

Supporting Information

Nickel-Catalyzed Enantioselective Umpolung Hydrogenation for Stereoselective Synthesis of β -Amido Esters

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Division of Chemistry and Biological Chemistry, School of Physical and Mathematical Sciences
Nanyang Technological University, 21 Nanyang Link, SPMS-CBC-06-03, Singapore 637371.

NMR spectra

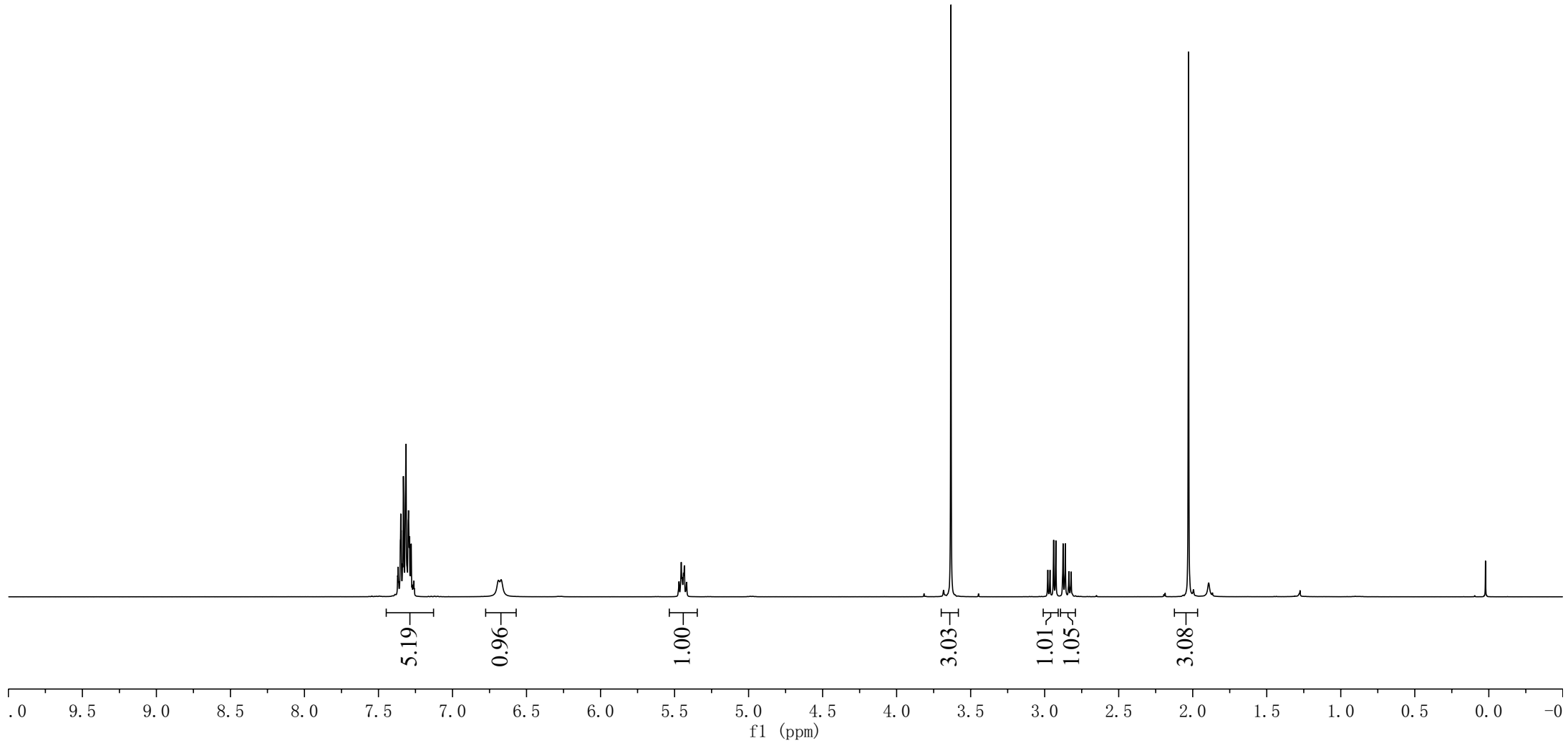
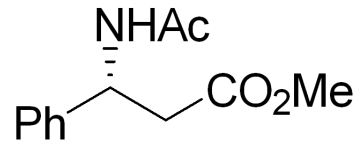
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7.35
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7.34
7.33
7.31
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7.28
7.27
7.27
7.26
7.26
6.69
6.67

5.47
5.45
5.45
5.44
5.43
5.42

3.63

2.98
2.96
2.94
2.92
2.88
2.86
2.84
2.83

^1H NMR (400 MHz, CDCl_3)



7.35
7.34
7.34
7.32
7.32
7.31
7.31
7.30
7.28
7.28
7.27
7.27
7.27
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6.65

5.45
5.43
5.43
5.42
5.41
5.40

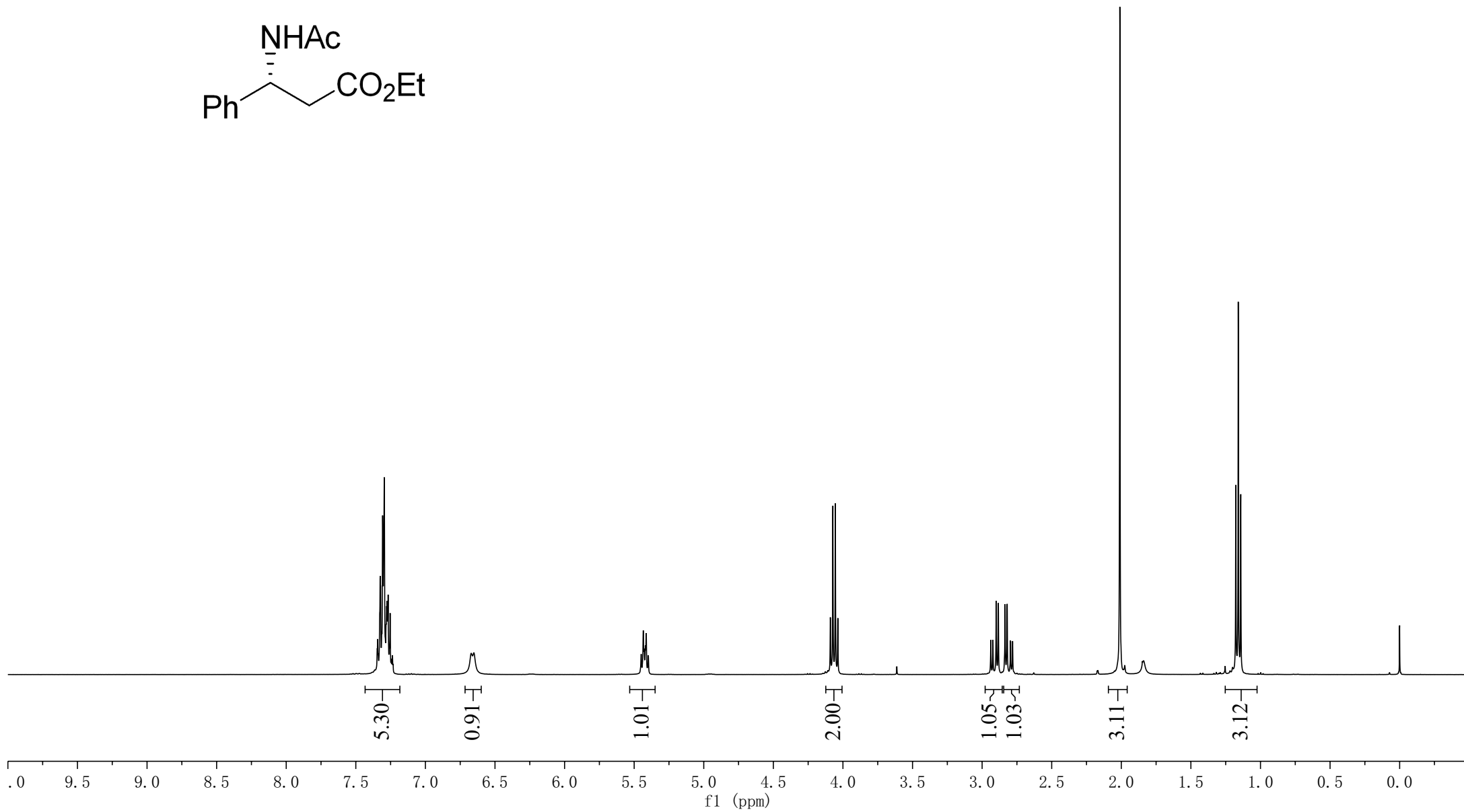
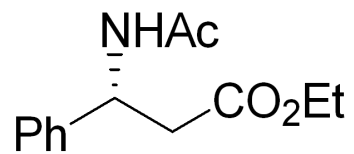
4.09
4.07
4.05
4.04

2.94
2.92
2.90
2.88
2.84
2.82
2.80
2.78

-2.01

1.18
1.16
1.14

¹H NMR (400 MHz, CDCl₃)



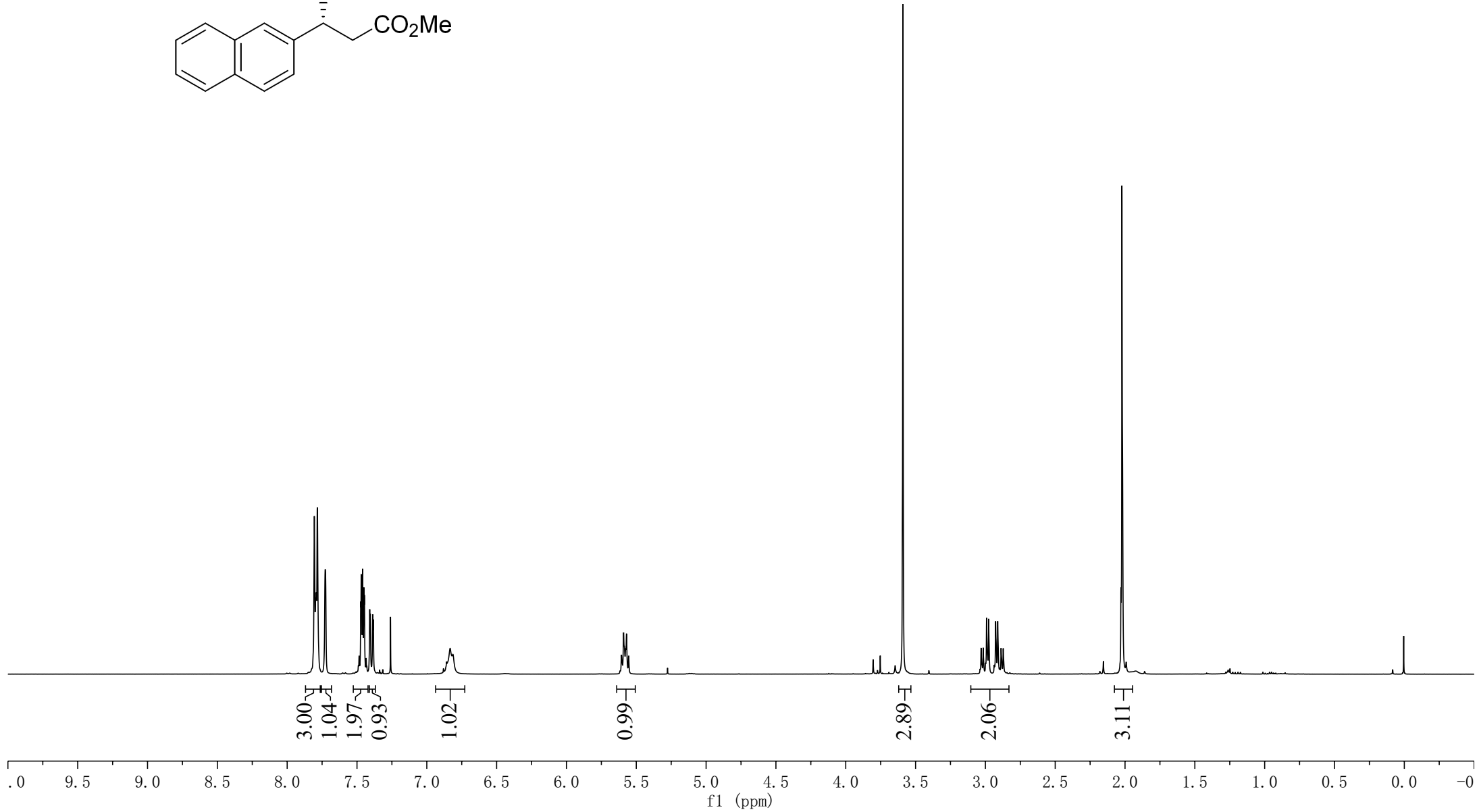
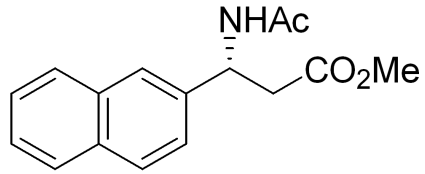
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7.80
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7.79
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6.88
6.88
6.86
6.83
6.81

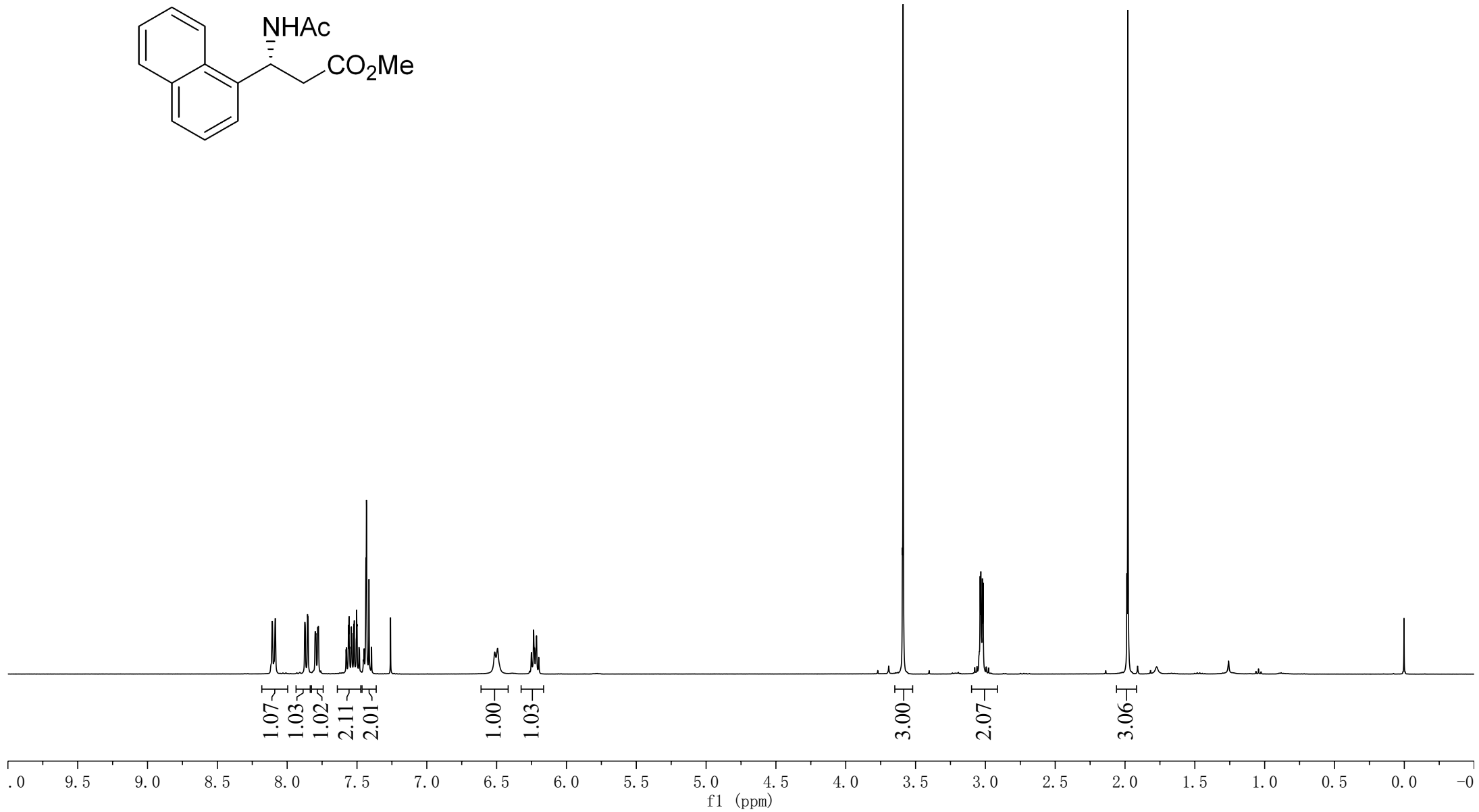
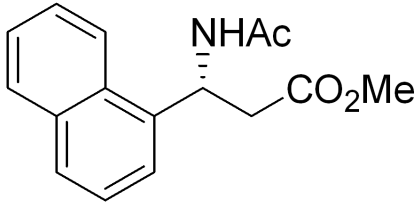
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5.57
5.55

3.59

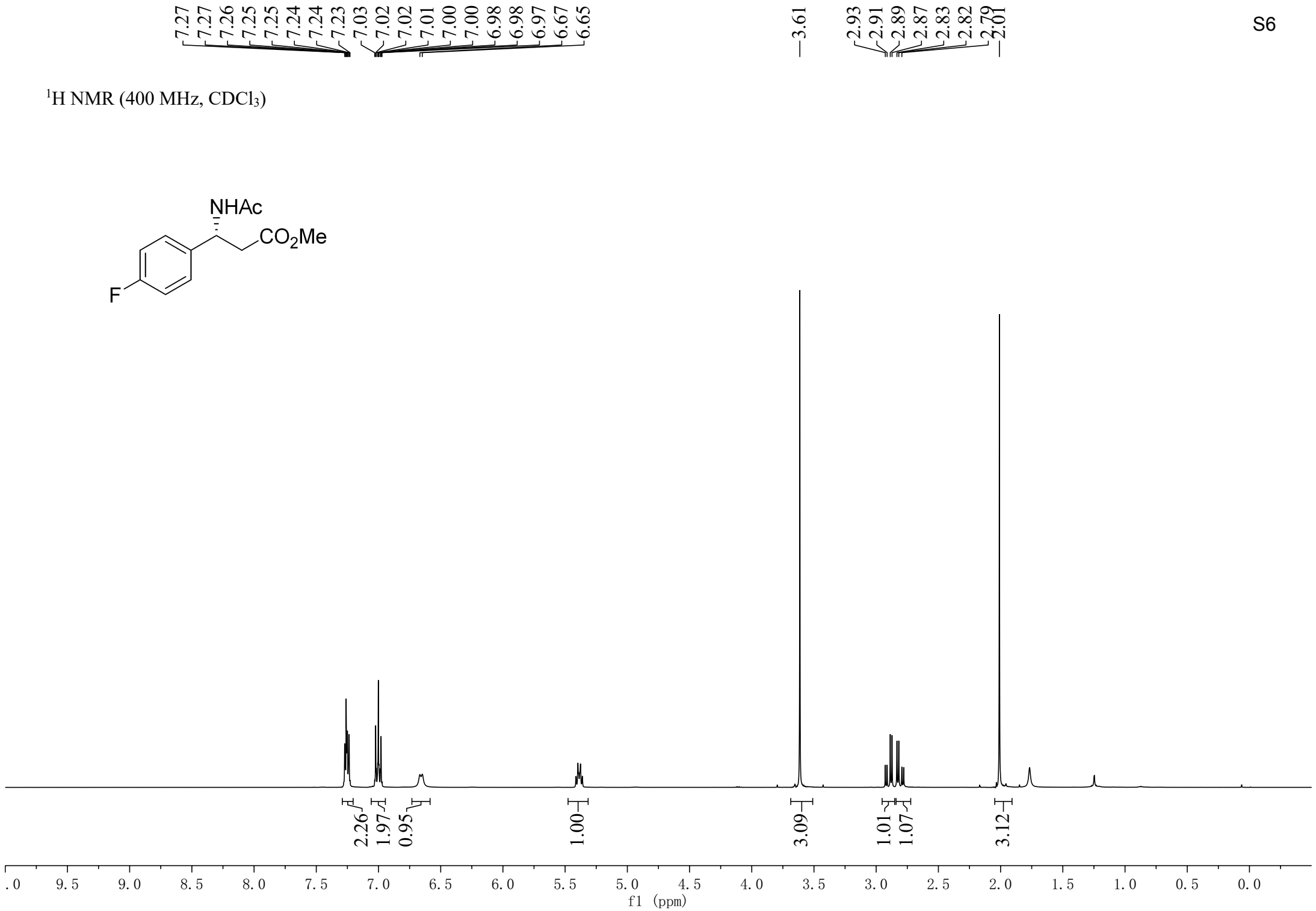
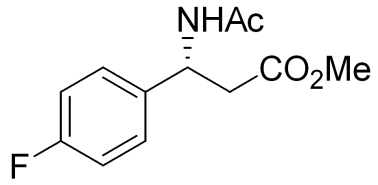
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3.02
2.99
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2.93
2.91
2.89
2.82

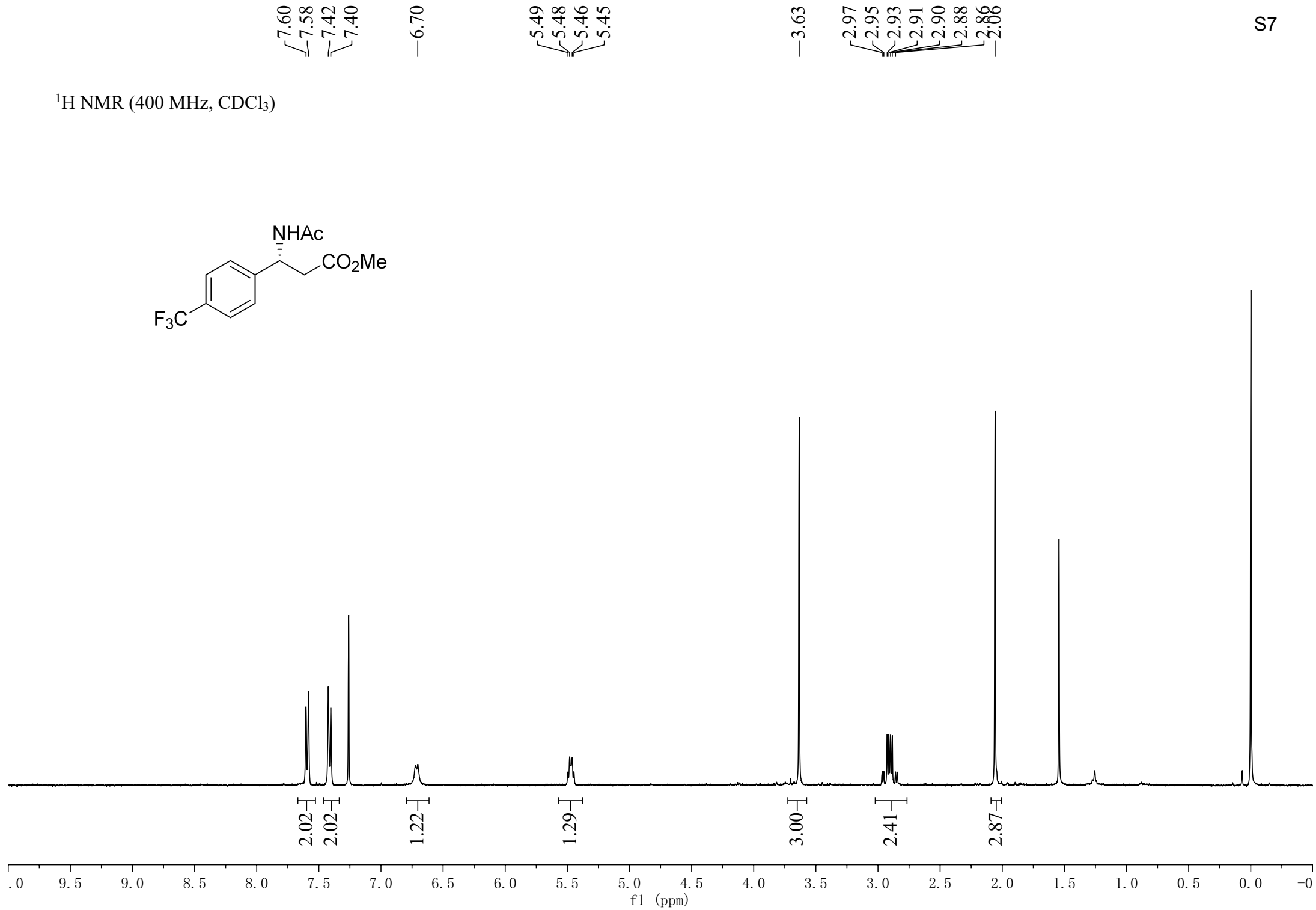
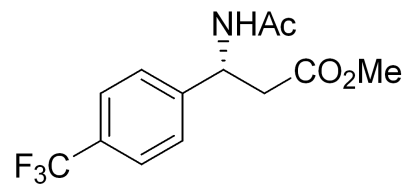
^1H NMR (400 MHz, CDCl_3)



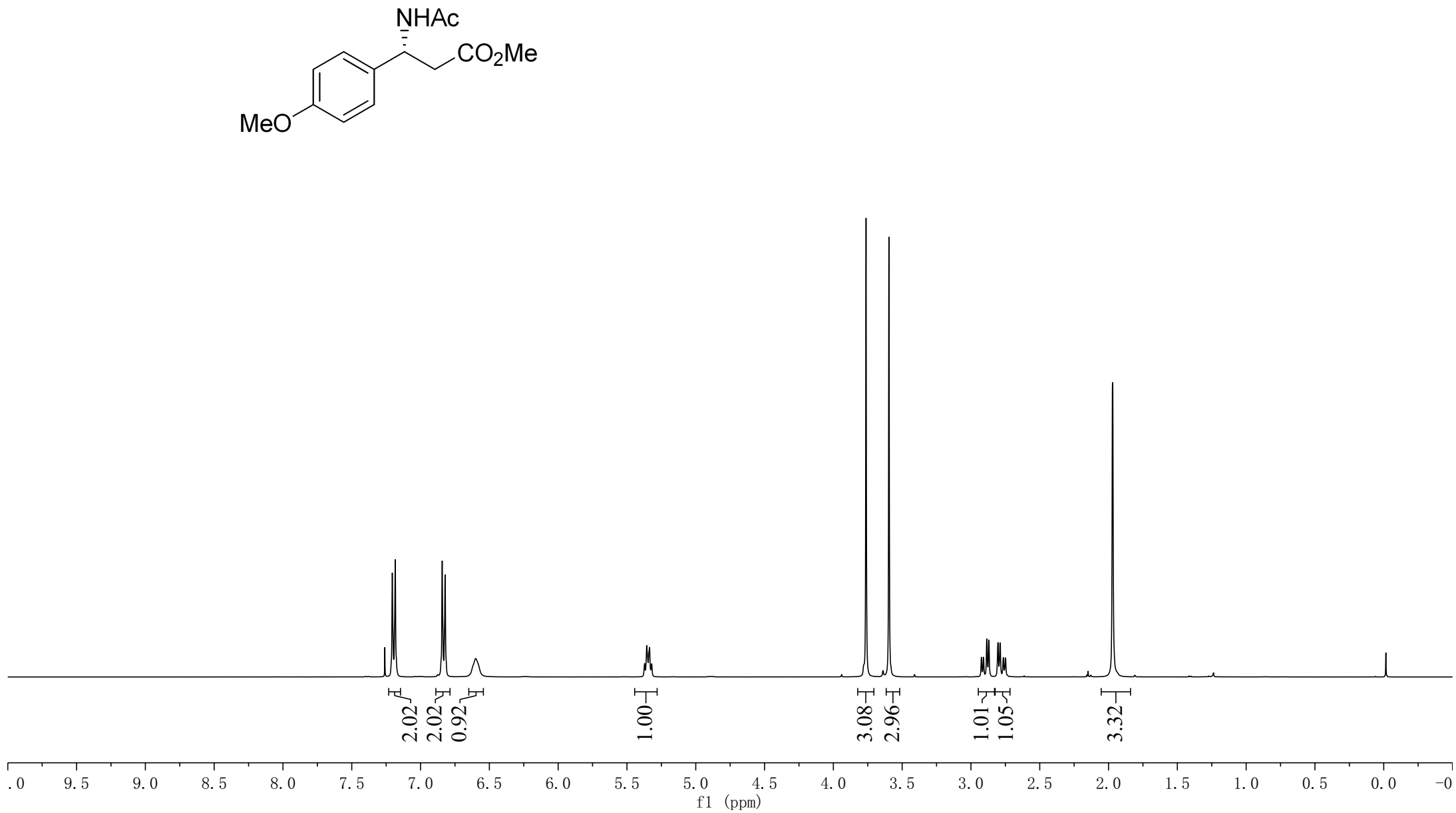
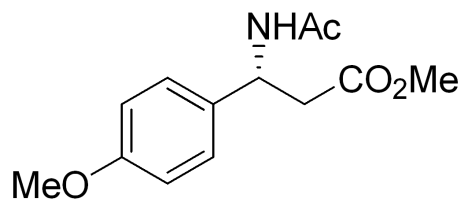
^1H NMR (400 MHz, CDCl_3)

¹H NMR (400 MHz, CDCl₃)

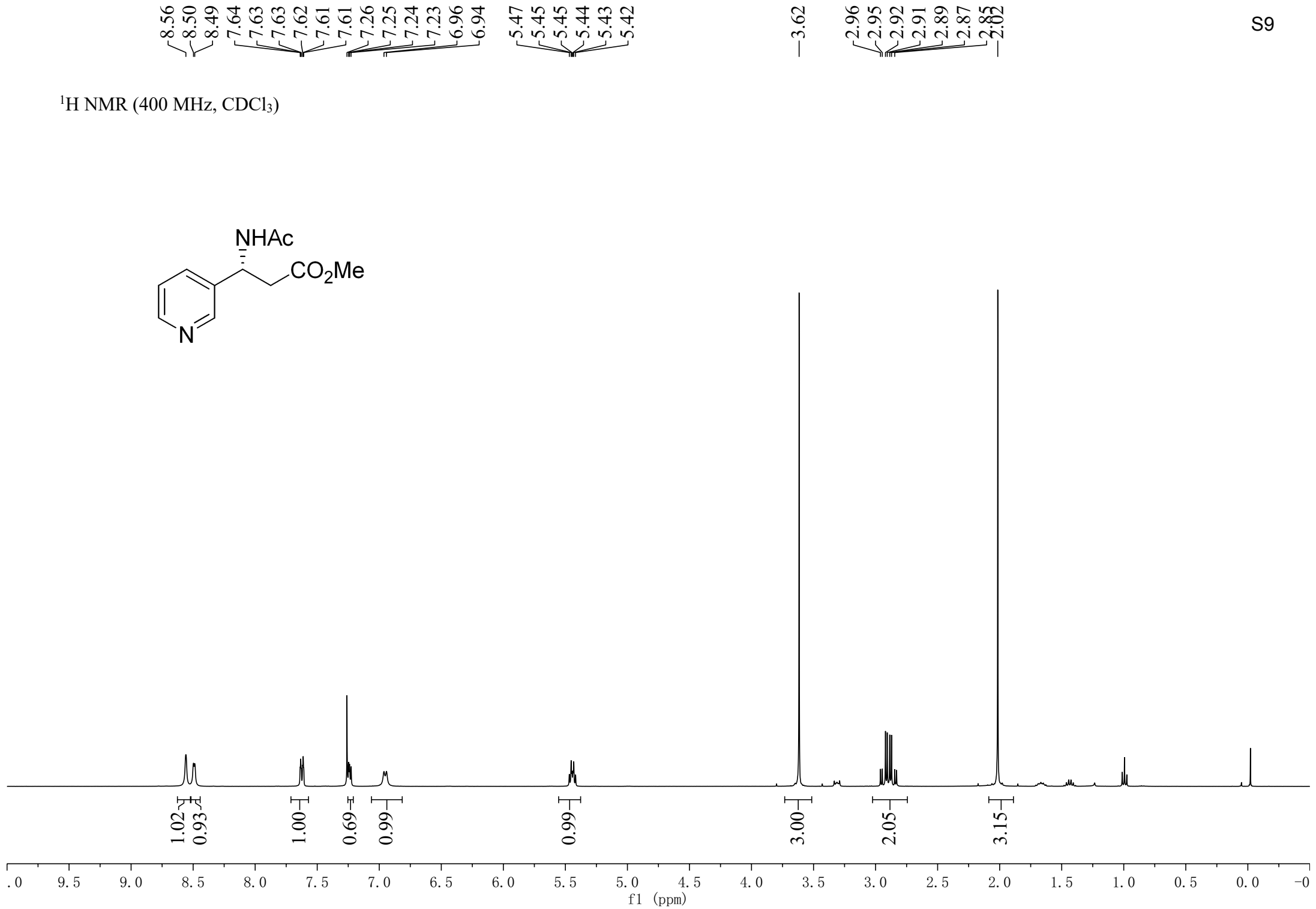
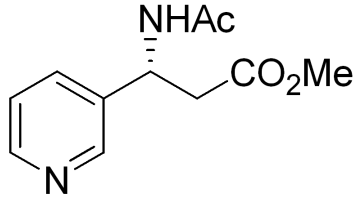


^1H NMR (400 MHz, CDCl_3)

^1H NMR (400 MHz, CDCl_3)



¹H NMR (400 MHz, CDCl₃)

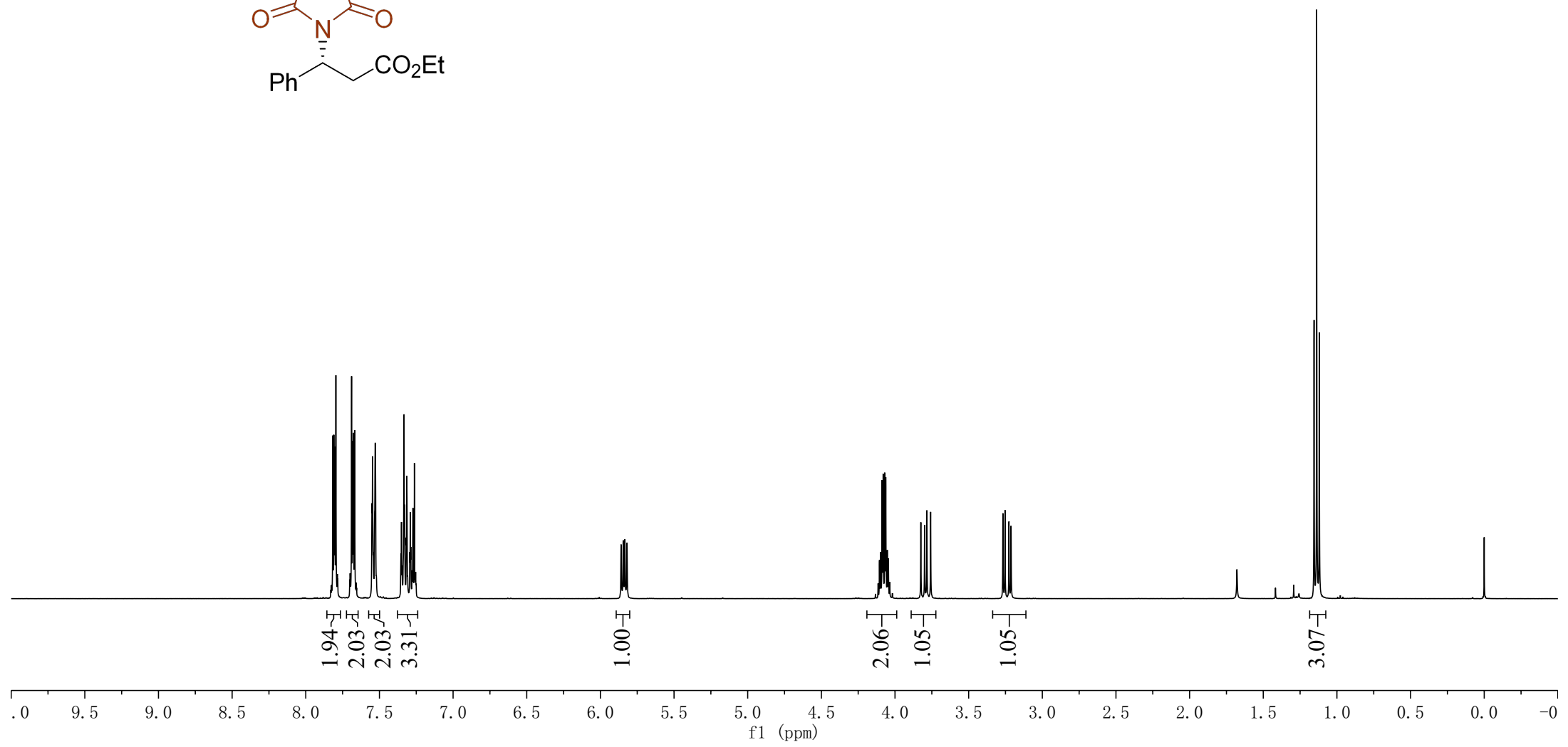
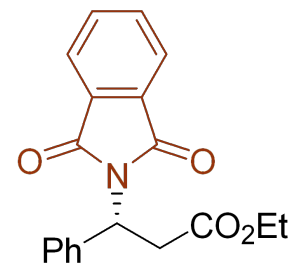


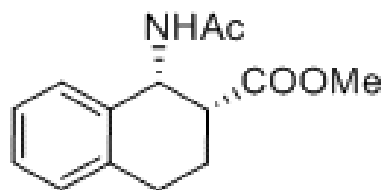
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7.81
7.80
7.80
7.69
7.68
7.68
7.67
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7.55
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7.35
7.33
7.33
7.32
7.31
7.29
7.29
7.29
7.27
7.26
5.86
5.85
5.83
5.82

4.10
4.09
4.08
4.07
4.06
4.05
3.82
3.80
3.78
3.76
3.75
3.25
3.23
3.21

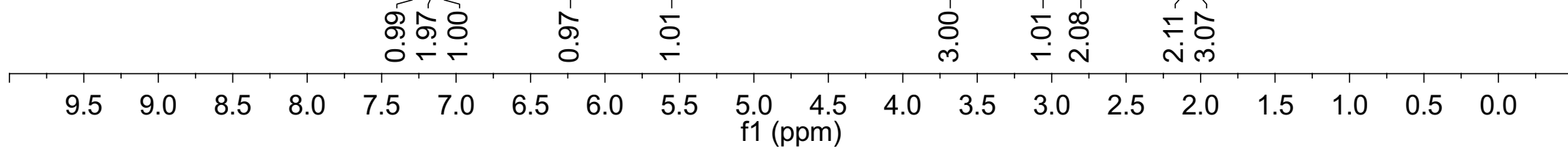
1.16
1.14
1.12

¹H NMR (400 MHz, CDCl₃)

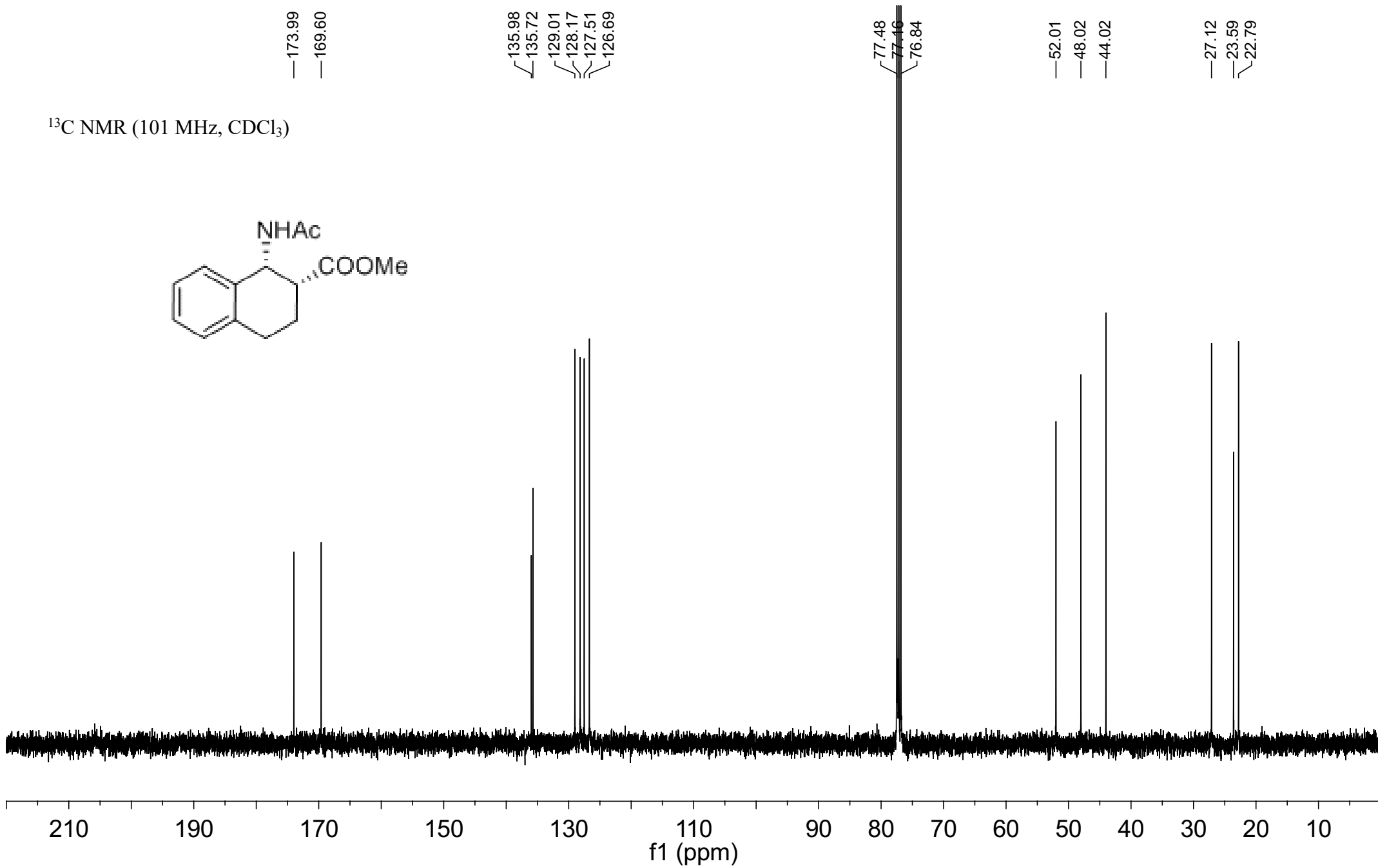
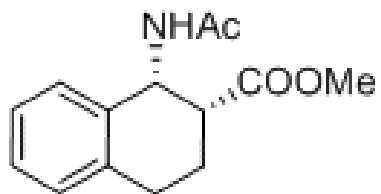


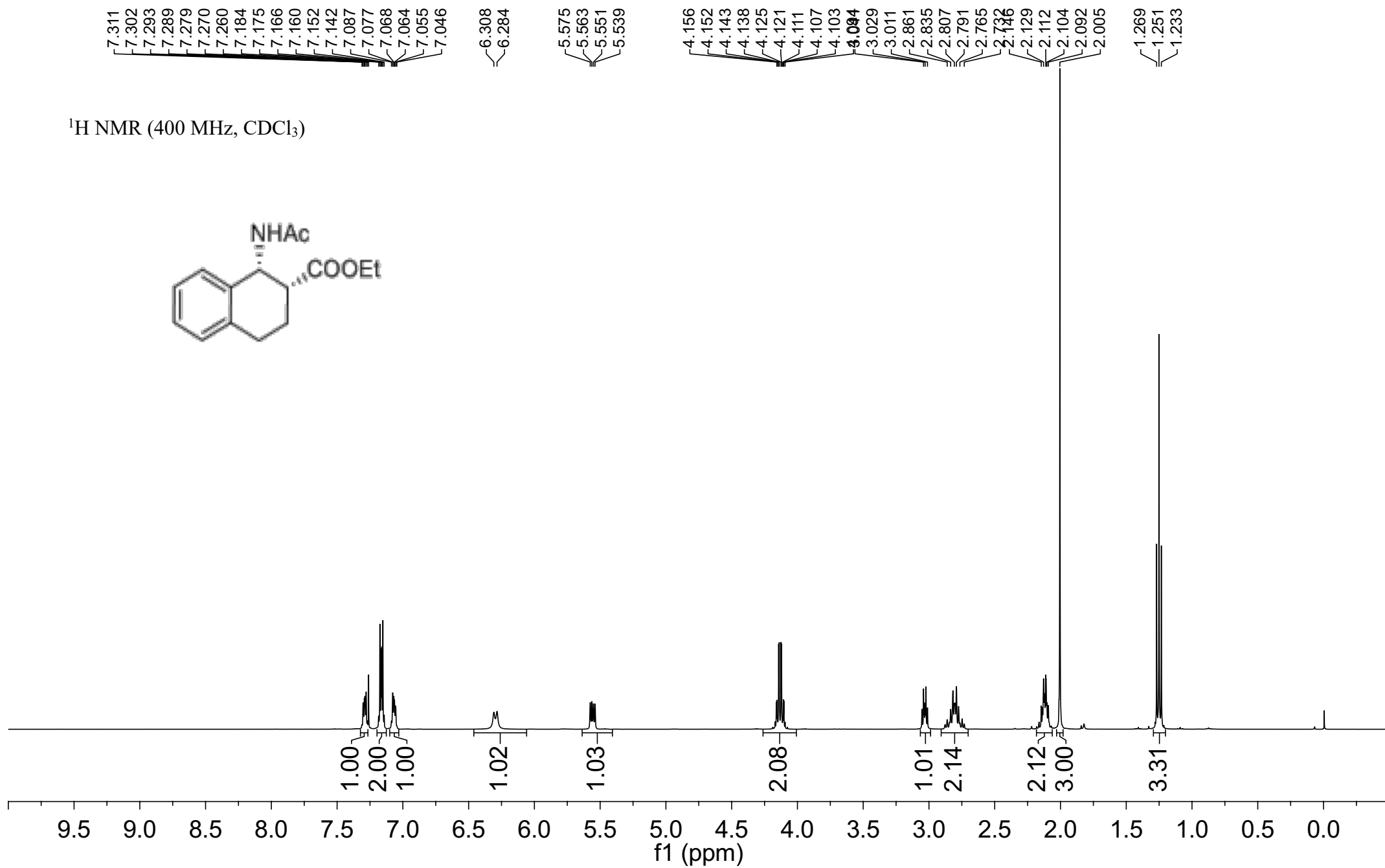
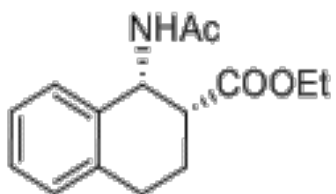
¹H NMR (400 MHz, CDCl₃)

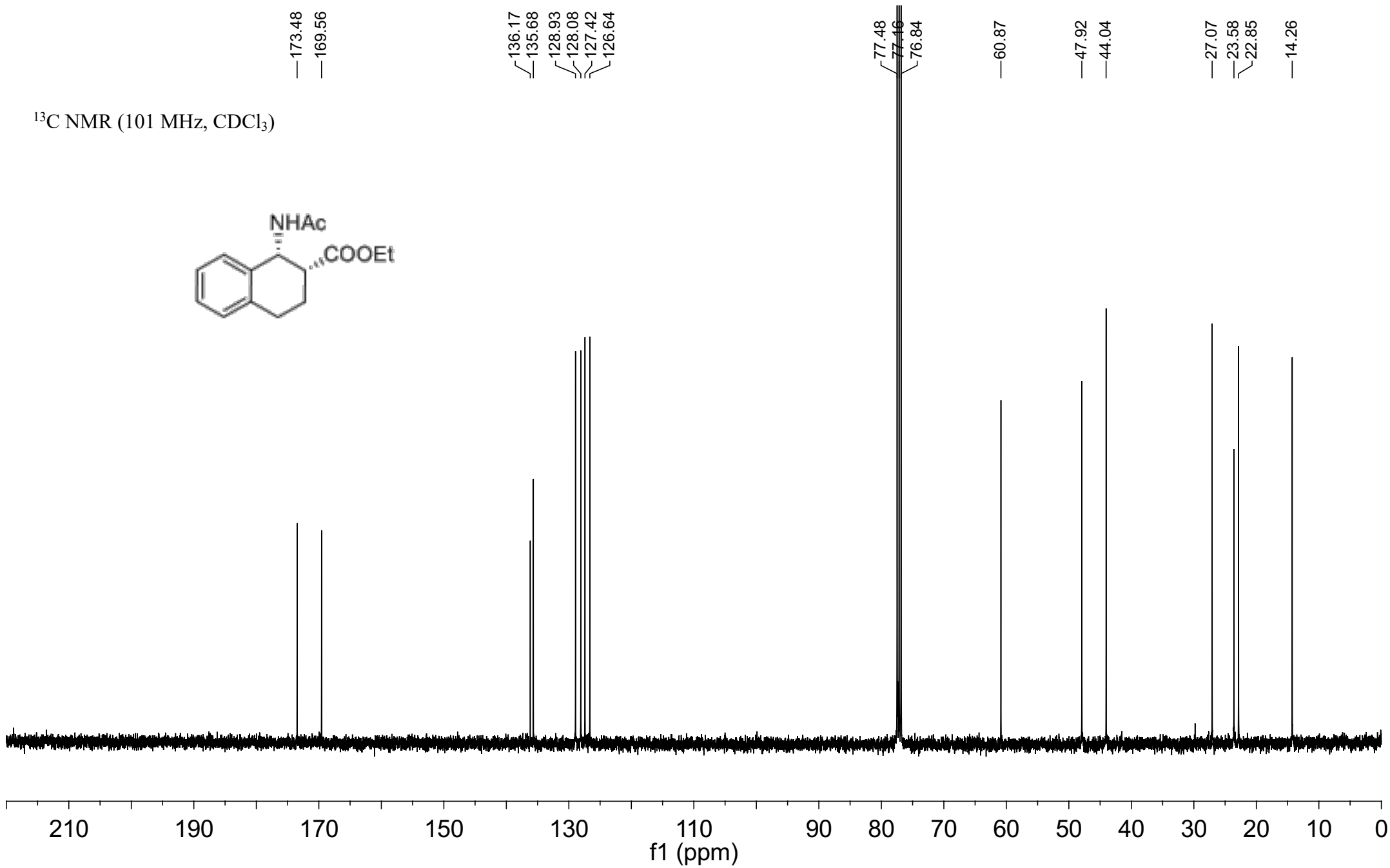
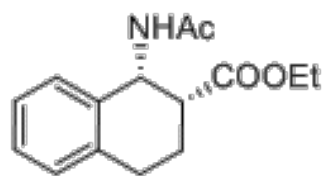
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7.295
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7.280
7.272
7.260
7.194
7.184
7.175
7.170
7.161
7.152
7.095
7.085
7.077
7.072
7.063
6.254
6.230
5.567
5.555
5.543
5.531
3.687
3.063
3.051
3.032
2.817
2.736
2.186
2.171
2.160
2.151
2.139
2.134
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2.100
2.095
2.089
2.076
2.071
2.014

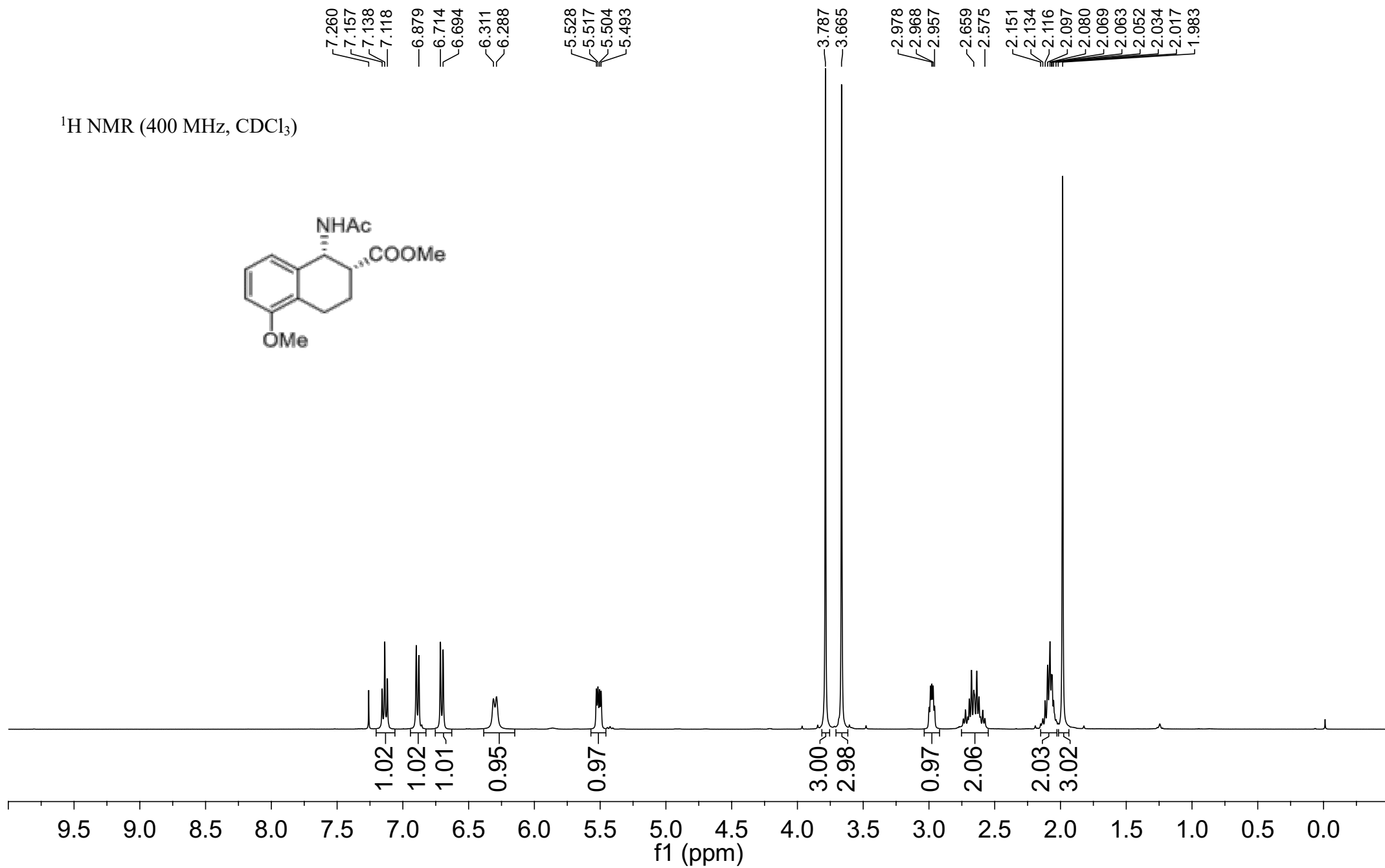
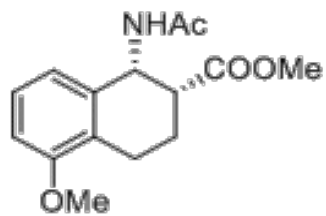


^{13}C NMR (101 MHz, CDCl_3)

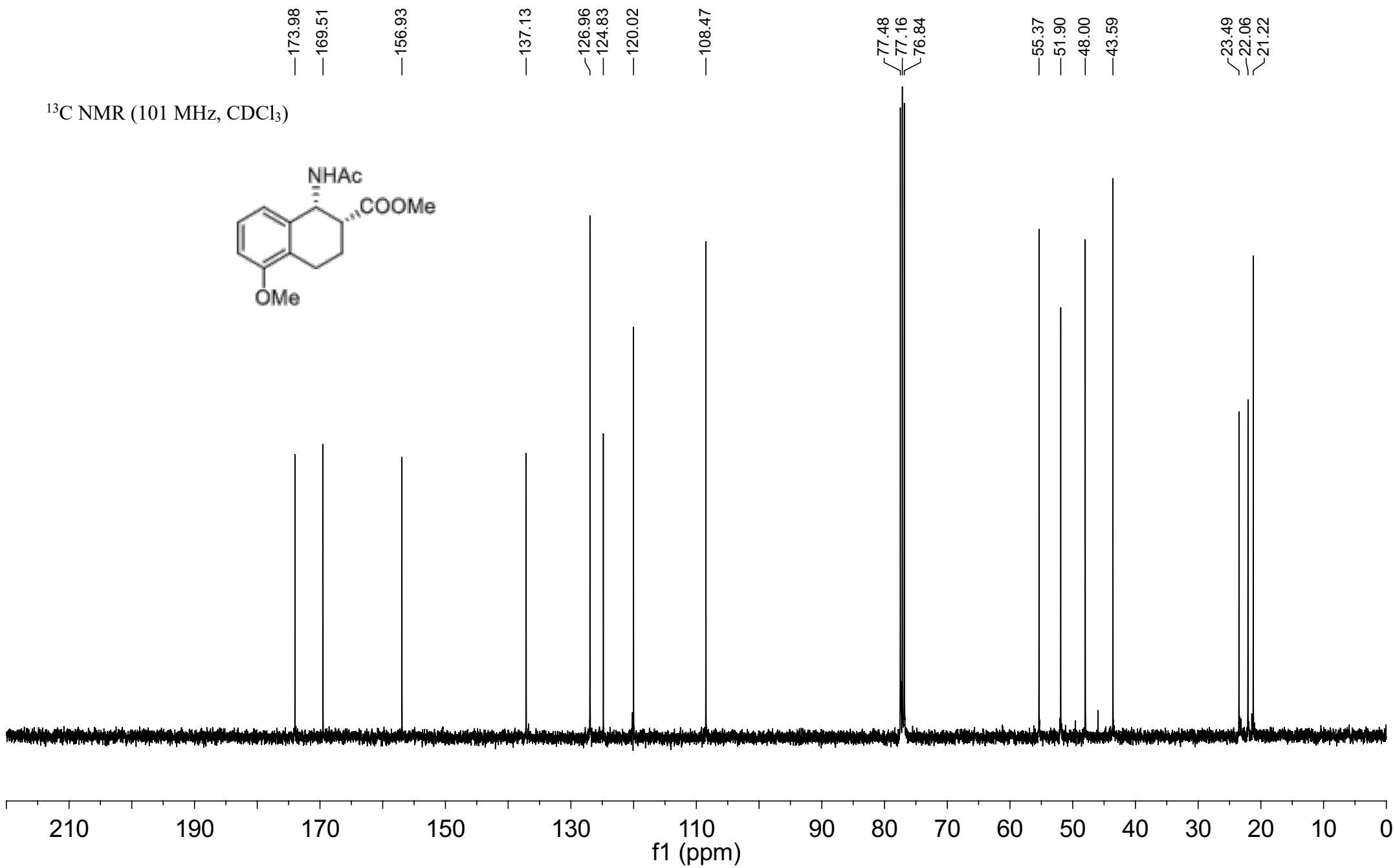
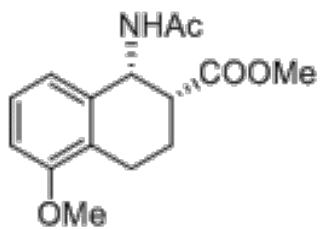


¹H NMR (400 MHz, CDCl₃)

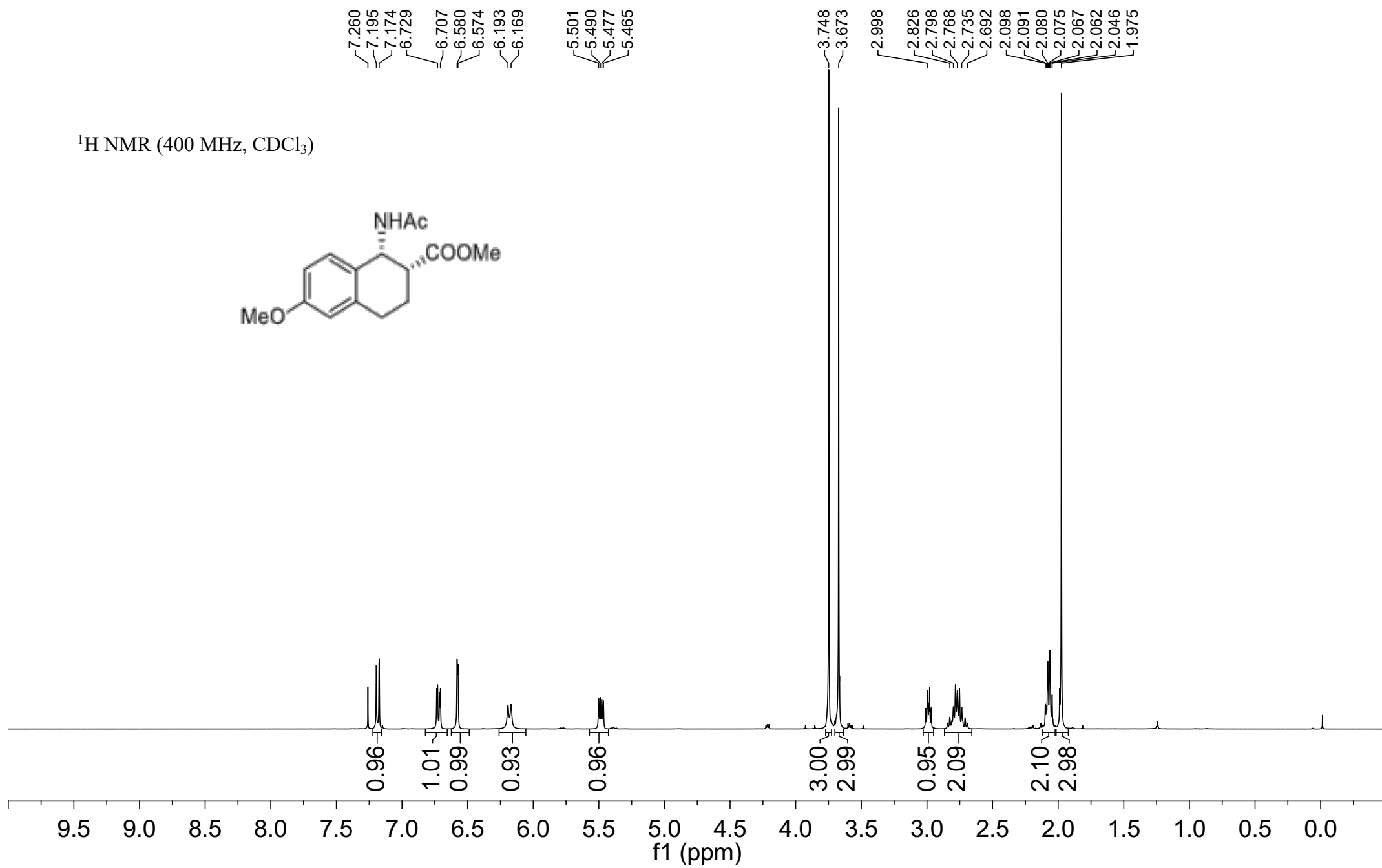
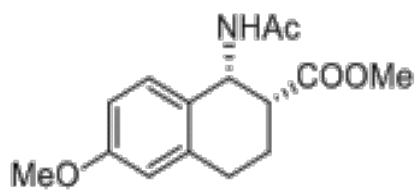
^{13}C NMR (101 MHz, CDCl_3)

¹H NMR (400 MHz, CDCl₃)

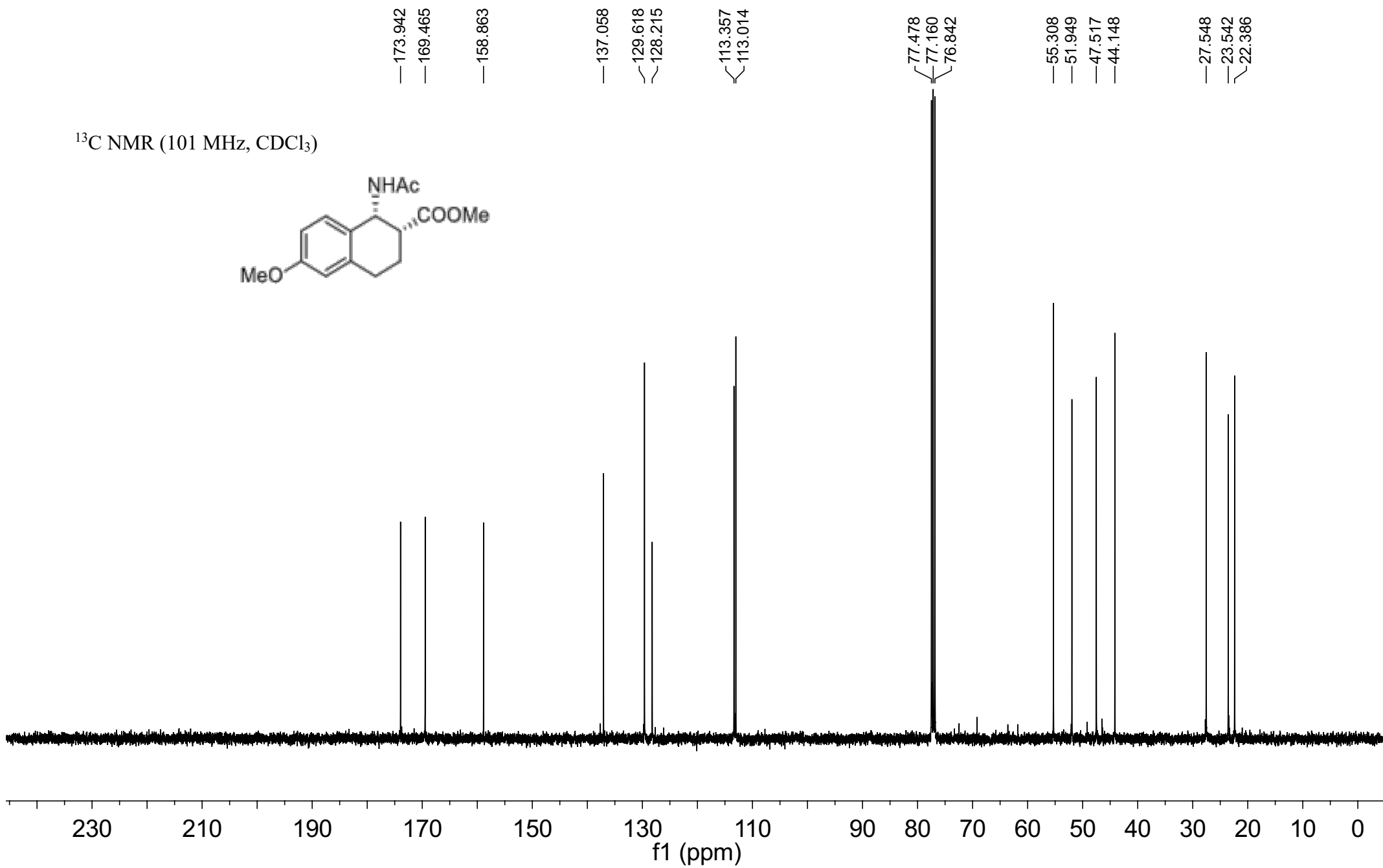
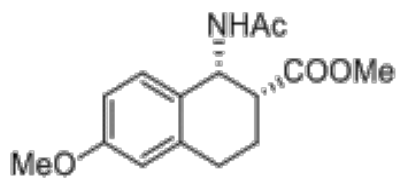
^{13}C NMR (101 MHz, CDCl_3)

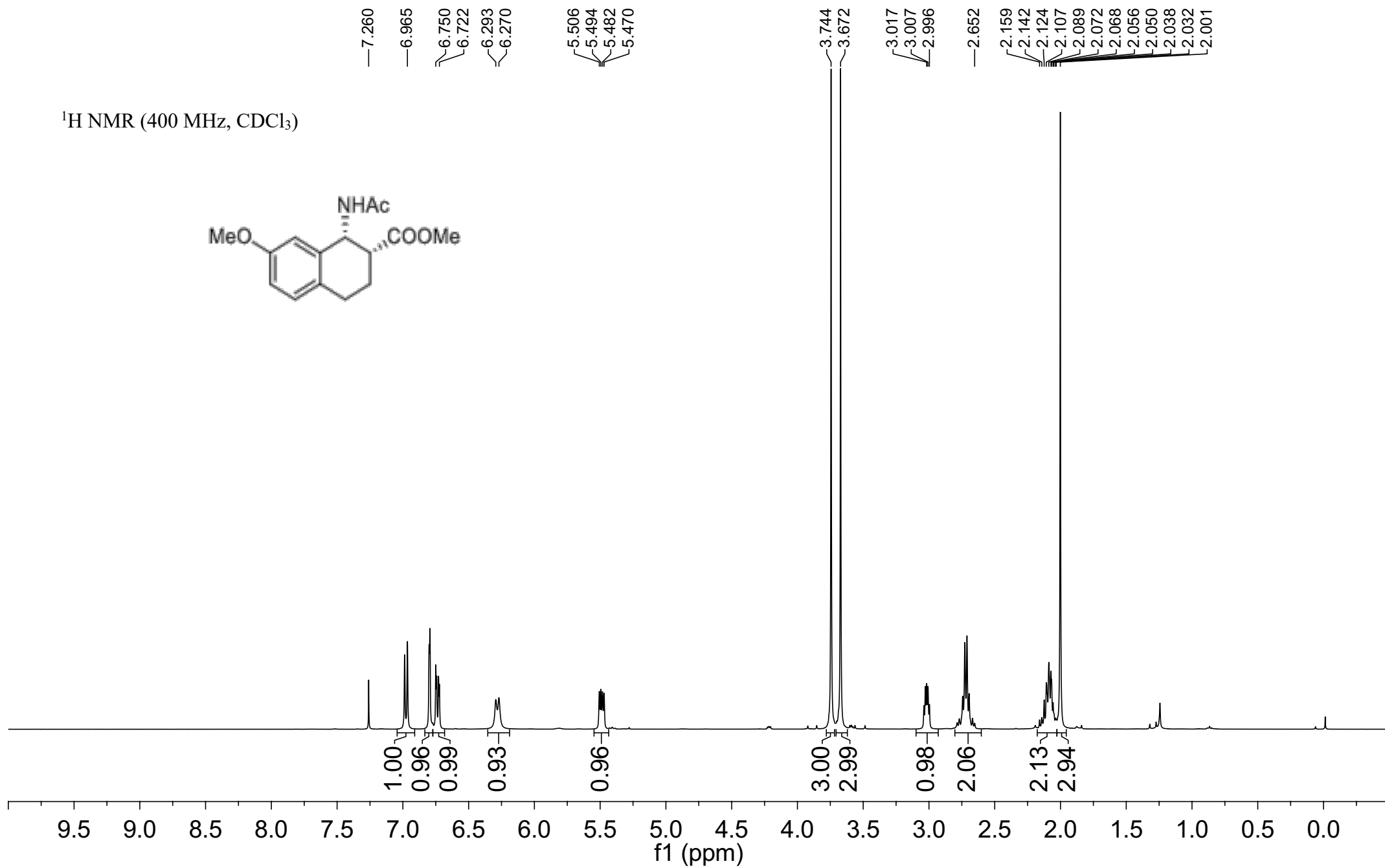
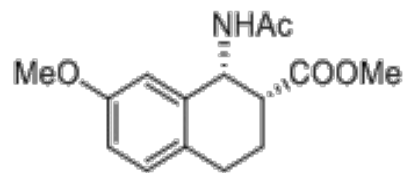


^1H NMR (400 MHz, CDCl_3)

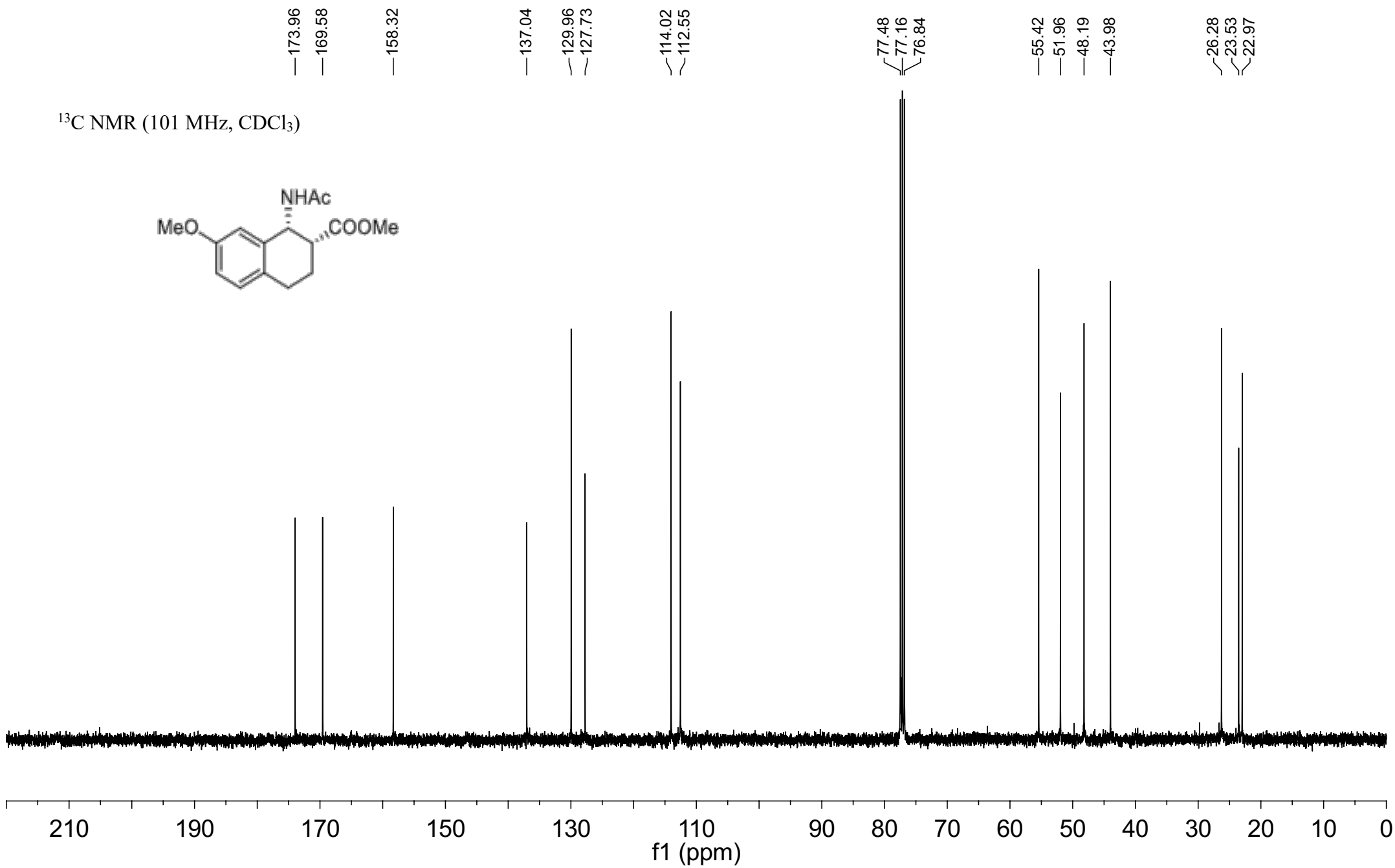
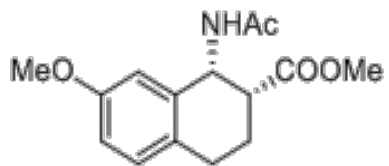


^{13}C NMR (101 MHz, CDCl_3)



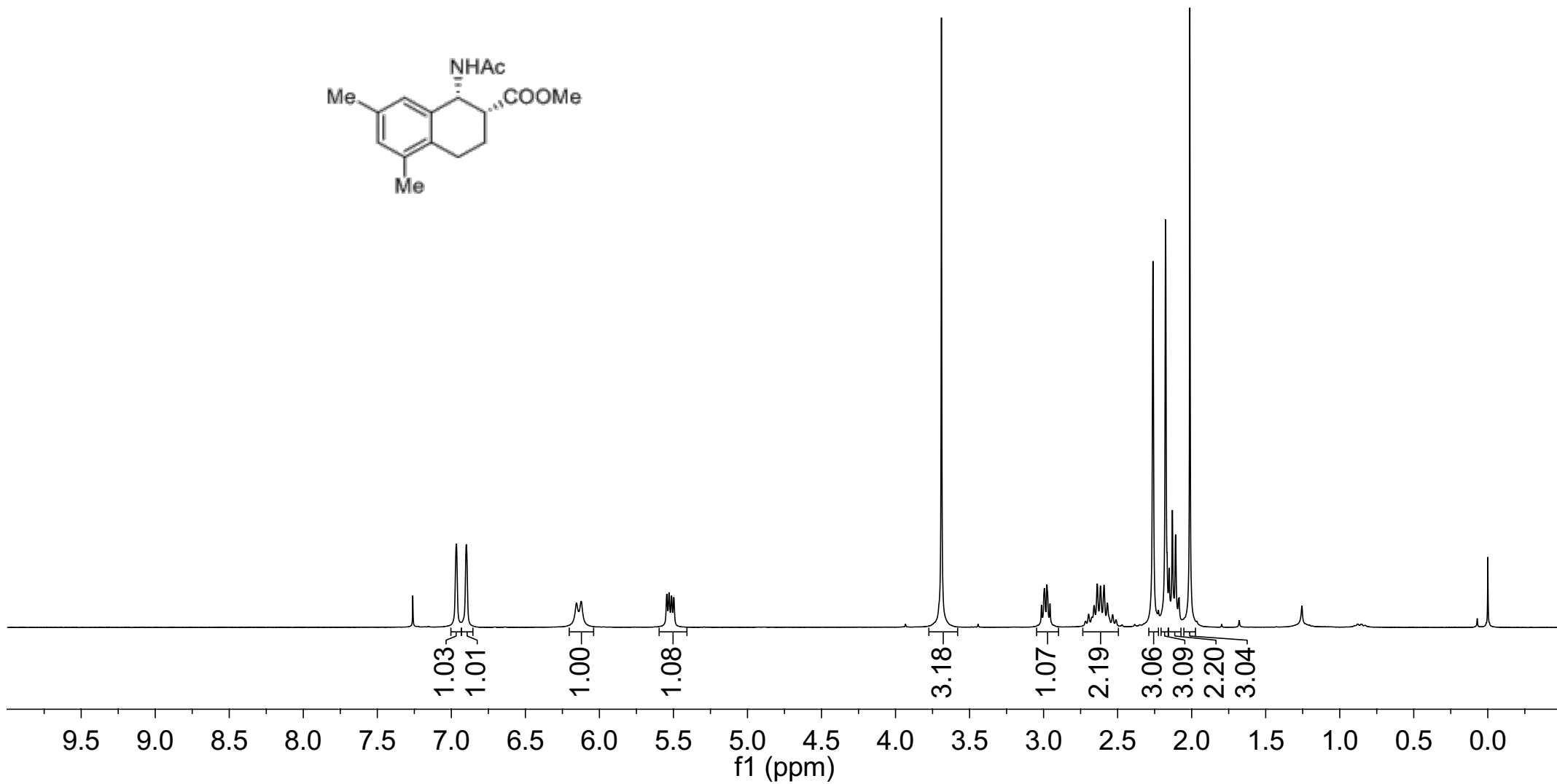
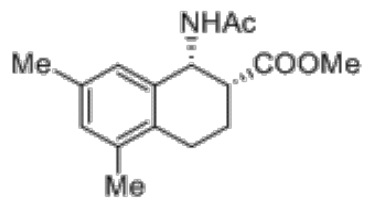
¹H NMR (400 MHz, CDCl₃)

^{13}C NMR (101 MHz, CDCl_3)

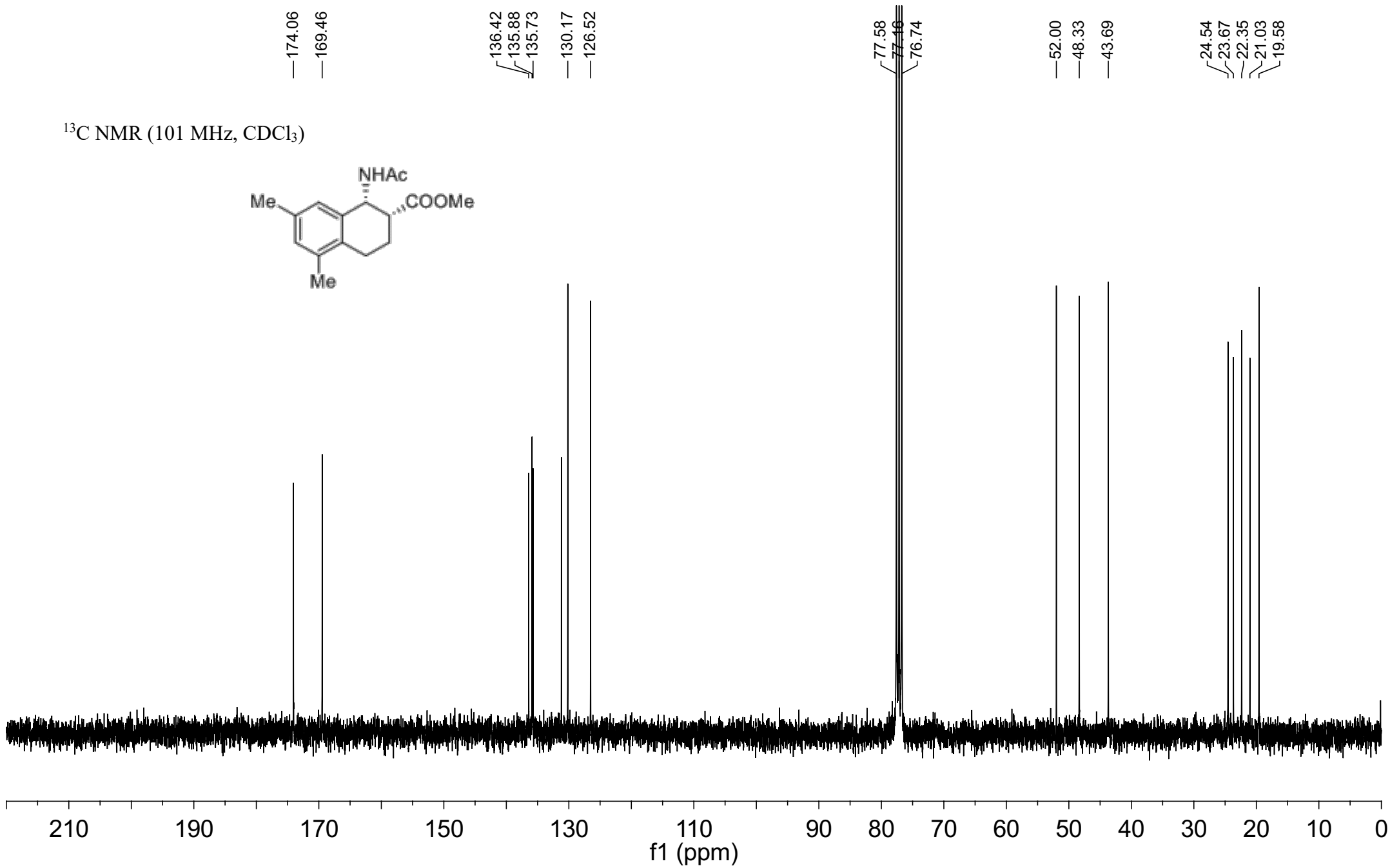
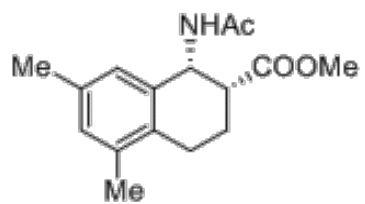


7.260
6.966
6.899
6.155
6.123
5.545
5.530
5.513
5.498
3.690
2.995
2.977
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2.638
2.511
2.261
2.176
2.152
2.130
2.109
2.089
2.085
2.012

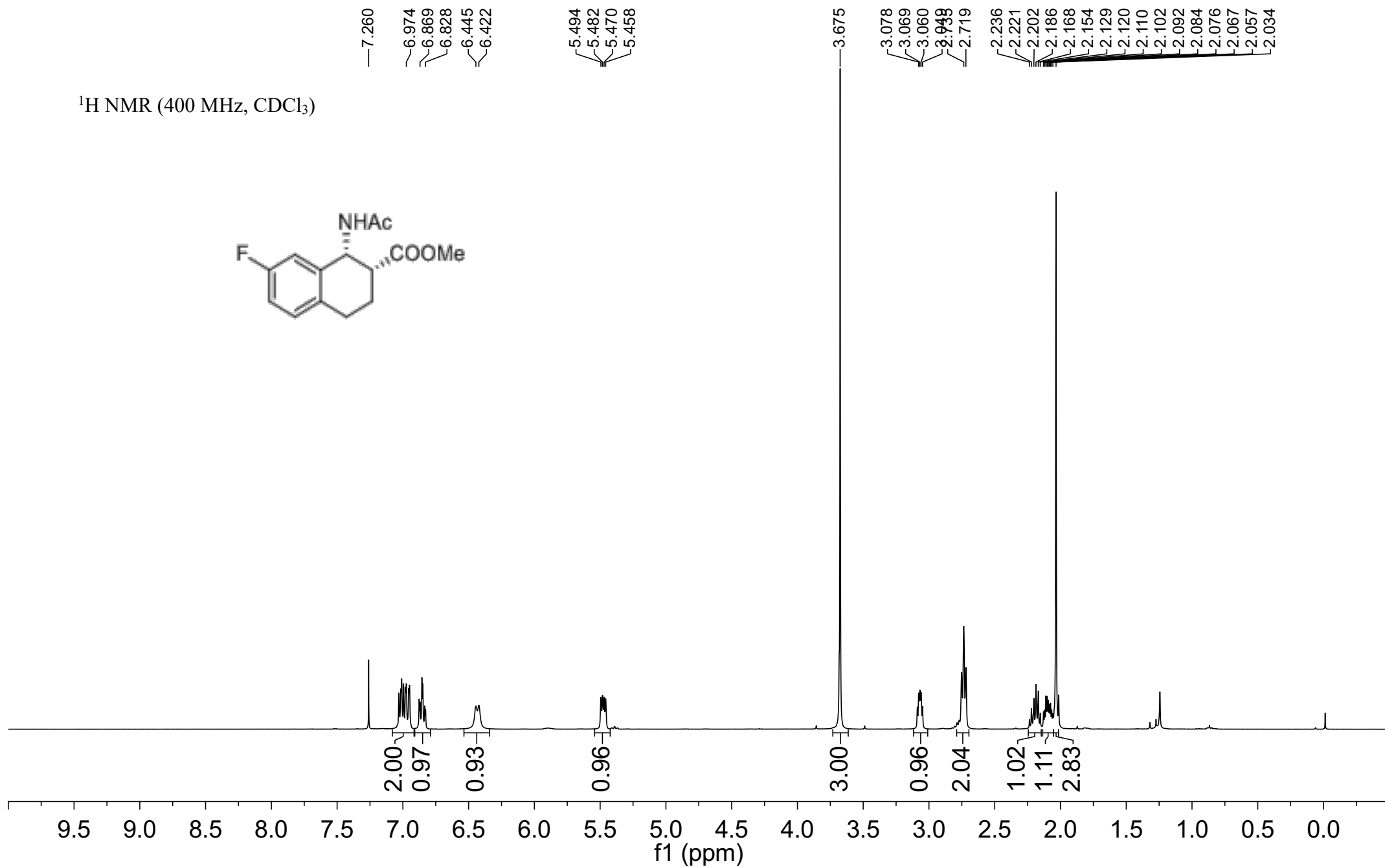
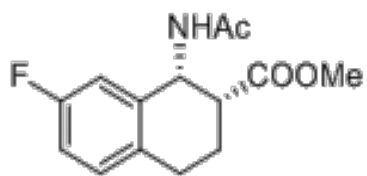
^1H NMR (400 MHz, CDCl_3)



^{13}C NMR (101 MHz, CDCl_3)



^1H NMR (400 MHz, CDCl_3)



—173.86
—169.81
—162.80
—160.37

—138.12
—138.05
—131.17
—131.14
—130.45
—130.38

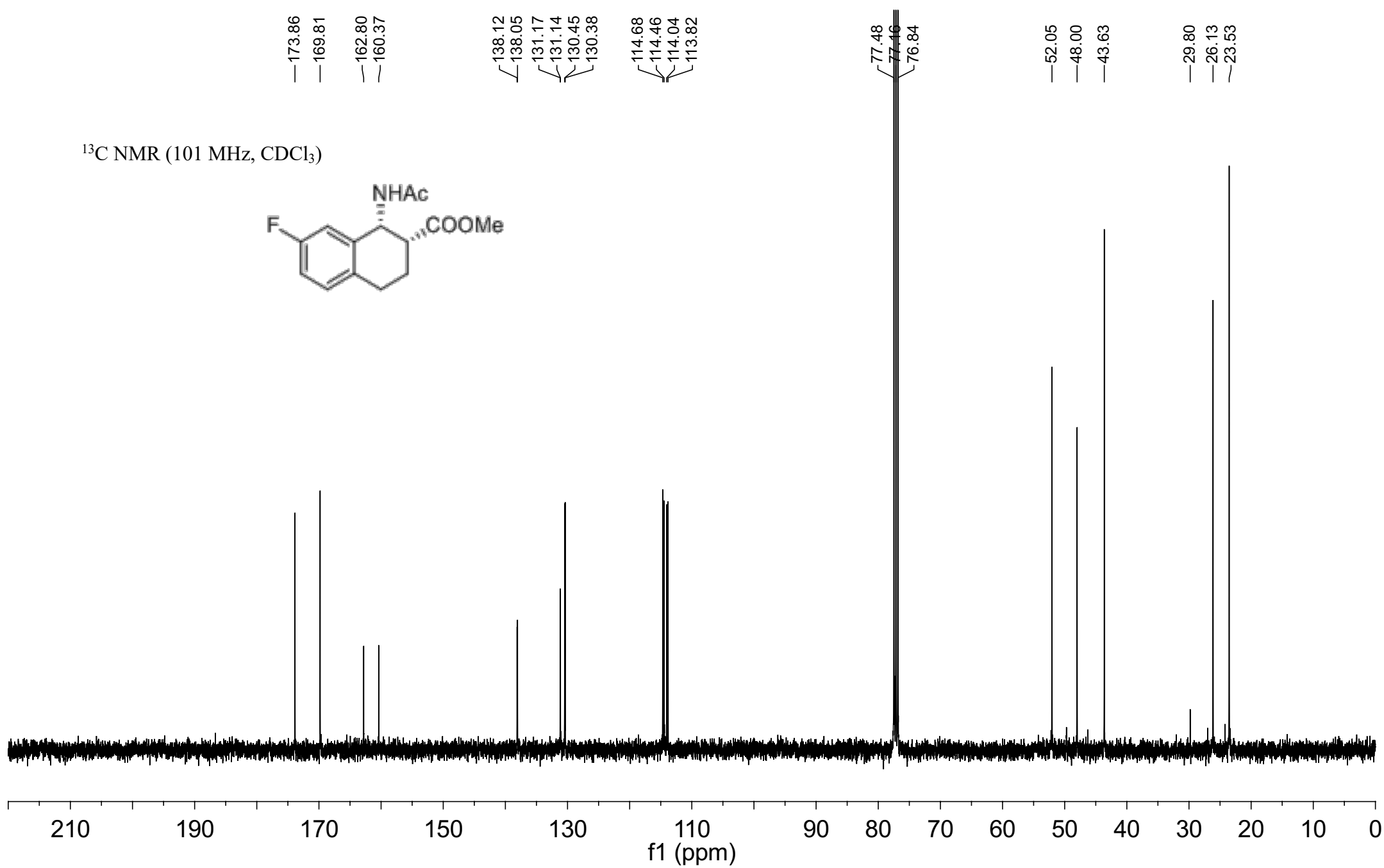
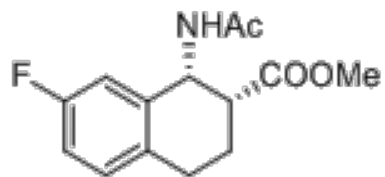
—114.68
—114.46
—114.04
—113.82

—77.48
—77.46
—76.84

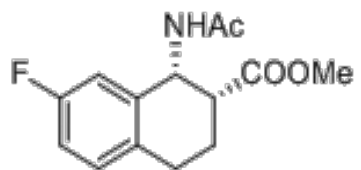
—52.05
—48.00
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—29.80
—26.13
—23.53

^{13}C NMR (101 MHz, CDCl_3)

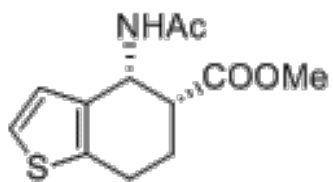


^{19}F NMR (376.6 MHz, CDCl_3)

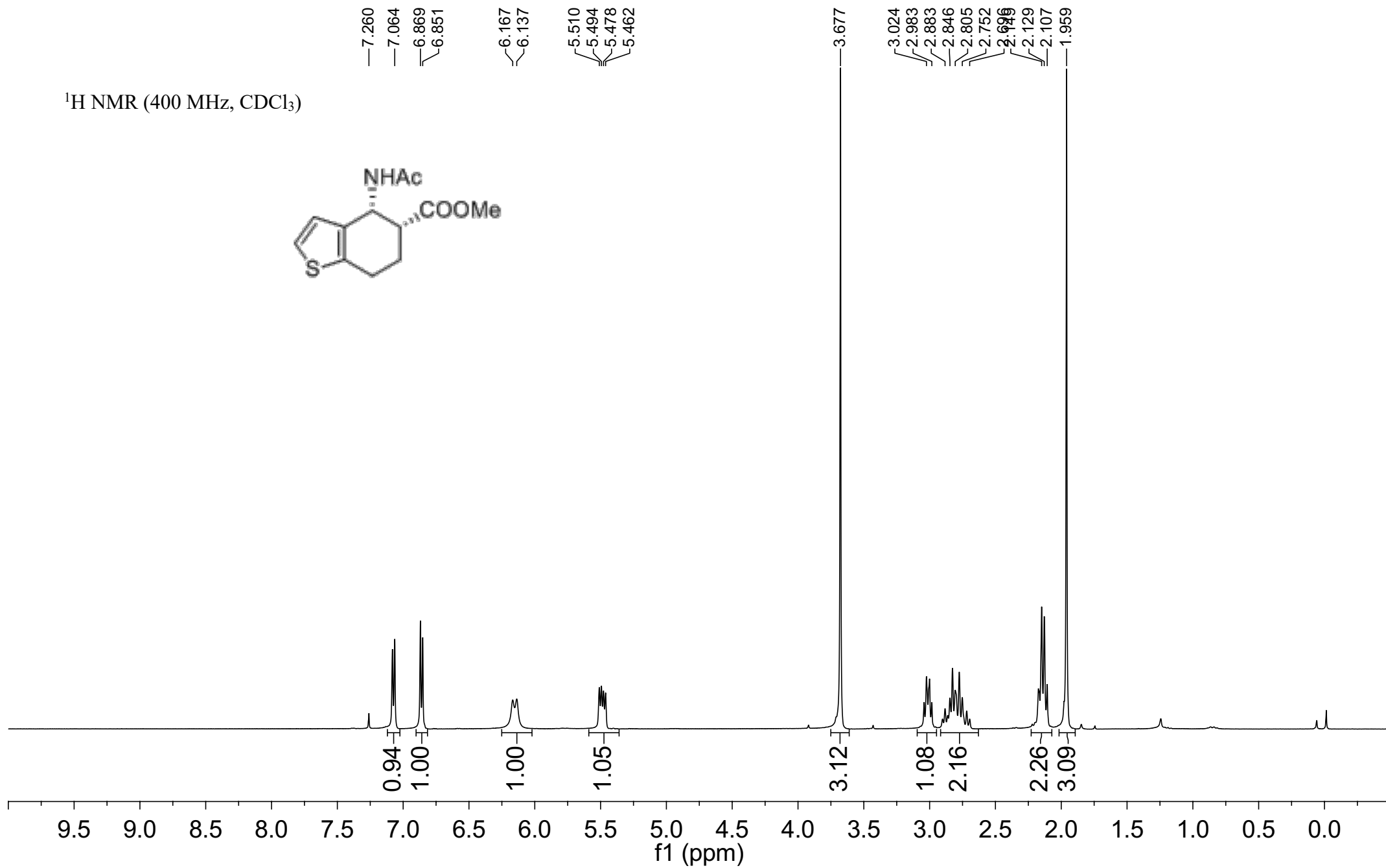


-116.17

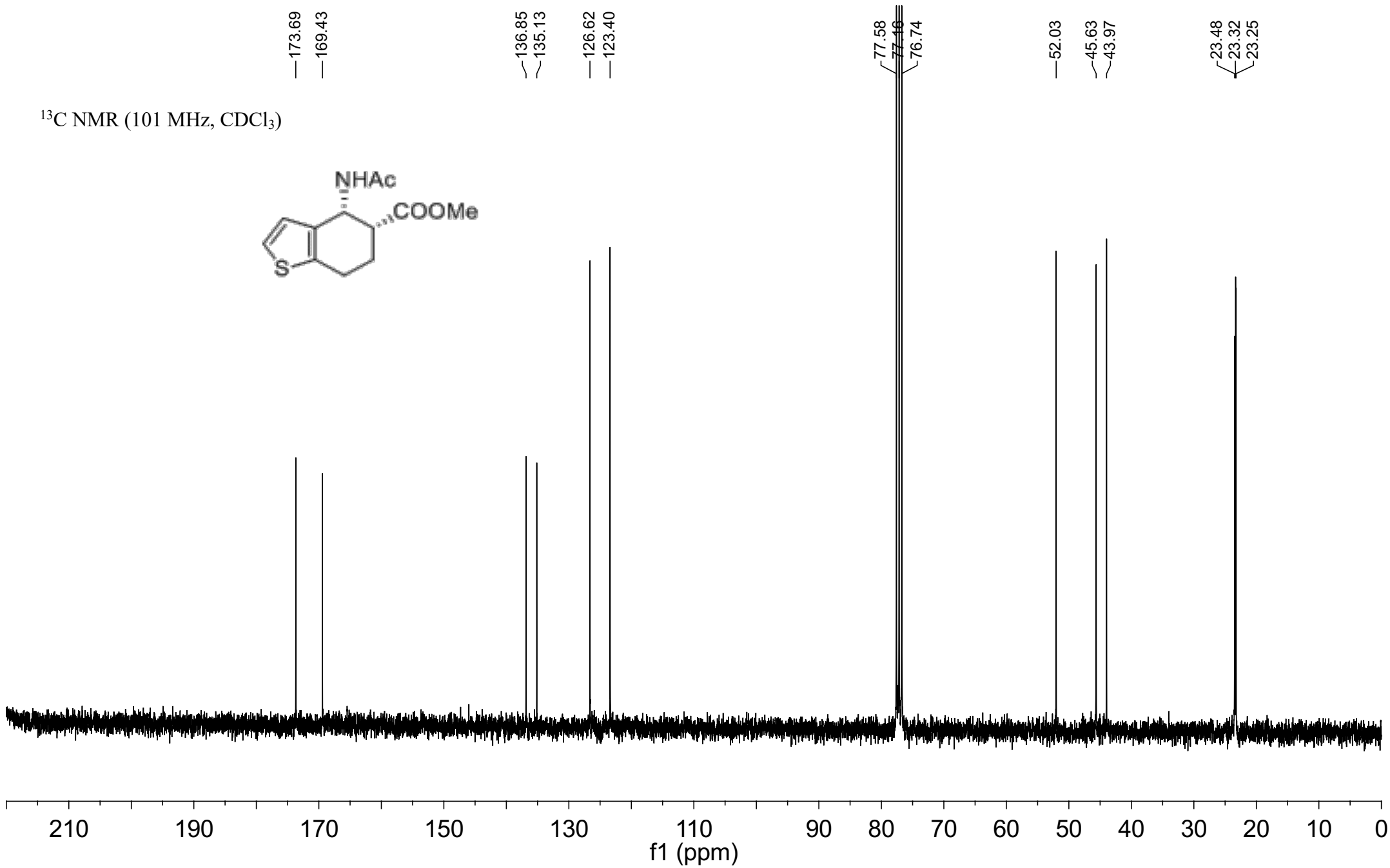
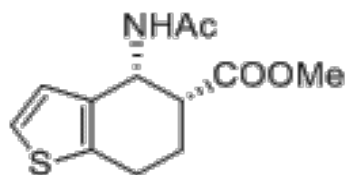
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f1 (ppm)

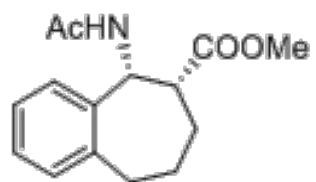
^1H NMR (400 MHz, CDCl_3)

7.260
7.064
6.869
6.851
6.167
6.137
5.510
5.494
5.478
5.462
3.677
3.024
2.983
2.883
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1.959



^{13}C NMR (101 MHz, CDCl_3)

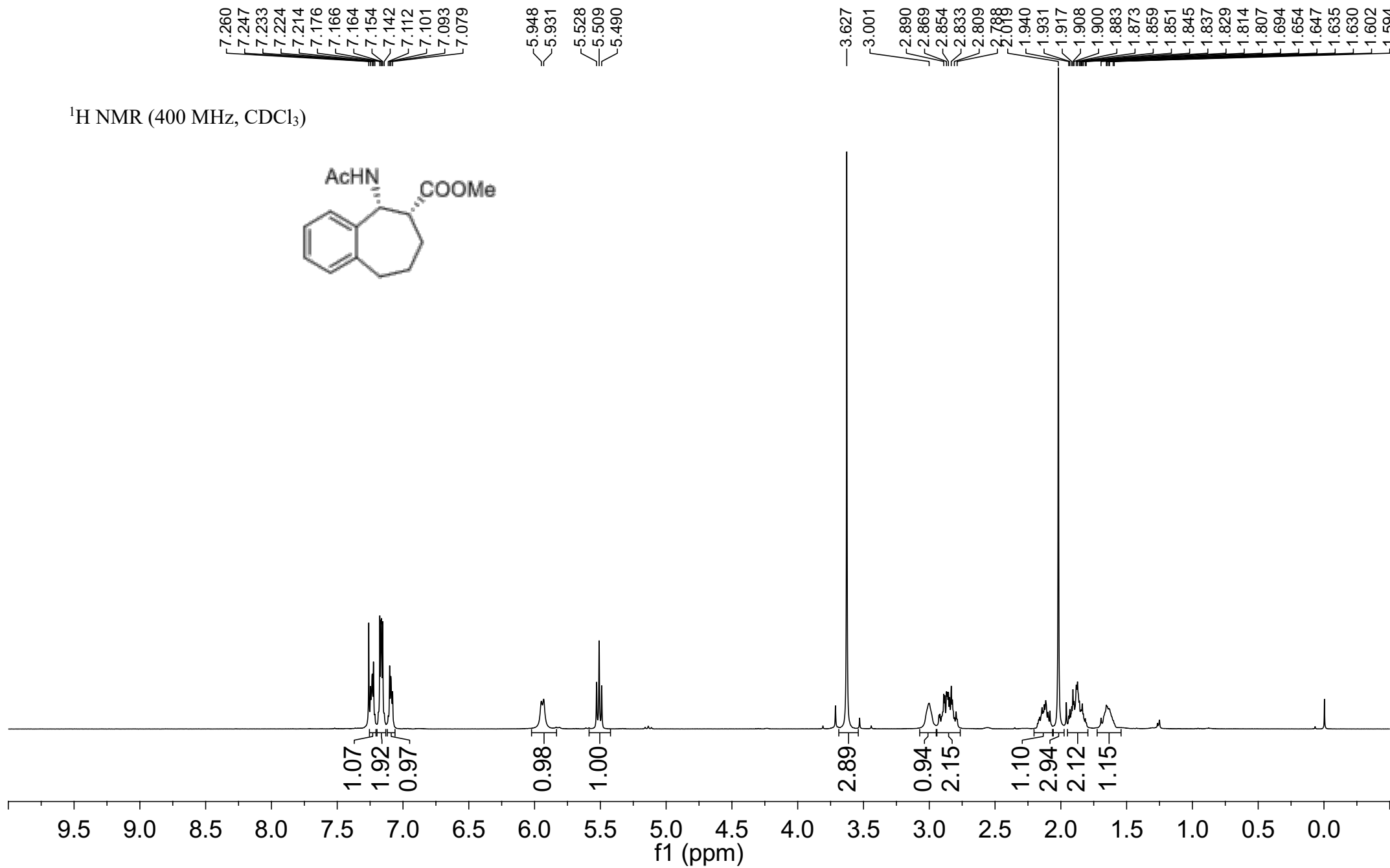


¹H NMR (400 MHz, CDCl₃)

7.260
7.247
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7.112
7.101
7.093
7.079

5.948
5.931
5.528
5.509
5.490

3.627
3.001
2.890
2.869
2.854
2.833
2.809
2.788
1.940
1.931
1.917
1.908
1.900
1.883
1.873
1.859
1.851
1.845
1.837
1.829
1.814
1.807
1.694
1.654
1.647
1.635
1.630
1.602
1.594



^{13}C NMR (101 MHz, CDCl_3)

