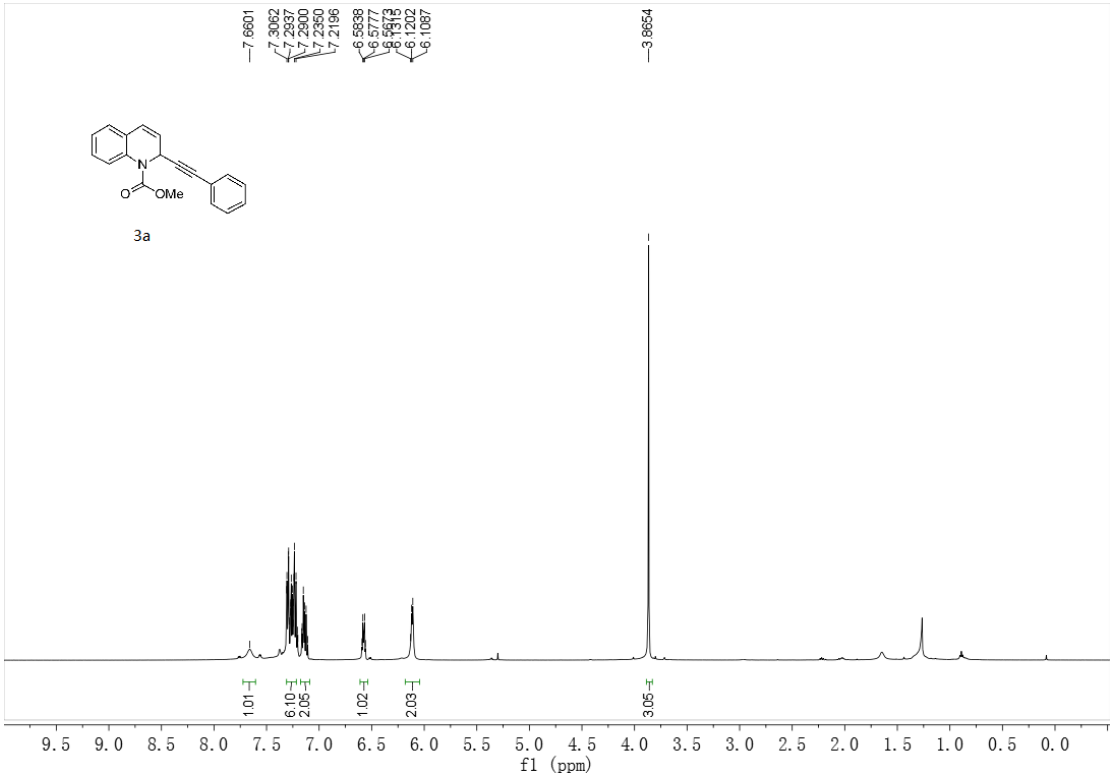
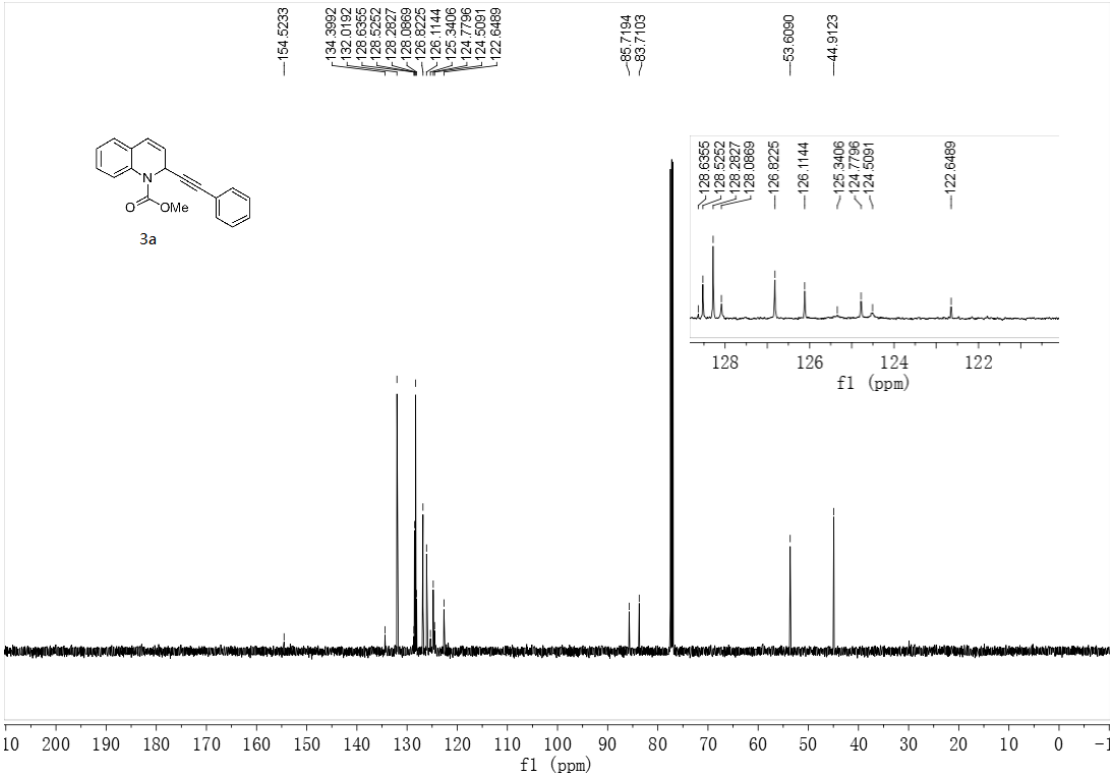
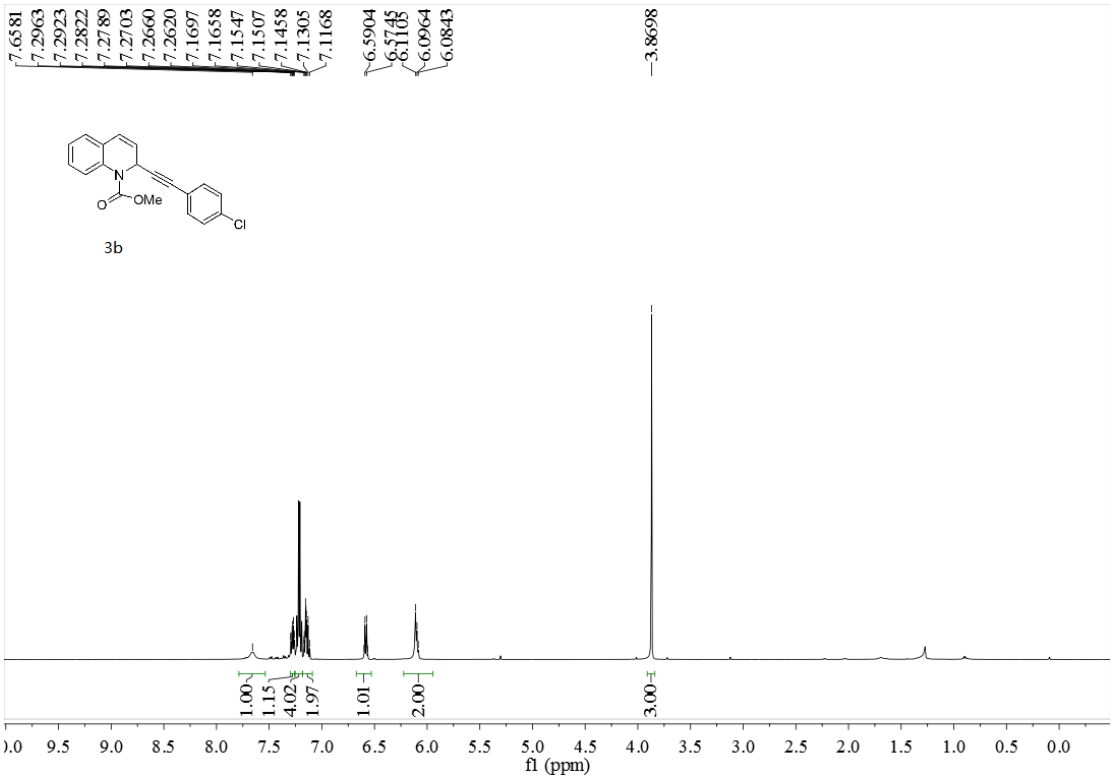
^{1}H and ^{13}C NMR Spectra



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7.1547
7.1507
7.1458
7.1305
7.1168
6.5904
6.5745
6.1105
6.0964
6.0843
3.8698
OMe
Cl
3b
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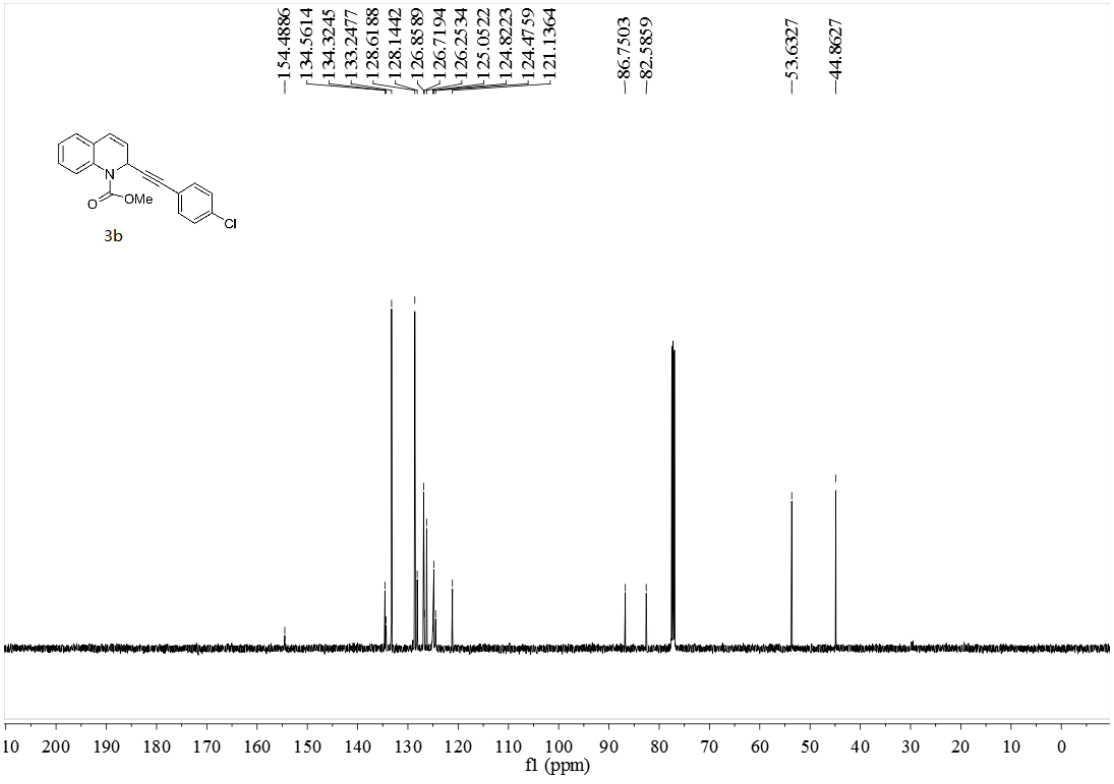
1.15
4.02
1.97
1.01
2.00
3.00
f1 (ppm)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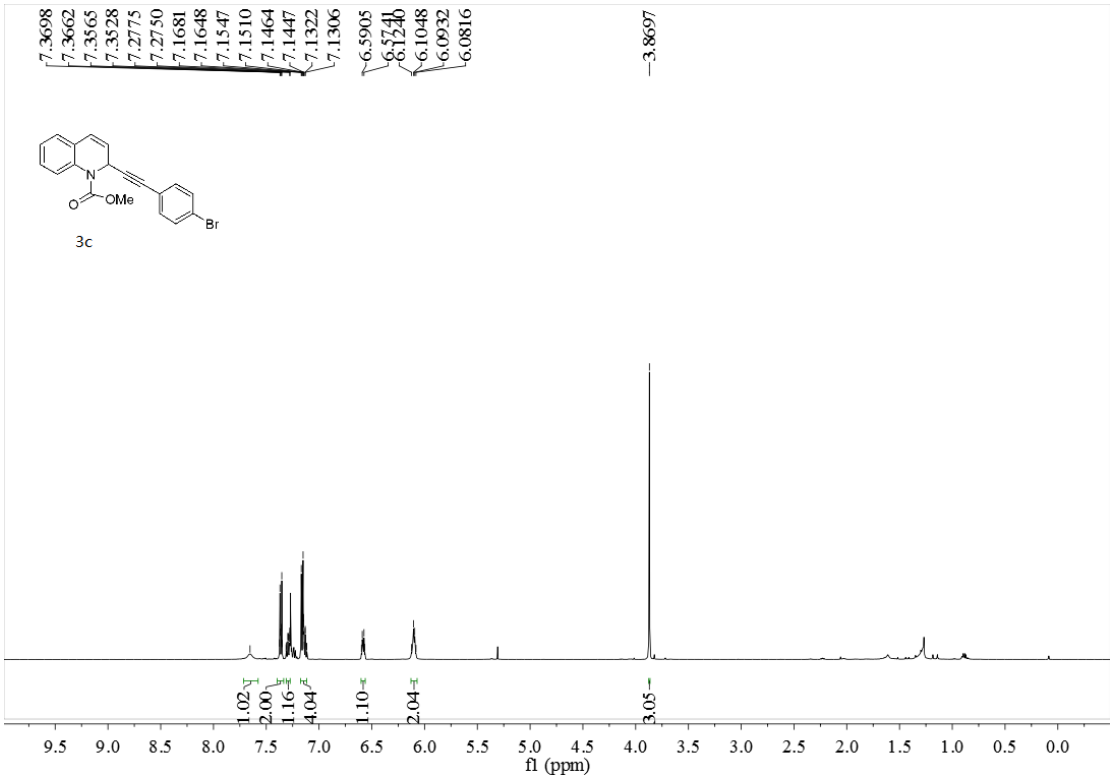
82.5859
53.6327
44.8627
OMe
Cl
3b
f1 (ppm)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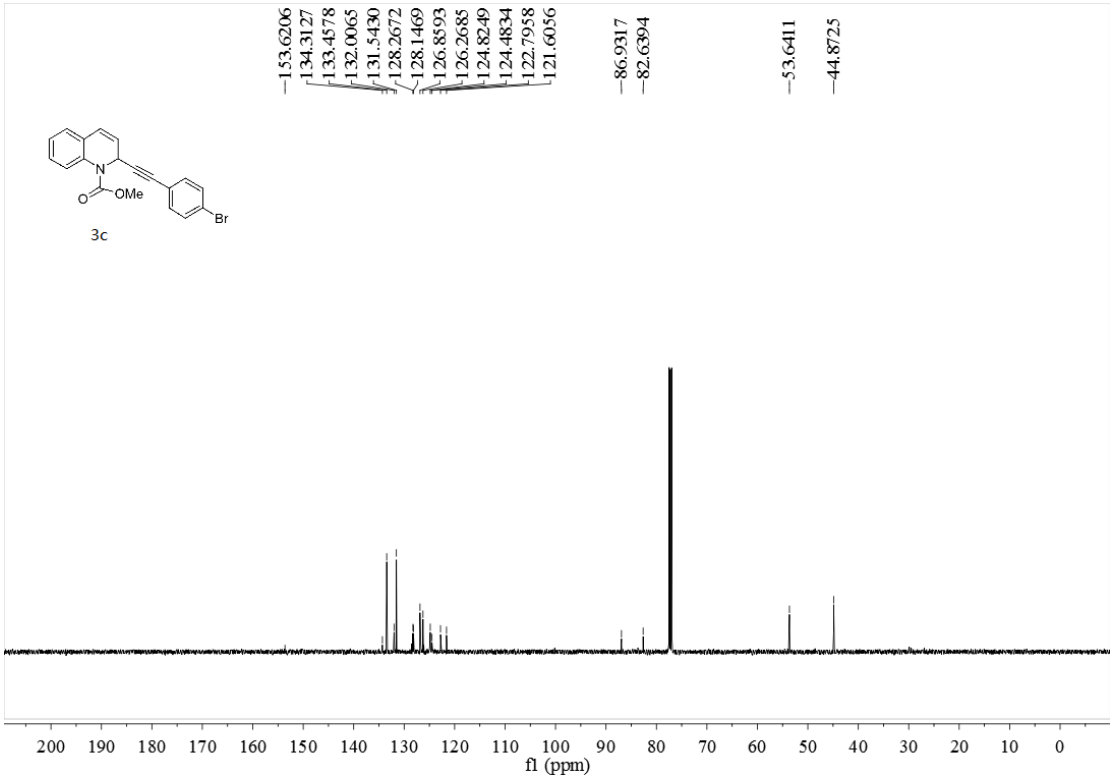
7.1510
7.1464
7.1447
7.1322
7.1306
6.5905
6.5741
6.1240
6.1048
6.0932
6.0816
3.8697
OMe
Br
3c
1.02
2.00
1.16
4.04
1.10
2.04
3.05
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0
f1 (ppm)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121.6056
86.9317
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OMe
Br
3c
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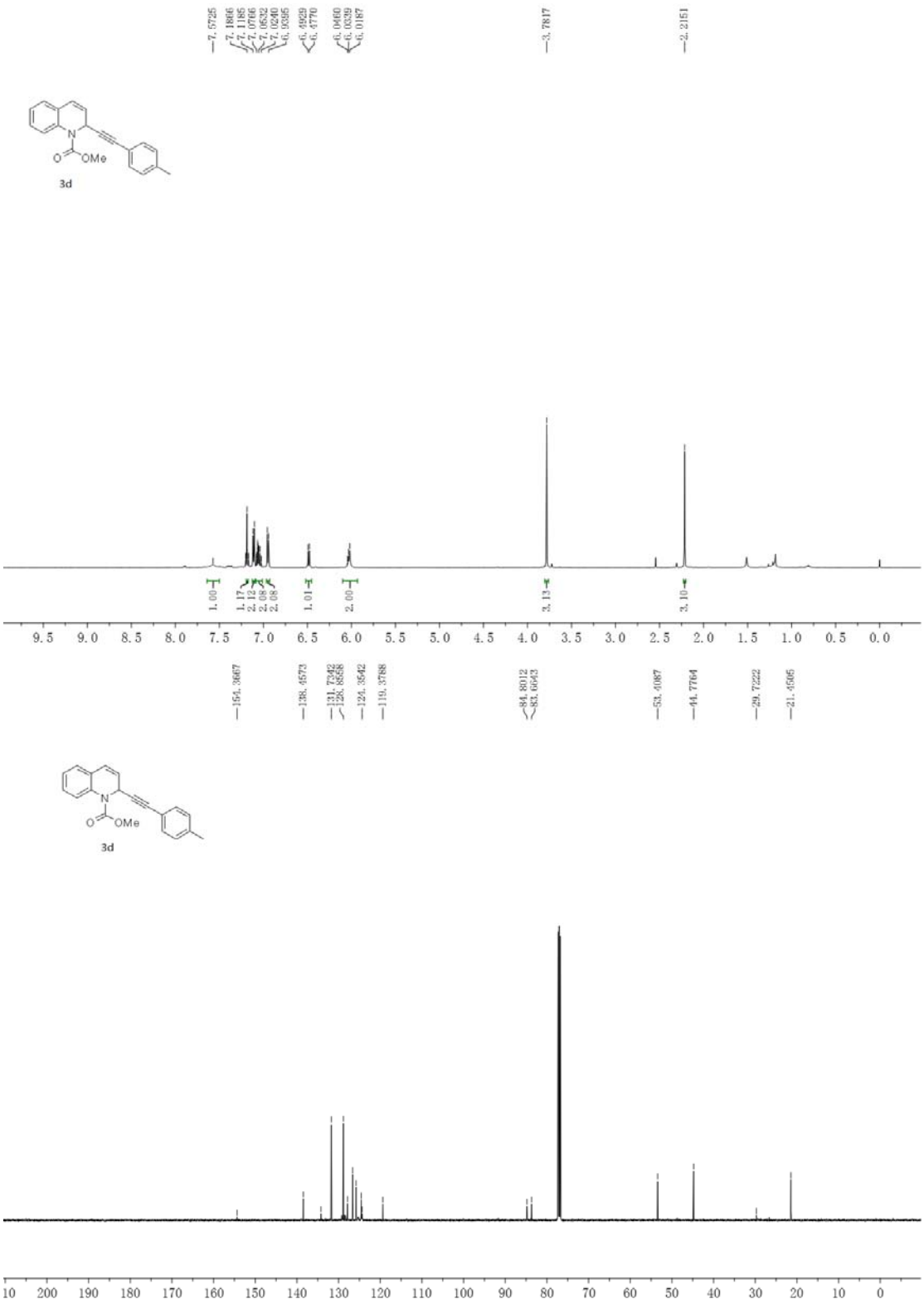
f1 (ppm)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6.0339
6.0187
3.7817
2.2151
OMe
3d
1.00
1.17
2.12
2.08
2.08
1.01
2.00
3.13
3.10
154.3667
138.4573
131.7342
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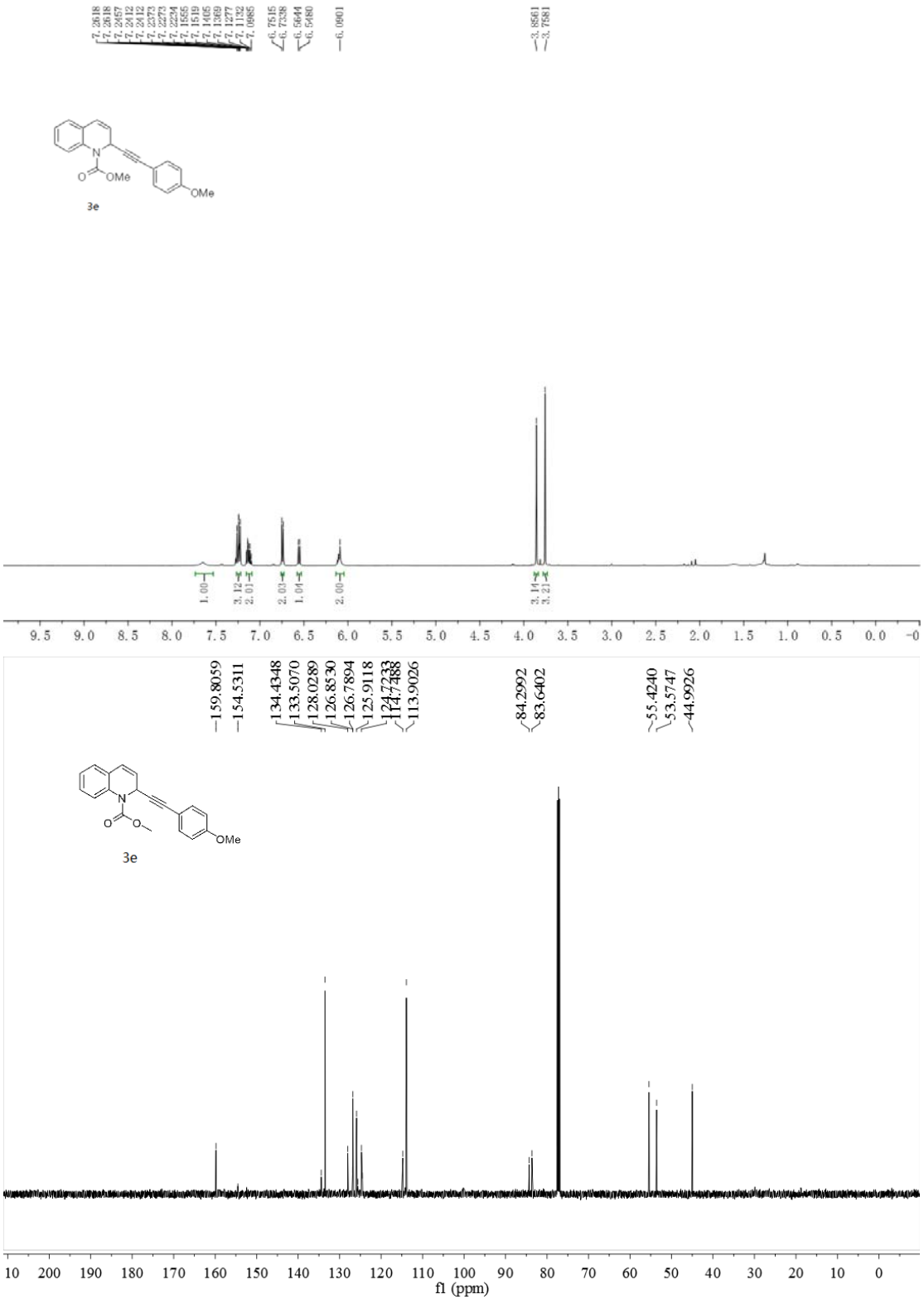
OMe
3d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7.1369
7.1277
7.1132
7.0985
6.7515
6.7238
6.5644
6.5480
6.0901
3.8561
3.7581
OMe
OMe
3e
1.00
3.12
2.01
2.03
1.04
2.00
3.14
3.23
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0
159.8059
154.5311
134.4348
133.5070
128.0289
126.8530
126.7894
125.9118
124.7233
114.7488
113.9026
84.2992
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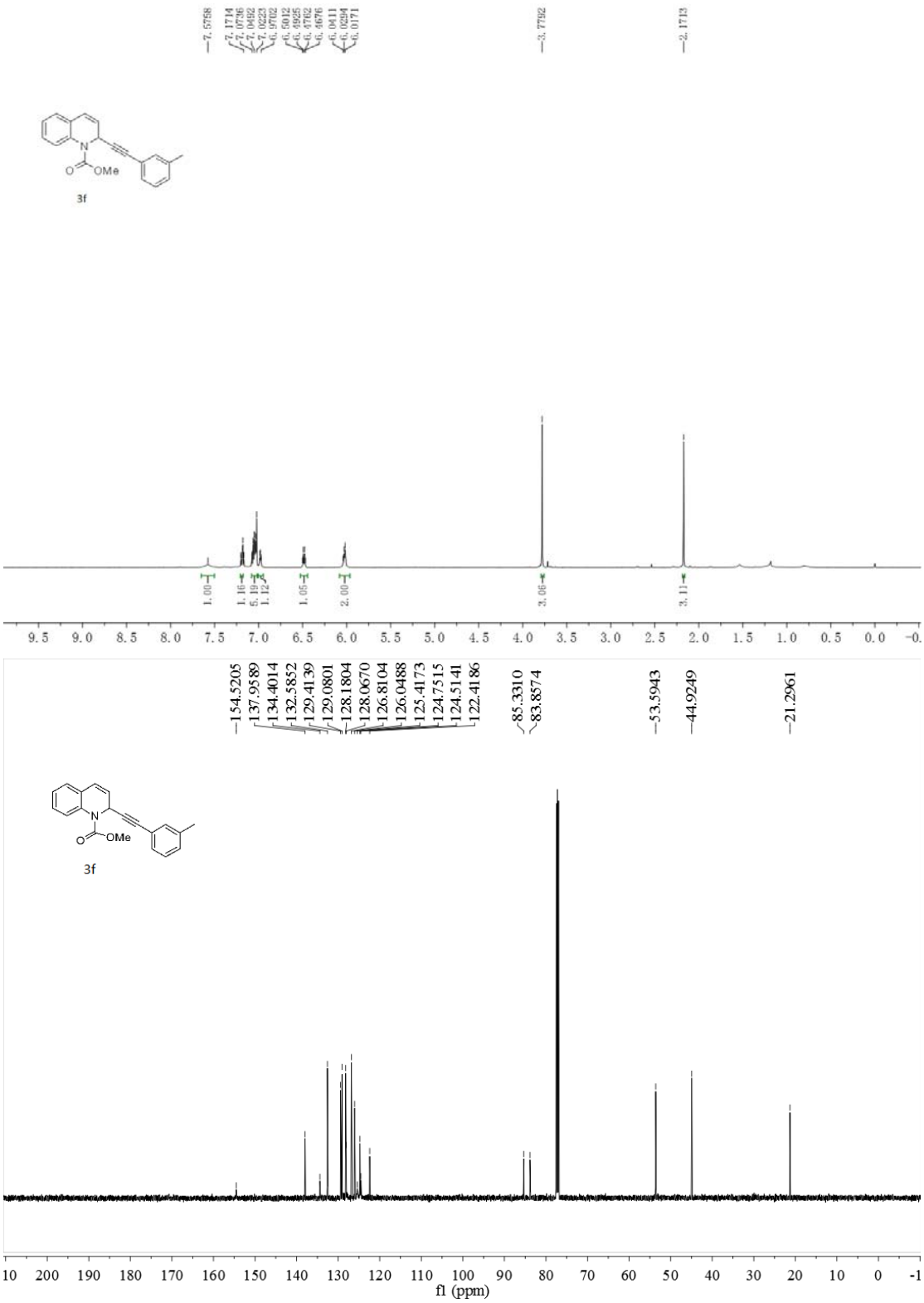
44.9926
OMe
3e
10 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0
f1 (ppm)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6.4676
6.0411
6.0294
6.0171
3.7792
2.1713
OMe
3f
1.00
1.16
5.19
1.12
1.05
2.00
3.06
3.11
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0
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137.9589
134.4014
132.5852
129.4139
129.0801
128.1804
128.0670
126.8104
126.0488
125.4173
124.7515
124.5141
122.4186
85.3310
83.8574
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3f
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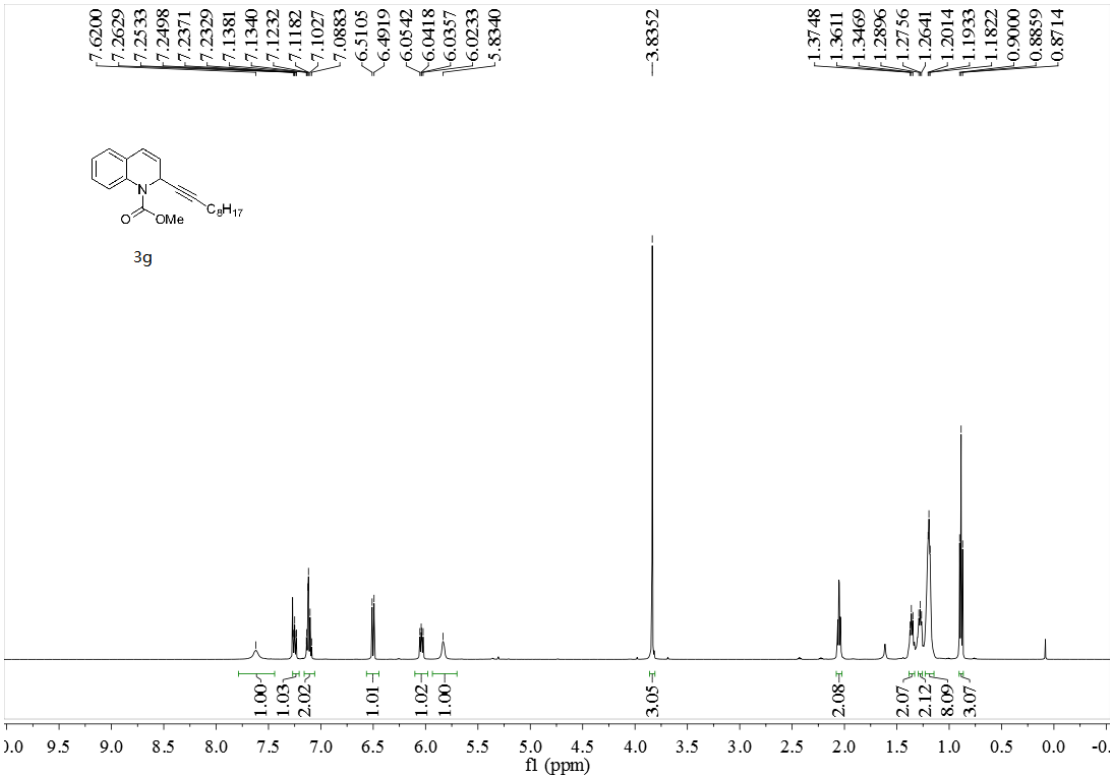
f1 (ppm)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7.1232
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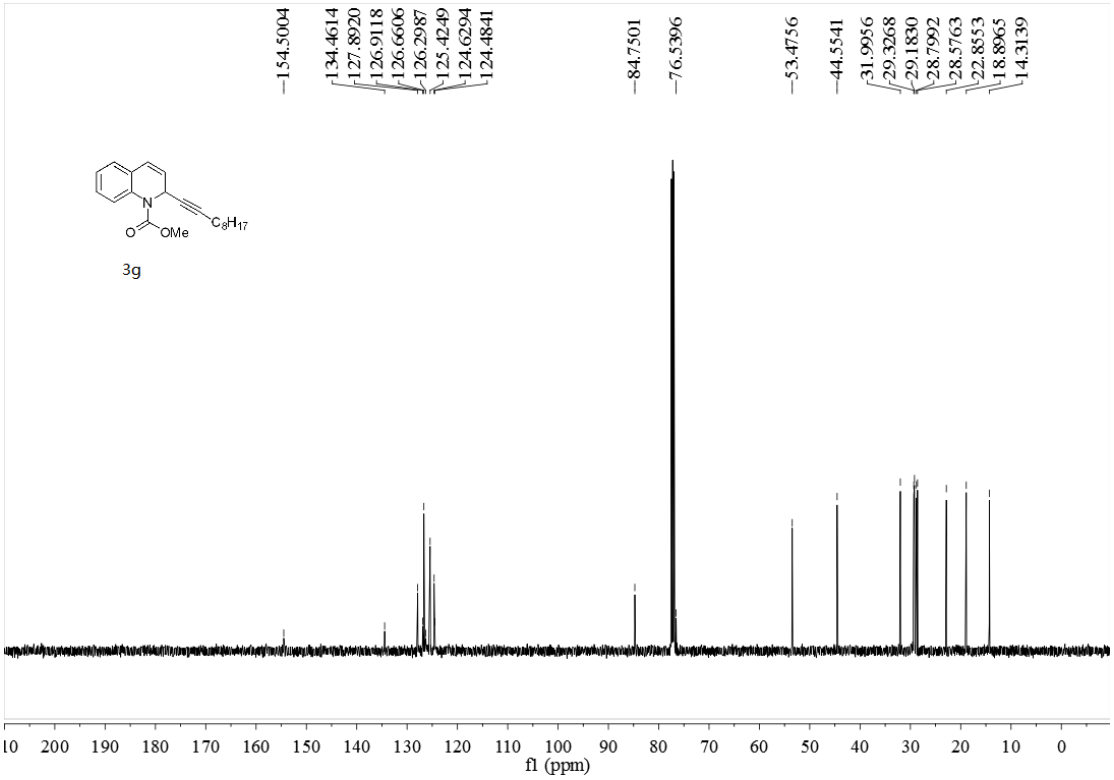
7.1027
7.0883
6.5105
6.4919
6.0542
6.0418
6.0357
6.0233
5.8340
3.8352
1.3748
1.3611
1.3469
1.2896
1.2756
1.2641
1.2014
1.1933
1.1822
0.9000
0.8859
0.8714
OMe
3g
1.00
1.03
2.02
1.01
1.02
1.00
3.05
2.08
2.07
2.12
8.09
3.07
f1 (ppm)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44.5541
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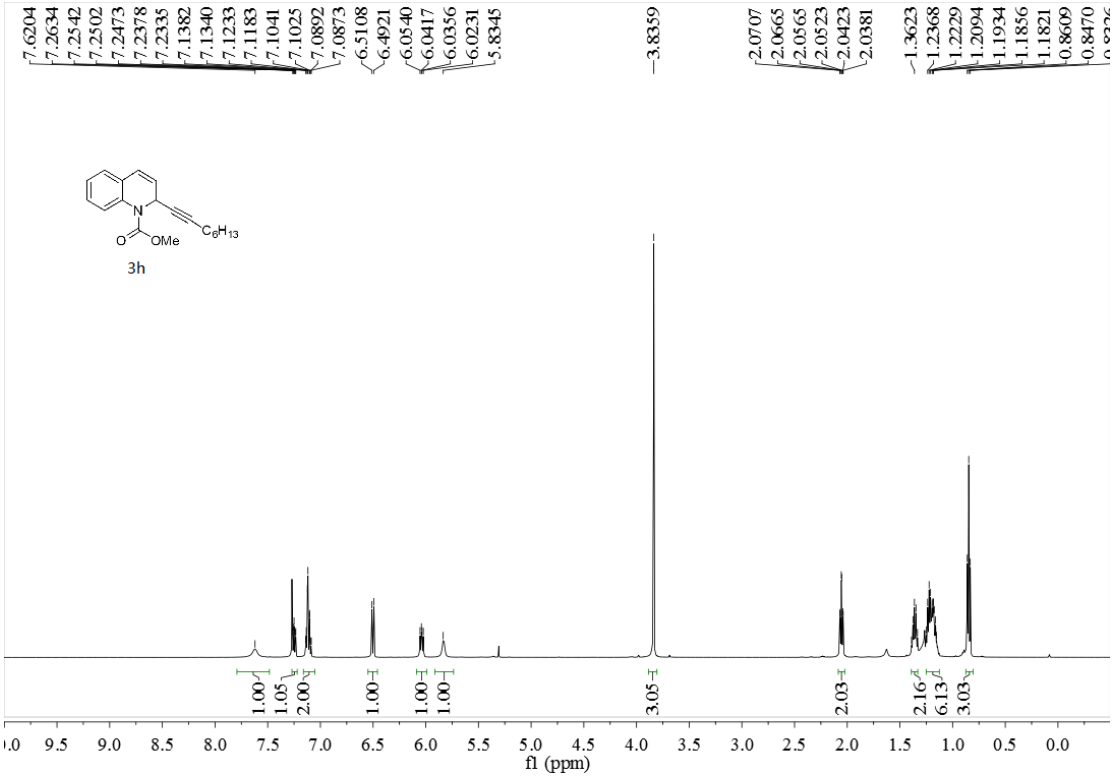
14.3139
OMe
3g
f1 (ppm)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7.1041
7.1025
7.0892
7.0873
6.5108
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6.0540
6.0417
6.0356
6.0231
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2.0565
2.0523
2.0423
2.0381
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1.2368
1.2229
1.2094
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1.1856
1.1821
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0.8470
OMe
C6H13
3h
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1.00
1.00
1.00
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2.03
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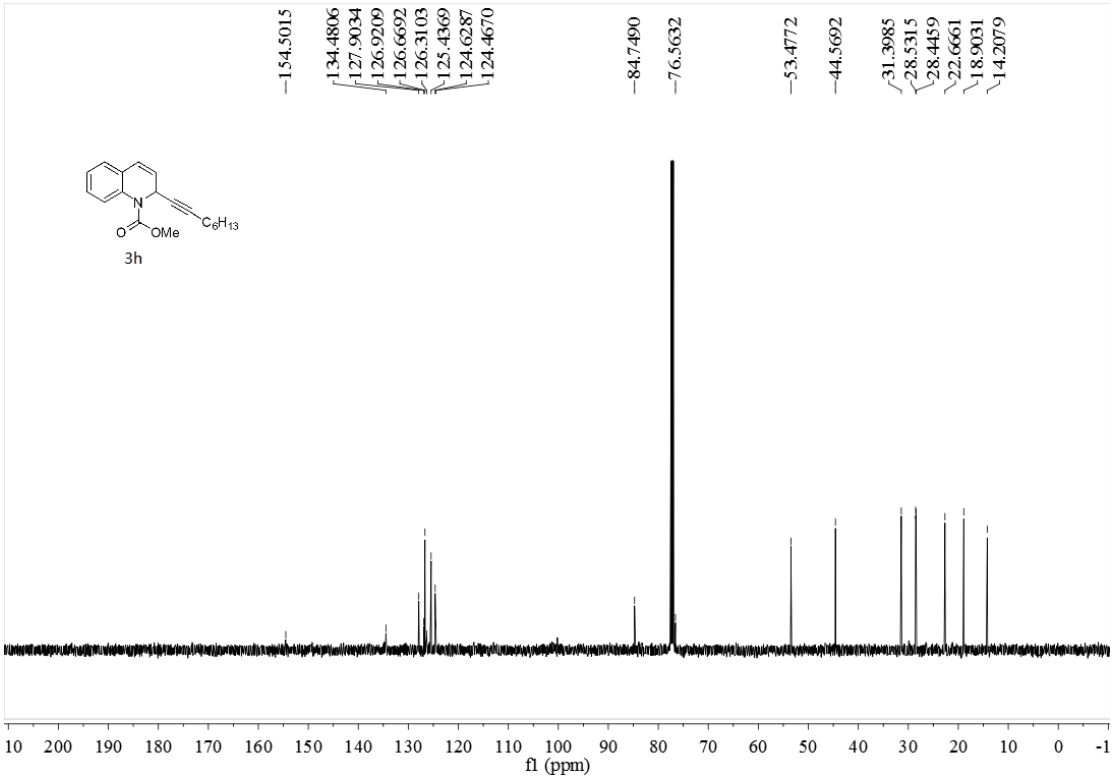
3.03
fl (ppm)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18.9031
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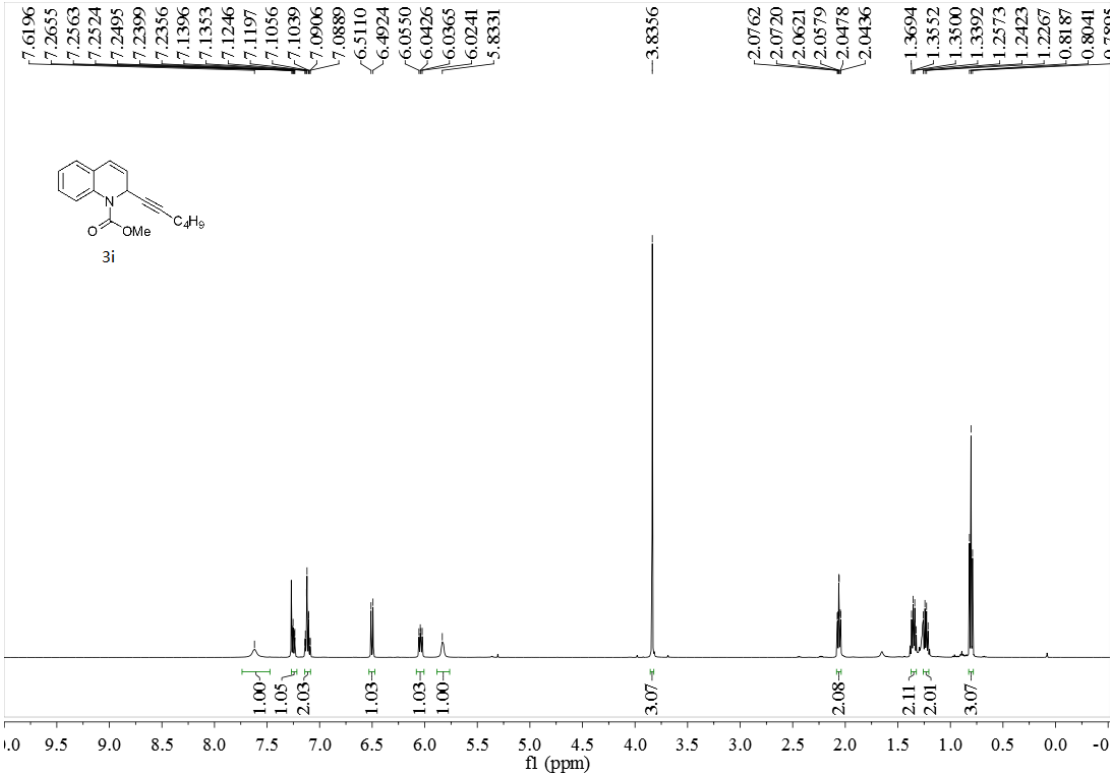
C6H13
3h
fl (ppm)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7.1056
7.1039
7.0906
7.0889
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6.4924
6.0550
6.0426
6.0365
6.0241
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2.0720
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1.3552
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C4H9
3i
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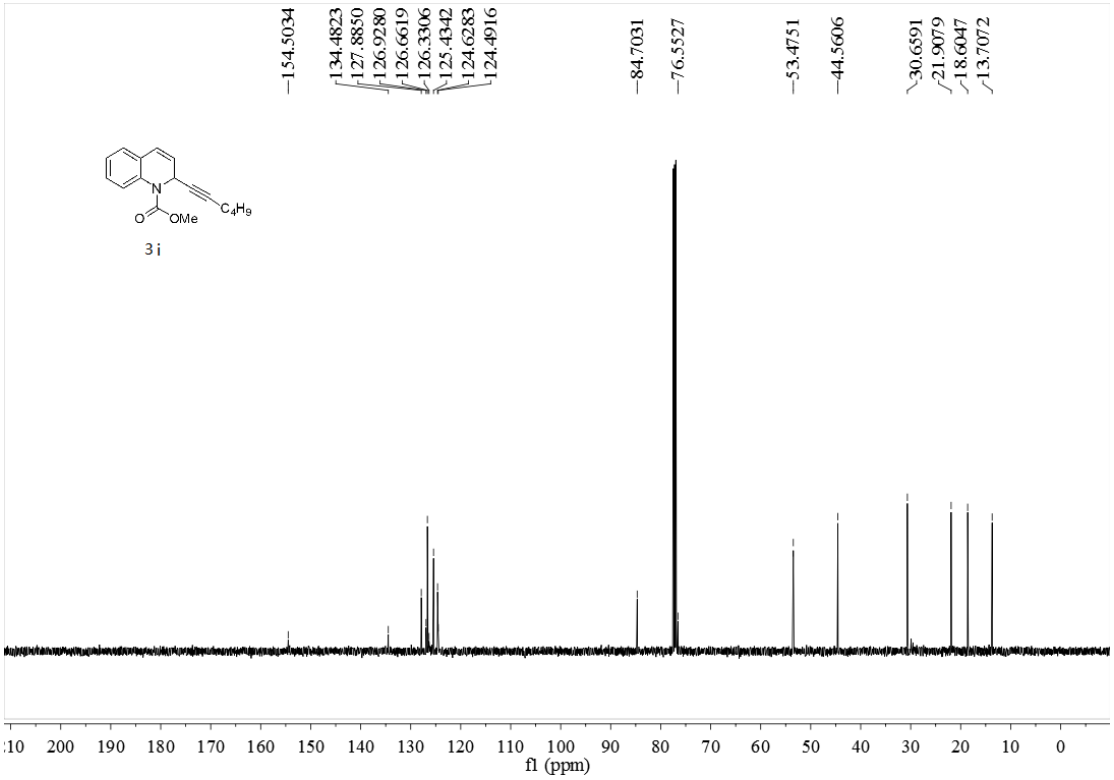
fl (ppm)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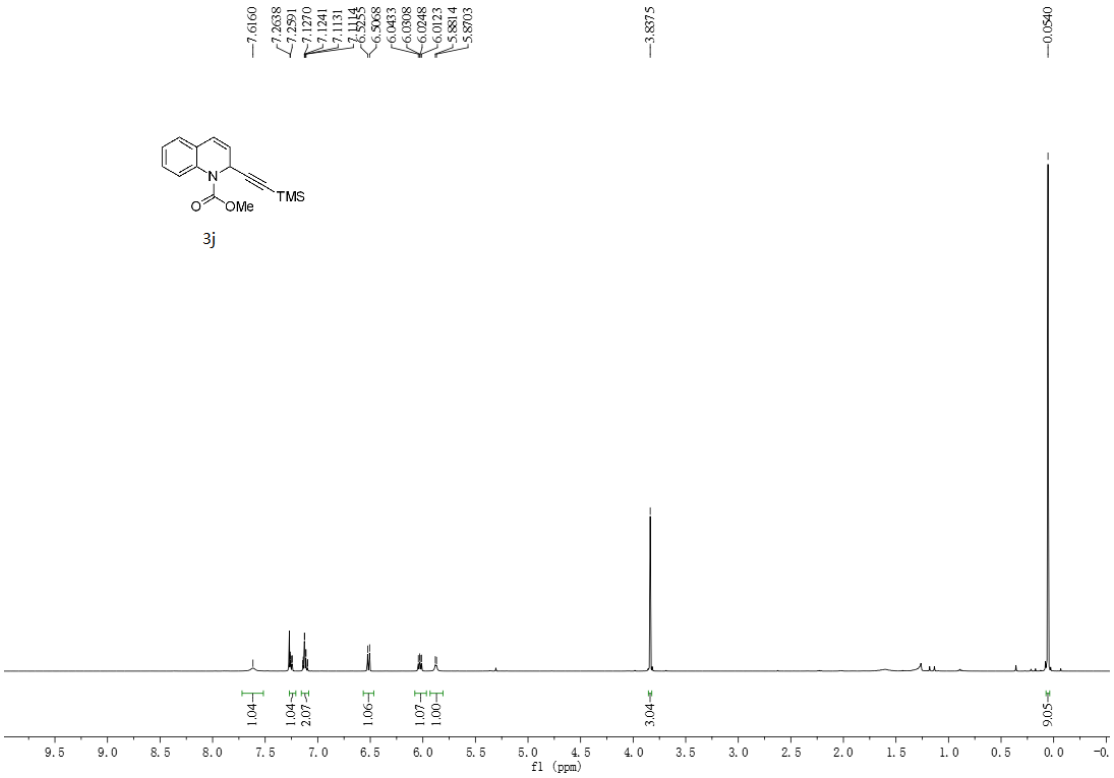
C4H9
3i
fl (ppm)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6.0248
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TMS
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1.04
2.07
1.06
1.07
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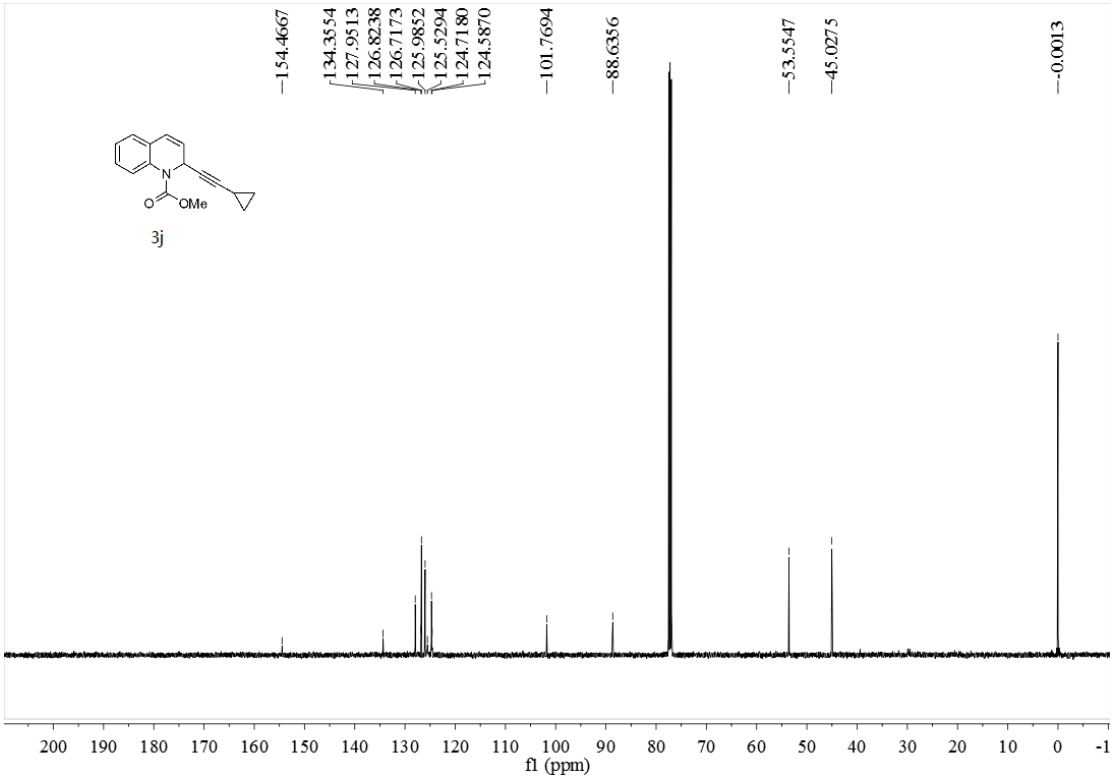
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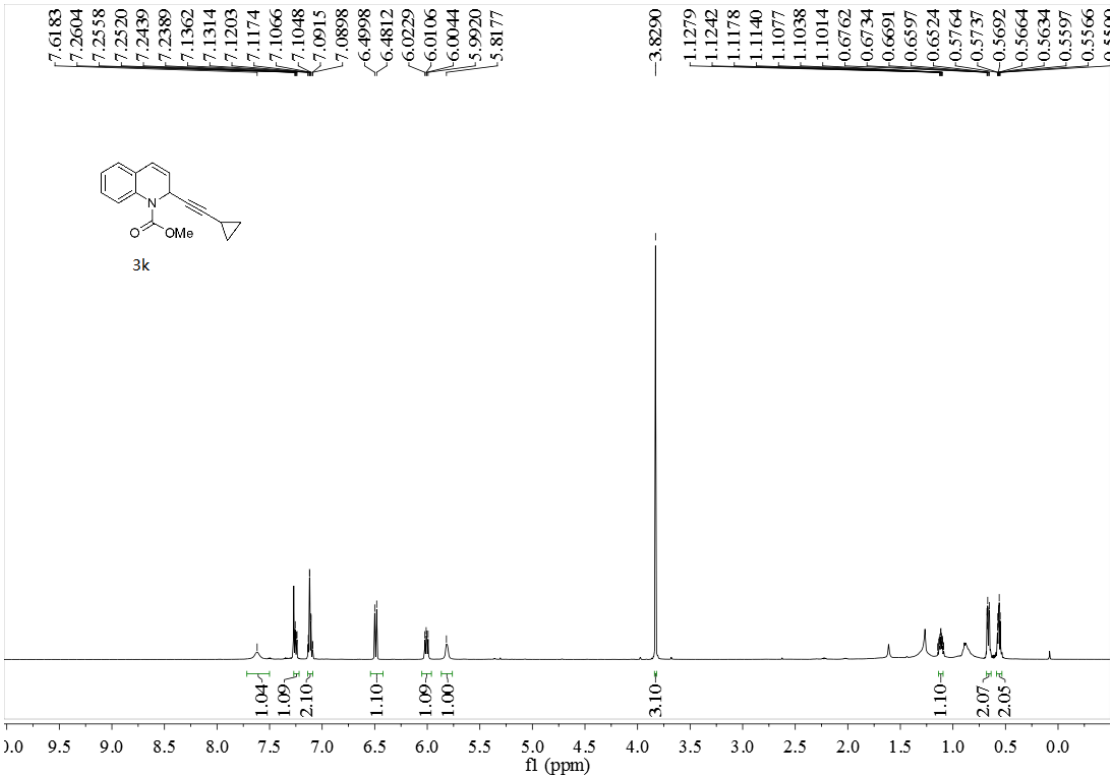
OMe
3j
f1 (ppm)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7.1048
7.0915
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6.0106
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1.1242
1.1178
1.1140
1.1077
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0.5664
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0.5597
0.5566
OMe
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2.10
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1.09
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3.10
1.10
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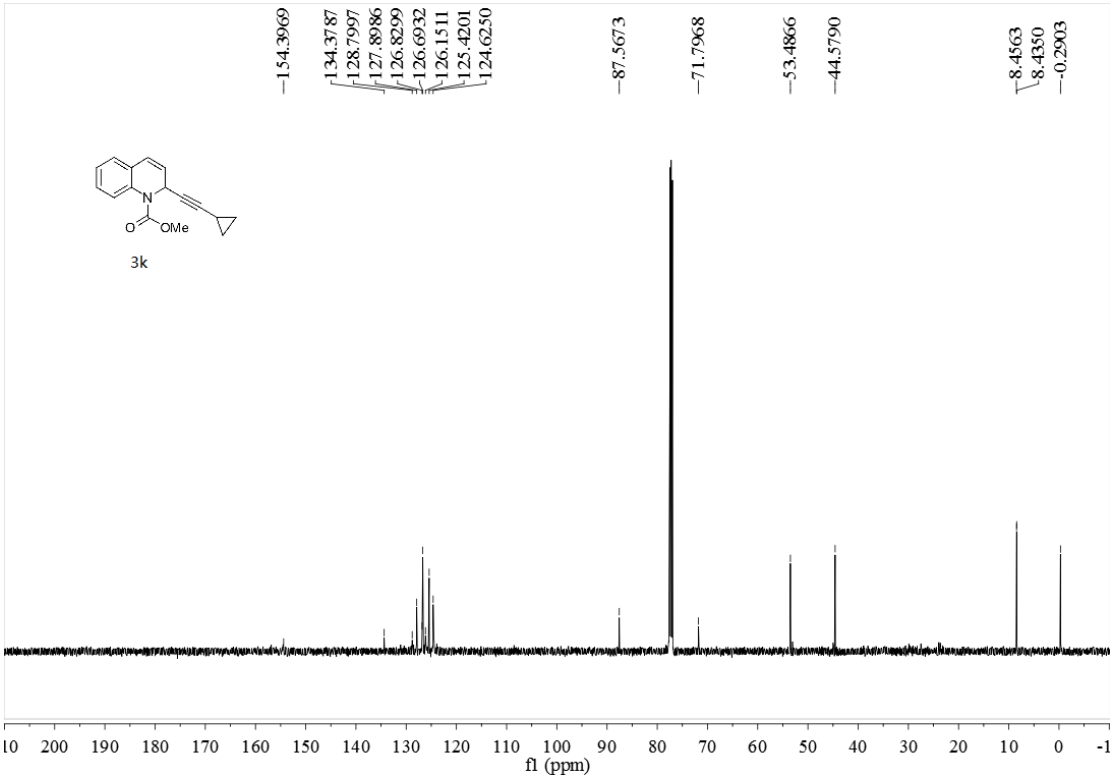
2.05
fl (ppm)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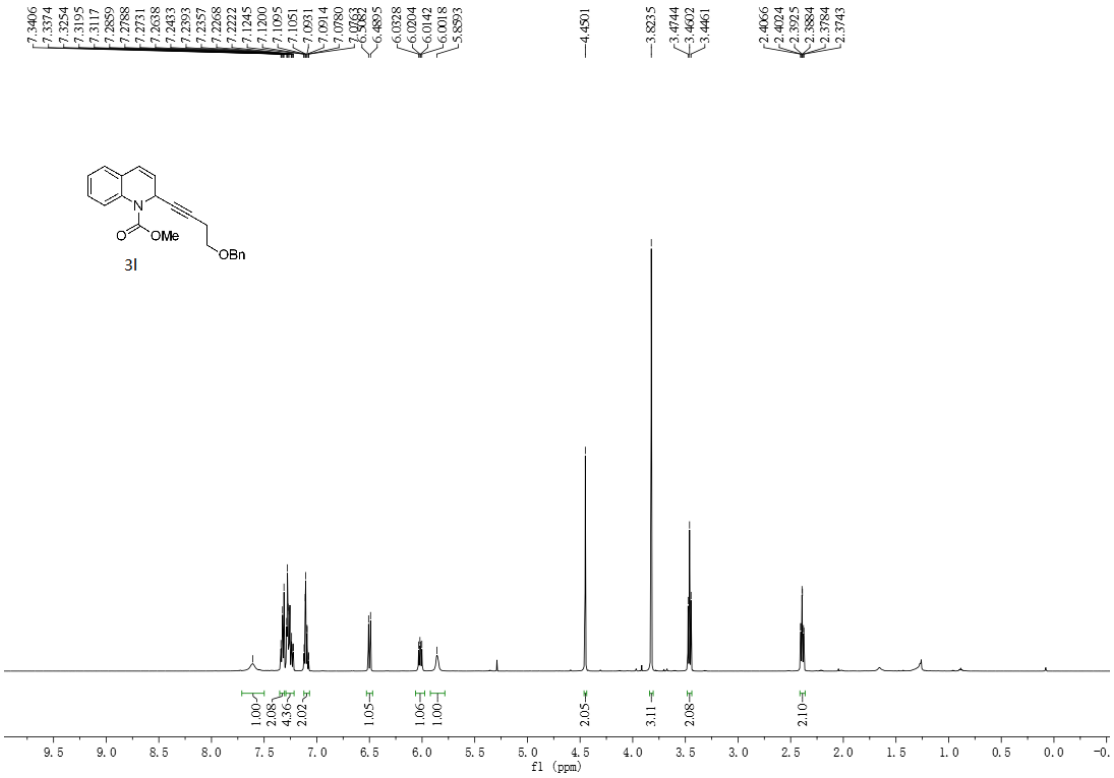
OMe
3k
fl (ppm)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2.3784
2.3743
N
OMe
O
OBn
3l
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1.06
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3.11
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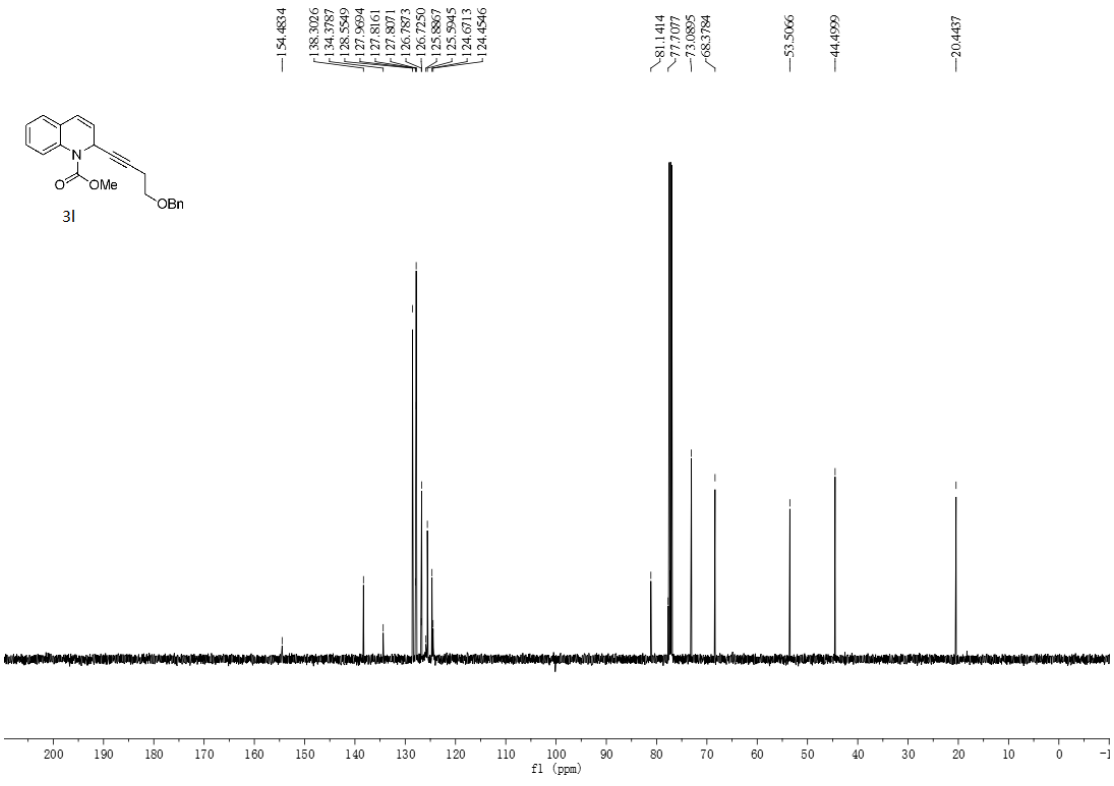
2.10
f1 (ppm)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124.6713
124.4546
81.1414
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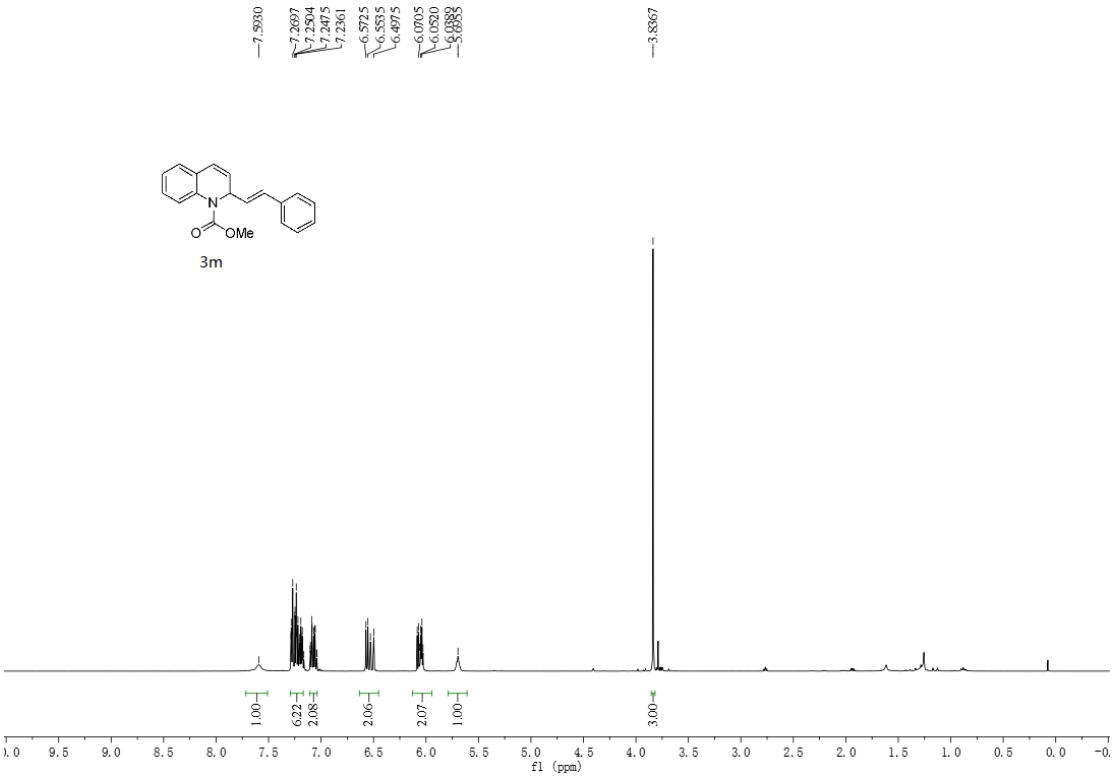
44.4999
20.4437
N
OMe
O
OBn
3l
f1 (ppm)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6.22
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2.06
2.07
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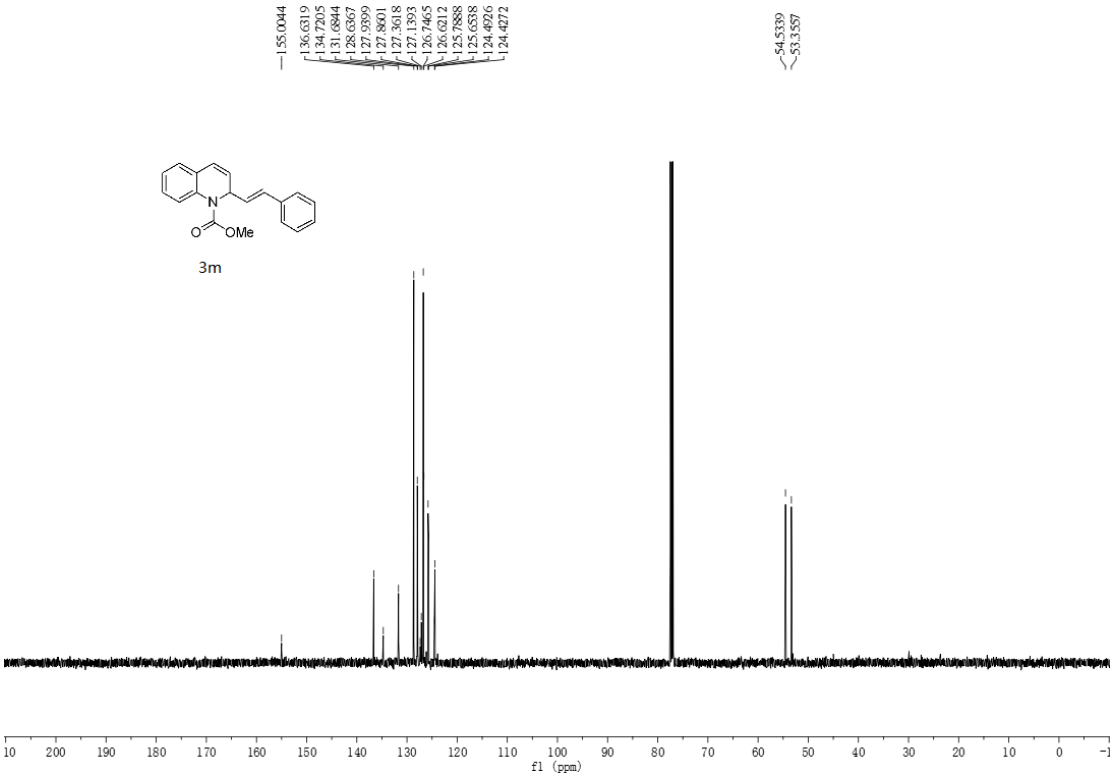
3.00
f1 (ppm)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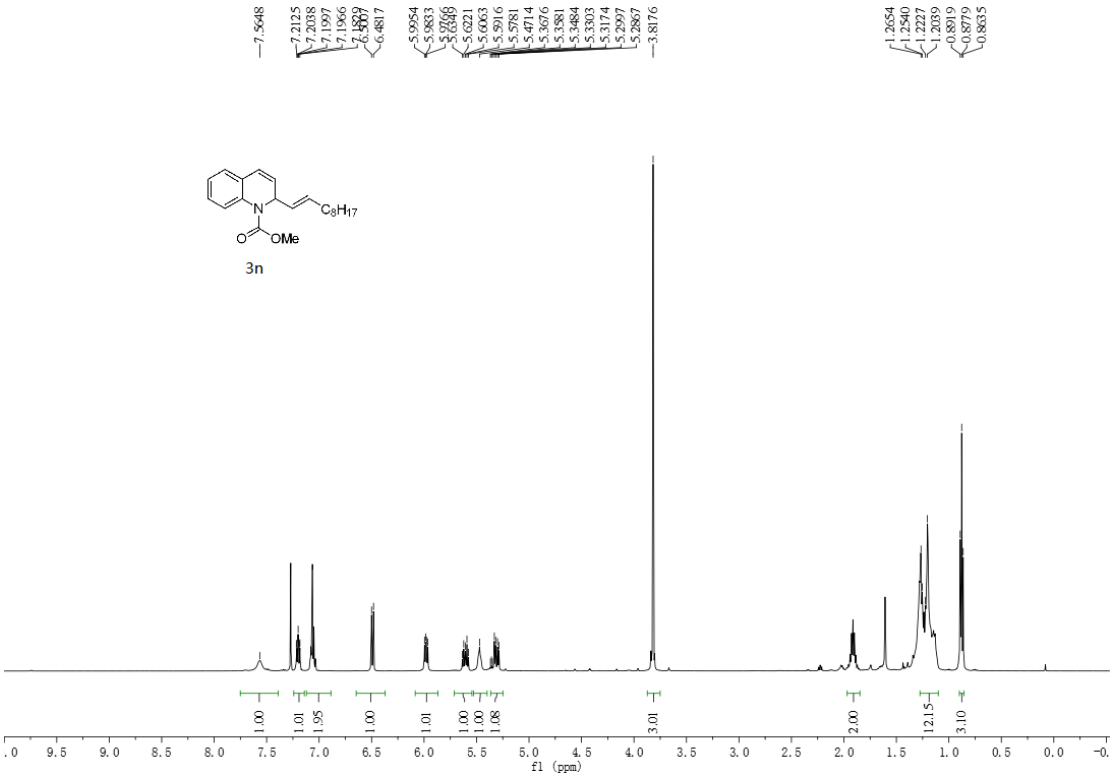
3m
f1 (ppm)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1.2540
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C8H17
OMe
3n
1.00
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1.00
1.00
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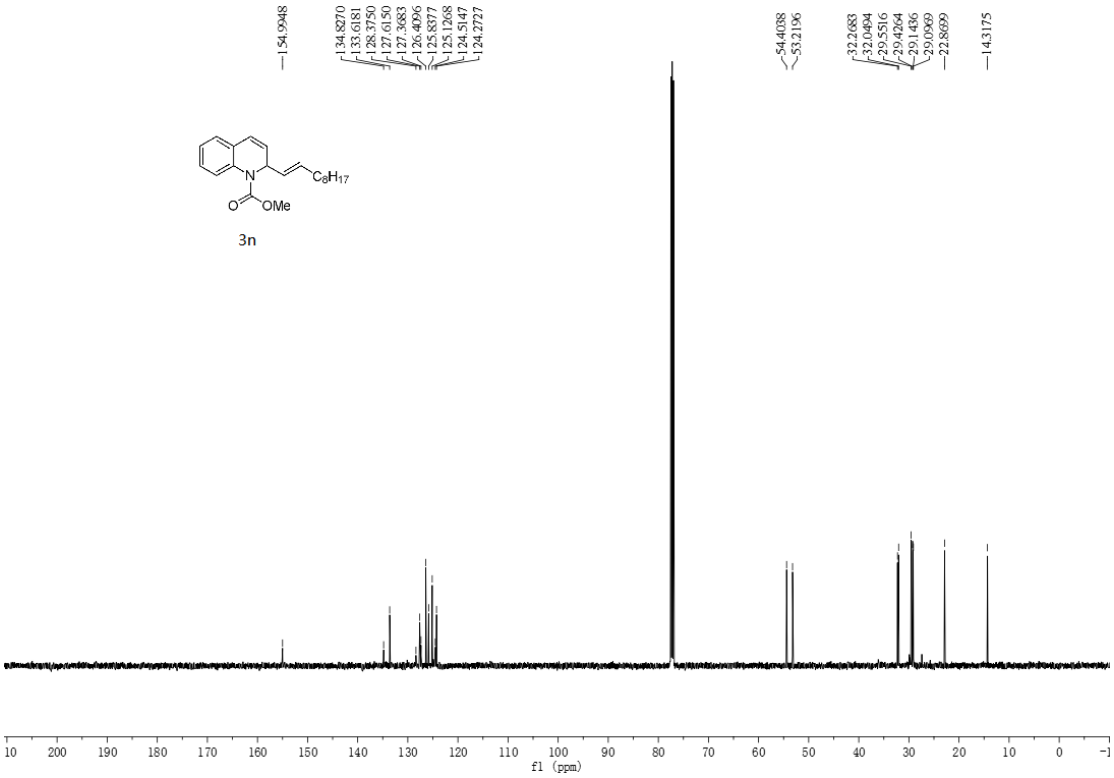
f1 (ppm)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53.2196
32.2683
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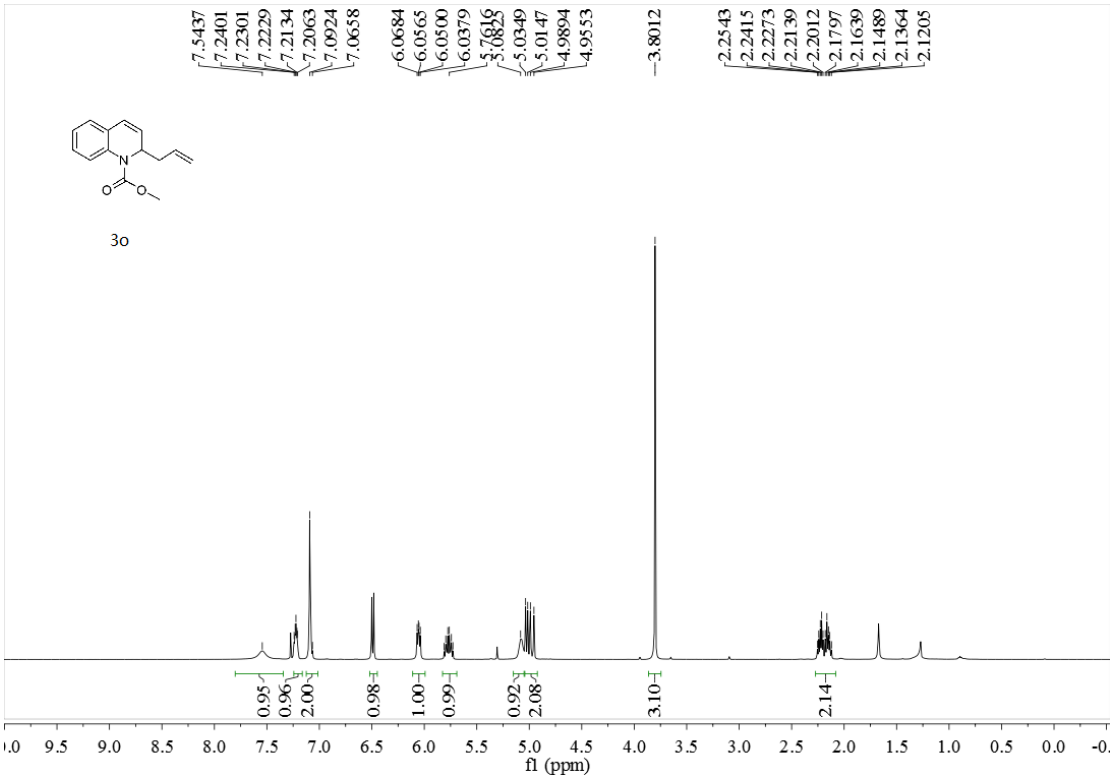
C8H17
OMe
3n
f1 (ppm)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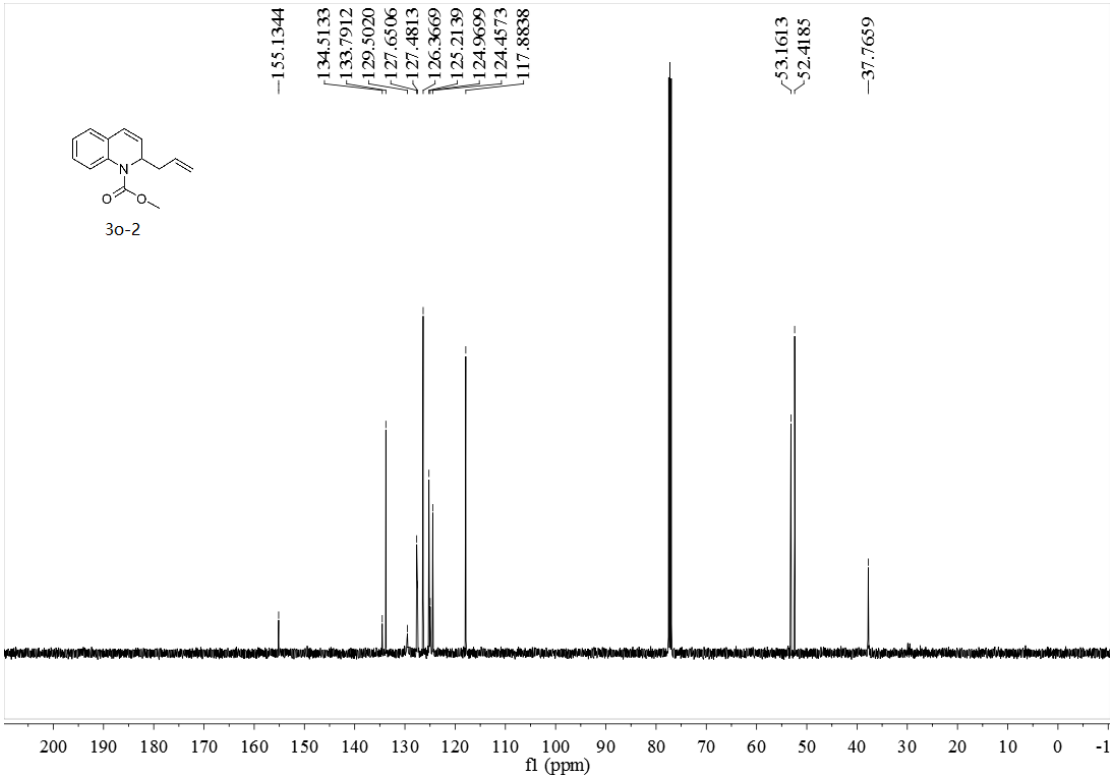
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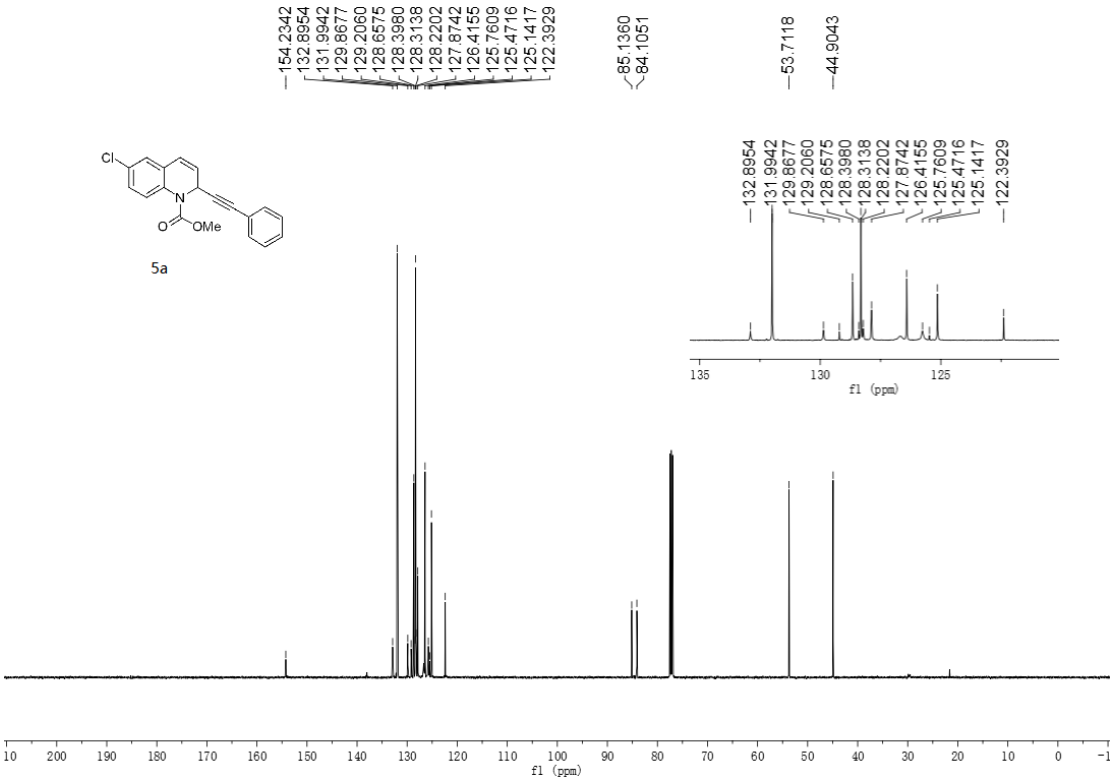
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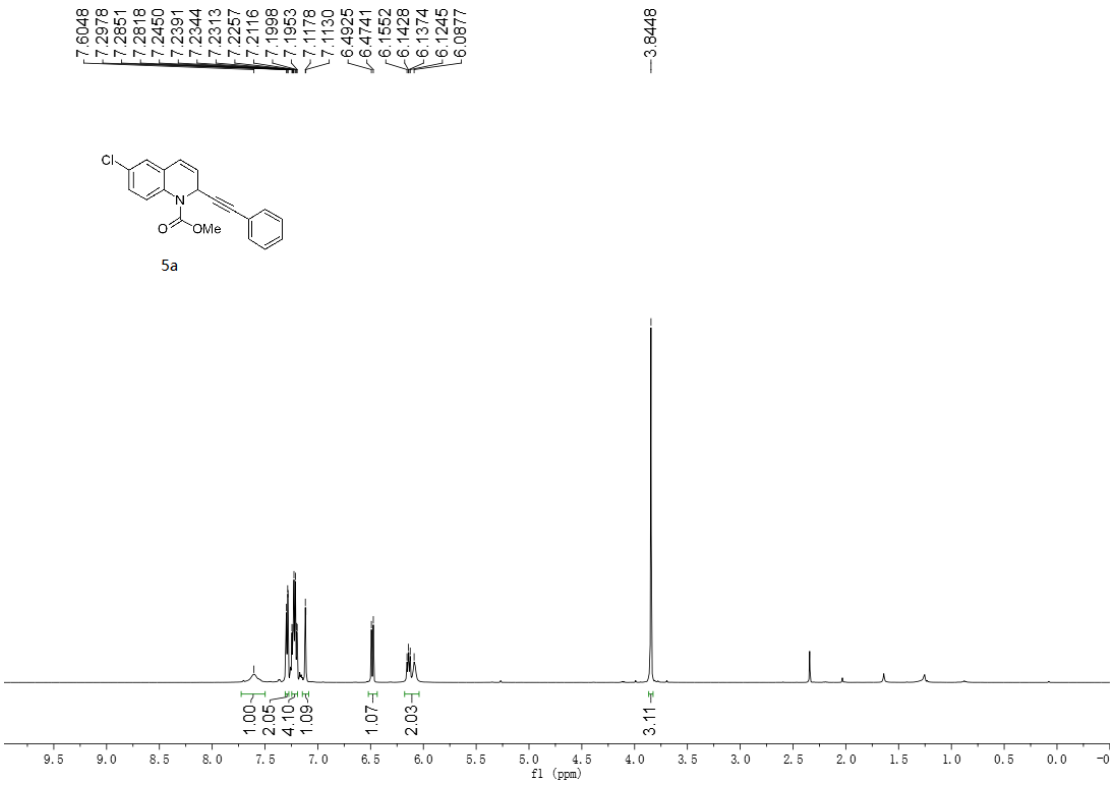
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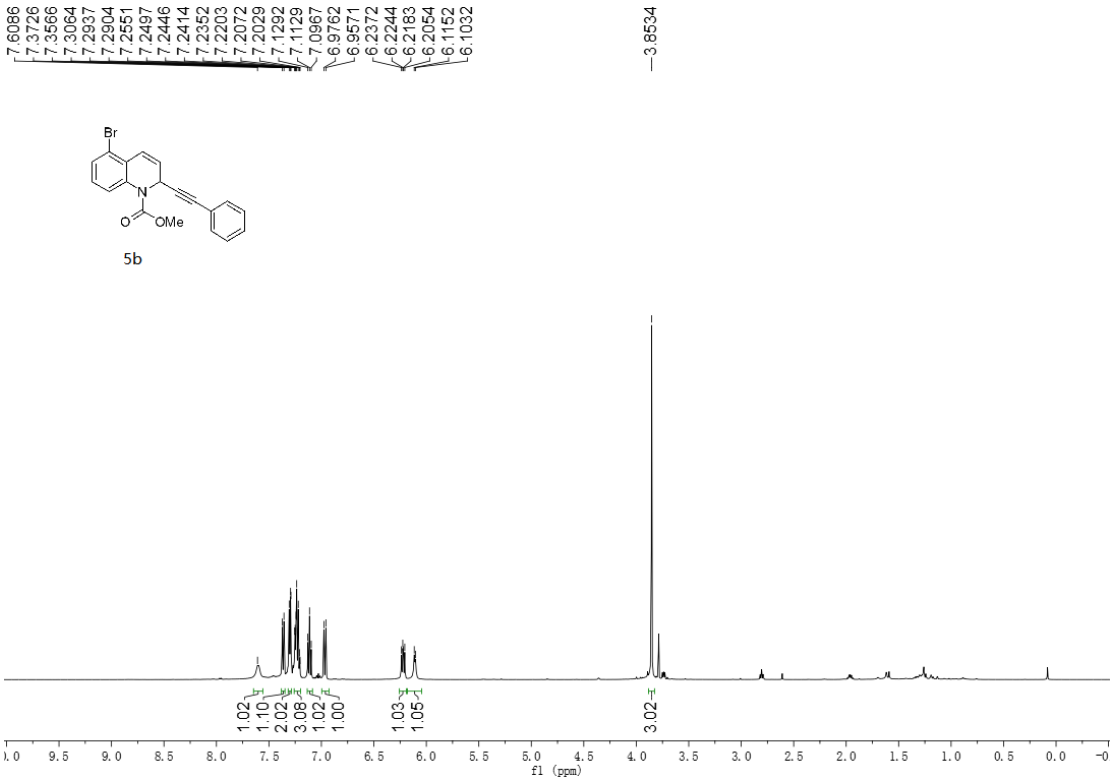
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Br
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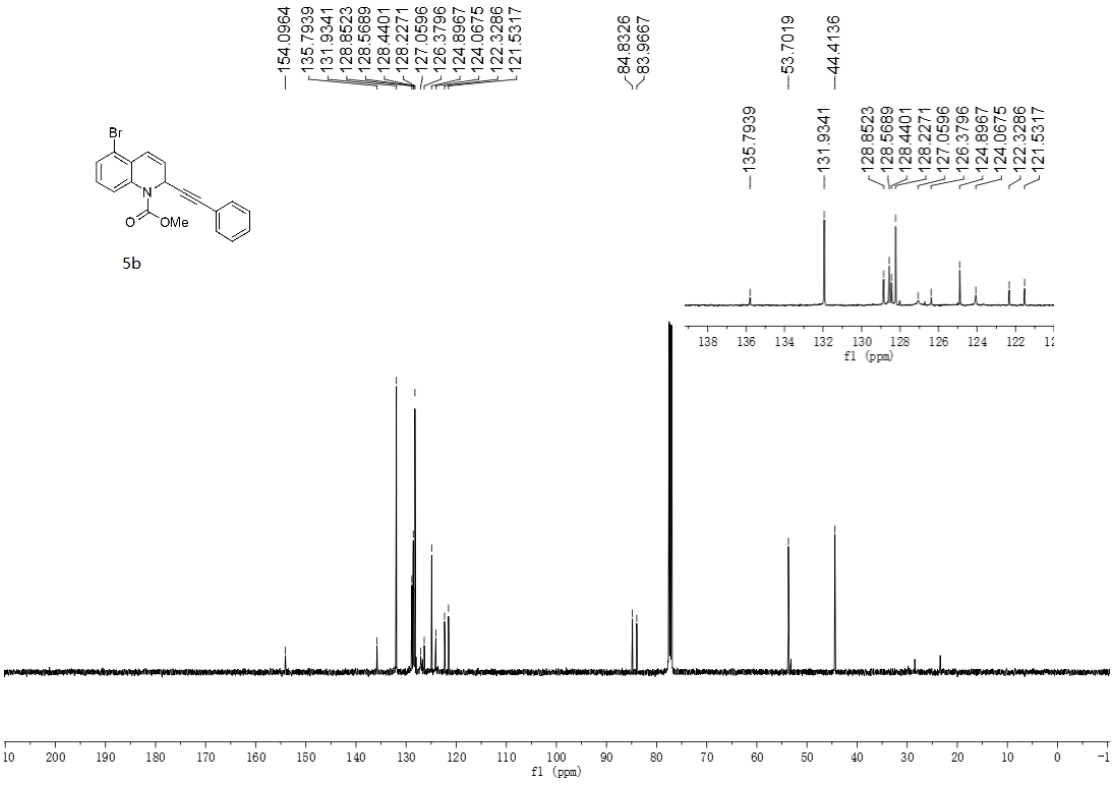
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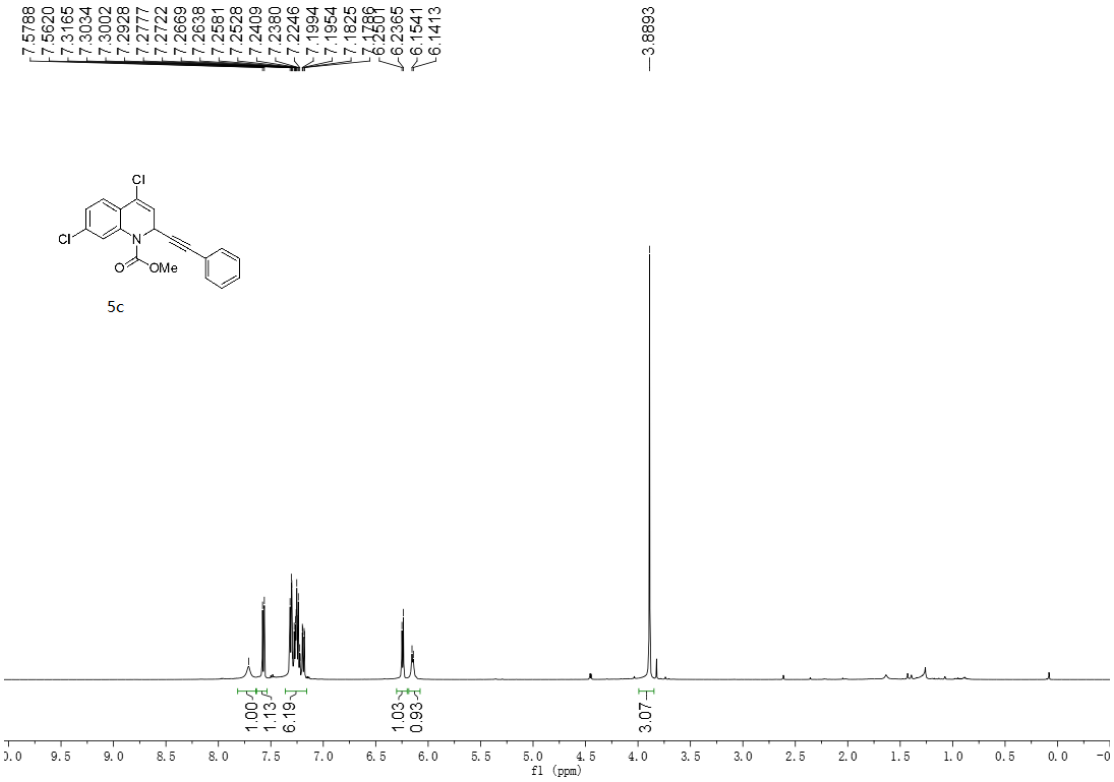
OMe
5b
f1 (ppm)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7.2380
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7.1954
7.1825
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6.1541
6.1413
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Cl
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OMe
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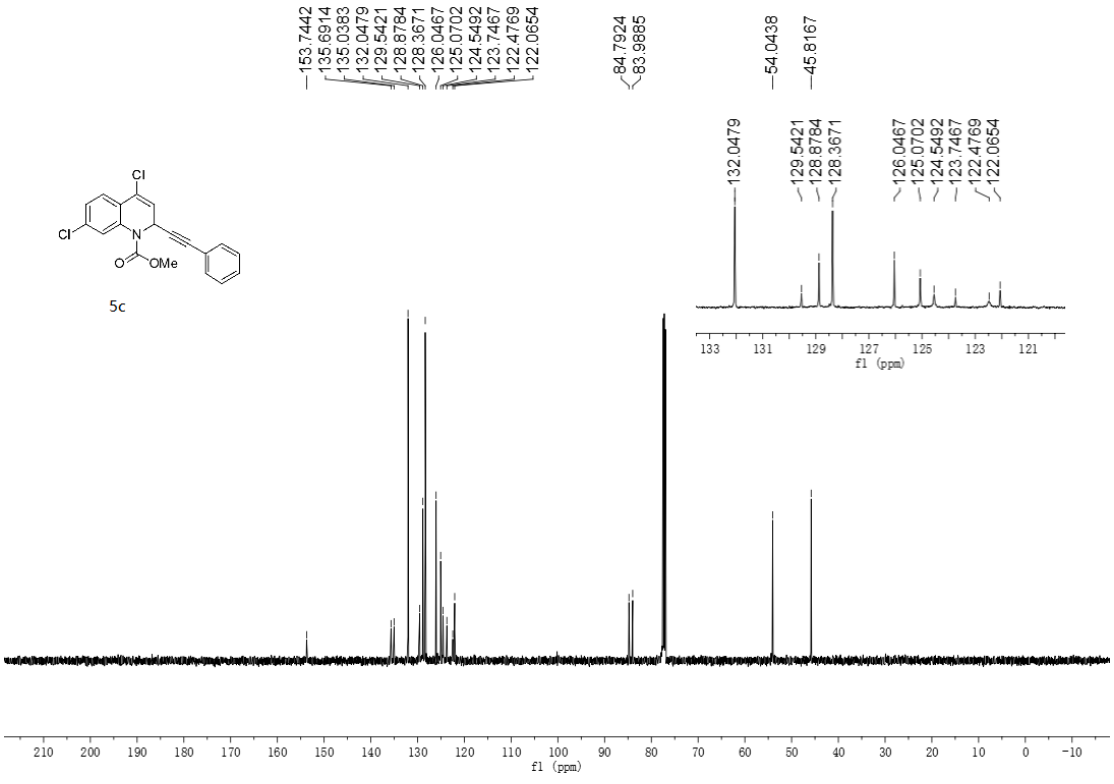
f1 (ppm)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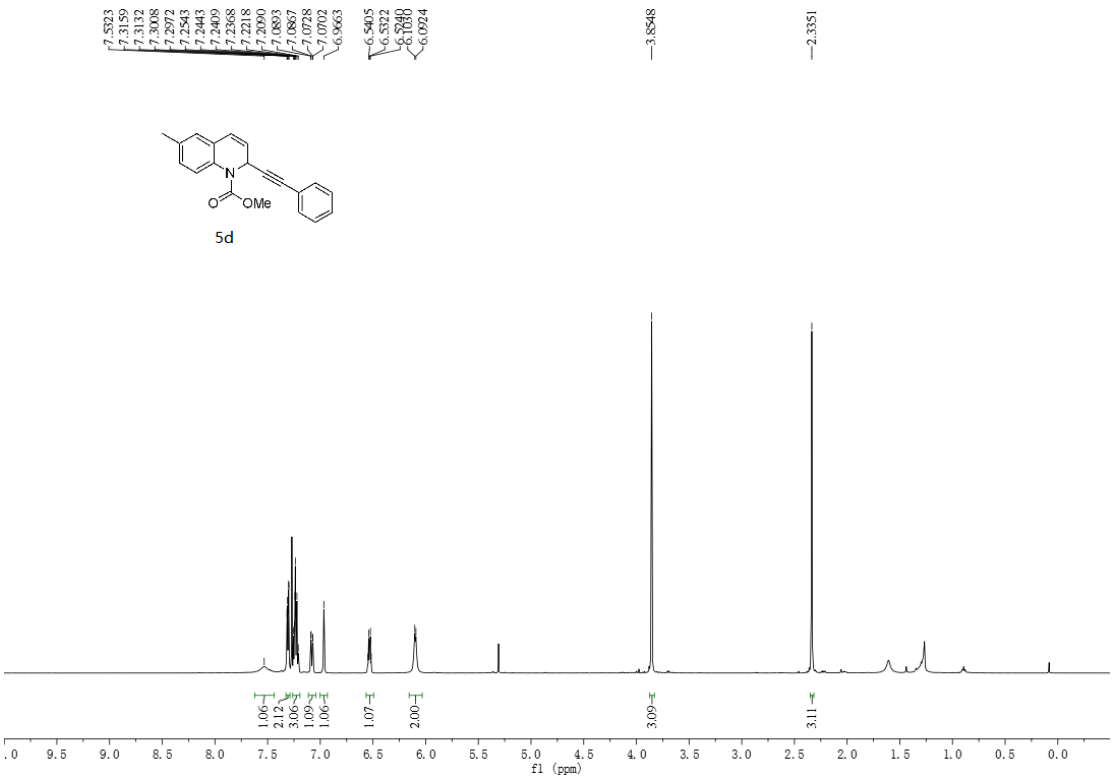
OMe
5c
f1 (ppm)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7.0893
7.0867
7.0728
7.0702
6.9663
6.5405
6.5322
6.0924
3.8548
2.3351
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5d
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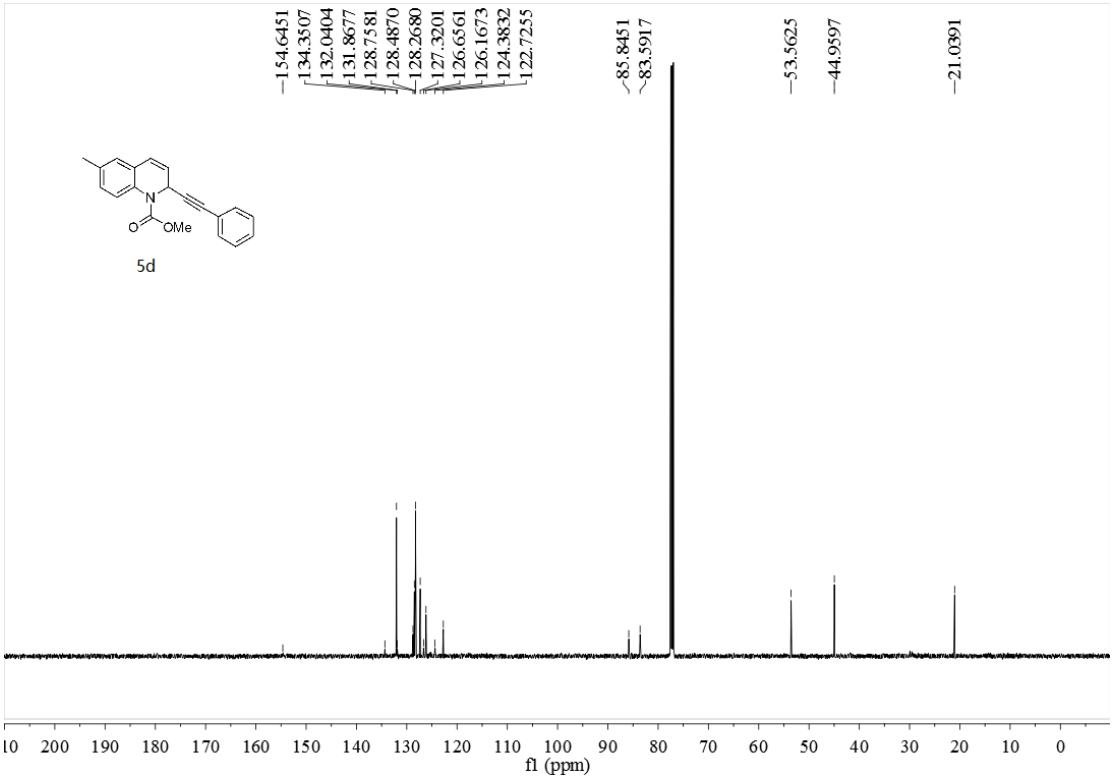
1.09
1.06
1.07
2.00
3.09
3.11
f1 (ppm)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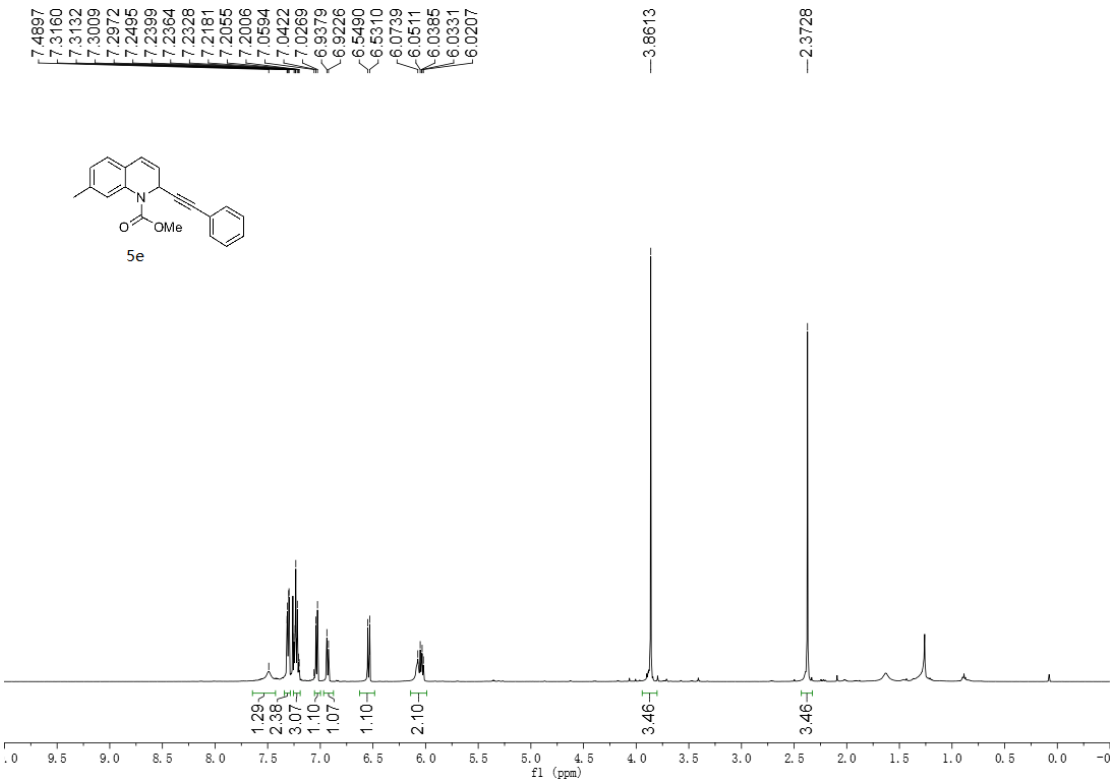
5d
f1 (ppm)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6.5310
6.0739
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6.0385
6.0331
6.0207
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2.3728
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2.10
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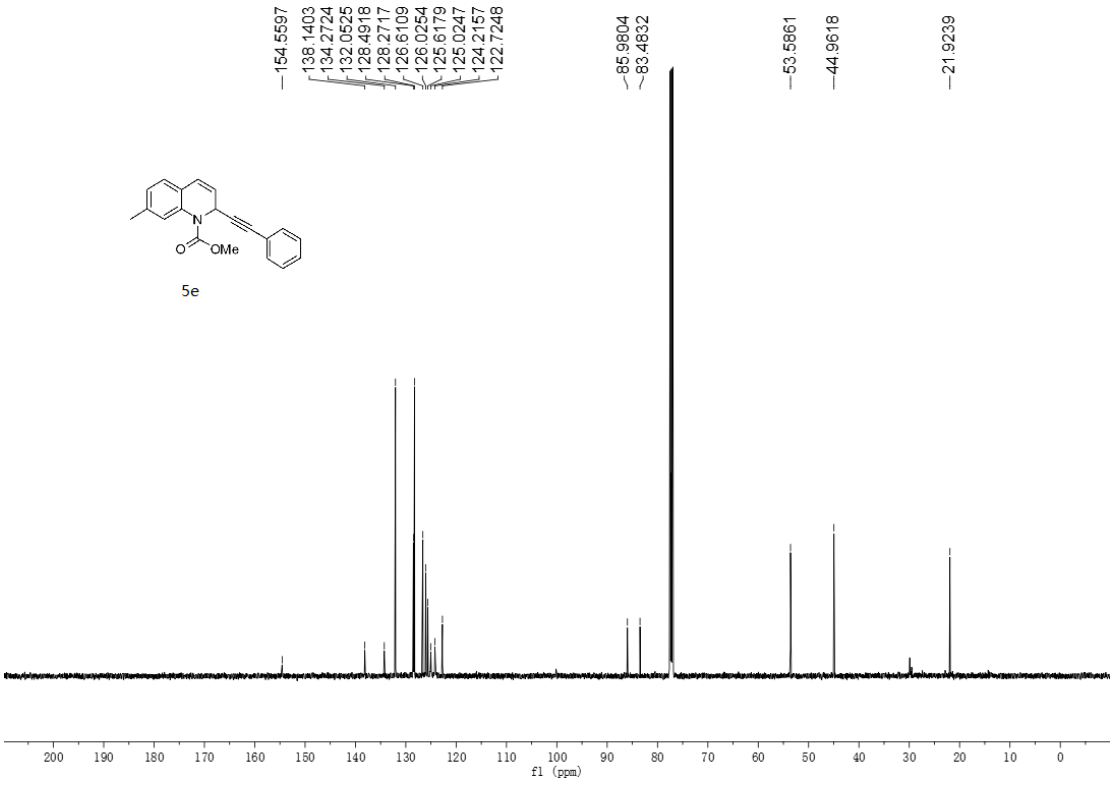
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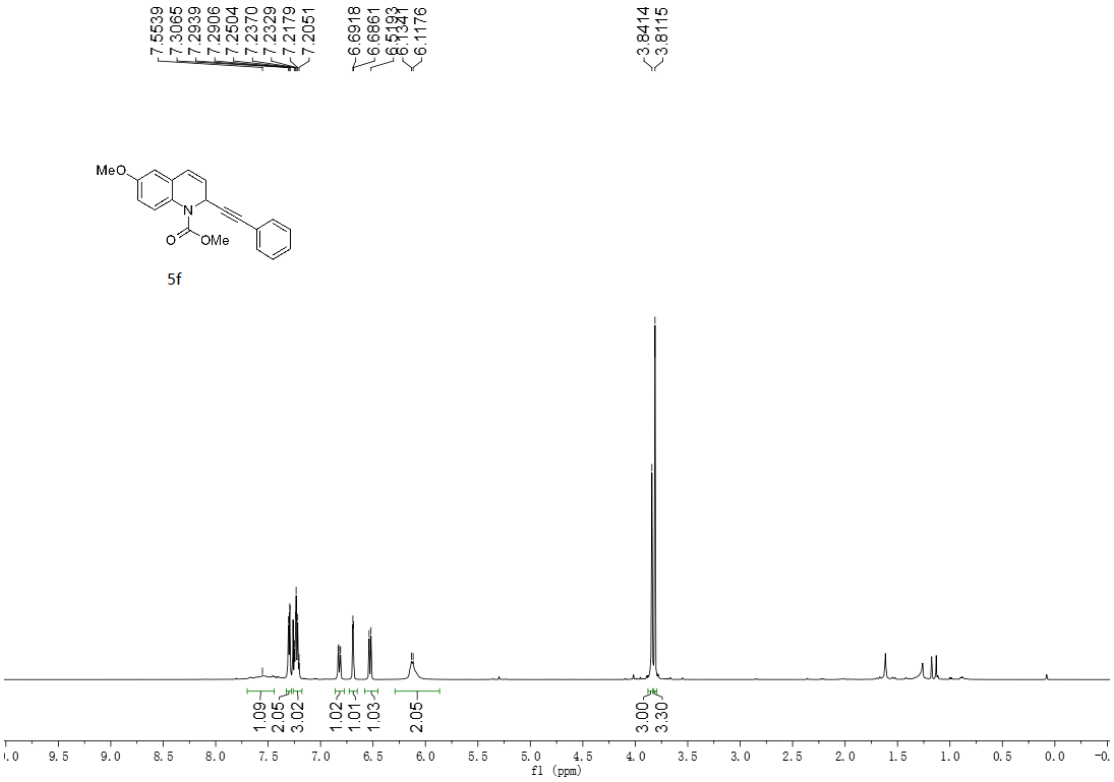
OMe
5e
f1 (ppm)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7.2051
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6.6861
6.5193
6.1176
3.8414
3.8115
MeO
N
O
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5f
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1.02
1.01
1.03
2.05
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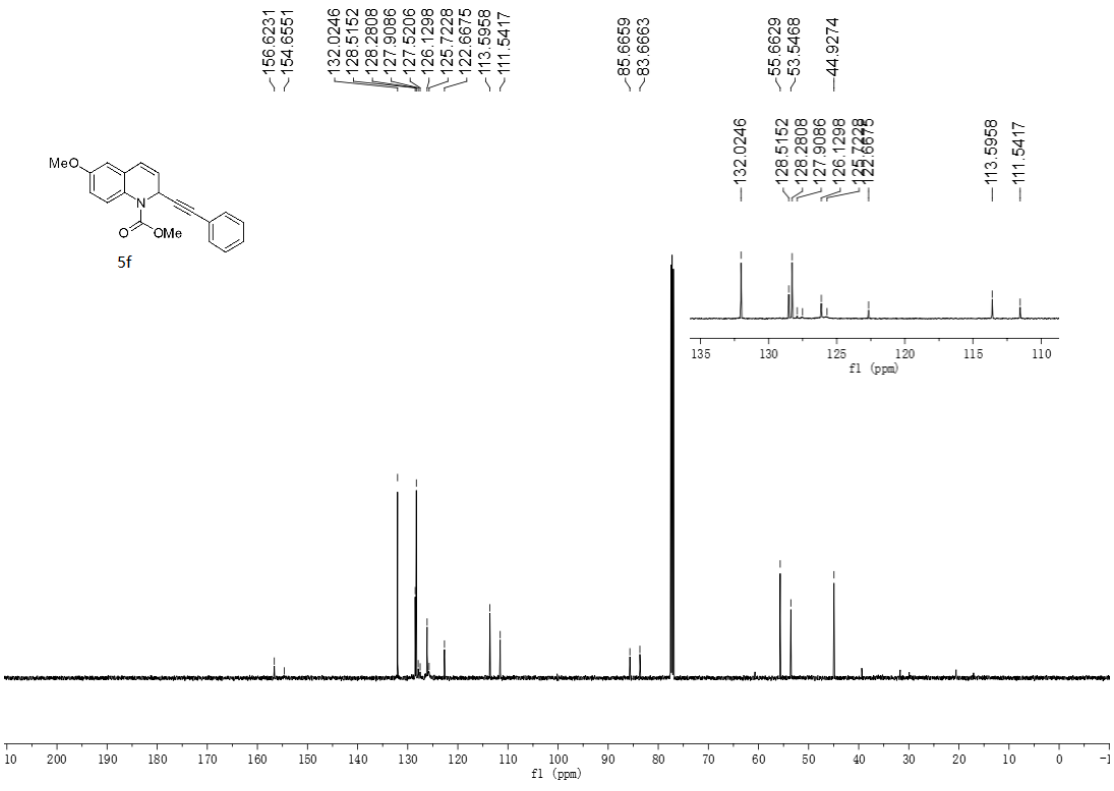
f1 (ppm)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111.5417
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53.5468
44.9274
MeO
N
O
OMe
5f
f1 (ppm)


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7.1640
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2.7650
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2.6347
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2.2987
2.2858
2.2709
2.2580
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1.9152
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1.8953
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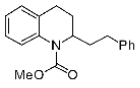
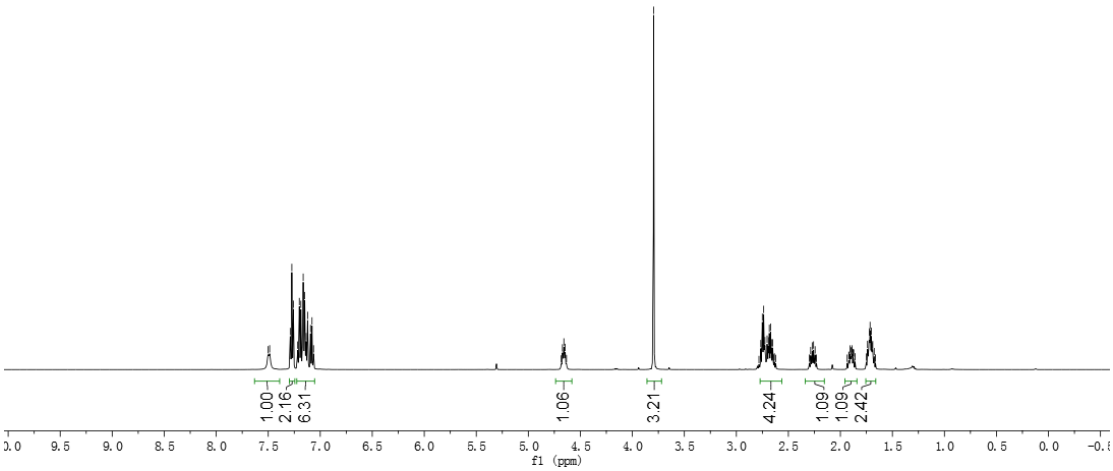

Ph
MeO
O
N

6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1.09
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f1 (ppm)


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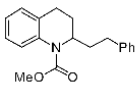
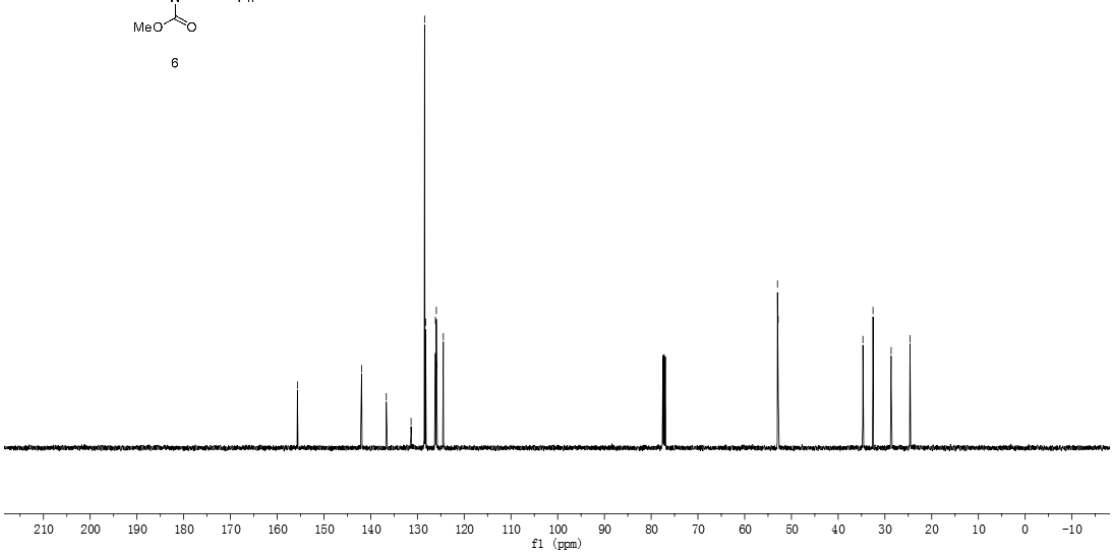

Ph
MeO
O
N

6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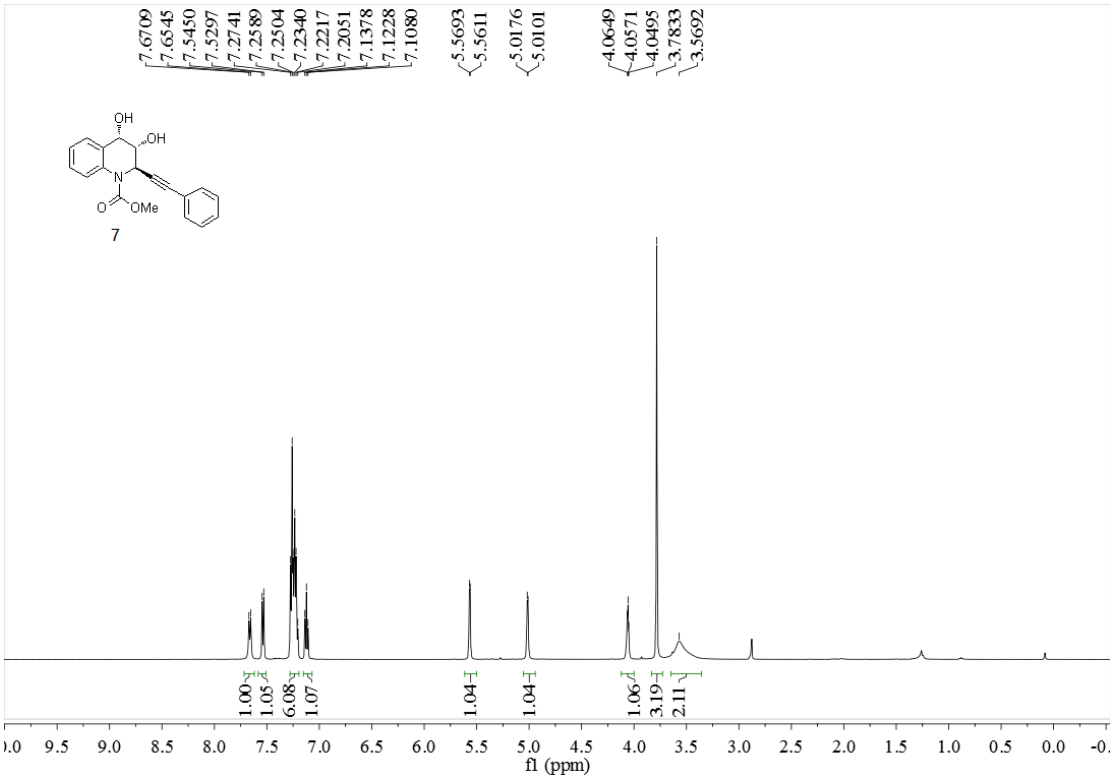
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7.1228
7.1080
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5.5611
5.0176
5.0101
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4.0571
4.0495
3.7833
3.5692
OH
OH
N
O
OMe
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1.07
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1.06
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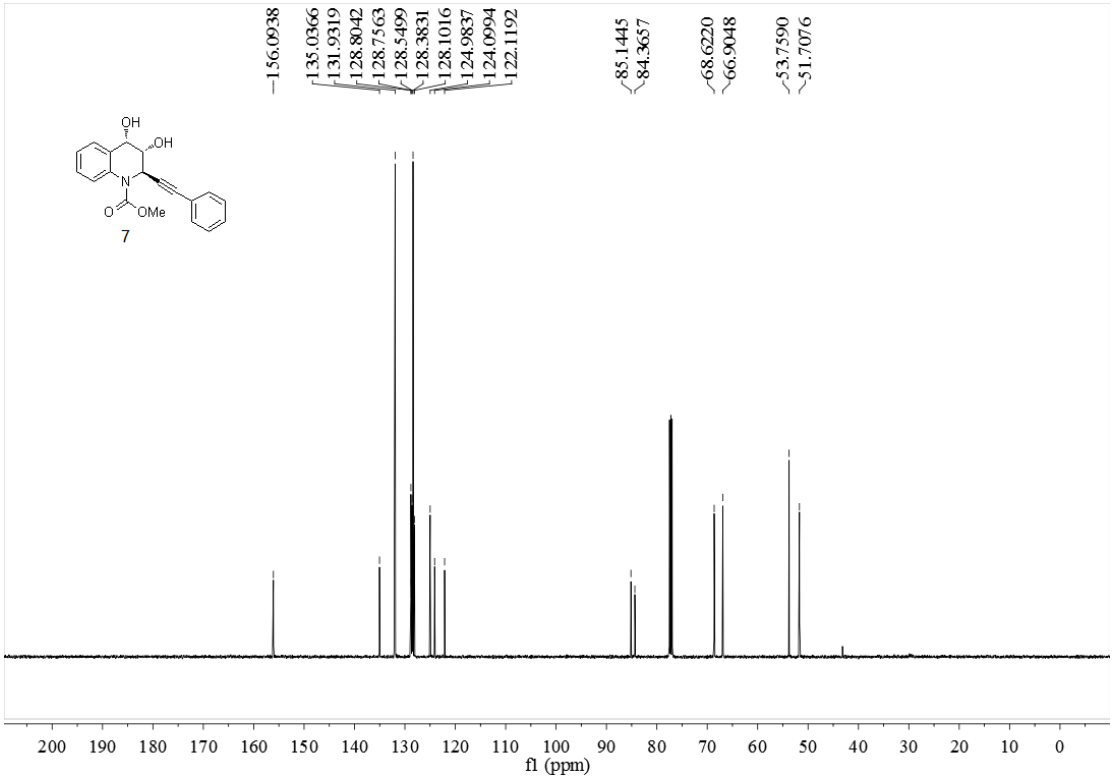
f1 (ppm)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OH
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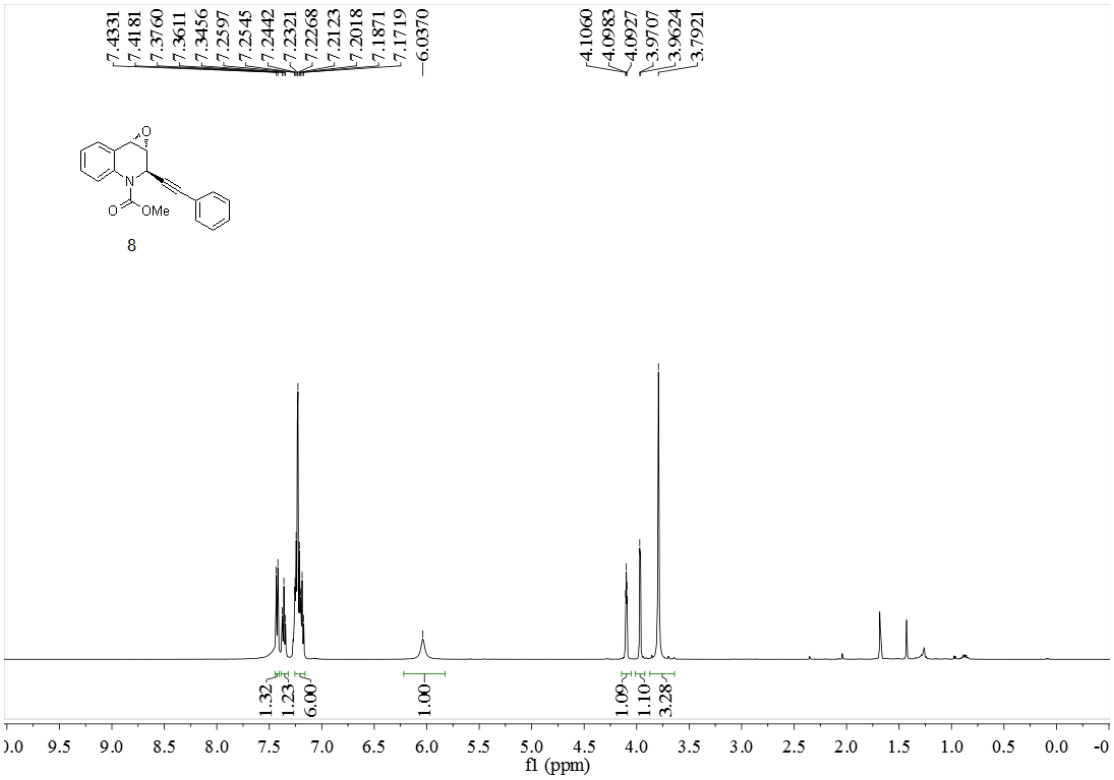
O
OMe
7
f1 (ppm)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OMe
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6.00
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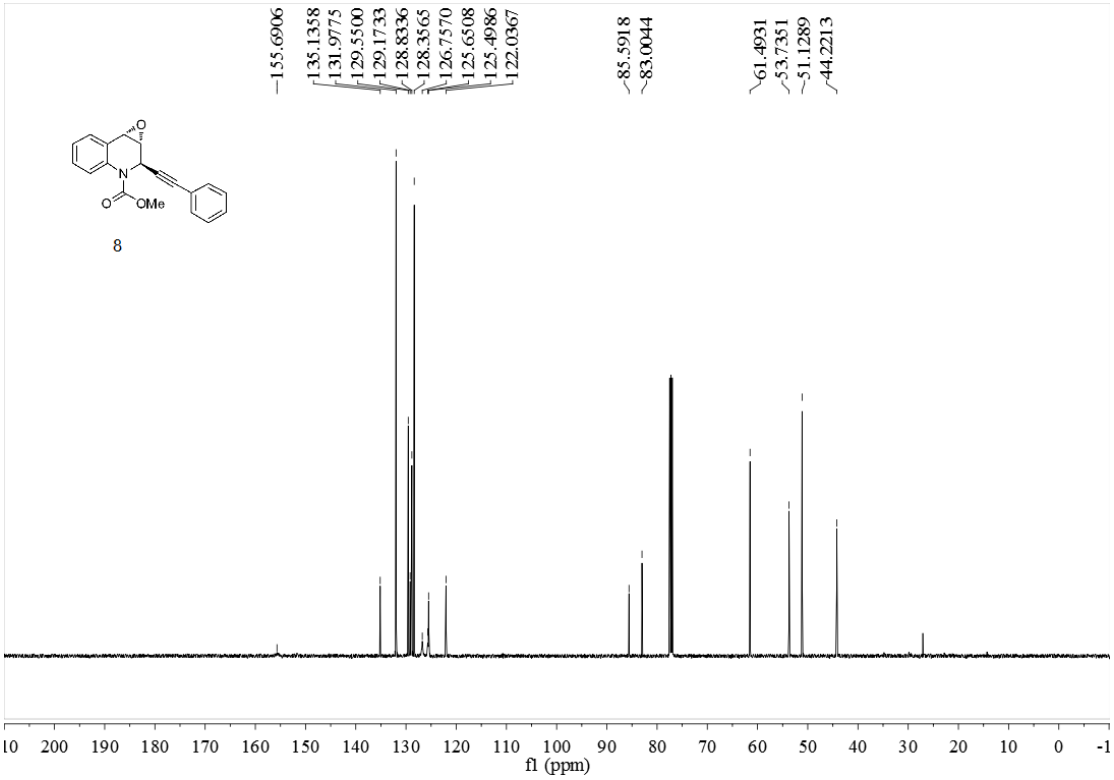
3.28
f1 (ppm)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OMe
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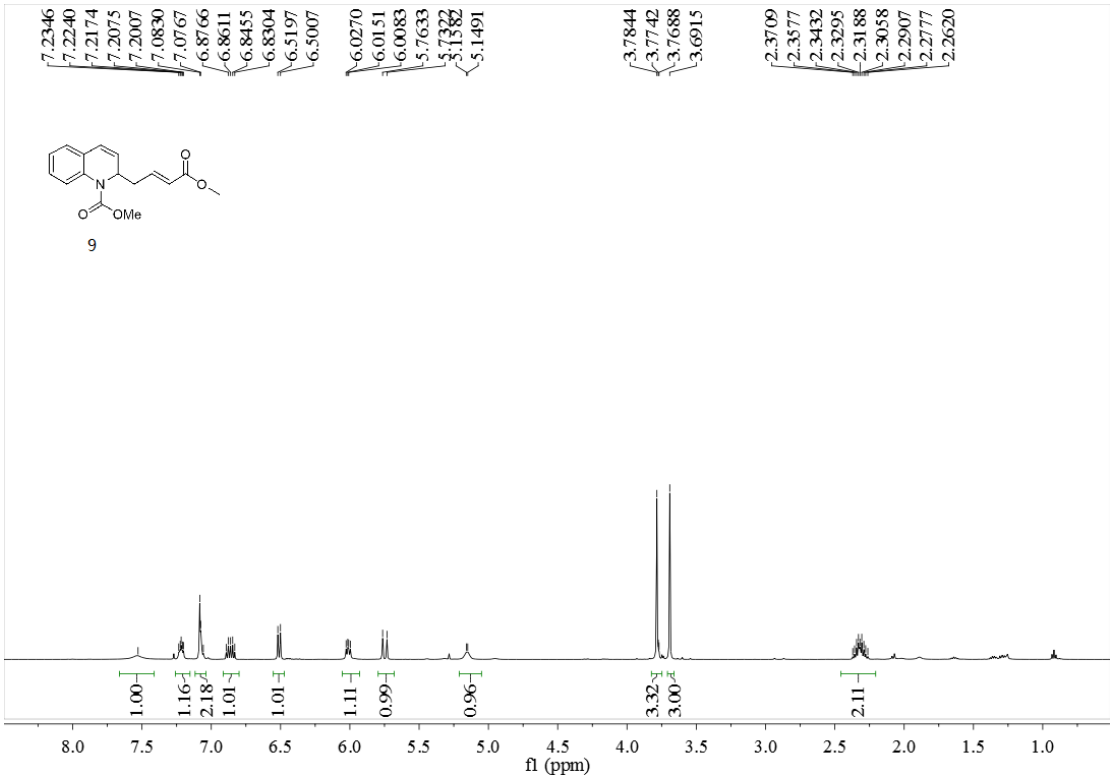
f1 (ppm)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2.2907
2.2777
2.2620
OMe
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1.01
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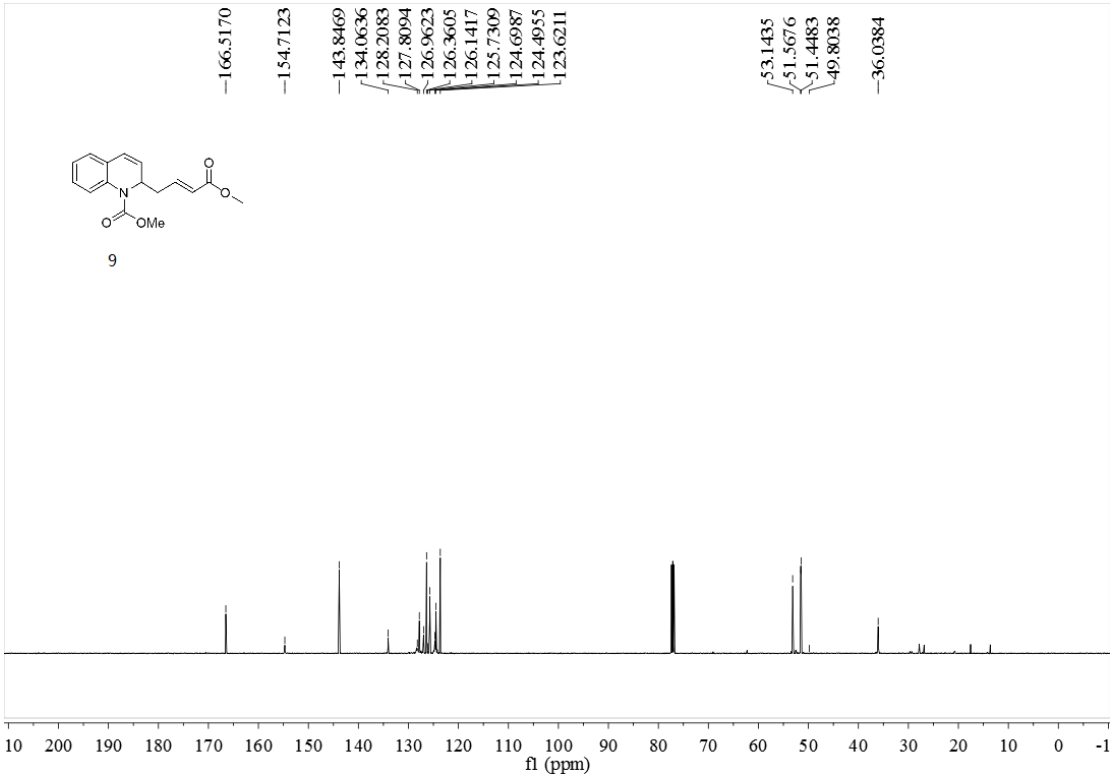
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51.4483
49.8038
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OMe
9
10
200
190
180
170
160
150
140
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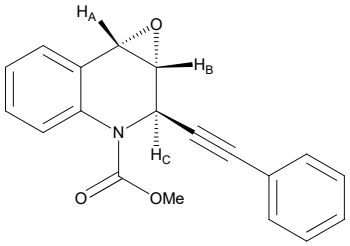
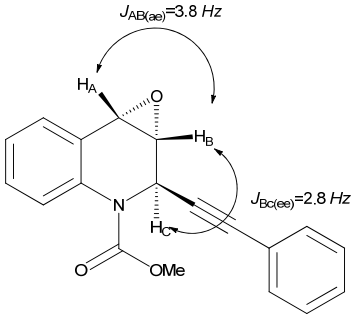
40
30
20
10
0
-1
f1 (ppm)

Determining the stereochemistry of 8



(1a*R*,2*R*,7b*S*)-Methyl 2-(phenylethynyl)-1a,2-dihydrooxireno[2,3-c]quinoline-3(7b*H*)-carboxylate (8)

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.43 (d, *J* = 7.5 Hz, 1H), 7.36 (t, *J* = 7.6 Hz, 1H), 7.27–7.15 (m, 5H), 6.04 (s, 1H), 4.10 (dd, *J* = 3.8, 2.8 Hz, 1H), 3.97 (d, *J* = 4.1 Hz, 1H), 3.79 (s, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 155.6, 135.1, 132.0, 129.6, 129.2, 128.8, 128.4, 126.8, 125.7, 125.5, 122.0, 85.6, 83.0, 61.5, 53.7, 51.1, 44.2, 26.9. HRMS (EI) m/z $[M + H]^+$ calculated for $C_{19}H_{16}NO_3$: 306.1125, found 306.1133. The stereochemistry of **8** was determined by ^{1}H-NMR spectroscopic analysis. The coupling constants[1-2] of protons H_a, H_b and H_c (see below) indicate that the alkynyl group is *trans* to the epoxide moiety.[1-3]



1. E. W. Garbisch Jr., M. G. Griffith, *J. Am. Chem. Soc.* 1968, **90**, 6543.

2. J. J. Dong, P. Saisaha, T. G. Meinds, P. L. Alsters, E. G. Ijpeij, R. P. Van Summeren, B. Mao, M. Fañanás-Mastral, J. W. de Boer, R. Hage, B. L. Feringa, W. R. Browne, *ACS Catal*. 2012, **2**, 1087.

3. L. Jean-Gérard, F. Macé, A. N. Ngo, M. Pauvert, H. Dentel, M. Evain, S. Collet, A. Guingant, *Eur. J. Org. Chem.* 2012, 4240;