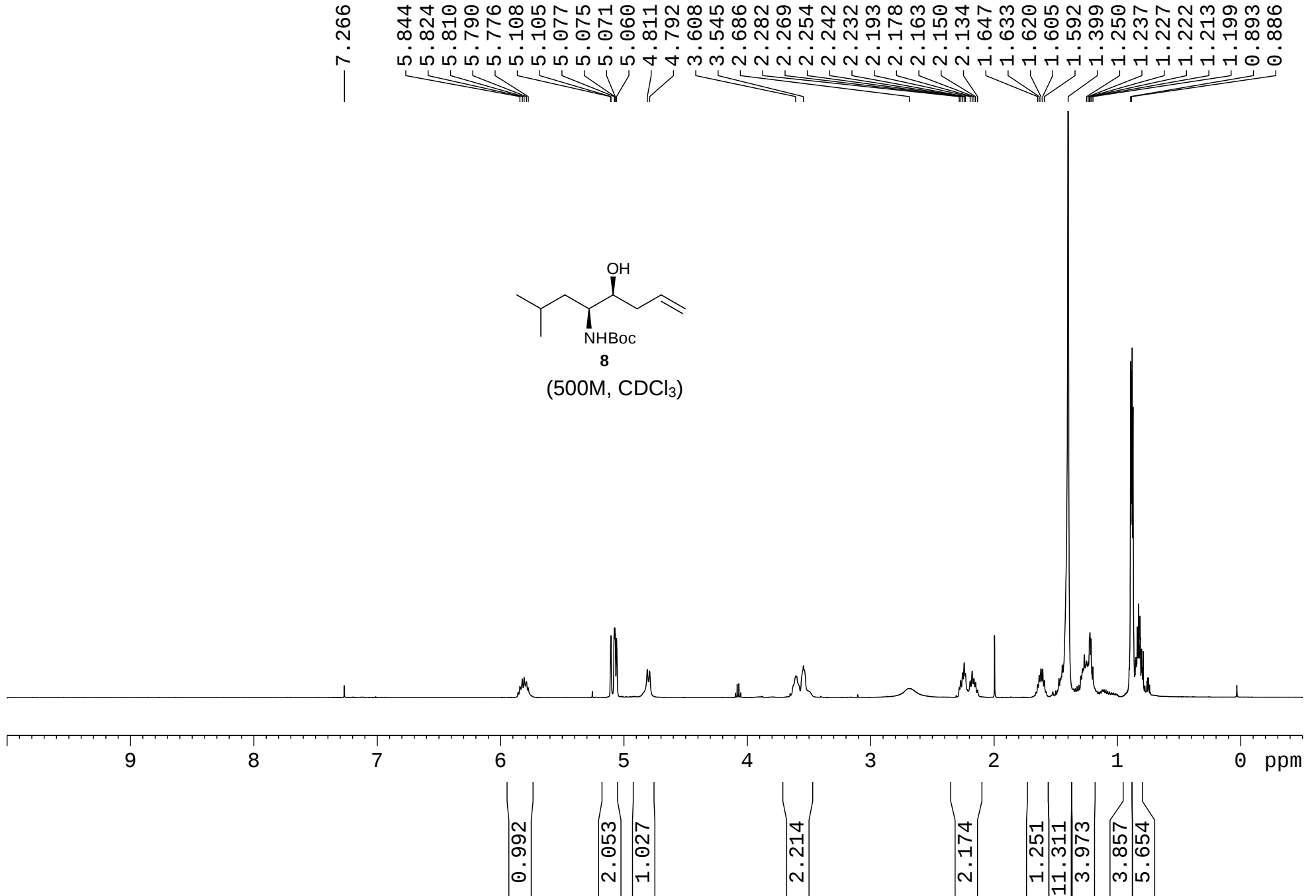
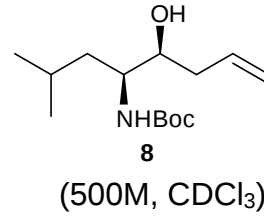


Avance 500, Bruker
allytrbutyltin, solvent:CDCl₃



Avance 500, Bruker
allytrbutyltin
CDCl₃

— 156.14

— 134.66

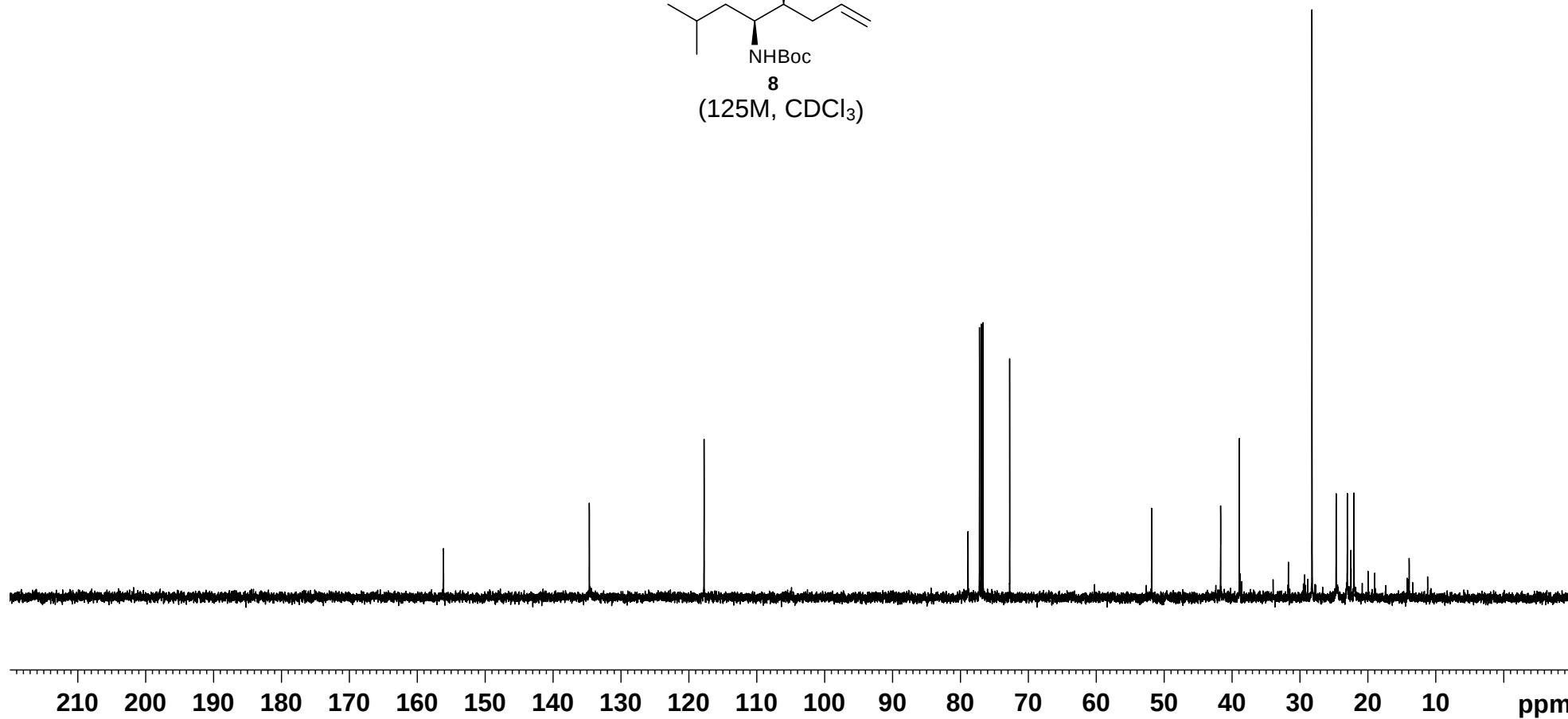
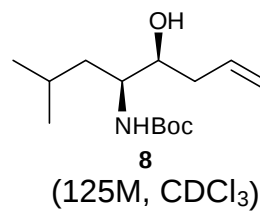
— 117.76

78.89
77.20
76.94
76.69
72.75

— 51.84

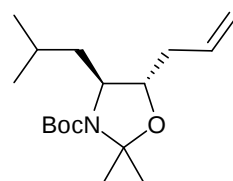
— 41.68
— 38.92

28.23
24.67
23.03
22.51
22.04



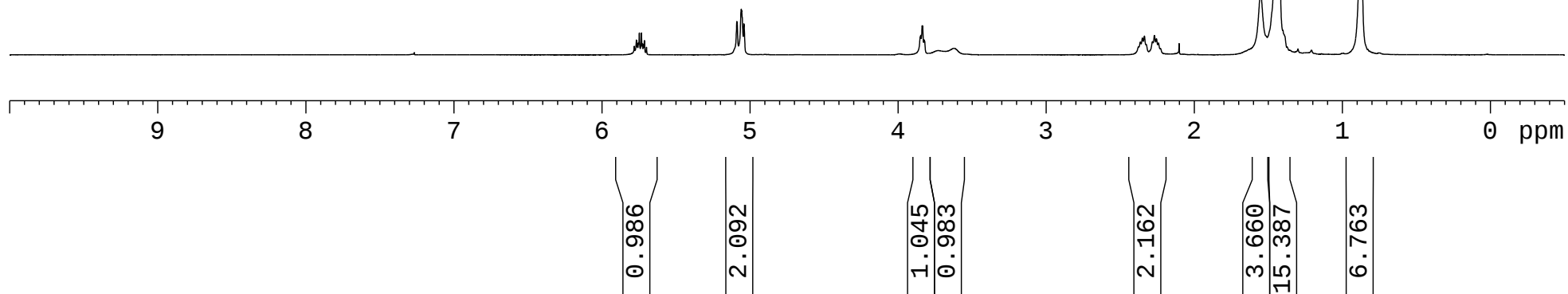
Avance 500, Bruker
solvent:CDCl₃

5.777
5.763
5.757
5.749
5.743
5.729
5.722
5.715
5.708
5.694
5.085
5.082
5.054
5.051
5.036
3.842
3.833
3.829
3.819
3.618
2.359
2.345
2.332
2.278
2.264
2.250
2.237
1.548
1.423
0.878
0.866



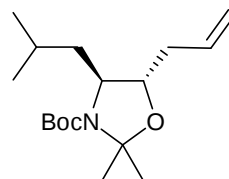
8a

(500M, CDCl₃)



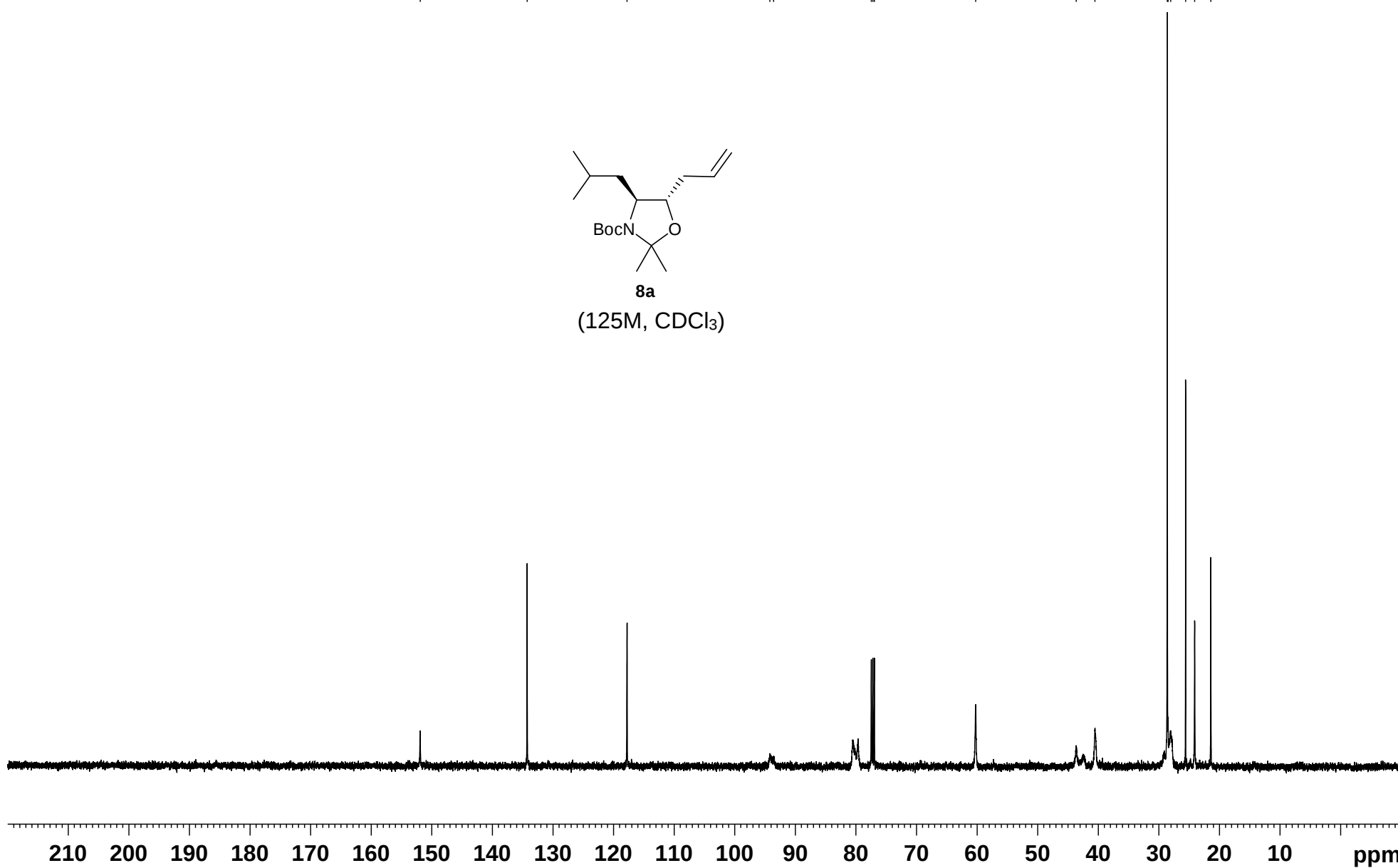
Avance 500, Bruker
solvent:CDCl₃

151.92 134.26 117.78 94.20 93.59 77.46 77.21 76.95 60.23 43.64 40.56 28.61 28.47 28.05 25.59 24.10 21.42



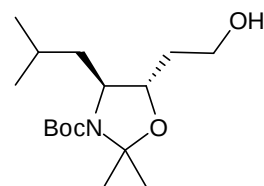
8a

(125M, CDCl₃)



Avance 500, Bruker
solvent:CDCl₃

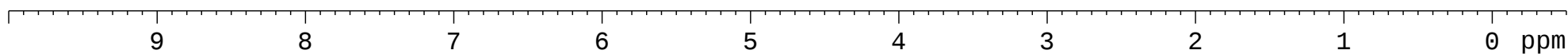
— 7.268



9
(500M, CDCl₃)

4.055
4.048
4.040
4.029
4.022
3.766
3.651

2.415
1.896
1.879
1.867
1.850
1.838
1.779
1.768
1.754
1.575
1.464
1.449
0.911
0.899



0.985

2.158

0.852

1.011

1.085

2.115

11.464

5.995

Avance 500, Bruker
CDCl₃

151.79

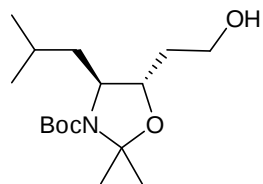
94.01

79.70
79.18

60.91
60.24

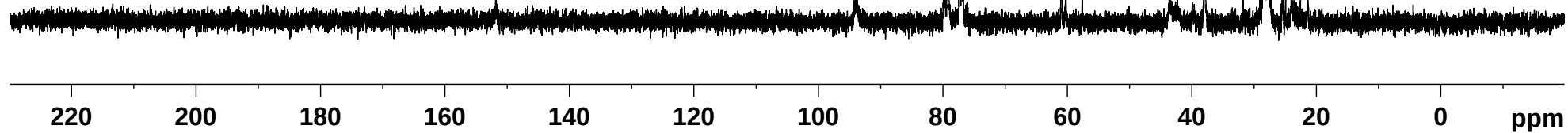
43.46
42.27
37.91

28.45
25.47
23.93
21.38



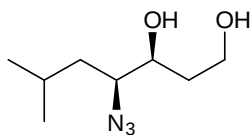
9

(125M, CDCl₃)



Avance 500, Bruker
CDCl₃

3.860
3.851
3.847
3.838
3.829
3.825
3.816
3.799
3.791
3.785
3.776
3.769
3.763
3.754
3.600
3.324
3.224
3.215
3.204
3.195
3.187
1.803
1.791
1.782
1.777
1.773
1.768
1.763
1.759
1.754
1.749
1.739
1.716
1.707
1.702
1.696
1.694
1.688
1.679
1.673
1.668
1.576
1.565
1.556
1.547
1.538
1.528
1.518
1.358
1.350
1.340
1.331
1.321
1.312
1.304
0.937
0.924
0.912



10

(500M, CDCl₃)



9 8 7 6 5 4 3 2 1 0 ppm

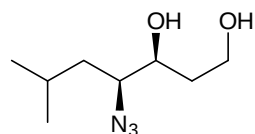
1.271
2.261
0.943
0.900
0.994

2.083
1.223
1.000
0.996

6.394

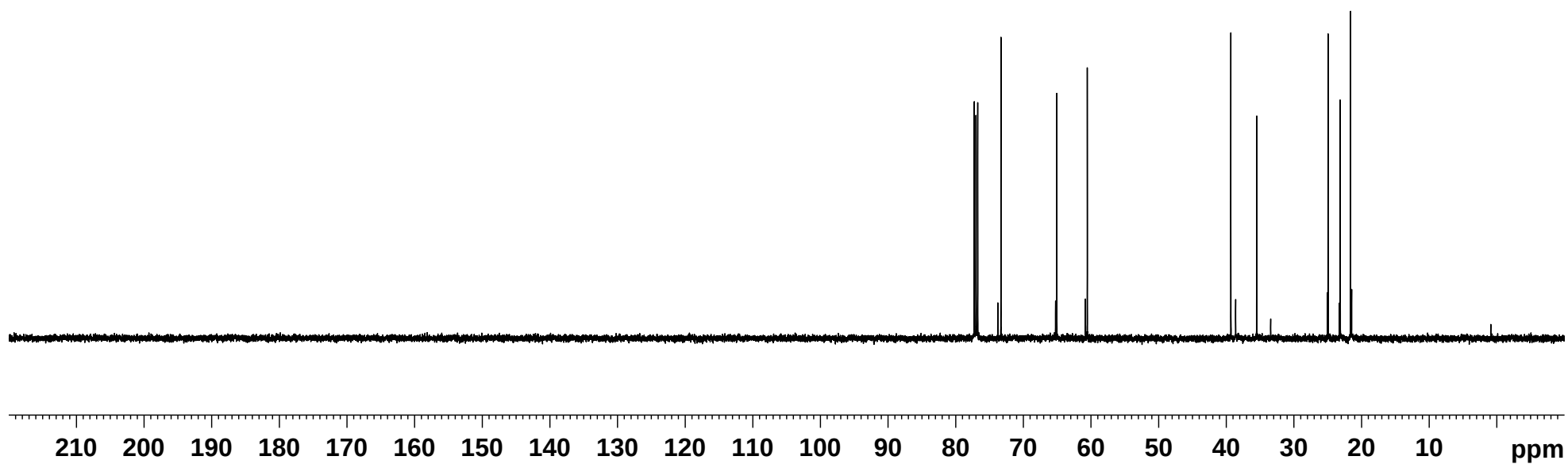
Avance 500, Bruker
CDCl₃

73.31
65.06
60.54
39.32
35.50
24.95
23.15
21.61



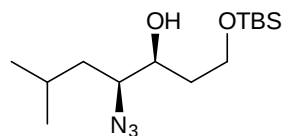
10

(125M, CDCl₃)



Avance 500, Bruker
CDCl₃

3.930
3.921
3.910
3.900
3.891
3.851
3.845
3.838
3.832
3.826
3.820
3.813
3.800
3.793
3.398
3.392
3.200
3.192
3.184
3.180
3.172
3.164
1.857
1.847
1.838
1.828
1.819
1.813
1.809
1.801
1.789
1.676
1.671
1.664
1.659
1.655
1.648
1.644
1.634
1.625
1.616

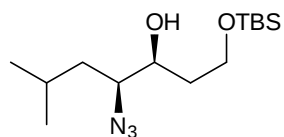


6

(500M, CDCl₃)



Avance 500, Bruker
CDCl₃



6
(125M, CDCl₃)

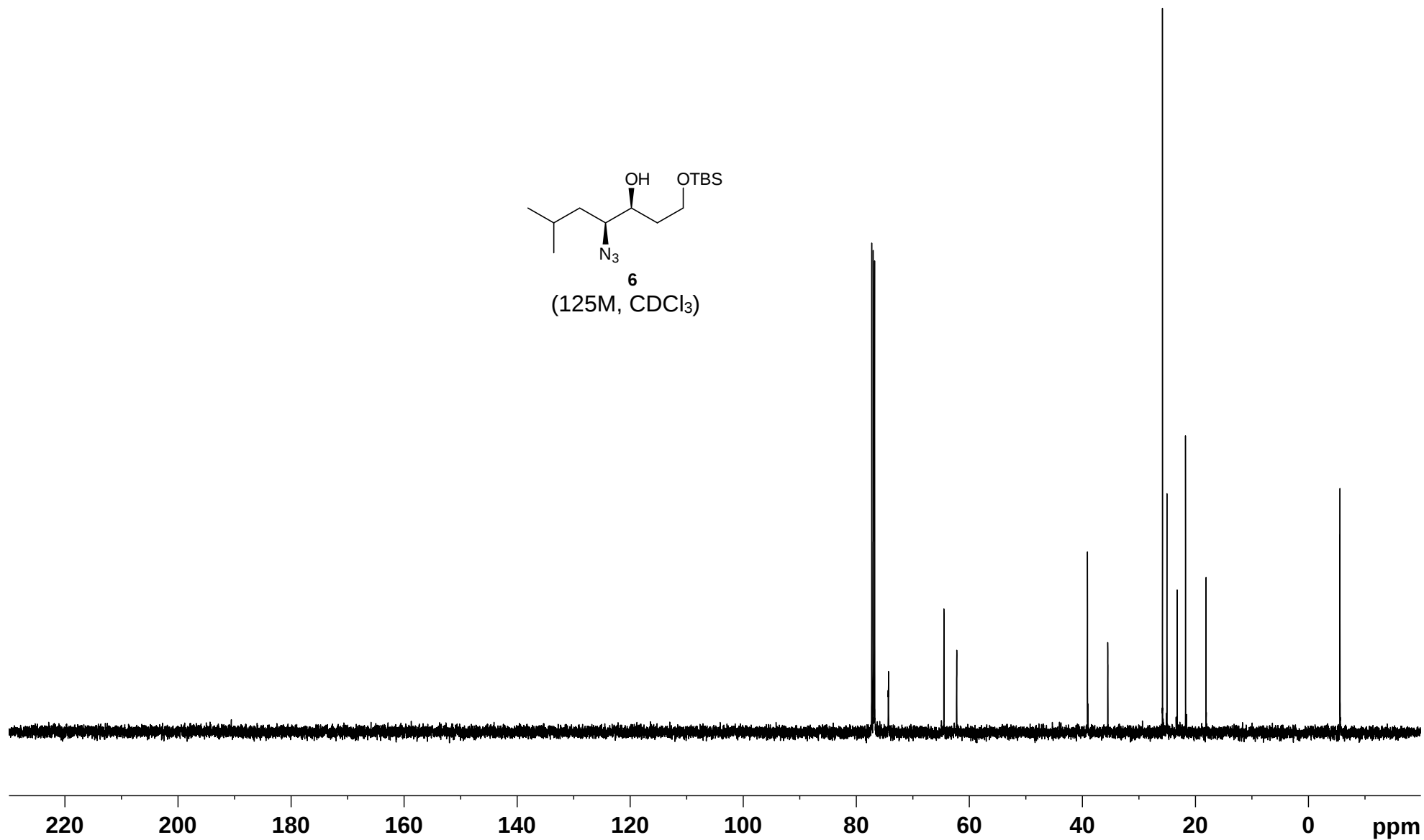
74.28

64.48
62.20

39.08
35.49

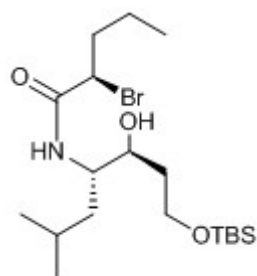
25.81
25.03
23.21
21.74
18.10

-5.56
-5.60



Avance 500, Bruker
CDCl₃

6.571
6.552
4.293
4.281
4.277
4.265
3.929
3.922
3.910
3.897
3.877
3.864
3.856
3.848
3.837
3.831
3.816
3.811
2.087
2.078
2.058
1.974
1.957
1.751
1.731
1.722
1.600
1.589
1.572
1.565
1.554
1.544
1.535
1.511
1.501
1.496
1.492
1.481
1.477
1.462
1.449
1.435
1.430
1.415
1.352
1.347
1.336
1.326
0.942
0.928
0.913
0.908
0.900
0.895
0.888
0.883
0.873
0.055



14

(500M, CDCl₃)

9 8 7 6 5 4 3 2 1 0 ppm

0.787

0.980

4.051

0.920

1.140

0.999

5.968

18.004

6.000

Avance 500, Bruker
CDC13

168.8

—74.1

62.8

$$\sqrt{51.8}$$

51.1

—41.4

41.47

— 35.7

25.7

24.7

23.1

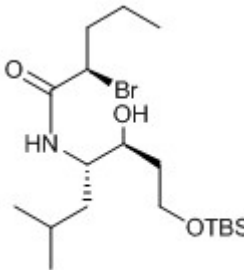
22.1

20.6

18.0

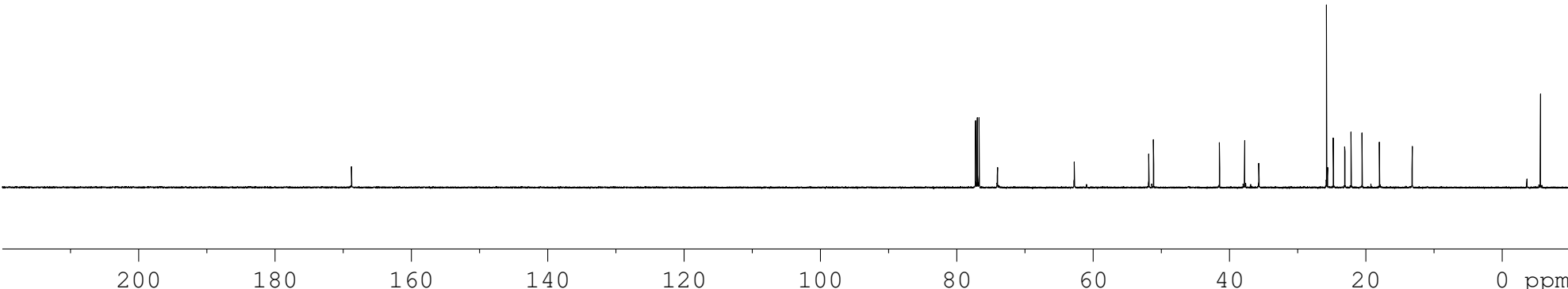
13.2

5.6



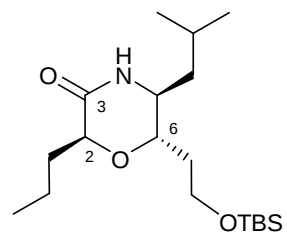
14

(125M, CDCl₃)

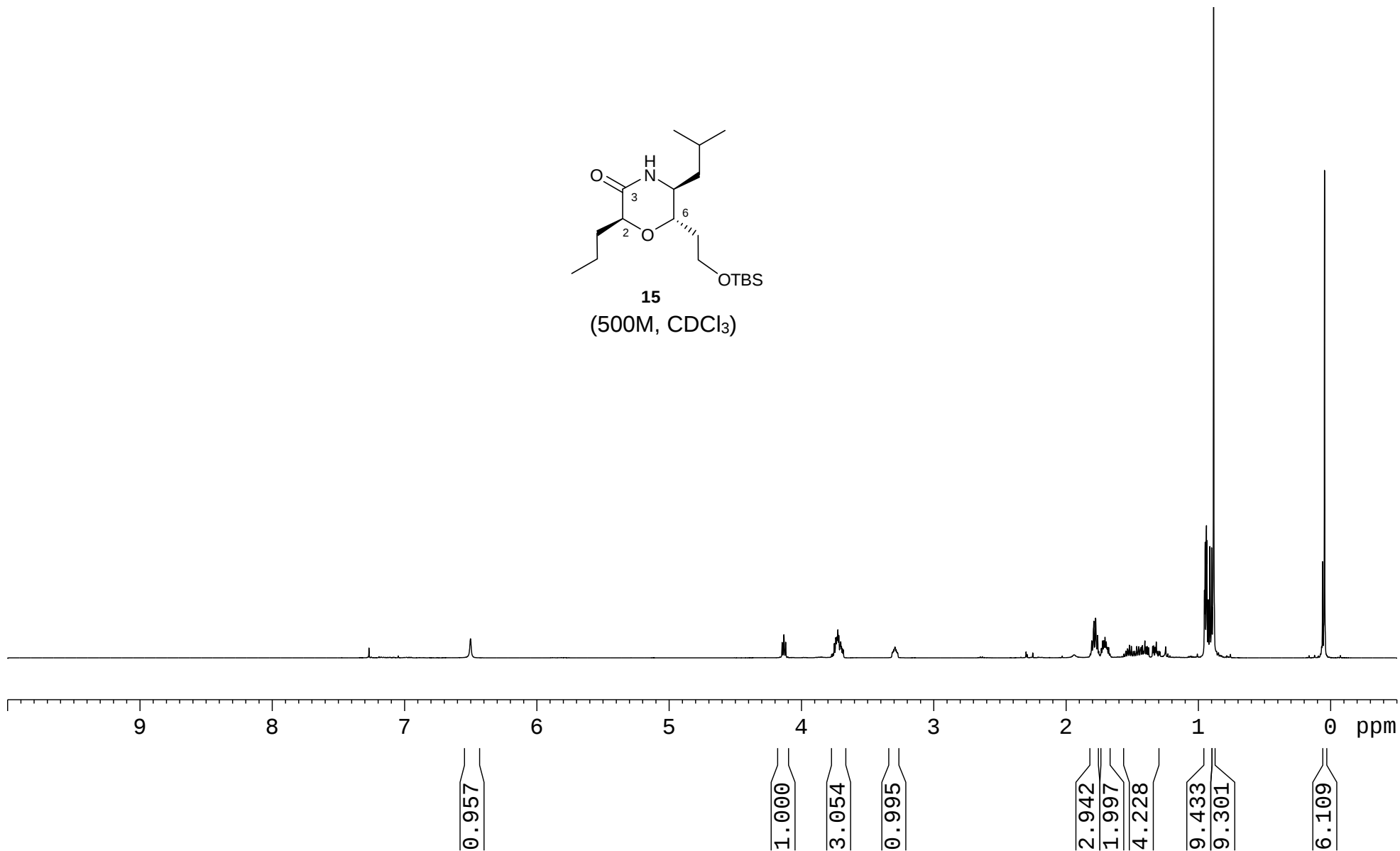


Avance 500, Bruker
CDCl₃

6.501
4.146
4.133
4.120
3.752
3.741
3.734
3.730
3.726
3.718
3.709
3.704
3.698
3.691
3.303
3.293
1.806
1.790
1.777
1.762
1.733
1.724
1.715
1.706
1.696
1.687
1.678
1.536
1.521
1.507
1.466
1.451
1.433
1.423
1.404
1.395
1.386
1.376



15
(500M, CDCl₃)



Avance 500, Bruker
CDCl₃

— 172.11

— 73.64

— 68.83

— 58.95

— 53.97

— 42.45

— 34.16

— 33.08

— 25.82

— 23.93

— 23.56

— 21.53

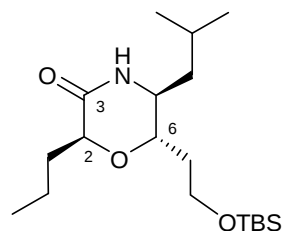
— 18.87

— 18.14

— 13.65

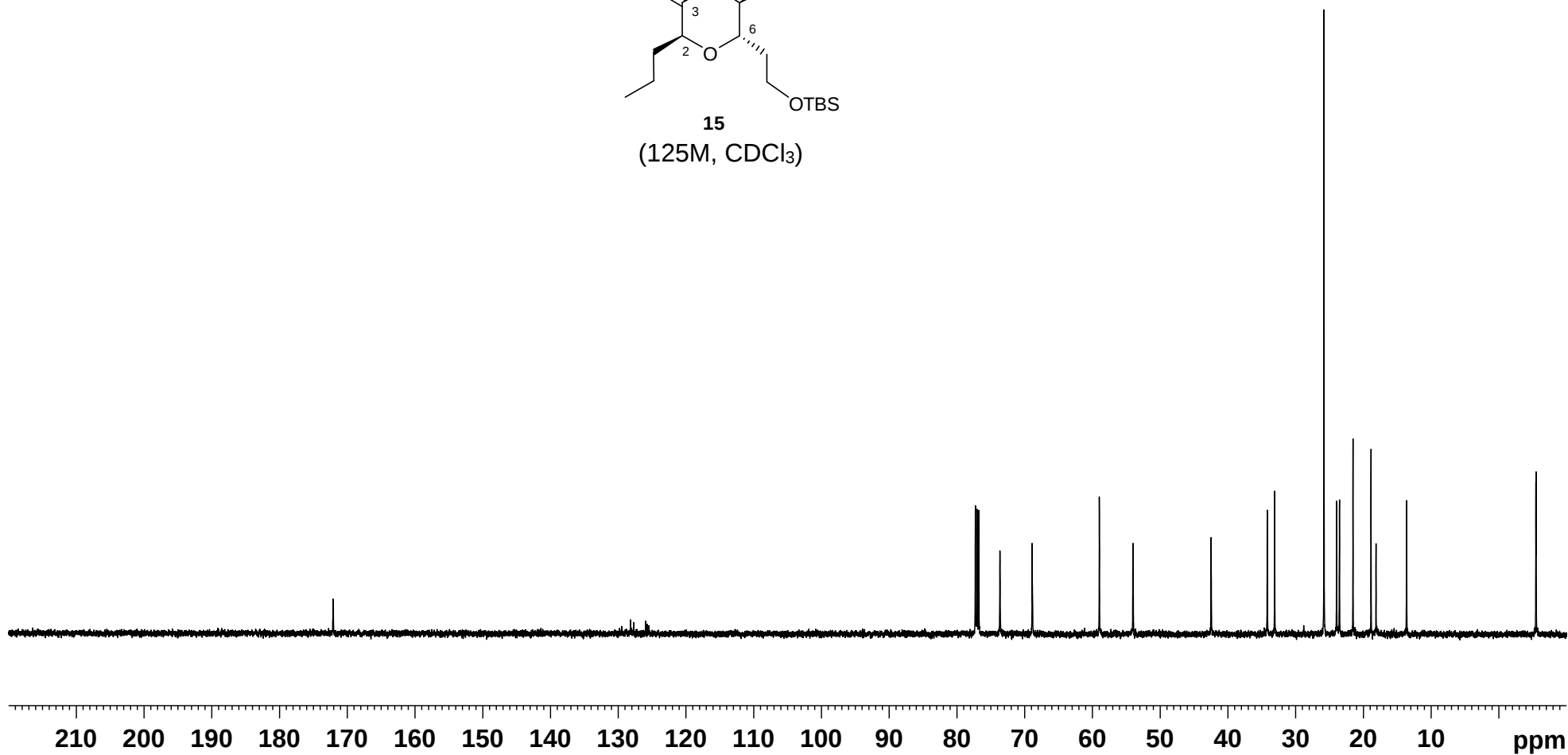
— 5.45

— 5.50



15

(125M, CDCl₃)

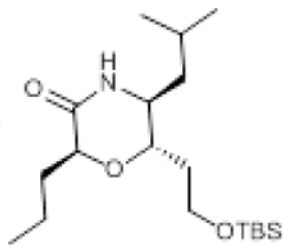


4.136
4.043
4.032
4.023
4.011
3.826
3.814
3.801
3.794
3.778
3.762
3.759
3.748
3.736
3.313
3.301
3.293
3.288
3.281
3.268
3.250

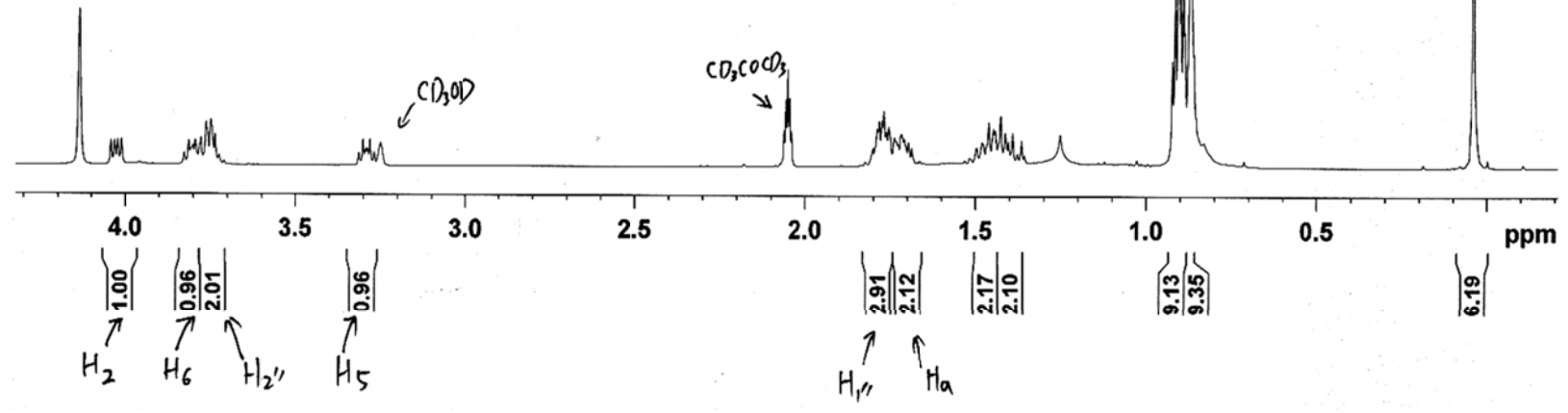
1.801
1.789
1.782
1.775
1.769
1.762
1.754
1.738
1.731
1.726
1.716
1.710
1.704
1.696
1.687
1.496
1.480
1.476
1.461
1.447
1.441
1.426
1.412
1.403
1.391
1.378
1.365
0.923
0.916
0.905
0.899
0.891
0.887
0.872
0.862

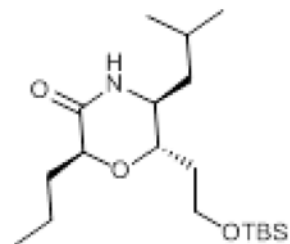
0.042

Acetone-D₆ / CD₃OD = 2:1



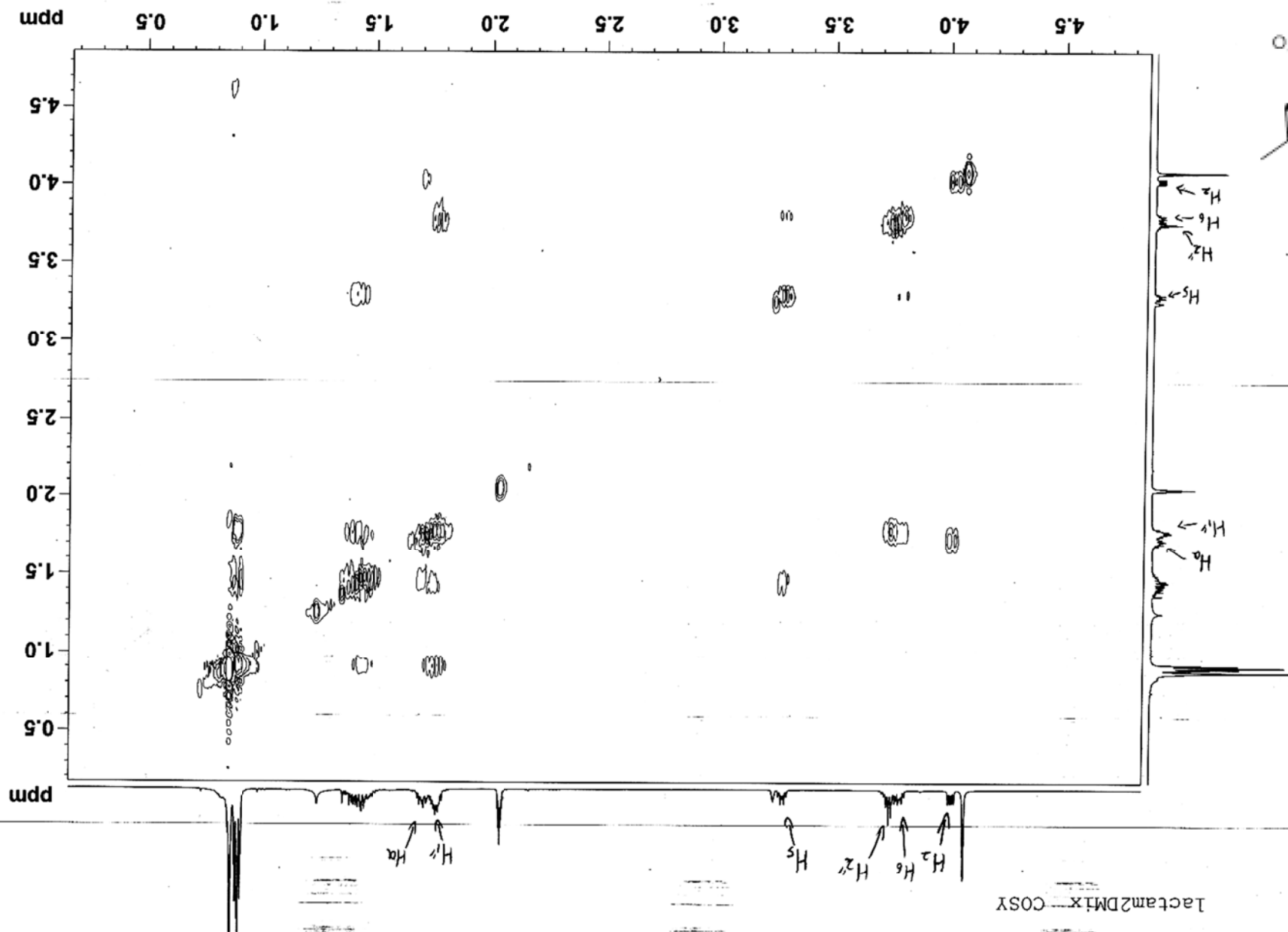
Compound 15
(500M)

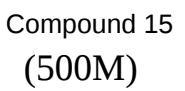




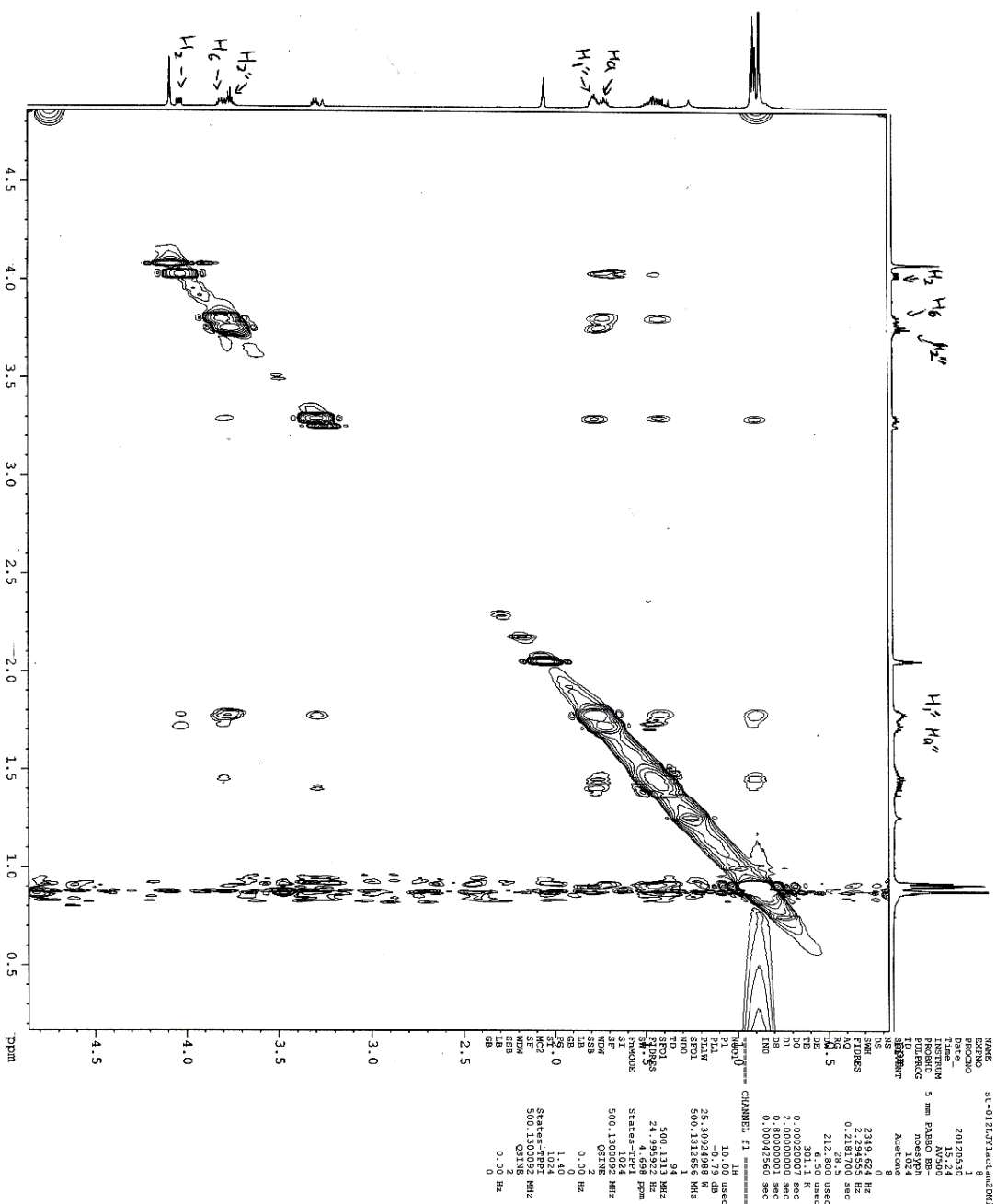
Compound 15
(500M)

2D COSY



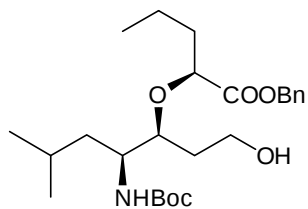


st-012LJylactam2DMixsol-05-30-2012 NOESY



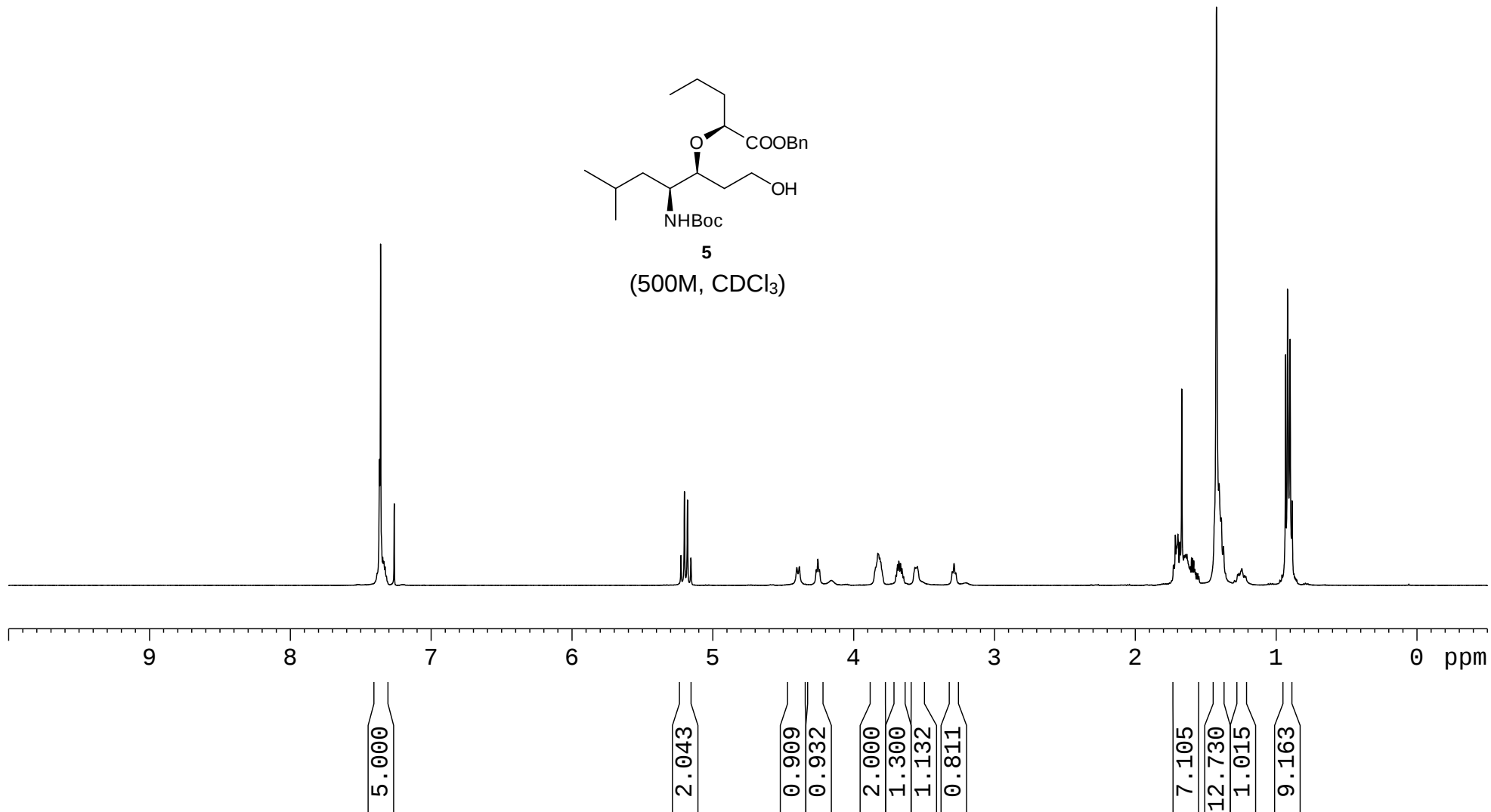
Avance 500, Bruker
solvent:CDCl3
spectrum:jyliu

7.367
7.359
7.344
7.337
7.327
5.226
5.202
5.180
5.155
4.404
4.386
4.265
4.254
4.242
3.828
3.814
3.700
3.688
3.679
3.668
3.657
3.565
3.548
3.299
3.287
3.275
1.730
1.725
1.716
1.707
1.698
1.684
1.670
1.652
1.645
1.633
1.609
1.601
1.593
1.585
1.577
1.572
1.564
1.556
1.548
1.424
1.405
1.389
1.273
1.264
1.243
1.224
1.215
0.933
0.919
0.901
0.886

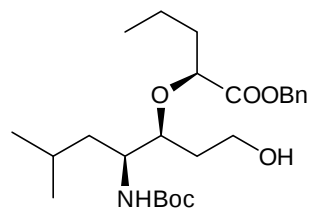


5

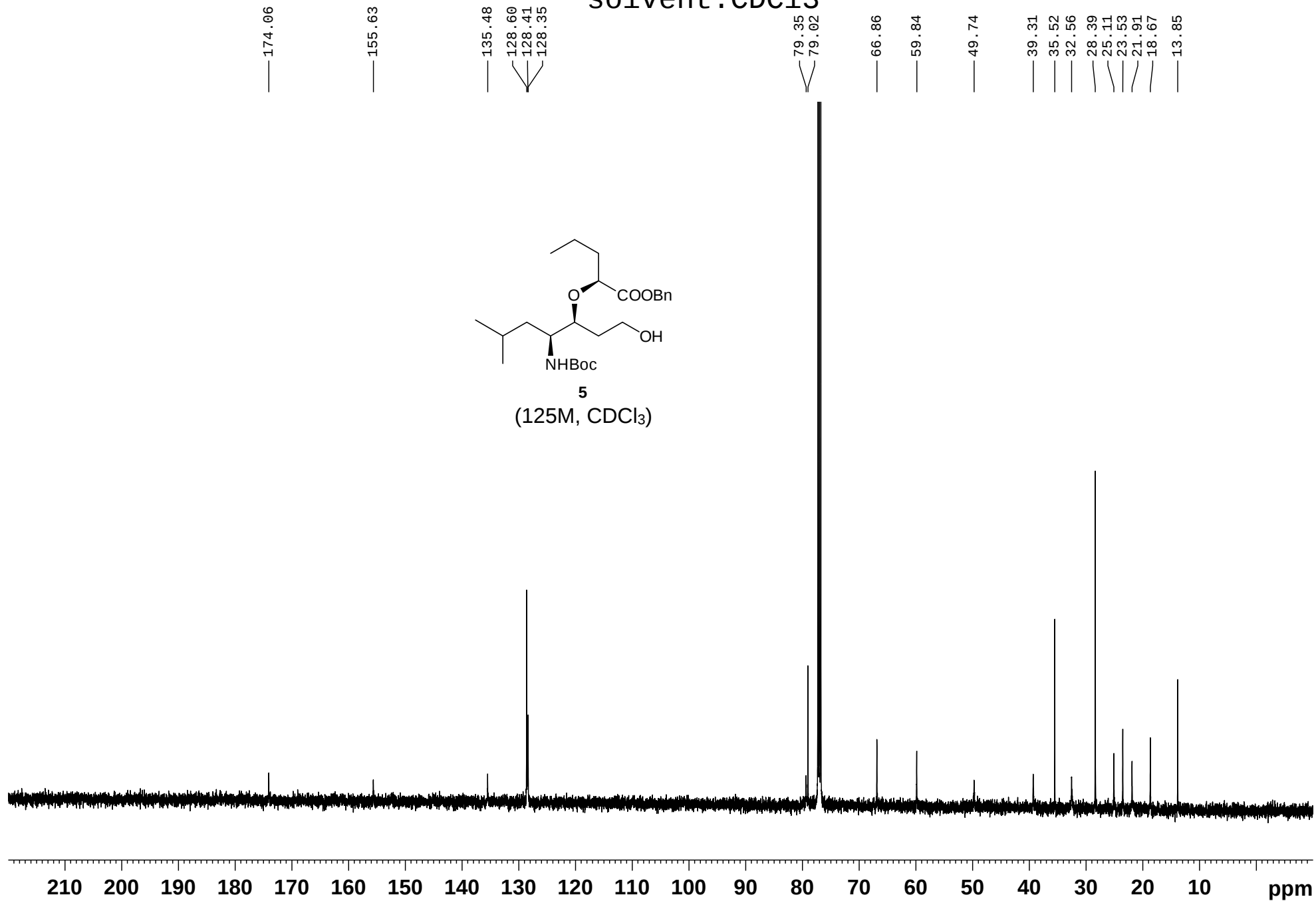
(500M, CDCl₃)



Avance 500, Bruker
solvent:CDCl₃



5
(125M, CDCl₃)

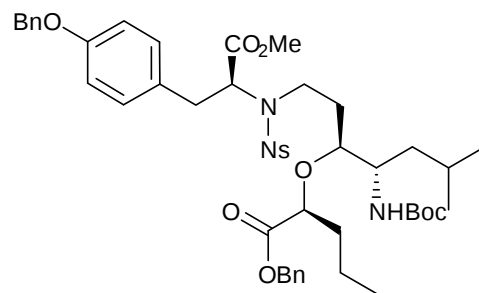


SZPKU Bruker 400

Solvent: CDCl₃

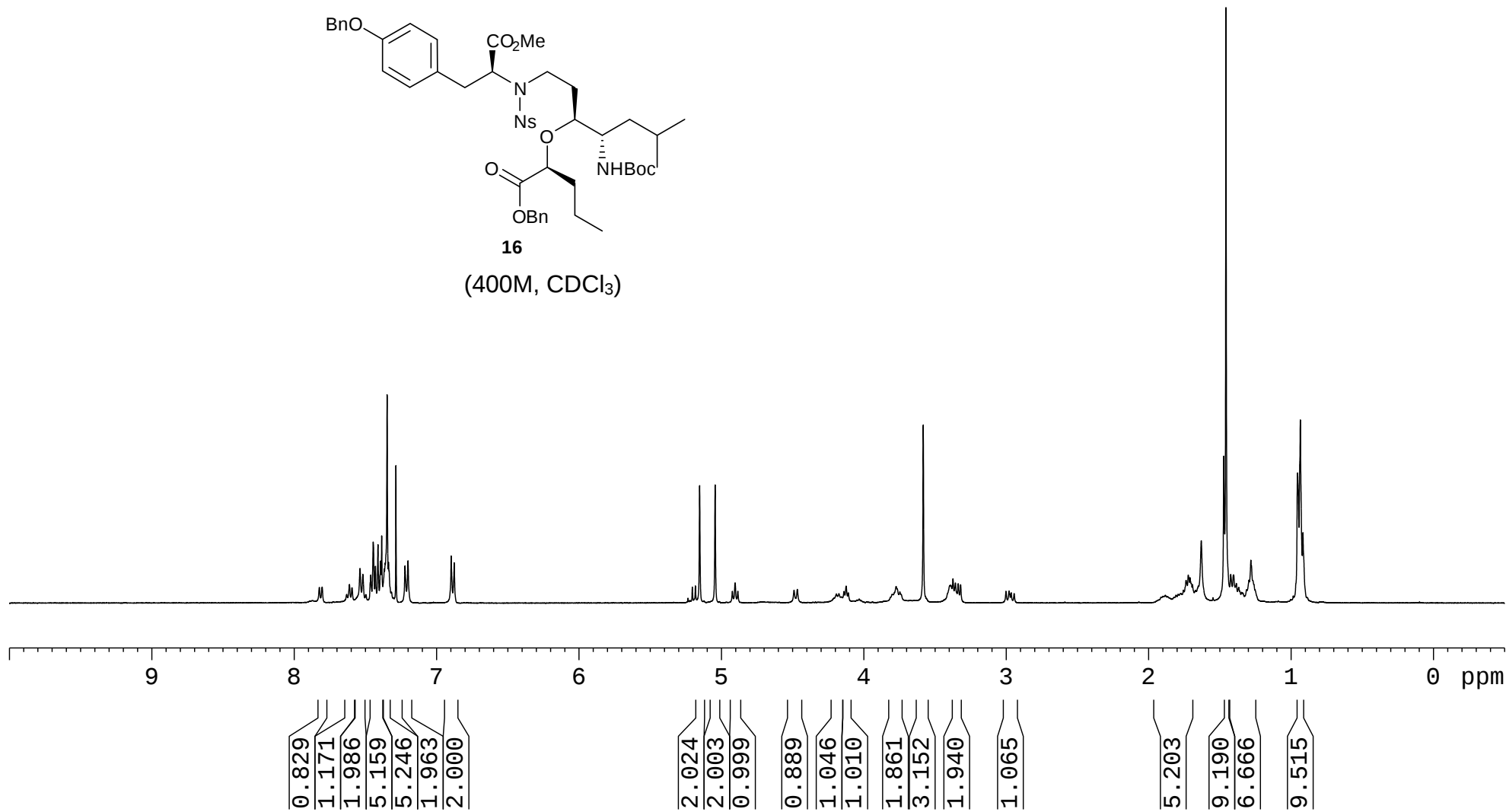
Spectrum: jyliu

7.803
7.612
7.594
7.537
7.517
7.462
7.445
7.429
7.411
7.392
7.385
7.367
7.361
7.347
7.337
7.285
7.222
7.200
6.897
6.876
5.152
5.044
4.903
4.489
4.466
4.124
3.773
3.582
3.394
3.373
3.356
3.337
3.320
3.001
2.980
1.756
1.737
1.721
1.709
1.691
1.671
1.651
1.630
1.472
1.456
1.423
1.404
1.383
1.367
1.312
1.295
1.282
1.277
1.267
0.954
0.934
0.916

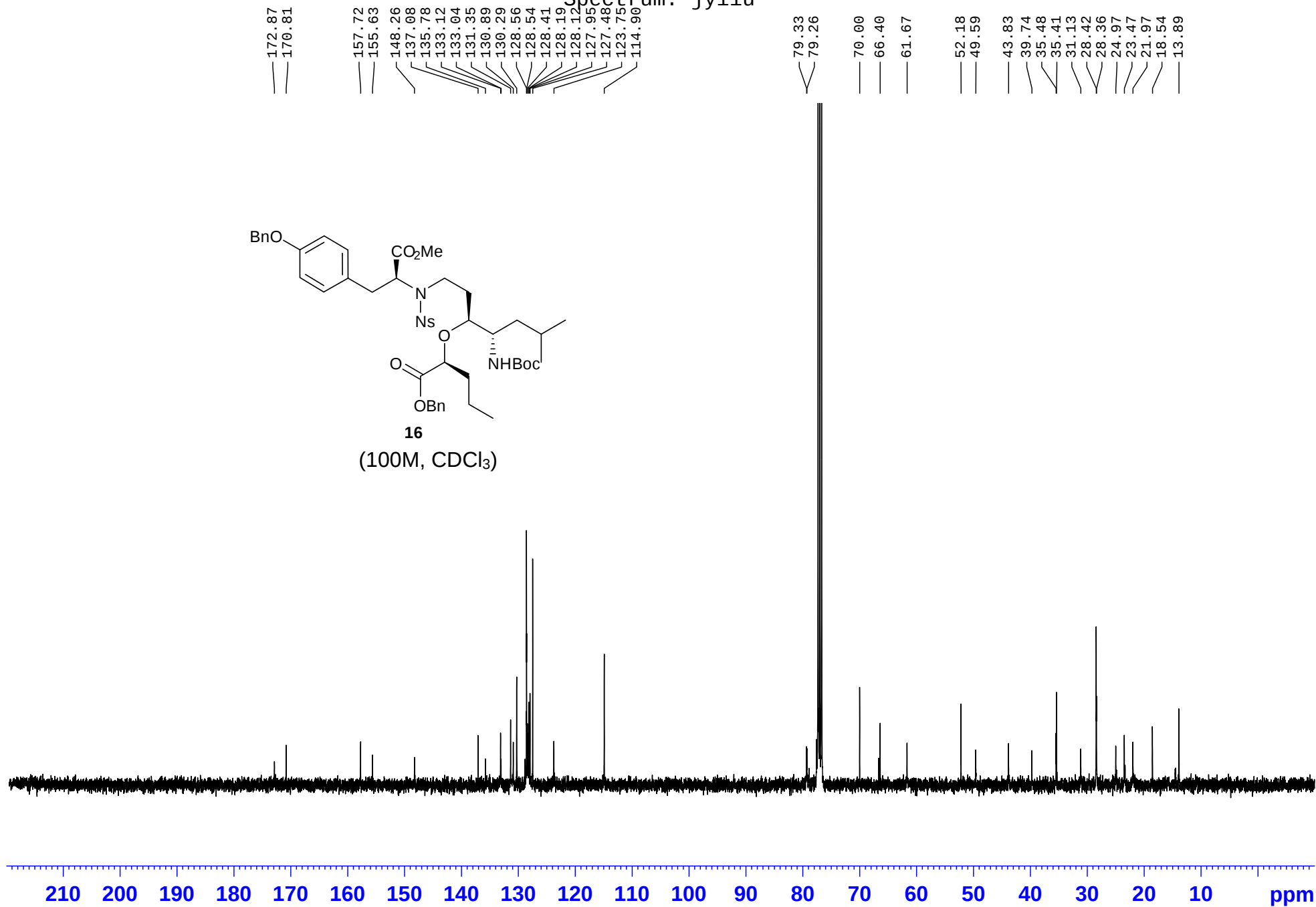
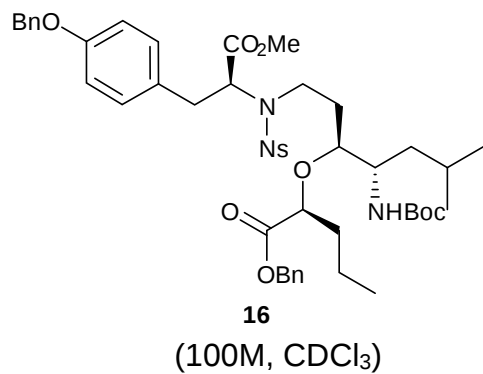


16

(400M, CDCl₃)

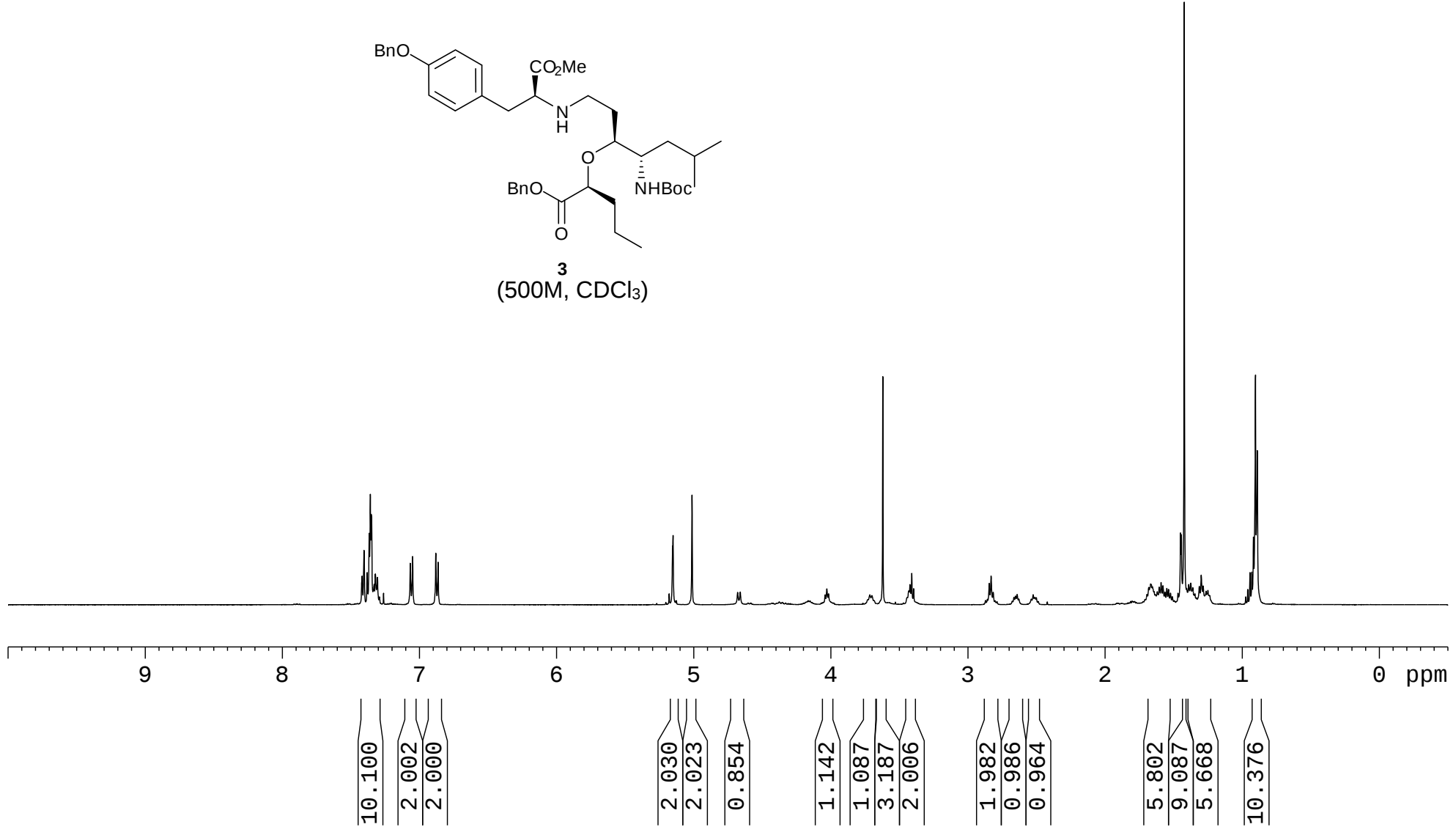
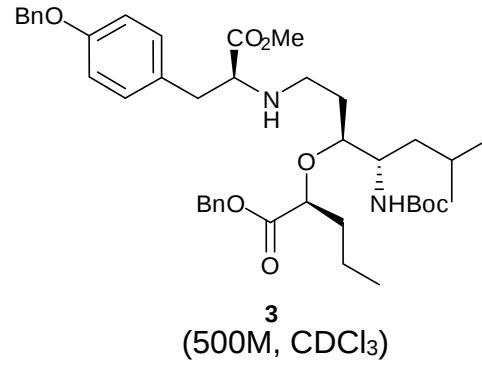


SZPKU Bruker 400
Solvent CDCl₃
Spectrum: jyliu



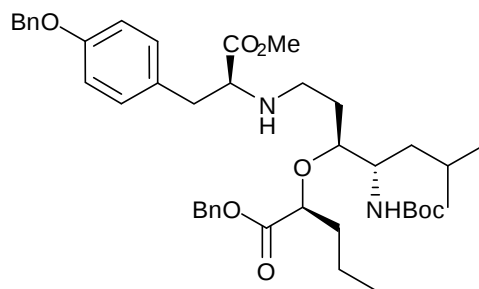
Avance 500, Bruker
CDCl₃

7.419 7.404 7.381 7.367 7.358 7.352 7.349 7.337 7.330 7.322 7.312 7.306 7.262 7.067 7.050 6.881 6.864 5.151 5.012 4.680 4.661 4.029 4.017 3.716 3.621 3.430 3.423 3.410 3.396 2.845 2.831 2.816 2.641 2.525 1.694 1.681 1.667 1.655 1.643 1.633 1.619 1.605 1.591 1.578 1.563 1.550 1.537 1.523 1.422 1.390 1.375 1.359 1.345 1.313 1.299 1.285 1.263 1.250

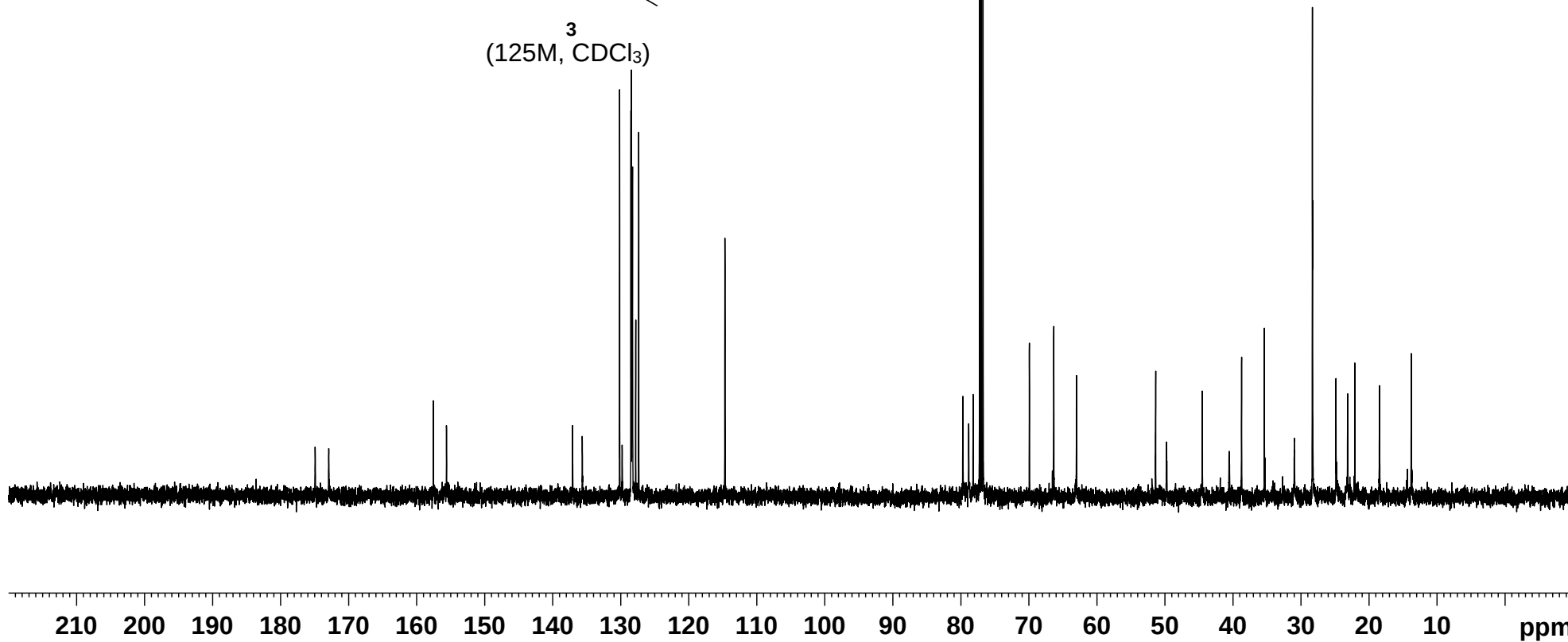


Avance 500, Bruker, SZPKU
solvent:CDCl₃

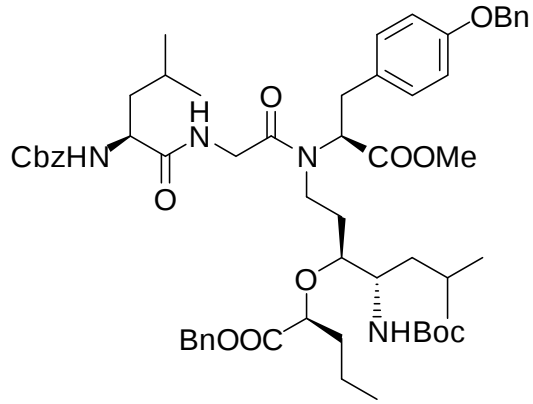
174.91
172.91
157.54
155.61
137.08
135.64
130.15
129.79
128.49
128.44
128.31
128.25
127.79
127.34
114.67
79.71
78.85
78.20
69.94
66.34
63.01
51.36
49.78
44.51
40.55
38.73
35.39
30.98
28.33
24.86
23.14
22.09
18.46
13.78



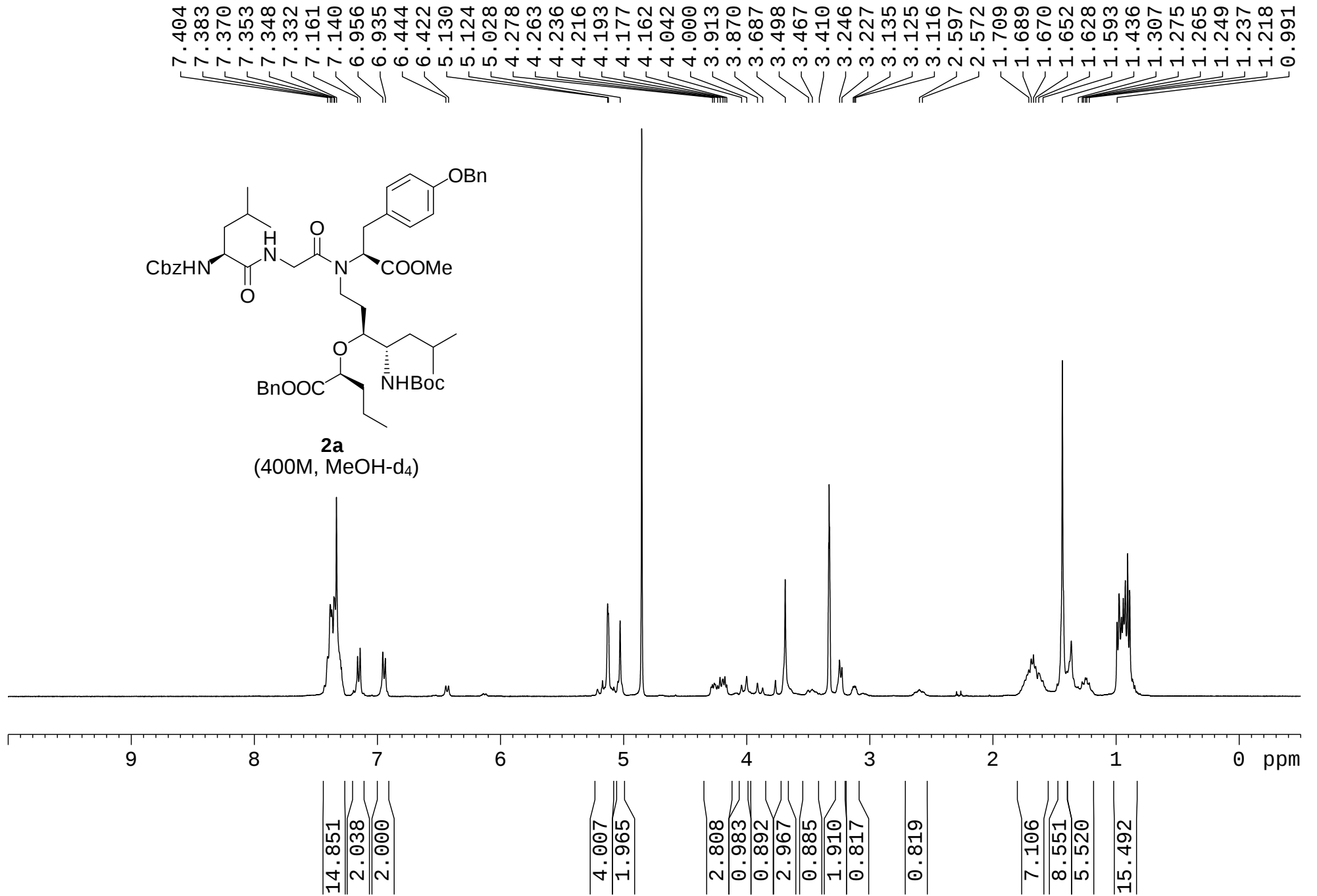
3
(125M, CDCl₃)



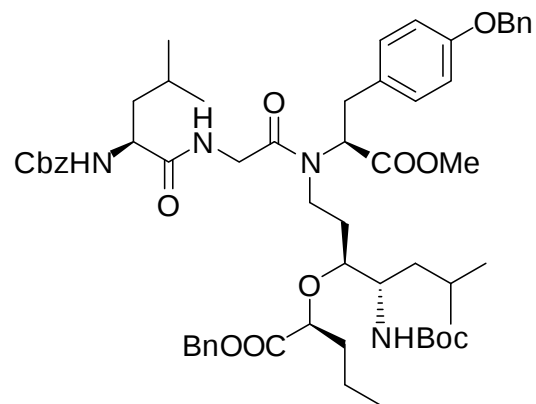
SZPKU Bruker 400
Solvent: MeOD



2a
(400M, MeOH-d₄)



SZPKU Bruker 400
Solvent MeOD

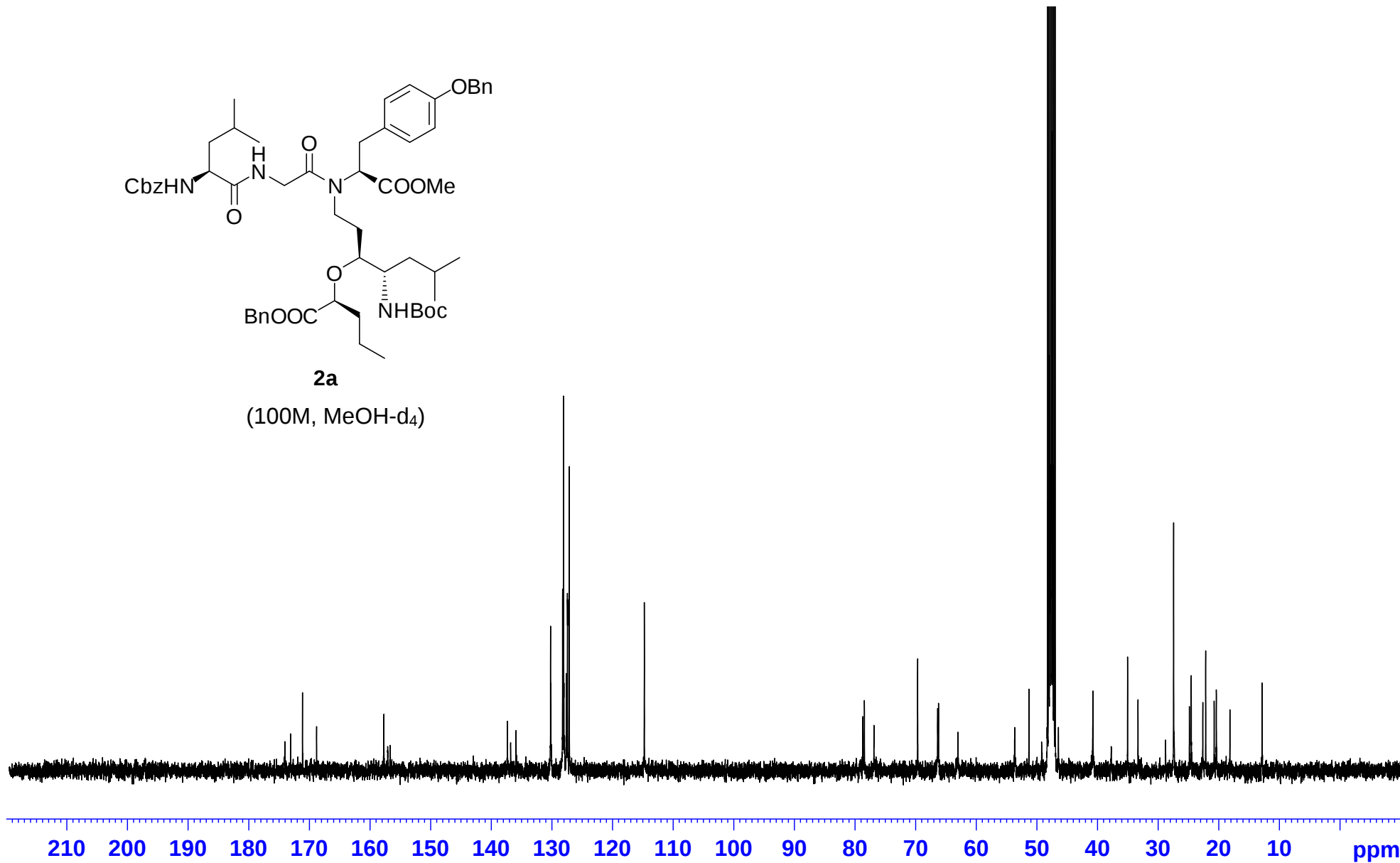


2a

(100M, MeOH-d₄)

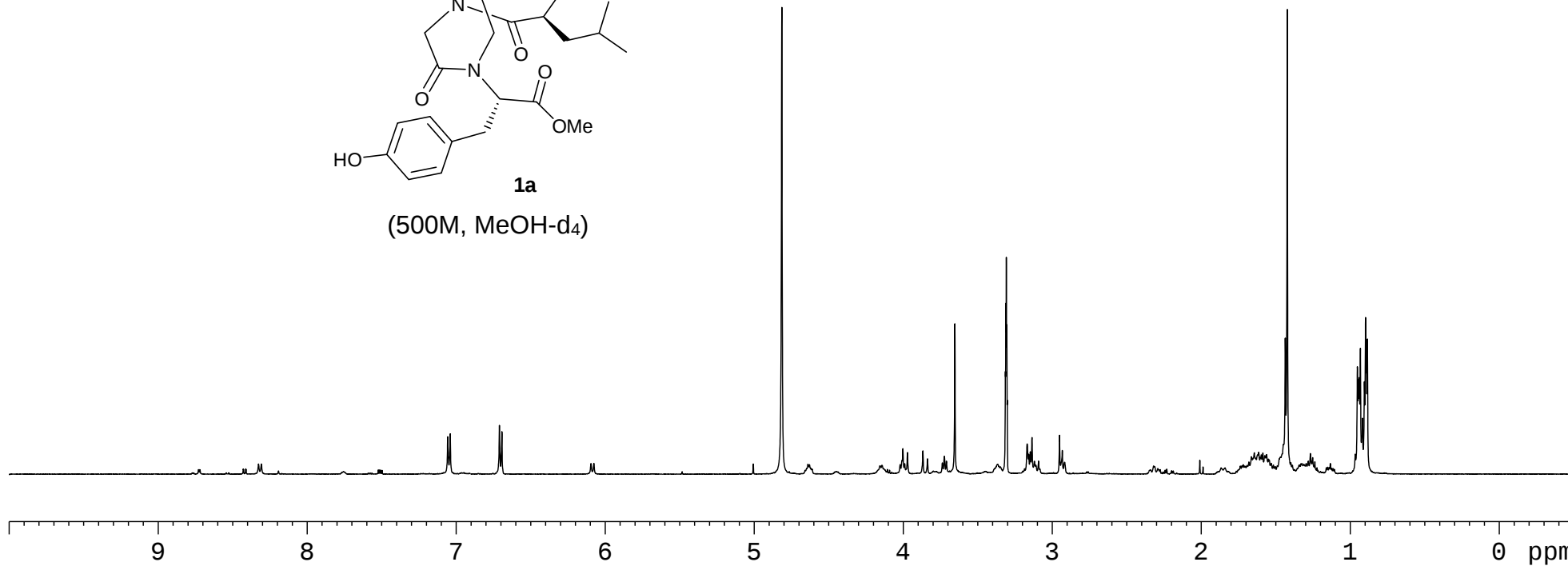
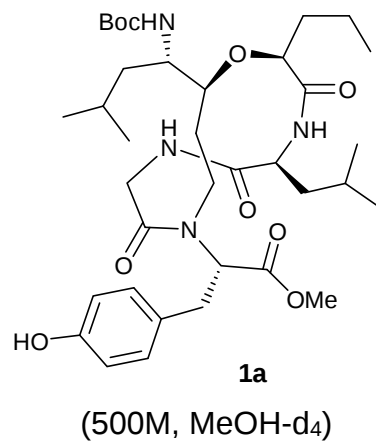
174.03
173.10
171.13
168.81
157.71
157.08
156.68
137.34
136.80
135.90
130.21
130.15
128.23
128.08
128.05
127.60
127.43
127.41
127.12
114.75

78.70
78.44
76.86
69.66
66.36
66.21
63.01
53.64
51.29
46.44
40.73
37.73
35.03
33.31
28.78
27.43
24.83
24.53
22.62
22.15
20.74
20.40
18.15
12.84



Avance 500, Bruker
solvent:MeOD

7.057
7.040
6.710
6.693
6.096
6.076
4.640
4.002
3.971
3.868
3.837
3.653
3.365
3.314
3.311
3.308
3.305
3.302
3.168
3.158
3.147
3.136
3.120
3.092
2.951
2.932
2.917
1.680
1.663
1.644
1.622
1.614
1.603
1.597
1.586
1.574
1.562
1.548
1.436
1.423
1.330
1.322
1.310
1.296
1.282
1.267
1.252
1.237
1.133
0.952
0.946
0.939
0.932
0.905
0.897
0.892
0.885



2.000
1.913

1.002
1.125
1.859
0.965
1.110
3.040
1.174
3.046
1.067

1.024
1.008
7.938
9.248
3.332
0.954
16.128

Avance 500, Bruker, SZPKU
solvent:MeOD

174.56
172.19
171.31
169.32

157.28
156.01

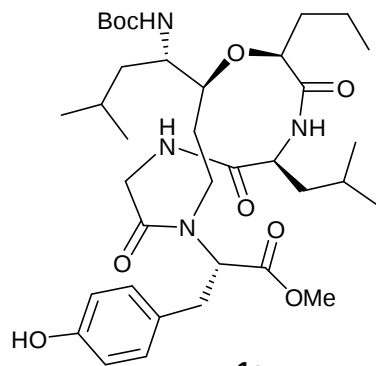
130.43
128.59
128.54

115.05

84.77
84.74
80.03
78.61

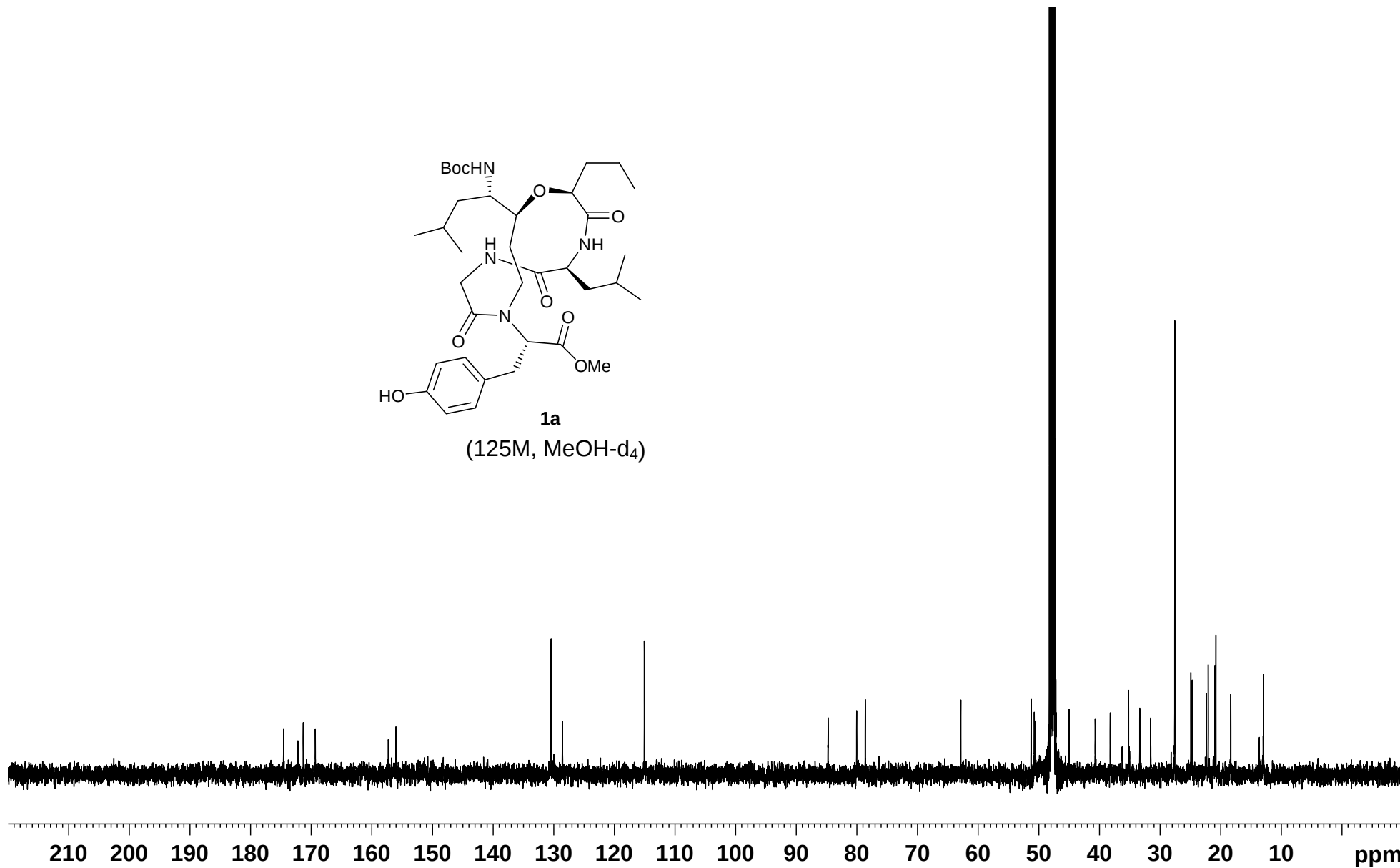
62.85

51.26
50.73
50.56
44.99
40.69
38.21
35.18
33.34
31.53
27.56
24.91
24.68
22.33
22.05
20.93
20.77
18.32
12.92

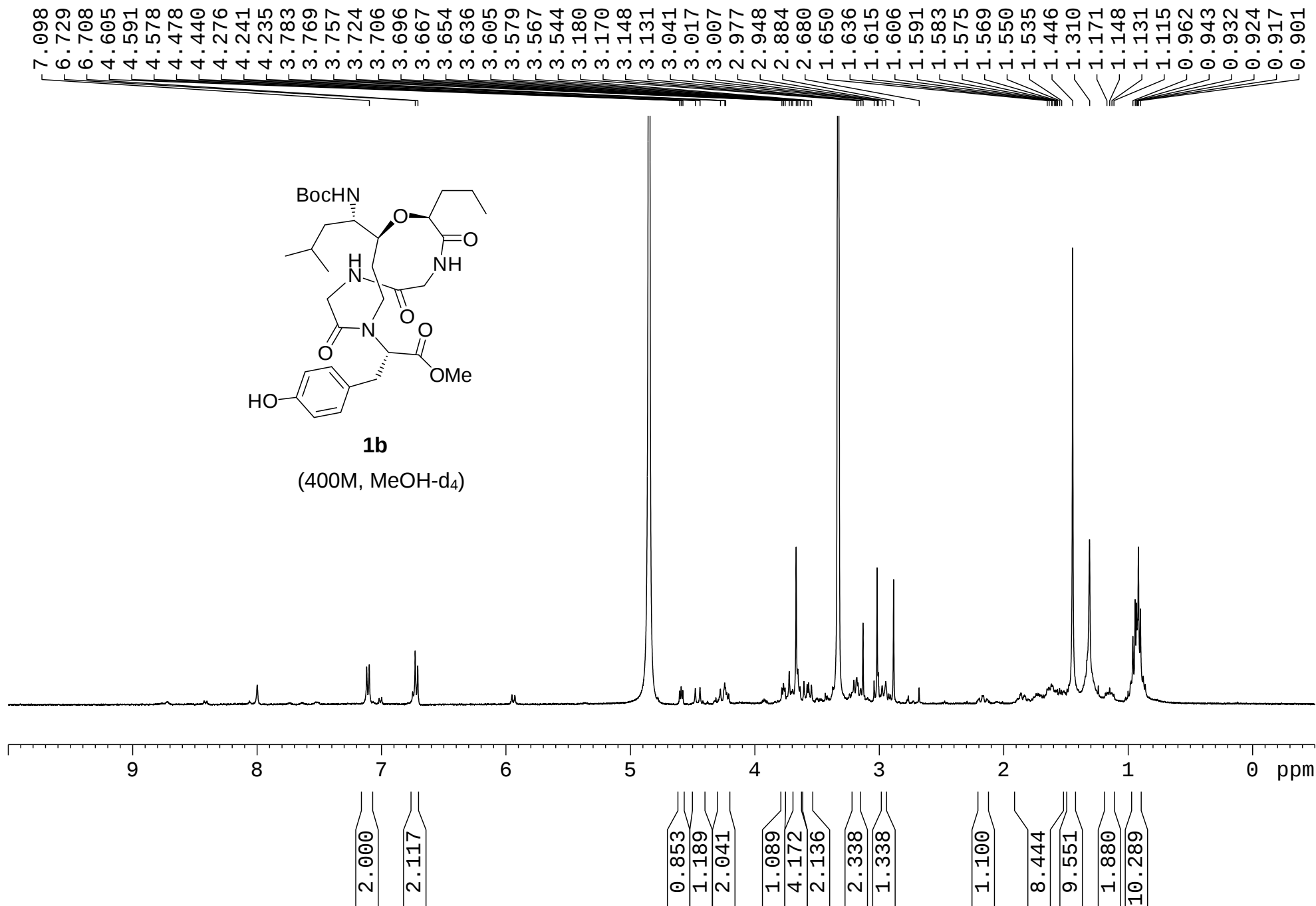


1a

(125M, MeOH-d₄)



SZPKU Bruker 400
Solvent: MeOD



Avance 500, Bruker
solvent: MeOD

174.29
171.21
169.39
169.02

157.14
156.03

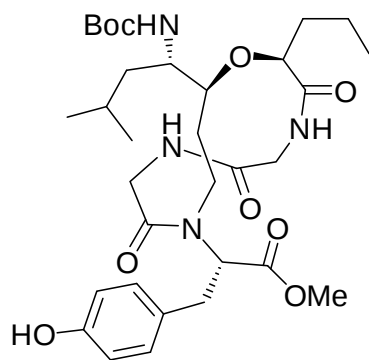
130.53
128.22

114.96

82.53
80.06
78.52

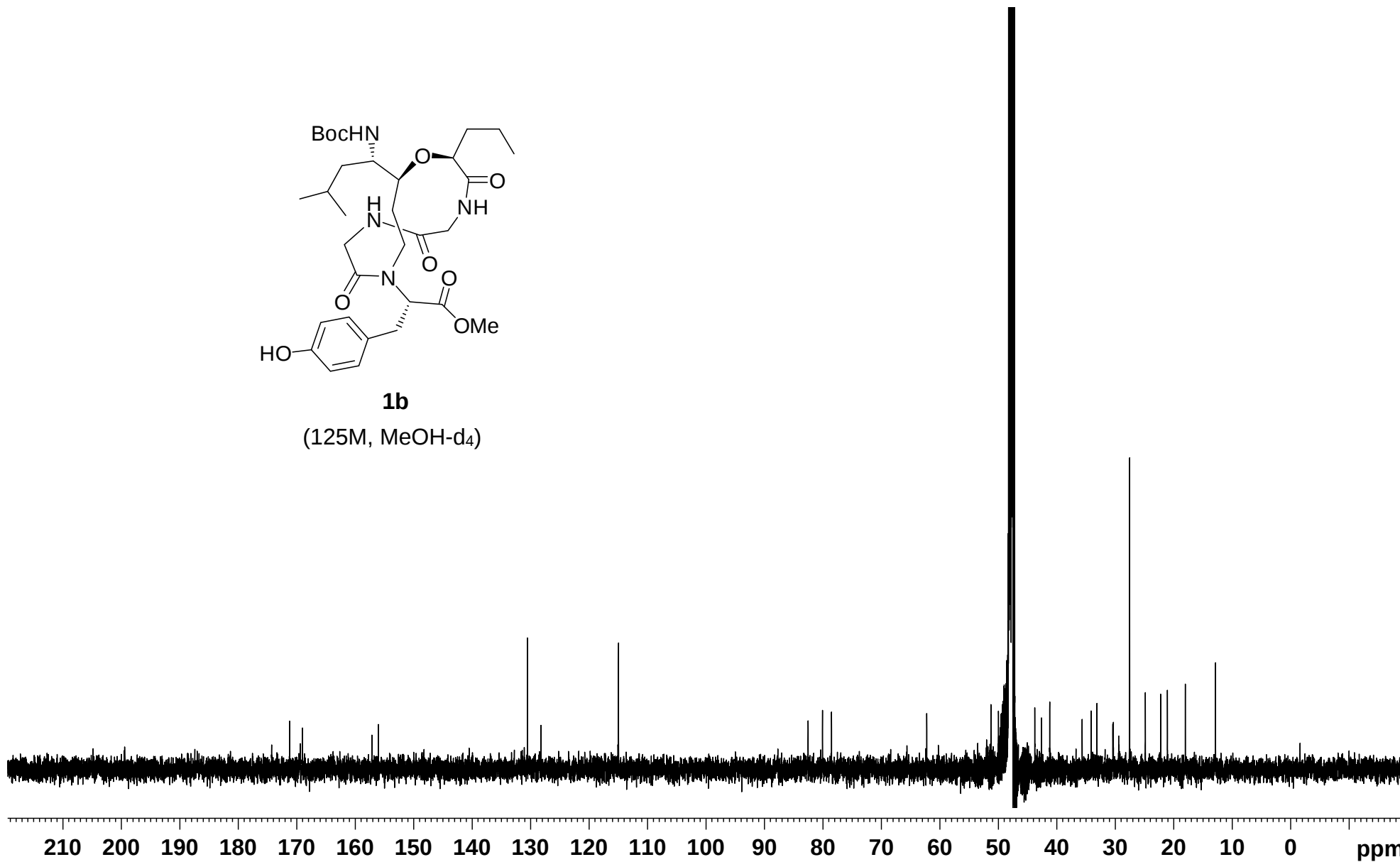
62.23

51.26
49.99
43.77
42.63
41.22
35.67
34.14
33.14
30.43
30.33
27.55
24.86
22.24
21.09
18.02

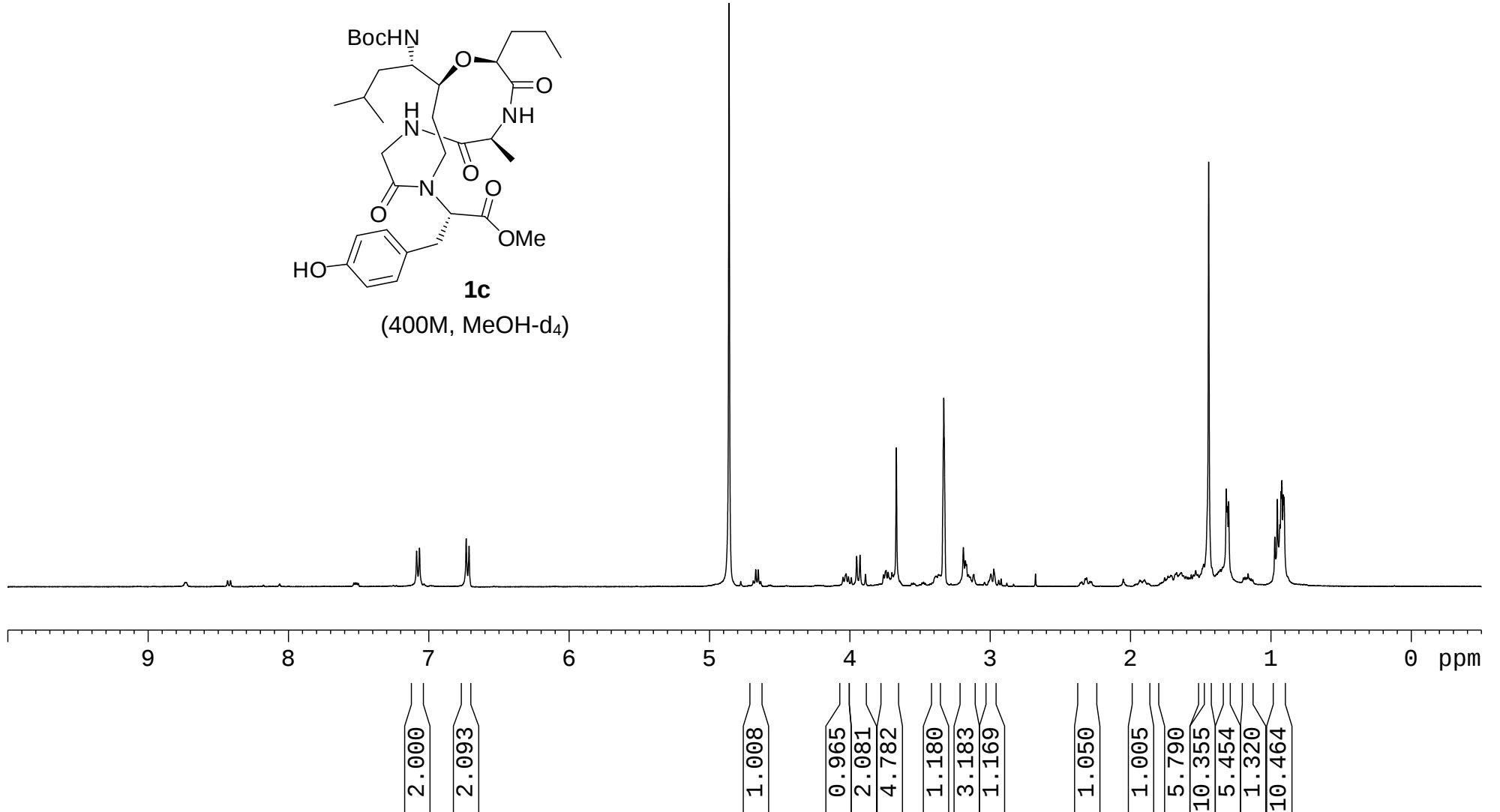
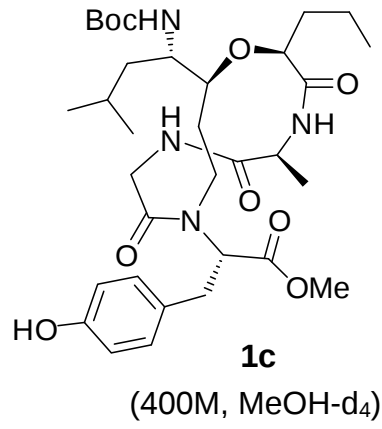
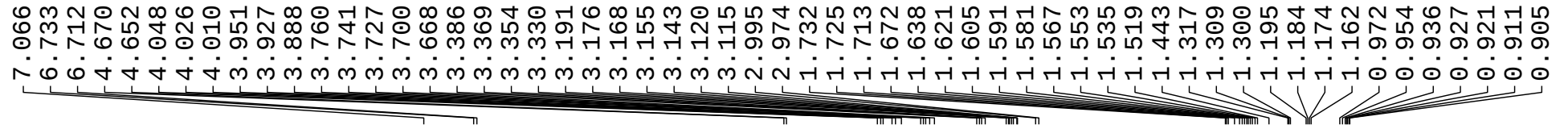


1b

(125M, MeOH-d₄)



Bruker 400
Solvent: MeOD
Spectrum: jylu



Bruker 400
Solvent: MeOD
Spectrum: jyliu

174.32
172.22
171.13
169.19

157.14
155.86

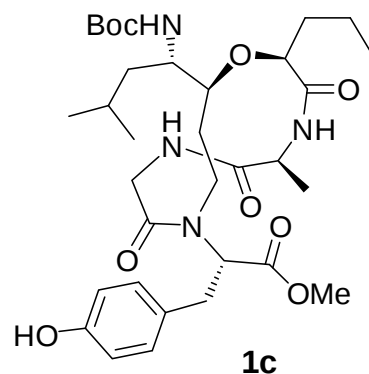
130.28
128.31

114.85

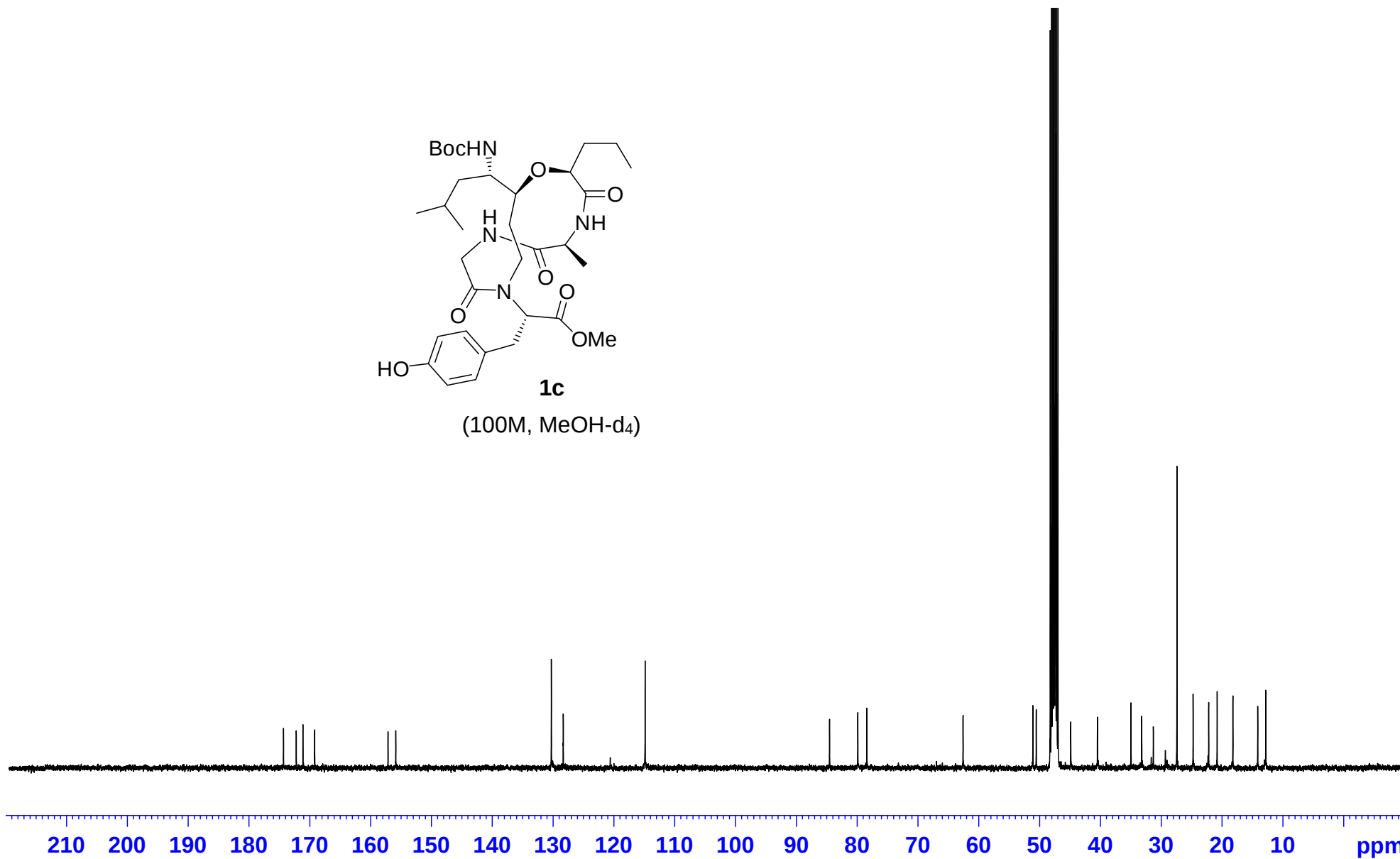
84.53
79.88
78.40

62.58

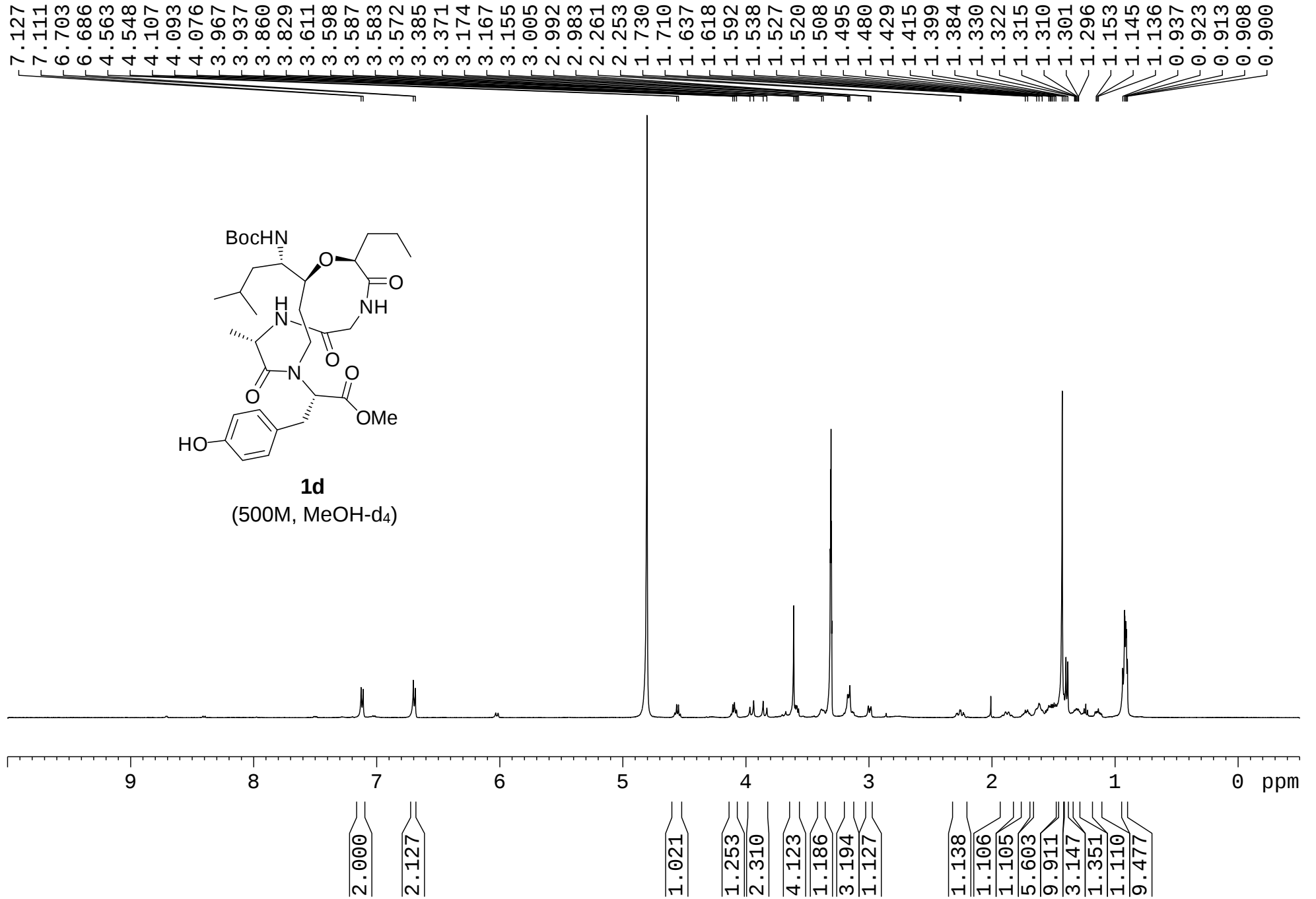
51.09
50.54
44.86
40.48
34.96
33.19
31.64
31.29
29.31
27.40
24.75
22.30
22.18
20.80
18.20
14.12
12.79



(100M, MeOH-d₄)



Avance 500, Bruker
solvent: MeOD



Avance 500, Bruker
solvent: MeOD
spectrum: jyliu

175.14
171.95
171.19
169.75

157.24
156.10

130.80
128.18

114.82

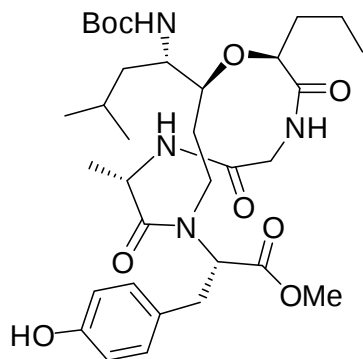
83.45
81.06
78.54

62.57

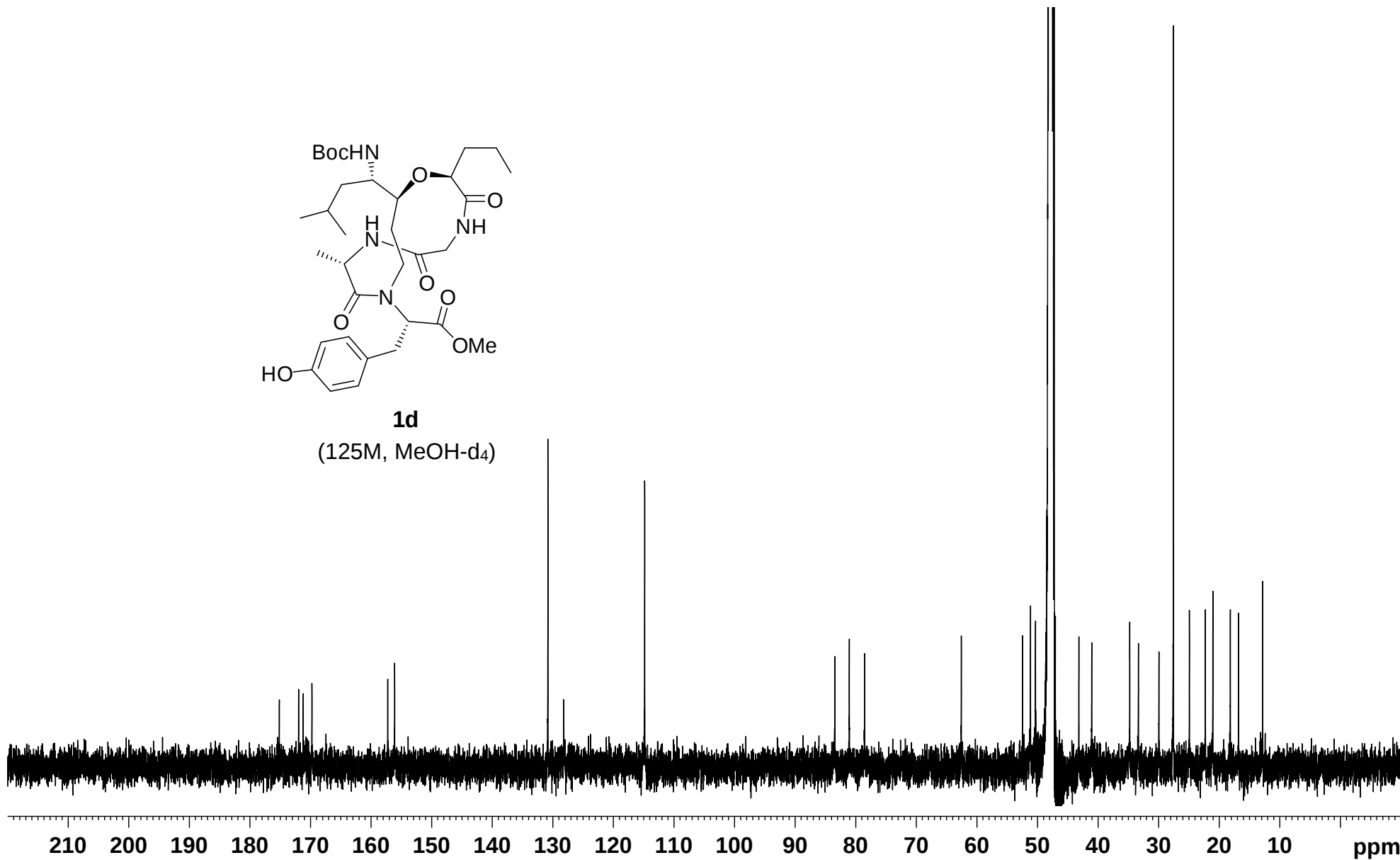
52.45
51.15
50.33

43.17
41.05

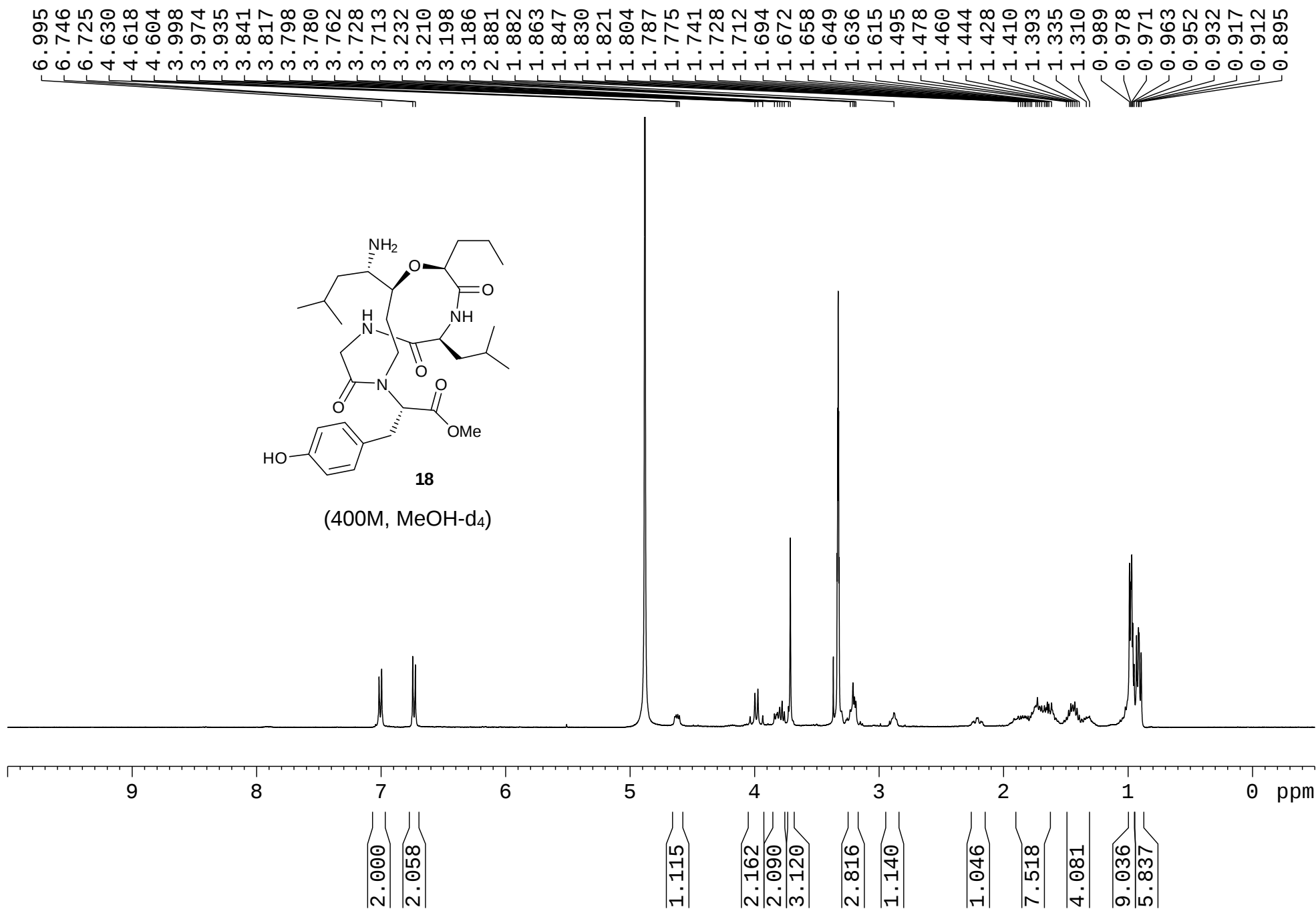
34.77
33.34
29.95
27.56
24.93
22.29
21.05
18.17
16.81
12.82



1d
(125M, MeOH-d₄)



Bruker 400
Solvent: MeOD



SZPKU Bruker 400
Solvent MeOD

173.20
172.37
170.86
169.49

156.11

130.06
128.65

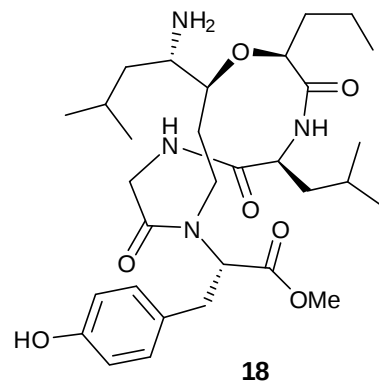
115.12

84.92

75.71

63.57

51.89
51.28
50.52
46.29
44.76
38.89
37.68
34.57
33.09
30.84
24.52
23.95
21.95
21.19
21.13
20.53
17.93
12.72



(100M, MeOH-d₄)

