

# ***SUPPLEMENTARY DATA:***

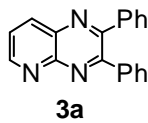
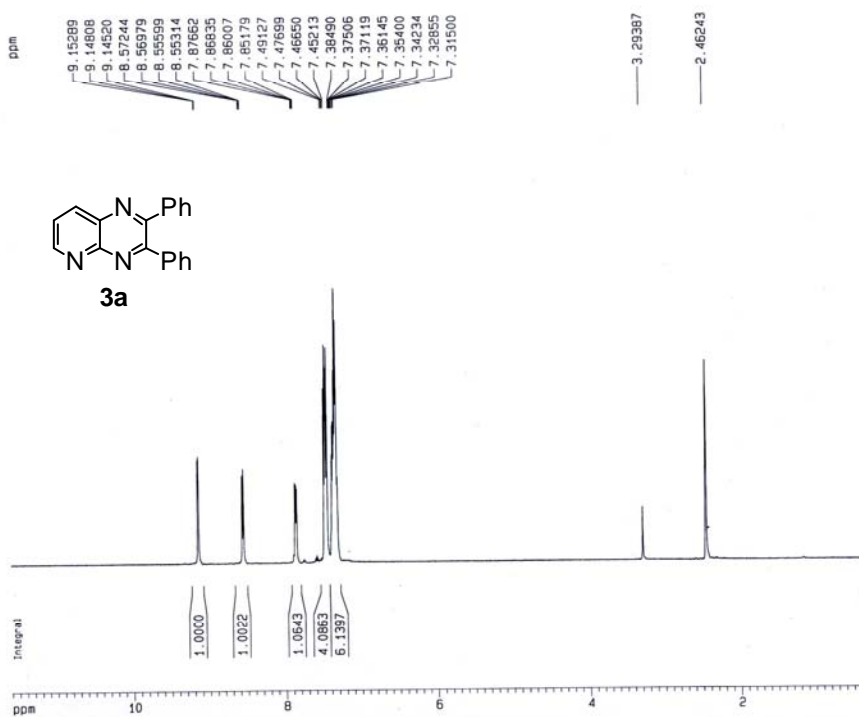
**ZrOCl<sub>2</sub>.8H<sub>2</sub>O in Water: An Efficient Catalyst for Rapid One-Pot Synthesis of  
Pyridopyrazines, Pyrazines and 2,3-Disubstituted Quinoxalines**

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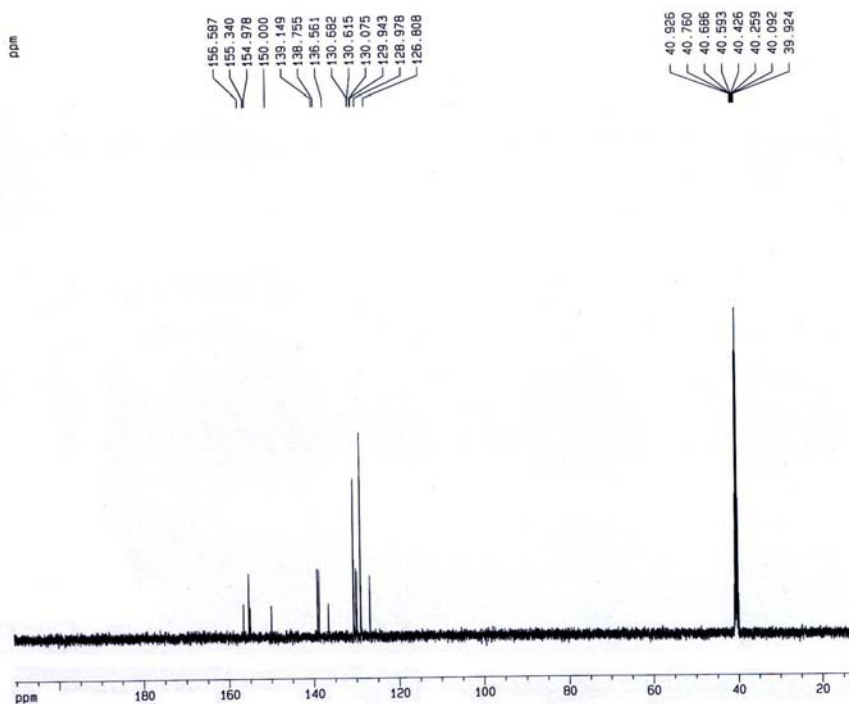
Current Data Parameters  
 NAME Dr.Rezanejad  
 EXPNO 35  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20091017  
 Time 13.27  
 INSTRUM spect  
 PROBHD 5 mm QNP 1H/13  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 1  
 DS 0  
 SWH 10330.578 Hz  
 FIDRES 0.157832 Hz  
 AQ 3.1720407 sec  
 RG 362  
 DW 48.400 usec  
 DE 6.50 usec  
 TE 298.1 K  
 D1 1.0000000 sec  
 MCREST 0.0000000 sec  
 MCWPK 0.0150000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
 NUC1 1H  
 P1 10.50 usec  
 PL1 -3.00 dB  
 SFO1 500.1330086 MHz

F2 - Processing parameters  
 SI 32768  
 SF 500.1300231 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

1D NMR plot parameters  
 CX 20.00 cm  
 CY 6.39 cm  
 F1P 11.607 ppm  
 F1 5805.21 Hz  
 F2P 0.309 ppm  
 F2 179.54 Hz  
 PPMCH 0.56242 ppm/cm  
 HZCM 261.28369 Hz/cm



Current Data Parameters  
 NAME Dr.Rezanejad  
 EXPNO 36  
 PROCNO 1

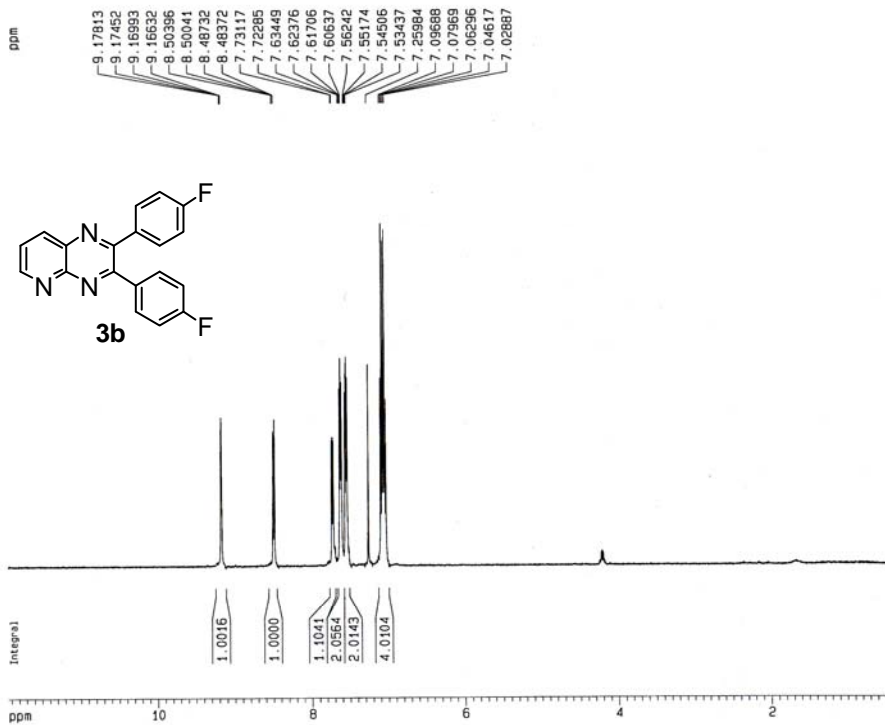
F2 - Acquisition Parameters  
 Date\_ 20091017  
 Time 13.30  
 INSTRUM spect  
 PROBHD 5 mm QNP 1H/13  
 PULPROG zgpg30  
 TD 32768  
 SOLVENT DMSO  
 NS 68  
 DS 4  
 SWH 30030.629 Hz  
 FIDRES 0.916444 Hz  
 AQ 0.5456539 sec  
 RG 9195.2  
 DW 18.690 usec  
 DE 6.50 usec  
 TE 298.0 K  
 D1 1.0000000 sec  
 d11 0.0300000 sec  
 DELTA 0.8999999 sec  
 MCREST 0.0000000 sec  
 MCWPK 0.0150000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
 NUC1 13C  
 P1 9.10 usec  
 PL1 3.00 dB  
 SFO1 125.7703643 MHz

\*\*\*\*\* CHANNEL f2 \*\*\*\*\*  
 CPDPRG2 waltz16  
 NUC2 1H  
 PCDP2 80.00 usec  
 PL2 0.00 dB  
 PL12 15.50 dB  
 PL13 15.50 dB  
 SFO2 500.1320005 MHz

F2 - Processing parameters  
 SI 32768  
 SF 125.7577390 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

1D NMR plot parameters  
 CX 20.00 cm  
 CY 7.07 cm  
 F1P 210.446 ppm  
 F1 26485.23 Hz  
 F1P 12.144 ppm  
 F2 1527.25 Hz  
 PPMCH 9.91509 ppm/cm  
 HZCM 1246.89905 Hz/cm



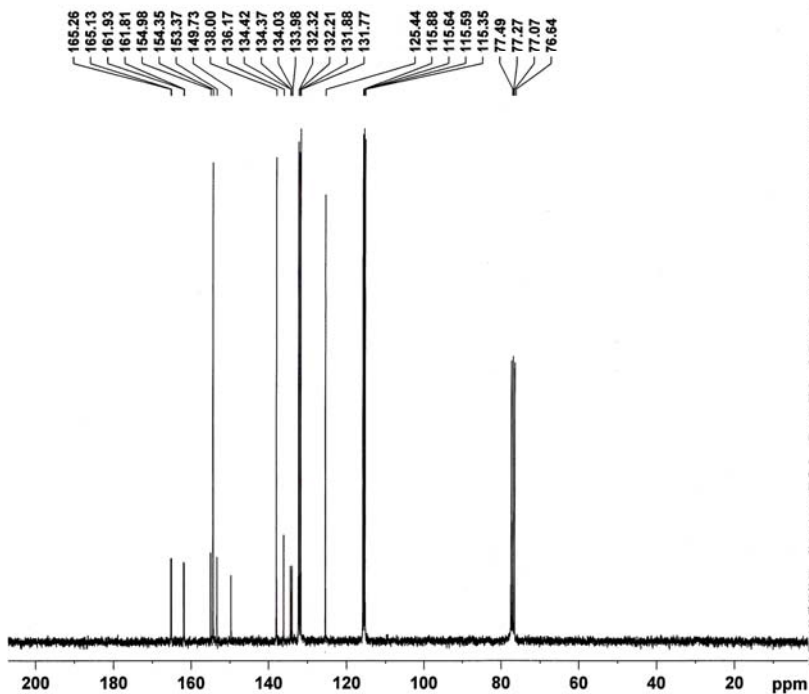
Current Data Parameters  
 NAME Dr.Rezanejad  
 EXPNO 13  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20110821  
 Time 11.59  
 INSTRUM spect  
 PROBHD 5 mm QNP 1H/13  
 PULPROG zg30  
 TD 32768  
 SOLVENT CDCl3  
 NS 1  
 DS 0  
 SWH 10330.578 Hz  
 FIDRES 0.315264 Hz  
 AQ 1.5860696 sec  
 RG 362  
 DM 48.400 usec  
 DE 6.50 usec  
 TE 294.7 K  
 D1 1.0000000 sec  
 MCREST 0.0000000 sec  
 MCNRK 0.0150000 sec

----- CHANNEL f1 -----  
 NUC1 1H  
 P1 10.50 usec  
 PL1 -3.00 dB  
 SFO1 500.1330805 MHz

F2 - Processing parameters  
 SI 32768  
 SF 500.1300231 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

1D NMR plot parameters  
 CX 20.00 cm  
 CY 7.79 cm  
 F1P 11.944 ppm  
 F1 5973.74 Hz  
 F2P 0.453 ppm  
 F2 226.78 Hz  
 PPMCM 0.57455 ppm/cm  
 HZCM 287.34830 Hz/cm



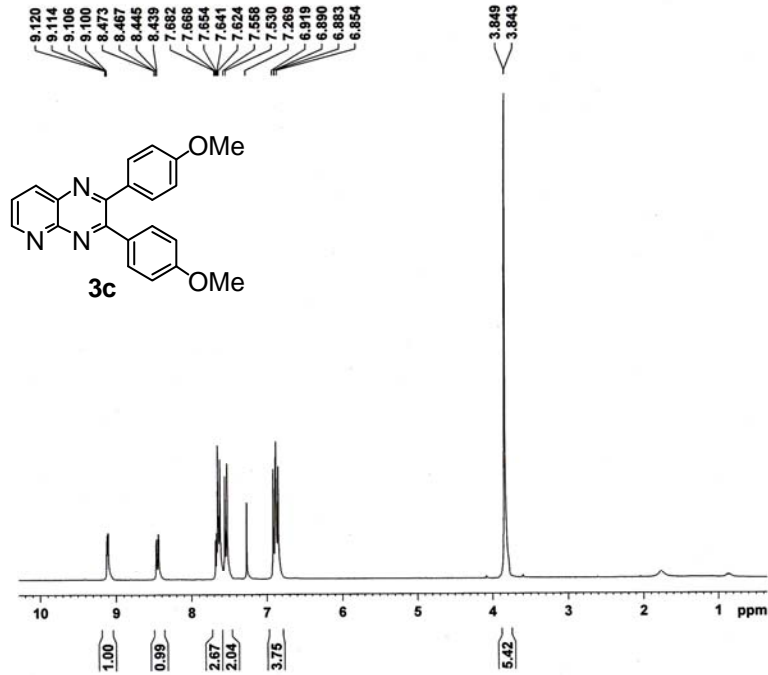
Current Data Parameters  
 NAME PNU  
 EXPNO 146  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20111022  
 Time 9.13  
 INSTRUM spect  
 PROBHD 5 mm BBO BB-1H  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 750  
 DS 2  
 SWH 17985.611 Hz  
 FIDRES 0.274439 Hz  
 AQ 1.8219508 sec  
 RG 32768  
 DW 27.800 usec  
 DE 6.00 usec  
 TE 300.0 K  
 D1 4.0000000 sec  
 d11 0.0300000 sec  
 d12 0.00002000 sec

----- CHANNEL f1 -----  
 NUC1 13C  
 F1 17.00 usec  
 PL1 -6.00 dB  
 SFO1 75.4099117 MHz

----- CHANNEL f2 -----  
 CPDPRG2 waltz16  
 NUC2 1H  
 PCPD2 80.00 usec  
 PL2 3.00 dB  
 PL12 23.00 dB  
 PL13 23.00 dB  
 SFO2 299.8711995 MHz

F2 - Processing parameters  
 SI 32768  
 SF 75.4023710 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

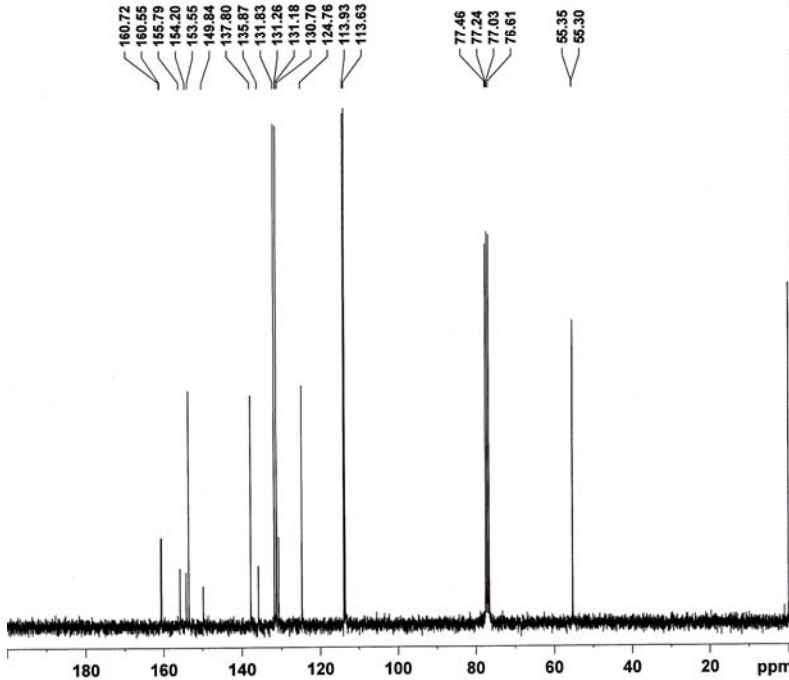


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Current Data Parameters
NAME          FNU
EXPNO         168
PROCNO        1

F2 - Acquisition Parameters
Date_         20111114
Time          9.57
INSTRUM       spect
PROBHD        5 mm BBO BB-1H
PULPROG       zg30
TD            32768
SOLVENT       CDCl3
NS            8
DS            0
SWH           6172.839 Hz
FIDRES        0.188380 Hz
AQ            2.6542580 sec
RG            287.4
DM            81.000 usec
DE            6.00 usec
TE            300.0 K
D1            6.00000000 sec

----- CHANNEL f1 -----
NUC1          1H
P1            9.00 usec
PL1           3.00 dB
SFO1          299.8729997 MHz

F2 - Processing parameters
SI            32768
SF            299.8700000 MHz
WDW           EM
SSB           0
LB            0.30 Hz
GB            0
PC            1.00
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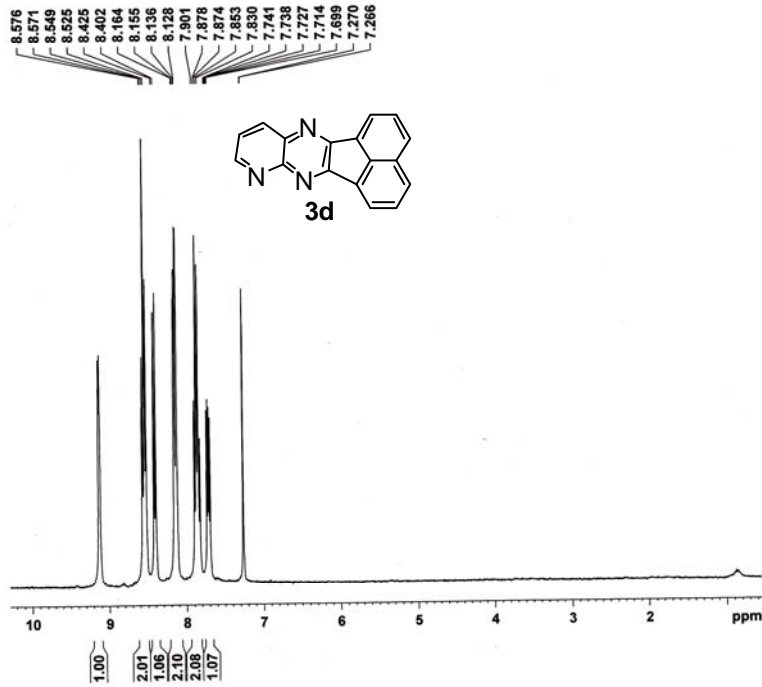
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Current Data Parameters
NAME          FNU
EXPNO         169
PROCNO        1

F2 - Acquisition Parameters
Date_         20111114
Time          11.14
INSTRUM       spect
PROBHD        5 mm BBO BB-1H
PULPROG       zgpg30
TD            65536
SOLVENT       CDCl3
NS            2
DS            2
SWH           17985.611 Hz
FIDRES        0.274439 Hz
AQ            1.8219508 sec
RG            32768
DM            27.800 usec
DE            6.00 usec
TE            300.0 K
D1            4.00000000 sec
d11           0.03000000 sec
d12           0.00020000 sec

----- CHANNEL f1 -----
NUC1          13C
P1            17.00 usec
PL1           -6.00 dB
SFO1          75.4099117 MHz

----- CHANNEL f2 -----
CPDPRG2       waltz16
NUC2          1H
PCPD2         80.00 usec
PL2           3.00 dB
PL12          23.00 dB
PL13          23.00 dB
SFO2          299.8711995 MHz

F2 - Processing parameters
SI            32768
SF            75.4023710 MHz
WDW           EM
SSB           0
LB            1.00 Hz
GB            0
PC            1.40
```

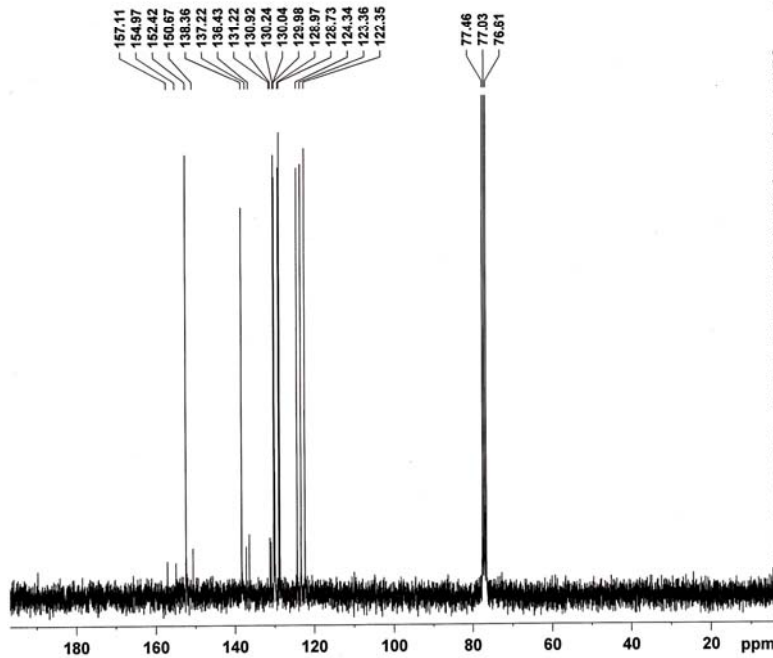


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Current Data Parameters
NAME      PNU
EXPNO    179
PROCNO   1

F2 - Acquisition Parameters
Date_    2011128
Time     10.40
INSTRUM  spect
PROBHD   5 mm BBO BB-1H
PULPROG  zg30
TD       32768
SOLVENT  CDCl3
NS       8
DS       0
SWH      6172.839 Hz
FIDRES   0.188360 Hz
AQ       2.6542580 sec
RG       512
DW       81.000 usec
DE       6.00 usec
TE       300.0 K
D1       6.0000000 sec

===== CHANNEL f1 =====
NUC1     1H
P1       9.00 usec
PL1     3.00 dB
SFO1    299.8729987 MHz

F2 - Processing parameters
SI       32768
SF      299.8700000 MHz
WDW      EM
SSB      0
LB      0.30 Hz
GB      0
PC      1.00
```



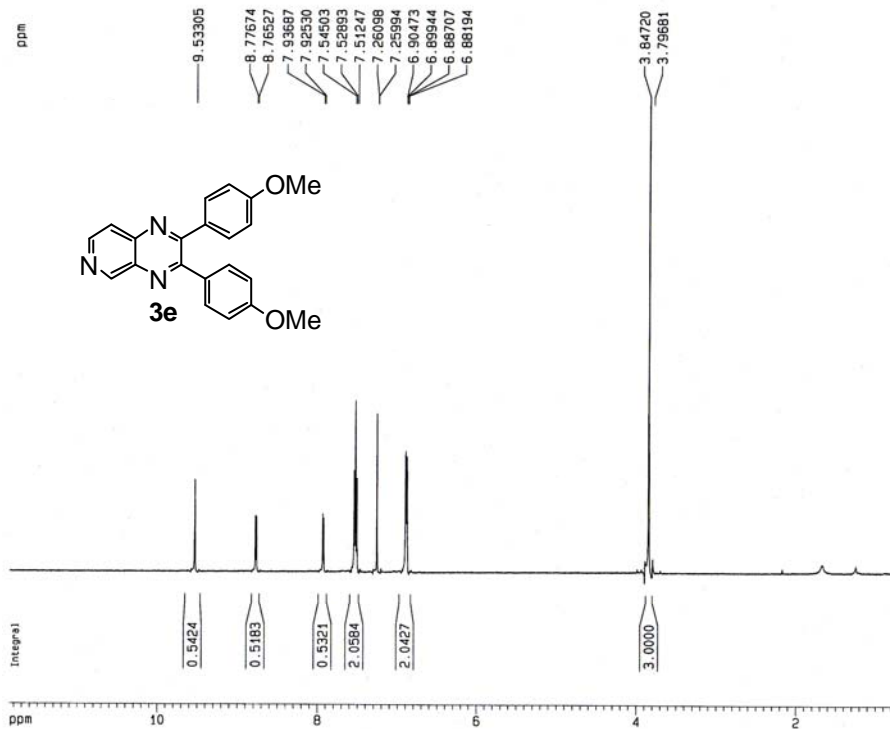
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Current Data Parameters
NAME      PNU
EXPNO    180
PROCNO   1

F2 - Acquisition Parameters
Date_    2011128
Time     11.36
INSTRUM  spect
PROBHD   5 mm BBO BB-1H
PULPROG  zgpg30
TD       65536
SOLVENT  CDCl3
NS       550
DS       2
SWH      17985.611 Hz
FIDRES   0.274439 Hz
AQ       1.8219508 sec
RG       32768
DW       27.800 usec
DE       6.00 usec
TE       300.0 K
D1       4.0000000 sec
d11     0.0300000 sec
d12     0.00002000 sec

===== CHANNEL f1 =====
NUC1     13C
P1       17.00 usec
PL1     -6.00 dB
SFO1    75.4099117 MHz

===== CHANNEL f2 =====
CPDPRG2  waltz16
NUC2     1H
PCPD2   80.00 usec
PL2     3.00 dB
PL12   23.00 dB
PL13   23.00 dB
SFO2   299.8711995 MHz

F2 - Processing parameters
SI       32768
SF      75.4023710 MHz
WDW      EM
SSB      0
LB      1.00 Hz
GB      0
PC      1.40
```



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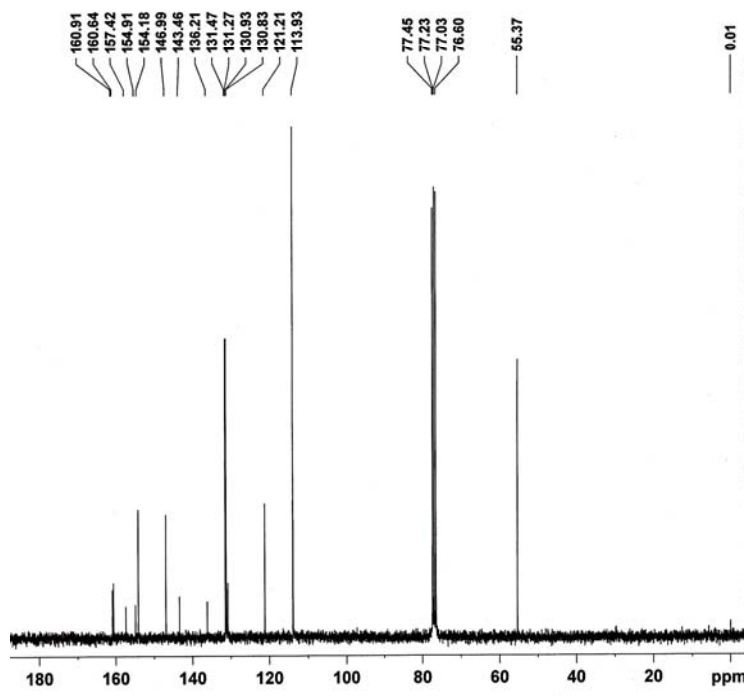
Current Data Parameters
NAME      Dr.Rezanejad
EXPNO    14
PROCNO   1

F2 - Acquisition Parameters
Date_    20110821
Time     12.01
INSTRUM  spect
PROBHD   5 mm GNP 1H/13
PULPROG  zg30
TD        32768
SOLVENT  Aceton
NS        1
DS        0
SWH       10330.578 Hz
FIDRES    0.315264 Hz
AQ        1.5860696 sec
RG        812.7
DM        48.400 usec
DE        6.50 usec
TE        294.7 K
D1        1.00000000 sec
MCREST    0.00000000 sec
MCMARK    0.01500000 sec

----- CHANNEL f1 -----
NUC1      1H
P1        10.50 usec
PL1       -3.00 dB
SFO1      500.1300885 MHz

F2 - Processing parameters
SI        32768
SF        500.1300231 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        1.00

1D NMR plot parameters
CX        20.00 cm
CY        14.00 cm
F1P       11.851 ppm
F1        5927.21 Hz
F2P       0.709 ppm
F2        354.75 Hz
PPMCM     0.55710 ppm/cm
HZCM      278.62314 Hz/cm
  
```



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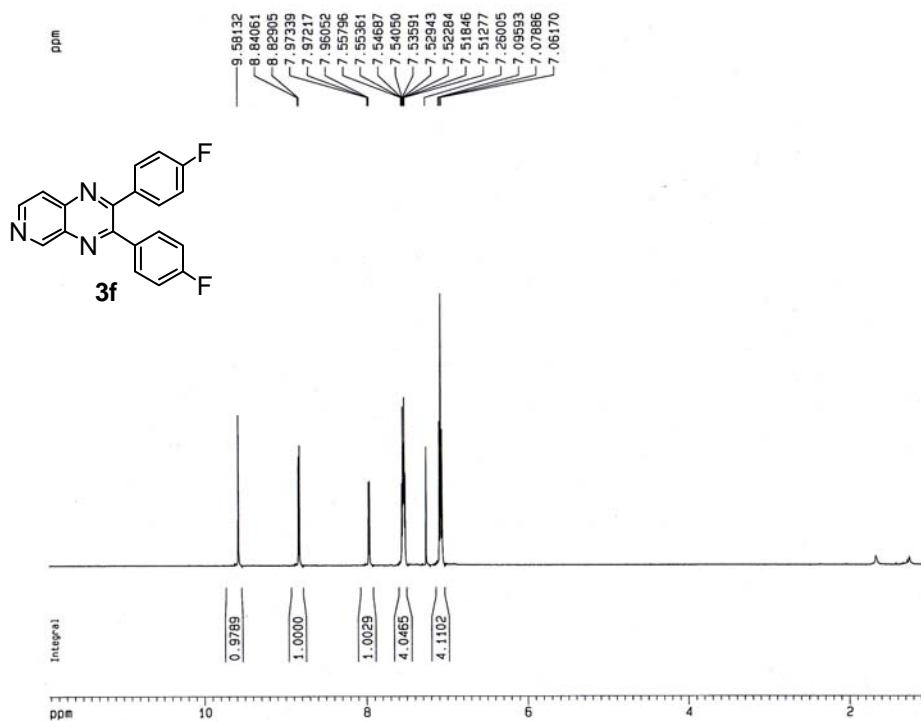
Current Data Parameters
NAME      PNU
EXPNO    147
PROCNO   1

F2 - Acquisition Parameters
Date_    20111024
Time     9.40
INSTRUM  spect
PROBHD   5 mm BBO BB-1H
PULPROG  zgpg30
TD        65536
SOLVENT  CDCl3
NS        1000
DS        2
SWH       17985.611 Hz
FIDRES    0.274439 Hz
AQ        1.8219508 sec
RG        32768
DM        27.800 usec
DE        6.00 usec
TE        300.0 K
D1        4.00000000 sec
d11       0.03000000 sec
d12       0.00002000 sec

----- CHANNEL f1 -----
NUC1      13C
P1        17.00 usec
PL1       -6.00 dB
SFO1      75.4099117 MHz

----- CHANNEL f2 -----
CPDPRG2  waltz16
NUC2      1H
PCPD2     80.00 usec
PL2       3.00 dB
PL12      23.00 dB
PL13      23.00 dB
SFO2      299.8711995 MHz

F2 - Processing parameters
SI        32768
SF        75.4023710 MHz
WDW       EM
SSB       0
LB        1.00 Hz
GB        0
PC        1.40
  
```



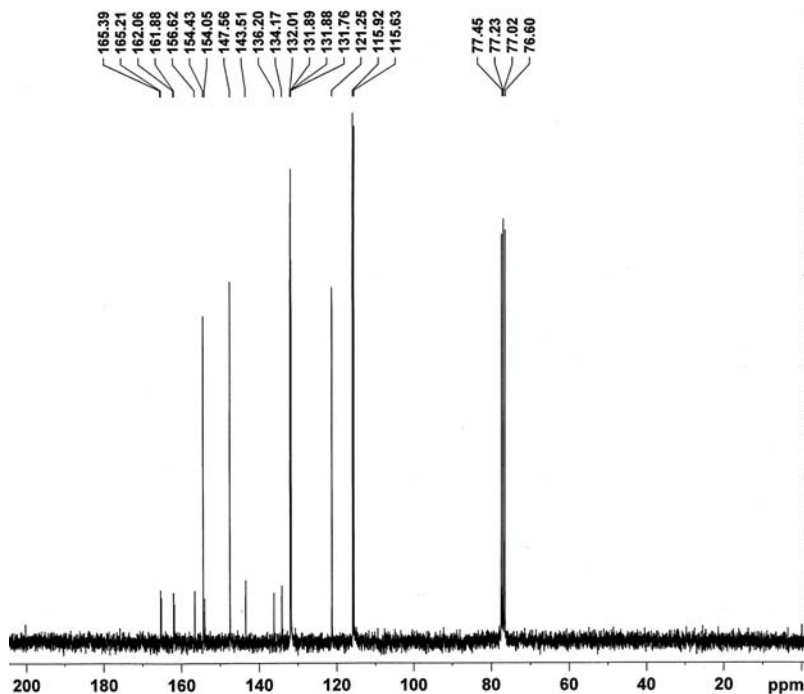
Current Data Parameters  
 NAME Dr\_Rezanejad  
 EXPNO 8  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20110815  
 Time 11.15  
 INSTRUM spect  
 PROBHD 5 mm QNP 1H/13  
 PULPROG zg30  
 TD 32768  
 SOLVENT CDCl3  
 NS 1  
 DS 0  
 SWH 10330.578 Hz  
 FIDRES 0.315264 Hz  
 AQ 1.5860696 sec  
 RG 512  
 DW 48.400 usec  
 DE 6.50 usec  
 TE 298.0 K  
 D1 1.00000000 sec  
 MCREST 0.00000000 sec  
 MCWRR 0.01500000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
 NUC1 1H  
 P1 10.50 usec  
 PL1 -3.00 dB  
 SFO1 500.1330885 MHz

F2 - Processing parameters  
 SI 32768  
 SF 500.1300231 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

1D NMR plot parameters  
 CX 20.00 cm  
 CY 6.29 cm  
 F1P 11.921 ppm  
 F1 5962.11 Hz  
 F2P 1.081 ppm  
 F2 540.88 Hz  
 PPMCM 0.54198 ppm/cm  
 HZCM 271.06134 Hz/cm



Current Data Parameters  
 NAME PNU  
 EXPNO 148  
 PROCNO 1

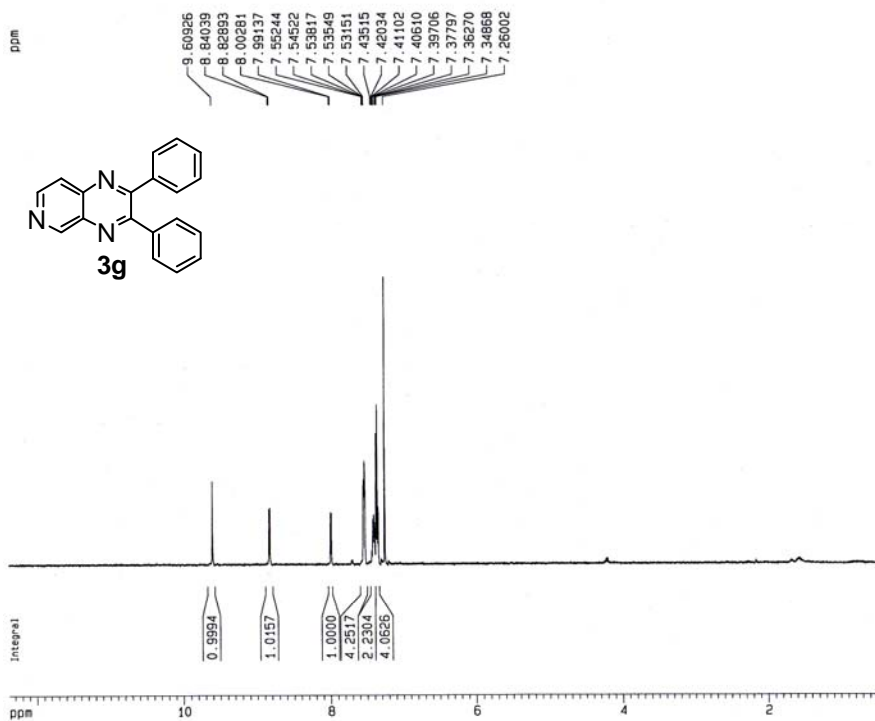
F2 - Acquisition Parameters  
 Date\_ 20111024  
 Time 14.22  
 INSTRUM spect  
 PROBHD 5 mm BBO BB-1H  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 1000  
 DS 2  
 SWH 17985.611 Hz  
 FIDRES 0.274439 Hz  
 AQ 1.8219308 sec  
 RG 32768  
 DW 27.800 usec  
 DE 6.00 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 d11 0.03000000 sec  
 d12 0.00002000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
 NUC1 13C  
 P1 17.00 usec  
 PL1 -6.00 dB  
 SFO1 75.4099117 MHz

\*\*\*\*\* CHANNEL f2 \*\*\*\*\*  
 CPDPRG2 waltz16  
 NUC2 1H  
 PCPD2 80.00 usec  
 PL2 3.00 dB  
 PL12 23.00 dB  
 PL13 23.00 dB  
 SFO2 299.8711995 MHz

F2 - Processing parameters  
 SI 32768  
 SF 75.4023710 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40





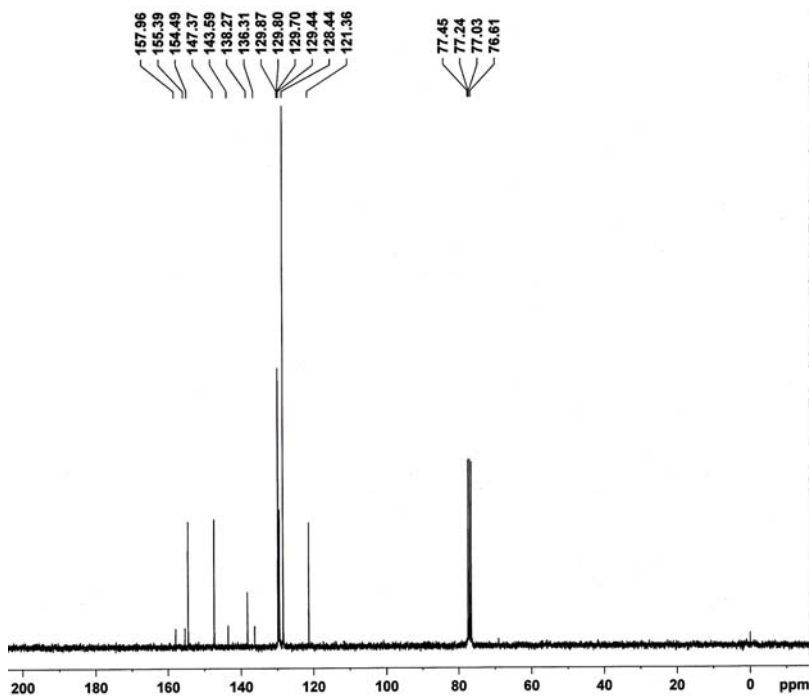
Current Data Parameters  
NAME Dr.Rezanejad  
EXPNO 5  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20110813  
Time 12.35  
INSTRUM spect  
PROBHD 5 mm QNP 1H/13  
PULPROG zg30  
TD 32768  
SOLVENT CDC13  
NS 1  
DS 0  
SWH 10330.578 Hz  
FIDRES 0.315264 Hz  
AQ 1.5860996 sec  
RG 912.3  
DM 48.400 usec  
DE 6.50 usec  
TE 298.0 K  
D1 1.00000000 sec  
MCREST 0.00000000 sec  
MCWRR 0.01500000 sec

----- CHANNEL f1 -----  
NUC1 1H  
P1 10.50 usec  
PL1 -3.00 dB  
SFO1 500.1330885 MHz

F2 - Processing parameters  
SI 32768  
SF 500.1300231 MHz  
WDW EM  
SSB 0  
LB 0.30 Hz  
GB 0  
PC 1.00

1D NMR plot parameters  
CX 20.00 cm  
CY 7.10 cm  
F1P 12.386 ppm  
F1 6194.78 Hz  
F2P 0.430 ppm  
F2 215.14 Hz  
PPMCM 0.59781 ppm/cm  
HZCM 298.98181 Hz/cm



Current Data Parameters  
NAME PNU  
EXPNO 145  
PROCNO 1

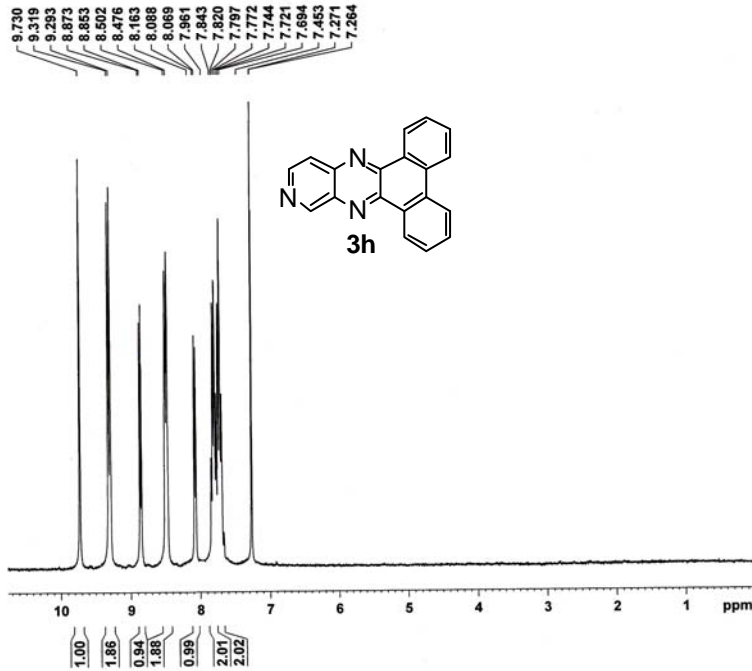
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Date\_ 20111019  
Time 11.33  
INSTRUM spect  
PROBHD 5 mm BBO BB-1H  
PULPROG zgpg30  
TD 65536  
SOLVENT CDC13  
NS 750  
DS 2  
SWH 17985.611 Hz  
FIDRES 0.274439 Hz  
AQ 1.8219508 sec  
RG 32768  
DM 27.800 usec  
DE 6.00 usec  
TE 300.0 K  
D1 4.00000000 sec  
d11 0.03000000 sec  
d12 0.00002000 sec

----- CHANNEL f1 -----  
NUC1 13C  
P1 17.00 usec  
PL1 -6.00 dB  
SFO1 75.4099117 MHz

----- CHANNEL f2 -----  
CPDPRG2 waltz16  
NUC2 1H  
PCPD2 80.00 usec  
PL2 3.00 dB  
PL12 23.00 dB  
PL13 23.00 dB  
SFO2 299.8711995 MHz

F2 - Processing parameters  
SI 32768  
SF 75.4023710 MHz  
WDW EM  
SSB 0  
LB 1.00 Hz  
GB 0  
PC 1.40



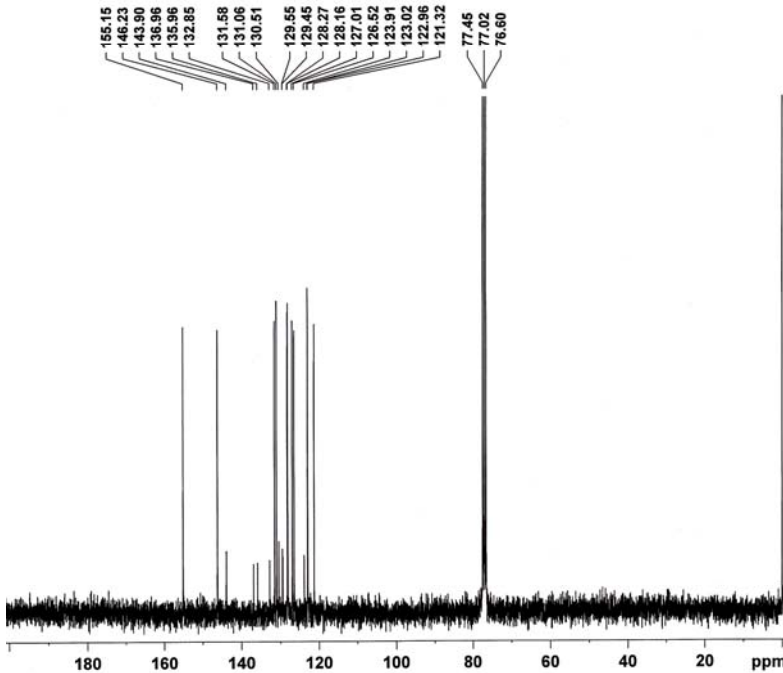


```
Current Data Parameters
NAME      PNU
EXPNO    170
PROCNO    1

F2 - Acquisition Parameters
Date_    20111114
Time     11:42
INSTRUM  spect
PROBHD   5 mm BBO BB-1H
PULPROG  zg30
TD       32768
SOLVENT  CDCl3
NS       8
DS       0
SWH      6172.839 Hz
FIDRES   0.186380 Hz
AQ       2.6542980 sec
RG       406.4
DW       81.000 usec
DE       6.00 usec
TE       300.0 K
D1       6.00000000 sec

===== CHANNEL f1 =====
NUC1     1H
P1       9.00 usec
PL1      3.00 dB
SFO1    299.8729987 MHz

F2 - Processing parameters
SI       32768
SF       299.8700000 MHz
WDW      EM
SSB      0
LB       0.30 Hz
GB       0
PC       1.00
```



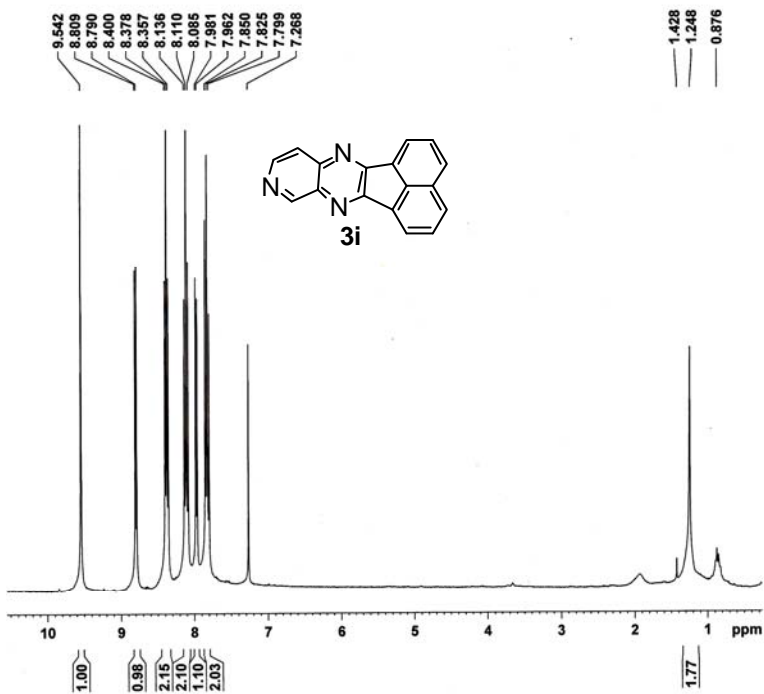
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Current Data Parameters
NAME      PNU
EXPNO    171
PROCNO    1

F2 - Acquisition Parameters
Date_    20111114
Time     12:57
INSTRUM  spect
PROBHD   5 mm BBO BB-1H
PULPROG  zgpg30
TD       65536
SOLVENT  CDCl3
NS       750
DS       2
SWH      17985.611 Hz
FIDRES   0.274439 Hz
AQ       1.8219508 sec
RG       32768
DW       27.800 usec
DE       6.00 usec
TE       300.0 K
D1       4.00000000 sec
d11      0.03000000 sec
d12      0.00002000 sec

===== CHANNEL f1 =====
NUC1     13C
P1       17.00 usec
PL1      -6.00 dB
SFO1    75.4099117 MHz

===== CHANNEL f2 =====
CPDPRG2  waltz16
NUC2     1H
PCPD2    80.00 usec
PL2      3.00 dB
PL12     23.00 dB
PL13     23.00 dB
SFO2    299.8711995 MHz

F2 - Processing parameters
SI       32768
SF       75.4023710 MHz
WDW      EM
SSB      0
LB       1.00 Hz
GB       0
PC       1.40
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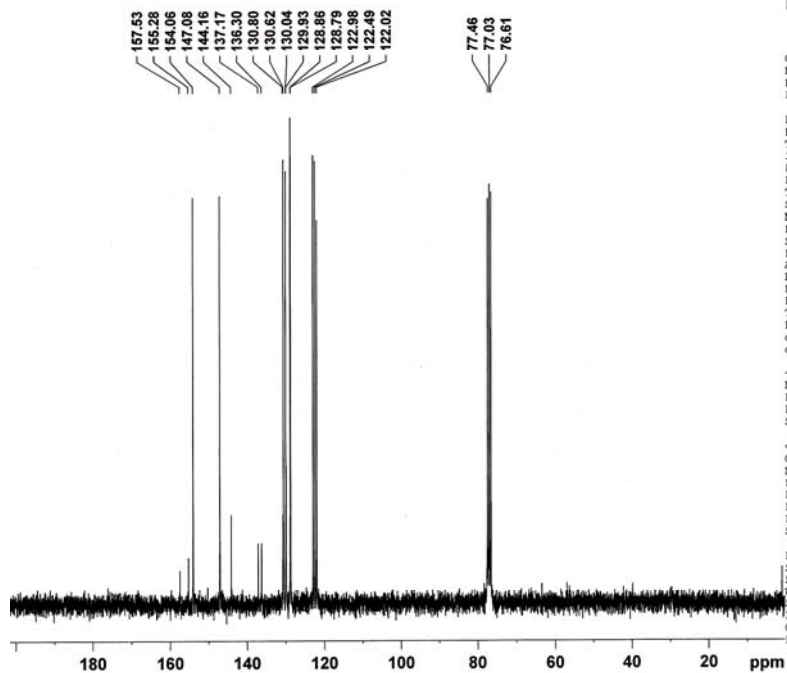


Current Data Parameters  
 NAME PNU  
 EXPNO 172  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20111114  
 Time 13:41  
 INSTRUM spect  
 PROBHD 5 mm BBO BB-1H  
 PULPROG zg30  
 TD 32768  
 SOLVENT CDCl3  
 NS 8  
 DS 0  
 SWH 6172.839 Hz  
 FIDRES 0.188380 Hz  
 AQ 2.6542380 sec  
 RG 362  
 DW 81.000 usec  
 DE 6.00 usec  
 TE 300.0 K  
 D1 6.00000000 sec

----- CHANNEL f1 -----  
 NUC1 1H  
 P1 9.00 usec  
 PL1 3.00 dB  
 SFO1 299.8729987 MHz

F2 - Processing parameters  
 SI 32768  
 SF 299.8700000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



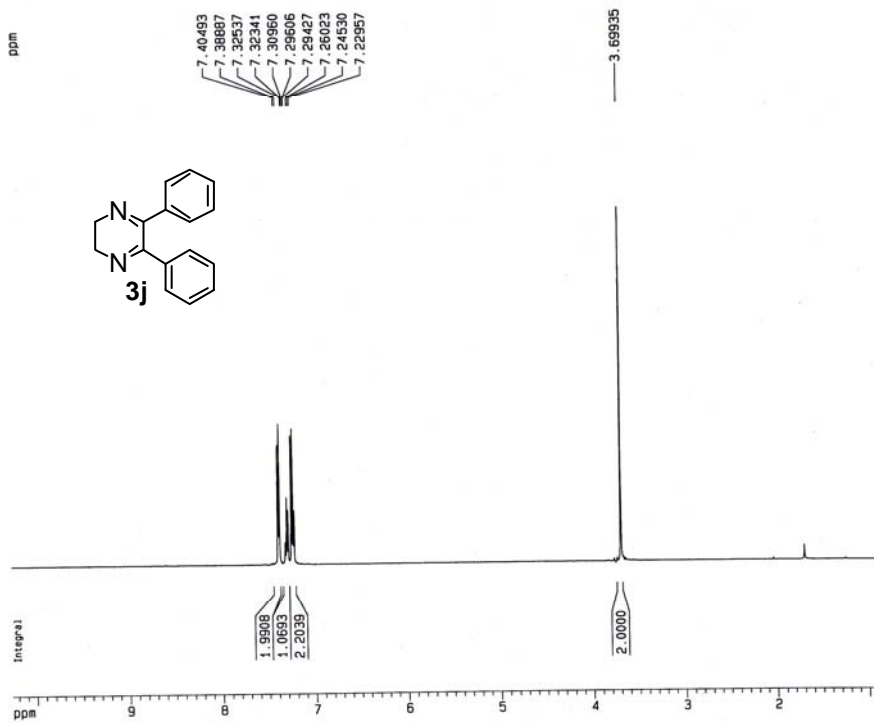
Current Data Parameters  
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 EXPNO 173  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20111114  
 Time 14:30  
 INSTRUM spect  
 PROBHD 5 mm BBO BB-1H  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 480  
 DS 2  
 SWH 17985.611 Hz  
 FIDRES 0.274439 Hz  
 AQ 1.8219508 sec  
 RG 32768  
 DW 27.800 usec  
 DE 6.00 usec  
 TE 300.0 K  
 D1 4.00000000 sec  
 d11 0.03000000 sec  
 d12 0.00002000 sec

----- CHANNEL f1 -----  
 NUC1 13C  
 P1 17.00 usec  
 PL1 -6.00 dB  
 SFO1 75.4099117 MHz

----- CHANNEL f2 -----  
 CPDPRG2 waltz16  
 NUC2 1H  
 FCPD2 80.00 usec  
 PL2 3.00 dB  
 PL12 23.00 dB  
 PL13 23.00 dB  
 SFO2 299.8711995 MHz

F2 - Processing parameters  
 SI 32768  
 SF 75.4023710 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



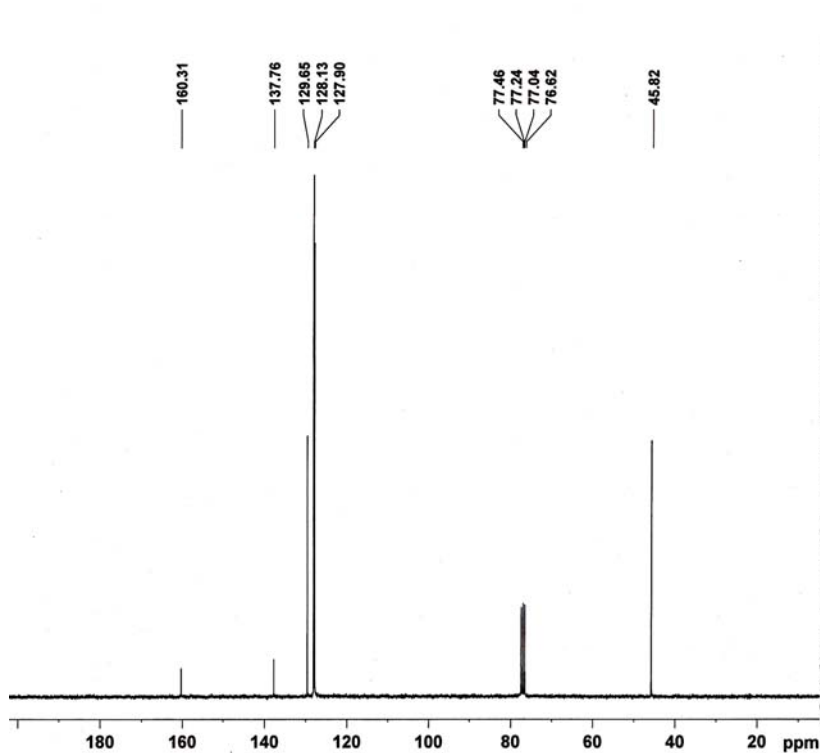
Current Data Parameters  
 NAME Dr\_Rezanejad  
 EXPNO 18  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20111008  
 Time 14.28  
 INSTRUM spect  
 PROBHD 5 mm QNP 1H/13  
 PULPROG zg30  
 TD 32768  
 SOLVENT CDCl3  
 NS 1  
 DS 0  
 SWH 10330.578 Hz  
 FIDRES 0.315264 Hz  
 AQ 1.5860696 sec  
 RG 287.4  
 DW 48.400 usec  
 DE 6.50 usec  
 TE 298.0 K  
 D1 1.00000000 sec  
 MCREST 0.00000000 sec  
 MCWPK 0.01500000 sec

----- CHANNEL f1 -----  
 NUC1 1H  
 P1 10.50 usec  
 PL1 -3.00 dB  
 SFO1 500.1300895 MHz

F2 - Processing parameters  
 SI 32768  
 SF 500.1300231 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

1D NMR plot parameters  
 CX 20.00 cm  
 CY 8.20 cm  
 FxP 10.270 ppm  
 F1 5136.13 Hz  
 F2P 0.895 ppm  
 F2 447.82 Hz  
 FWHM 0.46871 ppm/cm  
 HZCM 234.41571 Hz/cm



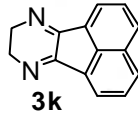
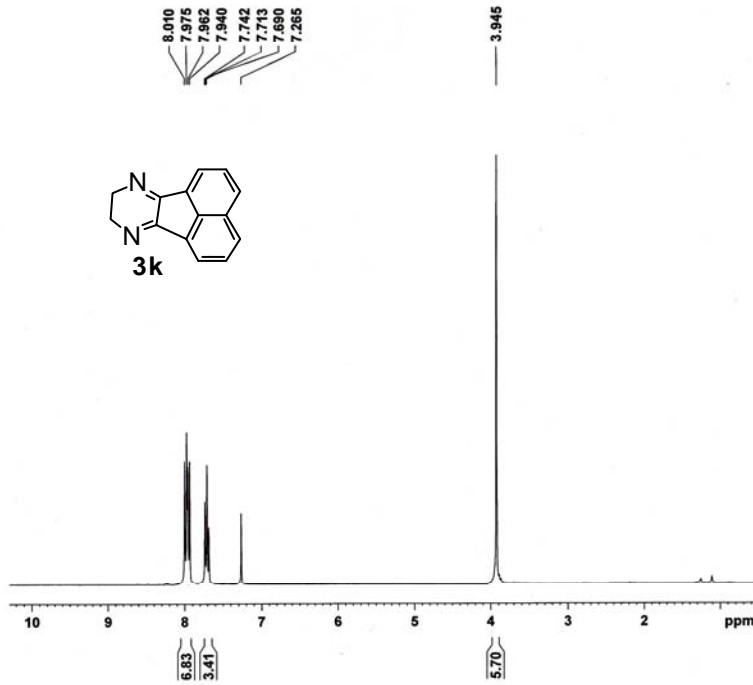
Current Data Parameters  
 NAME PNU  
 EXPNO 150  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20111025  
 Time 9.03  
 INSTRUM spect  
 PROBHD 5 mm BBO BB-1H  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 1000  
 DS 2  
 SWH 17985.611 Hz  
 FIDRES 0.274439 Hz  
 AQ 1.8213508 sec  
 RG 32768  
 DW 27.800 usec  
 DE 6.00 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 d11 0.03000000 sec  
 d12 0.00002000 sec

----- CHANNEL f1 -----  
 NUC1 13C  
 P1 17.00 usec  
 PL1 -6.00 dB  
 SFO1 75.4099117 MHz

----- CHANNEL f2 -----  
 CPDPRG2 waltz16  
 NUC2 1H  
 PCPD2 80.00 usec  
 PL2 3.00 dB  
 PL12 23.00 dB  
 PL13 23.00 dB  
 SFO2 299.8711995 MHz

F2 - Processing parameters  
 SI 32768  
 SF 75.4023710 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

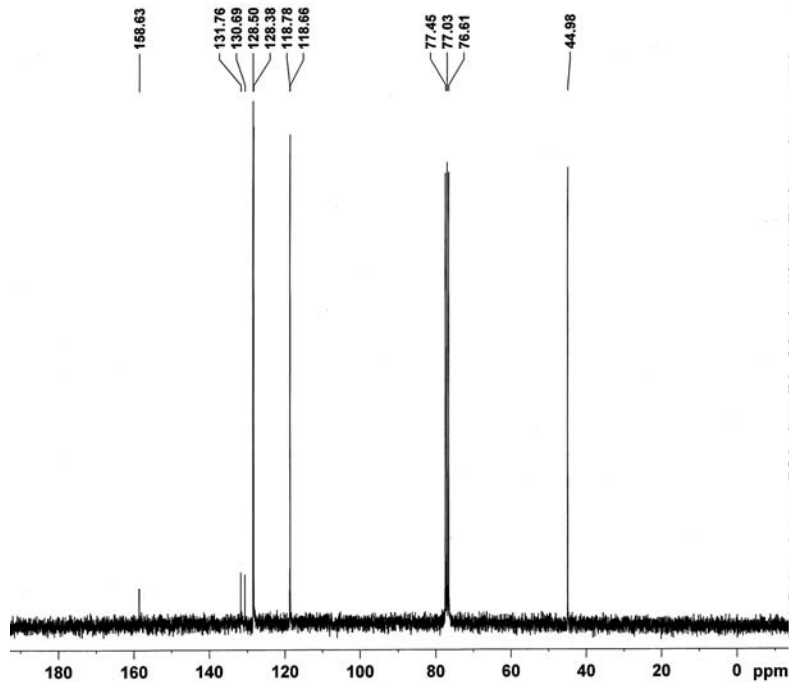


Current Data Parameters  
NAME PNU  
EXPNO 181  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 2011128  
Time 11.47  
INSTRUM spect  
PROBHD 5 mm BBO BB-1H  
PULPROG zg30  
TD 32768  
SOLVENT CDCl3  
NS 8  
DS 0  
SWH 6172.839 Hz  
FIDRES 0.188380 Hz  
AQ 2.6542580 sec  
RG 512  
DW 81.000 usec  
DE 6.00 usec  
TE 300.0 K  
D1 6.0000000 sec

----- CHANNEL f1 -----  
NUC1 1H  
P1 9.00 usec  
PL1 3.00 dB  
SFO1 299.8729987 MHz

F2 - Processing parameters  
SI 32768  
SF 299.8700000 MHz  
WDW EM  
SSB 0  
LB 0.30 Hz  
GB 0  
PC 1.00



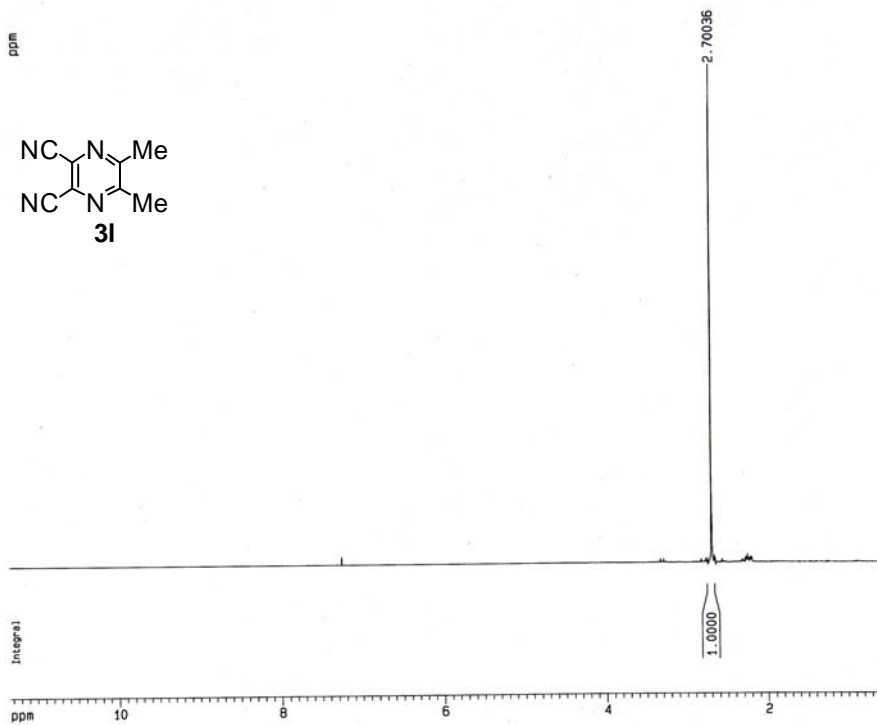
Current Data Parameters  
NAME PNU  
EXPNO 182  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 2011128  
Time 12.50  
INSTRUM spect  
PROBHD 5 mm BBO BB-1H  
PULPROG zgpg30  
TD 65536  
SOLVENT CDCl3  
NS 550  
DS 2  
SWH 17985.611 Hz  
FIDRES 0.274439 Hz  
AQ 1.8219508 sec  
RG 32768  
DW 27.800 usec  
DE 6.00 usec  
TE 300.0 K  
D1 4.0000000 sec  
d11 0.0300000 sec  
d12 0.0000200 sec

----- CHANNEL f1 -----  
NUC1 13C  
P1 17.00 usec  
PL1 -6.00 dB  
SFO1 75.4099117 MHz

----- CHANNEL f2 -----  
CPDPRG2 waltz16  
NUC2 1H  
FCPD2 80.00 usec  
PL2 3.00 dB  
PL12 23.00 dB  
PL13 23.00 dB  
SFO2 299.8711995 MHz

F2 - Processing parameters  
SI 32768  
SF 75.4023710 MHz  
WDW EM  
SSB 0  
LB 1.00 Hz  
GB 0  
PC 1.40



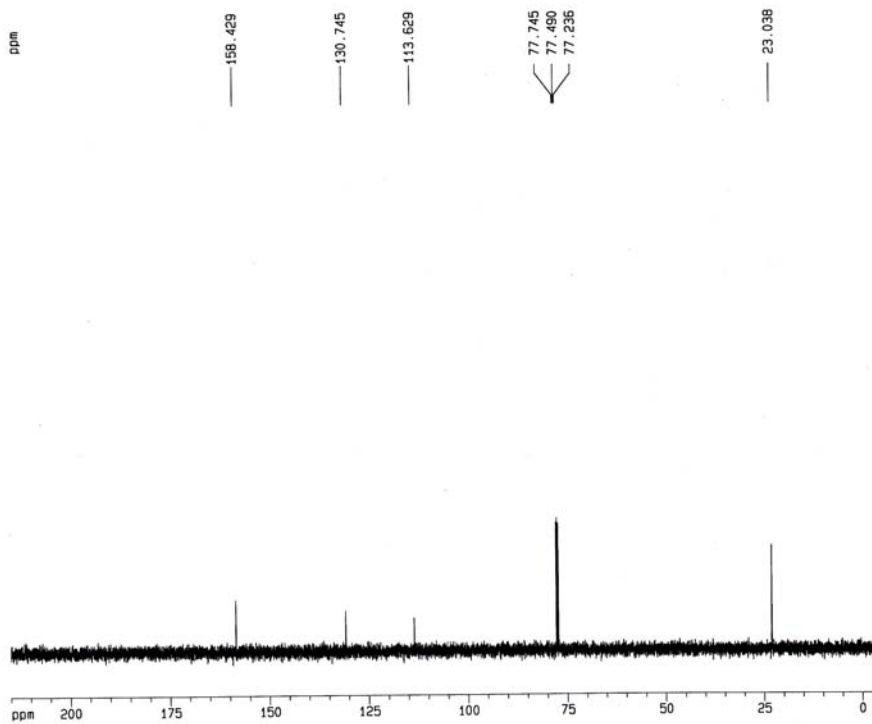
Current Data Parameters  
 NAME Dr.Rezanejad  
 EXPNO 16  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 2011008  
 Time 14.23  
 INSTRUM spect  
 PROBHD 5 mm QNP 1H/13  
 PULPROG zg30  
 TD 32768  
 SOLVENT CDCl3  
 NS 1  
 DS 0  
 SWH 10330.578 Hz  
 FIDRES 0.315264 Hz  
 AQ 1.500096 sec  
 RG 128  
 DW 48.400 usec  
 DE 6.50 usec  
 TE 298.0 K  
 D1 1.0000000 sec  
 MCREST 0.0000000 sec  
 MCWVK 0.0150000 sec

----- CHANNEL f1 -----  
 NUC1 1H  
 P1 10.50 usec  
 PL1 -3.00 dB  
 SFO1 500.1300885 MHz

F2 - Processing parameters  
 SI 32768  
 SF 500.1300231 MHz  
 MDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

1D NMR plot parameters  
 CX 20.00 cm  
 CY 12.55 cm  
 F1P 11.340 ppm  
 F1 5671.27 Hz  
 F2P 0.593 ppm  
 F2 296.58 Hz  
 PPMCM 0.53733 ppm/cm  
 HZCM 268.73465 Hz/cm



Current Data Parameters  
 NAME Dr.Rezanejad  
 EXPNO 17  
 PROCNO 1

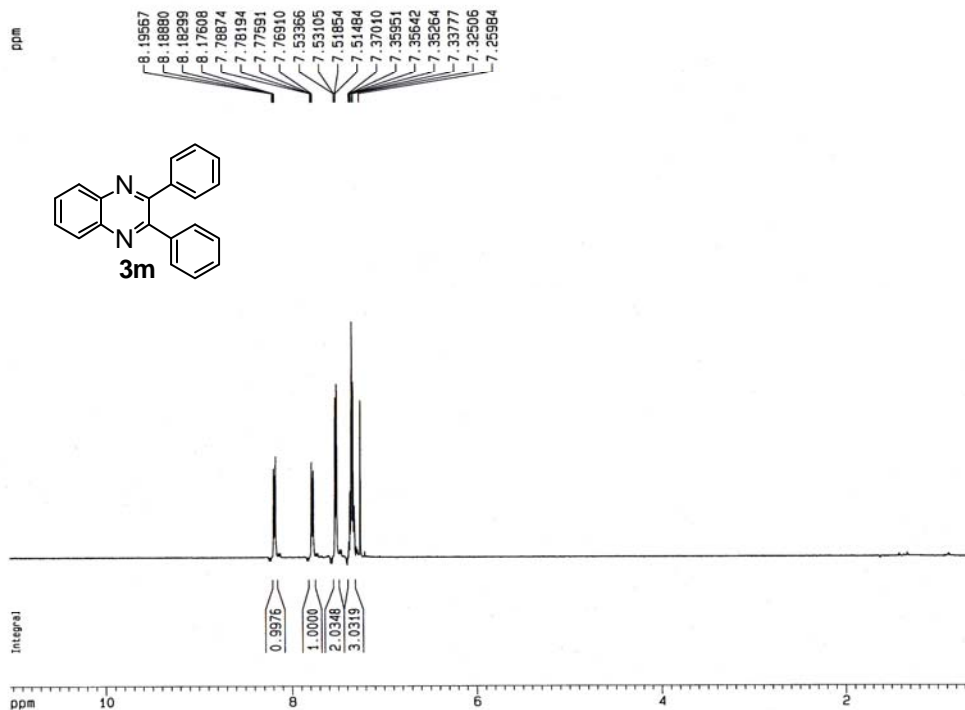
F2 - Acquisition Parameters  
 Date\_ 2011008  
 Time 14.25  
 INSTRUM spect  
 PROBHD 5 mm QNP 1H/13  
 PULPROG zgpg30  
 TD 32768  
 SOLVENT CDCl3  
 NS 16  
 DS 4  
 SWH 30030.029 Hz  
 FIDRES 0.916444 Hz  
 AQ 0.546659 sec  
 RG 5150.6  
 DW 16.650 usec  
 DE 6.50 usec  
 TE 298.0 K  
 D1 2.0000000 sec  
 d11 0.0300000 sec  
 DELTA 1.89999998 sec  
 MCREST 0.0000000 sec  
 MCWVK 0.0150000 sec

----- CHANNEL f1 -----  
 NUC1 13C  
 P1 9.10 usec  
 PL1 3.00 dB  
 SFO1 125.7703643 MHz

----- CHANNEL f2 -----  
 CPDPRG2 waltz16  
 NUC2 1H  
 PCPD2 80.00 usec  
 PL2 0.00 dB  
 PL12 15.50 dB  
 PL13 15.50 dB  
 SFO2 500.1320005 MHz

F2 - Processing parameters  
 SI 32768  
 SF 125.7577390 MHz  
 MDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

1D NMR plot parameters  
 CX 20.00 cm  
 CY 3.05 cm  
 F1P 215.000 ppm  
 F1 27037.92 Hz  
 F2P -5.000 ppm  
 F2 -628.79 Hz  
 PPMCM 11.00000 ppm/cm  
 HZCM 1383.33508 Hz/cm



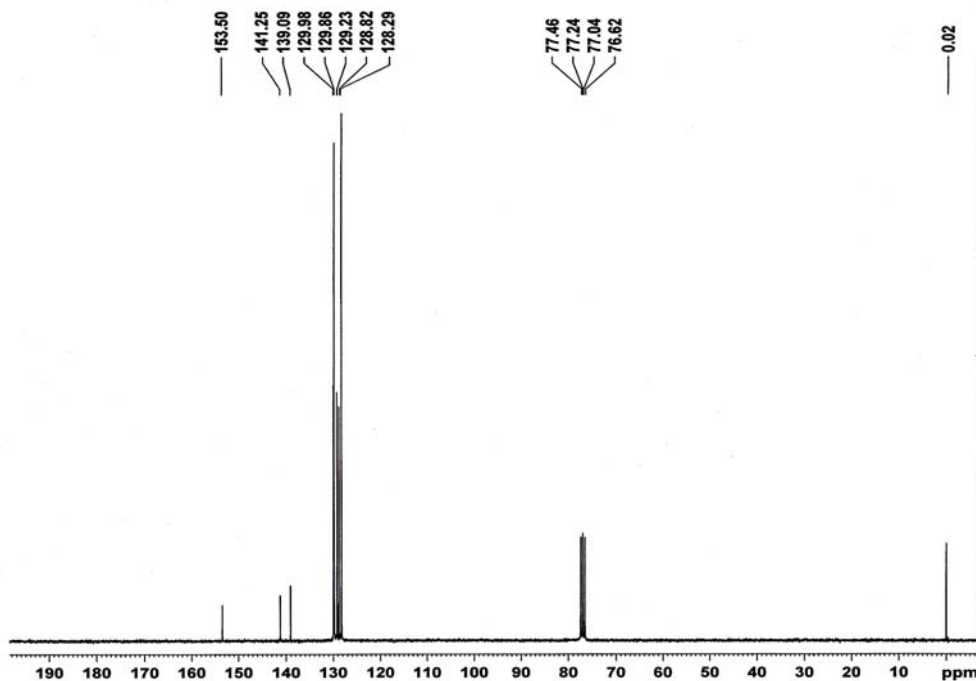
Current Data Parameters  
 NAME Dr. Rezaejad  
 EXPNO 9  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20110815  
 Time 11.18  
 INSTRUM spect  
 PROBHD 5 mm QNP 1H/13  
 PULPROG zg30  
 TD 32768  
 SOLVENT CDCl3  
 NS 1  
 DS 0  
 SWH 10330.578 Hz  
 FIDRES 0.315264 Hz  
 AQ 1.5860696 sec  
 RG 512  
 DW 48.400 usec  
 DE 6.50 usec  
 TE 298.0 K  
 D1 1.00000000 sec  
 MCREST 0.00000000 sec  
 MCWRK 0.01500000 sec

----- CHANNEL f1 -----  
 NUC1 1H  
 P1 10.50 usec  
 PL1 -3.00 dB  
 SFO1 500.1330885 MHz

F2 - Processing parameters  
 SI 32768  
 SF 500.1300231 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

1D NMR plot parameters  
 CX 20.00 cm  
 CY 5.44 cm  
 F1P 11.037 ppm  
 F1 550.04 Hz  
 F2P 0.640 ppm  
 F2 319.85 Hz  
 PPMCM 0.51988 ppm/cm  
 HZCM 260.00949 Hz/cm



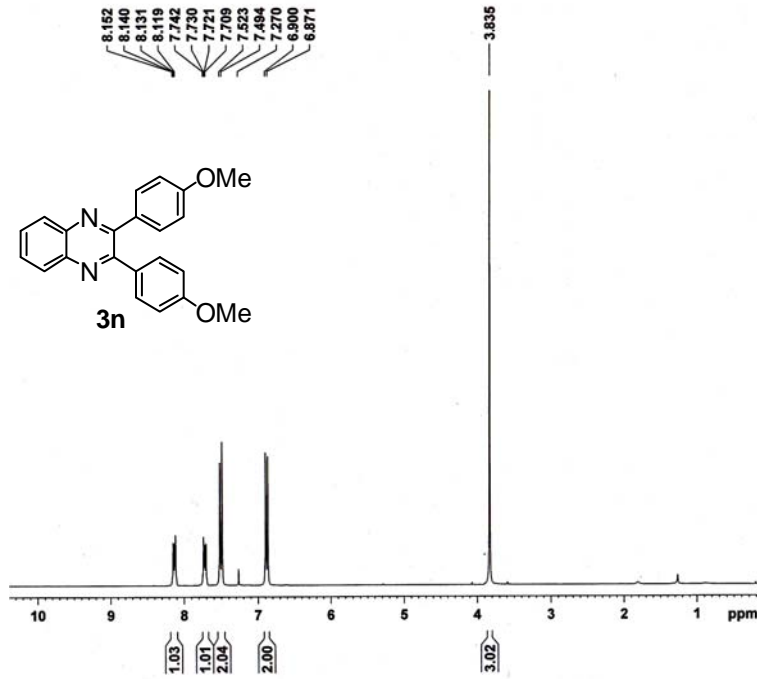
Current Data Parameters  
 NAME PNU  
 EXPNO 141  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20111015  
 Time 9.47  
 INSTRUM spect  
 PROBHD 5 mm BBO BB-1H  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 1000  
 DS 2  
 SWH 17985.611 Hz  
 FIDRES 0.274439 Hz  
 AQ 1.8219508 sec  
 RG 32768  
 DW 27.800 usec  
 DE 6.00 usec  
 TE 300.0 K  
 D1 4.00000000 sec  
 d11 0.03000000 sec  
 d12 0.00002000 sec

----- CHANNEL f1 -----  
 NUC1 13C  
 P1 17.00 usec  
 PL1 -6.00 dB  
 SFO1 75.4099117 MHz

----- CHANNEL f2 -----  
 CPDPRG2 waltz16  
 NUC2 1H  
 PCPD2 80.00 usec  
 PL2 3.00 dB  
 PL12 23.00 dB  
 PL13 23.00 dB  
 SFO2 299.8711995 MHz

F2 - Processing parameters  
 SI 32768  
 SF 75.4023710 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

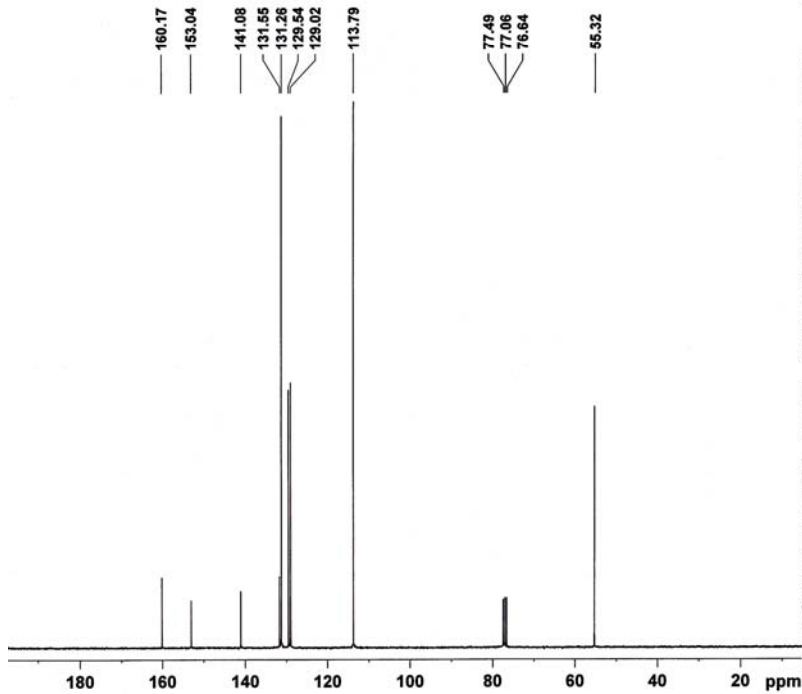


```
Current Data Parameters
NAME      PNU
EXPNO    156
PROCNO    1

F2 - Acquisition Parameters
Date_     20111026
Time      10.47
INSTRUM   spect
PROBHD    5 mm BBO BB-1H
PULPROG   zg30
TD         32768
SOLVENT   CDCl3
NS         8
DS         0
SWH        6172.839 Hz
FIDRES     0.188380 Hz
AQ         2.6542580 sec
RG         181
DW         81.000 usec
DE         6.00 usec
TE         300.0 K
D1         6.0000000 sec

===== CHANNEL f1 =====
NUC1      1H
P1        9.00 usec
PL1       3.00 dB
SFO1      299.8729987 MHz

F2 - Processing parameters
SI         32768
SF         299.8700000 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
```



```
Current Data Parameters
NAME      PNU
EXPNO    155
PROCNO    1

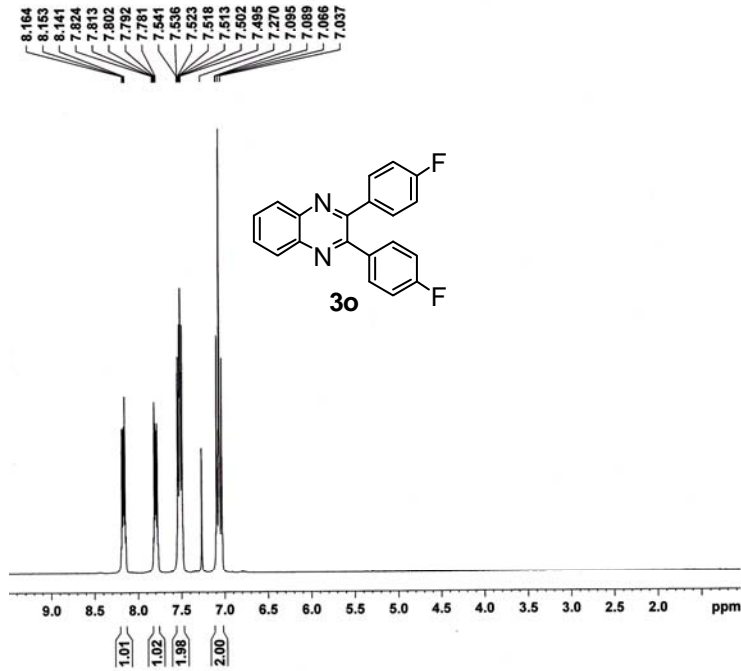
F2 - Acquisition Parameters
Date_     20111026
Time      10.45
INSTRUM   spect
PROBHD    5 mm BBO BB-1H
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         750
DS         2
SWH        17985.611 Hz
FIDRES     0.274439 Hz
AQ         1.8219508 sec
RG         32768
DW         27.800 usec
DE         6.00 usec
TE         300.0 K
D1         2.0000000 sec
d11        0.0300000 sec
d12        0.0000200 sec

===== CHANNEL f1 =====
NUC1      13C
P1        17.00 usec
PL1       -6.00 dB
SFO1      75.4099117 MHz

===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2      1H
PCPD2     80.00 usec
PL2       3.00 dB
PL12      23.00 dB
PL13      23.00 dB
SFO2      299.8711995 MHz

F2 - Processing parameters
SI         32768
SF         75.4023710 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
```



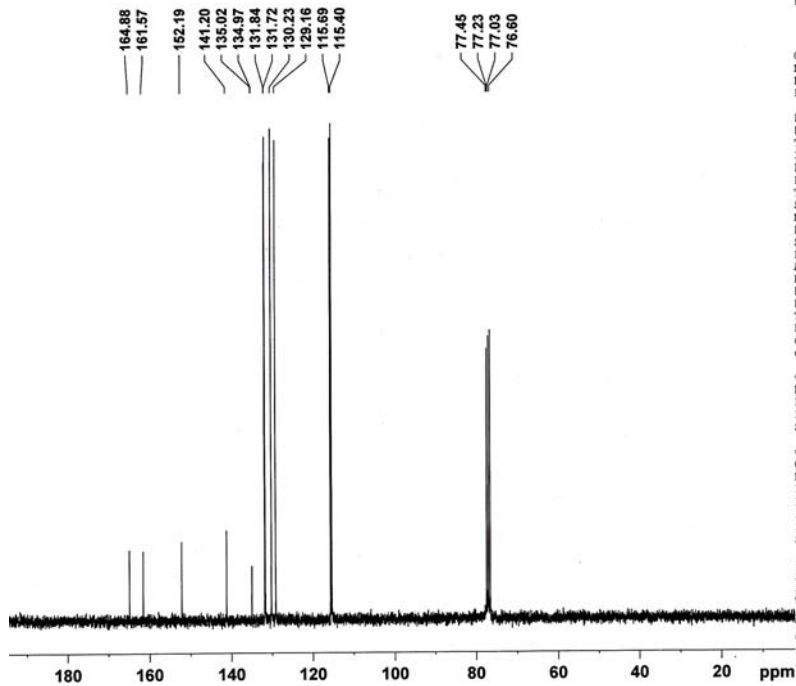


Current Data Parameters  
NAME PNU  
EXPNO 174  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 2011114  
Time 15.17  
INSTRUM spect  
PROBHD 5 mm BBO BB-1H  
PULPROG zg30  
TD 32768  
SOLVENT CDCl3  
NS 8  
DS 0  
SWH 6172.839 Hz  
FIDRES 0.188380 Hz  
AQ 2.6542580 sec  
RG 362  
MW 81.000 usec  
DE 6.00 usec  
TE 300.0 K  
D1 6.0000000 sec

----- CHANNEL f1 -----  
NUC1 1H  
P1 9.00 usec  
PL1 3.00 dB  
SFO1 299.8729807 MHz

F2 - Processing parameters  
SI 32768  
SF 299.8700000 MHz  
WDW EM  
SSB 0  
LB 0.30 Hz  
GB 0  
PC 1.00



Current Data Parameters  
NAME PNU  
EXPNO 175  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 2011114  
Time 15.14  
INSTRUM spect  
PROBHD 5 mm BBO BB-1H  
PULPROG zgpg30  
TD 65536  
SOLVENT CDCl3  
NS 400  
DS 2  
SWH 17985.611 Hz  
FIDRES 0.274439 Hz  
AQ 1.8219508 sec  
RG 32768  
DW 27.800 usec  
DE 6.00 usec  
TE 300.0 K  
D1 4.0000000 sec  
d11 0.0300000 sec  
d12 0.0000200 sec

----- CHANNEL f1 -----  
NUC1 13C  
P1 17.00 usec  
PL1 -6.00 dB  
SFO1 75.4099117 MHz

----- CHANNEL f2 -----  
CPDPRG2 waltz16  
NUC2 1H  
PCPD2 80.00 usec  
PL2 3.00 dB  
PL12 23.00 dB  
PL13 23.00 dB  
SFO2 299.8711995 MHz

F2 - Processing parameters  
SI 32768  
SF 75.4023710 MHz  
WDW EM  
SSB 0  
LB 1.00 Hz  
GB 0  
PC 1.40

