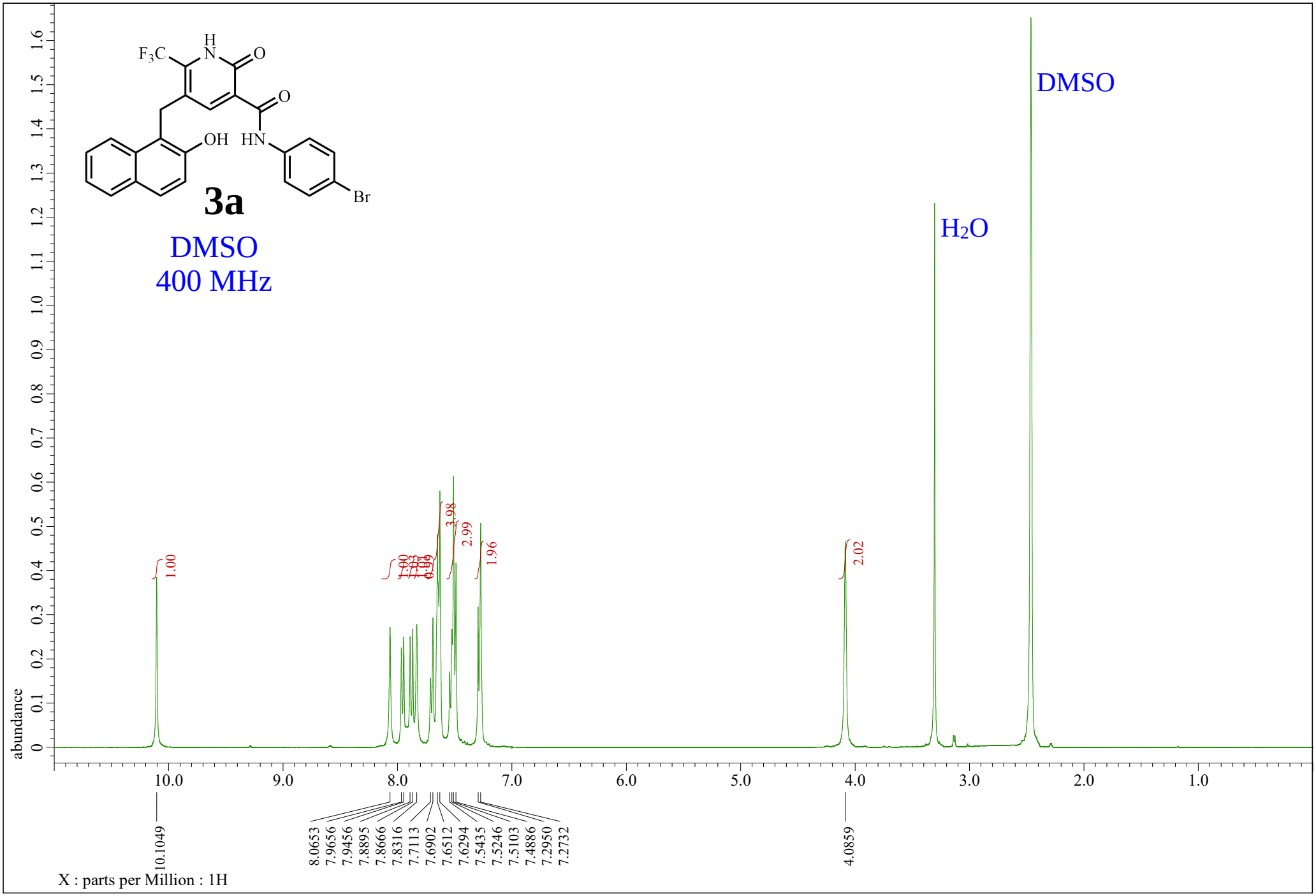
Supplementary Information

^{1}H NMR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H
N
O
O
OH
HN
Br
3a
DMSO
400 MHz
DMSO
H2O
abundance
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3.98
2.99
1.96
2.02
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
10.1049
8.0653
7.9656
7.9456
7.8895
7.8666
7.8316
7.7113
7.6902
7.6512
7.6294
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7.5103
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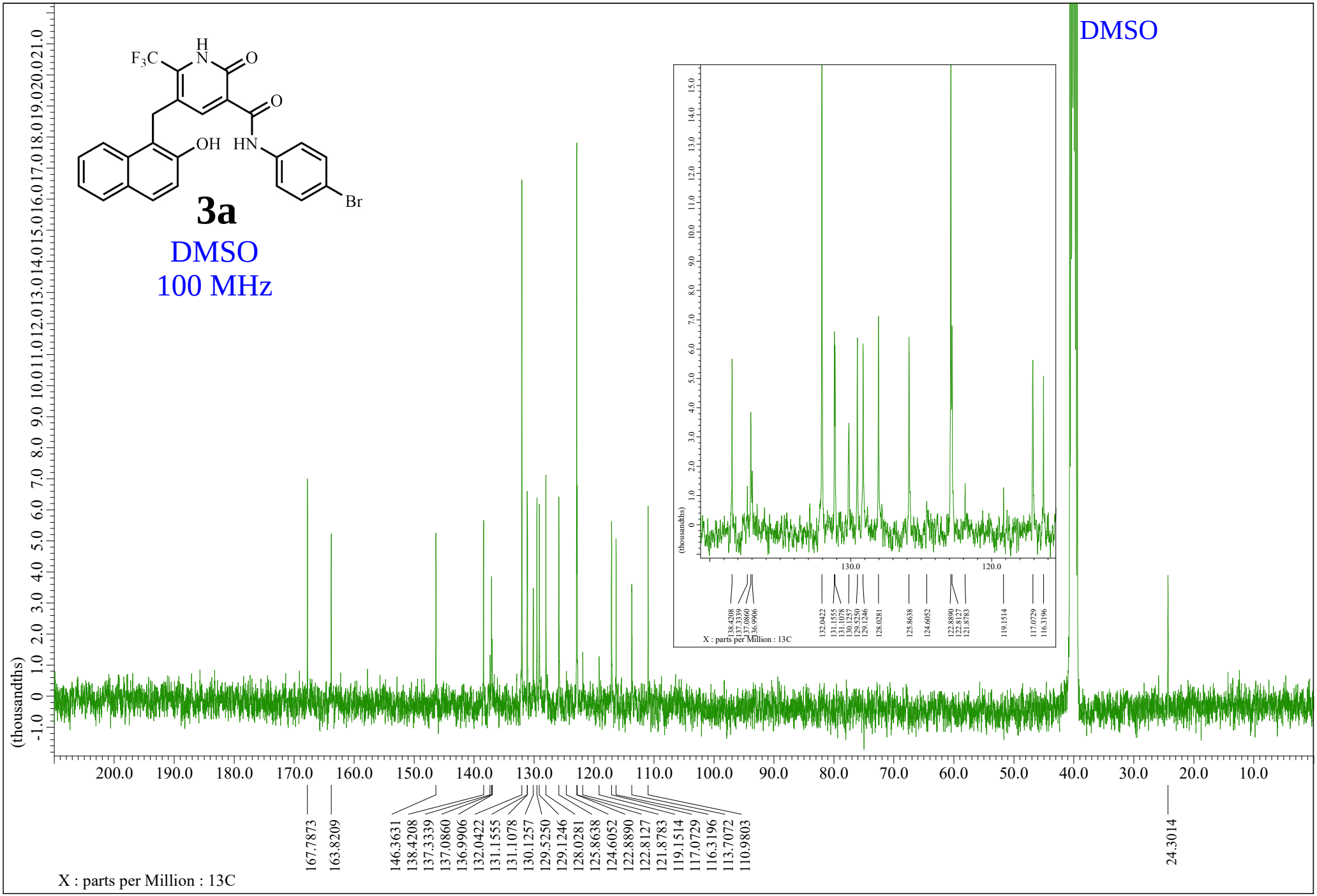
4.0859
X : parts per Million : 1H

^{13}C NMR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DMSO
100 MHz
(thousandths)
X : parts per Million : 13C
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137.3339
137.0860
136.9906
132.0422
131.1555
131.1078
130.1257
129.5250
129.1246
128.0281
125.8638
124.6052
122.8890
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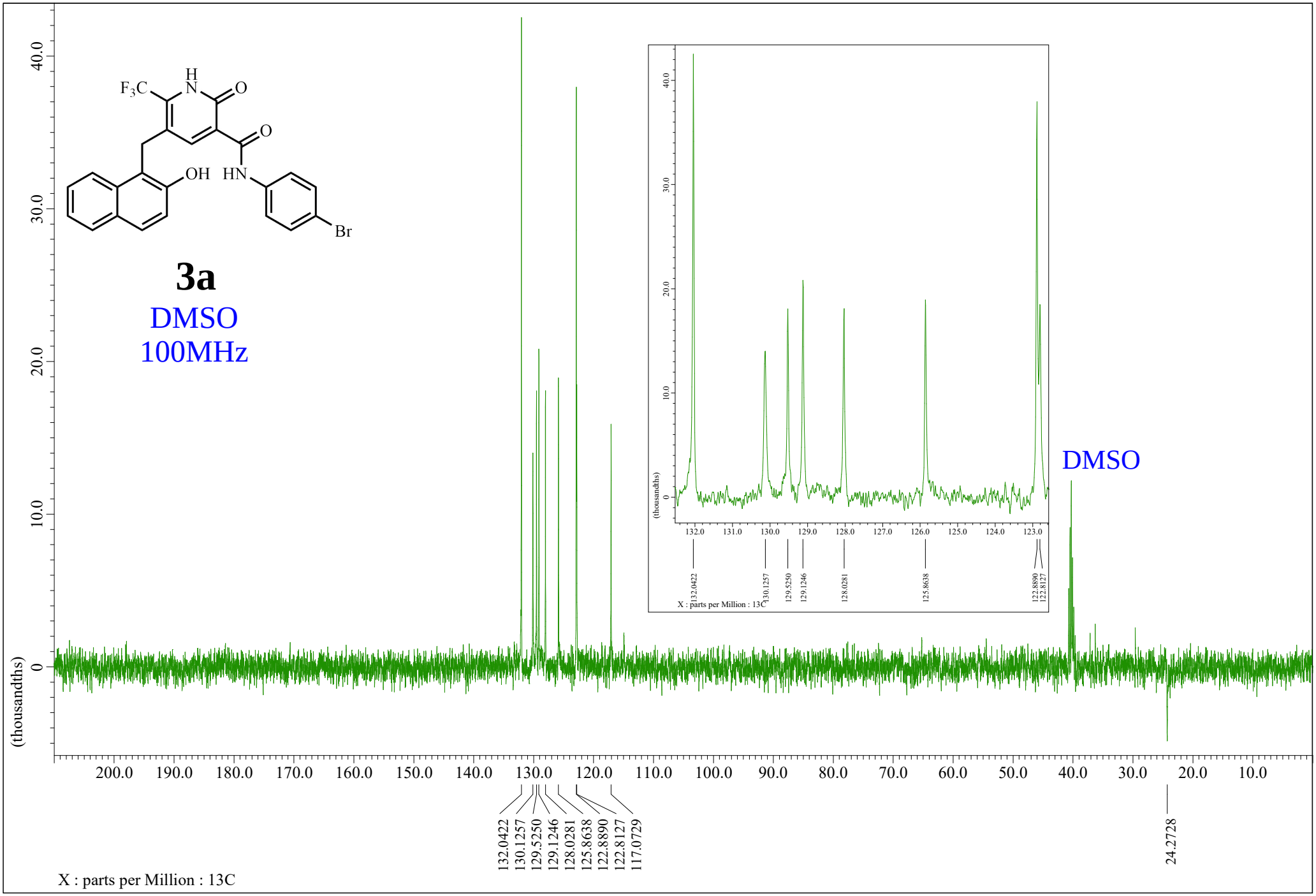
121.8783
119.1514
117.0729
116.3196
113.7072
110.9803
24.3014

DEPT NMR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100MHz
DMSO
(thousandths)
X : parts per Million : 13C
132.0422
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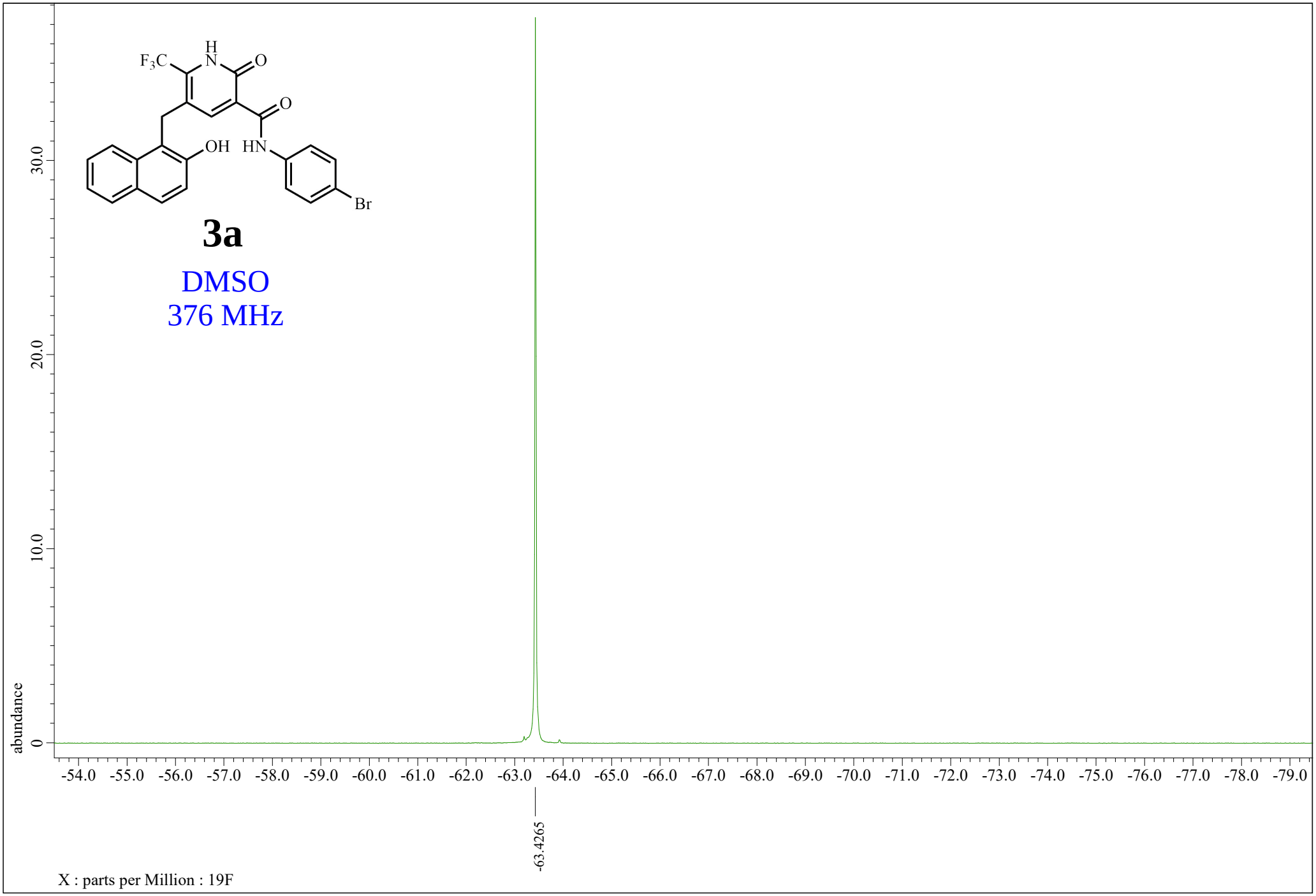
122.8127
117.0729
24.2728

^{19}F NMR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OH
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10.0
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abundance
-54.0 -55.0 -56.0 -57.0 -58.0 -59.0 -60.0 -61.0 -62.0 -63.0 -64.0 -65.0 -66.0 -67.0 -68.0 -69.0 -70.0 -71.0 -72.0 -73.0 -74.0 -75.0 -76.0 -77.0 -78.0 -79.0
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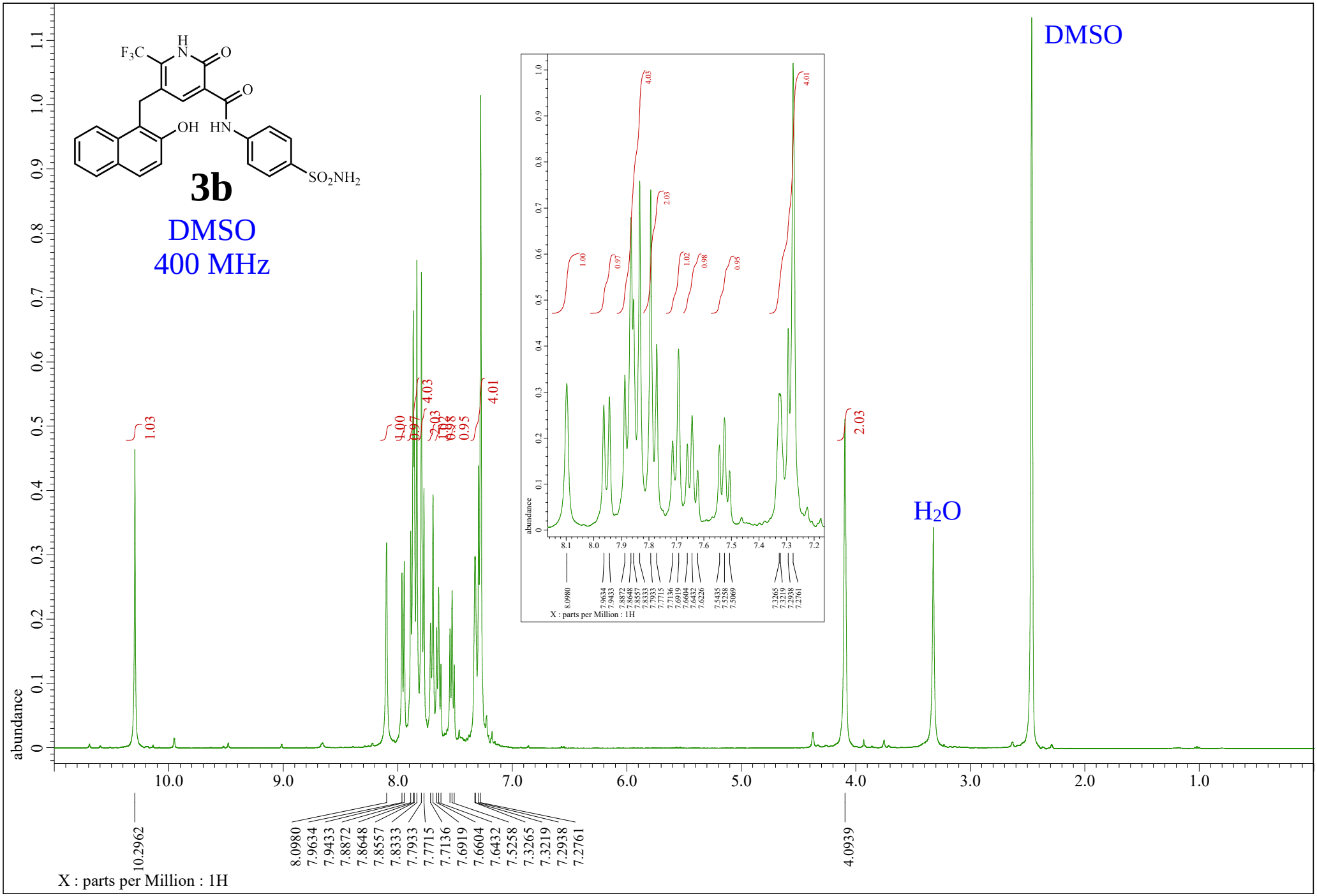
X : parts per Million : 19F

^{1}H NMR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DMSO
H2O
abundance
X : parts per Million : 1H
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7.8872
7.8648
7.8557
7.8333
7.7933
7.7715
7.7136
7.6919
7.6604
7.6432
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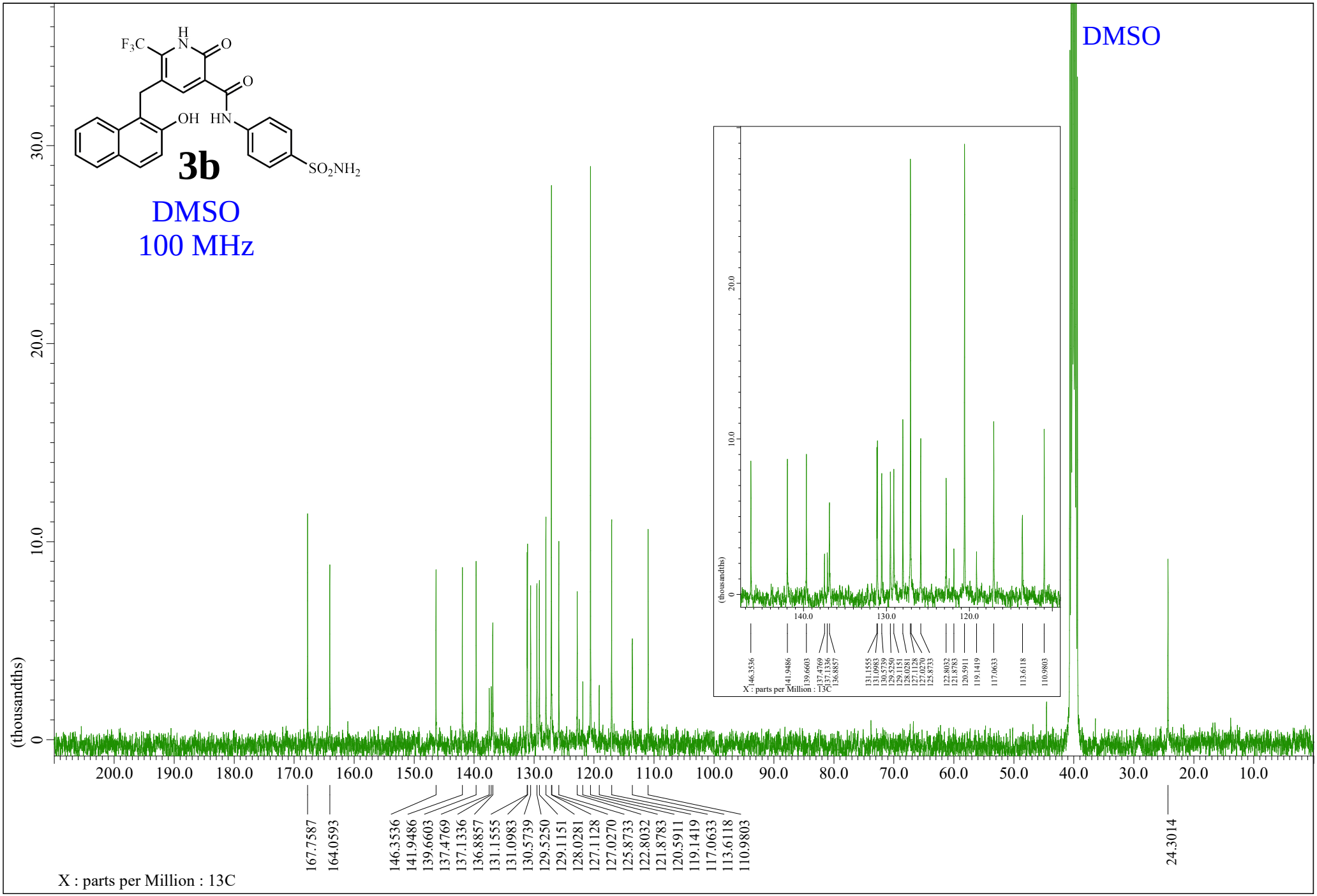
2.03
4.01

^{13}C NMR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137.4769
137.1336
136.8857
131.1555
131.0983
130.5739
129.5250
129.1151
128.0281
127.1128
127.0270
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121.8783
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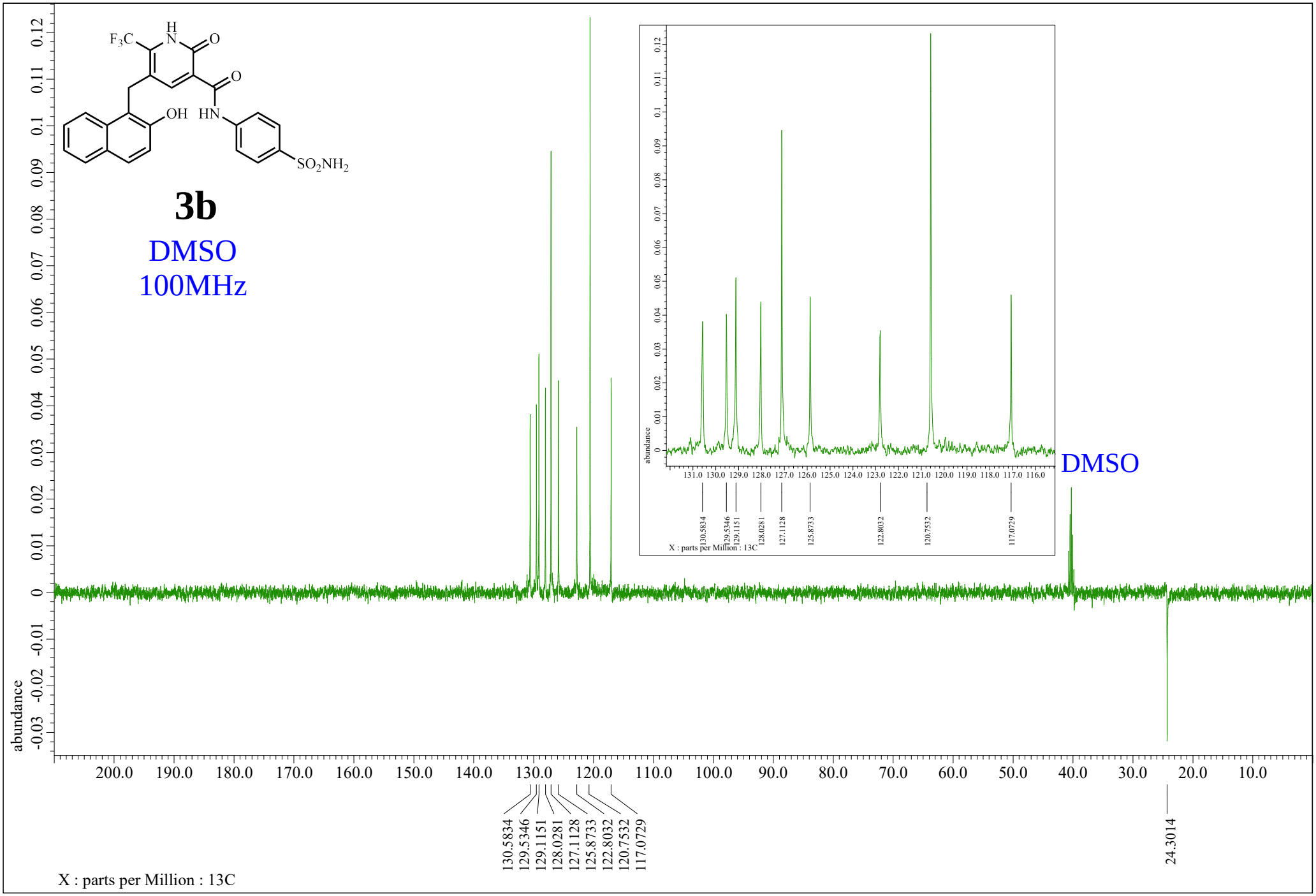
119.1419
117.0633
113.6118
110.9803
24.3014

DEPT NMR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DMSO
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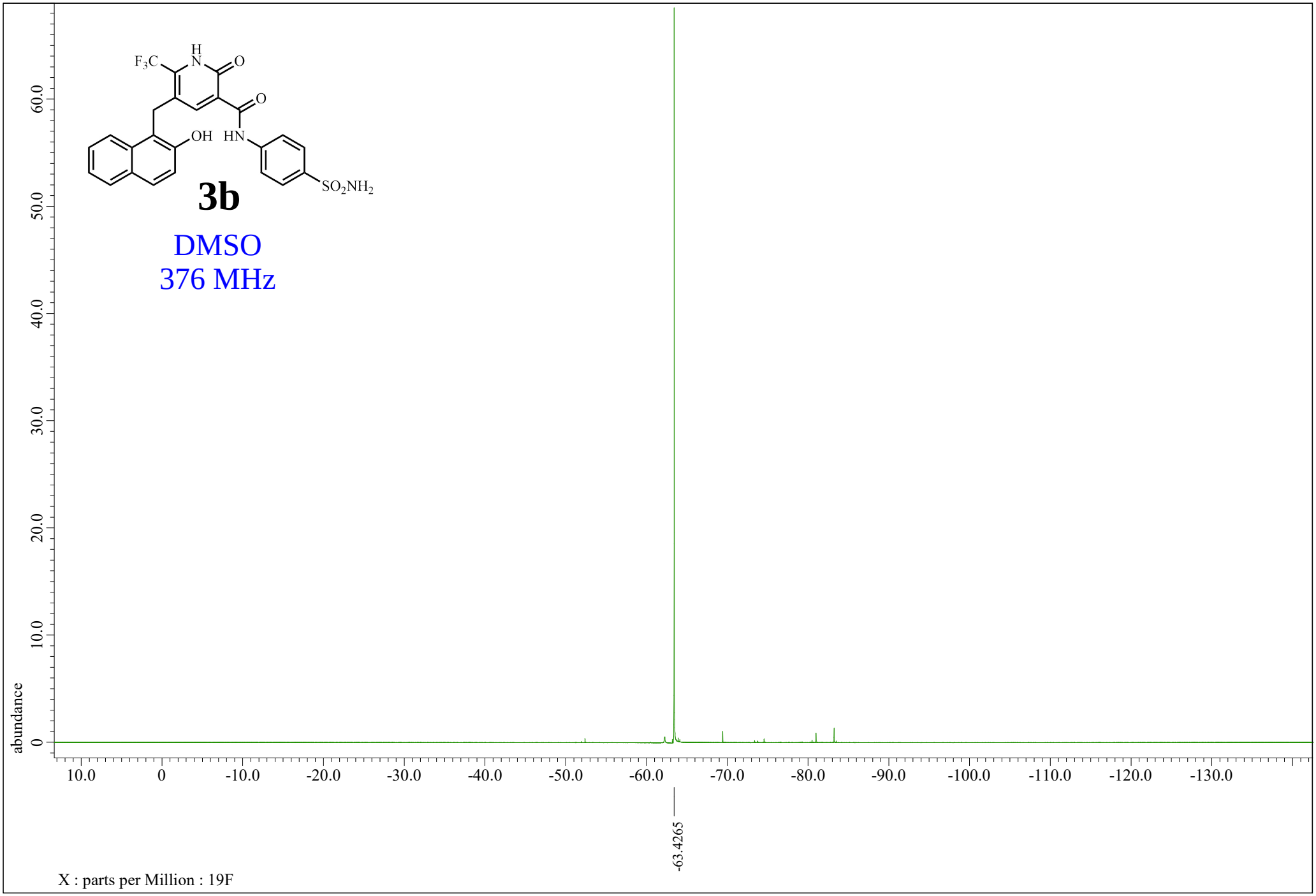
24.3014

^{19}F NMR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10.0
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10.0
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-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
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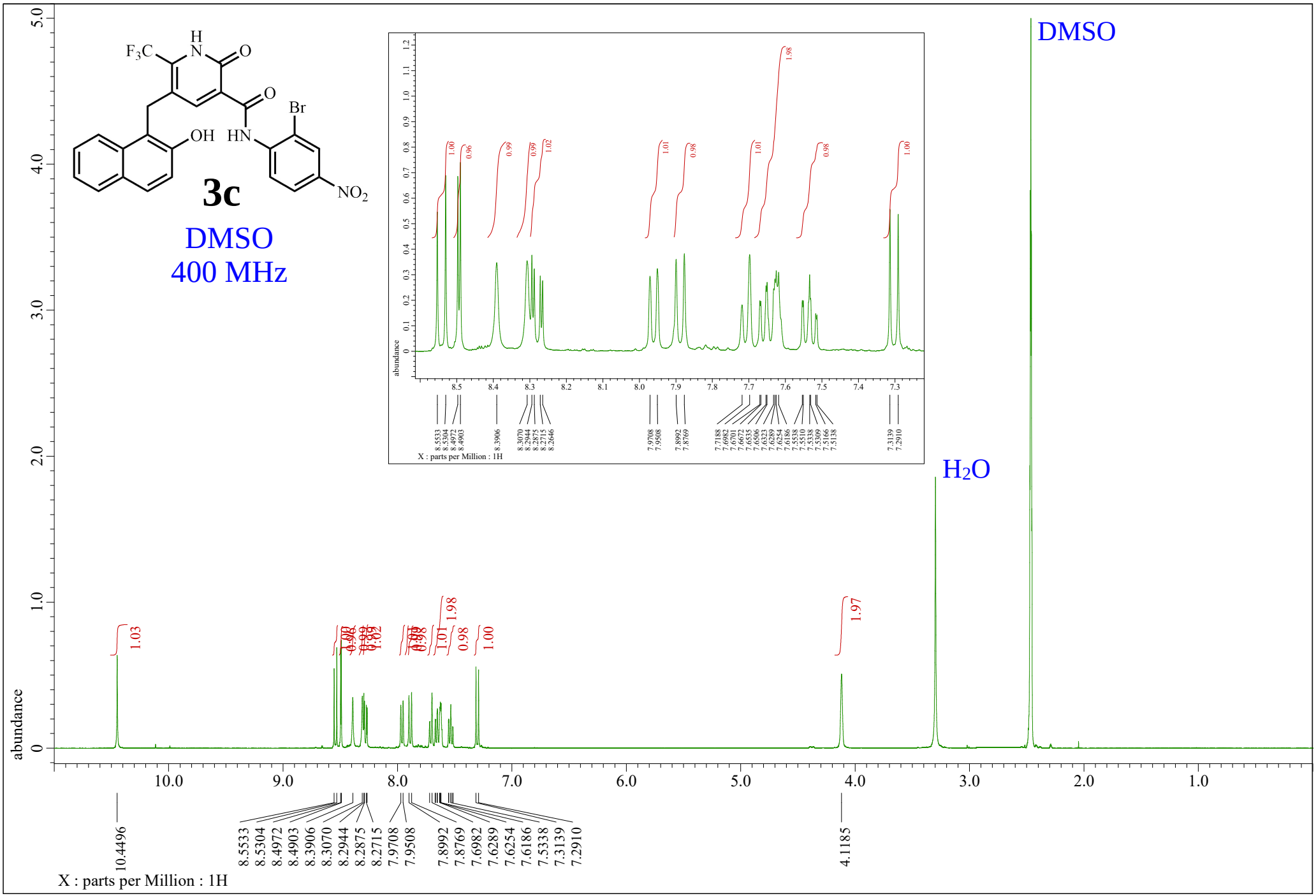
-100.0
-110.0
-120.0
-130.0
-63.4265
X : parts per Million : 19F

^{1}H NMR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DMSO
H2O
abundance
X : parts per Million : 1H
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8.4903
8.3906
8.3070
8.2944
8.2875
8.2715
7.9708
7.9508
7.8992
7.8769
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7.6254
7.6186
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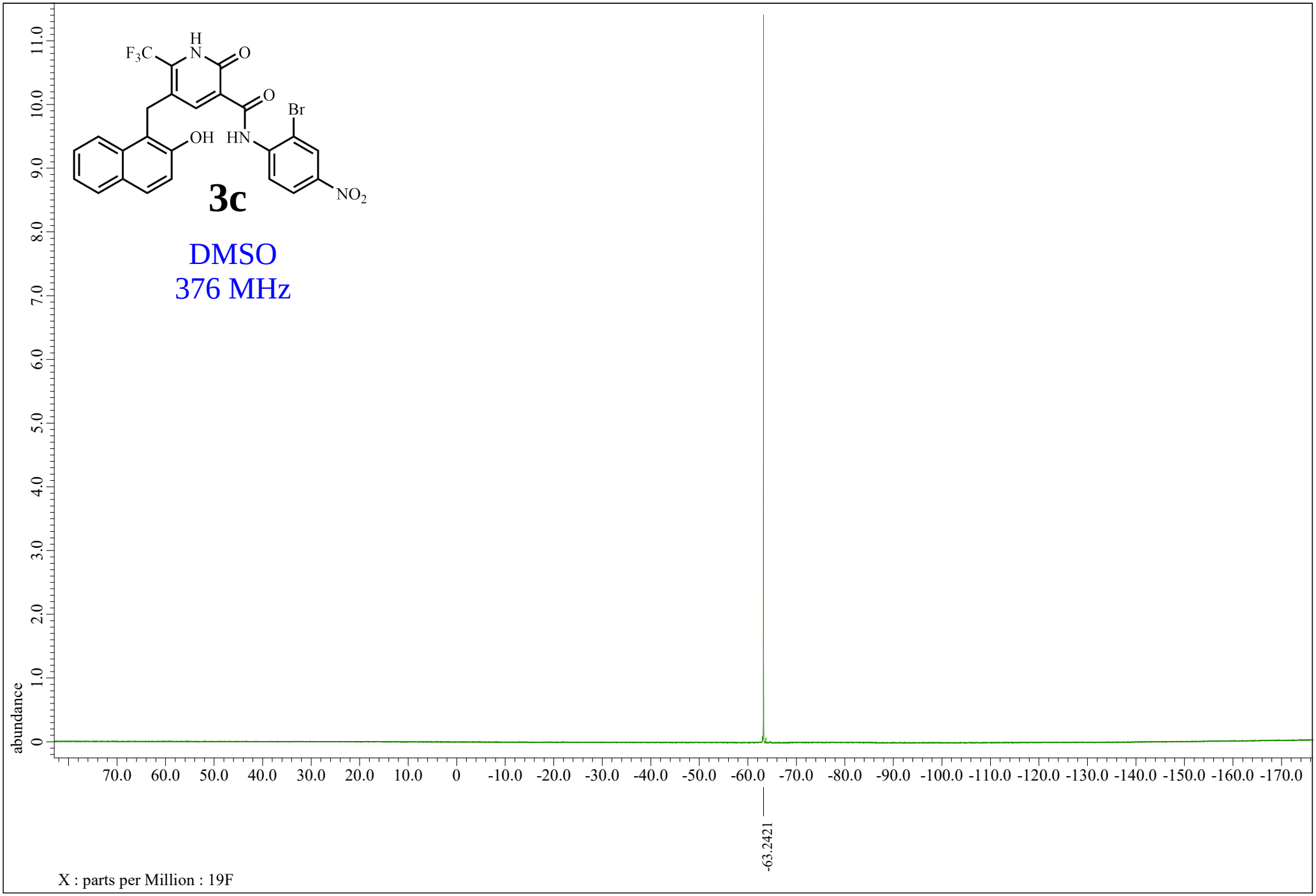
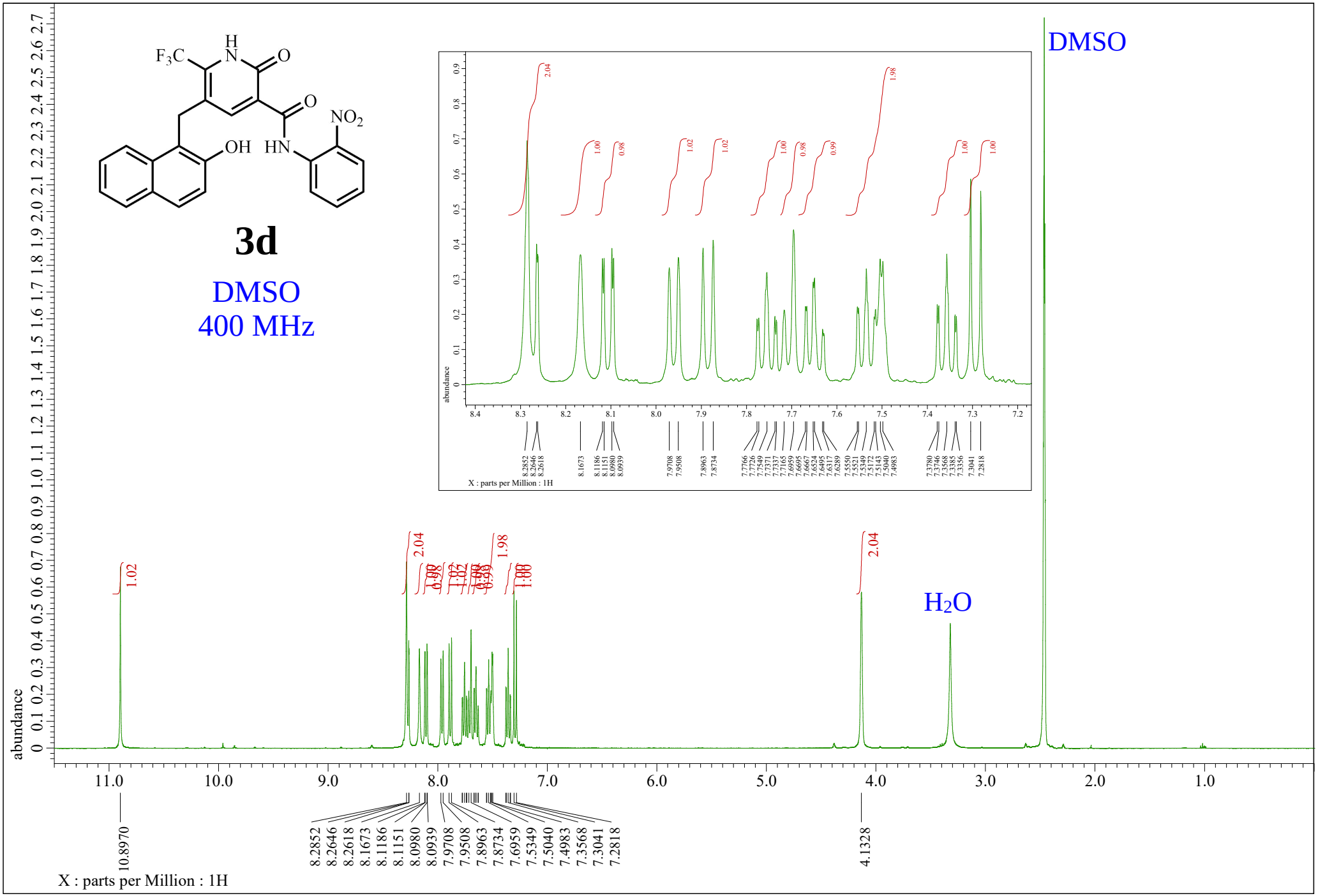
7.3139
7.2910
4.1185

^{19}F NMR



^{1}H NMR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400 MHz
DMSO
H2O
abundance
X : parts per Million : 1H
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8.1673
8.1186
8.1151
8.0980
8.0939
7.9708
7.9508
7.8963
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7.4983
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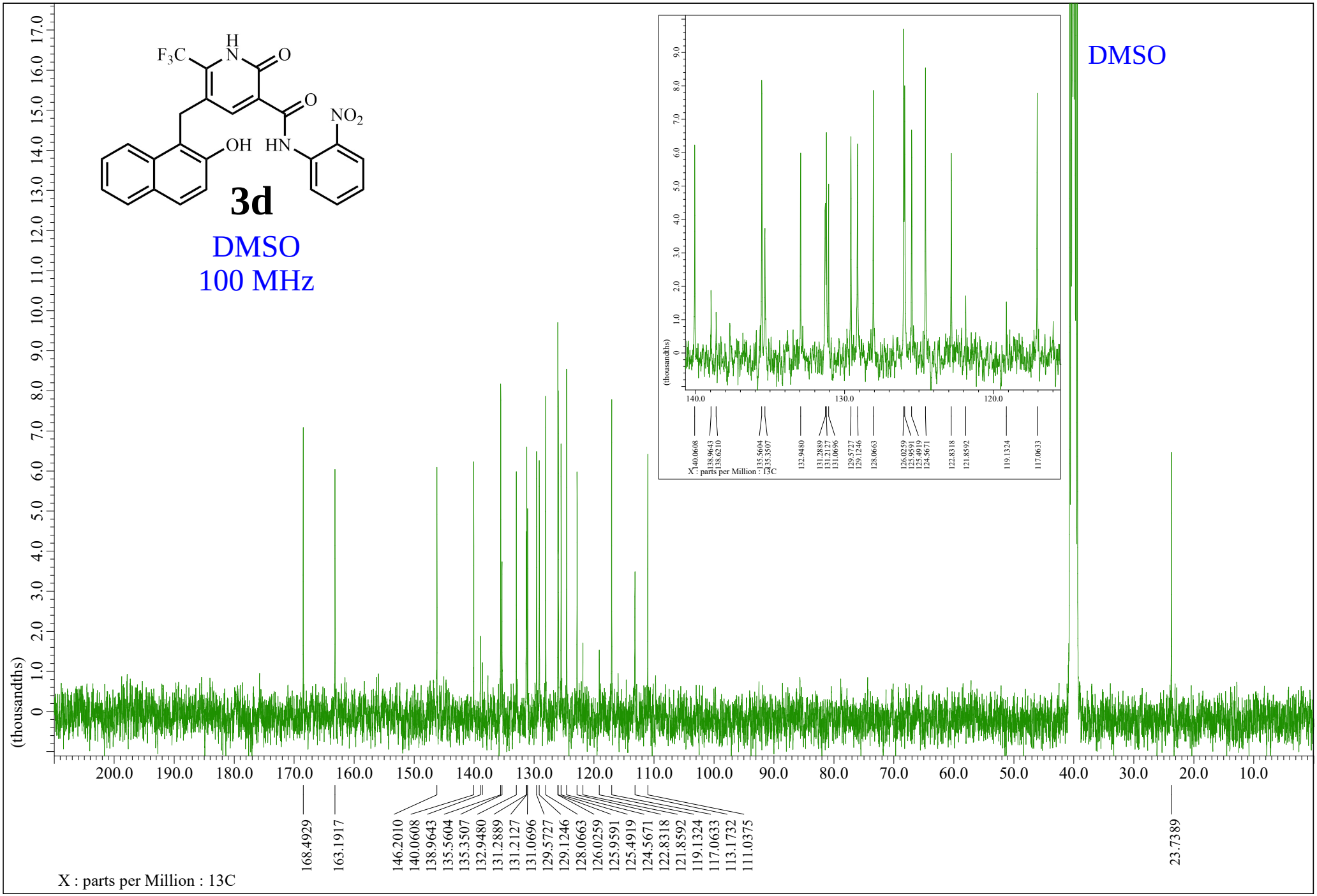
7.2818
4.1328

^{13}C NMR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100 MHz
DMSO
(thousandths)
X : parts per Million : 13C
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135.5604
135.3507
132.9480
131.2889
131.2127
131.0696
129.5727
129.1246
128.0663
126.0259
125.9591
125.4919
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122.8318
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119.1324
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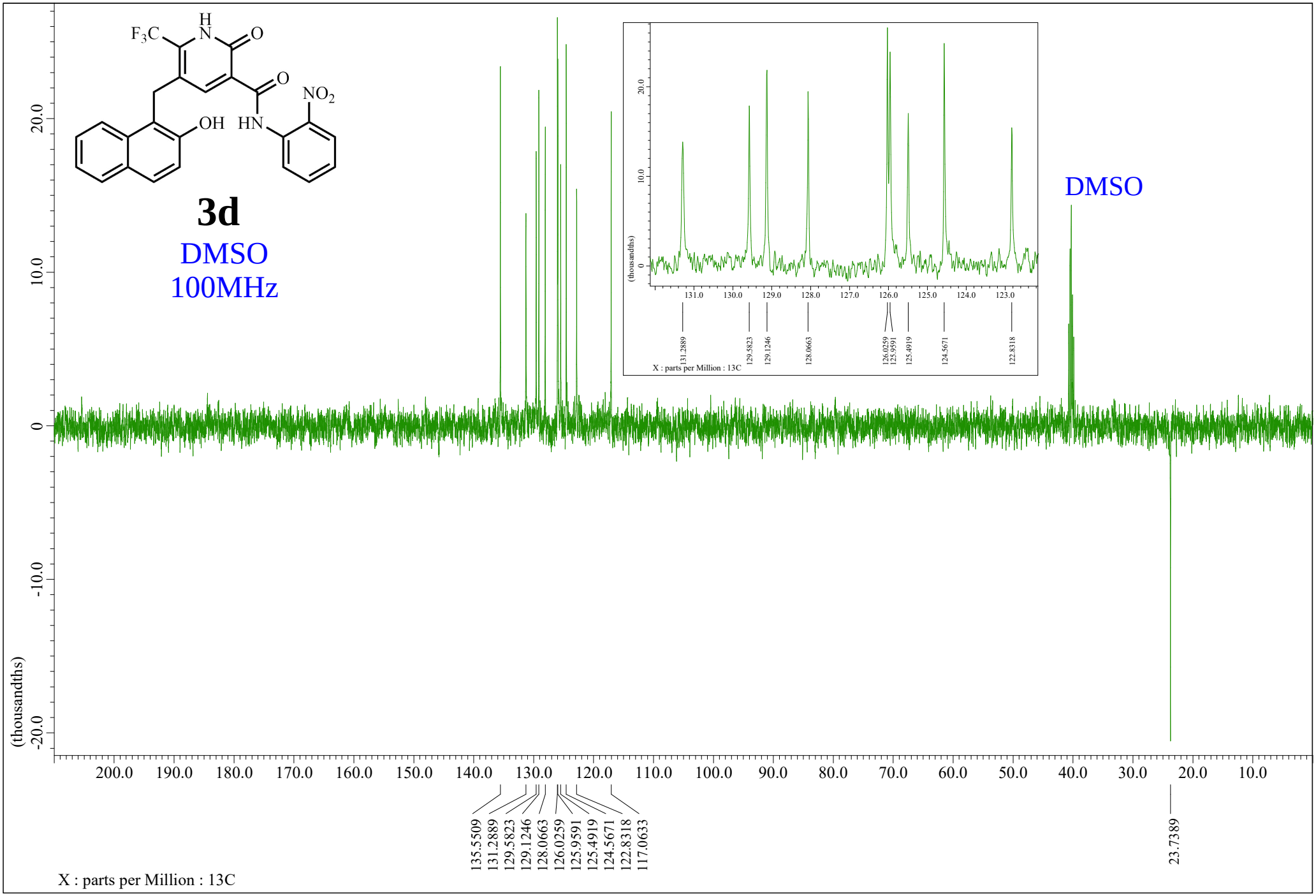
113.1732
111.0375
23.7389

DEPT NMR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100MHz
DMSO
(thousandths)
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125.9591
125.4919
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122.8318
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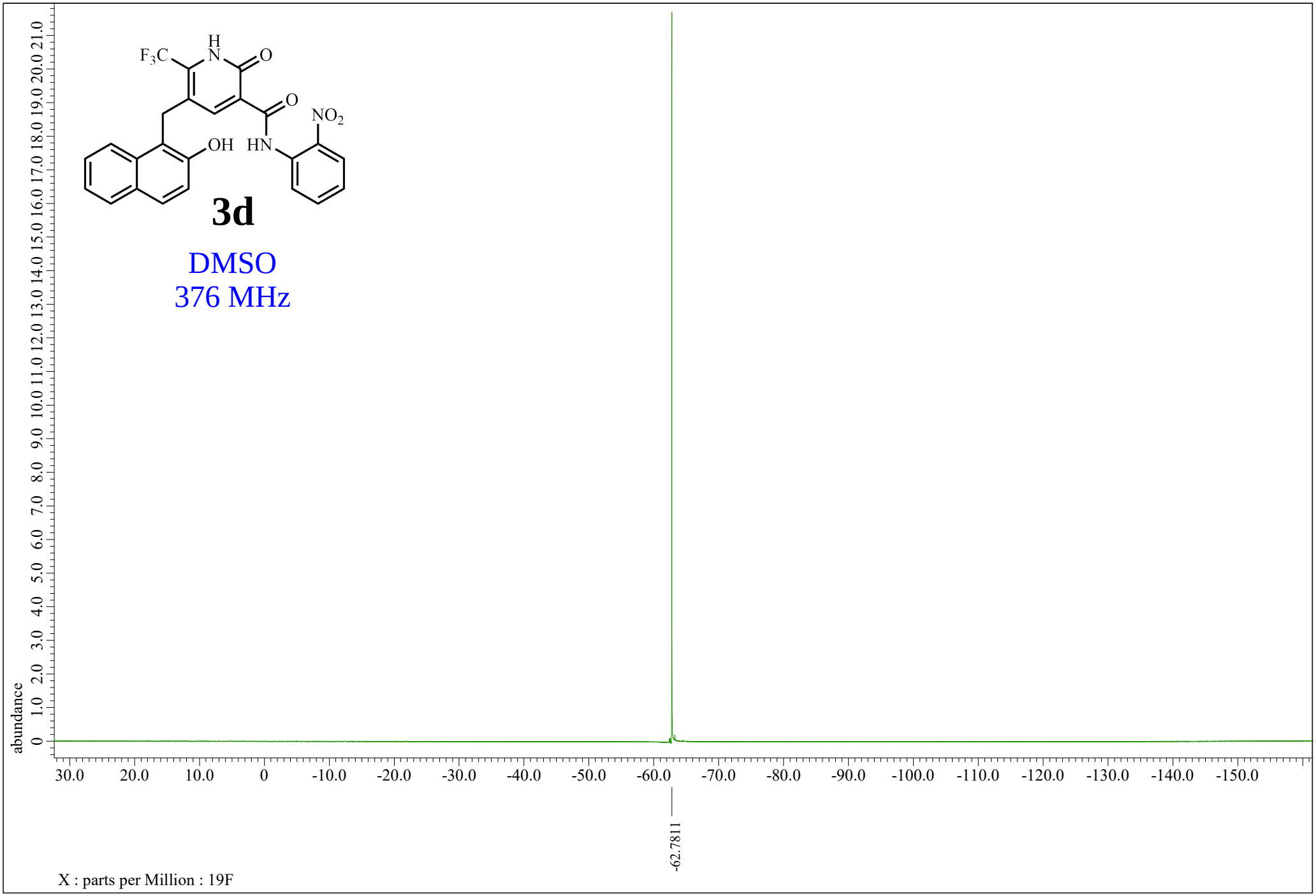
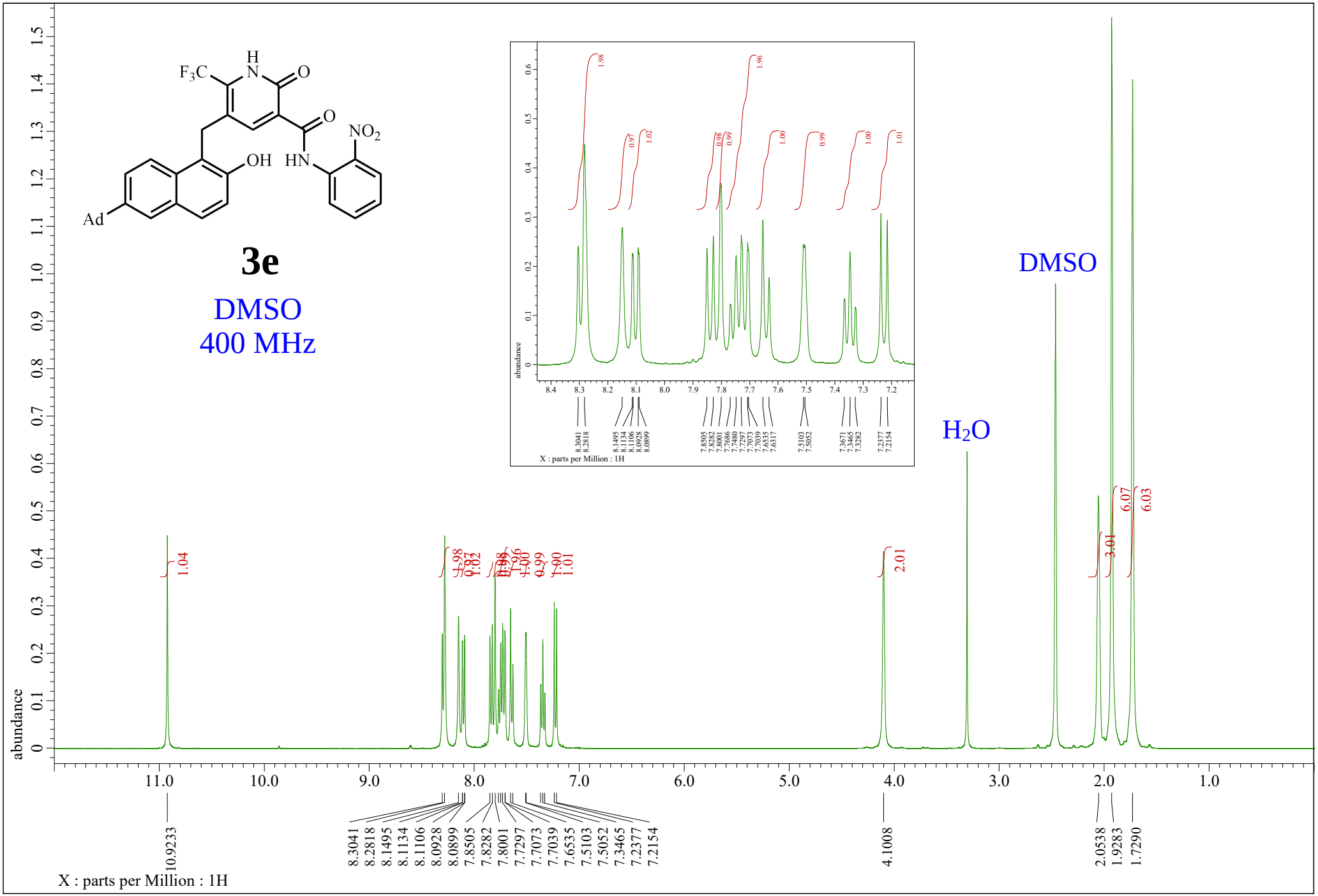
23.7389

^{19}F NMR



^{1}H NMR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H
N
O
O
NO2
OH
HN
Ad
3e
DMSO
400 MHz
H2O
DMSO
abundance
X : parts per Million : 1H
10.9233
8.3041
8.2818
8.1495
8.1134
8.1106
8.0928
8.0899
7.8505
7.8282
7.8001
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7.5103
7.5052
7.3465
7.2377
7.2154
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2.0538
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1.7290
1.04
1.98
0.97
1.02
0.98
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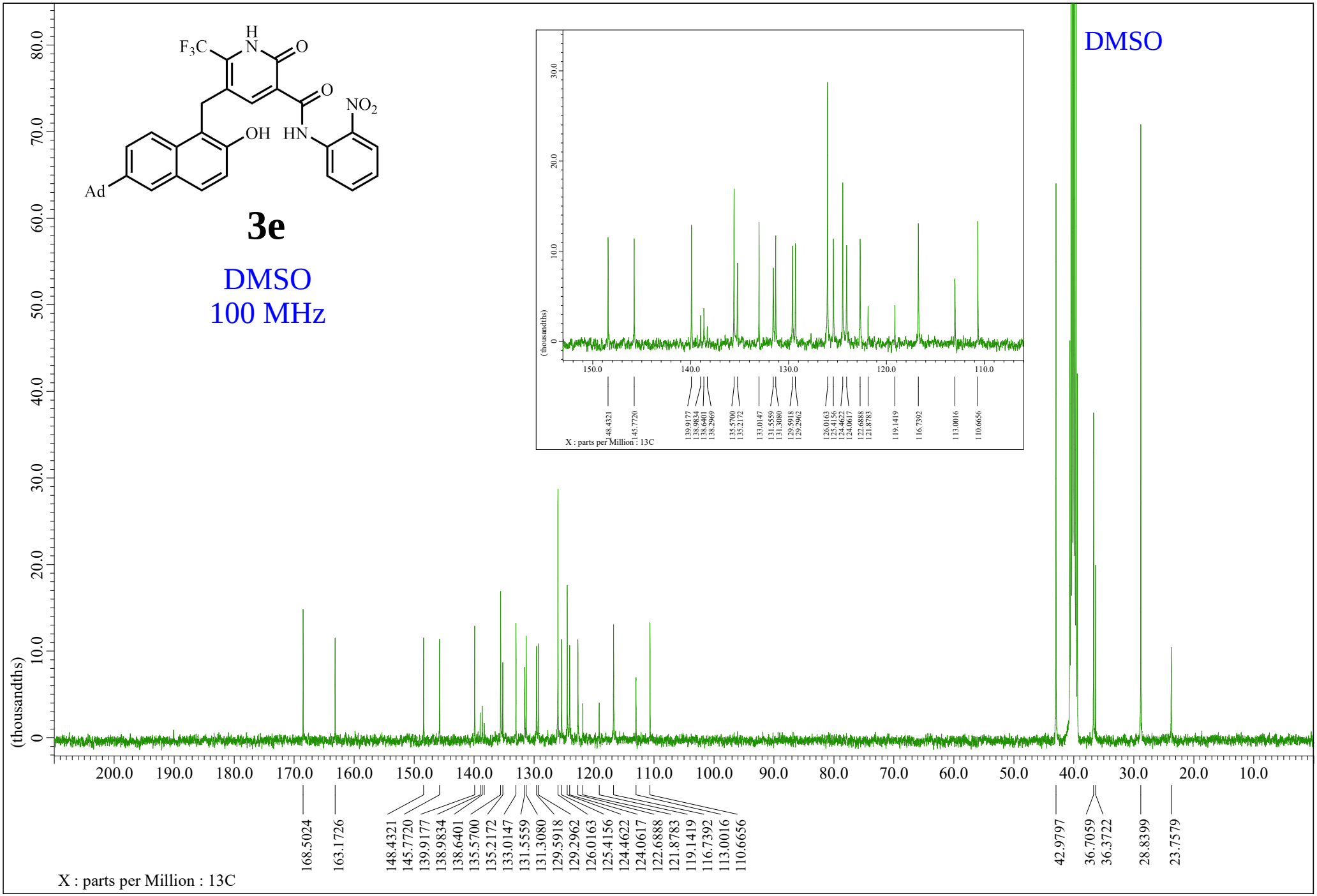
3.01
6.07
6.03

^{13}C NMR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DMSO
100 MHz
DMSO
(thousandths)
X : parts per Million : 13C
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163.1726
148.4321
145.7720
139.9177
138.9834
138.6401
135.5700
135.2172
133.0147
131.5559
131.3080
129.5918
129.2962
126.0163
125.4156
124.4622
124.0617
122.6888
121.8783
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42.9797
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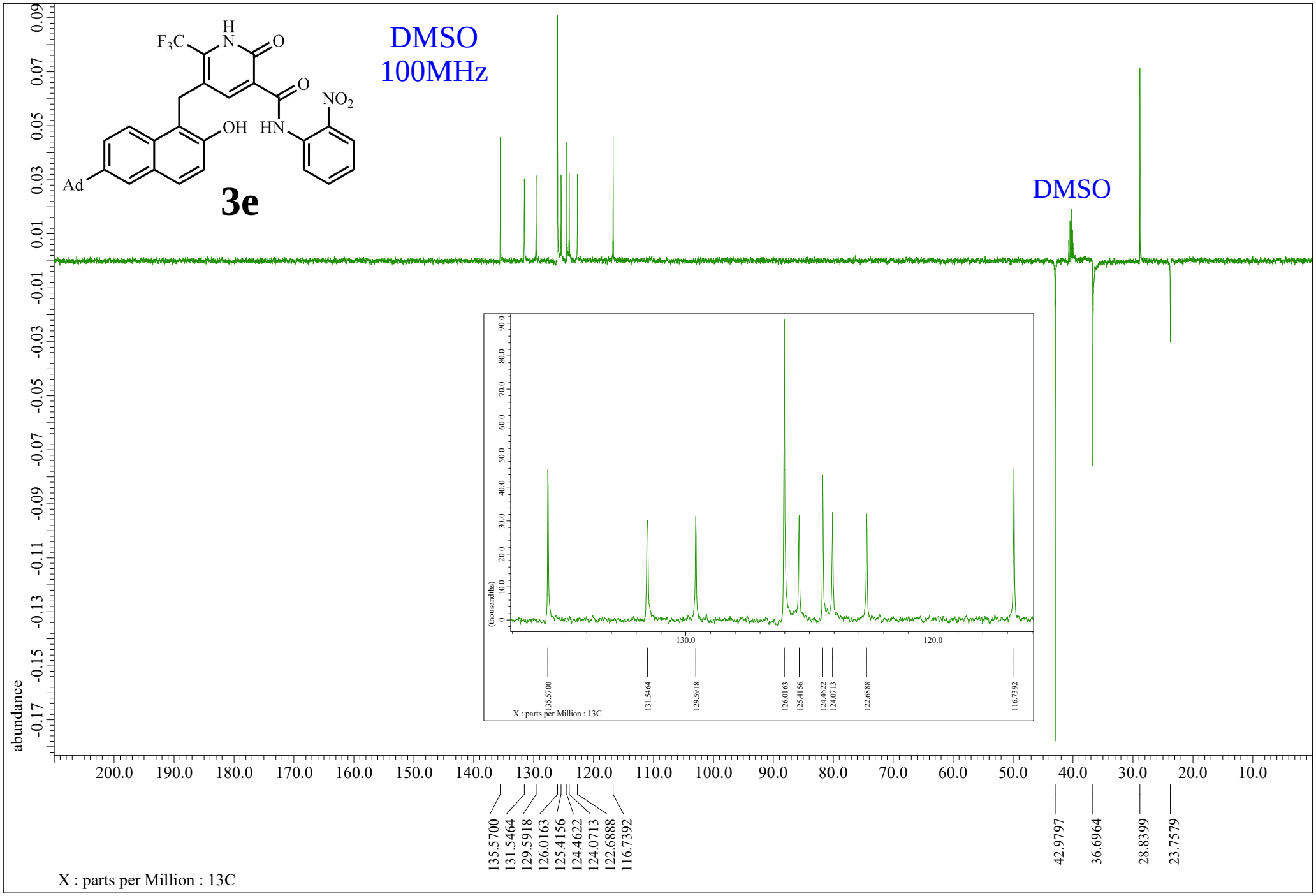
DEPT NMR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100MHz
3e
DMSO
abundance
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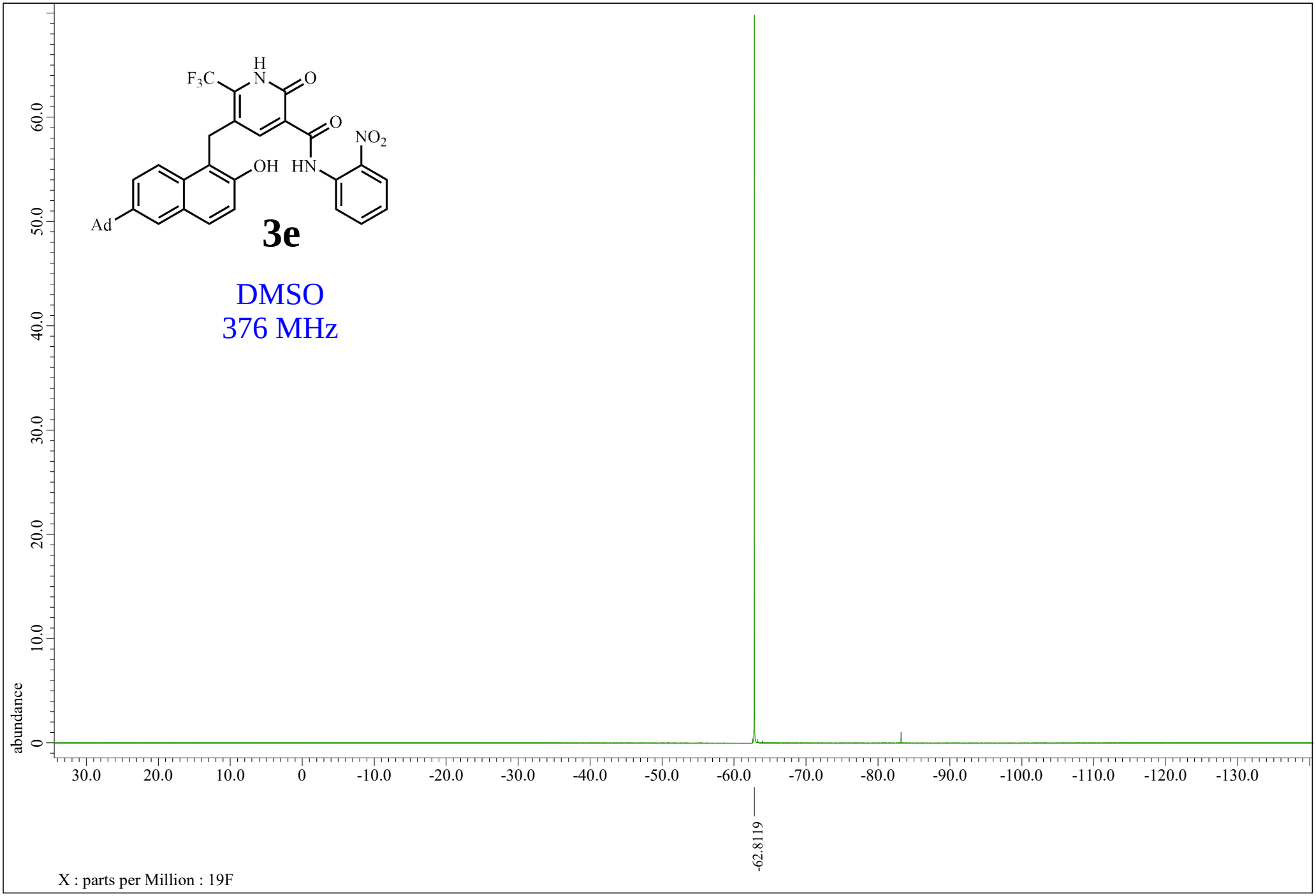
^{19}F NMR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N
O
O
NO2
OH
HN
Ad
3e
DMSO
376 MHz
abundance
60.0
50.0
40.0
30.0
20.0
10.0
0
30.0
20.0
10.0
0
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
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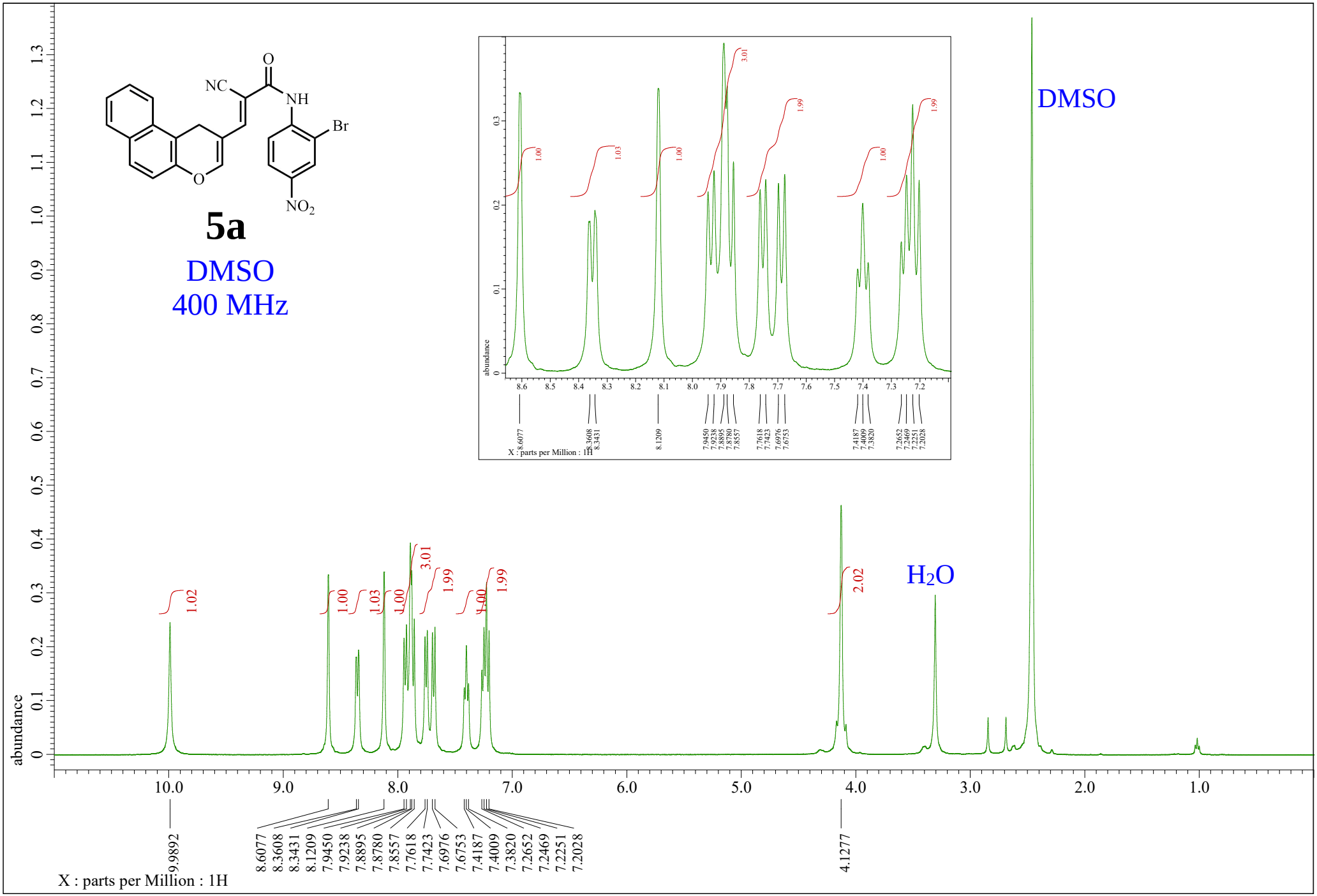
-62.8119
X : parts per Million : 19F

^{1}H NMR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NH
Br
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NO2
5a
DMSO
400 MHz
DMSO
H2O
abundance
X : parts per Million : 1H
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8.1209
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7.8895
7.8780
7.8557
7.7618
7.7423
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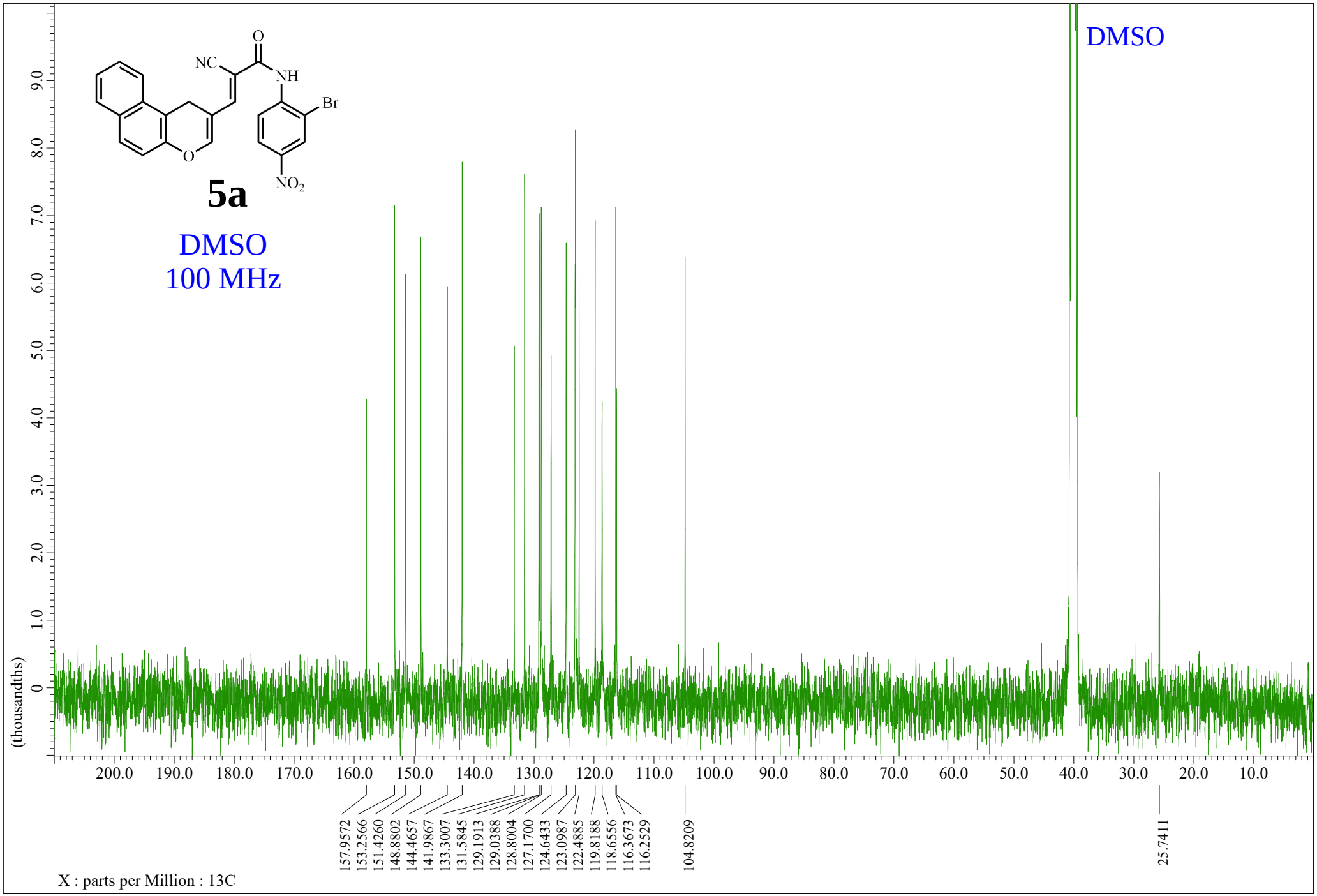
2.02

^{13}C NMR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Br
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NO2
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151.4260
148.8802
144.4657
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131.5845
129.1913
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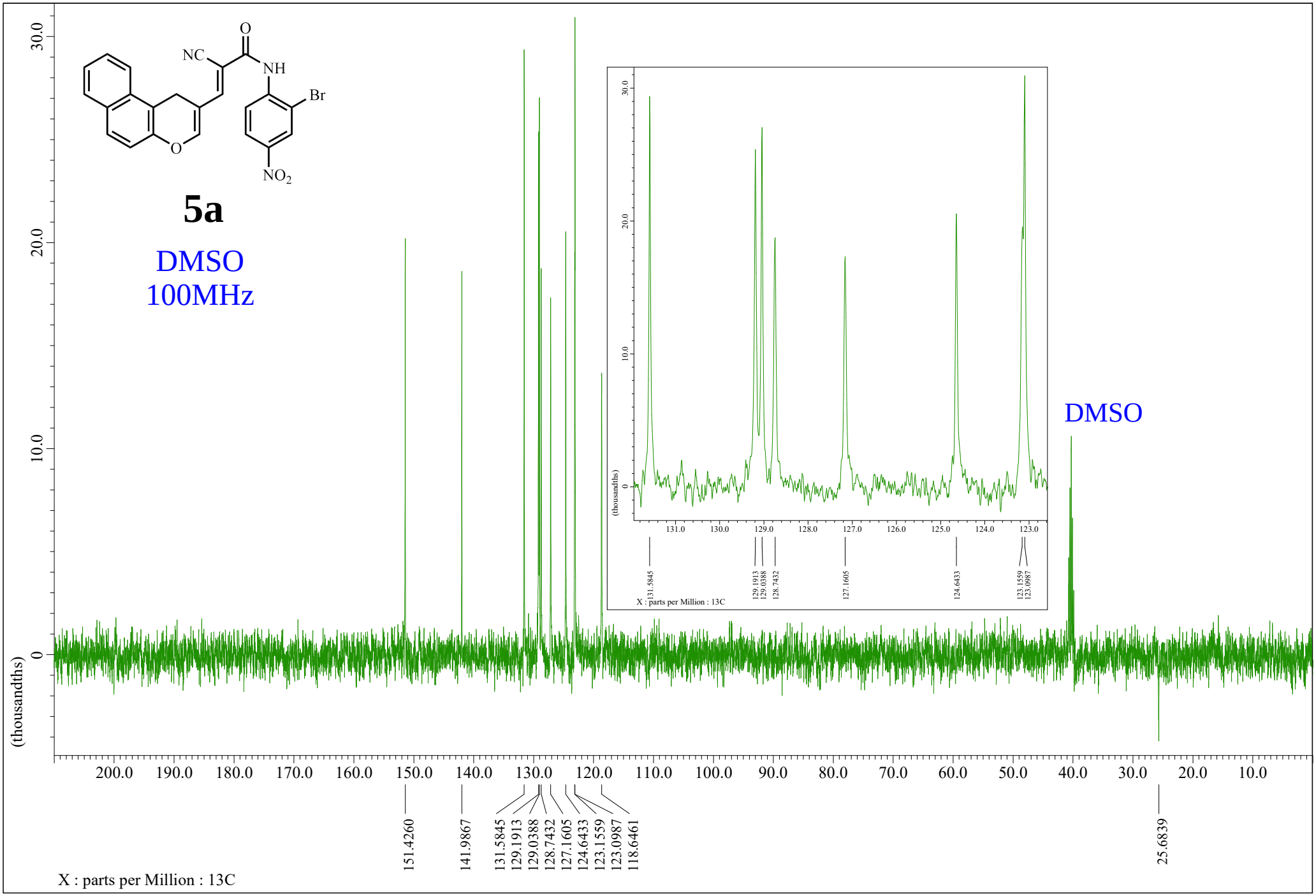
DEPT NMR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X : parts per Million : 13C
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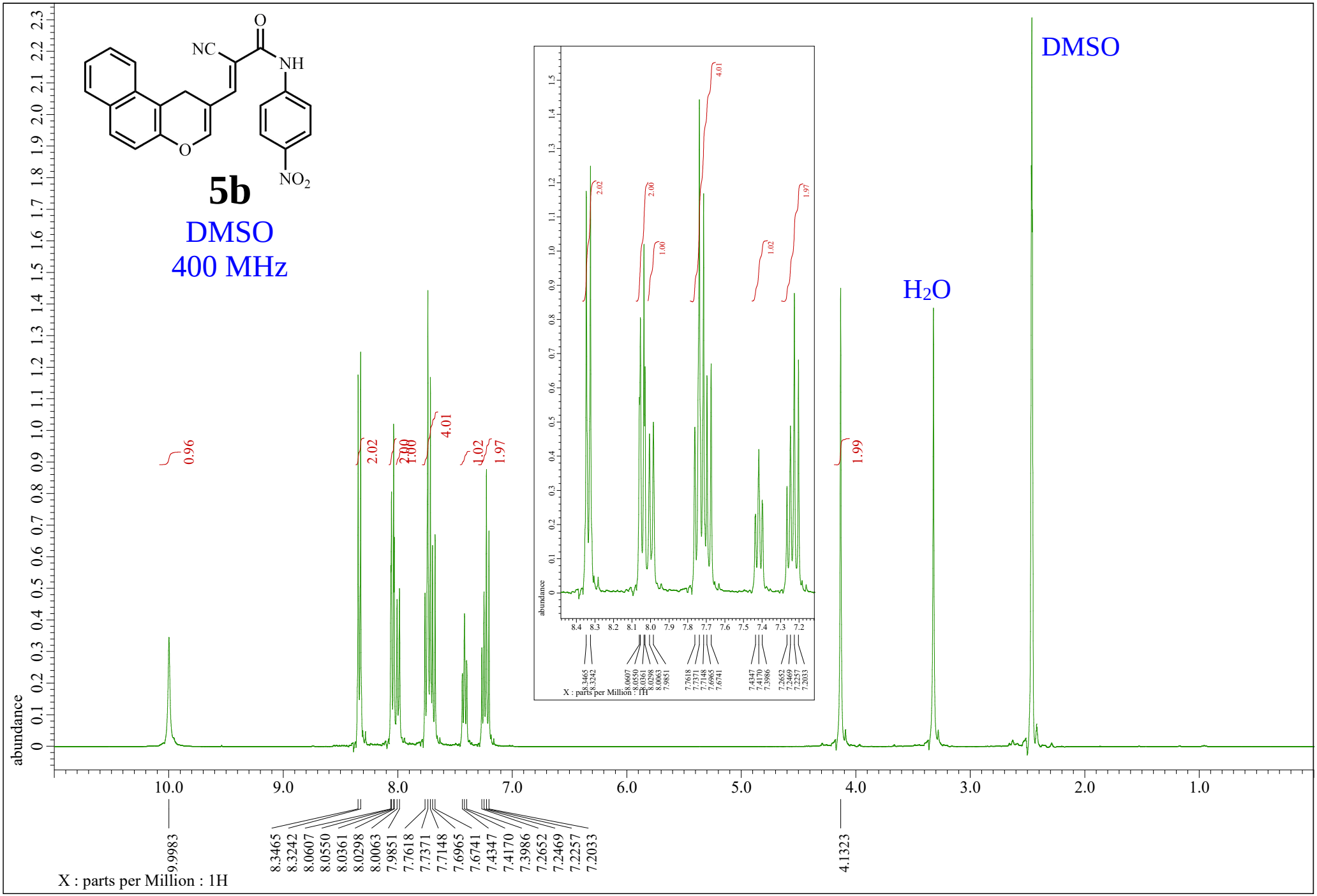
^{1}H NMR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H2O
abundance
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8.0550
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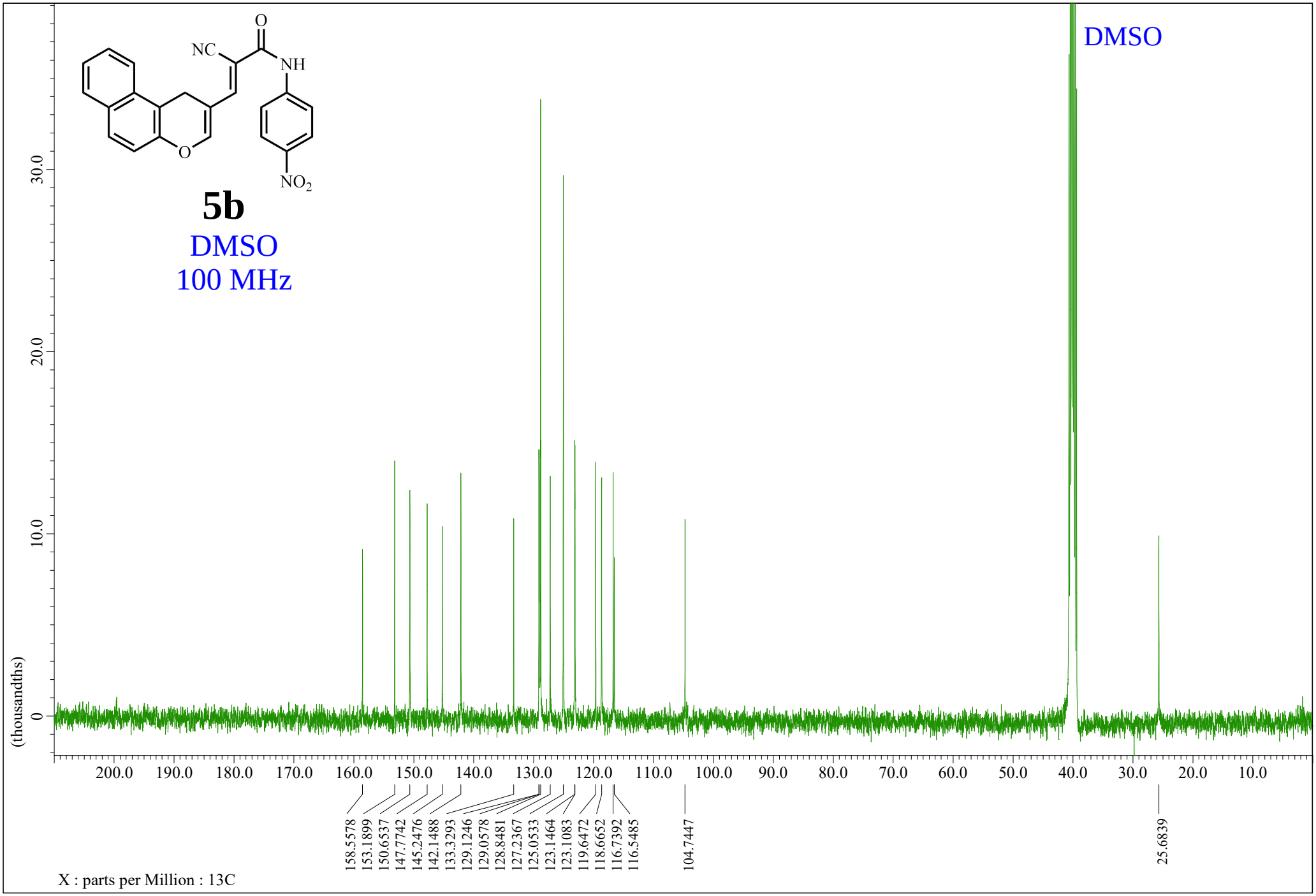
^{13}C NMR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100 MHz
DMSO
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20.0
10.0
0
(thousandths)
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190.0
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140.0
130.0
120.0
110.0
100.0
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80.0
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10.0
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145.2476
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133.3293
129.1246
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128.8481
127.2367
125.0533
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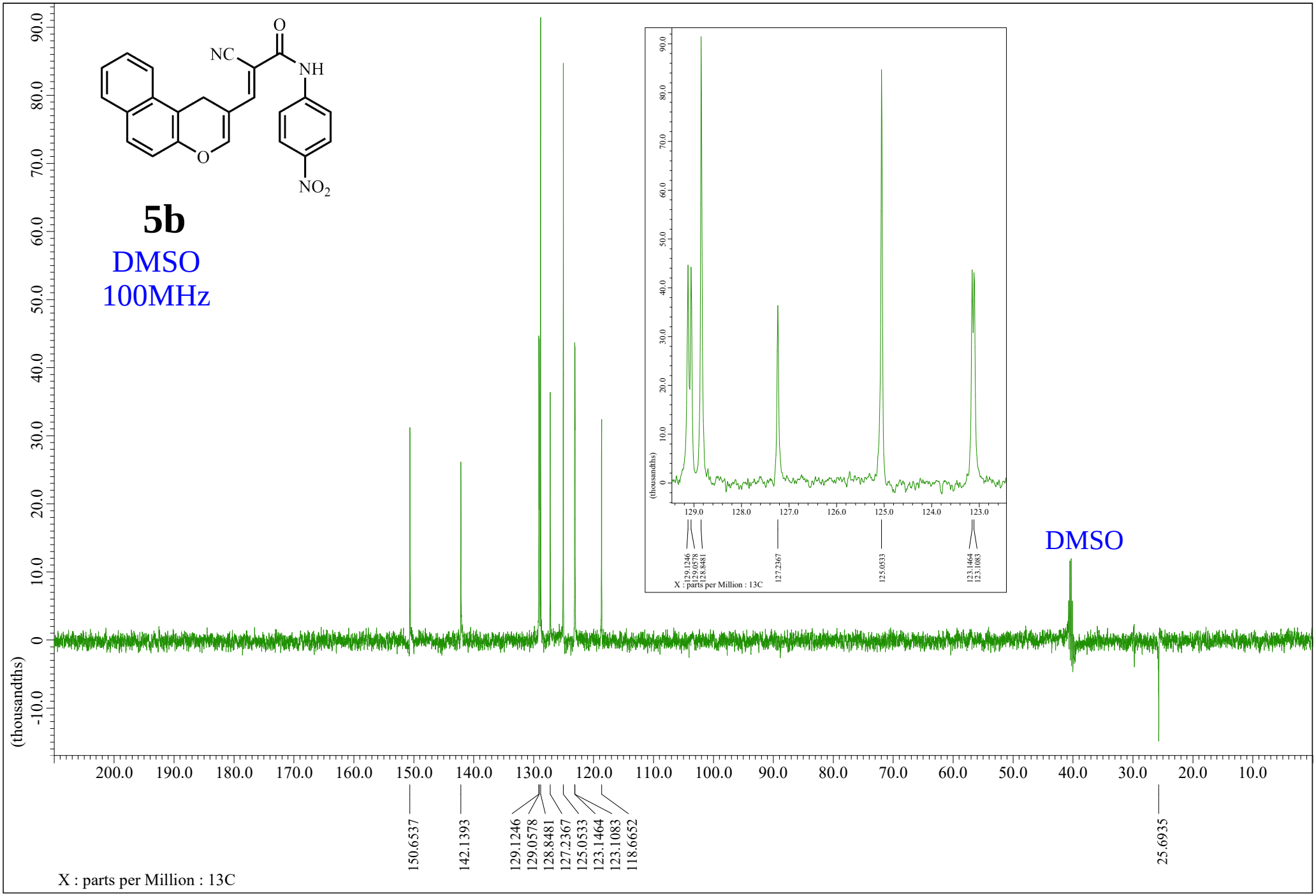
X : parts per Million : 13C

DEPT NMR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NH
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NO2
5b
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100MHz
DMSO
(thousandths)
X : parts per Million : 13C
150.6537
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129.1246
129.0578
128.8481
127.2367
125.0533
123.1464
123.1083
118.6652
25.6935