

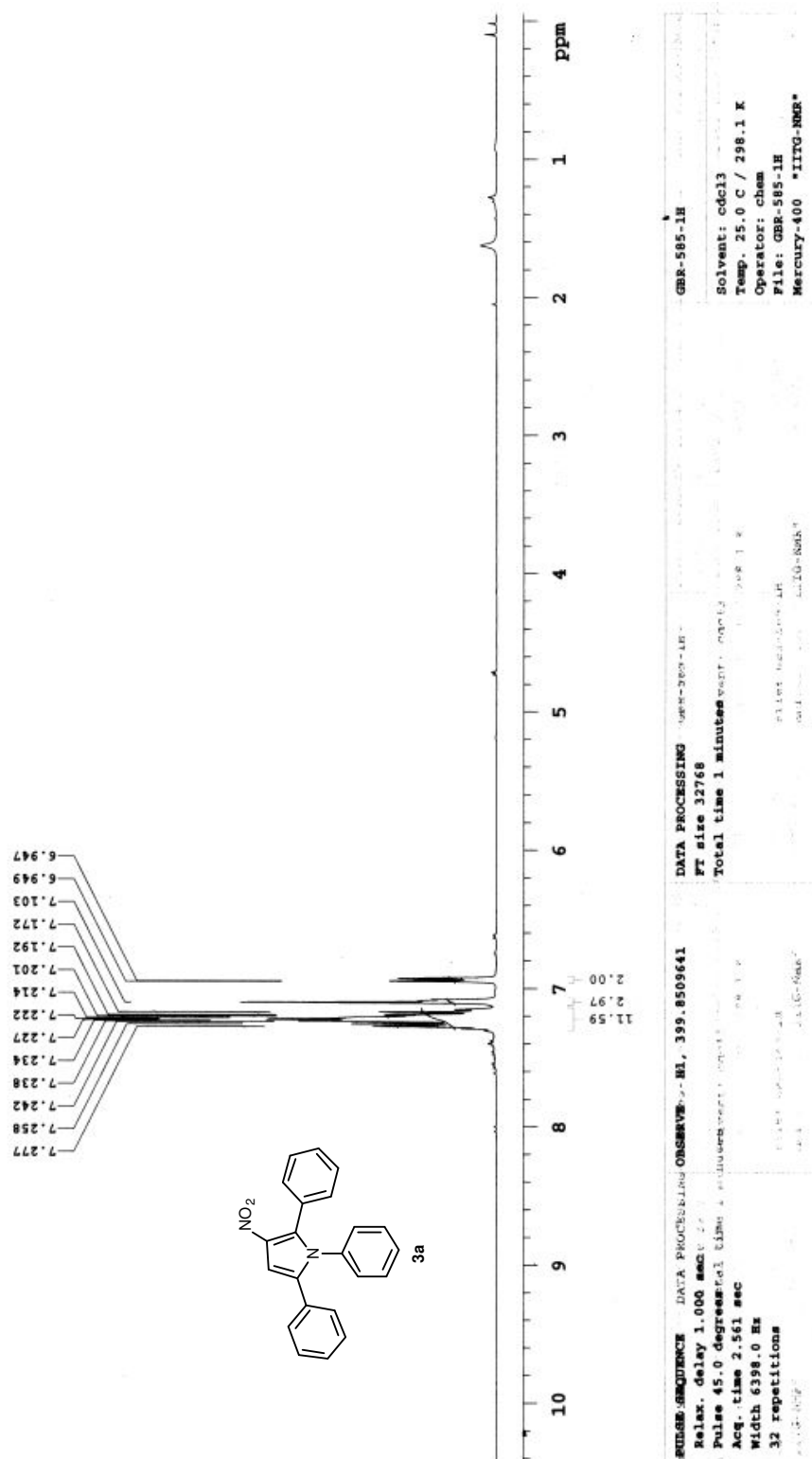
Supporting Information

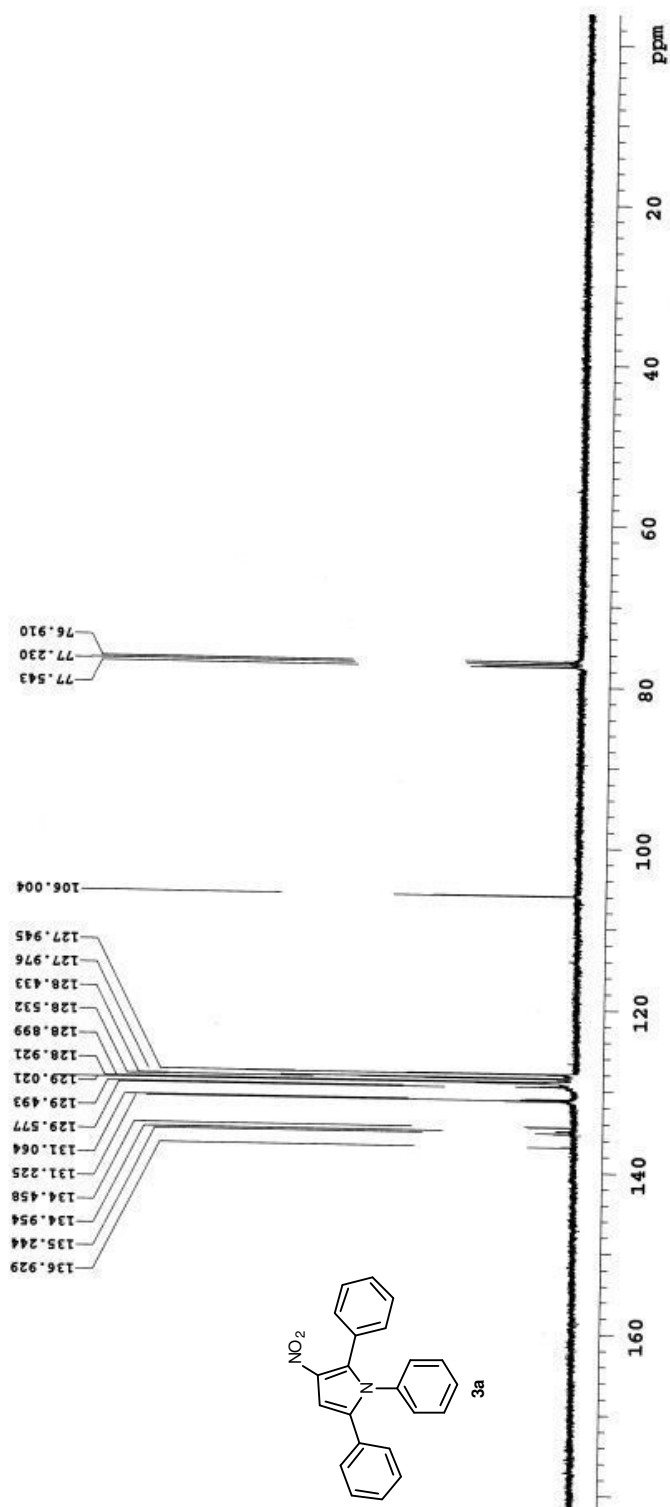
**Expedient synthesis of substituted pyrroles via copper-catalyzed
cascade inter-/intramolecular cyclization of 1,3-enynes carry a
nitro group with amines**

Ganesan Bharathiraja, Mani Sengoden, Masanam Kannan and Tharmalingam Punniyamurthy*

Department of Chemistry, Indian Institute of Technology Guwahati, Guwahati 781039, India

¹H and ¹³C NMR Spectra





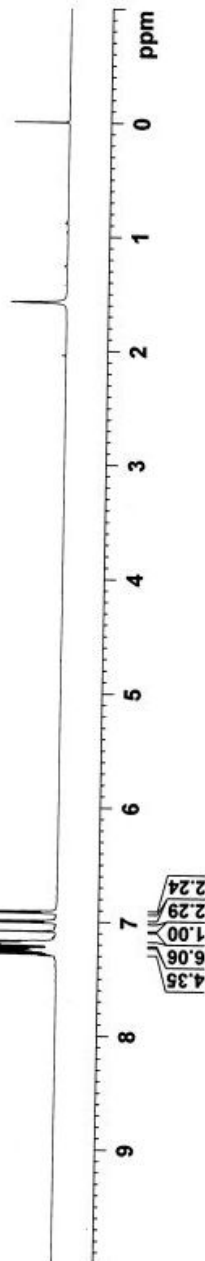
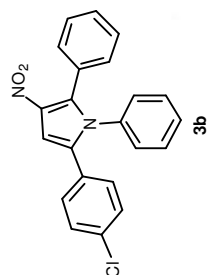
PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 1.304 sec Width 25125.6 Hz 500 repetitions	OBSERVE C13, 100.5425878 DECOUPLE H1, 399.8529994 Power 42 dB continuously on WALTZ-16 modulated	DATA PROCESSING Line broadening 0.5 Hz FT size 65536 Total time 19 minutes	QBR-585-1H Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem File: QBR-585-13c Mercury-400 *ITG-NMR*
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GBR-657-1H

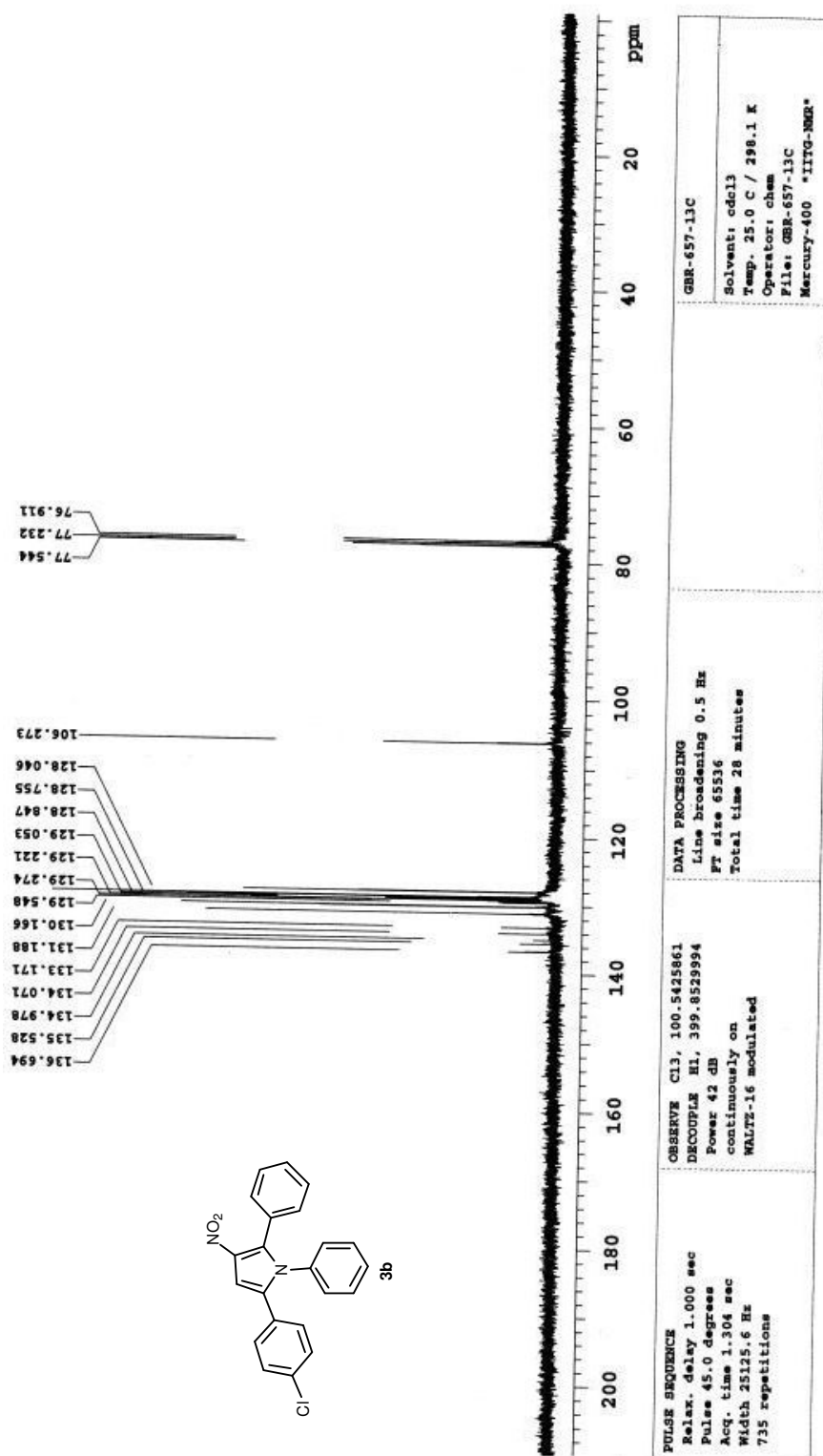
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7.272
7.263
7.261
7.257
7.253
7.251
7.245
7.242
7.239
7.236
7.232
7.229
7.222
7.220
7.218
7.207
7.202
7.198
7.195
7.192
7.188
7.185
7.176
7.174
7.171
7.167
7.1084
7.1012
7.1008
7.004
6.996
6.993
6.989
6.929
6.924
6.914
6.911
6.909

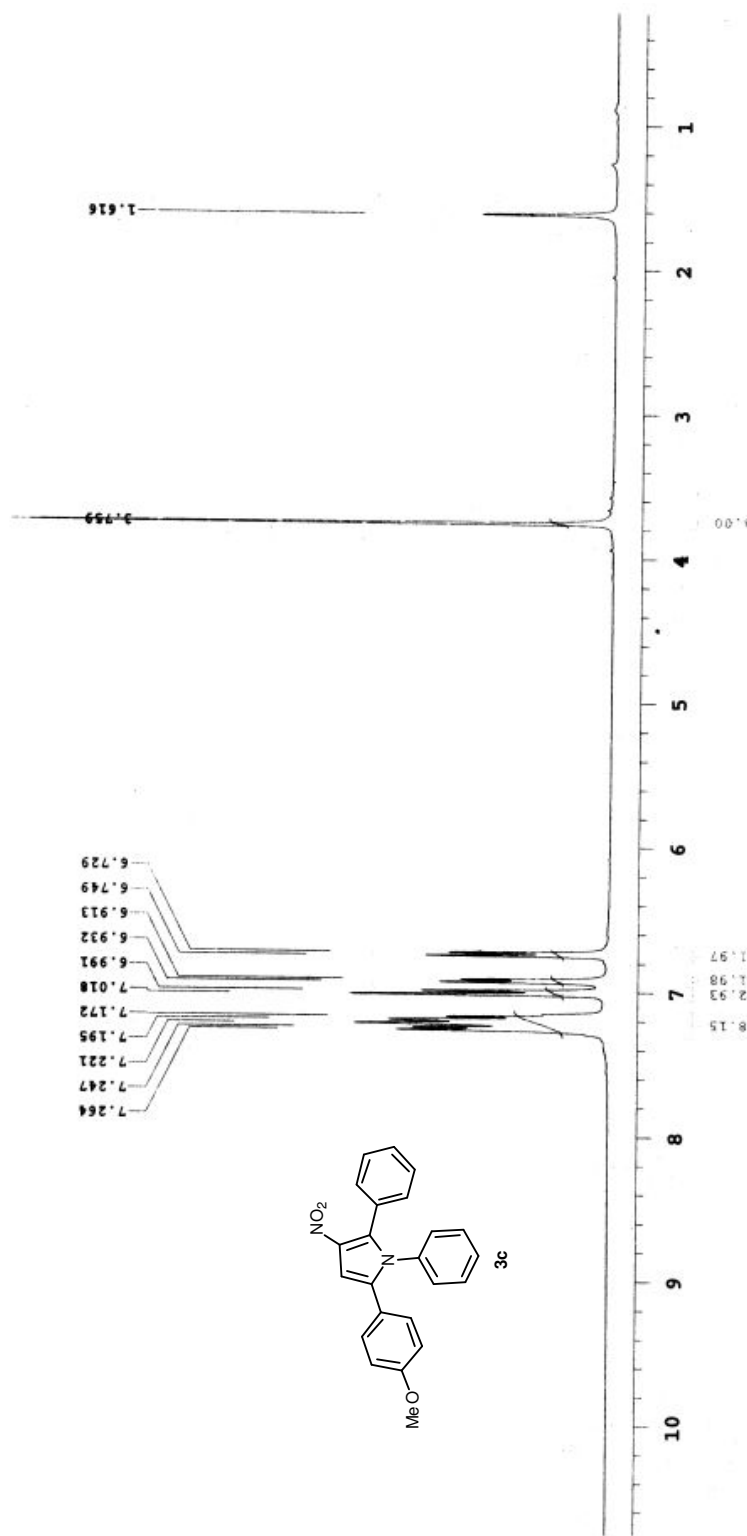
1.576

0.000



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PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 2
DS 2
SWH 12019.230 Hz
FIDRES 0.000888 Hz
AQ 0.000888 Hz
RG 819.47 Hz
B0 89.47 MHz
P1 41.000 usec
PL1 0.00 dB
TE 300.2 K
TD0 1.00000000 sec
===== CHANNEL f1 =====
NUC1 13C
P1 12.00 usec
PL1 21.00000000 W
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F2 - Processing Parameters
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PC 1.00



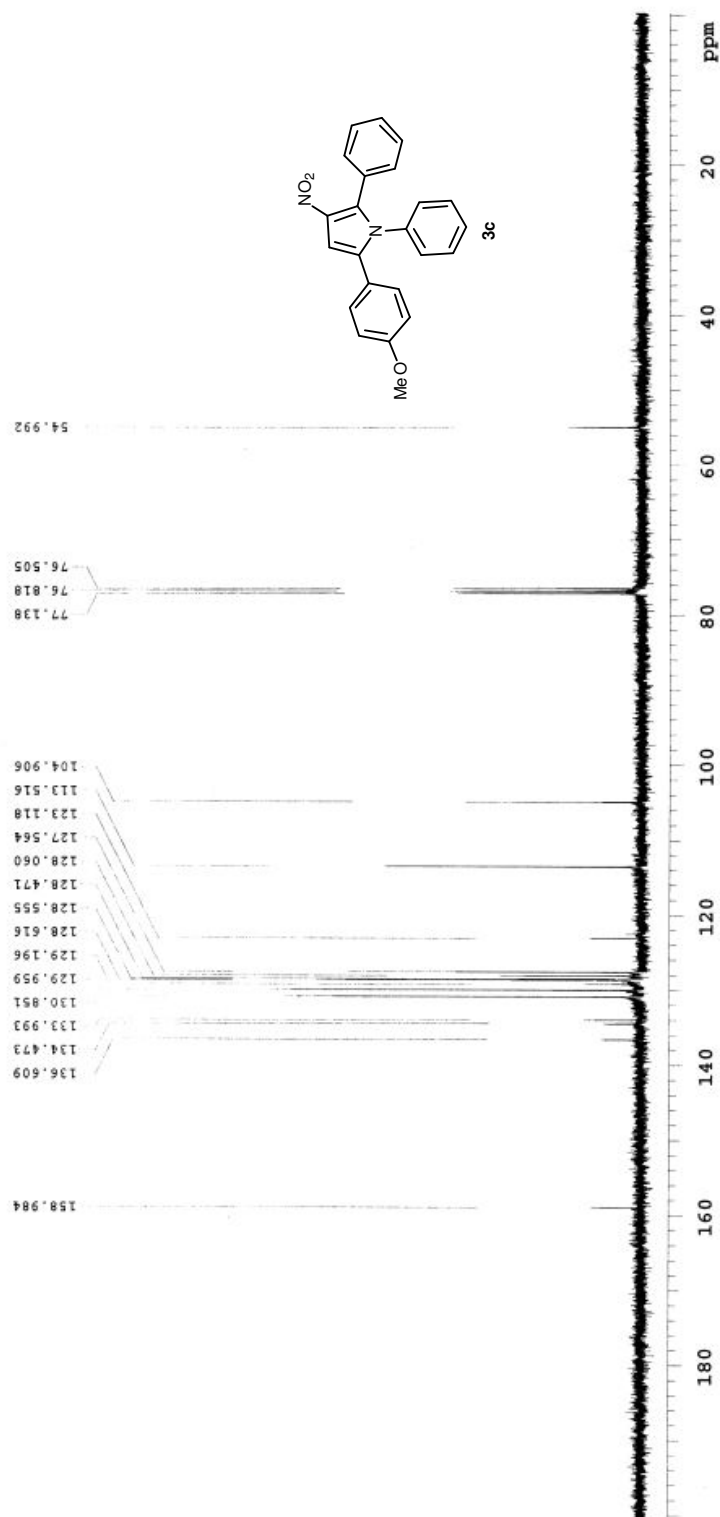


GMR-622-1h
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 Temp: 25.0 C / 298.1 K
 Operator: chm
 Mercury-400 *ITG-MMR*

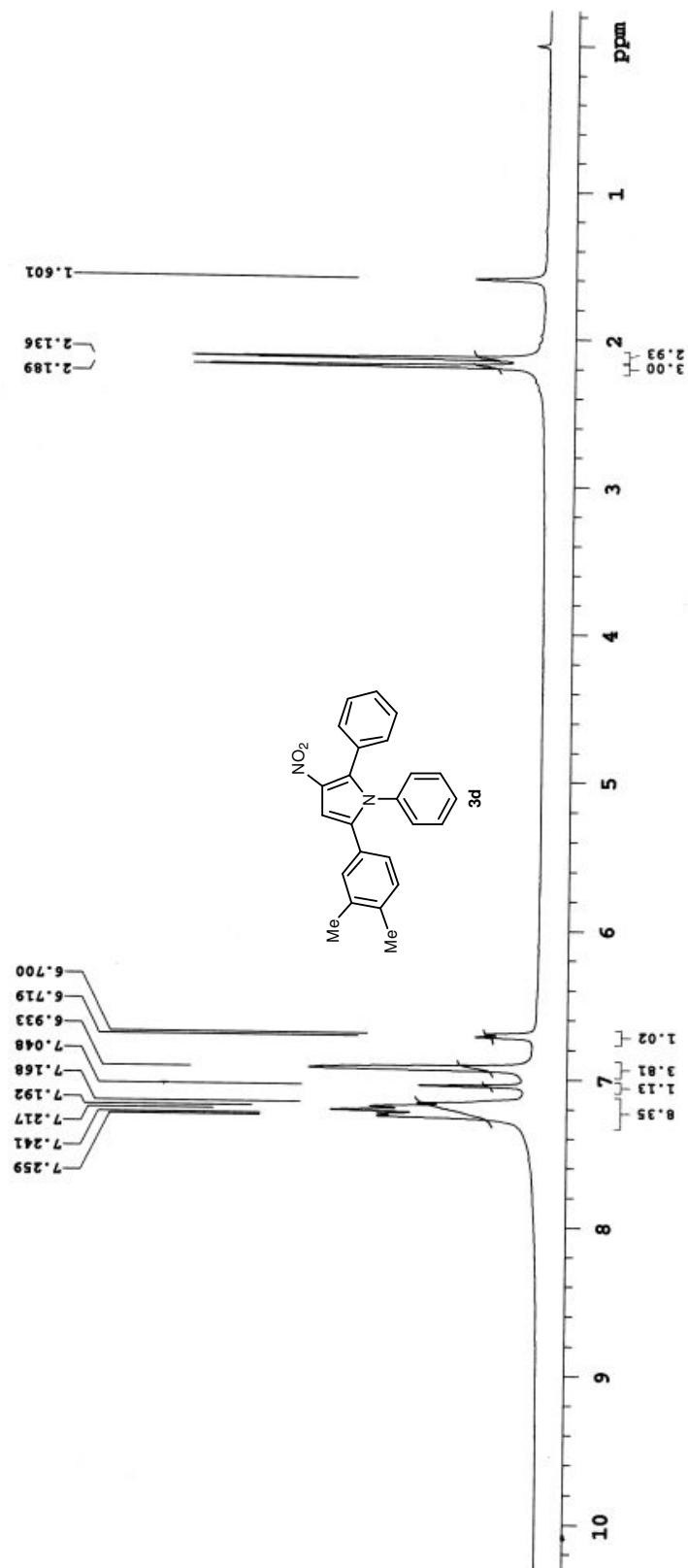
DATA PROCESSING
 FI size 32768
 Total time 1 minutes

OBSERVE H1, 399.8509641

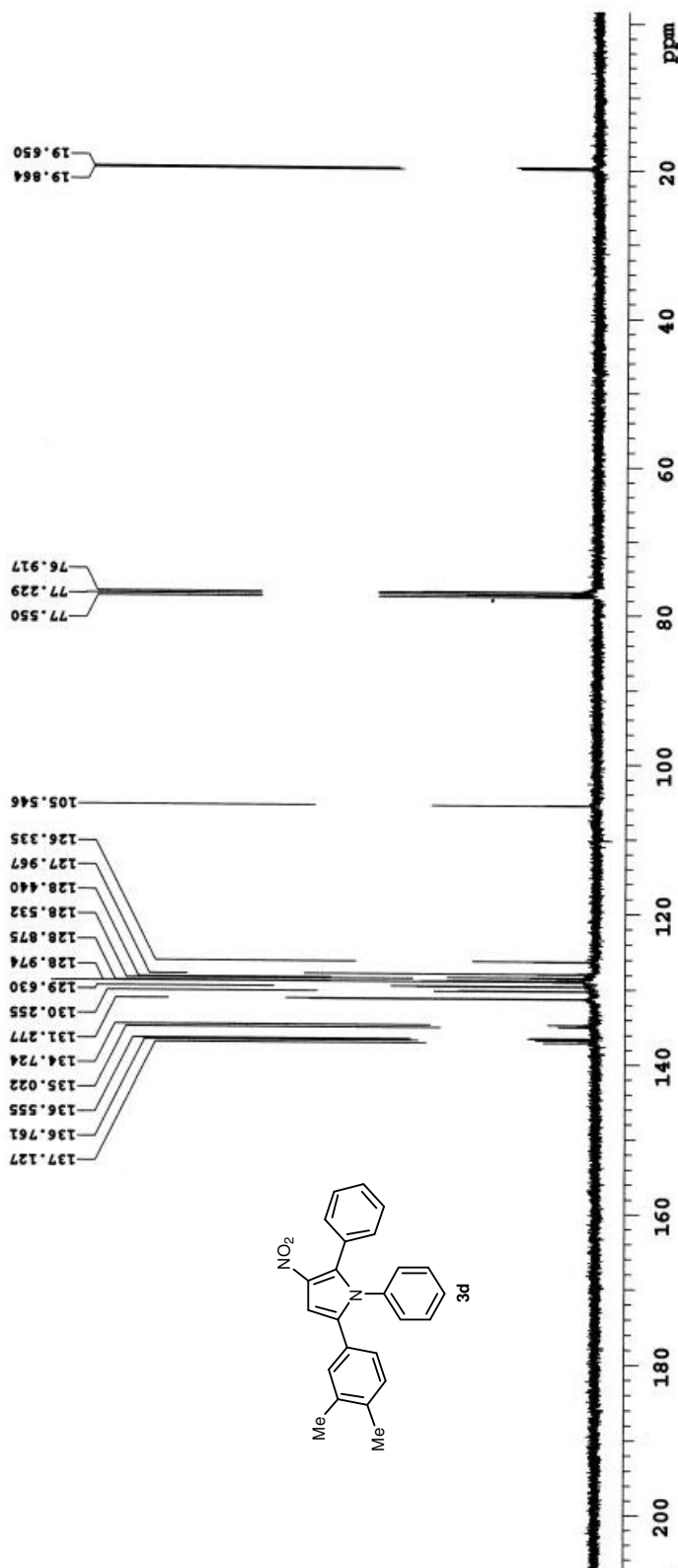
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 Relax. delay 1.000 sec
 Pulse 45.0 degrees
 Acq. time 2.561 sec
 Width 6398.0 Hz
 32 repetitions



PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 1.304 sec Width 25125.6 Hz 440 repetitions	OBSERVE C13, 100.5426261 DECOUPLE H1, 399.8529994 Power 42 dB continuously on WALTZ-16 modulated	DATA PROCESSING Line broadening 0.5 Hz FT size 5536 Total time 16 minutes	GBR-622-13c Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem File: GBR-622-13c Mercury-400 *HITG-NMR*
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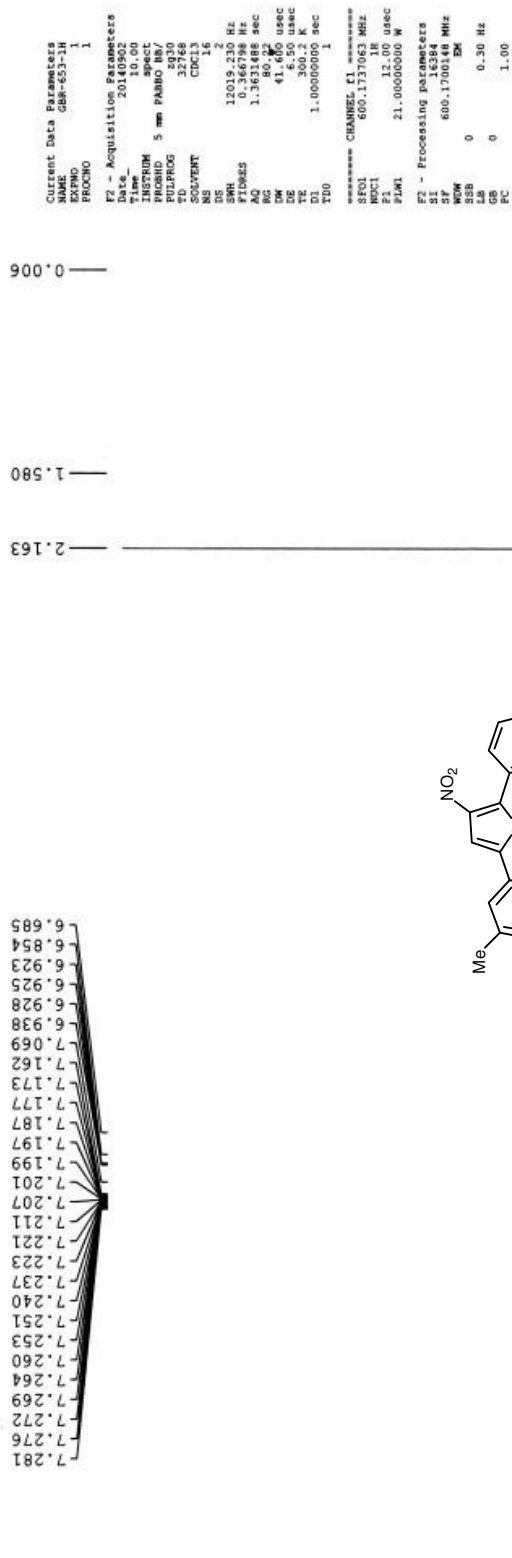


PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 2.561 sec Width 6398.0 Hz 26 repetitions	OBSERVE H1, 399.8509634	DATA PROCESSING Line broadening 1.0 Hz FT size 32768 Total time 1 minutes	GBR-654-1H Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem File: GBR-654-1H Mercury-400 *IITG-NMR*
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PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 1.304 sec Width 25125.6 Hz 850 repetitions	OBSERVE C13, 100.5425856 DECOUPLE H1, 399.8529994 Power 42 dB continuously on WALTZ-16 modulated	DATA PROCESSING Line broadening 0.5 Hz FT size 65536 Total time 32 minutes	GBR-654-13C Solvent: cdc13 Temp. 25.0 C / 298.1 K Operator: chem File: GBR-654-13C Mercury-400 "1H-13C-NMR"
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GBR-653-1H

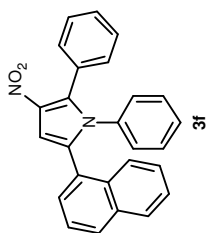
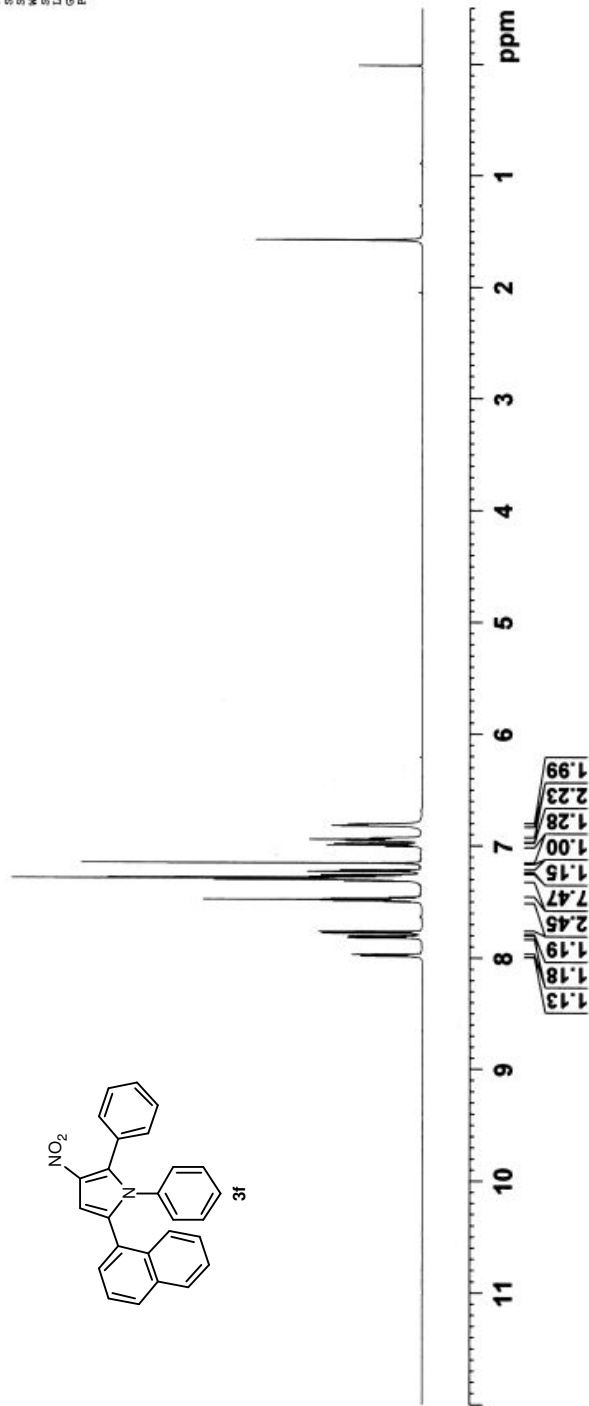


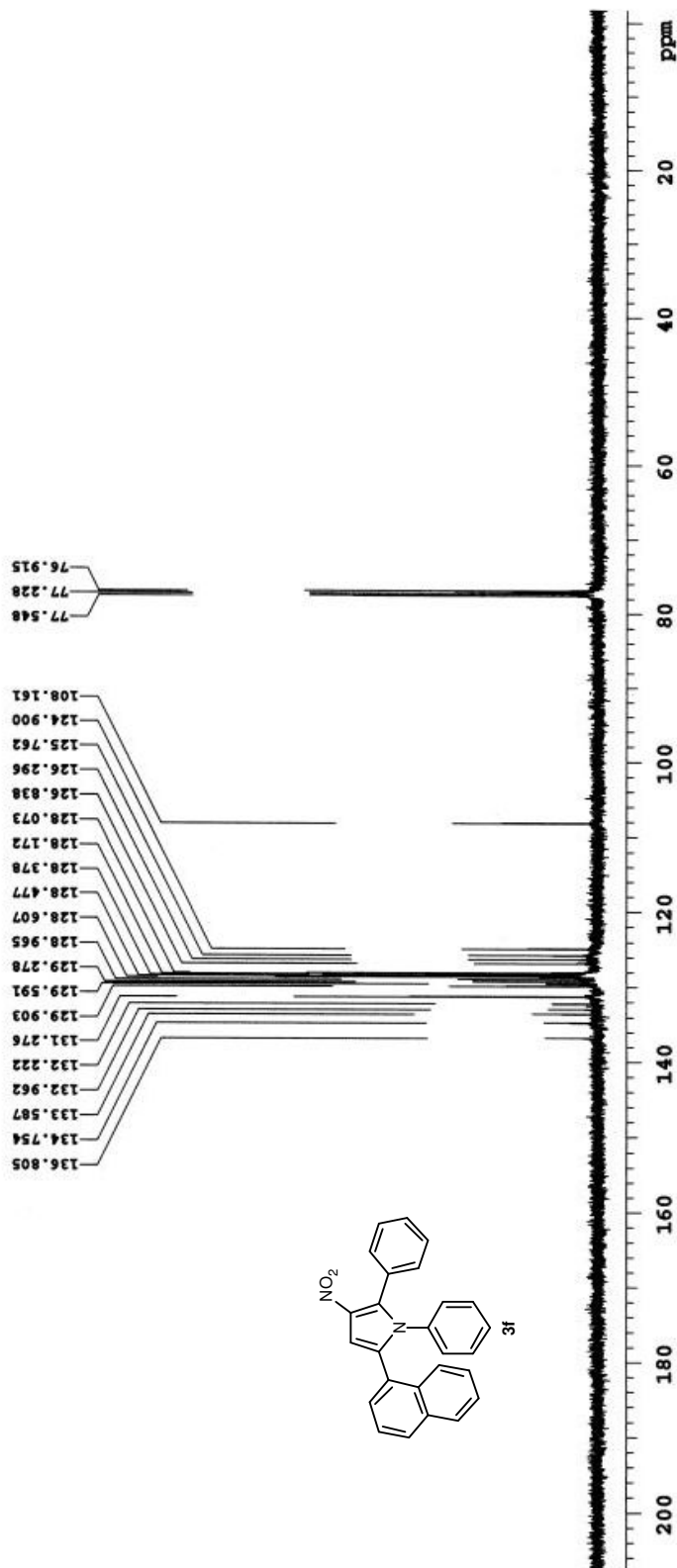
GBR-655-1H

6.807
6.819
6.932
6.944
6.957
6.981
6.983
6.995
7.005
7.007
7.154
7.218
7.230
7.260
7.267
7.271
7.275
7.283
7.291
7.297
7.304
7.312
7.316
7.460
7.469
7.472
7.475
7.480
7.485
7.489
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7.809
7.816
7.821
7.970
7.982
7.985

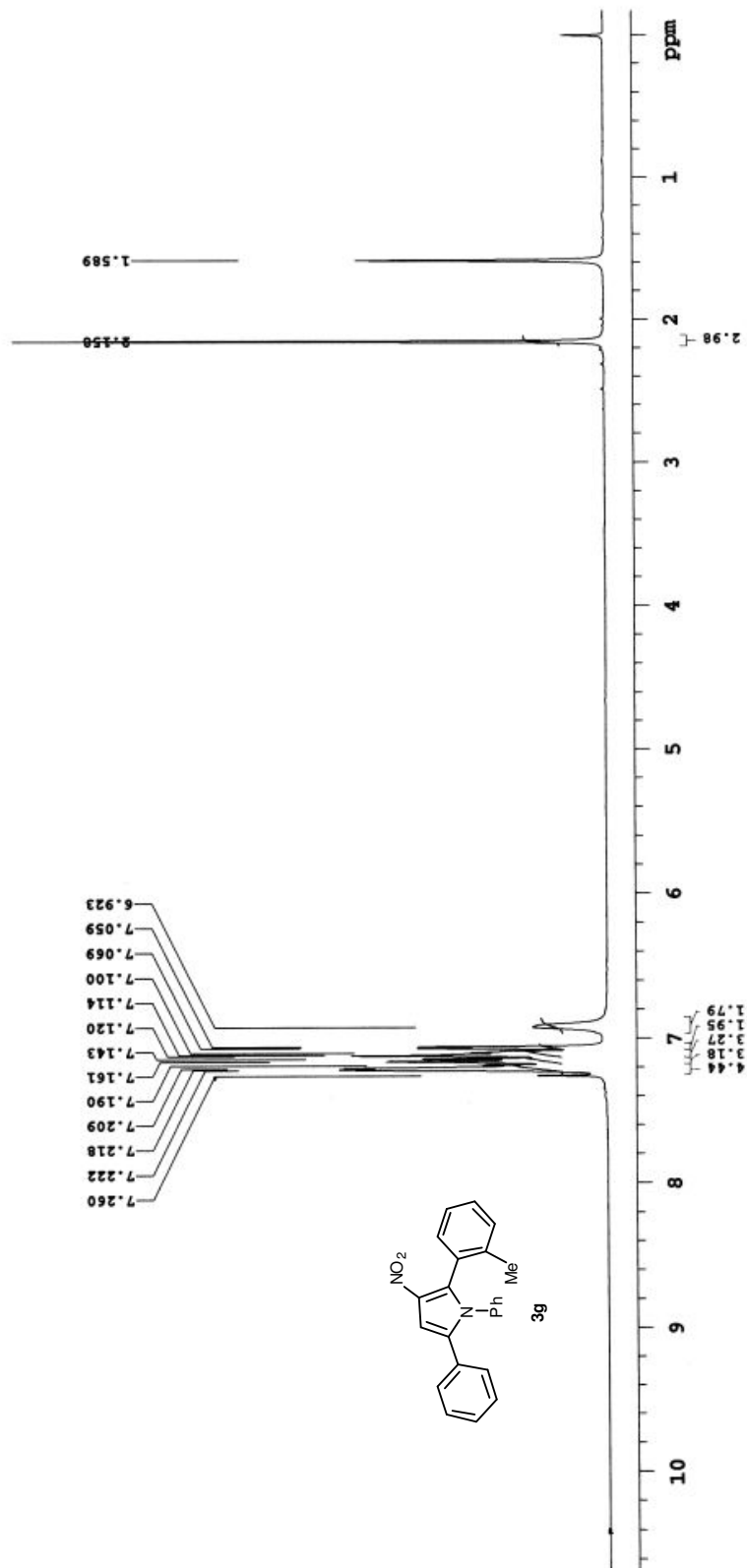
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1.576

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PROCNO 1
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PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
FIDRES 0.30
SOLVENT CDCl3
NS 16
DS 2
SWH 12019.230 Hz
FIDRES 0.30 Hz
AQ 1.3231488 sec
RG 73.2
DM 41.600 usec
DE 6.50 usec
TE 300.2 K
D1 1.00000000 sec
TD0 1
===== CHANNEL f1 =====
SFO1 600.137063 MHz
NUC1 1H
P1 12.00 usec
PLW1 21.00000000 W
F2 - Processing parameters
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LB 0.30 Hz
GB 0
PC 1.00

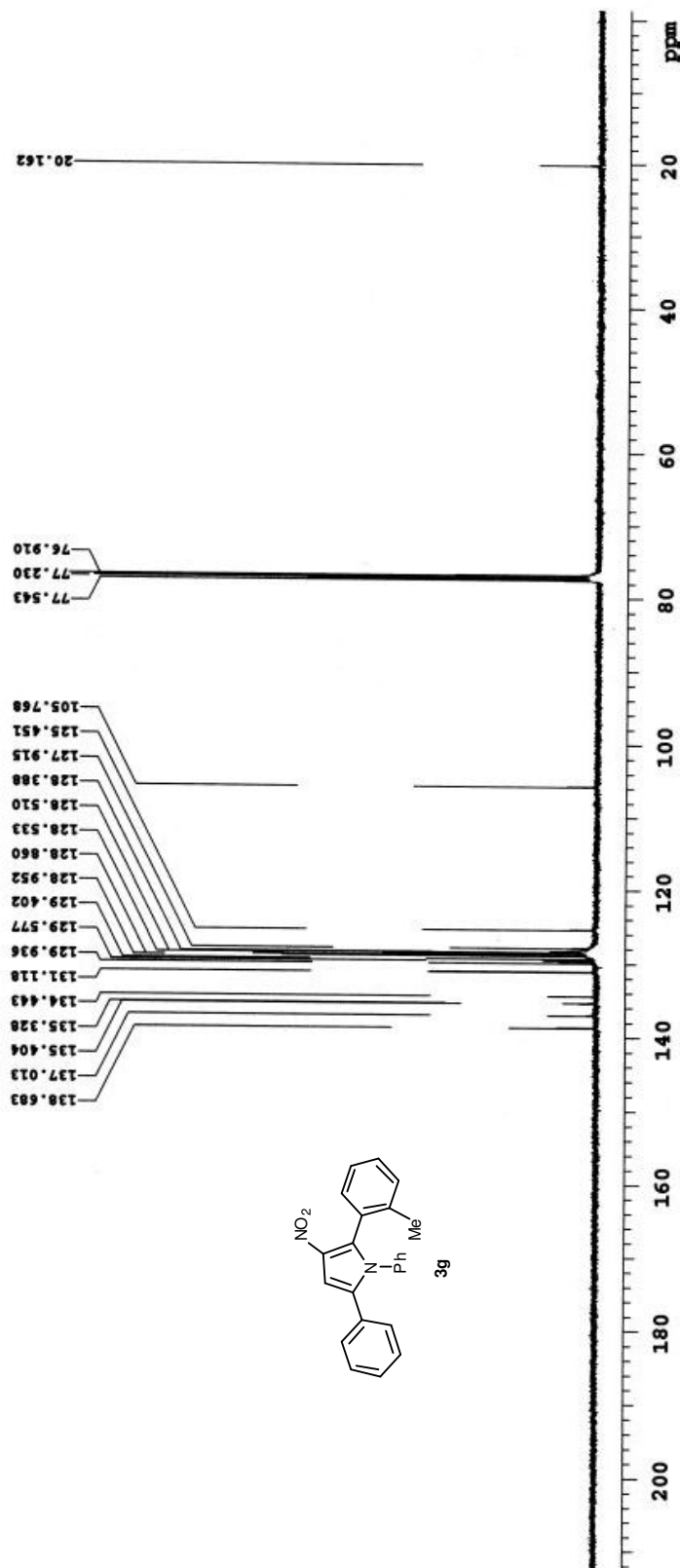




PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 1.304 sec Width 25125.6 Hz 960 repetitions	OBSERVE C13, 100.5425849 DECOUPLE H1, 399.8529994 Power 42 dB continuously on WALTZ-16 modulated	DATA PROCESSING Line broadening 0.5 Hz FT size 65536 Total time 36 minutes	GBR-655-13C Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem File: GBR-655-13C Mercury-400 1H-13C-NMR
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PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 2.561 sec Width 6398.0 Hz 32 repetitions	OBSERVE H1, 399.8509613	DATA PROCESSING Line broadening 1.0 Hz FT size 32768 Total time 1 minutes	GER-658-1H Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem File: GER-658-1H Mercury-400 *IITG-NMR*
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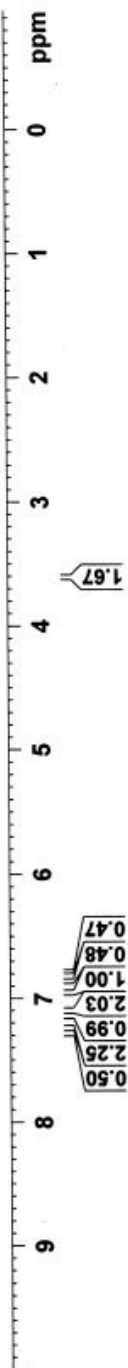
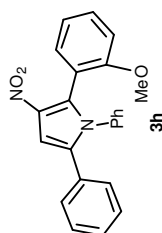


PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 1.304 sec Width 25125.6 Hz 10340 repetitions	OBSERVE C13, 100.5425817 DECOUPLE H1, 399.8529994 Power 42 dB continuously on WALTZ-16 modulated	DATA PROCESSING Line broadening 0.5 Hz FT size 65536 Total time 6.6 hours	GBR-658-13C Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chm File: GBR-658-13C Mercury-400 *HITG-NMR*
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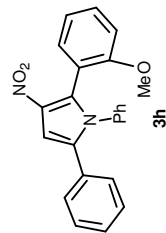
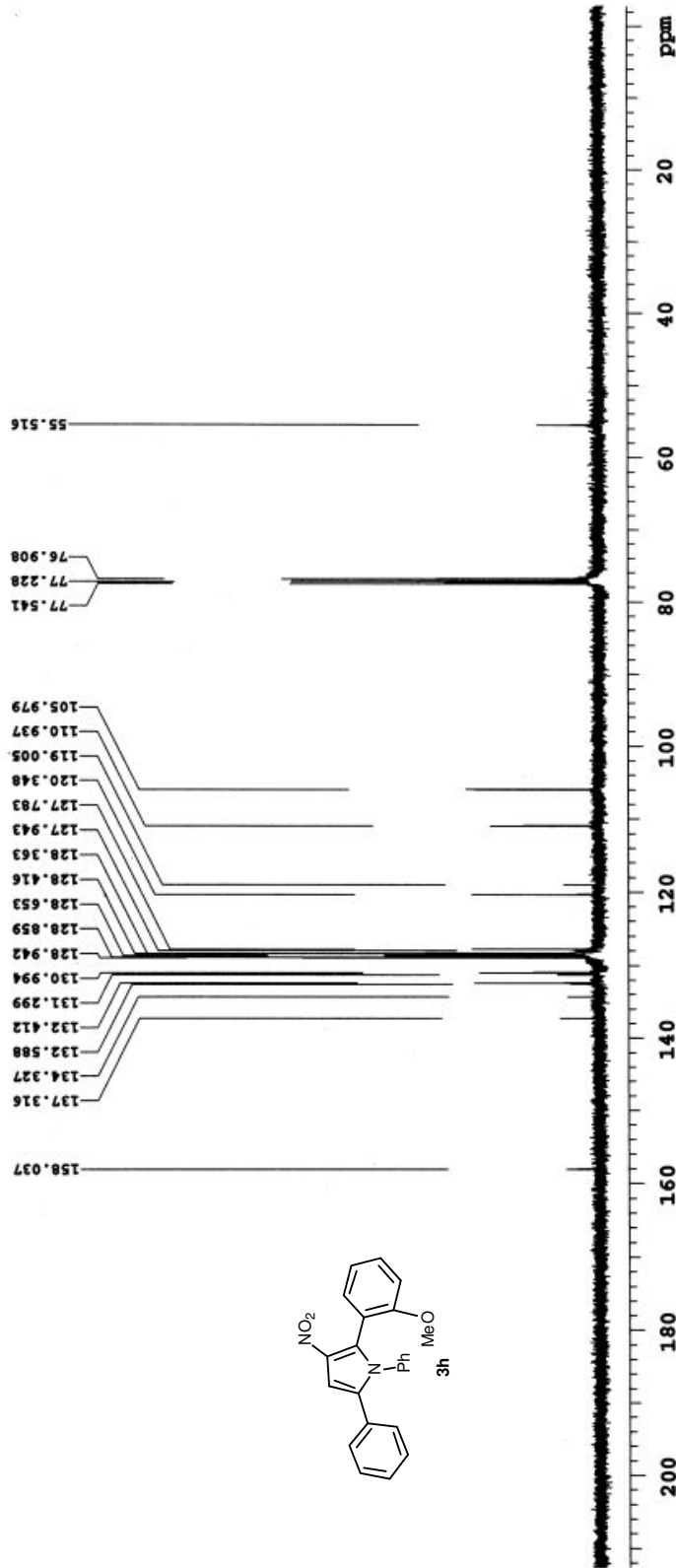
GBR-644-1H

7.300
7.298
7.286
7.274
7.271
7.260
7.214
7.209
7.205
7.200
7.197
7.188
7.176
7.158
7.145
7.134
7.119
7.116
7.1096
7.096
7.088
6.958
6.946
6.873
6.861
6.849
6.777
6.668
6.654

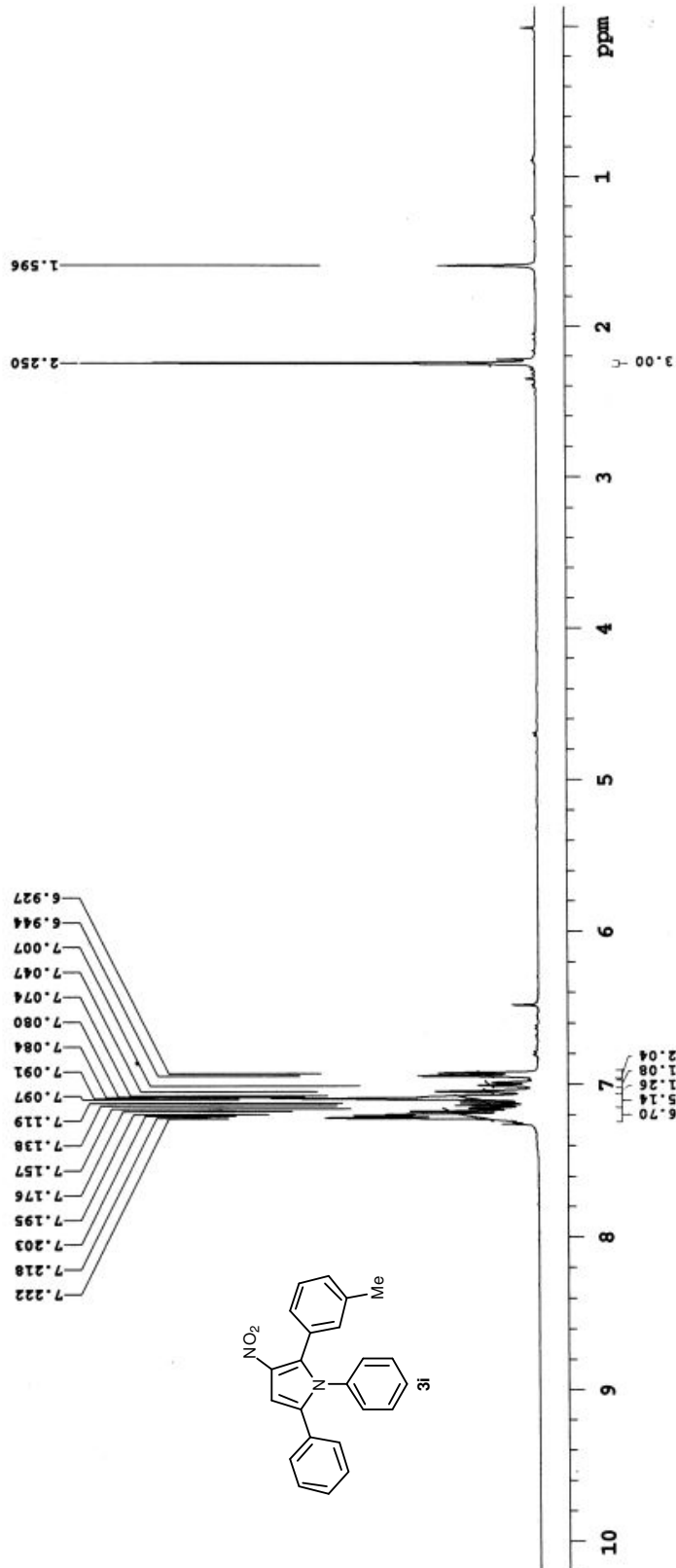
3.595
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0.004



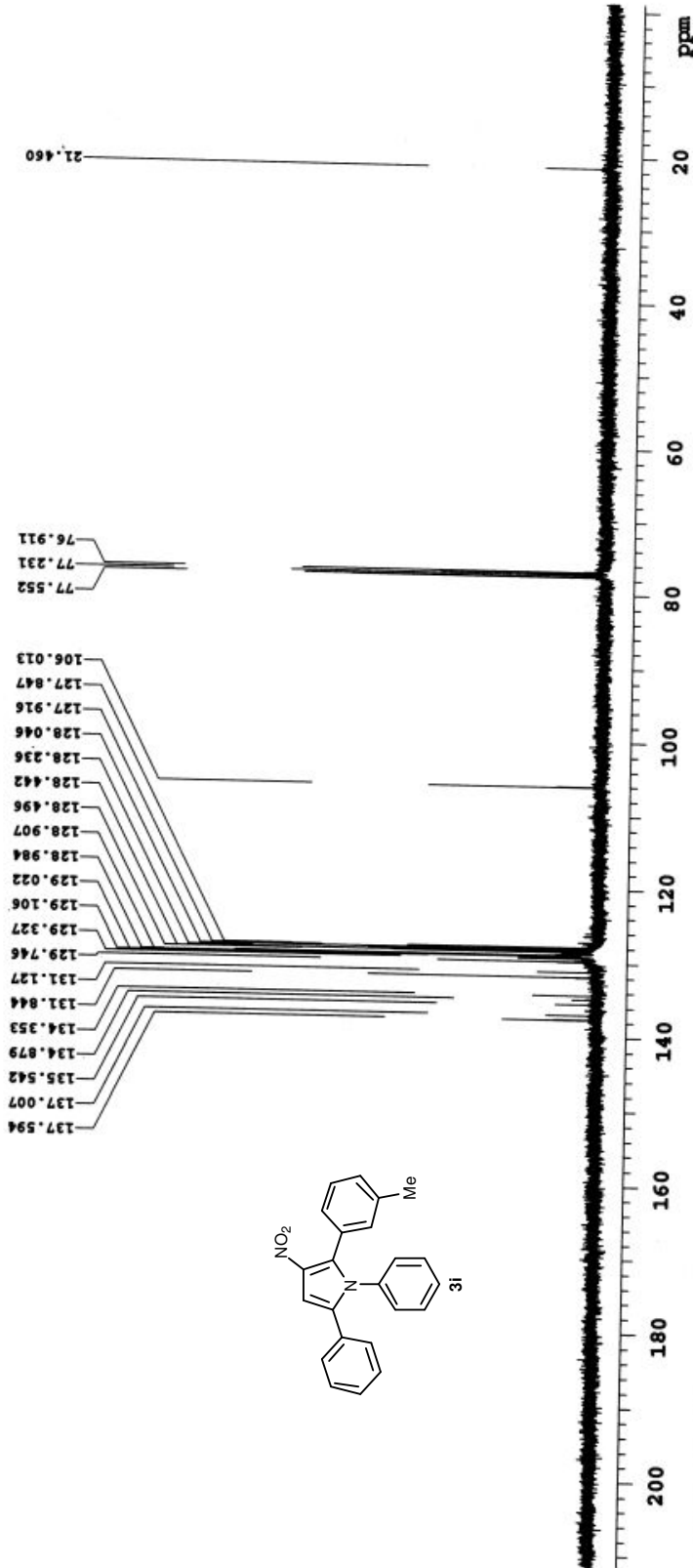
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PULPROG zgpg30
TD 32768
SOLVENT CDCl3
DS 2
SWH 11019.230 Hz
FIDRES 0.365798 Hz
AQ 1.315161 sec
RG 89.67
DM 41.600 usec
DE 6.50 usec
TE 300.2 K
DT 1.0000000 sec
TD0 1
===== CHANNEL f1 =====
NUC1 1H
P1 12.00 usec
PL1 21.00000000 W
F2 - Processing parameters
SI 16384
SF 600.137043 MHz
WDW EM
SSB 0
LB 0
GB 0
PC 1.00



PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 1.304 sec Width 25125.6 Hz 1710 repetitions	OBSERVE C13, 100.5425849 DECOUPLE H1, 399.8529994 Power 42 dB continuously on WALTZ-16 modulated	DATA PROCESSING Line broadening 0.5 Hz FT size 65536 Total time 65 minutes	GBR-644-13C Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem File: GBR-644-13C Mercury-400 *IITG-NMR*
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PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 2.561 sec Width 6398.0 Hz 32 repetitions	OBSERVE H1, 399.8509614	DATA PROCESSING F1 size 32768 Total time 1 minutes	GER-664-13C Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem File: GER-664-1H Mercury-400 "IITG-NMR"
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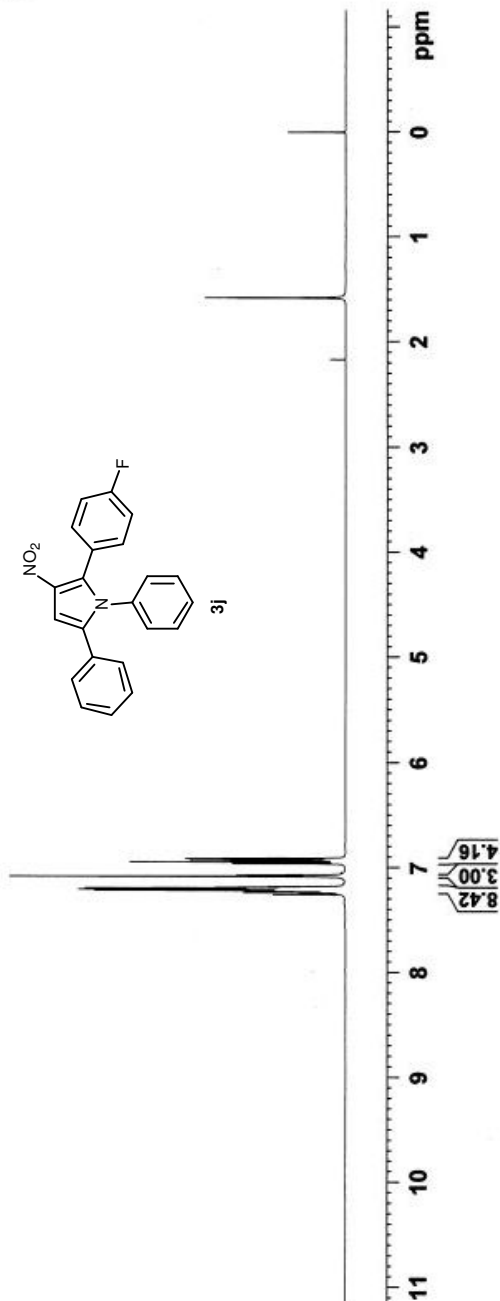
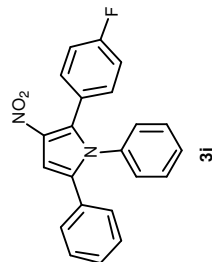
PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 1.304 sec Width 25125.6 Hz 450 repetitions	OBSERVE C13, 100.5425846 DECOUPLE H1, 399.8529994 Power 42 dB continuously on WALTZ-16 modulated	DATA PROCESSING Line broadening 0.5 Hz FT size 65536 Total time 17 minutes	GBR-664-13C Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem File: GBR-664-13C Mercury-400 *ITG-NMR*
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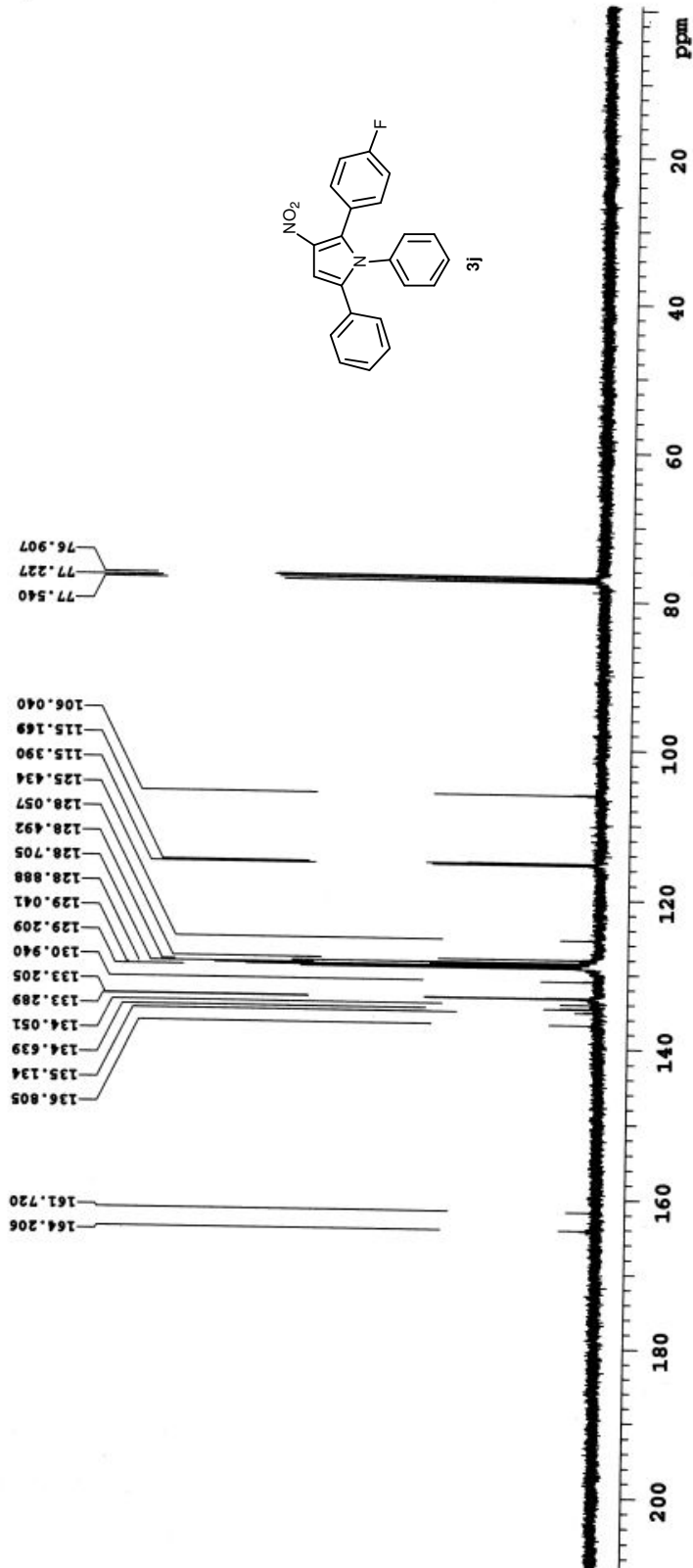
GBR-643-1H

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 PROCNO 1
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 PULPROG zgpg30
 TO 32768
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 12019.230 Hz
 FIDRES 0.366799 Hz
 AQ 1.358182 sec
 RG 327.68
 DW 41.600 usec
 DE 3.50 usec
 TE 300.2 K
 D1 1.0000000 sec
 D11 700
 ===== CHANNEL f1 =====
 SFO1 400.177063 MHz
 NUCL1 1H
 P1 12.00 usec
 PL1 0.0000000 M
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 SSF 0
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 GB 0
 PC 1.00

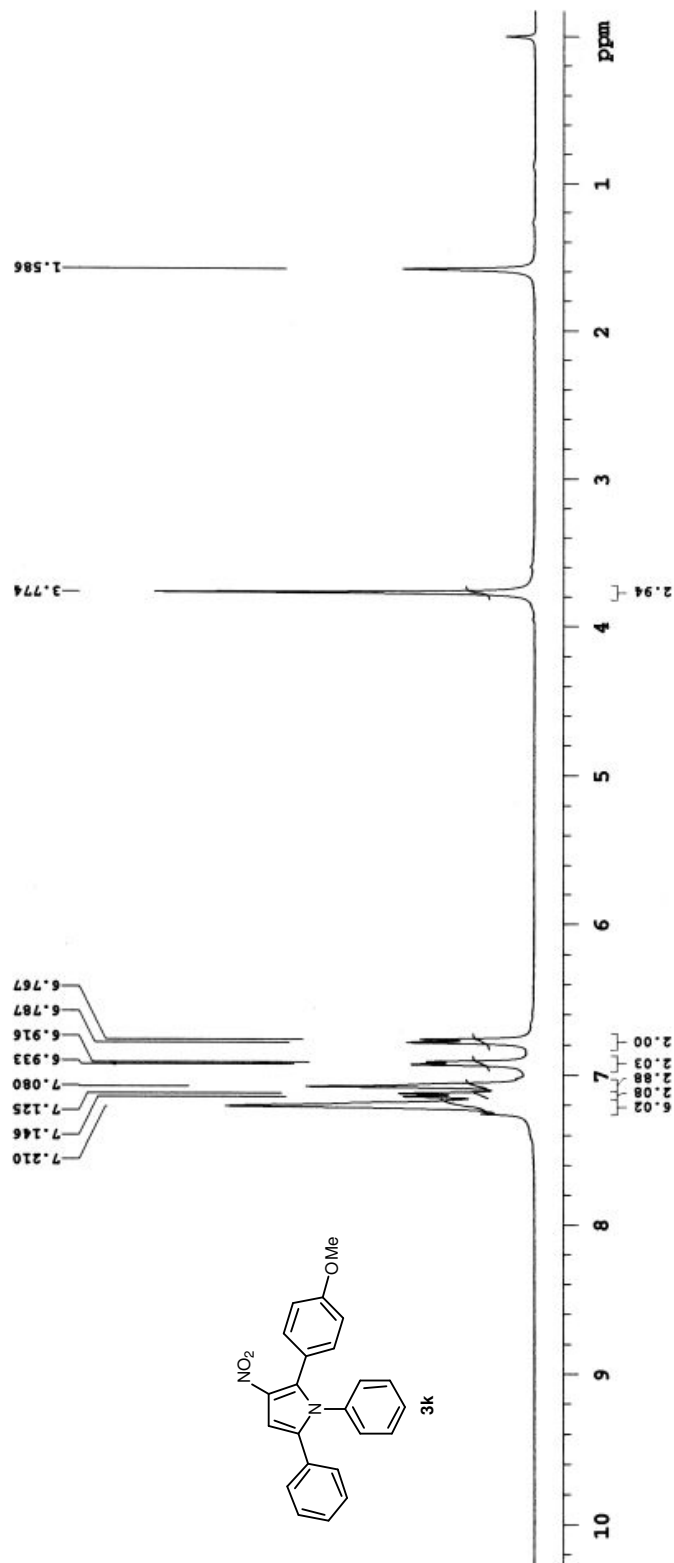
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6.964
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7.074
7.077
7.085
7.183
7.188
7.192
7.196
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7.207
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7.220
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7.229
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7.239
7.260

0.004
1.581

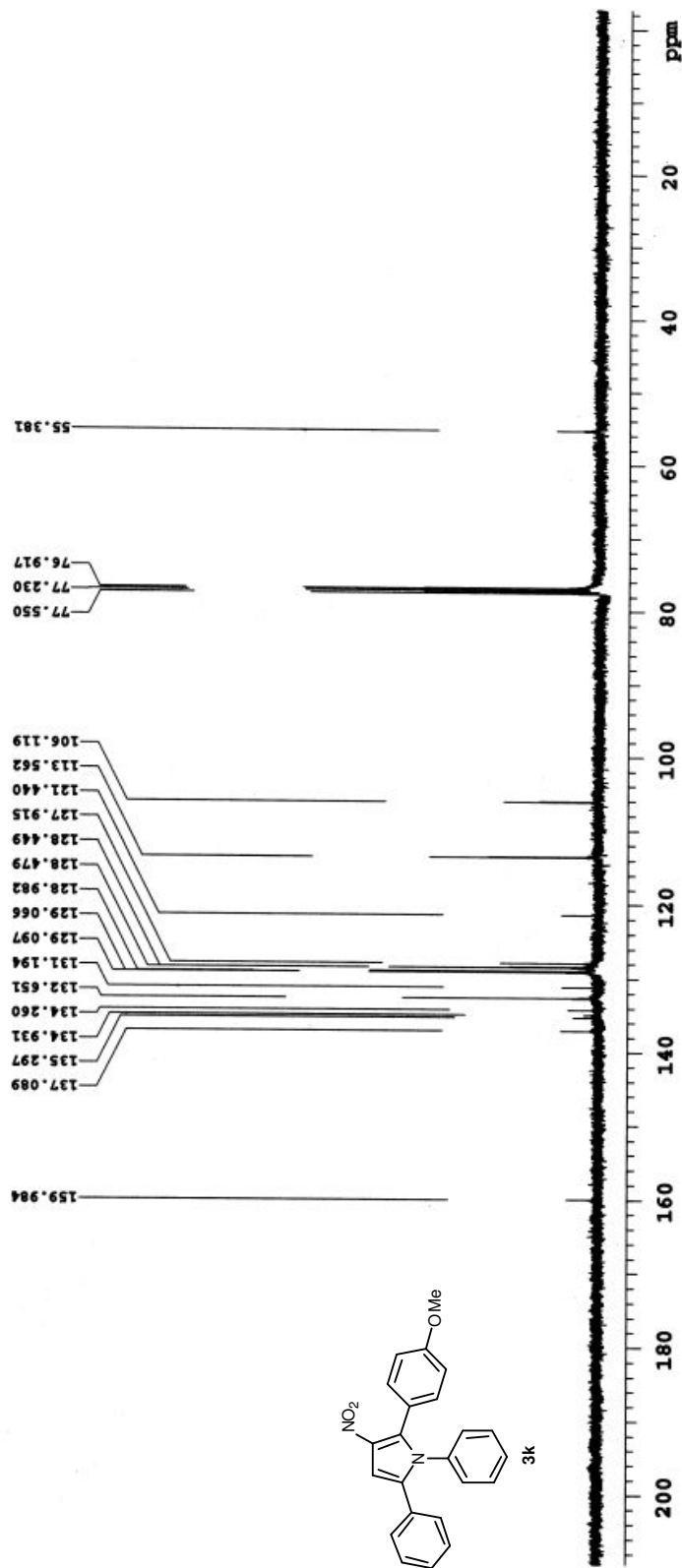
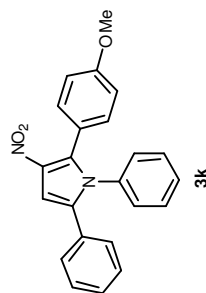




PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 1.304 sec Width 25125.6 Hz 1000 repetitions	Observe C13, 100.5425850 Decouple H1, 399.8529994 Power 42 dB continuously on WALTZ-16 modulated	DATA PROCESSING Line broadening 0.5 Hz FT size 65536 Total time 38 minutes	GBR-643-13C Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem File: GBR-643-13C Mercury-400 *ITG-MMR*
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PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 2.561 sec Width 6396.0 Hz 32 repetitions	OBSERVE H1, 399.8509629	DATA PROCESSING FT size 32768 Total time 1 minutes	GBR-652-1H Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem File: GBR-652-1H Mercury-400 *ITG-NMR*
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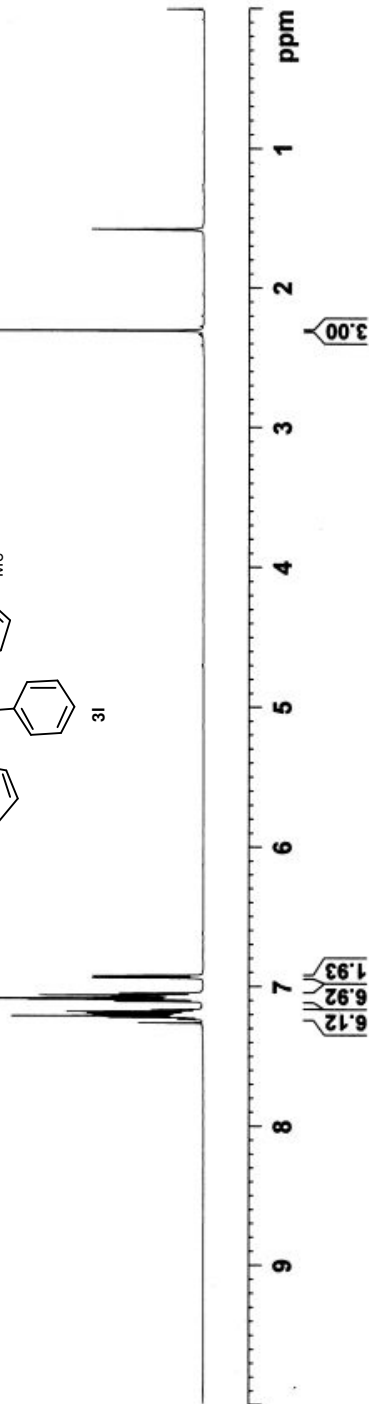
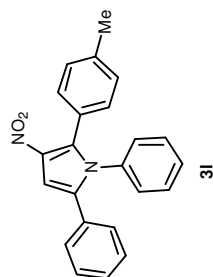
PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 1.304 sec Width 25125.6 Hz 1530 repetitions	OBSERVE C13, 100.5425817 DECOUPLE H1, 399.8529994 Power 42 dB continuously on WALTZ-16 modulated	DATA PROCESSING Line broadening 0.5 Hz FT size 65536 Total time 58 minutes	GBR-652-1H Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chm File: GBR-652-13C Mercury-400 "1H-13C"
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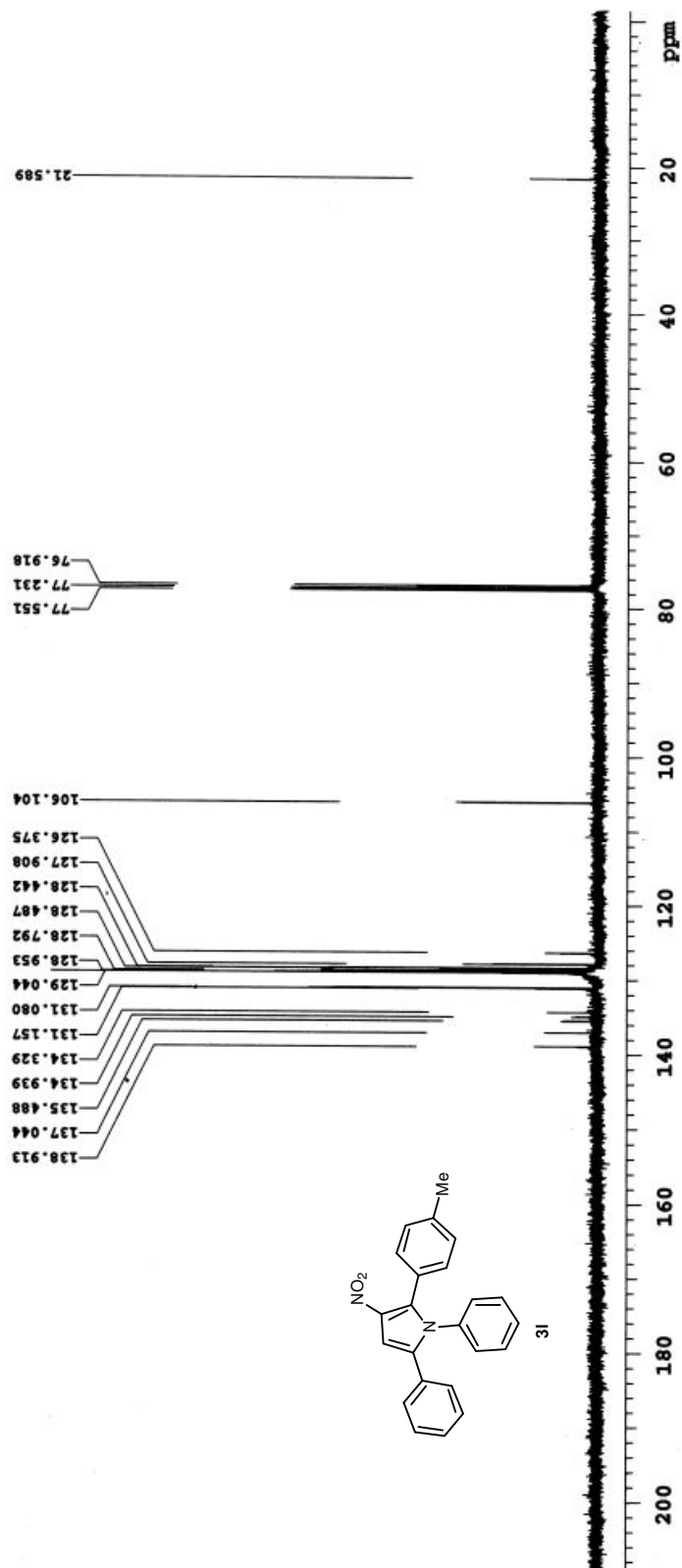
GBR-656-1H

7.260
7.233
7.221
7.210
7.207
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7.191
7.184
7.178
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7.093
7.085
7.082
7.072
7.068
7.064
7.050
6.938
6.925

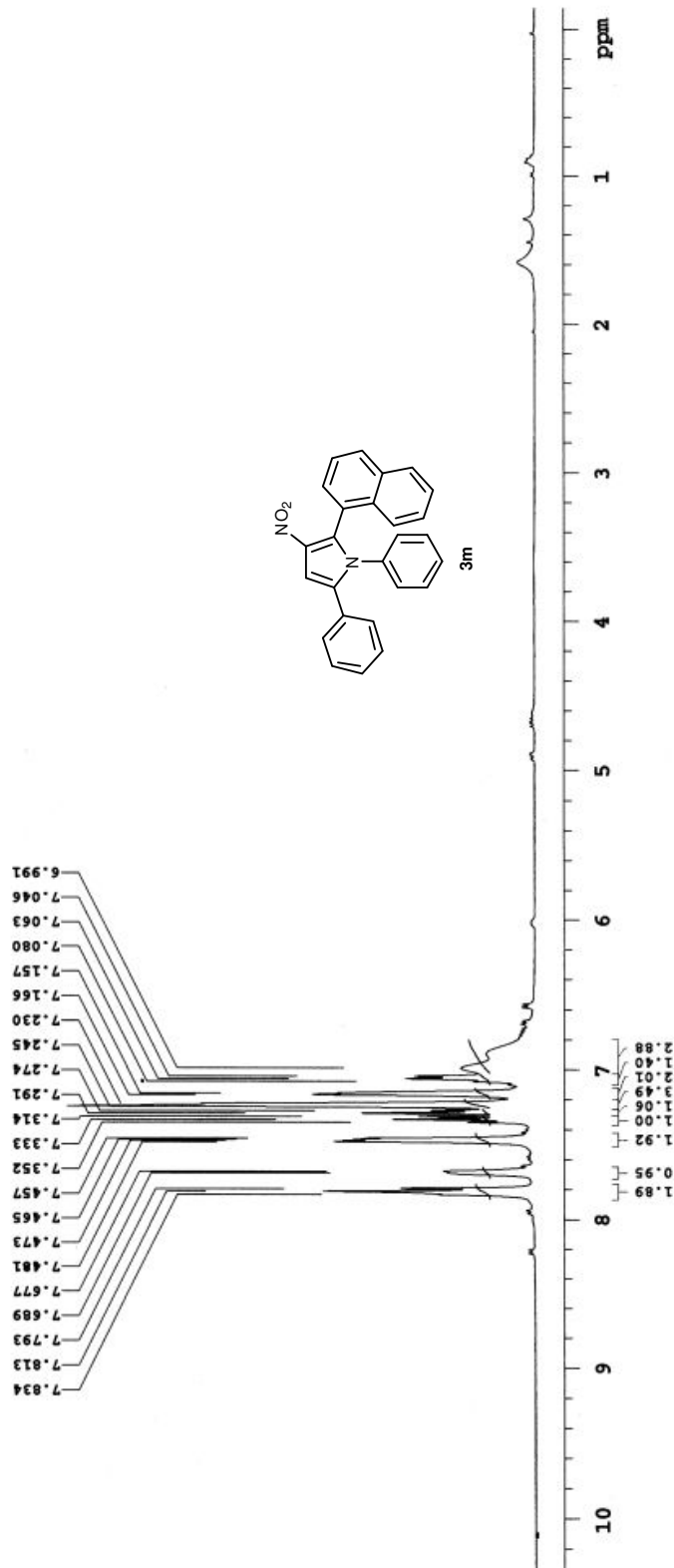
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PROCNO 1
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INSTRUM spect
PROBHD 5 mm PABBO
PULPROG zgpg30
TO 32748
SOLVENT CDCl3
NS 16
DS 2
SWH 12019.230 Hz
FIDRES 0.36678 Hz
AQ 1.35348 sec
RG 327.48
IN 4.000000
NUC1 13C
DE 6.50 usec
TE 300.3 K
D1 1.0000000 sec
TD 1
===== CHANNEL f1 =====
NUC1 13C
P1 12.00 usec
PL1 21.00000000 W
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F2 - Processing Parameters
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WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

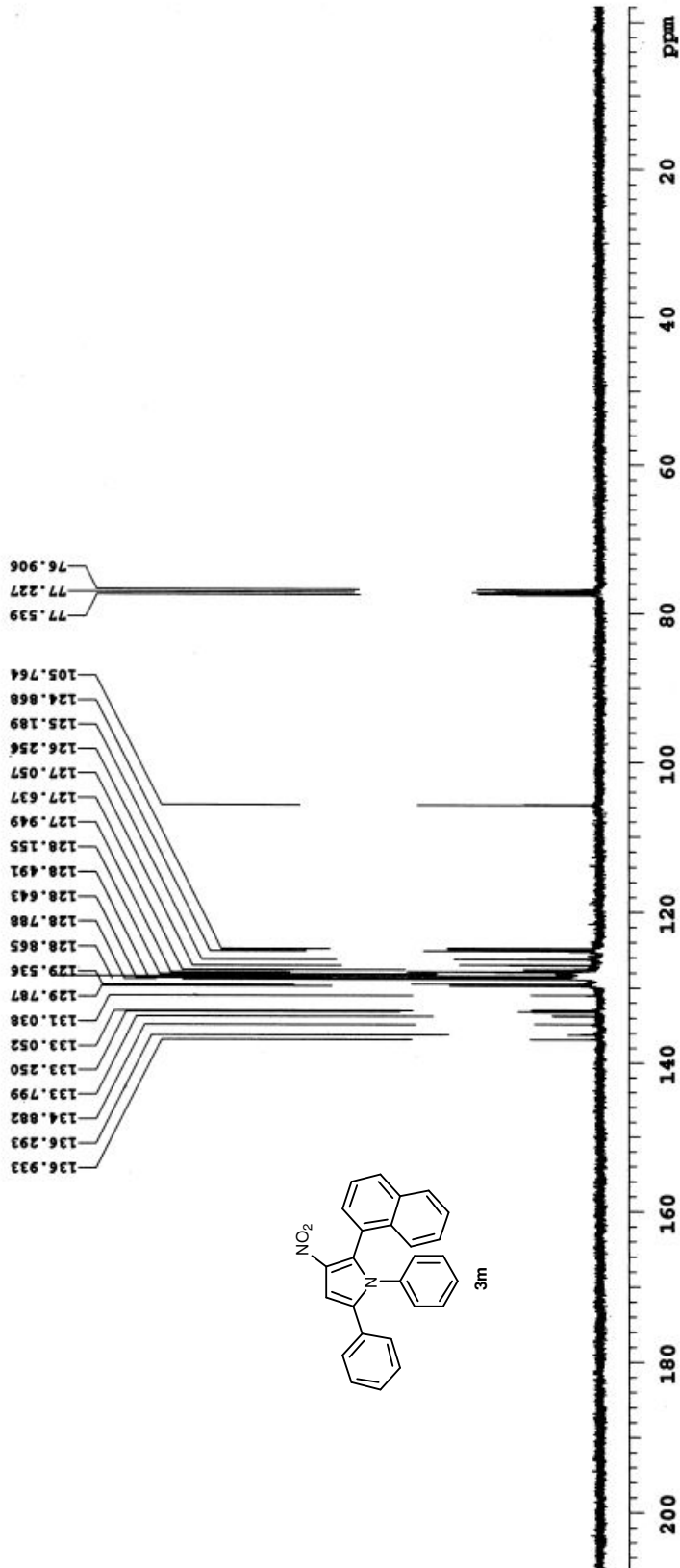




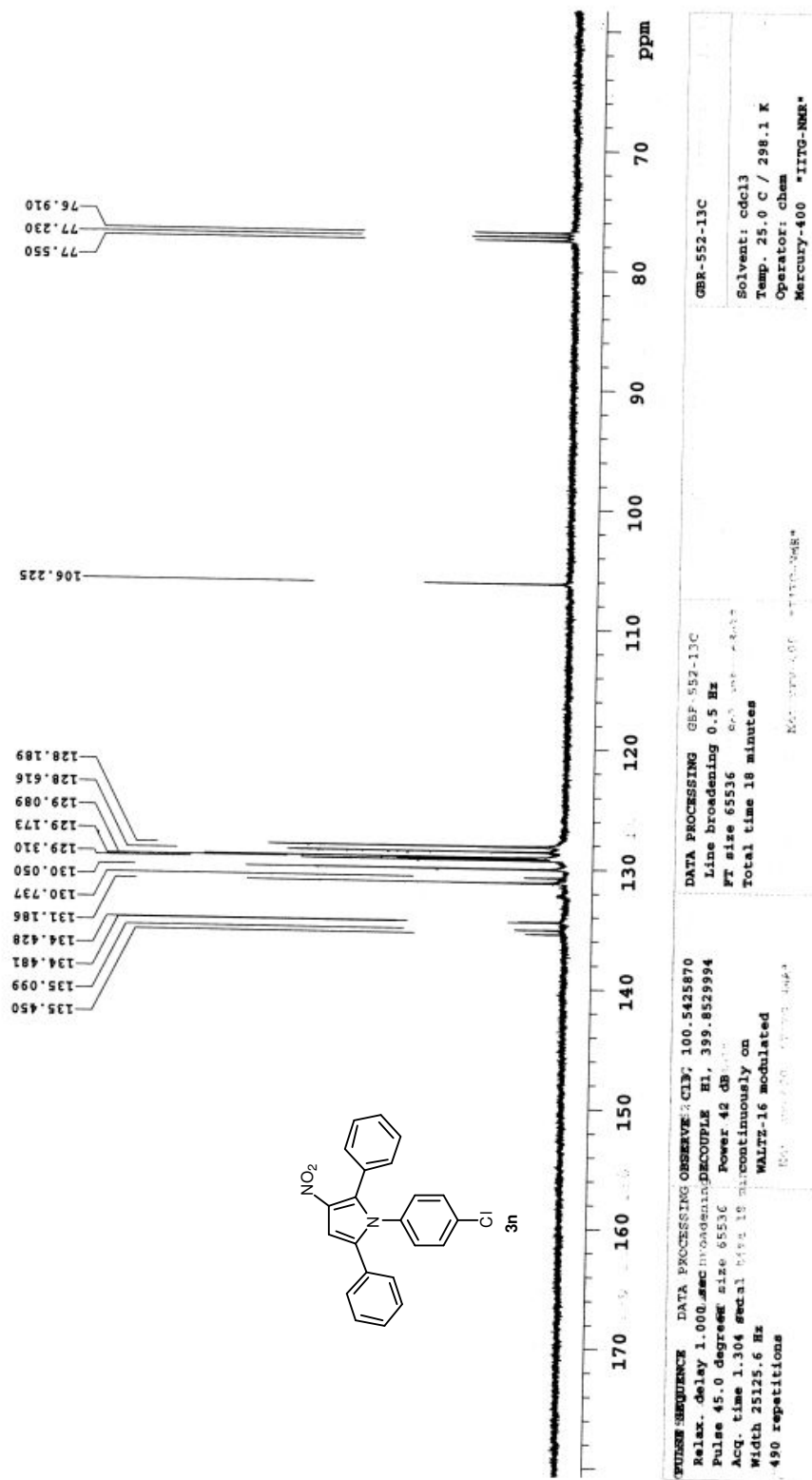
PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 1.304 sec Width 25125.6 Hz 675 repetitions	OSERVE C13, 100.5425847 DECOUPLE H1, 399.8529994 Power 42 dB continuously on WALTZ-16 modulated	DATA PROCESSING Line broadening 0.5 Hz FT size 65536 Total time 25 minutes	GBR-656-13C Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chm File: GBR-656-13C Mercury-400 "117Q-MMR"
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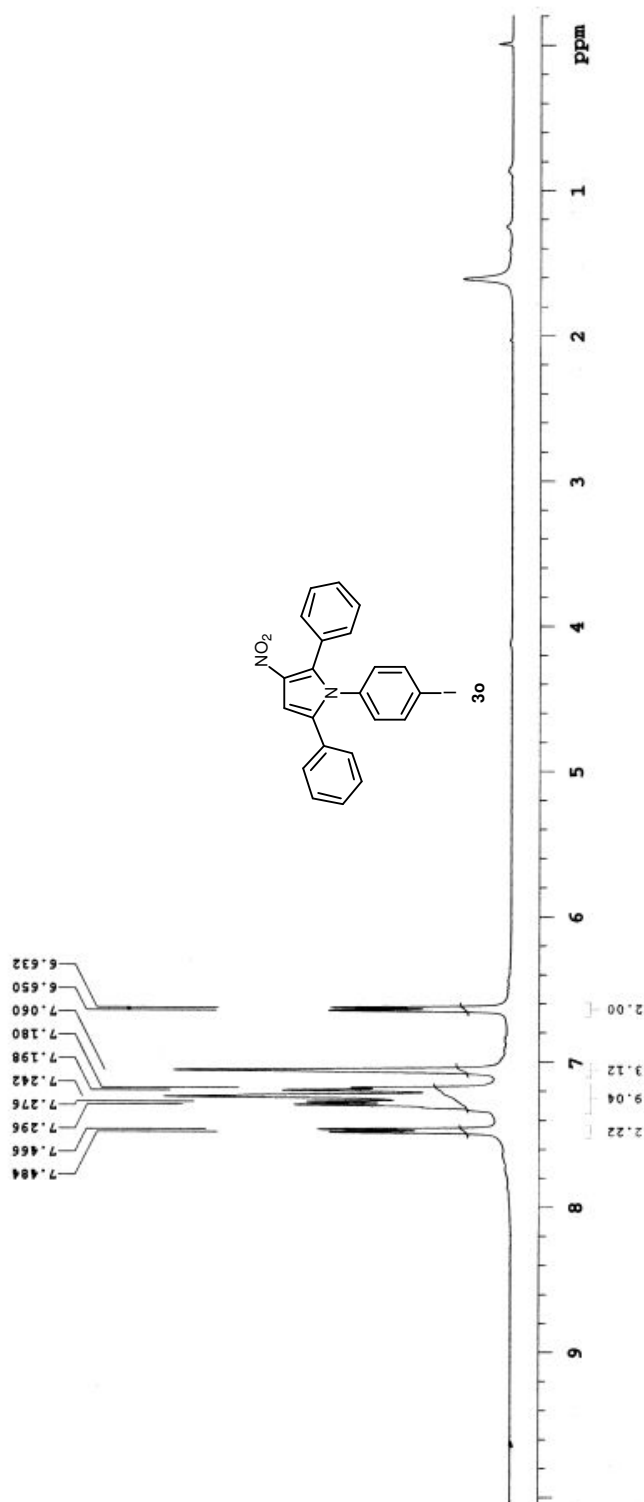


PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 2.561 sec Width 6398.0 Hz 14 repetitions	OBSERVE M1, 399.8509634	DATA PROCESSING FT size 32768 Total time 1 minute	GBR-663-1H Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem File: GBR-663-1H Mercury-400 *IITG-NMR*
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PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 1.304 sec Width 25125.6 Hz 400 repetitions	OBSERVE C13, 100.5425904 DECOUPLE H1, 399.8529994 Power 42 dB continuously on WALTZ-16 modulated	DATA PROCESSING Line broadening 0.5 Hz FT size 65536 Total time 15 minutes	GBR-663-13C Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem File: GBR-663-13C Mercury-400 *ITG-MMR*
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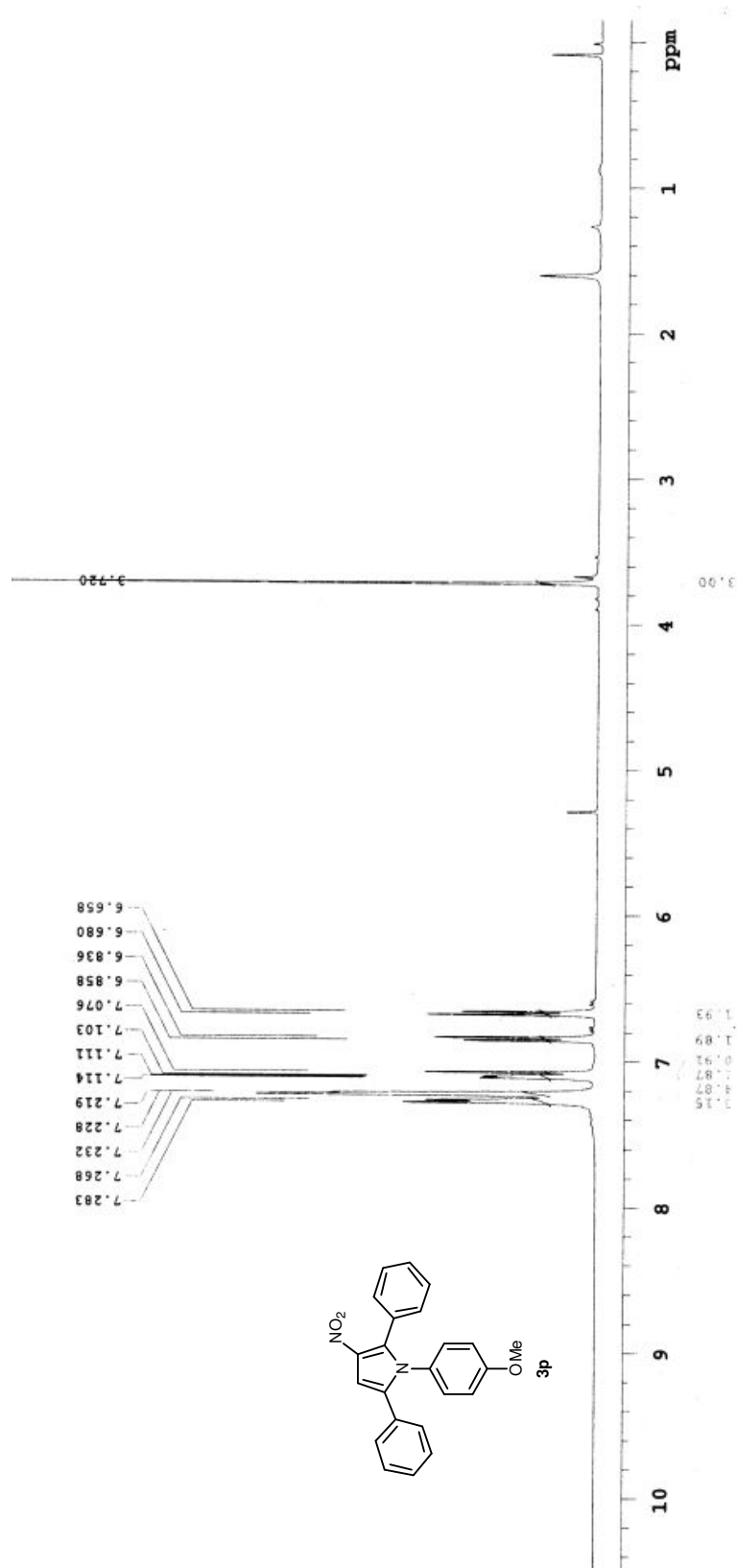




1H NMR spectrum of compound 30. The spectrum shows peaks in the aromatic region (6.5-7.5 ppm) and a small peak in the aliphatic region (2.3 ppm). The x-axis is labeled 'ppm' and ranges from 0 to 10. The y-axis represents intensity. The chemical structure of compound 30 is shown above the spectrum.

Relax. delay 1.000 sec
 Pulse 45.0 deg
 Acq. time 2.561 sec
 Width 6398.0 Hz
 32 repetitions

Total time 3.120 min
 Temp. 25.0 C / 298.1 K
 Operator: chm
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 Time: 11:10:00

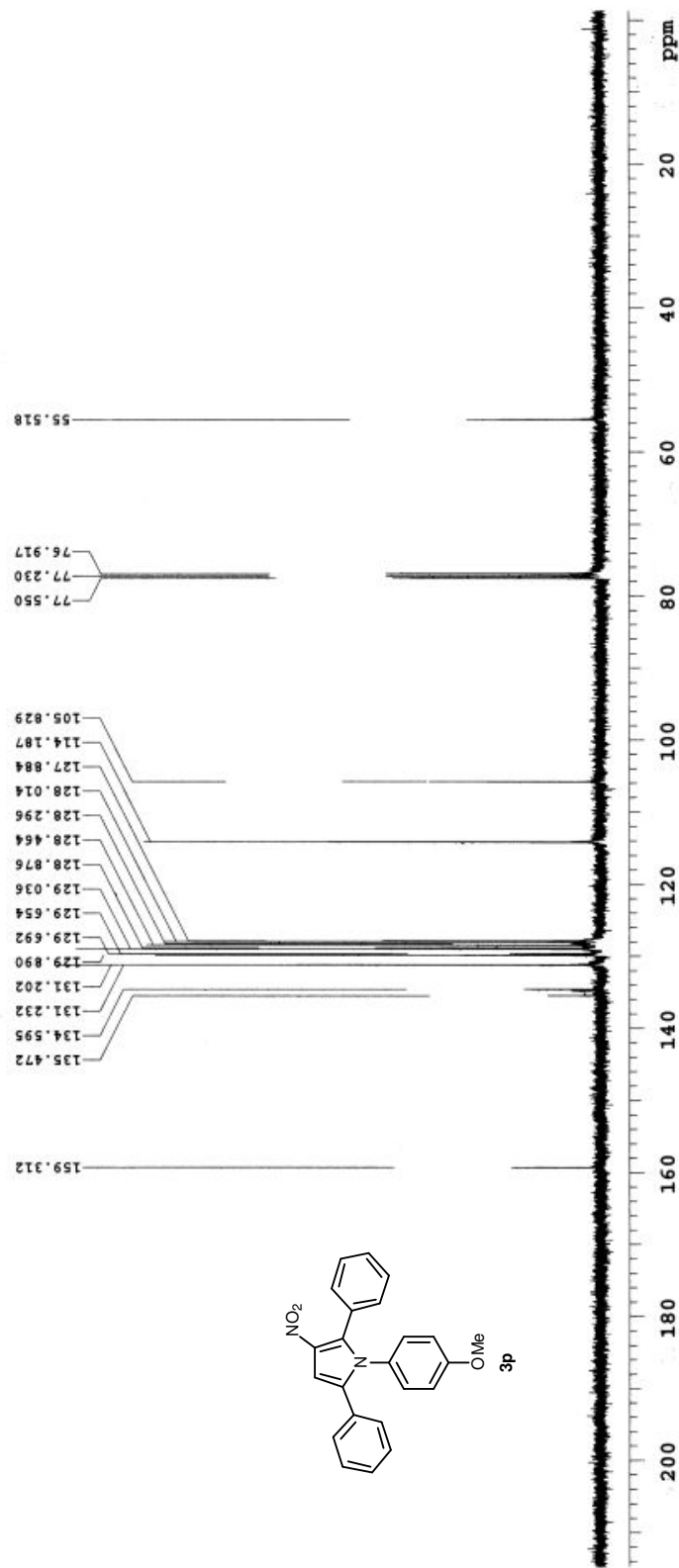


GBR-586-1H
 Solvent: cdcl3
 Temp: 25.0 C / 298.1 K
 Operator: chem
 File: GBR-586-1H
 Mercury-400 *ITG-NMR*

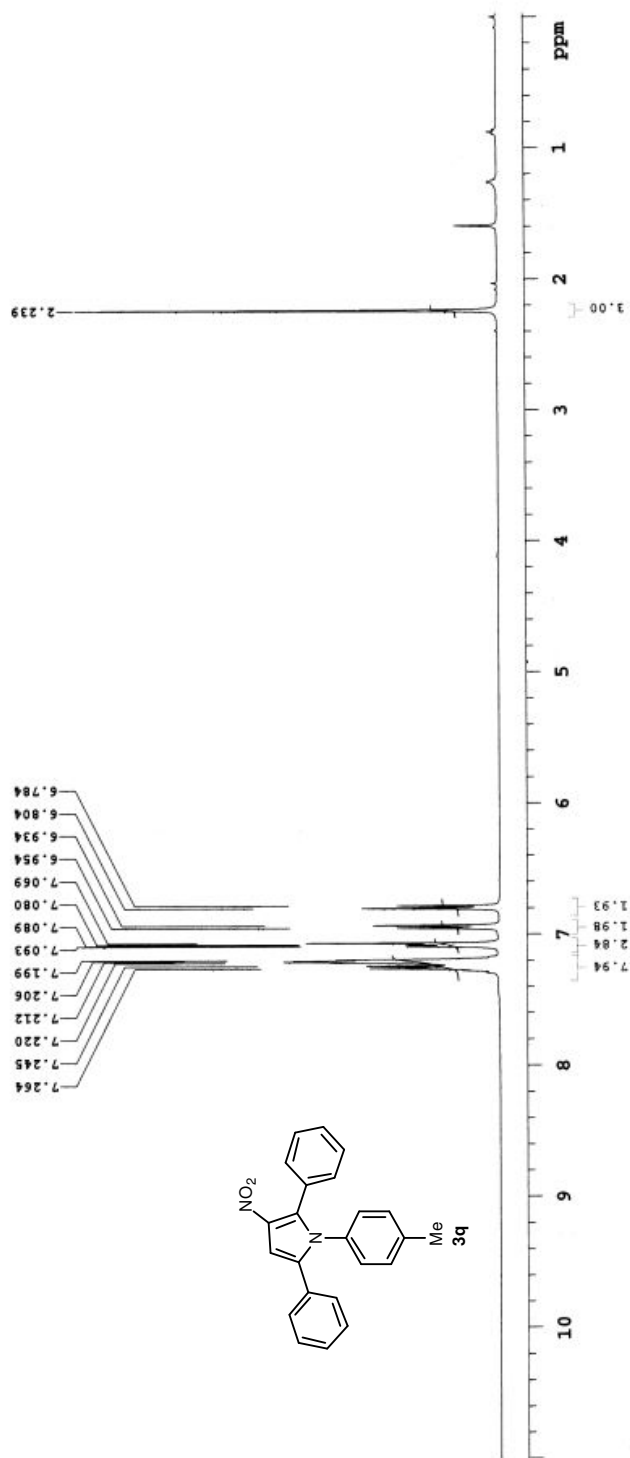
DATA PROCESSING
 F1 size 32768
 Total time 1 minutes

OBSERVE H1. 399.8509641

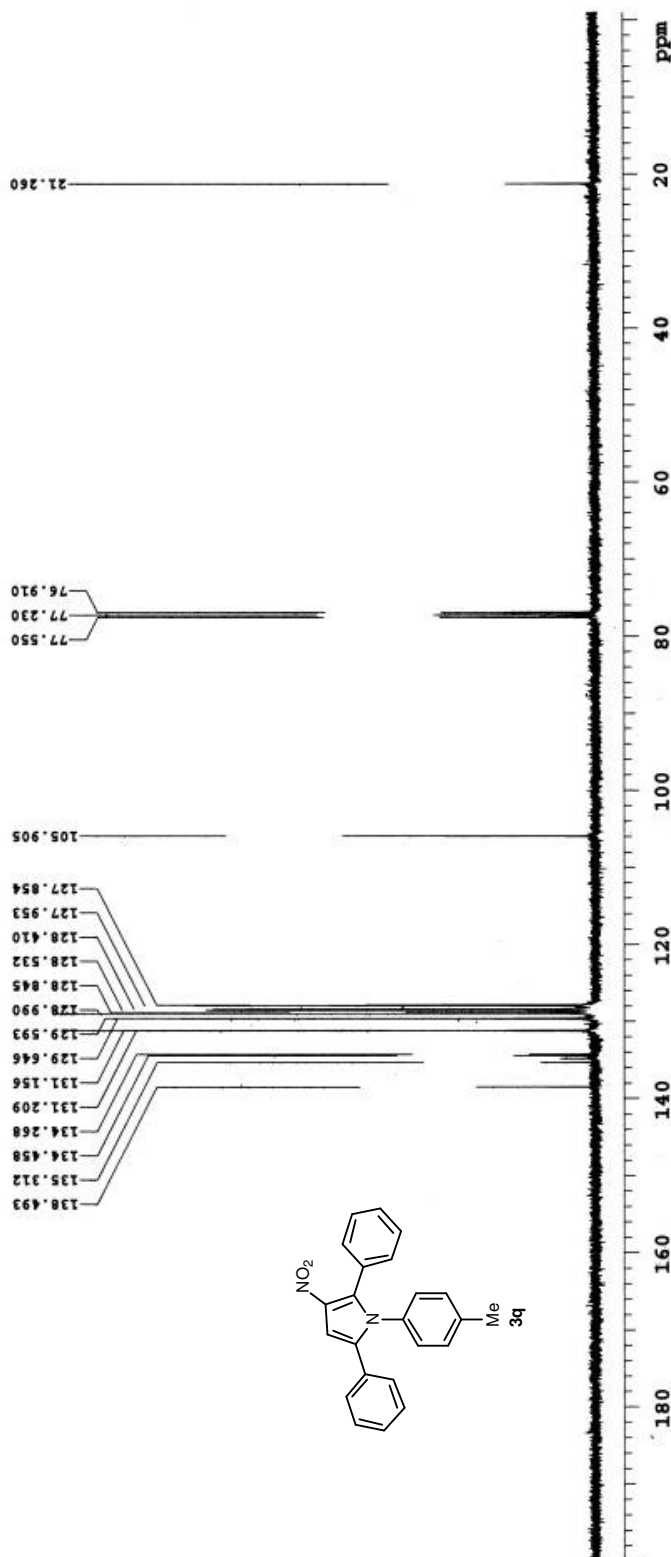
PULSE SEQUENCE
 Relax. delay 1.00
 Pulse 45.0 degree
 Acq. time 2.561 s
 Width 6398.0 Hz
 32 repetitions



1. PULSER SEQUENCE	DATA ACQUISITION	OBSERVE: ^{13}C	100.5425847
2. Relax. delay	1.000 sec	DECOUPLE H1	399.8529994
3. Pulse	45.0 degrees	Power	42.0 dB
4. Acq. time	1.304 sec	Continuously on	WALTZ-16 modulated
5. Width	25125.6 Hz		
6. 500 repetitions			
		DATA PROCESSING	GBR-586-13C
		Line broadening	0.5 Hz
		FT size	65536
		Total time	19 minutes
		Solvent	cdcl3
		Temp.	25.0 C / 298.1 K
		Operator	chem
		Mercury-400	*H1O-NMR*



SEQUENCE DATA PROCESSING OBSERVE: H1, 399.850955 Relax. delay 1.000 sec: 1.778 Pulse 45.0 degrees: time 1 minutes: 1.778 Acq. time 2.561 sec Width 6398.0 Hz 32 repetitions	DATA PROCESSING: GER-547-1H File size 32768 Total time 1 minutes: 1.778 Operator: chan Mercury-400	GER-547-1H Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chan Mercury-400 *110-MMR*
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PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 1.304 sec Width 25125.6 Hz 310 repetitions	DATA PROCESSING Line broadening 0.5 Hz FT size 65536 Total time 17 minutes	NAME 547-13C REMARKS Solvent: cdcl3 Temp: 25.0 C / 298.1 K Operator: chm Mercury-400 "HITG-NMR"
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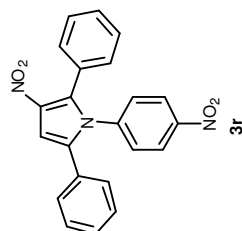
585

GBR-595-13C



77.02
77.23
77.44

147.08
142.40
135.61
134.85
134.45
131.19
130.31
129.77
129.56
129.19
128.83
128.73
128.58
128.43
124.35
106.85



190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm

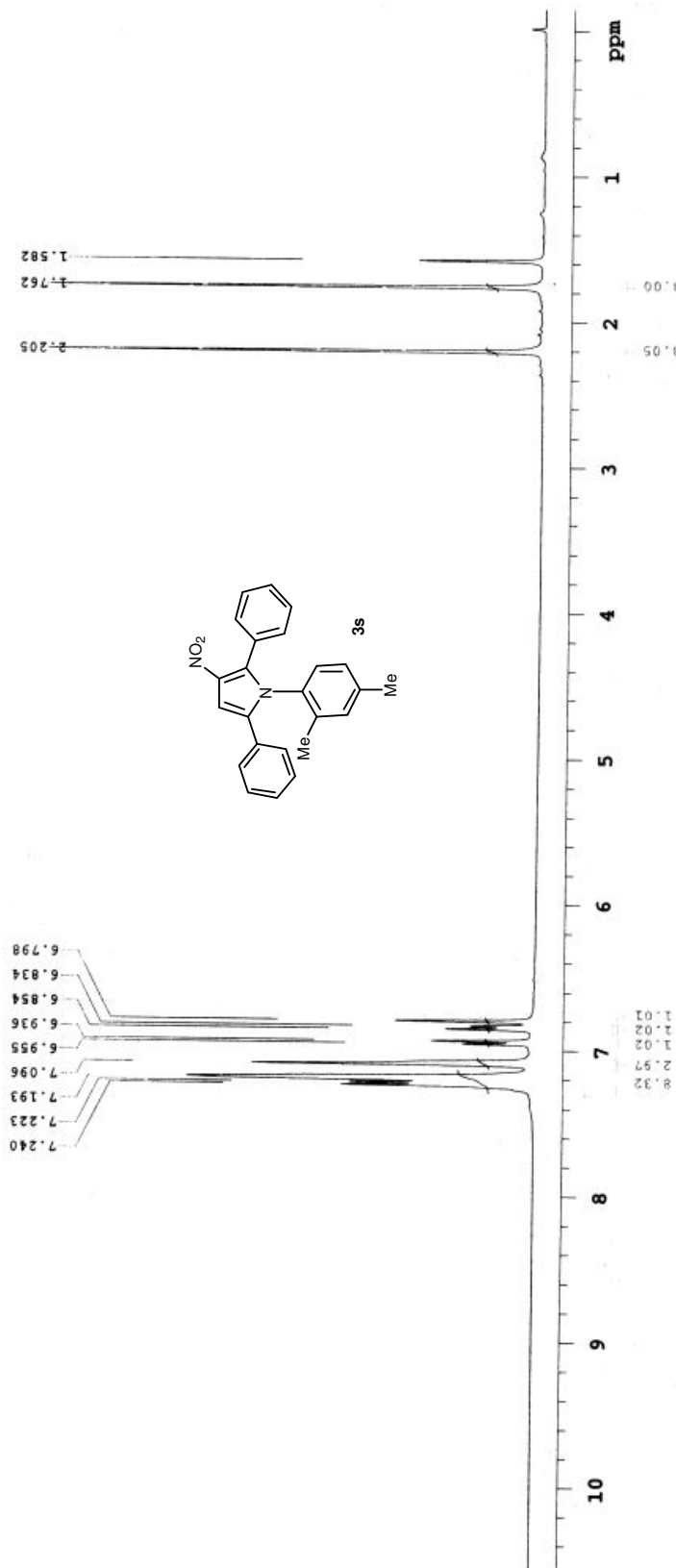
Current Data Parameters
NAME GBR-595-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20180301
Time 13:59
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 102
DS 1
SWH 36057.691 Hz
FIDRES 1.100393 Hz
AQ 0.4543829 sec
RG 65.24
DM 15.867 usec
DE 28.50 usec
TE 298.2 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

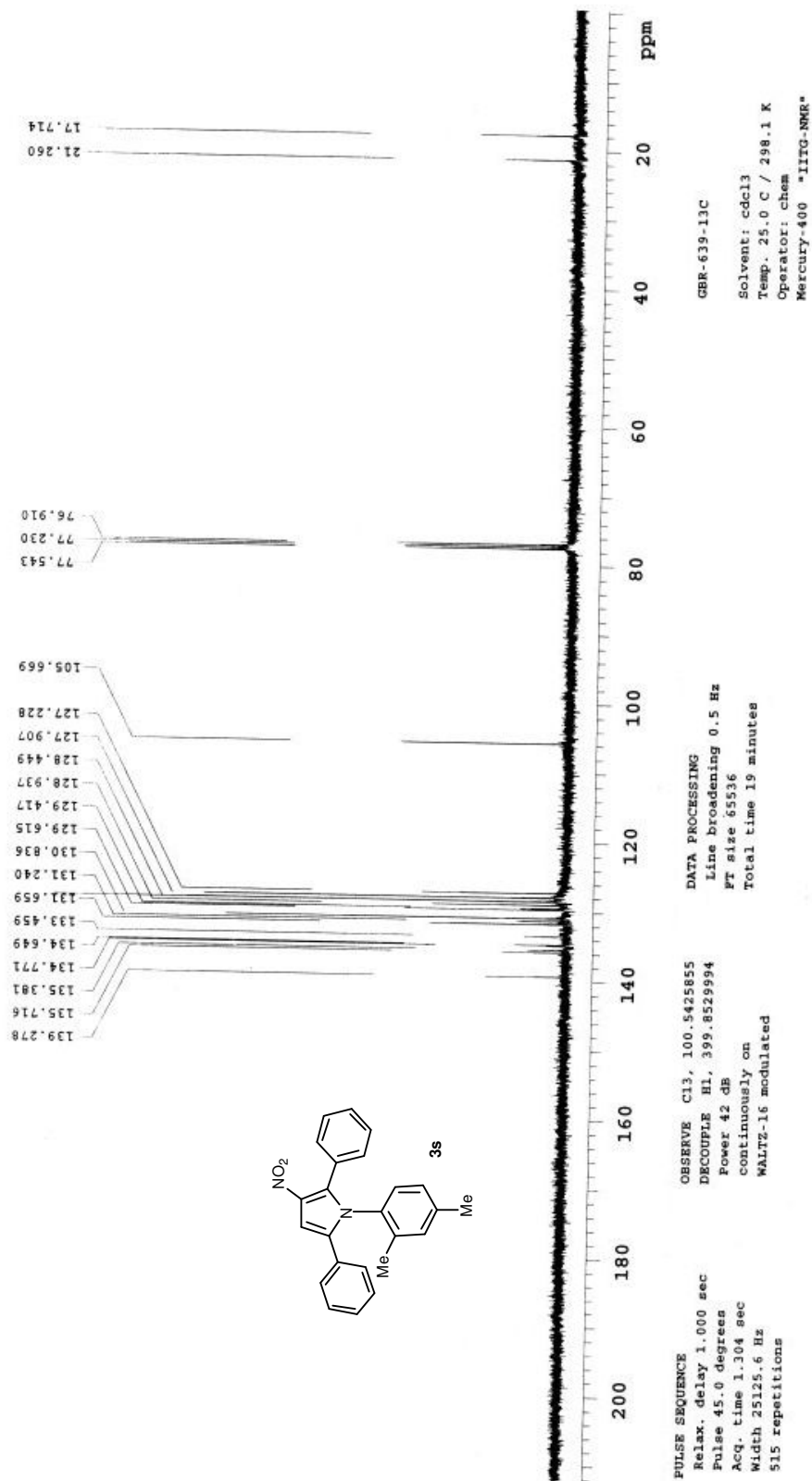
===== CHANNEL f1 =====
SFO1 150.929572 MHz
NUC1 13C
P1 10.50 usec
PLA1 95.00000000 W

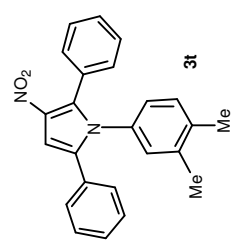
===== CHANNEL f2 =====
SFO2 600.1724007 MHz
NUC2 1H
PCPDG2 wait-21
P1 70.00 usec
PLA2 21.00000000 W
PLA12 0.61714000 W
PLA13 0.30239999 W

F2 - Processing parameters
SI 32768
SF 150.912816 MHz
WDW EM
SSB 0
LB 0
GB 0
PC 1.40

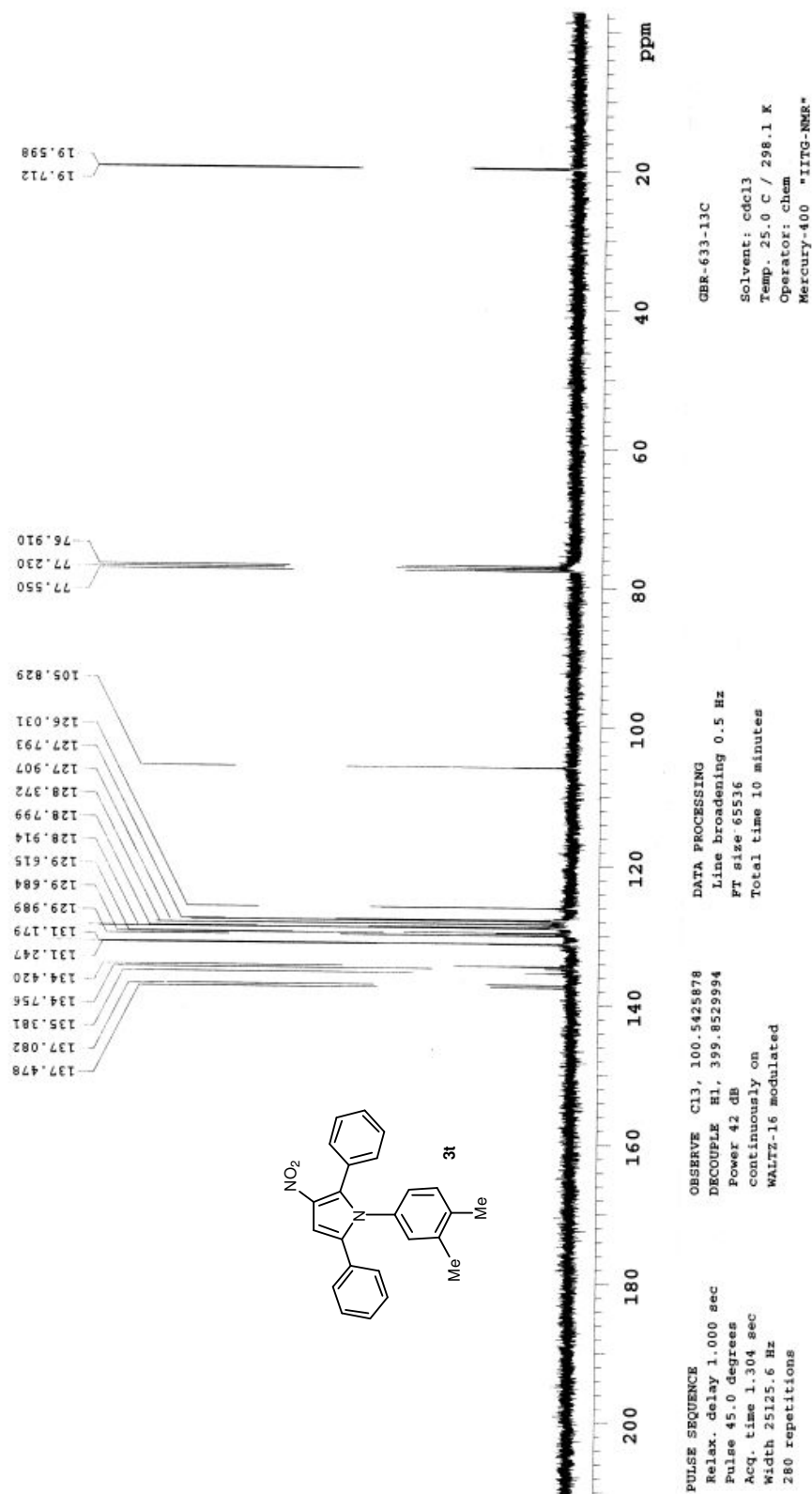


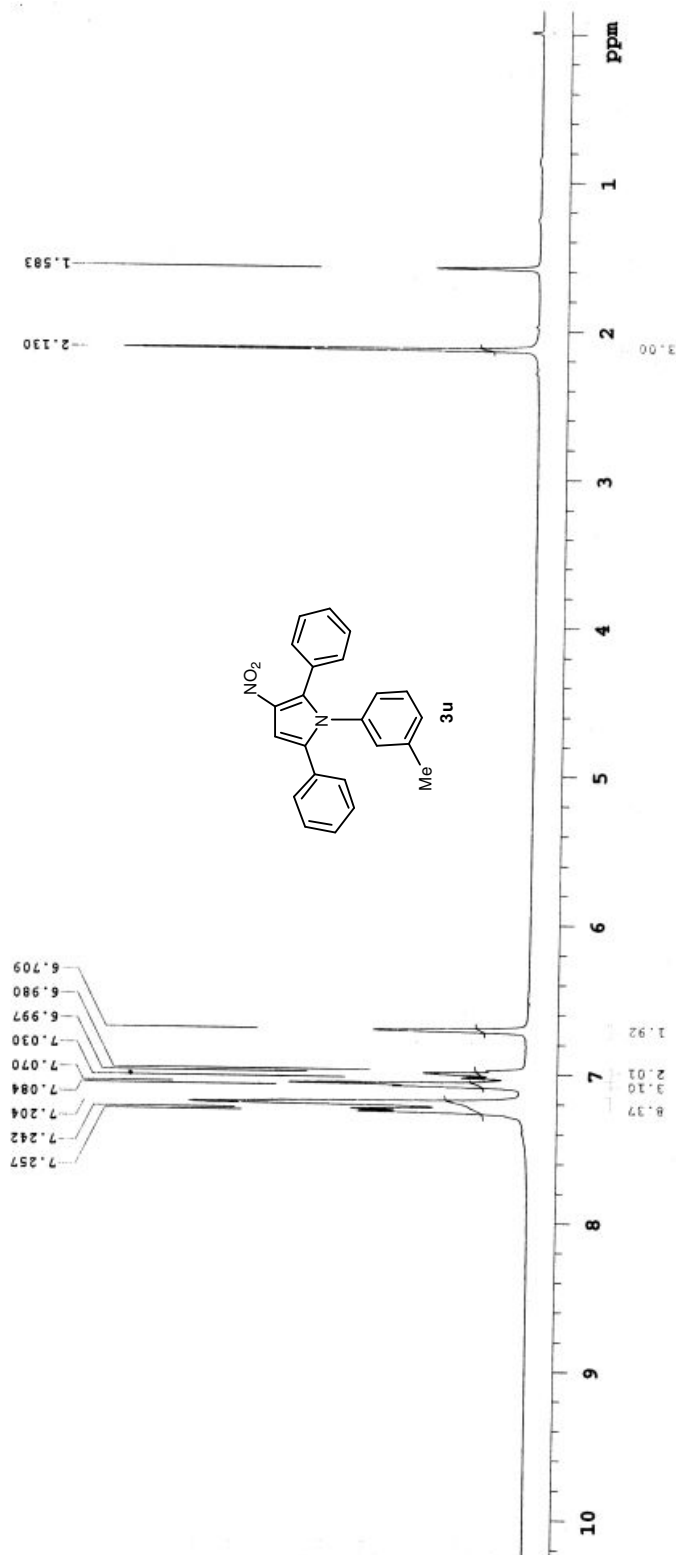
PULSE SEQUENCE	OBSERV	DATA PROCESSING	GBR-639-1H
Relax. delay 1.000 sec	H1, 399.8509722	FT size 32768	Solvent: cdcl3
Pulse 45.0 degrees		Total time 1 minutes	Temp. 25.0 C / 298.1 K
Acq. time 2.561 sec			Operator: chem
Width 6398.0 Hz			Mercury-400 "IITG-NMR"
32 repetitions			





Solvent: cdcl3
Temp. 25.0 C / 298.1 K
Operator: chem
Mercury-400 "IITG-NMR"



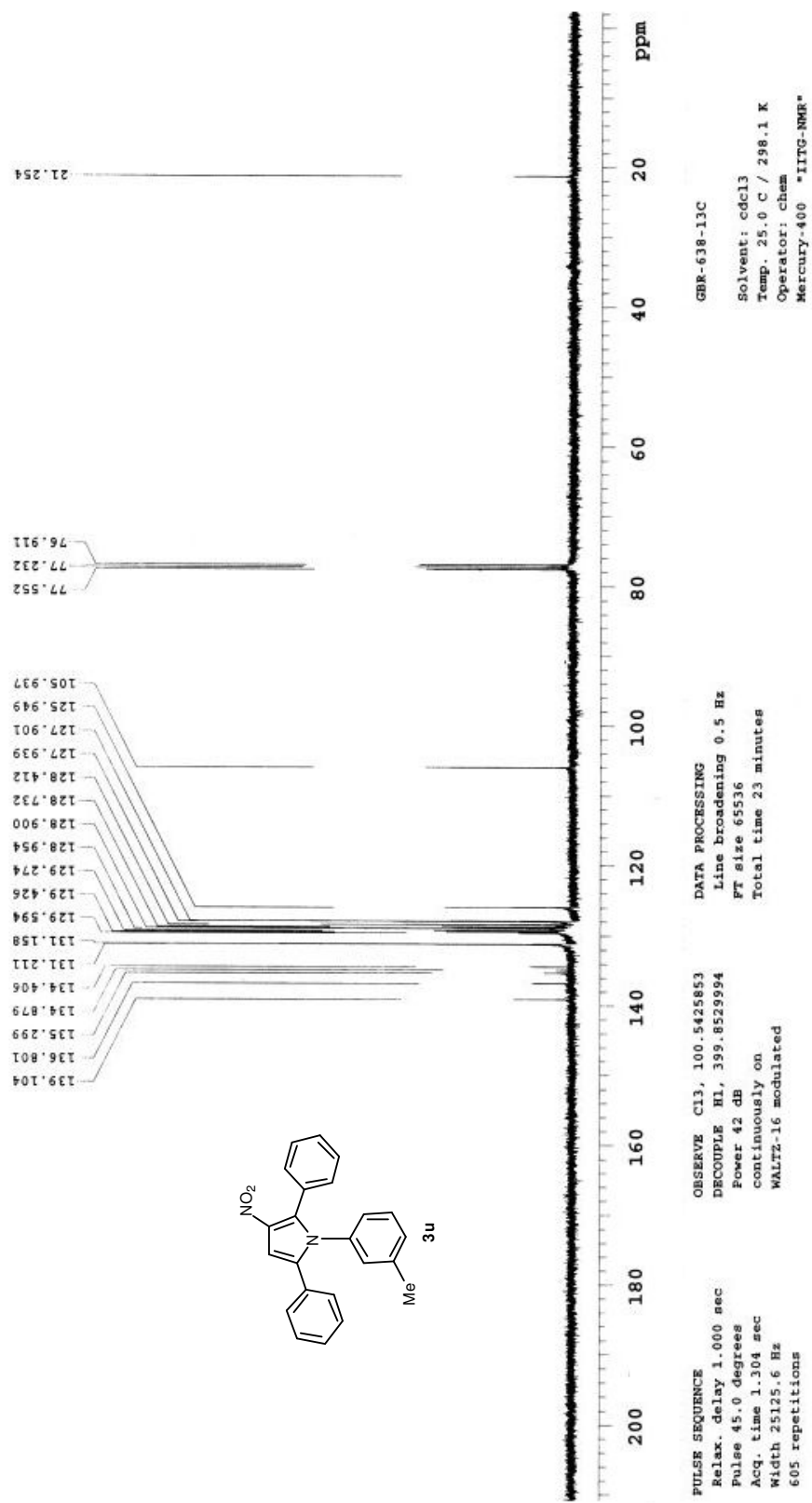


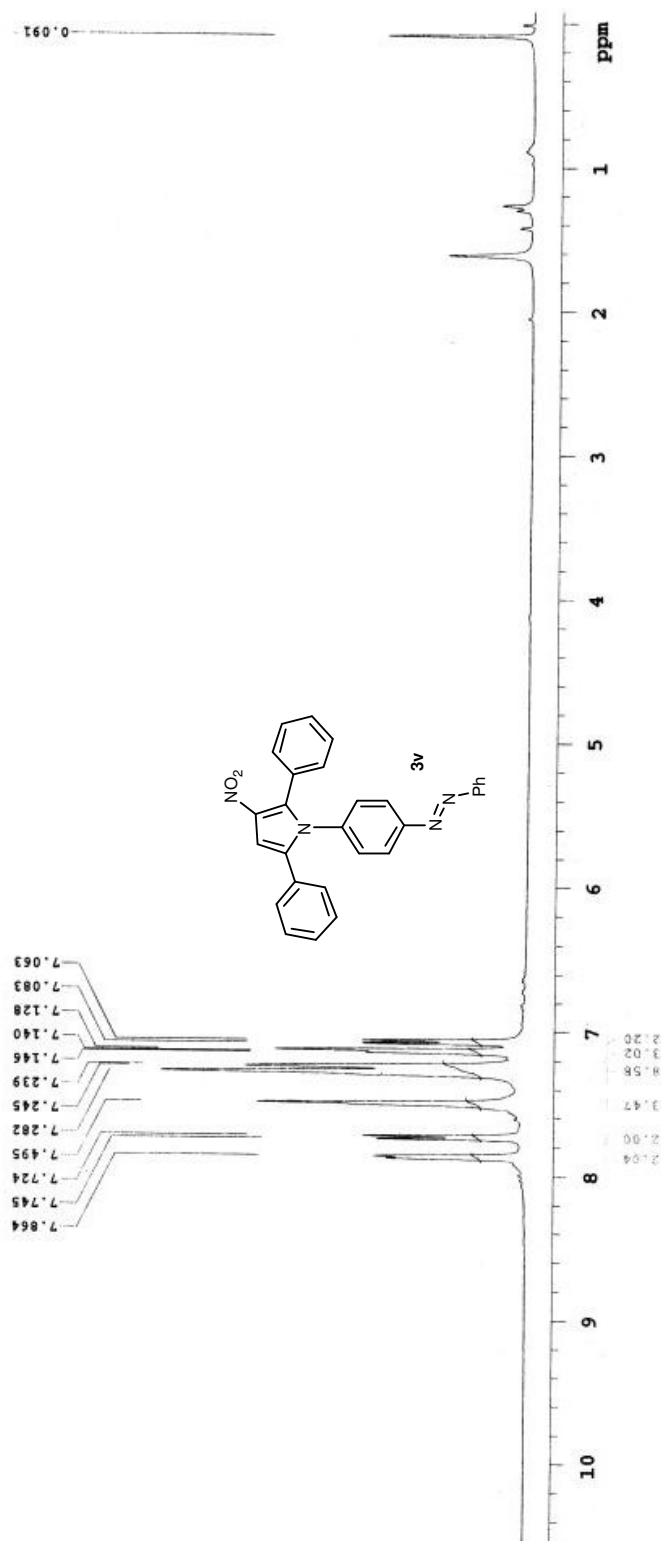
PULSE SEQUENCE
 Relax. delay 1.000 sec
 Pulse 45.0 degrees
 Acq. time 2.561 sec
 Width 6398.0 Hz
 32 repetitions

OBSERVE H1, 399.8509722

DATA PROCESSING
 FT size 32768
 Total time 1 minutes

GBR-638-1H
 Solvent: cdcl3
 Temp. 25.0 C / 298.1 K
 Operator: chem
 Mercury-400 "LITG-NMR"



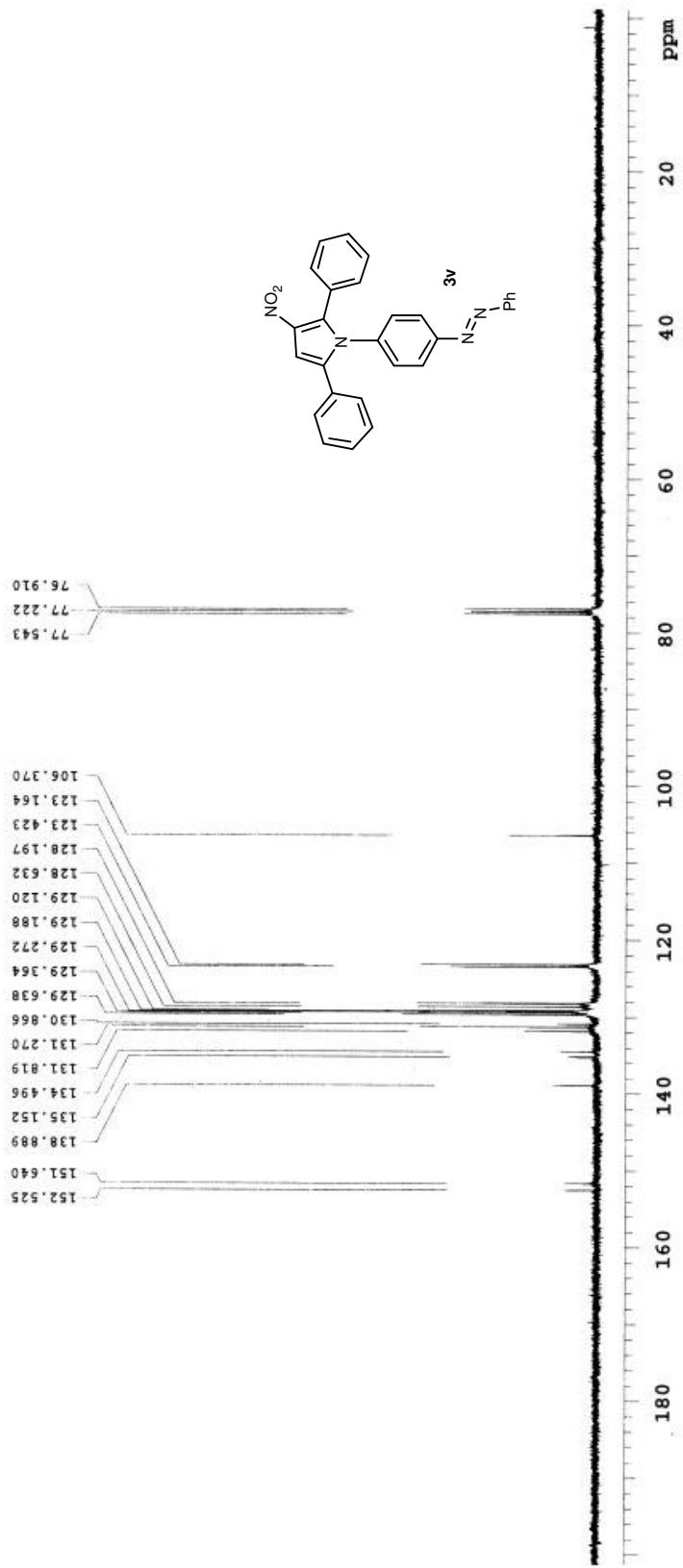


PULSE SEQUENCE
 Relax. delay 1.000 sec
 Pulse 45.0 degrees
 Acq. time 2.561 sec
 Width 6398.0 Hz
 32 repetitions

OBSERVE H1, 399.8509652

DATA PROCESSING
 FT size 32768
 Total time 1 minutes

GBR-626-1h
 Solvent: cdc13
 Temp. 25.0 C / 298.1 K
 Operator: chem
 Mercury-400 1H-13C-NMR

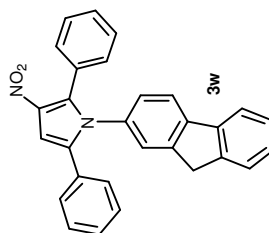
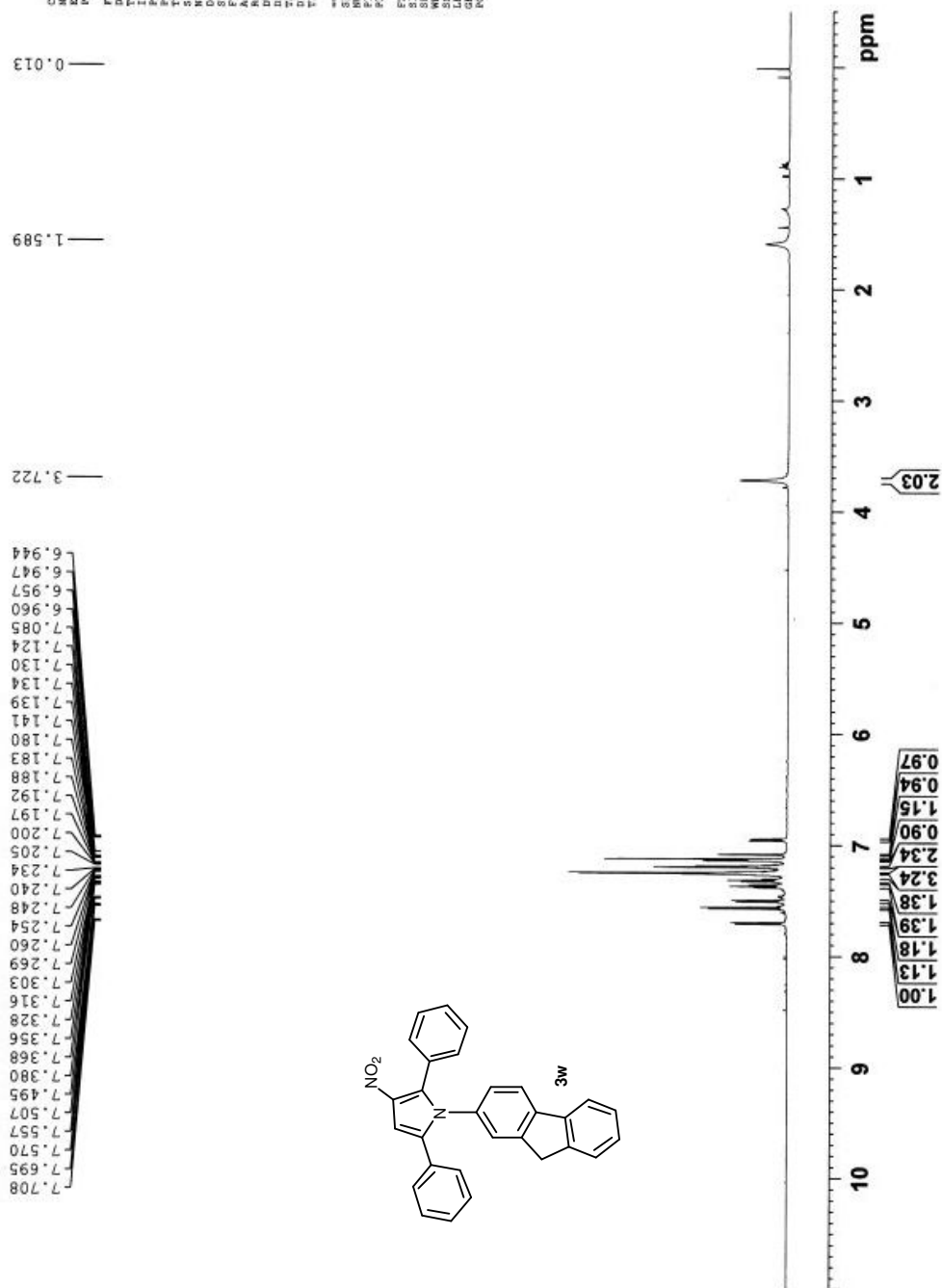


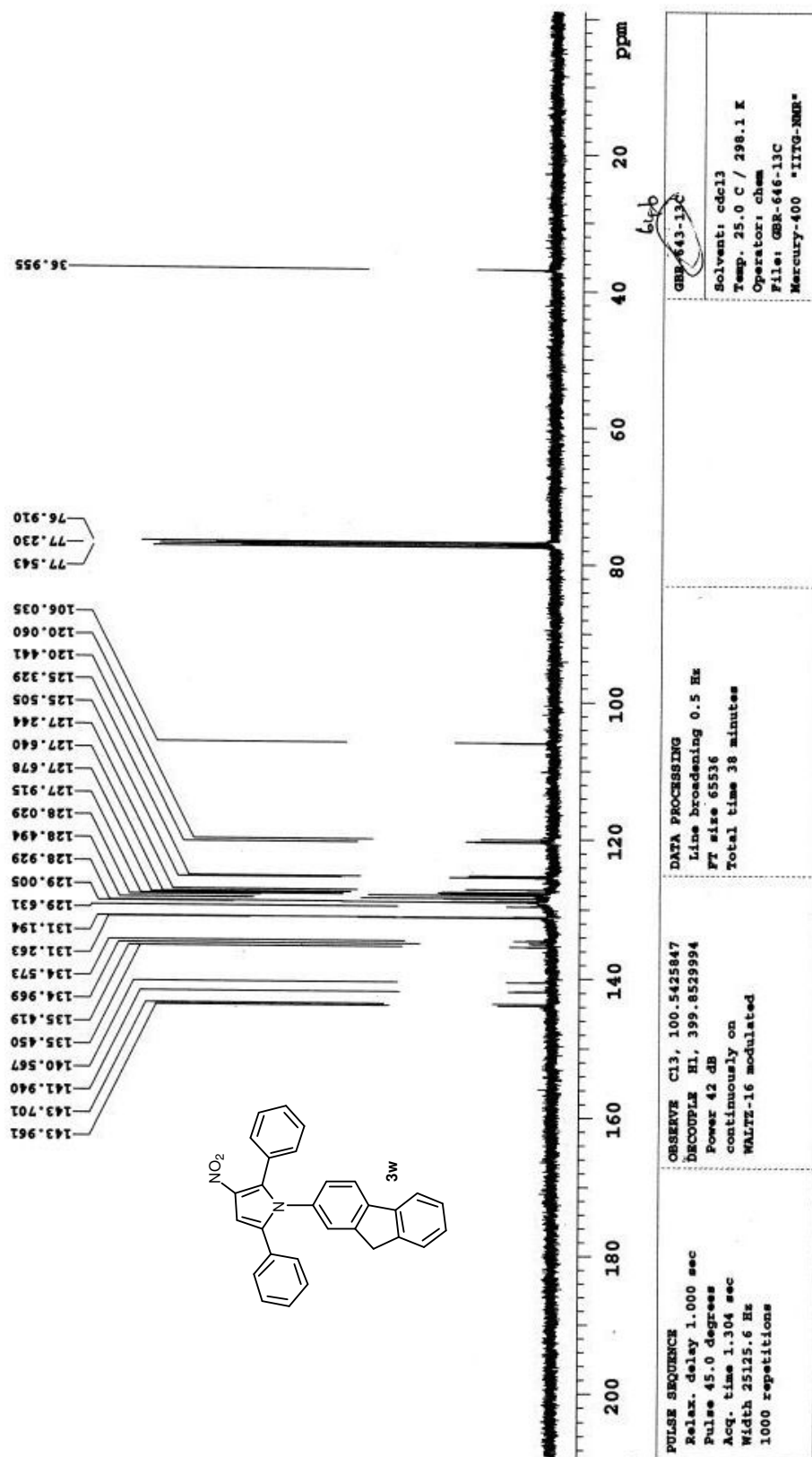
PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 1.304 sec Width 25125.6 Hz 792 repetitions	DATA PROCESSING Line broadening 0.5 Hz FT size 65536 Total time 30 minutes	GBR-626-13C Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem Mercury-400 *HITG-NMR*
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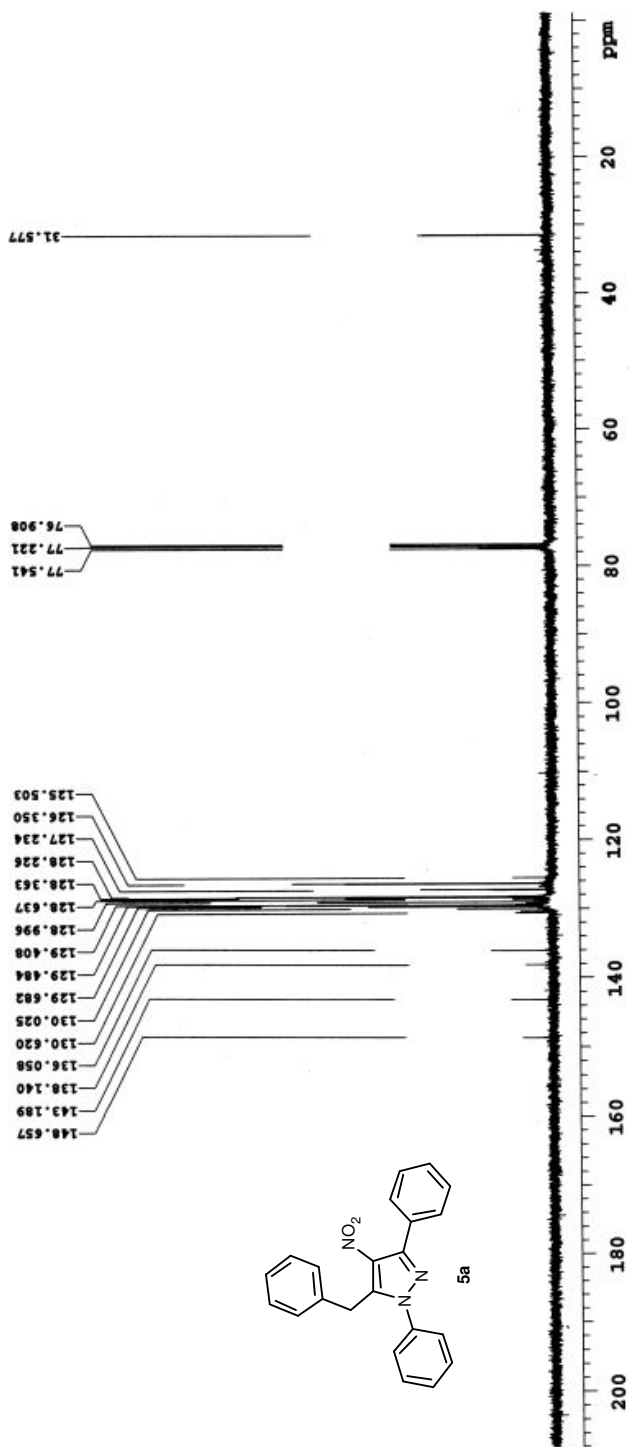
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Current Data Parameters
=====
EXPNO      1
PROCNO     1
F2 - Acquisition Parameters
=====
Date_       20140902
Time        12.51
PROBHD      5 mm PABBO
PULPROG     zgpg30
TD           32768
SOLVENT     CDCl3
DS           2
SN1          12019.230 Hz
AQ           0.366088 Hz
RG           1.67637 Hz
WDW          EM
SS           7.12 sec
AQ           41.600 sec
RG           1.67637 Hz
WDW          EM
SS           7.12 sec
AQ           1.00000000 sec
RG           1
=====
===== CHANNEL f1 =====
SFO1        600.1737063 MHz
NUC1         13
P1           12.18
PL1          21.0000000 W
=====
F2 - Processing Parameters
=====
SF           600.1700148 MHz
WDW          EM
SS           0
AQ           0.30 Hz
RG           0
GB           0
PC           1.00

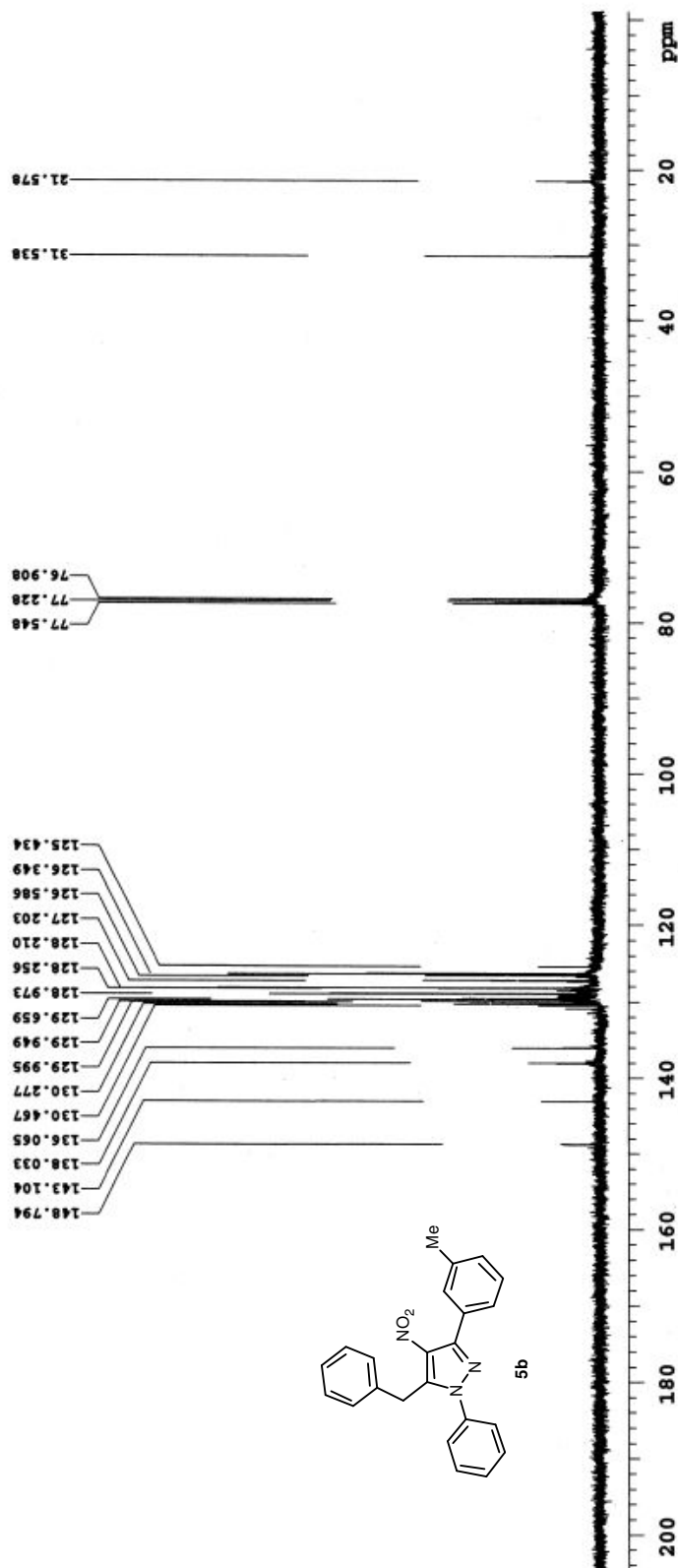
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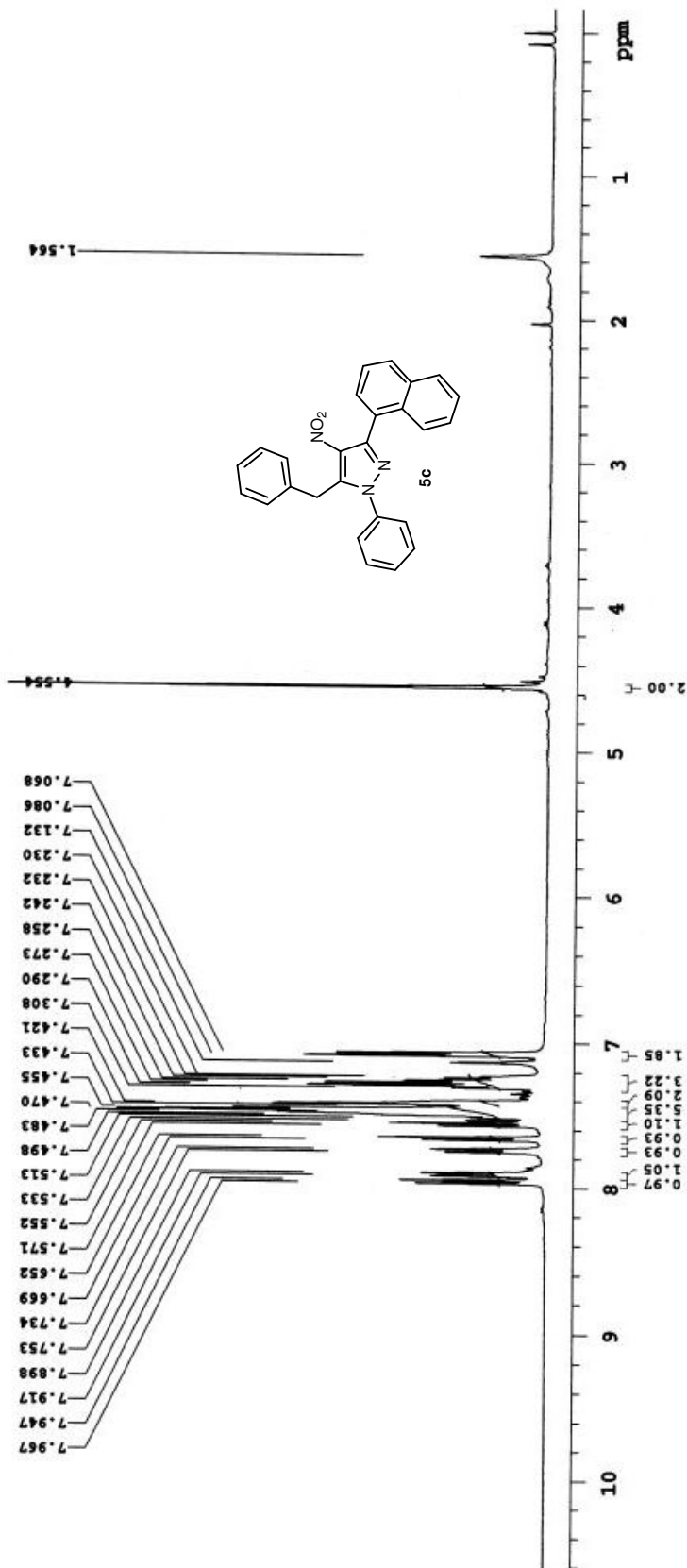




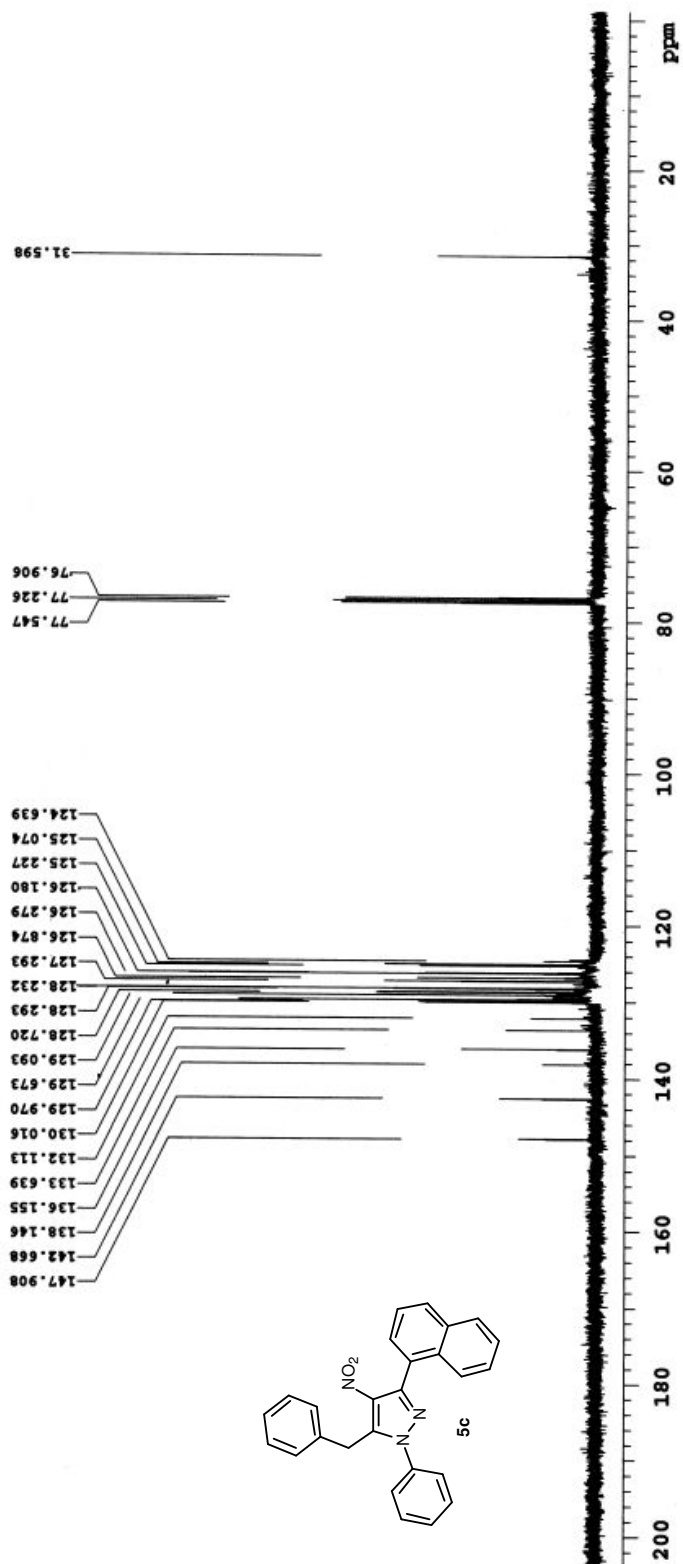
PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 1.304 sec Width 25125.6 Hz 280 repetitions	OBSERVE C13, 100.5425872 DECOUPLE H1, 399.8529994 Power 42 dB continuously on WALTZ-16 modulated	DATA PROCESSING Line broadening 0.5 Hz FI size 65536 Total time 10 minutes	GBR-564-13C
Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem File: GBR-564-13C Mercury-400 *HITC-DMU*			



PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 1.304 sec Width 25125.6 Hz 270 repetitions	OBSERVE C13, 100.5425895 DECOUPLE H1, 399.8529994 Power 42 dB continuously on WALTZ-16 modulated	DATA PROCESSING Line broadening 0.5 Hz FT size 65536 Total time 10 minutes	GBR-665-13c Solvent: cdc13 Temp. 25.0 C / 298.1 K Operator: chem File: GBR-665-13c-1 Mercury-400 "ITG-MMR"
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PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 2.561 sec Width 6398.0 Hz 32 repetitions	OBSERVE H1, 399.8509710	DATA PROCESSING FT size 32768 Total time 1 minutes	GBR-666-1H Solvent: cdcl3 Temp. 25.0 C / 398.1 K Operator: chem File: GBR-666-1H Mercury-400 "IITG-MMR"
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PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 1.304 sec Width 25125.6 Hz 390 repetitions	DATA PROCESSING Line broadening 0.5 Hz FT size 65536 Total time 14 minutes	GER-666-13C Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem File: GER-666-13C Mercury-400 *1H70-MER*
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GBR-706-1H

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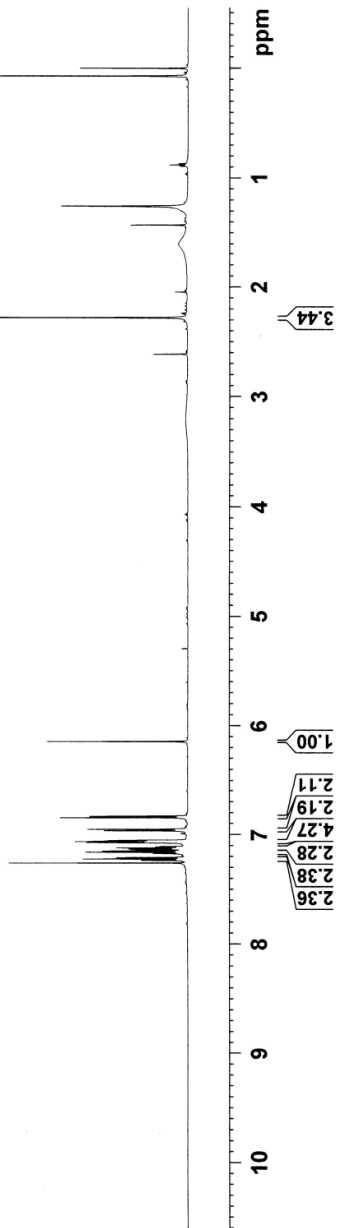
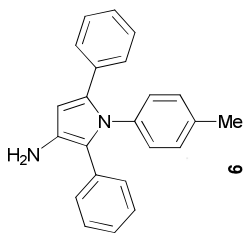
Current Data Parameters
NAME      GBR-706-1H
EXPNO     1
PROCNO    1

F2 - Acquisition Parameters
Date_     20121215
Time      11:15
INSTRUM   spect
PROBHD    5 mm PABBO BB
PULPROG   zgpg30
TD        32768
SOLVENT   CDCl3
DS        2
SWH        12019.230 Hz
FIDRES     0.113 Hz
AQ         1.3631488 sec
RG         113
AQ         41.600 usec
DE         0.000 usec
TE         297.4 K
D1         1.00000000 sec
TD0        1

===== CHANNEL f1 =====
NUC1       1H
P1         12.00 usec
PL1        0.00 dB
NUC2       13C
P2         21.00000000 sec
PL2        0.00 dB

F2 - Processing Parameters
SI         32768
SF         600.130138 MHz
WDW        EM
SSB        0
GB         0
PC         1.00
  
```

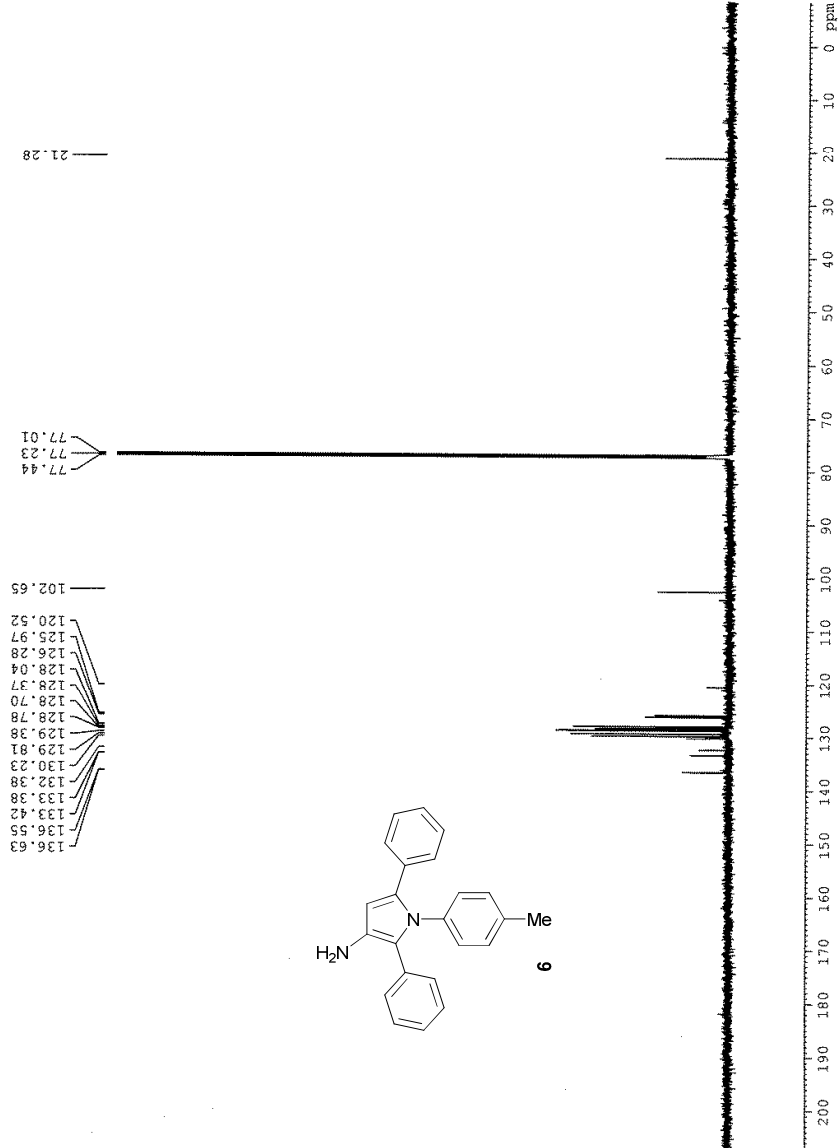
7.260
7.236
7.234
7.224
7.221
7.173
7.171
7.162
7.150
7.136
7.134
7.124
7.122
7.117
7.112
7.110
7.075
7.073
7.068
7.065
7.062
7.053
6.967
6.953
6.847
6.833
6.146

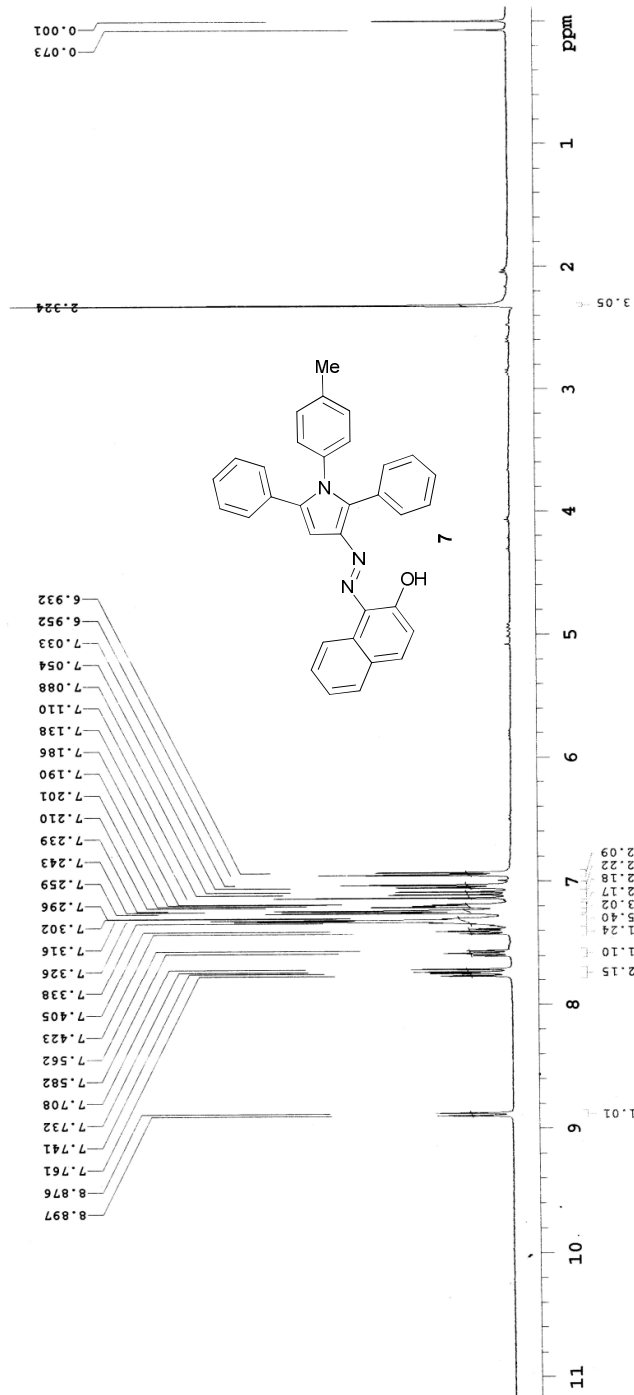


GBR-706-13C



Current Data Parameters
NAME GBR-706-13C
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20141222
Time 11.20
INSTRUM spect
PROBHD 5 mm EASY-BB
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 799
DS 2
SWH 3607.691 Hz
FIDRES 0.140339 Hz
AQ 0.4543829 sec
RG 65.24
DW 13.867 usec
DE 6.50 usec
TE 298.4 K
D1 2.0000000 sec
D11 0.0300000 sec
TEO 1
===== CHANNEL f1 =====
SFO1 150.9279571 MHz
NUC1 13C
P1 10.00 usec
PL1 0.00000000 W
===== CHANNEL f2 =====
SFO2 600.1724007 MHz
NUC2 1H
P2 10.00 usec
PL2 0.00000000 W
PCPD2 70.00 usec
PCPD22 21.00000000 W
PLW2 0.61714000 W
PLW13 0.30239999 W
F2 - Processing Parameters
SI 16384
SF 150.9128347 MHz
WDW 0
SSB 0
LB 0
GB 0
PC 1.40





PULSE SEQUENCE	OBSERVE H1, 399.8509634	DATA PROCESSING	GBR-diazo
Relax. delay 1.000 sec	FT size 32768	Solvent: cdcl3	Solvent: cdcl3
Pulse 45.0 degrees	Total time 1 minutes	Temp. 25.0 C / 298.1 K	Temp. 25.0 C / 298.1 K
Acq. time 2.561 sec		Operator: Chem	Operator: Chem
Width 6398.0 Hz		Mercury-400	Mercury-400
32 repetitions			"IITG-NMR"

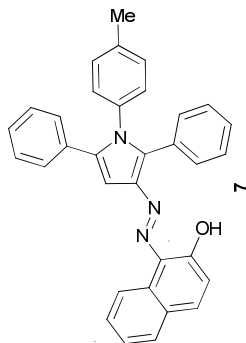
GBR_DIAZO_13C



21.36

77.44
77.23
77.01

151.81
139.74
137.91
137.28
136.52
135.29
133.08
133.02
132.38
130.77
130.30
130.02
129.76
129.17
128.61
128.43
128.29
128.15
127.44
127.23
122.20
120.16
99.19



Current Data Parameters
NAME GBR_DIAZO_13C
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20151122
Time 17:13
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
SOLVENT CDCl3
NS 513
DSH 2
SFO1 36057.691 Hz
FIDRES 1.100393 Hz
AQ 0.4543859 sec
RG 327.500
PM 13.467 usec
DE 6.50 usec
TE 299.3 K
D1 11.000000 sec
D11 0.0300000 sec
TD0 1
===== CHANNEL f1 =====
SFO1 150.9279571 MHz
NUC1 13C
P1 10.50 usec
PLM1 95.00000000 A
===== CHANNEL f2 =====
SFO2 600.1724007 MHz
NUC2 1H
P2 waitz16
PLM2 70.00 usec
PLM3 21.00000000 W
PLM4 0.67714000 W
PLM5 0.30239995 W
F2 - Processing Parameters
SI 16384
SF 150.9128349 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

