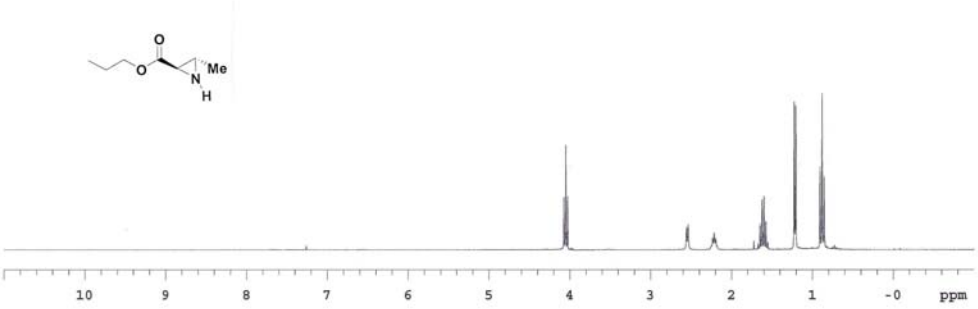
O
O
N
H
Me
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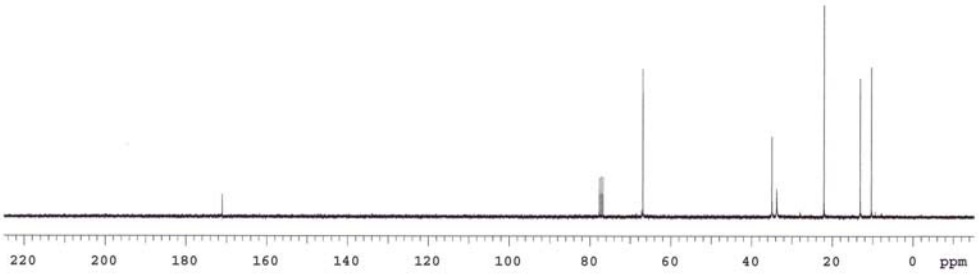
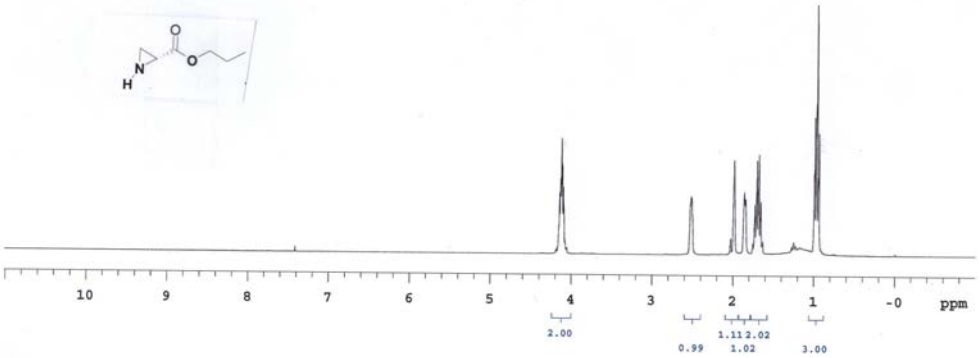
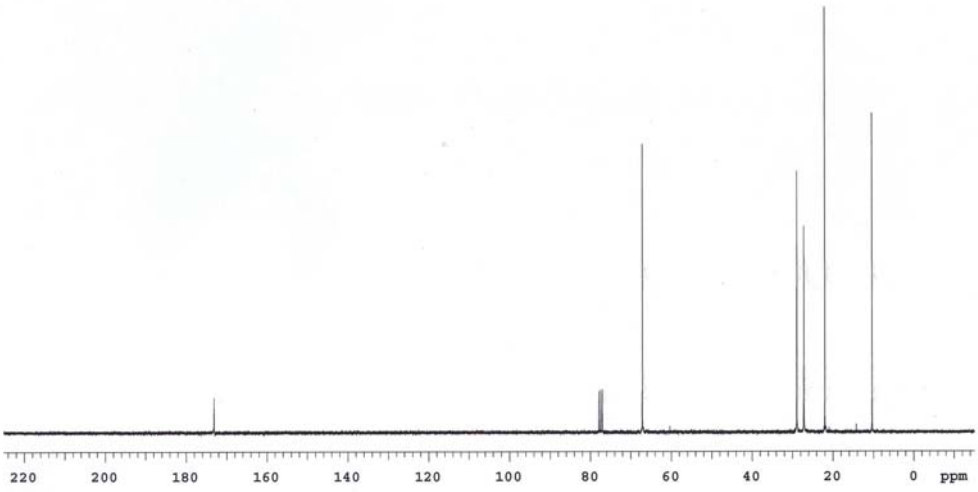
9
8
7
6
5
4
3
2
1
-0
ppm


220
200
180
160
140
120
100
80
60
40
20
0
ppm


10
9
8
7
6
5
4
3
2
1
-0
ppm
2.00
0.99
1.11
2.02
1.02
3.00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200
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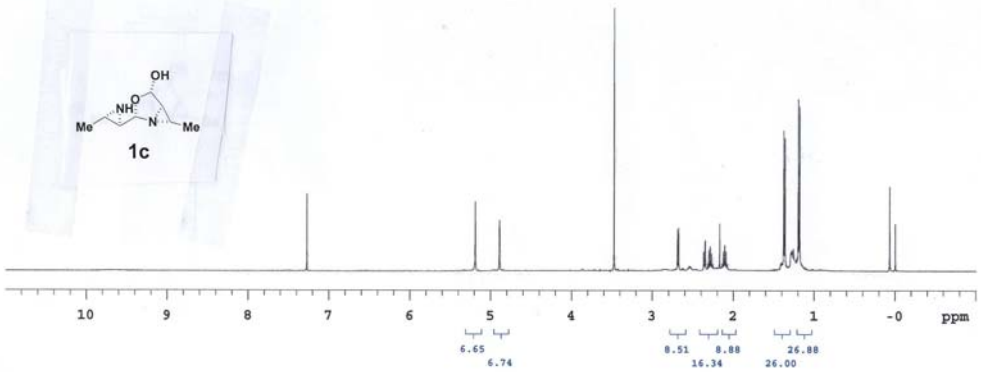
140
120
100
80
60
40
20
0
ppm


OH
O
NH
N
Me
Me
1c
10
9
8
7
6
5
4
3
2
1
-0
ppm
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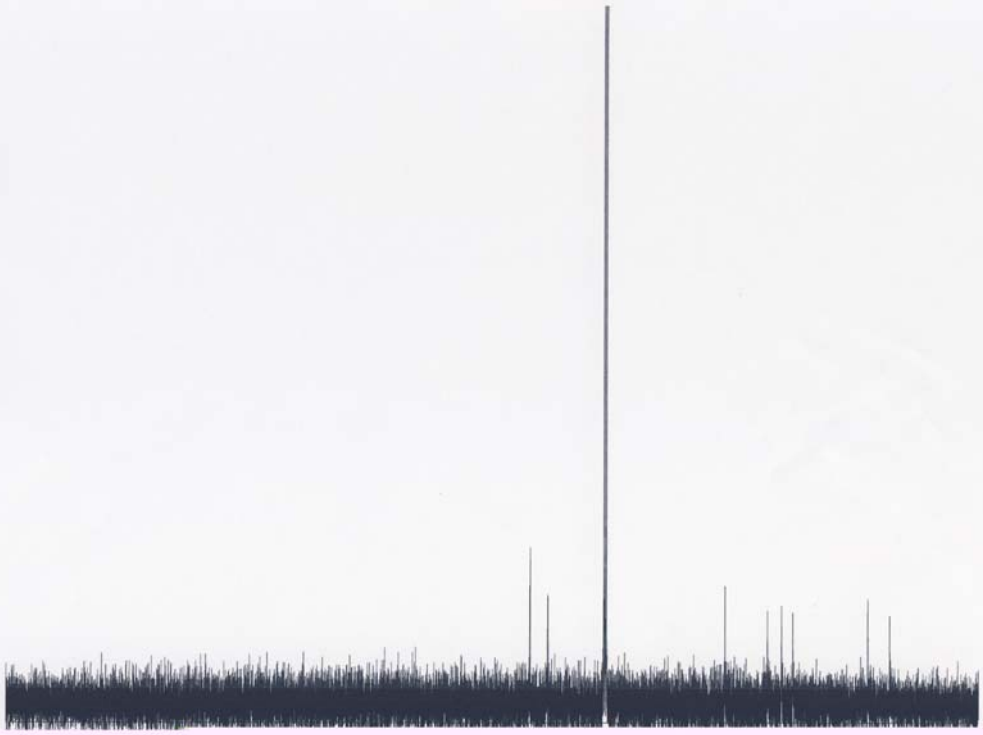
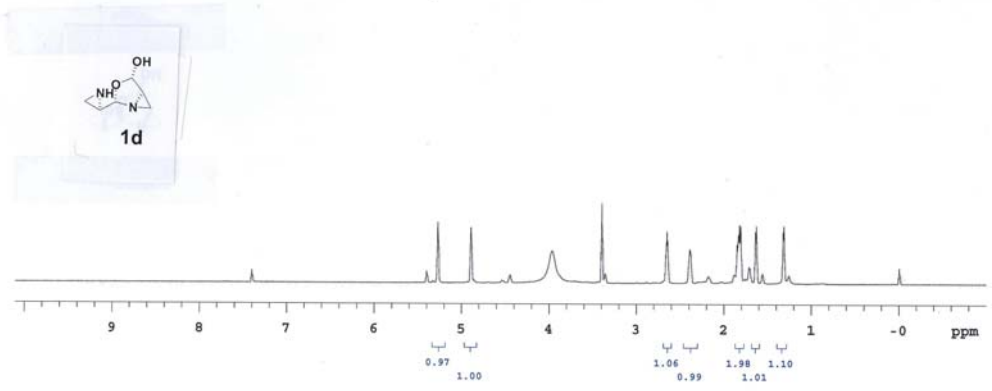
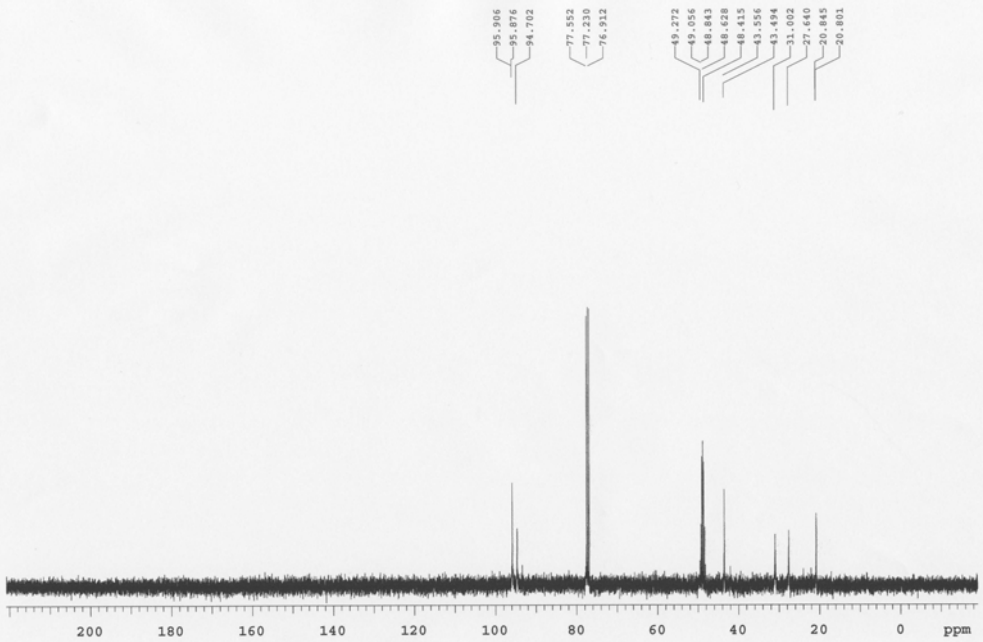
6.74
8.51
8.88
16.34
26.88
26.00




OH
O
NH
N
1d
9
8
7
6
5
4
3
2
1
-0
ppm
0.97
1.00
1.06
0.99
1.98
1.01
1.10


95.906
95.876
94.702
77.552
77.230
76.912
49.272
49.056
48.843
48.628
48.415
43.556
43.494
31.002
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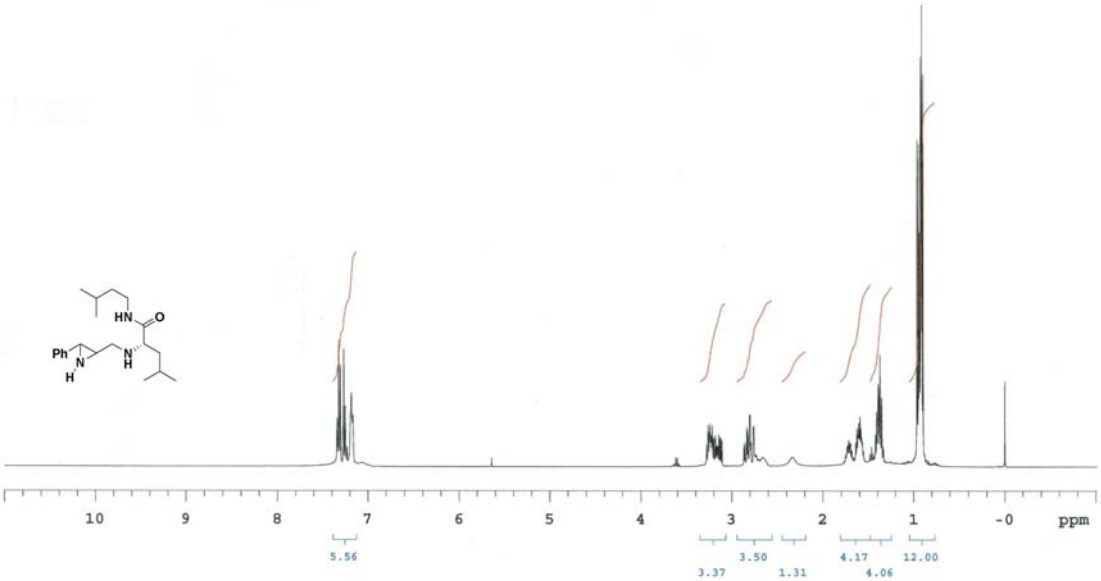
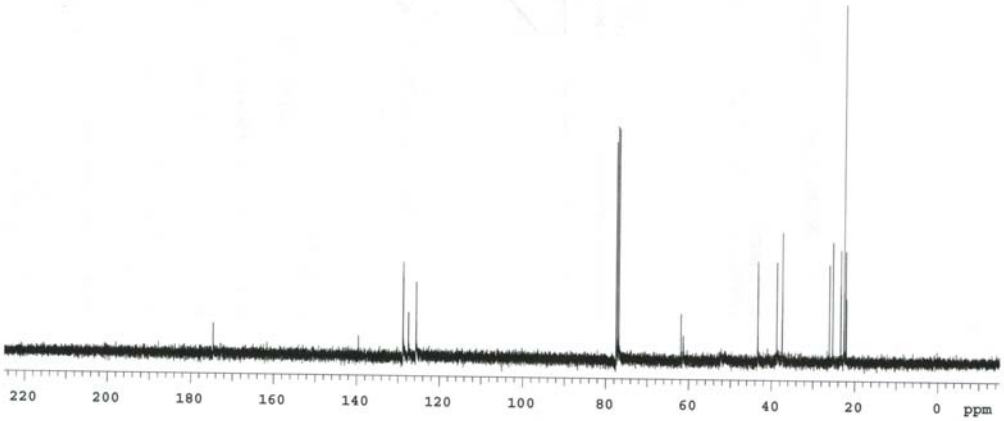
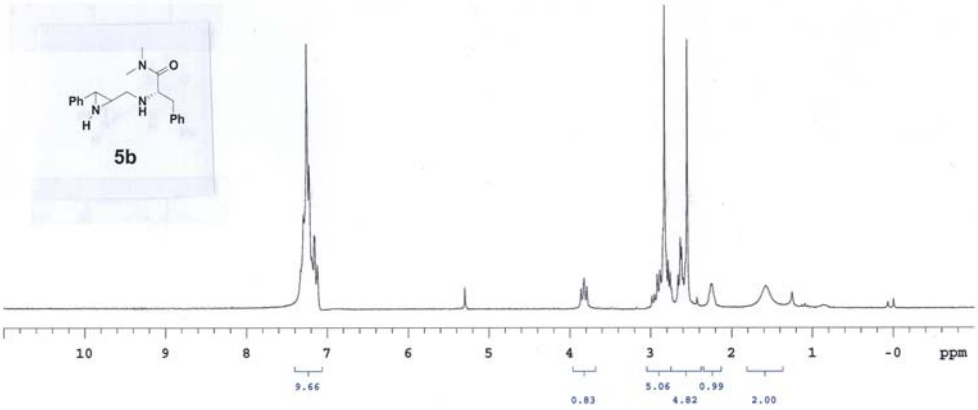
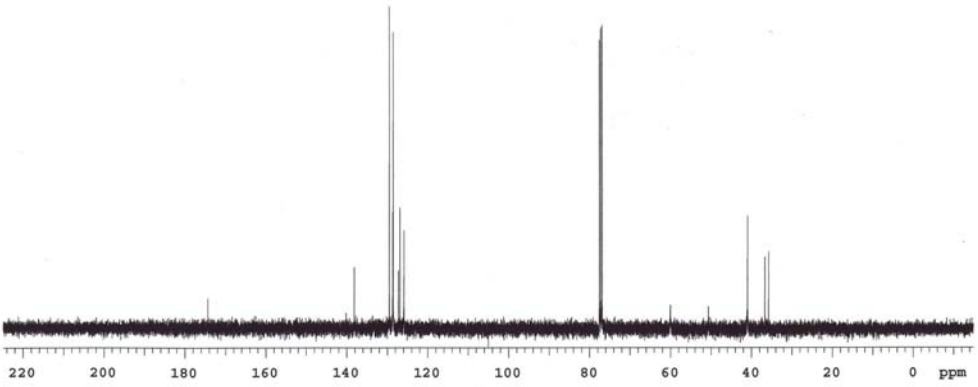
20.845
20.801
200
180
160
140
120
100
80
60
40
20
0
ppm


HN
O
Ph
N
H
N
H
10
9
8
7
6
5
4
3
2
1
-0
ppm
5.56
3.37
3.50
1.31
4.17
4.06
12.00


220
200
180
160
140
120
100
80
60
40
20
0
ppm


5b
10
9
8
7
6
5
4
3
2
1
-0
ppm
9.66
0.83
5.06
0.99
4.82
2.00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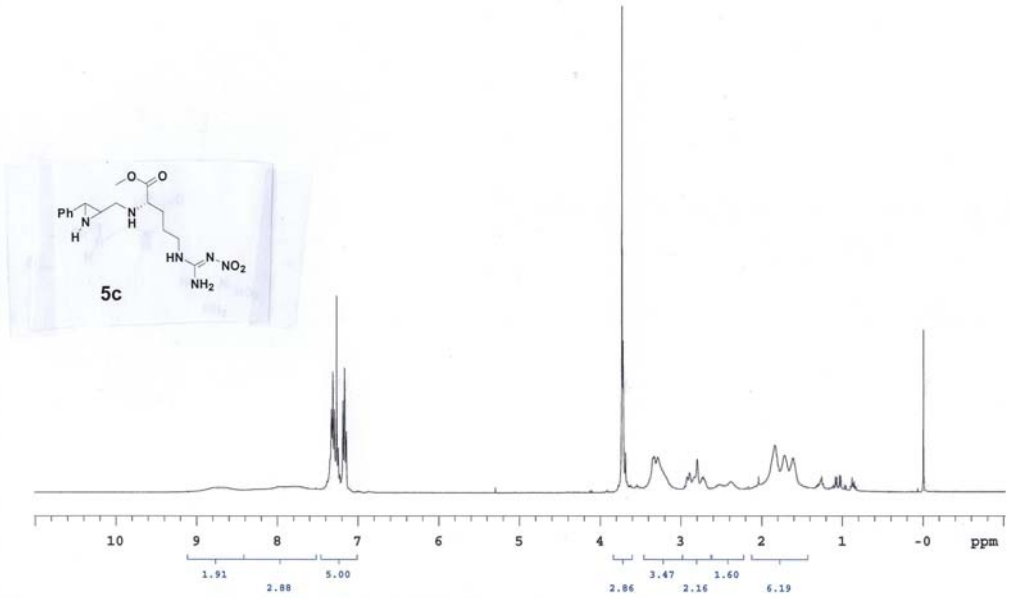
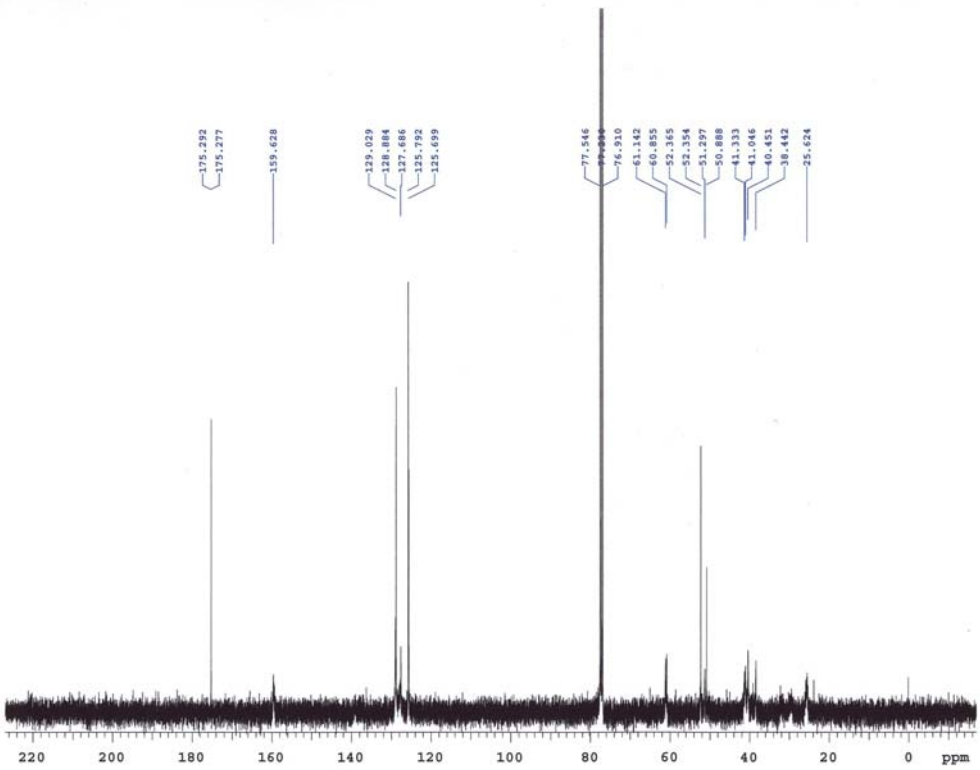
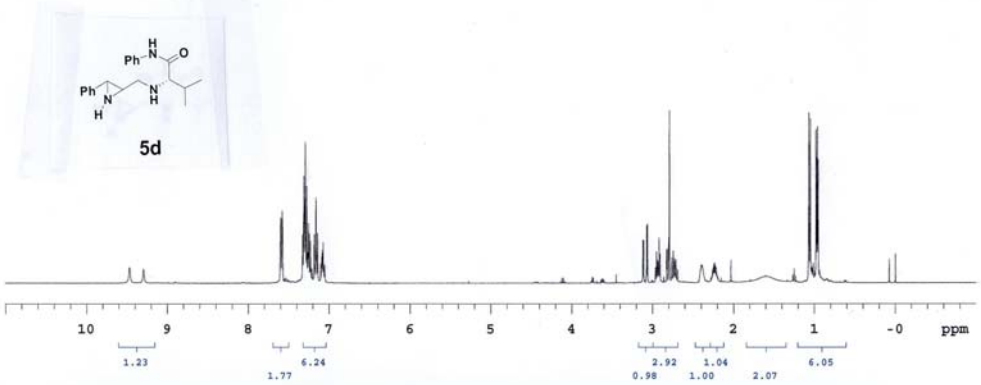
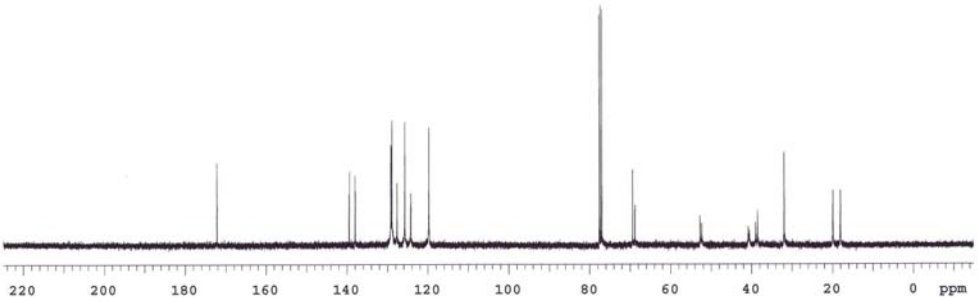
200
180
160
140
120
100
80
60
40
20
0
ppm


5c
10
9
8
7
6
5
4
3
2
1
-0
ppm
1.91
2.88
5.00
2.86
3.47
2.16
1.60
6.19


175.292
175.277
159.628
129.029
128.884
127.686
125.792
125.699
77.546
76.910
61.142
60.855
52.365
52.354
51.297
50.888
41.333
41.046
40.451
38.442
25.624
220
200
180
160
140
120
100
80
60
40
20
0
ppm


5d
10
9
8
7
6
5
4
3
2
1
-0
ppm
1.23
1.77
6.24
0.98
2.92
1.00
1.04
2.07
6.05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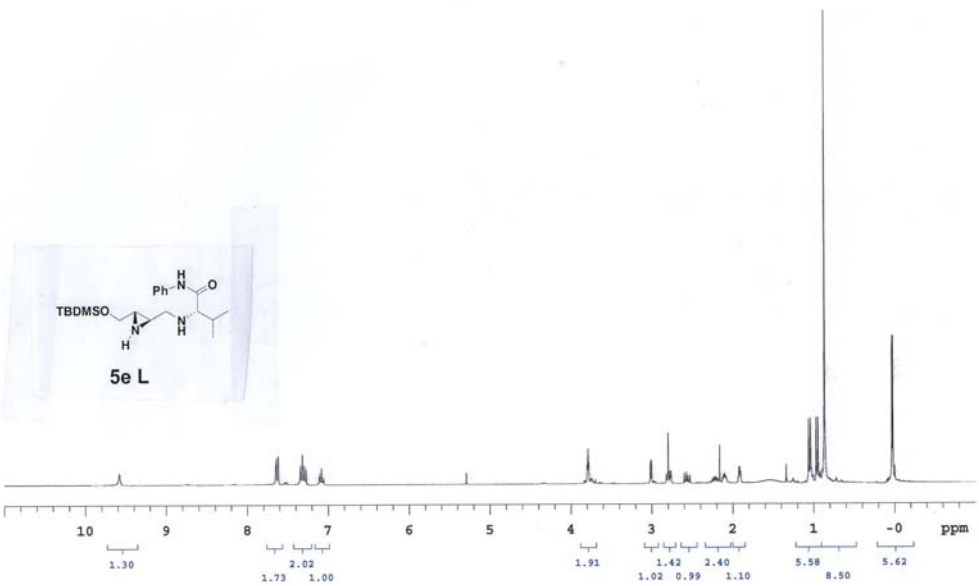
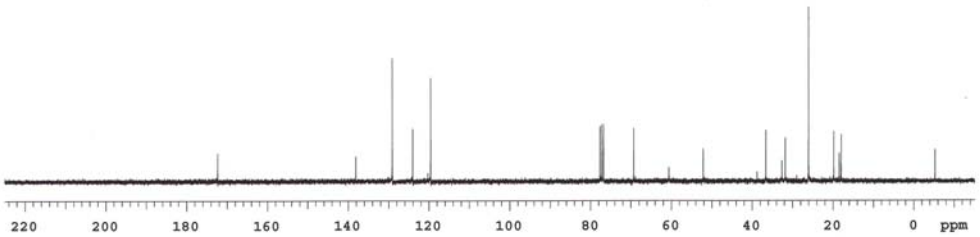
200
180
160
140
120
100
80
60
40
20
0
ppm


TBDMSO
Ph
H
N
O
N
H
N
H
5e L
10
9
8
7
6
5
4
3
2
1
-0
ppm
1.30
1.73
2.02
1.00
1.91
1.02
1.42
0.99
2.40
1.10
5.58
8.50
5.62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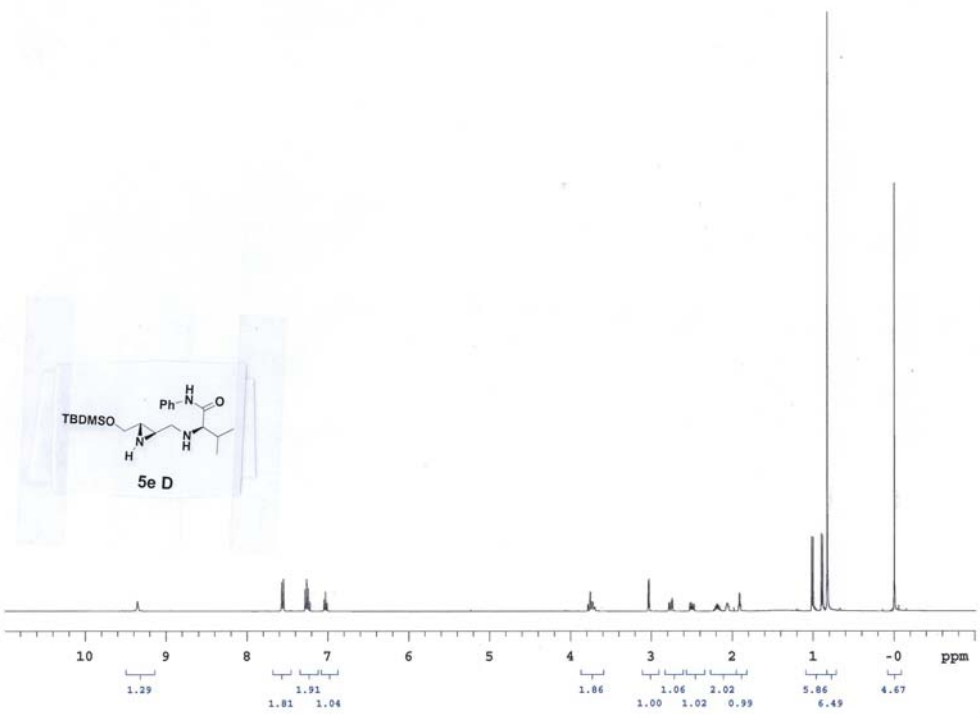
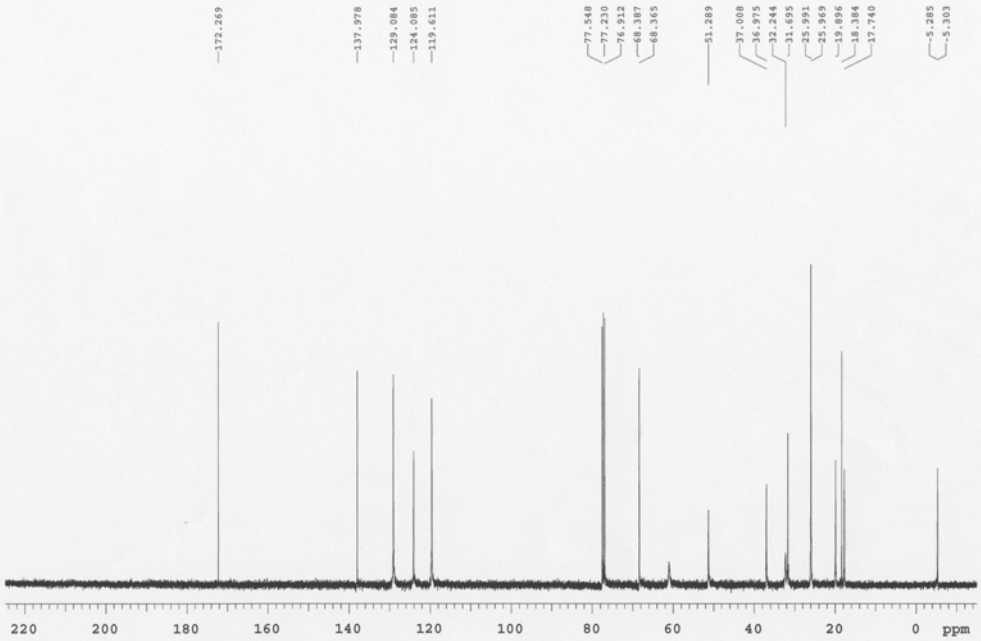
200
180
160
140
120
100
80
60
40
20
0
ppm


TBDMSO
Ph
H
N
O
N
H
H
5e D
10
9
8
7
6
5
4
3
2
1
-0
ppm
1.29
1.81
1.91
1.04
1.86
1.00
1.06
1.02
2.02
0.99
5.86
6.49
4.67


172.269
137.978
129.084
124.085
119.611
77.548
77.230
76.912
68.387
68.365
51.289
37.008
36.975
32.244
31.695
25.991
25.969
19.896
18.384
17.740
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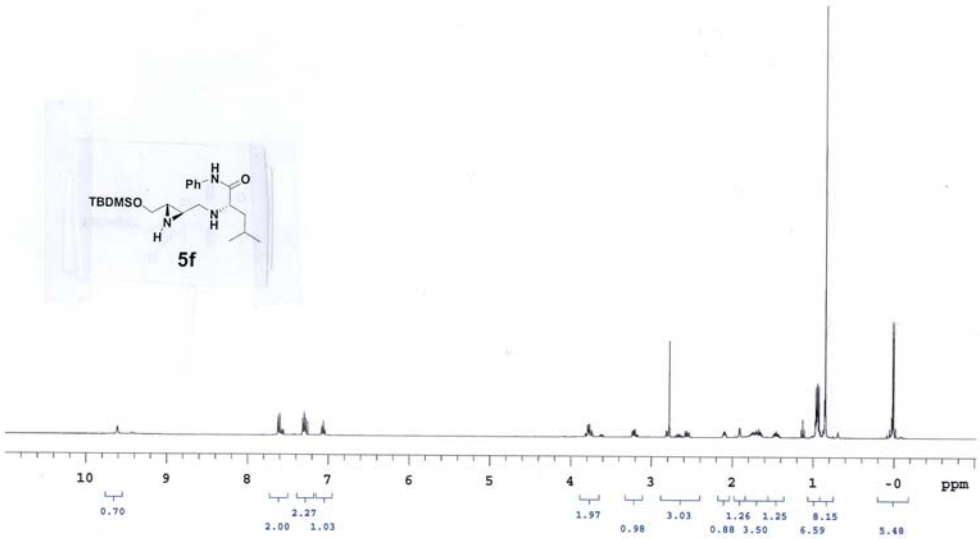
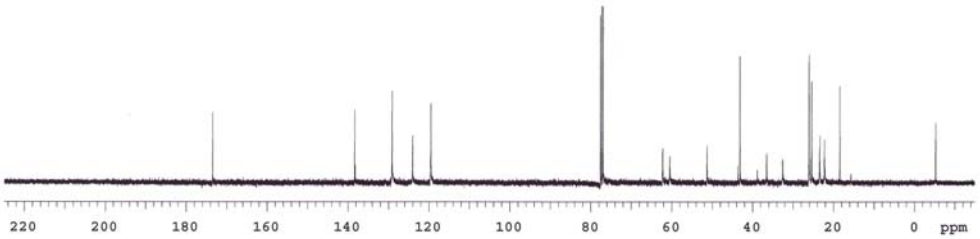
-5.303
220
200
180
160
140
120
100
80
60
40
20
0
ppm


TBDMSO
Ph
H
N
O
N
H
H
N
5f
10
9
8
7
6
5
4
3
2
1
-0
ppm
0.70
2.00
2.27
1.03
1.97
0.98
3.03
0.88
1.26
3.50
1.25
6.59
8.15
5.48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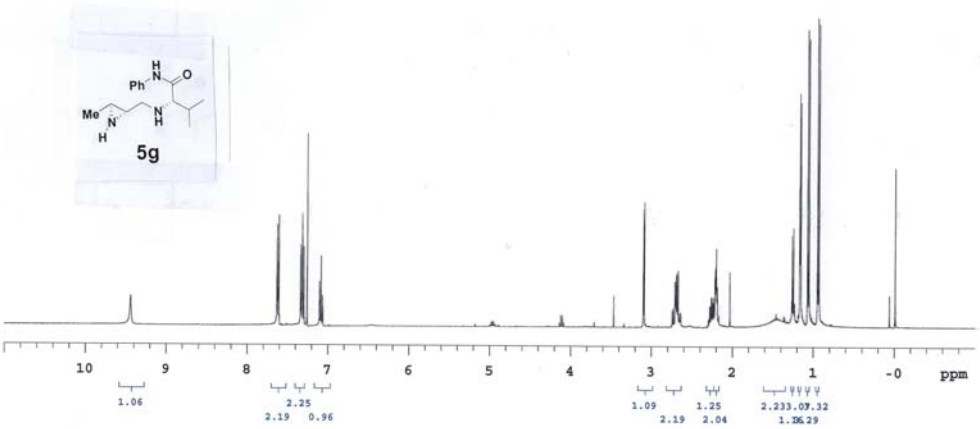
200
180
160
140
120
100
80
60
40
20
0
ppm


5g
10
9
8
7
6
5
4
3
2
1
-0
ppm
1.06
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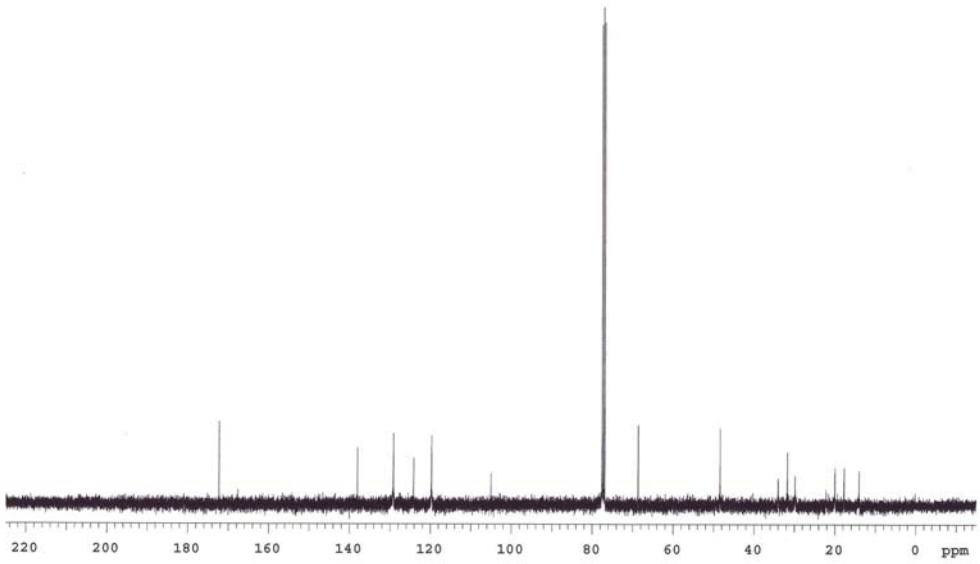
2.19
0.96
1.09
2.19
1.25
2.04
2.233.07.32
1.B629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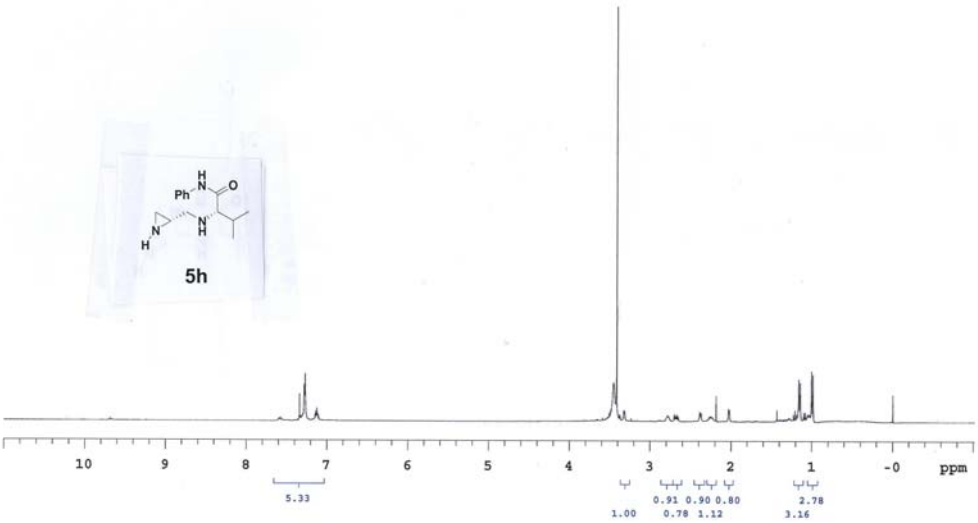
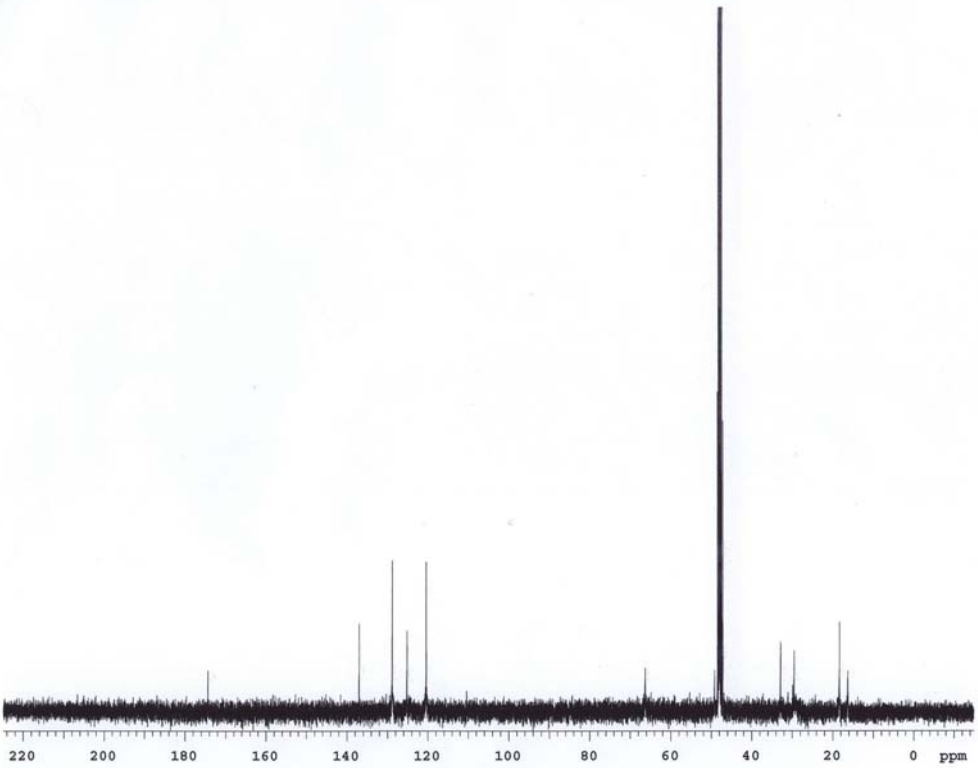
200
180
160
140
120
100
80
60
40
20
0
ppm


5h
10
9
8
7
6
5
4
3
2
1
-0
ppm
5.33
1.00
0.91 0.90 0.80
0.78 1.12
2.78
3.16


220
200
180
160
140
120
100
80
60
40
20
0
ppm

Data Collected on:
nmr2-mercury400
Archive directory:
/export/home/vnmr1/vnmrsys/data
Sample directory:

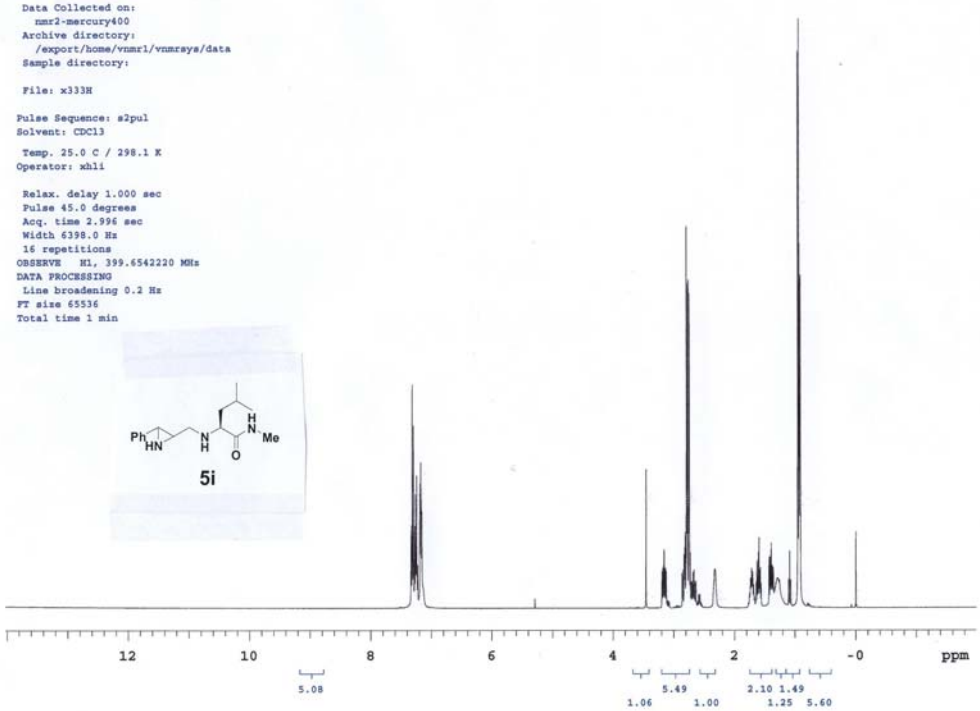
File: x333H

Pulse Sequence: s2pul
Solvent: CDCl3

Temp. 25.0 C / 298.1 K
Operator: xhli

Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 2.996 sec
Width 6398.0 Hz
16 repetitions
OBSERVE H1, 399.6542220 MHz
DATA PROCESSING
Line broadening 0.2 Hz
FT size 65536
Total time 1 min

5i



Data Collected on:
nmr2-mercury400
Archive directory:

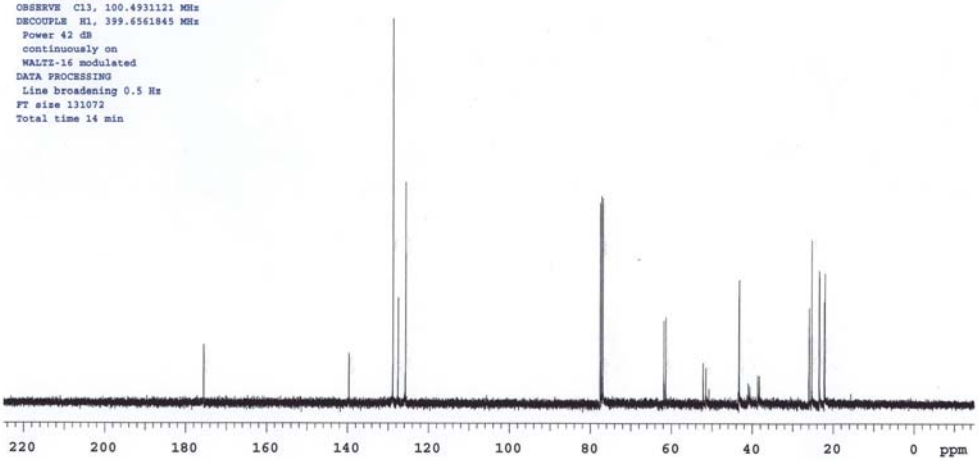
Sample directory:

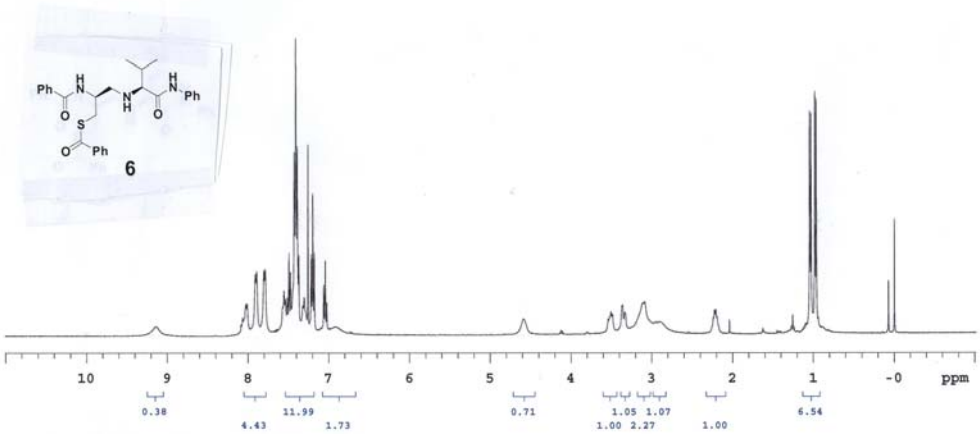
File: x333C

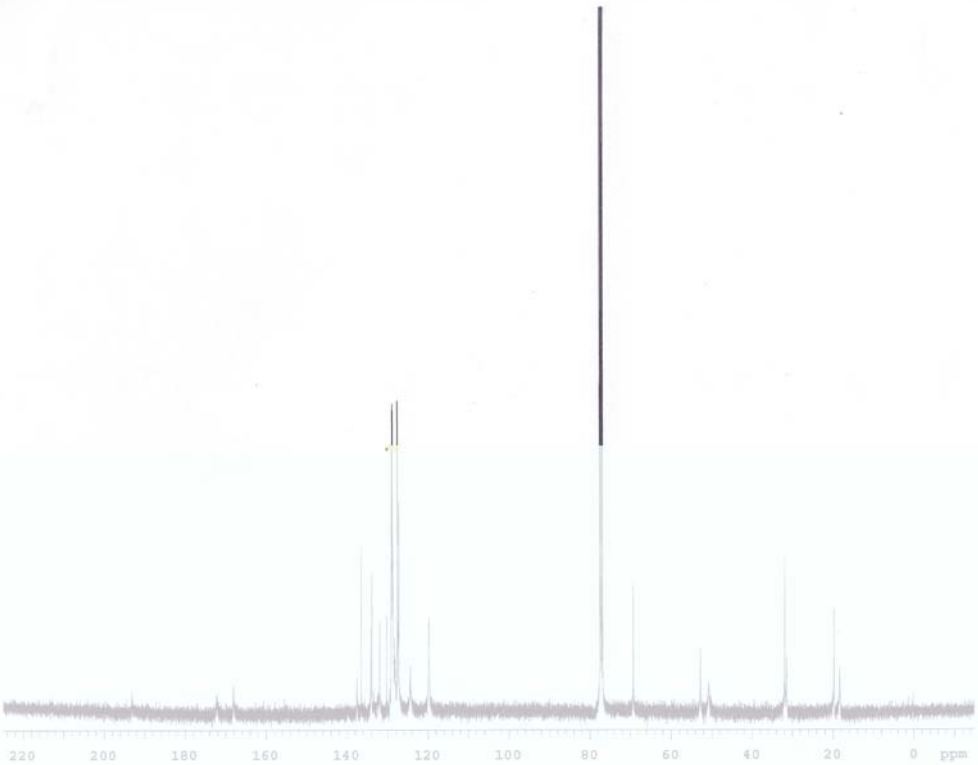
Pulse Sequence: s2pul
Solvent: CDCl3

Temp. 25.0 C / 298.1 K
Operator: xhli

Relax. delay 0.200 sec
Pulse 45.0 degrees
Acq. time 1.300 sec
Width 24096.4 Hz
512 repetitions
OBSERVE C13, 100.4931121 MHz
DECOUPLE H1, 399.6561845 MHz
Power 42 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 0.5 Hz
FT size 131072
Total time 14 min




Ph
H
N
O
S
O
Ph
N
H
O
H
N
Ph
6
10
9
8
7
6
5
4
3
2
1
-0
ppm
0.38
4.43
11.99
1.73
0.71
1.05 1.07
1.00 2.27
1.00
6.54


220
200
180
160
140
120
100
80
60
40
20
0
ppm