

Supporting Information

Synthesis of Enantiomerically Enriched Indolines and Tetrahydro-isoquinolines from (*S*)-Amino Acid-Derived Chiral Carbocations: An Easy Access to (*3S,4R*)-Demethoxy-3-isopropyl Diclofensine

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Figure 23: ^1H -NMR Spectrum of **8a**.

Figure 24: ^{13}C -NMR Spectrum of **8a**.

Figure 25: ^1H -NMR Spectrum of **8b**.

Figure 26: ^{13}C -NMR Spectrum of **8b**.

Figure 27: ^1H -NMR Spectrum of **8c**.

Figure 28: ^{13}C -NMR Spectrum of **8c**.

Figure 29: ^1H -NMR Spectrum of **8d**.

Figure 30: ^{13}C -NMR Spectrum of **8d**.

Figure 31: ^1H -NMR Spectrum of **8e₁**.

Figure 32: ^{13}C -NMR Spectrum of **8e₁**.

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Figure 34: ^{13}C -NMR Spectrum of **8e₂**.

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Figure 38: ^{13}C -NMR Spectrum of **8g**.

Figure 39: ^1H -NMR Spectrum of **8h**.

Figure 40: ^{13}C -NMR Spectrum of **8h**.

Figure 41: ^1H -NMR Spectrum of **8i**.

Figure 42: ^{13}C -NMR Spectrum of **8i**.

Figure 43: ^1H -NMR Spectrum of **8j**.

Figure 44: ^{13}C -NMR Spectrum of **8j**.

Figure 45: ^1H -NMR Spectrum of **8k**.

Figure 46: ^{13}C -NMR Spectrum of **8k**.

Figure 47: ^1H -NMR Spectrum of **8l**.

Figure 48: ^{13}C -NMR Spectrum of **8l**.

Figure 49: ^1H -NMR Spectrum of **8m**.

Figure 50: ^{13}C -NMR Spectrum of **8m**.

Figure 51: ^1H -NMR Spectrum of **8n**.

Figure 52: ^{13}C -NMR Spectrum of **8n**.

Figure 53: ^1H -NMR Spectrum of **8o**.

Figure 54: ^{13}C -NMR Spectrum of **8o**.

Figure 55: ^1H -NMR Spectrum of **8p**.

Figure 56: ^{13}C -NMR Spectrum of **8p**.

Figure 57: ^1H -NMR Spectrum of **8q**.

Figure 58: ^{13}C -NMR Spectrum of **8q**.

Figure 59: ^1H -NMR Spectrum of **8r**.

Figure 60: ^{13}C -NMR Spectrum of **8r**.

Figure 61: ^1H -NMR Spectrum of **8s**.

Figure 62: ^{13}C -NMR Spectrum of **8s**.

Figure 63: ^1H -NMR Spectrum of **10a**.

Figure 64: ^{13}C -NMR Spectrum of **10a**.

Figure 65: ^1H -NMR Spectrum of **10b**.

Figure 66: ^{13}C -NMR Spectrum of **10b**.

Figure 67: ^1H -NMR Spectrum of **10c**.

Figure 68: ^{13}C -NMR Spectrum of **10c**.

Figure 69: ^1H -NMR Spectrum of **10d**.

Figure 70: ^{13}C -NMR Spectrum of **10d**.

Figure 71: ^1H -NMR Spectrum of **10e**.

Figure 72: ^{13}C -NMR Spectrum of **10e**.

Figure 73: ^1H -NMR Spectrum of **10f**.

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Figure 75: ^1H -NMR Spectrum of **10g**.
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Figure 104: HSQC -Spectrum of **11e₂**.
Figure 105: COSY -Spectrum of **11e₂**.
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Figure 108: ^1H -NMR Spectrum of **11f**.

Figure 109: ^{13}C -NMR Spectrum of **11f**.

Figure 110: HPLC -Spectrum of **11f**.

Figure 111: ^1H -NMR Spectrum of **11g**.

Figure 112: ^{13}C -NMR Spectrum of **11g**.

Figure 113: DEPT-I -Spectrum of **11g**.

Figure 114: DEPT-II -Spectrum of **11g**.

Figure 115: HSQC -Spectrum of **11g**.

Figure 116: COSY -Spectrum of **11g**.

Figure 117: NOESY -Spectrum of **11g**.

Figure 118: HPLC -Spectrum of **11g**.

Figure 119: ^1H -NMR Spectrum of **11h**.

Figure 120: ^{13}C -NMR Spectrum of **11h**.

Figure 121: HPLC -Spectrum of **11h**.

Figure 122: ^1H -NMR Spectrum of **11i**.

Figure 123: ^{13}C -NMR Spectrum of **11i**.

Figure 124: ^1H -NMR Spectrum of **11j**.

Figure 125: ^{13}C -NMR Spectrum of **11j**.

Figure 126: HPLC -Spectrum of **11j**.

Figure 127: ^1H -NMR Spectrum of **11k**.

Figure 128: ^{13}C -NMR Spectrum of **11k**.

Figure 129: HPLC -Spectrum of **11k**.

Figure 130: ^1H -NMR Spectrum of **11l**.

Figure 131: ^{13}C -NMR Spectrum of **11l**.

Figure 132: HPLC -Spectrum of **11l**.

Figure 133: ^1H -NMR Spectrum of **11m**.

Figure 134: ^{13}C -NMR Spectrum of **11m**.

Figure 135: HPLC -Spectrum of **11m**.

Figure 136: ^1H -NMR Spectrum of **11n**.

Figure 137: ^{13}C -NMR Spectrum of **11n**.

Figure 138: HPLC -Spectrum of **11n**.

Figure 139: ^1H -NMR Spectrum of **11o**.

Figure 140: ^{13}C -NMR Spectrum of **11o**.

Figure 141: HPLC -Spectrum of **11o**.

Figure 142: ^1H -NMR Spectrum of **11p**.

Figure 143: ^{13}C -NMR Spectrum of **11p**.

Figure 144: HPLC -Spectrum of **11p**.

Figure 145: ^1H -NMR Spectrum of **11q**.

Figure 146: ^{13}C -NMR Spectrum of **11q**.

Figure 147: HPLC -Spectrum of **11q**.

Figure 148: ^1H -NMR Spectrum of **11r**.

Figure 149: ^{13}C -NMR Spectrum of **11r**.

Figure 150: HPLC -Spectrum of **11r**.

Figure 151: ^1H -NMR Spectrum of **11s**.

Figure 152: ^{13}C -NMR Spectrum of **11s**.

Figure 153: HPLC -Spectrum of **11s**.

Figure 154: ^1H -NMR Spectrum of **12a**.

Figure 155: ^{13}C -NMR Spectrum of **12a**.

Figure 156: ^1H -NMR Spectrum of **112b**.

Figure 157: ^{13}C -NMR Spectrum of **12b**.

Figure 158: HPLC -Spectrum of **12b**.

Figure 159: ^1H -NMR Spectrum of **12c₁**.

Figure 160: ^{13}C -NMR Spectrum of **12c₁**.

Figure 161: DEPT-I -Spectrum of **12c₁**.

Figure 162: DEPT-II -Spectrum of **12c₁**.

Figure 163: COSY -Spectrum of **12c₁**.

Figure 164: HPLC -Spectrum of **12c₁**.

Figure 165: ^1H -NMR Spectrum of **12c**.

Figure 166: ^{13}C -NMR Spectrum of **12c**.

Figure 167: DEPT-I -Spectrum of **12c**.

Figure 168: DEPT-II -Spectrum of **12c**.

Figure 169: COSY -Spectrum of **12c**.

Figure 170: HPLC -Spectrum of **12c**.

Figure 171: ^1H -NMR Spectrum of **12d**.

Figure 172: ^{13}C -NMR Spectrum of **12d**.

Figure 173: DEPT-I -Spectrum of **12d**.

Figure 174: DEPT-II -Spectrum of **12d**.

Figure 175: HSQC -Spectrum of **12d**.

Figure 176: HMBC -Spectrum of **12d**.
Figure 177: COSY -Spectrum of **12d**.
Figure 178: NOESY -Spectrum of **12d**.
Figure 179: HPLC -Spectrum of **12d**.
Figure 180: ^1H -NMR Spectrum of **12e**.
Figure 181: ^{13}C -NMR Spectrum of **12e**.
Figure 182: HPLC -Spectrum of **12e**.
Figure 183: ^1H -NMR Spectrum of **12f**.
Figure 184: ^{13}C -NMR Spectrum of **12f**.
Figure 185: HPLC -Spectrum of **12f**.
Figure 186: ^1H -NMR Spectrum of **12g**.
Figure 187: ^{13}C -NMR Spectrum of **12g**.
Figure 188: HPLC -Spectrum of **12g**.
Figure 189: ^1H -NMR Spectrum of **12h**.
Figure 190: ^{13}C -NMR Spectrum of **12h**.
Figure 191: HPLC -Spectrum of **12h**.
Figure 192: ^1H -NMR Spectrum of **13a**.
Figure 193: ^{13}C -NMR Spectrum of **13a**.

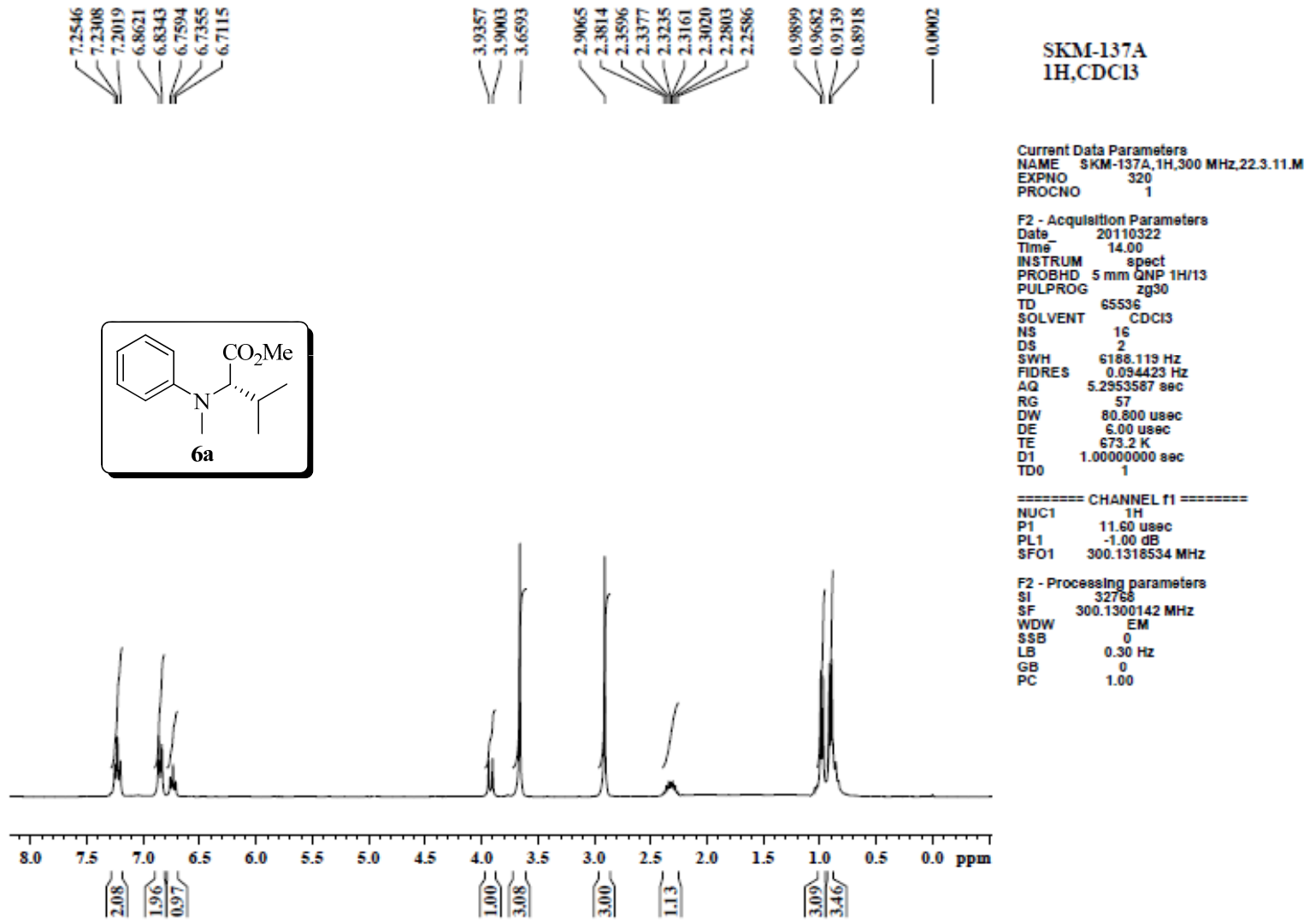


Figure 1: ¹H -NMR Spectrum of **6a**.

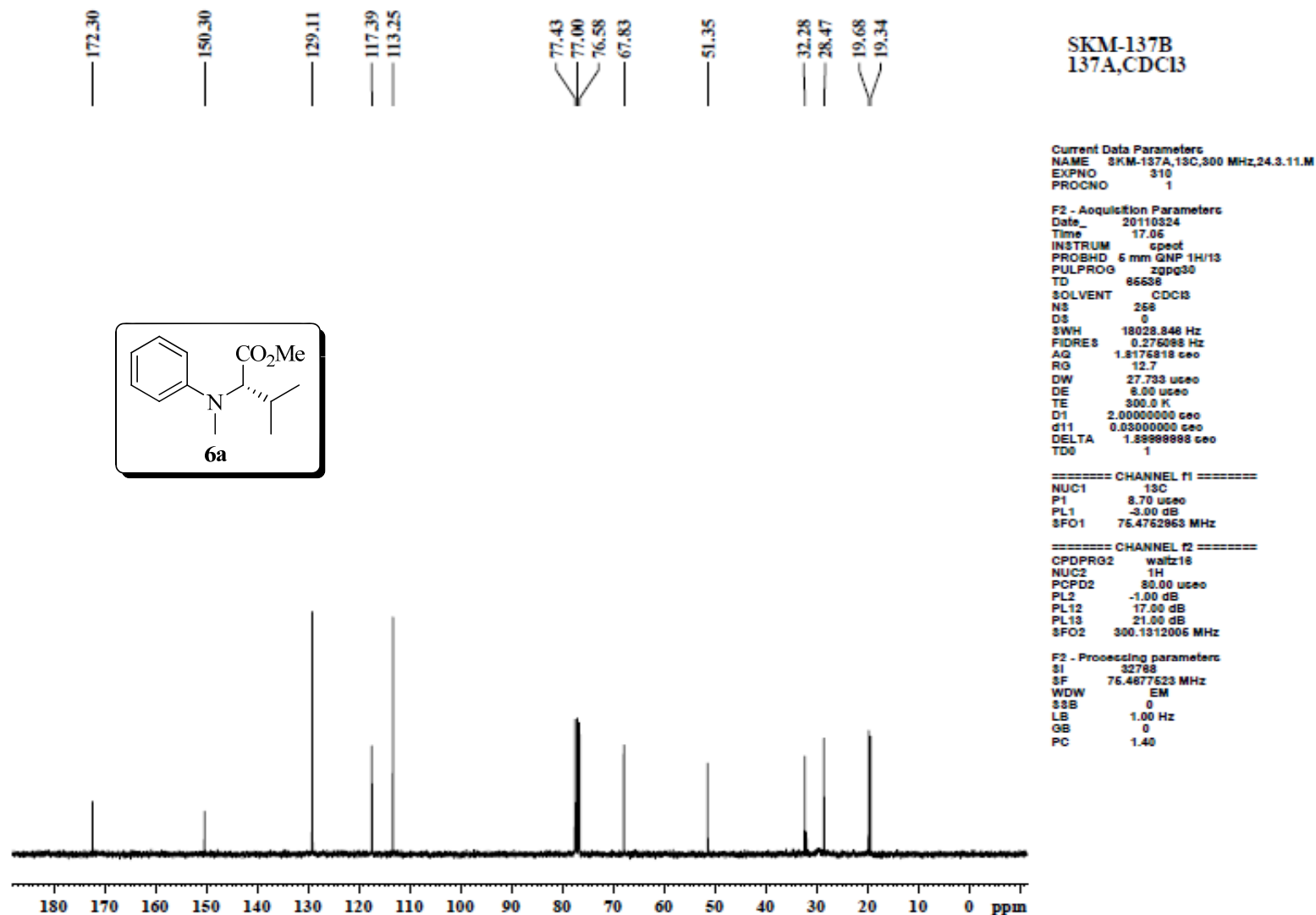


Figure 2: ^{13}C -NMR Spectrum of **6a**.

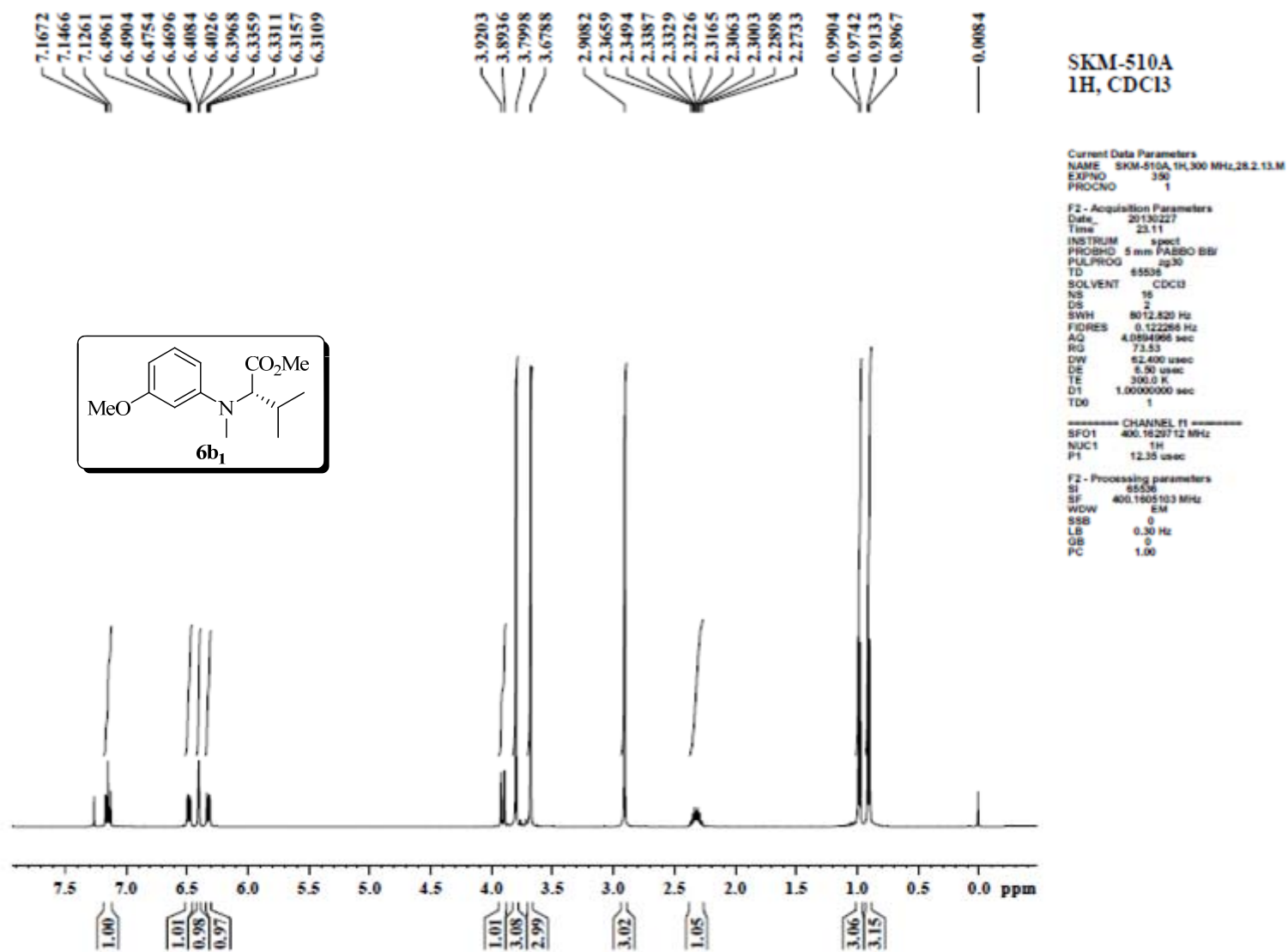
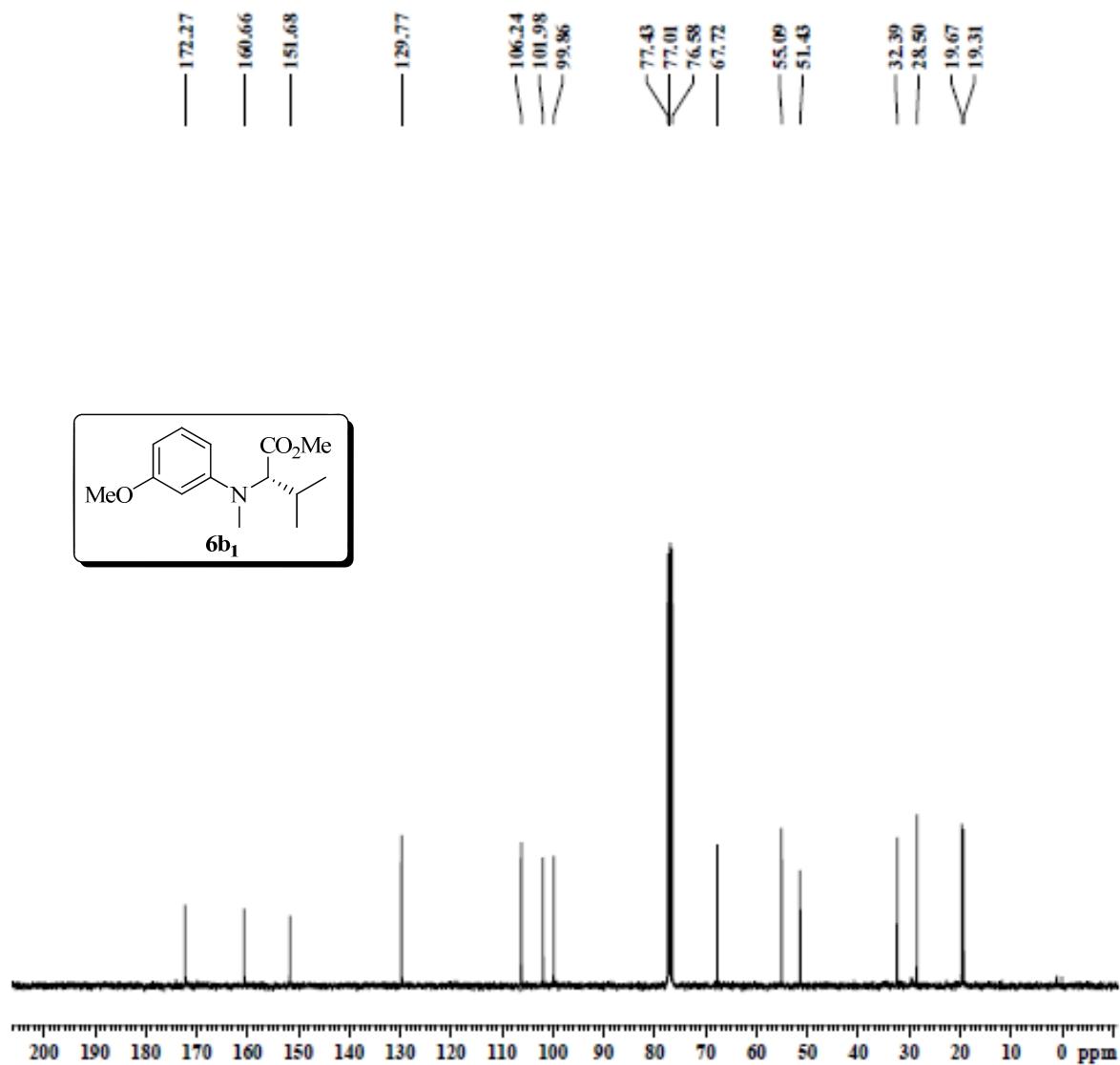


Figure 3: ¹H -NMR Spectrum of **6b₁**.



SKM-510A
13C, CDCl3

Current Data Parameters
NAME SKM-510A, 13C, 300 MHz, 13.3.13.M
EXPNO 330
PROCNO 1

F2 - Acquisition Parameters
Date_ 20130313
Time 1.45
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 18025.846 Hz
FREQS 0.275000 Hz
AQ 1.8175218 sec
RG 2950
DW 27.233 usec
DE 15.00 usec
TE 297.2 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1

----- CHANNEL F1 -----
NUC1 13C
P1 8.15 usec
PL1 -3.00 dB
PL1W 65.13059016 W
SFO1 75.4762953 MHz

----- CHANNEL F2 -----
CPCPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -1.00 dB
PL12 17.96 dB
PL13 21.00 dB
PL12W 15.02081871 W
PL12W 0.23479761 W
PL13W 0.09477486 W
SFO2 300.1312006 MHz

F2 - Processing parameters
SI 32768
SF 75.4677521 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Figure 4: ¹³C -NMR Spectrum of **6b₁**.

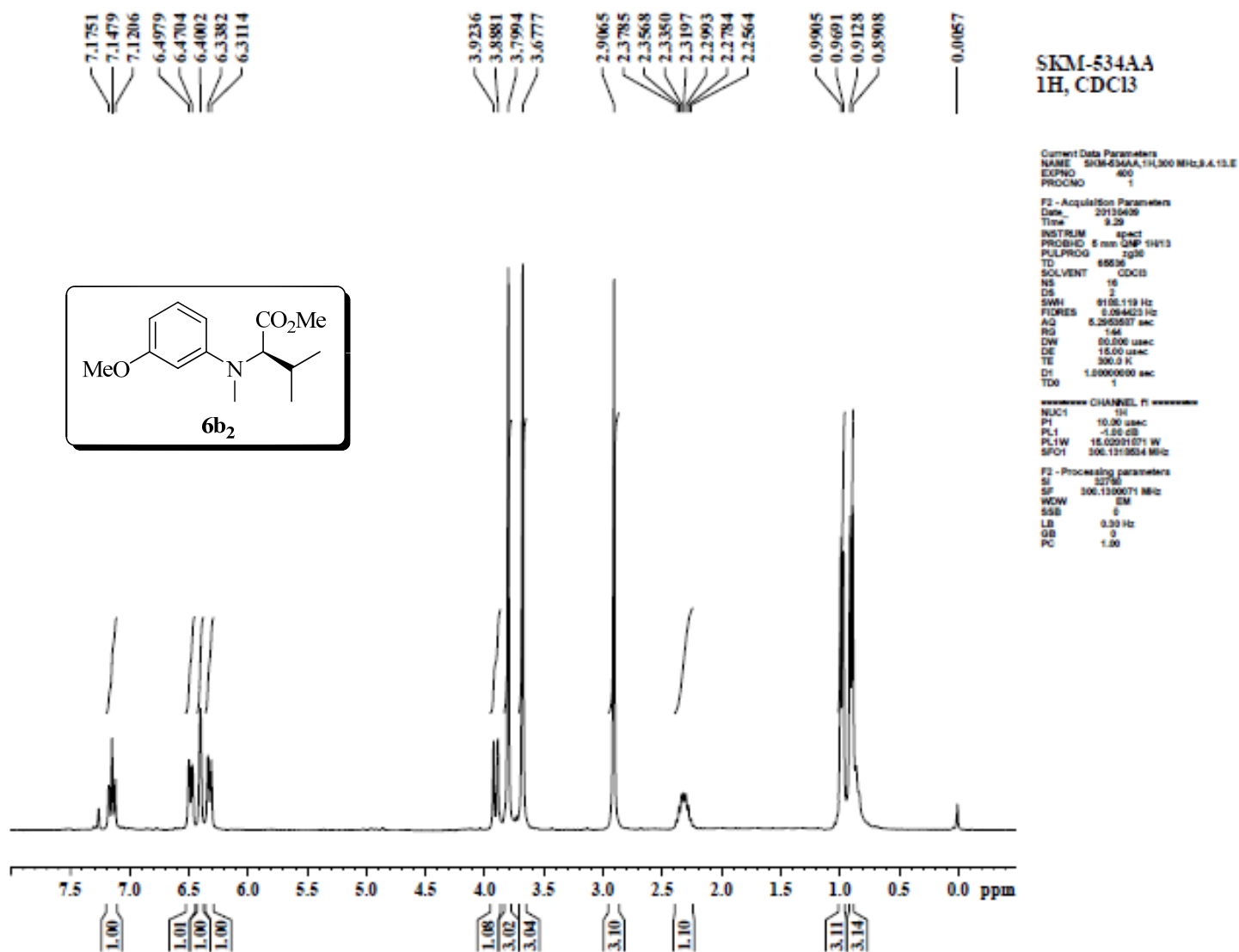
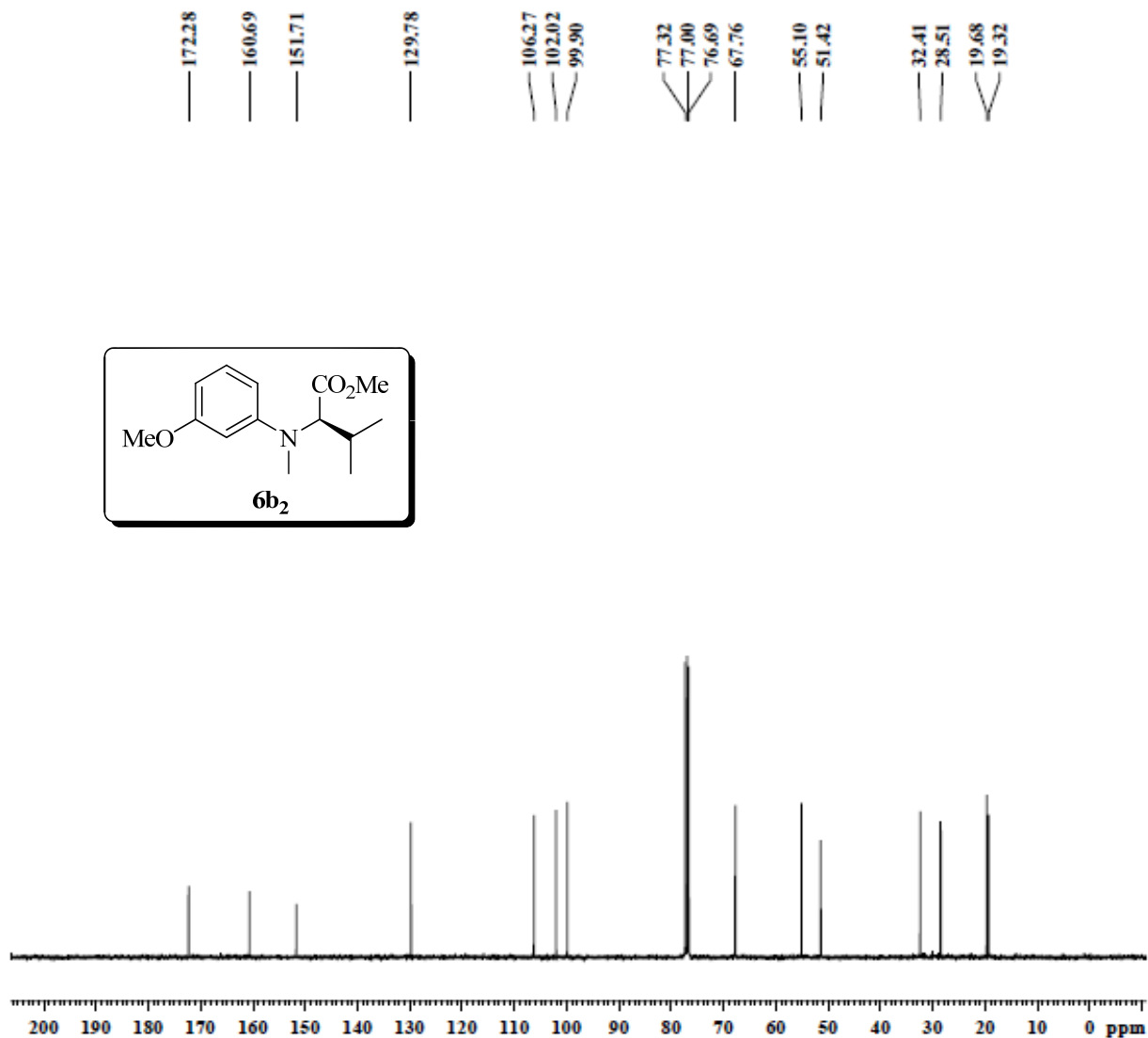


Figure 5: ¹H -NMR Spectrum of **6b₂**.



SKM-534 AA
13C, CDCl3

Current Data Parameters
NAME SKM-534AA,13C,400 MHz,22.4.13.M
EXPNO 366
PROCNO 1

F2 - Acquisition Parameters
Date_ 20130422
Time 19.01
INSTRUM spect
PROBHD 5 mm PABBO BBI
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 201.48
DNV 20.000 usec
DE 6.50 usec
TE 300.0 K
DT 2.0000000 sec
D11 0.03000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 100.6204411 MHz
NUC1 13C
P1 8.20 usec

F2 - Processing parameters
SI 32768
SF 100.6204411 MHz
WZW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Figure 6: ¹³C -NMR Spectrum of **6b₂**.

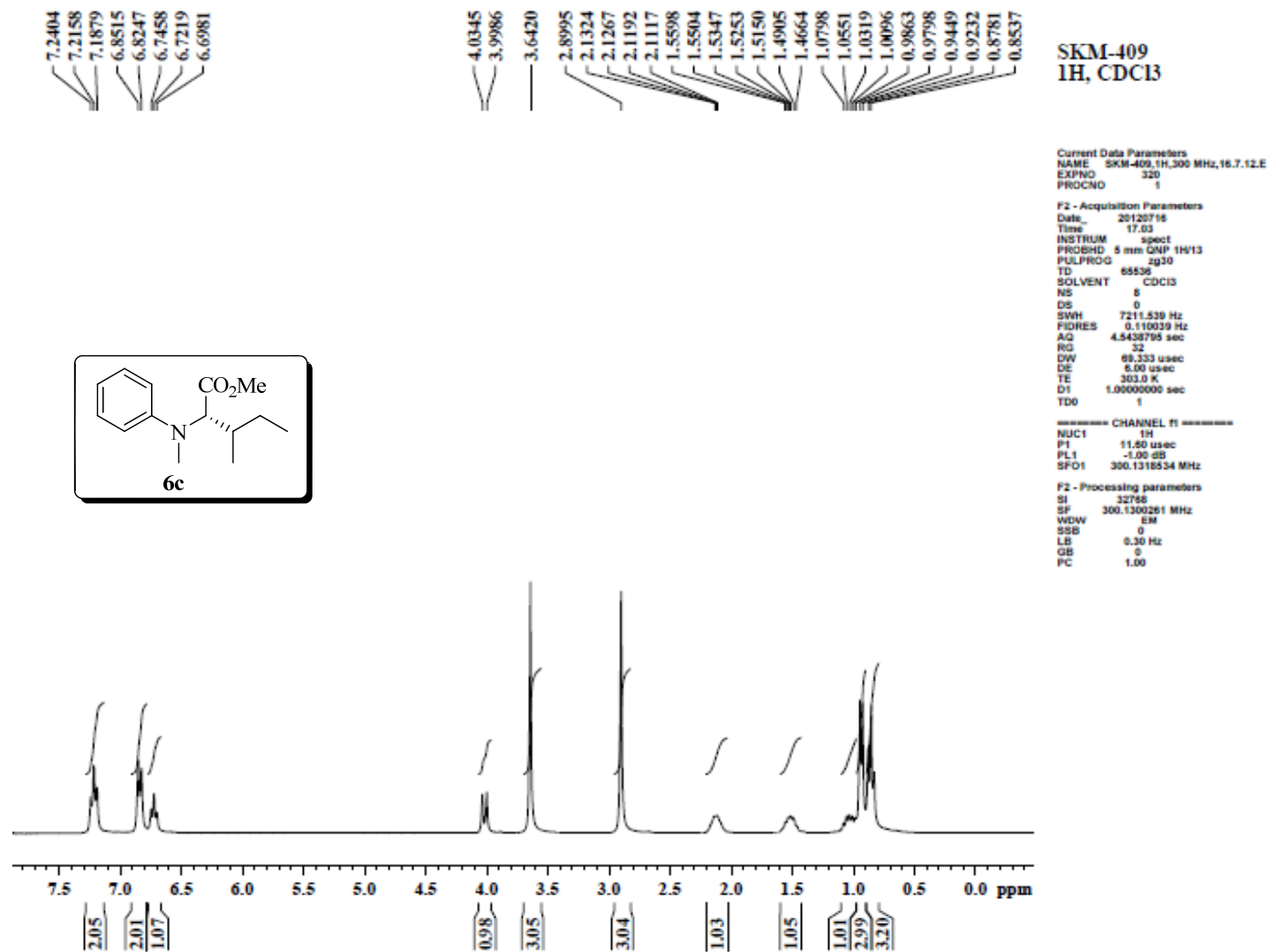
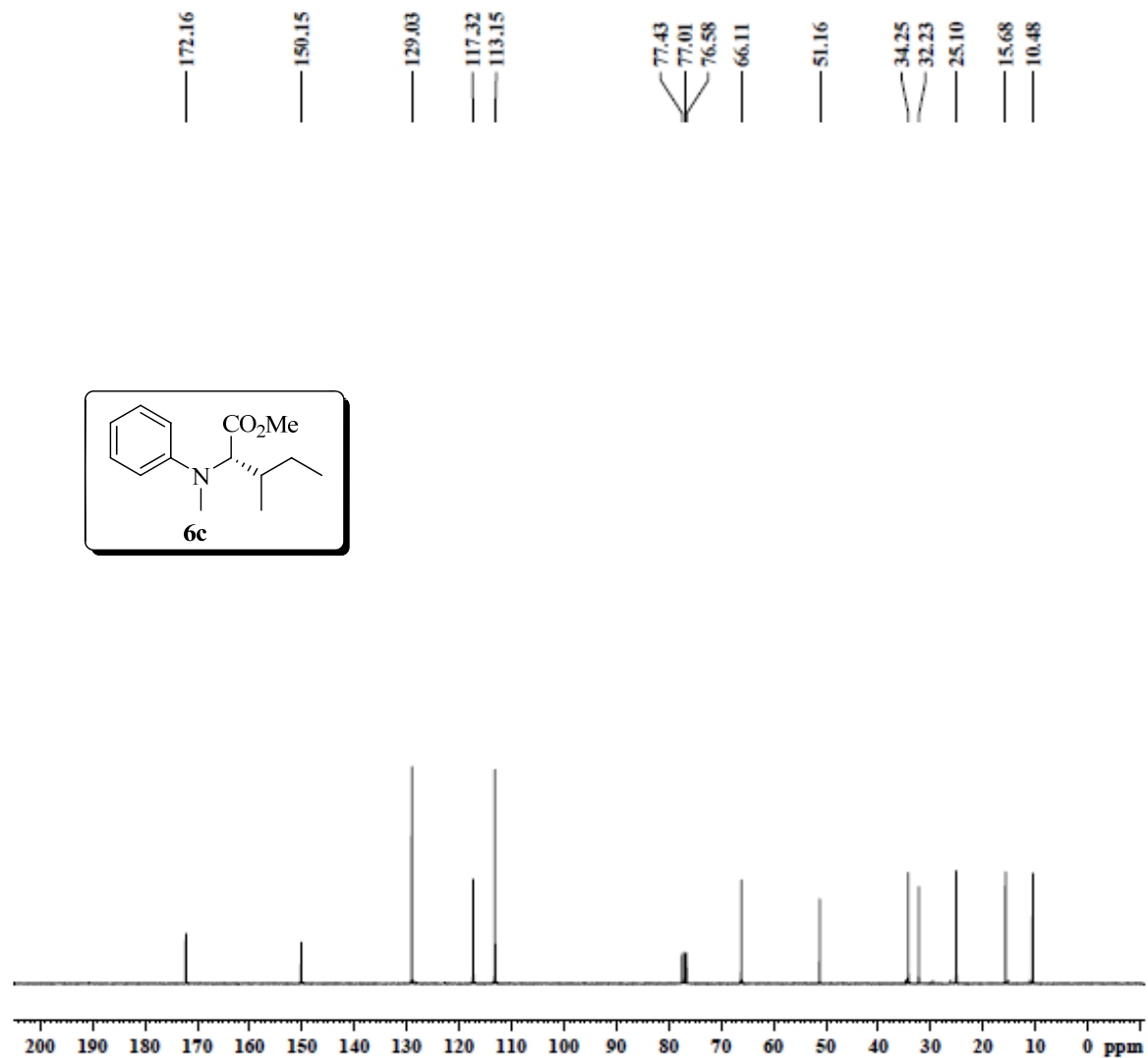


Figure 7: ^1H -NMR Spectrum of **6c**.



SKM-409
13C, CDCl3

Current Data Parameters
NAME SKM-409,13C,300 MHz,27.7,12.M
EXPNO 430
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120728
Time 2.10
INSTRUM spect
PROBHD 5 mm GNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 18028.846 Hz
FIDRES 0.275099 Hz
AQ 1.8175819 sec
RG 14.2
DW 27.733 usec
DE 6.00 usec
TE 303.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.80999998 sec
TD0 1

===== CHANNEL f1 =====
NUC1 13C
P1 8.70 usec
PL1 -3.00 dB
SFO1 75.4752953 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -1.00 dB
PL12 17.00 dB
PL13 21.00 dB
SFO2 300.1312005 MHz

F2 - Processing parameters
SI 32768
SF 75.4677625 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Figure 8: ¹³C -NMR Spectrum of **6c**.

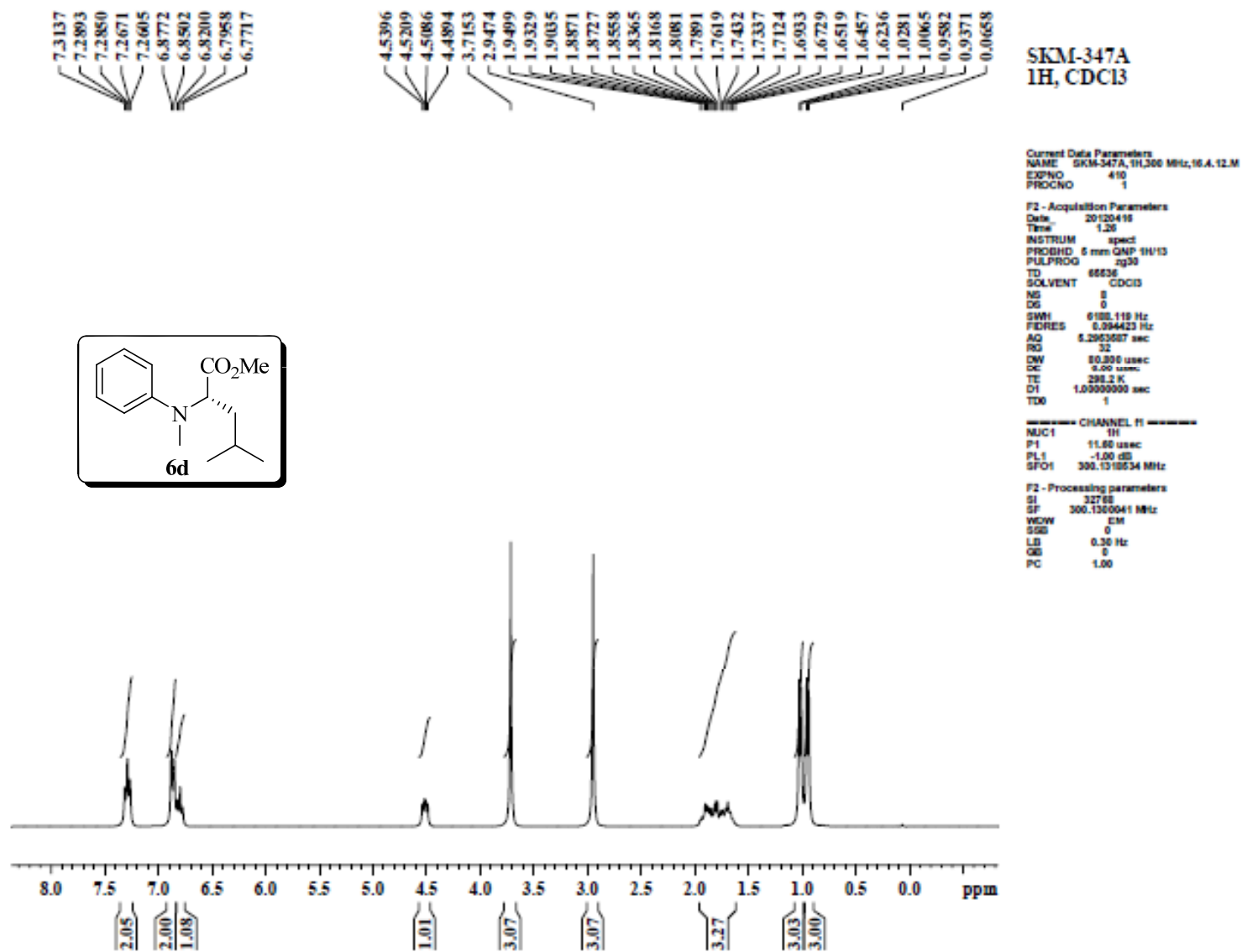
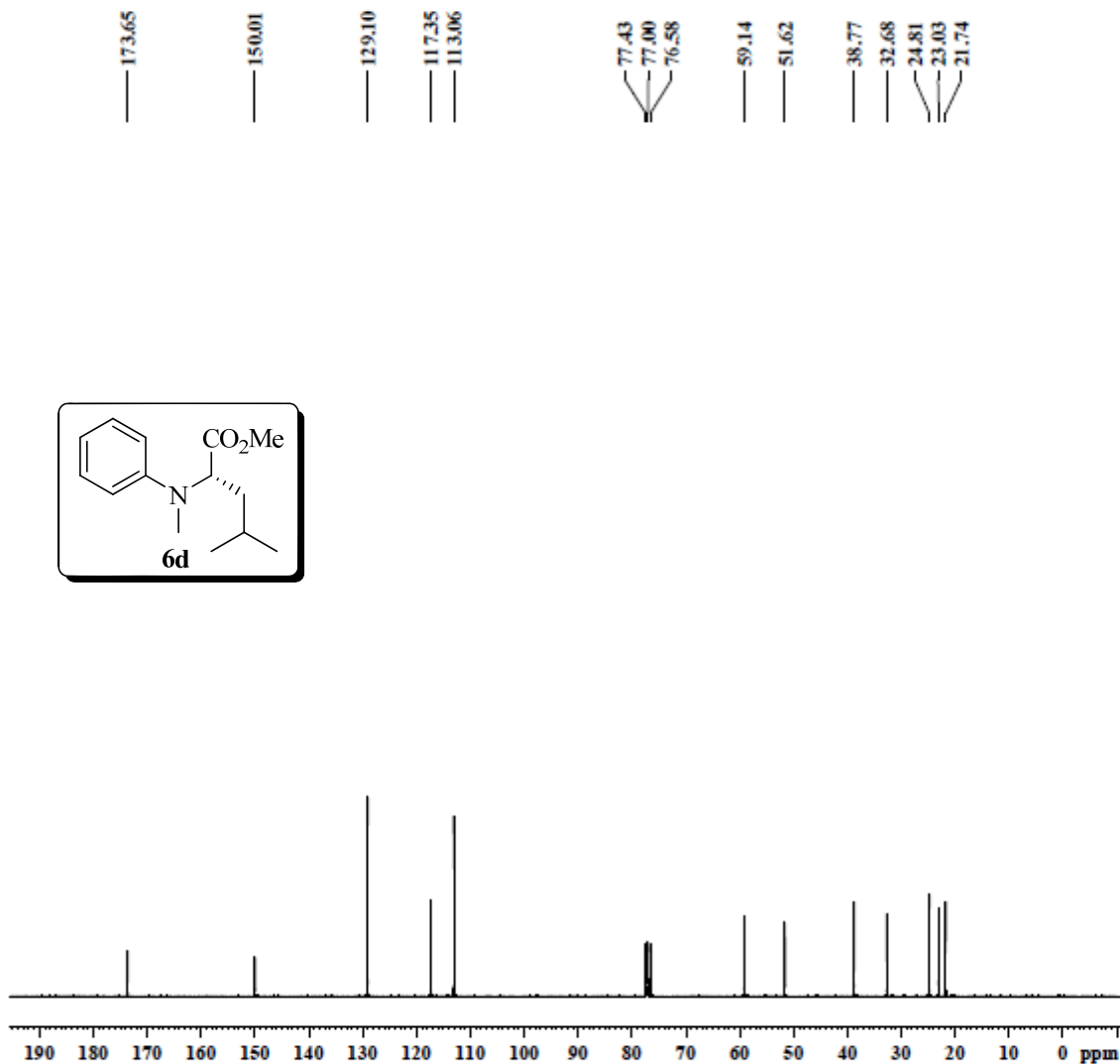


Figure 9: ¹H -NMR Spectrum of **6d**.



SKM-347B
13C, CDC13

Current Data Parameters
NAME SKM-347A, 13C, 200 MHz, 27.9, 12. M
EXPNO 320
PROCNO 1

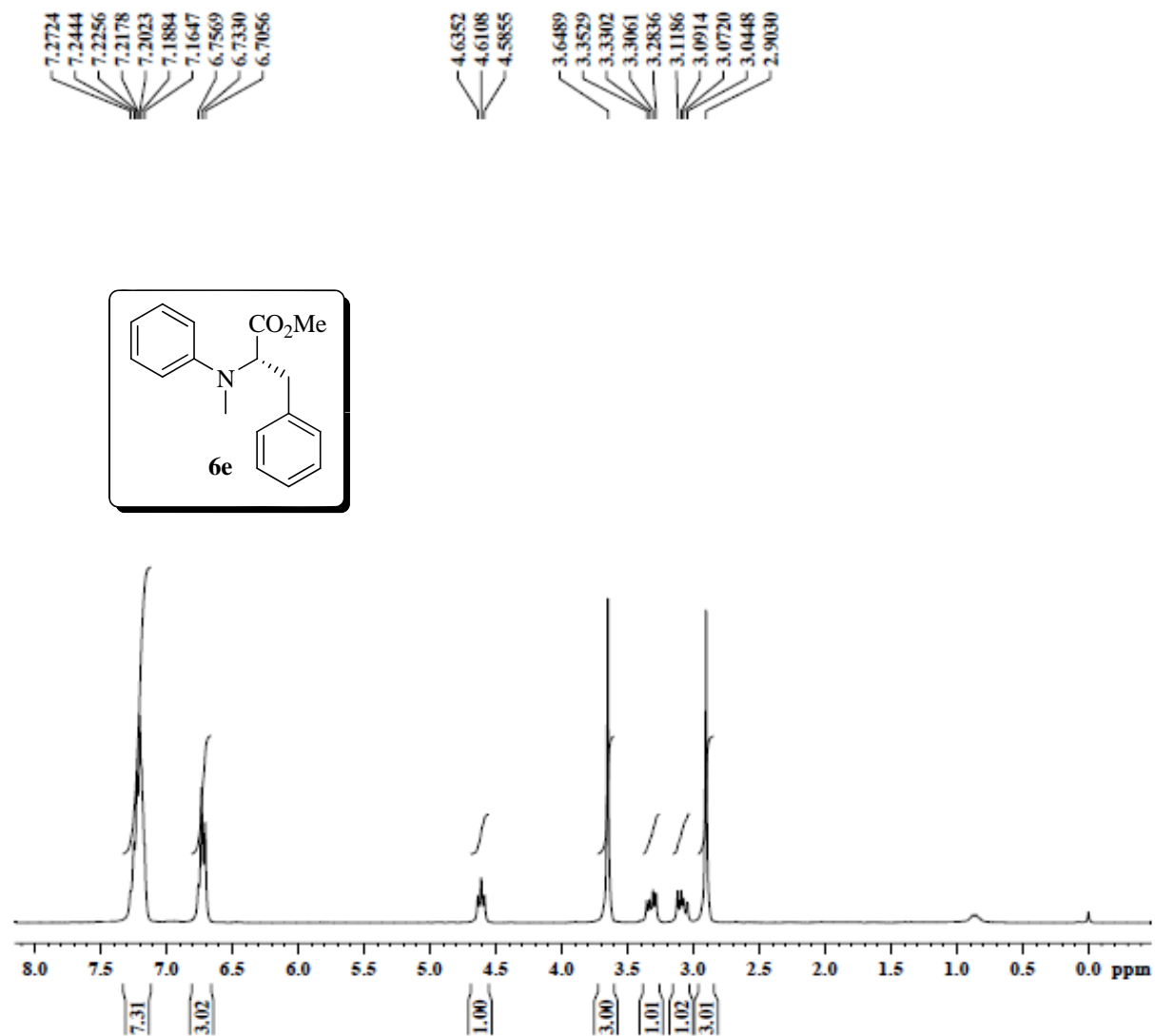
F2 - Acquisition Parameters
Date_ 20120830
Time 18.51
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 68836
SOLVENT CDC13
NS 512
DS 4
SWH 18028.846 Hz
FIDRES 0.275098 Hz
AQ 1.8175818 sec
RG 2050
DW 27.733 usec
DE 15.00 usec
TE 673.2 K
D1 2.0000000 sec
D11 0.0300000 sec
TDO 1

===== CHANNEL f1 =====
NUC1 13C
P1 8.15 usec
PL1 -3.00 dB
PL1W 55.13059616 W
SFO1 75.4752953 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -1.00 dB
PL12 17.06 dB
PL13 21.00 dB
PL2W 15.52081871 W
PL12W 6.23478181 W
PL13W 6.09477496 W
SFO2 300.1312005 MHz

F2 - Processing parameters
SI 32768
SF 75.4677597 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Figure 10: ¹³C -NMR Spectrum of **6d**.



SKM-328
1H, CDCl₃

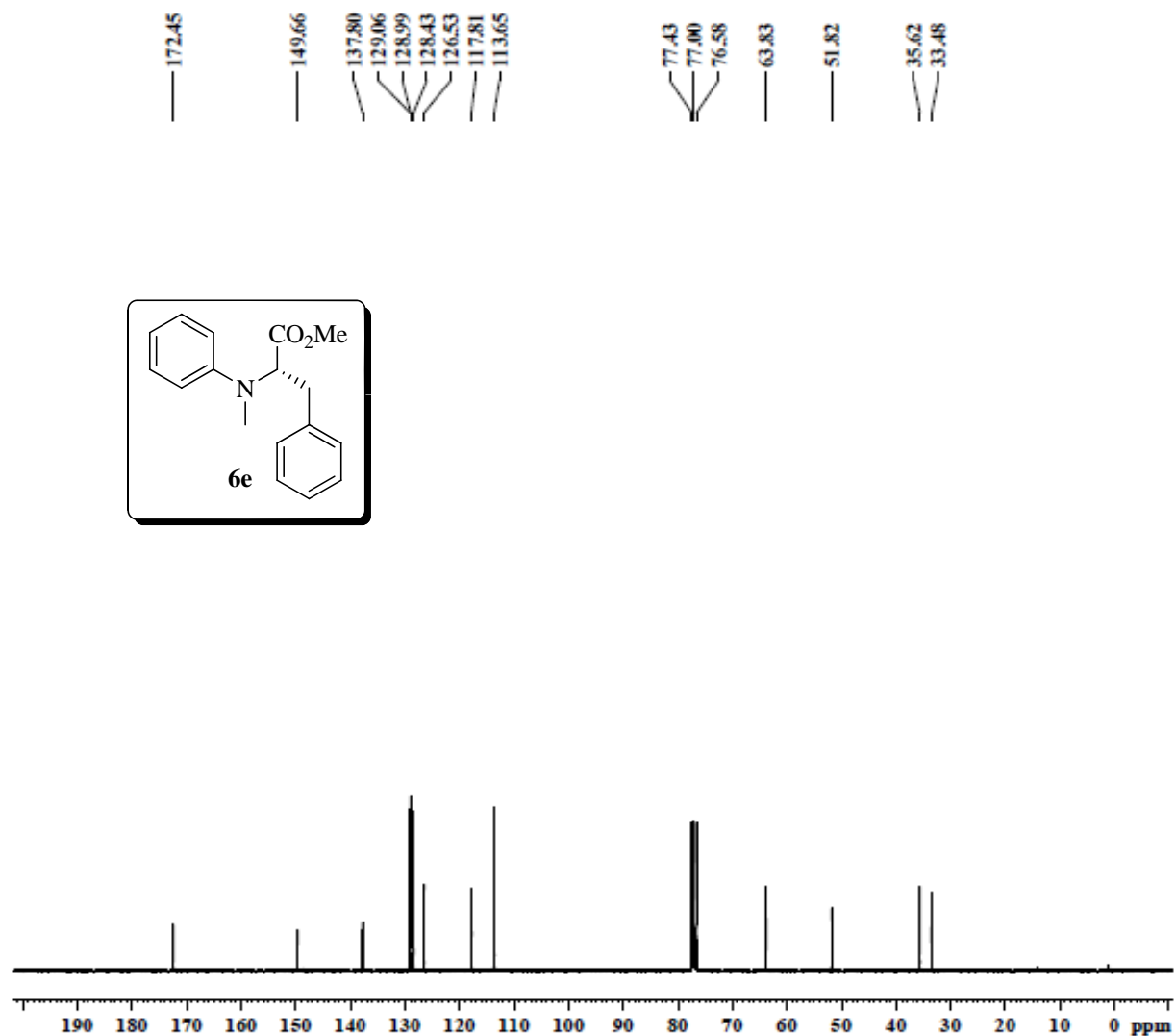
Current Data Parameters
NAME SKM-328.1H.300 MHz.19.3.12.M
EXPNO 390
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120319
Time 12.47
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl₃
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 80.6
DW 80.000 usec
DE 5.00 usec
TE 298.6 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 11.80 usec
PL1 -1.00 dB
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300168 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Figure 11: ¹H -NMR Spectrum of **6e**.



SKM-328
13C, CDCl3

Current Data Parameters
NAME SKM-328,13C,200 MHz,27.09.12.M
EXPNO 310
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120930
Time 18.12
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 19026.846 Hz
FIDRES 0.275098 Hz
AQ 1.8175818 sec
RG 2050
DW 27.733 usec
DE 15.00 usec
TE 273.2 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 13C
P1 8.15 usec
PL1 -3.00 dB
PL1W 55.13059616 W
SFO1 75.4752853 MHz

===== CHANNEL f2 =====
CPCPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -1.00 dB
PL12 17.06 dB
PL13 21.00 dB
PL2W 15.02081871 W
PL12W 0.23479761 W
PL13W 0.09477496 W
SFO2 300.1312005 MHz

F2 - Processing parameters
SI 32768
SF 75.4677556 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Figure 12: ^{13}C -NMR Spectrum of **6e**.

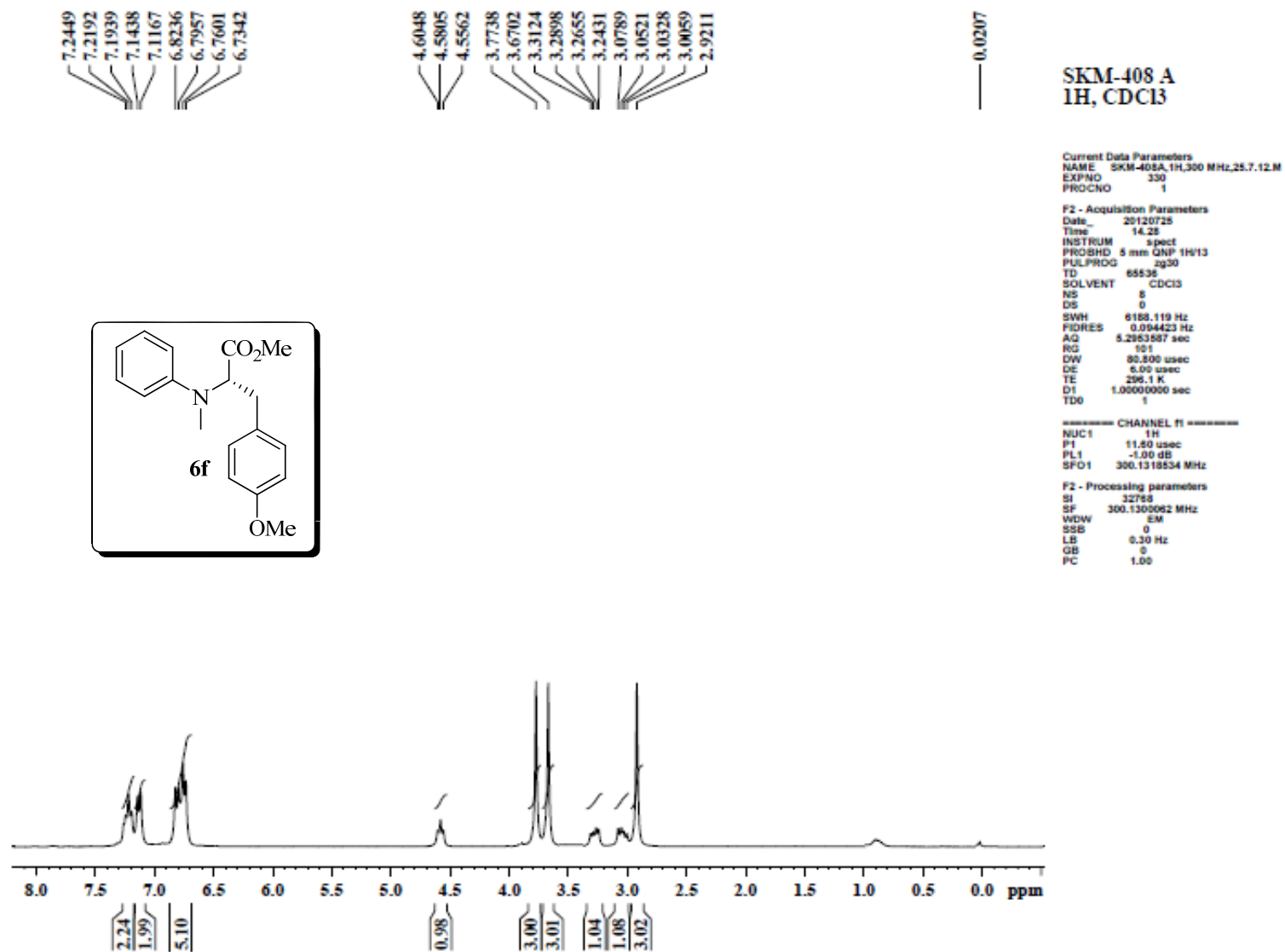
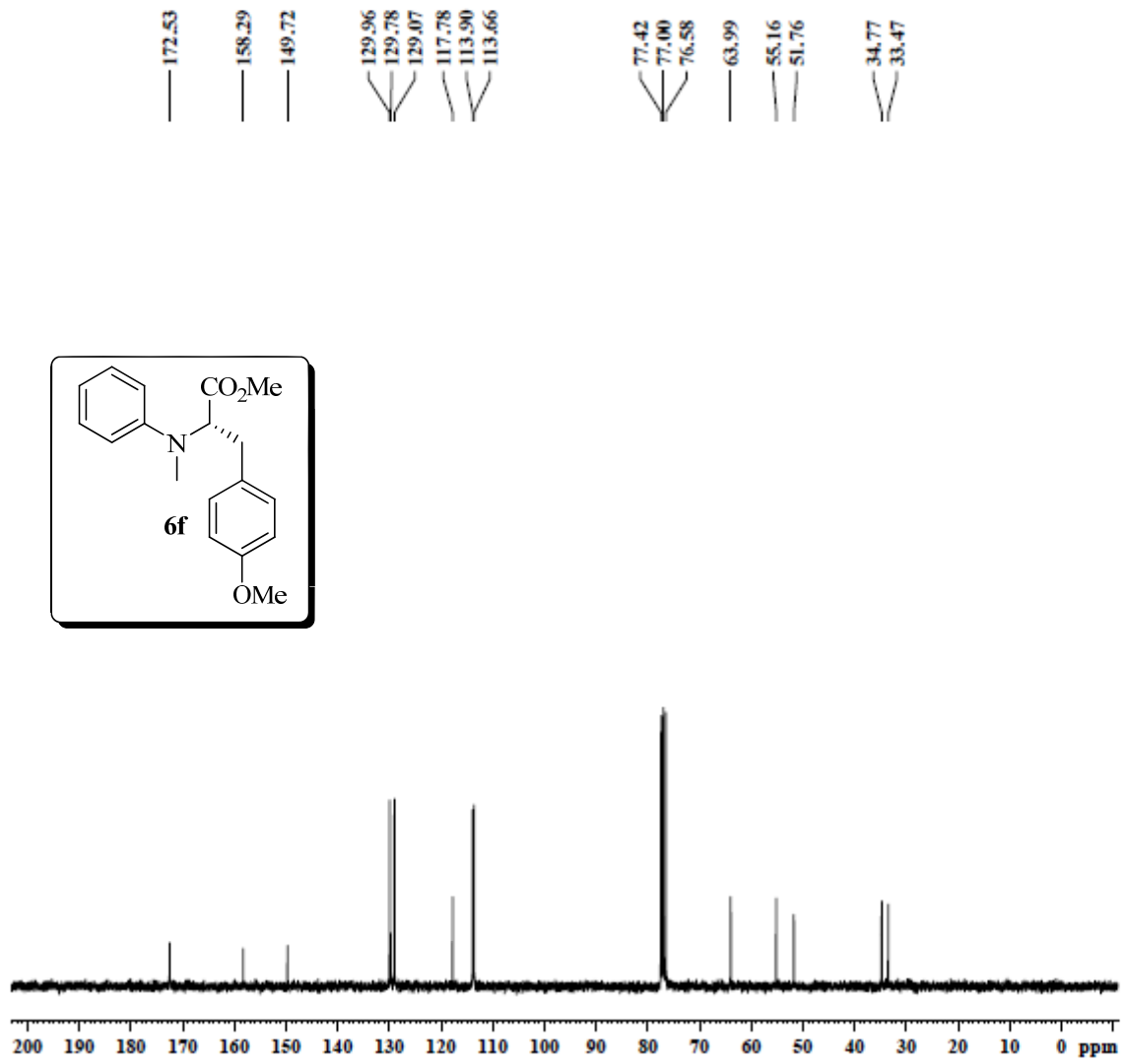


Figure 13: ^1H -NMR Spectrum of **6f**.



SKM-408A
13C,CDCl3

```

Current Data Parameters
NAME SKM-408A,13C,300 MHz,27.7.12.M
EXPNO 420
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120728
Time 1.31
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 18028.848 Hz
FIDRES 0.275096 Hz
AQ 1.8175818 sec
RG 127
DW 27.733 usec
DE 6.00 usec
TE 303.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999996 sec
TDO 1

===== CHANNEL f1 =====
NUC1 13C
P1 8.70 usec
PL1 -3.00 dB
SFO1 75.4752963 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -1.00 dB
PL12 17.00 dB
PL13 21.00 dB
SFO2 300.1312005 MHz

F2 - Processing parameters
SI 32768
SF 75.4677520 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

```

Figure 14: ¹³C -NMR Spectrum of **6f**.

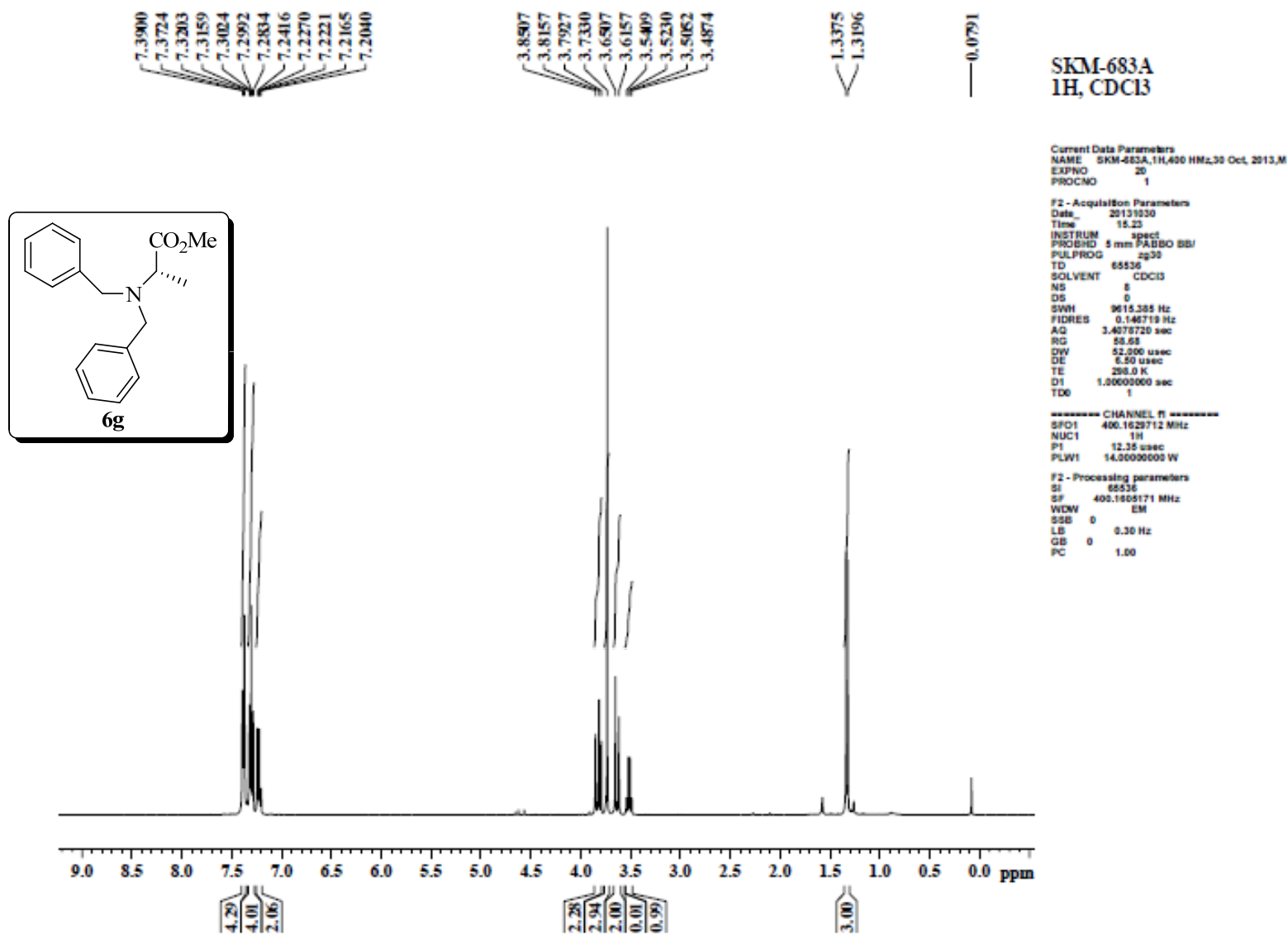
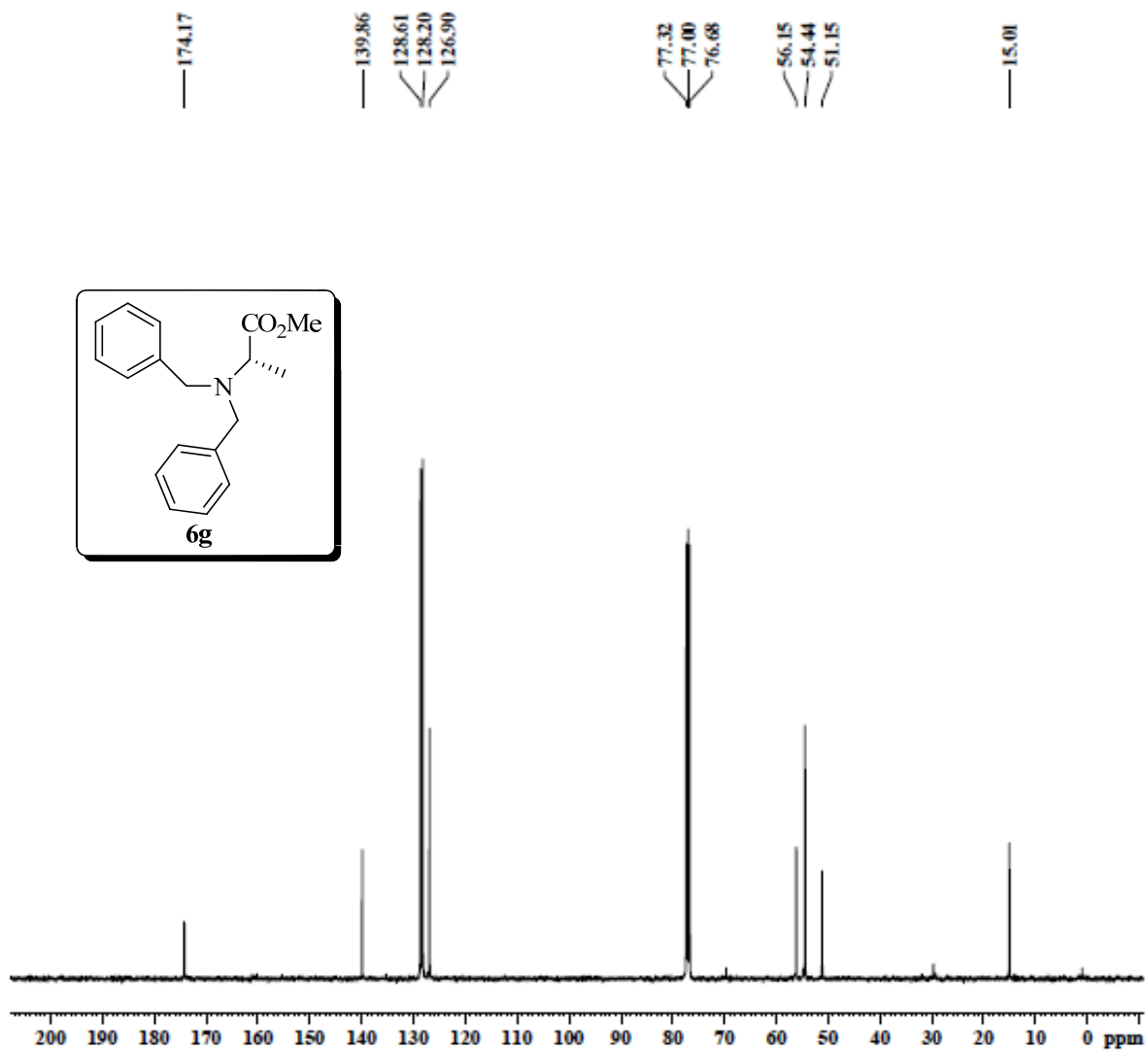


Figure 15: ¹H -NMR Spectrum of **6g**.



SKM-683A
1H, CDCl3

Current Data Parameters
NAME SKM-683A, 13C, 400 MHz, 2 Dec, 2013, M
EXPNO 30
PROCNO 1

F2 - Acquisition Parameters

Date_ 20131203
Time 9.37
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 24938.461 Hz
FIDRES 0.366736 Hz
AQ 1.3631488 sec
RG 201.48
DW 20.800 usec
DE 6.50 usec
TE 300.2 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1

----- CHANNEL f1 -----

SFO1 100.6204993 MHz
NUC1 13C
P1 8.20 usec
PLW1 70.59999847 W

----- CHANNEL f2 -----

SFO2 400.1621006 MHz
NUC2 1H
CPCPRG[2] waltz16
PCPD2 90.00 usec
PLW2 14.00000000 W
PLW12 0.28361999 W
PLW13 0.21353000 W

F2 - Processing parameters

SI 32768
SF 100.6204418 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
PC 1.40

Figure 16: ^{13}C -NMR Spectrum of **6g**.

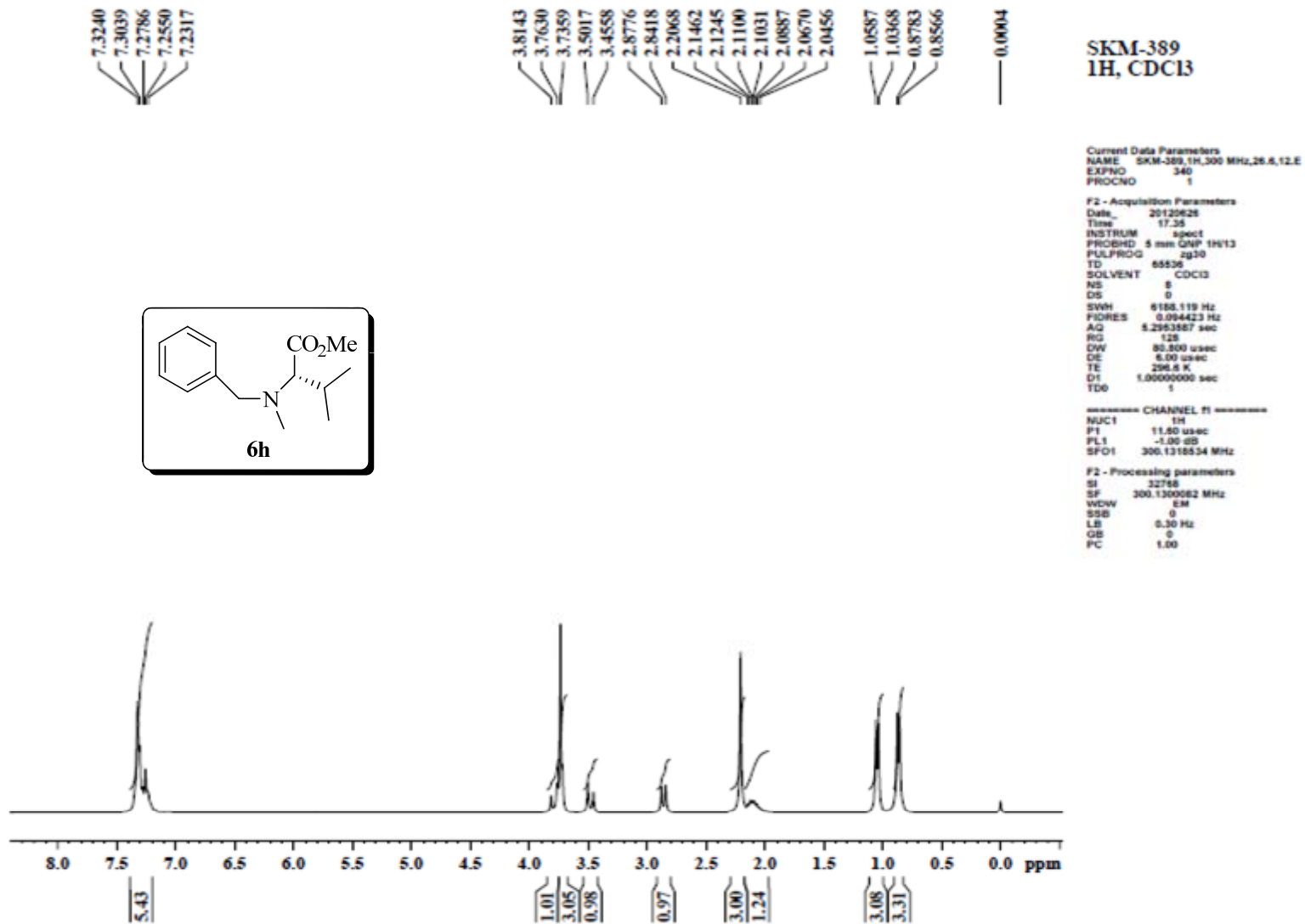


Figure 17: ^1H -NMR Spectrum of **6h**.

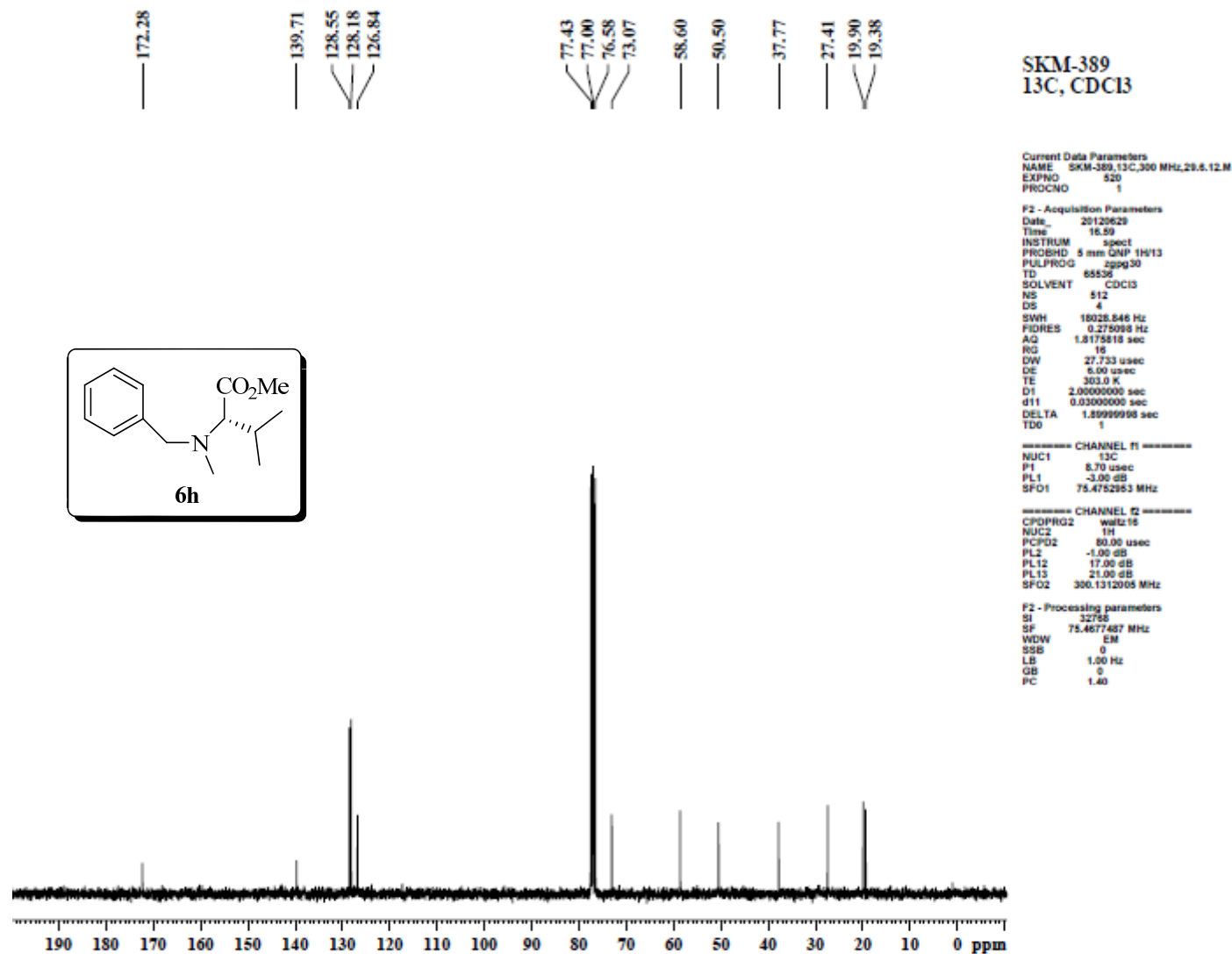
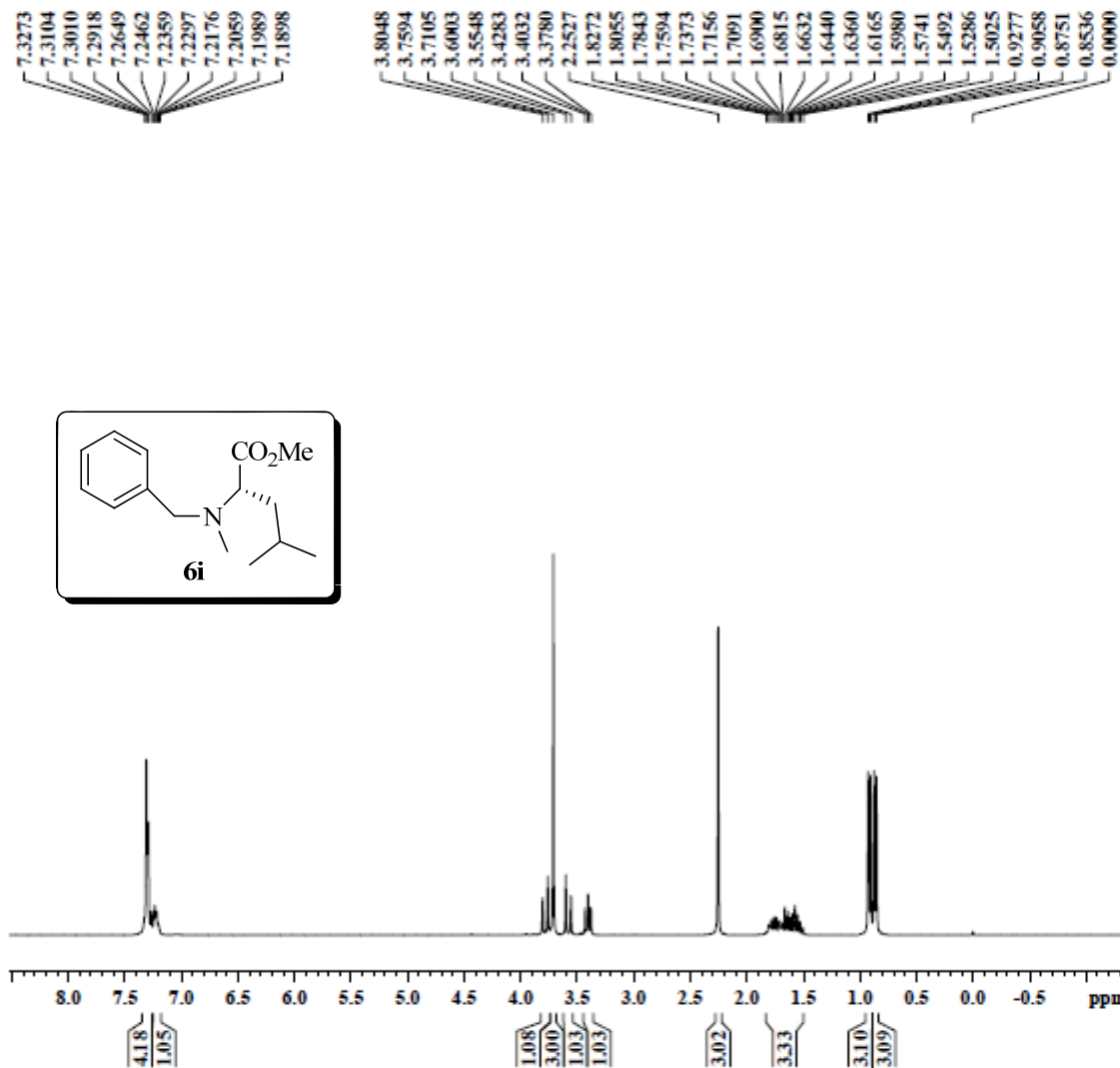


Figure 18: ¹³C -NMR Spectrum of **6h**.



SKM-435
1H, CDCl3

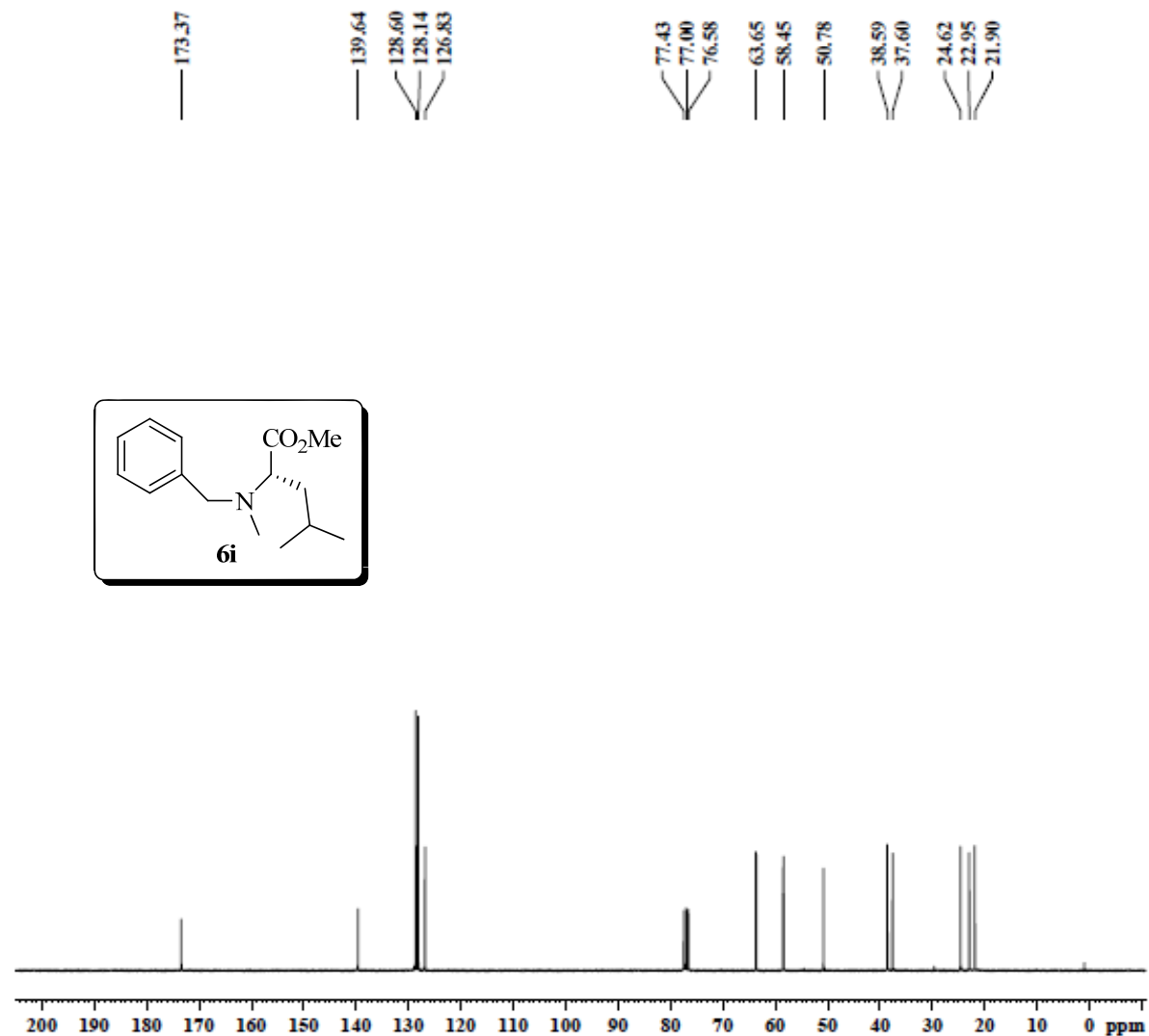
Current Data Parameters
NAME SKM-435, 1H, 300 MHz, 24.8.12.M
EXPNO 400
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120627
Time 17.53
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 2
SWH 8155.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 32
DW 86.800 usec
DE 15.00 usec
TE 300.0 K
D1 1.00000000 sec
TDO 1

===== CHANNEL f1 =====
NUC1 1H
P1 10.00 usec
PL1 -1.00 dB
PL1W 15.52081971 W
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300249 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Figure 19: ^1H -NMR Spectrum of **6i**.



SKM-435
13C, CDCl3

Current Data Parameters
NAME SKM-435,13C,300 MHz,31.8.12.M
EXPNO 470
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120602
Time 8.05
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 18028.846 Hz
FIDRES 0.275098 Hz
AQ 1.8175818 sec
RG 2050
DW 27.733 usec
DE 15.00 usec
TE 300.0 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 13C
P1 8.15 usec
PL1 -3.00 dB
PL1W 55.13059616 W
SFO1 75.4752853 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -1.00 dB
PL12 17.06 dB
PL13 21.00 dB
PL2W 15.02081871 W
PL12W 0.23479761 W
PL13W 0.09477498 W
SFO2 300.1312005 MHz

F2 - Processing parameters
SI 32768
SF 75.4677550 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Figure 20: ¹³C -NMR Spectrum of **6i**.

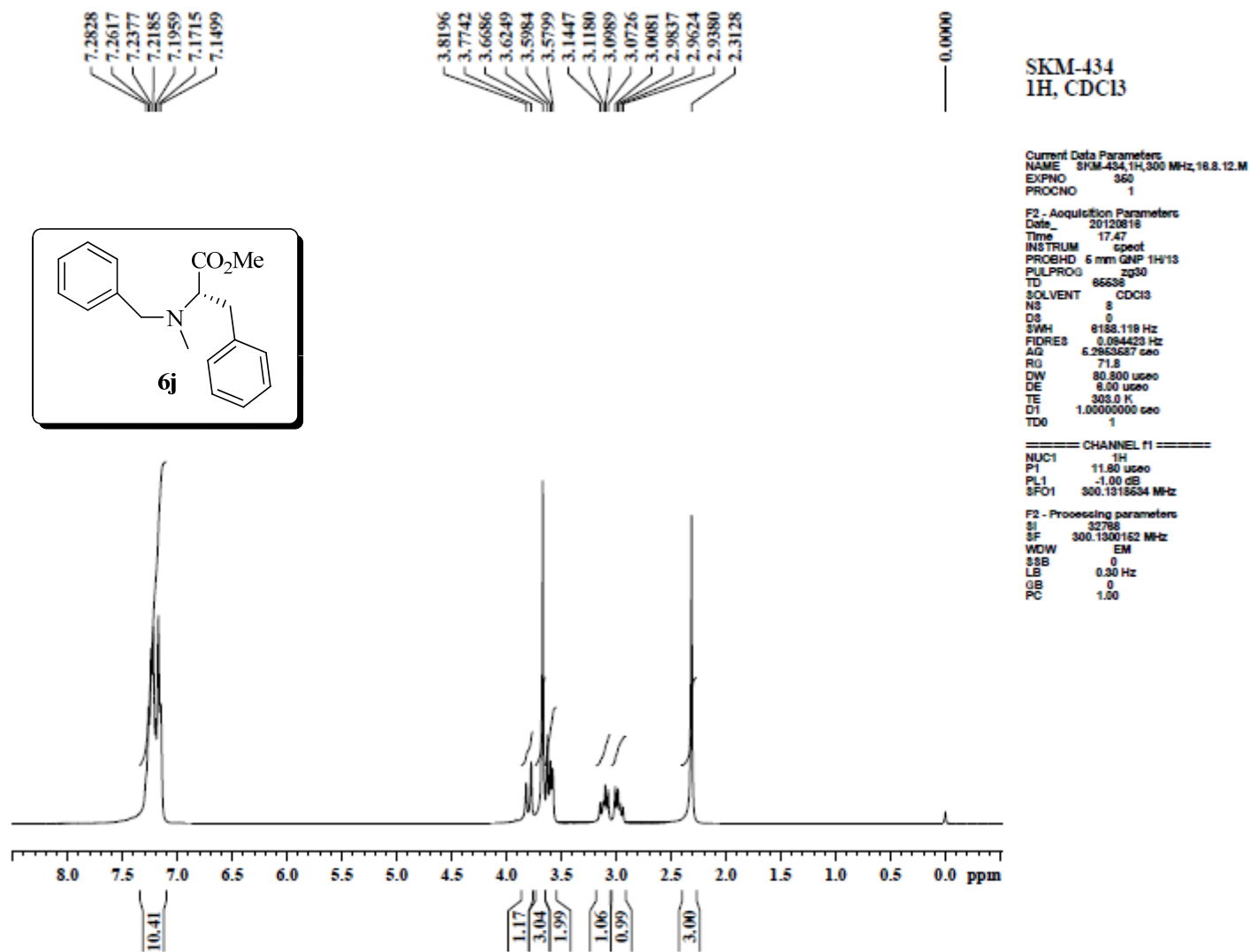
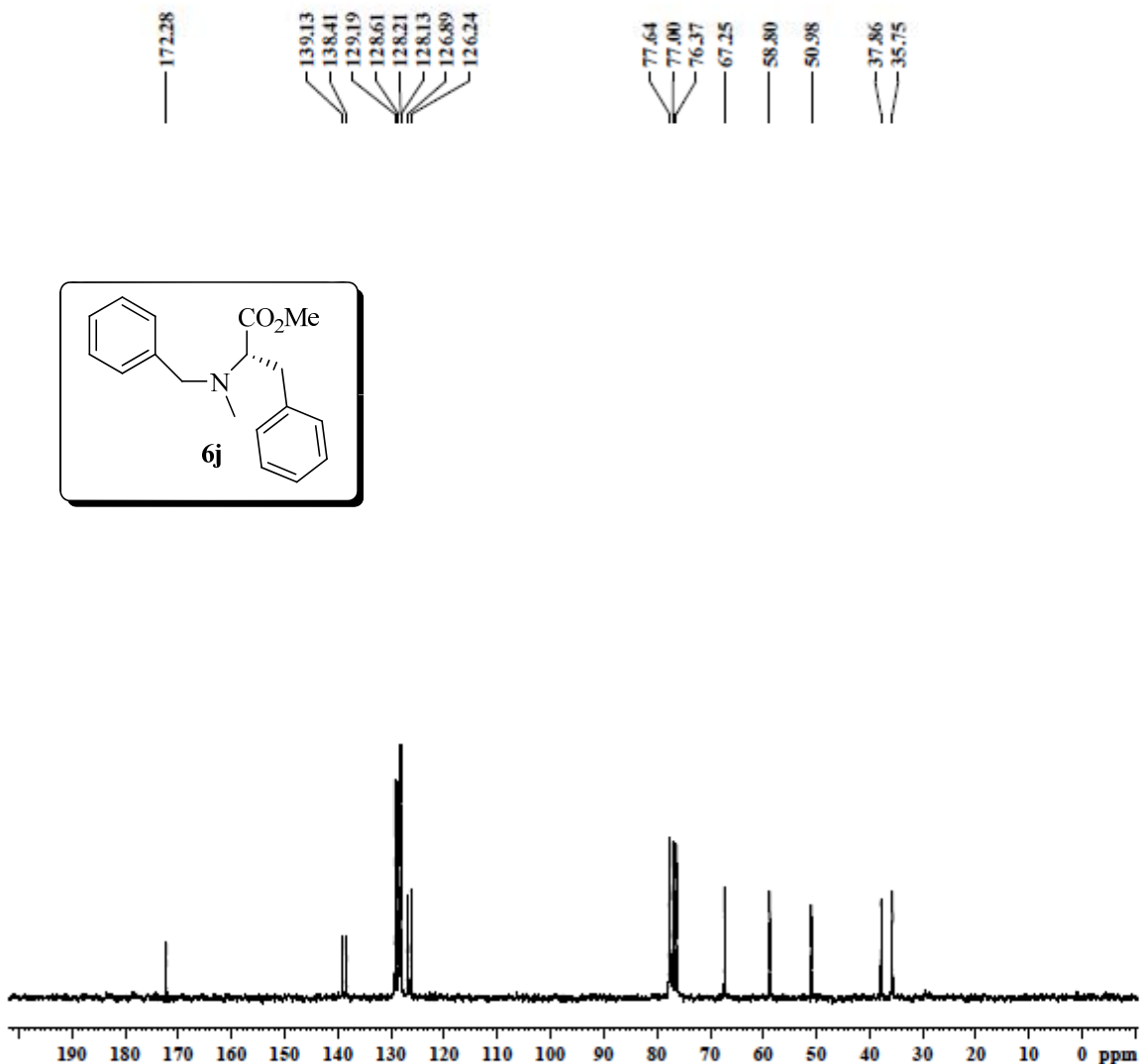


Figure 21: ¹H -NMR Spectrum of **6j**.



SKM-434
13C, CDCl3

```

Current Data Parameters
NAME SKM-434, 13C, 200 MHz, 30.08.12.M
EXPNO 350
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120904
Time 11.19
INSTRUM spect
PROBHD 5 mm Dual 13C/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 11996.407 Hz
FIDRES 0.182989 Hz
AQ 2.7329911 sec
RG 57
DW 41.700 usec
DE 6.30 usec
TE 300.2 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.20000000 sec
MCREST 0.00000000 sec
MCWRC 0.01000000 sec

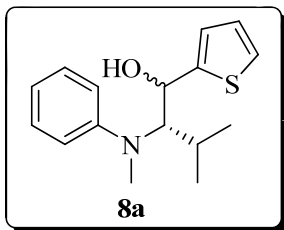
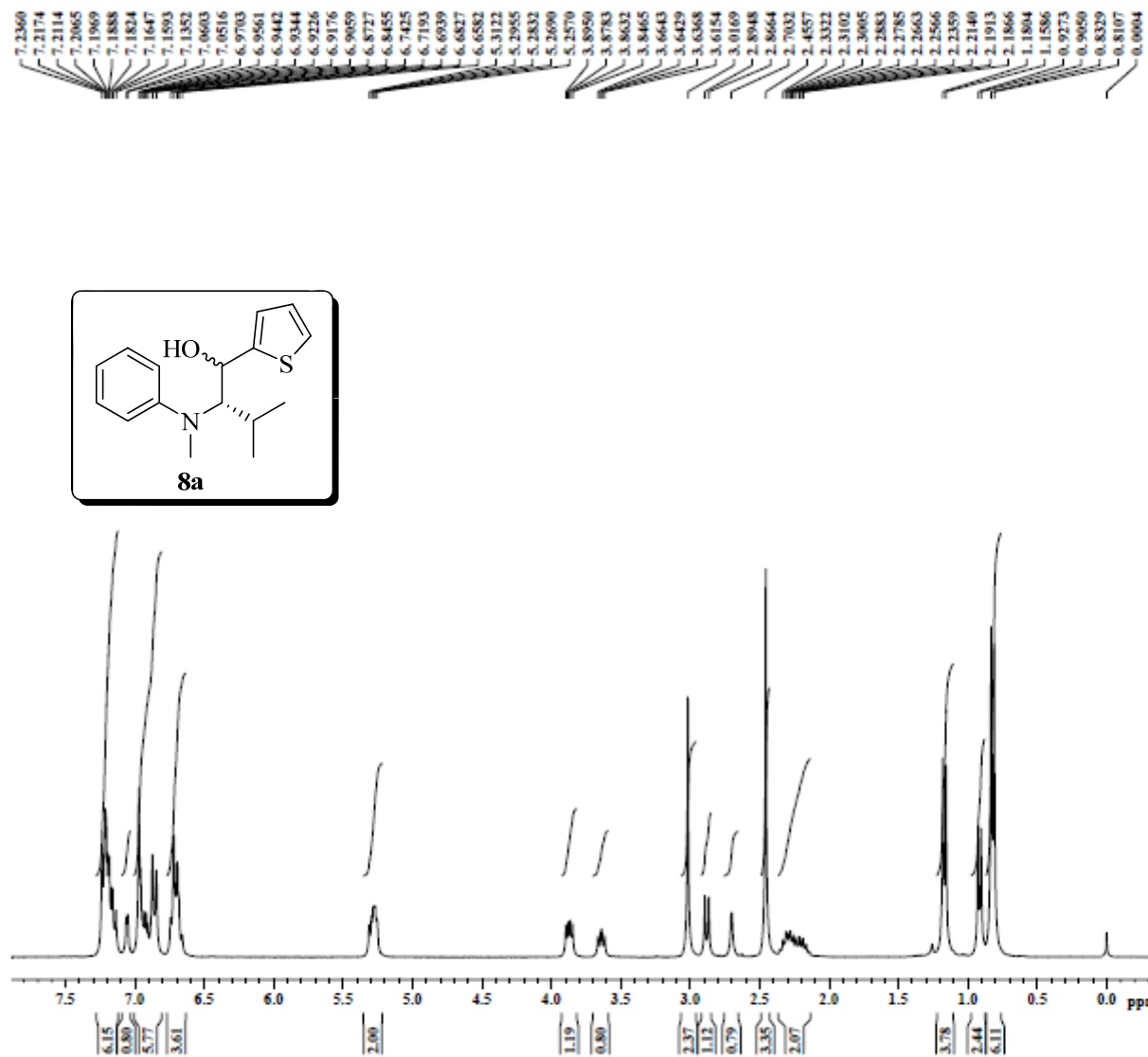
===== CHANNEL f1 =====
NUC1 13C
P1 6.30 usec
PL1 -4.00 dB
SFO1 50.3277608 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL3 -4.00 dB
PL12 19.30 dB
PL13 22.00 dB
SFO2 200.1300005 MHz

F2 - Processing parameters
SI 32768
SF 50.3277124 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
PC 1.40

```

Figure 22: ¹³C -NMR Spectrum of **6j**.



SKM-200
1H, CDCl3

Current Data Parameters
NAME SKM-200,1H,300 MHz,14.7.11.M
EXPNO 440
PROCNO 1

F2 - Acquisition Parameters
Date_ 20110714
Time 14.04
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 101
DW 80.800 usec
DE 5.00 usec
TE 300.0 K
D1 1.00000000 sec
TD0 1

CHANNEL f1
NUC1 1H
P1 11.80 usec
PL1 -1.00 dB
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300135 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Figure 23: ¹H -NMR Spectrum of **8a**.

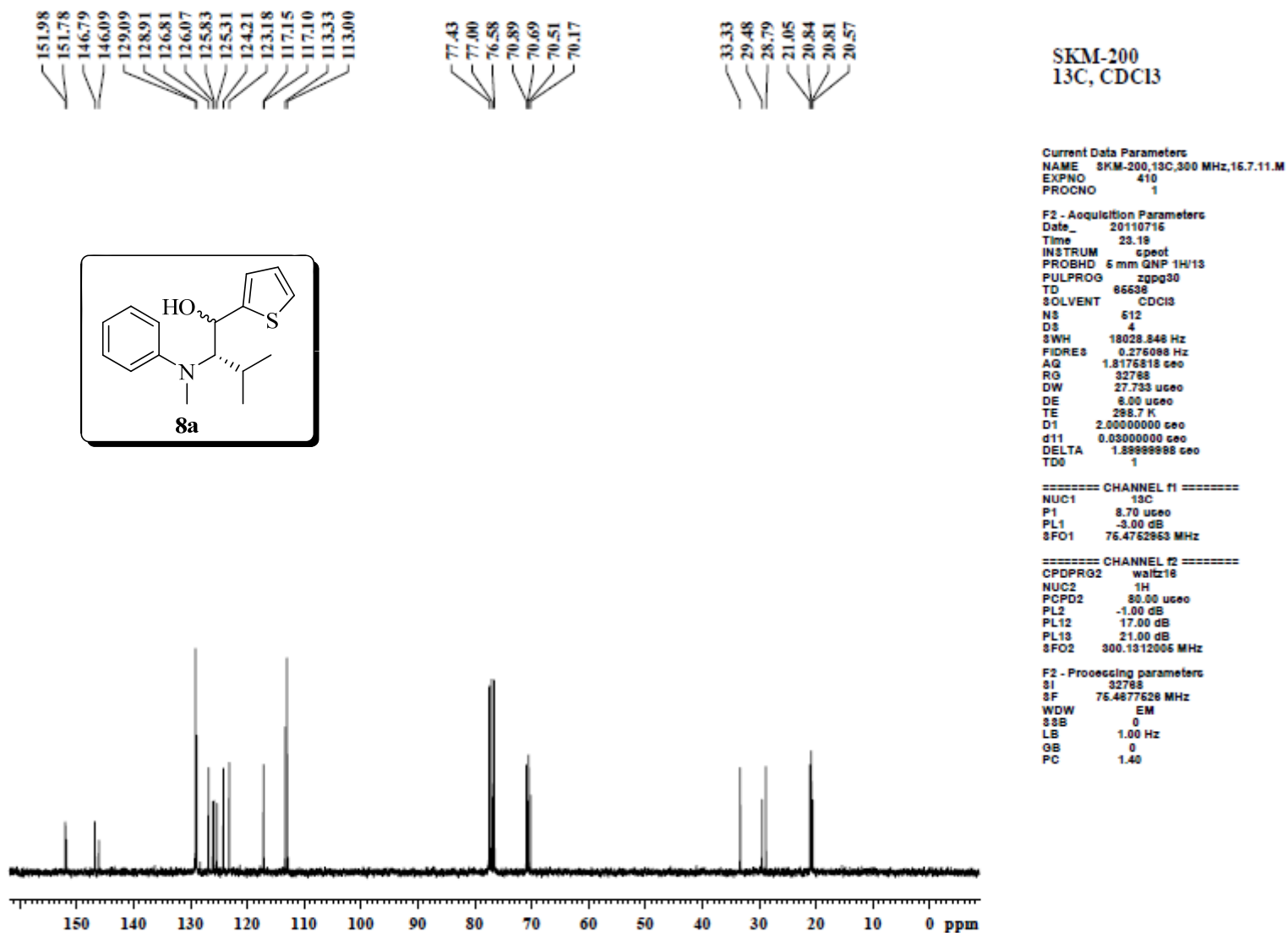


Figure 24: ^{13}C -NMR Spectrum of **8a**.

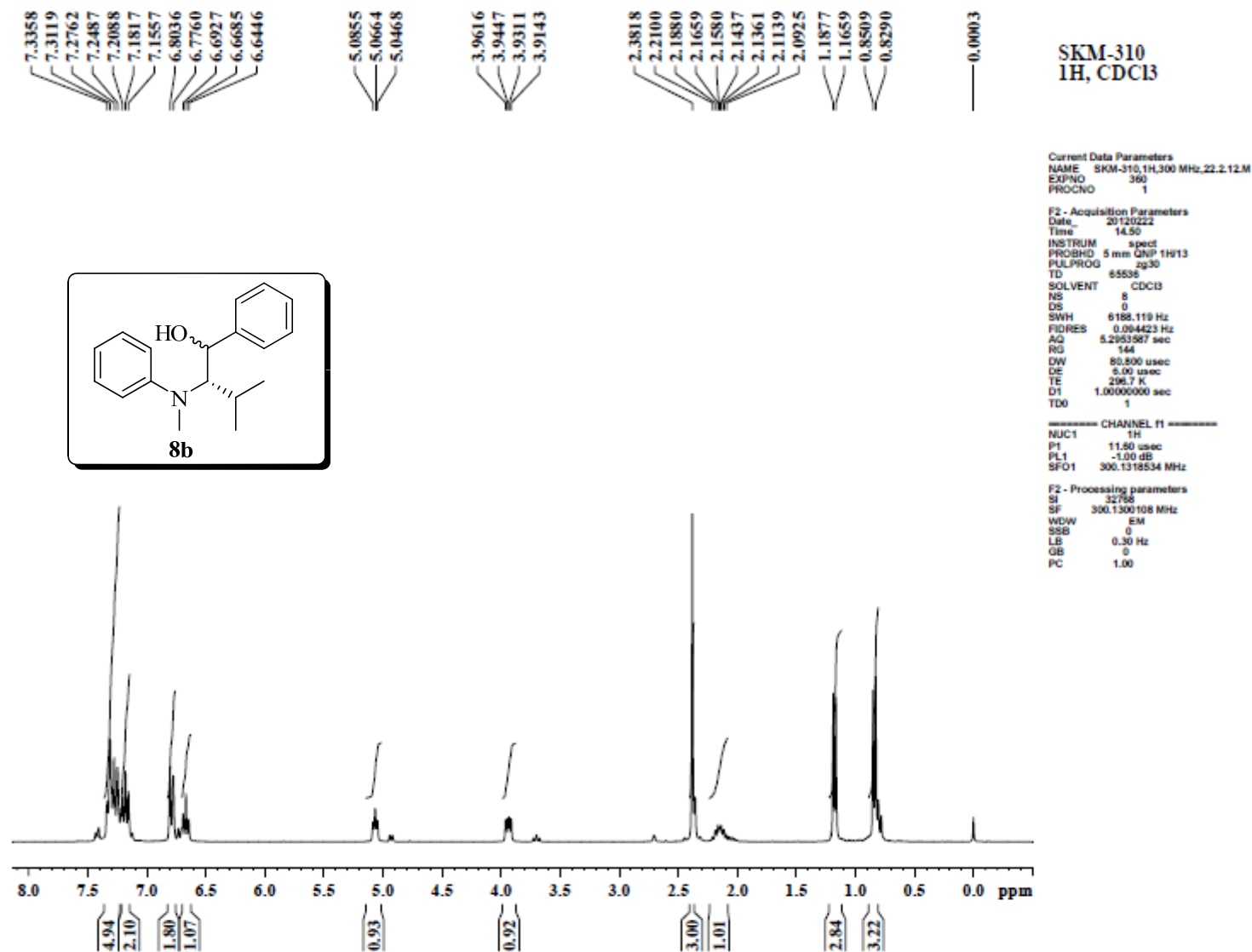
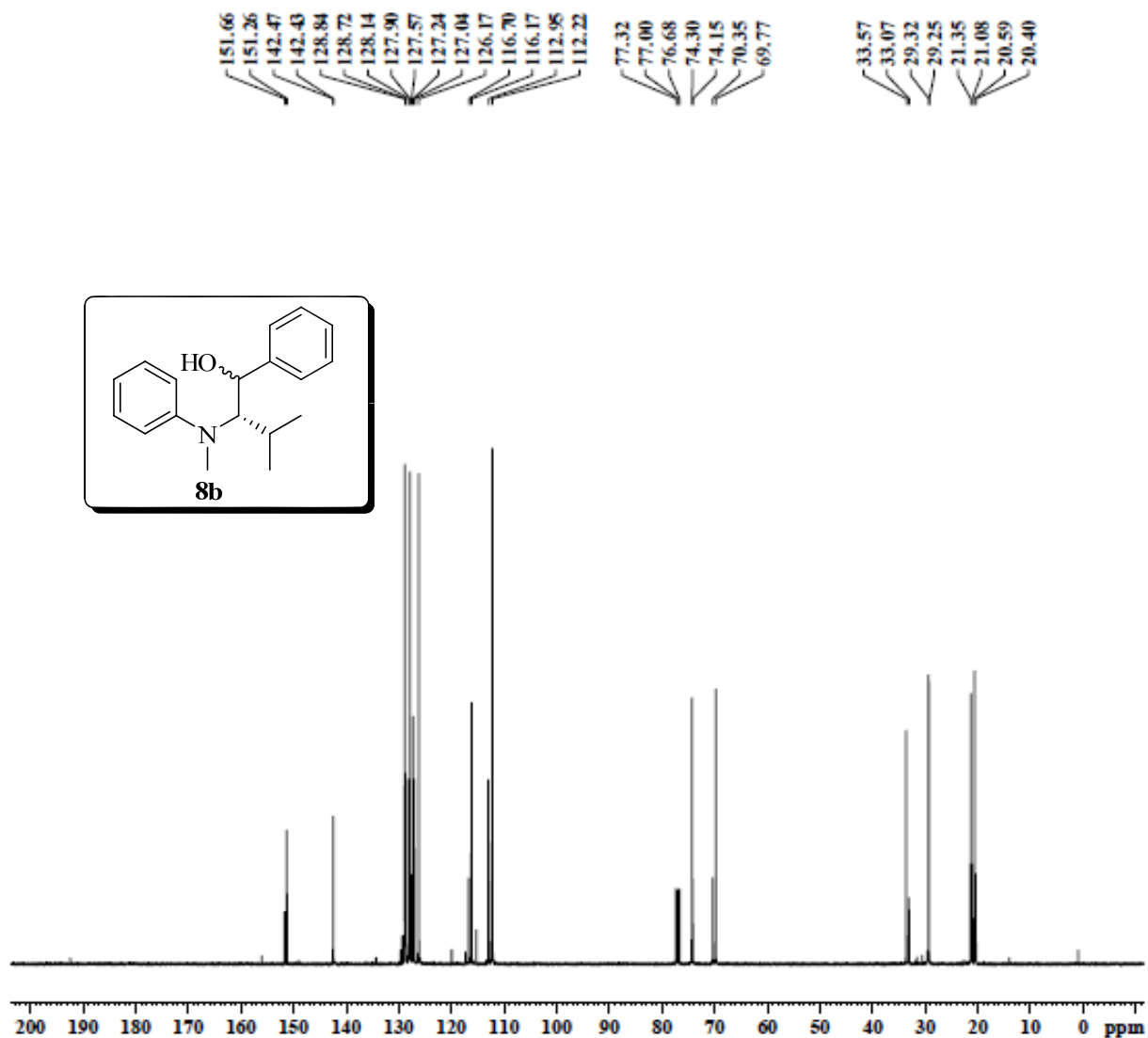


Figure 25: ^1H -NMR Spectrum of **8b**.



SKM-310
13C, CDC13

Current Data Parameters
NAME SKM-310,13C,400 MHz,2 Jan,2014,E
EXPNO 30
PROCNO 1

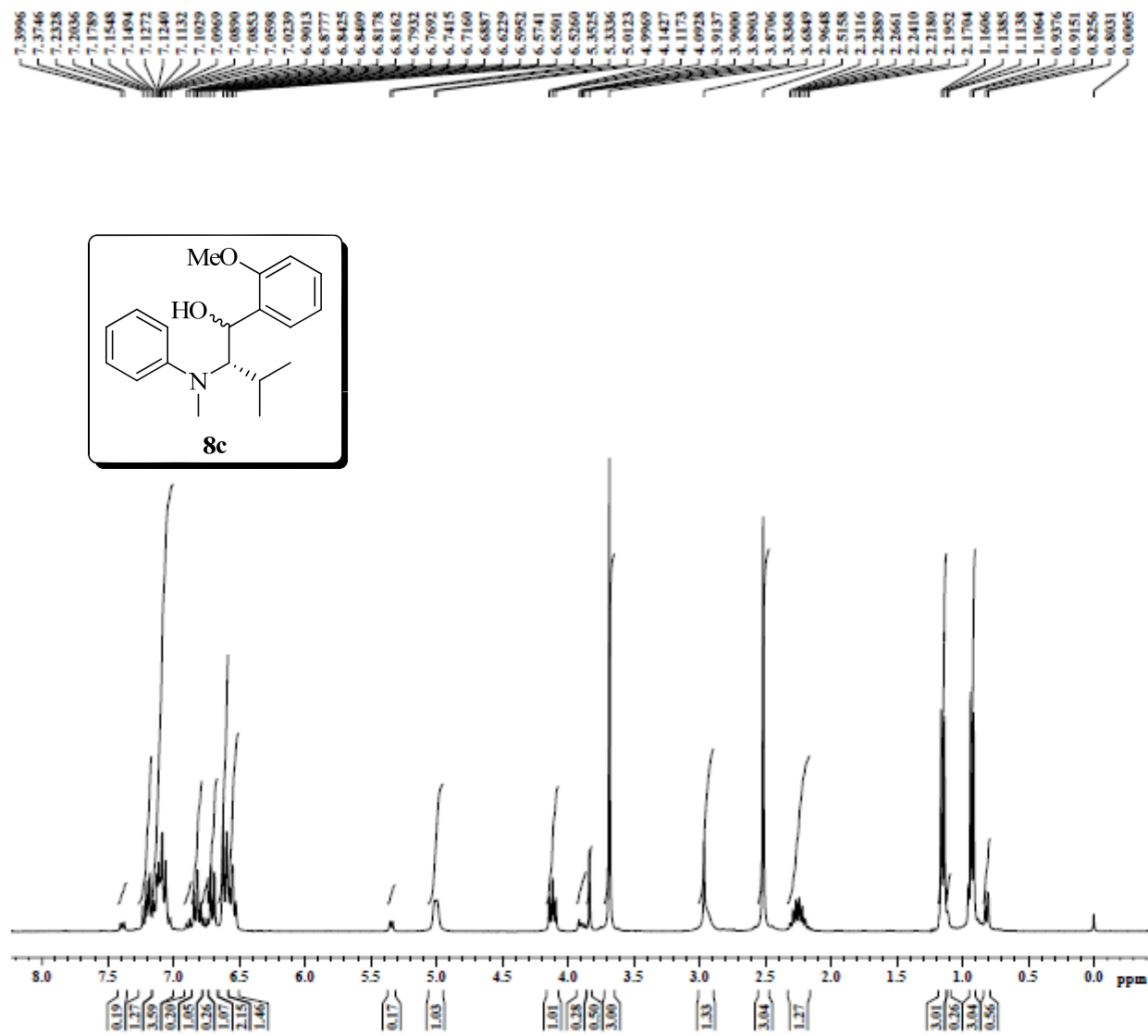
F2 - Acquisition Parameters
Date_ 20140103
Time 14.25
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDC13
NS 200
DS 4
SWH 24038.461 Hz
FIDRES 0.386798 Hz
AQ 1.3631488 sec
RG 201.48
DW 20.800 usec
DE 0.50 usec
TE 300.0 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

----- CHANNEL f1 -----
SFO1 100.6204993 MHz
NUC1 13C
PI 8.20 usec
PLW1 70.59999847 W

----- CHANNEL f2 -----
SFO2 400.1621006 MHz
NUC2 1H
CPDPRG2 waltz16
PCPD2 90.00 usec
PLW2 14.50000000 W
PLW3 0.26381999 W
PLW13 0.21353000 W

F2 - Processing parameters
SI 32768
SF 100.6204708 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Figure 26: ^{13}C -NMR Spectrum of **8b**.



SKM-299
1H, CDC13

Current Data Parameters
NAME SKM-299.1H.300 MHz.3.2.12.M
EXPNO 490
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120204
Time 10.20
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDC13
NS 8
DS 0
SWH 8188.119 Hz
FIDRES 0.094423 Hz
AQ 5.293387 sec
RG 64
DW 80.800 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec
TD0 1

----- CHANNEL f1 -----
NUC1 1H
P1 11.60 usec
PL1 -1.00 dB
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300145 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Figure 27: ¹H -NMR Spectrum of **8c**.

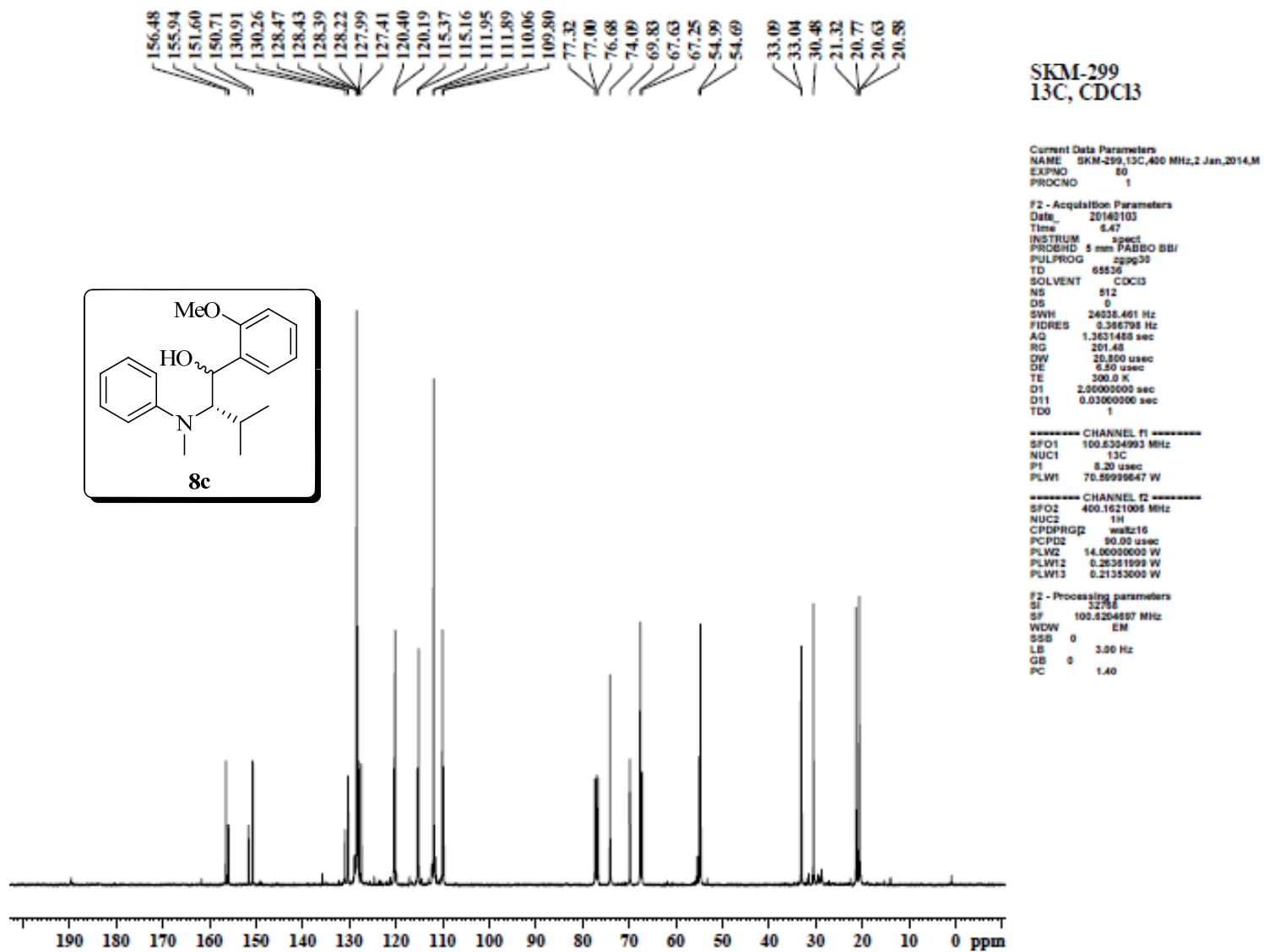
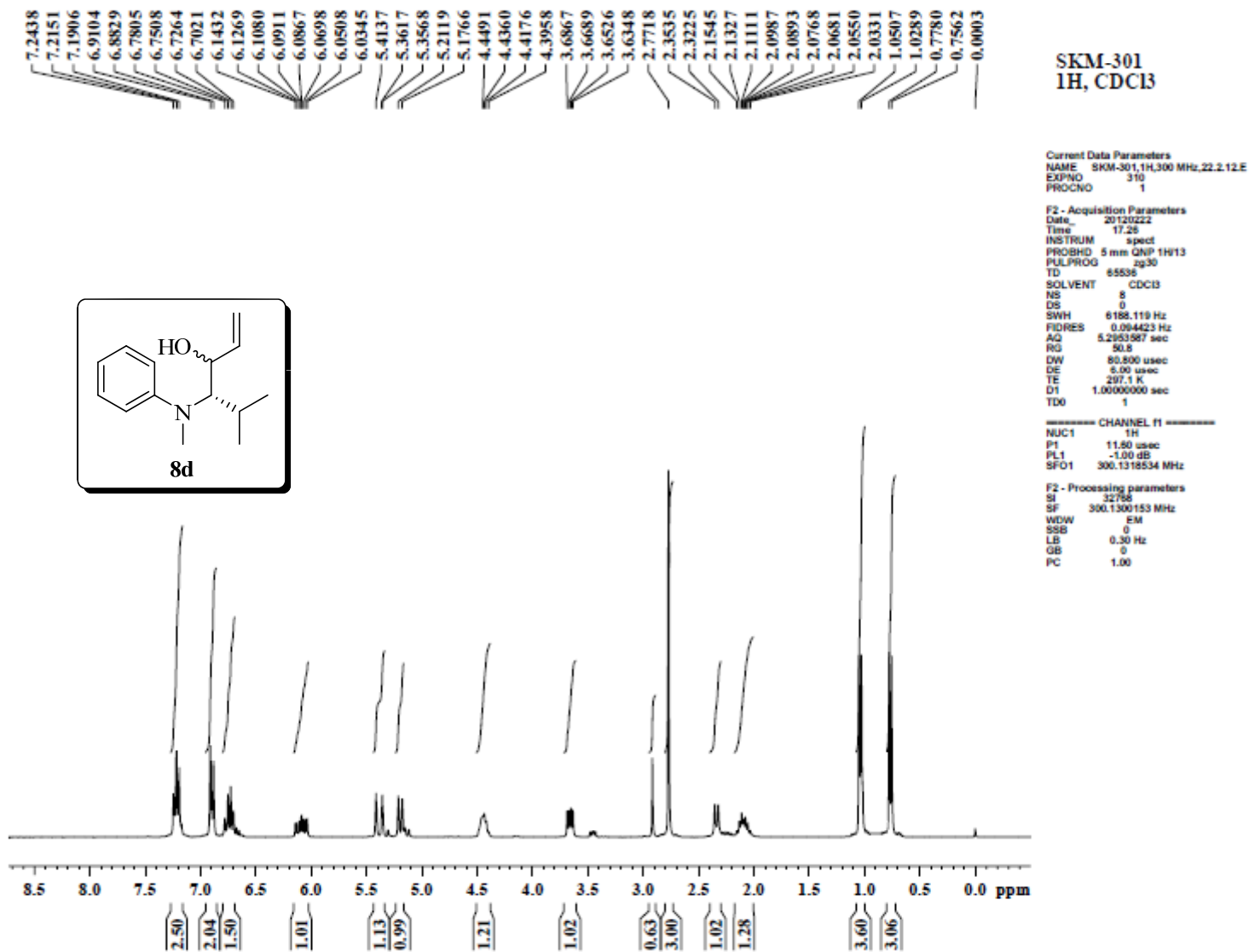
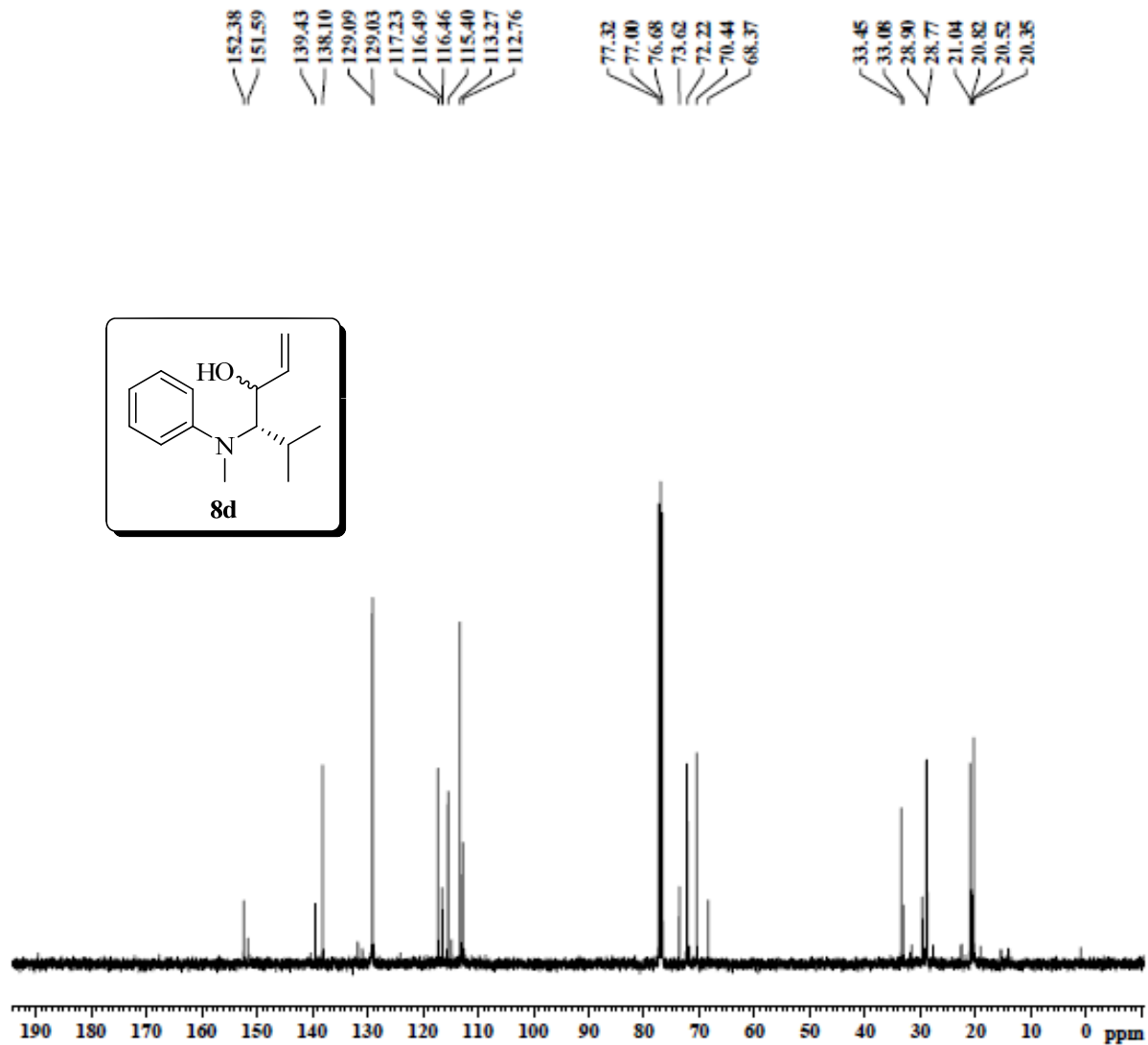


Figure 28: ^{13}C -NMR Spectrum of **8c**.





SKM-301
13C, CDCl3

Current Data Parameters
NAME SKM-301A, 13C, 400 MHz, 2 Jan, 2014, E
EXPNO 70
PROCNO 1

F2 - Acquisition Parameters
Date_ 20140104
Time 2.22
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3831488 sec
RG 201.48
DW 20.800 usec
DE 6.50 usec
TE 300.0 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1

----- CHANNEL f1 -----
SFO1 100.6204993 MHz
NUC1 13C
P1 8.20 usec
PLW1 70.59999547 W

----- CHANNEL f2 -----
SFO2 400.1421006 MHz
NUC2 1H
PCPD2 waltz16
PCPD2 90.00 usec
PLW2 14.00000000 W
PLW12 0.26381999 W
PLW13 0.21353000 W

F2 - Processing parameters
SI 32768
SF 100.6204004 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Figure 30: ¹³C -NMR Spectrum of **8d**.

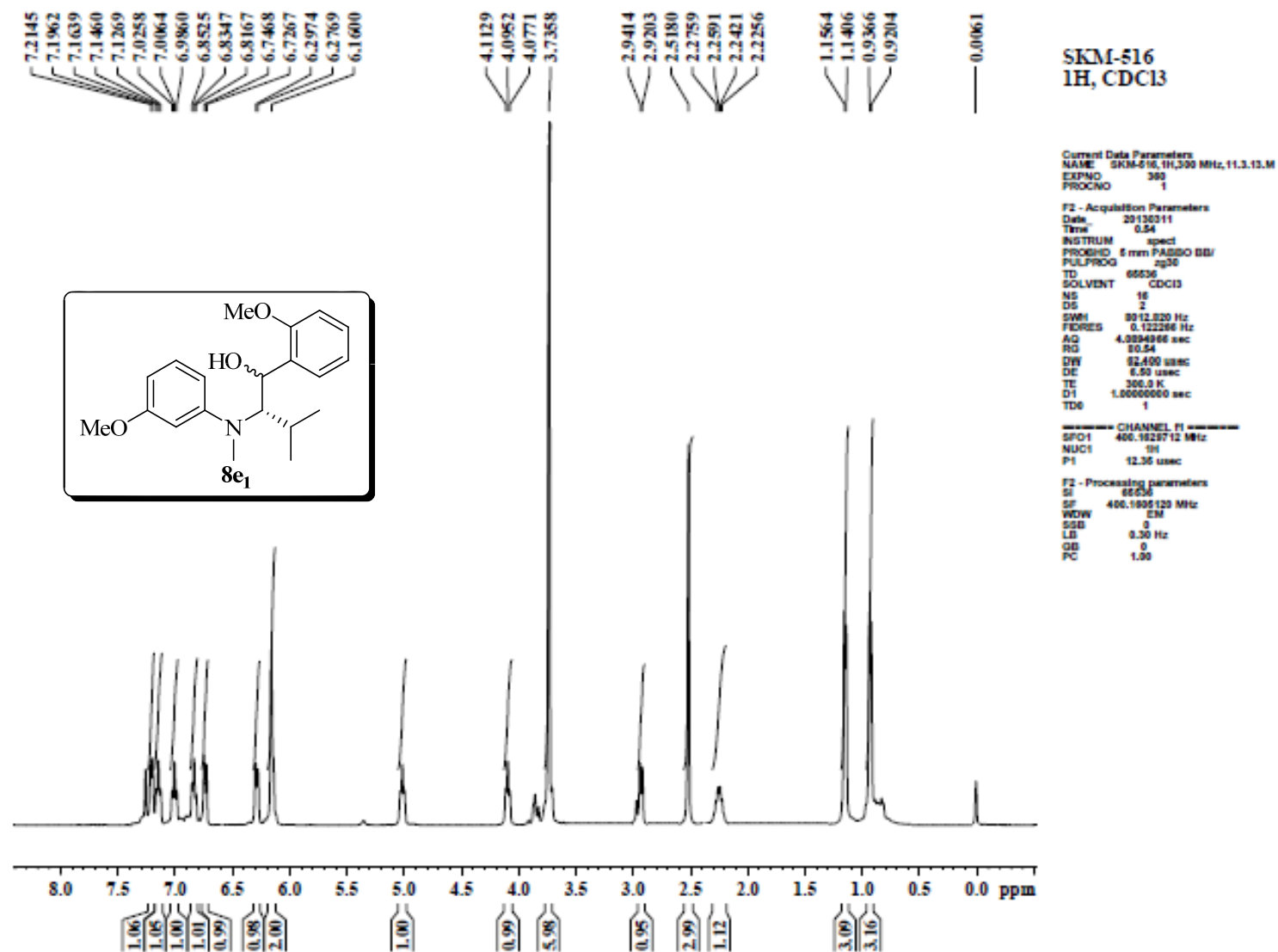
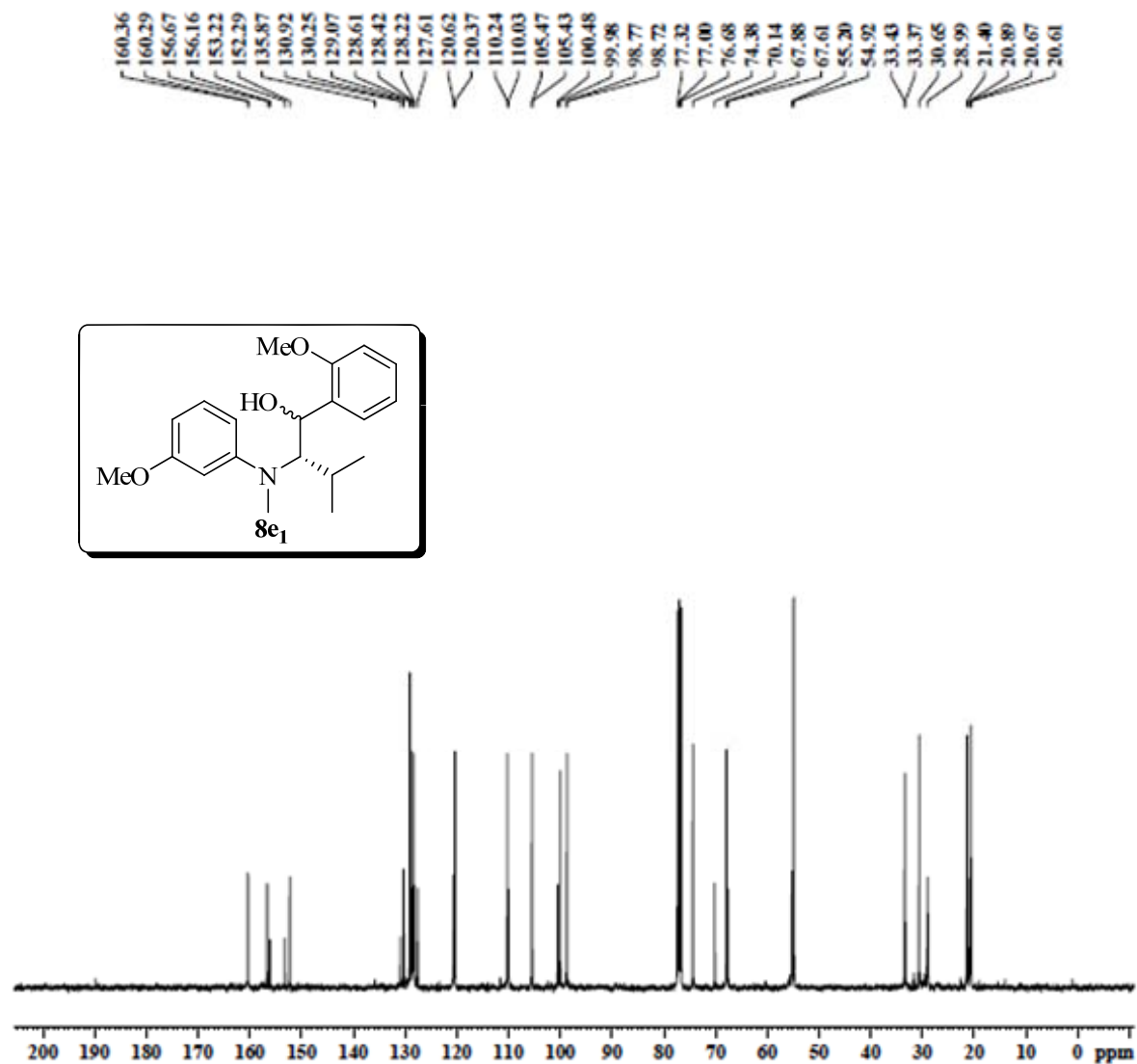


Figure 31: ¹H -NMR Spectrum of **8e₁**.



SKM-516
13C, CDC13

Current Data Parameters
NAME SKM-516,13C,400 MHz,1 Jan,2014,M
EXPNO 60
PROCNO 1

F2 - Acquisition Parameters
Date_ 20140102
Time 4.35
INSTRUM spect
PROBHD 5 mm F400 BB/
PULPROG zgpg30
TD 65536
SOLVENT CDC13
NS 812
DS 4
SWH 24038.461 Hz
FIDRES 0.368798 Hz
AQ 1.3631468 sec
RG 201.48
QW 20.800 usec
DE 6.00 usec
TE 300.0 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1

***** CHANNEL f1 *****
SFO1 100.6204993 MHz
NUC1 13C
P1 8.20 usec
PLW1 70.50998647 W

***** CHANNEL f2 *****
SFO2 400.1621005 MHz
NUC2 1H
CPCPRG2 waltz16
PCPD2 90.00 usec
PLW2 14.90000000 W
PLW12 0.28381999 W
PLW13 0.21350000 W

F2 - Processing parameters
SI 32768
SF 100.6204477 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
PC 1.40

Figure 32: ¹³C -NMR Spectrum of **8e₁**.

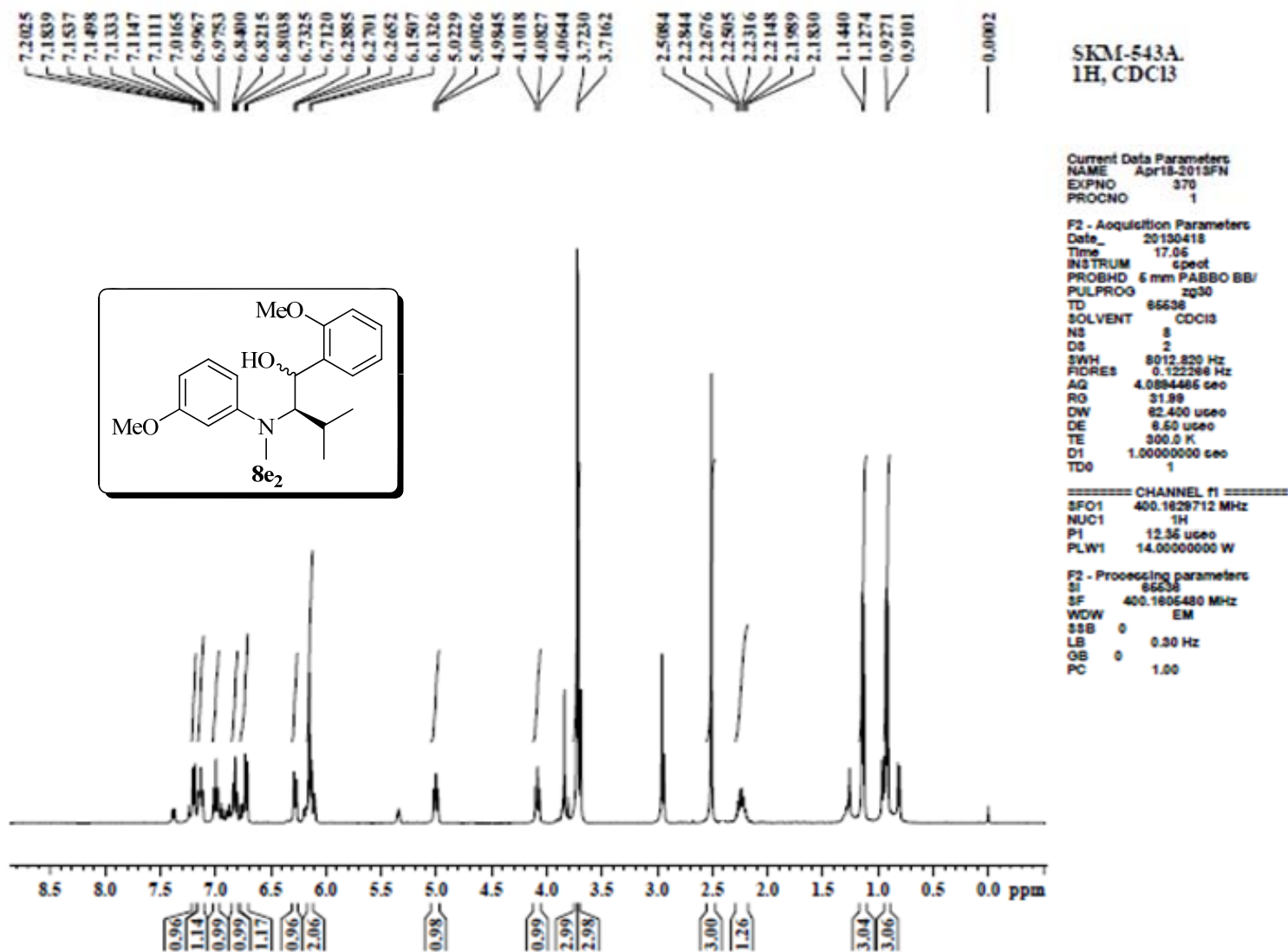


Figure 33: ¹H -NMR Spectrum of **8e₂**.

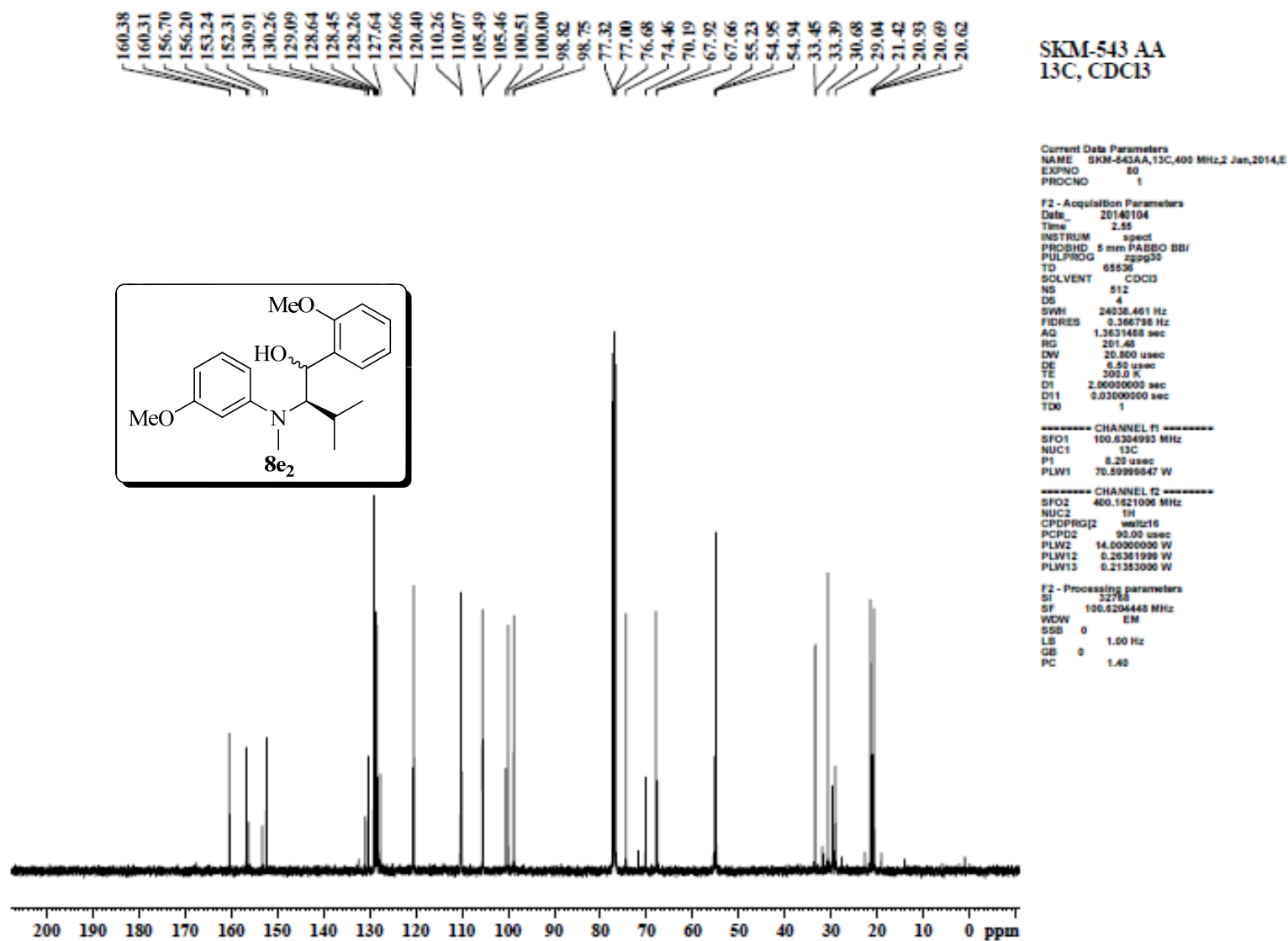
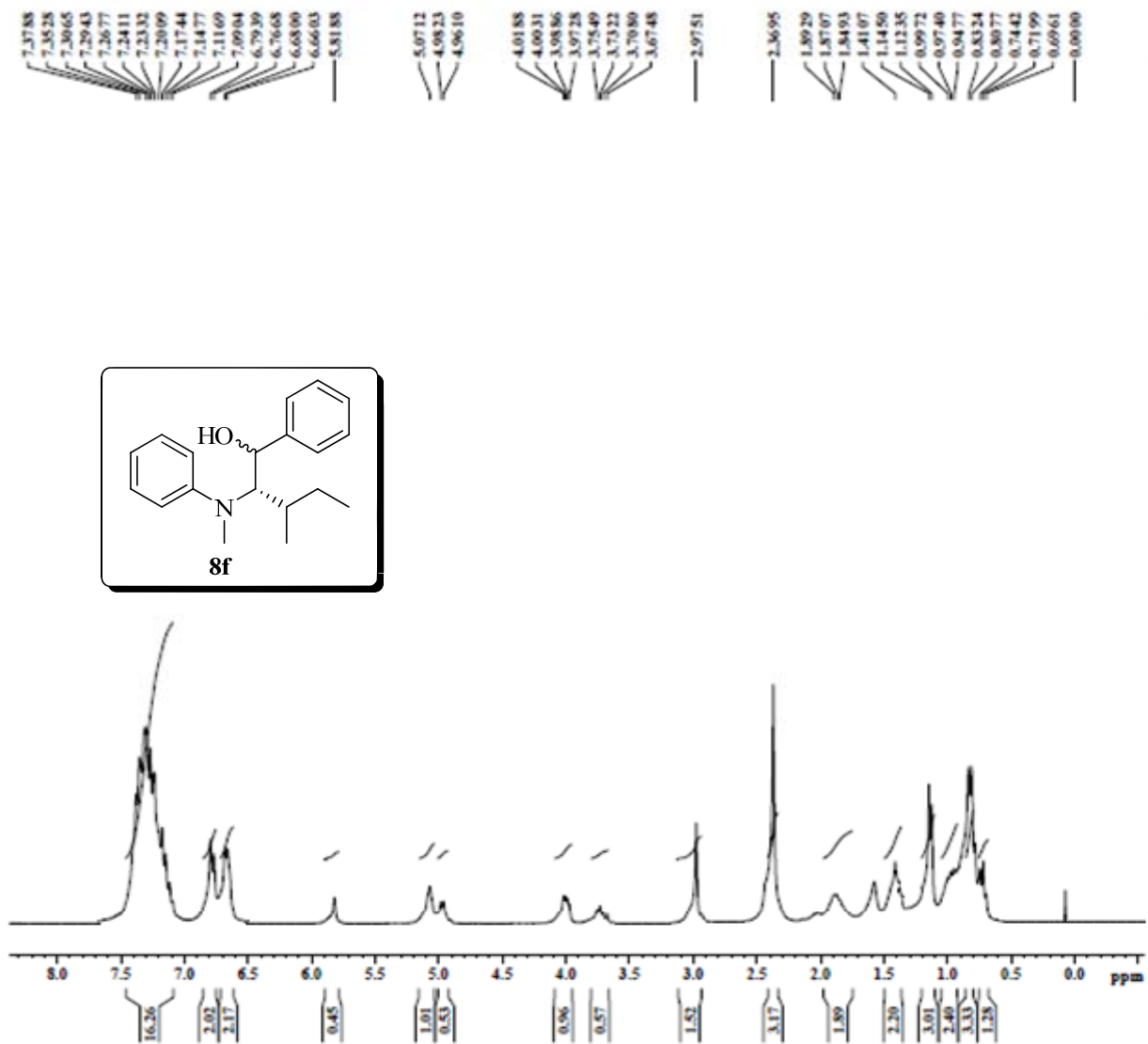


Figure 34: ¹³C -NMR Spectrum of 8e₂.



SKM-424
1H, CDC13

```

Current Data Parameters
NAME SKM-424, 1H, 300 MHz, 31.7.12.M
EXPNO 390
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120731
Time 22.29
INSTRUM spect
PROBHD 5 mm QNP 1H13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6108.119 Hz
FIDRES 0.094423 Hz
AQ 8.2953587 sec
RG 64
DW 80.800 usec
DE 8.00 usec
TE 303.0 K
D1 1.00000000 sec
TD0 1

***** CHANNEL f1 *****
NUC1 1H
P1 11.80 usec
PL1 -1.00 dB
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300150 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

```

Figure 35: ¹H -NMR Spectrum of **8f**.

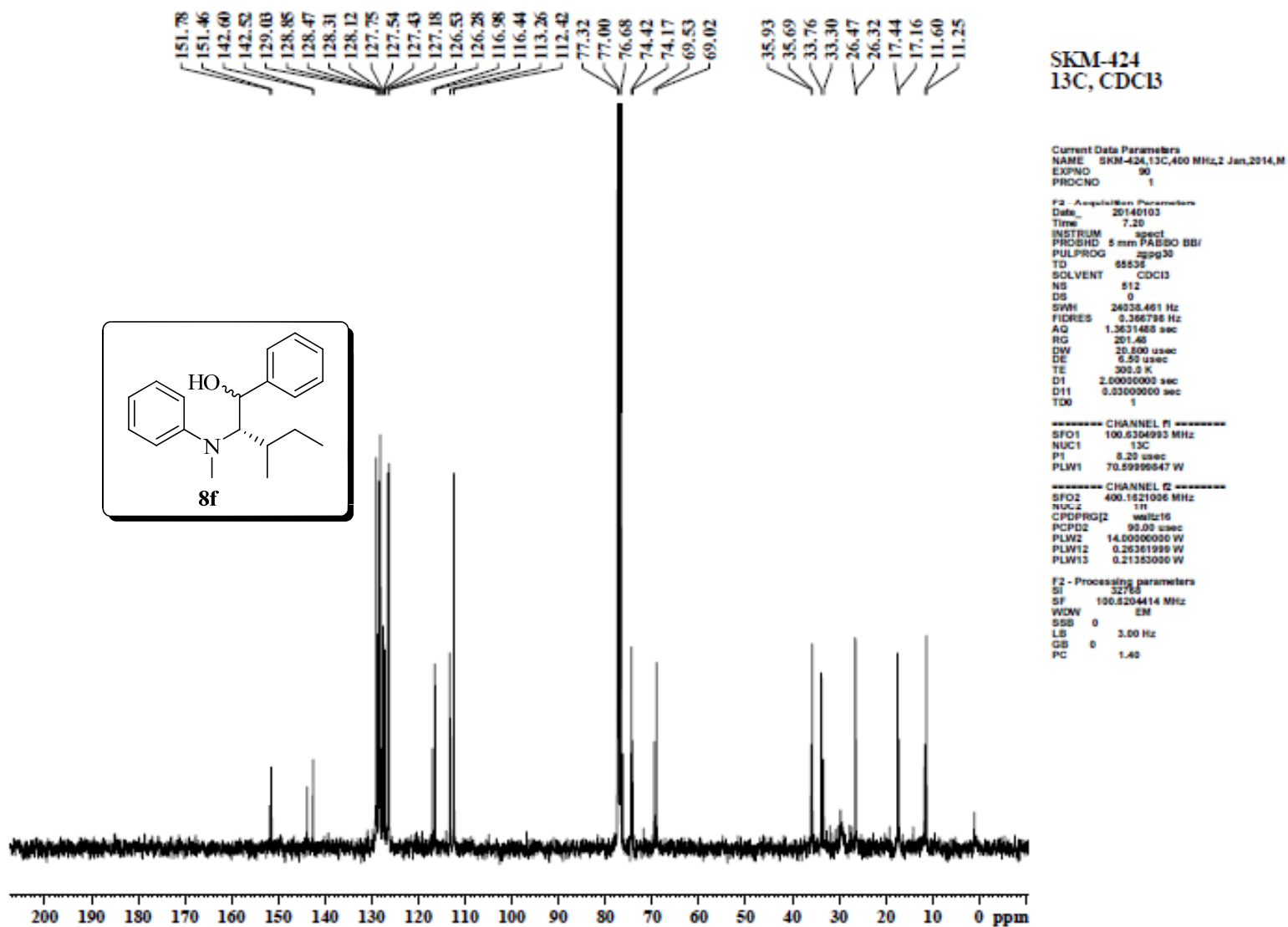
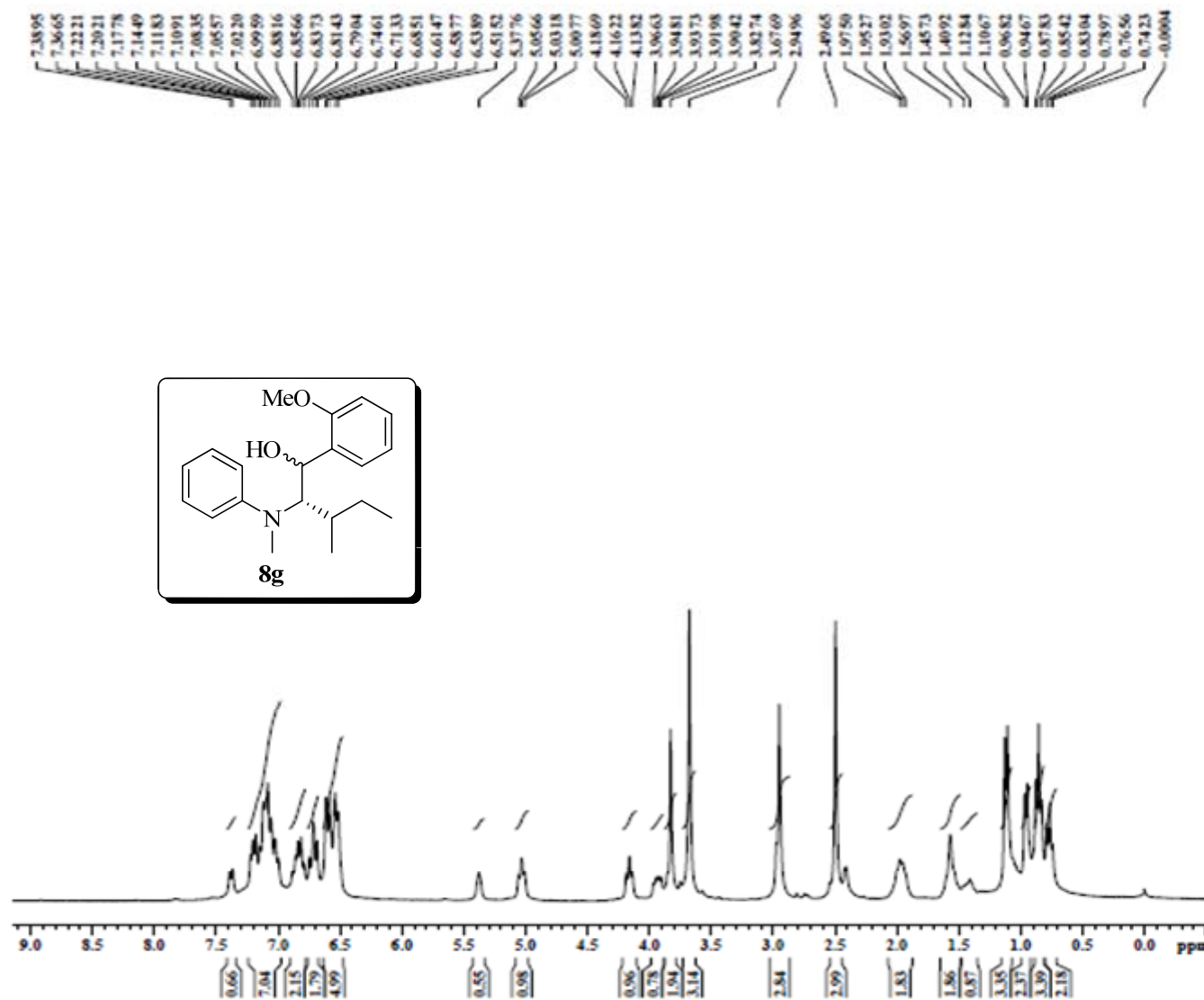


Figure 36: ¹³C -NMR Spectrum of **8f**.



SKM-423
1H, CDCl3

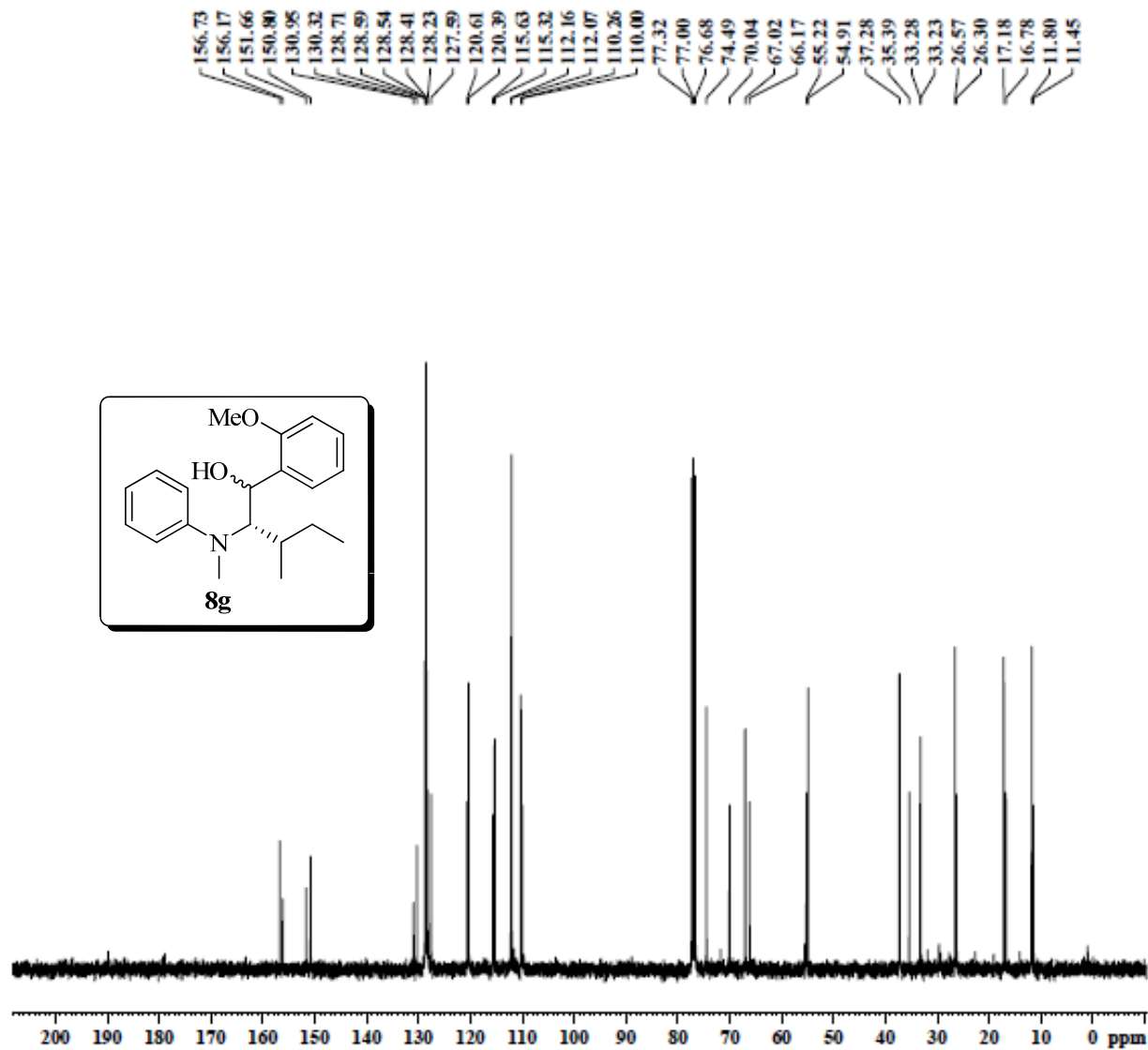
Current Data Parameters
NAME SKM-423.1H.300 MHz.31.8.12.M
EXPNO 380
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120731
Time 22.23
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 57
DW 80.800 usec
DE 0.10 usec
TE 303.0 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 11.80 usec
PL1 -1.00 dB
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300180 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Figure 37: ¹H -NMR Spectrum of **8g**.



SKM-423
 ^{13}C , CDCl_3

Current Data Parameters
 NAME SKM-423, ^{13}C , 400 MHz, 2 Jan, 2014, E
 EXPNO 40
 PROCNO 1

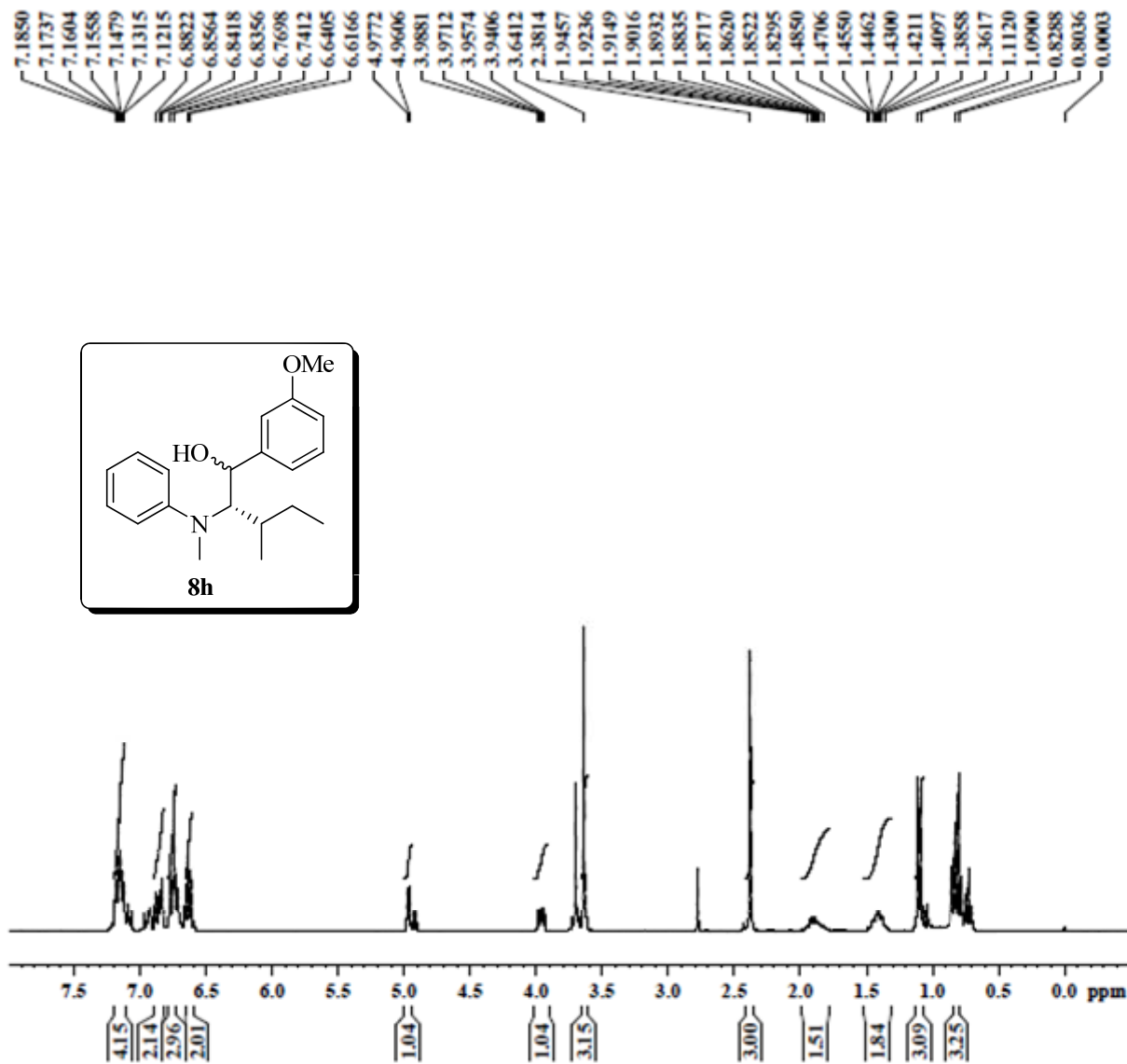
F2 - Acquisition Parameters
 Date_ 20140104
 Time 0.40
 INSTRUM spect
 PROBHD 5 mm FASBO BBI
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl_3
 NS 512
 DS 4
 SWH 24038.461 Hz
 FIDRES 0.366796 Hz
 AQ 1.3631488 sec
 RG 201.48
 DW 20.800 usec
 DC 0.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 D11 0.03000000 sec
 TDS 1

----- CHANNEL f1 -----
 SFO1 100.6204433 MHz
 NUC1 ^{13}C
 P1 8.20 usec
 PLW1 70.50693647 W

----- CHANNEL f2 -----
 SFO2 400.1621006 MHz
 NUC2 ^1H
 CPDPRG2 waltz16
 PCPD2 90.00 usec
 PLW2 14.00000000 W
 PLW12 0.26301999 W
 PLW13 0.21353000 W

F2 - Processing parameters
 SI 32768
 SF 100.6204433 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

Figure 38: ^{13}C -NMR Spectrum of **8g**.



SKM-439
1H, CDC13

Current Data Parameters
NAME SKM-439.1H.300 MHz.30.8.12.1
EXPNO 360
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120830
Time 13.09
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDC13
NS 8
DS 8
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2983987 sec
RG 25.4
DW 80.800 usec
DE 18.00 usec
TE 300.2 K
D1 1.00000000 sec
TD0 1

----- CHANNEL f1 -----
NUC1 1H
P1 10.00 usec
PL1 -1.00 dB
PL1W 15.82081871 W
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300370 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

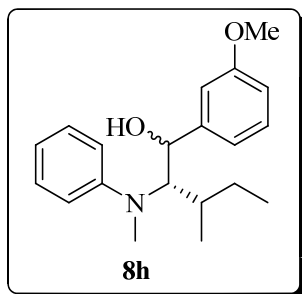
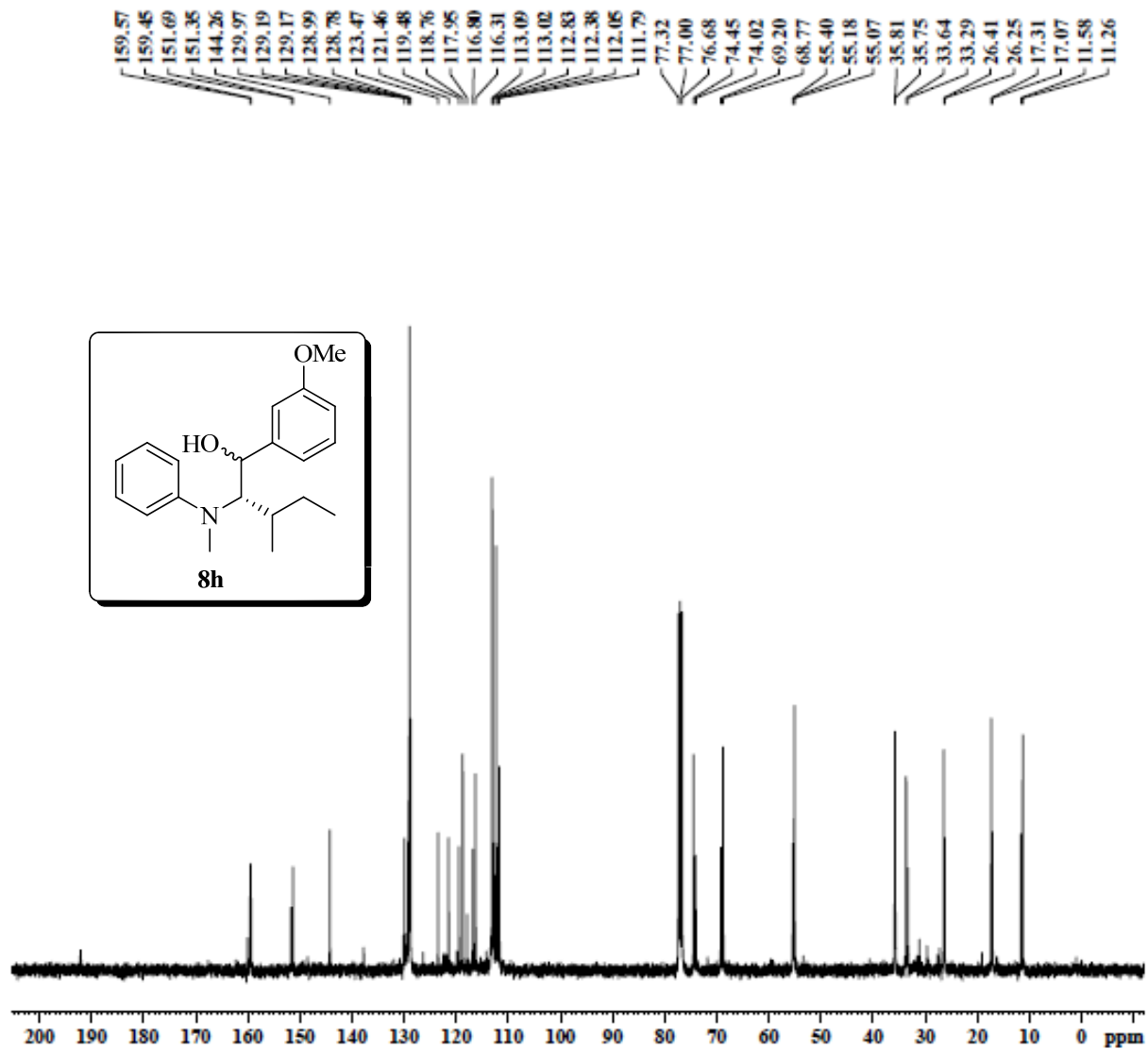


Figure 39: ^1H -NMR Spectrum of **8h**.



SKM-439
13C, CDCl3

```

Current Data Parameters
NAME SKM-439, 13C, 400 MHz, 2 Jan, 2014, E
EXPNO 00
PROCNO 1

F2 - Acquisition Parameters
Date_ 20140104
Time 3.29
INSTRUM spect
PROBHD 5 mm PABBO BBI
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 612
DS 4
SWH1 24038.481 Hz
FIDRES 0.348738 Hz
AQ 1.3631488 sec
RG 201.48
DW 20.806 usec
DE 6.50 usec
TE 300.0 K
D11 2.00000000 sec
D12 0.00000000 sec
TD0

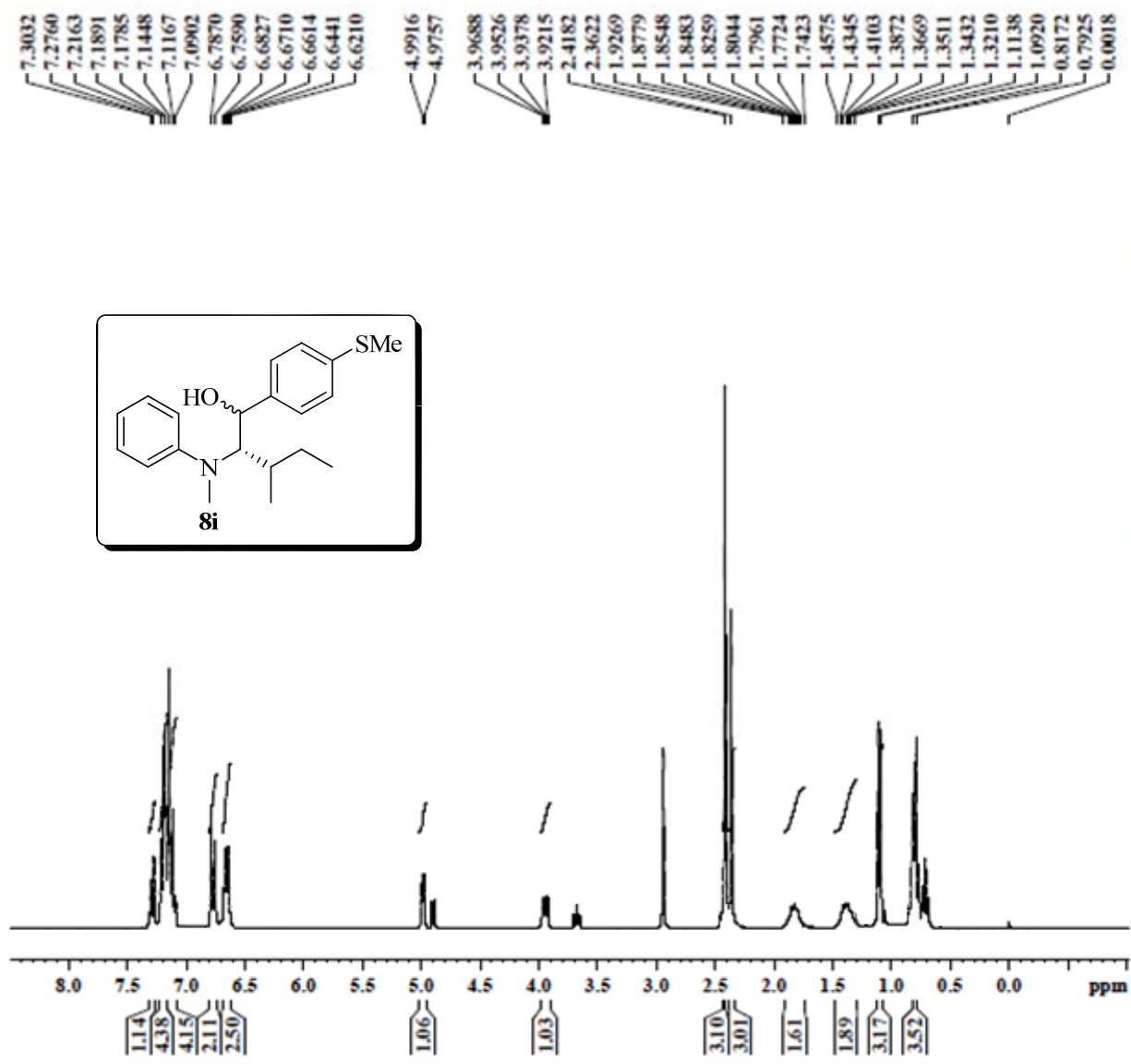
----- CHANNEL f1 -----
SFO1 100.6204477 MHz
NUC1 13C
P1 8.20 usec
PLW1 70.50999847 W

----- CHANNEL f2 -----
SFO2 400.1821008 MHz
NUC2 1H
CPCPRG2 waltz16
PCPD2 90.00 usec
PLW2 14.00000000 W
PLW12 0.26301988 W
PLW13 0.21353000 W

F2 - Processing parameters
SI 32768
SF 100.6204477 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

```

Figure 40: ¹³C -NMR Spectrum of **8h**.



SKM-440
1H, CDCl3

Current Data Parameters
 NAME SKM-440, 1H, 300 MHz, 30.8.12.M
 EXPNO 300
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20120930
 Time 13.15
 INSTRUM spect
 PROBHD 5 mm QNP 1H/13
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 8
 DS 0
 SWH 6188.119 Hz
 FIDRES 0.094423 Hz
 AQ 5.295387 sec
 RG 38
 DW 80.800 usec
 DE 18.00 usec
 TE 300.2 K
 D1 1.00000000 sec
 TDO 1

===== CHANNEL f1 =====
 NUC1 1H
 P1 10.00 usec
 PL1 -1.00 dB
 PL1W 15.52981871 W
 SFO1 300.1318534 MHz

F2 - Processing parameters
 SI 32768
 SF 300.1300298 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

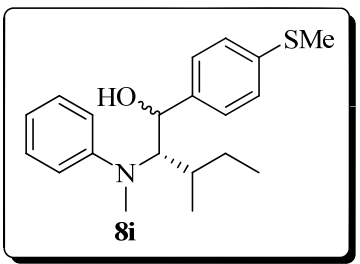


Figure 41: ¹H -NMR Spectrum of **8i**.

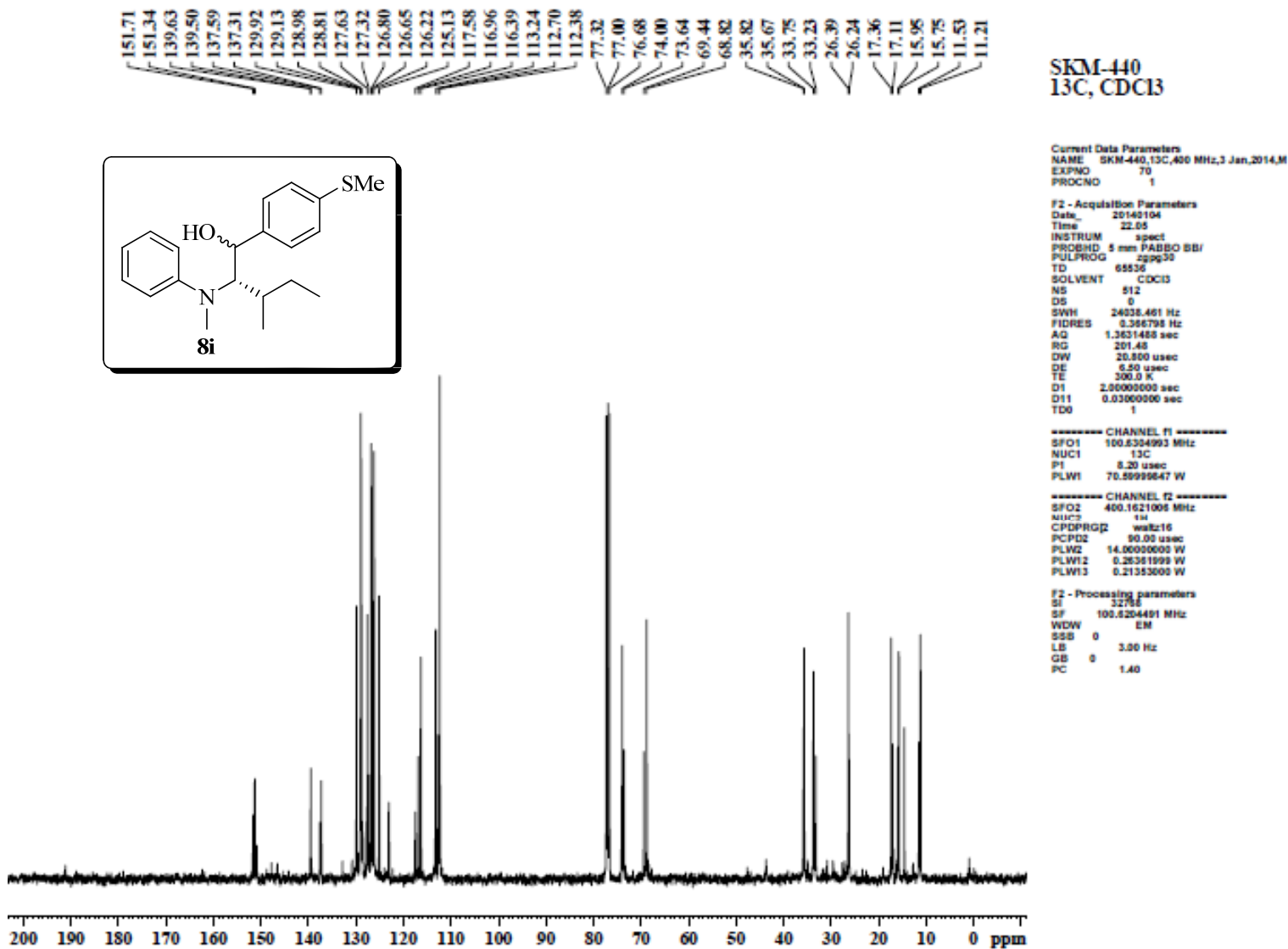


Figure 42: ^{13}C -NMR Spectrum of **8i**.

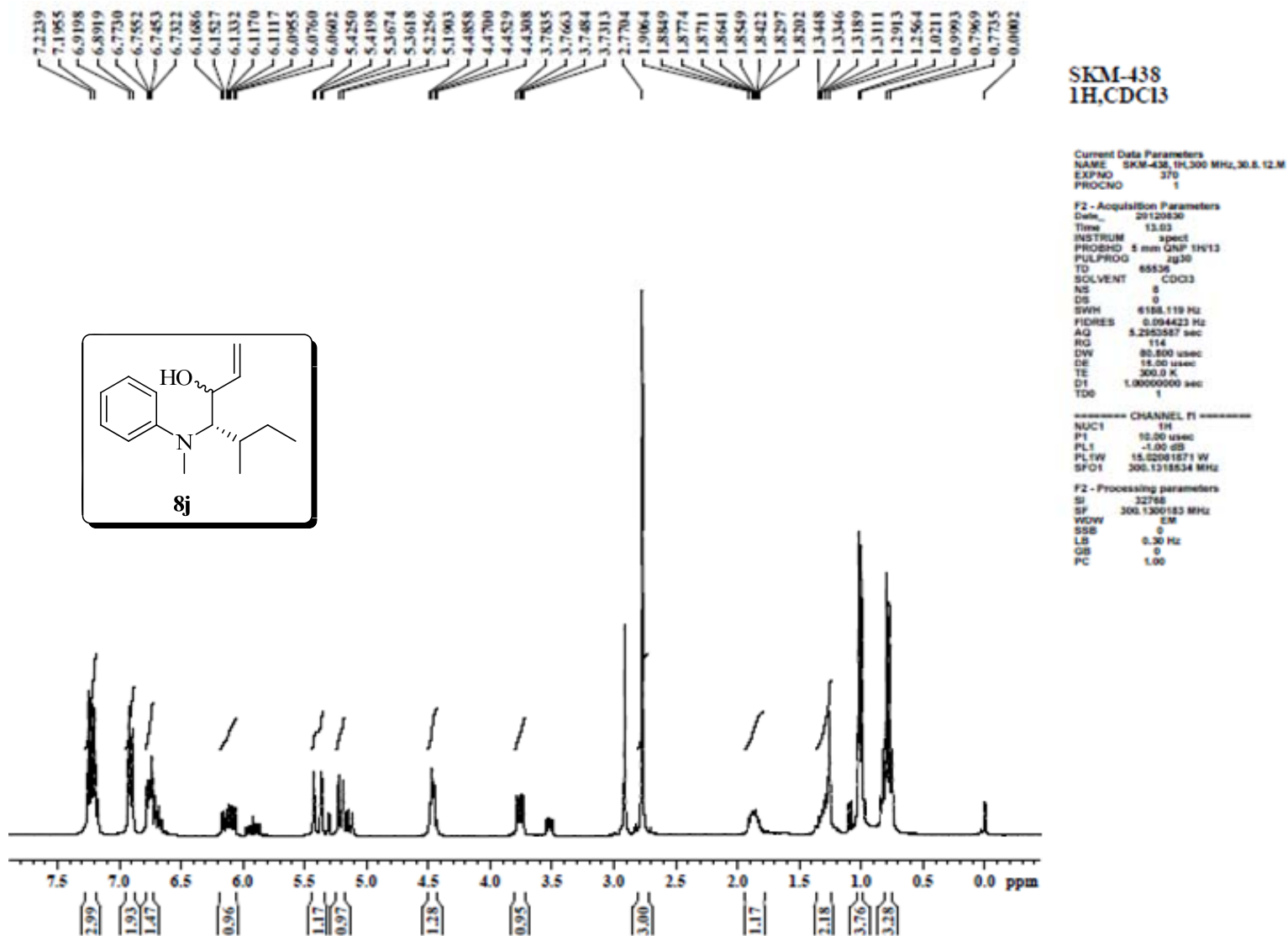


Figure 43: ¹H -NMR Spectrum of **8j**.

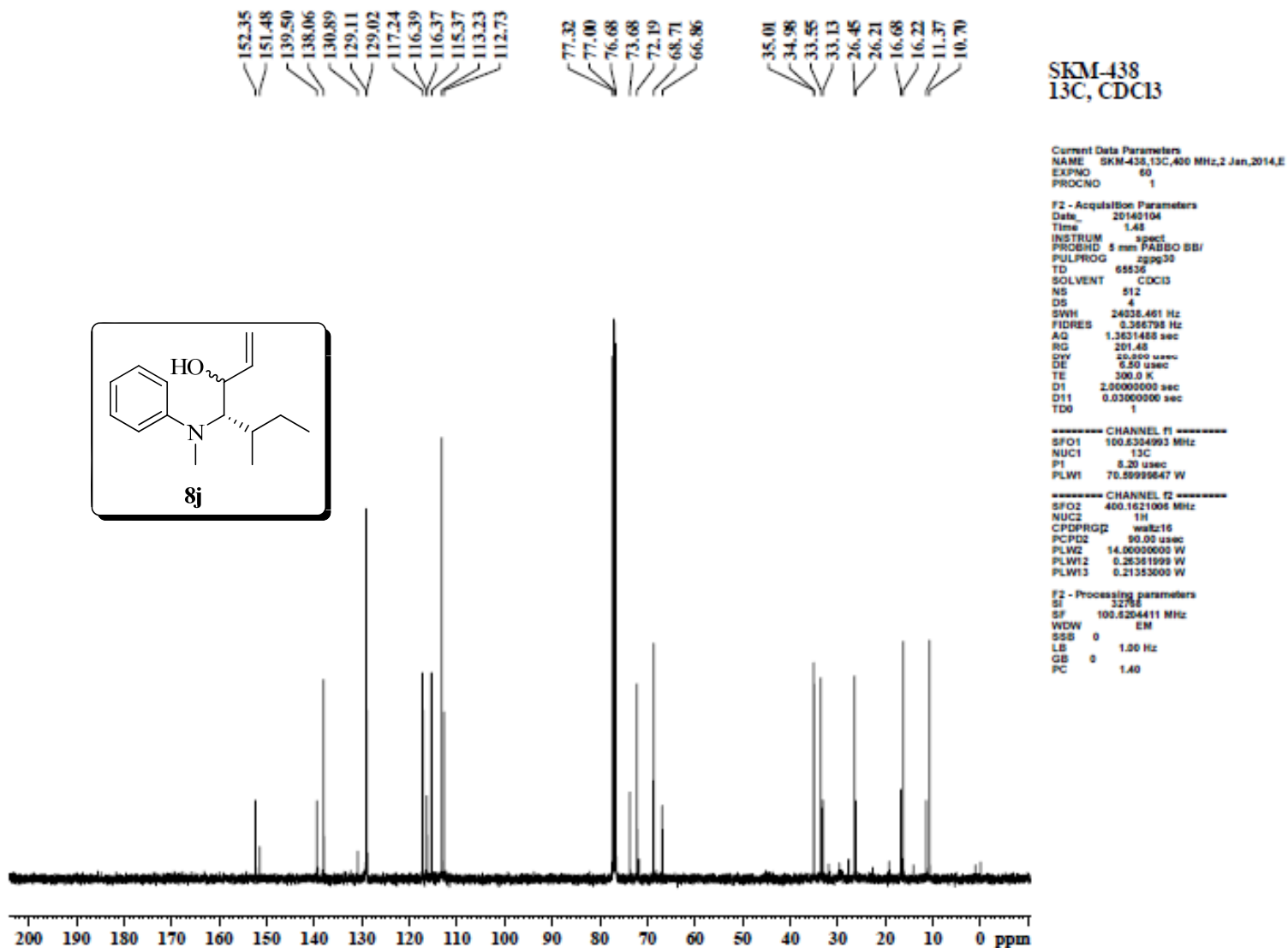


Figure 44: ^{13}C -NMR Spectrum of **8j**.

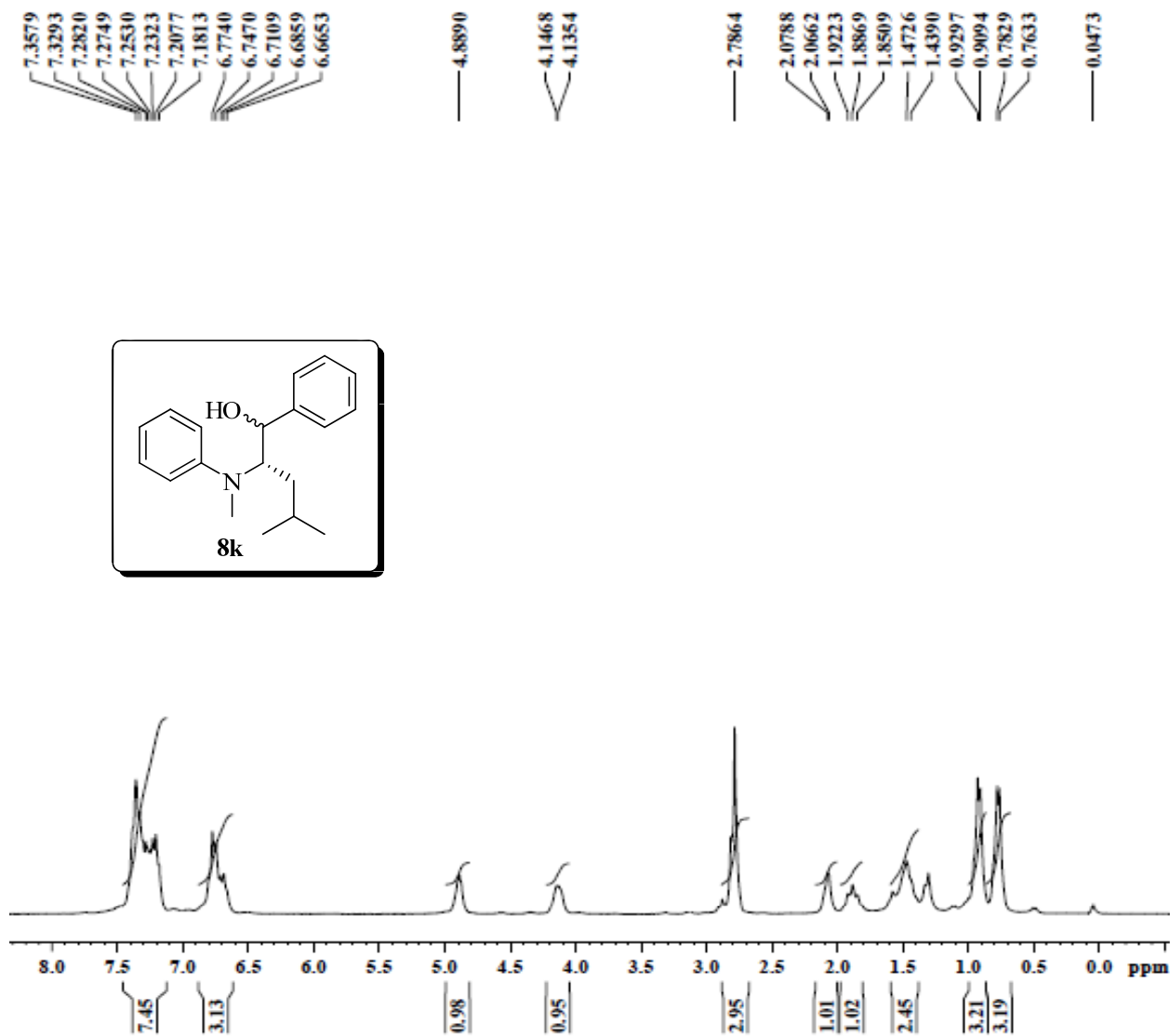
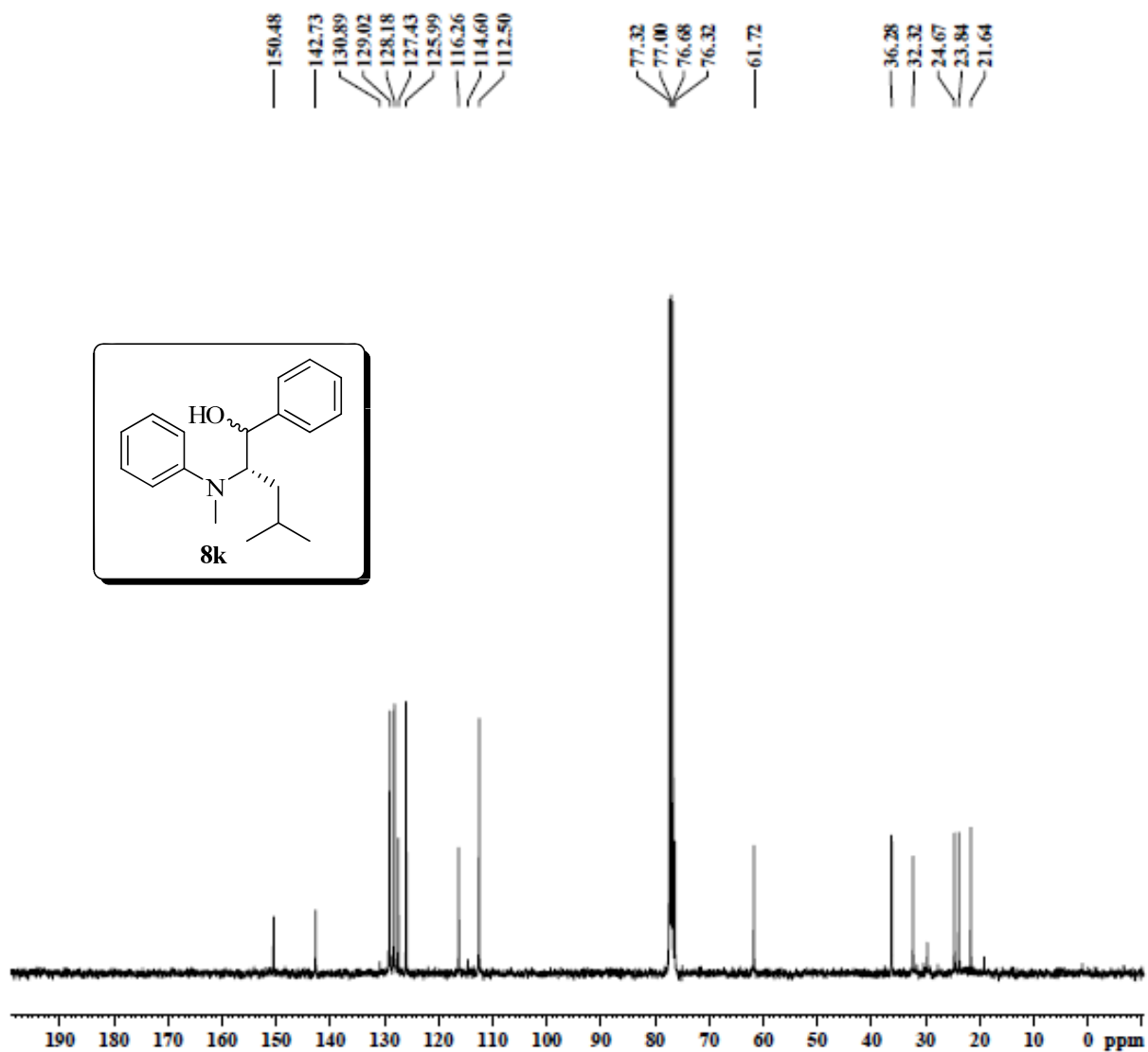


Figure 45: ^1H -NMR Spectrum of **8k**.



SKM-386
13C, CDCl3

Current Data Parameters
 NAME SKM-386_13C_400 MHz_6 Jun,2014_M
 EXPNO 36
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20140907
 Time 0.09
 INSTRUM spect
 PROCNO 6 run FASBO DV
 PULPROG zgpg30
 TD 66636
 SOLVENT CDCl3
 NS 612
 DS 0
 SWH 24036.461 Hz
 FIDRES 0.366736 Hz
 AQ 1.3631488 sec
 RG 201.68
 DW 20.800 usec
 DE 6.50 usec
 TE 300.2 K
 D1 2.0000000 sec
 D11 0.03000000 sec
 TD0 1

----- CHANNEL f1 -----
 SFO1 100.6204993 MHz
 NUC1 13C
 P1 8.20 usec
 PLW1 70.0000000 W

----- CHANNEL f2 -----
 SFO2 400.1521500 MHz
 NUC2 1H
 CPOPRG2 waltz16
 PCPD2 90.00 usec
 PLW2 14.0000000 W
 PLW12 0.26391899 W
 PLW13 0.21353000 W

F2 - Processing parameters
 SI 32768
 SF 100.6204414 MHz
 WDW EM
 SSB 0
 LB 3.00 Hz
 GB 0
 PC 1.60

Figure 46: ¹³C -NMR Spectrum of **8k**.

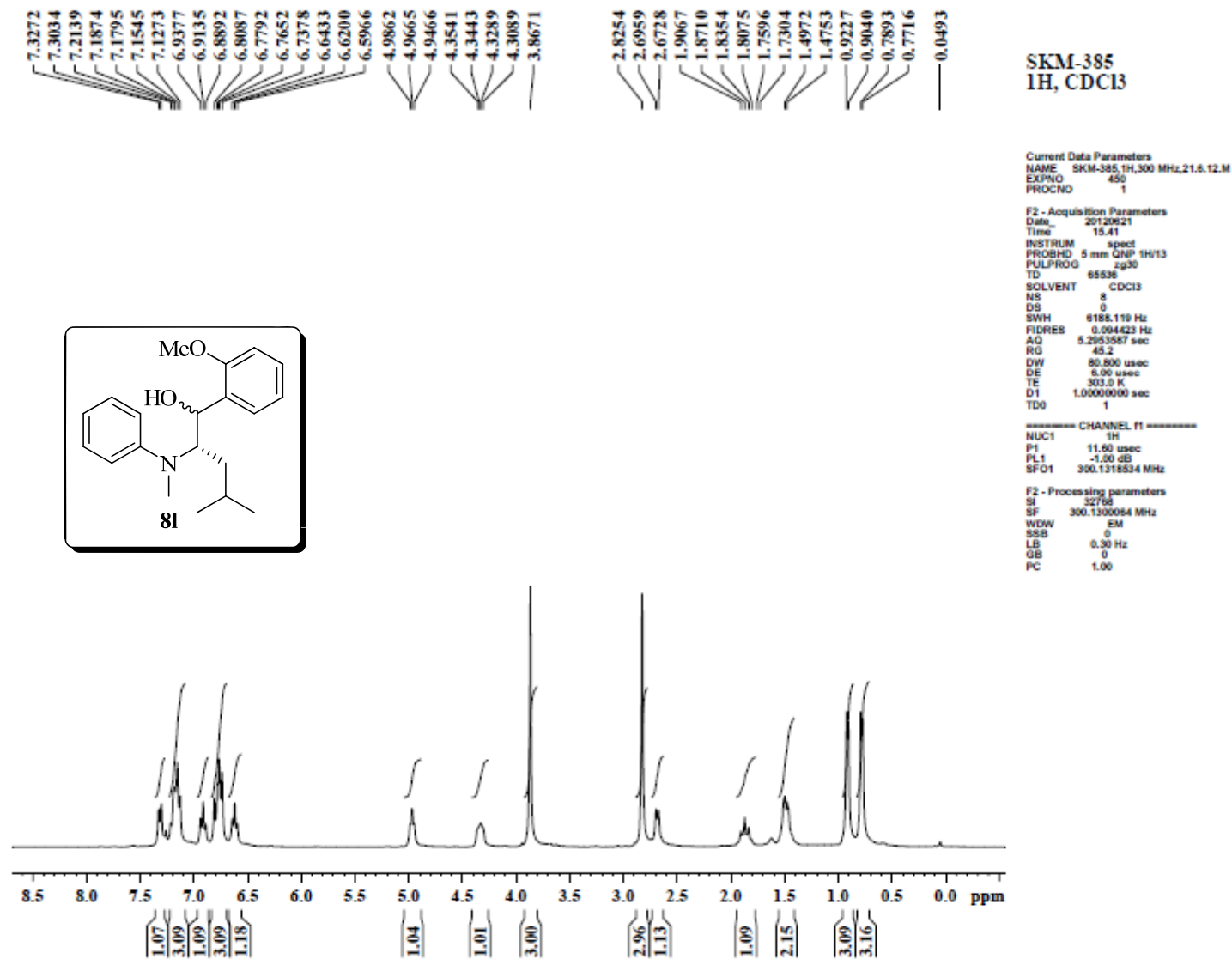
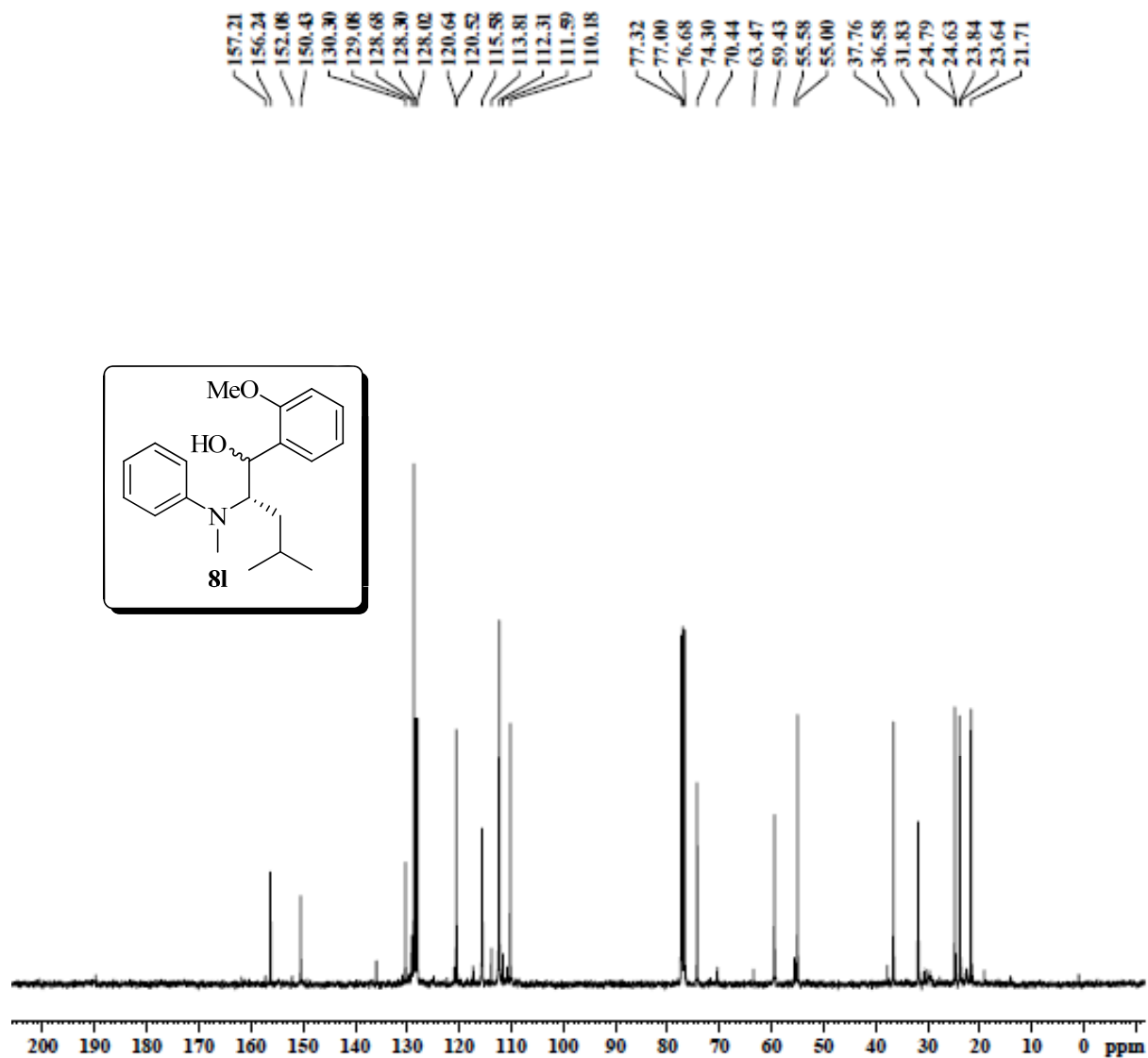


Figure 47: ¹H -NMR Spectrum of **8l**.



SKM-385
13C, CDC13

Current Data Parameters
NAME SKM-385,13C,400 MHz,2 Jan,2014,M
EXPNO 50
PROCNO 1

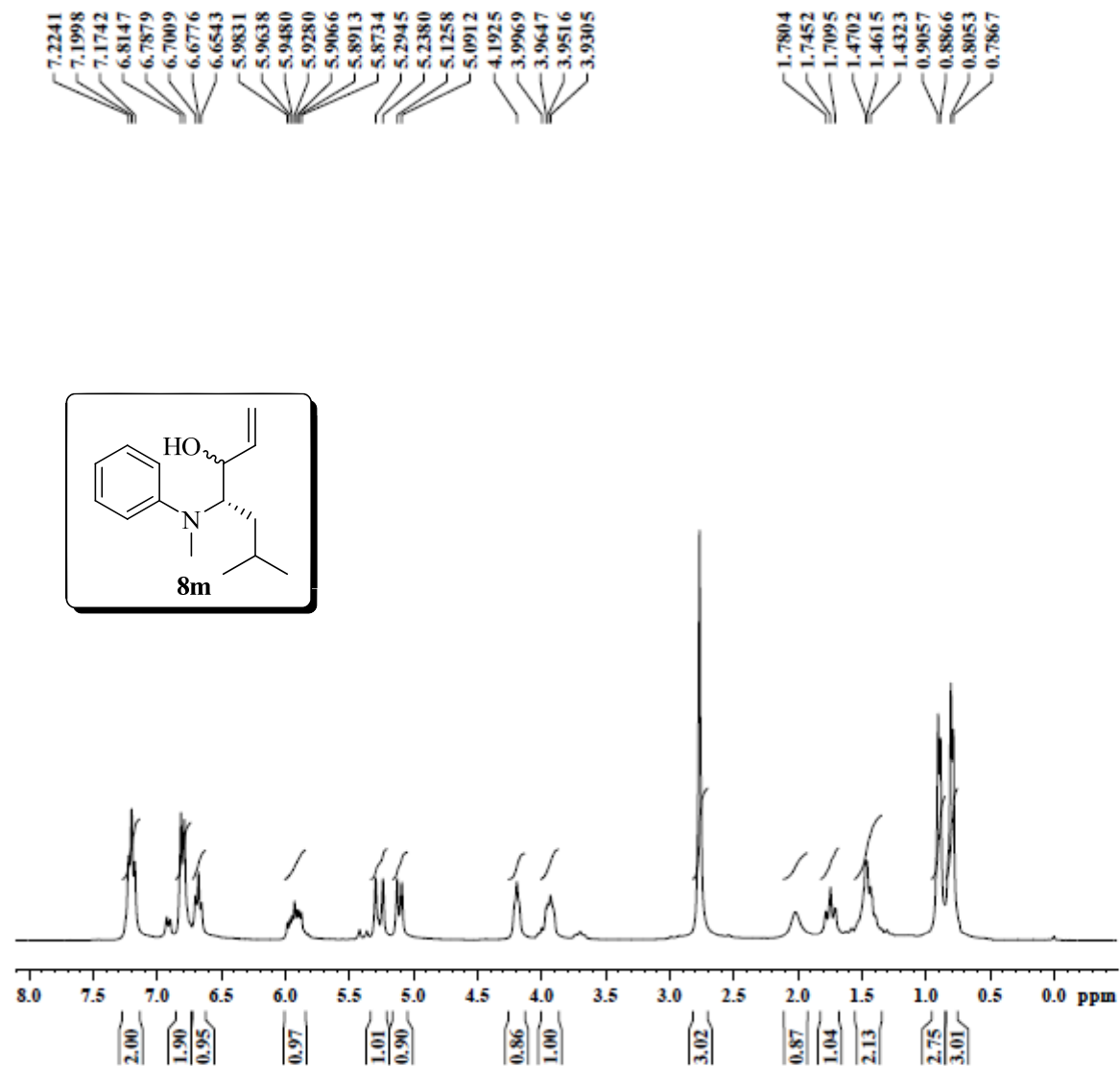
F2 - Acquisition Parameters
Date_ 20140103
Time 5.07
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDC13
NS 512
DS 0
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631488 sec
RG 201.48
DW 20.800 usec
DE 6.50 usec
TE 300.0 K
D1 2.00000000 sec
D11 0.03000000 sec
TDO 1

----- CHANNEL f1 -----
SFO1 100.6204993 MHz
NUC1 13C
P1 8.20 usec
PLW1 70.59999647 W

----- CHANNEL f2 -----
SFO2 400.1621006 MHz
NUC2 1H
CPDPRG2 waltz16
PCPD2 80.00 usec
PLW2 14.00000000 W
PLW12 0.26361999 W
PLW13 0.21353000 W

F2 - Processing parameters
SI 32768
SF 100.6204488 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
PC 1.40

Figure 48: ^{13}C -NMR Spectrum of **8l**.



SKM-412
1H, CDCl3

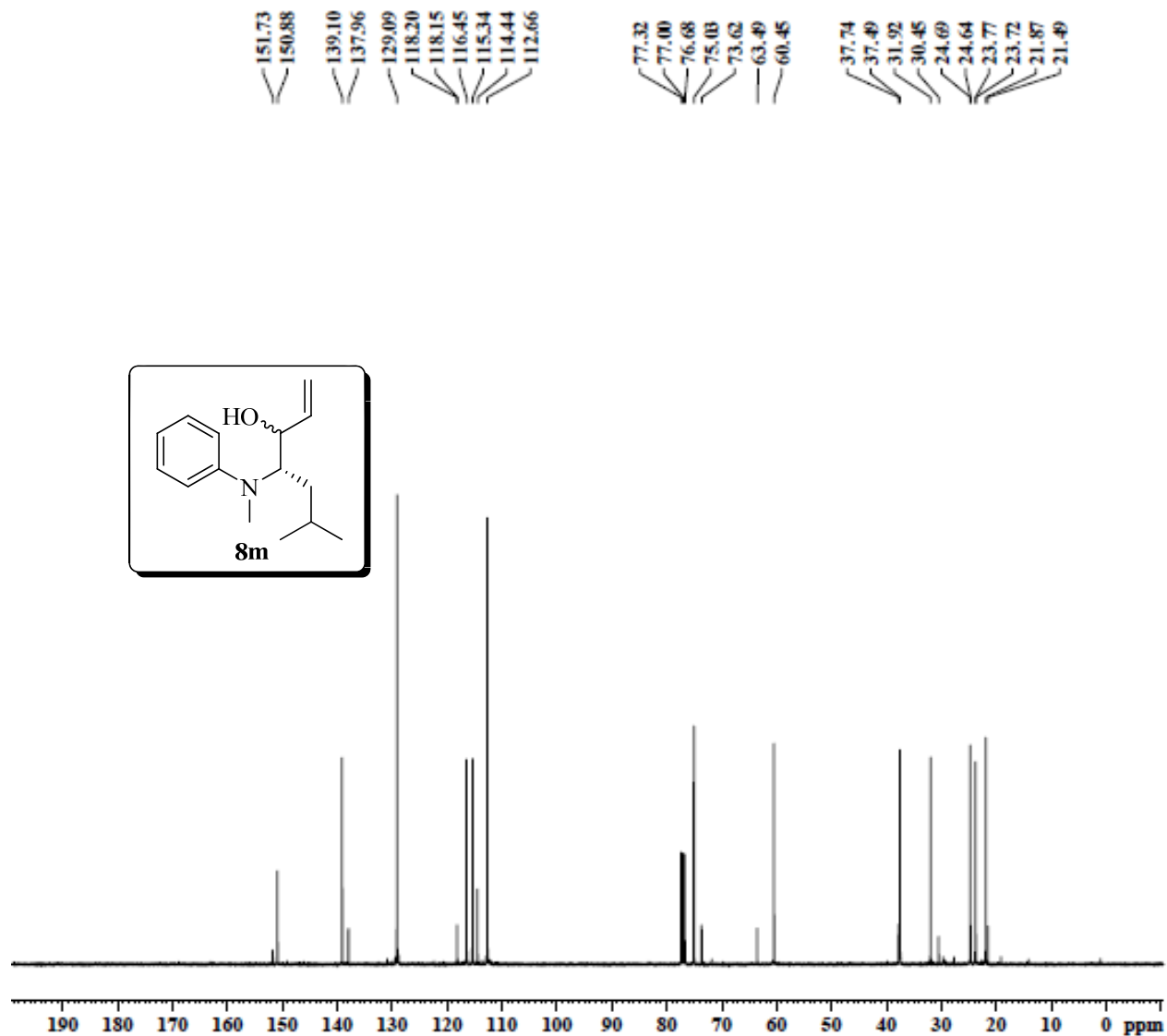
Current Data Parameters
NAME SKM-412, 1H, 300 MHz, 16.7.12.E
EXPNO 340
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120716
Time 17.38
INSTRUM spect
PROBHD 5 mm QNP 1H13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 7211.539 Hz
FIDRES 0.110039 Hz
AQ 4.5438795 sec
RG 40.3
DW 89.333 usec
DE 6.00 usec
TE 303.0 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
PT 11.80 usec
PL1 -1.00 dB
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300209 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Figure 49: ^1H -NMR Spectrum of **8m**.



SKM-412
13C, CDCl3

Current Data Parameters
NAME SKM-412, 13C, 400 MHz, 2 Jan, 2014.E
EXPNO 50
PROCNO 1

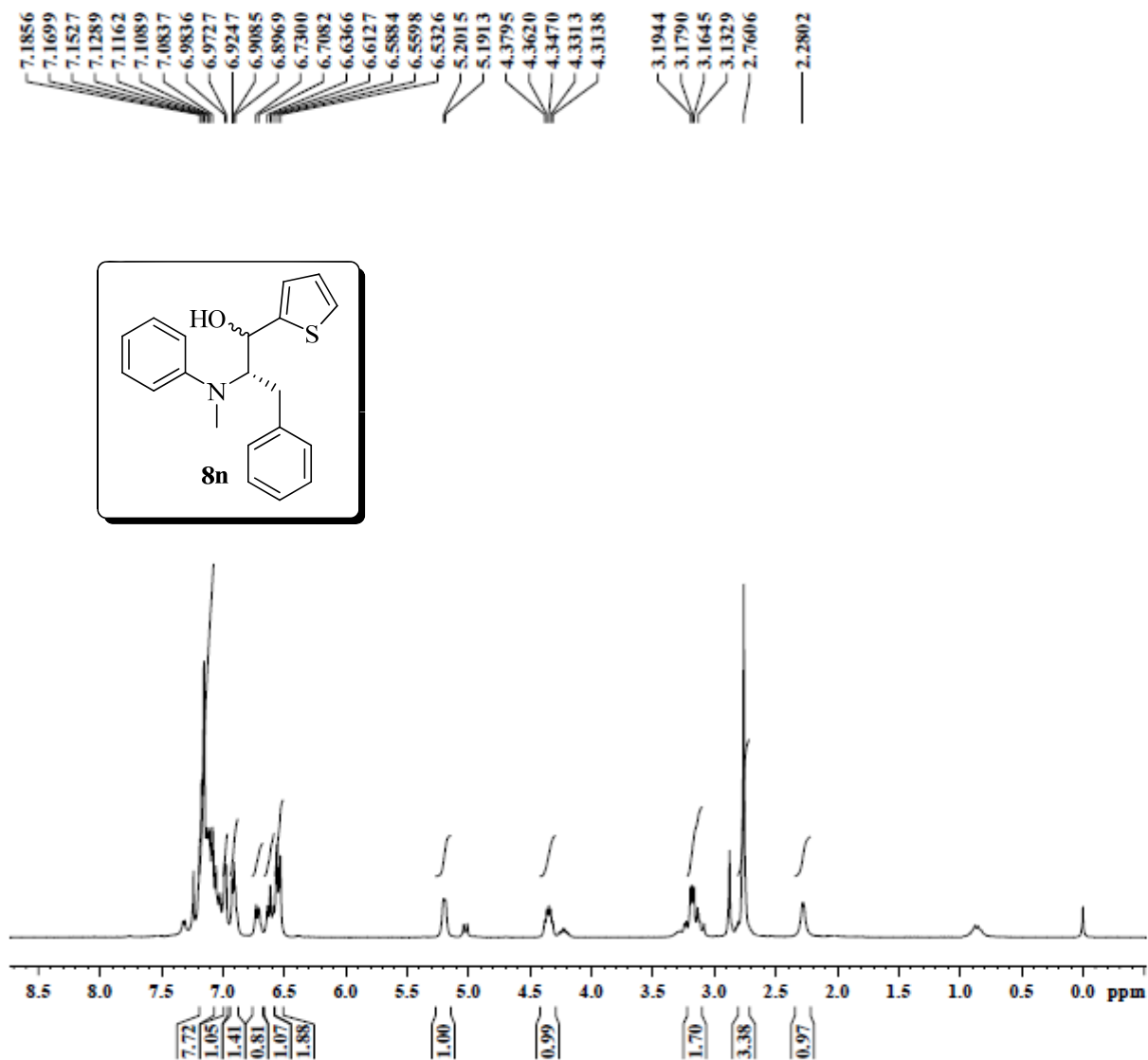
F2 - Acquisition Parameters
Date_ 20140104
Time 1.14
INSTRUM spect
PROBHD 5 mm F4BBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 24038.481 Hz
FIDRES 0.366738 Hz
AQ 1.3631488 sec
RG 201.48
DW 20.800 usec
DE 6.50 usec
TE 300.2 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1

----- CHANNEL f1 -----
SFO1 100.6204463 MHz
NUC1 13C
P1 8.20 usec
PLW1 70.59999647 W

----- CHANNEL f2 -----
SFO2 400.1821006 MHz
NUC2 1H
PCPD2 waltz16
PCPD2 90.00 usec
PLW2 14.00000000 W
PLW12 0.26361999 W
PLW13 0.21353000 W

F2 - Processing parameters
SI 32768
SF 100.6204463 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Figure 50: ^{13}C -NMR Spectrum of **8m**.



SKM-334
1H, CDCl₃

Current Data Parameters
NAME SKM-334, 1H, 300 MHz, 28.3.12.E
EXPNO 320
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120326
Time 20.08
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl₃
NS 8
DS 0
SWH 6182.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 144
DW 80.800 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 11.60 usec
PL1 -1.50 dB
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1309131 MHz
VEW EM
SBB 0
LB 0.30 Hz
GB 0
PC 1.00

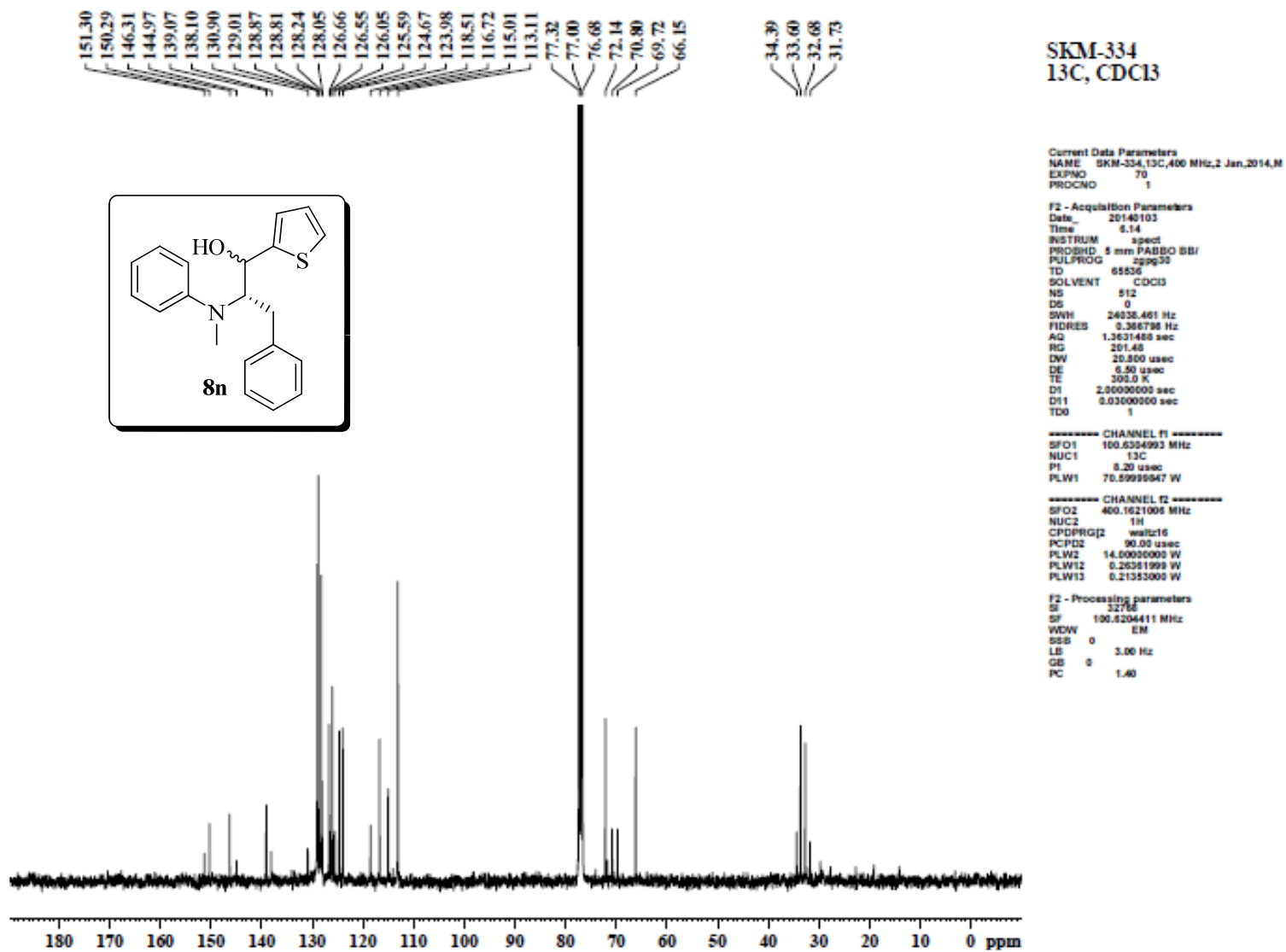
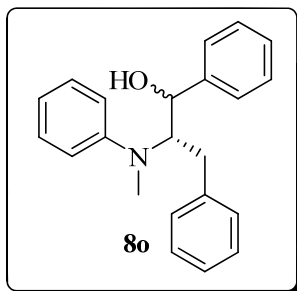
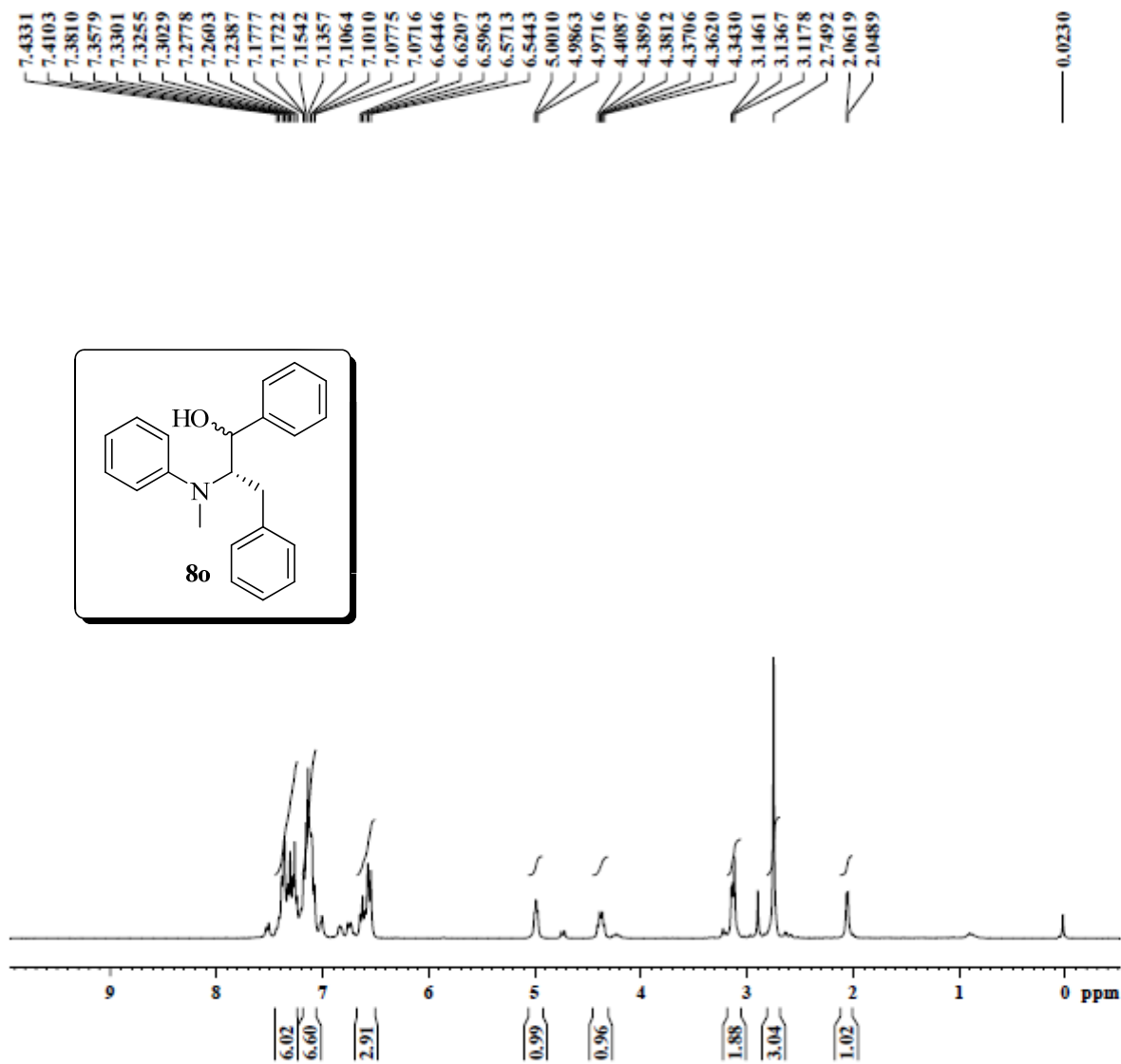


Figure 52: ^{13}C -NMR Spectrum of **8n**.



SKM-352A
1H, CDC13

Current Data Parameters
 NAME SKM-352A_1H_300 MHz_16.4.12.M
 EXPNO 420
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20120416
 Time 14.03
 INSTRUM spect
 PROBHD 5 mm QNP 1H/13
 PULPROG zg30
 TD 65536
 SOLVENT CDC13
 NS 8
 DS 0
 SWH 6185.119 Hz
 FIDRES 0.094423 Hz
 AQ 5.293587 sec
 RG 151
 DW 80.800 usec
 DE 6.00 usec
 TE 298.2 K
 D1 1.0000000 sec
 TDO 1

===== CHANNEL f1 =====
 NUC1 1H
 P1 11.60 usec
 PL1 -1.00 dB
 SFO1 300.1318534 MHz

F2 - Processing parameters
 SI 32768
 SF 300.1300087 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

Figure 53: ¹H -NMR Spectrum of **8o**.

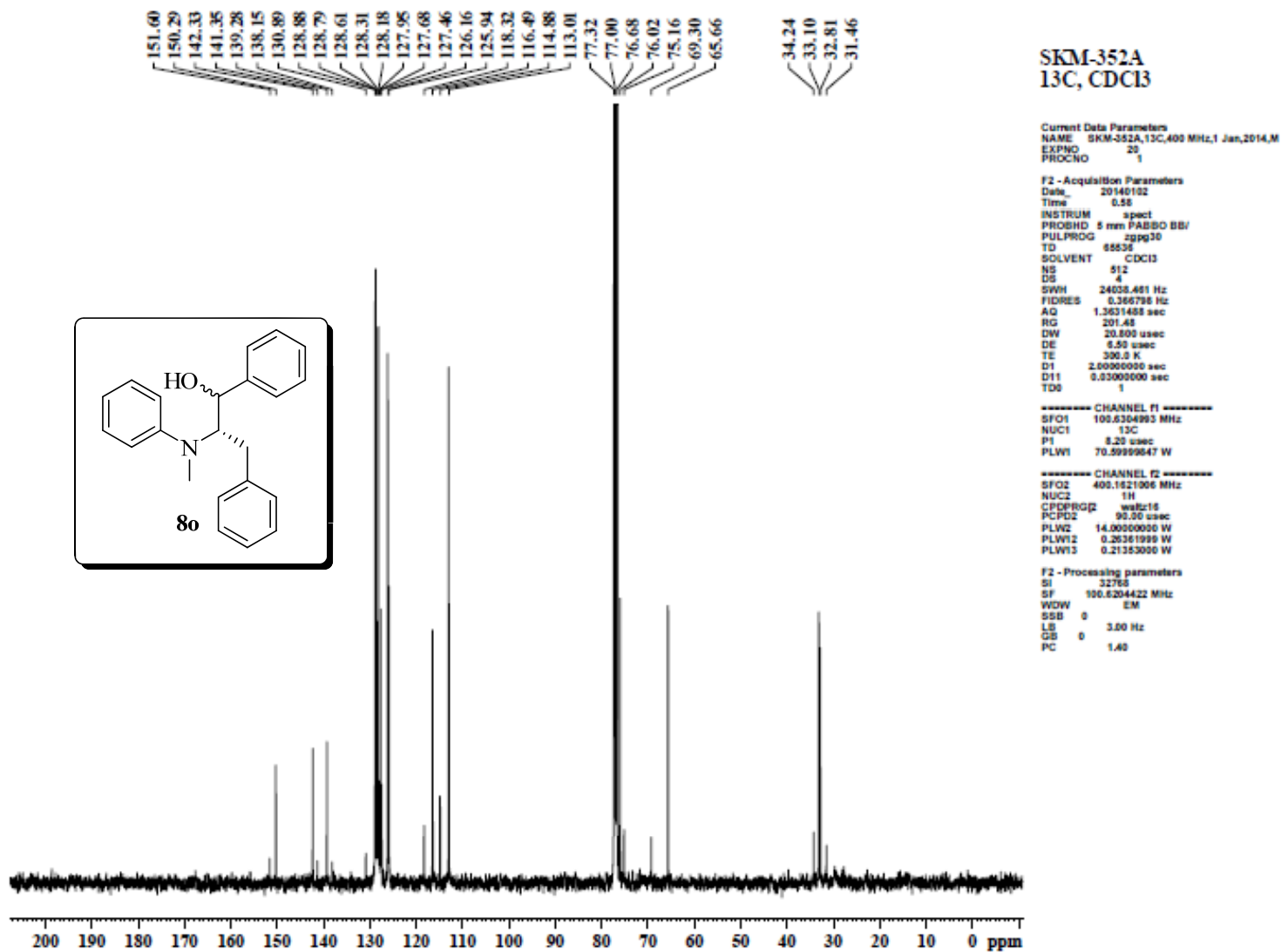


Figure 54: ¹³C -NMR Spectrum of **8o**.

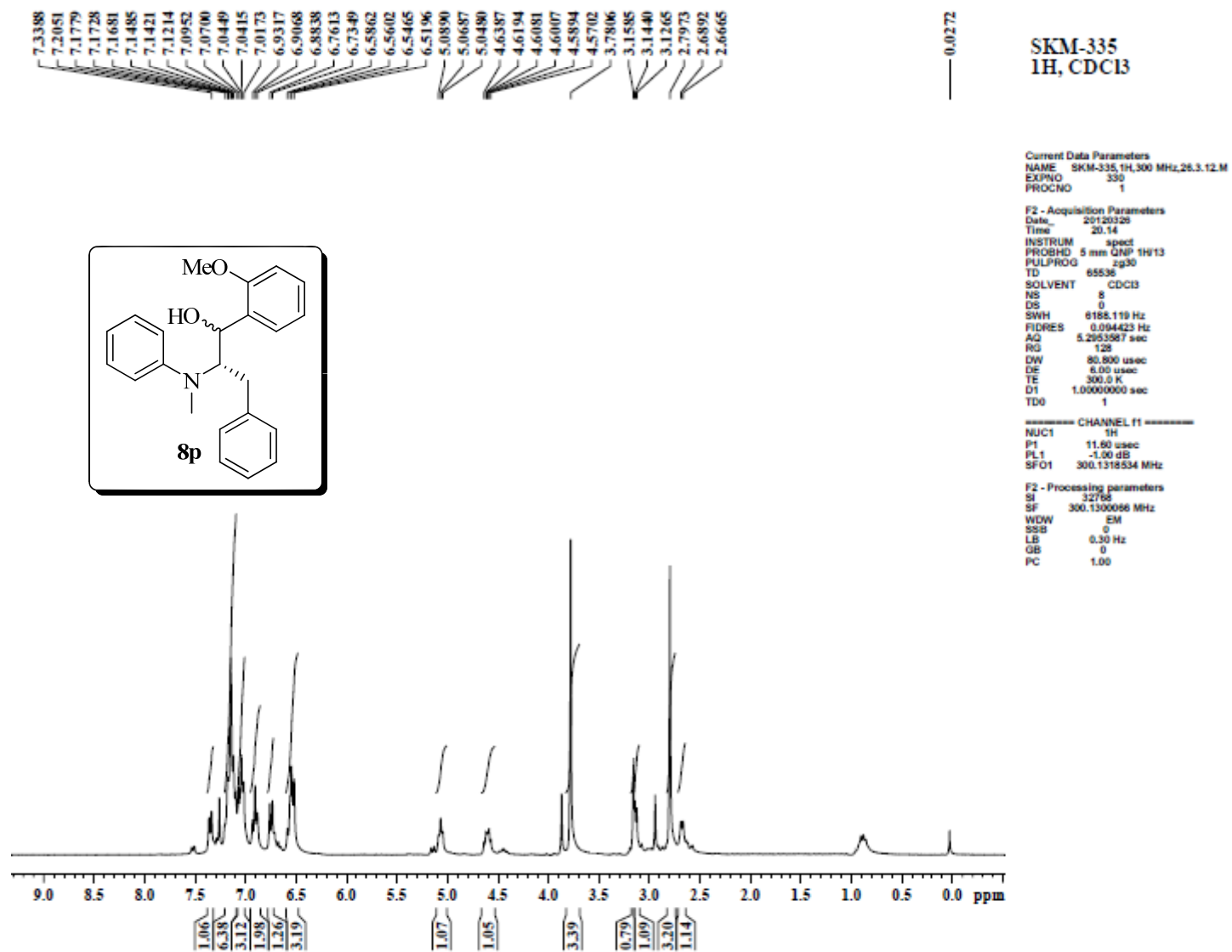


Figure 55: ^1H -NMR Spectrum of **8p**.

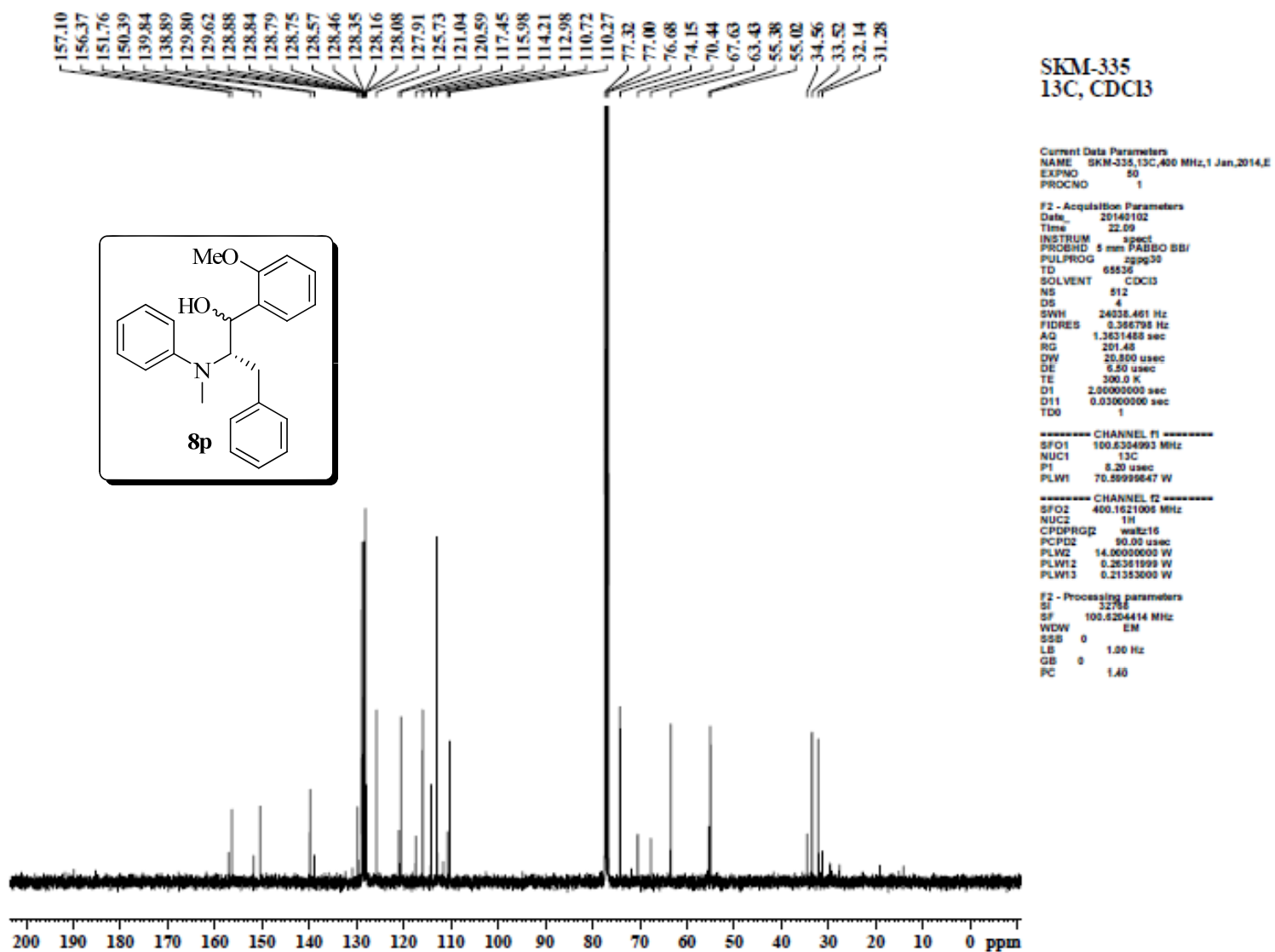


Figure 56: ^{13}C -NMR Spectrum of **8p**.

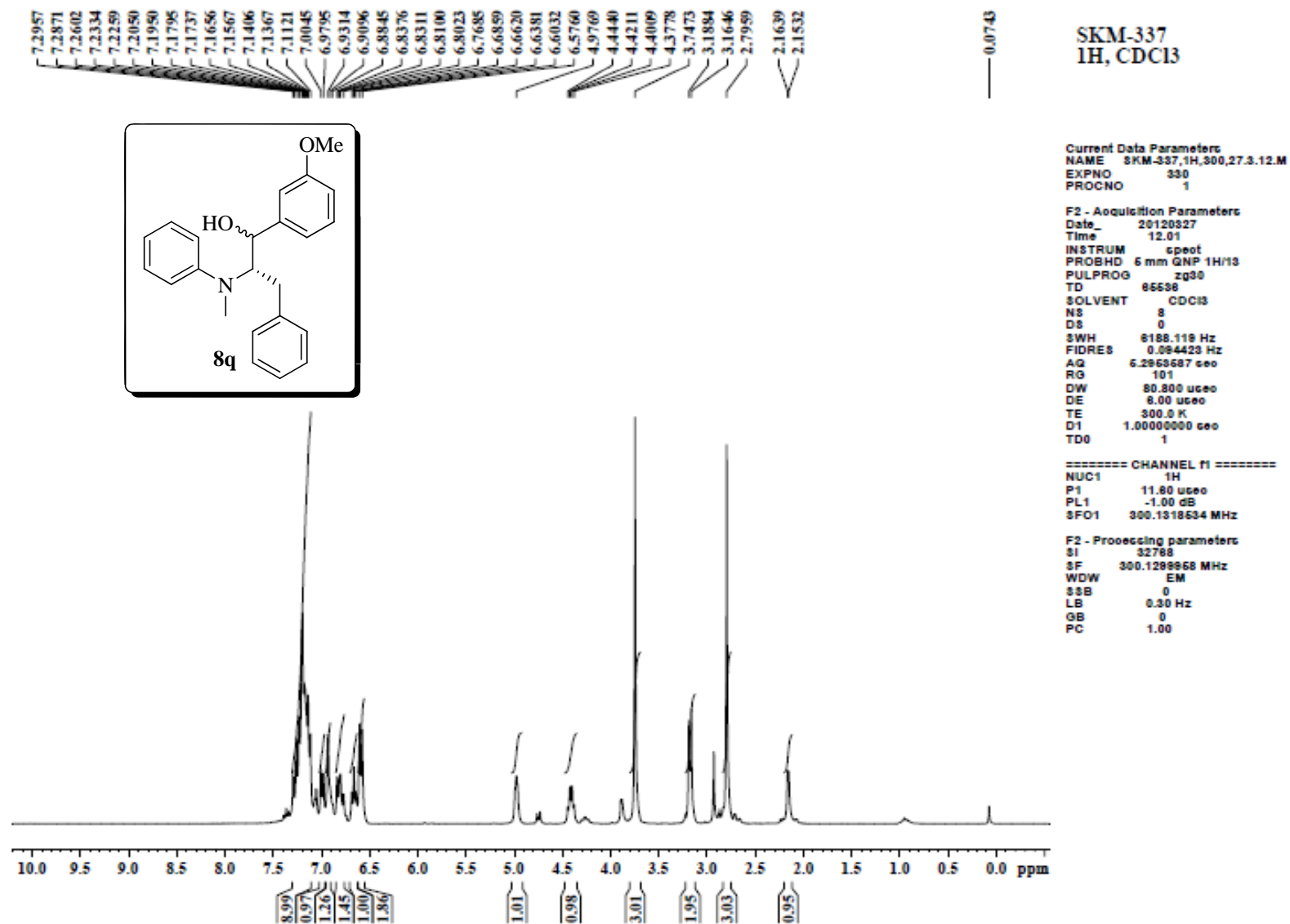


Figure 57: ¹H -NMR Spectrum of 8q.

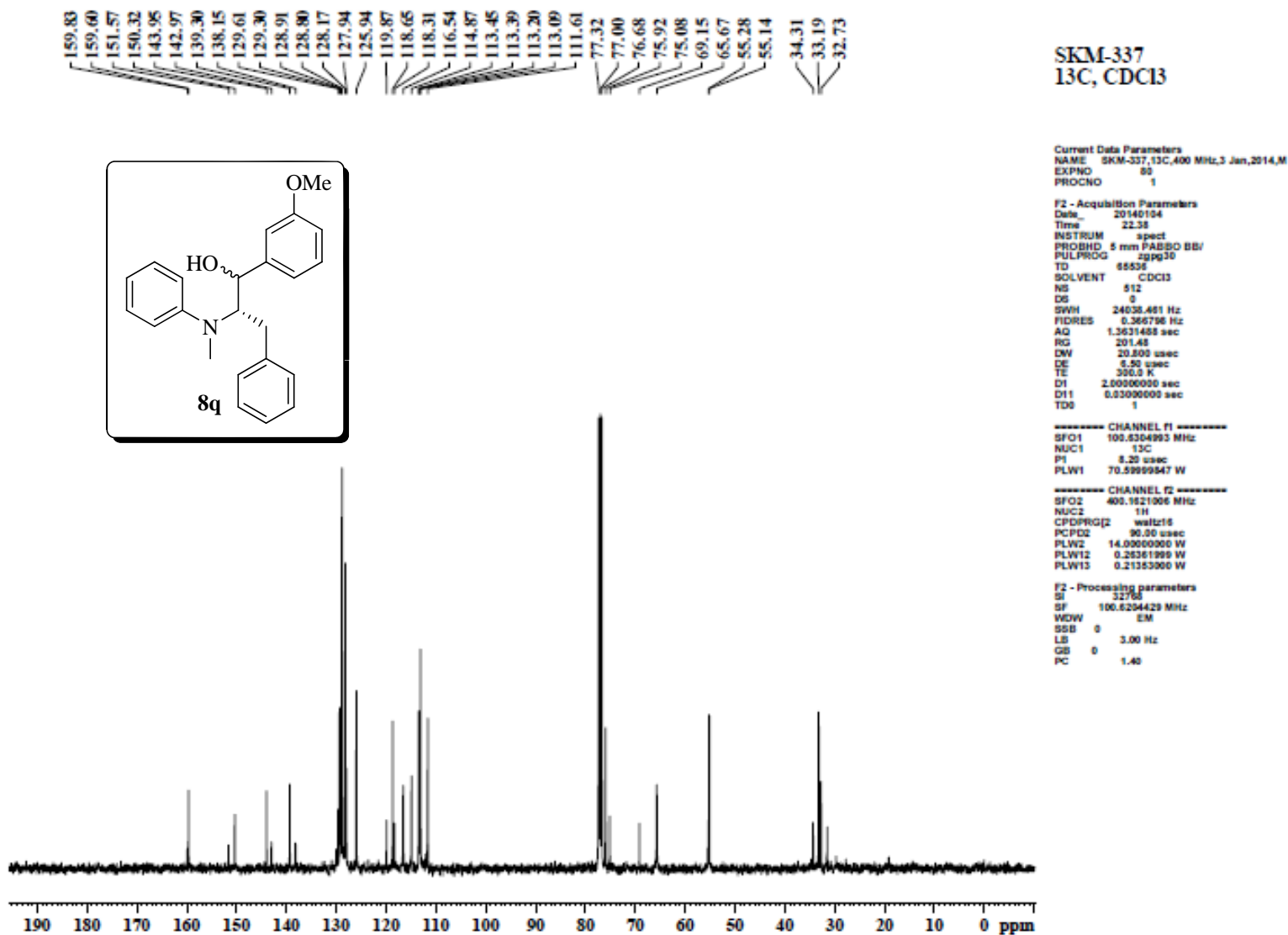


Figure 58: ¹³C-NMR Spectrum of **8q**.

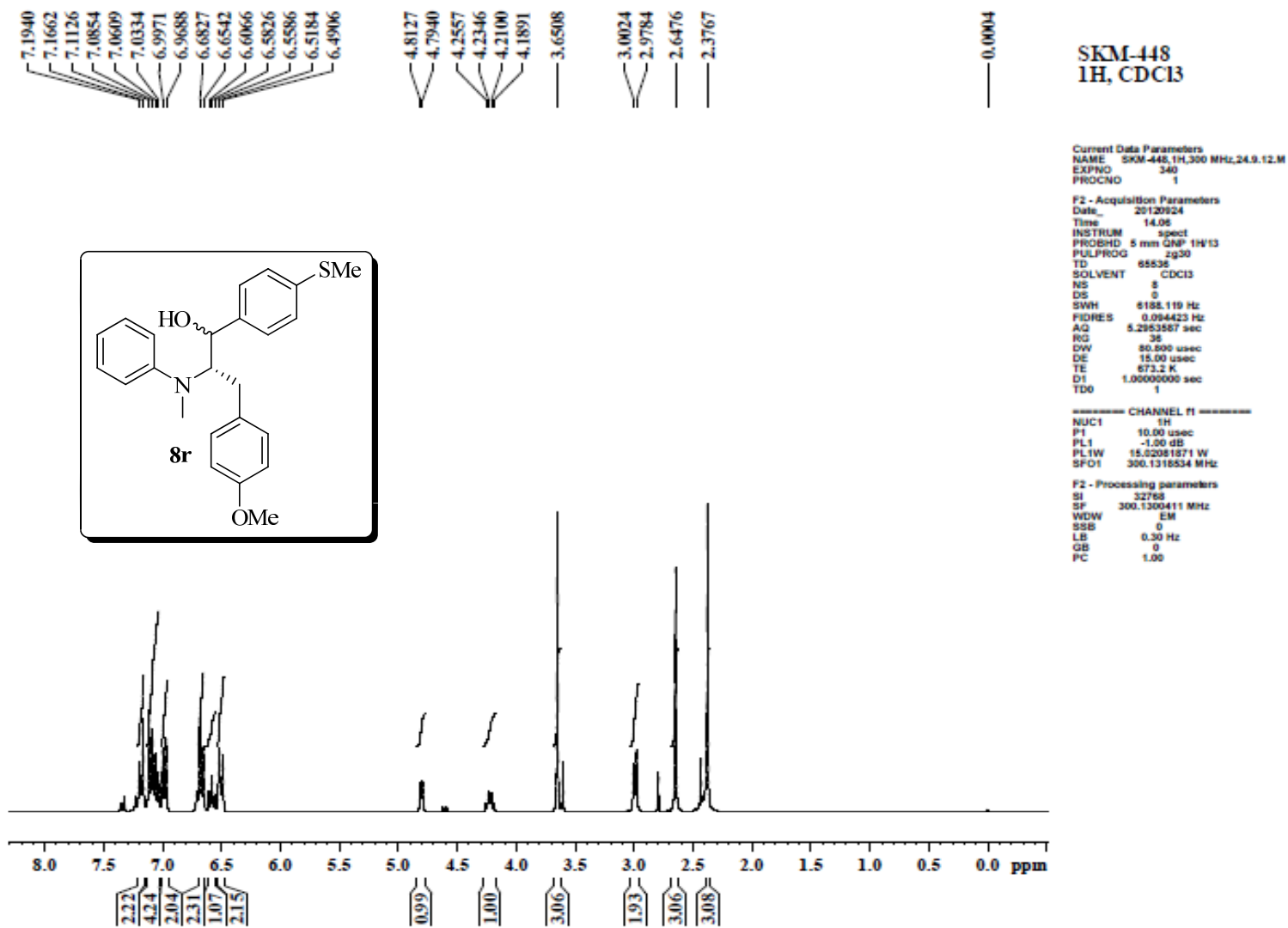


Figure 59: ^1H -NMR Spectrum of **8r**.

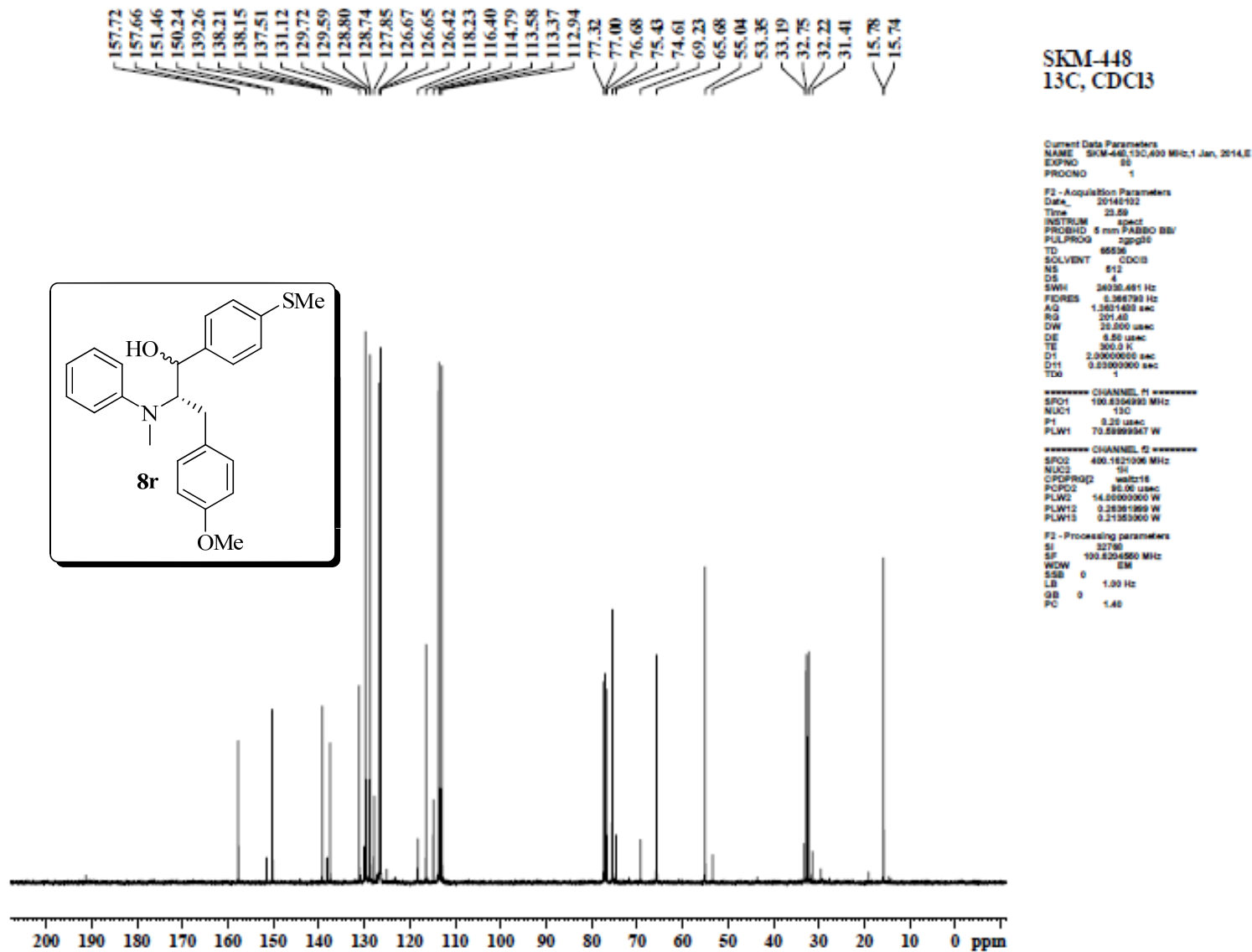


Figure 60: ^{13}C -NMR Spectrum of **8r**.

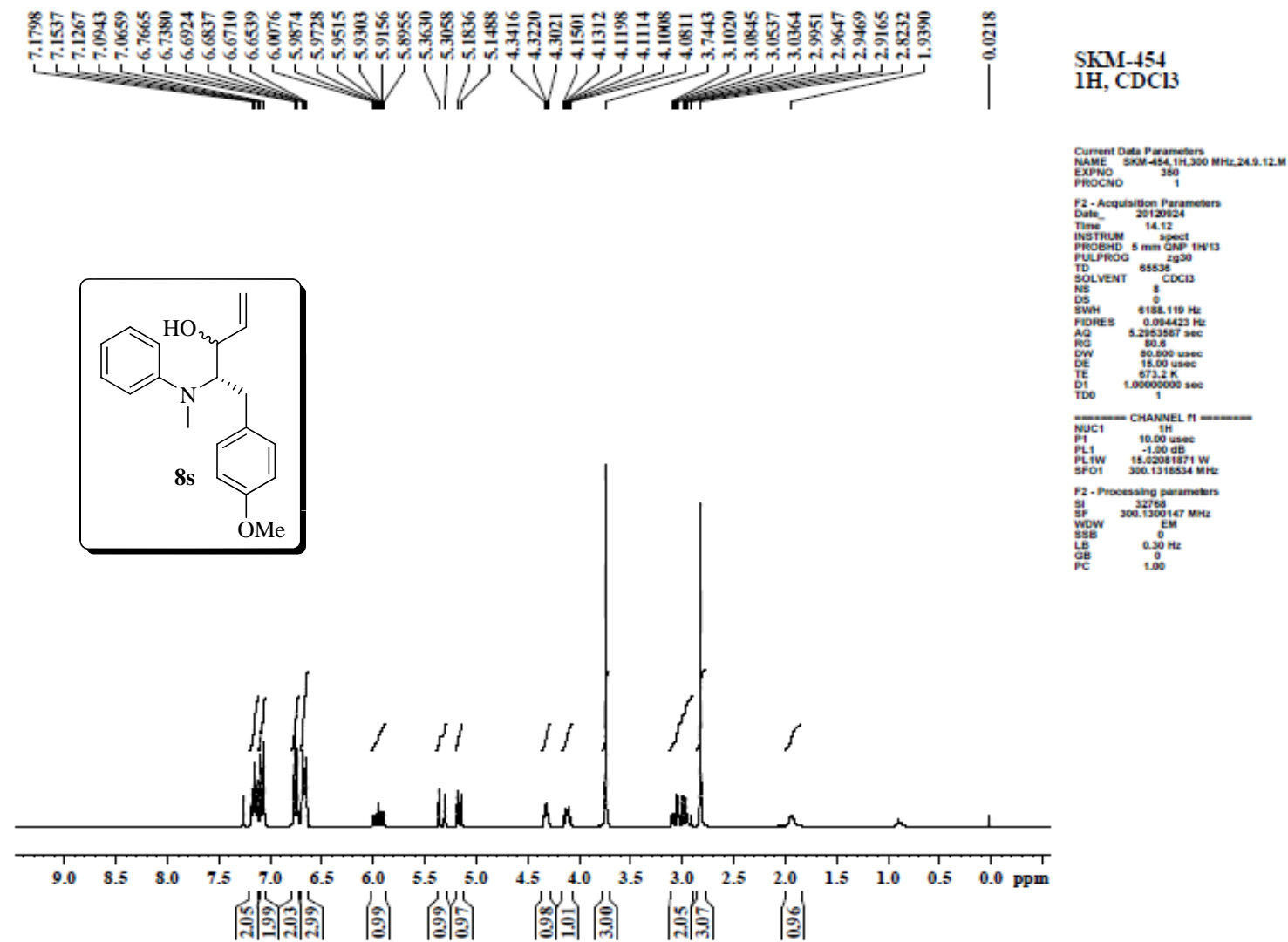


Figure 61: ¹H -NMR Spectrum of **8s**.

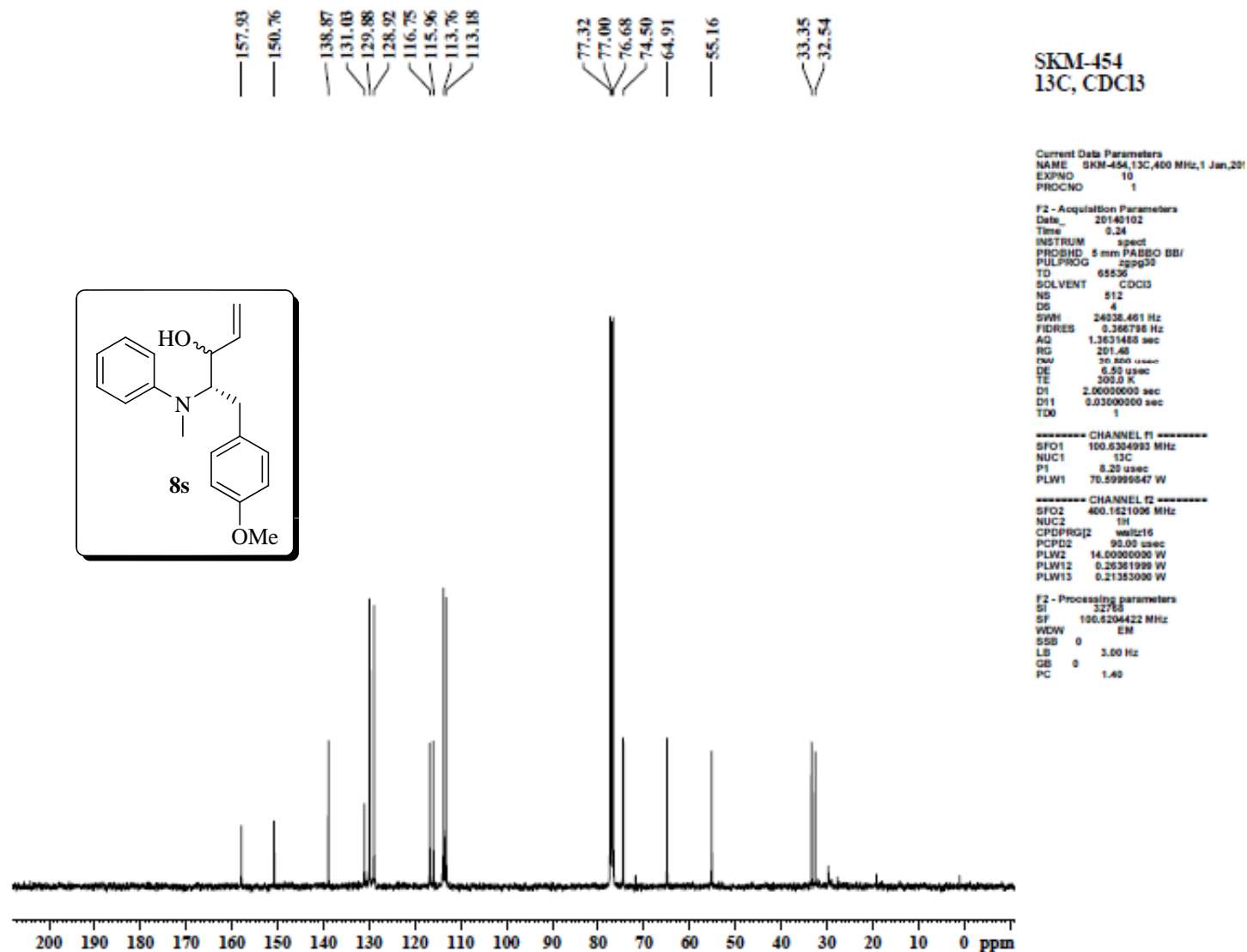


Figure 62: ^{13}C -NMR Spectrum of **8s**.

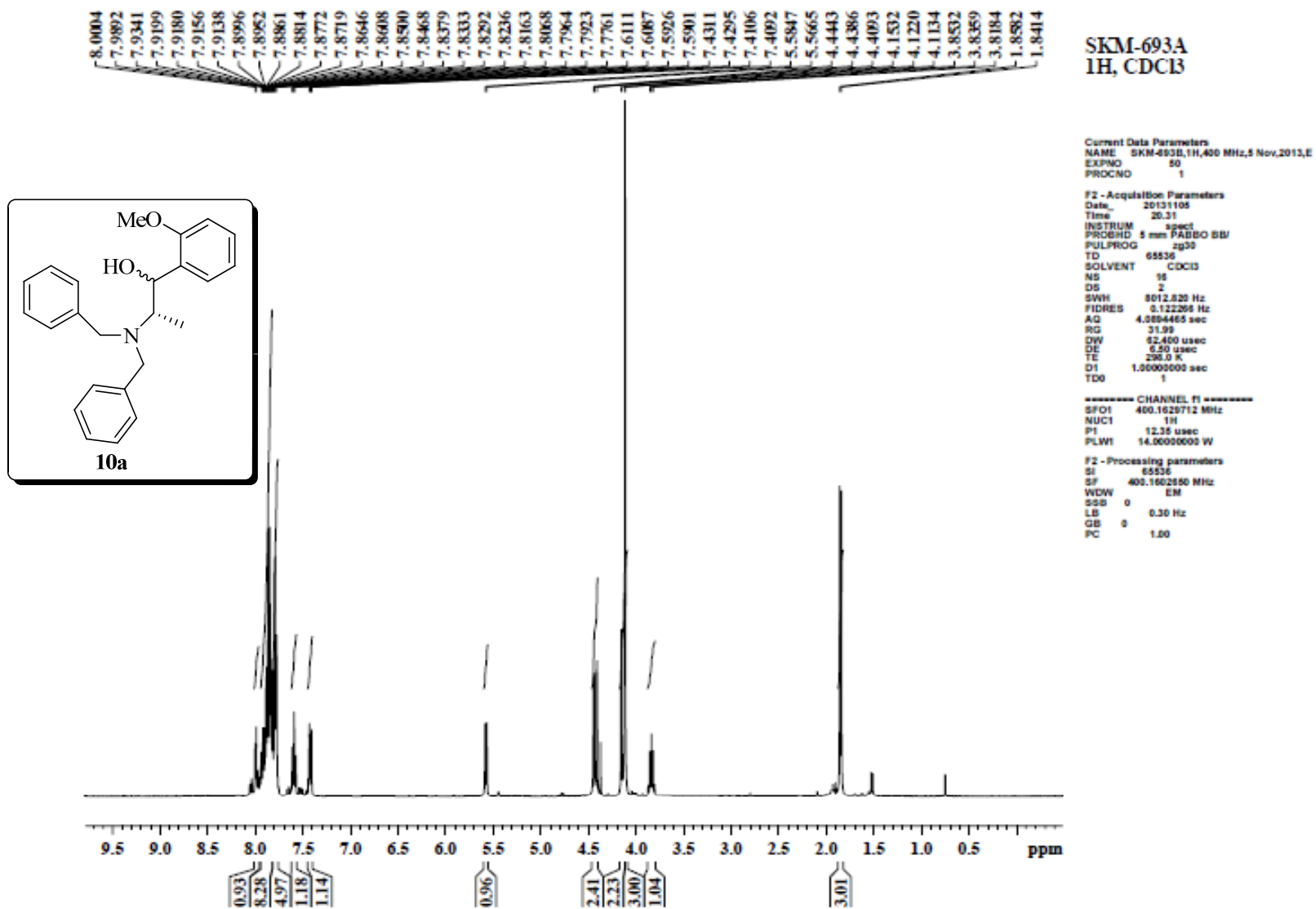


Figure 63: ^1H -NMR Spectrum of **10a**.

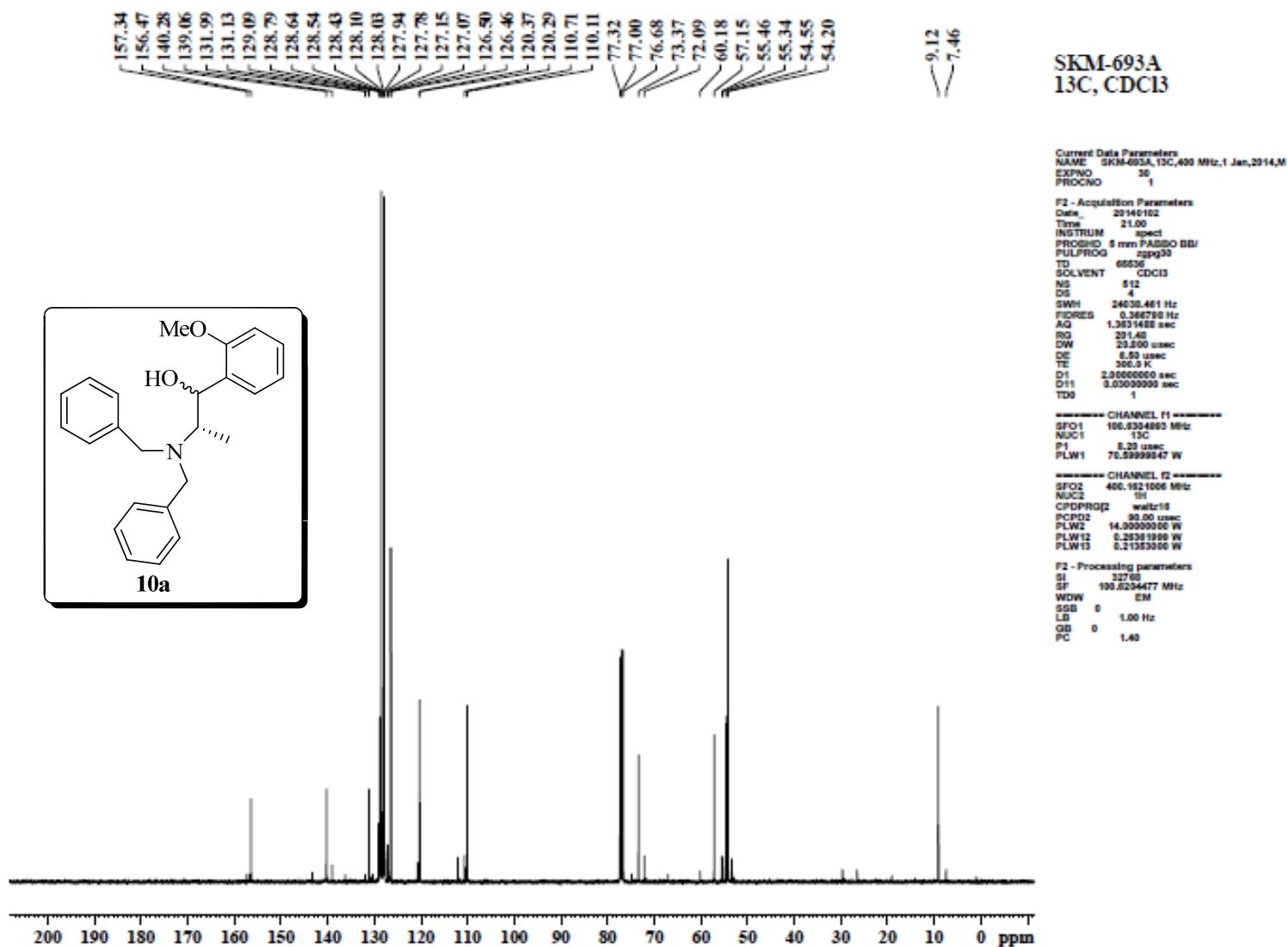


Figure 64: ¹³C -NMR Spectrum of **10a**.

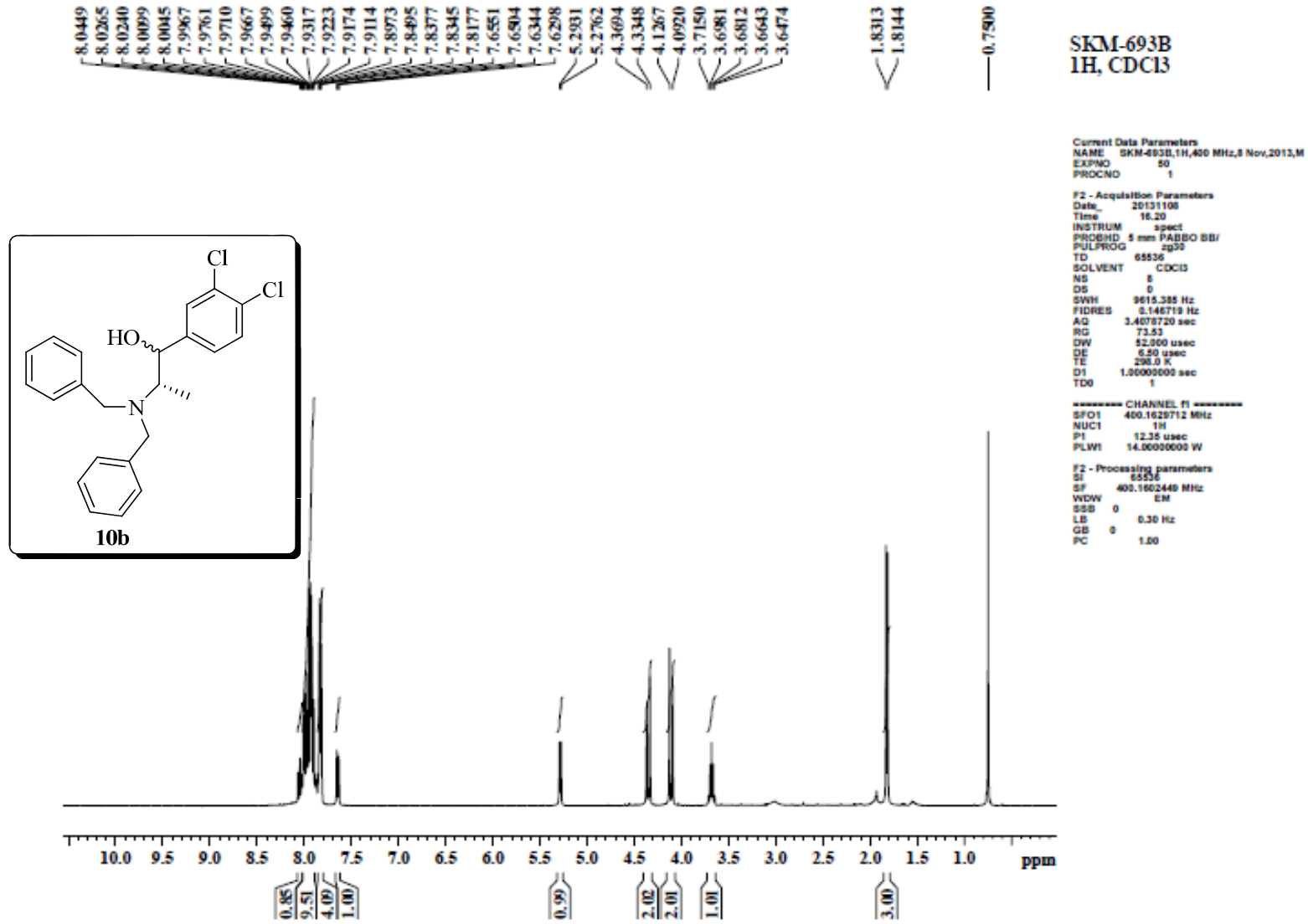


Figure 65: ¹H -NMR Spectrum of 10b.

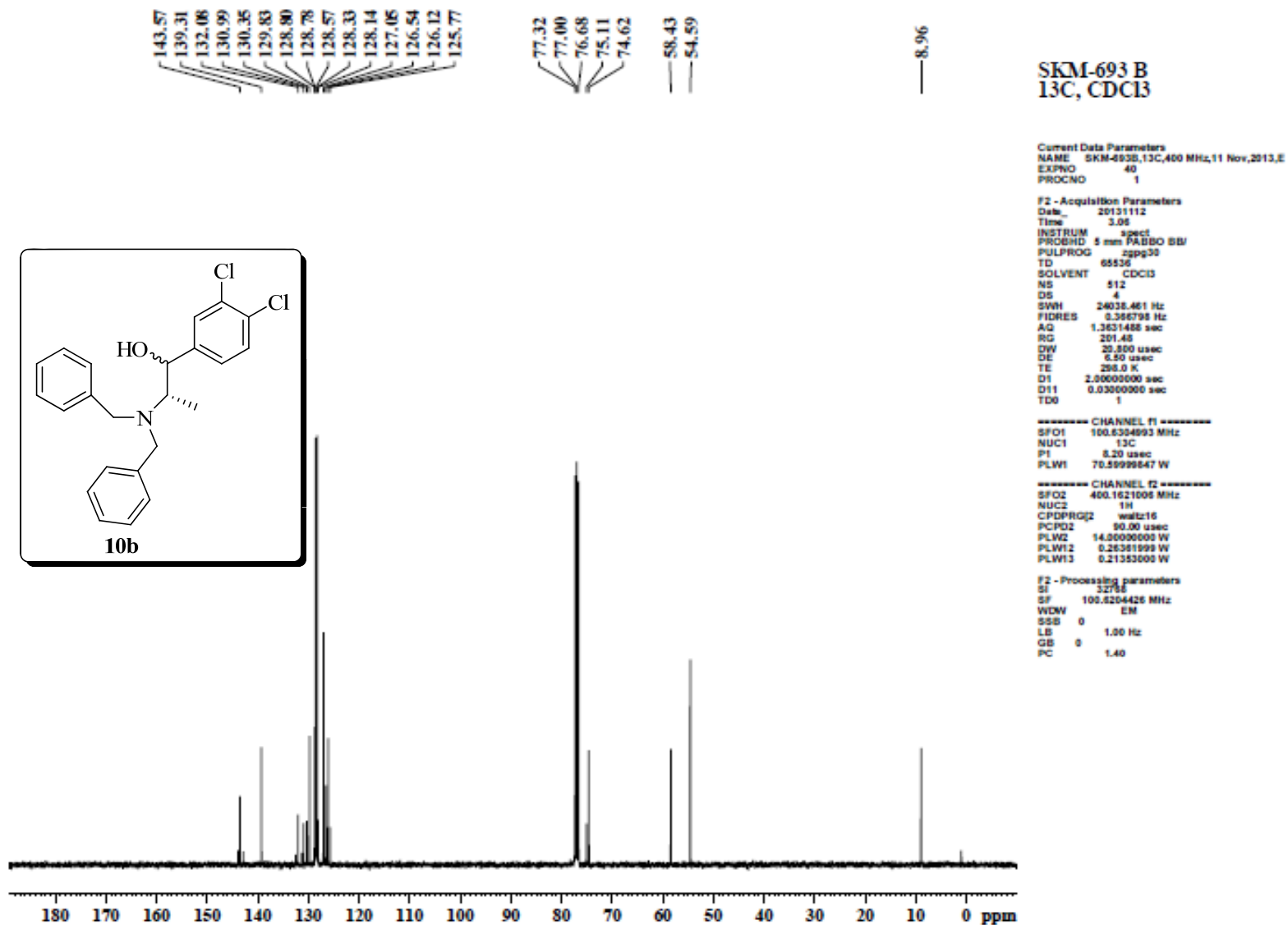


Figure 66: ^{13}C -NMR Spectrum of **10b**.

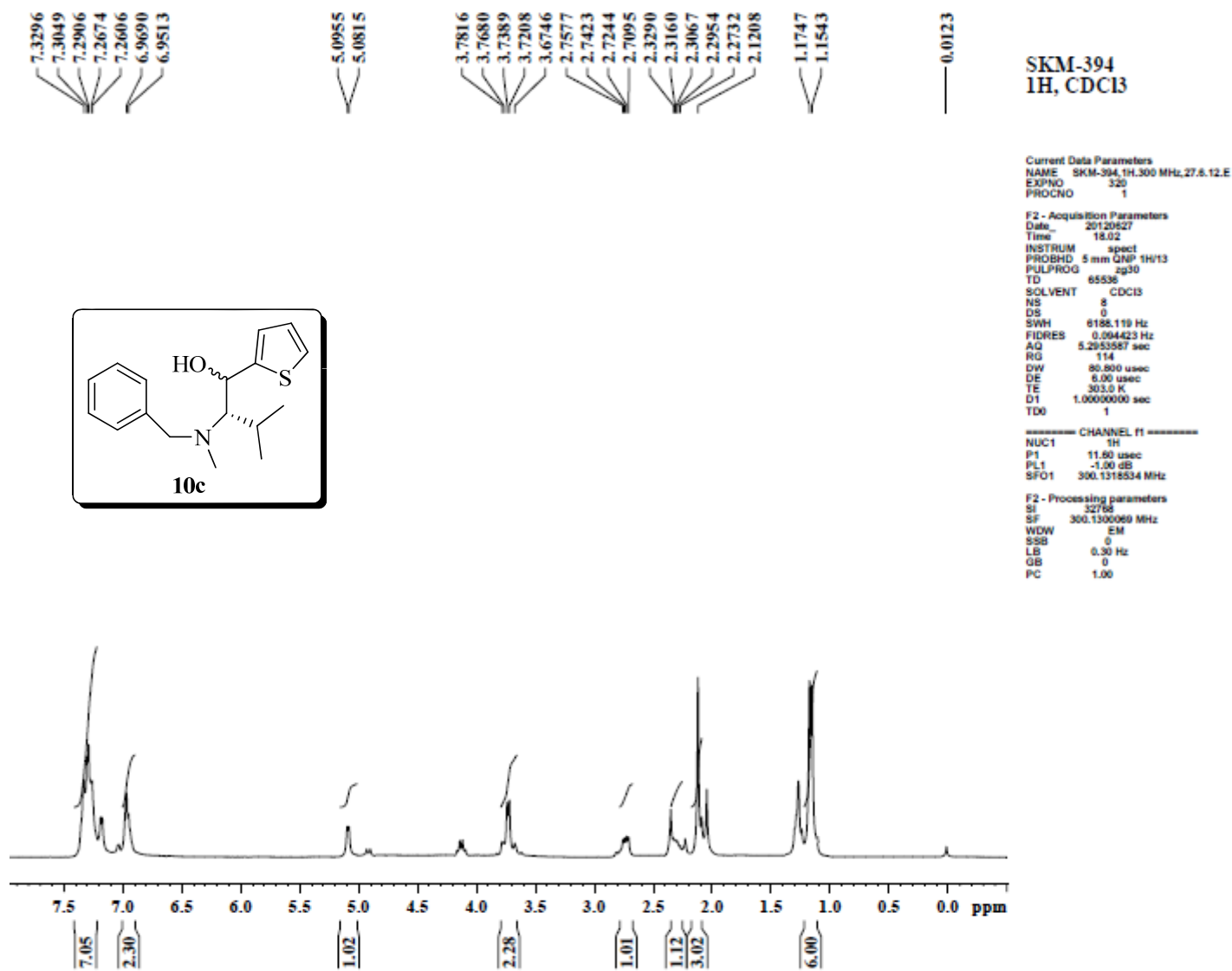


Figure 67: ^1H -NMR Spectrum of **10c**.

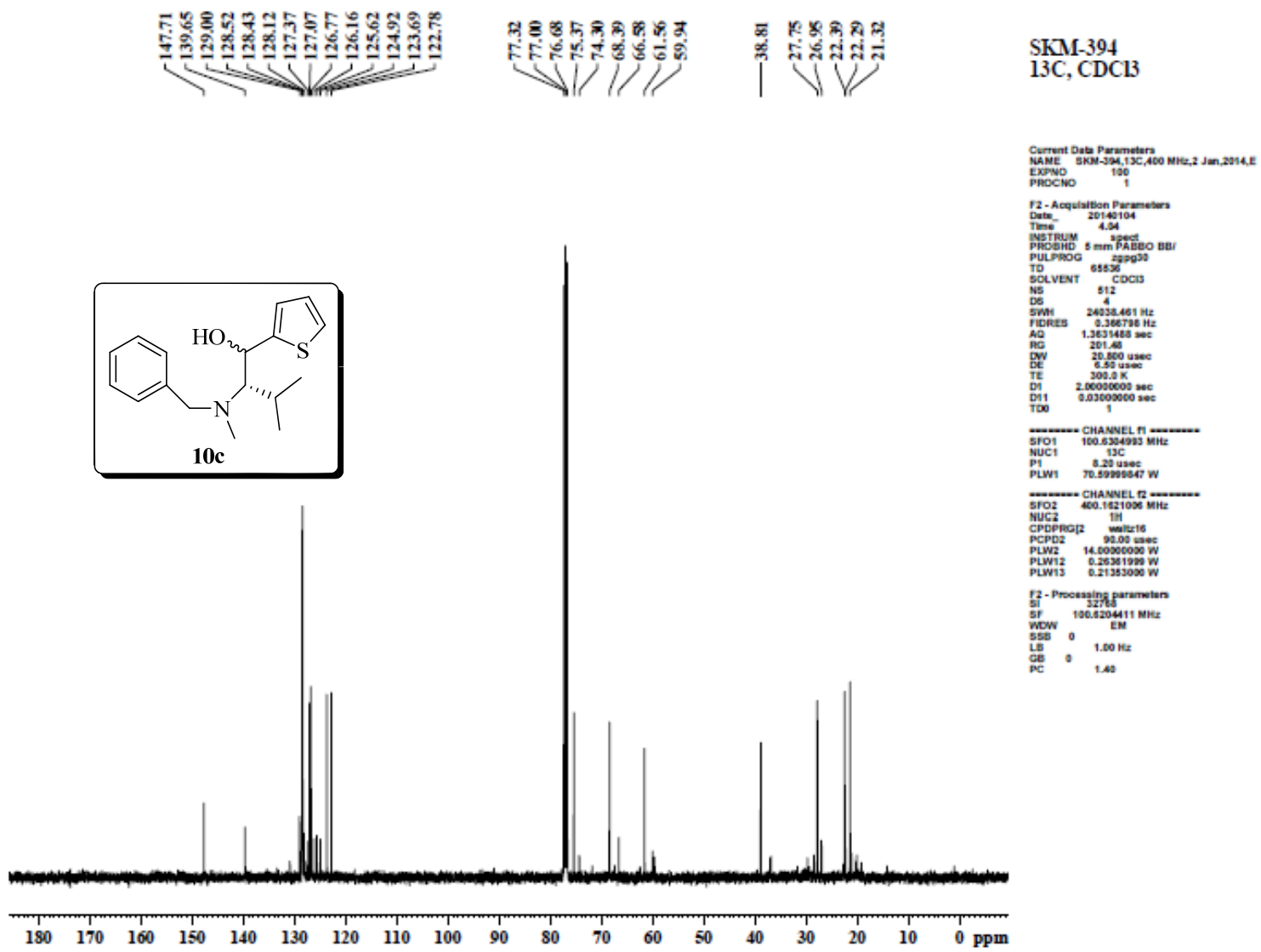


Figure 68: ¹³C-NMR Spectrum of **10c**.

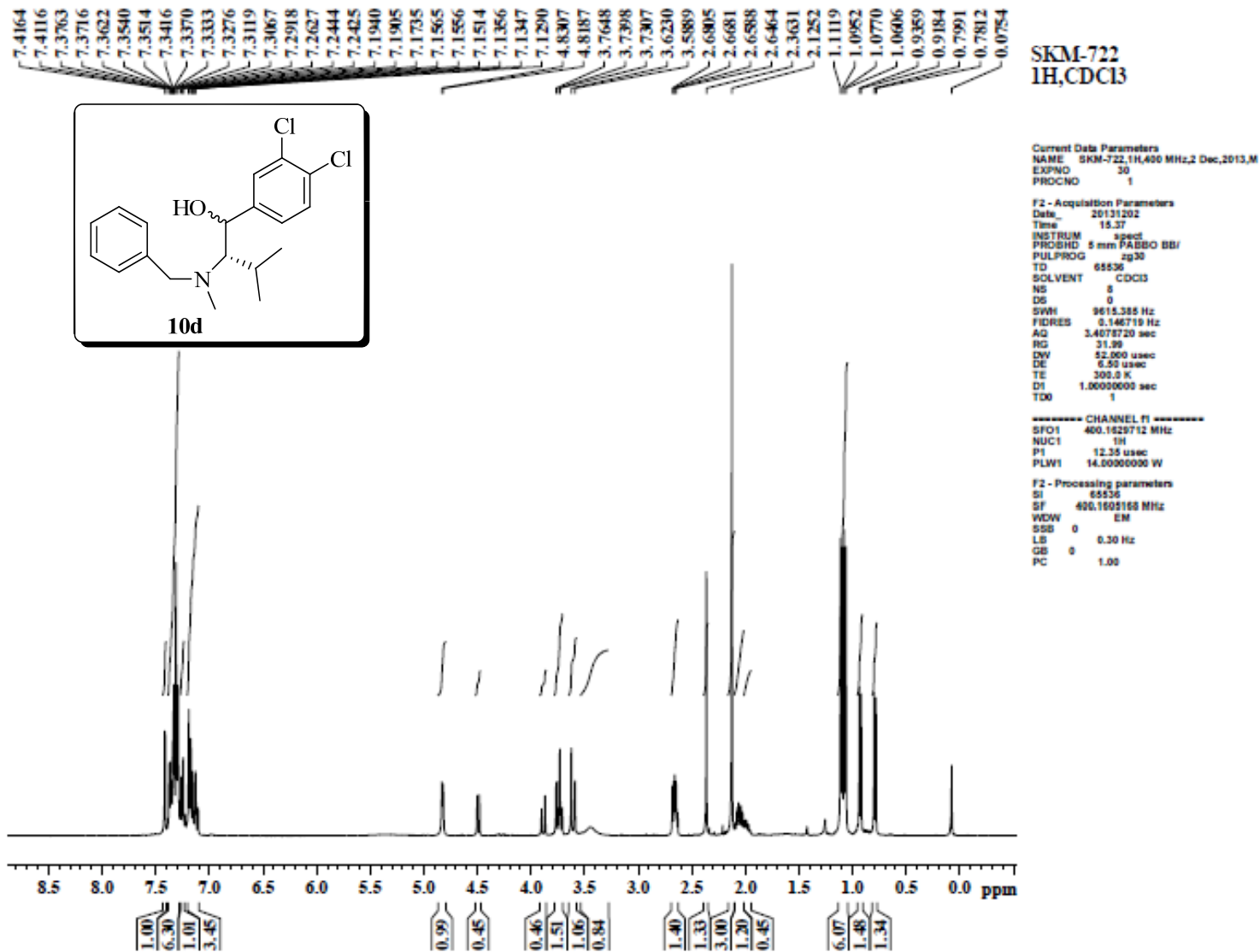


Figure 69: ¹H -NMR Spectrum of 10d.

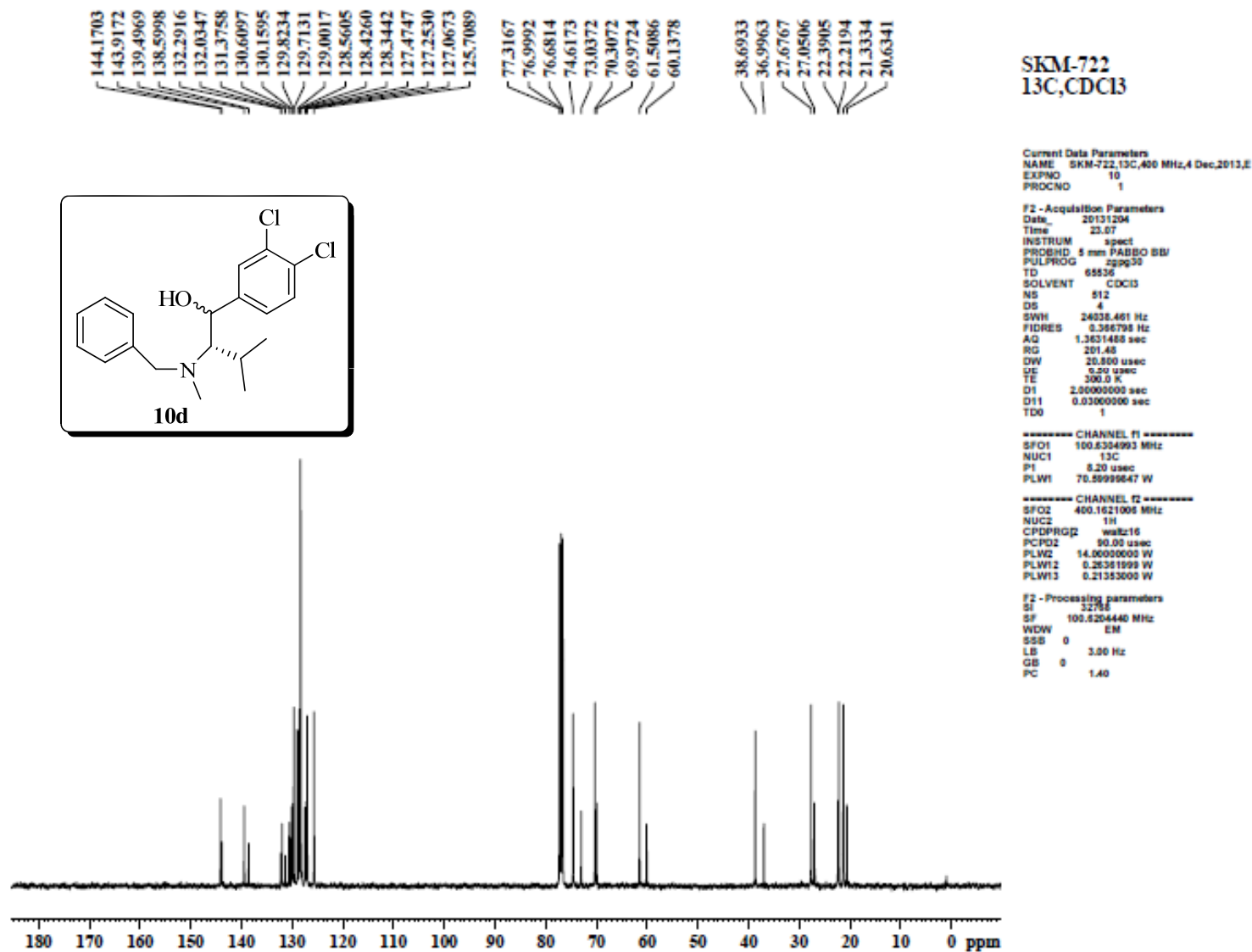
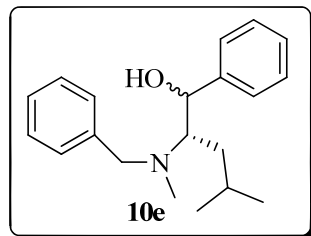
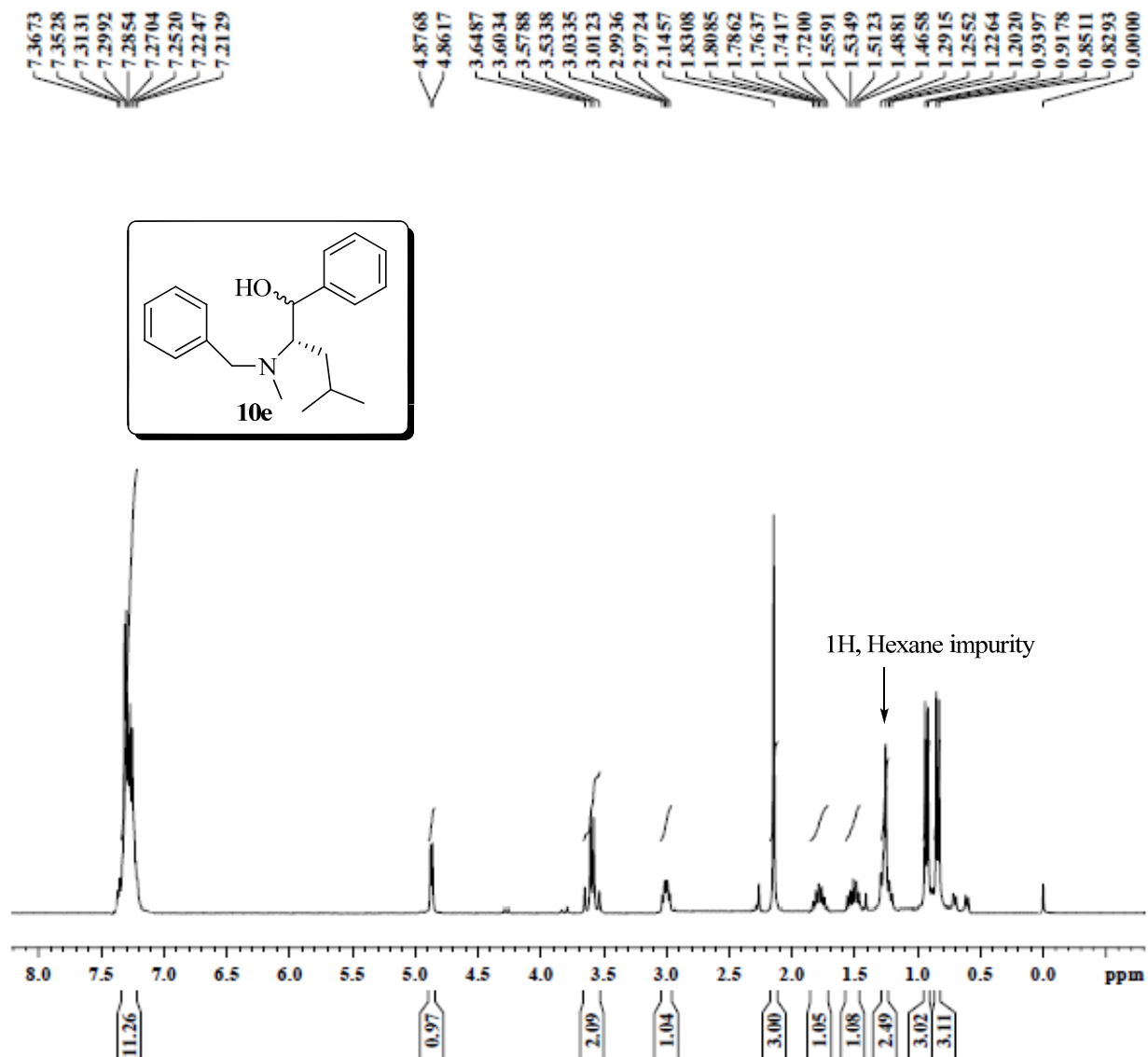


Figure 70: ¹³C -NMR Spectrum of **10d**.



SKM-472
1H, CDC13

Current Data Parameters
NAME SKM-472.1H.300 MHz.27 Sep, 2012.M
EXPNO 340
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120927
Time 13.12
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDC13
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953088 sec
RG 181
DQ 80.800 usec
DE 15.00 usec
TE 673.2 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 10.00 usec
PL1 -1.00 dB
PL1W 15.02081871 W
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300187 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Figure 71: ¹H -NMR Spectrum of **10e**.

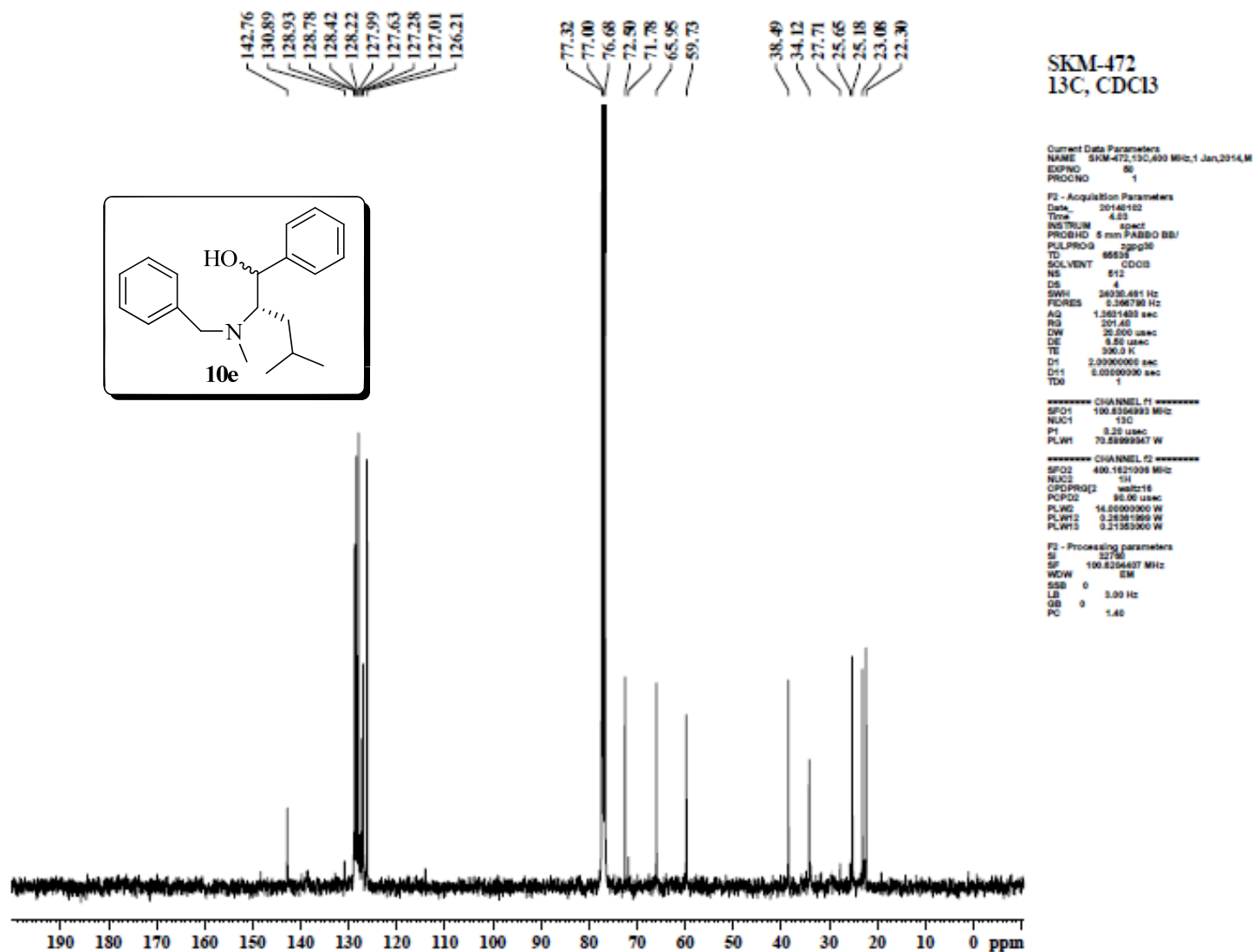
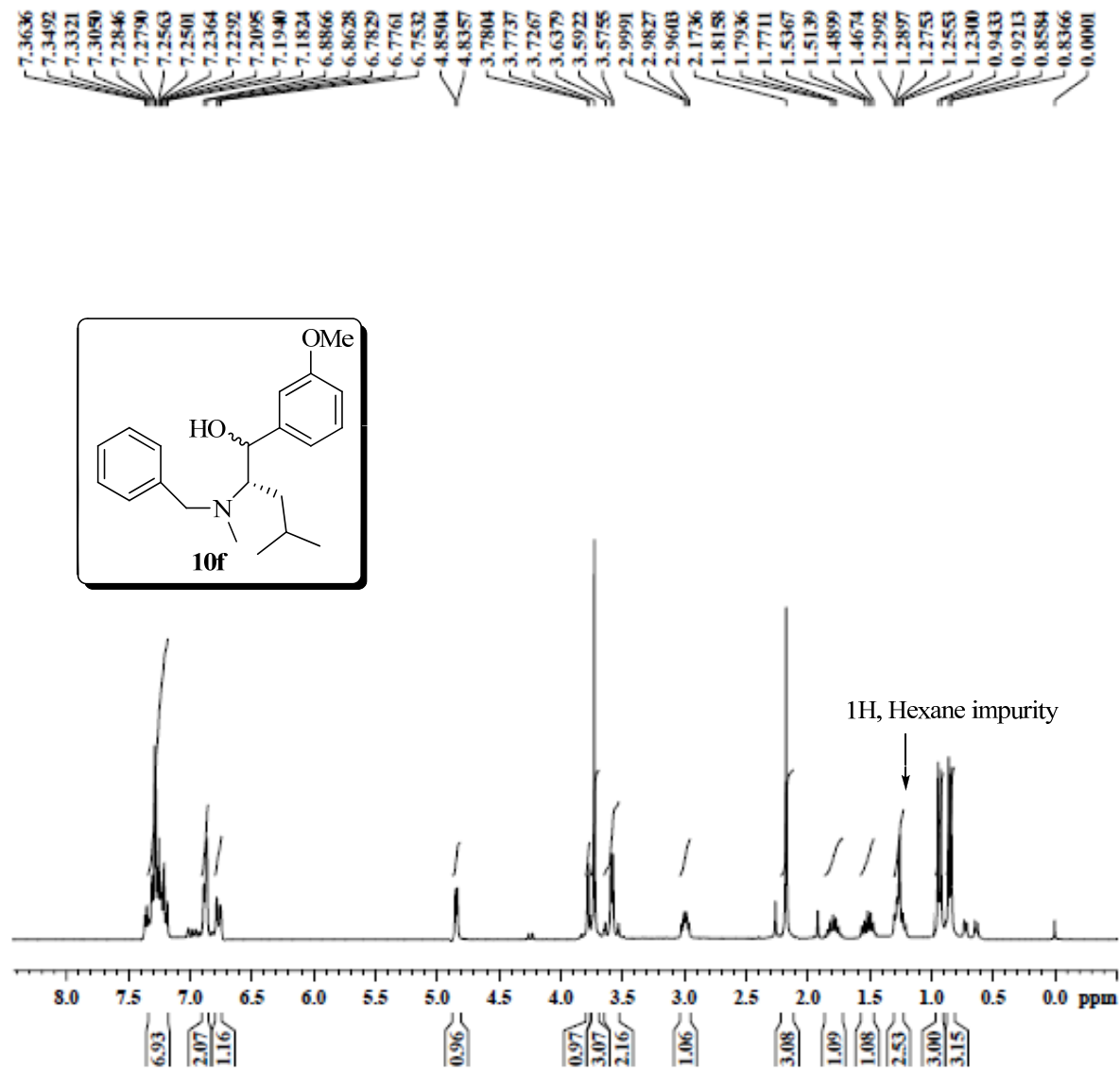


Figure 72: ^{13}C -NMR Spectrum of **10e**.



SKM-471
1H,CDC13

Current Data Parameters
NAME SKM-471, 1H, 300 MHz, 27 Sep, 2012, M
EXPNO 330
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120927
Time 13:07
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 66536
SOLVENT CDCl3
NS 8
DS 0
SWH 0100.119 Hz
FIDRES 0.054423 Hz
AQ 5.2953086 sec
RG 90.5
CW 93.900 usec
DE 15.00 usec
TE 273.2 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 13C
P1 10.00 usec
PL1 -1.00 dB
PL1W 15.00001871 W
SFO1 300.131834 MHz

F2 - Processing parameters
SI 32768
SF 300.1300198 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Figure 73: ^1H -NMR Spectrum of **10f**.

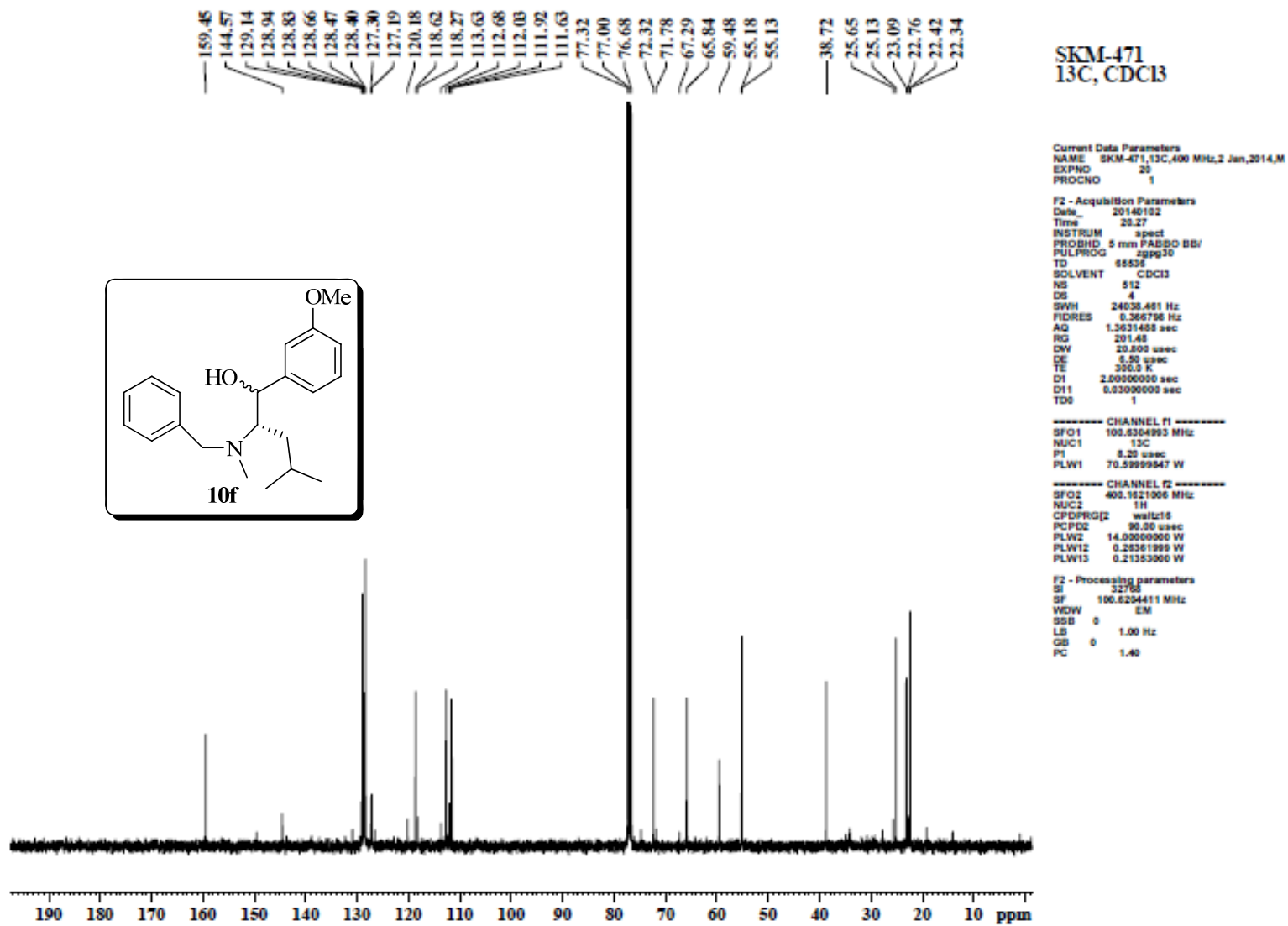


Figure 74: ^{13}C -NMR Spectrum of **10f**.

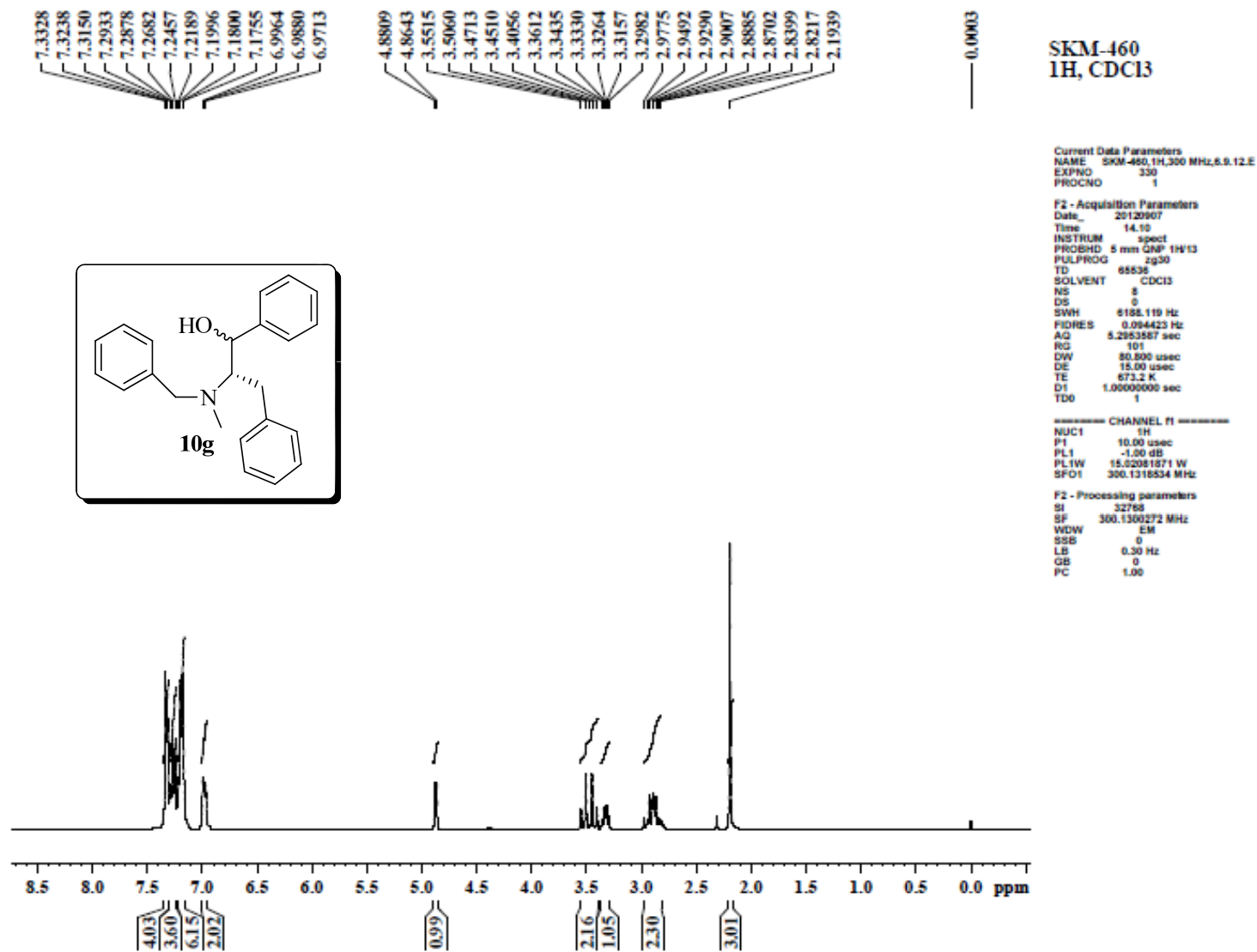


Figure 75: ^1H -NMR Spectrum of **10g**.

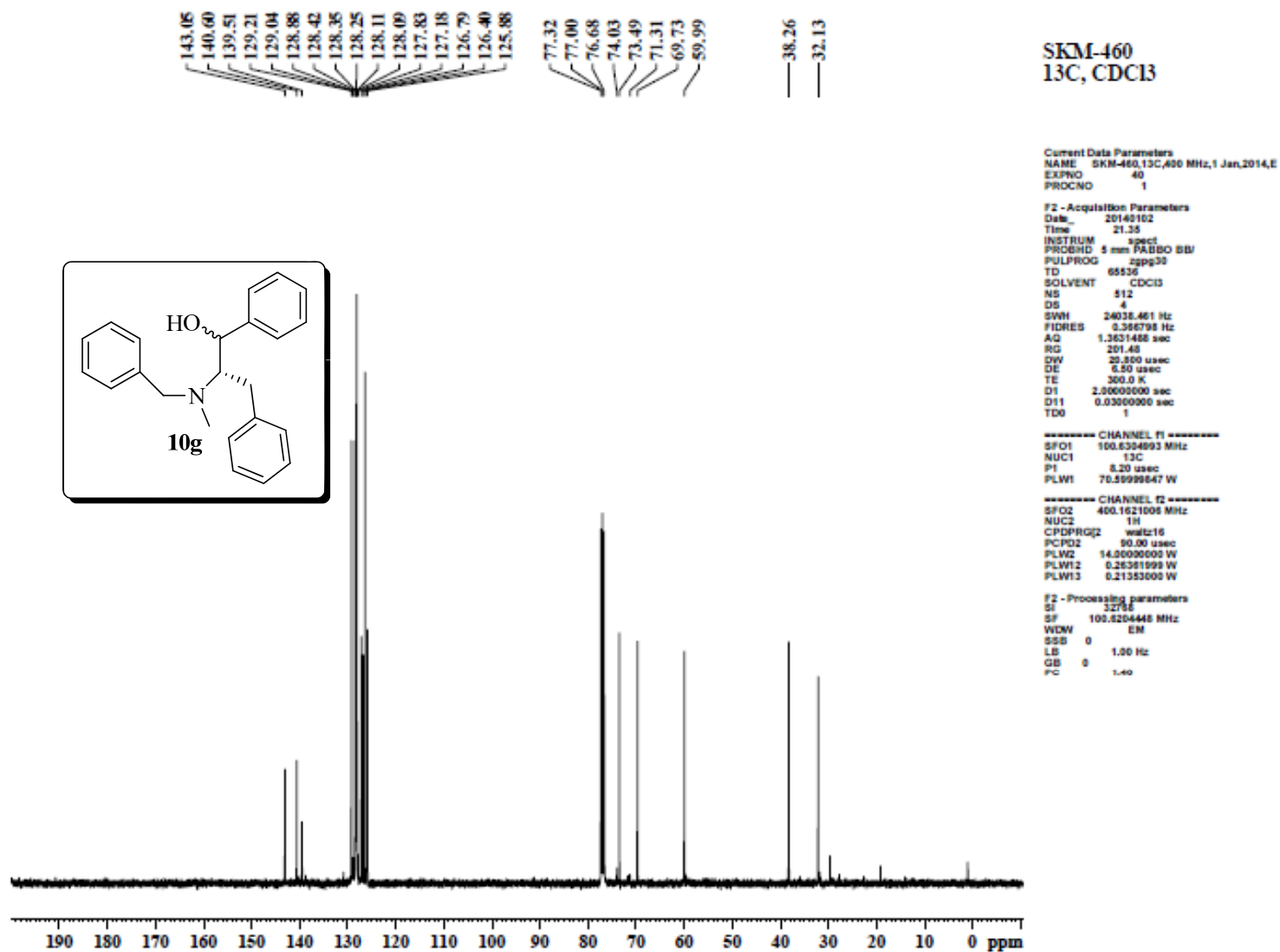


Figure 76: ^{13}C -NMR Spectrum of **10g**.

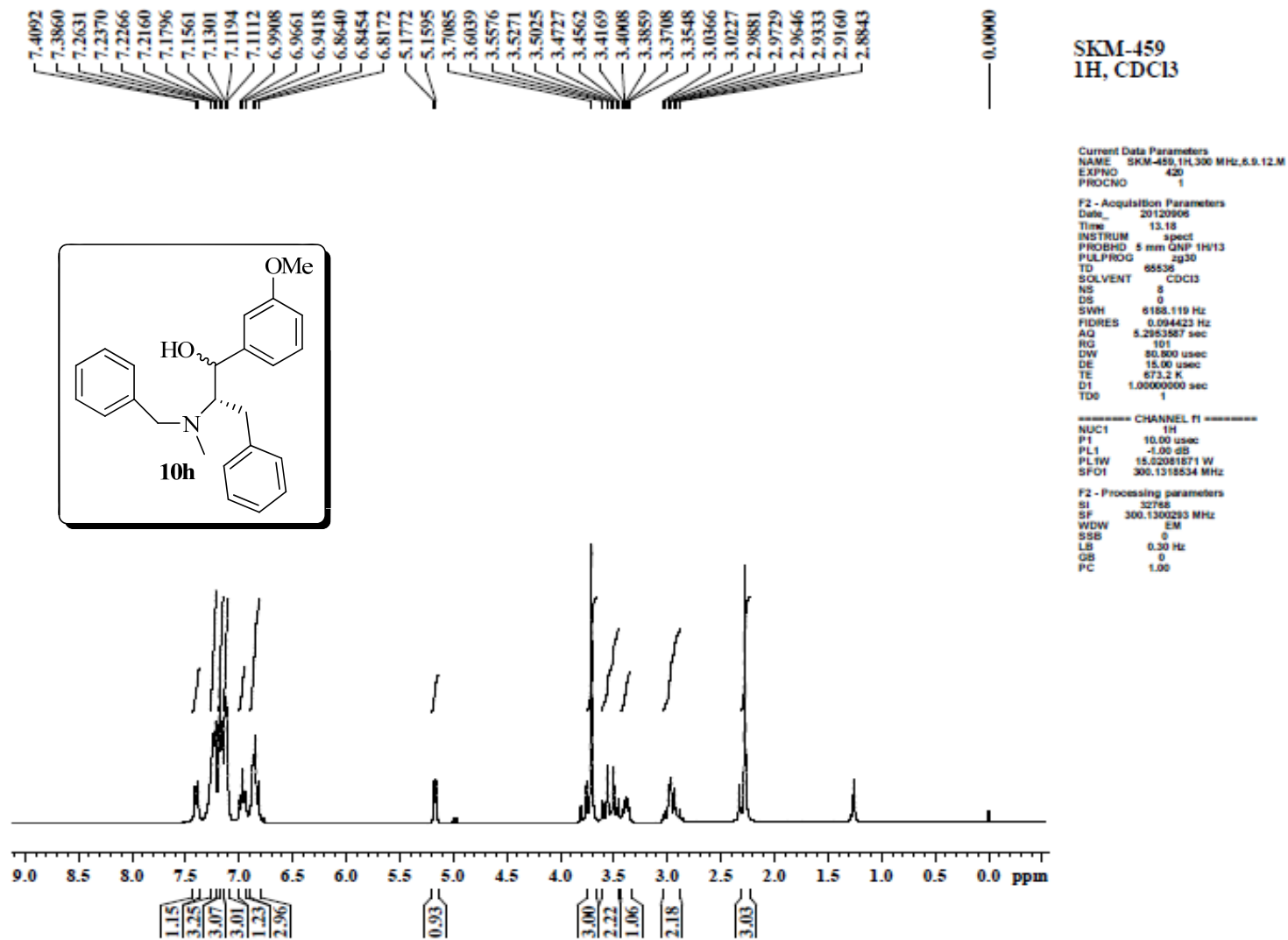


Figure 77: ^1H -NMR Spectrum of **10h.**

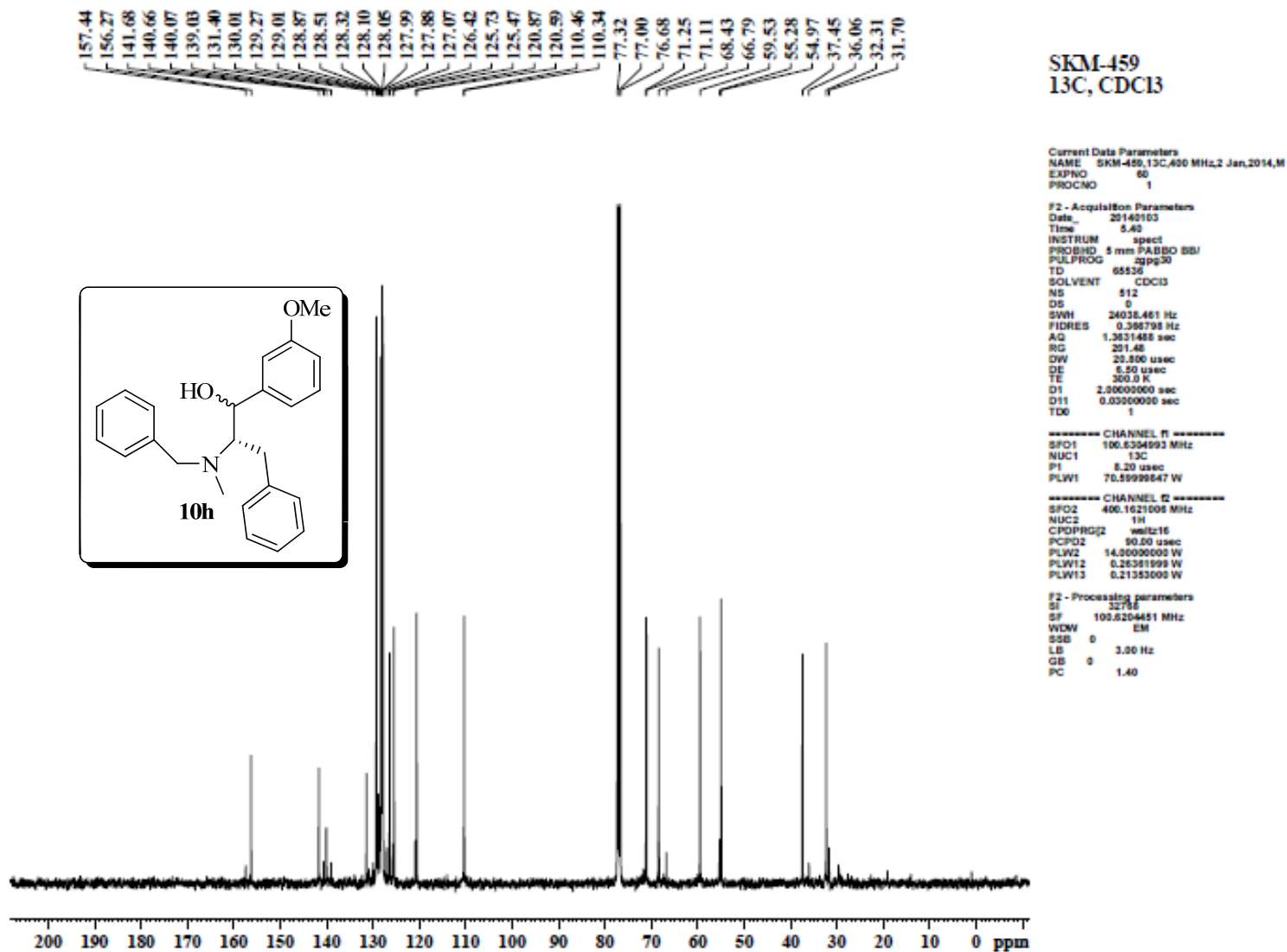


Figure 78: ^{13}C -NMR Spectrum of **10h**.

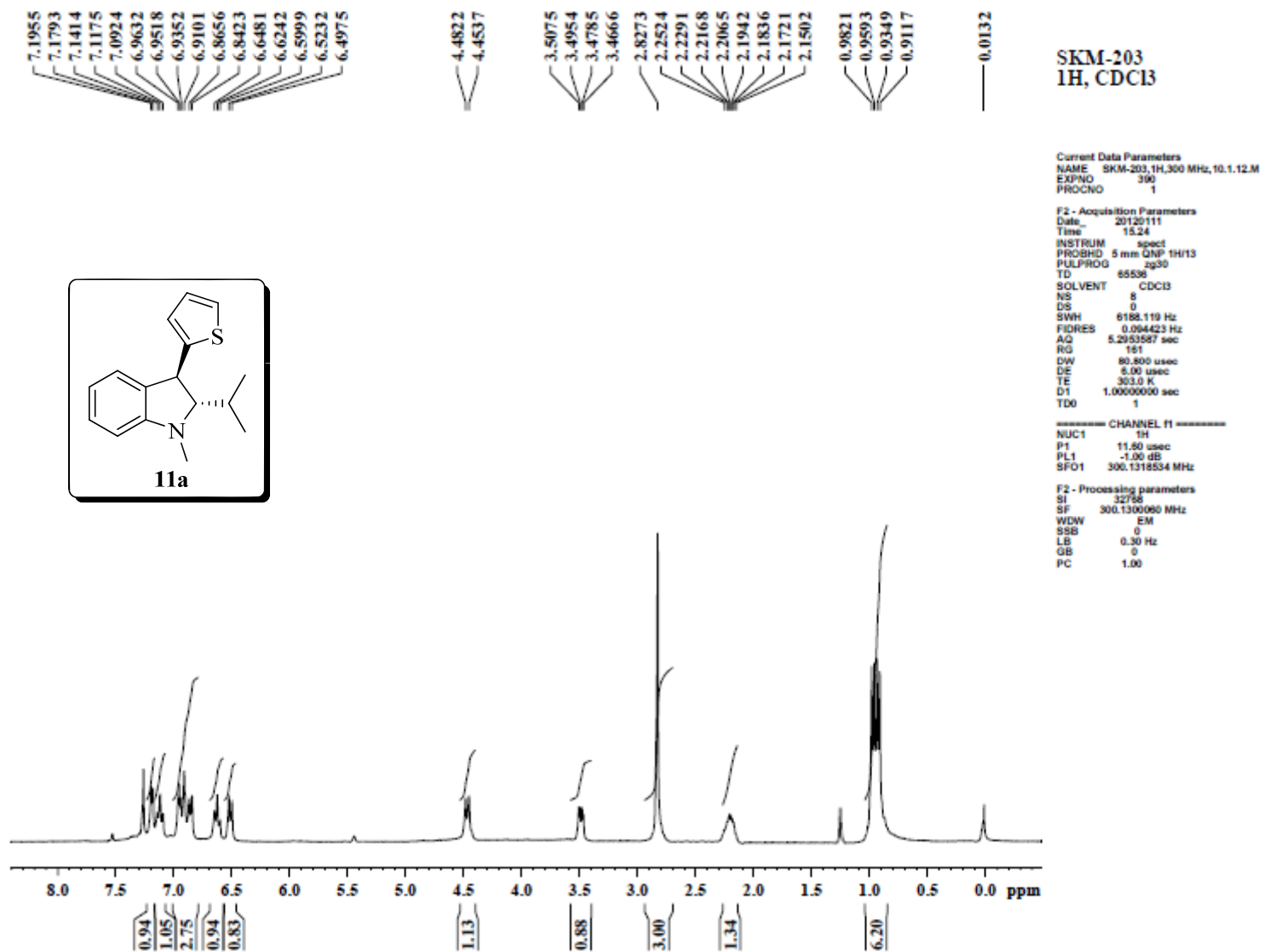
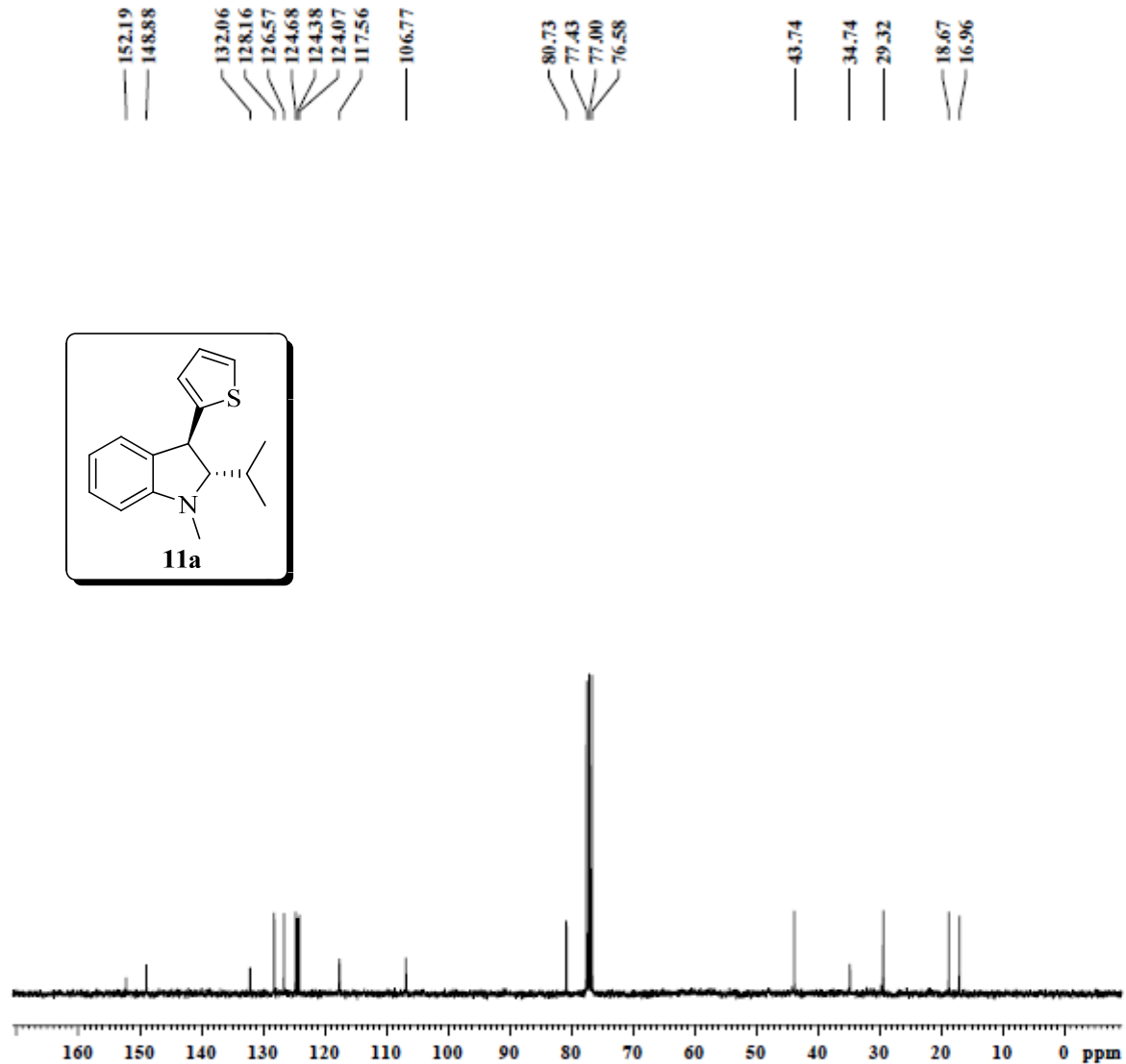


Figure 79: ^1H -NMR Spectrum of **11a**.



SKM-203
13C, CDCl3

Current Data Parameters
NAME SKM-203,13C,300 MHz,28.7.
EXPNO 620
PROCNO 1

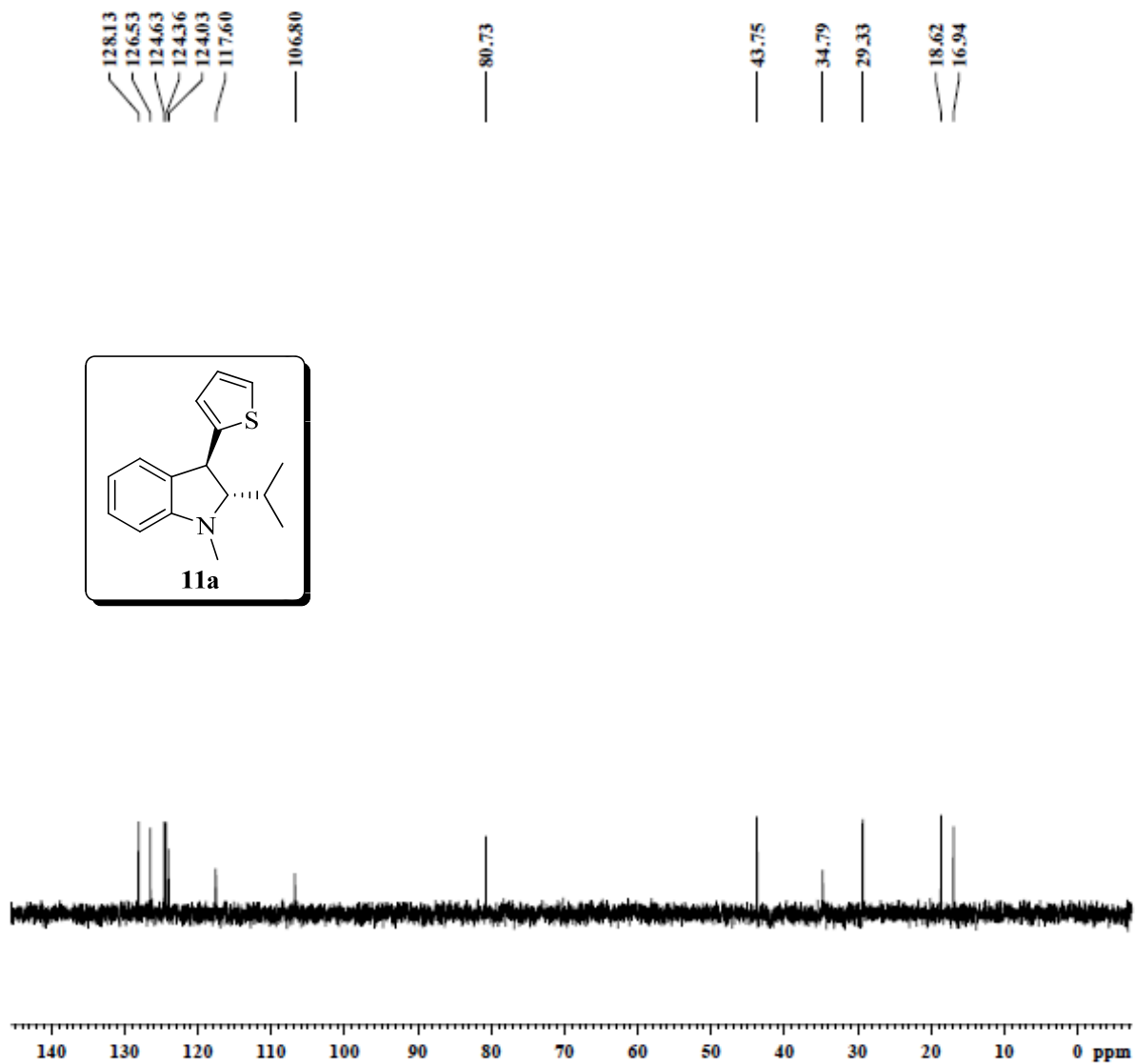
F2 - Acquisition Parameters
Date_ 20110731
Time 6.48
INSTRUM spect
PROBHD 5 mm GNP 1H/13
PULPROG zgpg30
TD 66638
SOLVENT CDCl3
NS 612
DS 4
SWH 18028.848 Hz
FIDRES 0.276098 Hz
AQ 1.8175818 sec
RG 32788
DW 27.733 usec
DE 8.00 usec
TE 298.2 K
D1 2.0000000 sec
d11 0.0300000 sec
DELTA 1.8888888 sec
TD0 1

===== CHANNEL f1 =====
NUC1 13C
P1 8.70 usec
PL1 -3.00 dB
SFO1 76.4752963 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -1.00 dB
PL12 17.00 dB
PL13 21.00 dB
SFO2 300.1312006 MHz

F2 - Processing parameters
SI 32788
SF 76.4677617 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0

Figure 80: ^{13}C -NMR Spectrum of **11a**.



SKM-203
DEPT-1,CDCI3

Current Data Parameters
NAME SKM-203.DEPT-1,300 MHz.20.1.12.M
EXPNO 350
PROCNO 1

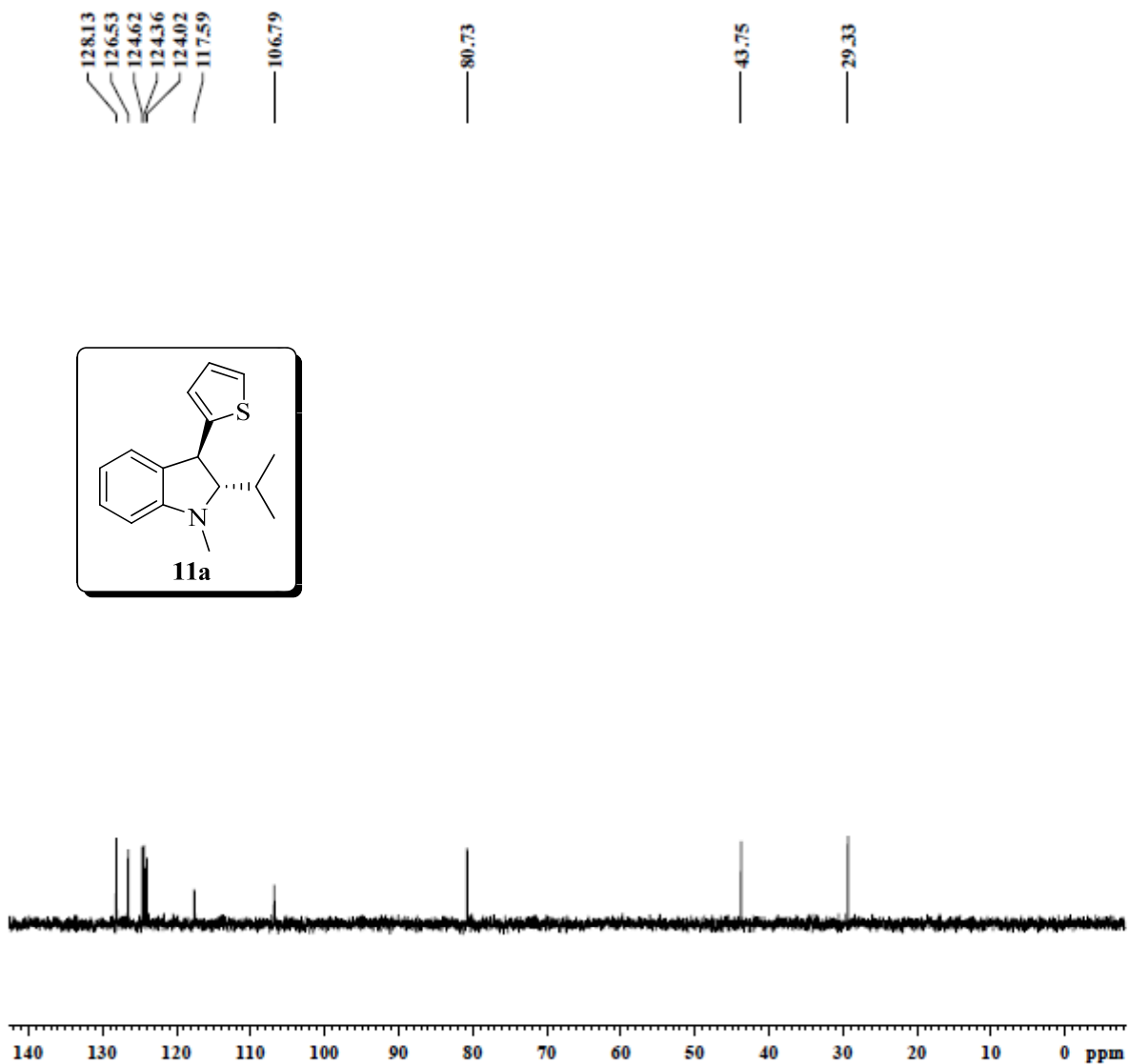
F2 - Acquisition Parameters
Date_ 20120120
Time 20.42
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG dept138
TD 66536
SOLVENT CDCl3
NS 256
DS 4
SWH 18028.846 Hz
FIDRES 0.275098 Hz
AQ 1.6175818 sec
RG 3269
DW 27.733 usec
DE 6.00 usec
TE 303.0 K
CNST2 148.0000000
D1 2.00000000 sec
d2 0.00544828 sec
d12 0.00002000 sec
DELTA 0.00001108 sec
TDO 1

===== CHANNEL f1 =====
NUC1 13C
P1 8.70 usec
p2 17.40 usec
PL1 -3.00 dB
SFO1 75.4752853 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
P3 11.80 usec
p4 23.20 usec
PCPD2 80.00 usec
PL2 -1.00 dB
PL12 17.00 dB
SFO2 300.1312005 MHz

F2 - Processing parameters
SI 32768
SF 75.4677536 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Figure 81: DEPT-I -Spectrum of **11a**.



SKM-203
DEPT-II, CDC13

```

Current Data Parameters
NAME SKM-203_DEPT-4,300 MHz,20, 1,12,M
EXPNO 361
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120123
Time 21.00
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 66636
SOLVENT CDCl3
NS 256
DS 4
SWH 19828.846 Hz
FIDRES 0.275938 Hz
AQ 1.8176218 sec
RG 2099
DW 27.733 usec
DE 6.00 usec
TE 303.0 K
CHST2 145.3000000
d1 2.0000000 sec
d2 0.00344028 sec
d12 0.00002000 sec
DELTA 0.00001108 sec
TD0 1

===== CHANNEL f1 =====
NUC1 13C
P1 8.70 usec
p2 17.40 usec
PL1 -3.00 dB
SFO1 76.4782853 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
P3 11.60 usec
p4 23.20 usec
PCPD2 80.00 usec
PL2 -1.00 dB
PL12 17.00 dB
SFO2 300.1312005 MHz

F2 - Processing parameters
SI 32768
SF 76.4677538 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 8
PC 1.60

```

Figure 82: DEPT-II -Spectrum of **11a**.

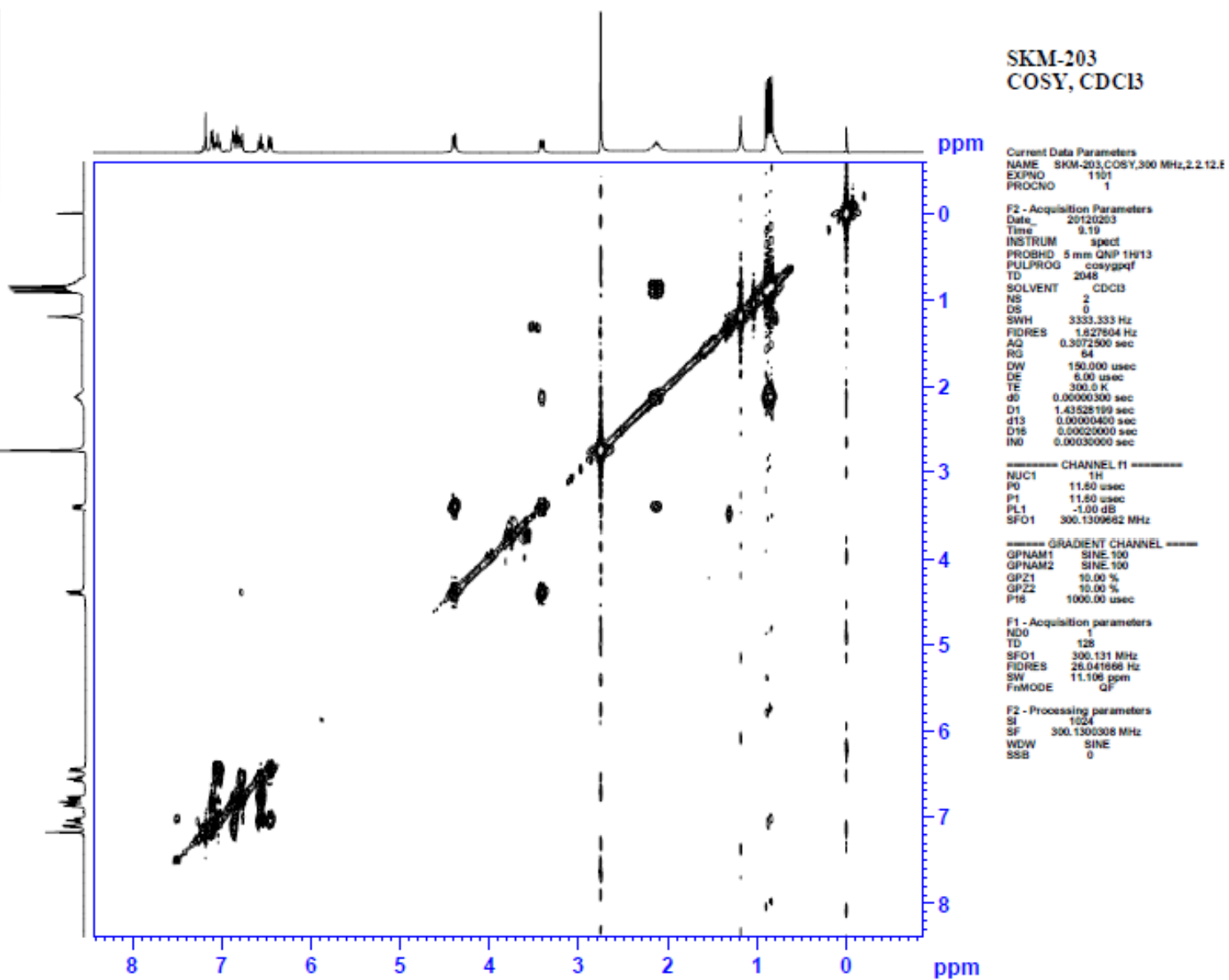
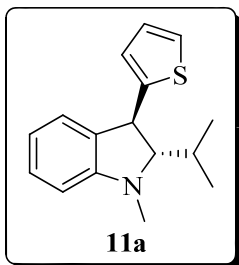


Figure 83: COSY -Spectrum of 11a.

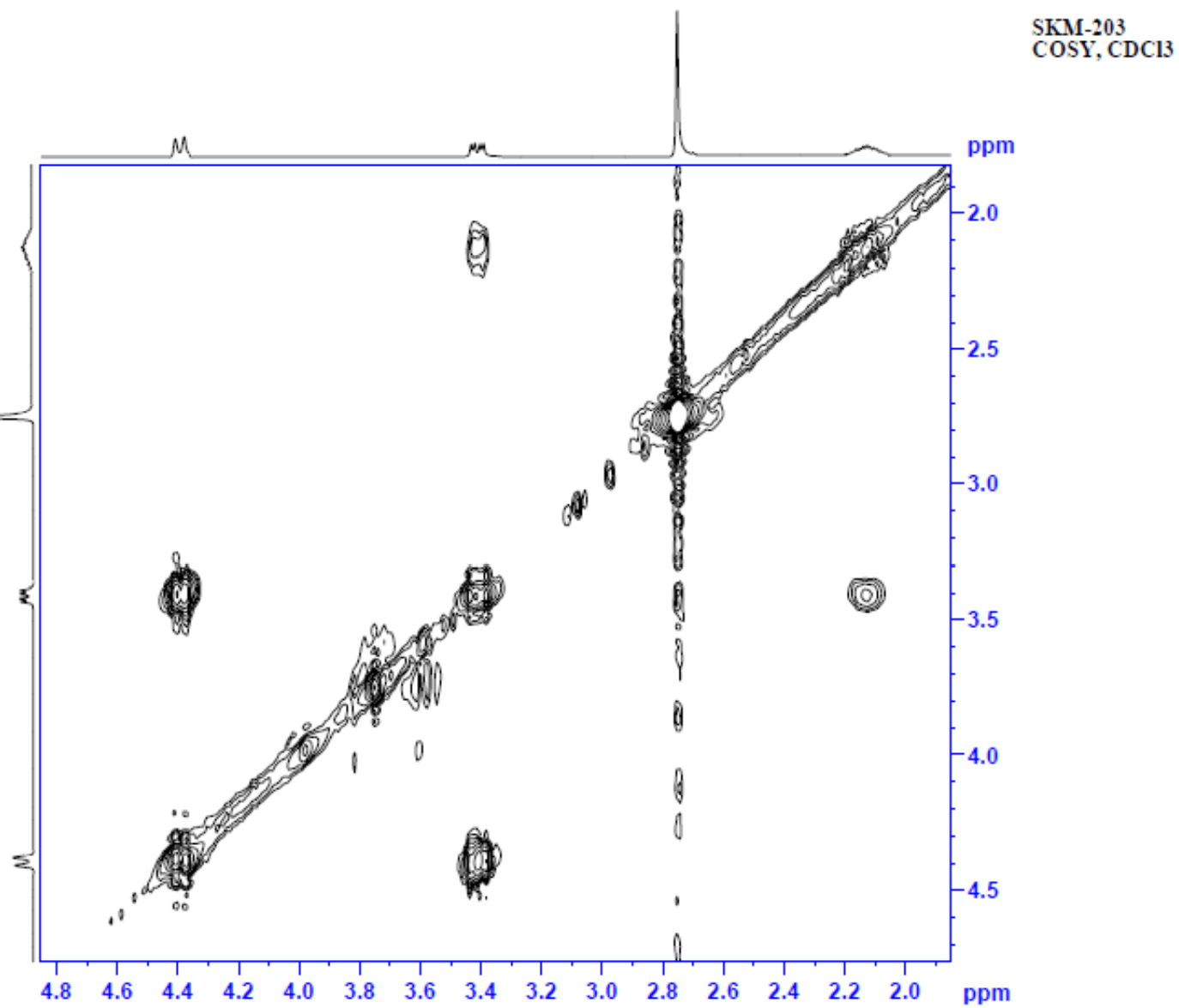
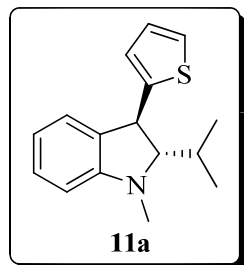


Figure 84: COSY -Spectrum of 11a.

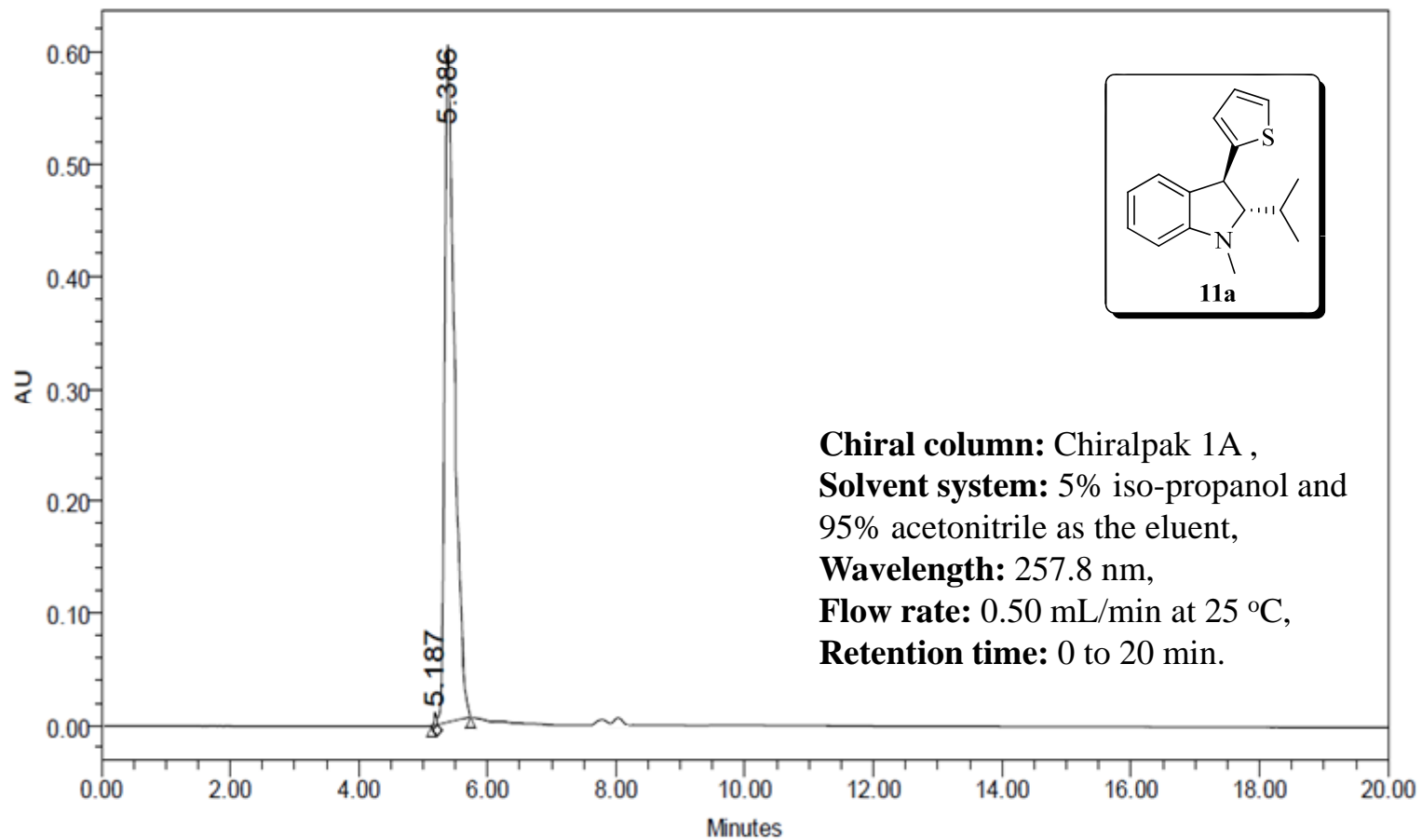


Figure 85: HPLC -Spectrum of **11a**.

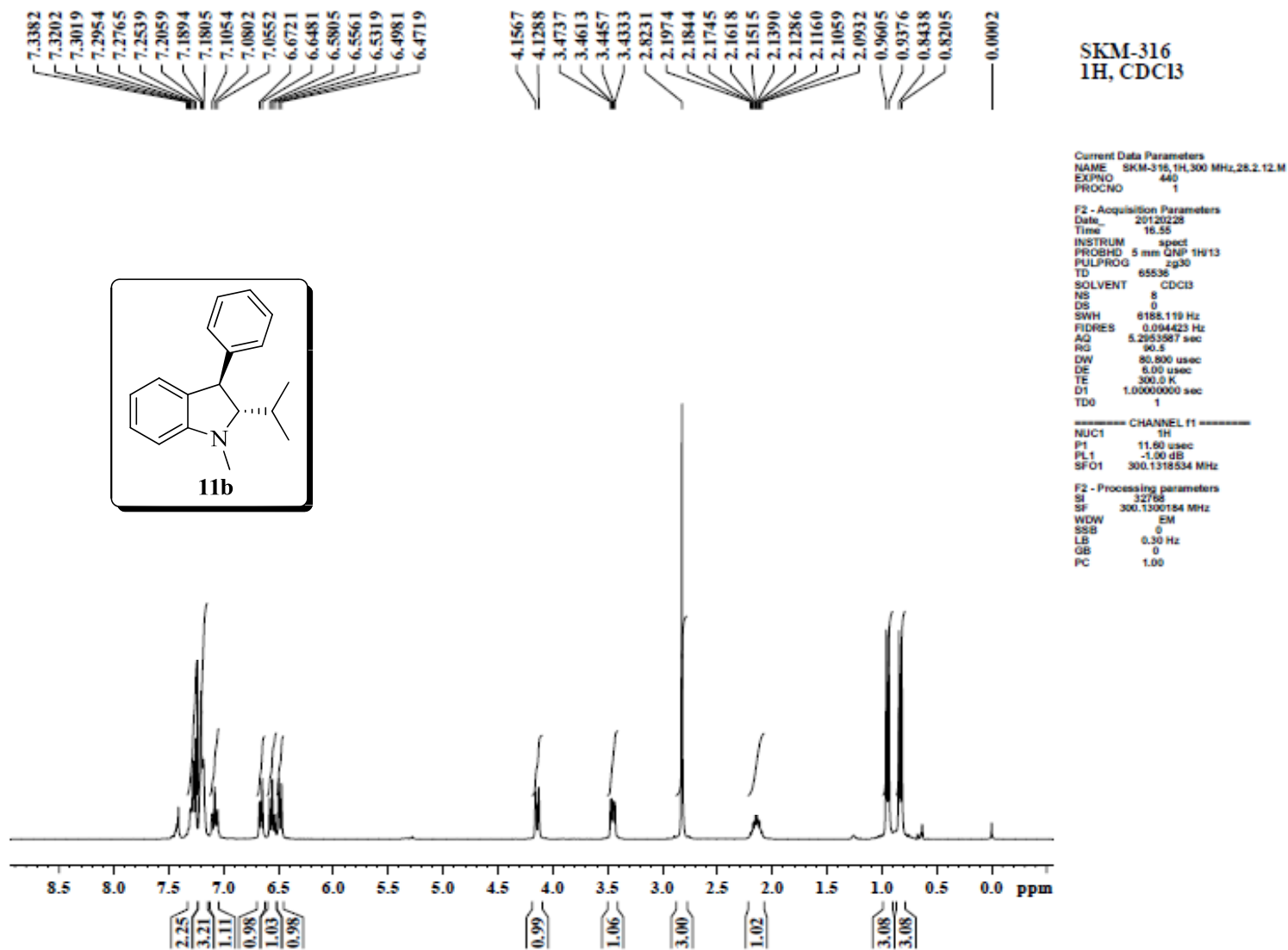
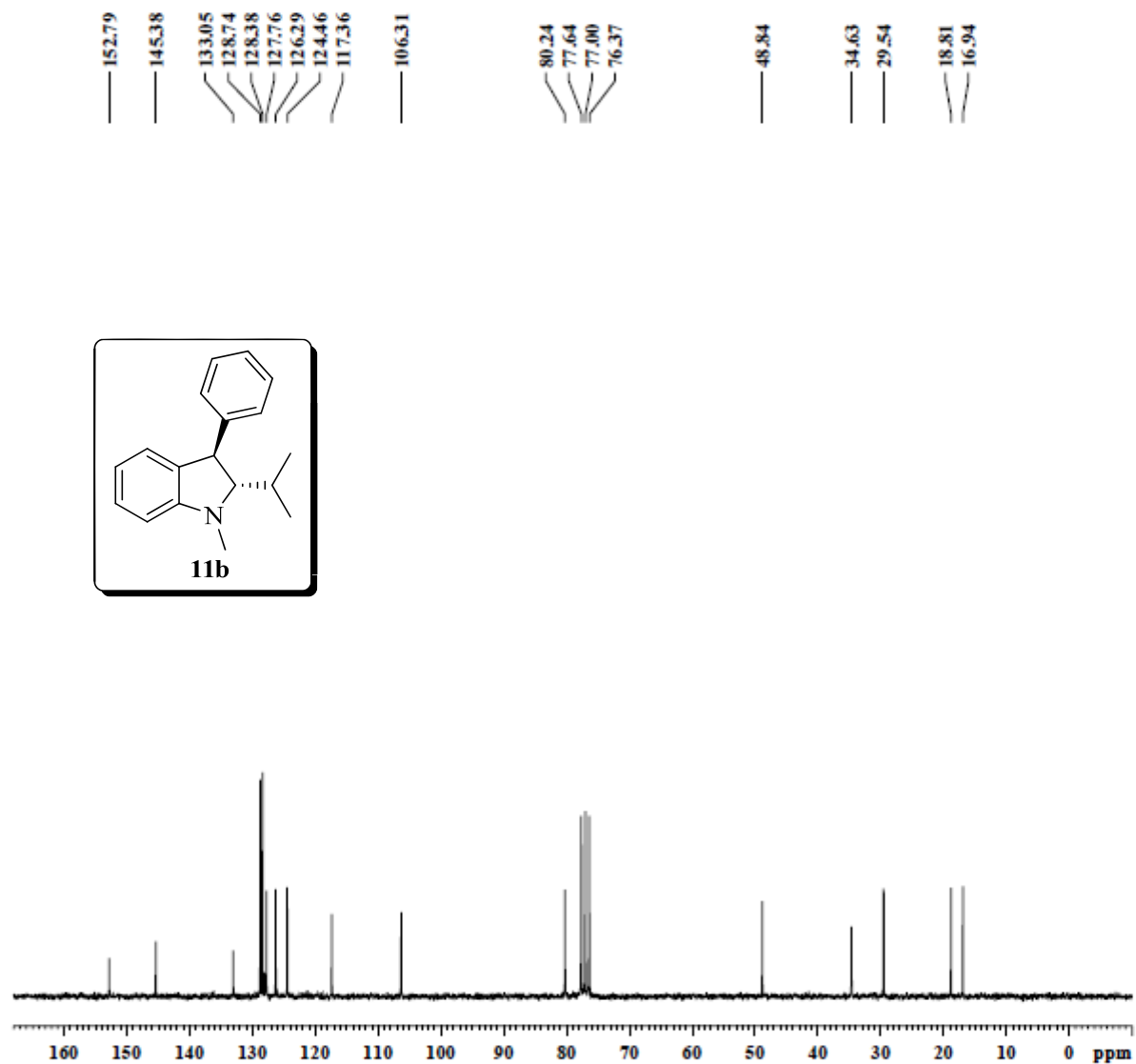


Figure 86: ¹H -NMR Spectrum of **11b**.



SKM-316
13C, CDCl3

Current Data Parameters
NAME SKM-316, 13C, 200 MHz, 1.3, 12.M
EXPNO 340
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120830
Time 13.38
INSTRUM spect
PROBHD 5 mm Dual 13C/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 627
DS 4
SWH 11990.407 Hz
FIDRES 0.162959 Hz
AQ 2.7329011 sec
RG 40.3
DW 41.700 usec
DE 6.00 usec
TE 0.0 K
D1 2.0000000 sec
d11 0.03000000 sec
DELTA 1.80000000 sec
MCREST 0.00000000 sec
MCWRR 0.01500000 sec

===== CHANNEL f1 =====
NUC1 13C
P1 6.30 usec
PL1 -6.00 dB
SFO1 50.3277608 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 -4.00 dB
PLT2 18.00 dB
PLT3 22.00 dB
SFO2 200.1308005 MHz

F2 - Processing parameters
SI 32768
SF 50.3227313 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Figure 87: ^{13}C -NMR Spectrum of **11b**.

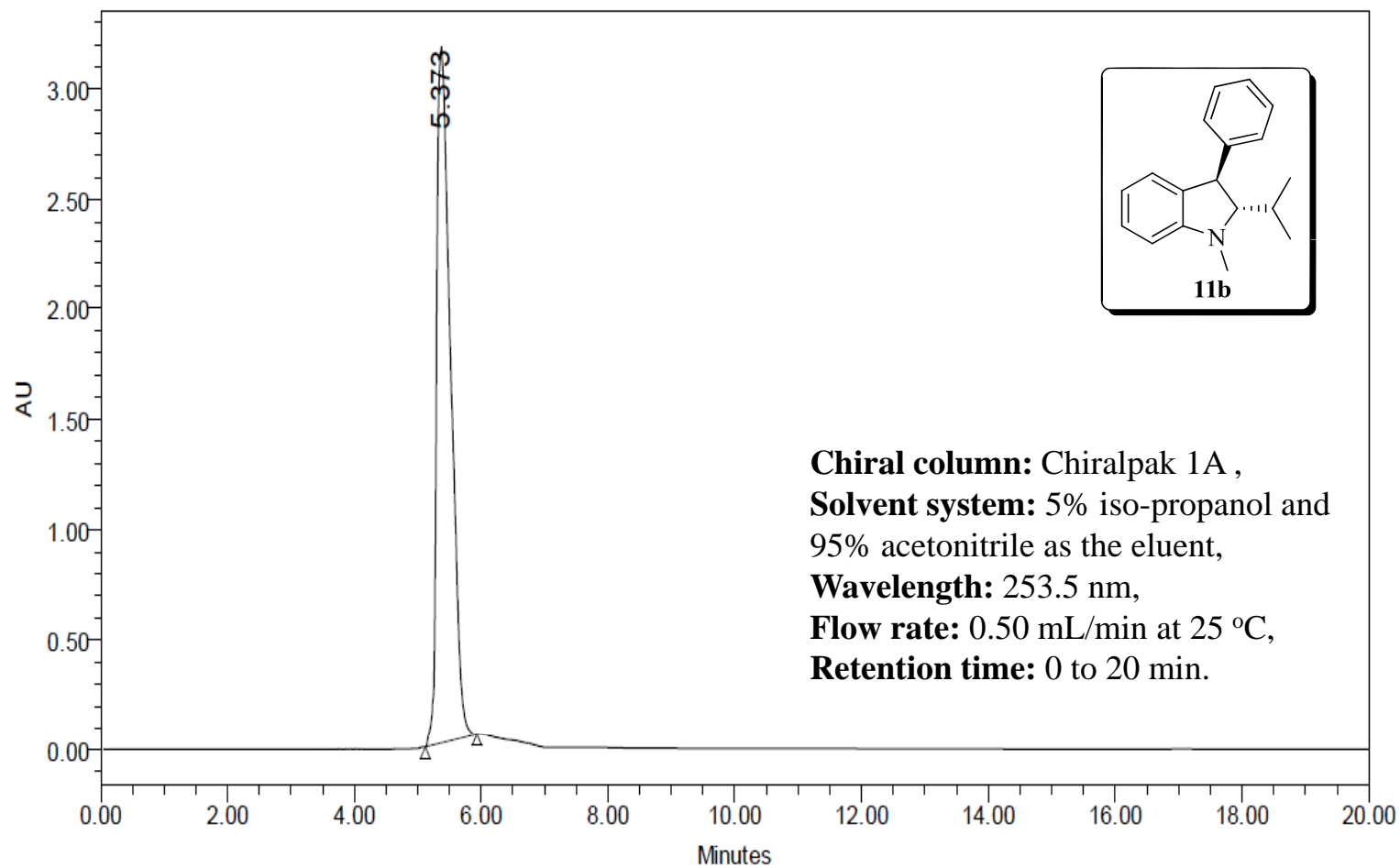


Figure 88: HPLC -Spectrum of **11b**.

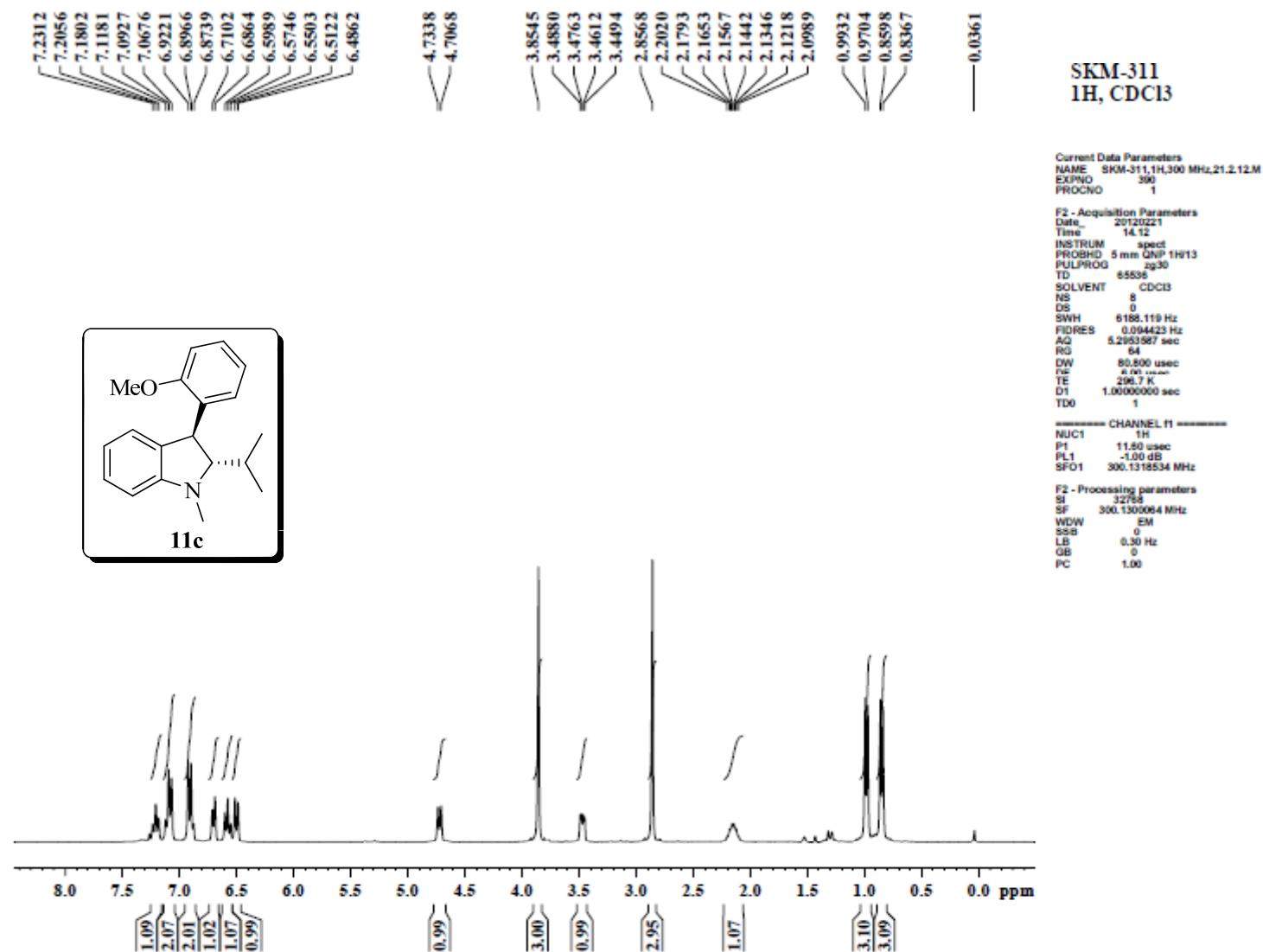
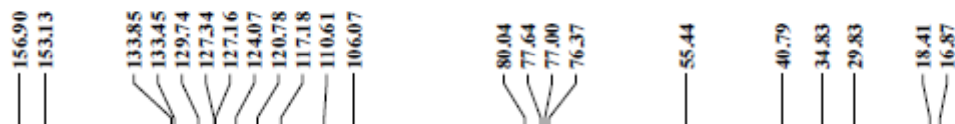


Figure 89: ¹H -NMR Spectrum of **11c**.



SKM-311
13C, CDCl3

```

Current Data Parameters
NAME SKM-311,13C,200 MHz,23.2.12.M
EXPNO 330
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120223
Time 16.10
INSTRUM spect
PROBHD 5 mm QNP 13C/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 11990.427 Hz
FIDRES 0.162859 Hz
AQ 2.7329011 sec
RG 320
DW 41.700 usec
DE 6.00 usec
TE 300 K
D1 2.0000000 sec
d11 0.0300000 sec
DELTA 1.3999999 sec
MCRET 0.0000000 sec
MCWRC 0.0100000 sec

===== CHANNEL f1 =====
NUC1 13C
P1 6.30 usec
PL1 -4.00 dB
SFO1 50.3277628 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 -4.00 dB
PL12 18.00 dB
PL13 22.00 dB
SFO2 200.1306000 MHz

F2 - Processing parameters
SI 32768
SF 50.3277614 MHz
WDW EM
GB 0
LB 3.00 Hz
GB 0
PC 1.60

```

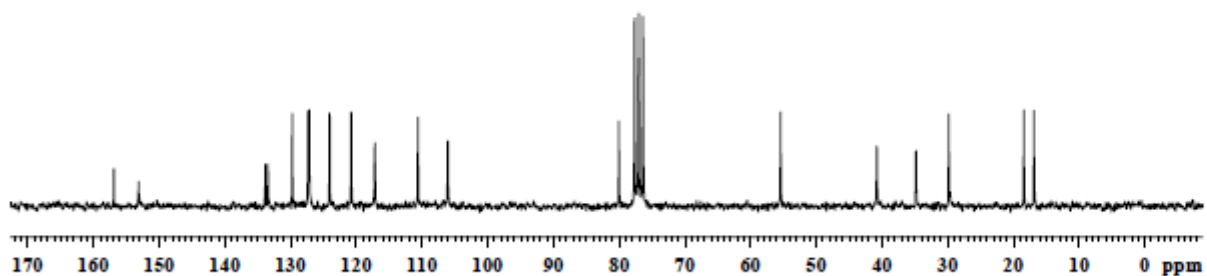
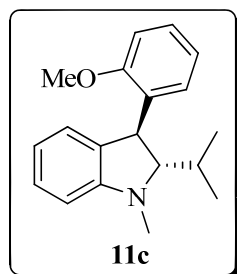


Figure 90: ^{13}C -NMR Spectrum of **11c**.

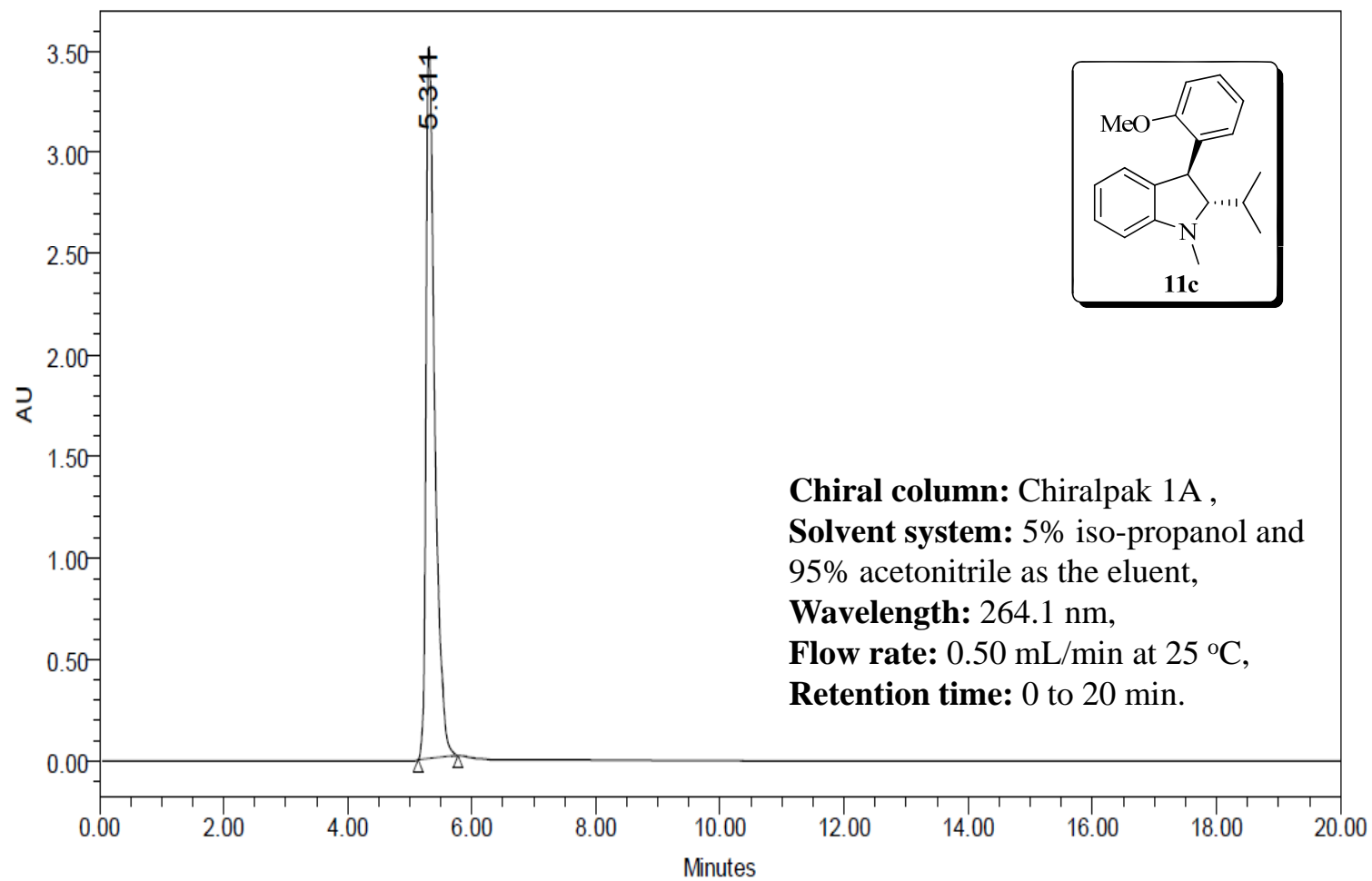
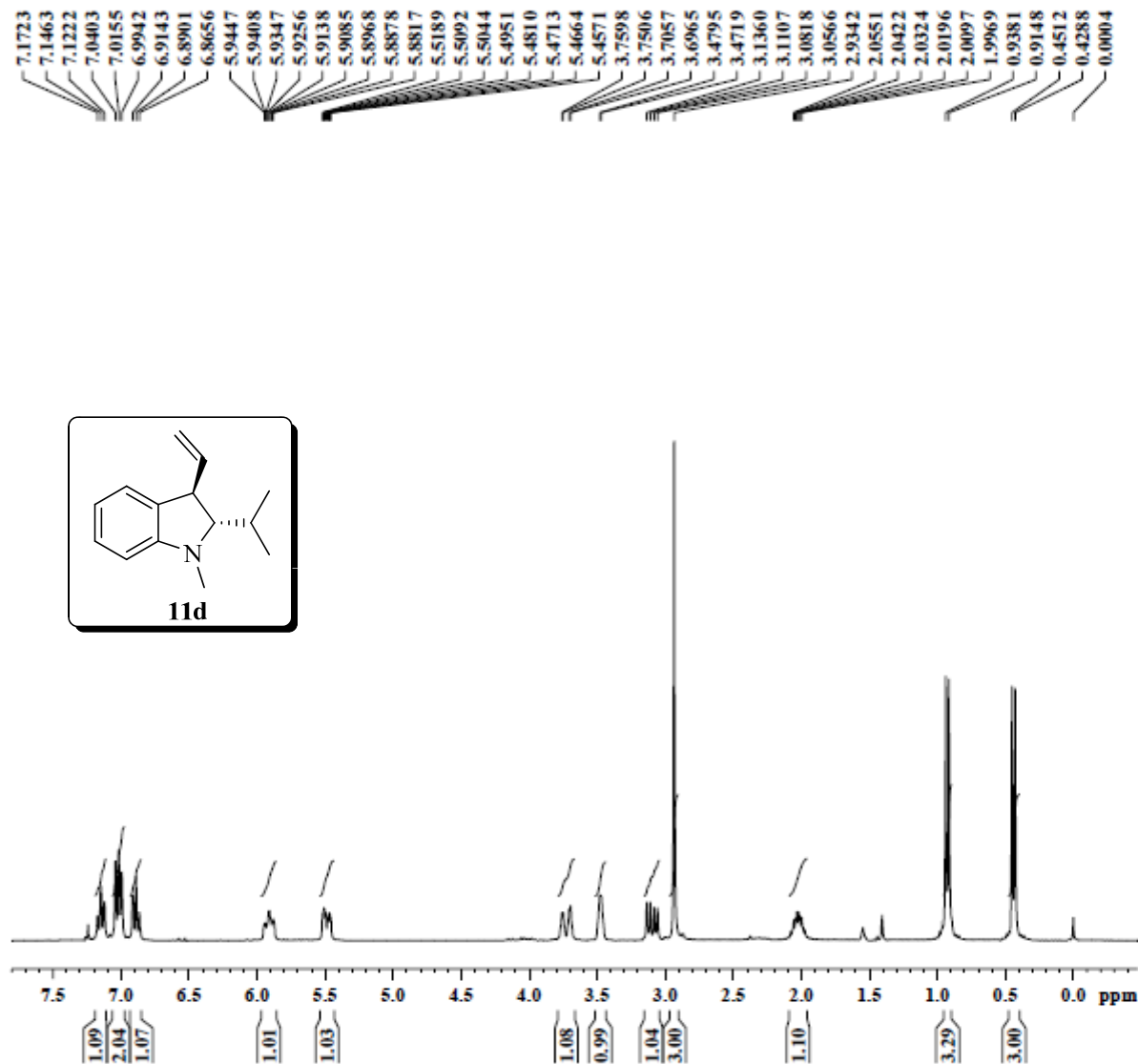


Figure 91: HPLC -Spectrum of **11c**



SKM-315
1H, CDCl3

Current Data Parameters
NAME SKM-315,1H,300 MHz,23.2,12.M
EXPNO 400
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120227
Time 14.33
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953987 sec
RG 90.5
DW 80.500 usec
DE 6.00 usec
TE 297.8 K
D1 1.0000000 sec
TDO 1

===== CHANNEL f1 =====
NUC1 1H
P1 11.60 usec
PL1 -1.00 dB
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300120 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Figure 92: ¹H -NMR Spectrum of 11d.

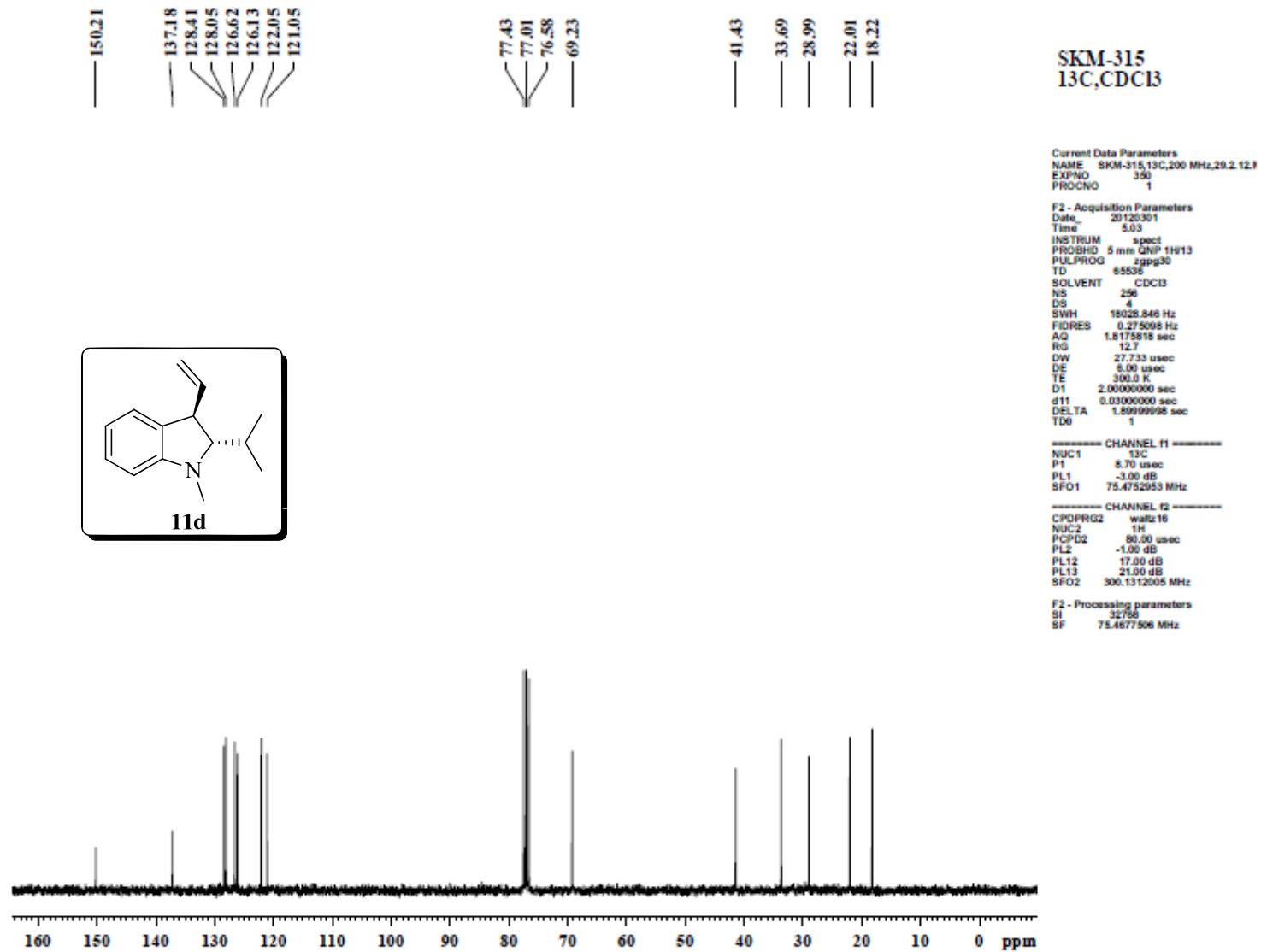


Figure 93: ^{13}C -NMR Spectrum of **11d**.

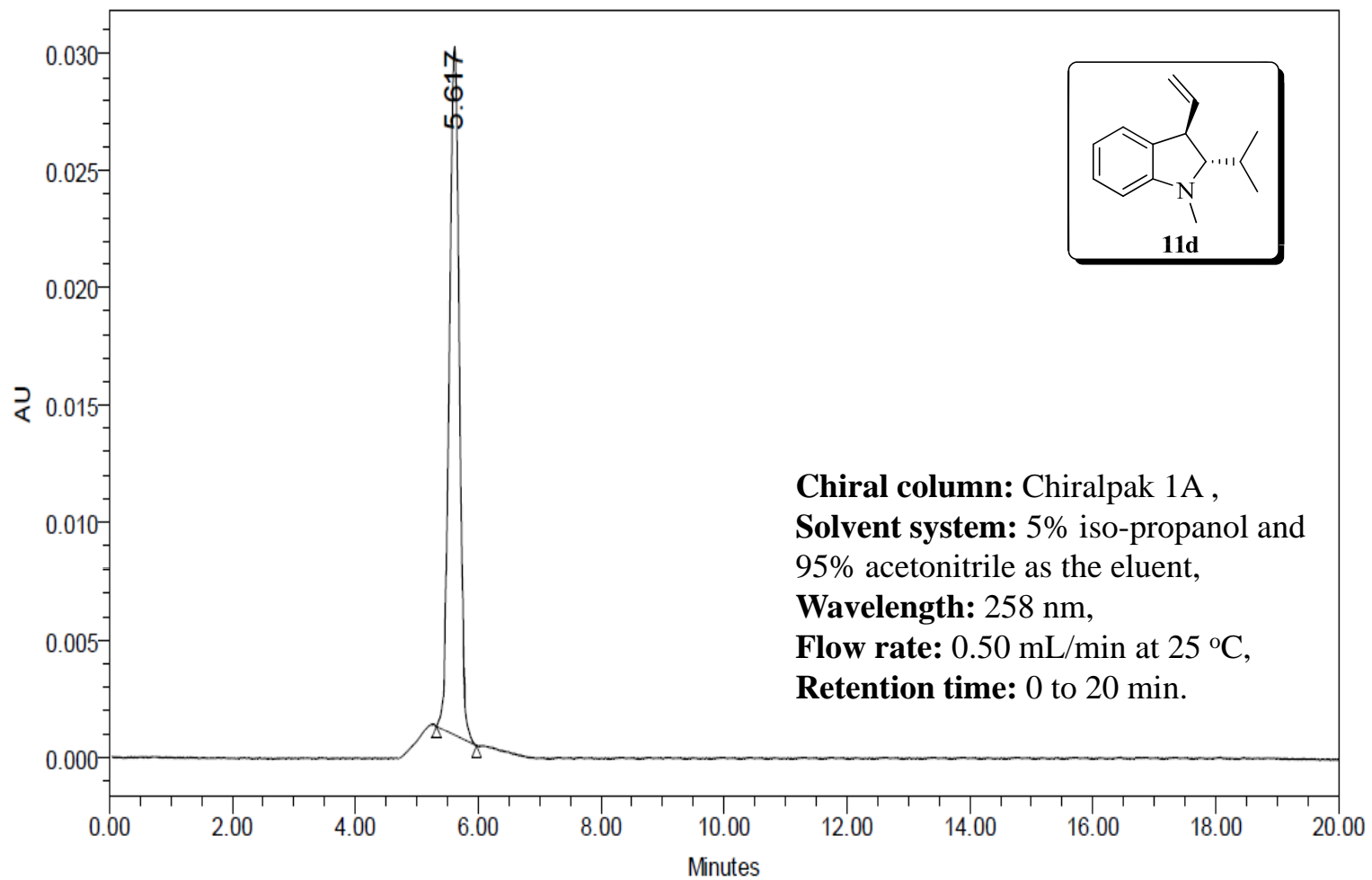


Figure 94: HPLC -Spectrum of **11d**.

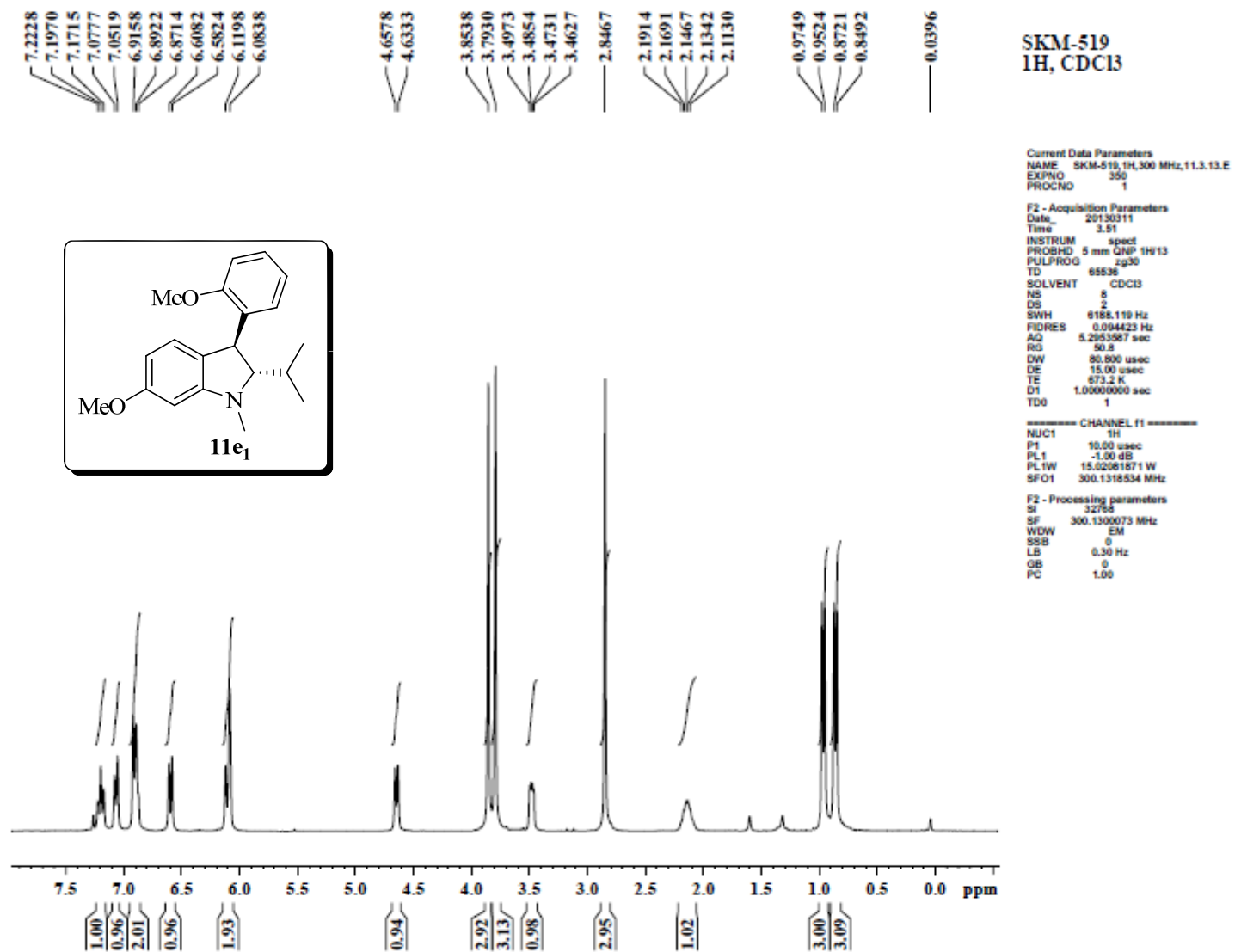
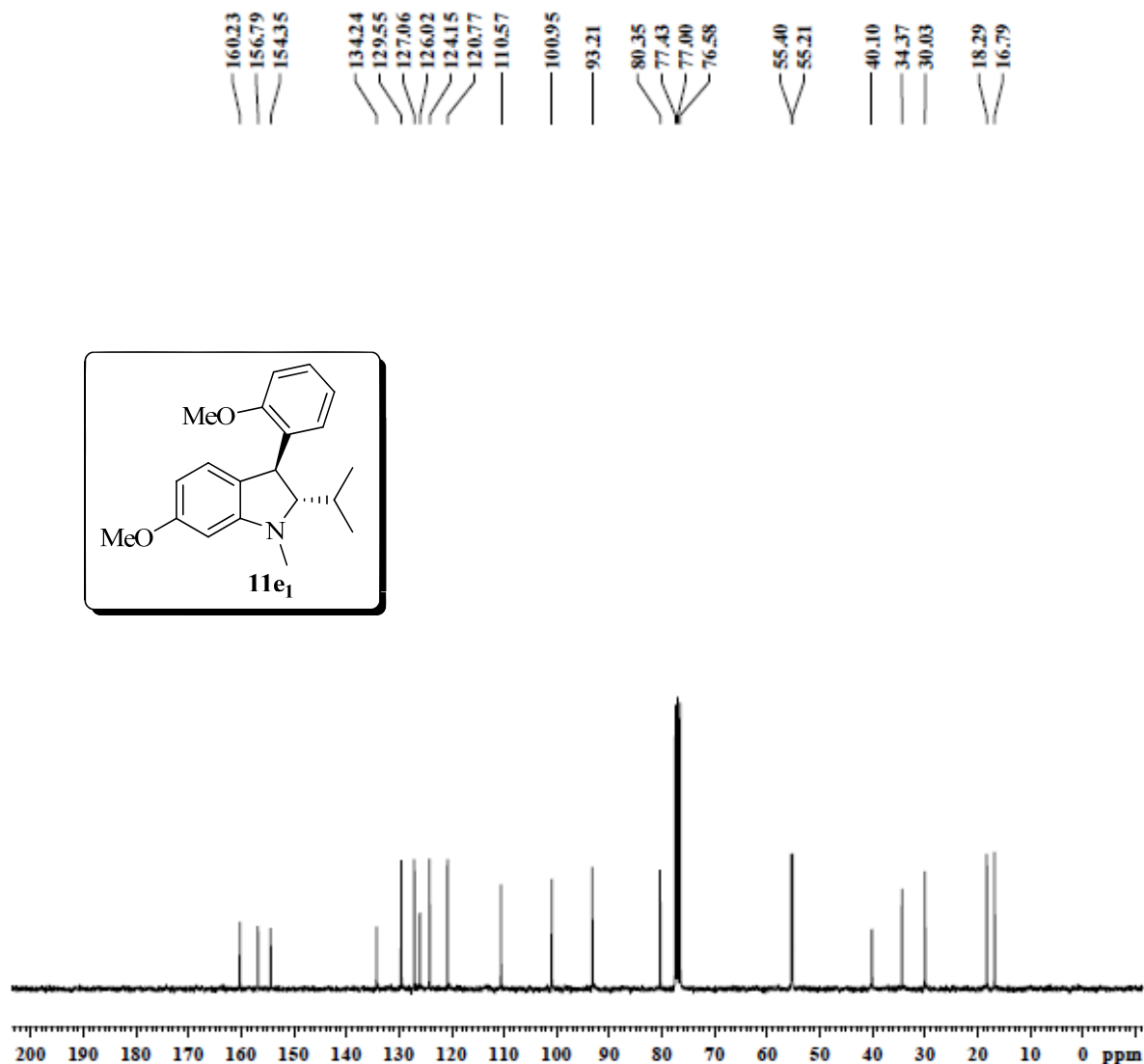


Figure 95: ¹H -NMR Spectrum of **11e₁**.



SKM-519
13C, CDCl₃

Current Data Parameters
NAME SKM-519,13C,300 MHz,11.3.13.E
EXPNO 351
PROCNO 1

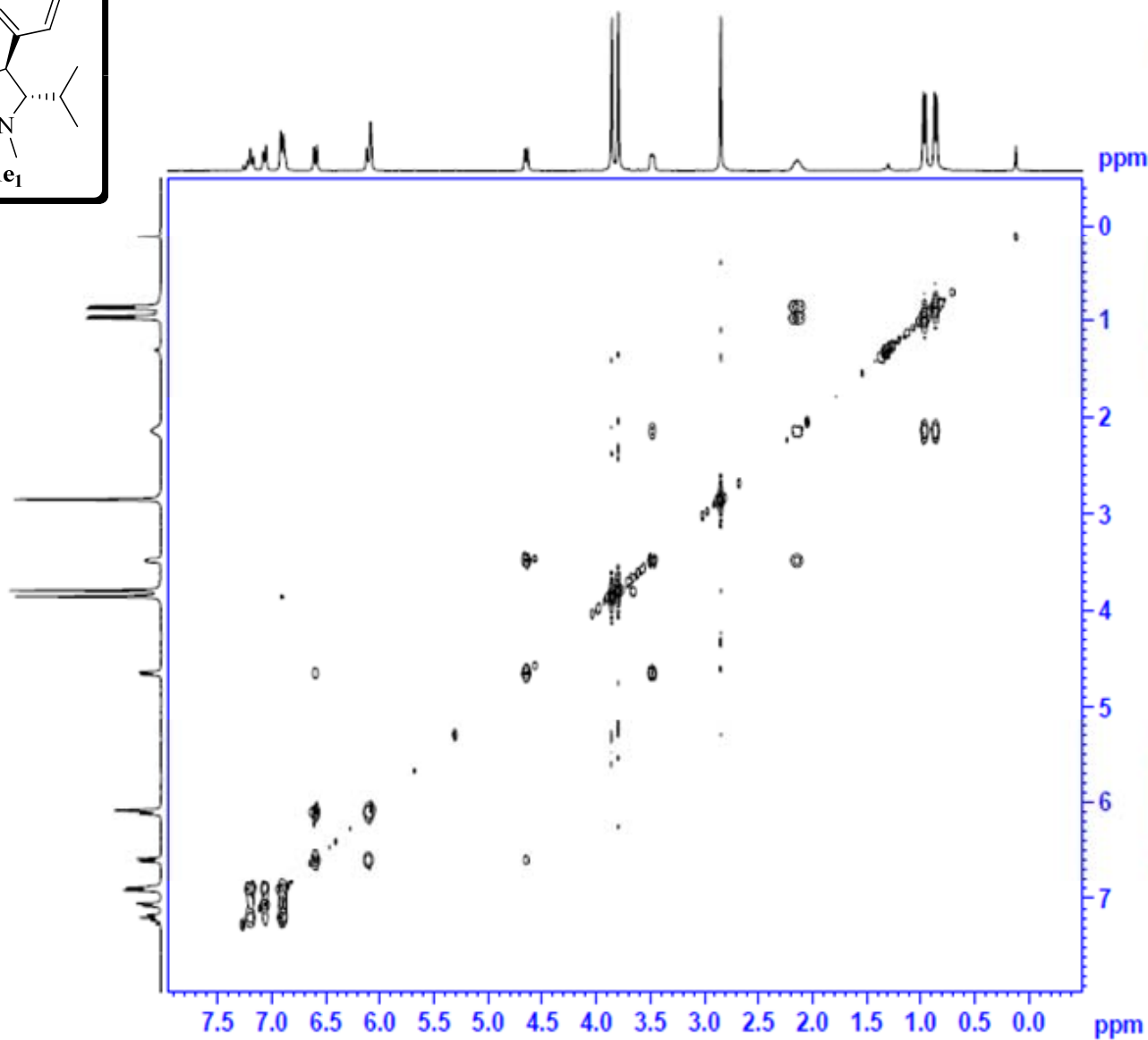
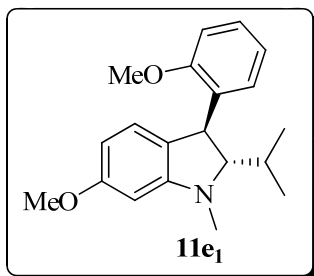
F2 - Acquisition Parameters
Date_ 20130311
Time 4.34
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDCl₃
NS 233
DS 4
SWH 18028.846 Hz
FIDRES 0.275096 Hz
AQ 1.8175816 sec
RG 2050
DW 27.733 usec
DE 15.00 usec
TE 873.2 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1

----- CHANNEL f1 -----
NUC1 13C
P1 8.15 usec
PL1 -3.00 dB
PL1W 55.13059616 W
SFO1 75.4752953 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -1.00 dB
PL12 17.06 dB
PL13 21.00 dB
PL2W 15.02061871 W
PL12W 0.22479781 W
PL13W 0.59477496 W
SFO2 300.1312005 MHz

F2 - Processing parameters
SI 32768
SF 75.4677547 MHz
WDW EM
SSB 0
LB 2.00 Hz
GB 0
PC 1.40

Figure 96: ¹³C -NMR Spectrum of **11e₁**.



SKM-519
COSY, CDCl₃

Current Data Parameters
NAME SKM-519_COSY_400 MHz_4 July 2013.8
EXPNO 661
PROCNO 1

F2 - Acquisition Parameters
Date_ 20130704
Time 19.59
INSTRUM spect
PROBHD 5 mm PABBO SB/
PULPROG cosypppqf
TD 2048
SOLVENT CDCl₃
NS 8
DS 8
SWH 3378.378 Hz
FIDRES 1.849599 Hz
AQ 0.3031040 sec
RG 19.45
DW 148.000 usec
DE 6.50 usec
TE 297.3 K
D0 0.00000300 sec
D1 1.8885802 sec
D11 0.03000000 sec
D12 0.00002000 sec
D13 0.00000400 sec
D18 0.00020000 sec
R0 0.00029600 sec

===== CHANNEL f1 =====
SFO1 400.1619979 MHz
NUC1 1H
P0 12.35 usec
P1 12.35 usec
P17 2500.00 usec
PLW1 14.00000000 W
PLW10 3.15879989 W

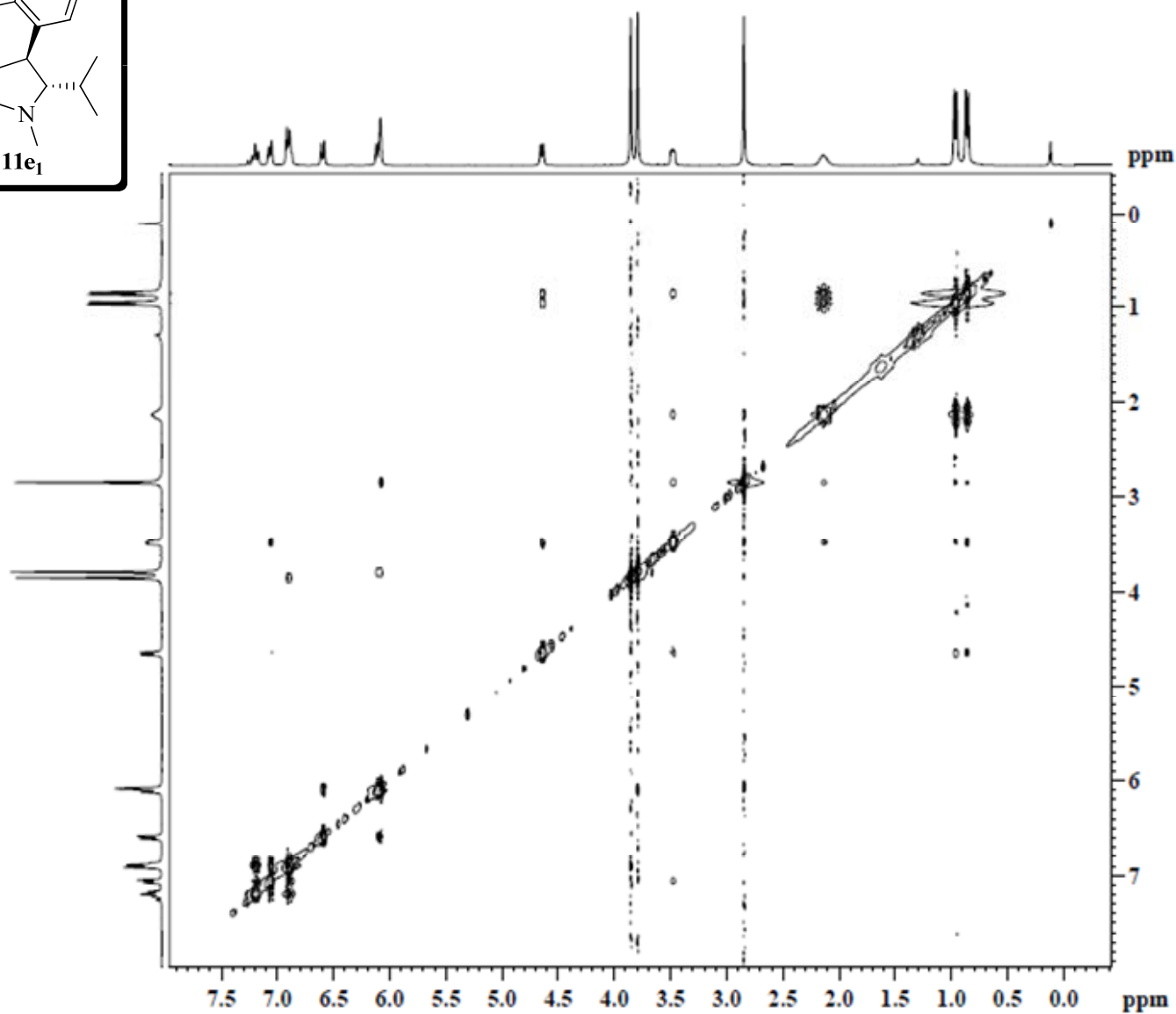
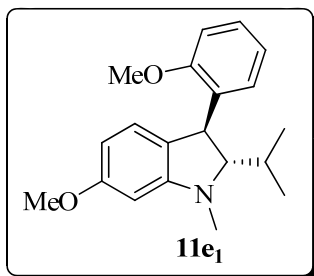
===== GRADIENT CHANNEL =====
GPNAM(1) SMSQ10.100
GPZ1 10.00 %
P16 1000.00 usec

F1 - Acquisition parameters
TD 128
SFO1 400.162 MHz
FIDRES 28.393581 Hz
SFW 8.443 ppm
FnMODE QF

F2 - Processing parameters
SI 1024
SF 400.160560 MHz
WOW GSIKE
SSB 0
LB 0 Hz
GB 0
PC 1.40

F1 - Processing parameters
42

Figure 97: COSY -Spectrum of **11e₁**.



SKM-519
NOESY, CDCl₃

Current Data Parameters
NAME SKM-519.NOESY.400 MHz.27 Jun.2013.E
EXPNO 111
PROCNO 1

F2 - Acquisition Parameters
Date_ 20130628
Time 3.22
INSTRUM spect
PROBHD 5 mm PABBO BBI
PULPROG zgpg30mtp
TD 2048
SOLVENT CDCl₃
NS 16
DS 32
SWH 3166.705 Hz
FREQS 1.638628 Hz
AQ 0.3061420 sec
RG 22.13
DN 140.500 usec
DE 6.50 usec
TE 300.2 K
D0 0.00015000 sec
D1 1.90004700 sec
D6 0.30000001 sec
D11 0.20000000 sec
D12 0.00002000 sec
D16 0.00020000 sec
RG 0.00020000 sec

----- CHANNEL f1 -----
SFO1 400.1620132 MHz
NUC1 13
P1 12.00 usec
P2 24.70 usec
P17 2000.00 usec
PLW1 14.80000000 W
PLW0 3.15879999 W

----- GRADIENT CHANNEL -----
GPNAM1) SRF50 10.100
GPZ1 40.00 %
P16 1000.00 usec

F1 - Acquisition parameters
TD 2048
SFO1 400.162 MHz
FREQS 13.108221 Hz
SW 8.396 ppm
PulsePR Stelwa-TPP1

F2 - Processing parameters
SI 1024
SF 400.160062 MHz
WOW COSY
SSB 2
LB 0 Hz
GB 0
PC 1.00

F1 - Processing parameters
SI 1024
MC2 Stelwa-TPP1
SF 400.160062 MHz
WOW COSY
SSB 2
LB 0 Hz
GB 0

Figure 98: NOESY -Spectrum of 11e₁.

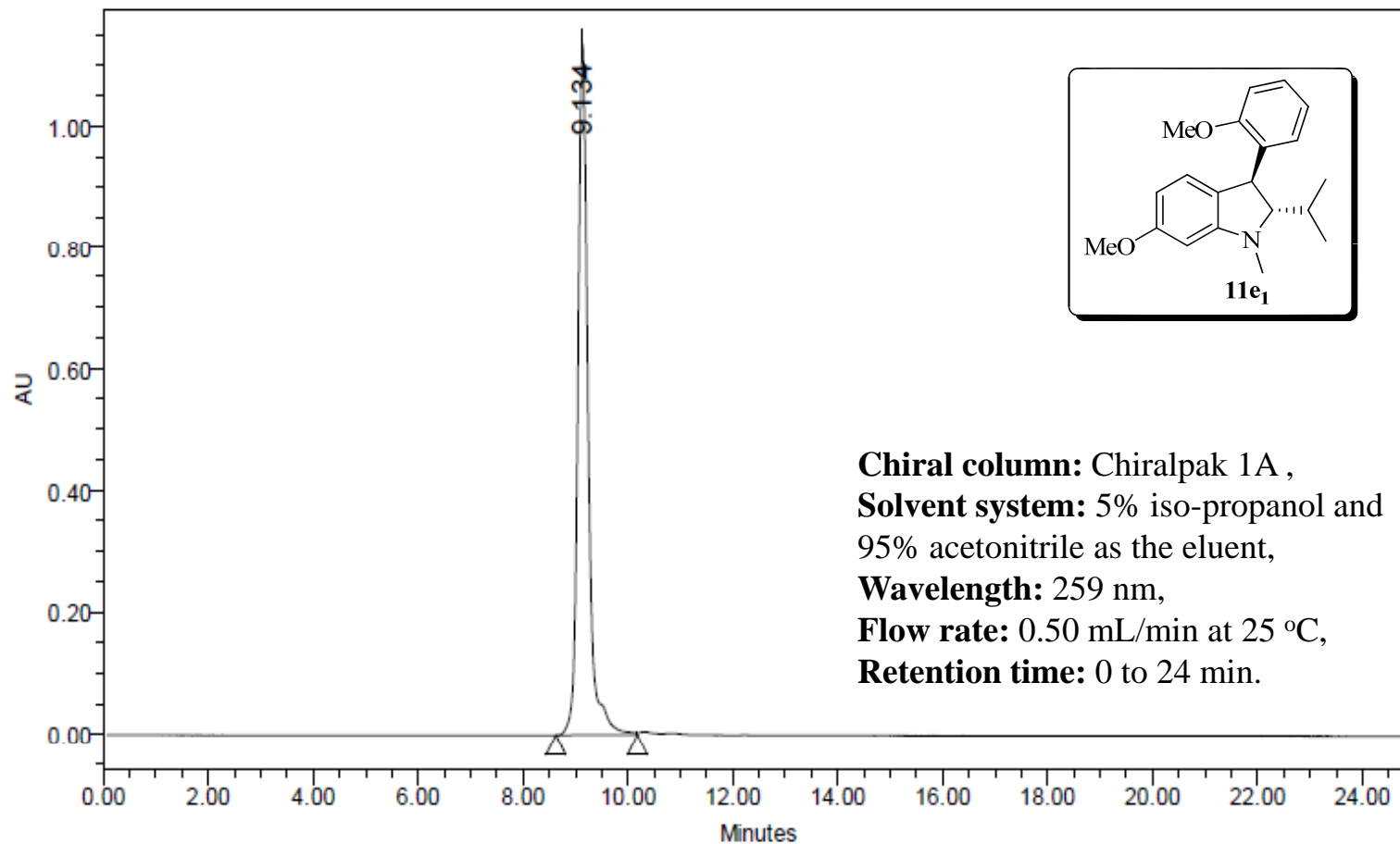


Figure 99: HPLC -Spectrum of **11e₁**.

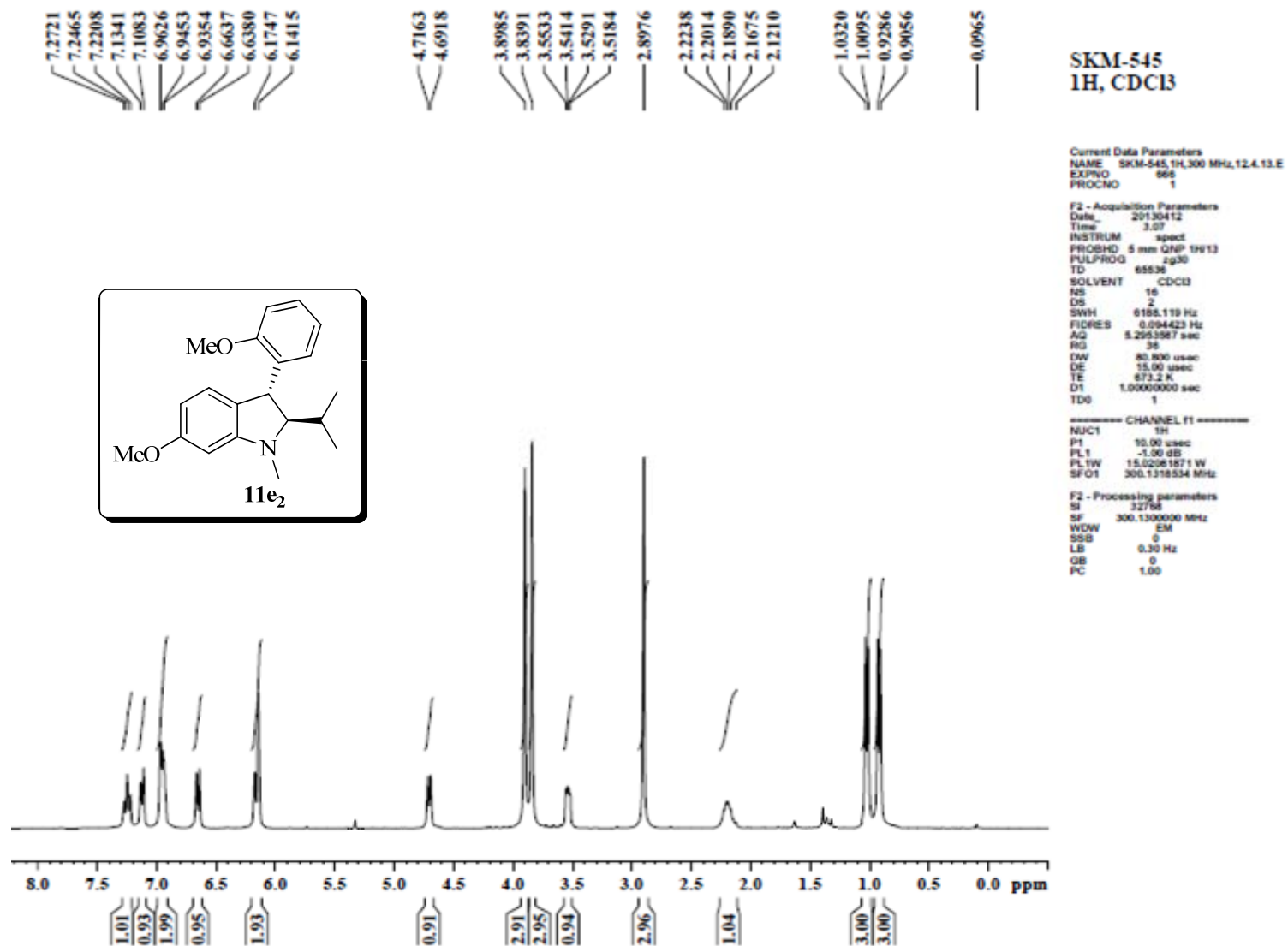
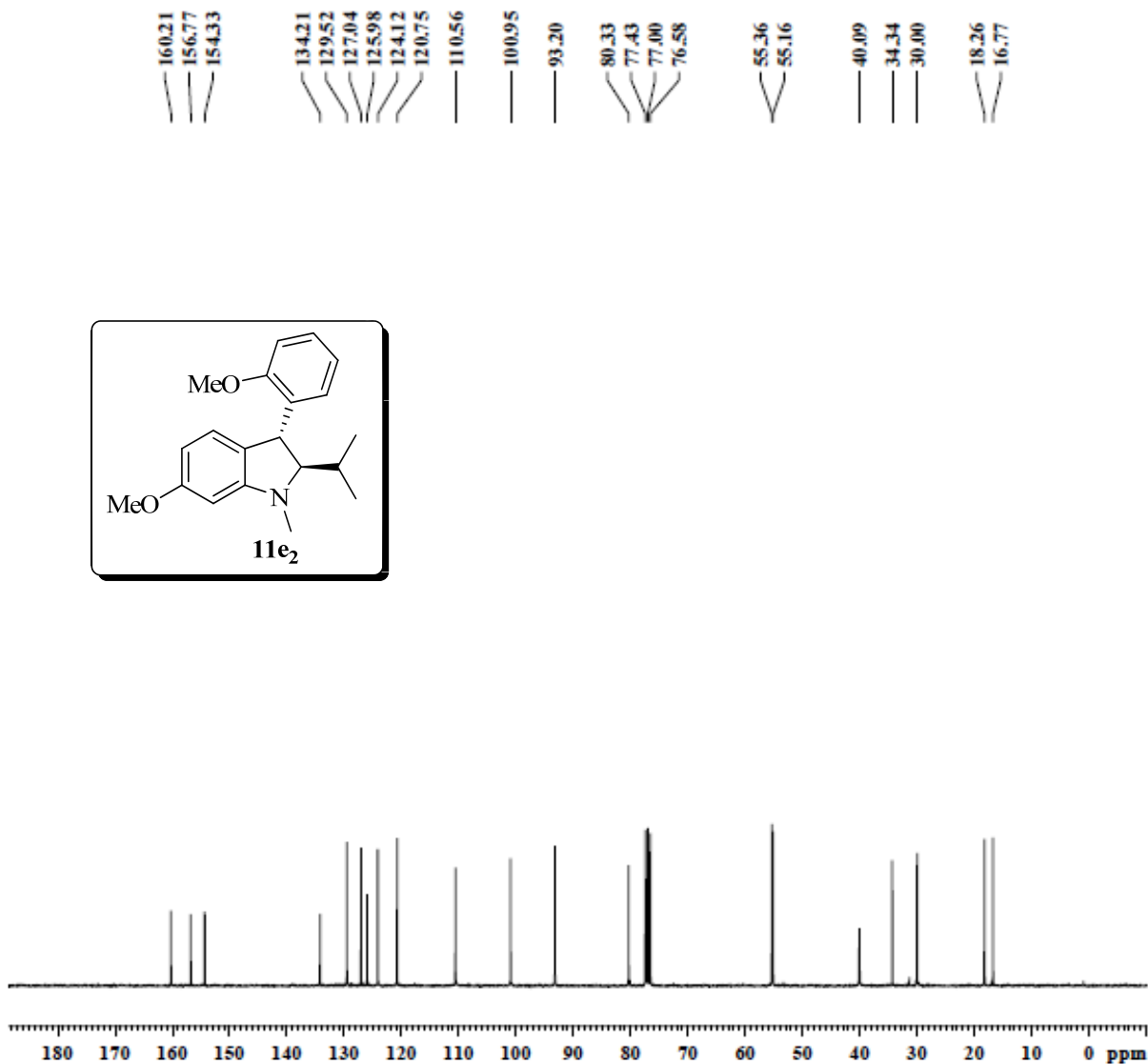


Figure 100: ¹H -NMR Spectrum of 11e₂.



SKM-545
13C, CDCl₃

Current Data Parameters
NAME SKM-545.13C,300 MHz,12.4.13.E
EXPNO 867
PROCNO 1

F2 - Acquisition Parameters
Date_ 20130412
Time 3.37
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDCl₃
NS 512
DS 4
SWH 18028.848 Hz
FIDRES 0.275098 Hz
AQ 1.8175818 sec
RG 2050
DW 27.733 usec
DE 15.00 usec
TE 873.2 K
D1 2.05000000 sec
D11 0.03000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 13C
P1 8.15 usec
PL1 -3.00 dB
PL1W 55.13059616 W
SFO1 75.4752953 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -1.00 dB
PL12 17.06 dB
PL13 21.00 dB
PL2W 15.02081871 W
PL12W 0.23479761 W
PL13W 0.29477498 W
SFO2 300.1312005 MHz

F2 - Processing parameters
SI 32768
SF 75.4677591 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Figure 101: ¹³C -NMR Spectrum of **11e₂**.

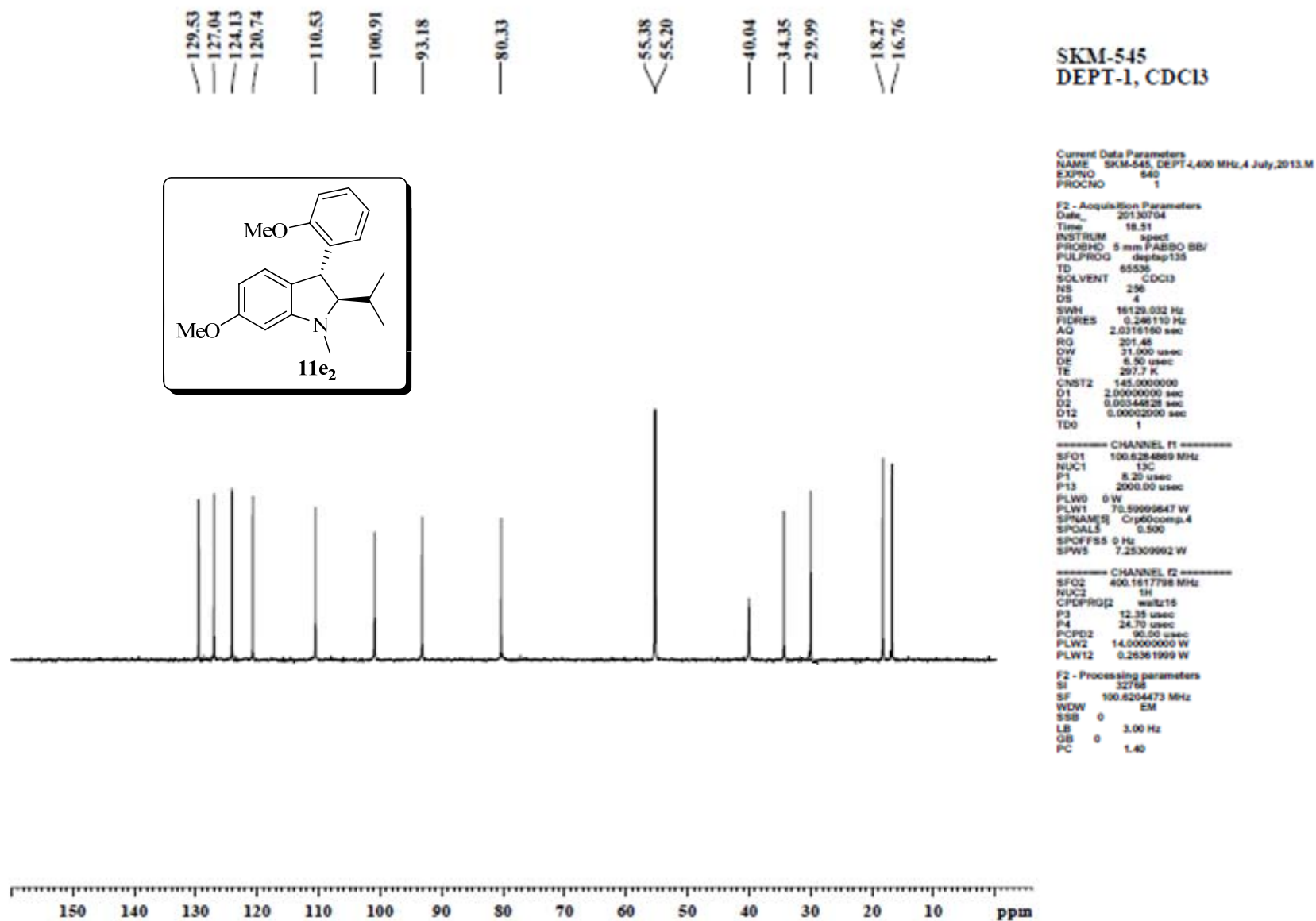


Figure 102: DEPT-13C -Spectrum of **11e₂**.

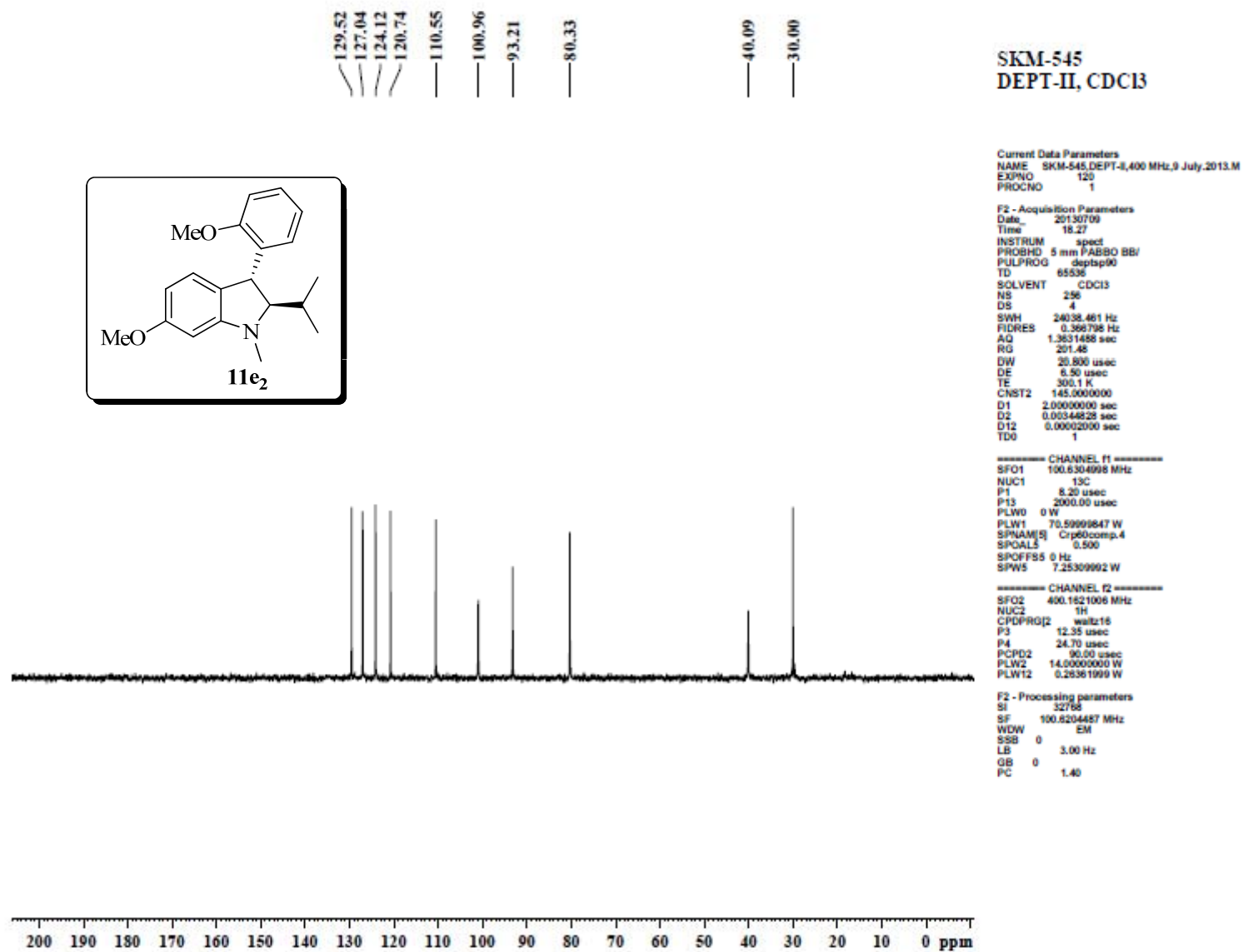


Figure 103: DEPT-II -Spectrum of 11e₂.

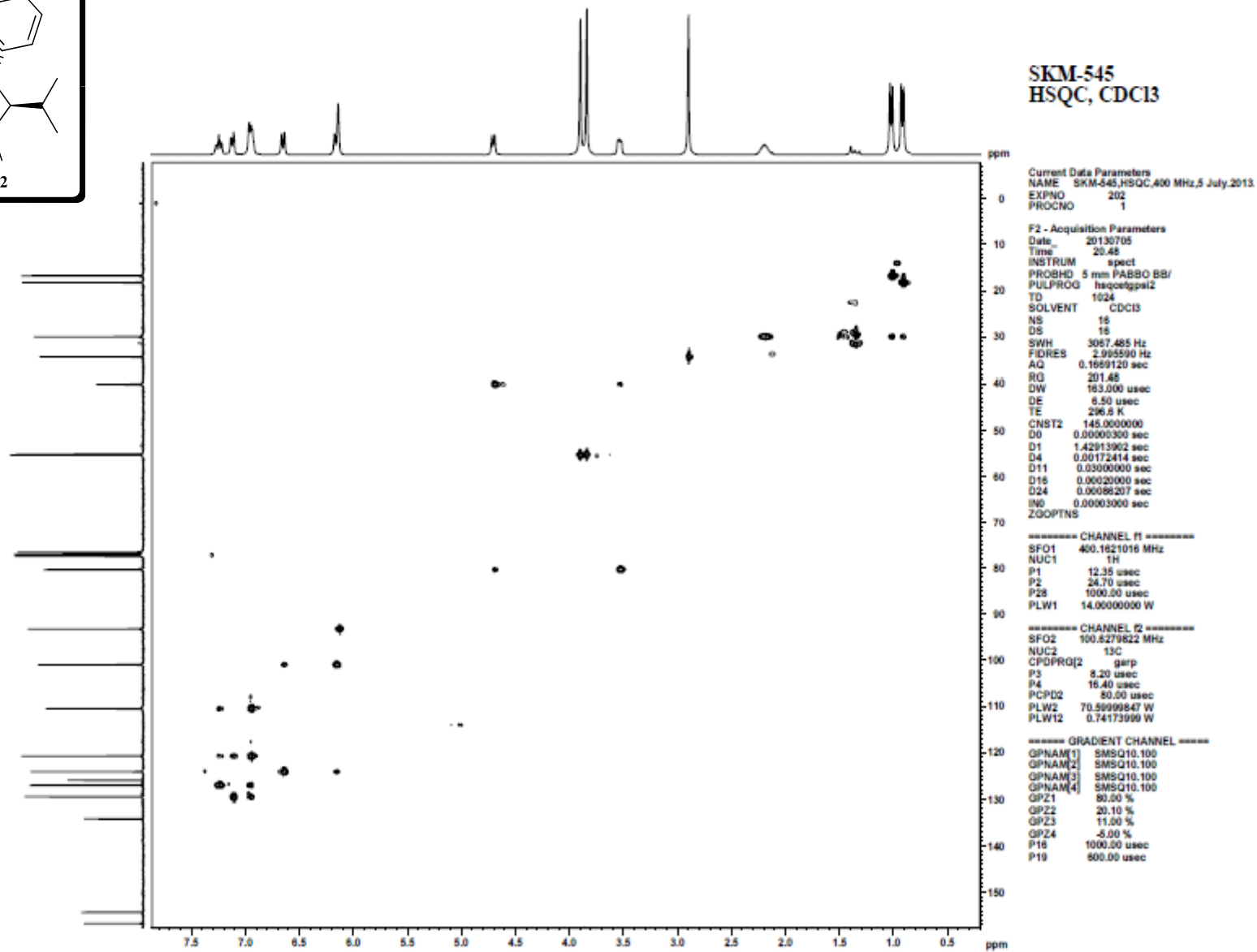
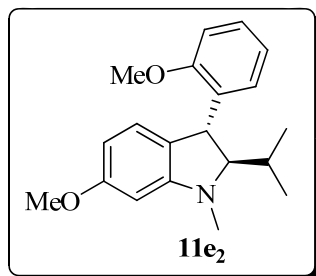
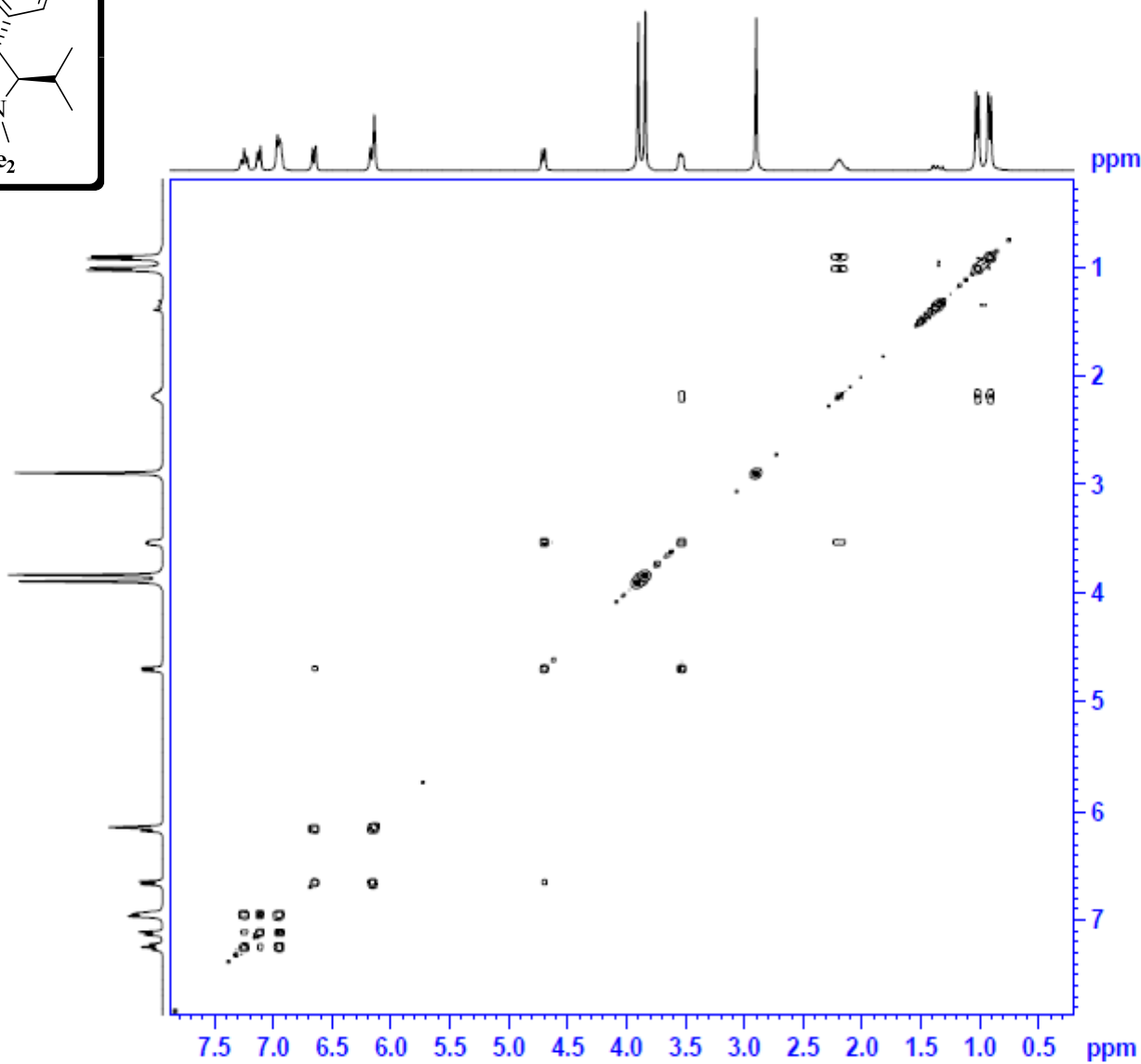
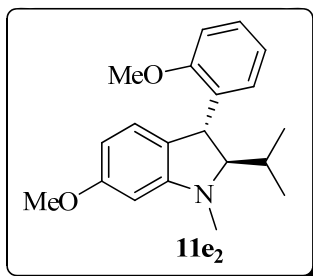


Figure 104: HSQC -Spectrum of **11e₂**.



**SKM-545
COSY, CDC13**

Current Data Parameters
 NAME SKM-545,COSY,400 MHz,5 July,2013.E
 EXPNO 201
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20130705
 Time 19.30
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG cosygpppqf
 TD 2048
 SOLVENT CDC13
 NS 16
 DS 8
 SWH 3067.485 Hz
 FIDRES 1.407795 Hz
 AQ 0.3338240 sec
 RG 18.04
 DW 163.000 usec
 DE 6.50 usec
 TE 295.5 K
 D0 0.00000300 sec
 D1 1.85786903 sec
 D11 0.03000000 sec
 D12 0.0002000 sec
 D13 0.0000400 sec
 D16 0.0002000 sec
 IN0 0.00032600 sec

----- CHANNEL f1 -----
 SFO1 400.1621016 MHz
 NUC1 1H
 P0 12.35 usec
 P1 12.35 usec
 P17 2500.00 usec
 PLW1 14.00000000 W
 PLW10 3.15879889 W

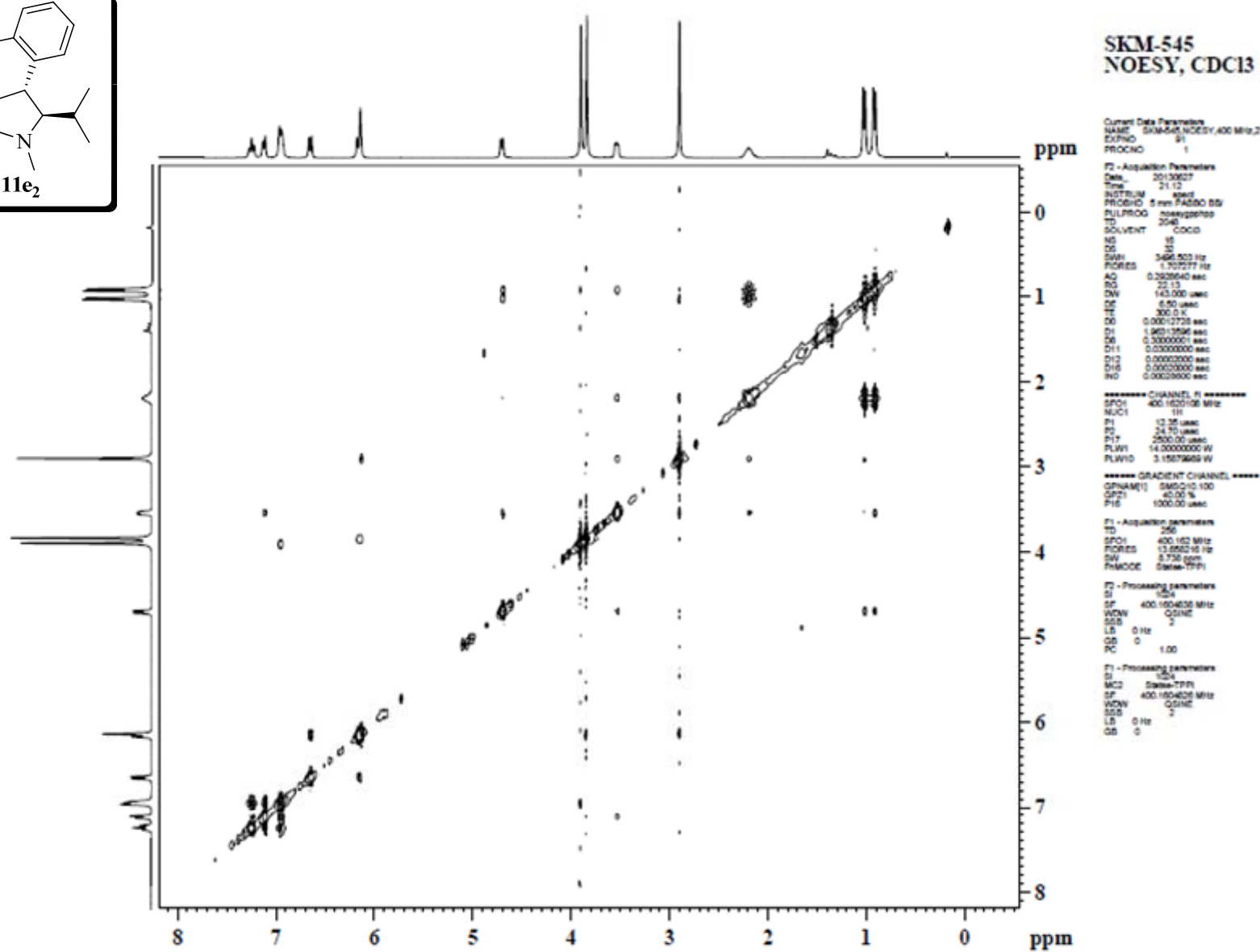
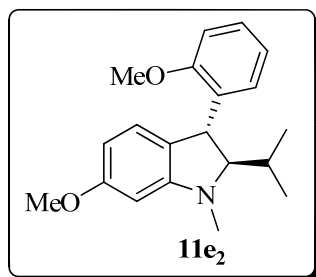
----- GRADIENT CHANNEL -----
 GPNAM[1] SMS-Q0.100
 GPZ1 10.00 %
 P16 1000.00 usec

F1 - Acquisition parameters
 TD 128
 SFO1 400.1621 MHz
 FIDRES 23.964724 Hz
 SW 7.866 ppm
 F1MODE QF

F2 - Processing parameters
 SI 1024
 SF 400.1604861 MHz
 WDW QSINE
 SSB 0
 LB 0 Hz
 GB 0
 PC 1.40

F1 - Processing parameters
 SI 1024
 MC2 QF
 SF 400.1604854 MHz
 WDW QSINE
 SSB 0
 LB 0 Hz
 GB 0

Figure 105: COSY -Spectrum of 11e₂.



SKM-545
NOESY, CDC13

Current Data Parameters
NAME SKM-545.NOESY.400.MHz.27.June.2013.E
EXPNO 51
PROCNO 1

F2 - Acquisition Parameters
Date_ 20130627
Time 21.13
INSTRUM spect
PROBHD 5 mm PABBO BBI
PULPROG zgpg30p
TD 32768
SOLVENT CDCl3
NS 16
DS 32
SWH 5466.503 Hz
FIDRES 1.707277 Hz
AQ 0.326645 sec
RG 32.13
DW 143.000 usec
DE 6.50 usec
TE 300.2 K
D0 0.00017728 sec
D1 1.90017594 sec
D8 0.30000001 sec
D11 0.03000000 sec
D12 0.00002000 sec
D16 0.00002000 sec
R0 0.00000000 sec

***** CHANNEL f1 *****
SFO1 400.162108 MHz
NUC1 1H
P1 13.35 usec
PC 24.70 usec
P17 2500.00 usec
PLW1 14.00000000 W
PLW10 3.15079689 W

***** GRADIENT CHANNEL *****
GPNAM1[1] SMO-Q1.100
GPT1 40.00 %
P16 1000.00 usec

F1 - Acquisition parameters
TD 32768
SFO1 400.162108 MHz
FIDRES 13.866216 Hz
SW 9.730 ppm
PRMODE Data-TFPI

F1 - Processing parameters
SI 32768
SF 400.1604038 MHz
WDW QDING
SSB 2
LB 0 Hz
GB 0
PC 1.00

F1 - Processing parameters
SI 32768
MC0 Data-TFPI
SF 400.1604038 MHz
WDW QDING
SSB 2
LB 0 Hz
GB 0

Figure 106: NOESY -Spectrum of **11e₂**.

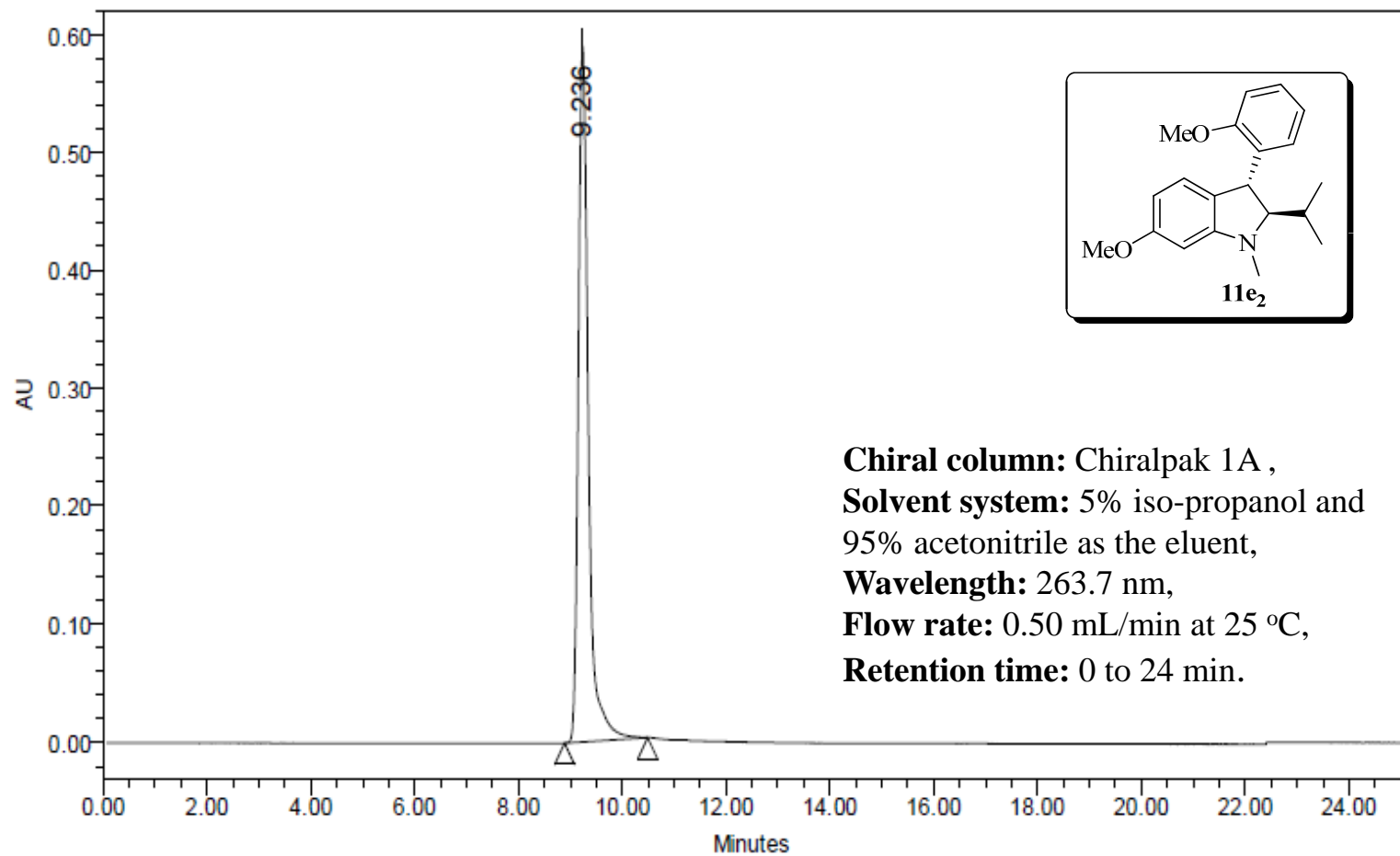
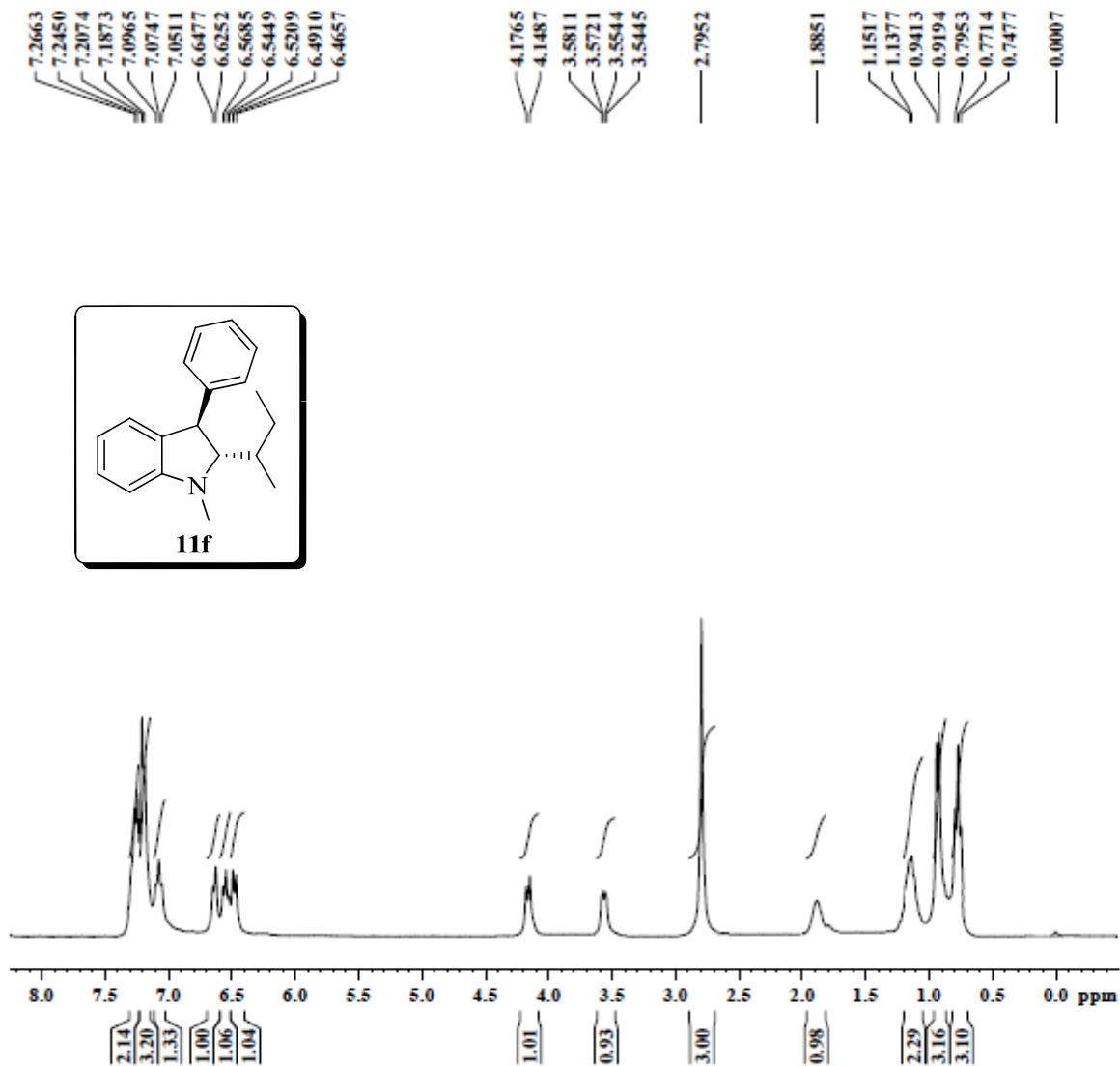


Figure 107: HPLC -Spectrum of **11e₂**.



SKM-437
1H, CDCl3

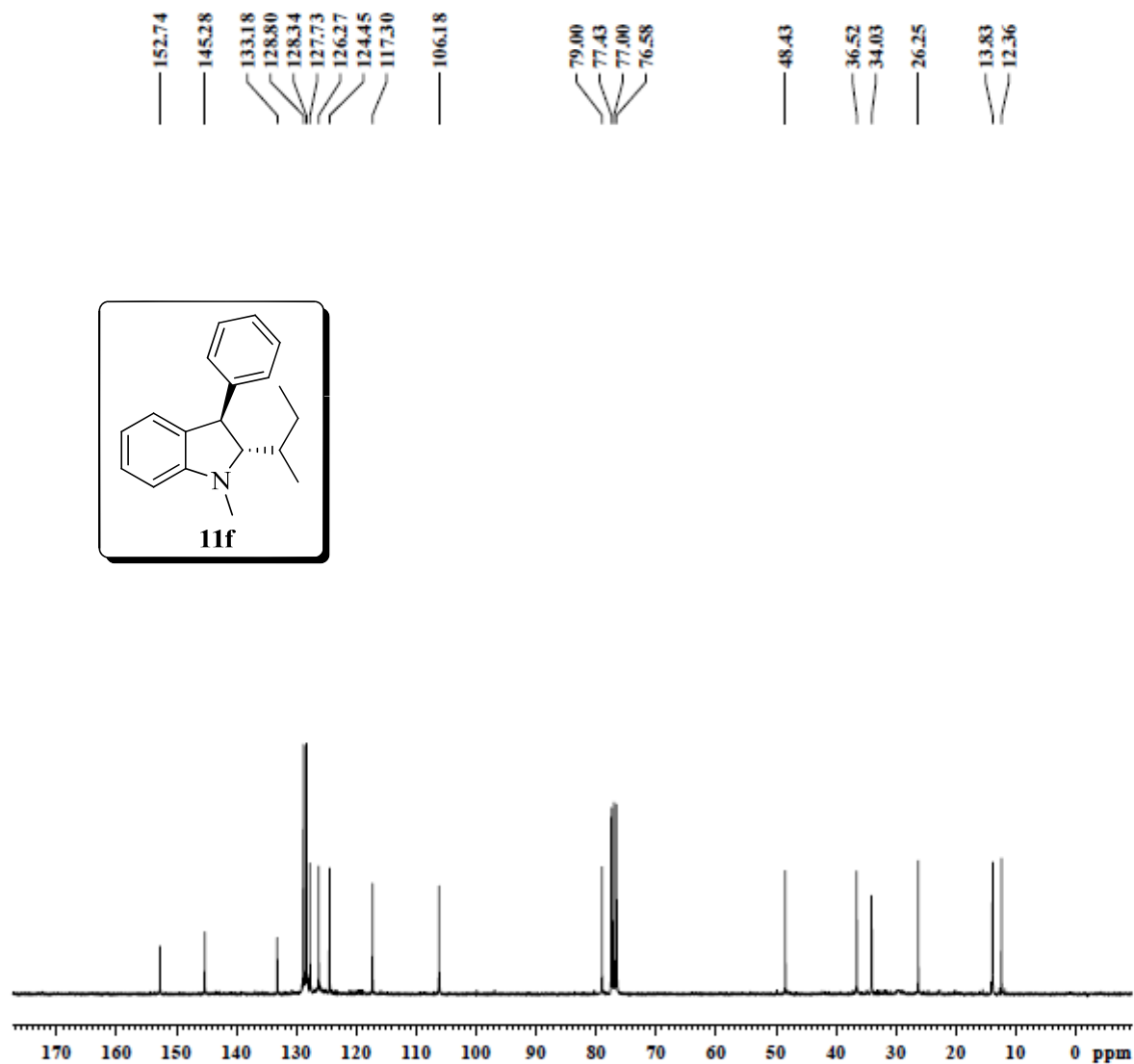
Current Data Parameters
NAME SKM-437, 1H, 300 MHz, 8.8.12.M
EXPNO 350
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120807
Time 22.20
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6185.119 Hz
FIDRES 0.094423 Hz
AQ 5.293587 sec
RG 45.2
DW 80.800 usec
DE 6.00 usec
TE 295.0 K
D1 1.0000000 sec
TDO 1

===== CHANNEL f1 =====
NUC1 1H
P1 11.60 usec
PL1 -1.00 dB
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300273 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Figure 108: ¹H -NMR Spectrum of **11f**.



SKM-437
13C,CDC13

Current Data Parameters
NAME SKM-437,13C,300 MHz,13.8.12.E
EXPNO 940
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120814
Time 1.01
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDC13
NS 2048
DS 0
SWH 18028.846 Hz
FIDRES 0.275098 Hz
AQ 1.8175818 sec
RG 10
DW 27.733 usec
DE 6.00 usec
TE 303.0 K
D1 2.0000000 sec
d11 0.0300000 sec
DELTA 1.8999999 sec
TD0 1

----- CHANNEL f1 -----
NUC1 13C
P1 8.70 usec
PL1 -3.00 dB
SFO1 75.4752953 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
PCPD2 60.00 usec
PL2 -1.00 dB
PL12 17.00 dB
PL13 21.00 dB
SFO2 300.1312005 MHz

F2 - Processing parameters
SI 32768
SF 75.4677589 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Figure 109: ^{13}C -NMR Spectrum of **11f**.

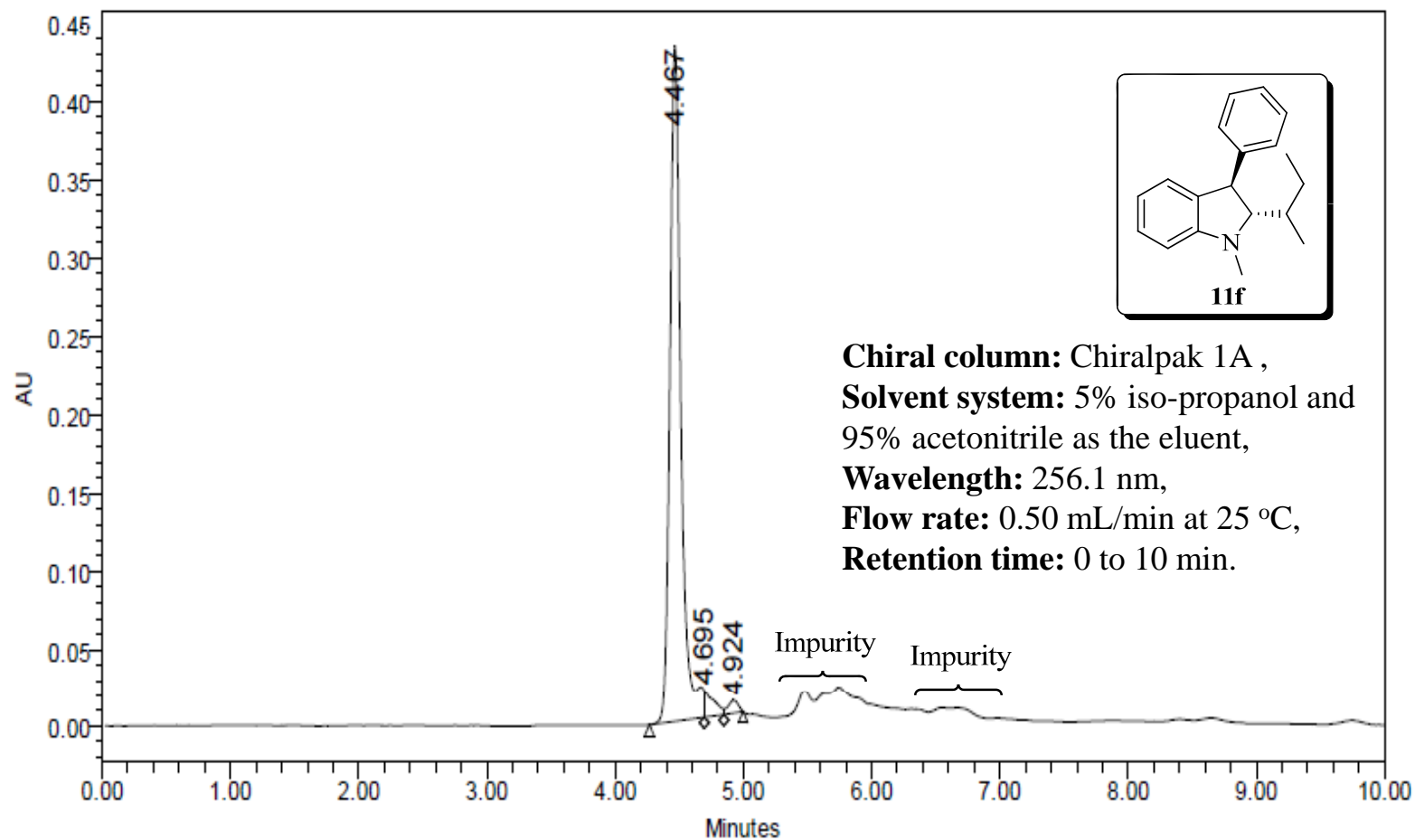
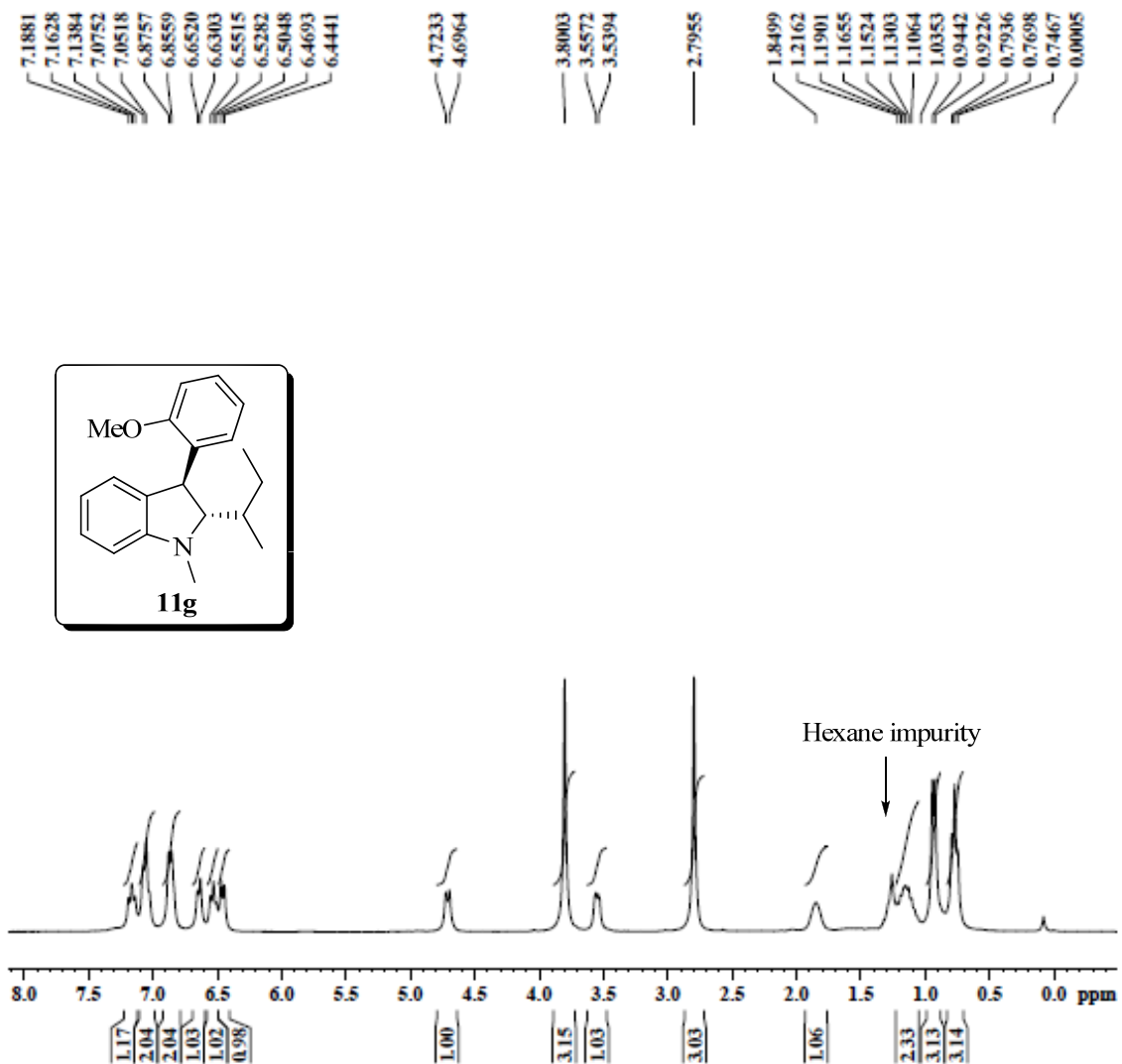


Figure 110: HPLC -Spectrum of 11f.

Note: The impurity species were collected and found by ^1H NMR not to contain any isomeric forms of compound **11f**.



SKM-436
1H, CDCl3

Current Date Parameters
 NAME SKM-436.1H.300 MHz.8.8.12.M
 EXPNO 340
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20120807
 Time 22:14
 INSTRUM spect
 PROBHD 5 mm QNP 1H13
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 8
 DS 0
 SWH 6186.119 Hz
 FIDRES 0.034423 Hz
 AQ 5.2953567 sec
 RG 403
 DW 80.800 usec
 DE 6.00 usec
 TE 298.0 K
 D1 1.00000000 sec
 TDD 1

***** CHANNEL f1 *****
 NUC1 1H
 P1 11.80 usec
 PL1 -1.00 dB
 SFO1 300.1318534 MHz

F2 - Processing parameters
 SI 32768
 SF 300.1300281 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

Figure 111: ¹H -NMR Spectrum of **11g**.

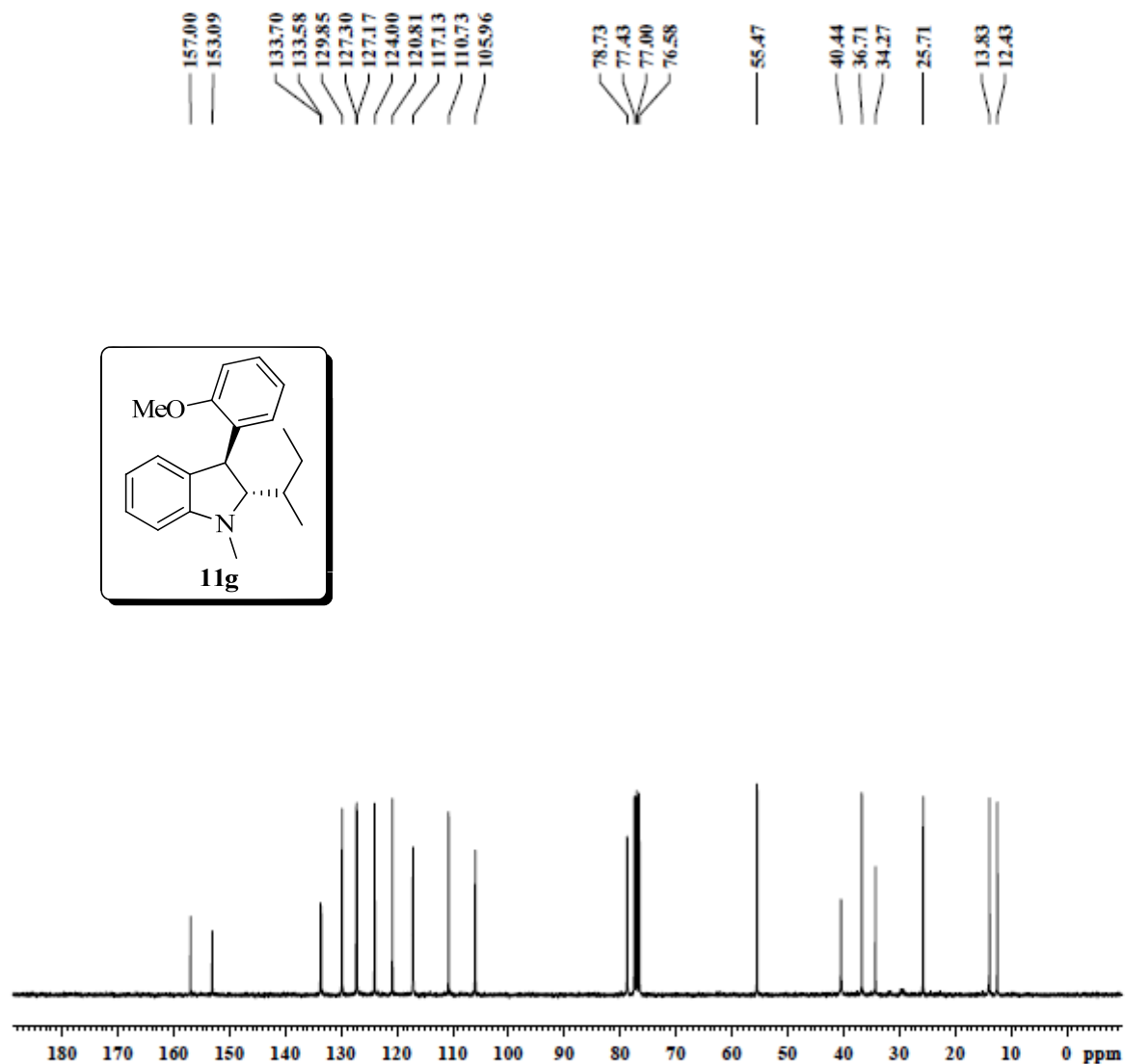


Figure 112: ^{13}C -NMR Spectrum of **11g**.

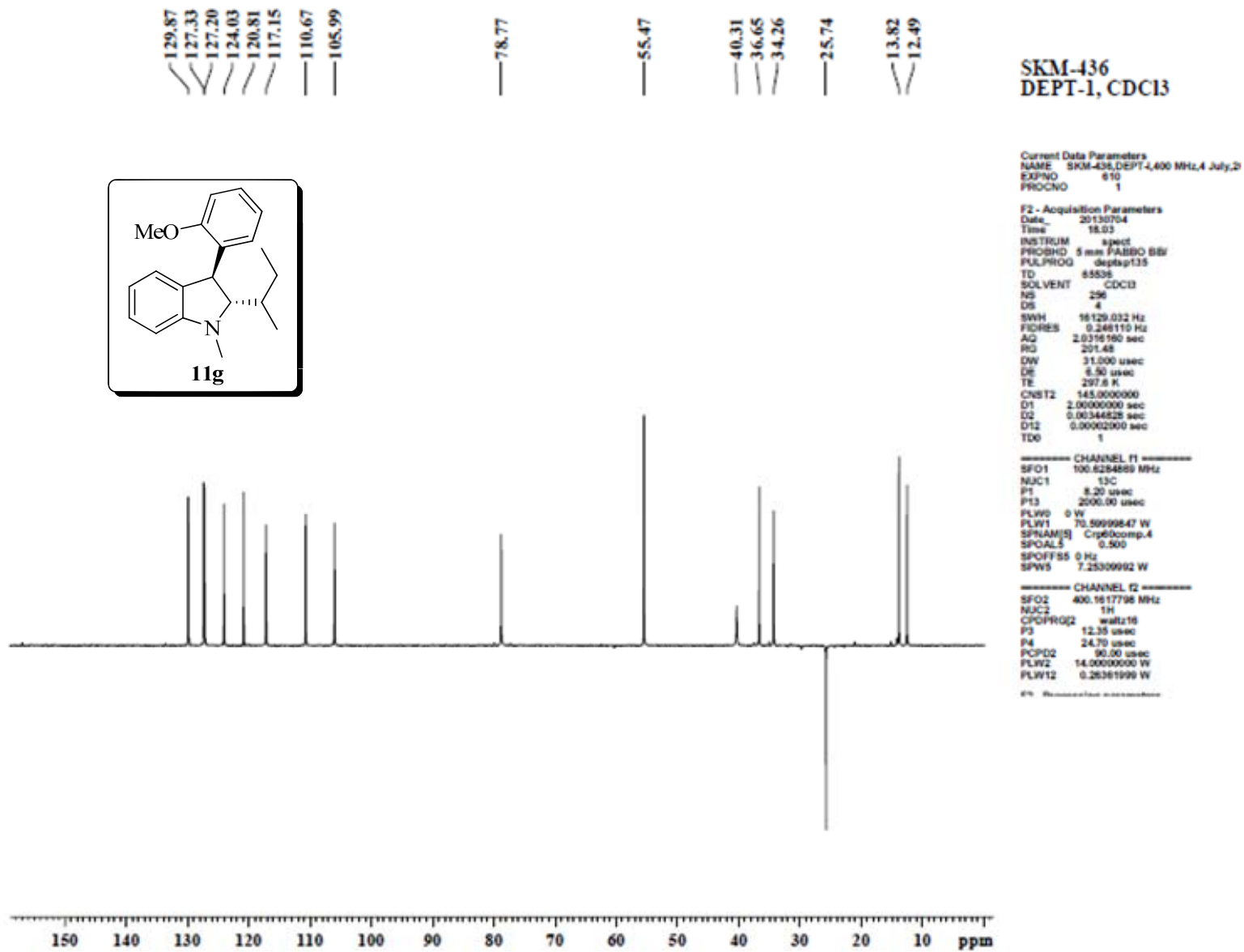


Figure 113: DEPT-I -Spectrum of 11g.

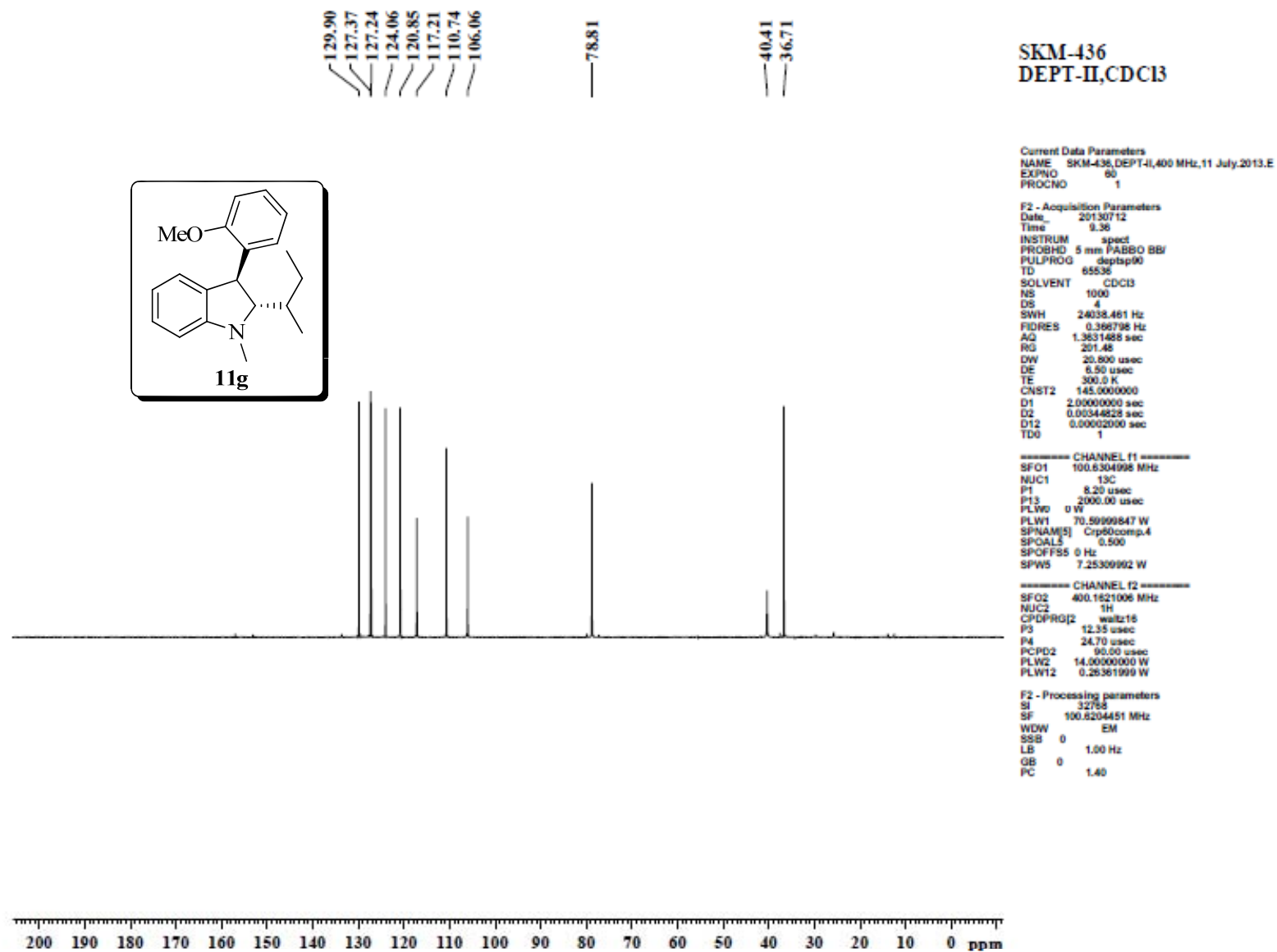


Figure 114: DEPT-II -Spectrum of **11g**.

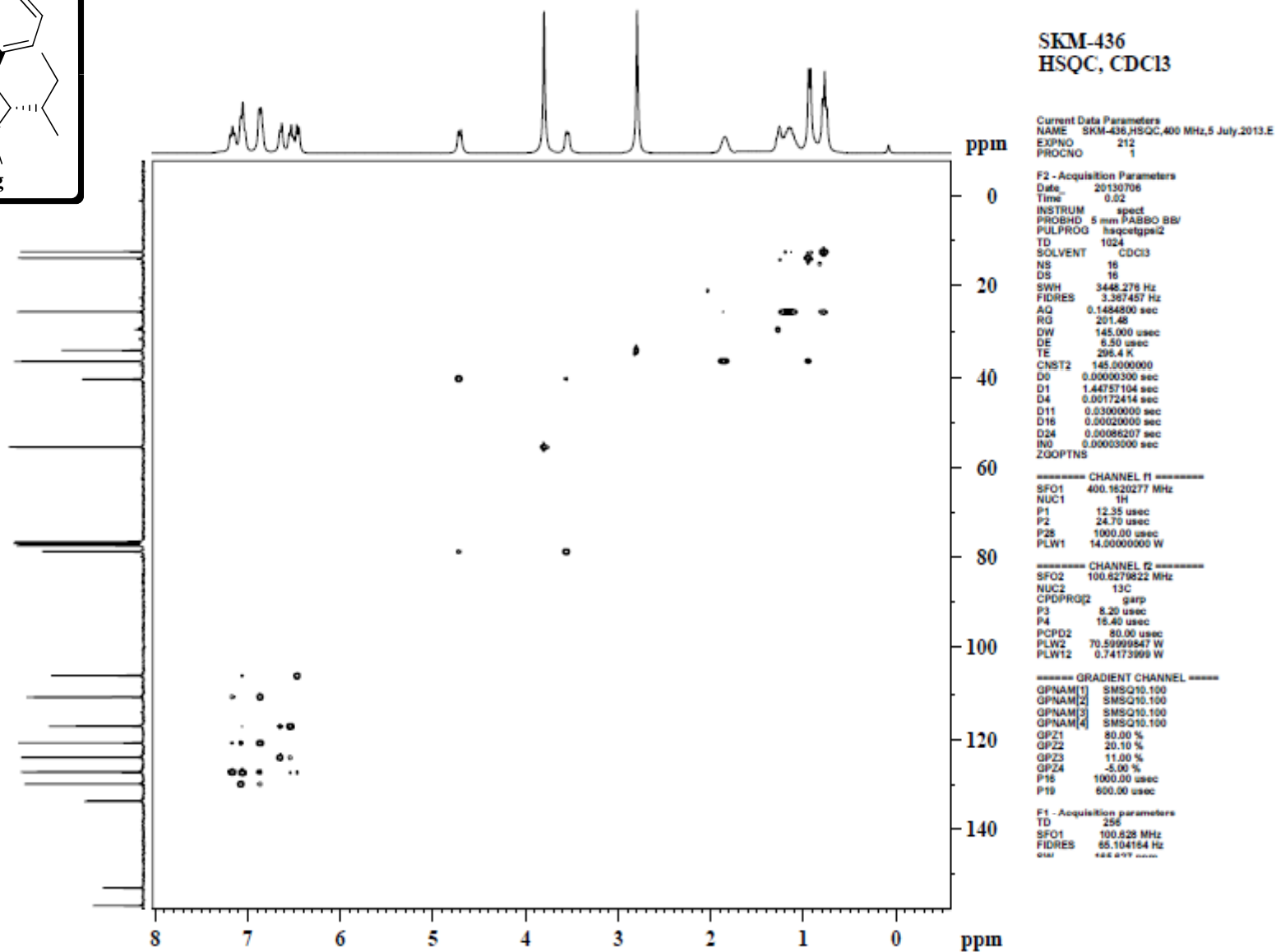
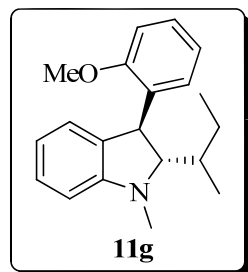
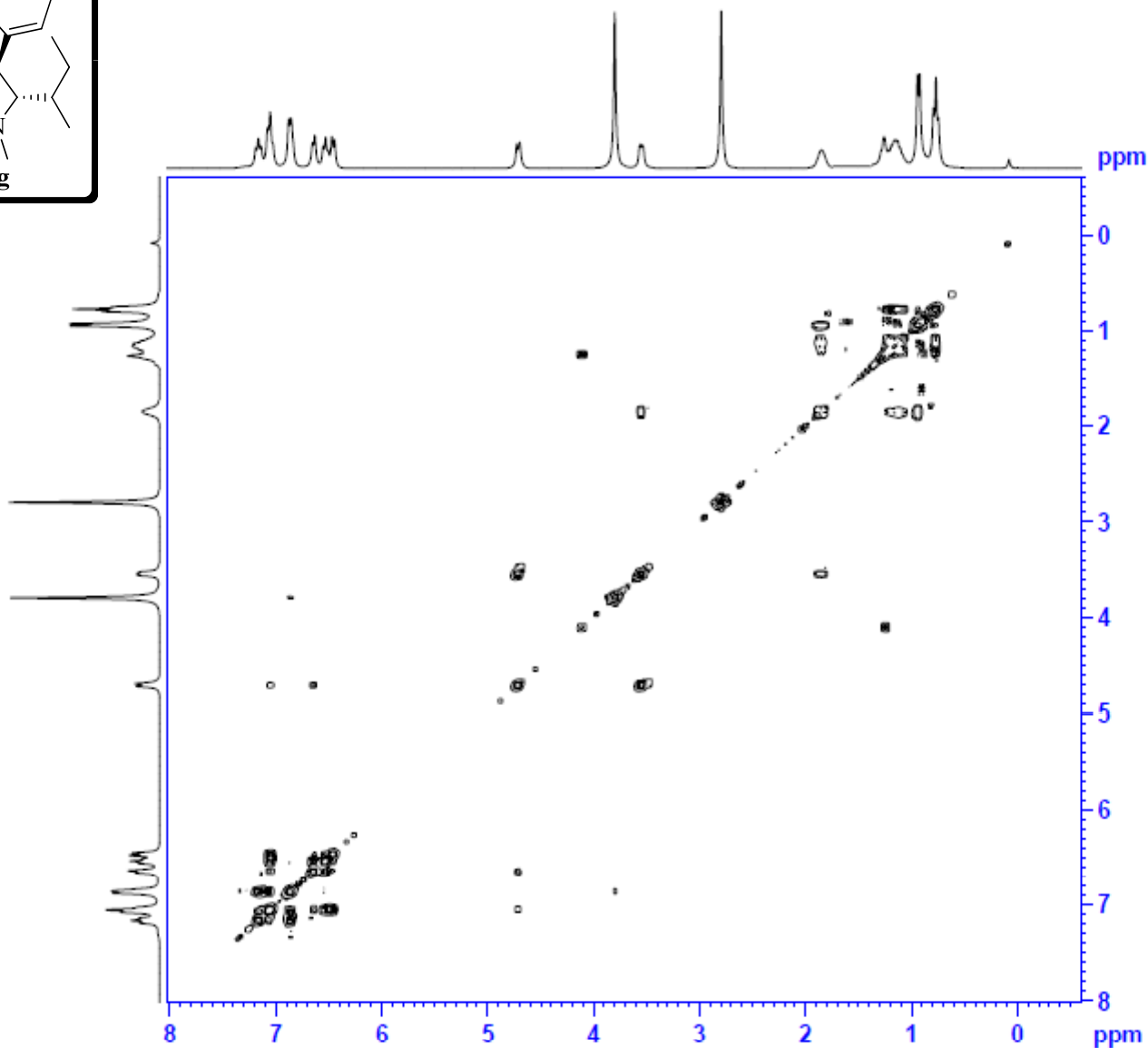
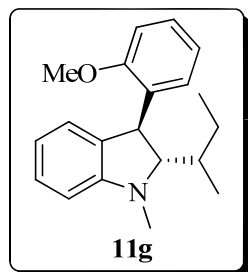


Figure 115: HSQC -Spectrum of 11g.



SKM-436
COSY, CDC13

Current Data Parameters
NAME SKM-436,COSY_400 MHz,5 July:
EXPNO 211
PROCNO 1

F2 - Acquisition Parameters
Date_ 20130705
Time 22:44
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG cosygpppqf
TD 2048
SOLVENT CDC13
NS 16
DS 8
SWH 3448.276 Hz
FIDRES 1.883728 Hz
AQ 0.2969600 sec
RG 11.42
DW 145.000 usec
DE 8.50 usec
TE 296.5 K
D0 0.00000300 sec
D1 1.89473295 sec
D11 0.03000000 sec
D12 0.00002000 sec
D13 0.00000400 sec
D16 0.00020000 sec
IN0 0.00020000 sec

----- CHANNEL f1 -----
SFO1 400.1820277 MHz
NUC1 1H
P0 12.35 usec
P1 12.35 usec
P17 2500.00 usec
PLW1 14.00000000 W
PLW10 3.15879989 W

----- GRADIENT CHANNEL -----
GPNAM(1) SMSQ10.100
GPZ1 10.00 %
P18 1000.00 usec

F1 - Acquisition parameters
TD 128
SFO1 400.162 MHz
FIDRES 26.939655 Hz
SW 8.817 ppm
FMODE G

F2 - Processing parameters
SI 1024
SF 400.1605427 MHz
WDW QSINE
SSB 0

Figure 116: COSY -Spectrum of 11g.

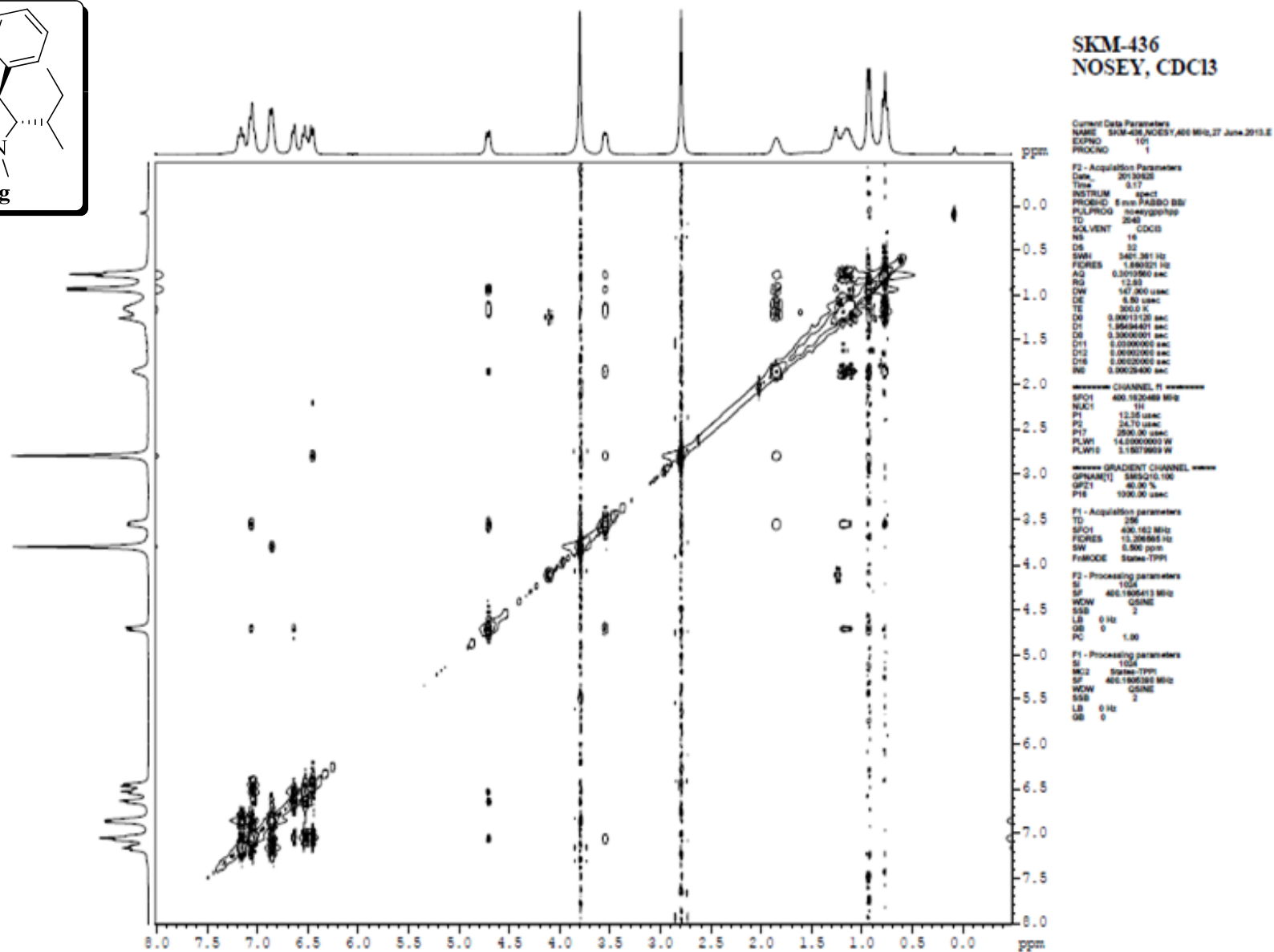
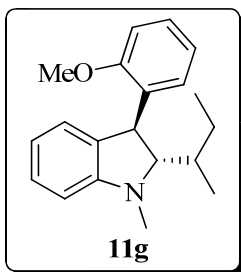


Figure 117: NOESY -Spectrum of 11g.

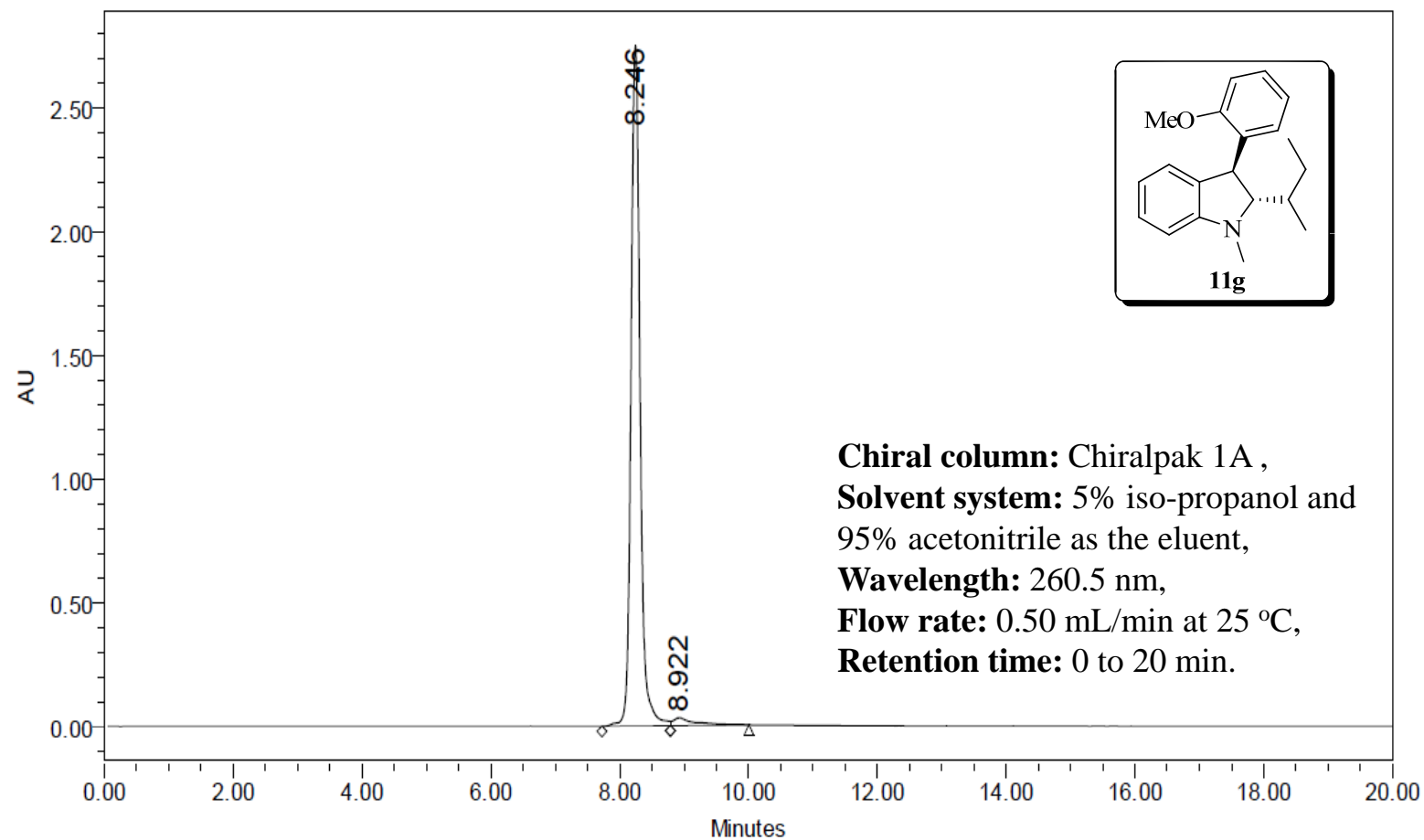


Figure 118: HPLC -Spectrum of **11g**.

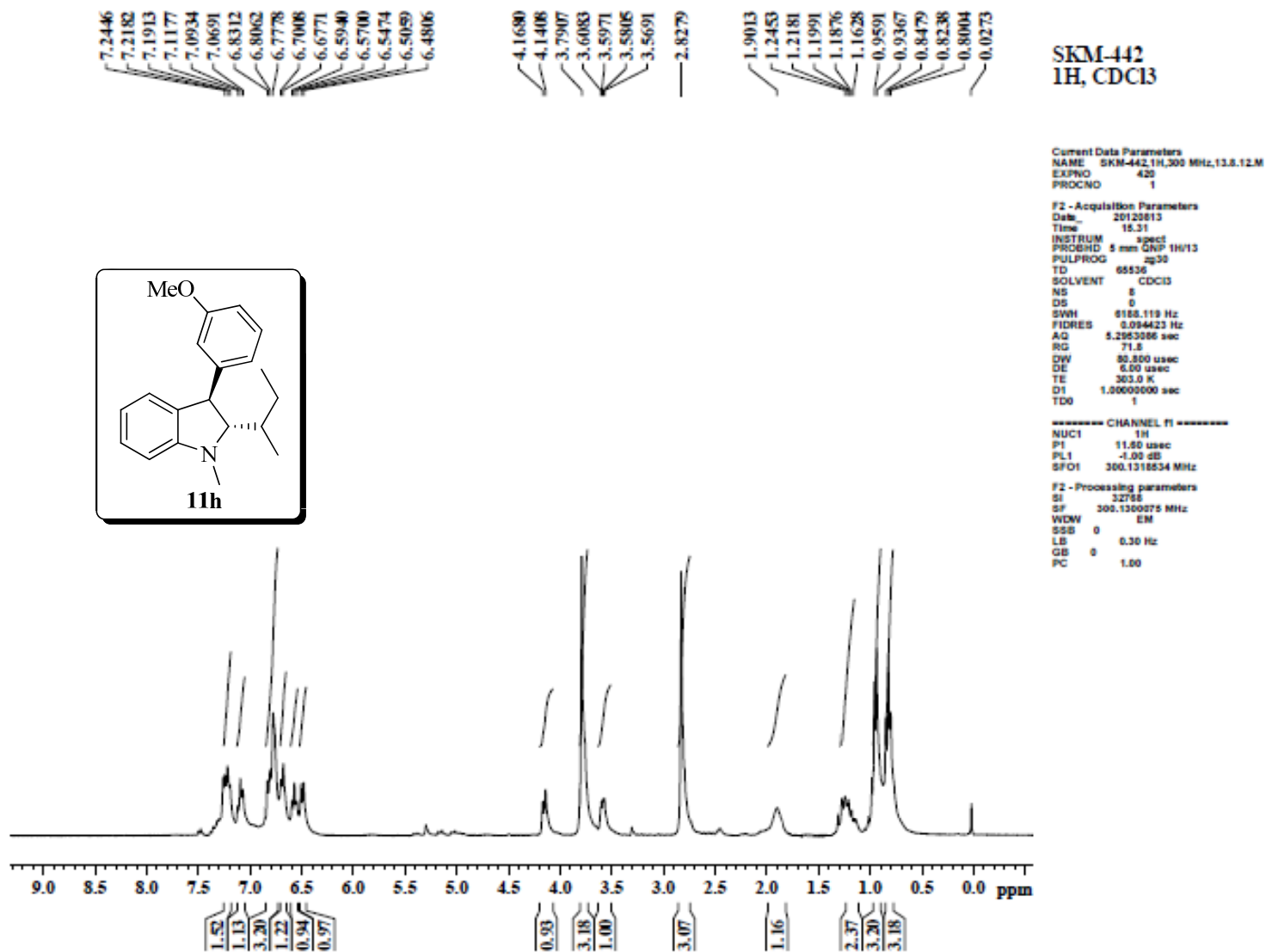


Figure 119: ^1H -NMR Spectrum of **11h**.

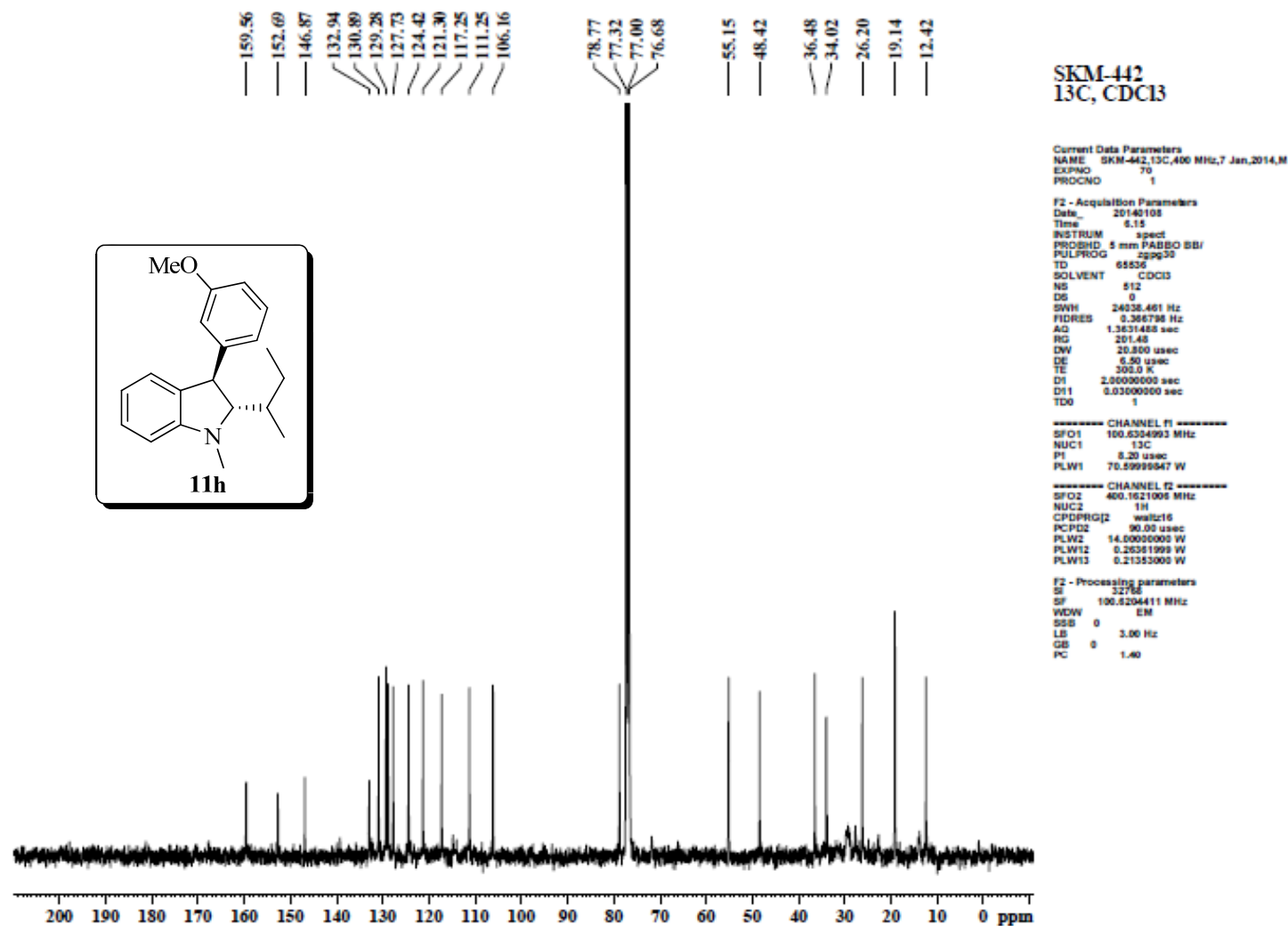


Figure 120: ^{13}C -NMR Spectrum of **11h**.

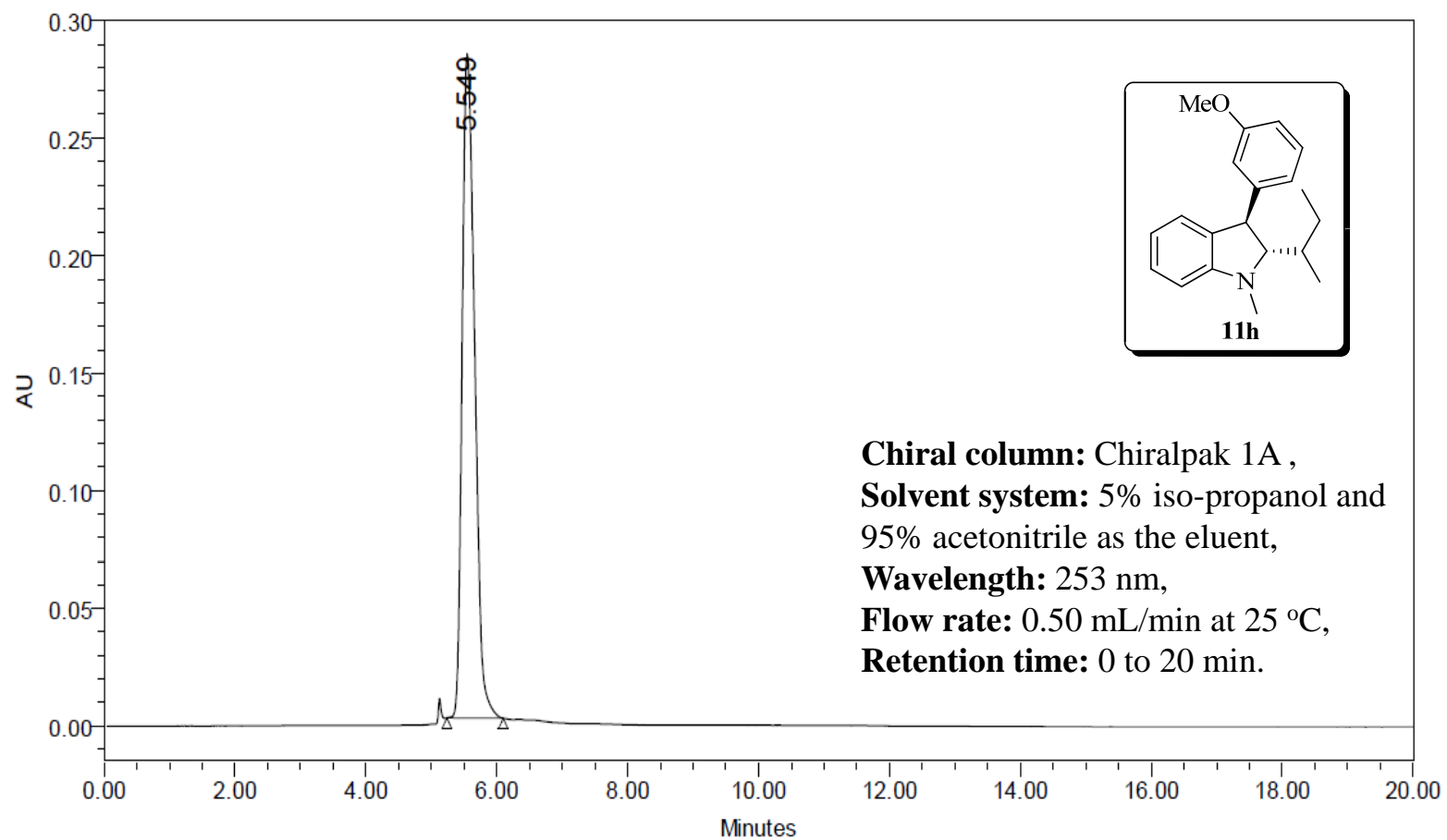
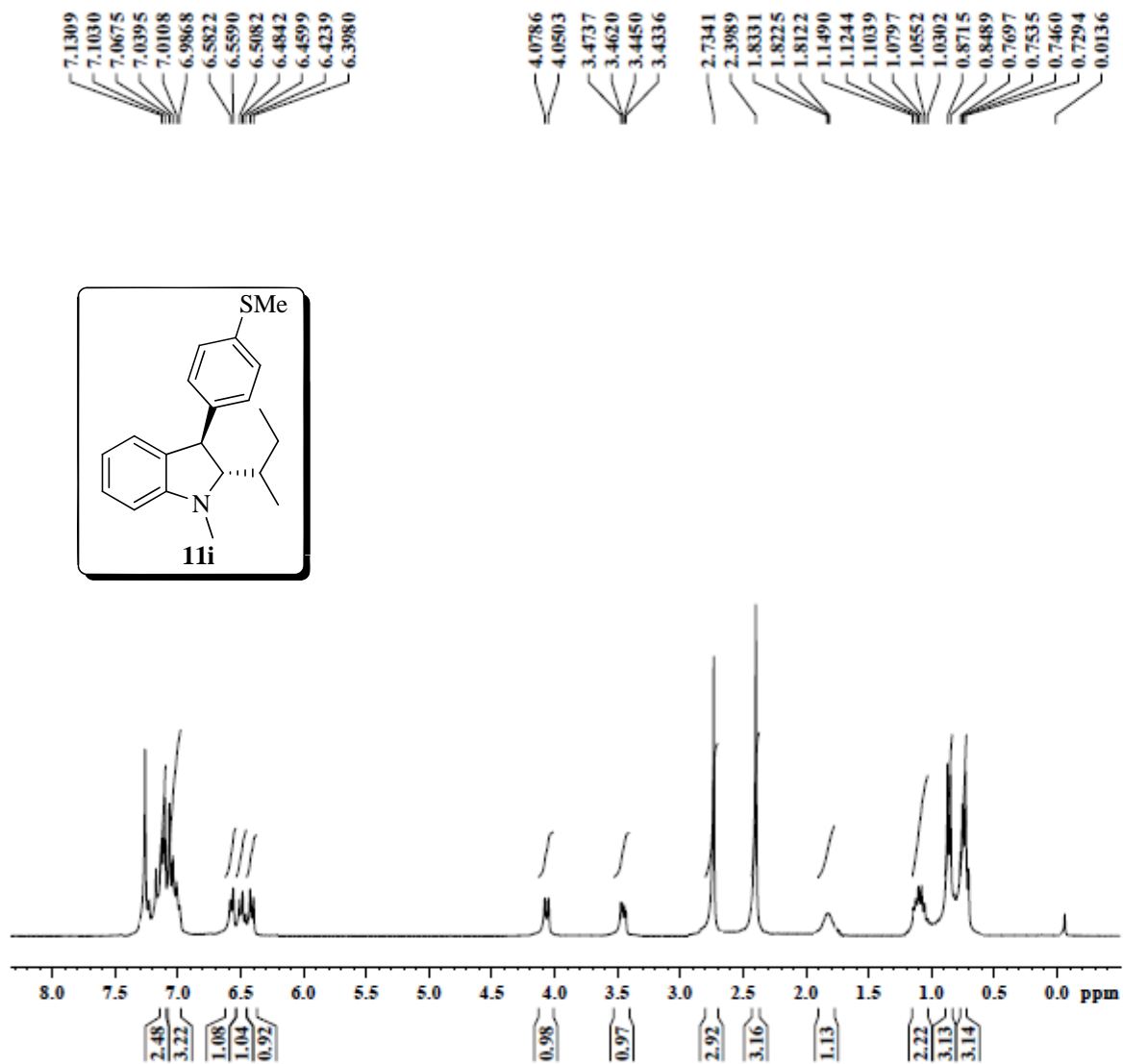


Figure 121: HPLC -Spectrum of **11h**.



SKM-443
1H, CDCl3

Current Data Parameters
NAME SKM-443.1H,300 MHz,16.5.12.M
EXPNO 370
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120816
Time 17.50
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.004423 Hz
AQ 5.2953567 sec
RG 80.5
DW 80.800 usec
DE 6.00 usec
TE 303.0 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 11.60 usec
PL1 -1.50 dB
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300321 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Figure 122: ¹H -NMR Spectrum of **11i**.

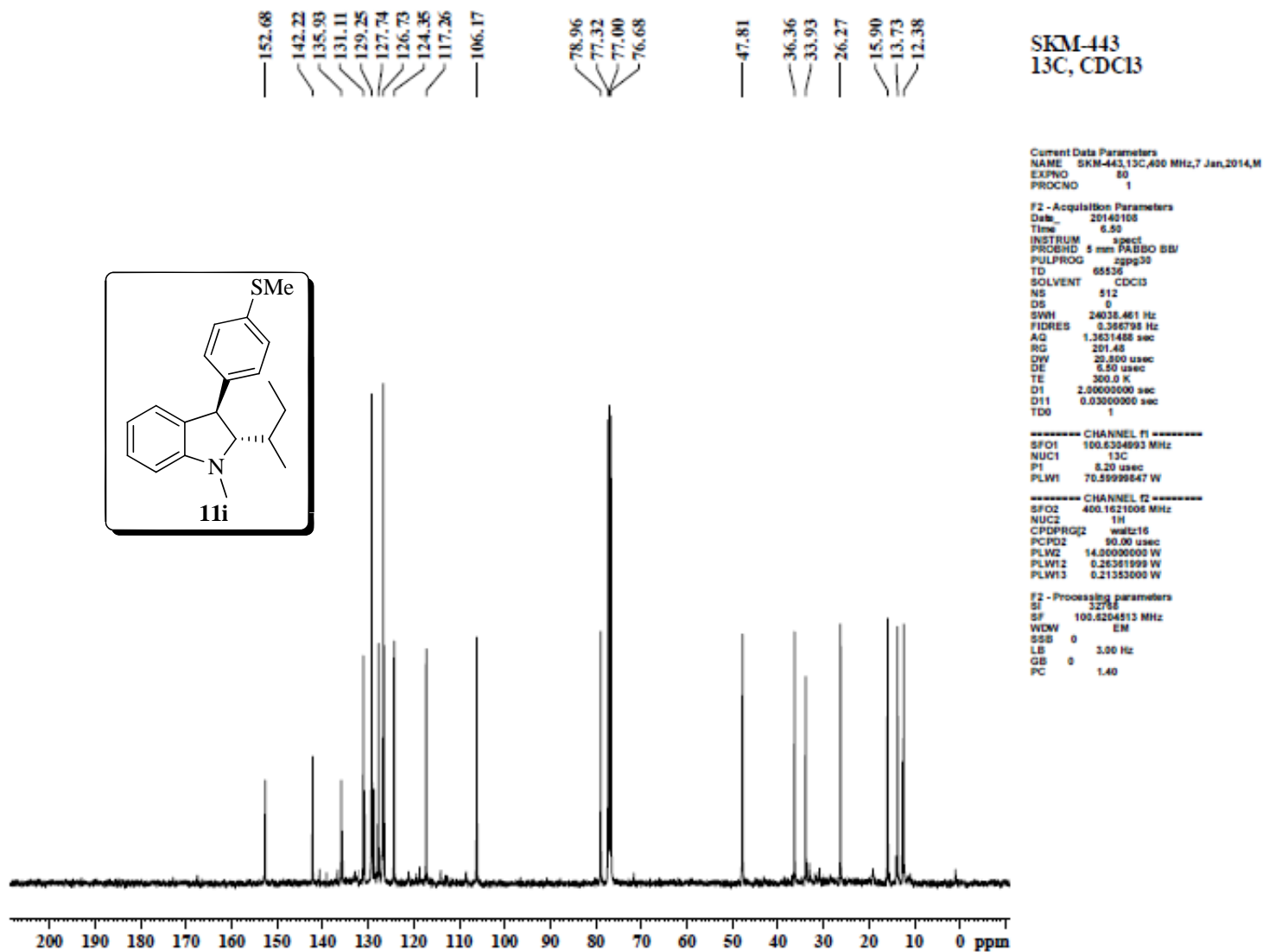


Figure 123: ^{13}C -NMR Spectrum of **11i**.

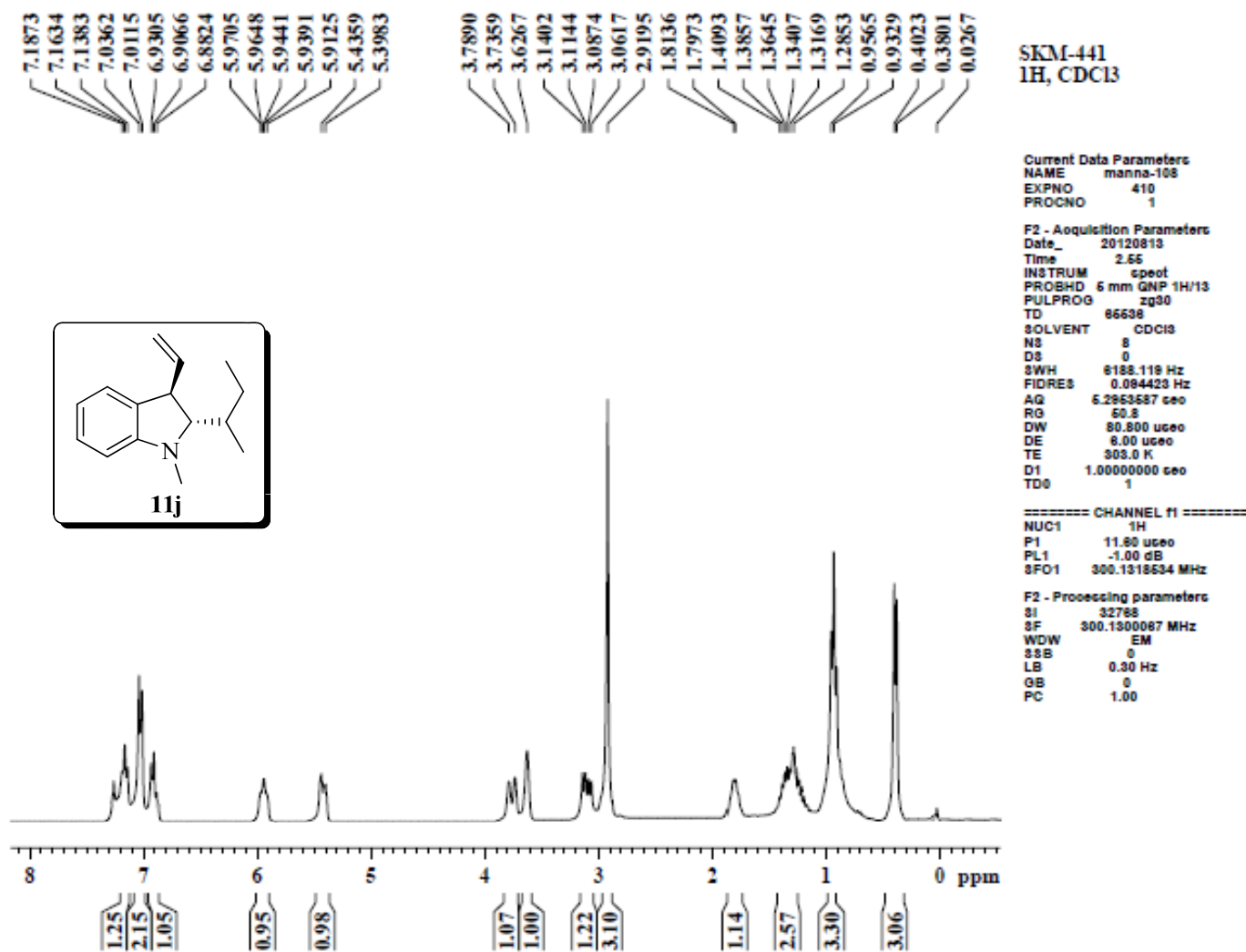


Figure 124: ^1H -NMR Spectrum of **11j**.

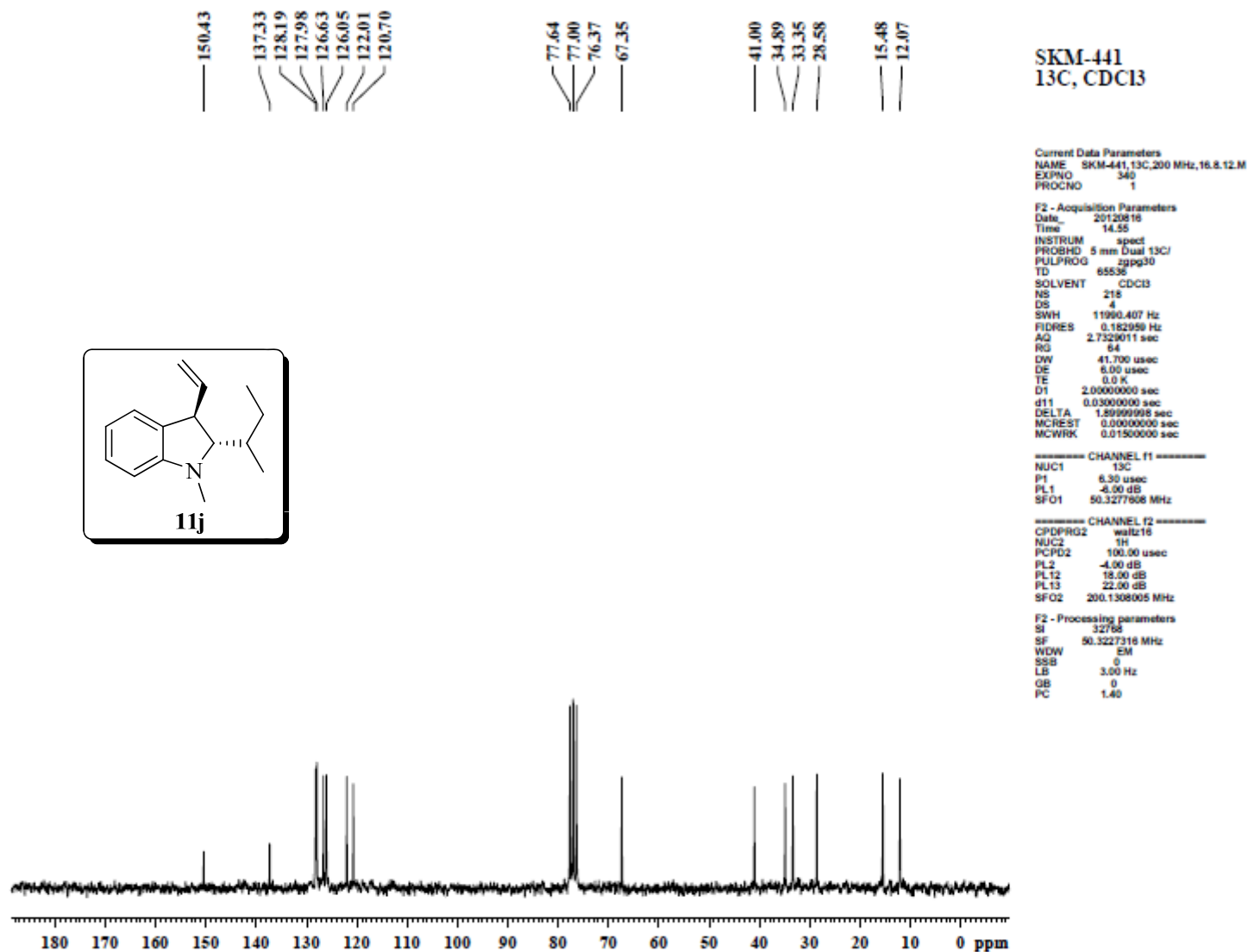


Figure 125: ^{13}C -NMR Spectrum of **11j**.

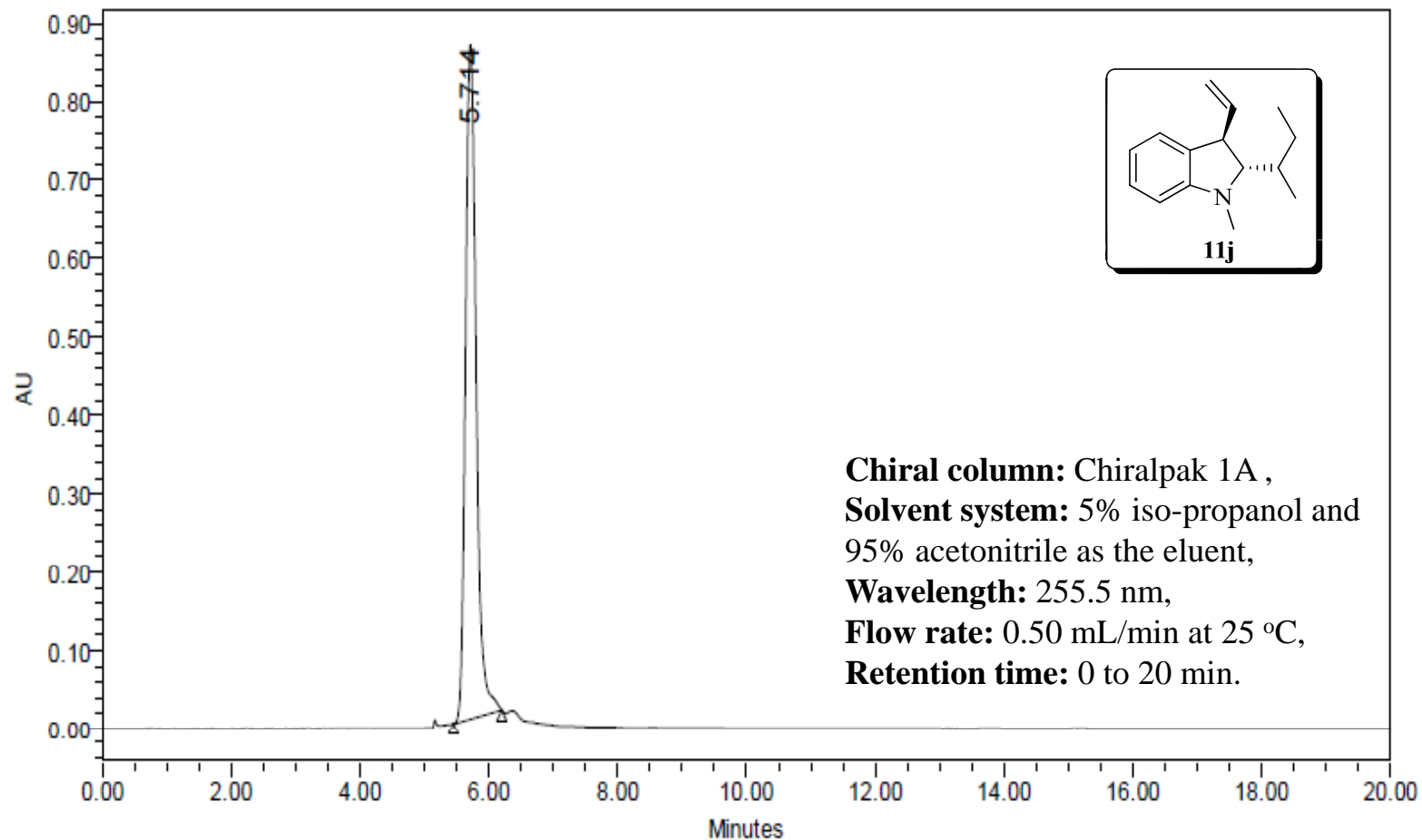
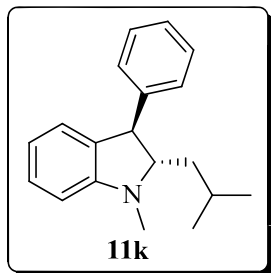
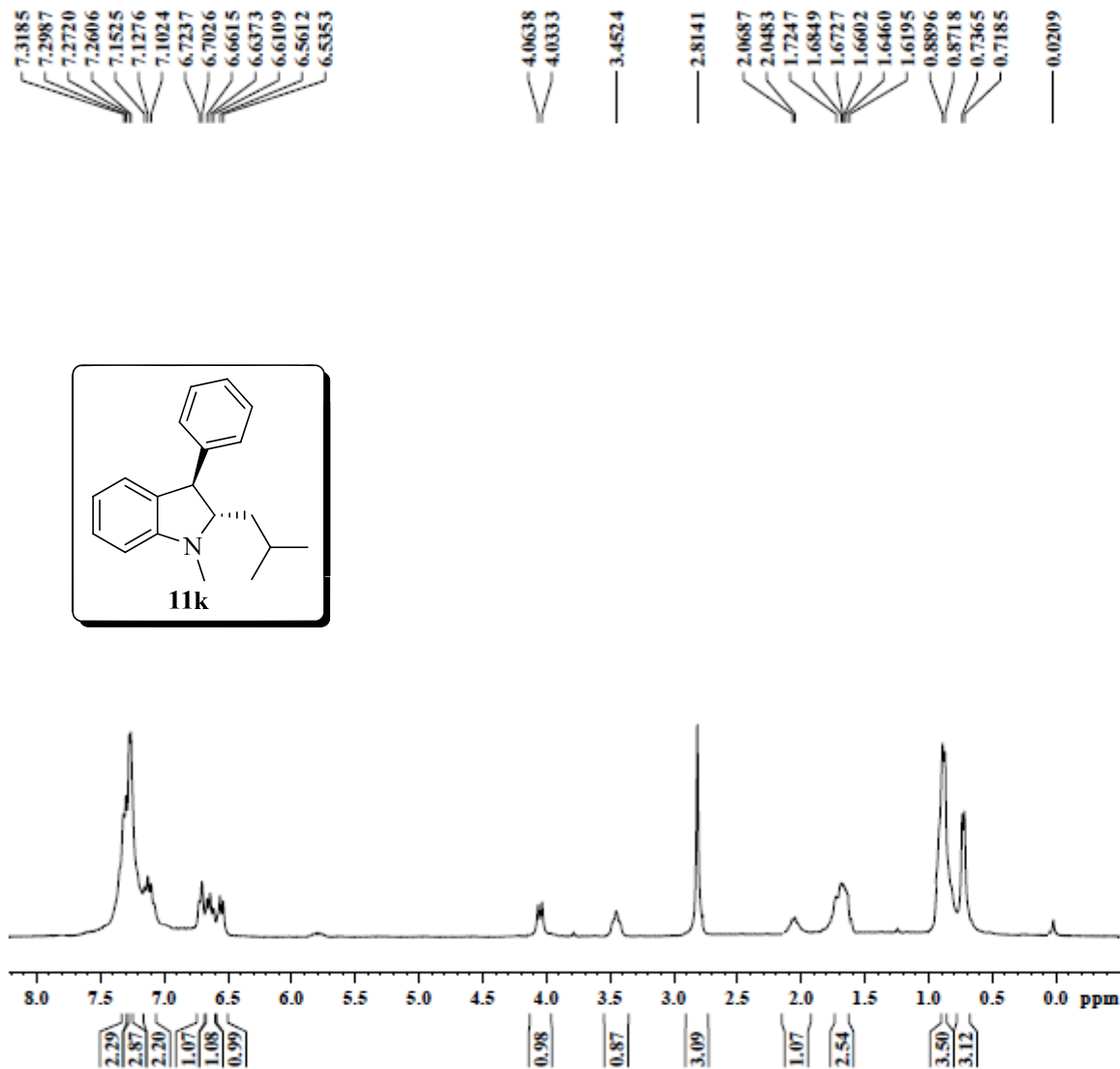


Figure 126: HPLC -Spectrum of 11j.



SKM-396
1H, CDC13

Current Data Parameters
 NAME SKM-396, 1H, 300 MHz, 23.7, 12.M
 EXPNO 320
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20120723
 Time 16.31
 INSTRUM spect
 PROBHD 5 mm QNP 1H/13
 PULPROG zg30
 TD 65536
 SOLVENT CDC13
 NS 8
 DS 0
 SWH 6188.119 Hz
 FIDRES 0.094423 Hz
 AQ 5.2953587 sec
 RG 64
 DW 80.800 usec
 DE 6.00 usec
 TE 295.1 K
 D1 1.0000000 sec
 TD0 1

----- CHANNEL f1 -----
 NUC1 1H
 P1 11.60 usec
 PL1 -1.00 dB
 SFO1 300.1318534 MHz

F2 - Processing parameters
 SI 32768
 SF 300.1300060 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

Figure 127: ¹H -NMR Spectrum of **11k**.

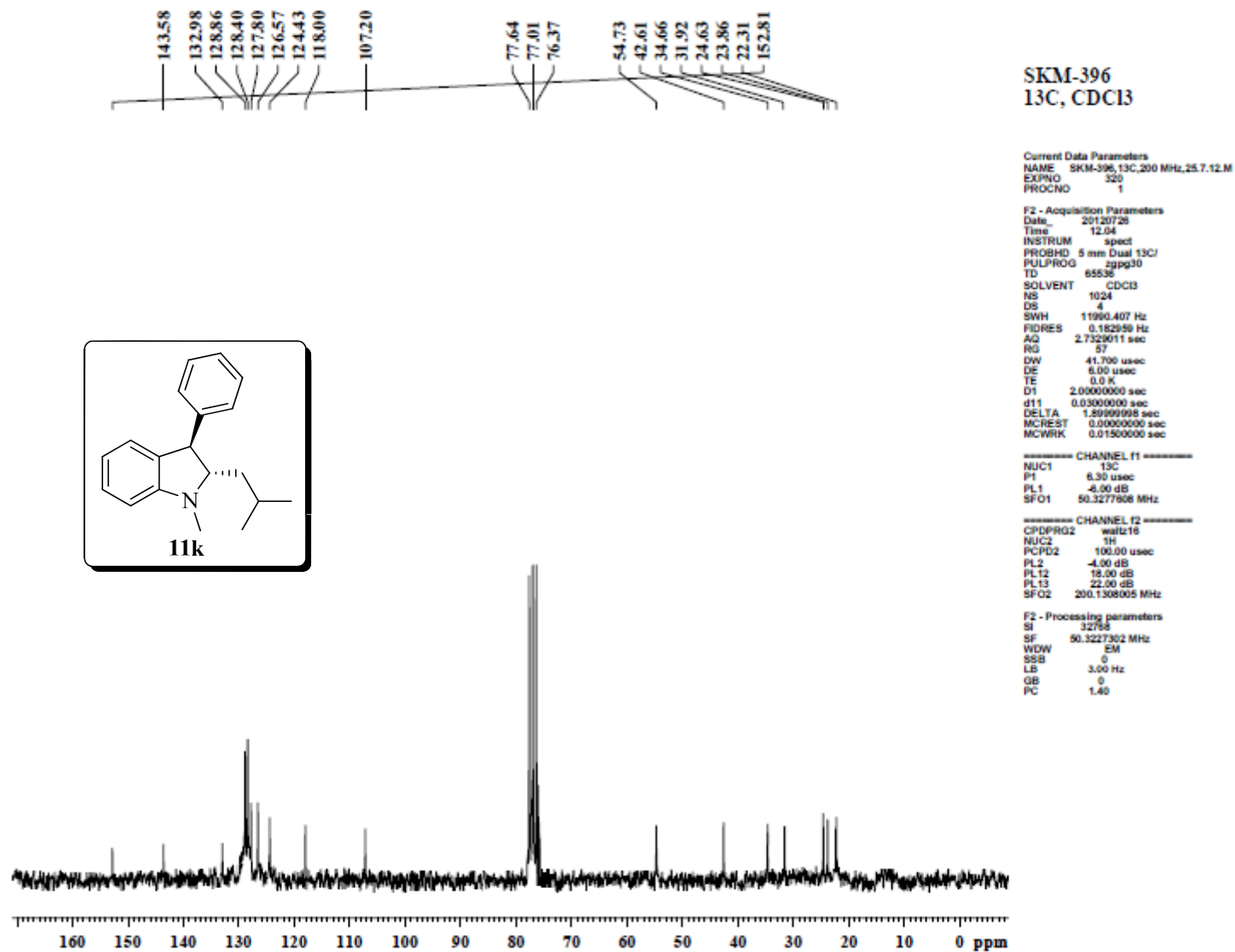


Figure 128: ^{13}C -NMR Spectrum of **11k**.

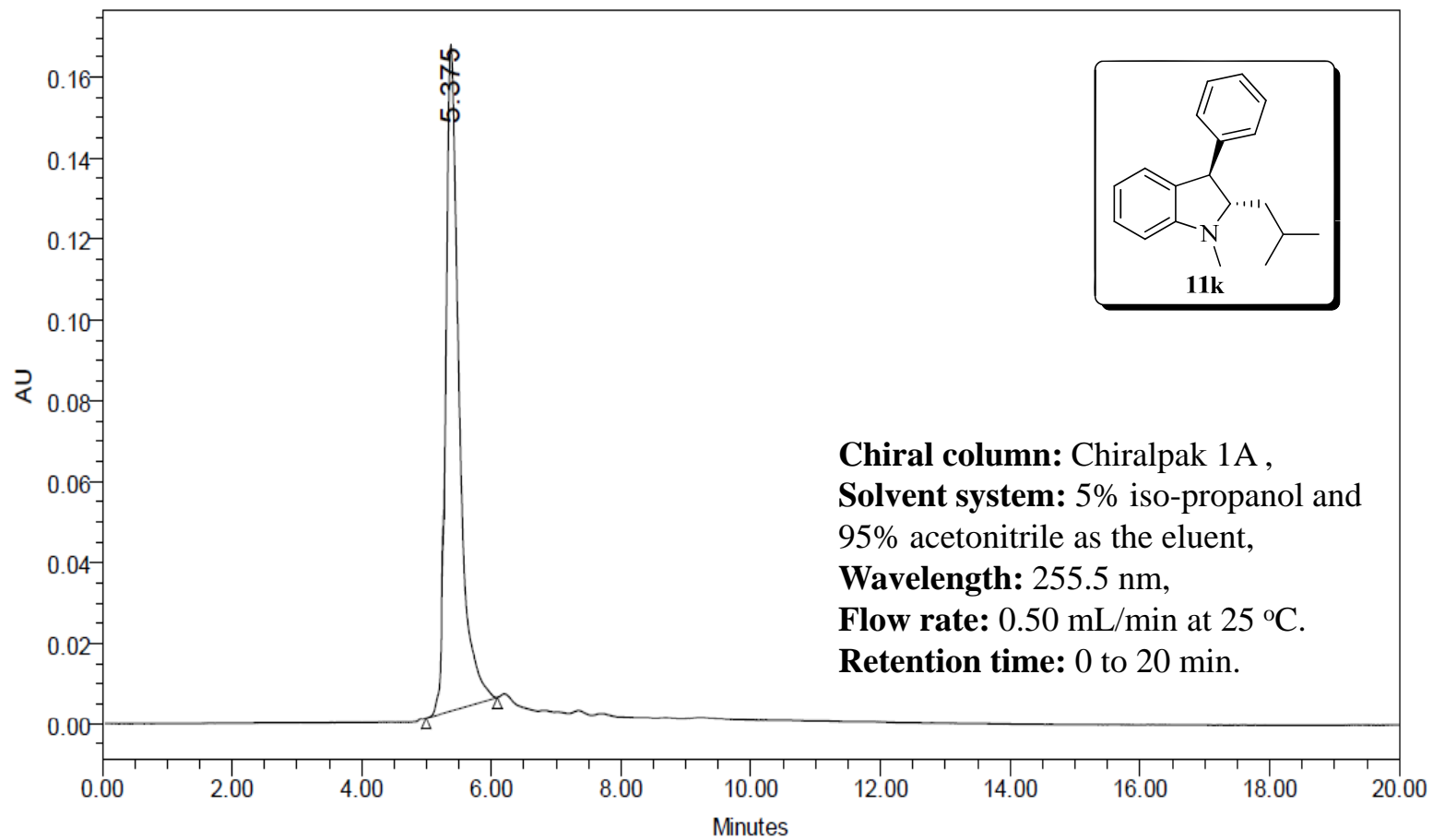
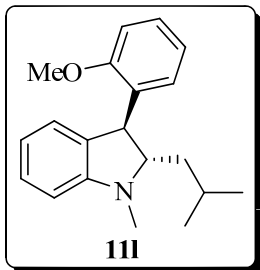
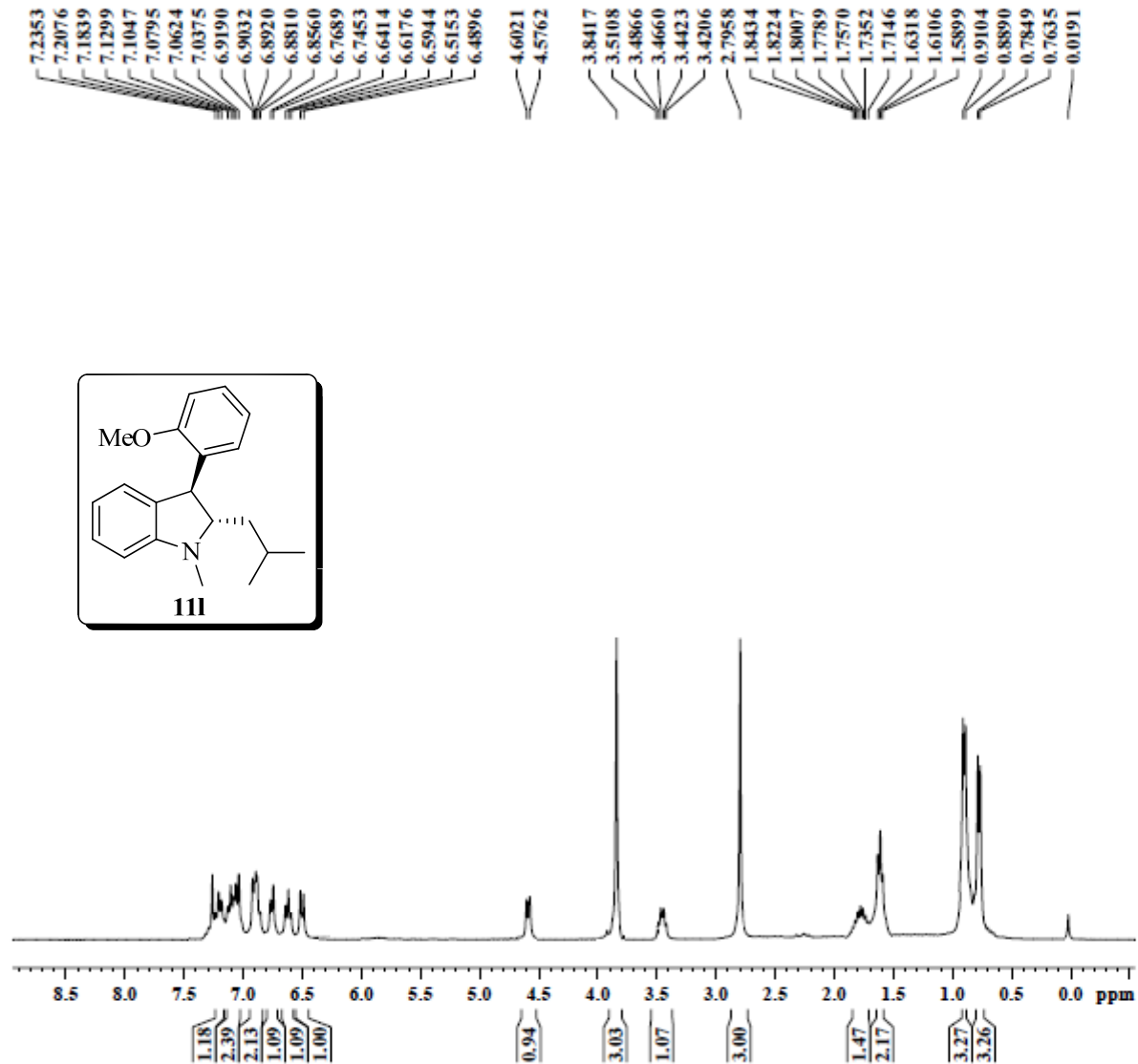


Figure 129: HPLC -Spectrum of **11k**.



SKM-398
1H, CDCl3

Current Data Parameters
NAME SKM-388_1H_300 MHz.2.7.12.E
EXPNO 960
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120703
Time 2.17
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 66636
SOLVENT CDCl3
NS 32
DS 0
SWH 6188.118 Hz
FIDRES 0.094423 Hz
AQ 6.2963587 sec
RG 30.8
DW 80.800 usec
DE 8.00 usec
TE 298.8 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 11.80 usec
PL1 -1.00 dB
SFO1 300.1318634 MHz

F2 - Processing parameters
SI 32768
SF 300.1300088 MHz
WDW EM
SSB 0
LB 0.33 Hz
GB 0
PC 1.00

Figure 130: ¹H -NMR Spectrum of **11l**.

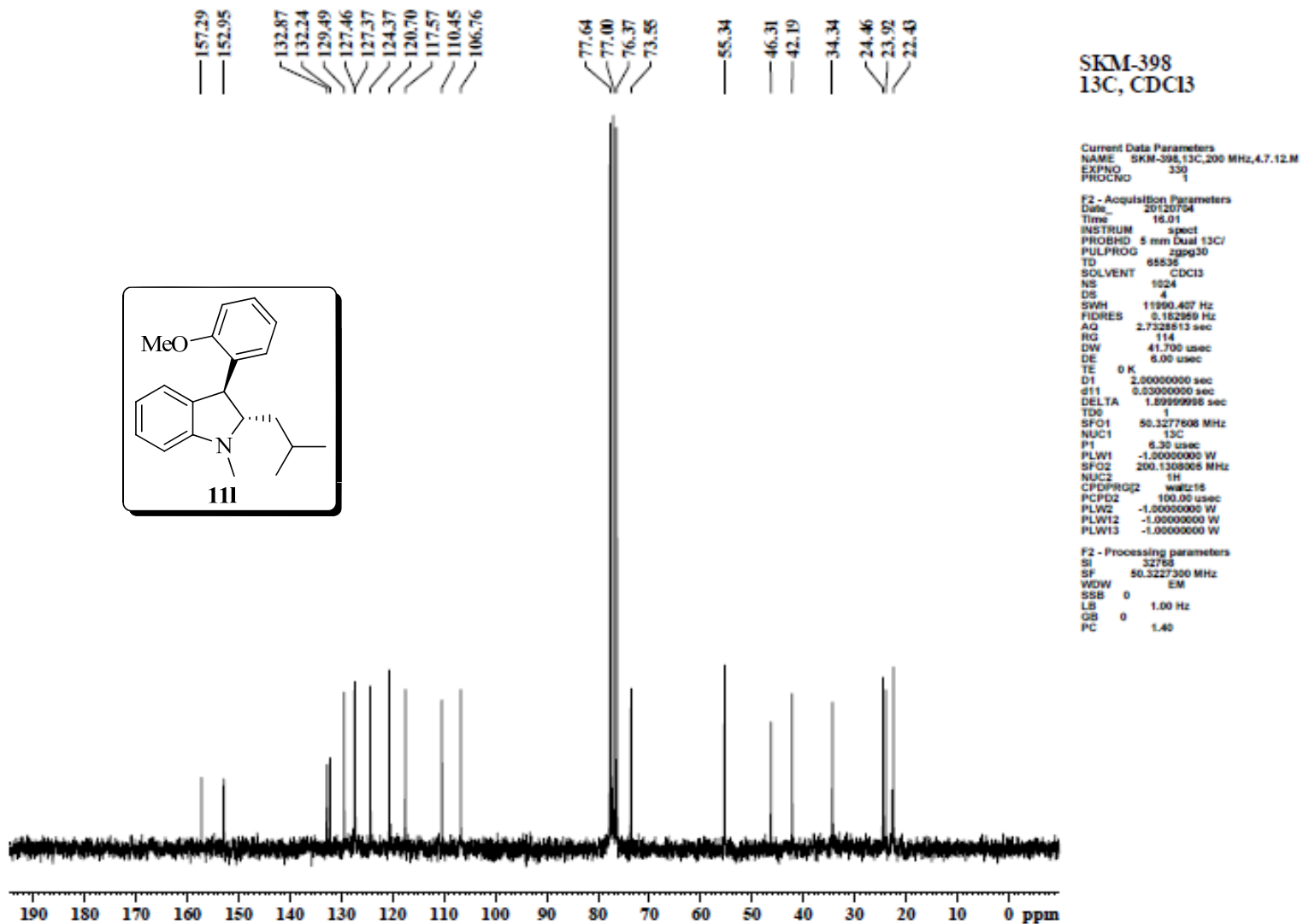


Figure 131: ¹³C -NMR Spectrum of **11l**.

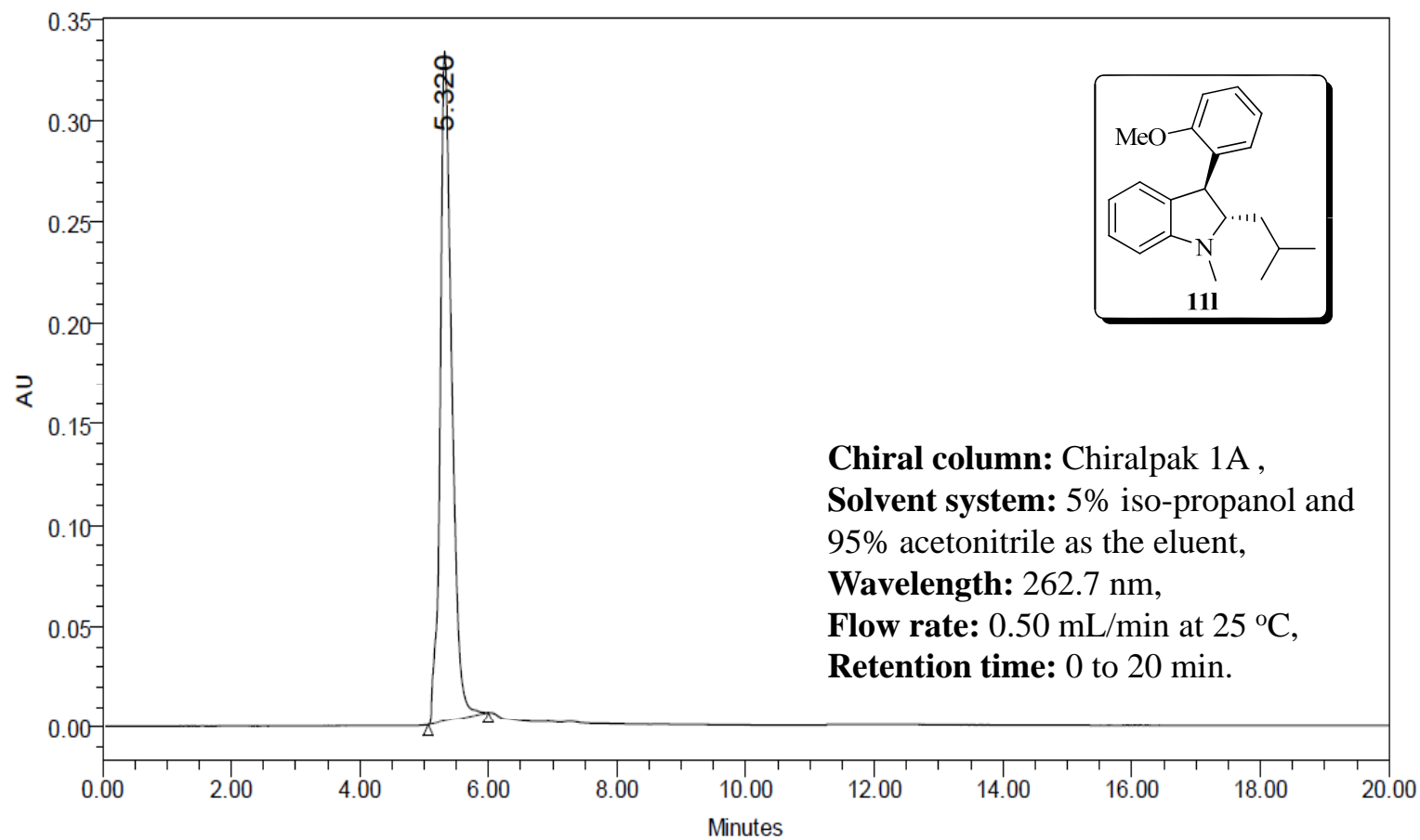
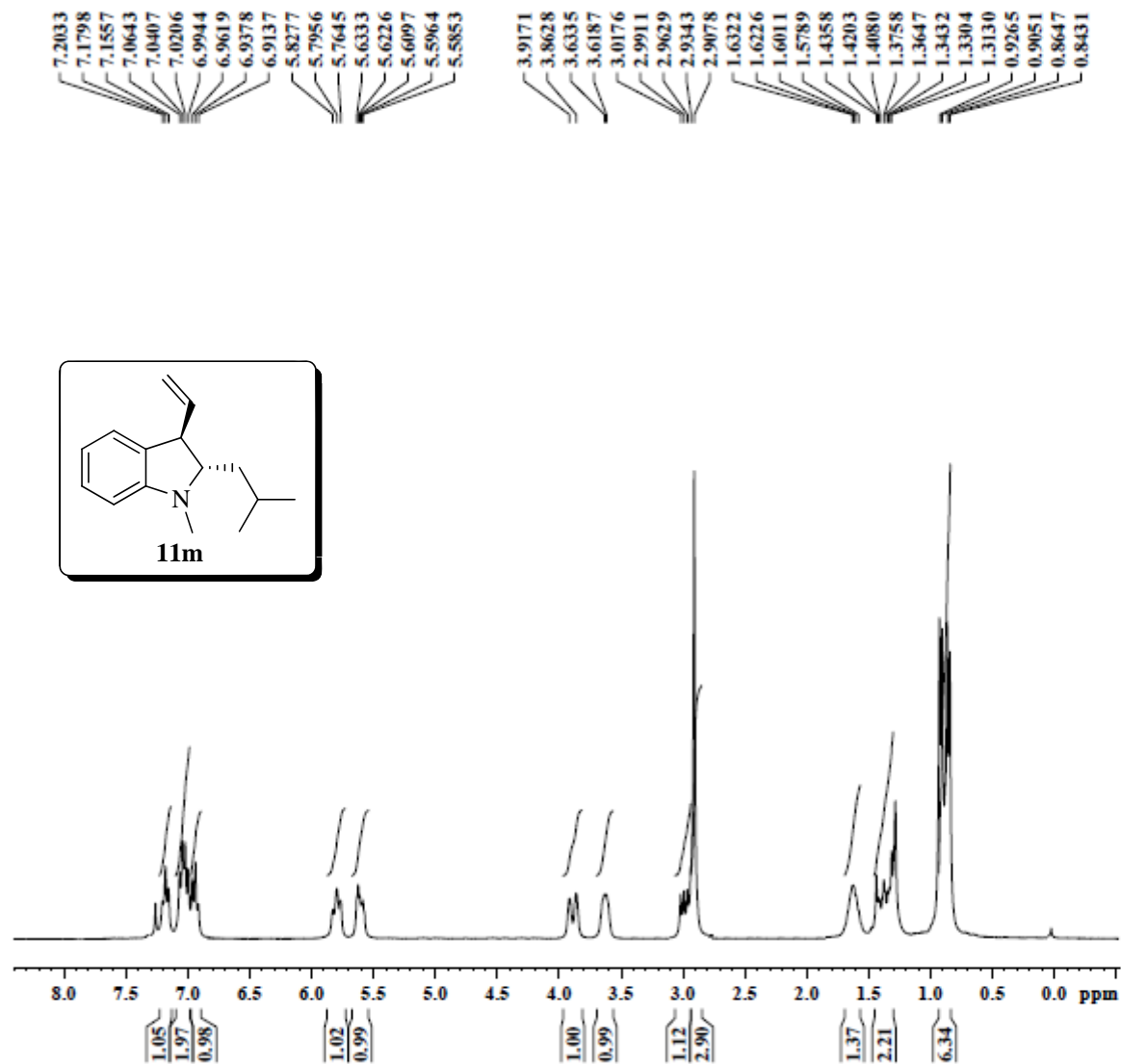


Figure 132: HPLC -Spectrum of 11l.



SKM-420
1H, CDC13

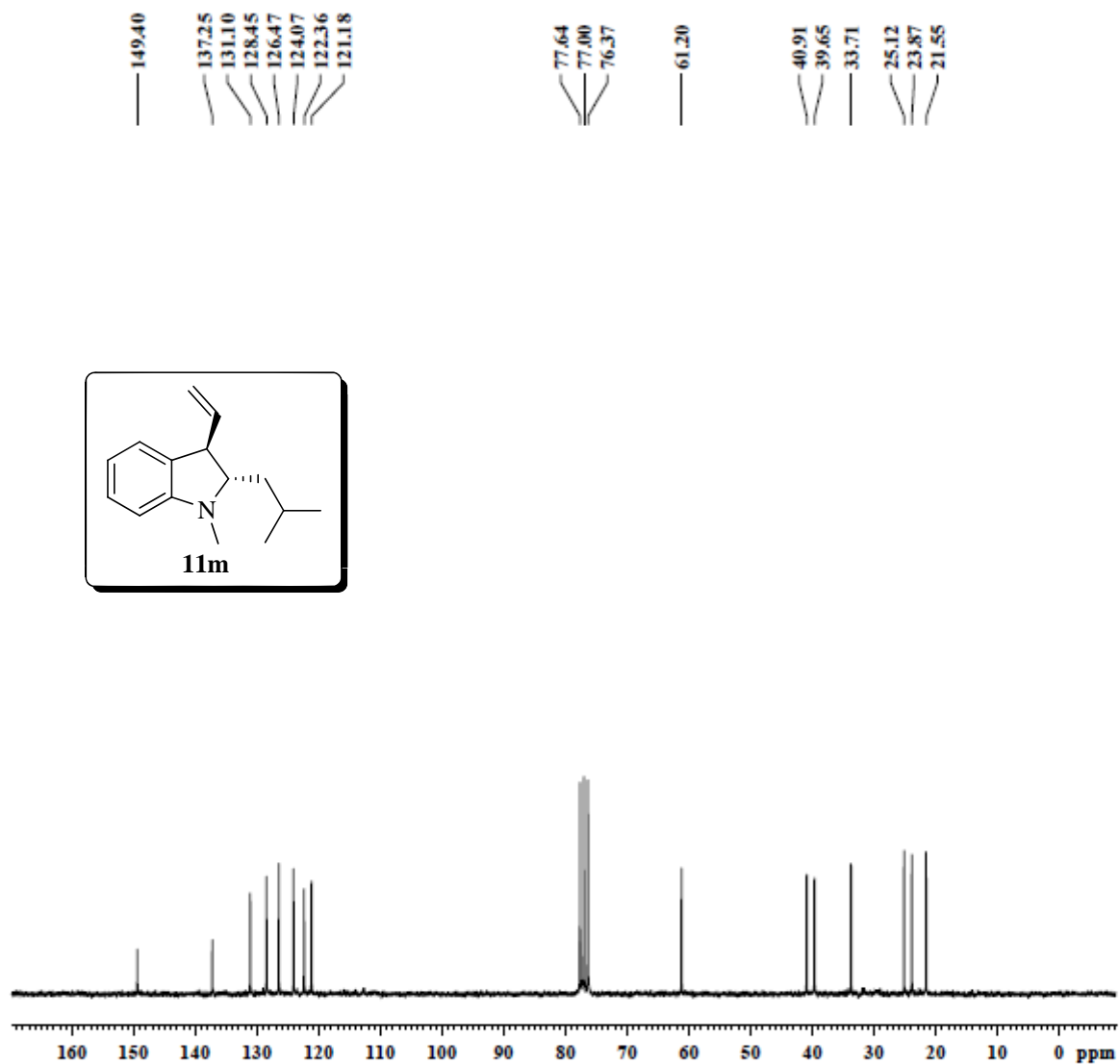
Current Data Parameters
NAME SKM-420,1H,300 MHz,1.8,12.M
EXPNO 330
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120801
Time 15.30
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDC13
NS 8
DS 0
SWH 8188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2053587 sec
RG 64
DW 80.800 usec
DE 6.00 usec
TE 303.0 K
D1 1.00000000 sec
TD0 1

CHANNEL f1
NUC1 1H
P1 11.80 usec
PL1 -1.00 dB
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300096 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Figure 133: ¹H -NMR Spectrum of **11m**.



SKM-420
13C,CDC13

Current Data Parameters
NAME SKM-420, 13C, 200 MHz, 8.8, 12. M
EXPNO 320
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120808
Time 16.06
INSTRUM spect
PROBHD 5 mm Dual 13C/
PULPROG zgpg30
TD 65536
SOLVENT CDC13
NS 1024
DS 4
SWH 11980.407 Hz
FIDRES 0.182659 Hz
AQ 2.7329011 sec
RG 57
DW 41.700 usec
DE 6.00 usec
TE 0.0 K
D1 2.0000000 sec
d11 0.0300000 sec
DELTA 1.2000000 sec
MCREST 0.0000000 sec
MCWRK 0.0150000 sec

----- CHANNEL f1 -----
NUC1 13C
P1 6.30 usec
PL1 -8.00 dB
SFO1 50.3277808 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 -4.00 dB
PL12 18.00 dB
PL13 22.00 dB
SFO2 200.1308005 MHz

F2 - Processing parameters
SI 32768
SF 50.3227313 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Figure 134: ^{13}C -NMR Spectrum of **11m**.

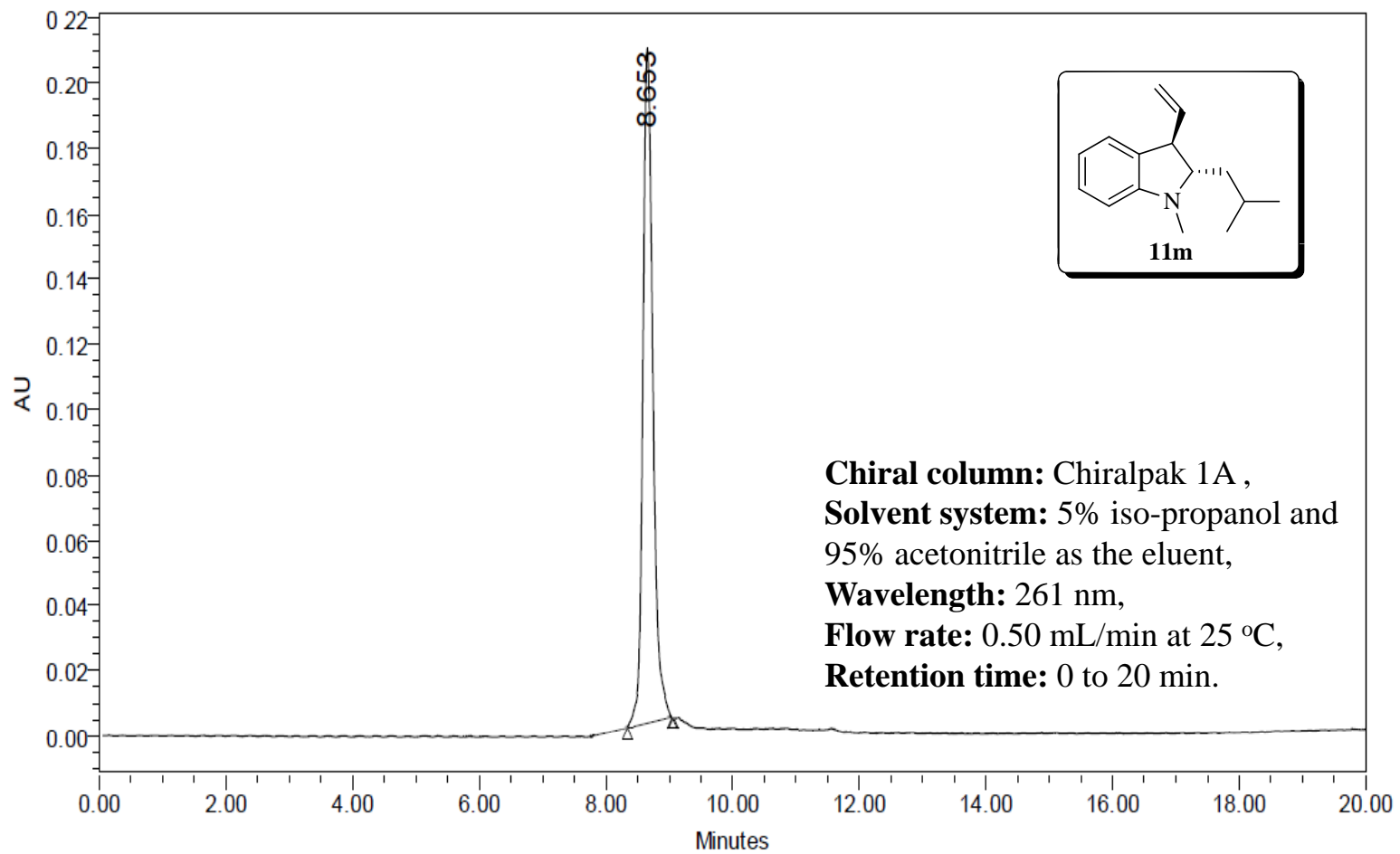
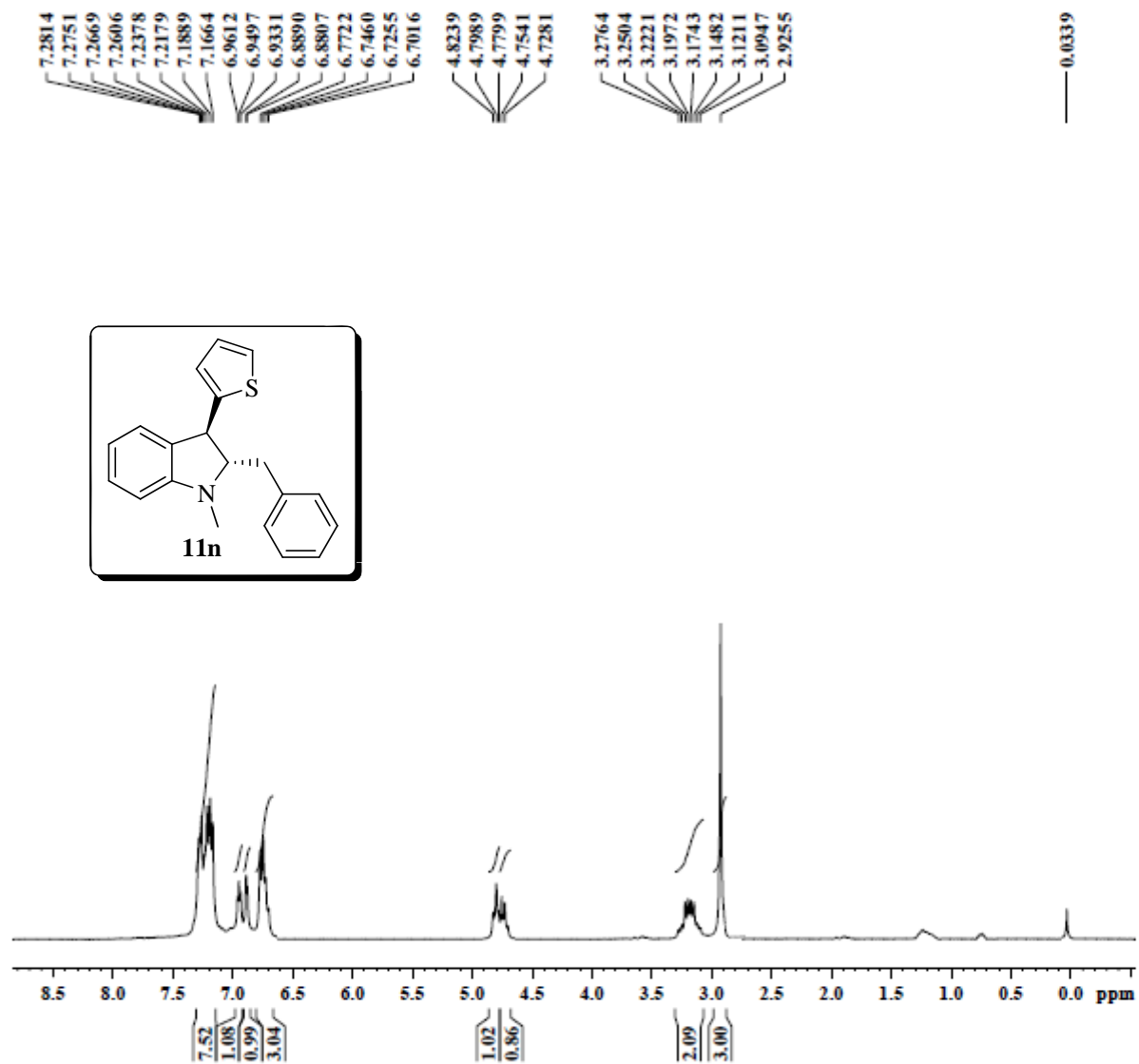


Figure 135: HPLC -Spectrum of 11m.



SKM-341
1H, CDC13

Current Data Parameters
NAME SKM-341,1H,300 MHz, 29.3.12.E
EXPNO 300
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120329
Time 21.47
INSTRUM spect
PROBHD 5 mm QNP 1H13
PULPROG zg30
TD 65536
SOLVENT CDC13
NS 8
DS 0
SWH 6185.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953987 sec
RG 64
DW 80.800 usec
DE 8.00 usec
TE 300.2 K
D1 1.0000000 sec
TDO 1

===== CHANNEL f1 =====
NUC1 1H
P1 11.80 usec
PL1 -1.00 dB
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300065 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Figure 136: ¹H -NMR Spectrum of **11n**.

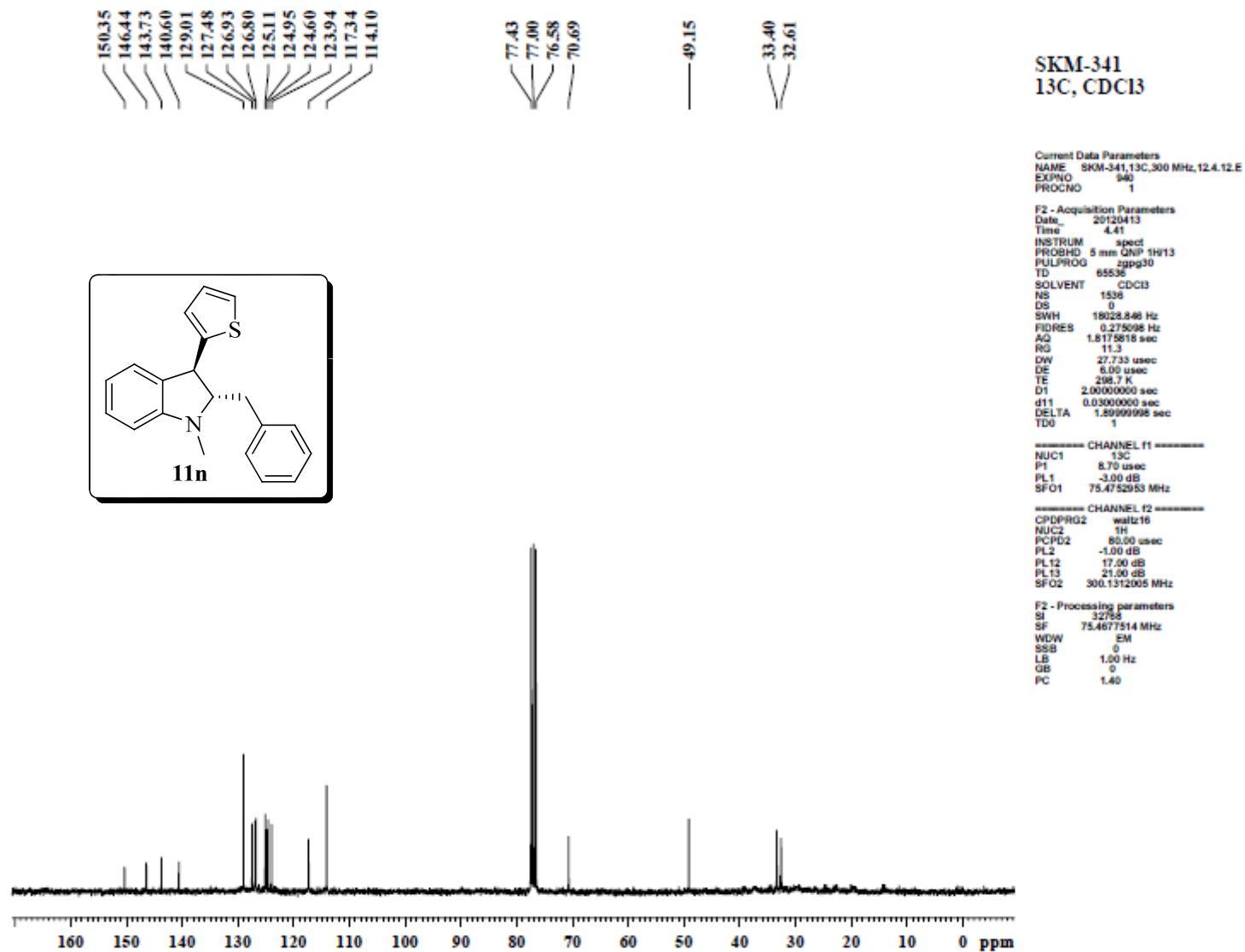


Figure 137: ^{13}C -NMR Spectrum of **11n.**

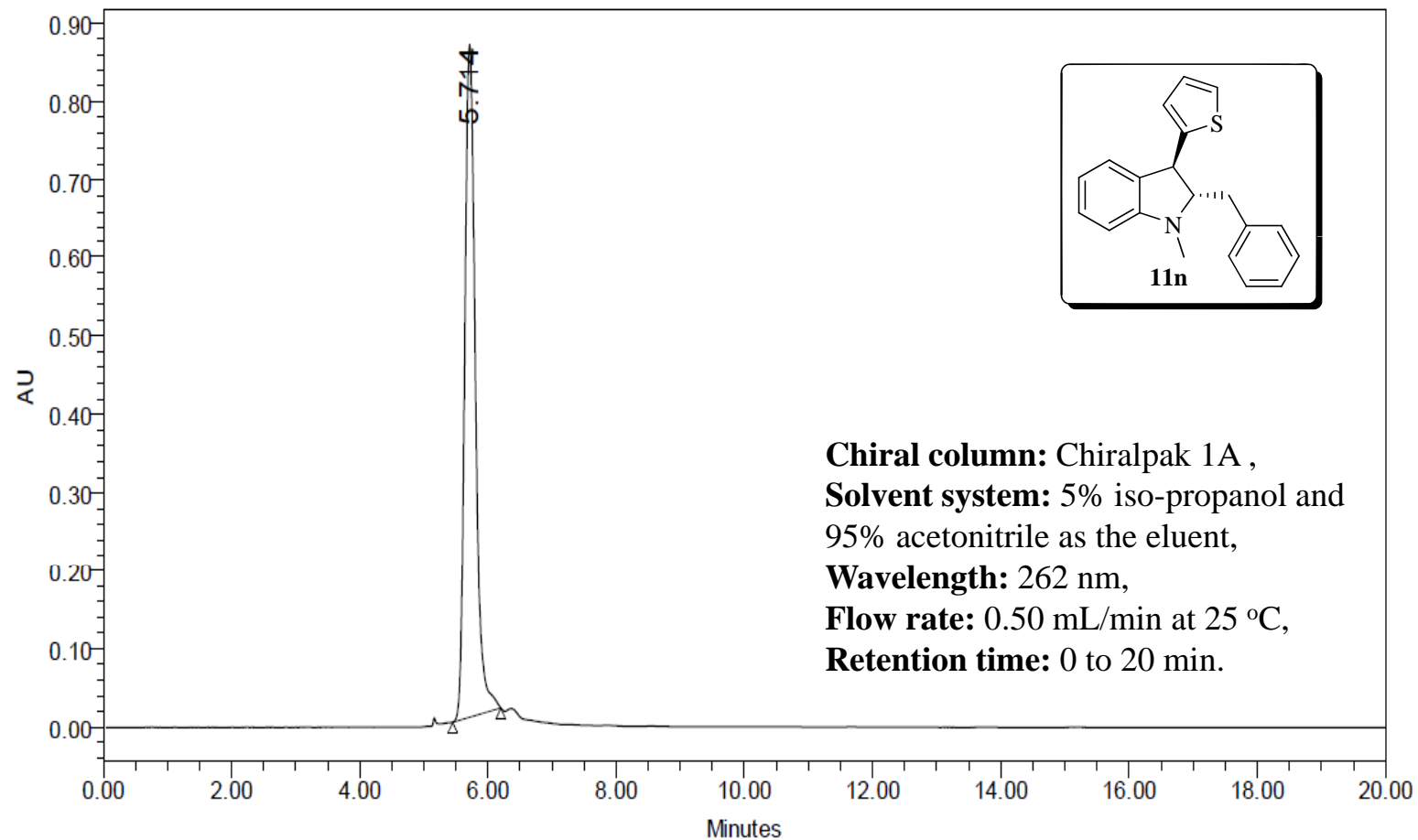


Figure 138: HPLC -Spectrum of **11n**.

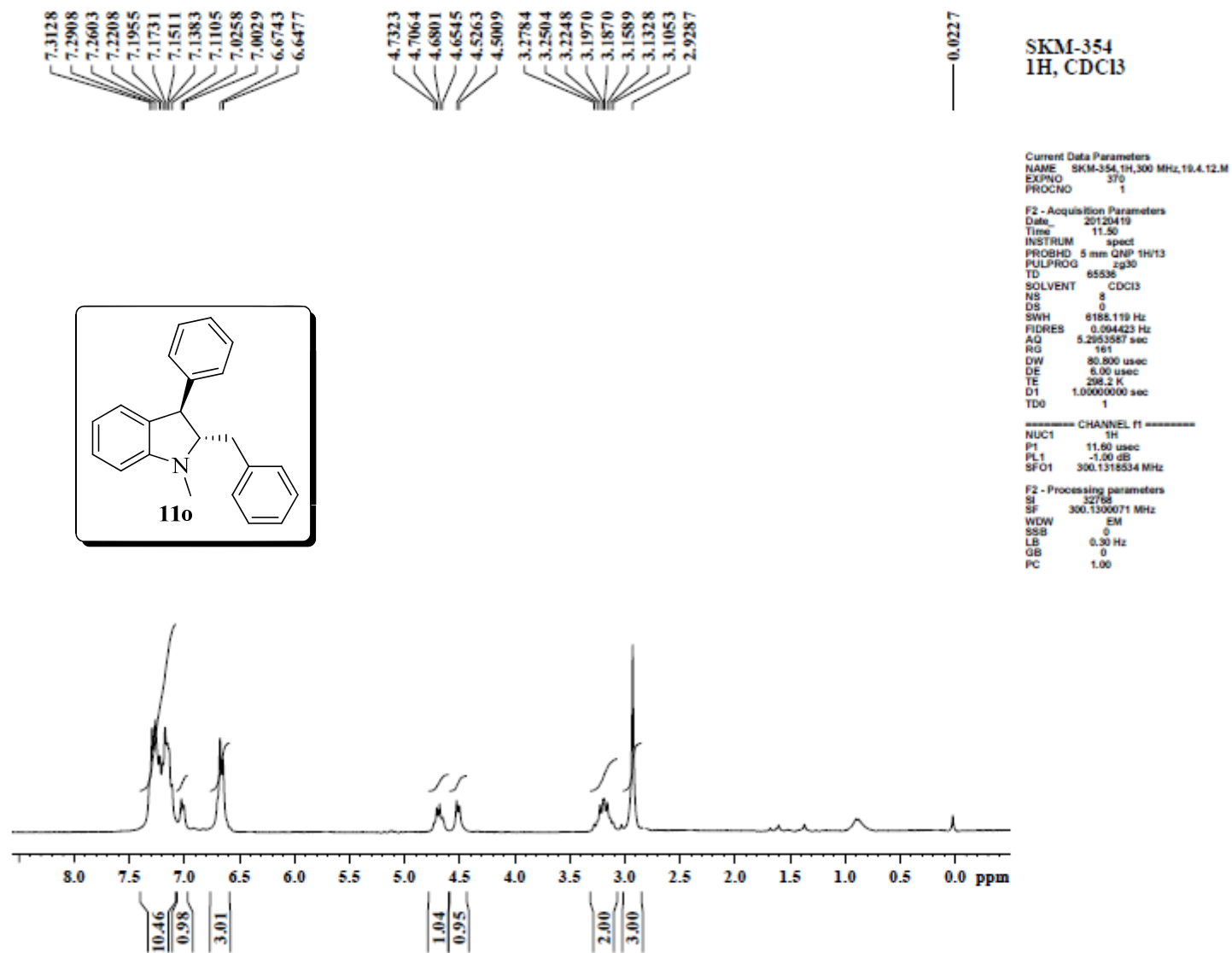


Figure 139: ^1H -NMR Spectrum of **11o**.

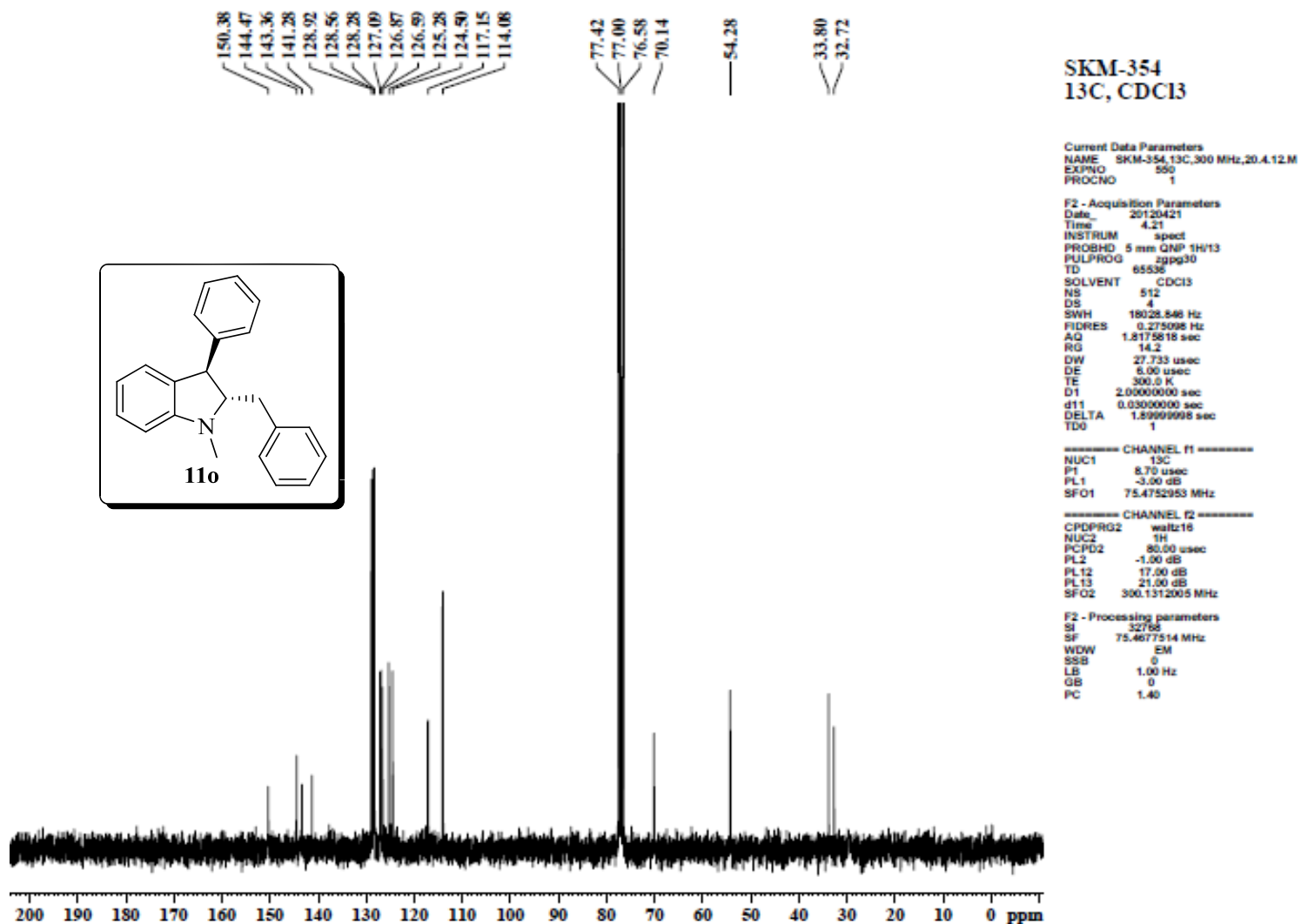
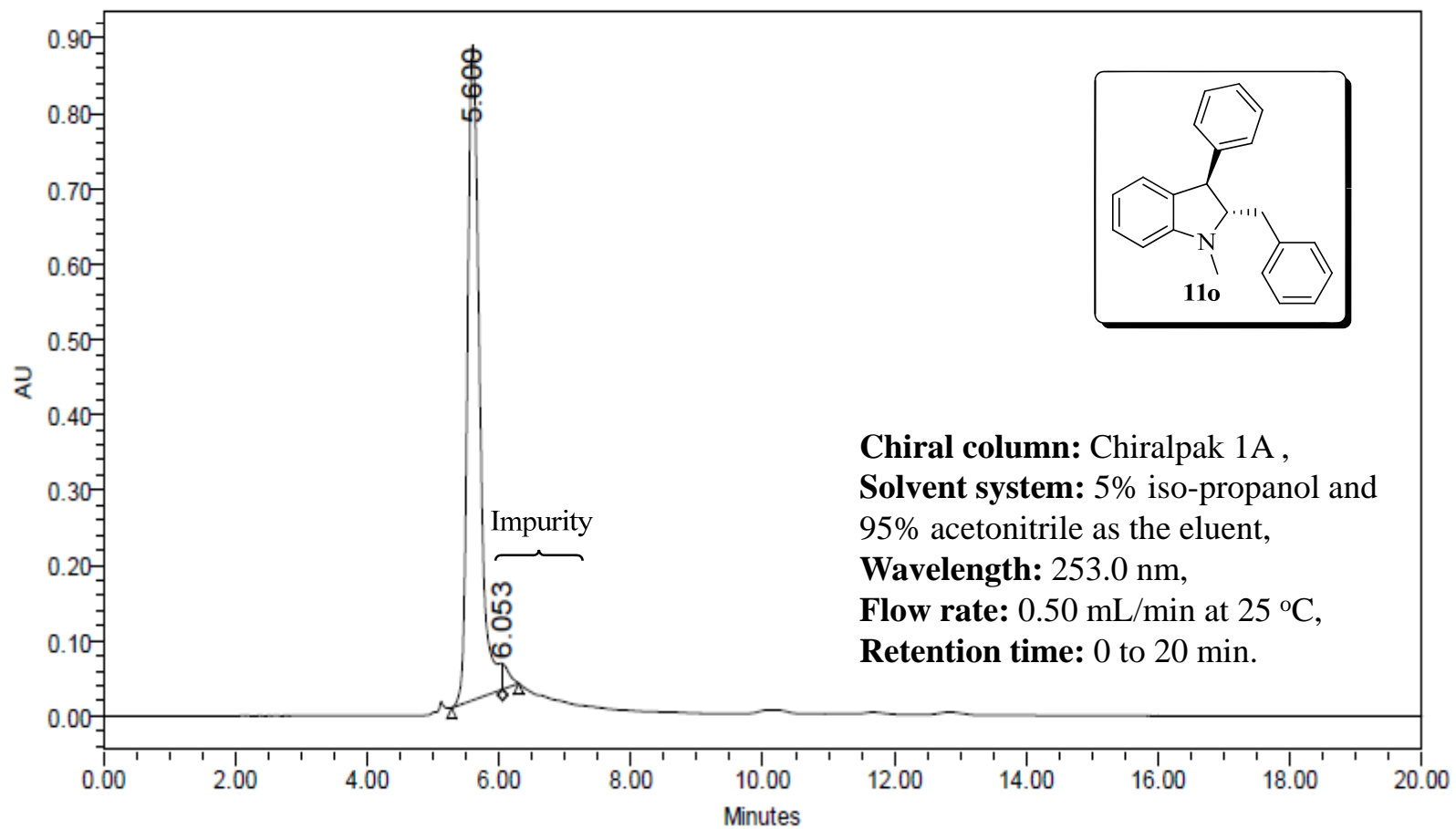


Figure 140: ¹³C -NMR Spectrum of **11o**.



Note: The impurity species were collected and found by ^1H NMR not to contain any isomeric forms of compound **11o**.

Figure 141: HPLC -Spectrum of **11o**.

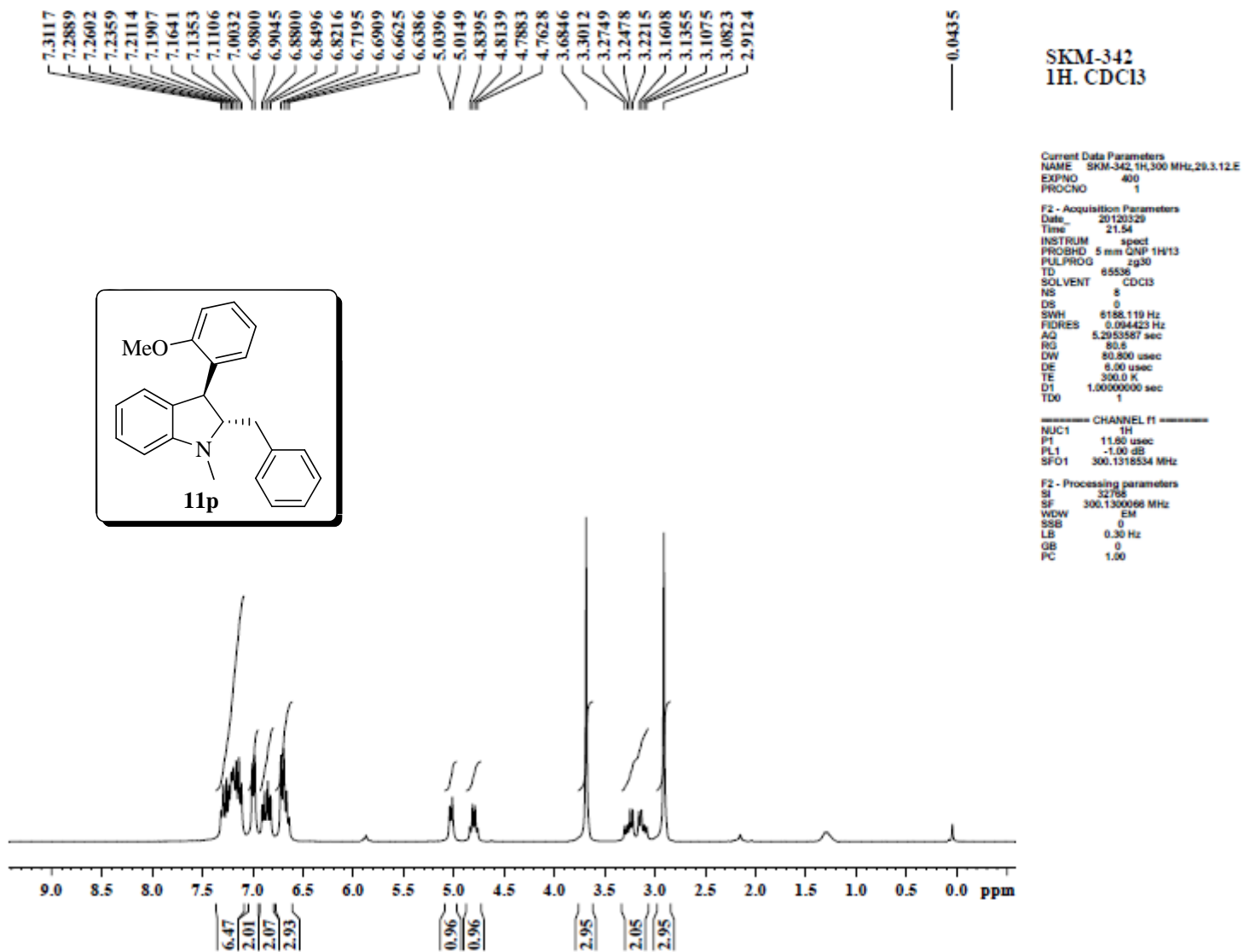


Figure 142: ¹H -NMR Spectrum of **11p**.

157.7735
150.6186
144.8810
141.5153
131.8419
128.7634
128.5062
127.5396
126.6678
124.9343
124.3007
120.7005
116.6845
113.8823
110.6073

77.6402
77.0051
76.3704
68.7602
55.3335
47.0137
34.3353
32.2911

SKM-342
13C, CDC13

Current Data Parameters
NAME SKM-342.13C.200 MHz.2.4.12.M
EXPNO 330
PROCNO 1

F2 - Acquisition Parameters
Date_ 20121001
Time 12.45
INSTRUM spect
PROBHD 5 mm Dual 13C/
PULPROG zgpg30
TD 65536
SOLVENT CDC13
NS 350
DS 4
SWH 11990.407 Hz
FIDRES 0.182959 Hz
AQ 2.7329011 sec
RG 57
DW 41.700 usec
DE 6.00 usec
TE 0.0 K
D1 2.0000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 13C
P1 6.30 usec
PL1 -4.00 dB
SFO1 50.3277658 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 -4.00 dB
PL12 18.00 dB
PL13 22.00 dB
SFO2 200.1308005 MHz

F2 - Processing parameters
SI 32768
SF 50.3227313 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

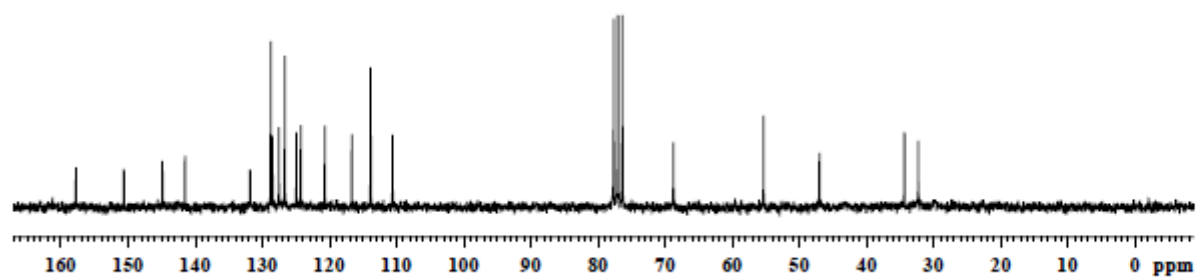
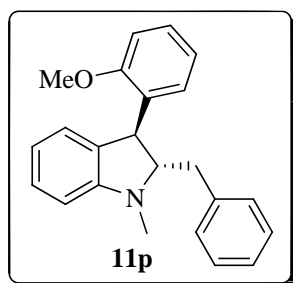


Figure 143: ^{13}C -NMR Spectrum of **11p**.

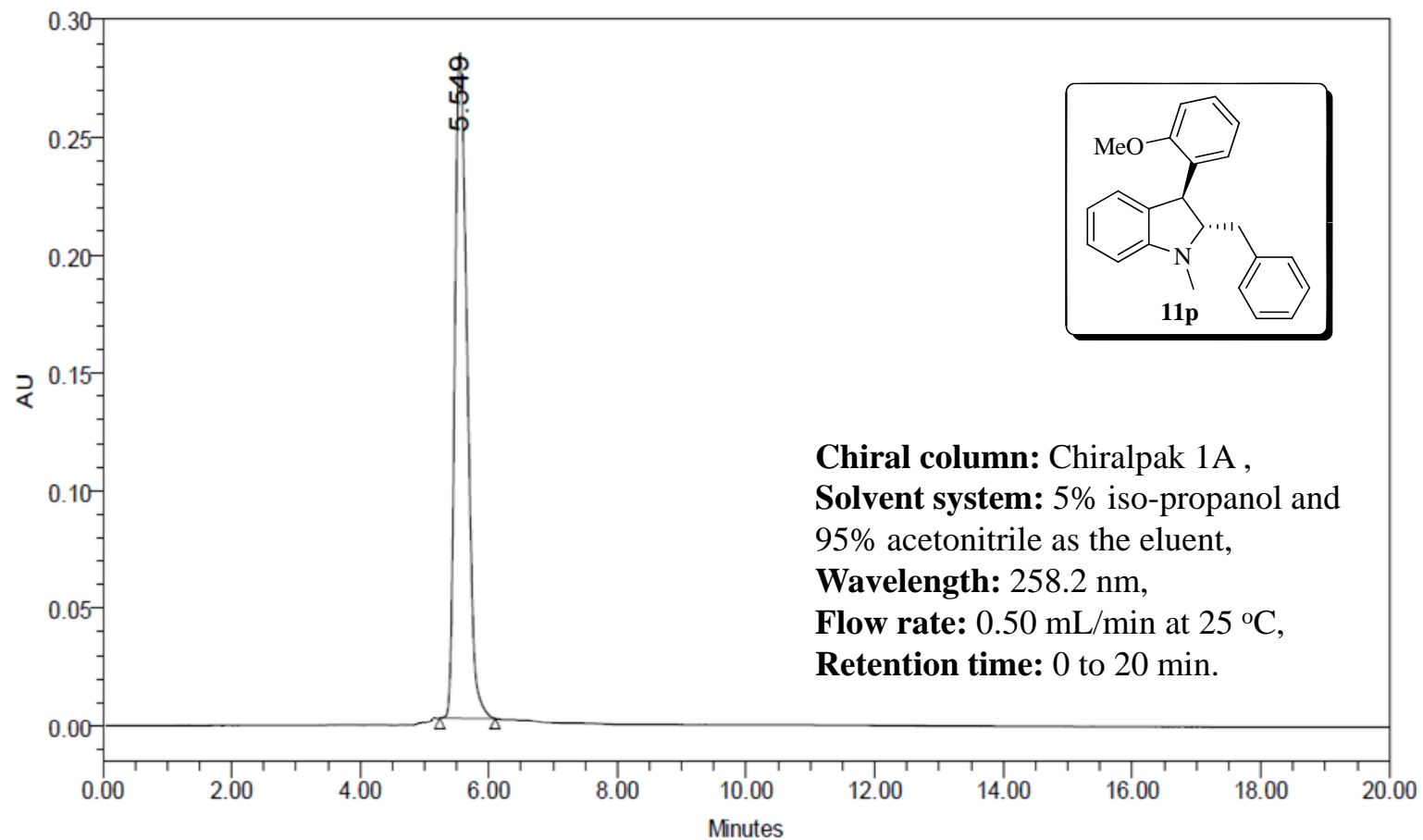


Figure 144: HPLC -Spectrum of 11p.

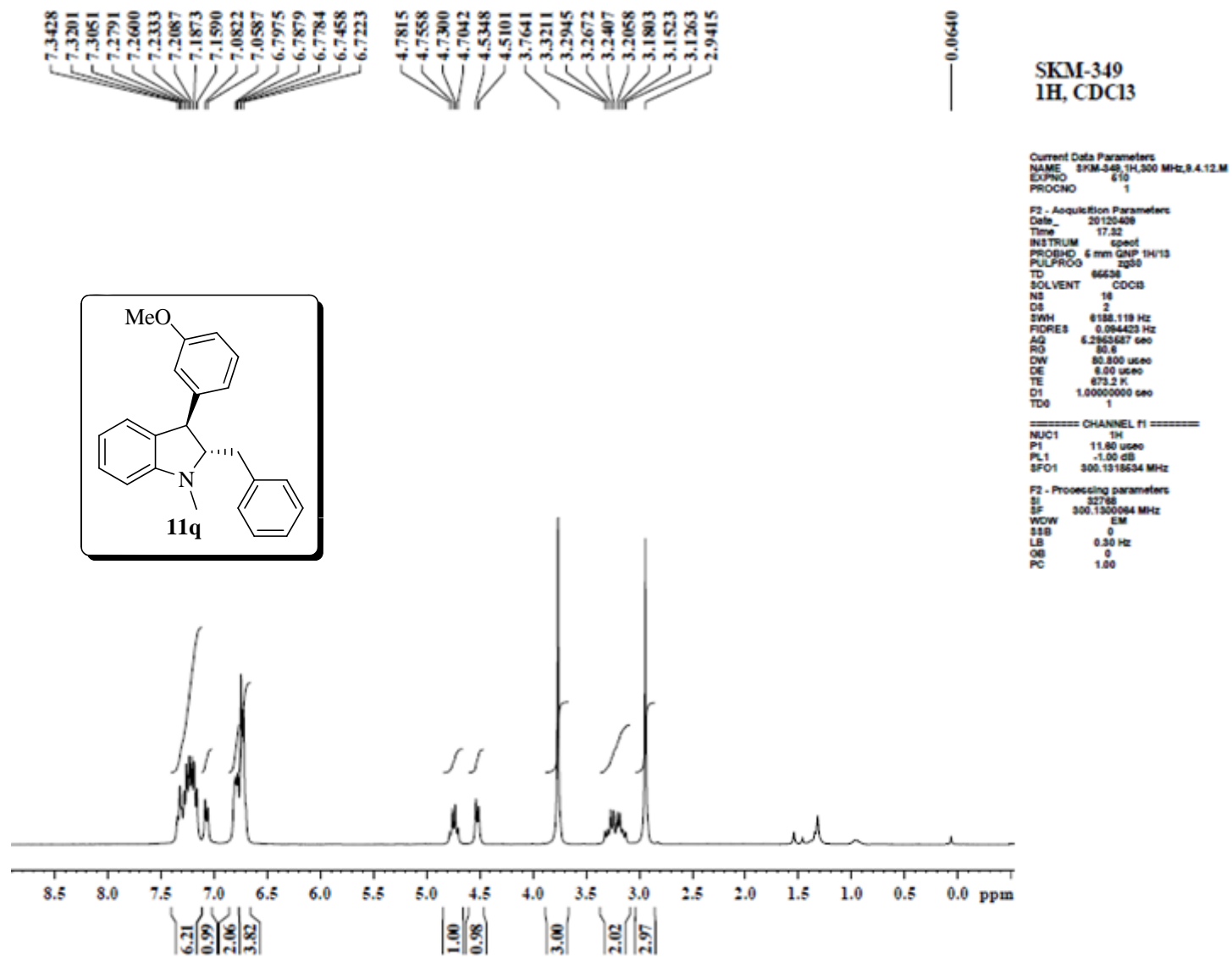
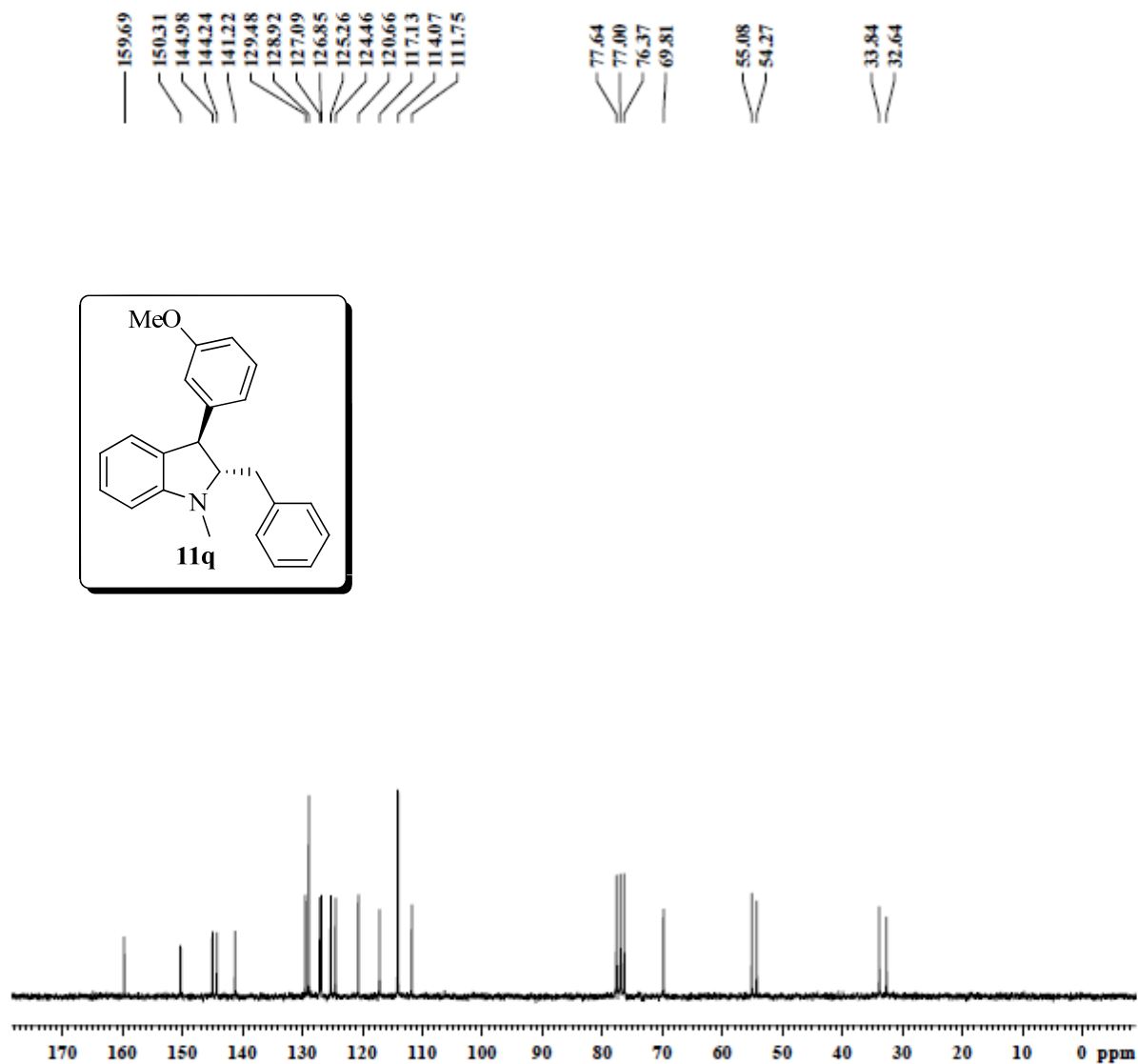


Figure 145: ^1H -NMR Spectrum of **11q**.



SKM-349
13C, CDCl3

Current Data Parameters
NAME SKM-349,13C,200 MHz,11.4,12.M
EXPNO 360
PROCNO 1

F2 - Acquisition Parameters
Date_ 20121011
Time 10.50
INSTRUM spect
PROBHD 5 mm Dual 13C/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 289
DS 4
SWH 11990.407 Hz
FIDRES 0.182950 Hz
AQ 2.7320011 sec
RG 80.0
DW 41.700 usec
DE 6.00 usec
TE 0.0 K
D1 2.0000000 sec
d11 0.0300000 sec
DELTA 1.89999998 sec
MCREST 0.0000000 sec
MCWRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 13C
P1 6.30 usec
PL1 -4.00 dB
SFO1 50.3277658 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 -4.00 dB
PL12 18.00 dB
PL13 22.00 dB
SFO2 200.1308005 MHz

F2 - Processing parameters
SI 32768
SF 50.3227343 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Figure 146: ¹³C -NMR Spectrum of **11q**.

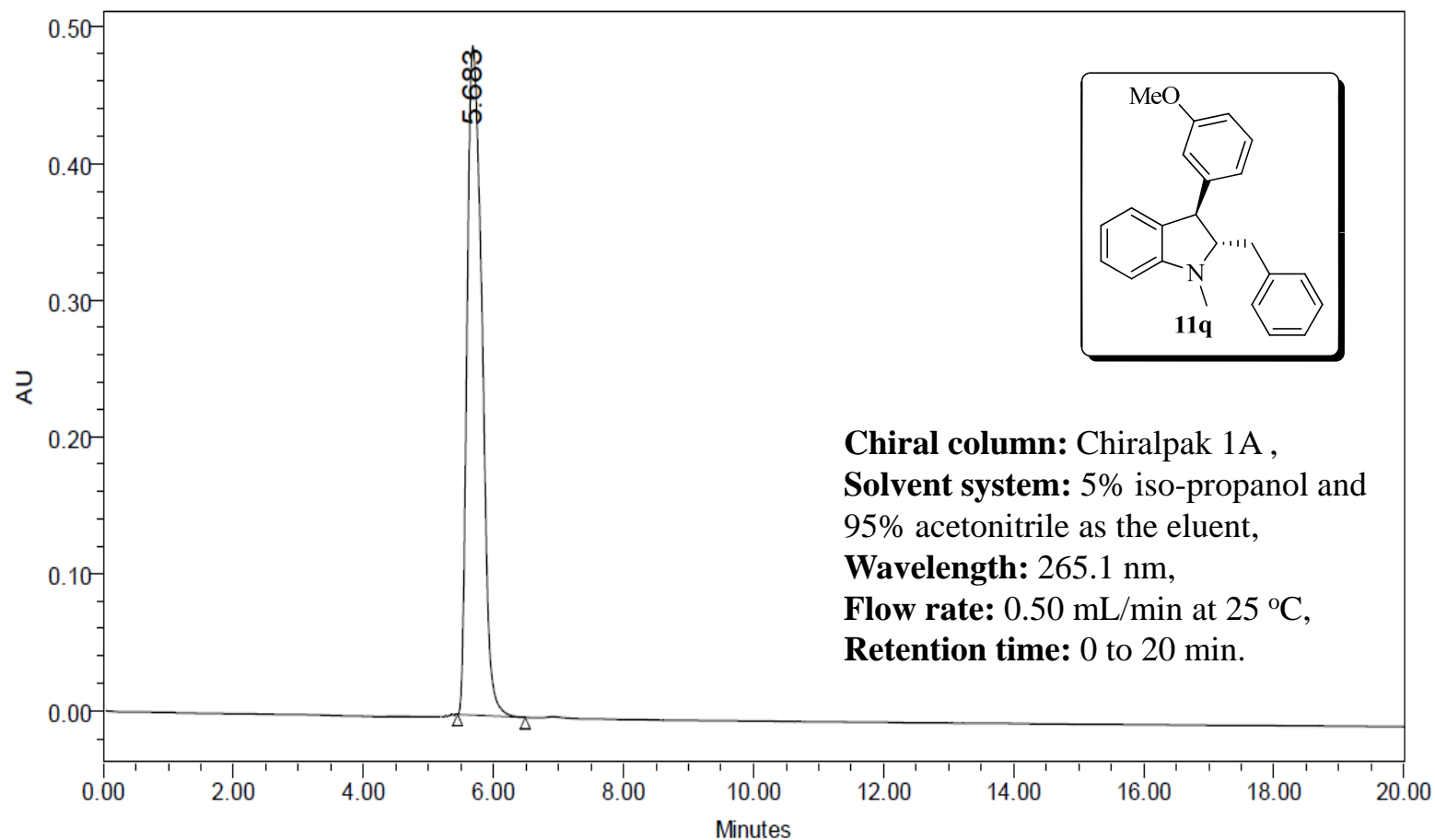


Figure 147: HPLC -Spectrum of 11q.

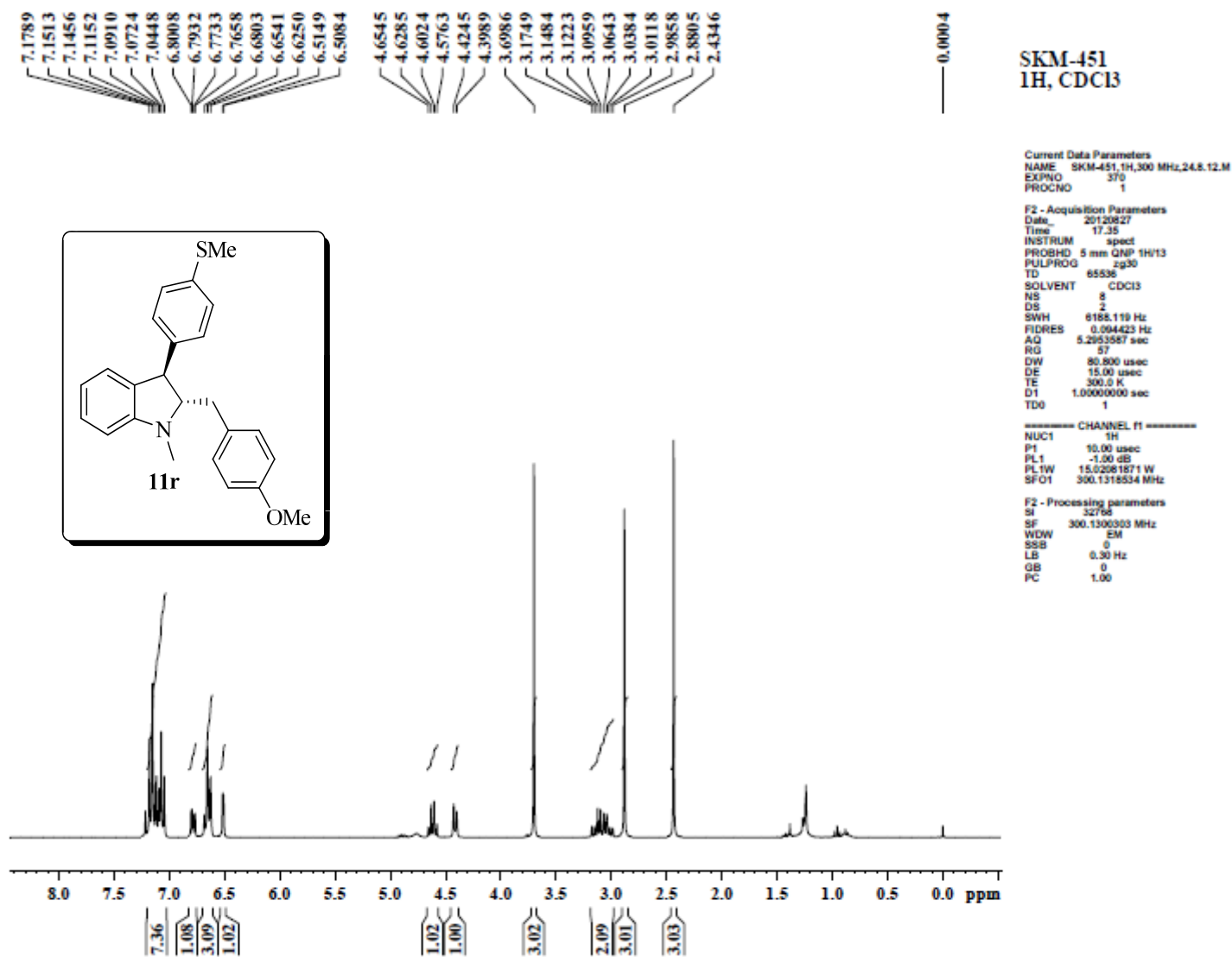
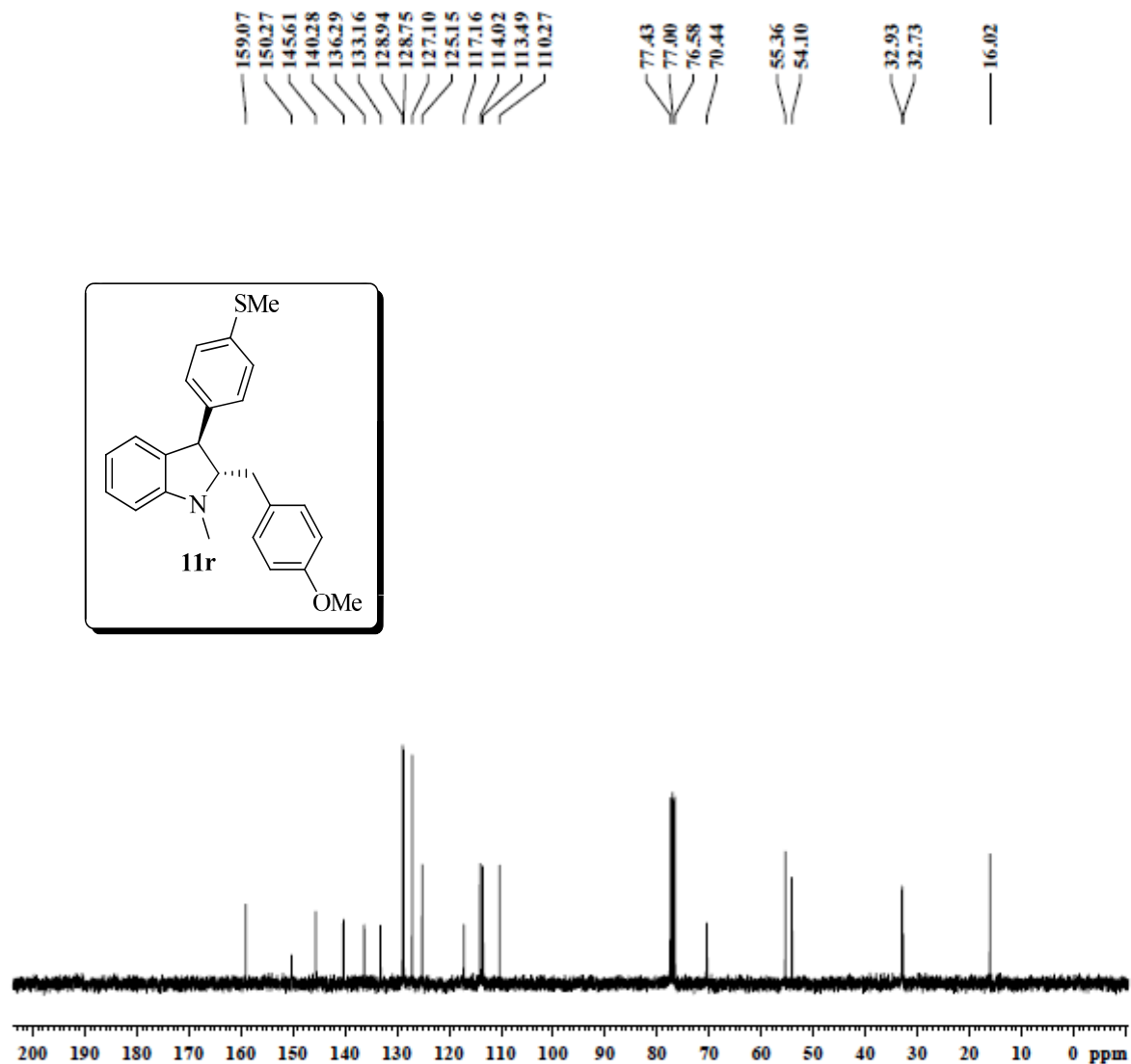


Figure 148: ^1H -NMR Spectrum of **11r**.



SKM-451
13C, CDCl3

Current Data Parameters
NAME SKM-451,13C,300 MHz,31.8.12.M
EXPO 490
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120902
Time_ 12.32
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 58
DS 4
SWH 18023.846 Hz
FIDRES 0.275096 Hz
AQ 1.8175816 sec
RG 2050
DW 27.733 usec
DE 15.00 usec
TE 873.2 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 13C
P1 8.15 usec
PL1 -3.00 dB
PL1W 55.13059616 W
SFO1 75.4752953 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -1.00 dB
PL12 17.06 dB
PL13 21.00 dB
PL2W 15.02091871 W
PL12W 0.23478761 W
PL13W 0.09477496 W
SFO2 300.1312005 MHz

F2 - Processing parameters
SI 32768
SF 75.4677566 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Figure 149: ¹³C -NMR Spectrum of **11r**.

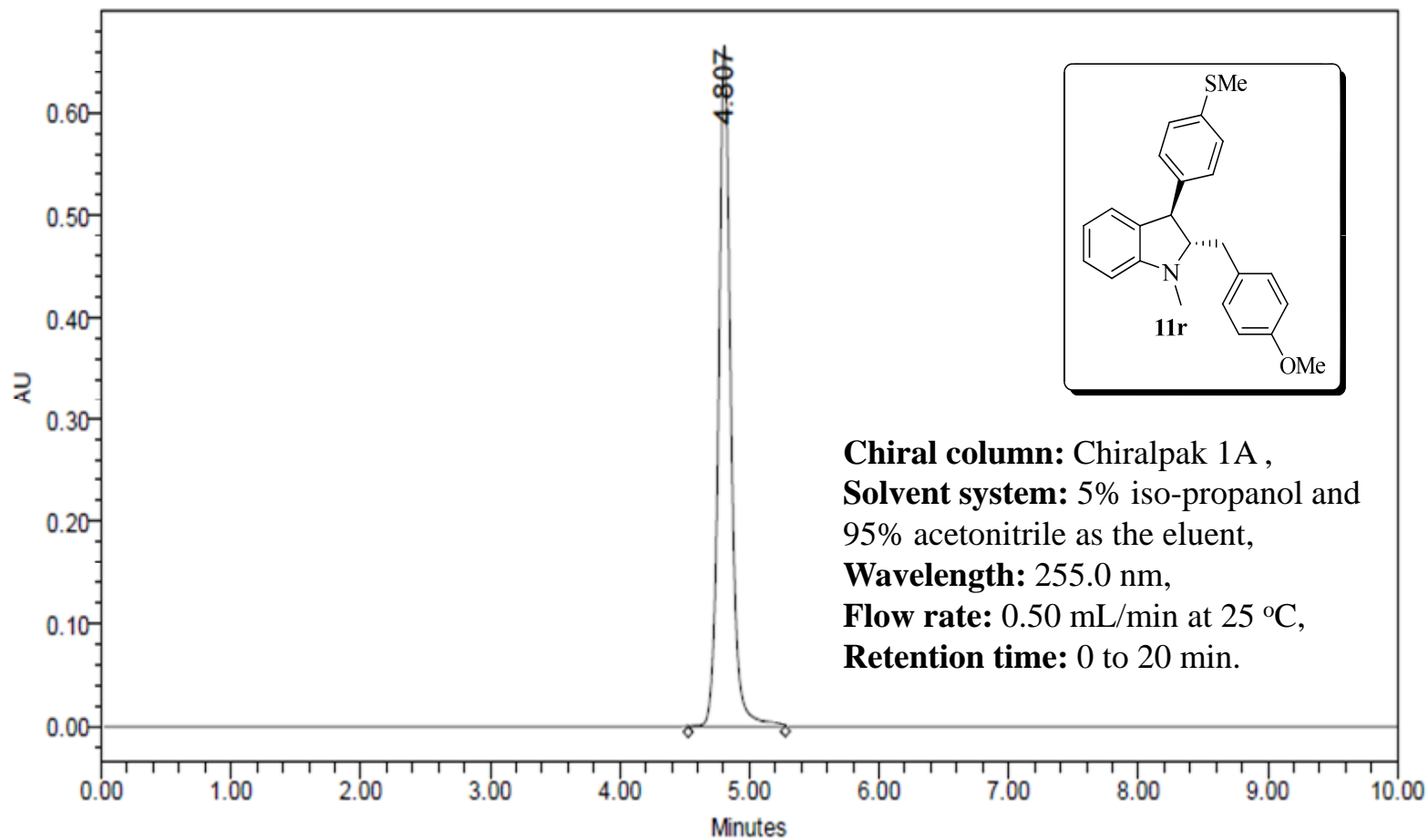


Figure 150: HPLC -Spectrum of **11r**.

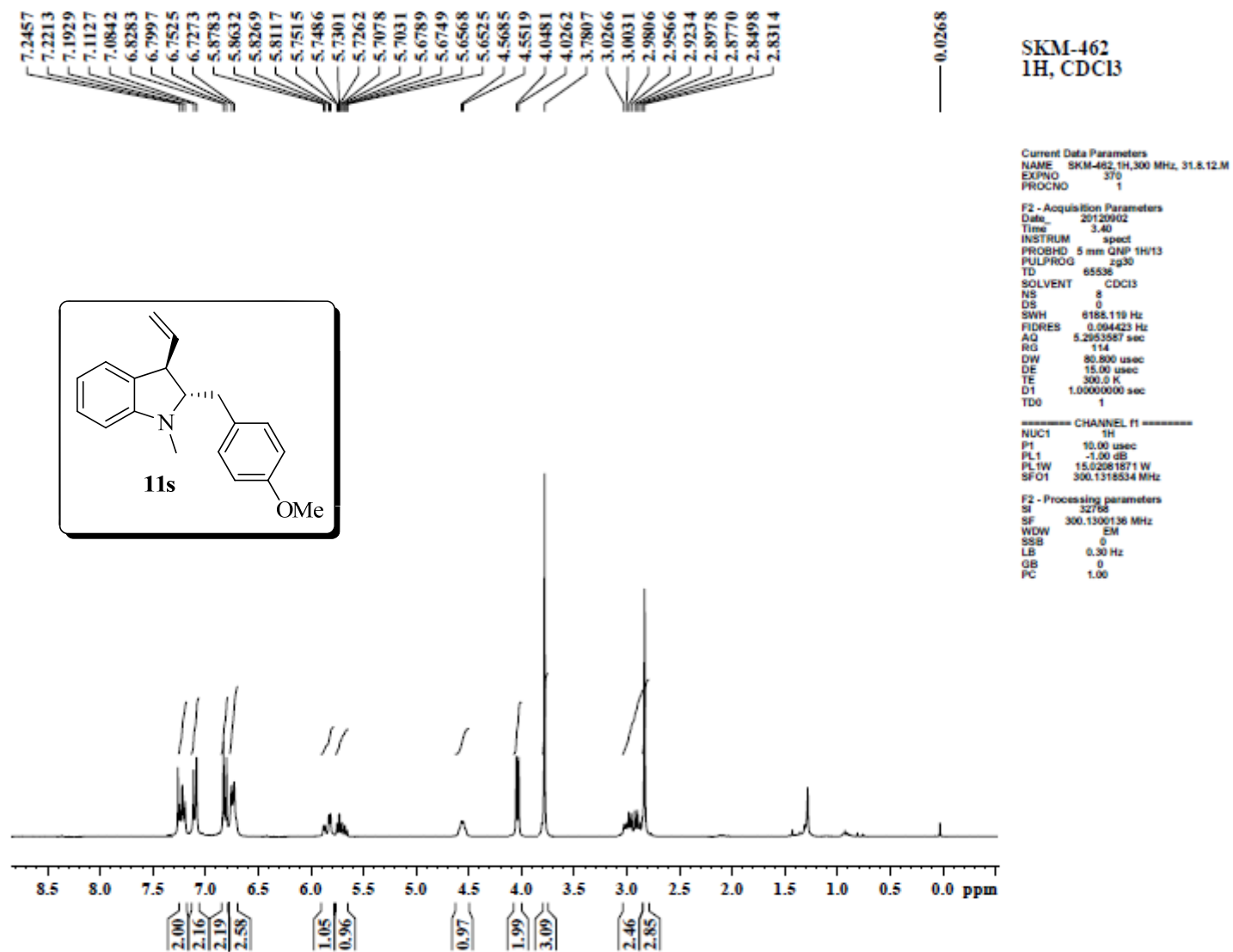


Figure 151: ^1H -NMR Spectrum of **11s**.

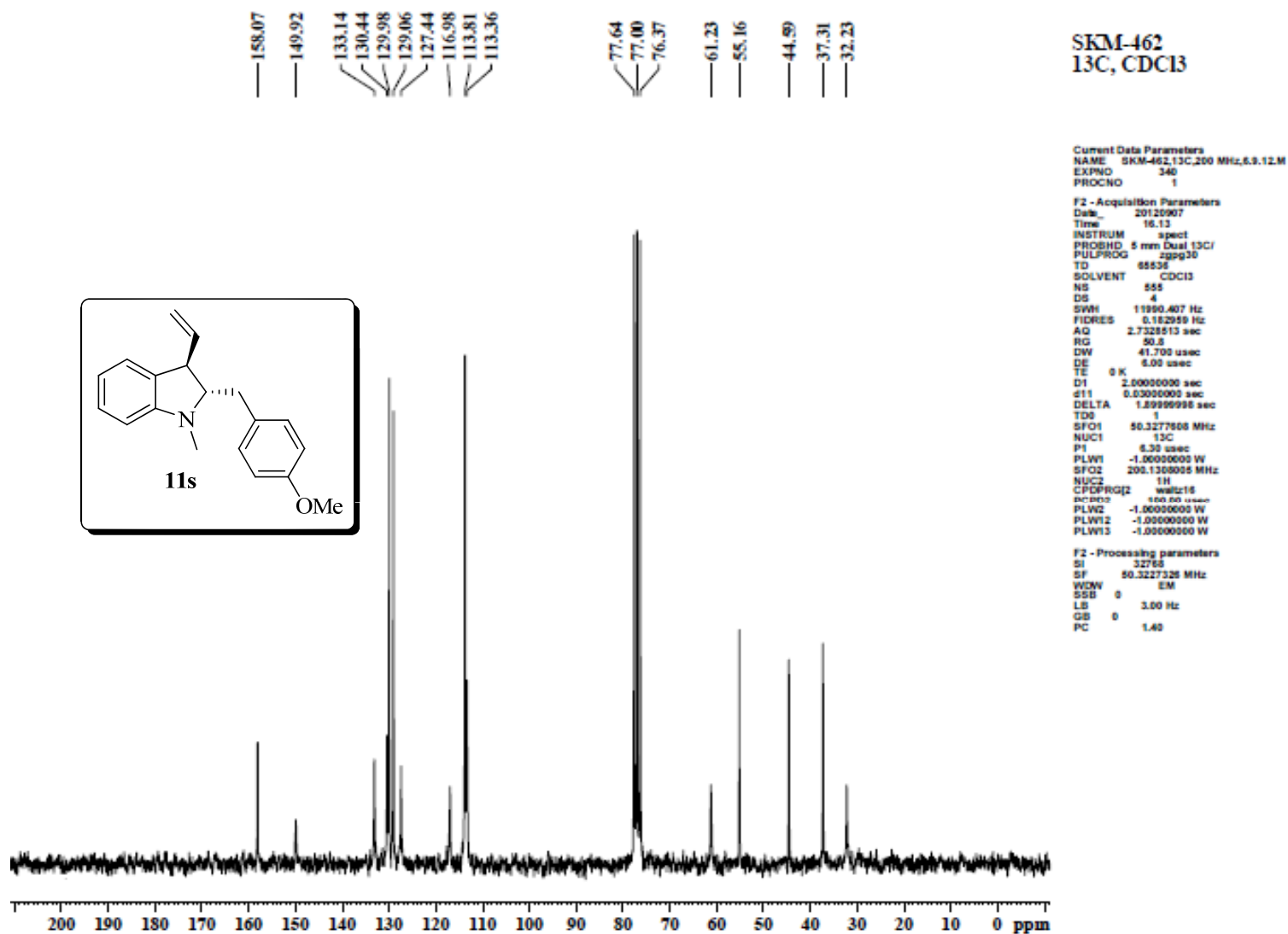
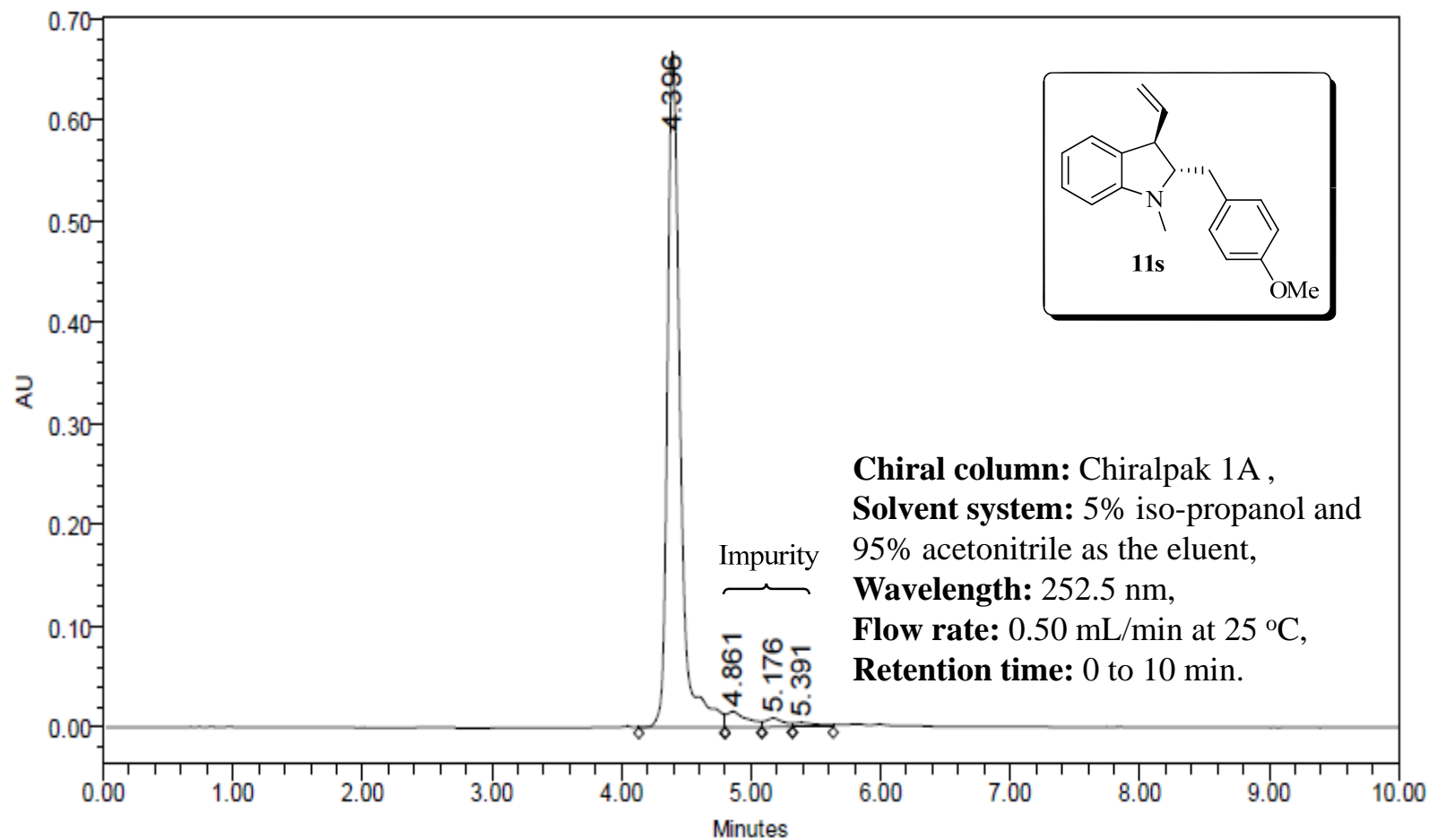
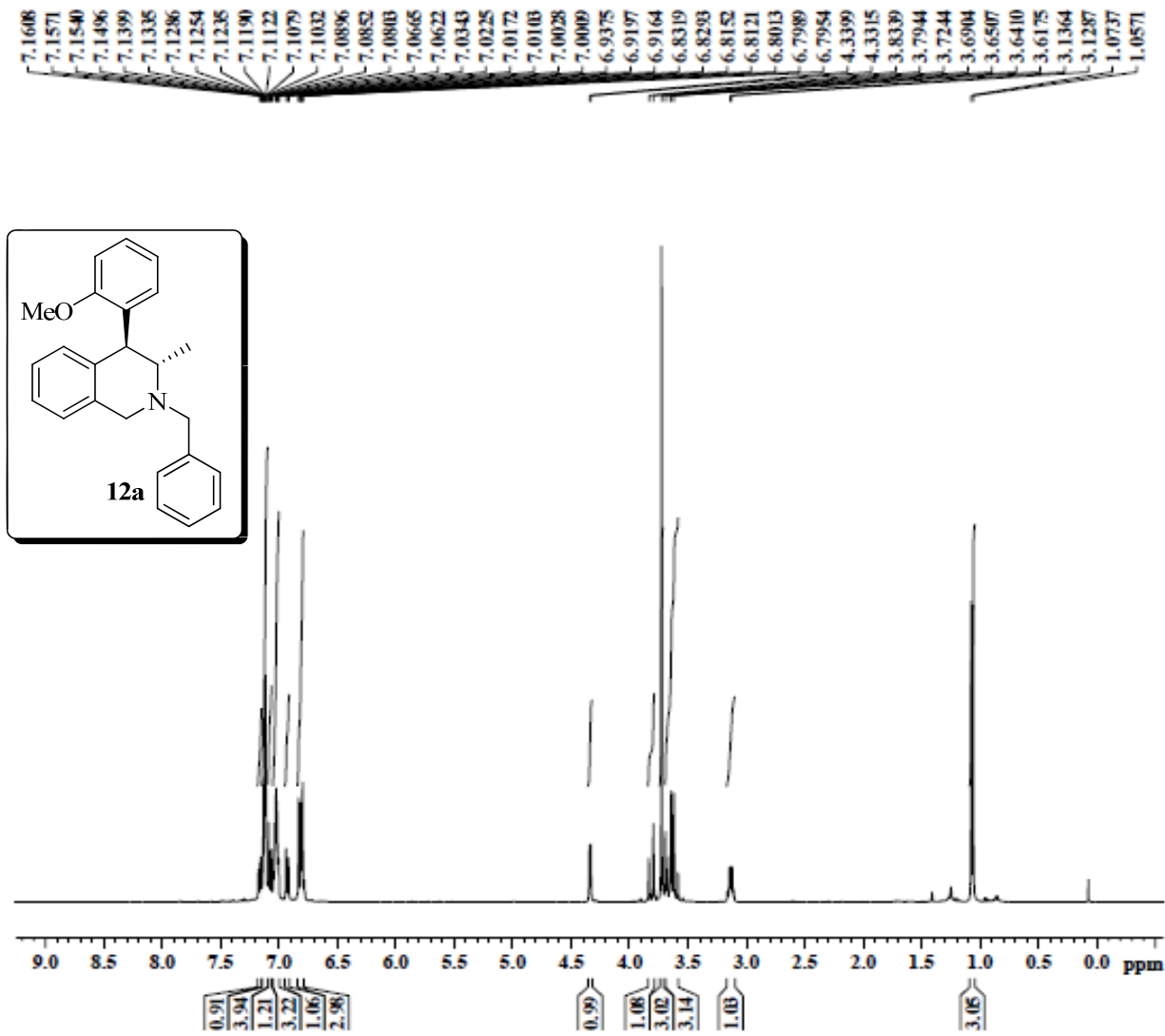


Figure 152: ^{13}C -NMR Spectrum of **11s**.



Note: The impurity species were collected and found by ^1H NMR not to contain any isomeric forms of compound **11s**.

Figure 153: HPLC -Spectrum of **11s**.



SKM-697
1H, CDCl3

Current Data Parameters
 NAME SKM-697-1H,400 MHz,4 Nov,2013.E
 EXPNO 10
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20131104
 Time 20.02
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 10
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894485 sec
 RG 31.99
 CW 62.400 usec
 DE 6.50 usec
 TE 298.0 K
 D1 1.00000000 sec
 TDO 1

***** CHANNEL f1 *****
 SFO1 400.1629712 MHz
 NUC1 1H
 P1 12.35 usec
 PLW1 14.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1605495 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

Figure 154: ¹H -NMR Spectrum of 12a.

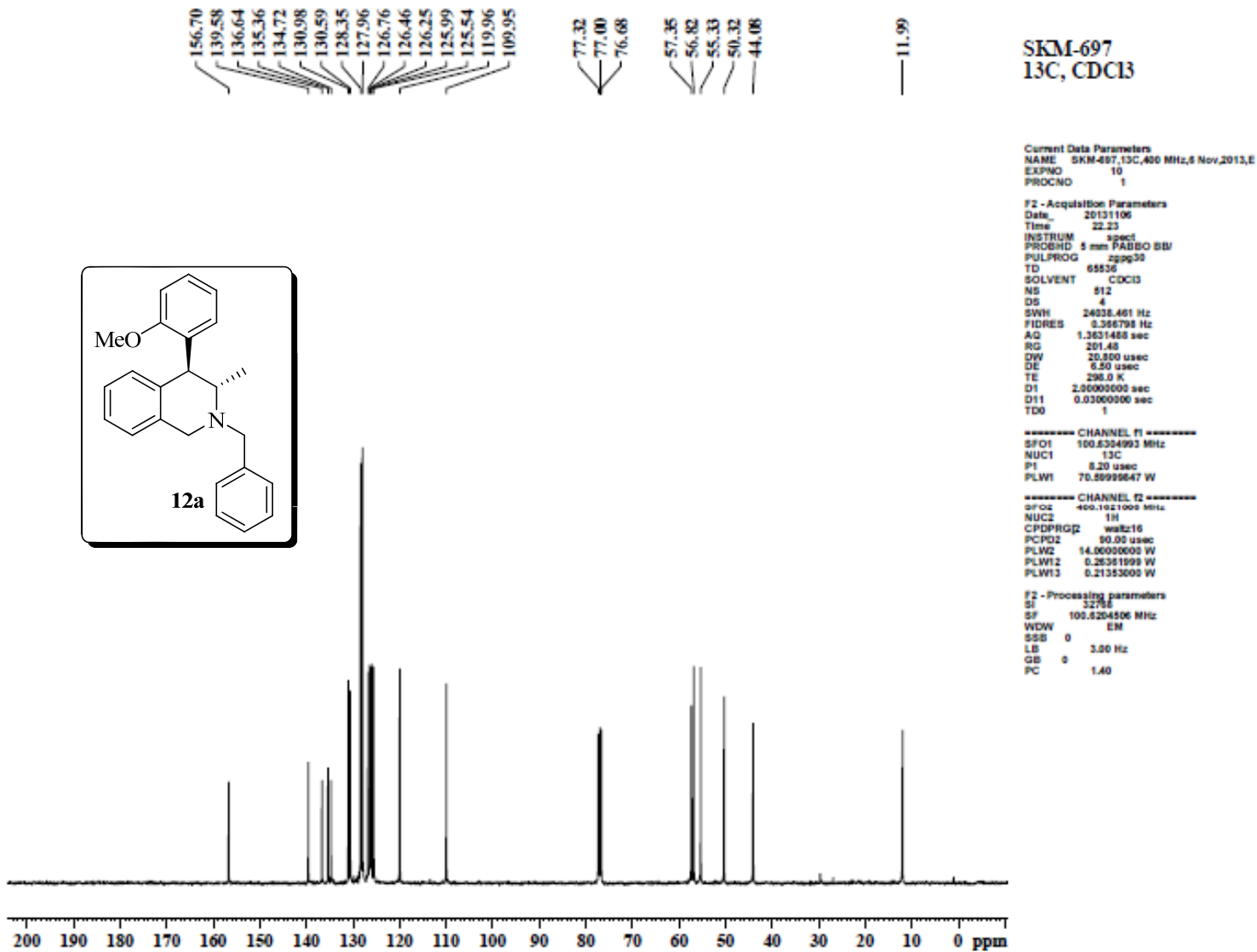


Figure 155: ^{13}C -NMR Spectrum of 12a.

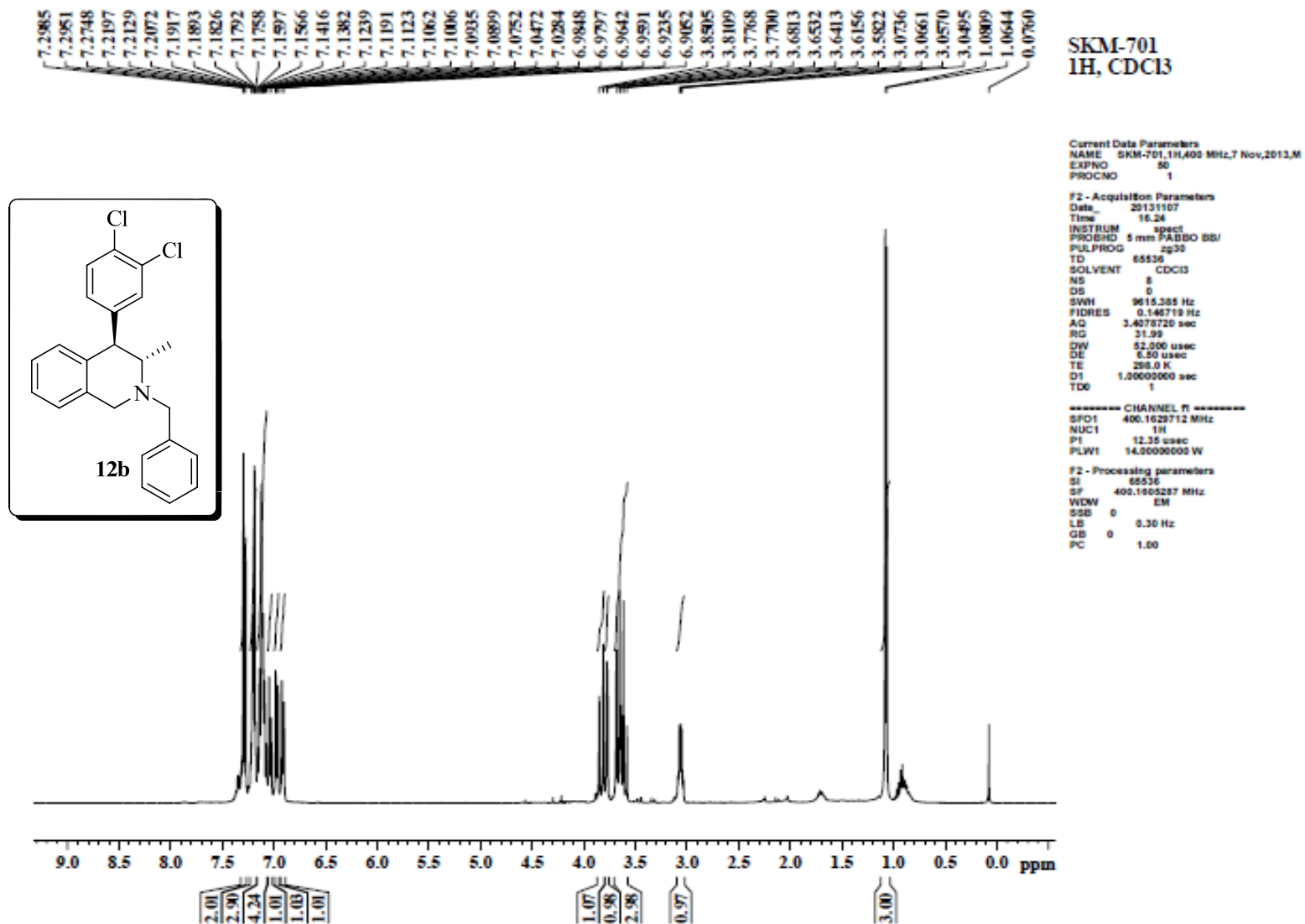


Figure 156: ¹H -NMR Spectrum of 12b.

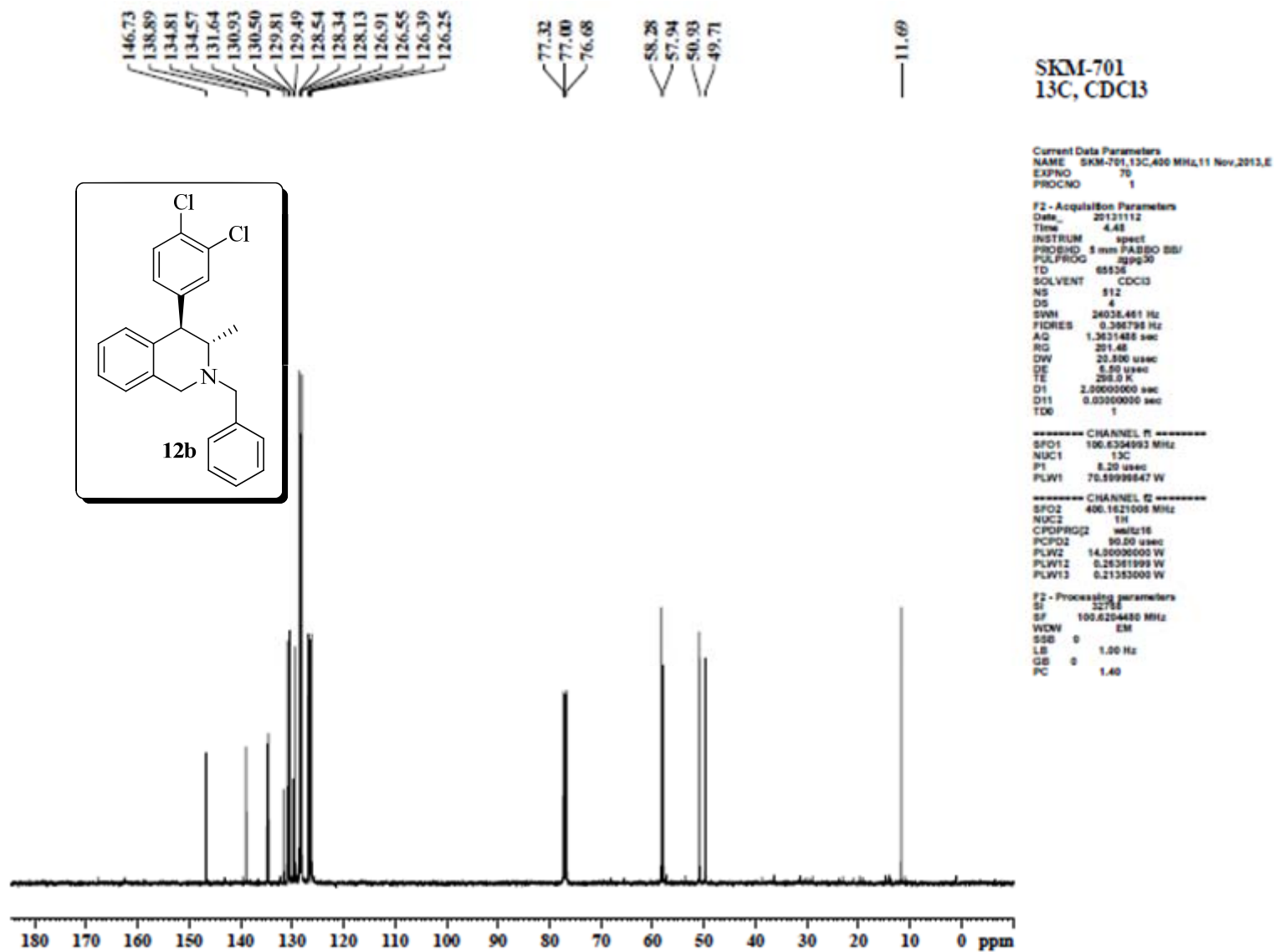
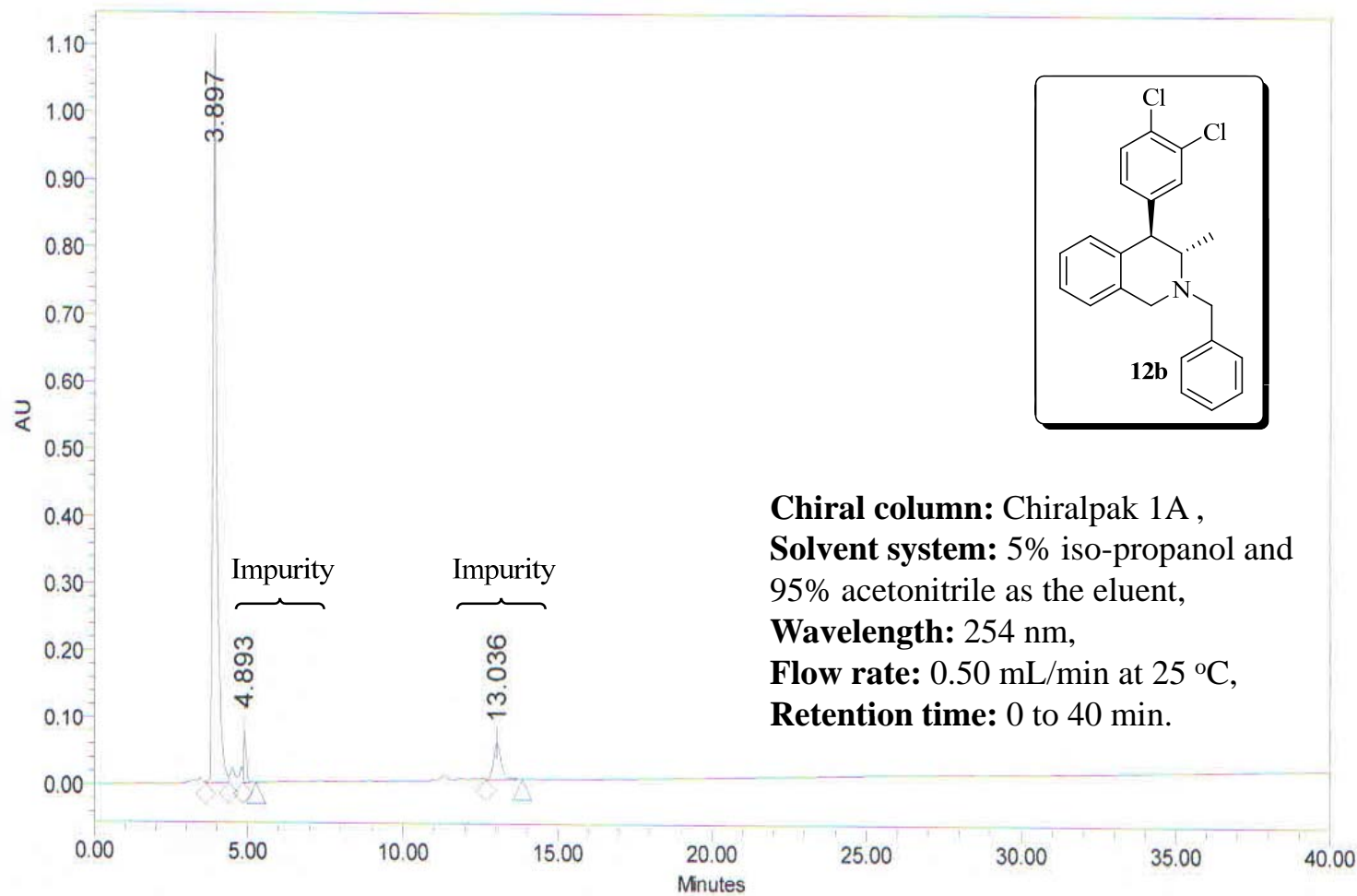


Figure 157: ^{13}C -NMR Spectrum of **12b**.



Note: The impurity species were collected and found by ^1H NMR not to contain any isomeric forms of compound **12b**.

Figure 158: HPLC -Spectrum of **12b**.

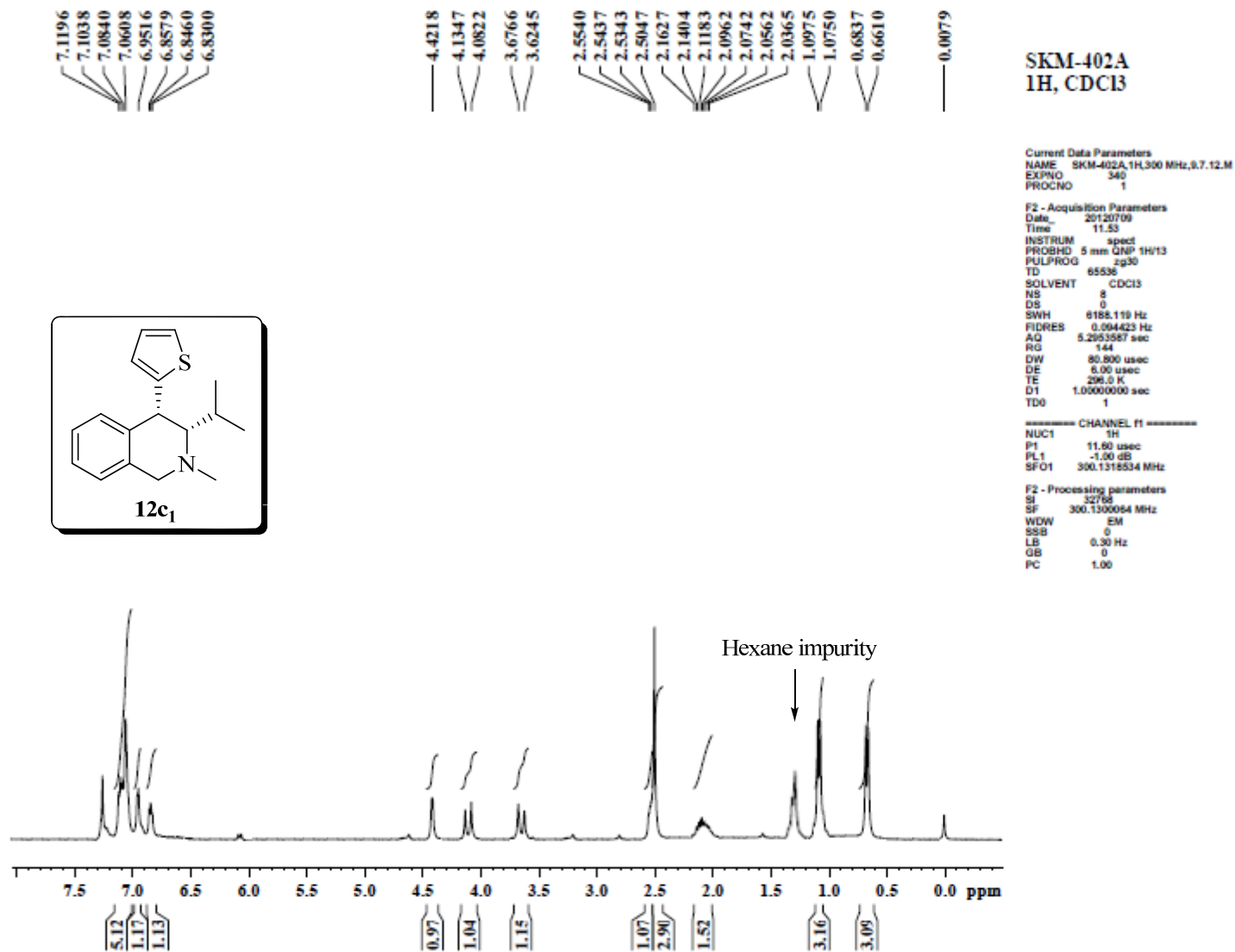
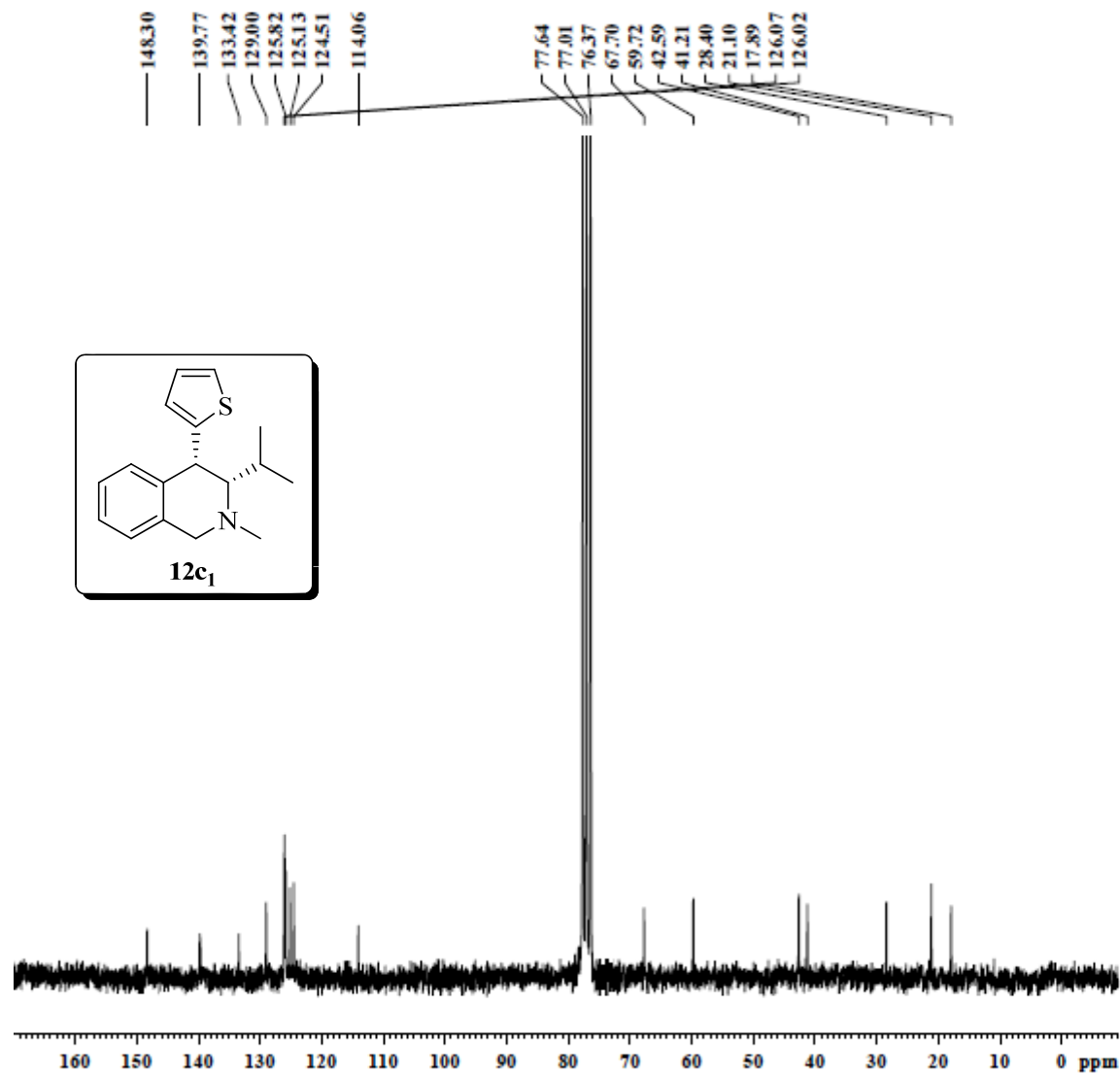


Figure 159: ¹H -NMR Spectrum of 12c₁.



SKM-402A
13C, CDC13

Current Data Parameters
NAME SKM-402A,13C,200 MHz,30.7.12.M
EXPNO 320
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120730
Time 14.16
INSTRUM spect
PROBHD 5 mm Dual 13C/
PULPROG zgpg30
TD 65536
SOLVENT CDC13
NS 2048
DS 0
SWH 12562.814 Hz
FIDRES 0.191693 Hz
AQ 2.663827 sec
RG 203.2
DW 39.800 usec
DE 6.00 usec
TE 0.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWIRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 13C
P1 6.30 usec
PL1 -4.00 dB
SFO1 90.3277608 MHz

===== CHANNEL f2 =====
CPRPROG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 -4.00 dB
PLT2 18.00 dB
PLT3 22.00 dB
SFO2 200.1308005 MHz

F2 - Processing parameters
SI 32768
SF 50.3227504 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Figure 160: ¹³C -NMR Spectrum of **12c₁**.

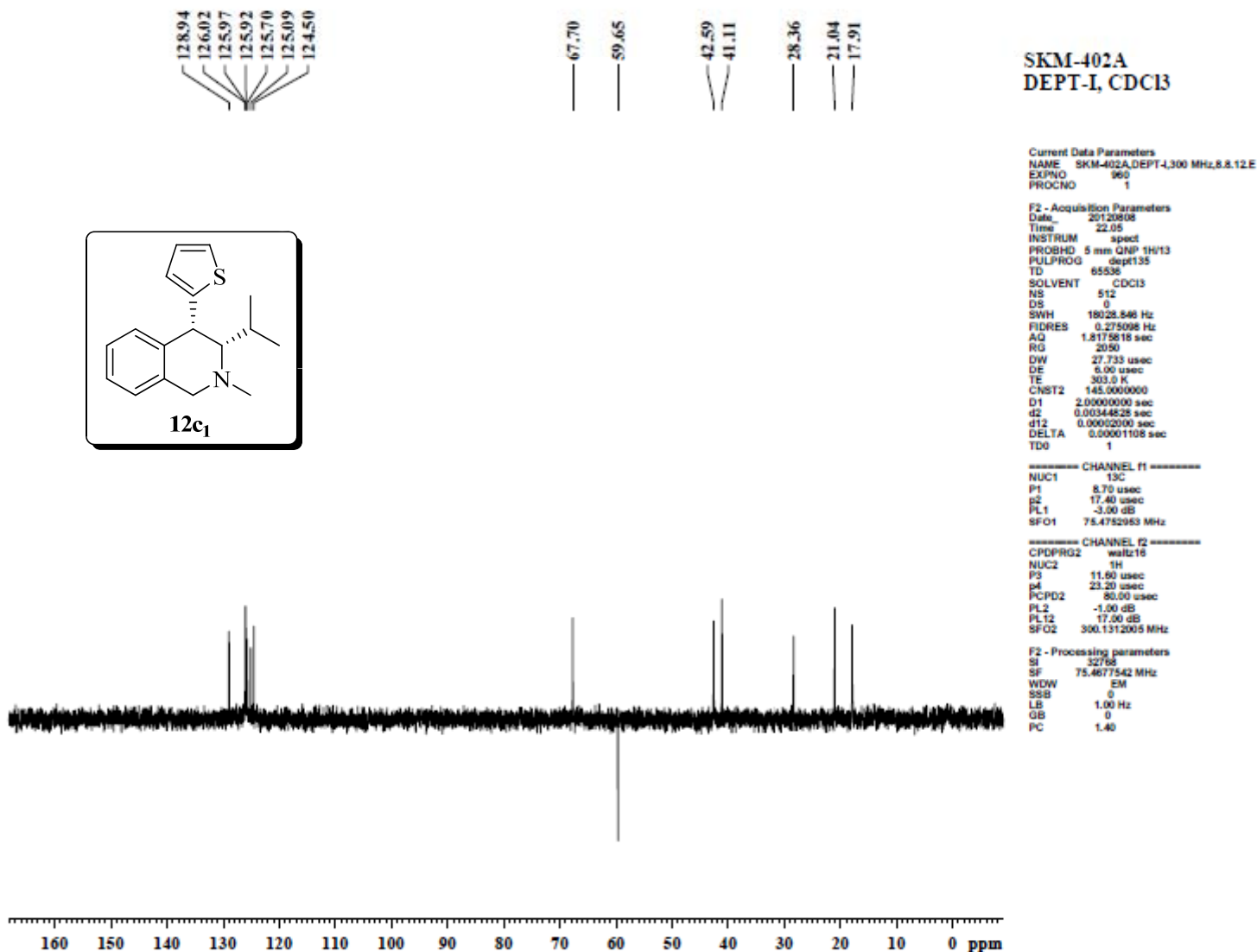
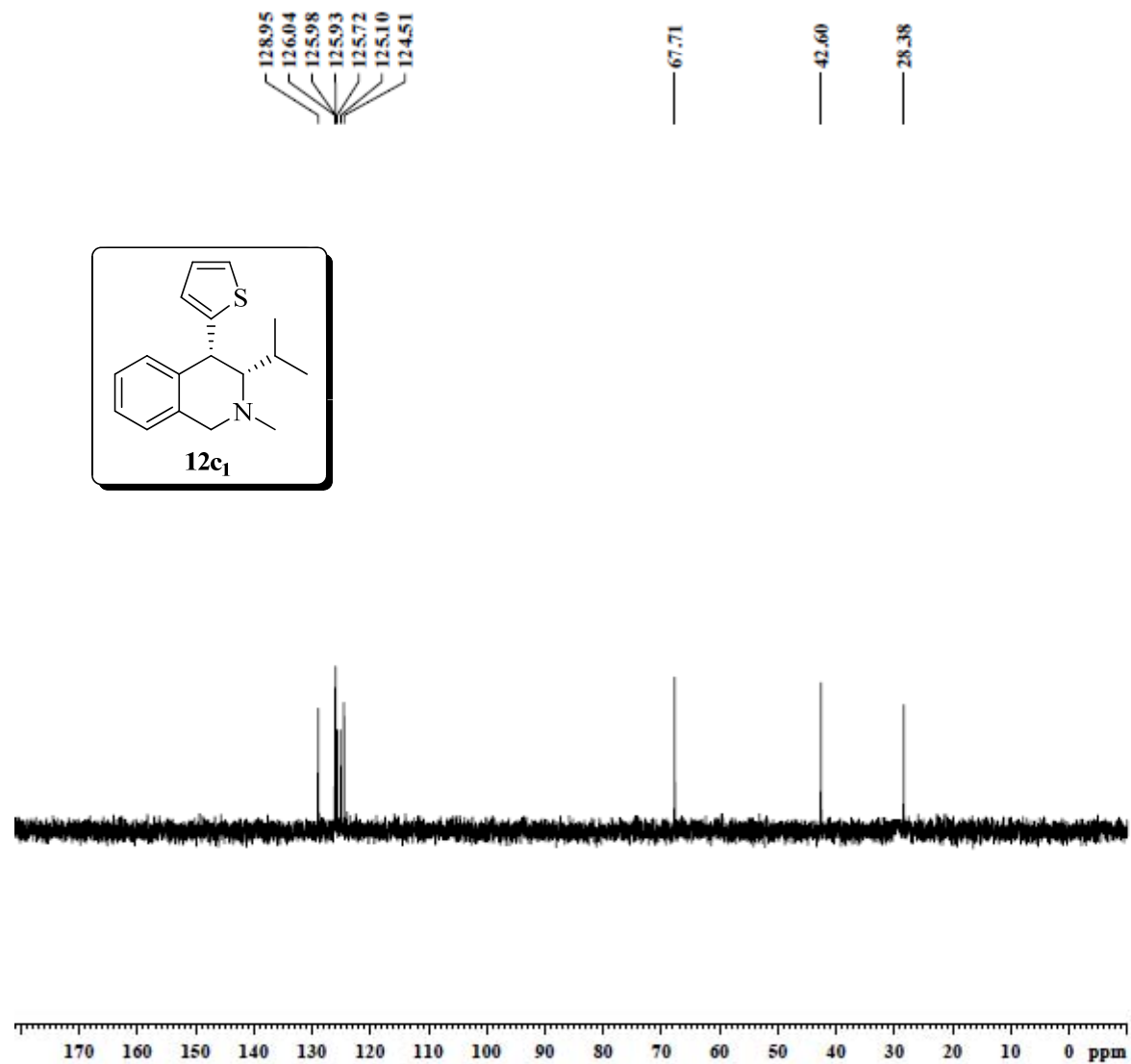


Figure 161: DEPT-I -Spectrum of 12c₁.



SKM-402A
DEPT-II,CDC13

Current Data Parameters
NAME SKM-402A,DEPT-II,300 MHz,8.8.12.E
EXPNO 961
PROCNO 1

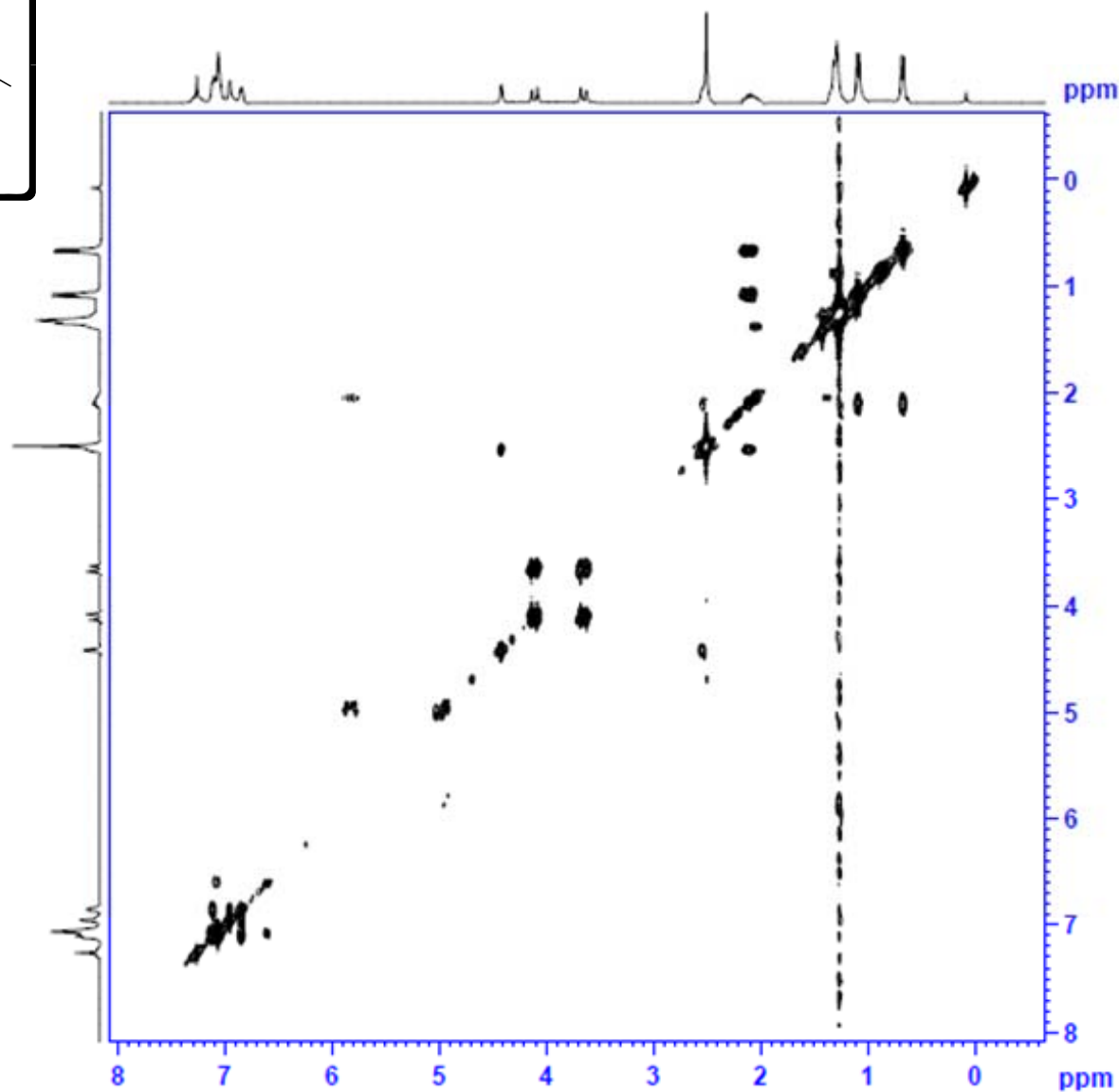
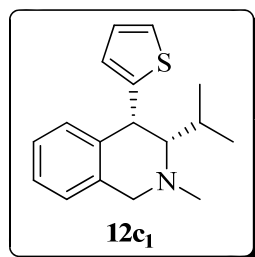
F2 - Acquisition Parameters
Date_ 20130808
Time 22.30
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG dept90
TD 65536
SOLVENT CDC13
NS 812
DS 0
SWH 18028.846 Hz
FIDRES 0.275008 Hz
AQ 1.8175818 sec
RG 2053
DNV 27.733 usec
DE 8.00 usec
TE 303.0 K
CHST2 148.0000000
D1 2.00000000 sec
d2 0.00344828 sec
d12 0.00002000 sec
DELTA 0.00001106 sec
TD0 1

----- CHANNEL f1 -----
NUC1 13C
P1 8.70 usec
p2 17.40 usec
PL1 -3.00 dB
SFO1 75.4752053 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
P3 11.80 usec
p4 23.20 usec
PCPD2 50.00 usec
PL2 -1.00 dB
PL12 17.00 dB
SFO2 300.1312005 MHz

F2 - Processing parameters
SI 32768
SF 75.4677432 MHz
WOW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Figure 162: DEPT-II -Spectrum of **12c₁**.



**SKM-402A
COSY, CDCl₃**

Current Data Parameters
 NAME SKM-402A.COSY,300 MHz,18.7.12.
 EXPNO 981
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20120718
 Time 23.32
 INSTRUM spect
 PROBHD 5 mm QNP 1H/13
 PULPROG cosyypof
 TD 2048
 SOLVENT CDCl₃
 NS 18
 DS 8
 SWH 2617.801 Hz
 FIDRES 1.278223 Hz
 AQ 0.3912180 sec
 RG 64
 DW 191.000 usec
 DE 6.00 usec
 TE 302.7 K
 d0 0.00000300 sec
 D1 1.35131395 sec
 d13 0.00000400 sec
 D18 0.00020000 sec
 INO 0.00038200 sec

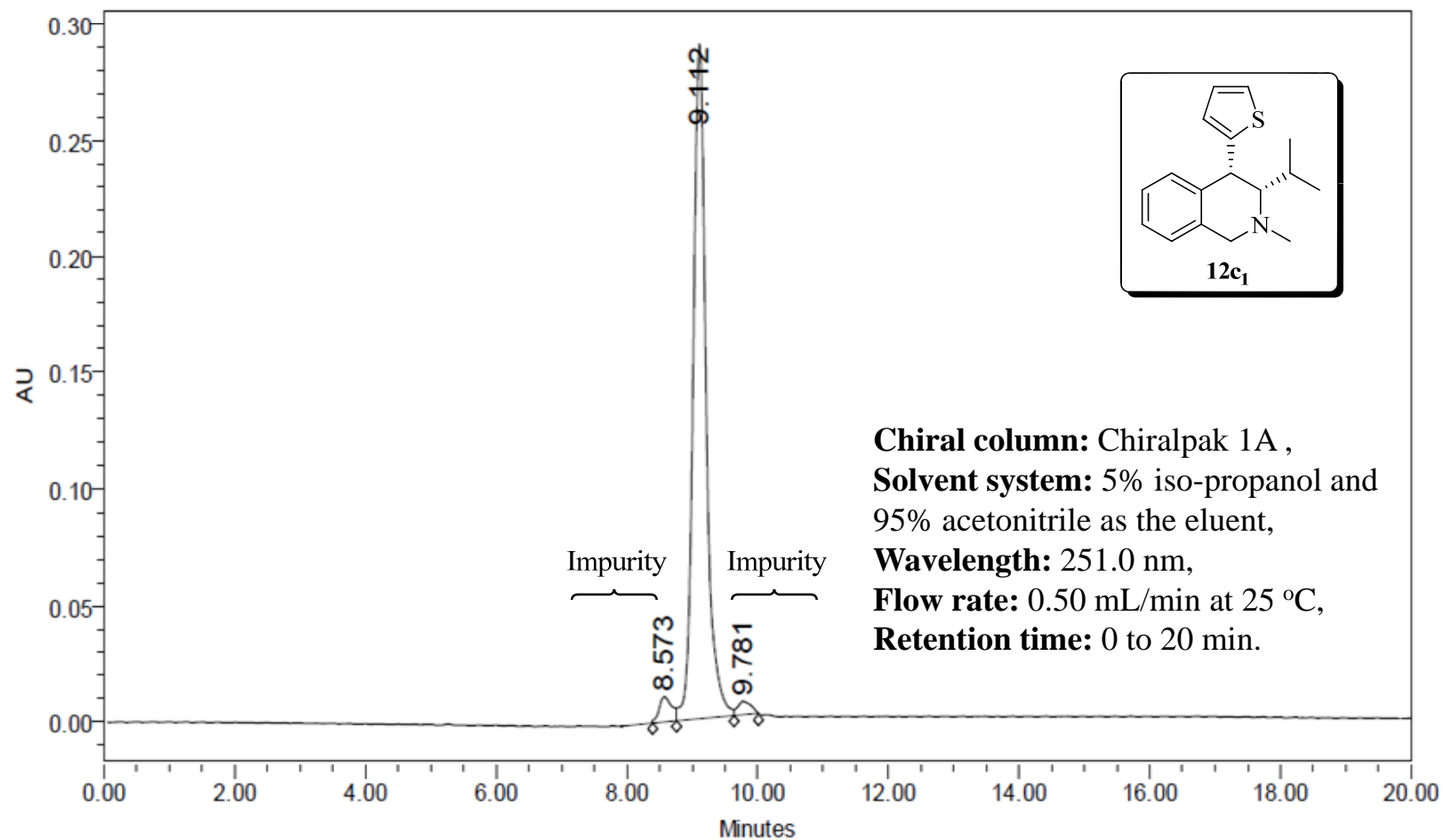
----- CHANNEL f1 -----
 NUC1 1H
 P0 11.50 usec
 P1 11.50 usec
 PL1 -1.00 dB
 SFO1 300.1310650 MHz

----- GRADIENT CHANNEL -----
 GPNAM1 SINE.100
 GPNAM2 SINE.100
 GPZ1 10.00 %
 GPZ2 10.00 %
 P16 1000.00 usec

F1 - Acquisition parameters
 NDO 1
 TD 128
 SFO1 300.1311 MHz
 FIDRES 20.481571 Hz
 SW 8.722 ppm
 FxMODE QF

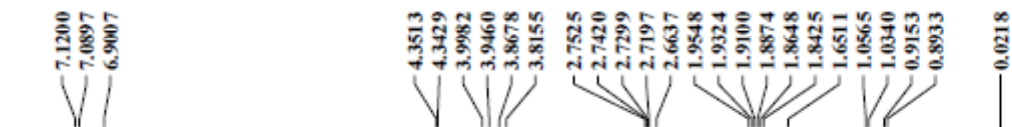
F2 - Processing parameters
 SI 1024
 SF 300.1300056 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0

Figure 163: COSY - Spectrum of 12c₁.



Note: The impurity species were collected and found by ¹H NMR not to contain any isomeric forms of compound **12c₁**.

Figure 164: HPLC -Spectrum of **12c₁**.



SKM-402B
1H, CDCl3

Current Data Parameters
NAME SKM-402B,1H,300 MHz,8.7.12.M
EXPNO 350
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120709
Time 11.50
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2952587 sec
RG 64
DW 80.800 usec
DE 6.00 usec
TE 296.0 K
D1 1.0000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 11.80 usec
PL1 -1.00 dB
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300087 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

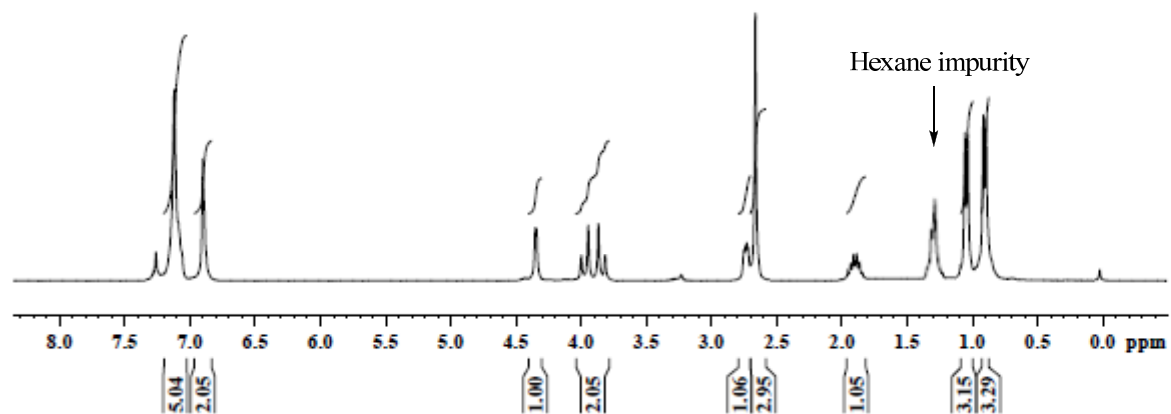
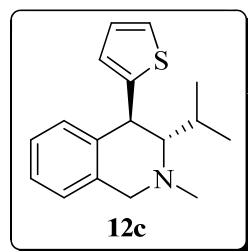
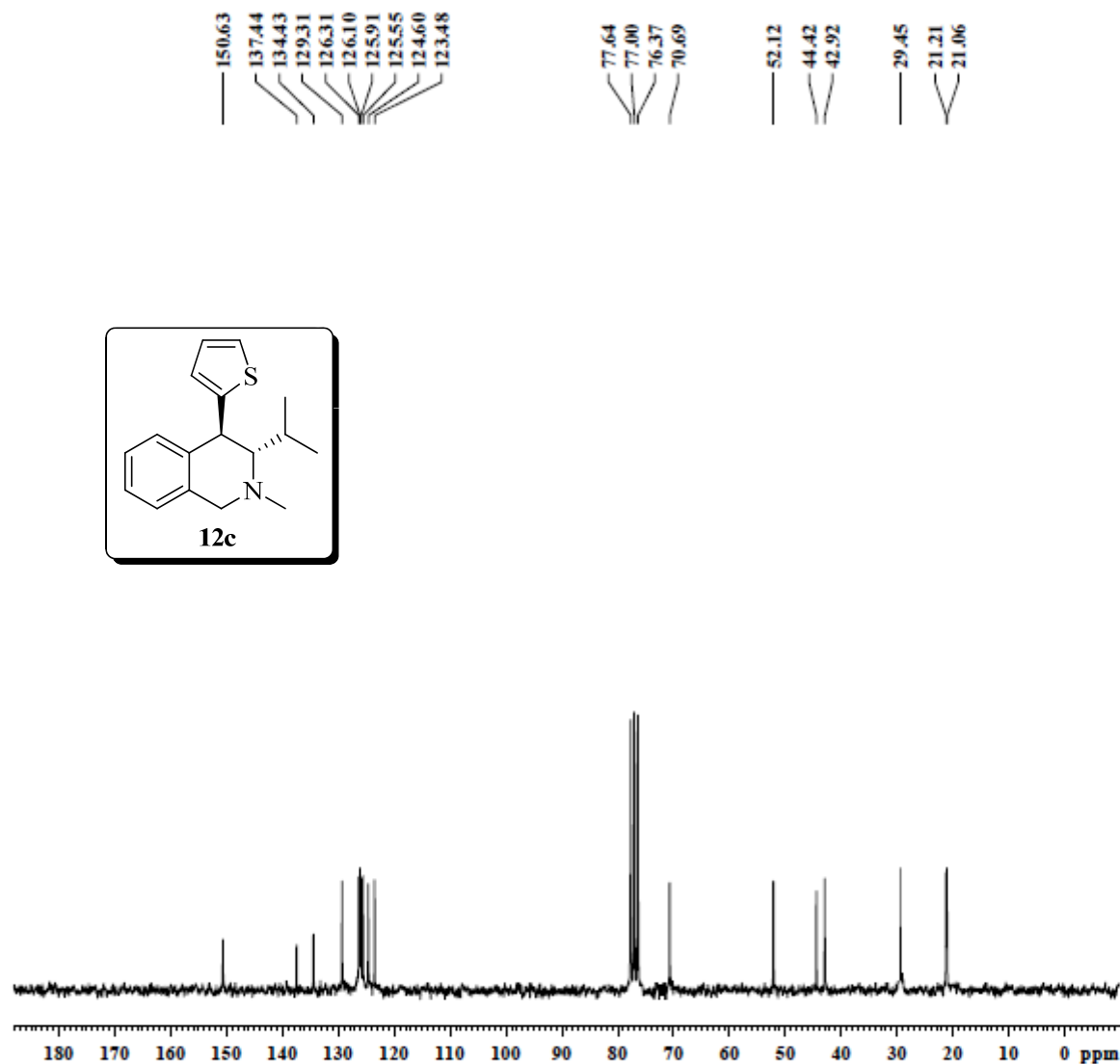


Figure 165: ¹H -NMR Spectrum of 12c.



SKM-402B
13C, CDC13

Current Data Parameters
NAME SKM-402B,13C,200 MHz,11.7.12.M
EXPNO 360
PROCNO 1

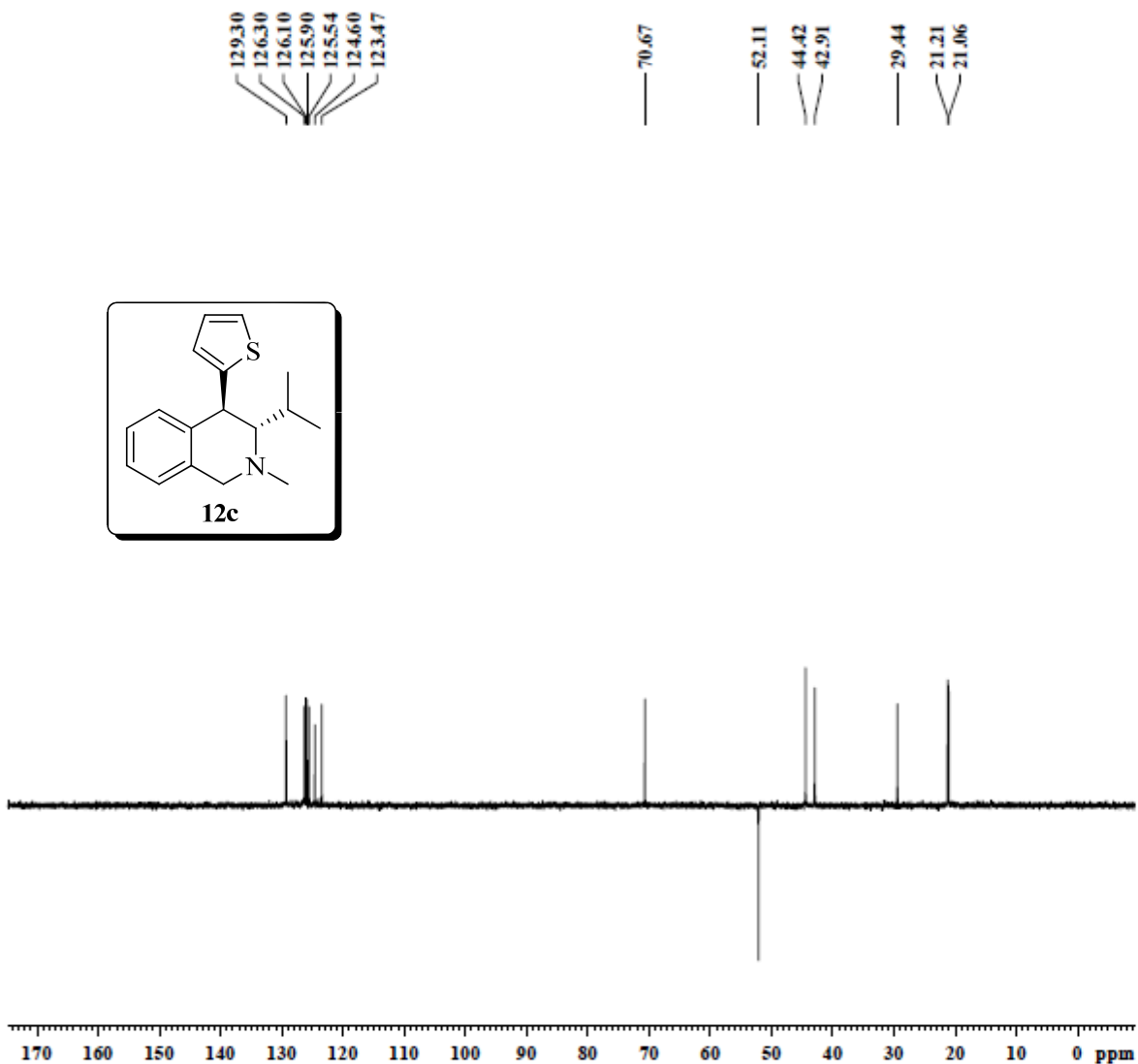
F2 - Acquisition Parameters
Date_ 20120711
Time 18.20
INSTRUM spect
PROBHD 5 mm Dual 13C/
PULPROG zgpg30
TD 65536
SOLVENT CDC13
NS 512
DS 4
SWH 11990.407 Hz
FIDRES 0.182058 Hz
AQ 2.7329011 sec
RG 57
DW 41.700 usec
DE 8.00 usec
TE 0.0 K
D1 2.0000000 sec
d11 0.0300000 sec
DELTA 1.89999998 sec
MCREST 0.0000000 sec
MCWRK 0.0150000 sec

----- CHANNEL f1 -----
NUC1 13C
P1 6.30 usec
PL1 -8.00 dB
SFO1 50.3277608 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 -4.00 dB
PL12 19.00 dB
PL13 22.00 dB
SFO2 200.1308005 MHz

F2 - Processing parameters
SI 32768
SF 50.3227306 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
PC 1.40

Figure 166: ^{13}C -NMR Spectrum of **12c**.



SKM-402B
DEPT-I, CDCI3

Current Data Parameters
NAME SKM-402B_DEPT-I,300 MHz,12.7.12.E
EXPNO 1200
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120713
Time 11.57
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG dept135
TD 65536
SOLVENT CDCI3
NS 256
DS 4
SWH 18028.846 Hz
FIDRES 0.275098 Hz
AQ 1.8175818 sec
RG 2050
DW 27.733 usec
DE 6.00 usec
TE 297.3 K
CNST2 145.0000000
D1 2.0000000 sec
d2 0.0034828 sec
d12 0.0000200 sec
DELTA 0.00001108 sec
TD0 1

===== CHANNEL f1 =====
NUC1 13C
P1 8.70 usec
p2 17.40 usec
PL1 -3.00 dB
SFO1 75.4752953 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
P3 11.60 usec
p4 23.20 usec
PCPD2 80.00 usec
PL2 -1.00 dB
PL12 17.00 dB
SFO2 300.1312005 MHz

F2 - Processing parameters
SI 32768
SF 75.467533 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Figure 167: DEPT-I -Spectrum of 12c.

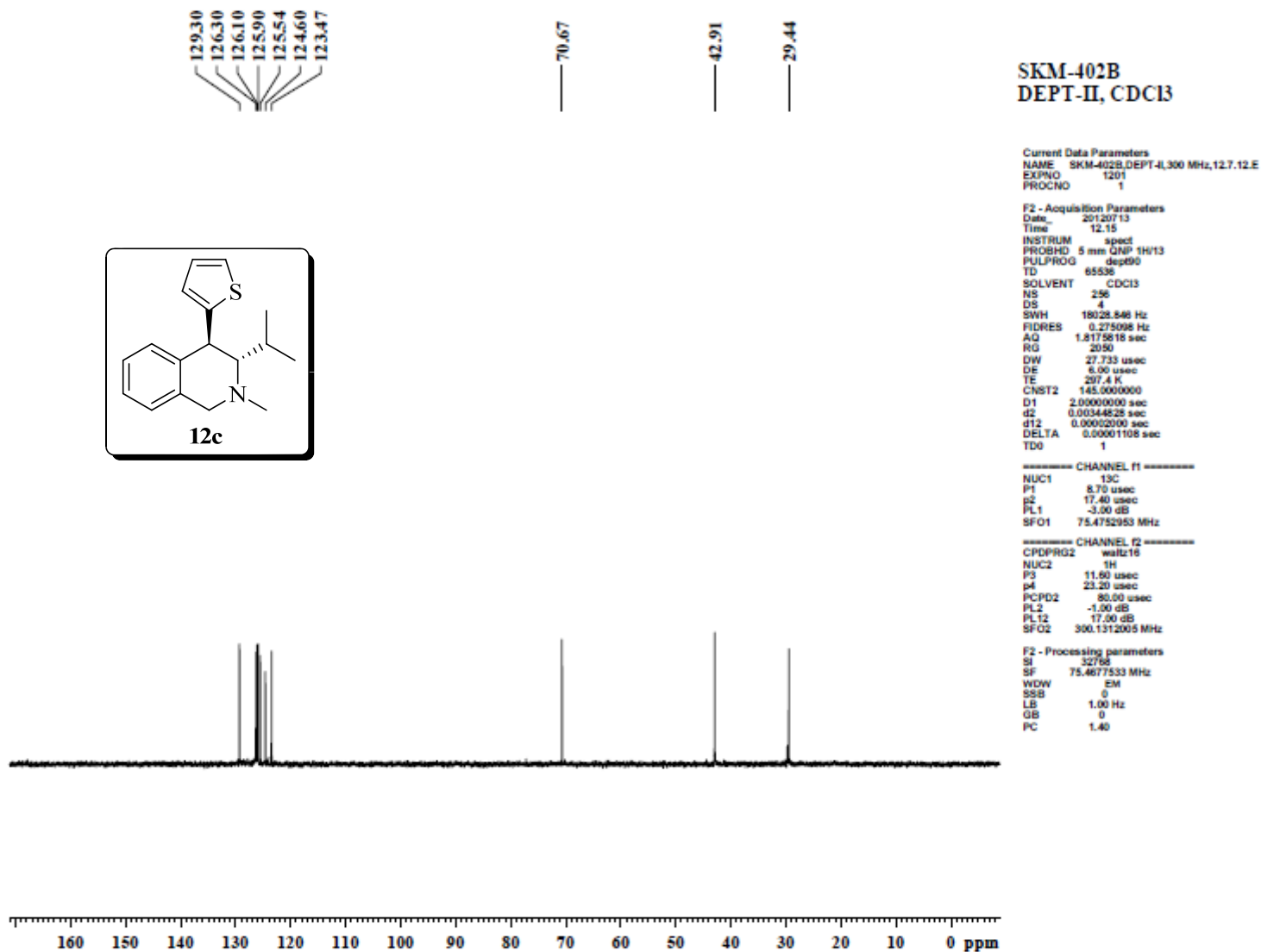


Figure 168: DEPT-II -Spectrum of 12c.

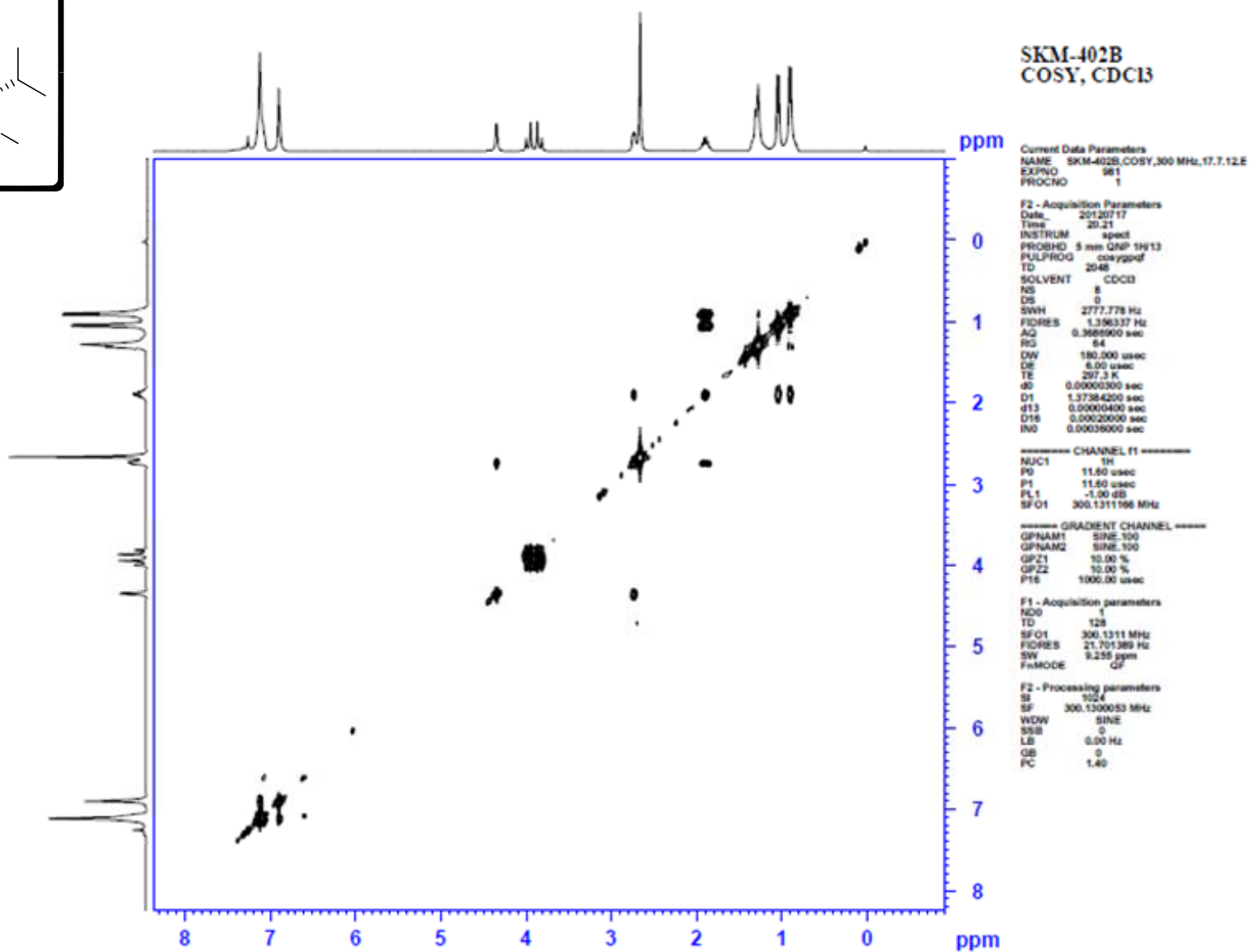
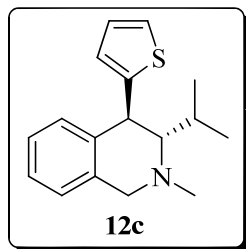


Figure 169: COSY -Spectrum of 12c.

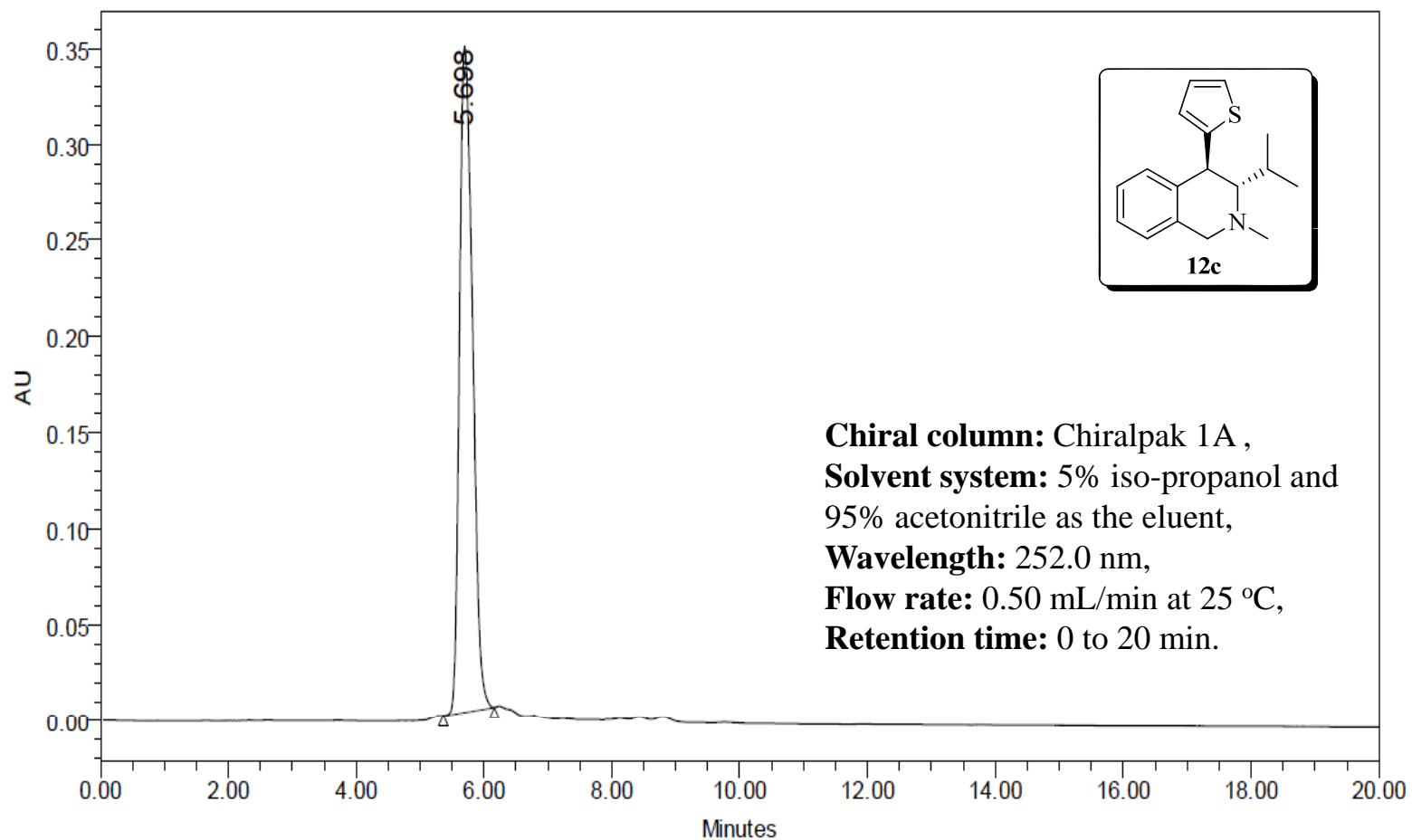


Figure 170: HPLC -Spectrum of **12c**.

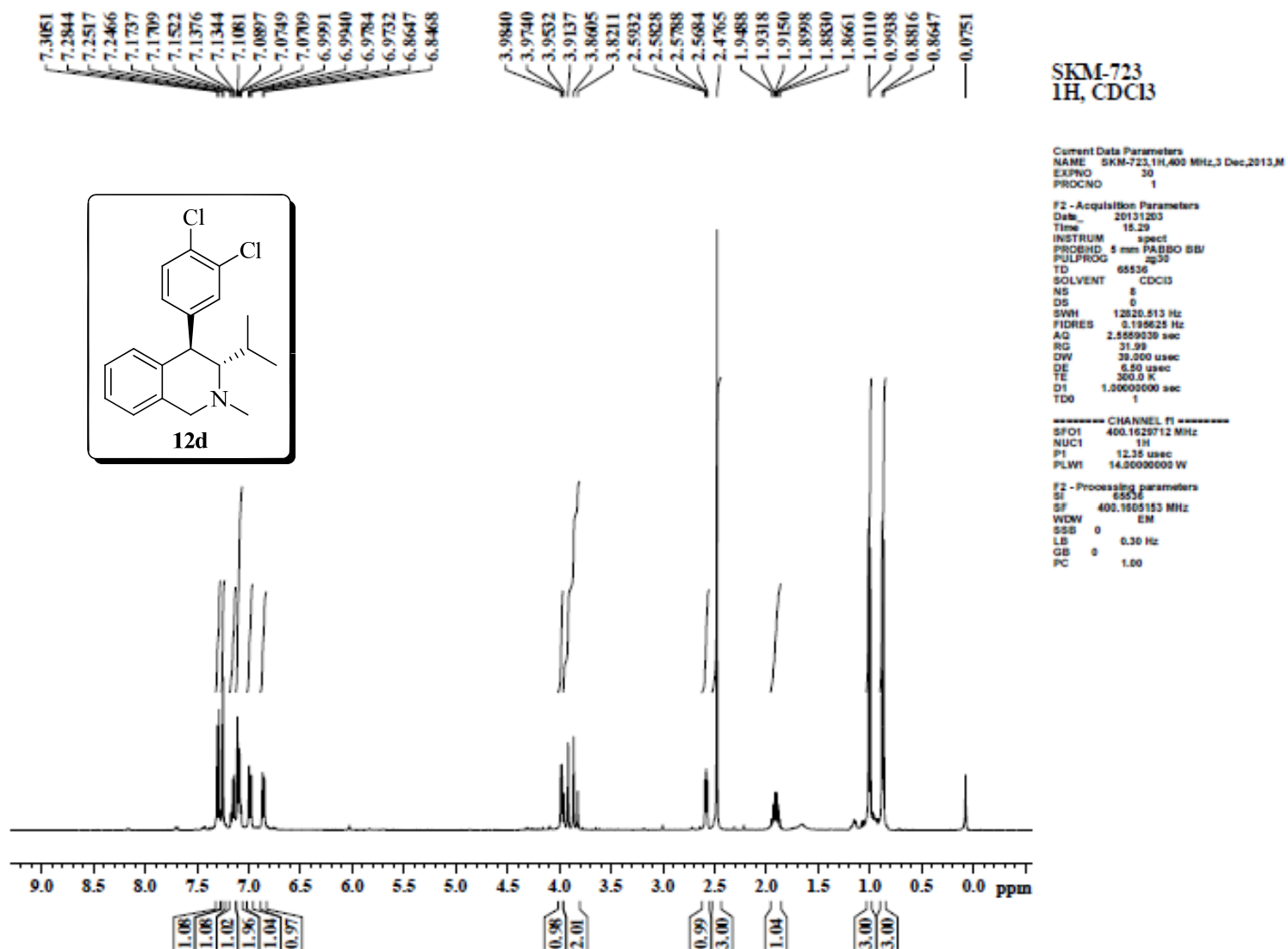


Figure 171: ¹H -NMR Spectrum of 12d.

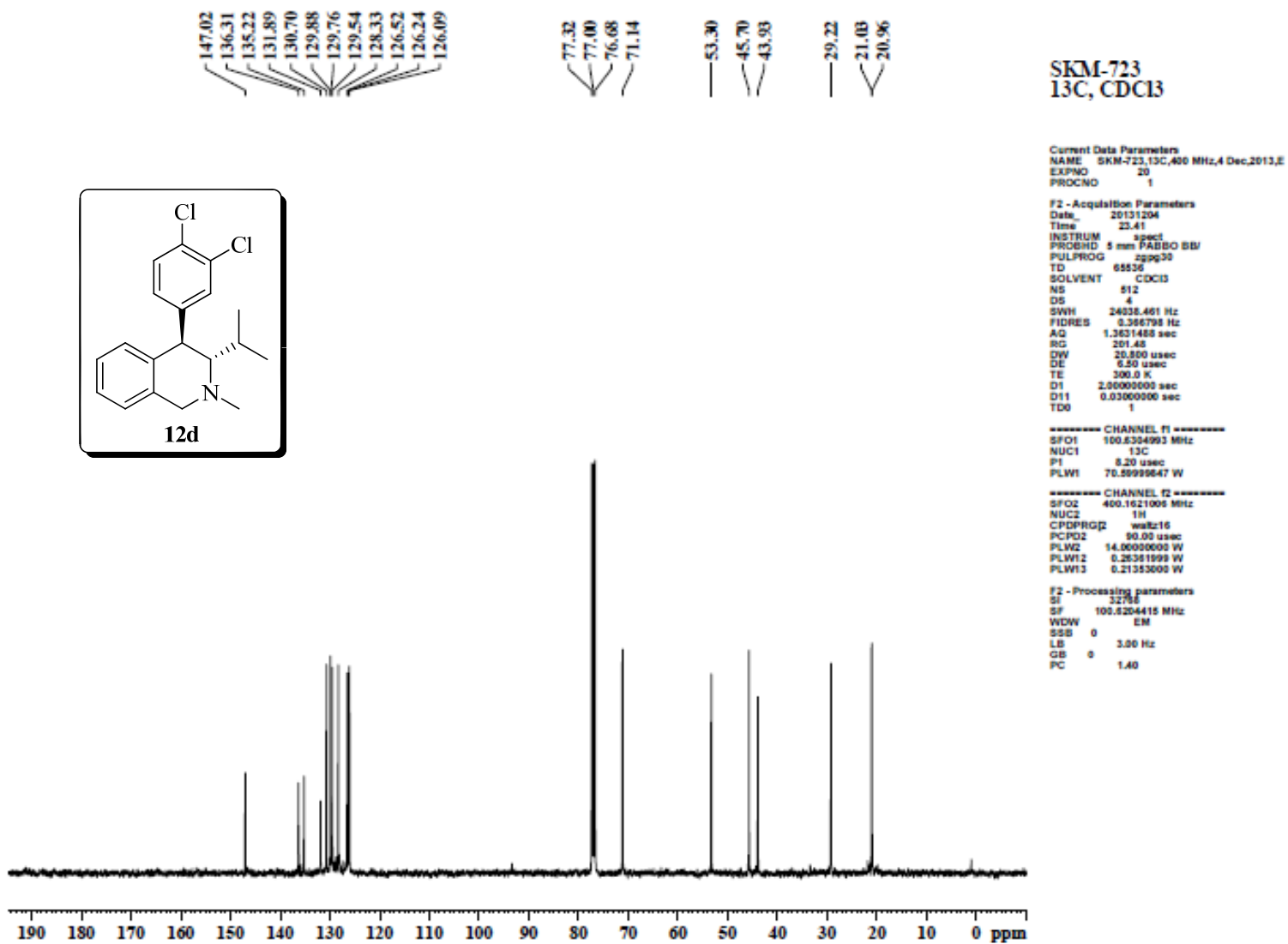


Figure 172: ^{13}C -NMR Spectrum of **12d**.

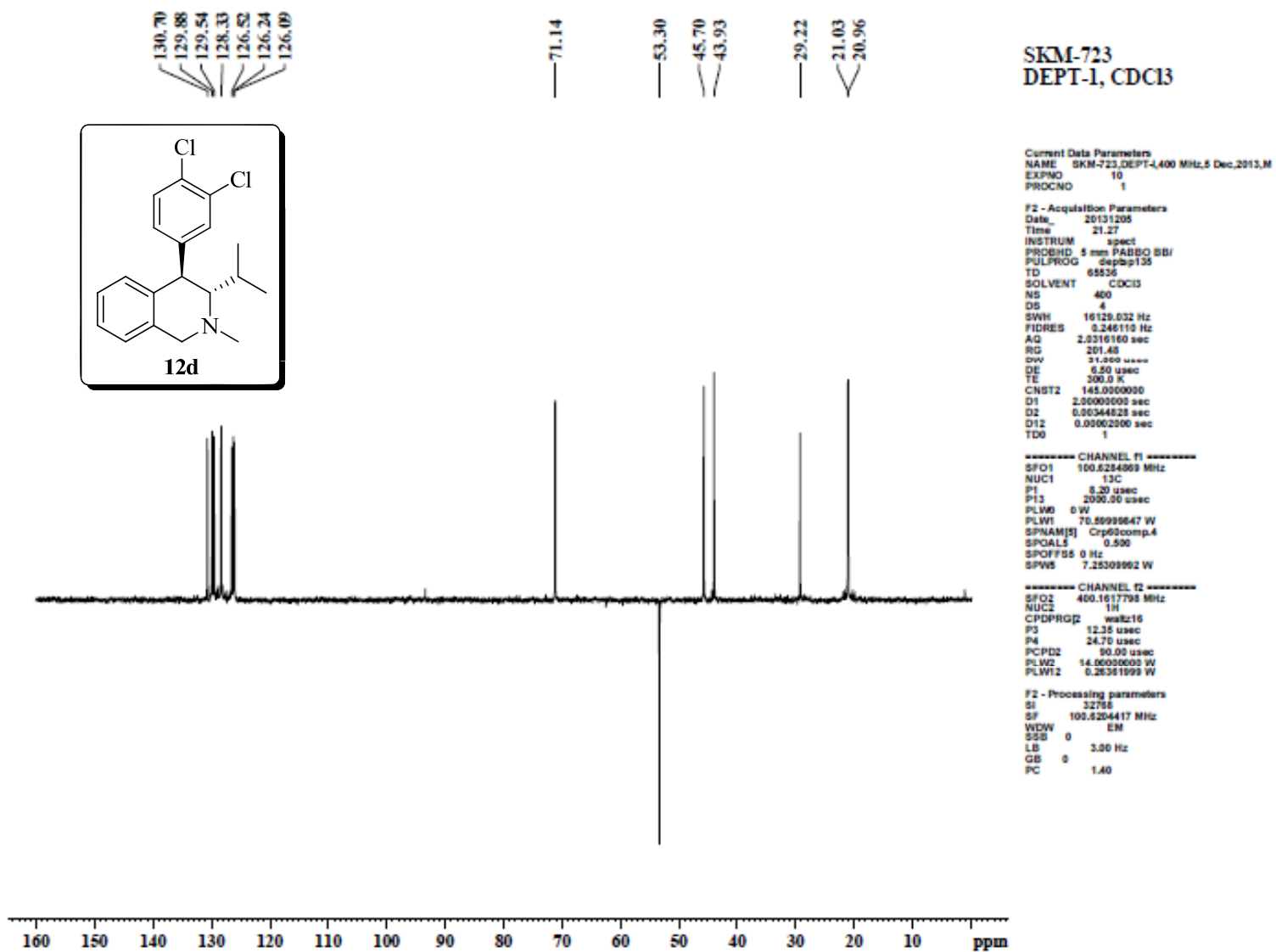


Figure 173: DEPT-I -Spectrum of 12d.

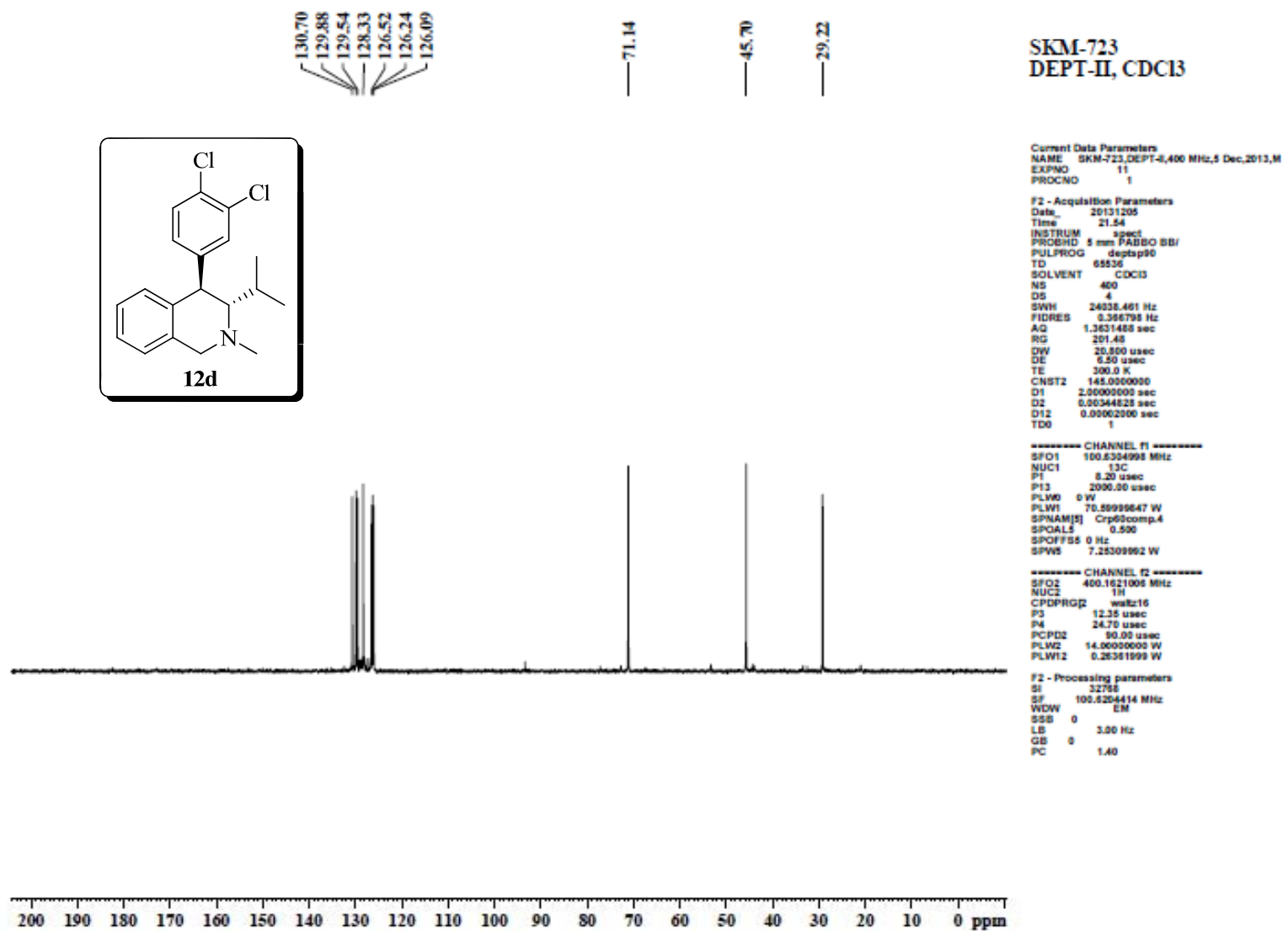


Figure 174: DEPT-II -Spectrum of 12d.

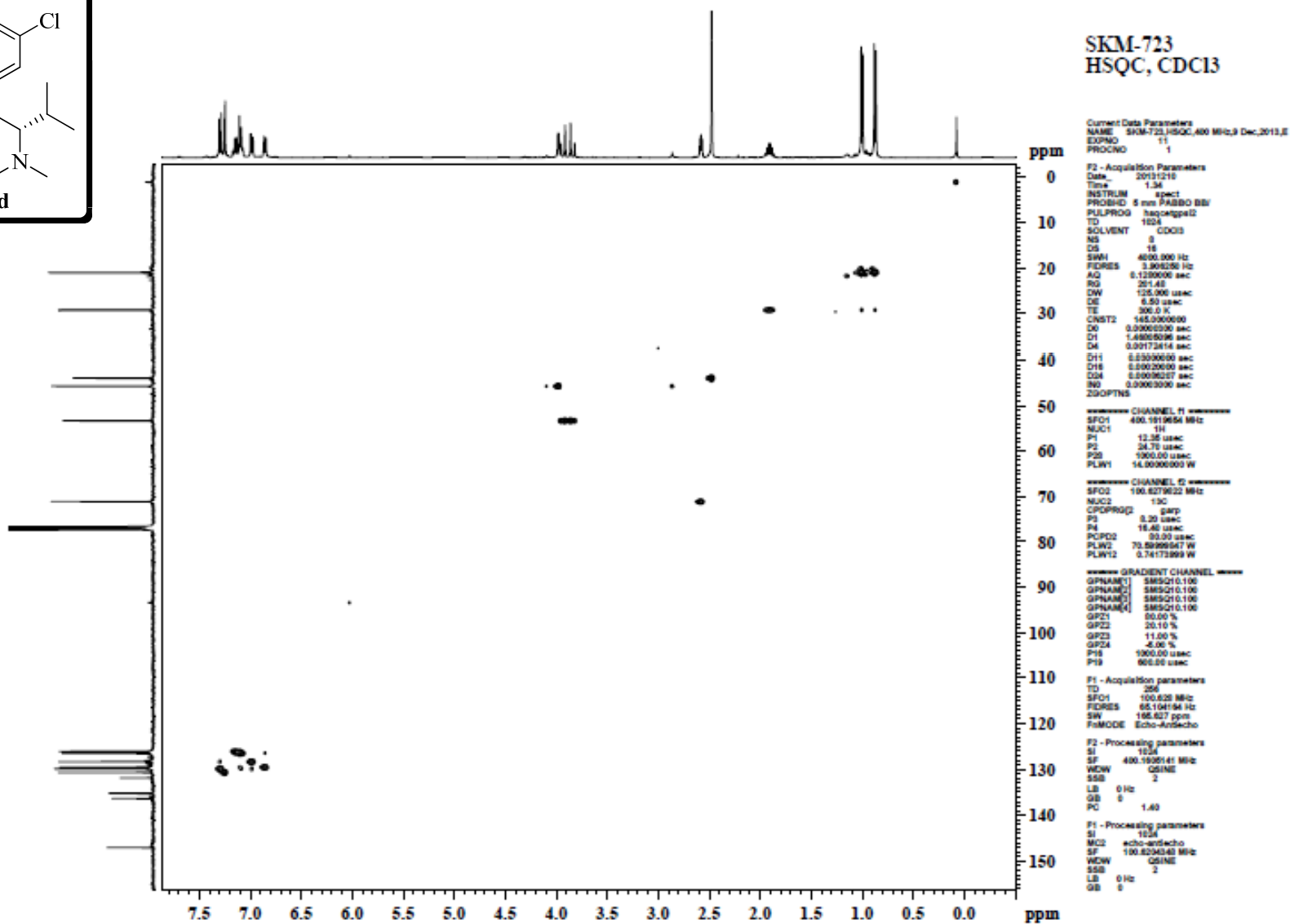
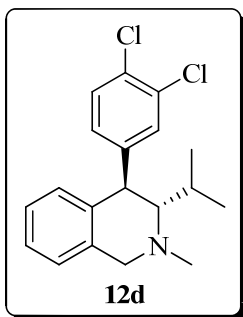


Figure 175: HSQC -Spectrum of 12d.

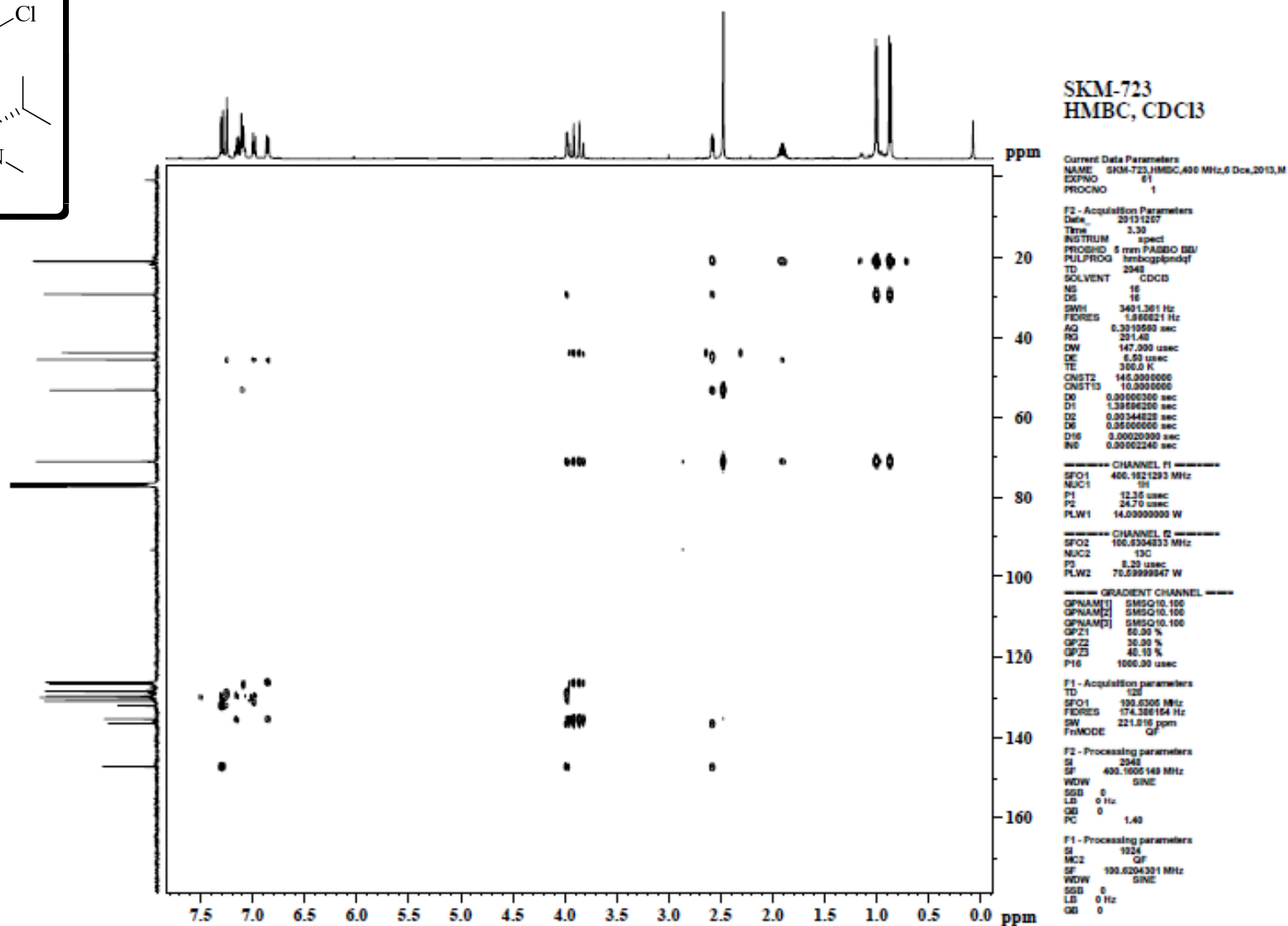
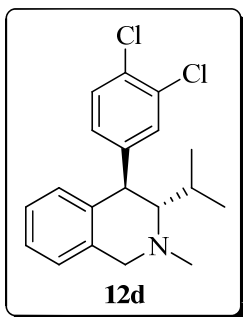
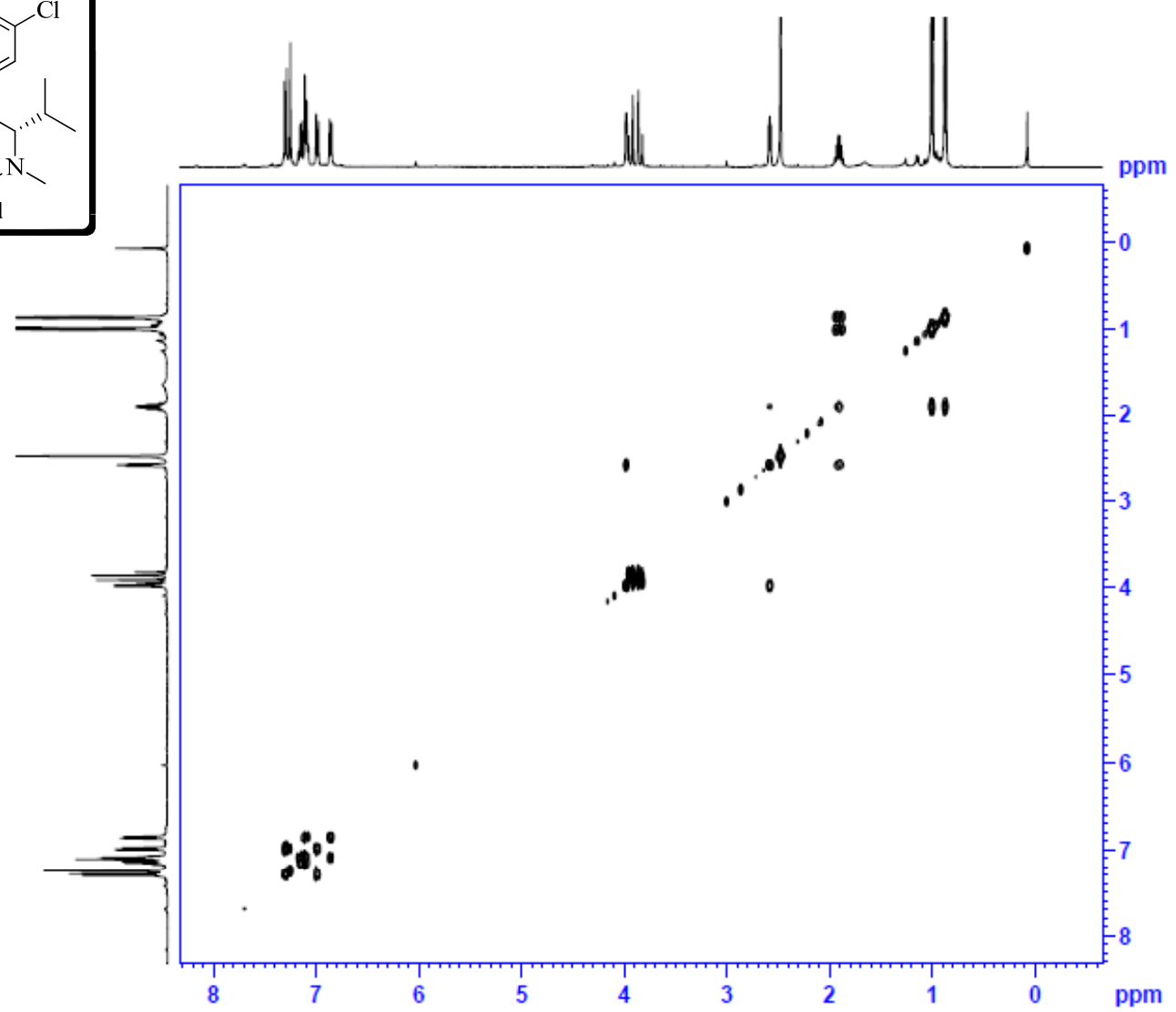
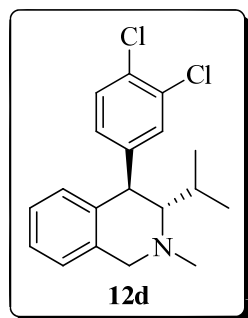


Figure 176: HMBC -Spectrum of 12d.



SKM-723
COSY, CDC13

Current Data Parameters
 NAME SKM-723.COSY,400 MHz,5 Dec,2013,M
 EXPNO 13
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20131208
 Time 21.57
 INSTRUM spect
 PROBHD 5 mm FASBO BB/
 PULPROG cosygpppqf
 TD 2048
 SOLVENT CDC13
 NS 4
 DS 8
 SWH 3897.122 Hz
 FIDRES 1.756407 Hz
 AQ 0.2546720 sec
 RG 25.1
 DW 138.000 usec
 DE 6.50 usec
 TE 300.0 K
 D0 0.0000300 sec
 D1 1.20702105 sec
 D11 0.03000000 sec
 D12 0.00002000 sec
 D13 0.00004000 sec
 D16 0.00020000 sec
 INO 0.00027800 sec

===== CHANNEL f1 =====
 SFO1 400.1620483 MHz
 NUC1 1H
 P0 12.38 usec
 P1 12.38 usec
 P17 2500.00 usec
 PLW1 14.00000000 W
 PLW10 3.15879869 W

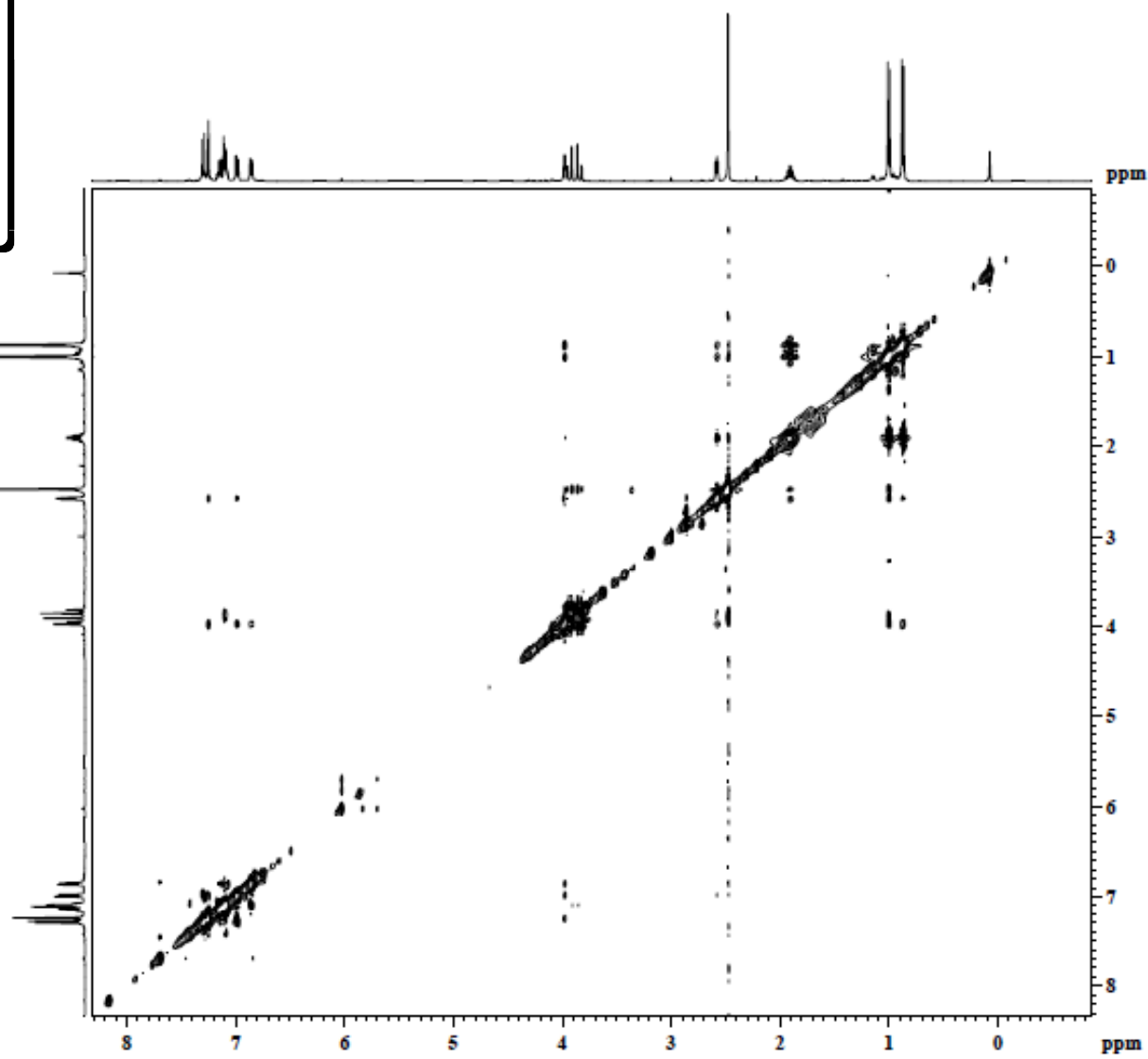
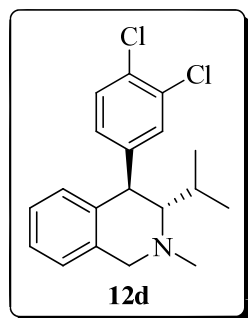
===== GRADIENT CHANNEL =====
 GPNAM[1] SMSQ15,100
 GPZ1 10.00 %
 P16 1000.00 usec

F1 - Acquisition parameters
 TD 128
 SFO1 400.162 MHz
 FIDRES 28.102518 Hz
 SW 8.989 ppm
 FhMODE QF

F2 - Processing parameters
 SI 1024
 SF 400.1605134 MHz
 WDW QSINE
 SSB 0
 LB 0 Hz
 GB 0
 PC 1.40

F1 - Processing parameters
 SI 1024
 MCZ QF
 SF 400.1605144 MHz
 WDW QSINE
 SSB 0
 LB 0 Hz
 GB 0

Figure 177: COSY -Spectrum of 12d.



**SKM-723
NOESY, CDCl₃**

Current Data Parameters
 NAME SKM-723_NOESY_400 MHz_10 Dec, 2013.M
 EXPNO 31
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20131211
 Time 18:12
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zgpg30pp
 TD 2648
 SOLVENT CDCl₃
 NS 16
 DS 32
 SWH 3676.471 Hz
 FIDRES 1.786182 Hz
 AQ 0.2788256 sec
 RG 22.13
 DW 136.000 usec
 DE 9.50 usec
 TE 300.2 K
 D0 0.00012020 sec
 D1 1.07747195 sec
 D8 0.30000001 sec
 D11 0.00000000 sec
 D12 0.00002000 sec
 D16 0.00020000 sec
 IN0 0.00027200 sec

===== CHANNEL f1 =====
 SFO1 400.582090 MHz
 MUC1 1H
 P1 13.36 usec
 P2 24.70 usec
 P17 2500.00 usec
 PLW1 14.0000000 W
 PLW10 3.35079693 W

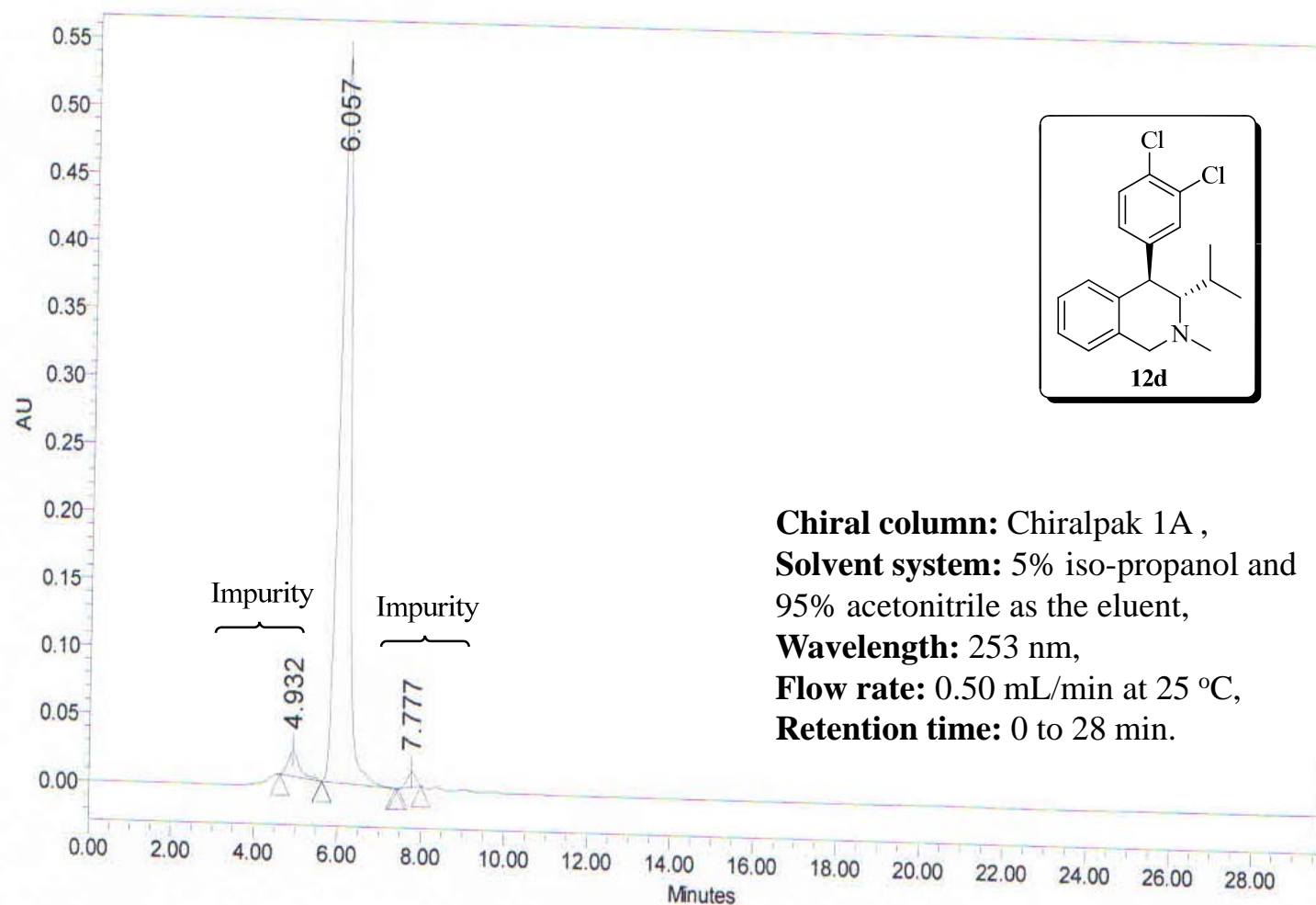
===== GRADIENT CHANNEL =====
 GPNAM[1] SMSQ10.100
 GPZ1 40.00 %
 P16 1000.00 usec

F1 - Acquisition parameters
 TD 256
 SFO1 400.142 MHz
 FIDRES 14.381214 Hz
 SW 9.187 ppm
 FMODE States-TPPI

F2 - Processing parameters
 SI 1634
 SF 400.1505150 MHz
 WDW Cosine
 SSB 2
 LB 0 Hz
 GB 0
 PC 1.00

F1 - Processing parameters
 SI 1634
 MCF2 States-TPPI
 SF 400.1505151 MHz
 WDW Cosine
 SSB 2
 LB 0 Hz
 GB 0

Figure 178: NOESY -Spectrum of 12d.



Note: The impurity species were collected and found by ^1H NMR not to contain any isomeric forms of compound **12d**.

Figure 179: HPLC -Spectrum of **12d**.

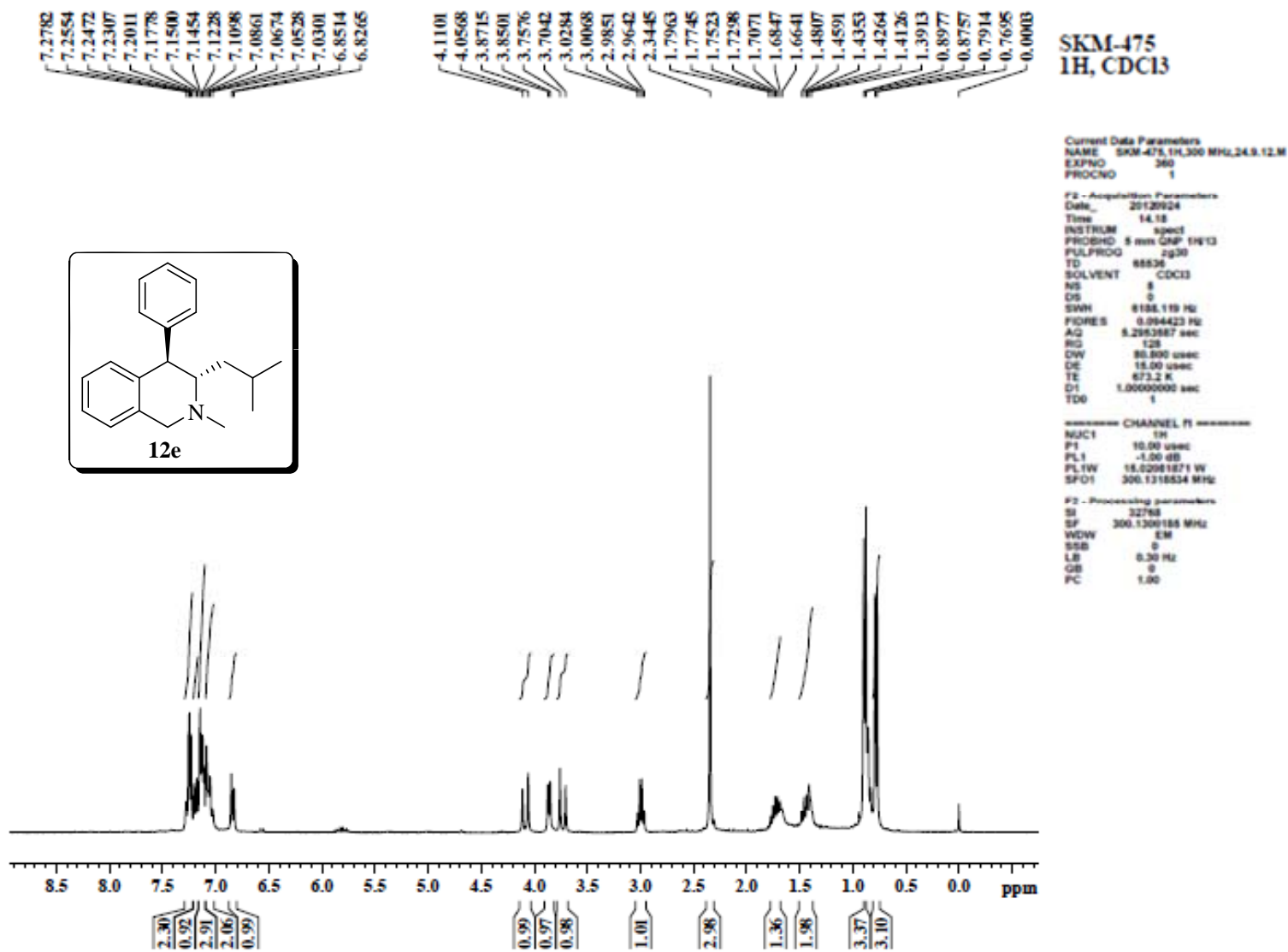


Figure 180: ¹H -NMR Spectrum of 12e.

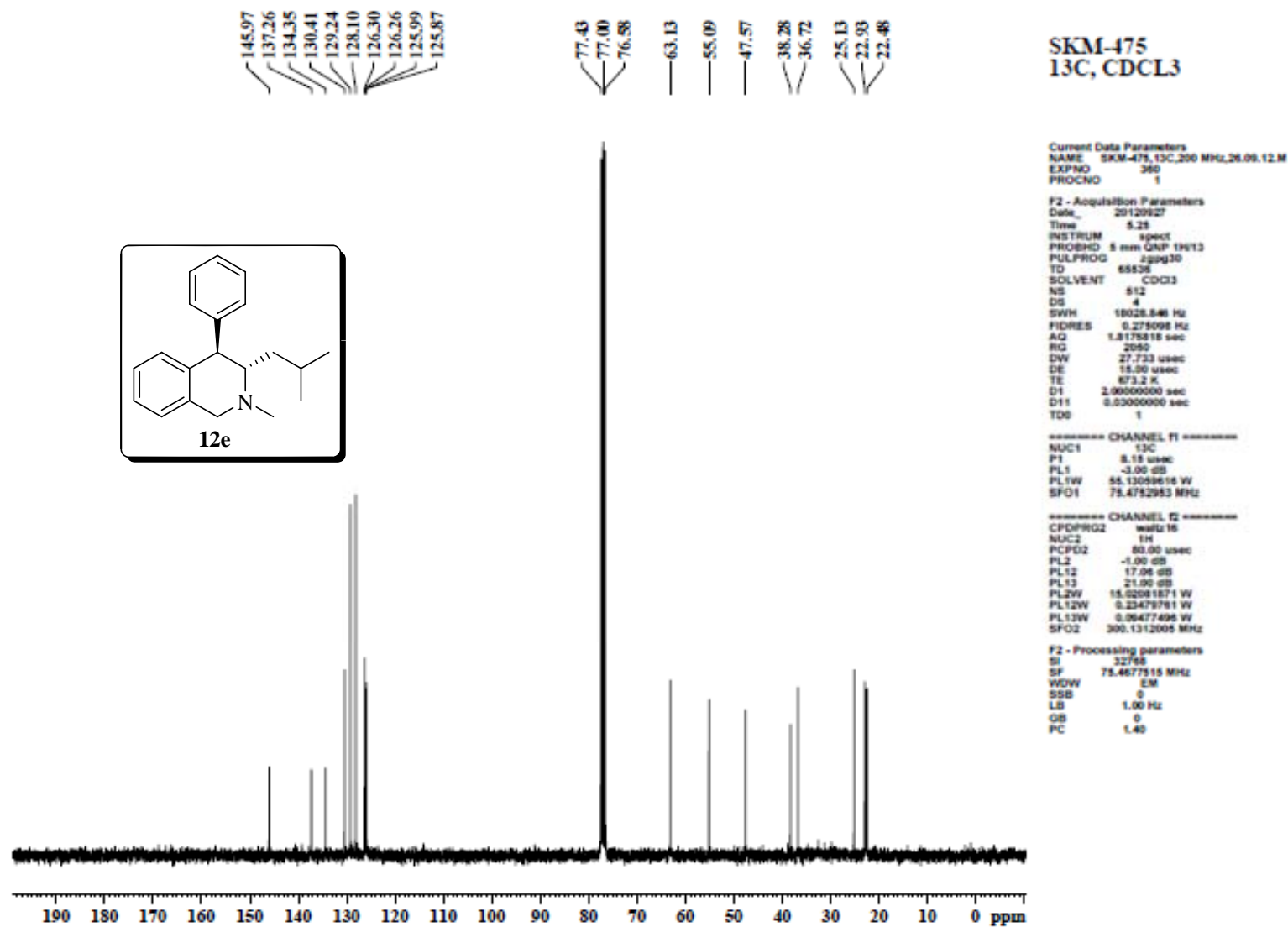
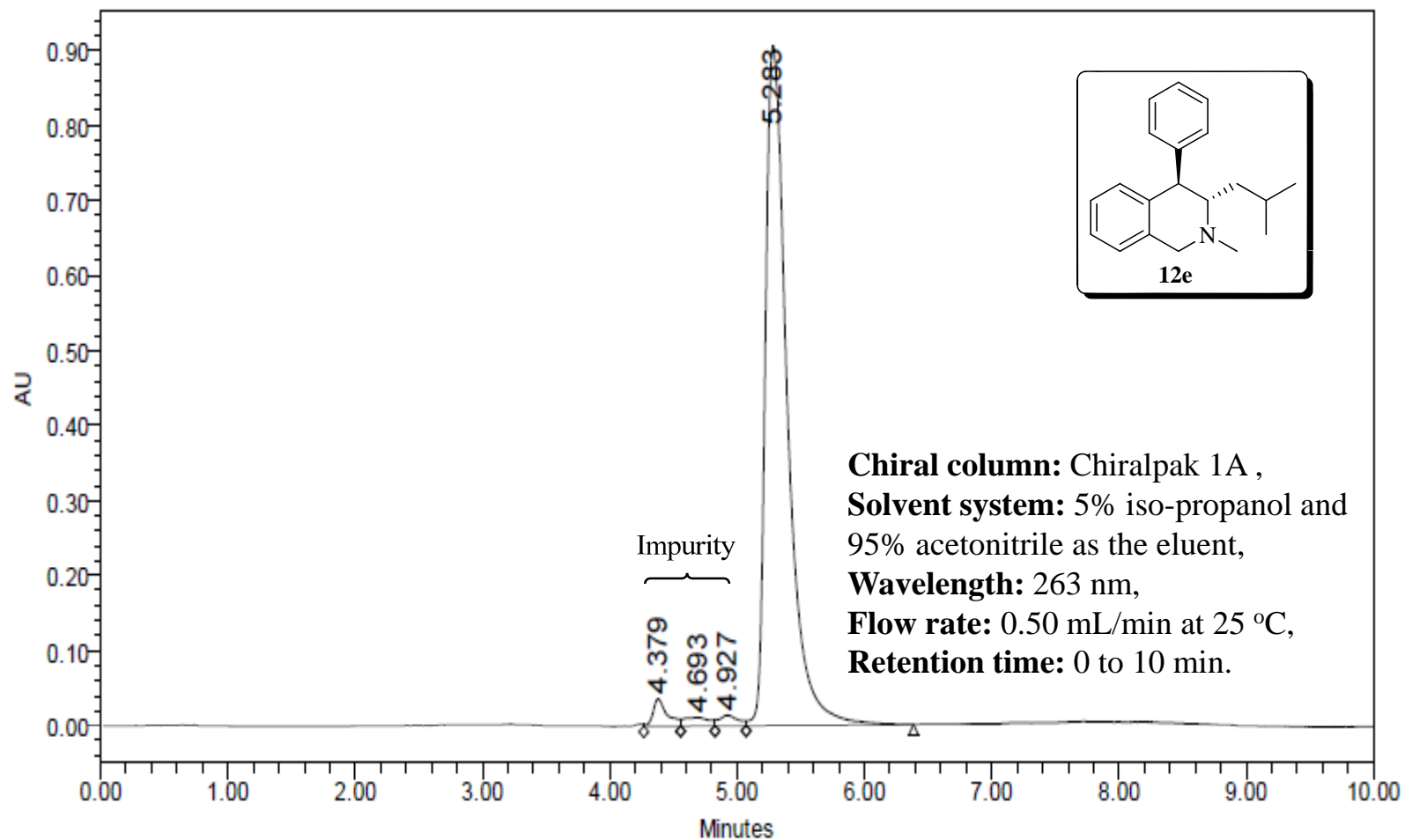


Figure 181: ^{13}C -NMR Spectrum of **12e**.



Note: The impurity species were collected and found by ^1H NMR not to contain any isomeric forms of compound **12e**.

Figure 182: HPLC -Spectrum of **12e**.

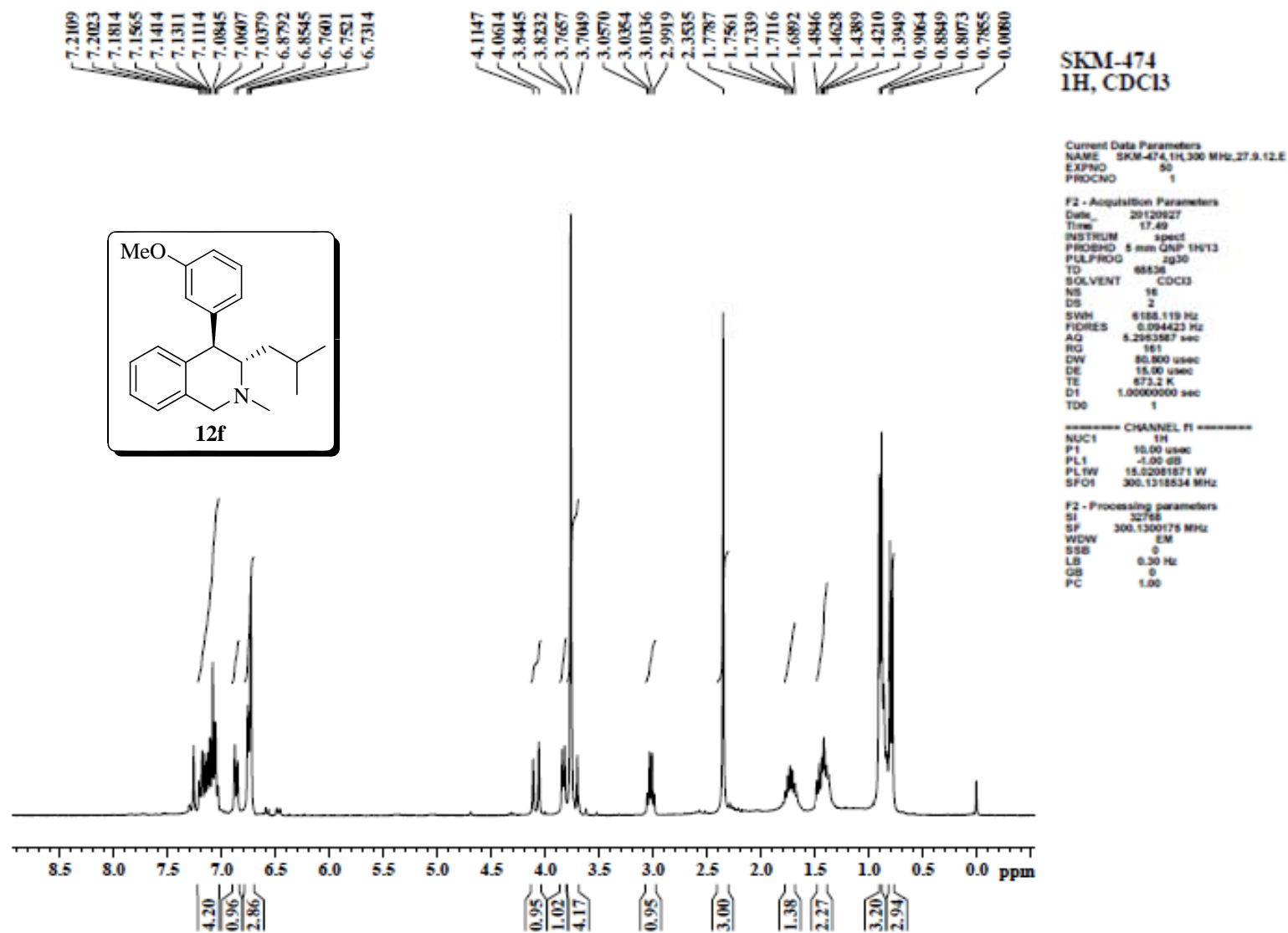


Figure 183: ¹H -NMR Spectrum of 12f.

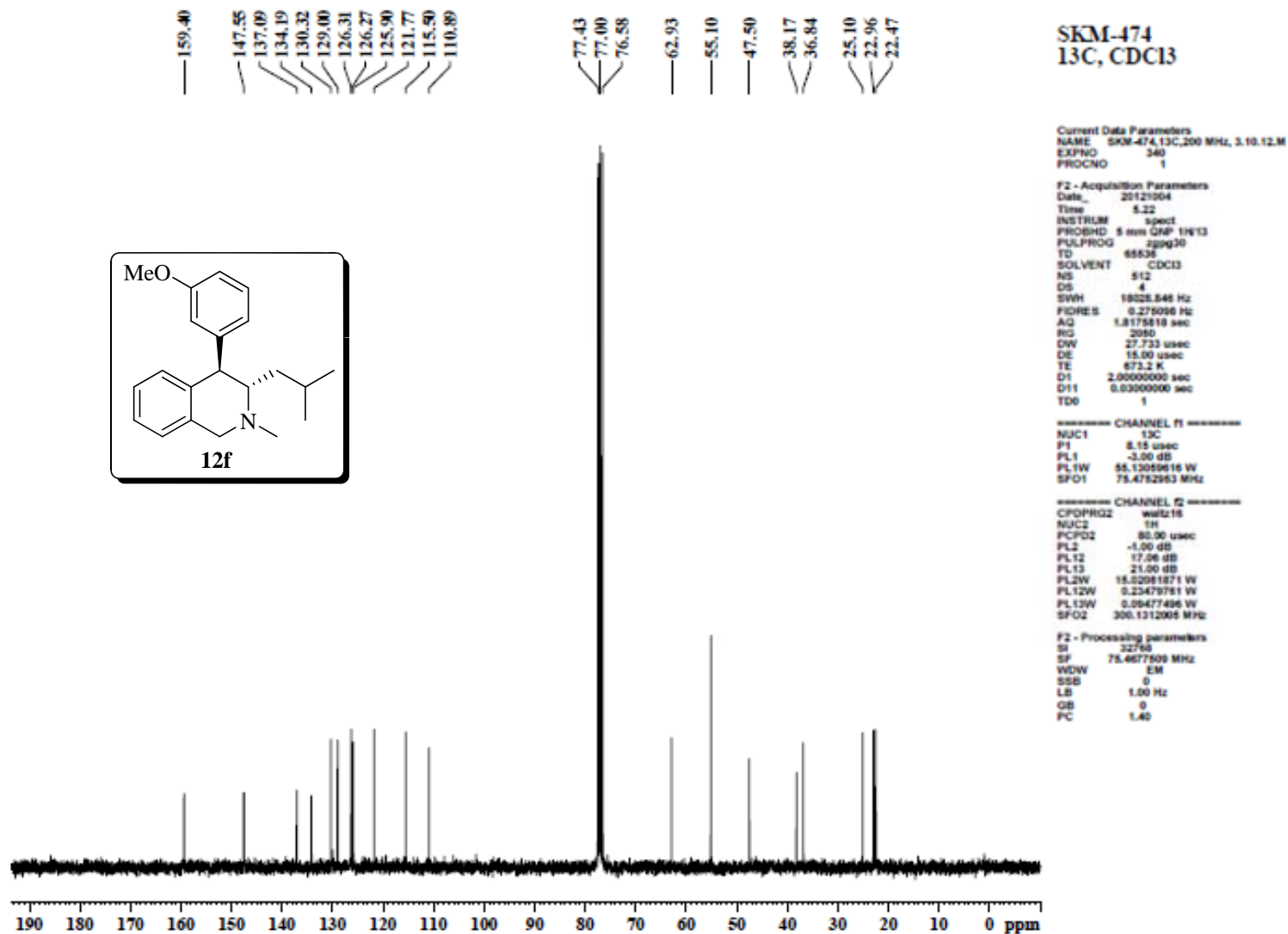
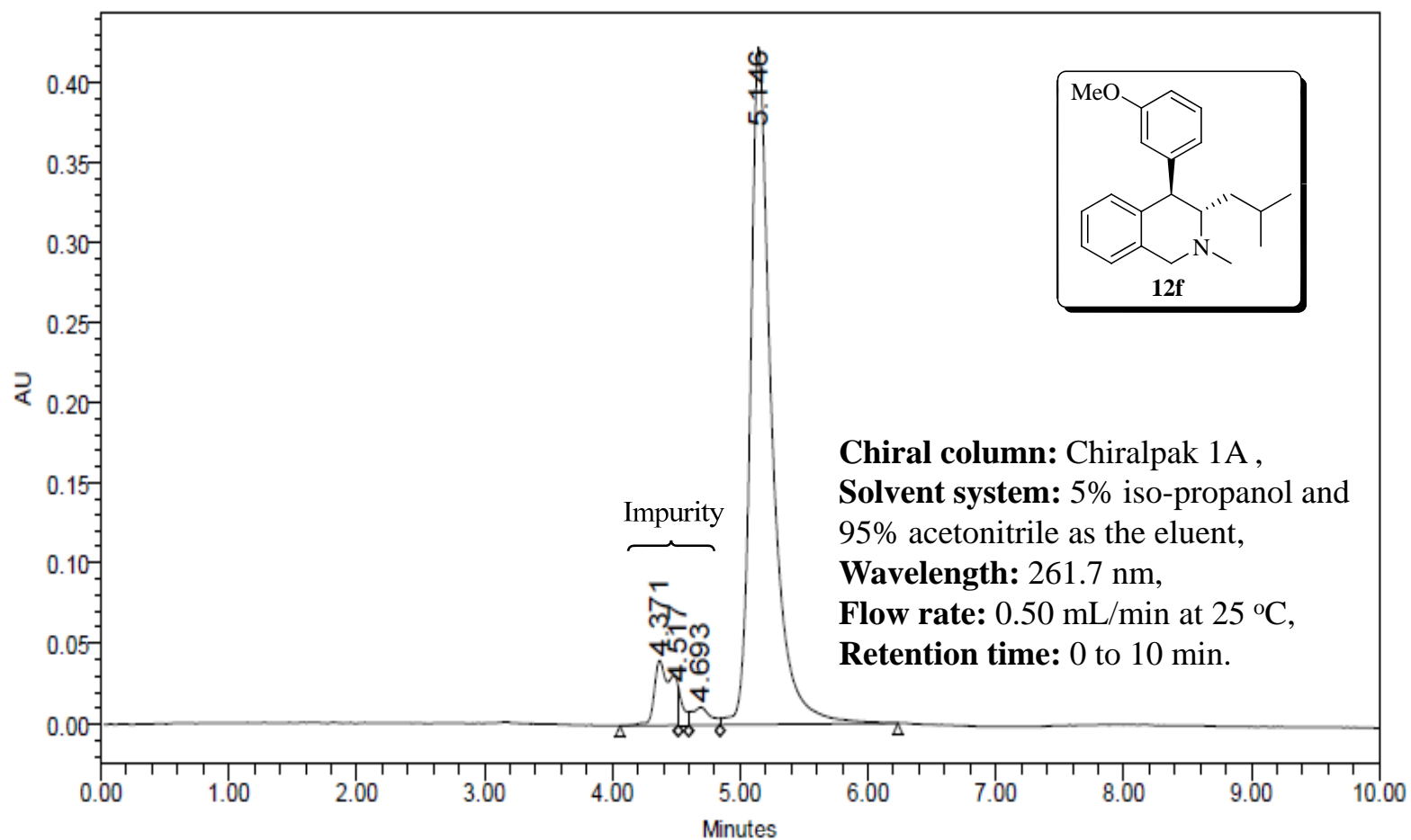


Figure 184: ^{13}C -NMR Spectrum of **12f**.



Note: The impurity species were collected and found by ^1H NMR not to contain any isomeric forms of compound **12f**.

Figure 185: HPLC -Spectrum of **12f**.

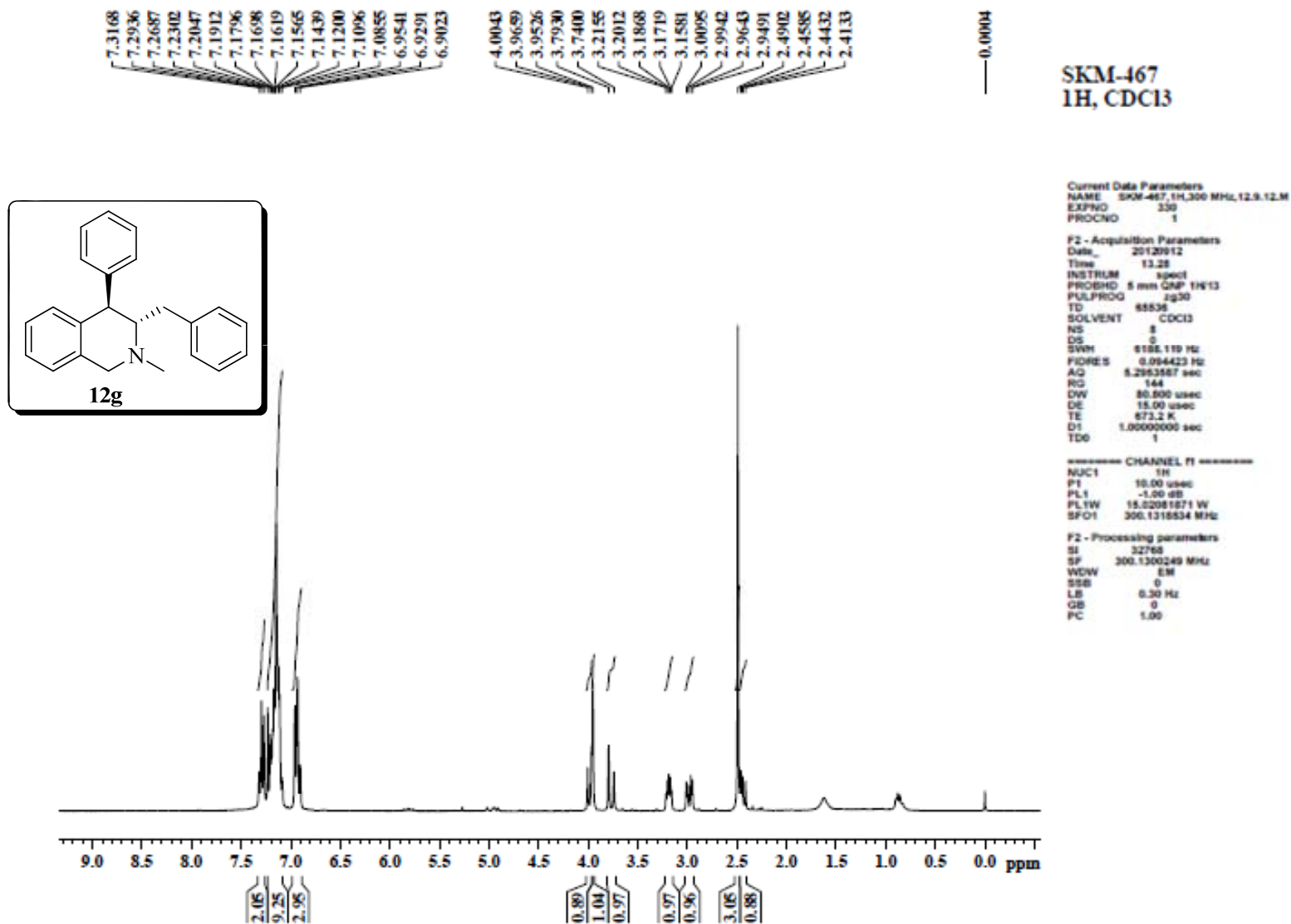


Figure 196: ¹H -NMR Spectrum of 12g.

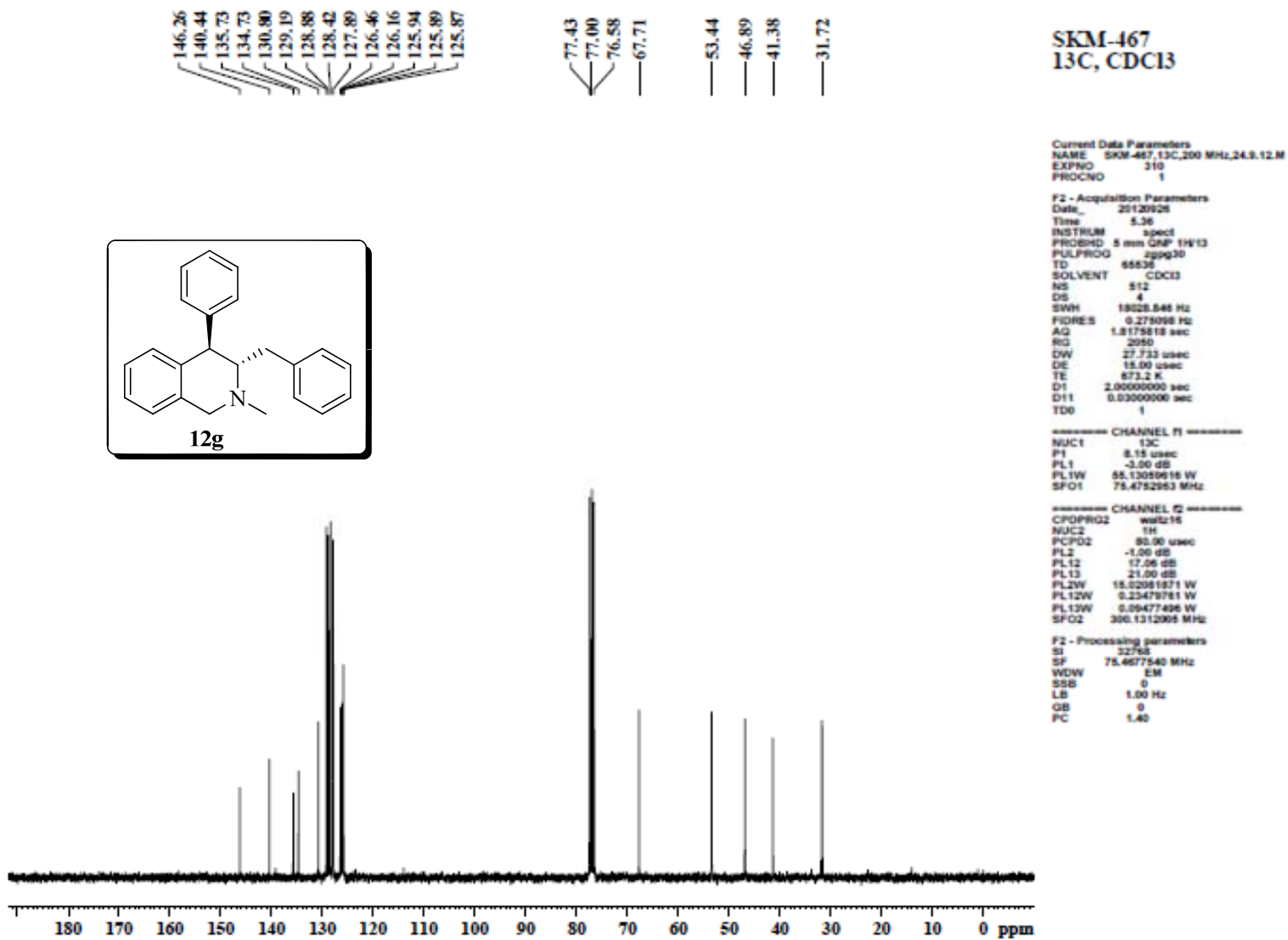
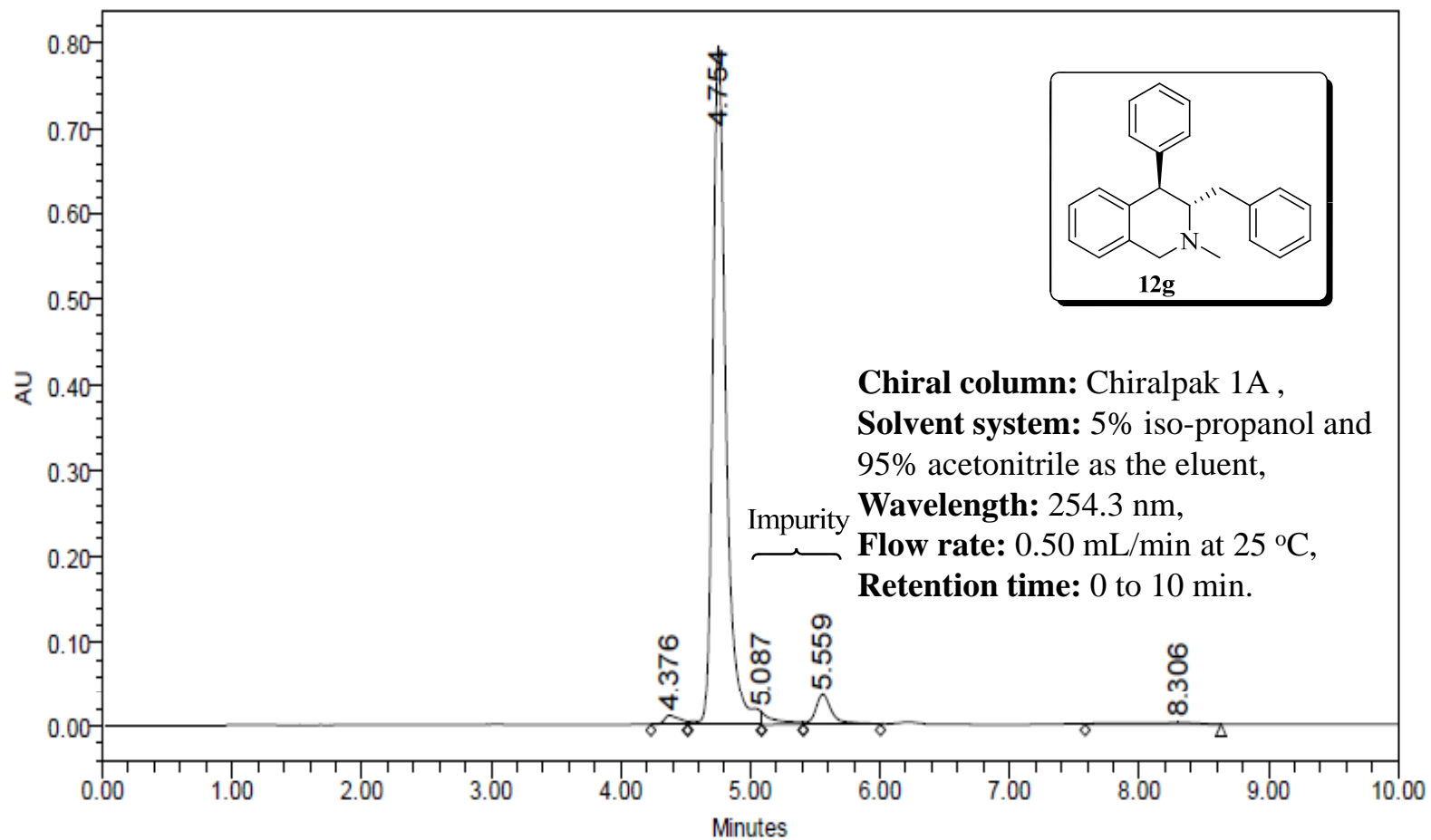


Figure 187: ¹³C -NMR Spectrum of **12g**.



Note: The impurity species were collected and found by ^1H NMR not to contain any isomeric forms of compound **12g**.

Figure 188: HPLC -Spectrum of **12g**.

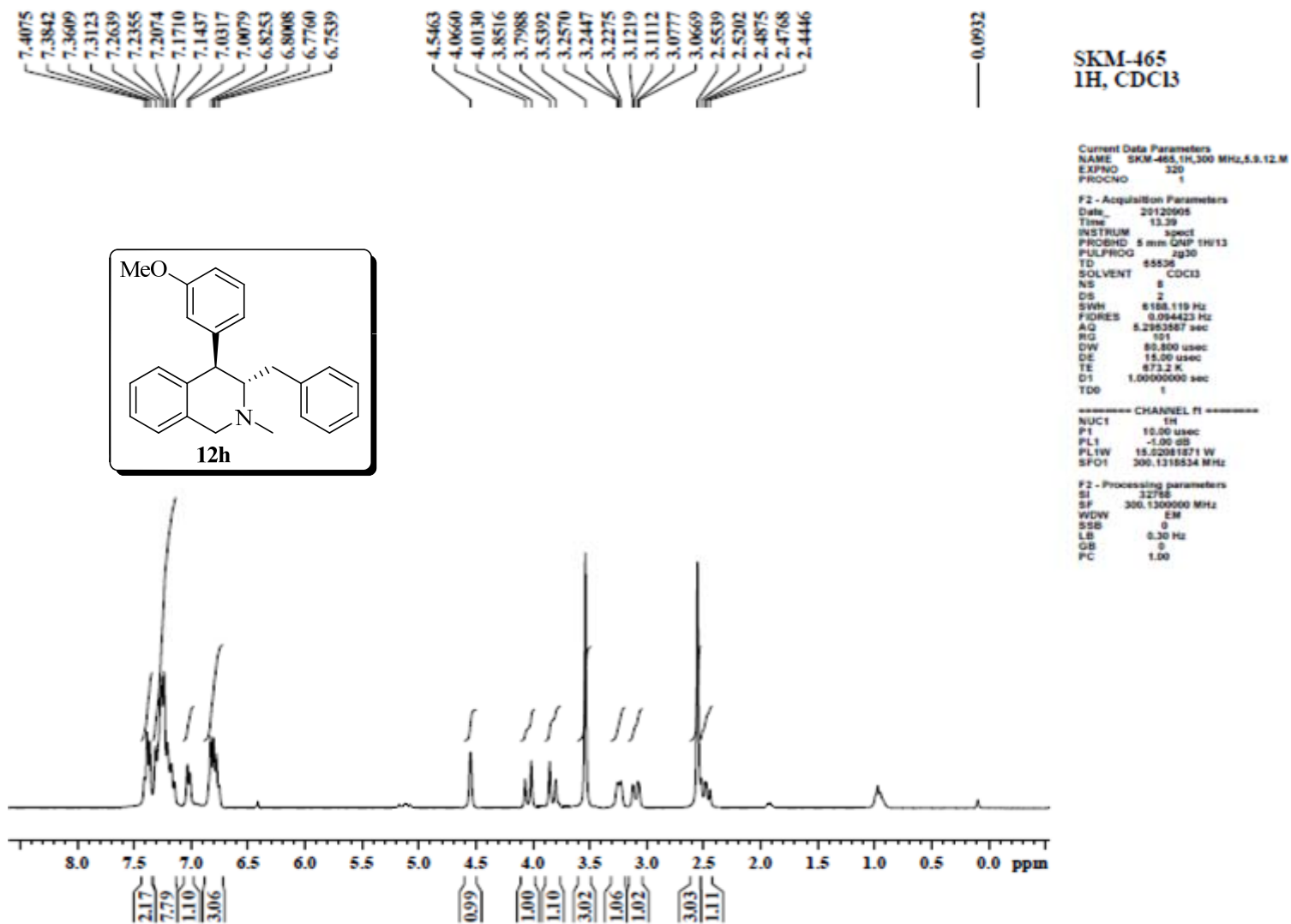
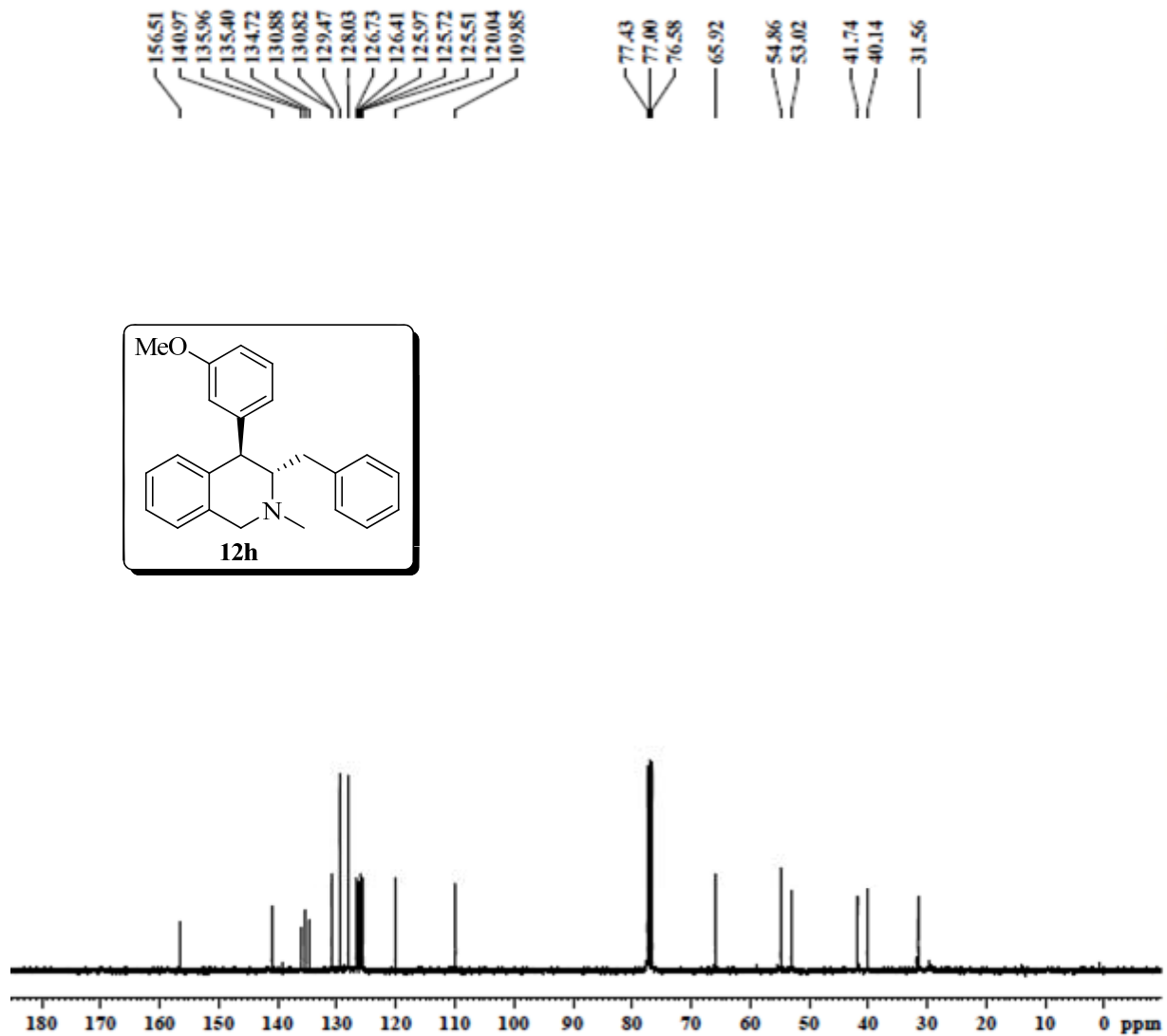


Figure 189: ^1H -NMR Spectrum of **12h**.



SKM-465
13C, CDC13

Current Data Parameters
NAME SKM-465.13C.200 MHz.24.9.12.M
EXPNO 320
PROCNO 1

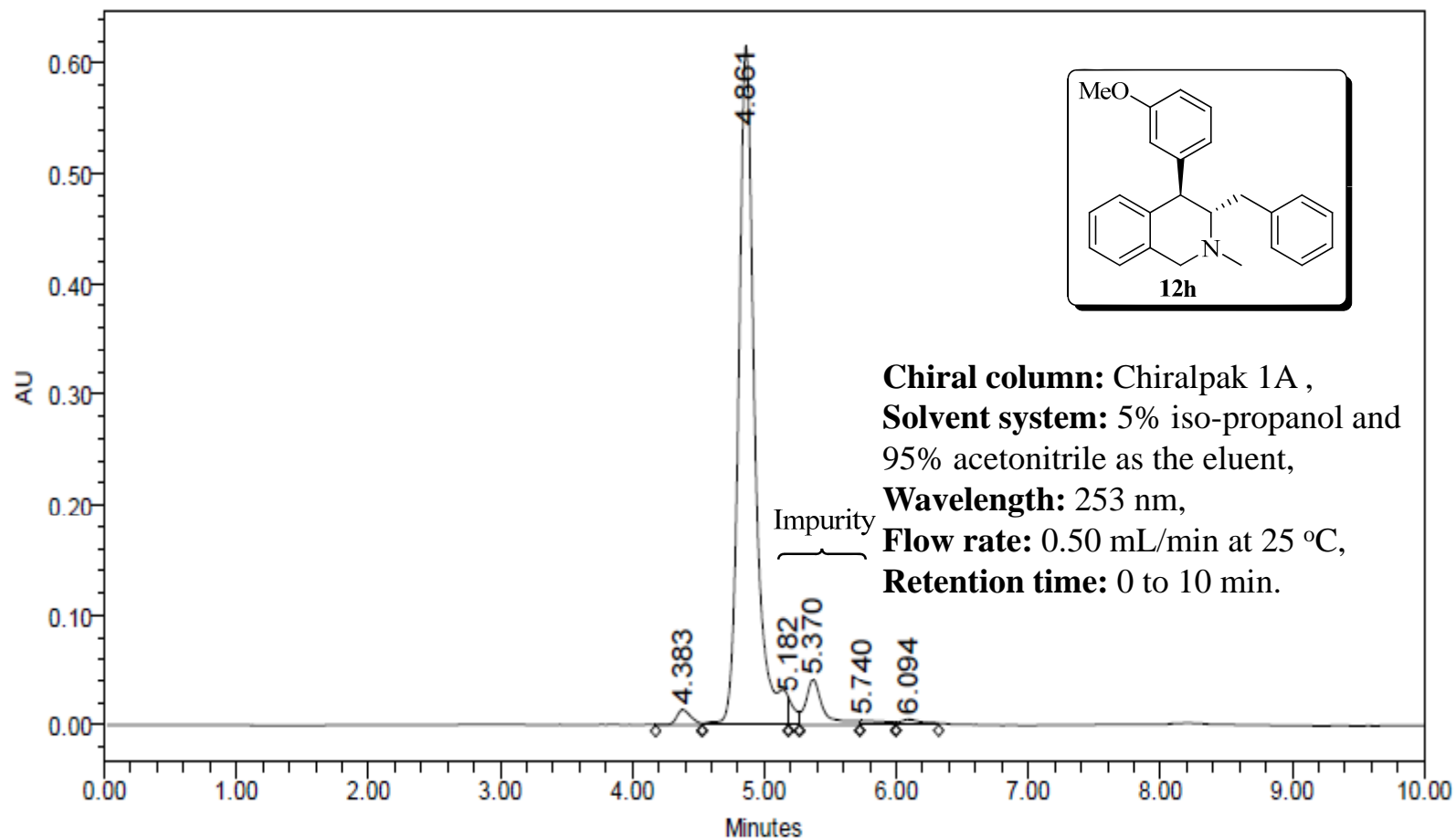
F2 - Acquisition Parameters
Date_ 20120926
Time 6.14
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 16025.846 Hz
FIDRES 0.275098 Hz
AQ 1.8175818 sec
RG 2680
DNV 27.733 usec
DE 15.00 usec
TE 873.2 K
D1 2.00000000 sec
D11 0.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 13C
P1 8.15 usec
PL1 -3.00 dB
PL1W 55.13056616 W
SFO1 75.4752953 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -1.00 dB
PL2 17.06 dB
PL3 21.00 dB
PL2W 15.02081871 W
PL12W 0.23479761 W
PL13W 0.59477498 W
SFO2 306.1312005 MHz

F2 - Processing parameters
SI 32768
SF 75.4677544 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Figure 190: ¹³C -NMR Spectrum of **12h**.



Note: The impurity species were collected and found by ^1H NMR not to contain any isomeric forms of compound **12h**.

Figure 191: HPLC -Spectrum of **12h**.

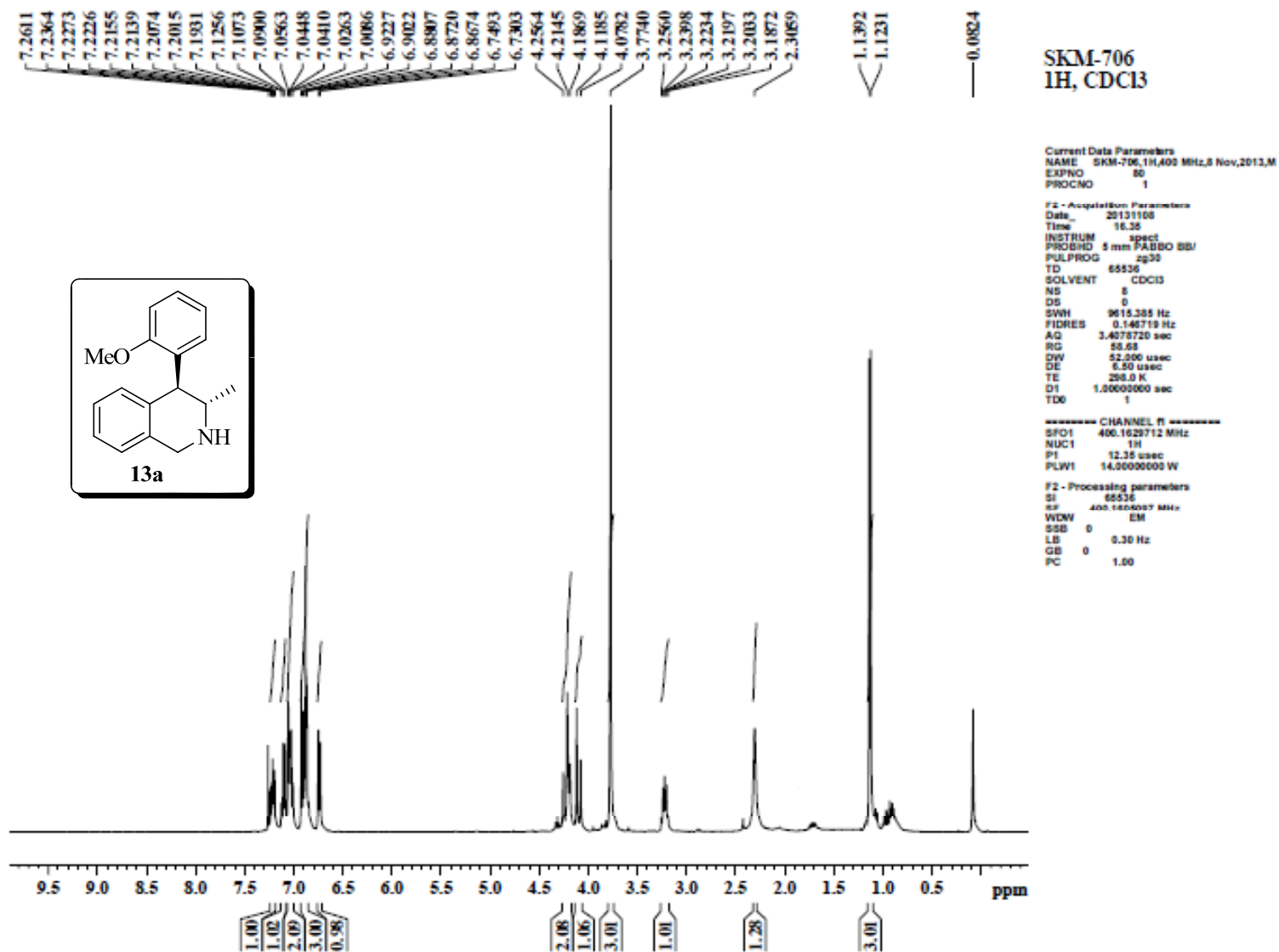


Figure 192: ¹H -NMR Spectrum of 13a.

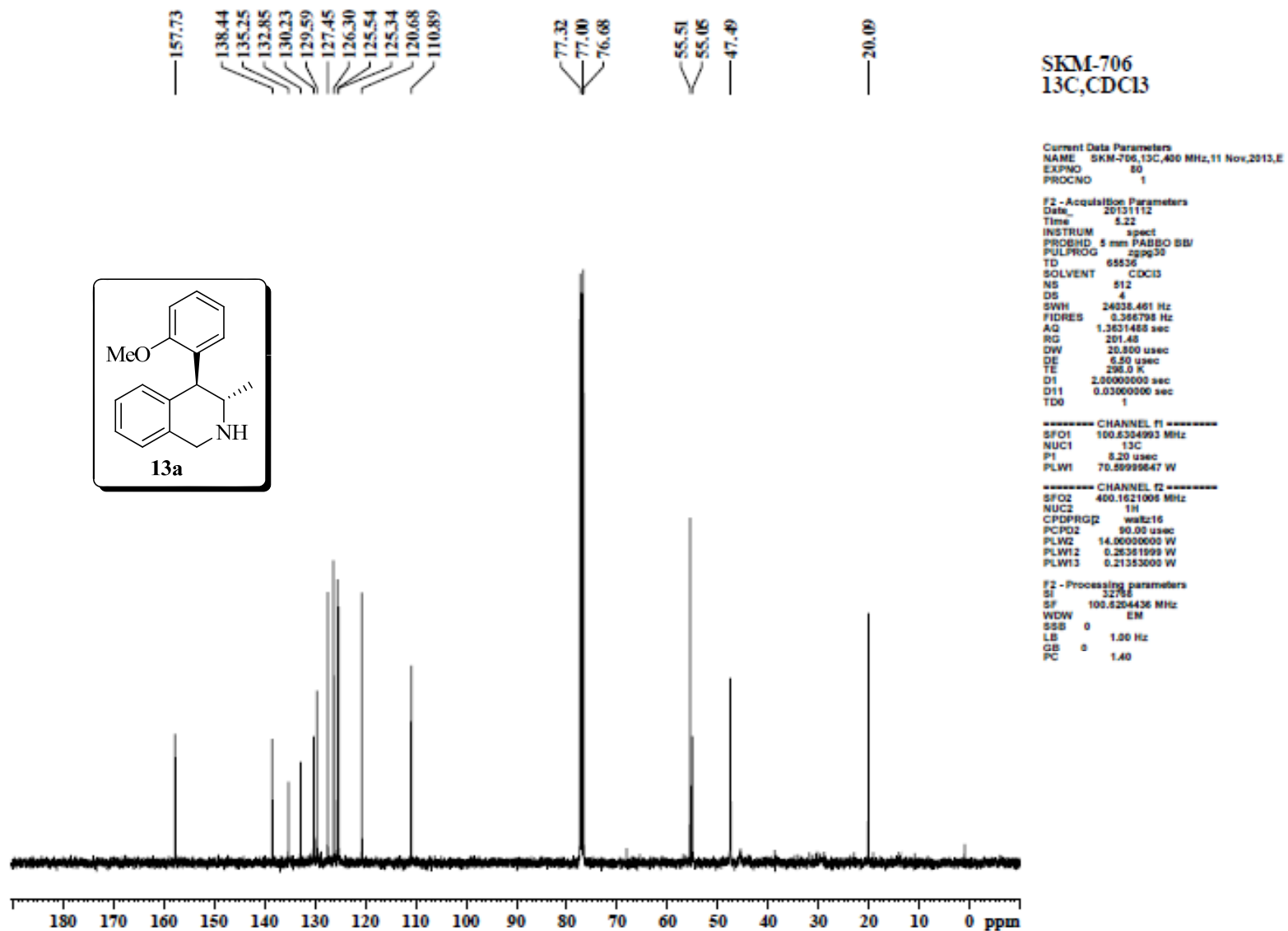


Figure 193: ^{13}C -NMR Spectrum of **13a**.