

Supporting Information For

**Synthesis of imidazolidin-2-ones employing dialkyl carbonates as ecofriendly carbonylation
source.**

*Rahul Badru and Baldev Singh**

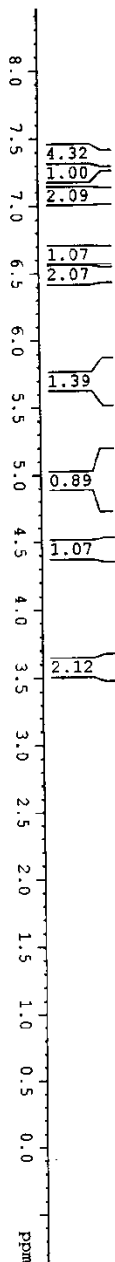
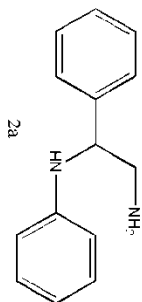
Department of Chemistry, Punjabi University, Patiala-147002

Email: drbaldev.chem@gmail.com

Contents:

Copies of ^1H NMR and ^{13}C NMR spectra for all compounds

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3.5928

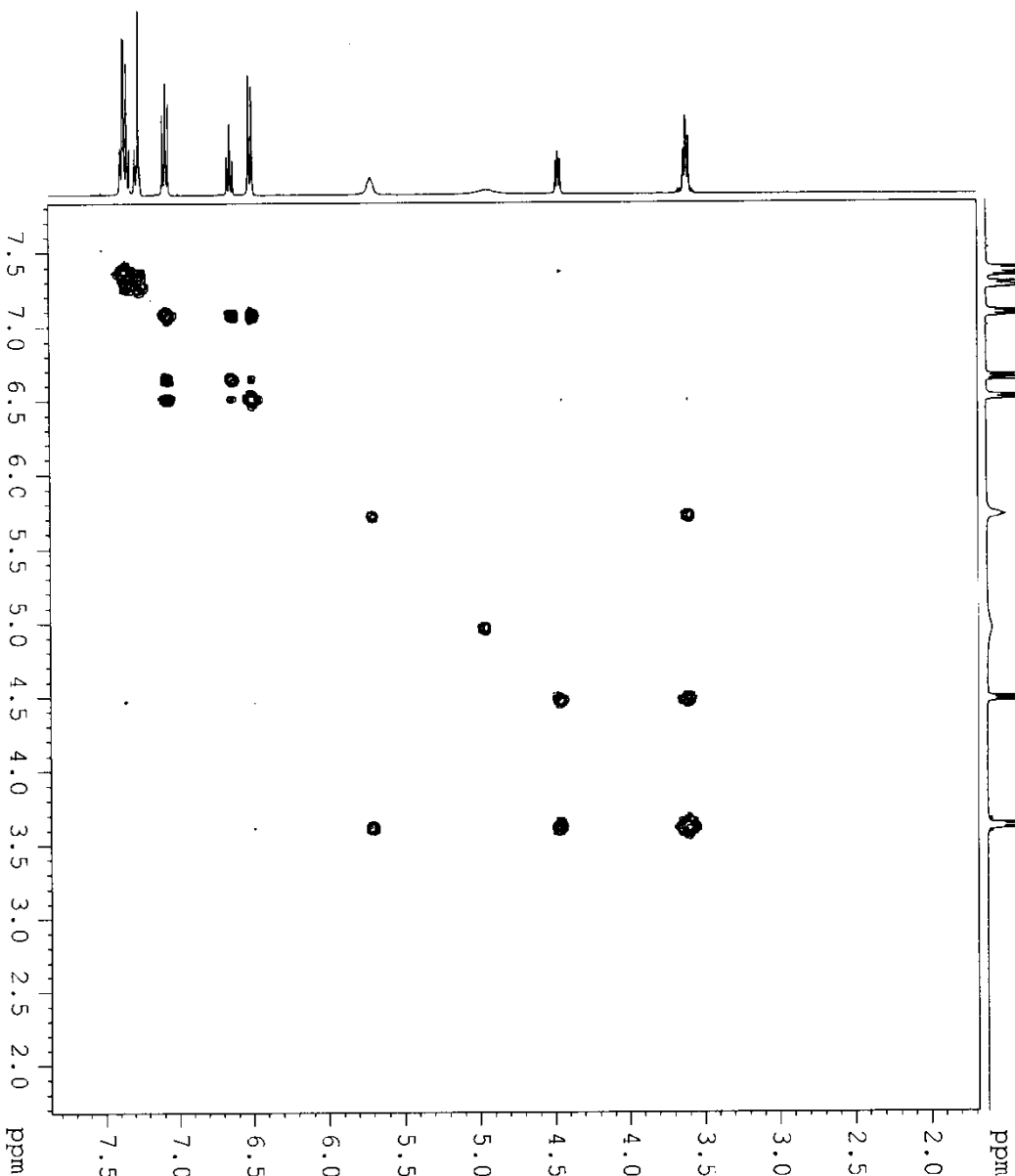
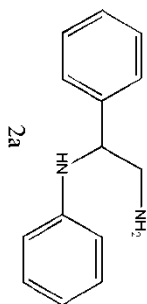


BRUKER
AVANCE II 400 NMR
Spectrometer
SAIF
Panjab University
Chandigarh

Current Data Parameters
NAME Mar28-2012
EXPNO 510
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120329
Time 15.27
INSTRUM spect
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PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8223.685 Hz
FIDRES 0.125483 Hz
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RG 63
DE 60.800 usec
DM 6.00 usec
TE 296.1 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
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P1 10.90 usec
PL1 -3.00 dB
SFO1 400.1324710 MHz
F2 - Processing parameters
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SF 400.1300099 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



Current Data Parameters
NAME Mar28-2012
EXPNO 511
PROCNO 1

F2 - Acquisition Parameters
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Time 16.02
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PULPROG cosygpg4
TD 2048
SOLVENT CDCl3
NS 1
DS 8
SWH 3050.303 Hz
FIDRES 1.419640 Hz
AQ 0.3379700 sec
RG 256
DM 165.000 usec
DE 28.00 K
TE 300.2 K
D1 0.0000000 sec
d13 0.0000000 sec
D16 0.0001000 sec
IN0 0.00033000 sec

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P0 10.90 usec
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PL1 -1.00 dB
SFO1 400.118231 MHz

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GPNAM2 SINE.100
GP21 10.00 %
GP22 10.00 %
P16 1000.00 usec

F1 - Acquisition Parameters
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TD 128
SFO1 400.1318 MHz
FIDRES 23.674242 Hz
SW 7.573 ppm
FMODE QF

F2 - Processing Parameters
SI 1024
SF 400.130059 MHz
WDW SINE
SSB 0
LB 0.00 Hz
GB 0
PC 1.40

F1 - Processing Parameters
SI 1024
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SSB 0
LB 0.00 Hz
GB 0

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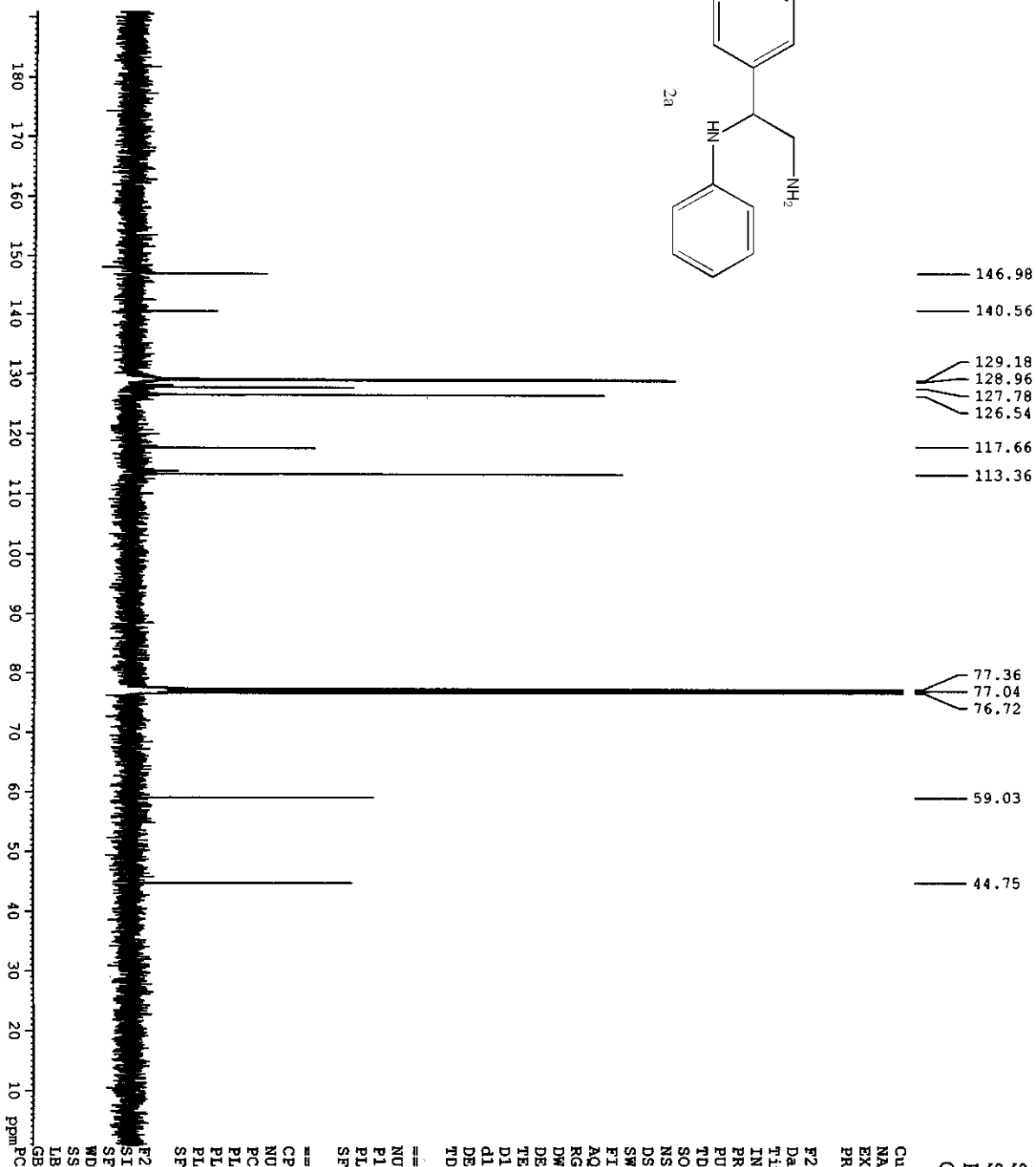
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 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 1024
 DS 4
 SWH 29761.904 Hz
 FIDRES 0.454131 Hz
 AQ 1.1010548 sec
 RG 812
 DW 16.800 usec
 DE 6.00 usec
 TE 295.1 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TDO 1

===== CHANNEL f1 =====
 NUC1 13C
 P1 9.60 usec
 PL1 -2.00 dB
 SFO1 100.6228298 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -3.00 dB
 PL12 14.31 dB
 PL13 18.00 dB
 SFO2 400.1316005 MHz

F2 - Processing parameters
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 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40



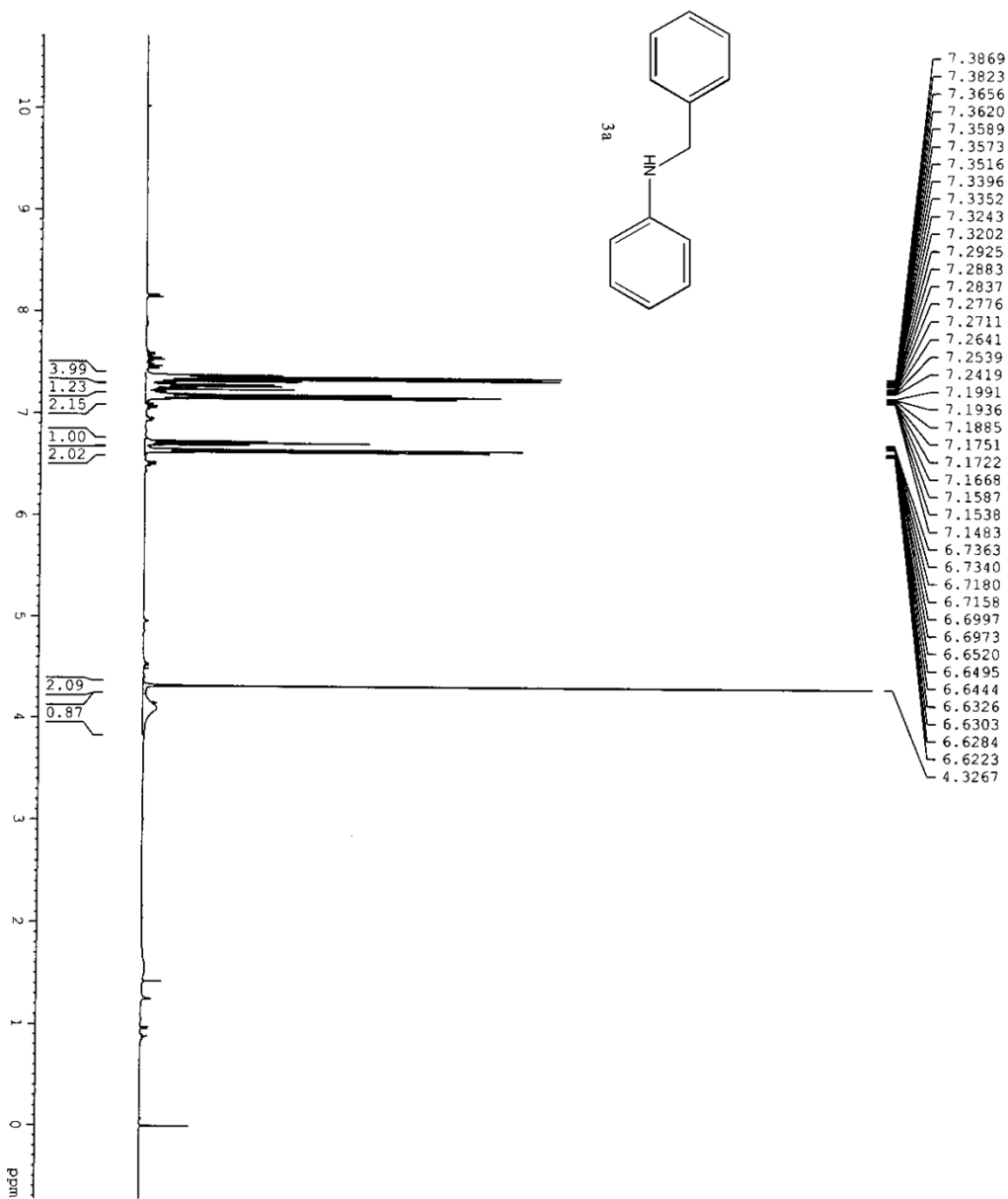
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 Chandigarh

Current Data Parameters
 NAME Oct09-2012
 EXPNO 60
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20121009
 Time_ 13.56
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 8
 DS 2
 SWH 12019.230 Hz
 FIDRES 0.18339 Hz
 AQ 2.7263477 sec
 RG 287
 DW 41.600 usec
 DE 6.00 usec
 TE 293.5 K
 D1 1.0000000 sec
 TD0 1

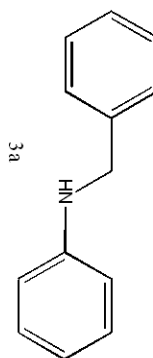
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 NUC1 1H
 P1 10.90 usec
 PL1 -3.00 dB
 SFO1 400.1324710 MHz

F2 - Processing parameters
 SI 32768
 SF 400.1300168 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00



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Current Data Parameters
 NAME Oct09-2012
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 PROCNO 1

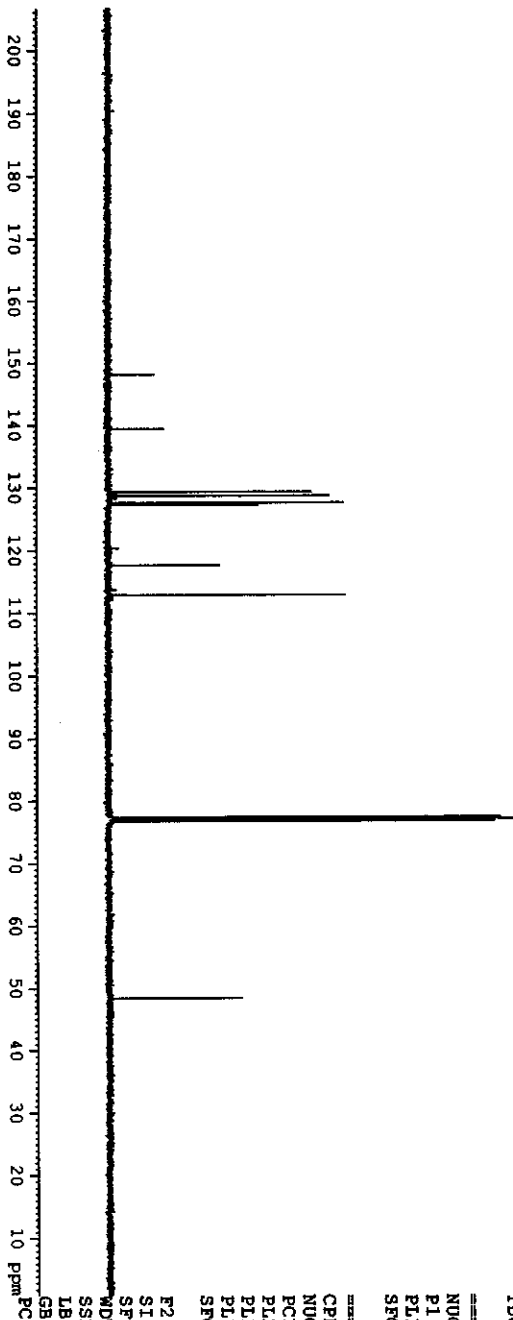


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 Date_ 20121010
 Time 9.27
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 PROBD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 361
 DS 4
 SWH 29761.904 Hz
 FIDRES 0.454131 Hz
 AQ 1.1010548 sec
 RG 645
 DW 16.800 usec
 DE 6.00 usec
 TE 292.3 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TD0 1

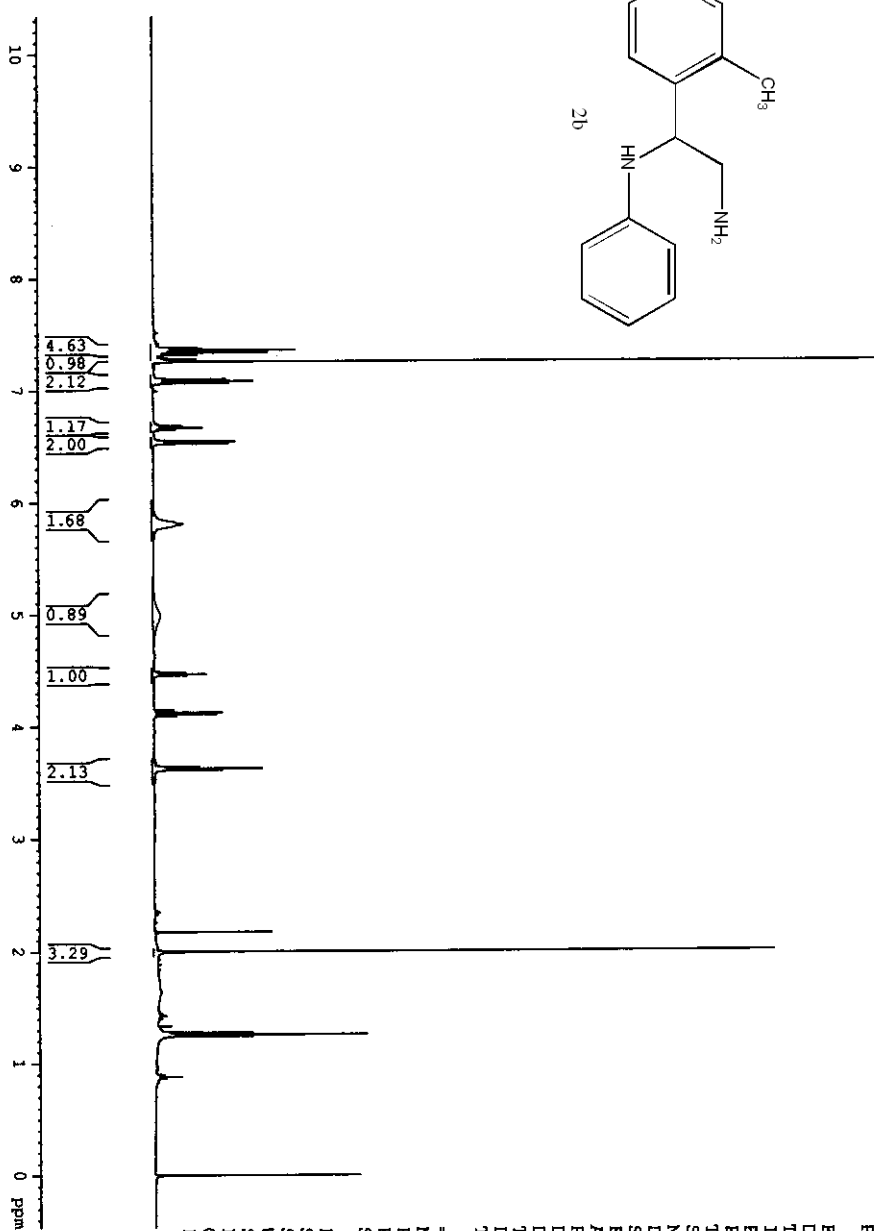
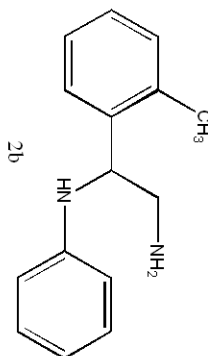
===== CHANNEL f1 =====
 NUC1 13C
 P1 9.60 usec
 PL1 -2.00 dB
 SFO1 100.6228298 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -3.00 dB
 PL12 14.31 dB
 PL13 18.00 dB
 SFO2 400.1316005 MHz

F2 - Processing Parameters
 SI 32768
 SF 100.6127690 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
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 PC 1.40



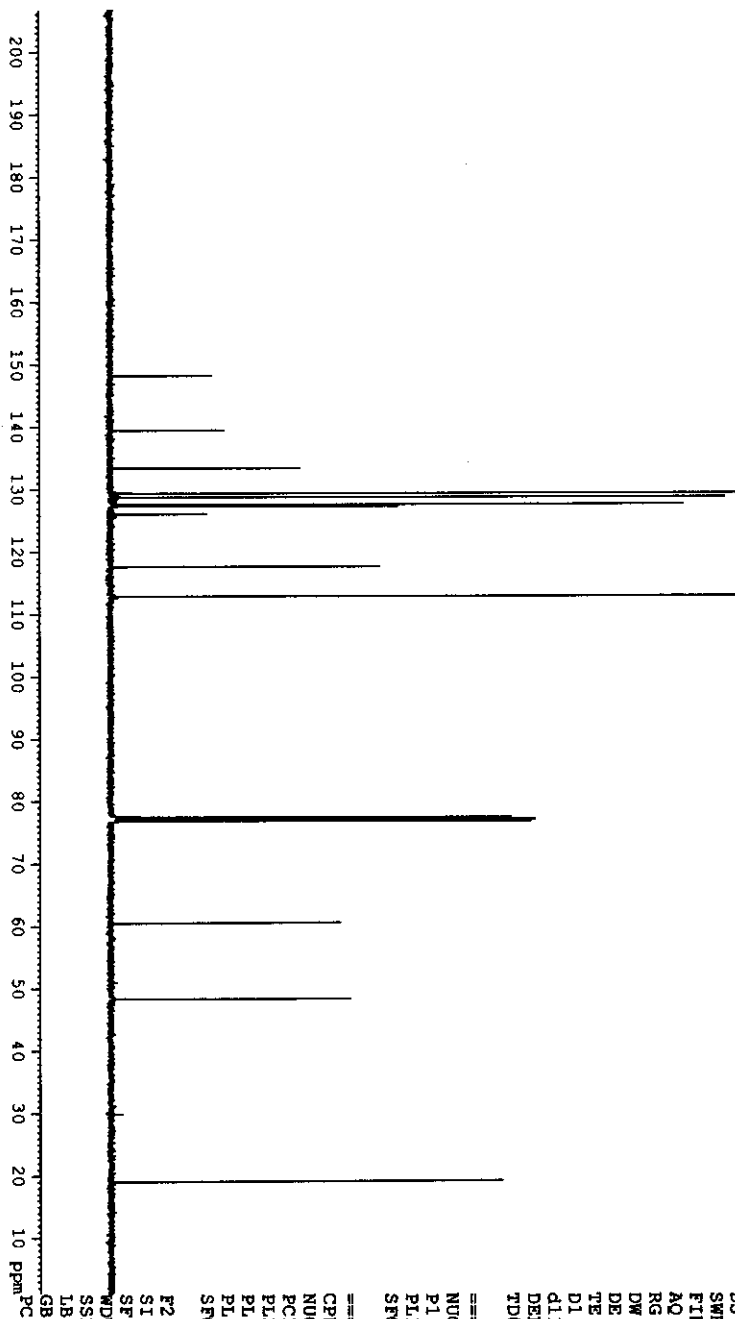
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Current Data Parameters
 NAME Feb23-2012
 EXPNO 80
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20120223
 Time_ 15.36
 INSTRUM spect
 PROBRD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 8
 DS 2
 SWH 12019.230 Hz
 FIDRES 0.183399 Hz
 AQ 2.7263477 sec
 RG 575
 DW 41.600 usec
 DE 6.00 usec
 TE 296.9 K
 D1 1.00000000 sec
 TDO 1

CHANNEL f1
 NUC1 1H
 P1 10.90 usec
 PL1 -3.00 dB
 SFO1 400.1324710 MHz
 F2 - Processing parameters
 SI 32768
 SF 400.130093 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

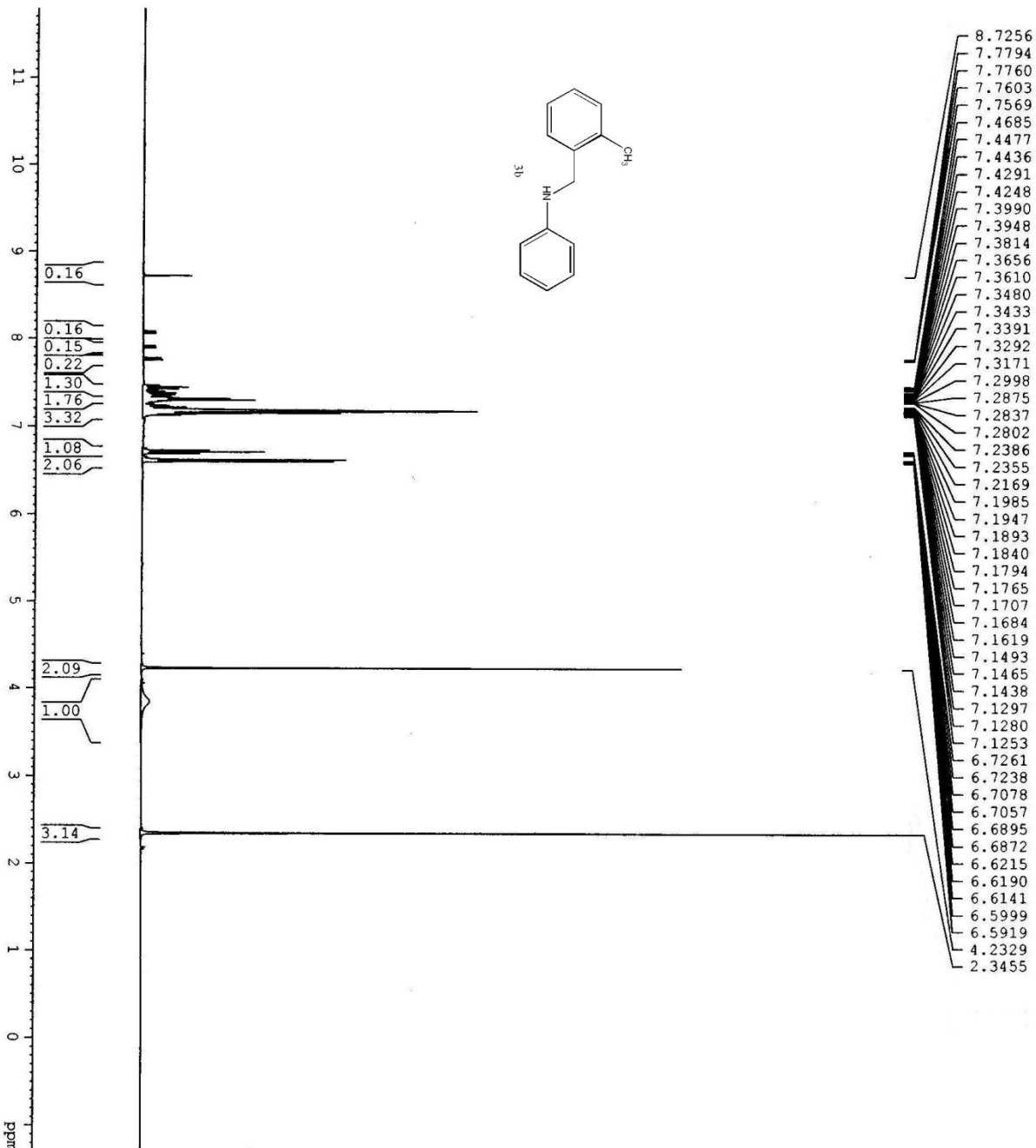
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Current Data Parameters
 NAME Jul23-2012
 EXPNO 320
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20120724
 Time_ 10.30
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 8
 DS 2
 SWH 12019.230 Hz
 FIDRES 0.183399 Hz
 AQ 2.7263477 sec
 RG 57
 DW 41.600 usec
 DE 6.00 usec
 TE 293.9 K
 D1 1.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 1H
 P1 10.90 usec
 PL1 -3.00 dB
 SF01 400.1324710 MHz
 F2 - Processing parameters
 SI 32768
 SF 400.1300447 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00



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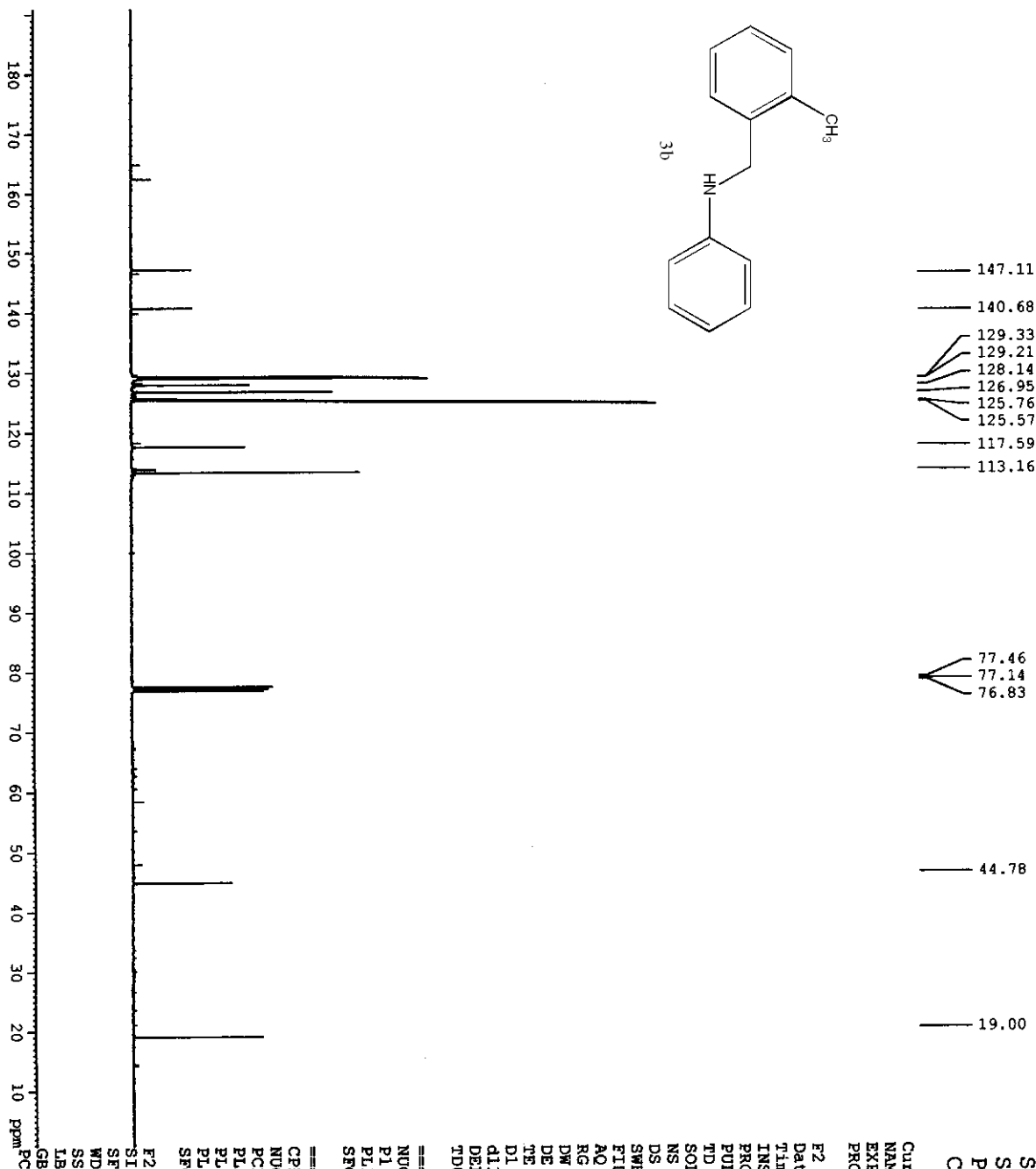
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 PROCNO 1

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 PULPROG 65536
 TD CDC13
 SOLVENT 1024
 NS 4
 DS 4
 SWH 29761.904 Hz
 FIDRES 0.454131 Hz
 AQ 1.1010548 sec
 RG 40.3
 DW 16.800 usec
 DE 6.00 usec
 TE 295.5 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TDO 1

===== CHANNEL f1 =====
 NUC1 13C
 P1 9.60 usec
 PL1 -2.00 dB
 SFO1 100.6228298 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -3.00 dB
 PL12 14.31 dB
 PL13 18.00 dB
 SFO2 400.1316005 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127690 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40



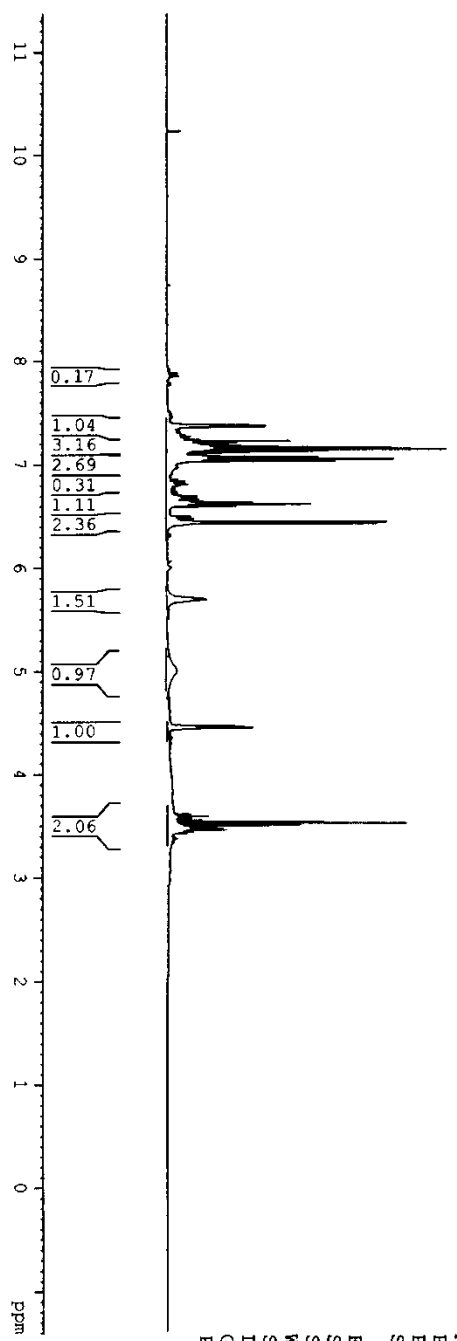
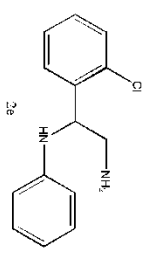
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Current Data Parameters
NAME Jul23-2012
EXPNO 290
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120724
Time_ 9.43
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 2
SWH 12019.230 Hz
FIDRES 0.183399 Hz
AQ 2.7263477 sec
RG 57
DE 41.600 usec
TE 293.0 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 10.90 usec
PL1 -3.00 dB
SFO1 400.1324710 MHz
F2 - Processing parameters
SI 32768
SF 400.1300209 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



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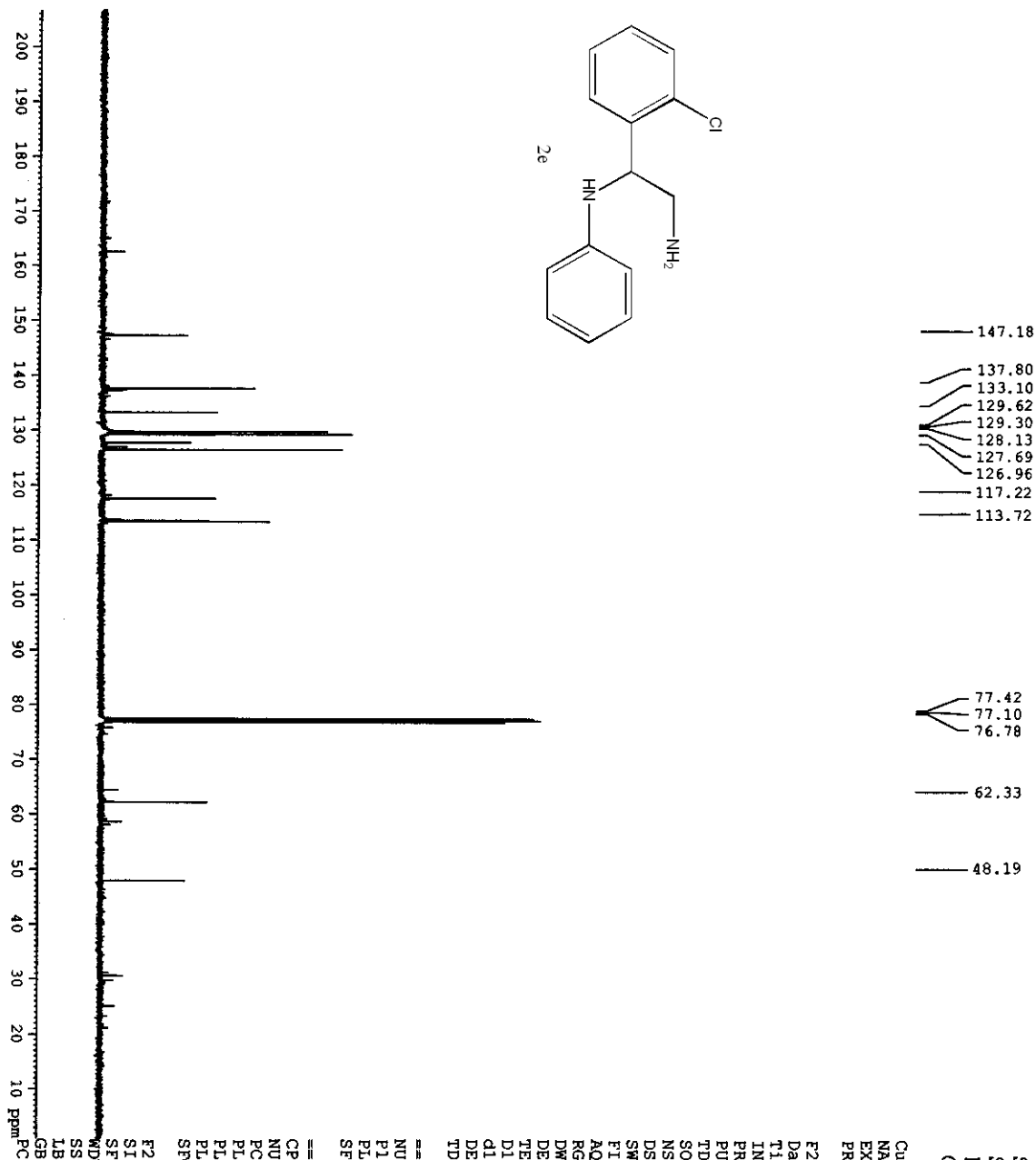
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 EXPNO 131
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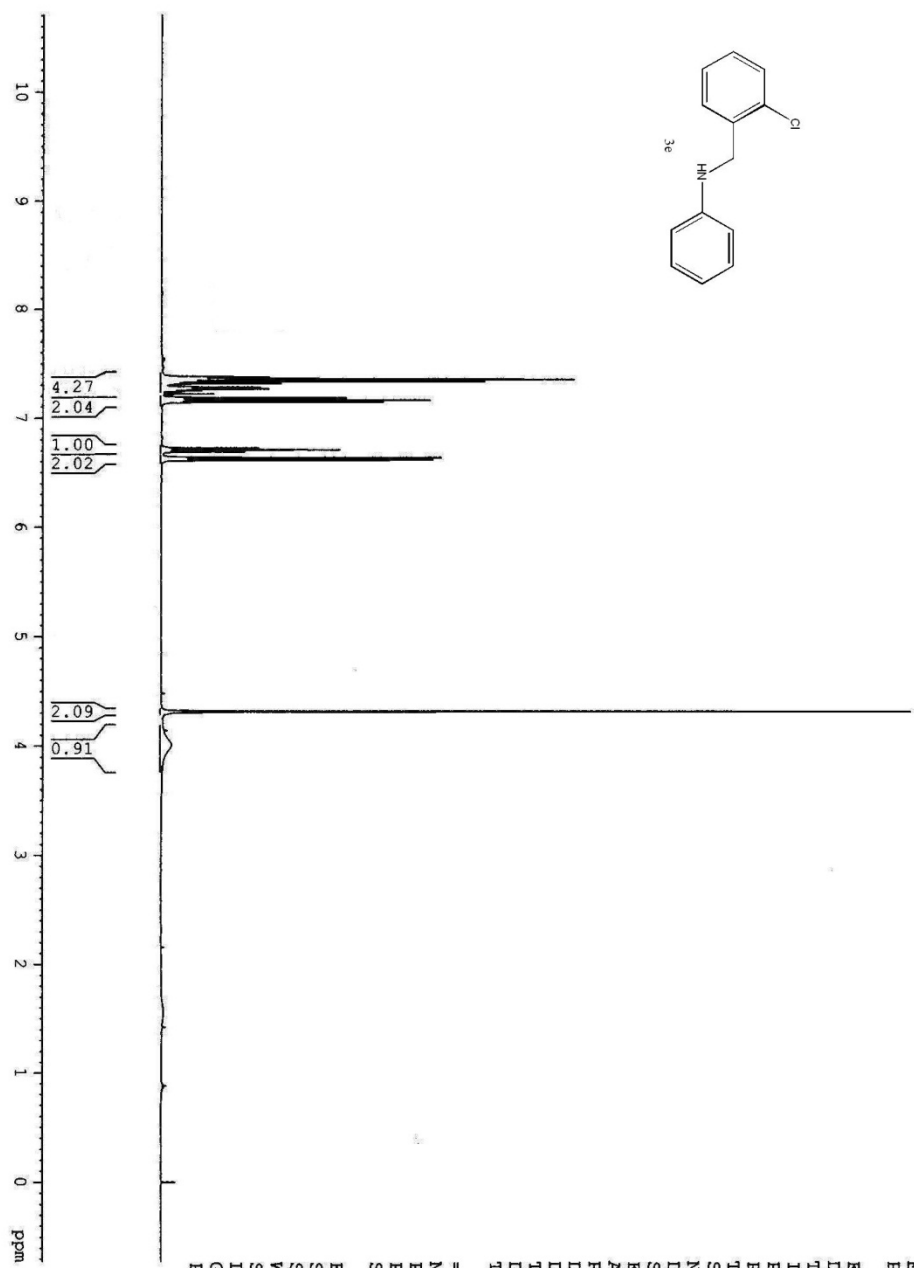
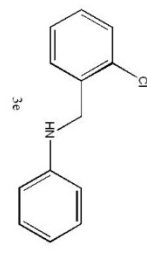
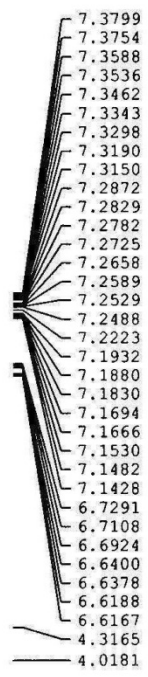
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 Time 19.05
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 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 400
 DS 4
 SWH 29761.904 Hz
 FIDRES 0.454131 Hz
 AQ 1.1010548 sec
 RG 724
 DW 16.800 usec
 DE 6.00 usec
 TE 293.8 K
 d11 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 13C
 P1 9.60 usec
 PL1 -2.00 dB
 SFO1 100.6228298 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -3.00 dB
 PL12 14.31 dB
 PL13 18.00 dB
 SFO2 400.1316005 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127690 MHz
 MDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40





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Current Data Parameters
NAME Oct09-2012
EXPNO 50
PROCNO 1

F2 - Acquisition Parameters
Date_ 20121009
Time 13.49
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 2
SWH 12019.230 Hz
FIDRES 0.183399 Hz
AQ 2.7263477 sec
RG 181
DW 41.600 usec
DE 6.00 usec
TE 293.6 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 10.90 usec
PL1 -3.00 dB
SFO1 400.1324710 MHz
F2 - Processing parameters
SI 32768
SF 400.1300246 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

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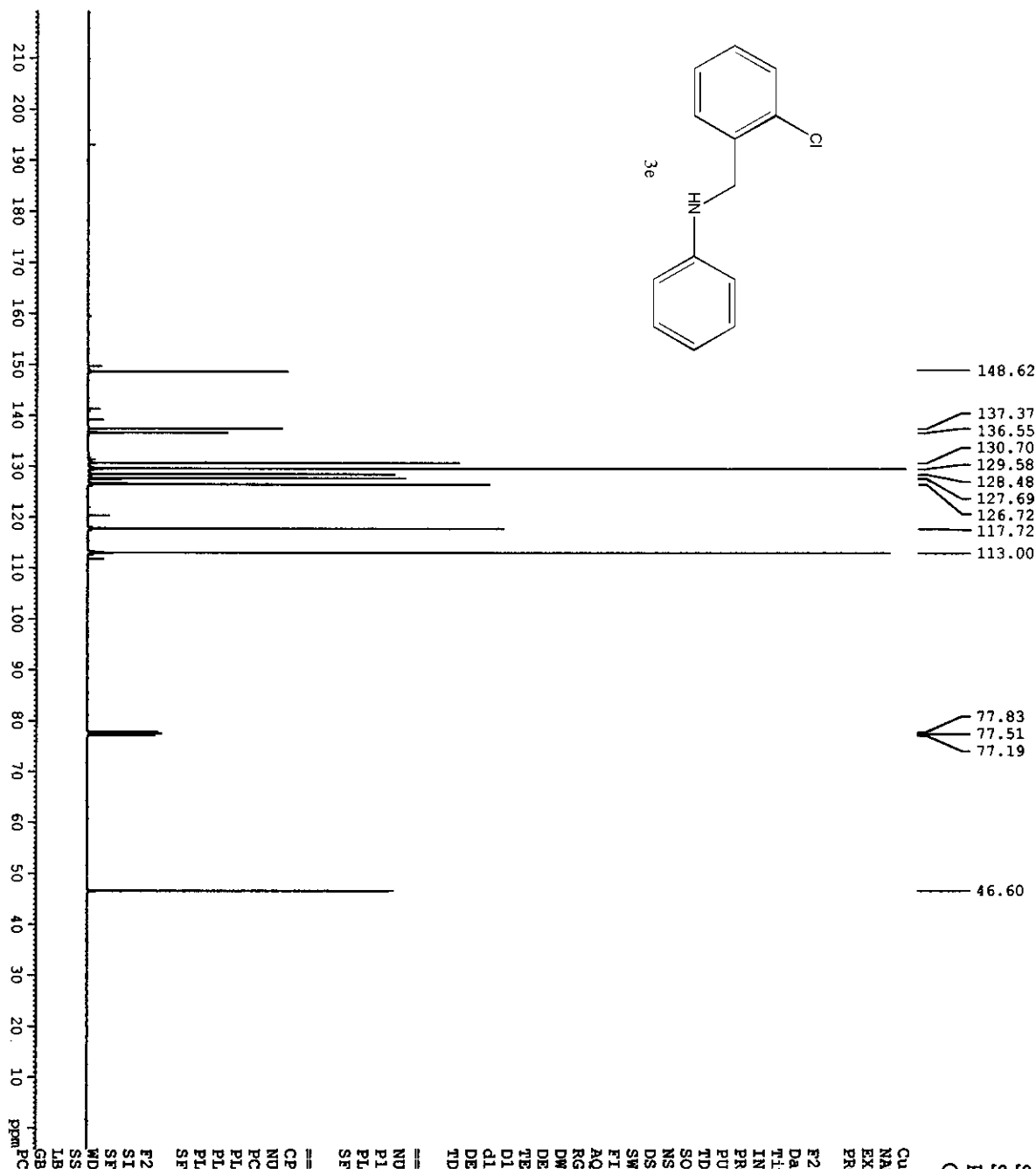
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 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 400
 DS 4
 SWH 29761.904 Hz
 FIDRES 0.454131 Hz
 AQ 1.1010548 sec
 RG 1030
 DW 16.800 usec
 DE 6.00 usec
 TE 297.6 K
 D1 2.0000000 sec
 d11 0.0300000 sec
 DELTA 1.8999998 sec
 TDO 1

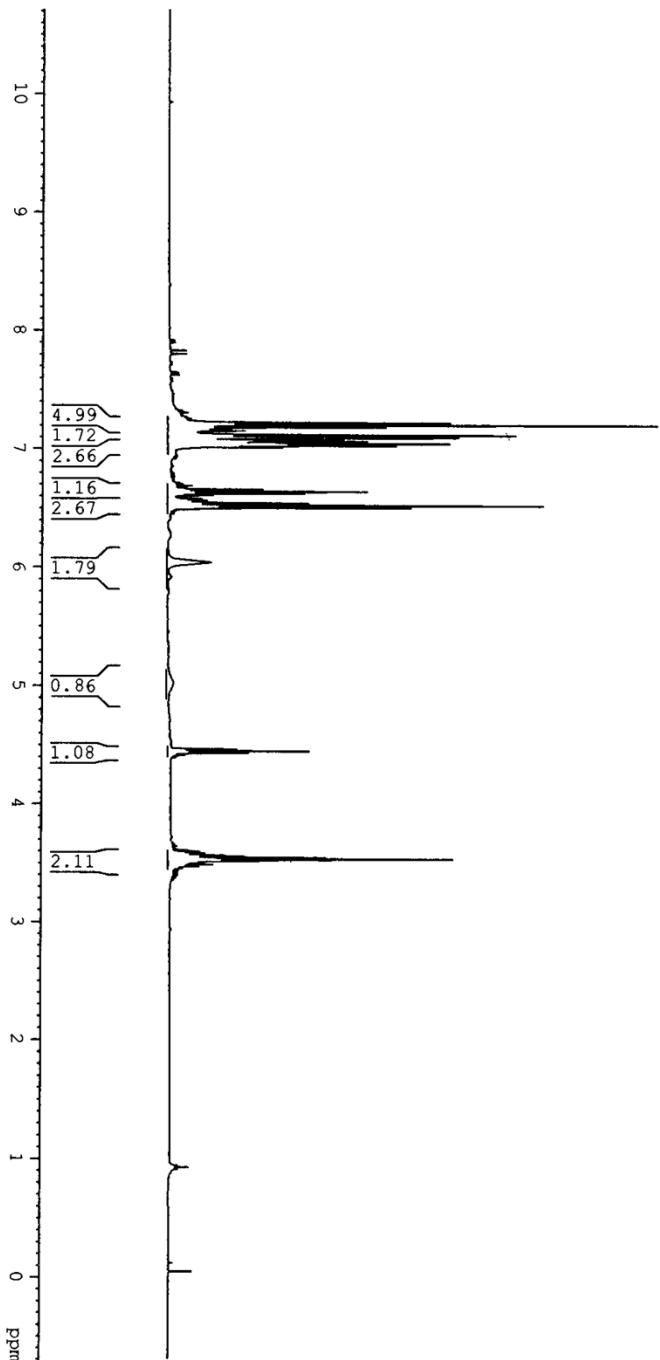
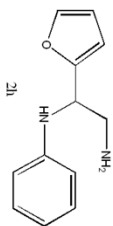
CHANNEL f1
 NUC1 13C
 P1 9.60 usec
 PL1 -2.00 dB
 SFO1 100.6228298 MHz

CHANNEL f2
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -3.00 dB
 PL12 14.31 dB
 PL13 18.00 dB
 SFO2 400.1316005 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127690 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40



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Current Data Parameters
NAME Oct09-2012
EXPNO 130
PROCNO 1

F2 - Acquisition Parameters
Date_ 20121009
Time_ 18.42
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 2
SWH 12019.230 Hz
FIDRES 0.183399 Hz
AQ 2.7263477 sec
RG 128
DW 41.600 usec
DE 6.00 usec
TE 293.5 K
D1 1.0000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 10.90 usec
PL1 -3.00 dB
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 32768
SF 400.1300157 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

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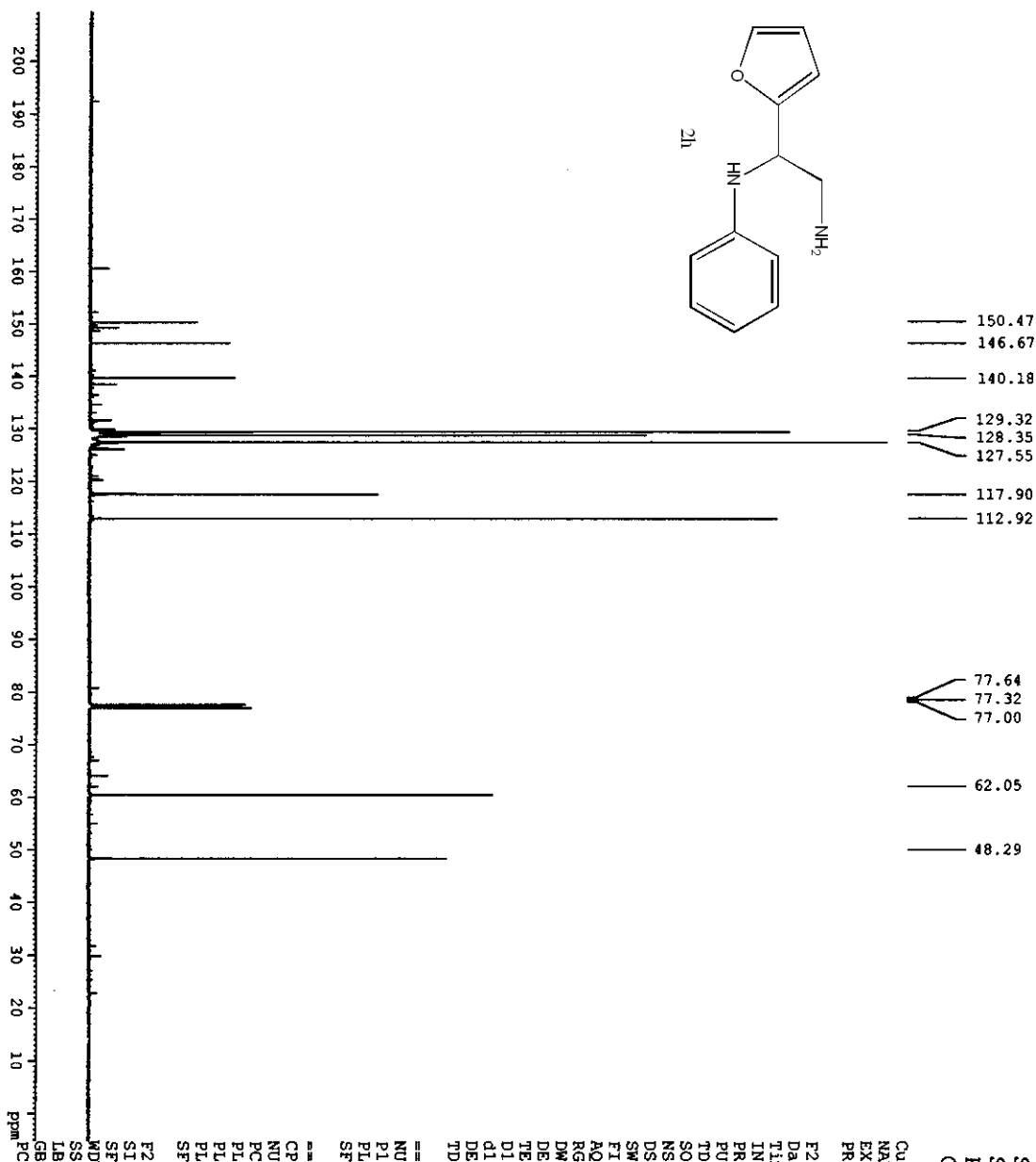
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F2 - Acquisition Parameters
 Date_ 20120704
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 PROBD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 400
 DS 4
 SMH 29761.904 Hz
 FIDRES 0.454131 Hz
 AQ 1.1010548 sec
 RG 1290
 DW 16.800 usec
 DE 6.00 usec
 TE 297.3 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TDO 1

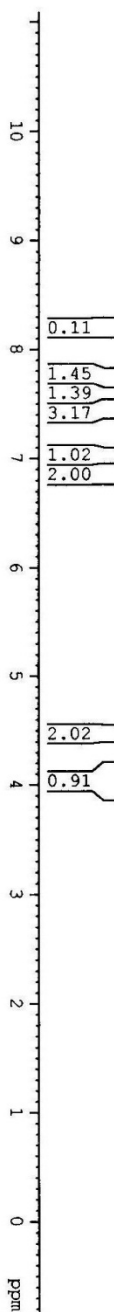
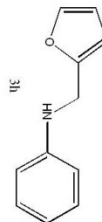
===== CHANNEL f1 =====
 NUC1 13C
 P1 9.60 usec
 PL1 -2.00 dB
 SFO1 100.628298 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -3.00 dB
 PL12 14.31 dB
 PL13 18.00 dB
 SFO2 400.131605 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127690 MHz
 MDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40



8.2320
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7.4750
7.4669
7.4564
7.4336
7.0428
7.0245
7.0062
6.8900
6.8881
6.8690
4.4915
4.0361



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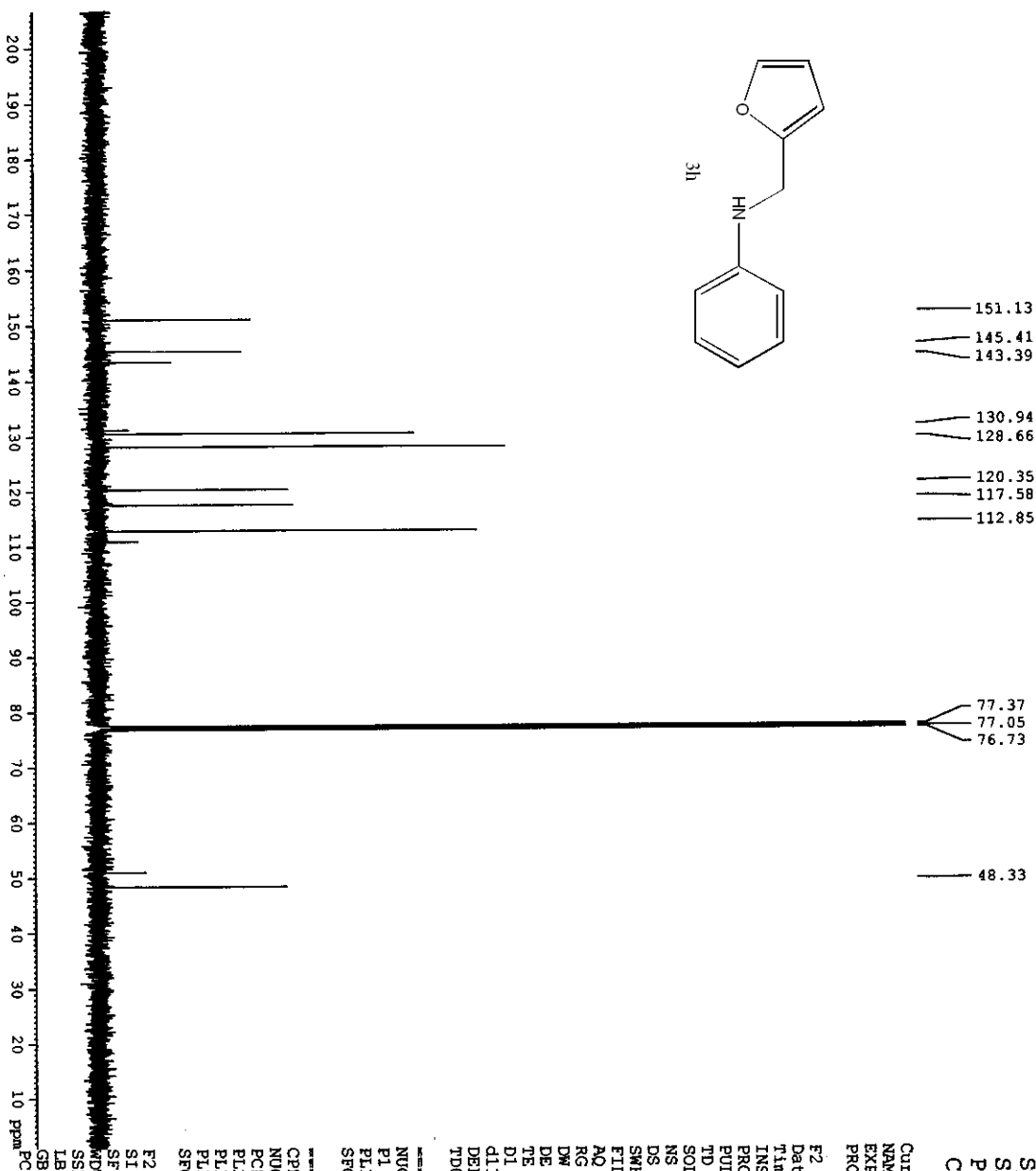
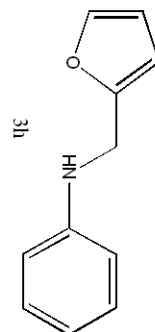
Current Data Parameters
NAME Jul04-2012
EXPNO 40
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120704
Time 13.27
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 2
SWH 12019.230 Hz
FIDRES 0.183399 Hz
AQ 2.7263477 sec
RG 22.6
DW 41.600 usec
DE 6.00 usec
TE 295.0 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 10.90 usec
PL1 -3.00 dB
SFO1 400.1324710 MHz
F2 - Processing parameters
SI 32768
SF 400.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

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Current Data Parameters
 NAME Oct09-2012
 EXNO 41
 PROCNO 1



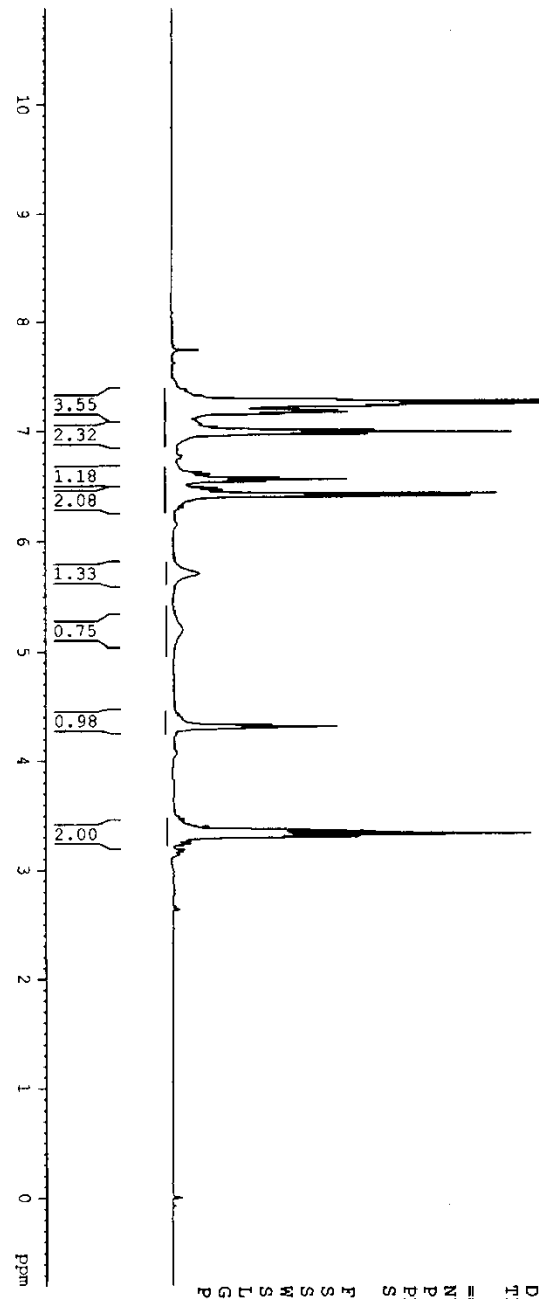
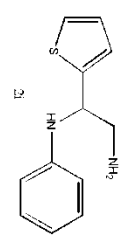
F2 - Acquisition Parameters
 Date_ 20121010
 Time_ 9.11
 INSTRUM spect
 PROBD 5 mm PABO BB-
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 400
 DS 4
 SMH 29761.904 Hz
 FIDRES 0.454131 Hz
 AQ 1.1010548 sec
 RG 575
 DW 16.800 usec
 DE 6.00 usec
 TE 292.4 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TD0 1

CHANNEL f1
 NUC1 13C
 P1 9.60 usec
 PL1 -2.00 dB
 SFO1 100.628298 MHz

CHANNEL f2
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -3.00 dB
 PL12 14.31 dB
 PL13 18.00 dB
 SFO2 400.1316005 MHz

F2 - Processing Parameters
 SI 32768
 SF 100.6127690 MHz
 MDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

7.2789
7.2616
7.2594
7.2383
7.2228
7.1892
7.1854
7.1807
7.1700
7.1553
7.1517
7.0373
7.0059
6.9876
6.9701
6.9688
6.9667
6.6257
6.6073
6.5756
6.5576
6.5411
6.5395
6.4839
6.4647
6.4329
6.4308
6.4116
5.7143
5.1719
4.3907
4.3783
4.3745
4.3621
3.4095
3.3953
3.3841
3.3781
3.3720
3.3635
3.3560



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Current Data Parameters
NAME Nov20-2012
EXPNO 290
PROCNO 1

F2 - Acquisition Parameters
Date_ 20121120
Time_ 18.30
INSTRUM 5 mm PABBO BB-
PROBHD spect
PULPROG zg30
TD 6536
SOLVENT CDCl3
NS 8
DS 2
SWH 12019.230 Hz
FIDRES 0.183399 Hz
AQ 2.7263477 sec
RG 64
DW 41.600 usec
DE 6.00 usec
TE 292.3 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 10.90 usec
PL1 -3.00 dB
SFO1 400.1324710 MHz
F2 - Processing parameters
SI 32768
SF 400.1300524 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

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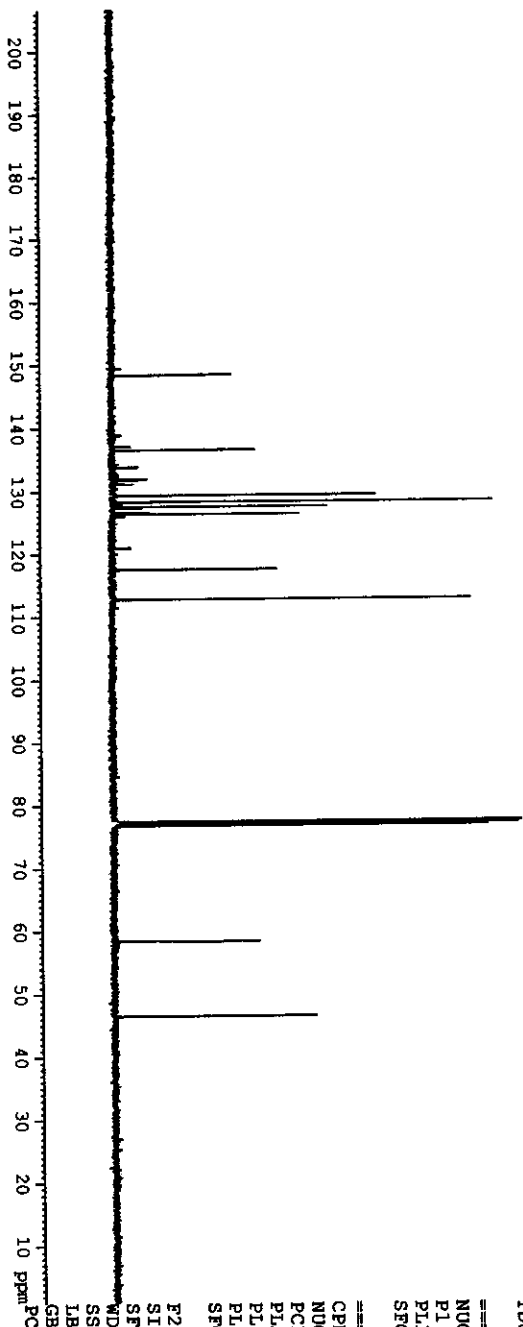
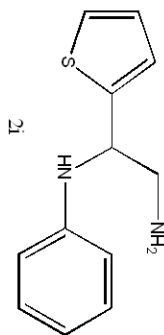
Current Data Parameters
 NAME Oct09-2012
 EXPNO 81
 PROCNO 1

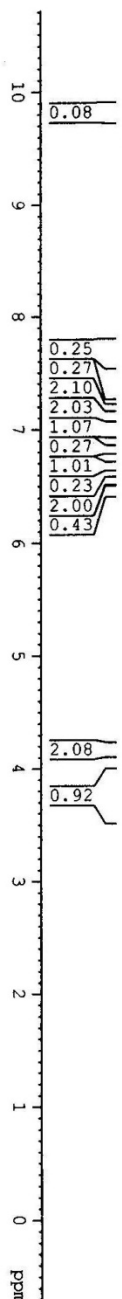
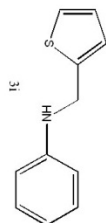
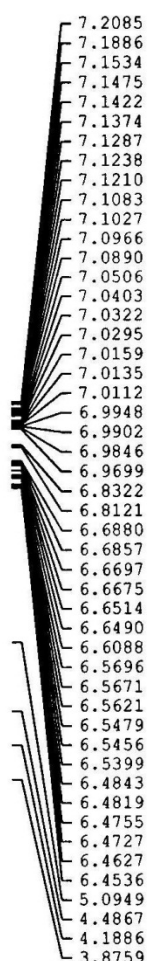
F2 - Acquisition Parameters
 Date_ 20121009
 Time 17.05
 INSTRUM spect
 PROBD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 400
 DS 4
 SWH 29761.904 Hz
 FIDRES 0.454131 Hz
 AQ 1.1010548 sec
 RG 645
 DW 16.800 usec
 DE 6.00 usec
 TE 293.9 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TDO 1

===== CHANNEL f1 =====
 NUC1 13C
 P1 9.60 usec
 PL1 -2.00 dB
 SFO1 100.6228298 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -3.00 dB
 PL12 14.31 dB
 PL13 18.00 dB
 SFO2 400.1316005 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127690 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40





Current Data Parameters
NAME Oct09-2012
EXPNO 70
PROCNO 1

F2 - Acquisition Parameters
Date_ 20121009
Time 14.02
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 2
SWH 12019.230 Hz
FIDRES 0.183399 Hz
AQ 2.7263477 sec
RG 32
DW 41.600 use
DE 6.00 use
TE 293.5 K
D1 1.00000000 sec
TD0 1

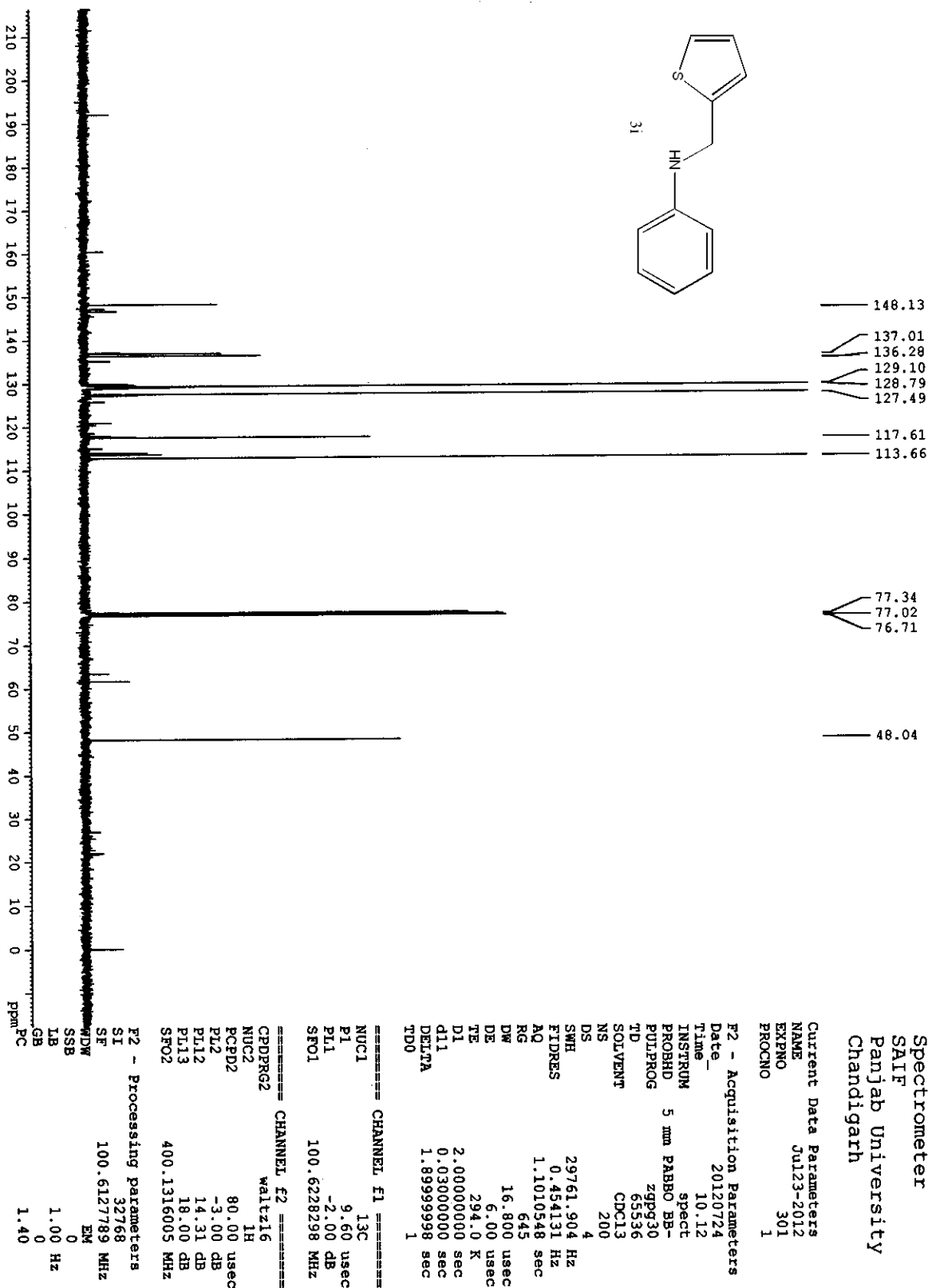
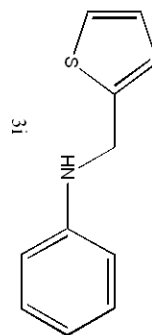
===== CHANNEL f1 =====
NUC1 1H
P1 10.90 use
PL1 -3.00 dB
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 32768
SF 400.1300970 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

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Current Data Parameters
 NAME Jul23-2012
 EXPNO 301
 PROCNO 1

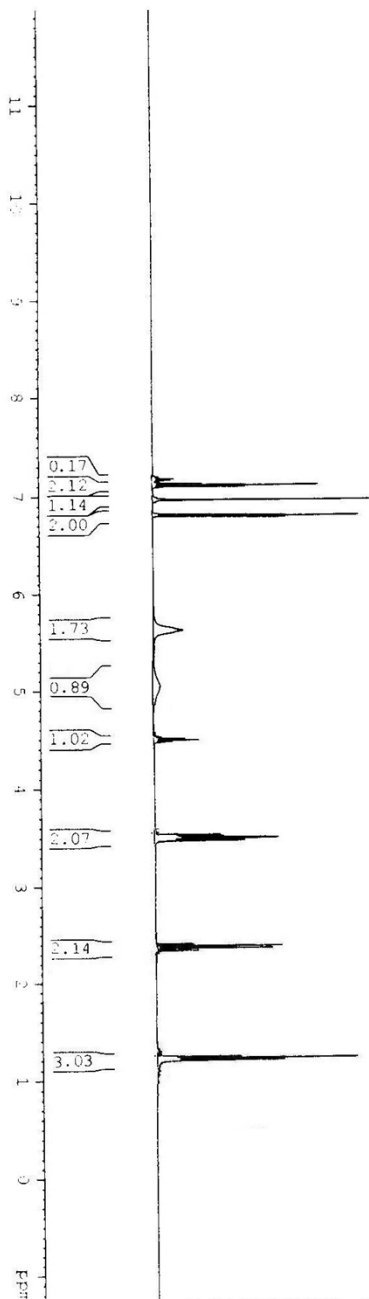
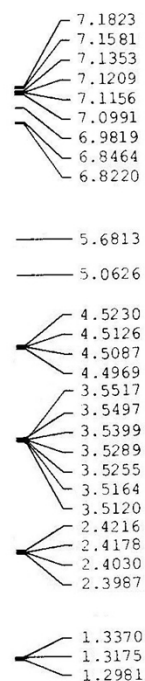
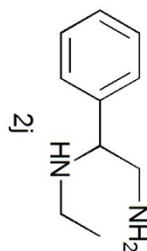


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Current Data Parameters
 NAME Sep25-2013
 EXPNO 170
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20130925
 Time_ 13.32
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT DMSO
 NS 8
 DS 2
 SWH 12019.230 Hz
 FIDRES 0.183399 Hz
 AQ 2.7263477 sec
 RG 456
 DW 41.600 usec
 DE 6.00 usec
 TE 293.2 K
 D1 1.00000000 sec
 TDO 1

===== CHANNEL f1 =====
 NUC1 1H
 P1 10.90 usec
 PL1 -3.00 dB
 SFO1 400.1324710 MHz
 F2 - Processing parameters
 SI 32768
 SF 400.1300000 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00



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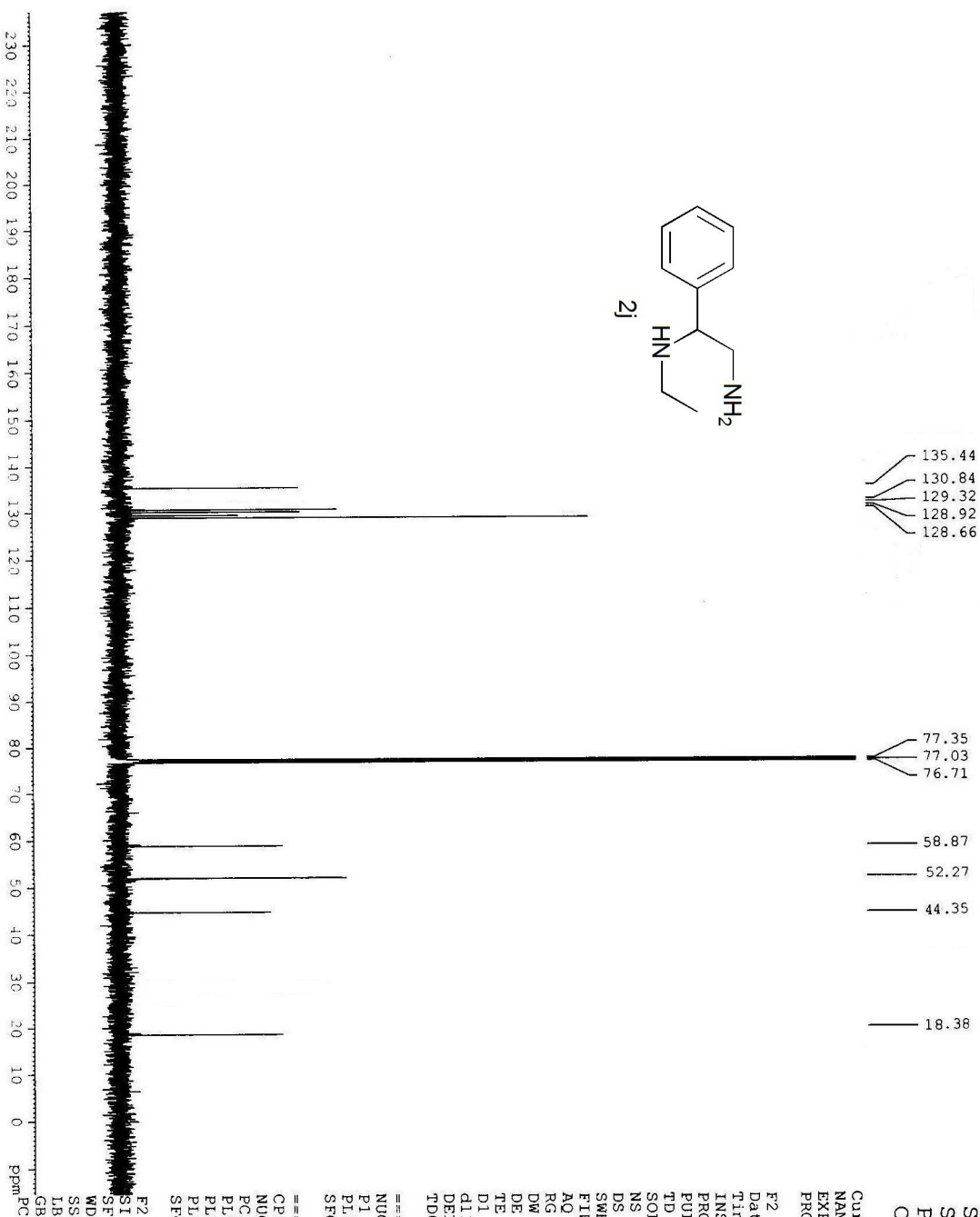
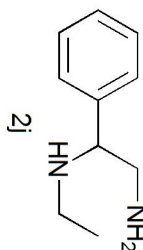
Current Data Parameters
 NAME Sep25-2013
 EXPNO 171
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20130925
 Time_ 13.59
 INSTRUM spect
 PROBD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 400
 DS 4
 SWH 29761.904 Hz
 FIDRES 0.454131 Hz
 AQ 1.1010548 sec
 RG 1030
 DW 16.800 usec
 DE 6.00 usec
 TE 298.3 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 13C
 P1 9.60 usec
 PL1 -2.00 dB
 SFO1 100.6228298 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -3.00 dB
 PL12 14.31 dB
 PL13 18.00 dB
 SFO2 400.1316005 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127690 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

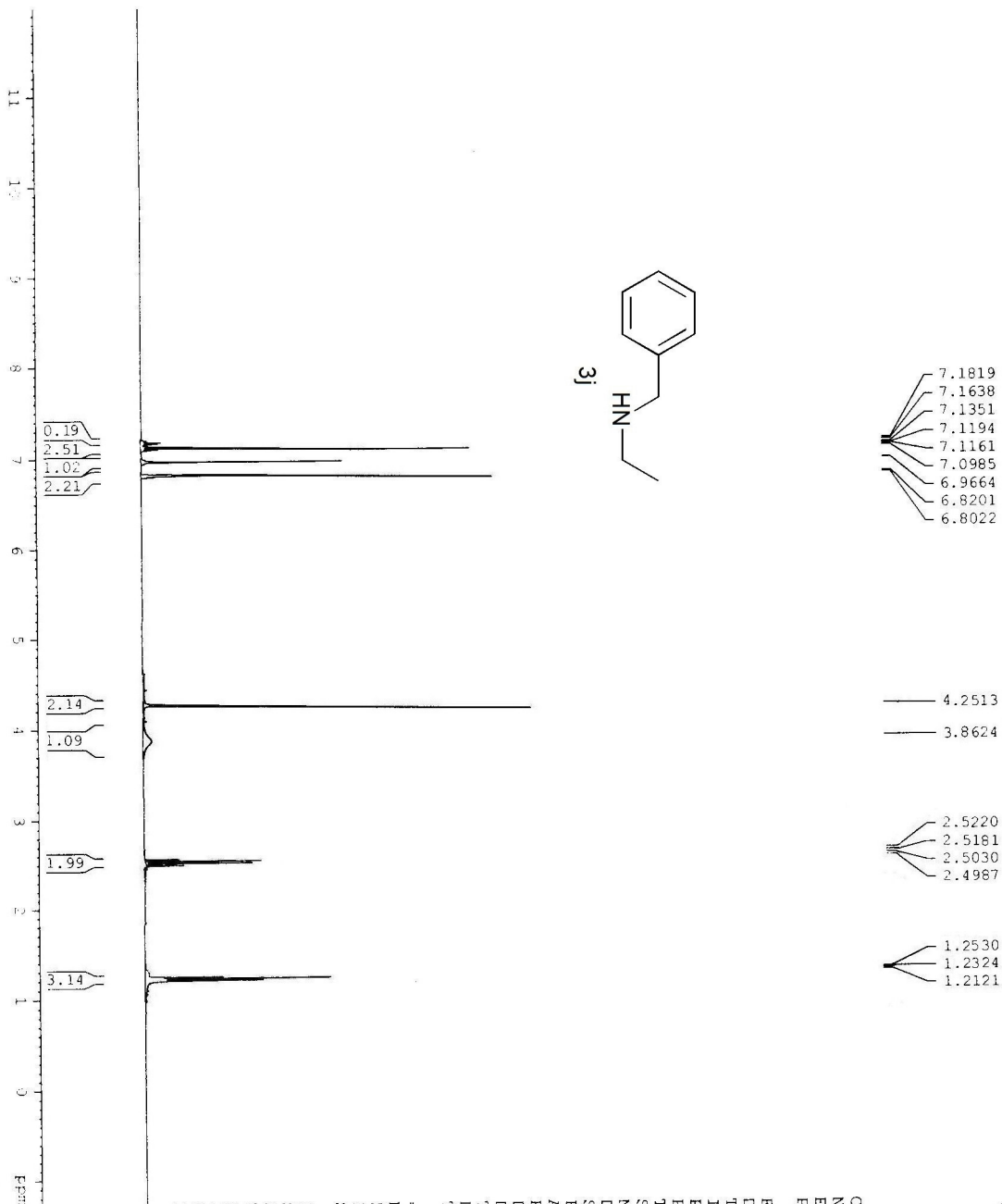


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Current Data Parameters
 NAME Sep25-2013
 EXPNO 180
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20130925
 Time_ 14.26
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT DMSO
 NS 8
 DS 2
 SWH 12019.230 Hz
 FIDRES 0.183399 Hz
 AQ 2.7263477 sec
 RG 18
 DW 41.600 usec
 DE 6.00 usec
 TE 293.7 K
 D1 1.00000000 sec
 TDO 1

===== CHANNEL f1 =====
 NUC1 ¹H
 P1 10.90 usec
 PL1 -3.00 dB
 SFO1 400.1324710 MHz
 F2 - Processing parameters
 SI 32768
 SF 400.1300000 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00



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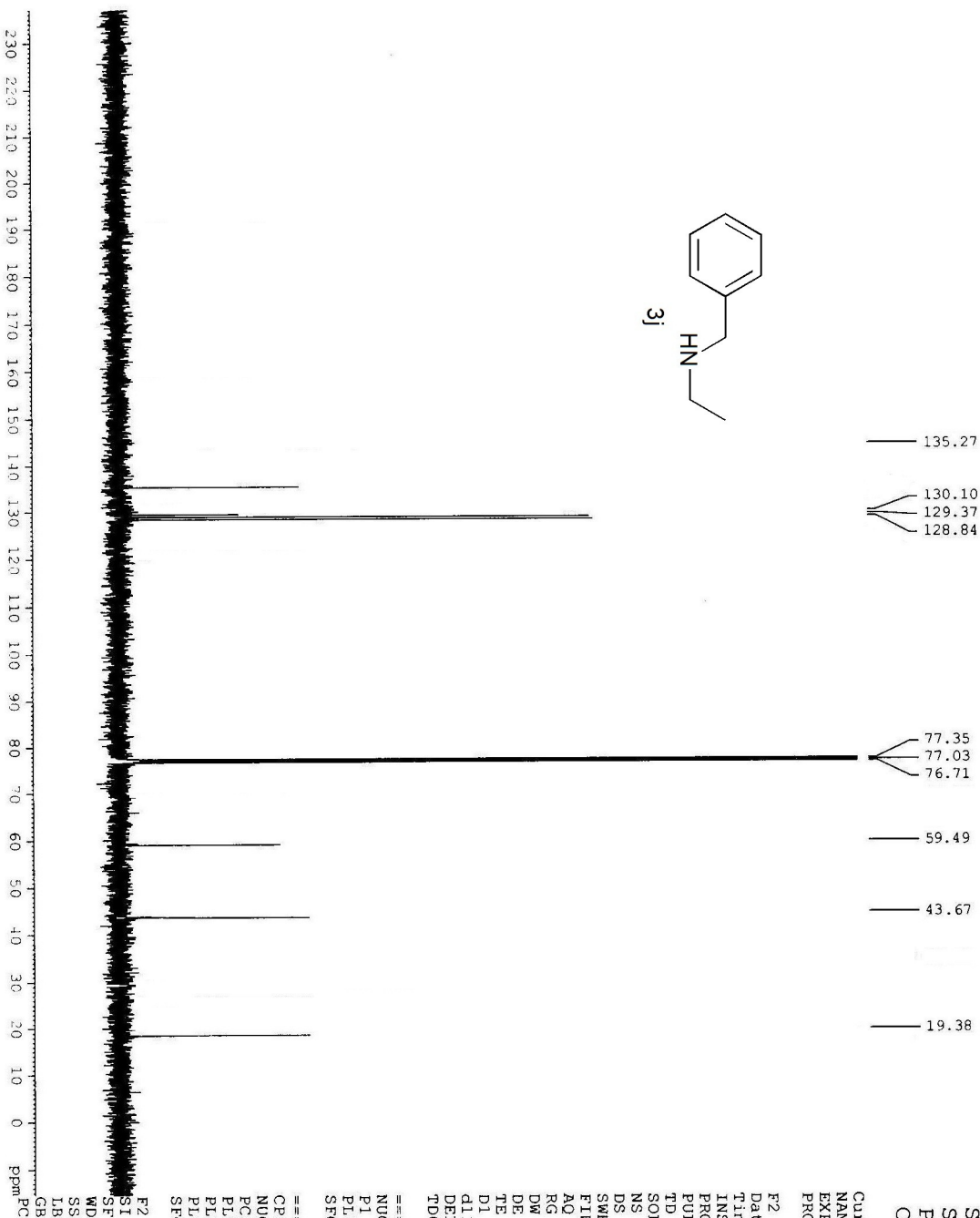
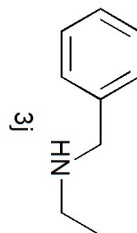
Current Data Parameters
 NAME Sep25-2013
 EXPNO 181
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20130925
 Time_ 14.48
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 400
 DS 4
 SWH 29761.904 Hz
 FIDRES 0.454131 Hz
 AQ 1.1010548 sec
 RG 148
 DW 16.800 usec
 DE 6.00 usec
 TE 294.8 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 13C
 P1 9.60 usec
 PL1 -2.00 dB
 SFO1 100.6228298 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -3.00 dB
 PL12 14.31 dB
 PL13 18.00 dB
 SFO2 400.1316005 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127690 MHz
 WDW EM
 SSB 0
 GB 0
 PC 1.40



7.5128
7.3220
7.3033
7.3006
7.2825
7.2627
7.2029
7.1941
7.1892
7.1838
7.1735
7.0017
6.9836
6.9654
5.7322

4.4426
4.4277
4.4251
4.4090
3.6324
3.6259
3.6174
3.5981
3.5585
3.5393
3.5226
1.7322
1.7237
1.6590
1.6519
1.6474
1.2981
1.2585
1.2393
1.1226
1.1116
1.0859
1.0819
1.0611
0.9505
0.9174
0.8669
0.8361
0.0000

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Current Data Parameters
NAME Sep20-2013
EXPNO 30
PROCNO 1

F2 - Acquisition Parameters
Date_ 20130921
Time 12.41

INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 6536
SOLVENT CDCl3
NS 16
DS 2

SWH 12019.230 Hz
FIDRES 0.183399 Hz
AQ 2.7263477 sec

RG 512
DW 41.600 usec
DE 6.00 usec

TE 296.6 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====

NUC1 1H
P1 10.90 usec
PL1 -3.00 dB

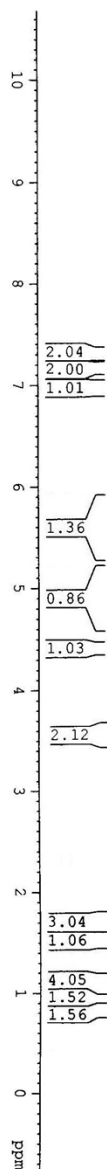
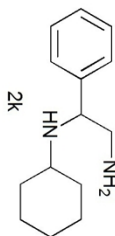
SFO1 400.132408 MHz

F2 - Processing parameters

SI 32768
SF 400.1299086 MHz

WDW EM
SSB 0

LB 0.30 Hz
GB 0
PC 1.00

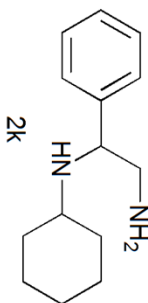


135.66
132.02
131.68
129.94
129.67

77.48
77.07
76.73

62.84
59.42
53.41
52.74

28.63
28.59
25.58
25.56
24.83



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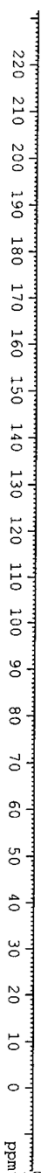
Current Data Parameters
NAME Sep20-2013
EXPNO 31
PROCNO 1

F2 - Acquisition Parameters
Date_ 20130921
Time 13.04
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 29761.904 Hz
FIDRES 0.454131 Hz
AQ 1.1010548 sec
RG 322
DM 16.800 usec
DE 6.00 usec
TE 292.7 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
TDO 1

===== CHANNEL f1 =====
NUC1 13C
P1 9.60 usec
PL1 -2.00 dB
SFO1 100.628298 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -3.00 dB
PL12 14.31 dB
PL13 18.00 dB
SFO2 400.131605 MHz

F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



7.5202
7.3282
7.3059
7.3012
7.2863
7.2600
7.2028
7.1969
7.1902
7.1827
7.1741
7.0025
6.9818
6.9614

4.3861
3.9166

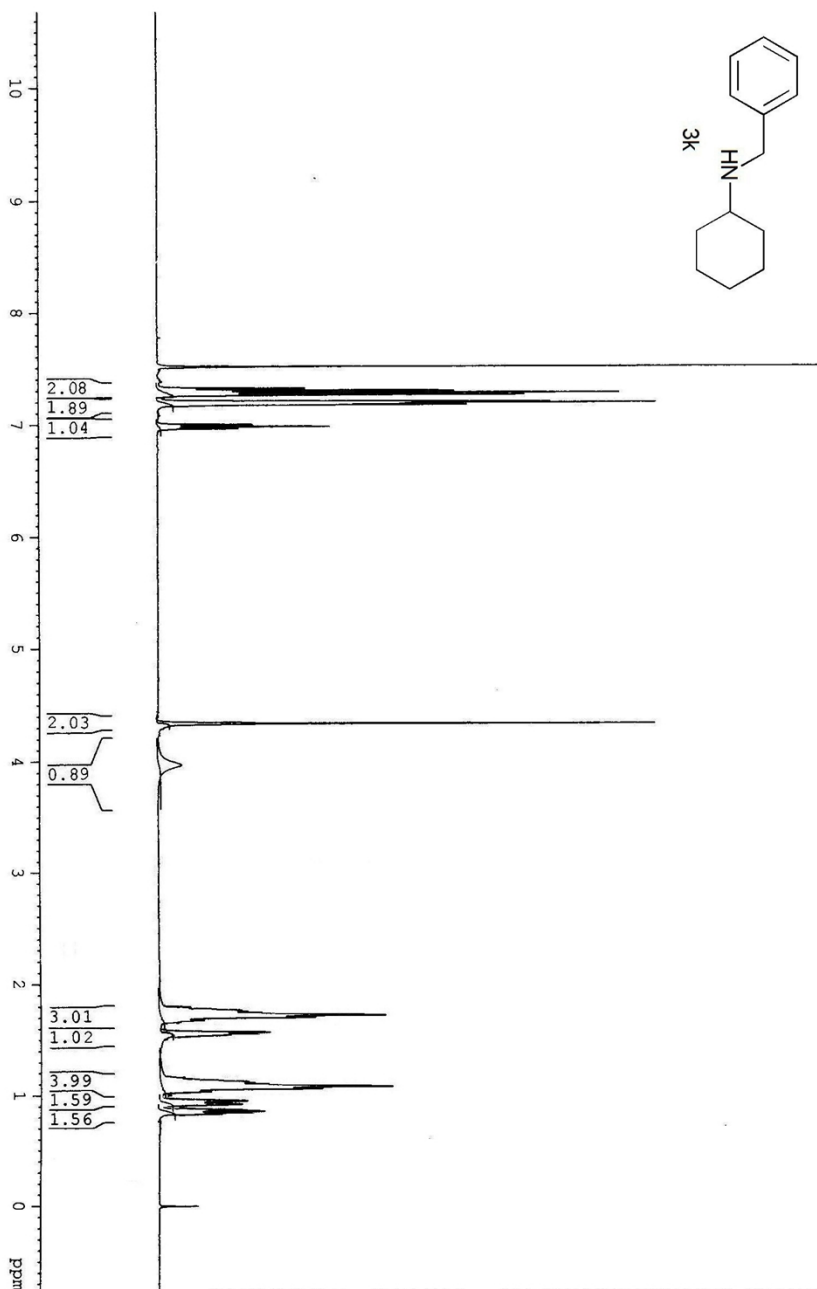
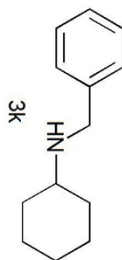
1.7329
1.7233
1.6599
1.6508
1.6459
1.2974
1.2568
1.2385
1.1219
1.1111
1.0852
1.0816
1.0608
0.9500
0.9166
0.8664
0.8350
0.0000

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Current Data Parameters
NAME Sep20-2013
EXPNO 40
PROCNO 1

F2 - Acquisition Parameters
Date_ 20130921
Time 13.25
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 12019.230 Hz
FIDRES 0.183399 Hz
AQ 2.7263477 sec
RG 26
DW 41.600 usec
DE 6.00 usec
TE 296.2 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 10.90 usec
PL1 -3.00 dB
SFO1 400.1324008 MHz
F2 - Processing parameters
SI 32768
SF 400.1299086 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



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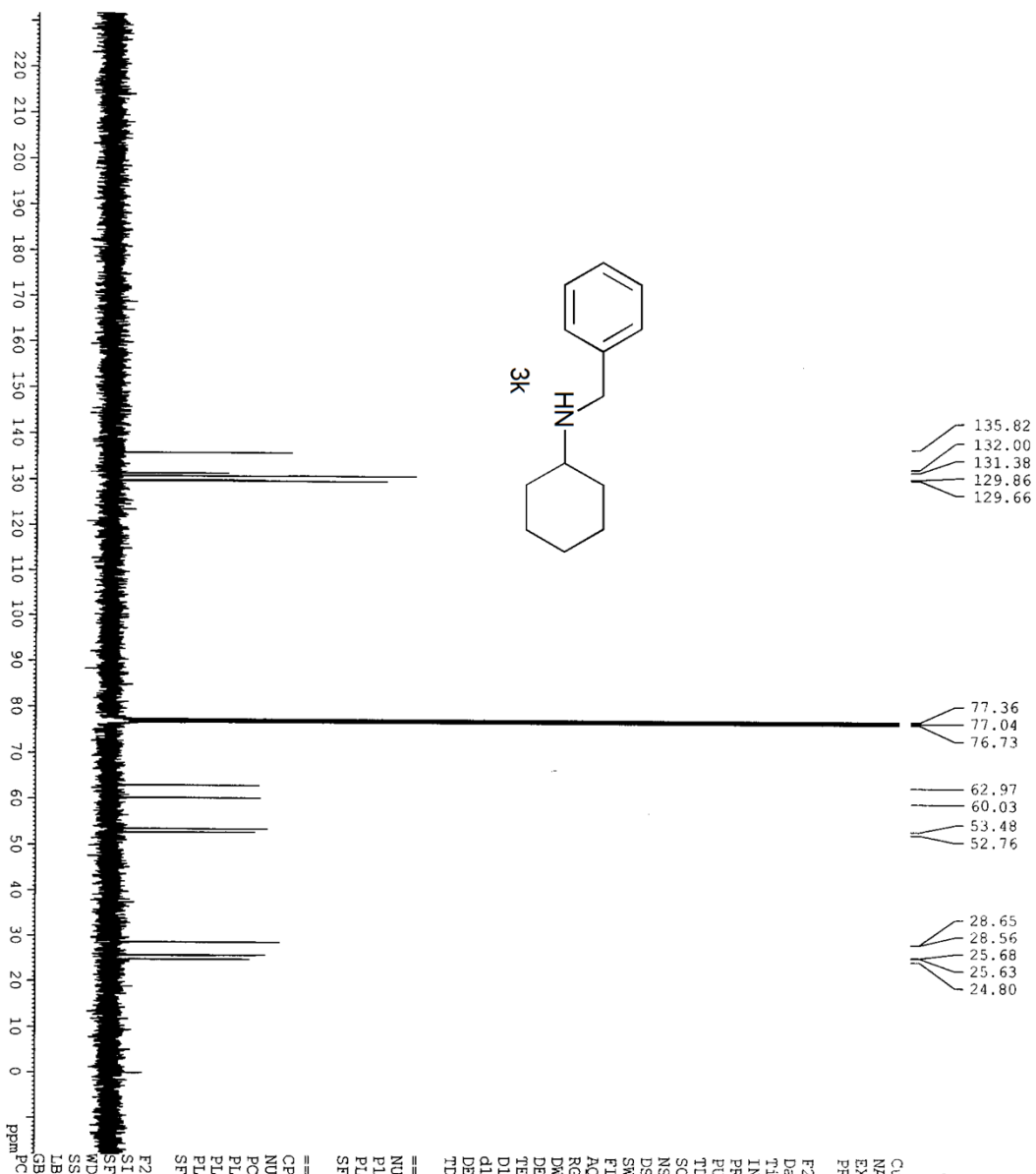
Current Data Parameters
 NAME Sep20-2013
 EXPNO 41
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20130921
 Time 13.45
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 512
 DS 4
 SWH 29761.904 Hz
 FIDRES 0.454131 Hz
 AQ 1.1010548 sec
 RG 212
 DW 16.800 usec
 DE 6.00 usec
 TE 292.3 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TDO 1

===== CHANNEL f1 =====
 NUC1 13C
 P1 9.60 usec
 PL1 -2.00 dB
 SFO1 100.628298 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -3.00 dB
 PL12 14.31 dB
 PL13 18.00 dB
 SFO2 400.131605 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127690 MHz
 WDM EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40



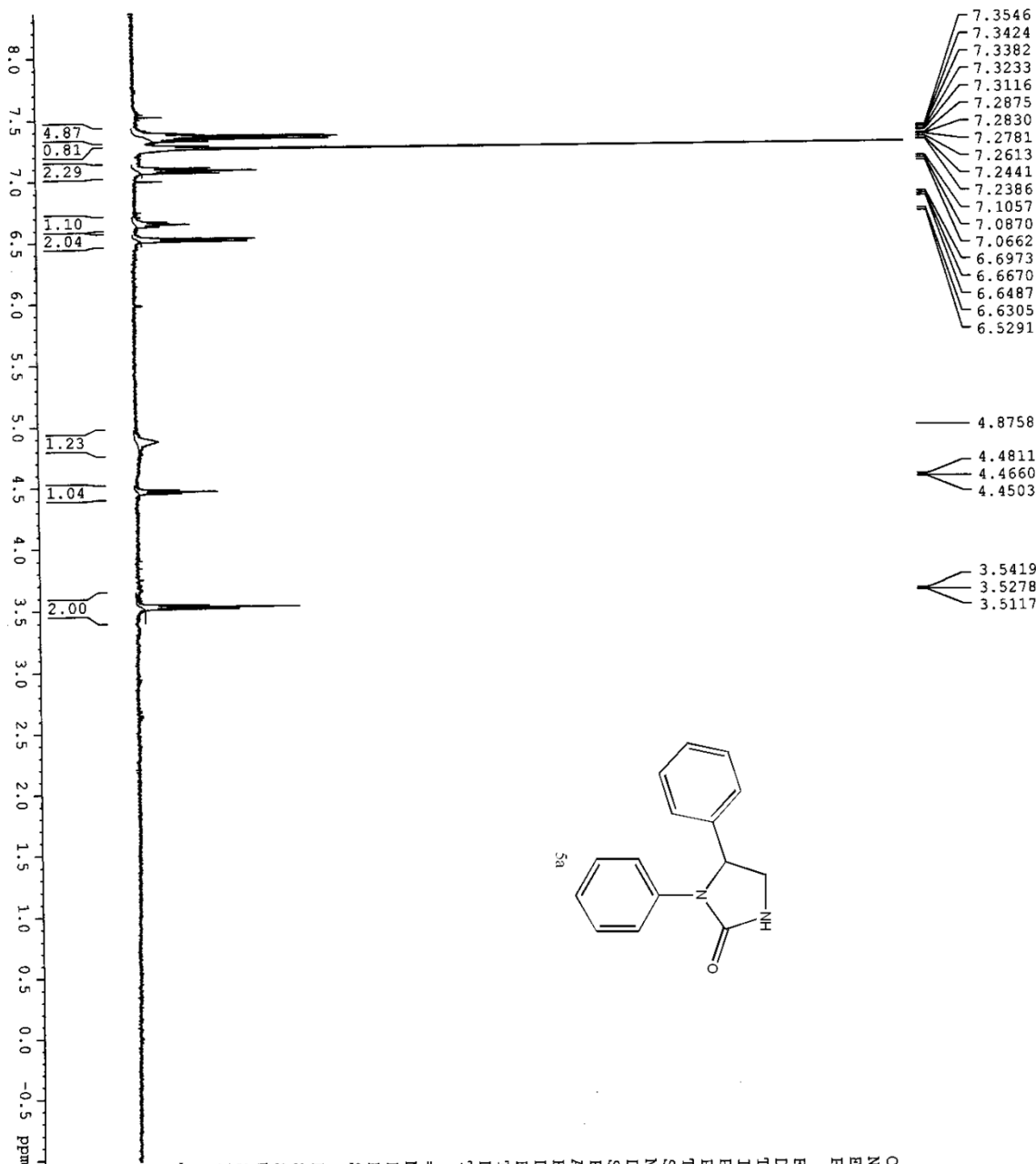
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Current Data Parameters
 NAME Mar28-2012
 EXPNO 480
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20120329
 Time_ 15.08
 INSTRUM spect
 PROBD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 12019.230 Hz
 FIDRES 0.183399 Hz
 AQ 2.7263477 sec
 RG 724
 DW 41.600 usec
 DE 6.00 usec
 TE 298.8 K
 D1 1.0000000 sec
 TDO 1

===== CHANNEL f1 =====
 NUC1 1H
 P1 10.90 usec
 PL1 -3.00 dB
 SF01 400.1324710 MHz

F2 - Processing parameters
 SI 32768
 SF 400.130090 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00





Current Data Parameters	
NAME	Mar26-2012
EXPNO	481
PROCNO	1

F7 - Acquisition Parameters

15
Time

PROBHD 5 mm PABBO

code	code
TD	2

CD	SOLVENT	MS
1	CH ₂ Cl ₂	1
2	CH ₂ Cl ₂	2
3	CH ₂ Cl ₂	3
4	CH ₂ Cl ₂	4
5	CH ₂ Cl ₂	5
6	CH ₂ Cl ₂	6
7	CH ₂ Cl ₂	7
8	CH ₂ Cl ₂	8
9	CH ₂ Cl ₂	9
10	CH ₂ Cl ₂	10
11	CH ₂ Cl ₂	11
12	CH ₂ Cl ₂	12
13	CH ₂ Cl ₂	13
14	CH ₂ Cl ₂	14
15	CH ₂ Cl ₂	15
16	CH ₂ Cl ₂	16
17	CH ₂ Cl ₂	17
18	CH ₂ Cl ₂	18
19	CH ₂ Cl ₂	19
20	CH ₂ Cl ₂	20
21	CH ₂ Cl ₂	21
22	CH ₂ Cl ₂	22
23	CH ₂ Cl ₂	23
24	CH ₂ Cl ₂	24
25	CH ₂ Cl ₂	25
26	CH ₂ Cl ₂	26
27	CH ₂ Cl ₂	27
28	CH ₂ Cl ₂	28
29	CH ₂ Cl ₂	29
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F2 - Processing parameters

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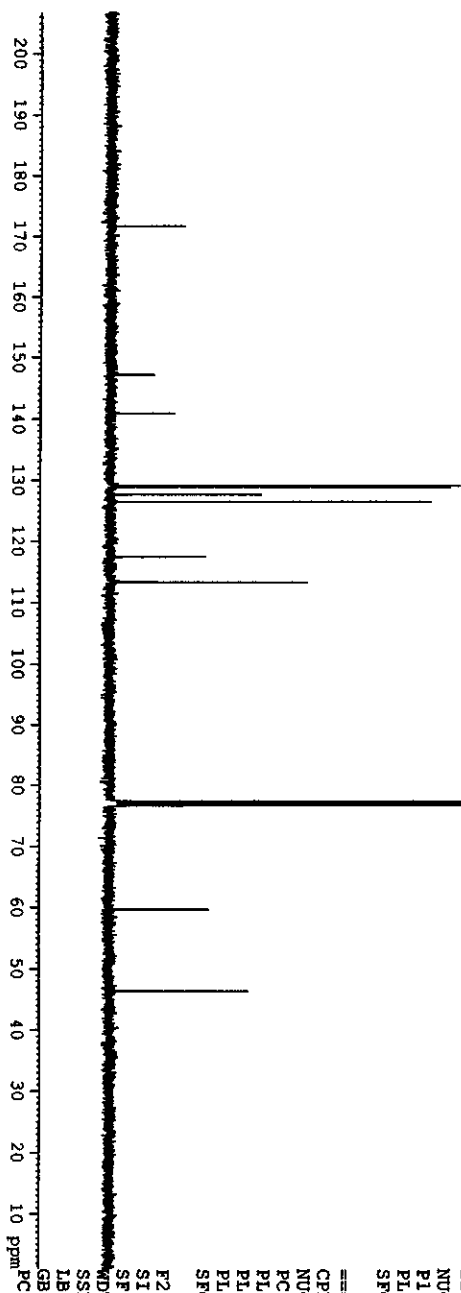
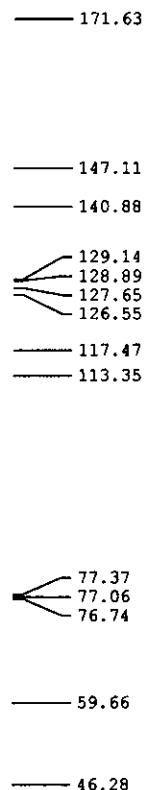
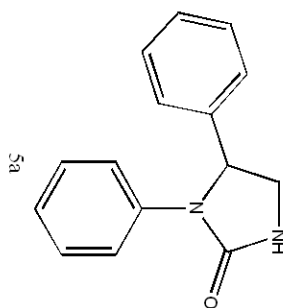
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 NAME Oct09-2012
 EXPNO 100
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20121009
 Time_ 17.40
 INSTRUM spect
 PROBD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 400
 DS 4
 SWH 29761.904 Hz
 FIDRES 0.454131 Hz
 AQ 1.1010548 sec
 RG 575
 DW 16.800 usec
 DE 6.00 usec
 TE 294.0 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TDO 1

===== CHANNEL f1 =====
 NUC1 13C
 P1 9.60 usec
 PL -2.00 dB
 SFO1 100.6228298 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -3.00 dB
 PL12 14.31 dB
 PL13 18.00 dB
 SFO2 400.1316005 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127690 MHz
 WDM EM
 SSB 0
 GB 1.00 Hz
 PC 1.40

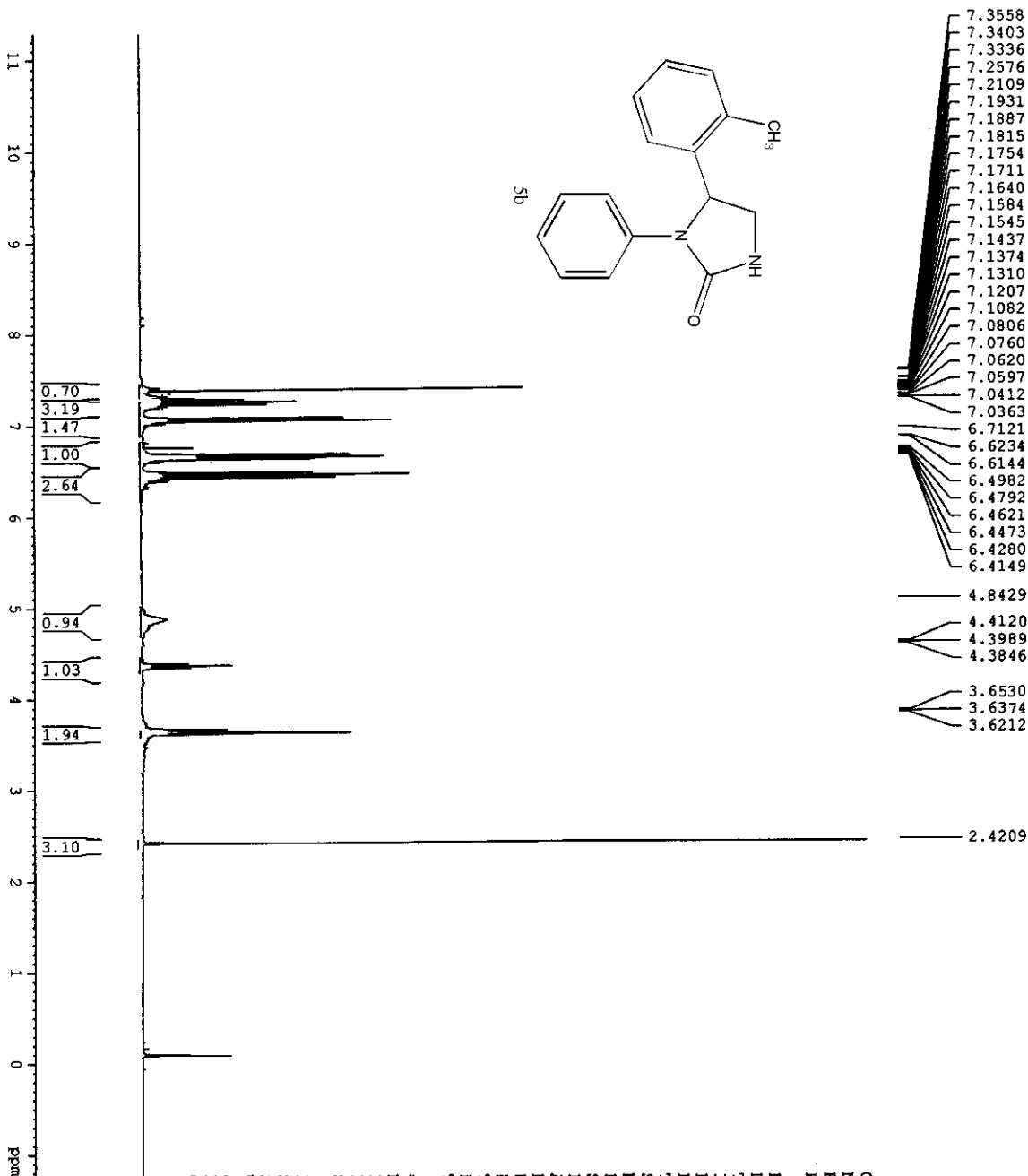


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Current Data Parameters
 NAME Jul23-2012
 EXPNO 330
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20120724
 Time_ 10.37
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 8
 DS 2
 SWH 12019.230 Hz
 FIDRES 0.183399 Hz
 AQ 2.7263477 sec
 RG 90.5
 DW 41.600 usec
 DE 6.00 usec
 TE 294.0 K
 D1 1.00000000 sec
 TDO 1

===== CHANNEL f1 =====
 NUC1 1H
 P1 10.90 usec
 PL1 -3.00 dB
 SFO1 400.1324710 MHz
 F2 - Processing parameters
 SI 32768
 SF 400.1300104 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00



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Current Data Parameters
 NAME Jul04-2012
 EXPNO 331
 PROCNO 1

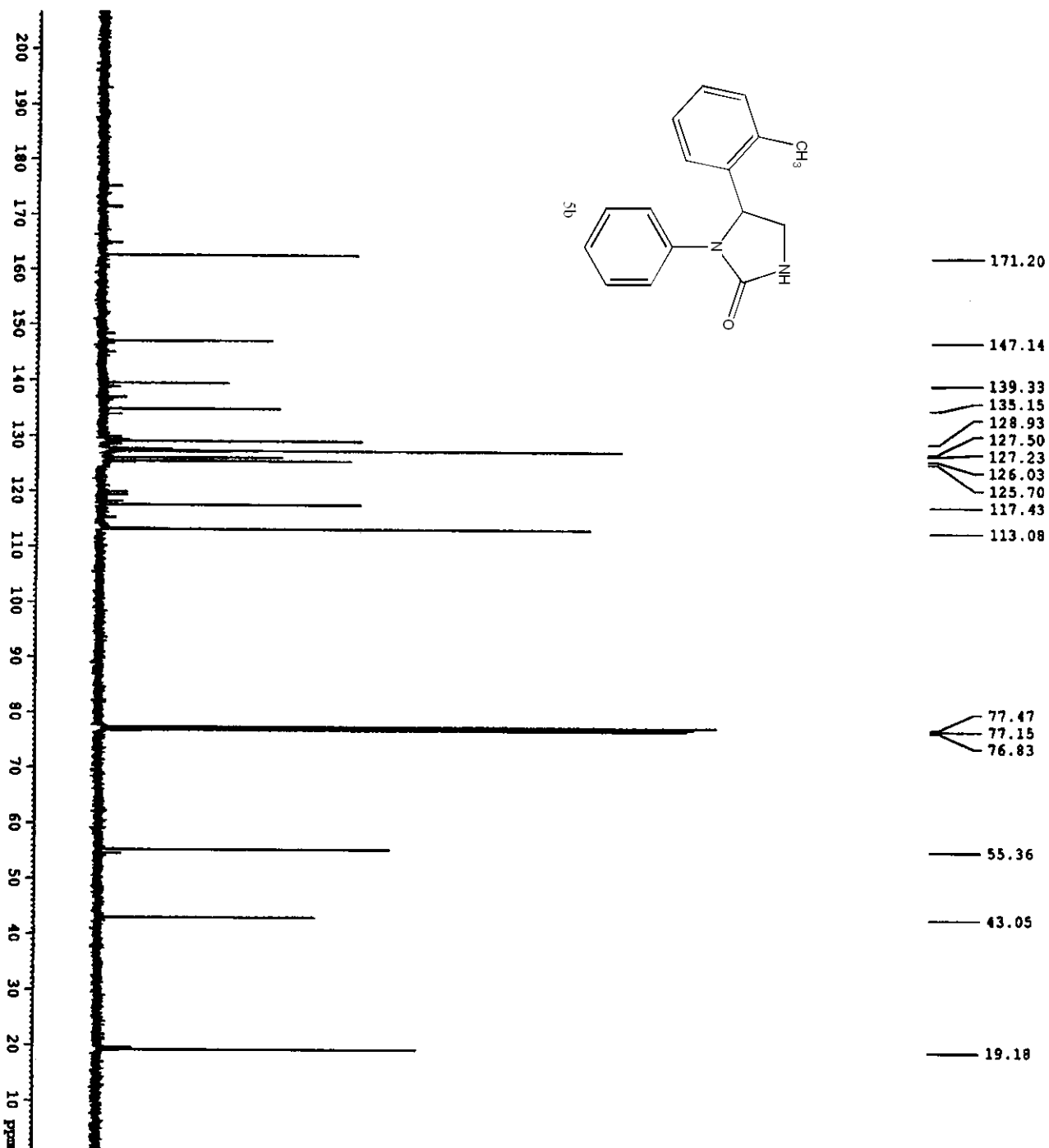
F2 - Acquisition Parameters

Date_ 20120704
 Time 17.33
 INSTRUM spect
 PROBD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 400
 DS 4
 SWH 29761.904 Hz
 FIDRES 0.454131 Hz
 AQ 1.1010548 sec
 RG 1290
 DW 16.800 usec
 DE 6.00 usec
 TE 297.3 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TDO 1

CHANNEL f1
 NUC1 13C
 P1 9.60 usec
 PL1 -2.00 dB
 SFO1 100.6228298 MHz

CHANNEL f2
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -3.00 dB
 PL12 14.31 dB
 PL13 18.00 dB
 SFO2 400.1316005 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127690 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40



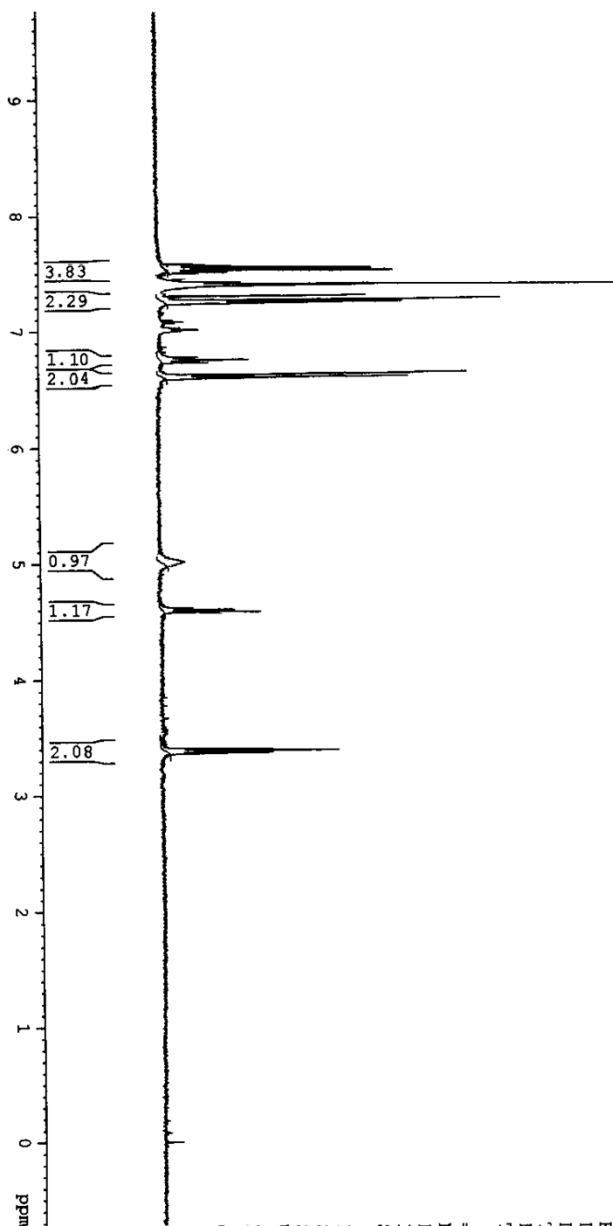
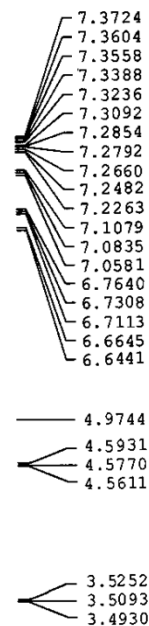
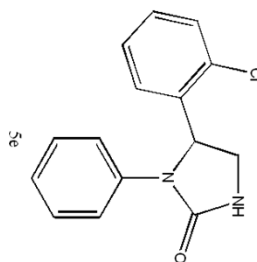
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Current Data Parameters
 NAME Mar28-2012
 EXPTNO 490
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20120329
 Time_ 15.32
 INSTRUM spect
 PROBD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 12019.230 Hz
 FIDRES 0.18339 Hz
 AQ 2.7263477 sec
 RG 406
 DW 41.600 usec
 DE 6.00 usec
 TE 298.8 K
 D1 1.00000000 sec
 TDO 1

===== CHANNEL f1 =====
 NUC1 1H
 P1 10.90 usec
 PL1 -3.00 dB
 SFO1 400.1324008 MHz

F2 - Processing parameters
 SI 32768
 SF 400.1300125 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00



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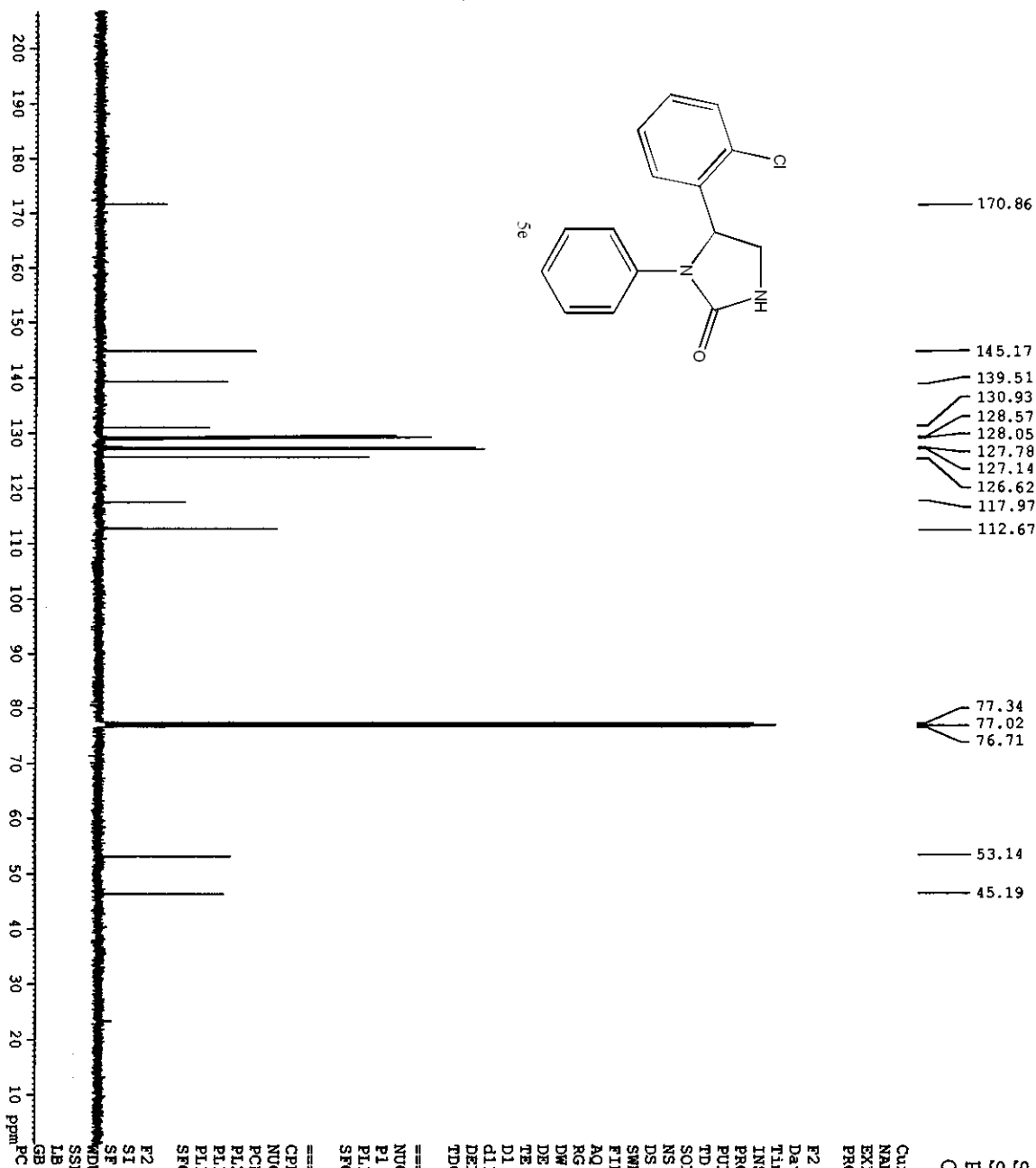
Current Data Parameters
 NAME Oct09-2012
 EXPNO 100
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20121009
 Time_ 17.40
 INSTRUM spect
 PROBD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 400
 DS 4
 SWH 29761.904 Hz
 FIDRES 0.454131 Hz
 AQ 1.1010548 sec
 RG 575
 DW 16.800 usec
 DE 6.00 usec
 TE 294.0 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TDO 1

===== CHANNEL f1 =====
 NUC1 13C
 P1 9.60 usec
 PL -2.00 dB
 SFO1 100.6228298 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -3.00 dB
 PL12 14.31 dB
 PL13 18.00 dB
 SFO2 400.1316005 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127690 MHz
 WDM EM
 SSB 0
 GB 0
 PC 1.40

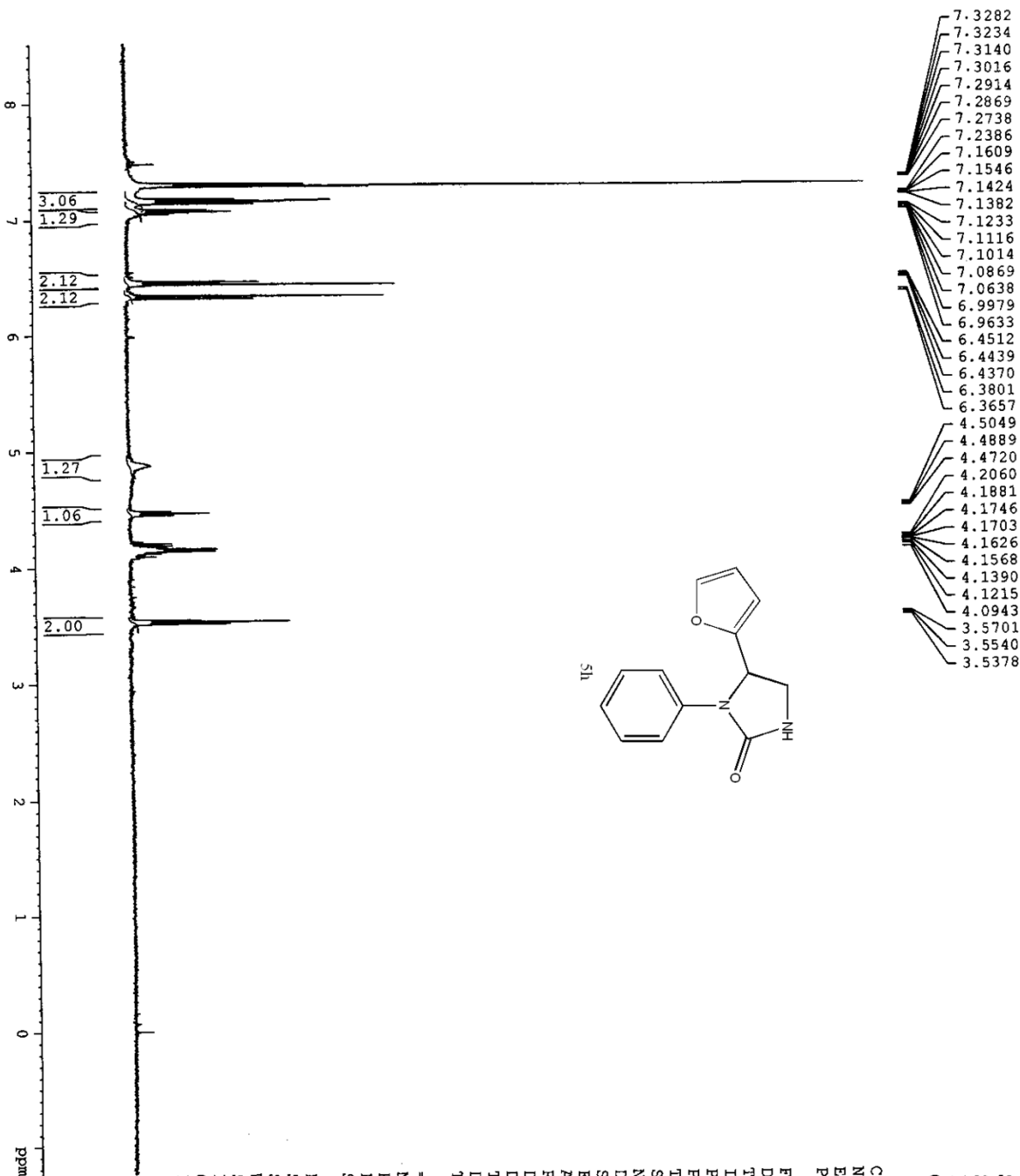


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Current Data Parameters
 NAME May22-2012
 EXPNO 130
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20120522
 Time 13.12
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8223.685 Hz
 FIDRES 0.125483 Hz
 AQ 3.9846387 sec
 RG 36
 DW 41.600 usec
 DE 6.00 usec
 TE 295.8 K
 D1 1.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 1H
 P1 10.90 usec
 PL1 -3.00 dB
 SFO1 400.1324710 MHz
 F2 - Processing parameters
 SI 32768
 SF 400.1300090 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00



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 Spectrometer
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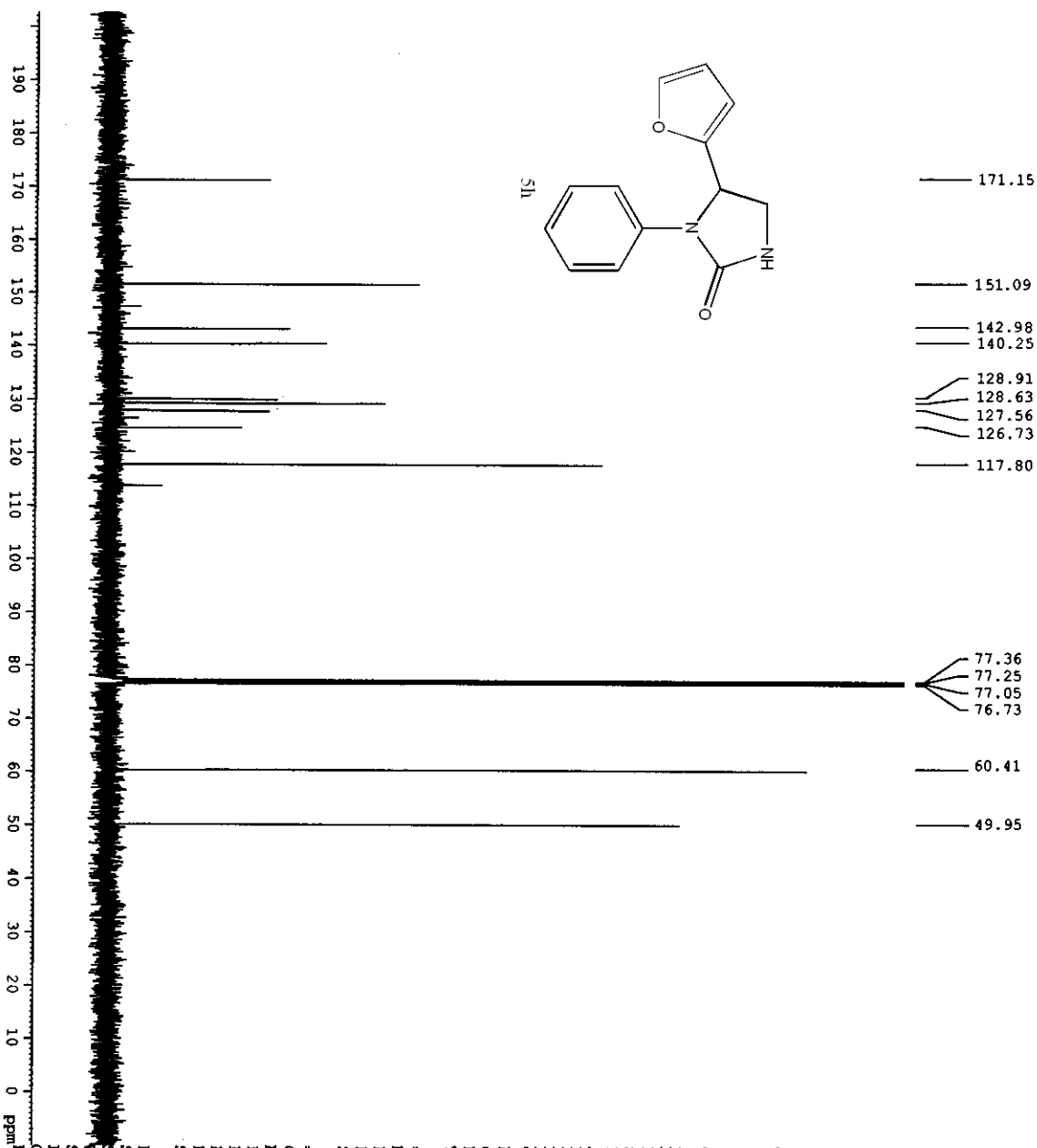
Current Data Parameters
 NAME Jul04-2012
 EXPNO 61
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20120704
 Time_ 19.13
 INSTRUM spect
 PROBD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 400
 DS 4
 SWH 29761.904 Hz
 FIDRES 0.454131 Hz
 AQ 1.1010548 sec
 RG 912
 DW 16.800 usec
 DE 6.00 usec
 TE 297.6 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TDO 1

CHANNEL f1
 NUC1 13C
 P1 9.60 usec
 PL1 -2.00 dB
 SFO1 100.6228298 MHz

CHANNEL f2
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -3.00 dB
 PL12 14.31 dB
 PL13 18.00 dB
 SFO2 400.1316005 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127690 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

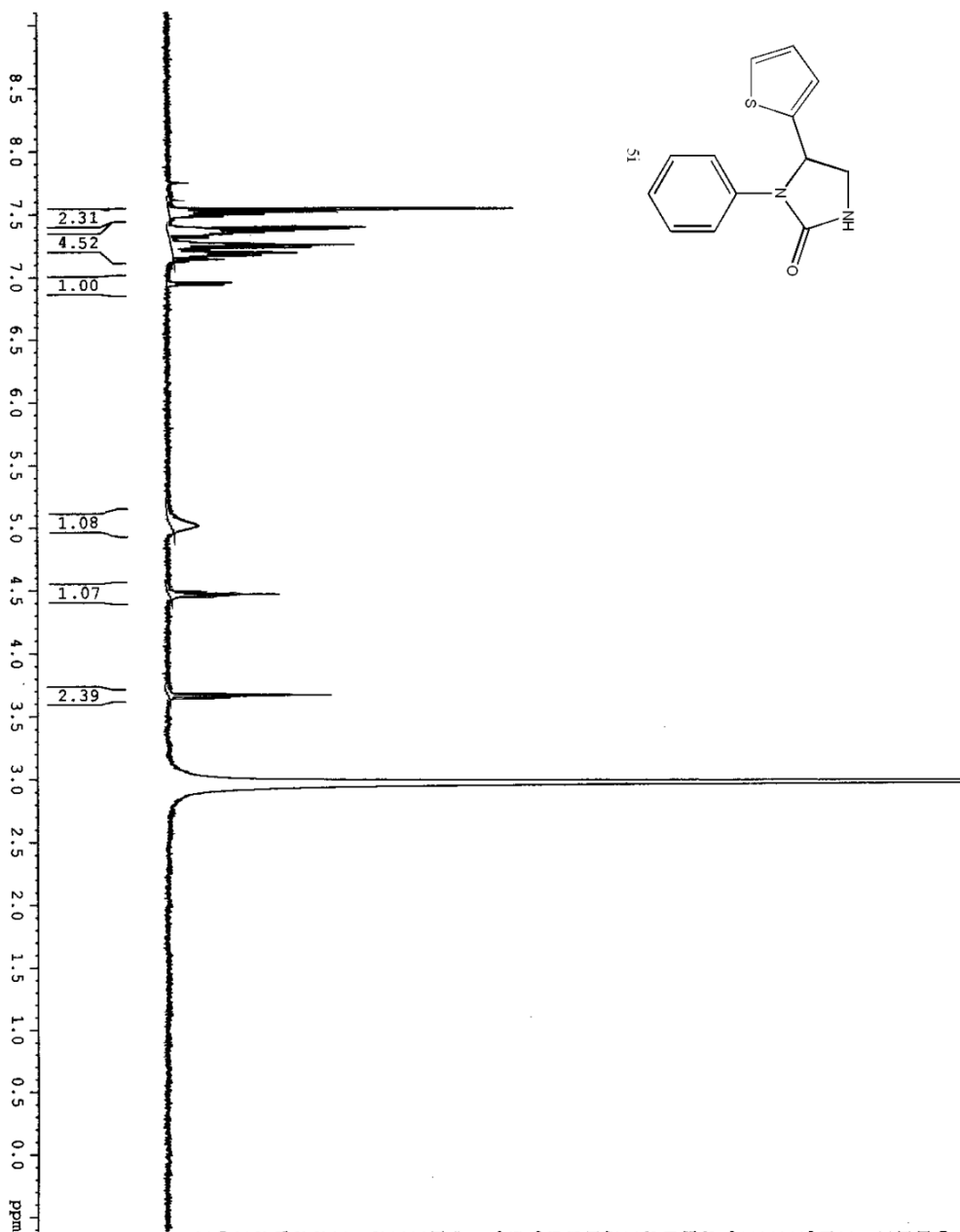
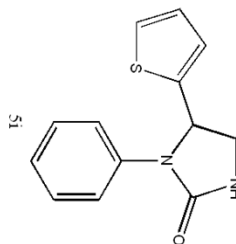


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7.4318
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7.3758
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7.2693
7.2652
7.2464
7.2366
7.2154
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7.1721
7.1528
7.1216
6.9554
6.9372

5.0273

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4.4628

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3.6958
3.6799



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Current Data Parameters
NAME May20-2012
EXPNO 500
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120521
Time 4.17
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT DMSO
NS 16
DS 2
SWH 12019.230 Hz
FIDRES 0.183399 Hz
AQ 2.7263477 sec
RG 575
DW 41.600 usec
DE 6.00 usec
TE 296.7 K
D1 1.00000000 sec
TD0 1

CHANNEL f1
NUC1 1H
P1 10.90 usec
PL1 -3.00 dB
SFO1 400.1324008 MHz

F2 - Processing parameters
SI 32768
SF 400.1280187 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

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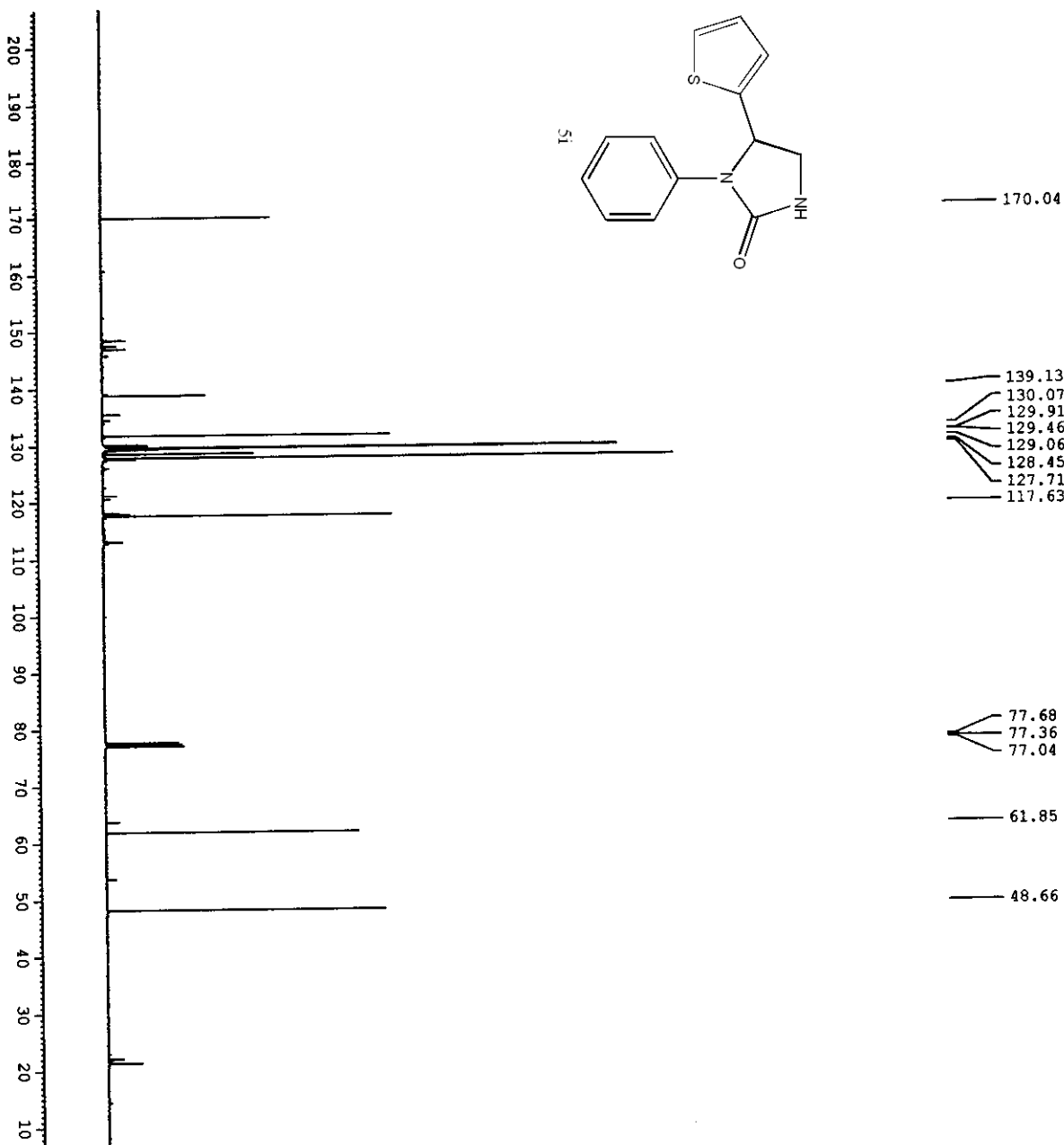
Current Data Parameters
 NAME Oct09-2012
 EXPNO 71
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20121010
 Time 10.03
 INSTRUM spect
 PROBD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 65536
 SOLVENT CDC13
 NS 400
 DS 4
 SWH 29761.904 Hz
 FIDRES 0.454131 Hz
 AQ 1.1010548 sec
 RG 36
 DW 16.800 usec
 DE 6.00 usec
 TE 292.4 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 13C
 P1 9.60 usec
 PL1 -2.00 dB
 SFO1 100.6228238 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -3.00 dB
 PL12 14.31 dB
 PL13 18.00 dB
 SFO2 400.1316005 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127690 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

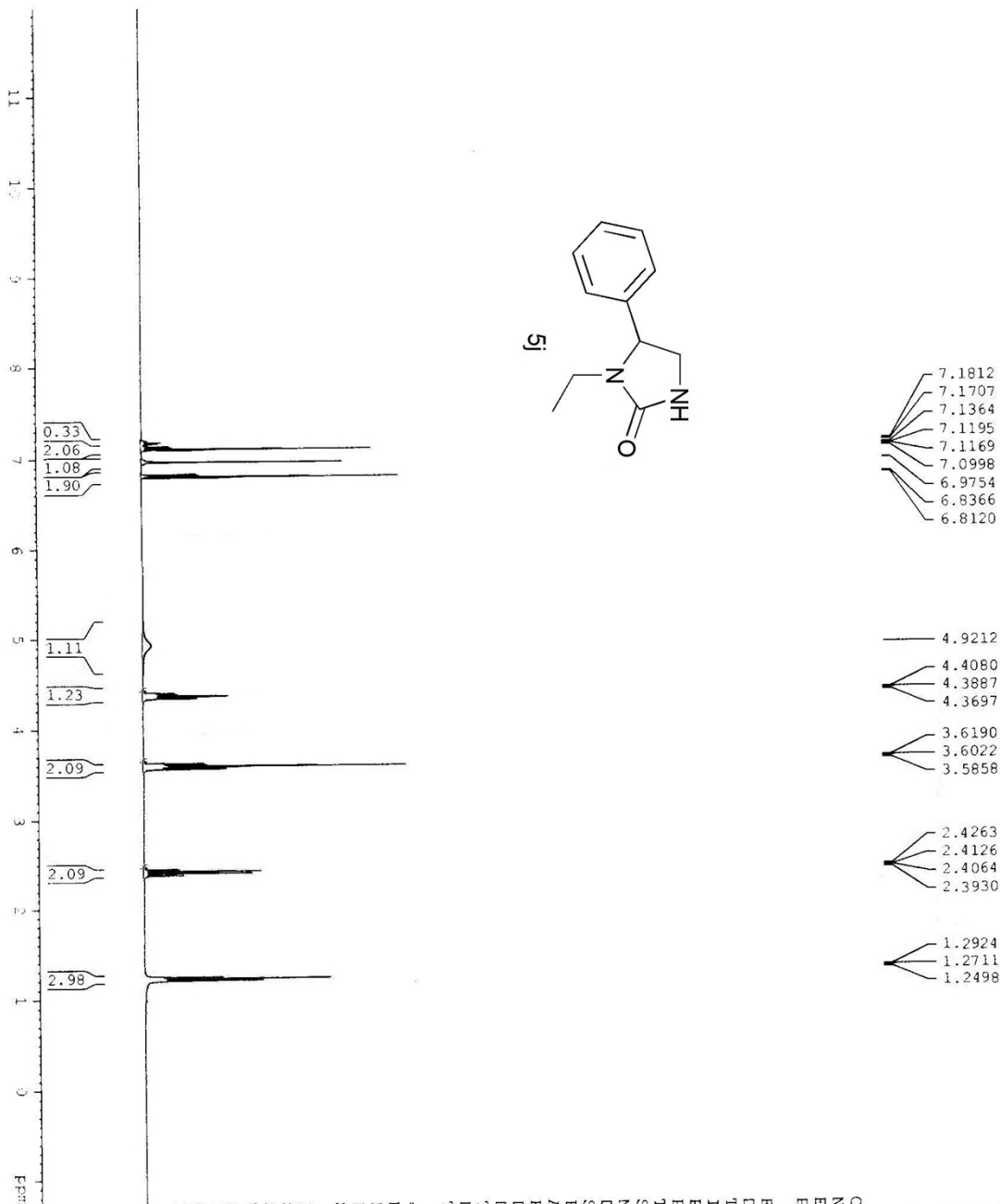


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Current Data Parameters
 NAME Sep25-2013
 EXPNO 190
 PROCNO 1

F2 - Acquisition Parameters
 Date 20130925
 Time 15.18
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT DMSO
 NS 8
 DS 2
 SWH 12019.230 Hz
 FIDRES 0.183399 Hz
 AQ 2.7263477 sec
 RG 553
 DW 41.600 usec
 DE 6.00 usec
 TE 296.0 K
 D1 1.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 1H
 P1 10.90 usec
 PL1 -3.00 dB
 SFO1 400.1324710 MHz
 F2 - Processing parameters
 SI 32768
 SF 400.1300000 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00



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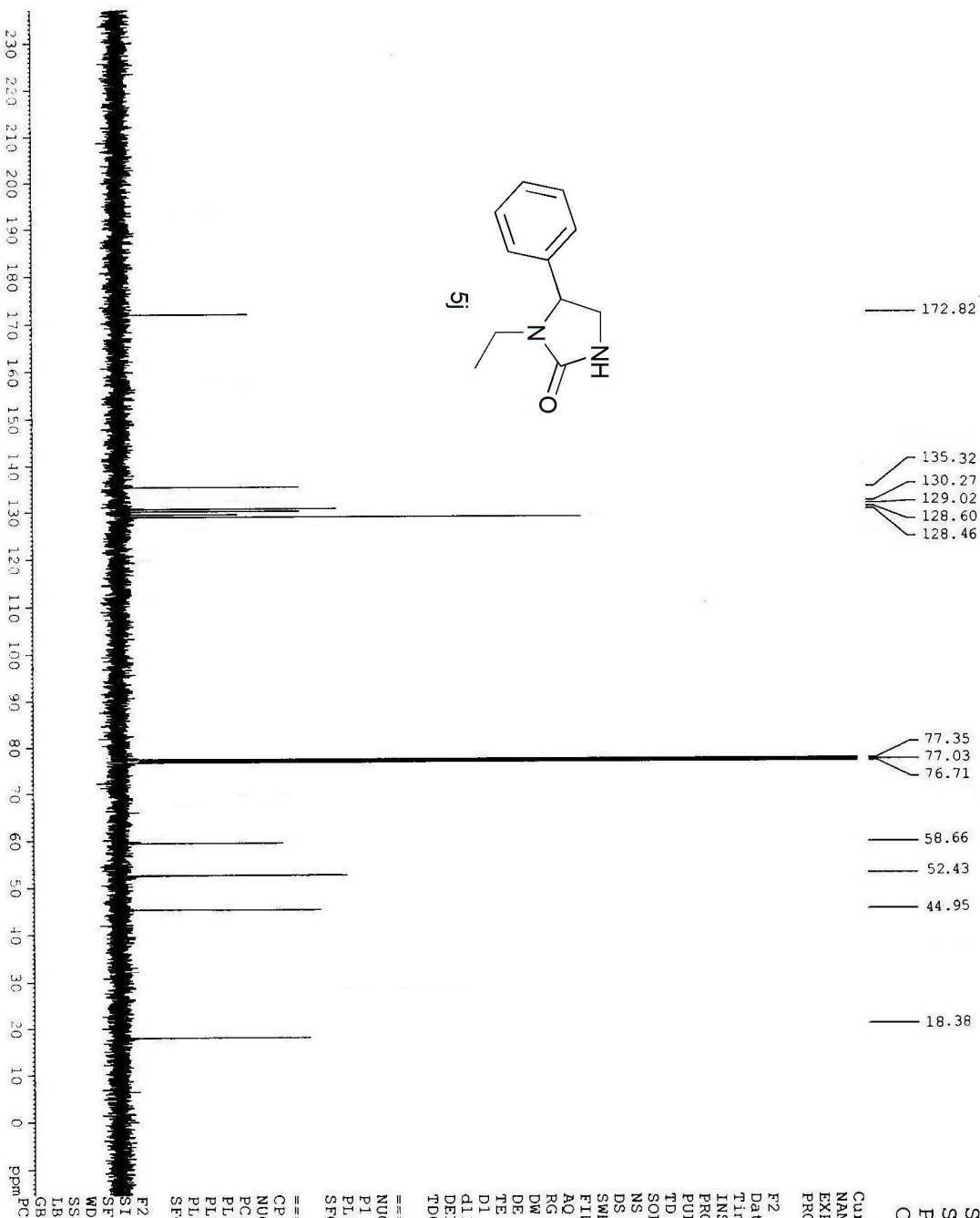
Current Data Parameters
 NAME Sep25-2013
 EXPNO 191
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20130925
 Time_ 15.40
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 400
 DS 4
 SWH 29761.904 Hz
 FIDRES 0.454131 Hz
 AQ 1.1010548 sec
 RG 100
 DW 16.800 usec
 DE 6.00 usec
 TE 298.8 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 13C
 P1 9.60 usec
 PL1 -2.00 dB
 SFO1 100.6228298 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -3.00 dB
 PL12 14.31 dB
 PL13 18.00 dB
 SFO2 400.1316005 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127690 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40



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3.6749

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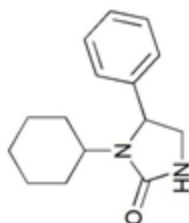
BRUKER
AVANCE II 400 NMR
Spectrometer
SAIF
Panjab University
Chandigarh

Current Data Parameters
NAME Sep20-2013
EXPNO 50
PROCNO 1

F2 - Acquisition Parameters
Date_ 20130921
Time 14.02
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 12019.230 Hz
FIDRES 0.183399 Hz
AQ 2.7263477 sec
RG 634
DM 41.600 usec
DE 6.00 usec
TE 294.0 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 10.90 usec
PL1 -3.00 dB
SFO1 400.1324008 MHz

F2 - Processing parameters
SI 32768
SF 400.1299086 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



5K



BRUKER
 AVANCE II 400 NMR
 Spectrometer
 SAI
 Panjab University
 Chandigarh

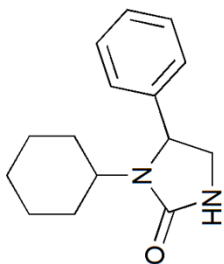
Current Data Parameters
 NAME Sep20-2013
 EXPNO 51
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20130921
 Time 14.25
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 512
 DS 4
 SWH 29761.904 Hz
 FIDRES 0.454131 Hz
 AQ 1.1010548 sec
 RG 89
 DW 16.800 usec
 DE 6.00 usec
 TE 293.1 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TDO 1

===== CHANNEL f1 =====
 NUC1 13C
 P1 9.60 usec
 PL1 -2.00 dB
 SFO1 100.628298 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -3.00 dB
 PL12 14.31 dB
 PL13 18.00 dB
 SFO2 400.131605 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127690 MHz
 WDM EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40



5K

