

## Supplementary Material

### Flash vacuum pyrolysis (FVP) of aryl propargyl ethers, amines and acetylenic ester

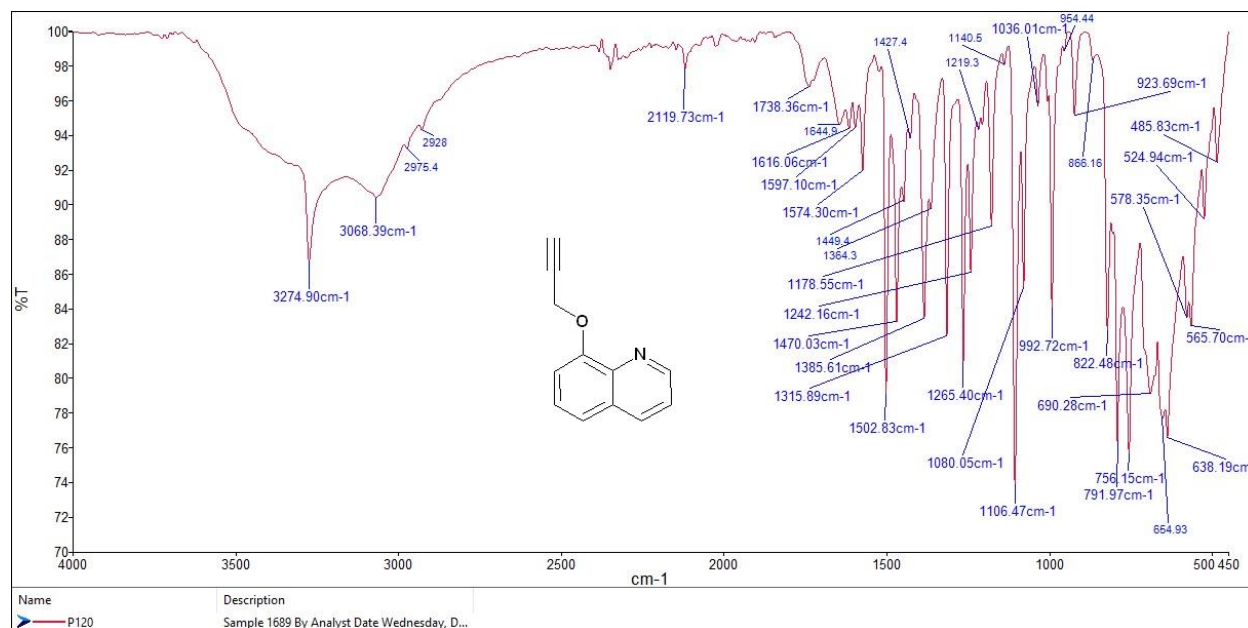
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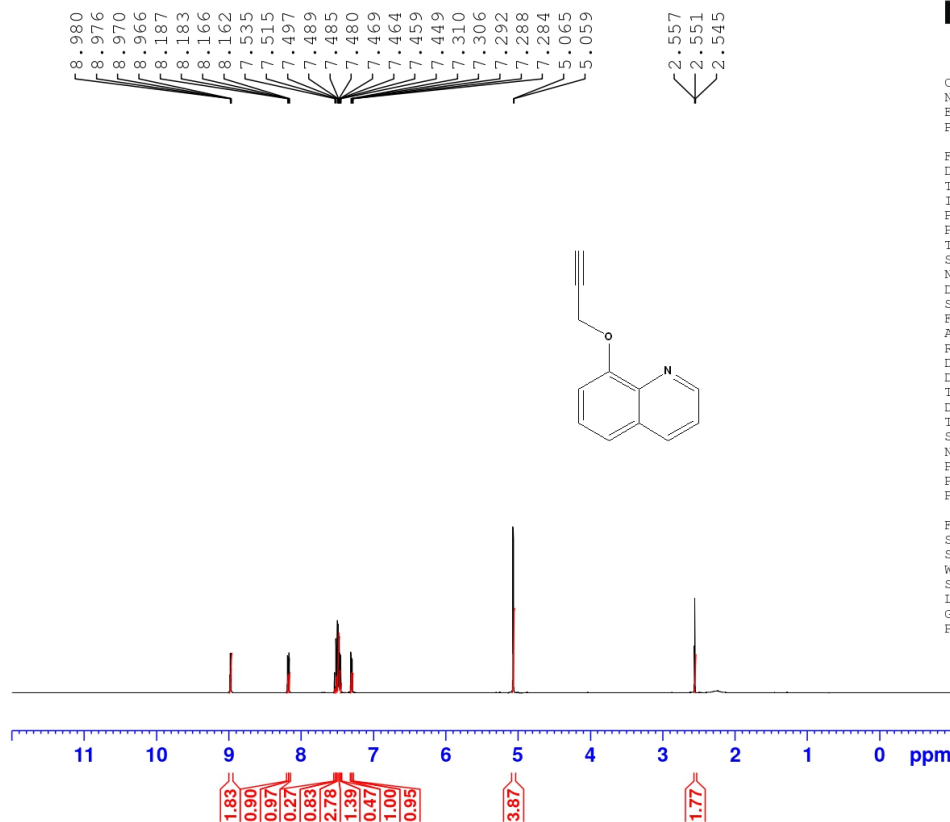
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H SPECTRUM DR.NOURIA P120 IN CDCL3



Current Data Parameters

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EXPNO	1
FPROCNO	1

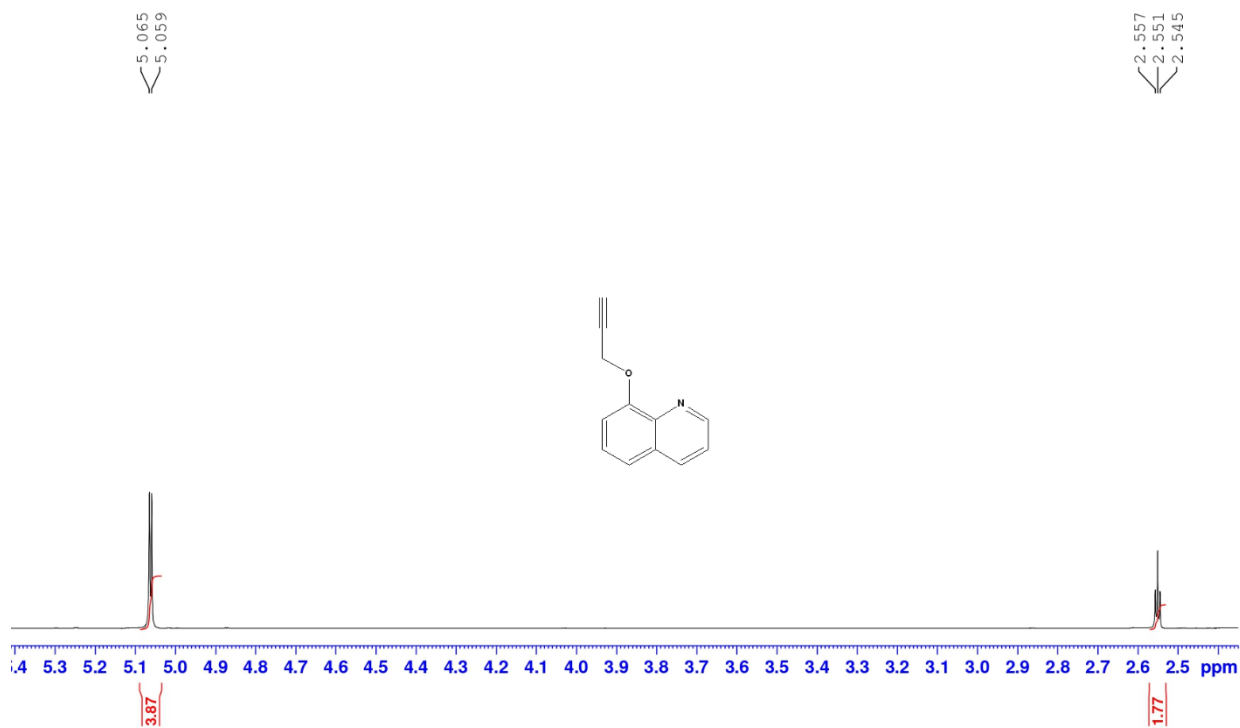
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PULPROG	zg30
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SOLVENT	CDCL3
NS	16
DS	2
SWH	8196.722 Hz
FIDRES	0.250144 Hz
AQ	3.9976959 sec
RG	101
DW	61.000 usec
DE	12.86 usec
TE	297.7 K
D1	1.00000000 sec
TD0	1
SFO1	400.1324708 MHz
NUC1	1H
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PL	14.00 usec
PLW1	17.11499977 W

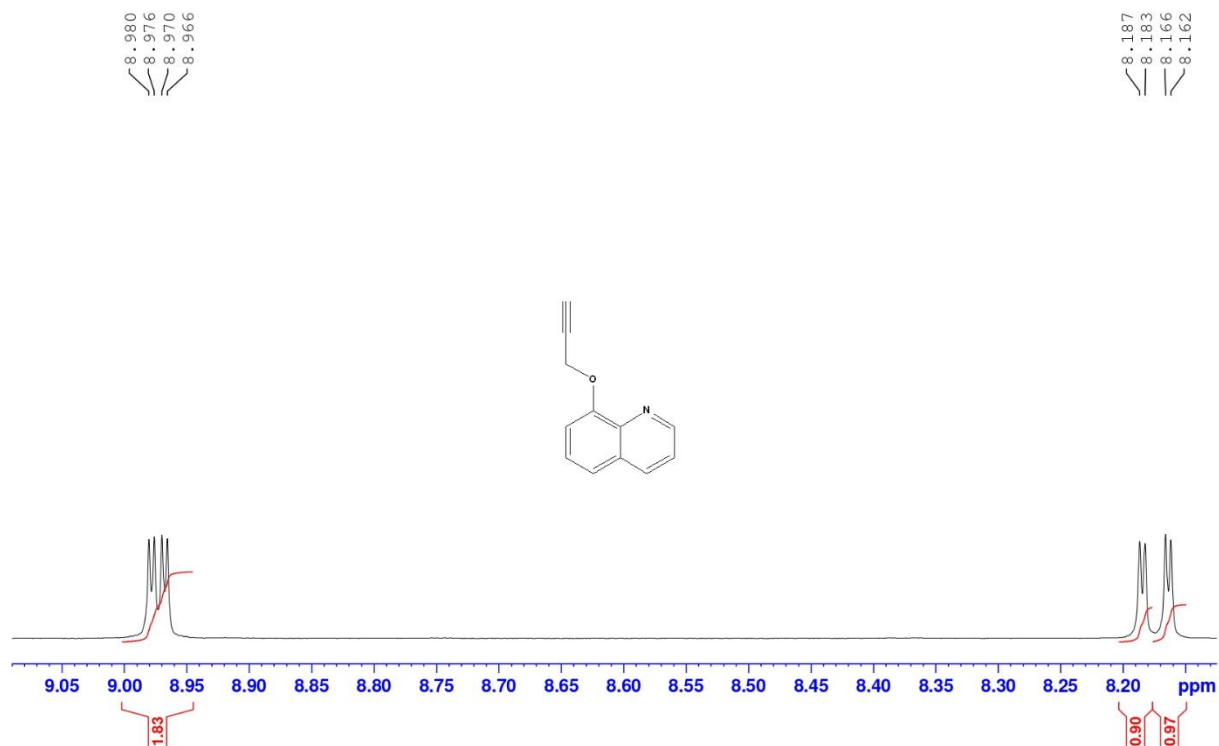
F2 - Processing parameters

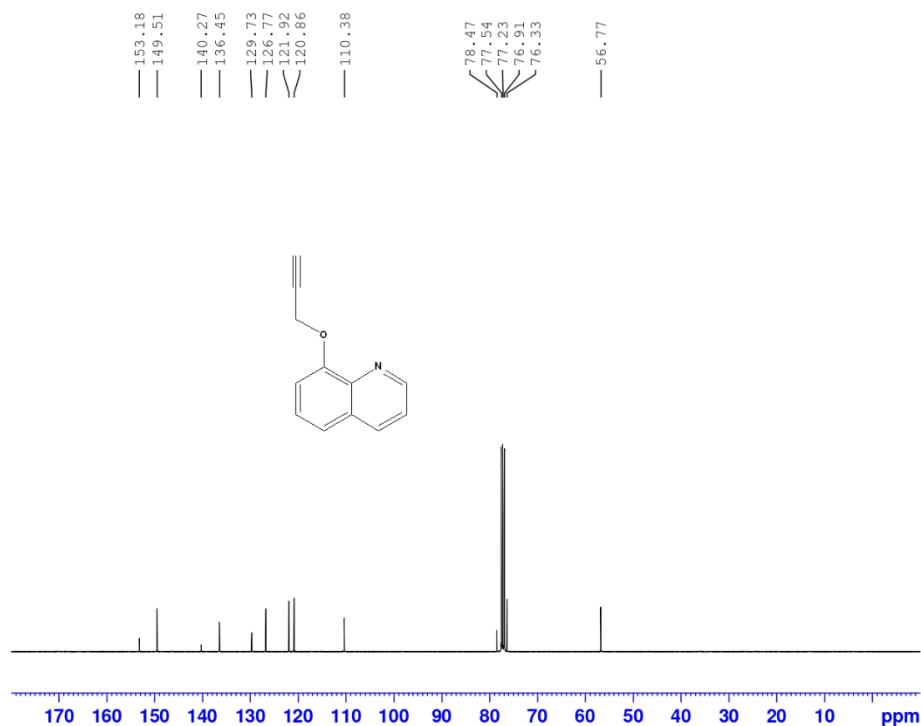
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LB	0.30 Hz
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H SPECTRUM DR.NOURIA P120 IN CDCL3



H SPECTRUM DR.NOURIA P120 IN CDCL3



<sup>13</sup>C DECOUPLED SPECTRUM DR.NOURIA P120 IN CDCl<sub>3</sub>

Current Data Parameters  
 NAME P120-13c  
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 PROCNO 1

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 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 10240  
 DS 4  
 SWH 23809.523 Hz  
 FIDRES 0.726609 Hz  
 AQ 1.3762560 sec  
 RG 28.5  
 DW 21.000 usec  
 DE 6.50 usec  
 TE 299.9 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1  
 SFO1 100.6228298 MHz  
 NUC1 13C  
 P0 3.33 usec  
 P1 10.00 usec  
 PLW1 56.20800018 W  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CDPORG[2] waltz65  
 PCPD2 90.00 usec  
 PLW2 17.11499977 W  
 PLW12 0.41413999 W  
 PLW13 0.20830999 W

F2 - Processing parameters  
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 SSB 0  
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 PC 1.40

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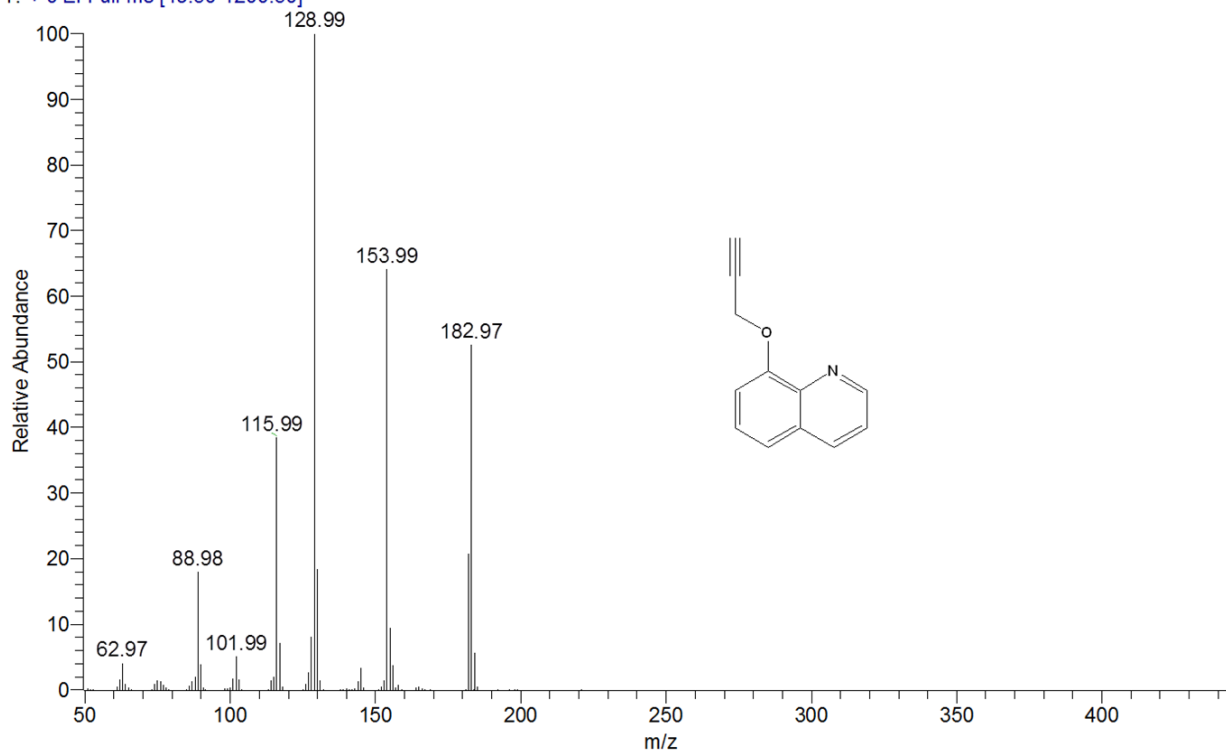
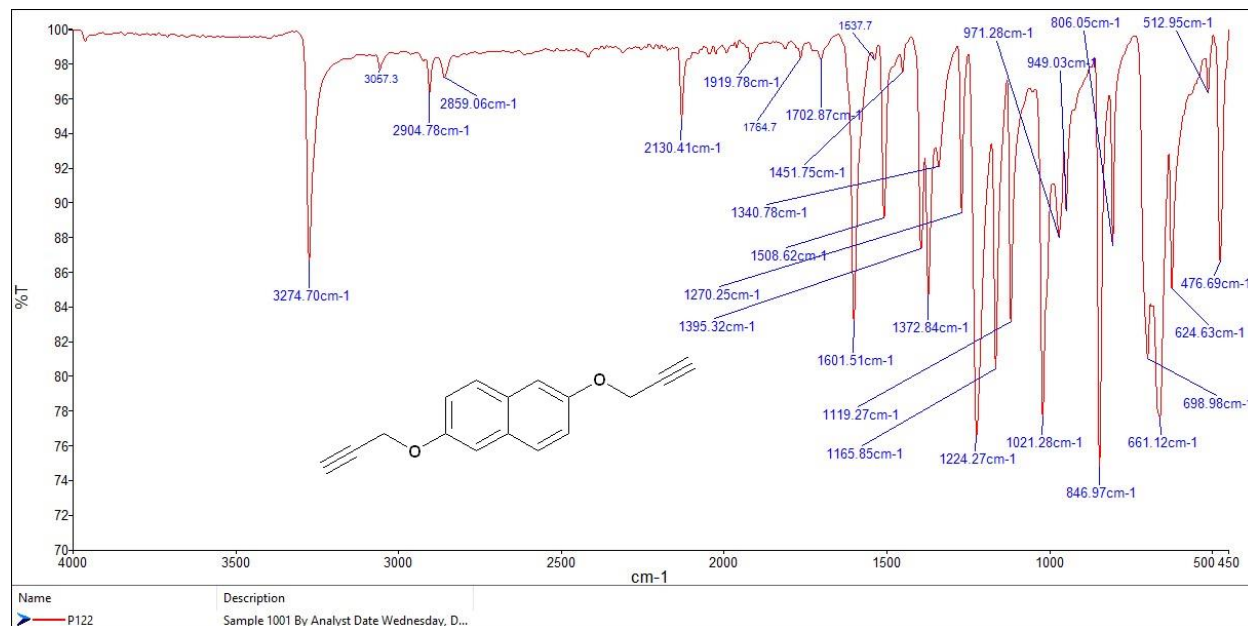
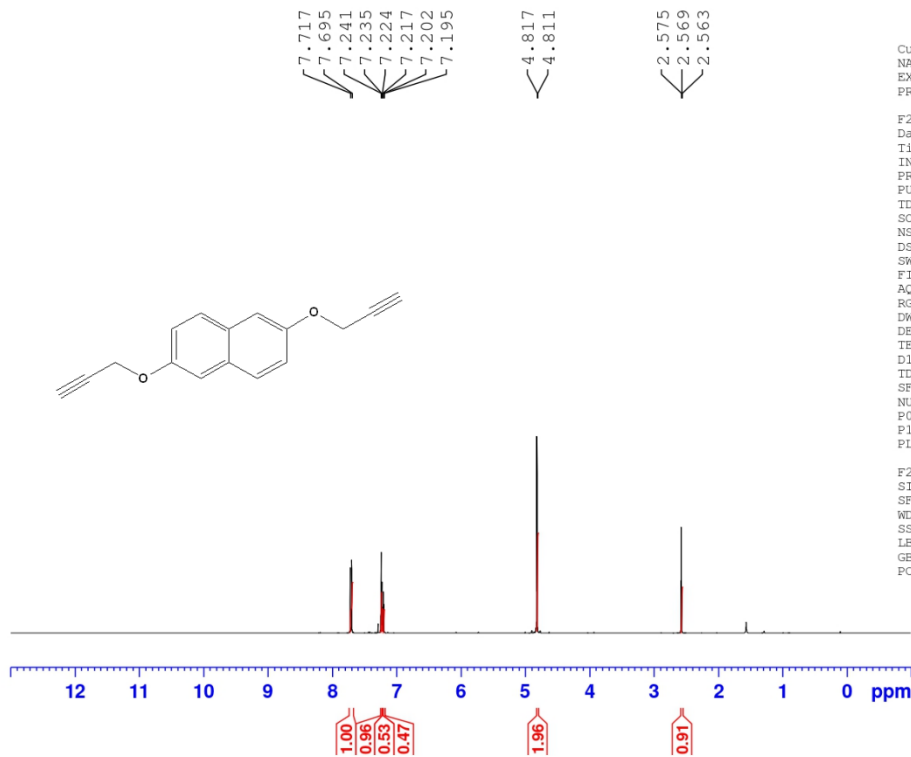


Figure 1. IR, <sup>1</sup>H NMR, <sup>13</sup>C NMR and EIMS of 2.



<sup>1</sup>H SPECTRUM DR.NOURIA P122 IN CDCL<sub>3</sub>



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PROCNO 1

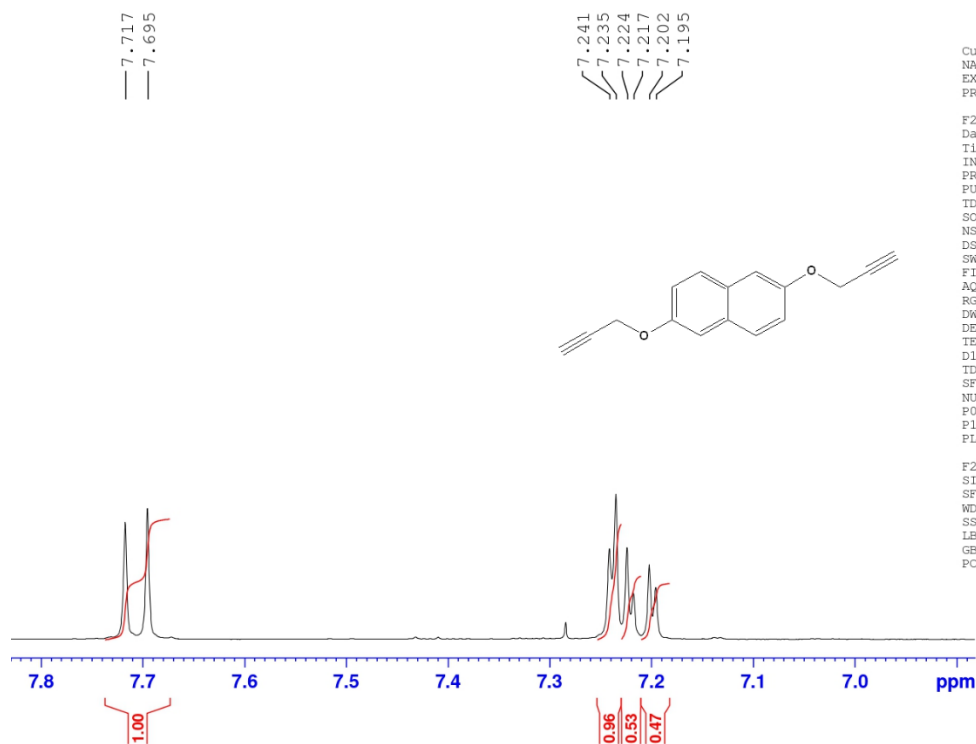
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PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 16  
DS 2  
SWH 8196.722 Hz  
FIDRES 0.250144 Hz  
AQ 3.9976959 sec  
RG 101  
DW 61.000 usec  
DE 12.86 usec  
TE 297.0 K  
D1 1.00000000 sec  
TDO 1  
SFO1 400.1324708 MHZ  
NUC1 1H  
P0 4.67 usec  
P1 14.00 usec  
PLW1 17.11499977 W

F2 - Processing parameters

SI 65536  
SF 400.1300000 MHZ  
WDW EM  
SSB 0  
LB 0.30 Hz  
GB 0  
PC 1.00

1H SPECTRUM DR.NOURIA P122 IN CDCL3

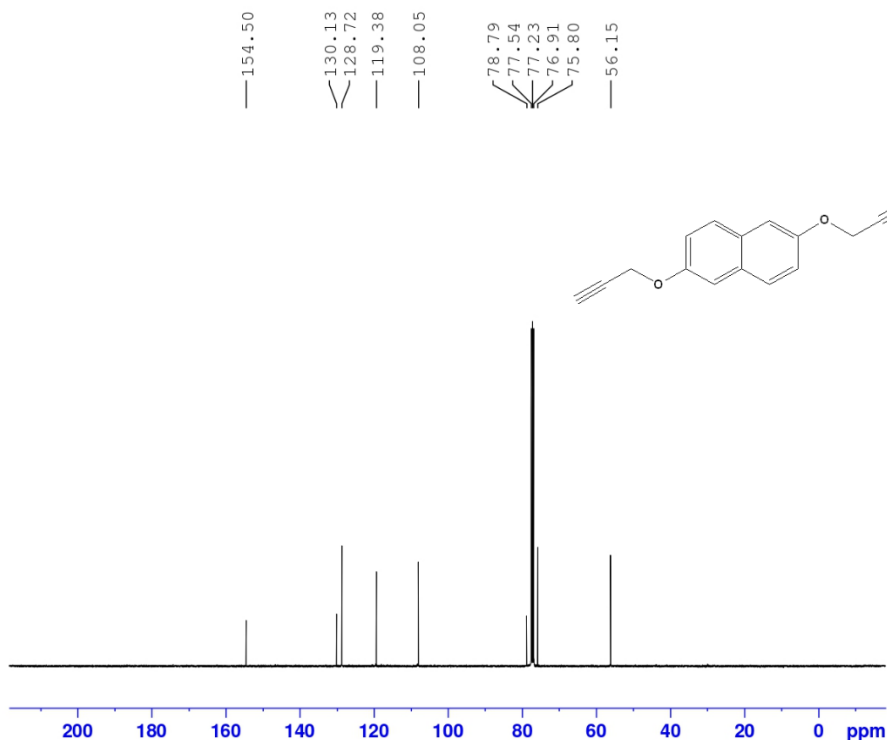


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EXPNO 1  
PROCNO 1

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PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 16  
DS 2  
SWH 8196.722 Hz  
FIDRES 0.250144 Hz  
AQ 3.9976959 sec  
RG 101  
DW 61.000 usec  
DE 12.86 usec  
TE 297.0 K  
D1 1.00000000 sec  
TD0 1  
SFO1 400.1324708 MHz  
NUC1 1H  
FO 4.67 usec  
PI 14.00 usec  
PLW1 17.11499977 W

F2 - Processing parameters  
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SF 400.1300000 MHz  
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LB 0.30 Hz  
GB 0  
PC 1.00

13C DECOUPLED SPECTRUM DR.NOURIA P122 IN CDCL3

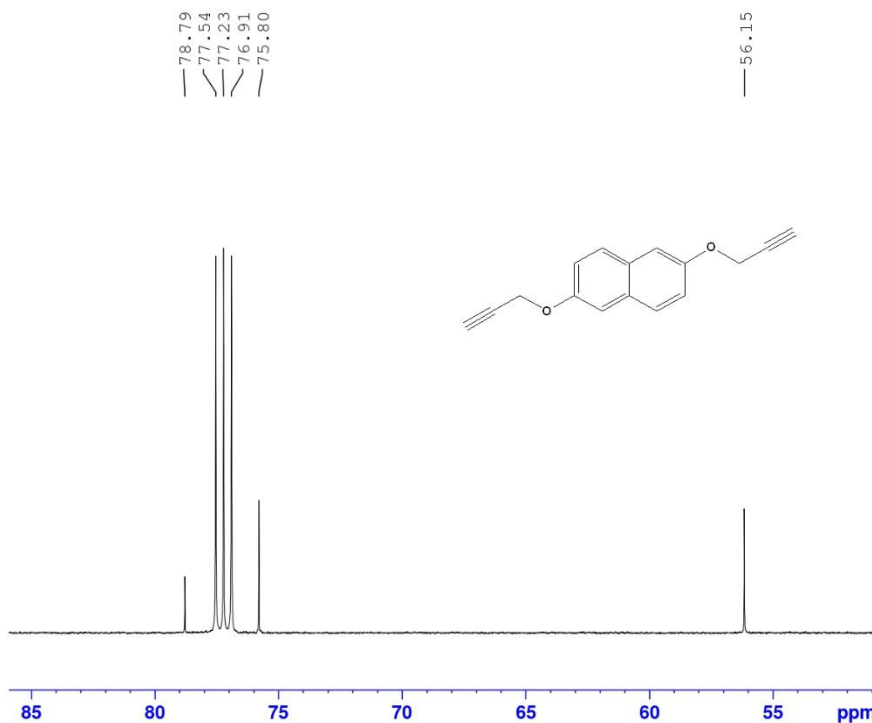


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EXPNO 4  
PROCNO 1

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PULPROG zgpg30  
TD 65536  
SOLVENT CDCl3  
NS 4096  
DS 4  
SWH 23809.523 Hz  
FIDRES 0.726609 Hz  
AQ 1.3762560 sec  
RG 28.5  
DW 21.000 usec  
DE 6.50 usec  
TE 297.0 K  
D1 2.00000000 sec  
D11 0.03000000 sec  
TD0 1  
SFO1 100.6228298 MHz  
NUC1 13C  
FO 3.33 usec  
PI 10.00 usec  
PLW1 56.20800018 W  
SFO2 400.1316005 MHz  
NUC2 1H  
CPDPRG2 waltz65  
PCPD2 90.00 usec  
PLW2 17.11499977 W  
PLW12 0.41413999 W  
PLW13 0.20830999 W

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

13C DECOUPLED SPECTRUM DR.NOURIA P122 IN CDCL3



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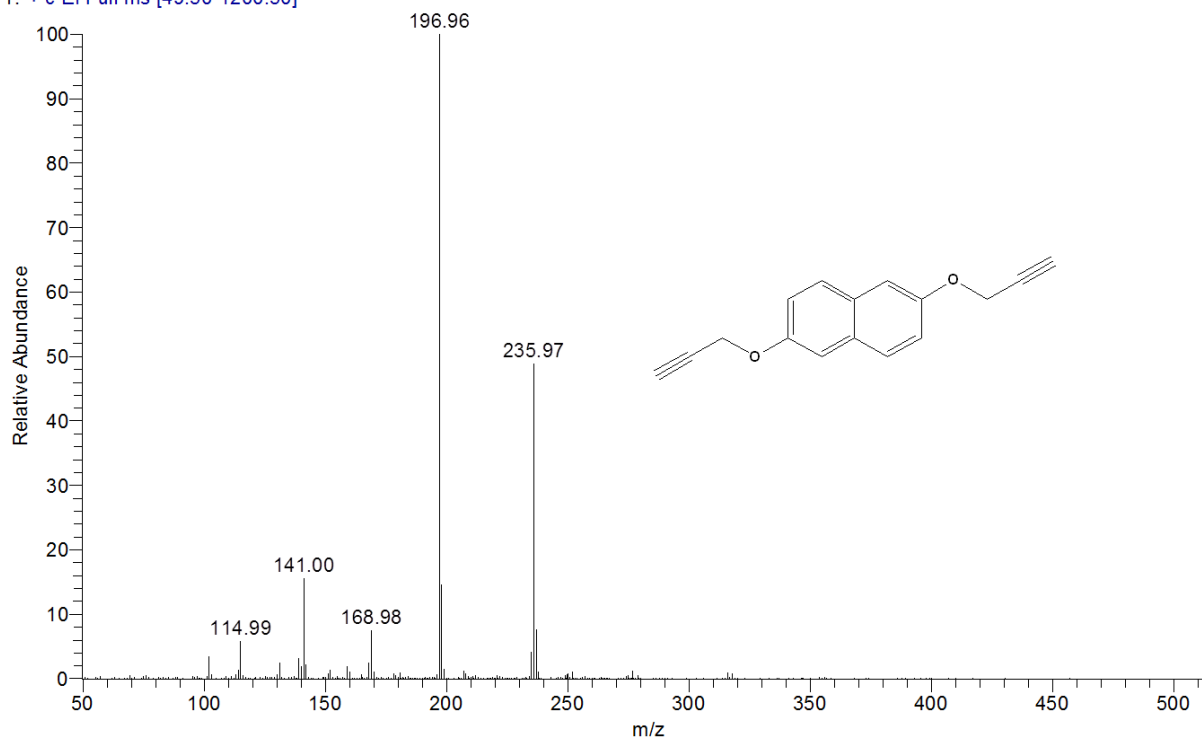
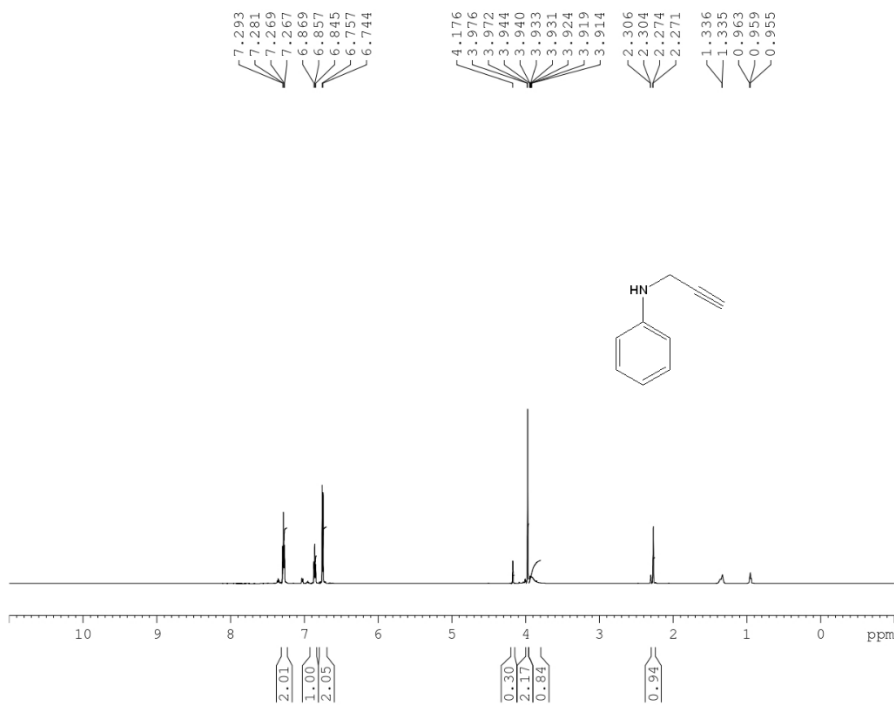


Figure 2. IR,  $^1\text{H}$  NMR,  $^{13}\text{C}$  NMR and EIMS of 4.

<sup>1</sup>H spectrum Dr.Nouria P3 in CDCl<sub>3</sub>



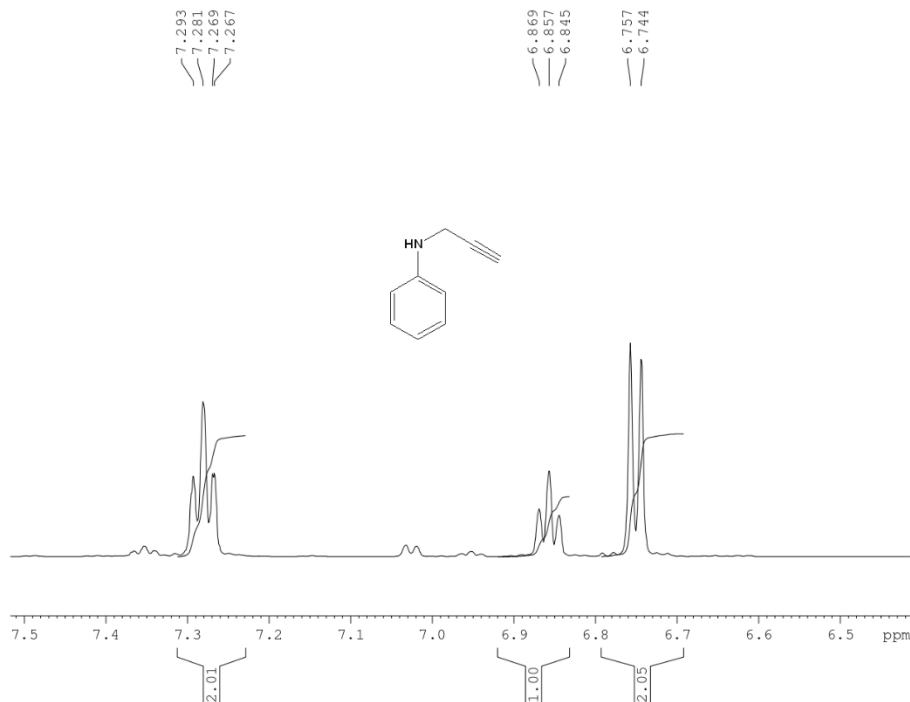
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EXPNO 5  
PROCNO 1

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PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 8  
DS 2  
SWH 12335.526 Hz  
FIDRES 0.188225 Hz  
AQ 2.6563926 sec  
RG 71.8  
DW 40.533 usec  
DE 20.00 usec  
TE 296.2 K  
D1 1.00000000 sec  
TD0 1

===== CHANNEL f1 =====  
SF01 600.1337060 MHz  
NUC1 1H  
P1 10.60 usec  
PLW1 27.82500076 W

F2 - Processing parameters  
SI 32768  
SF 600.1300000 MHz  
WDW EM  
SSB 0  
LB 0.30 Hz  
GB 0  
PC 1.00

<sup>1</sup>H spectrum Dr.Nouria P3 in CDCl<sub>3</sub>



Current  
NAME P3-1H  
EXPNO 5  
PROCNO 1

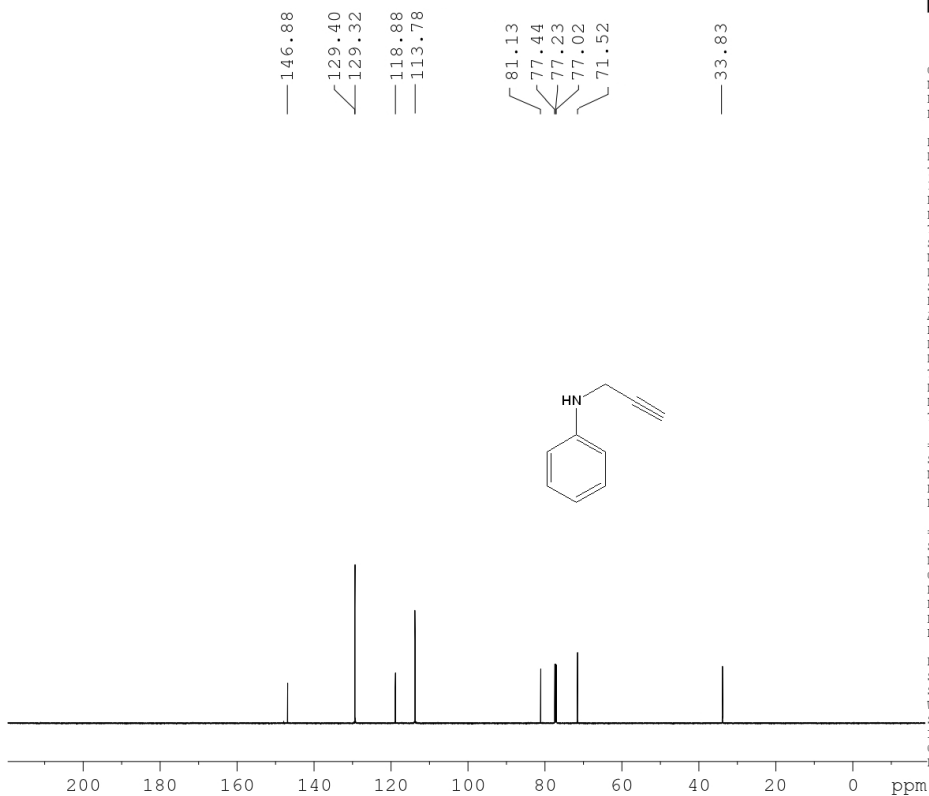
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Time 9.56  
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PROBHD 5 mm PABBO BB-  
PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 8  
DS 2  
SWH 12335.526 Hz  
FIDRES 0.188225 Hz  
AQ 2.6563926 sec  
RG 71.8  
DW 40.533 usec  
DE 20.00 usec  
TE 296.2 K  
D1 1.00000000 sec  
TD0 1

===== CHANNEL f1 =====  
SF01 600.1337060 MHz  
NUC1 1H  
P1 10.60 usec  
PLW1 27.82500076 W

F2 - Processing parameters  
SI 32768  
SF 600.1300000 MHz  
WDW EM  
SSB 0  
LB 0.30 Hz  
GB 0  
PC 1.00



<sup>13</sup>C decoupled spectra Dr. Nouria P3 in DMSO



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 PROCNO 1

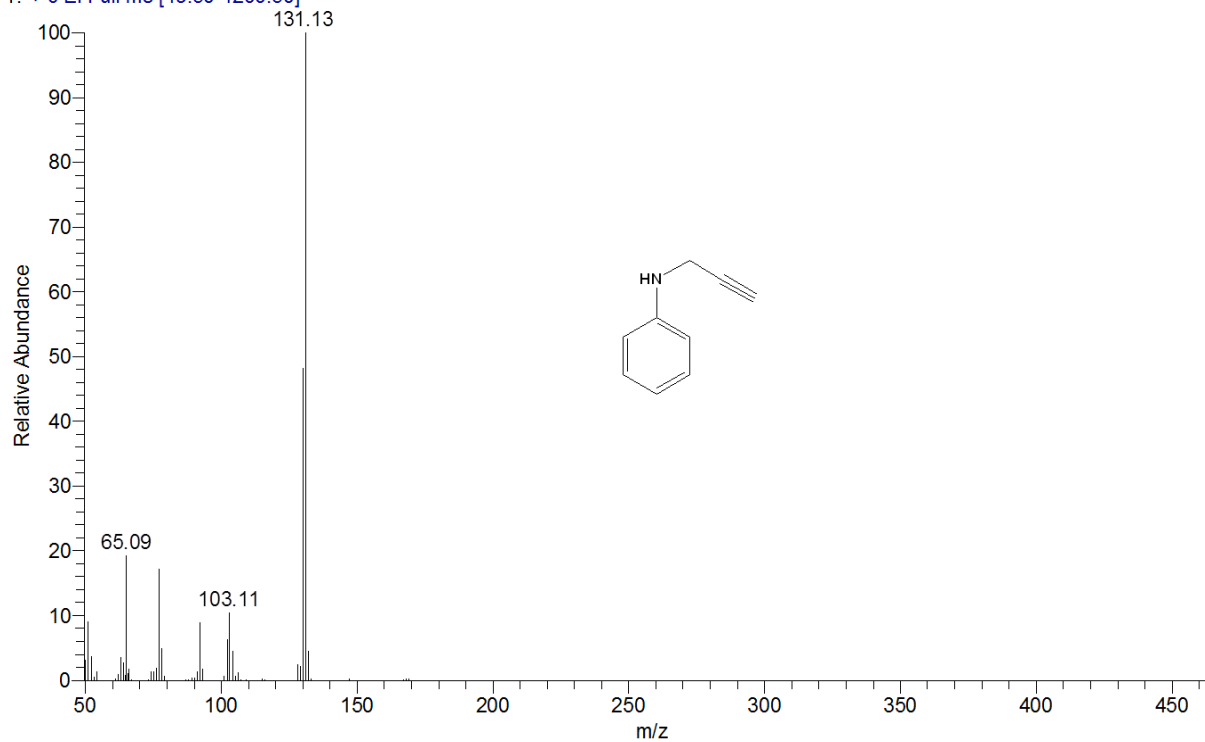
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 Time 13.04  
 INSTRUM spect  
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 PULPROG zgpg30  
 TD 65536  
 SOLVENT DMSO  
 NS 257  
 DS 4  
 SWH 36057.691 Hz  
 FIDRES 0.550197 Hz  
 AQ 0.9087659 sec  
 RG 203  
 DW 13.867 usec  
 DE 50.00 usec  
 TE 298.1 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

==== CHANNEL f1 =====  
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 NUC1 13C  
 P1 9.80 usec  
 PLW1 78.13500214 W

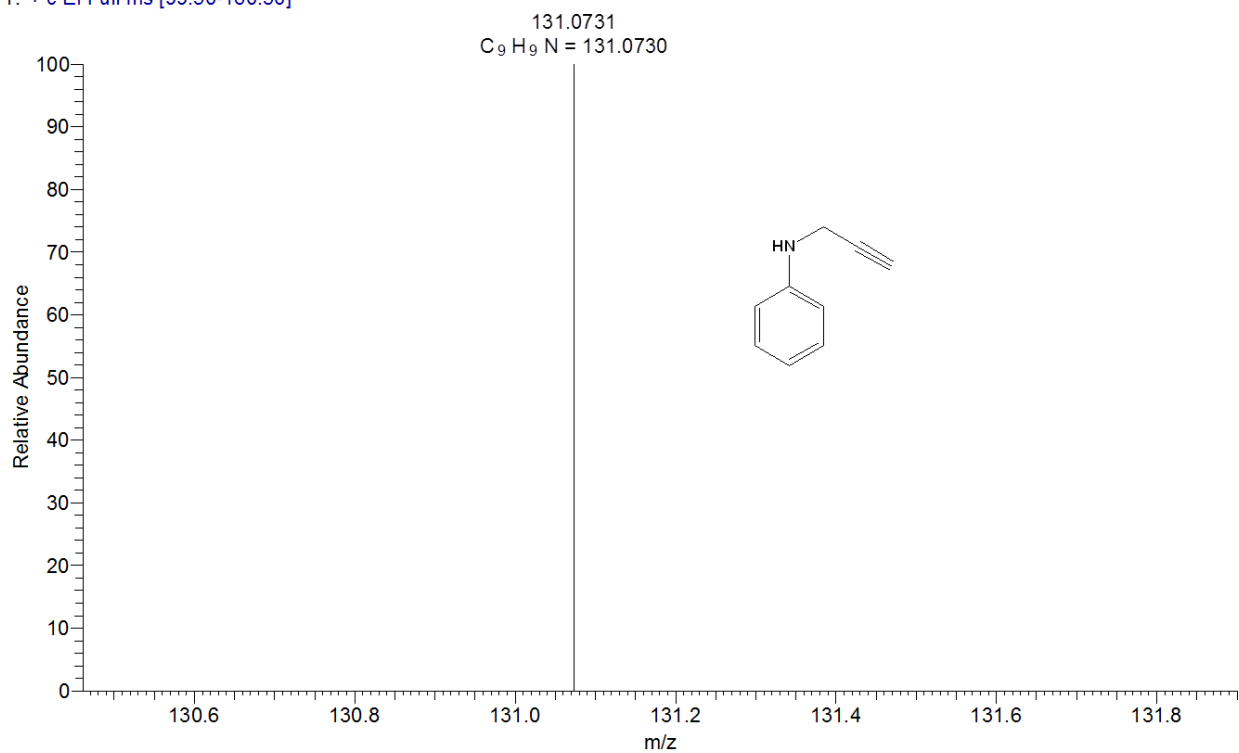
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 NUC2 1H  
 CPDPRG2 waltz65  
 PCPD2 70.00 usec  
 PLW2 27.82500076 W  
 PLW12 0.63804001 W  
 PLW13 0.31264001 W

F2 - Processing parameters  
 SI 32768  
 SF 150.9027081 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

P3 #18 RT: 0.83 AV: 1 NL: 6.39E7  
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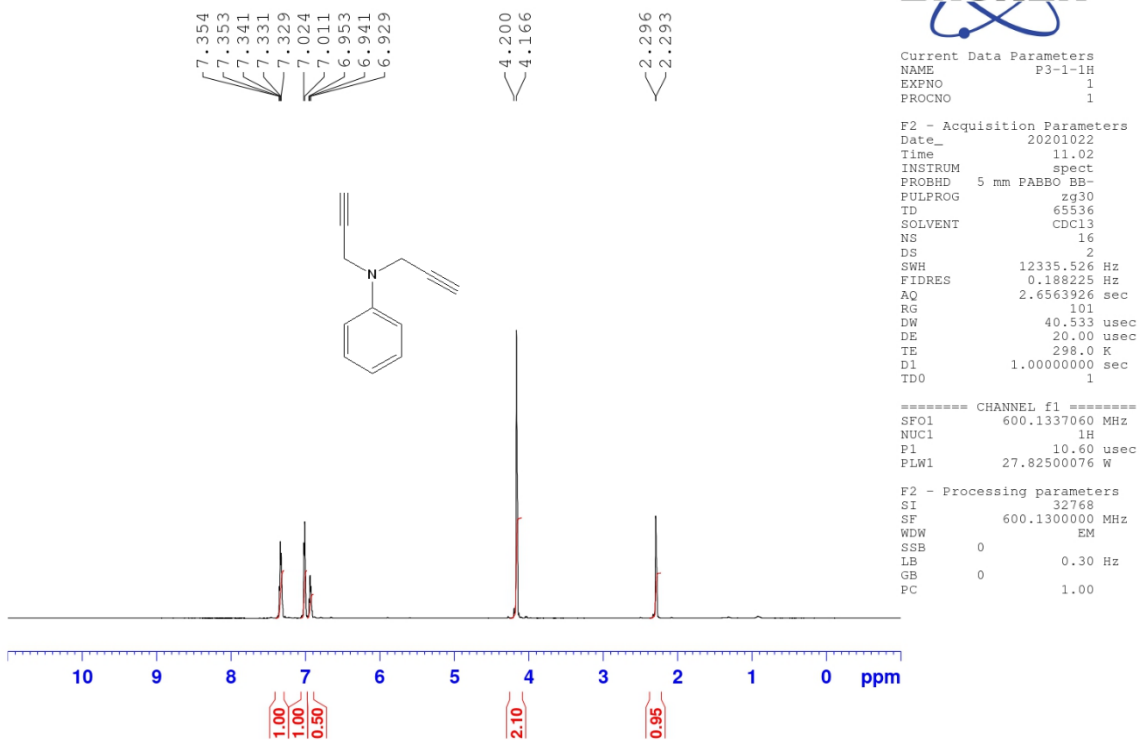


HRMS-P3-cmass1 #29 RT: 3.22 AV: 1 NL: 6.60E4  
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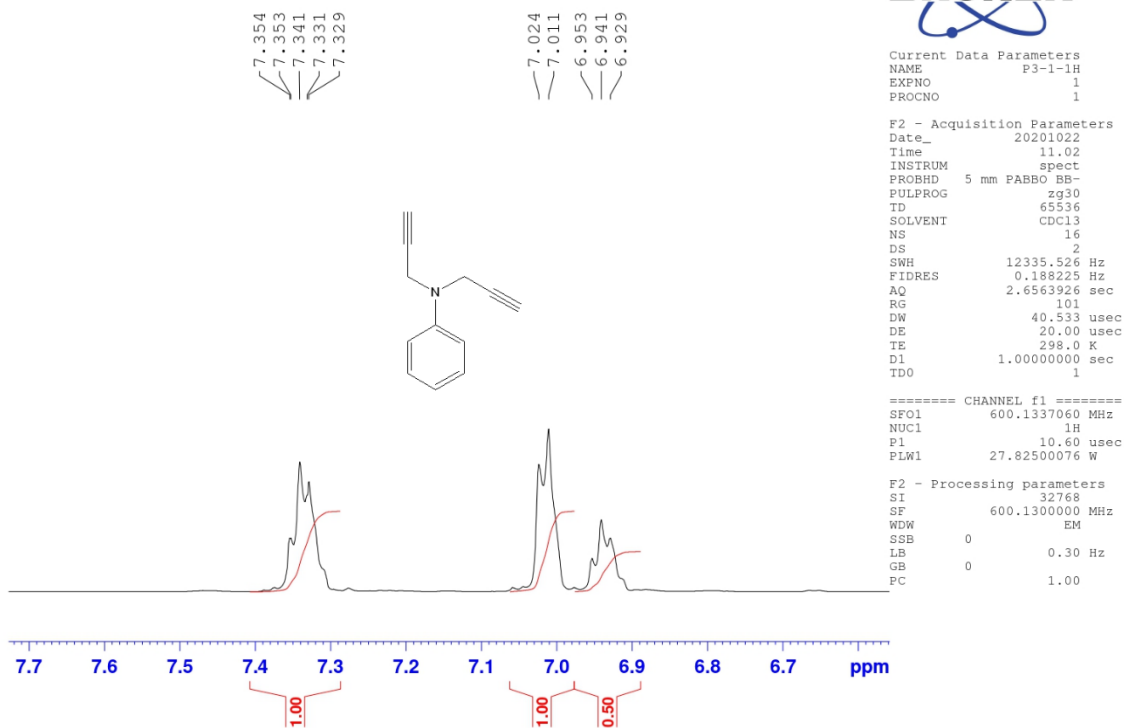


**Figure 3.** <sup>1</sup>H NMR, <sup>13</sup>C NMR, EIMS and HR-MS of **6**.

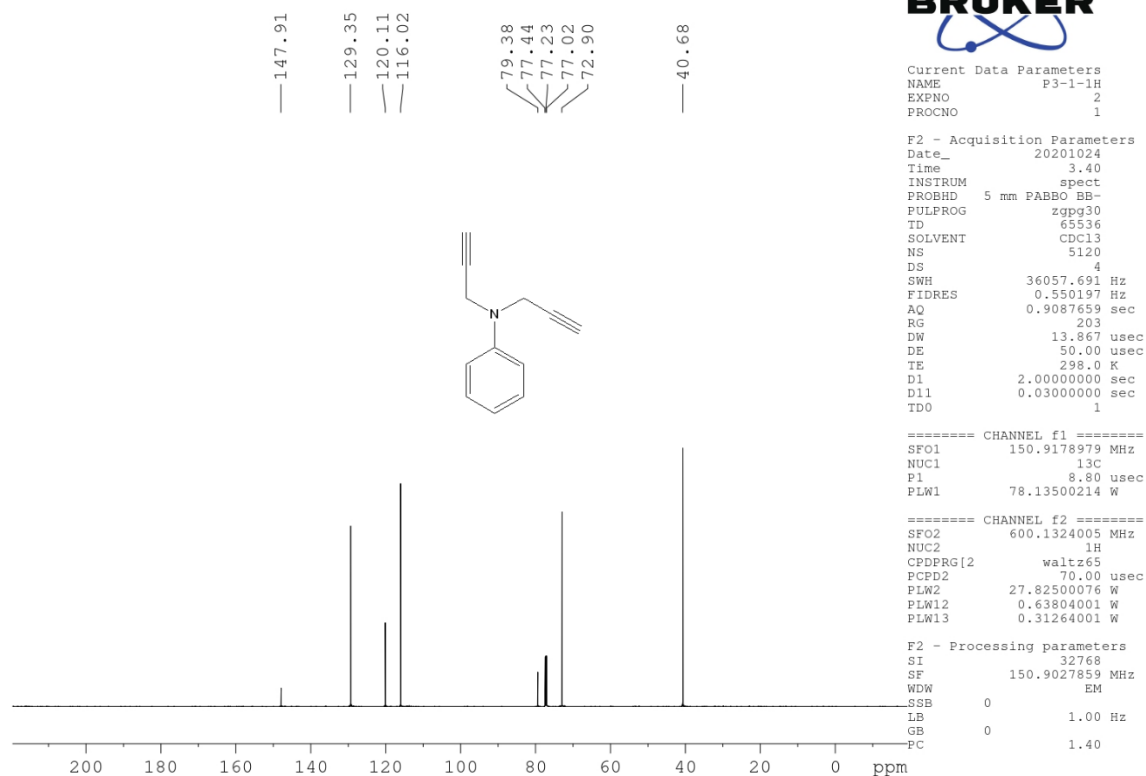
1H spectrum Dr.Nouria P3-1 in CDCL3



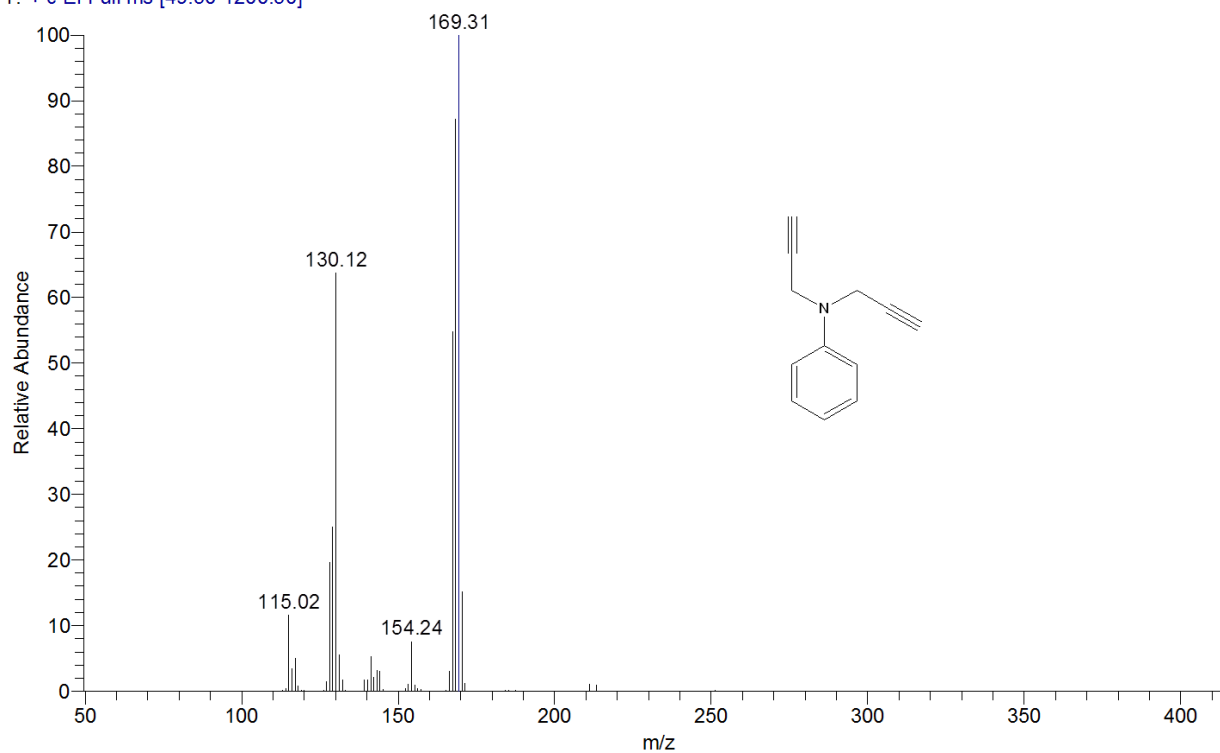
1H spectrum Dr.Nouria P3-1 in CDCL3



13C decoupled spectrum Dr.Nouria P3-1 in CDCL3



P3-1 #11 RT: 0.47 AV: 1 NL: 1.26E8  
 T: + c EI Full ms [49.50-1200.50]



HRMS-P3-1-cmass1#18 RT: 1.84 AV: 1 NL: 4.25E5  
T: + c EI Full ms [139.50-200.50]

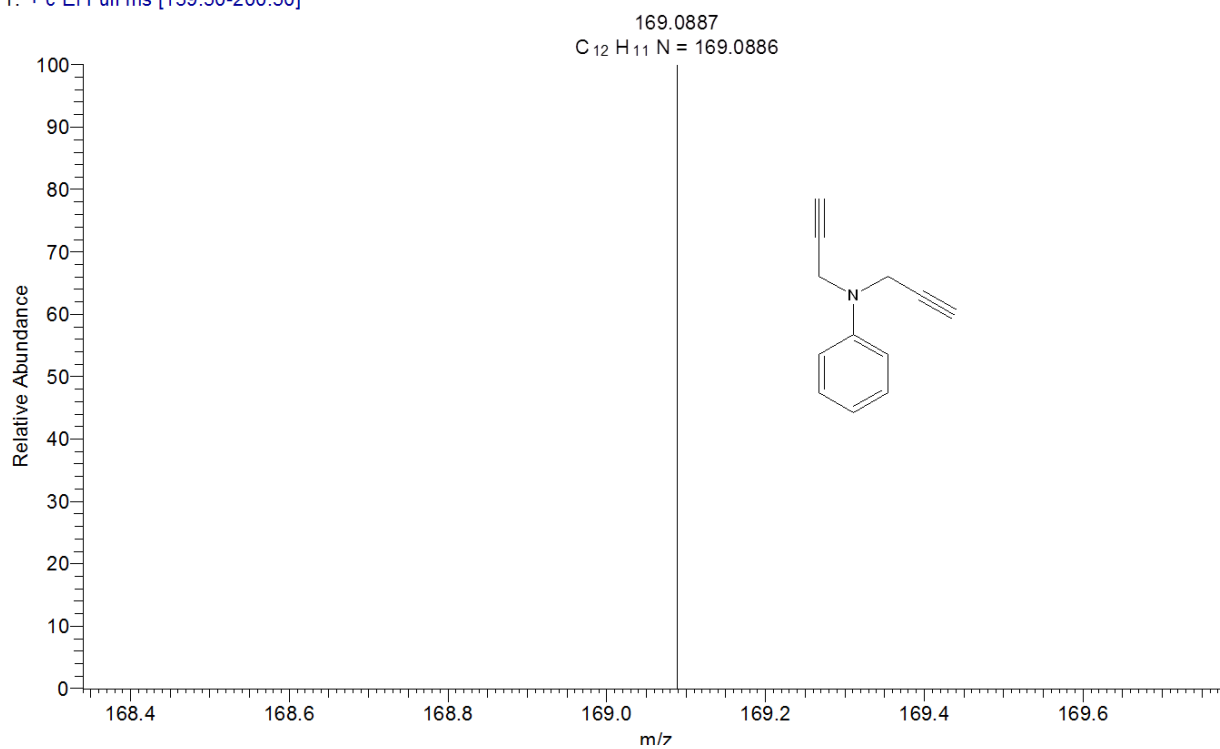
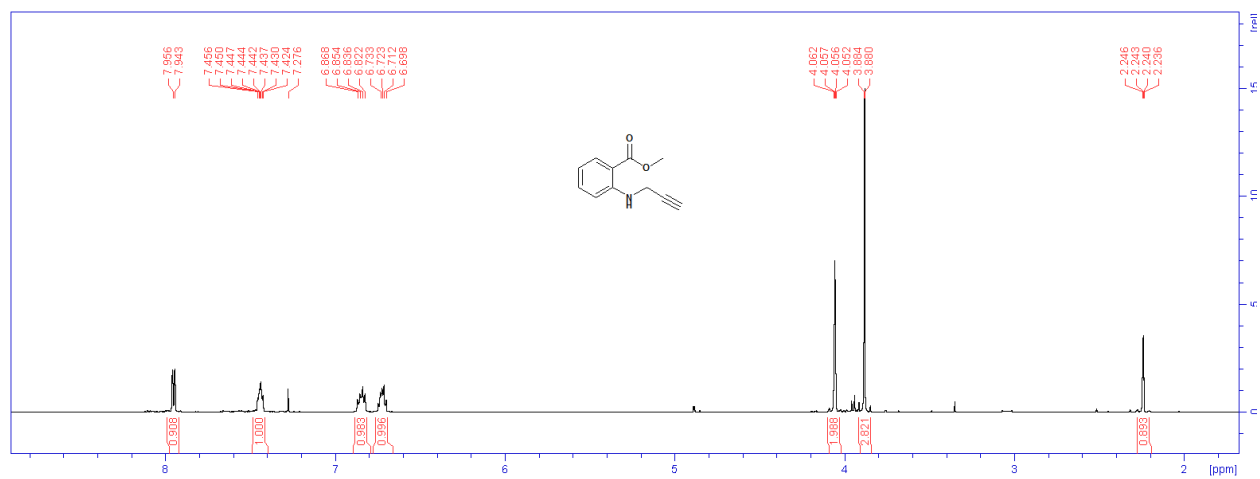
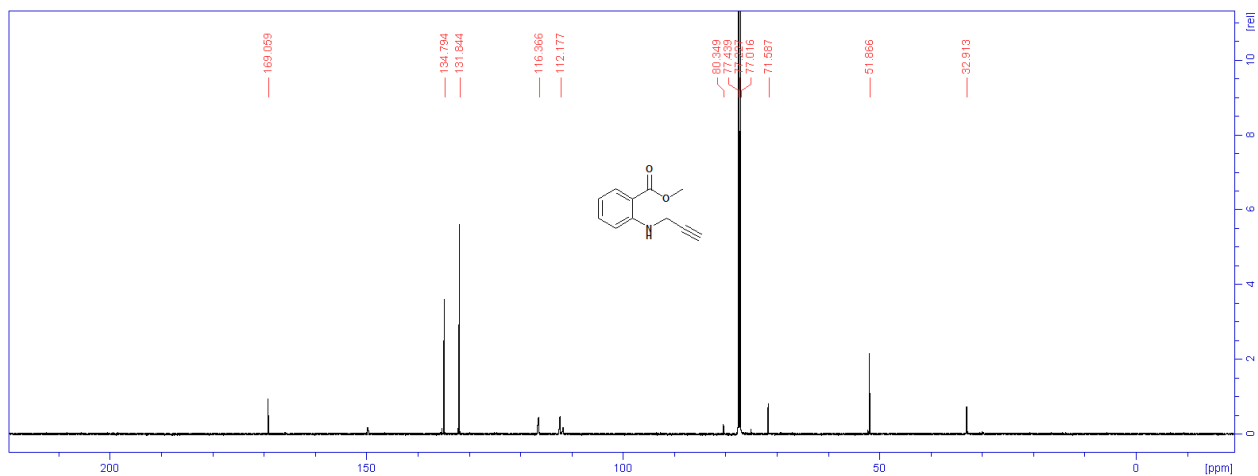
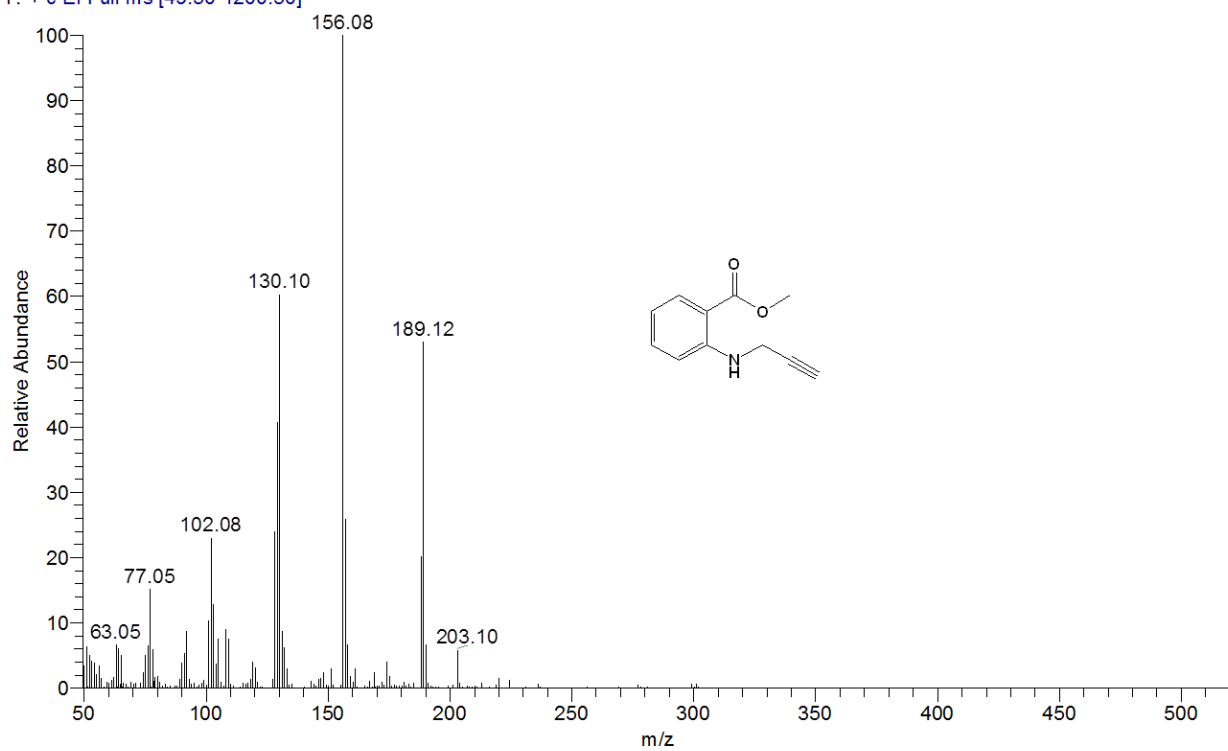


Figure 4.  $^1H$  NMR,  $^{13}C$  NMR, EIMS and HR-MS of 7.





AM-6 #10 RT: 0.44 AV: 1 NL: 9.52E6  
T: + c EI Full ms [49.50-1200.50]



HRMS-AM6-cmass1 #7 RT: 0.62 AV: 1 NL: 1.48E4  
T: + c EI Full ms [149.50-210.50]

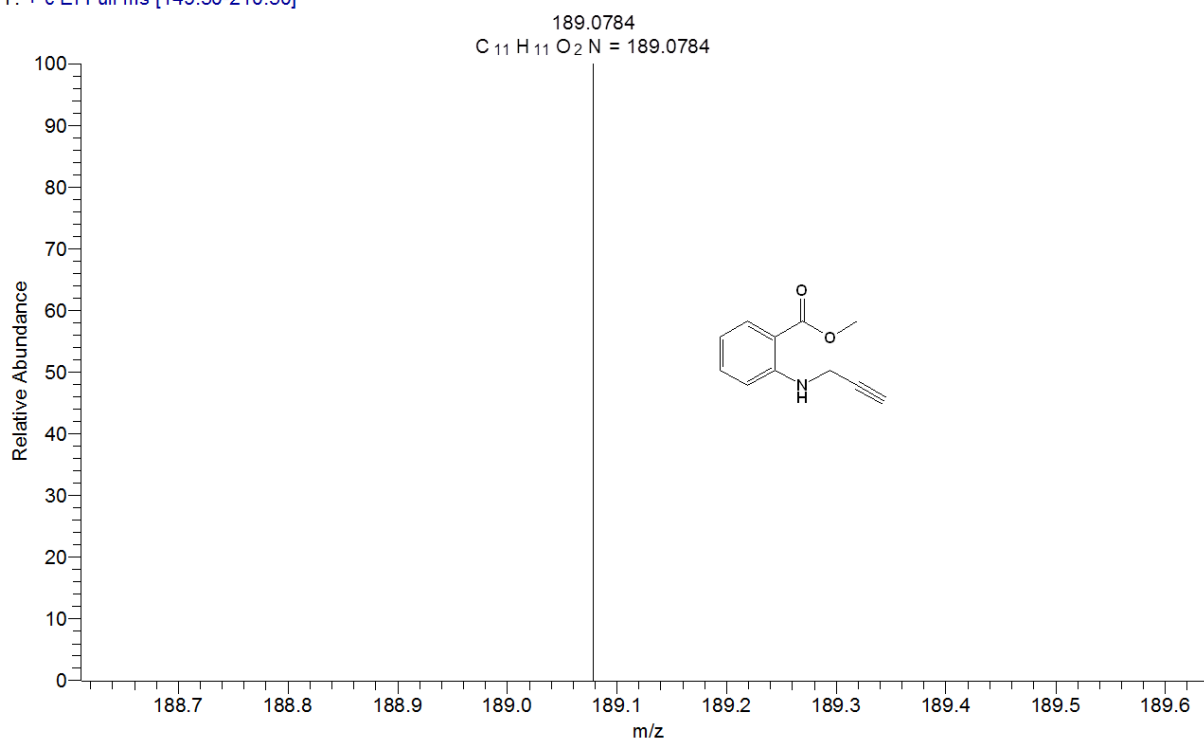
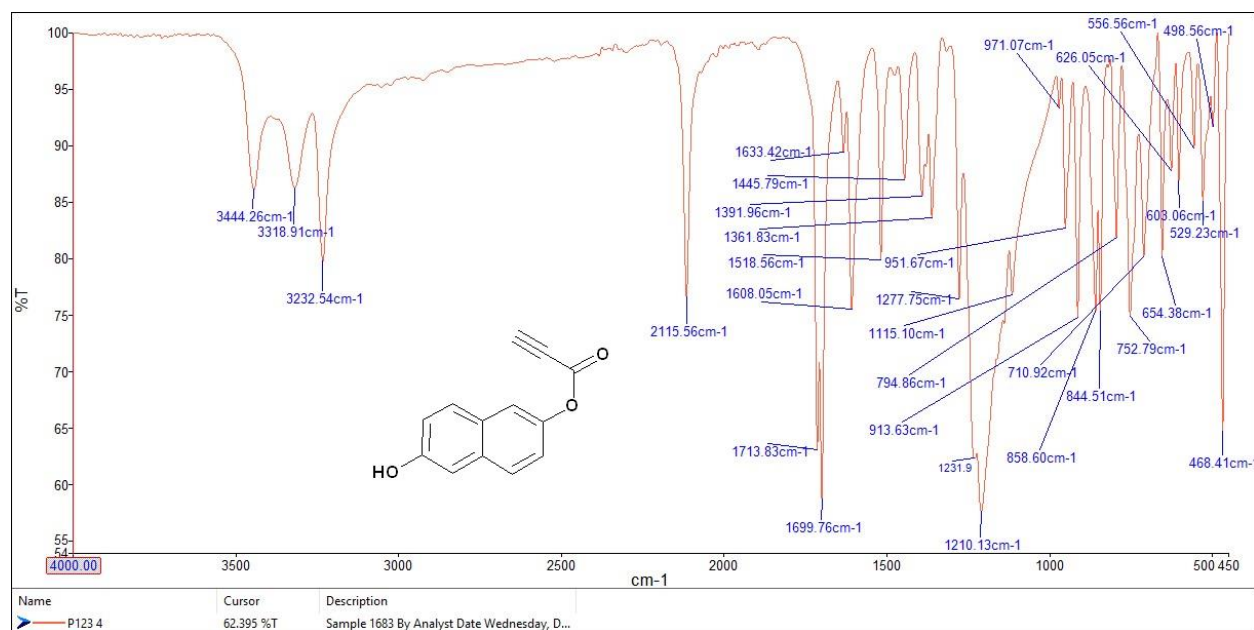
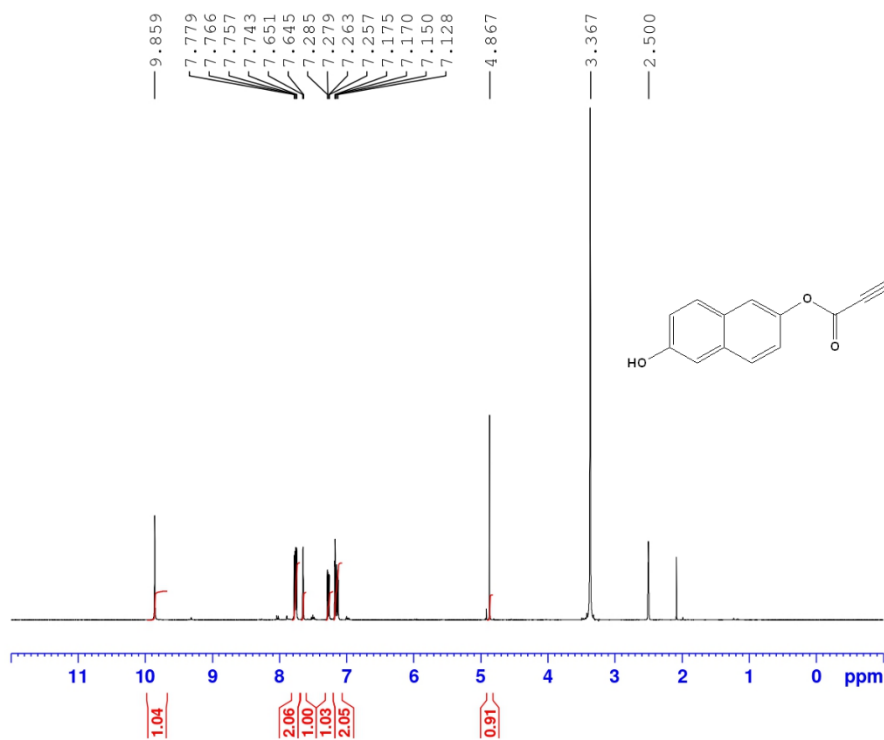


Figure 5. <sup>1</sup>H NMR, <sup>13</sup>C NMR, EIMS and HR-MS of 9.



1H spectra Dr.Nouria P 123-4 in DMSO

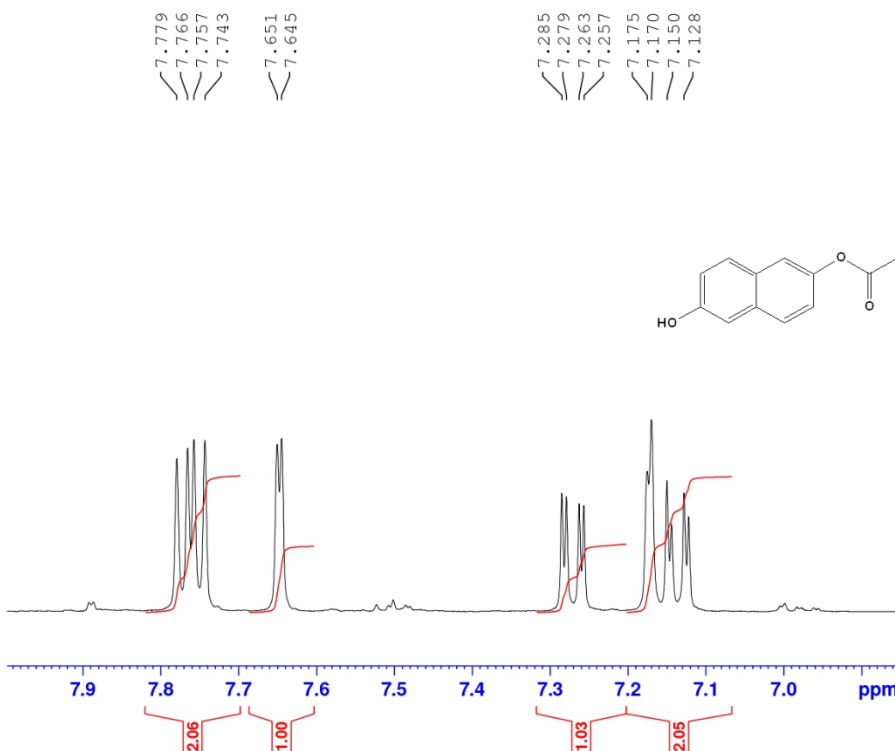


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 TD 65536  
 SOLVENT DMSO  
 NS 16  
 DS 2  
 SWH 8196.722 Hz  
 FIDRES 0.250144 Hz  
 AQ 3.9976959 sec  
 RG 101  
 DW 61.000 usec  
 DE 12.86 usec  
 TE 297.0 K  
 D1 1.00000000 sec  
 TD0 1  
 SFO1 400.1324708 MHz  
 NUC1 1H  
 PO 4.67 usec  
 P1 14.00 usec  
 PLW1 17.11499977 W

F2 - Processing parameters  
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 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

1H spectra Dr.Nouria P 123-4 in DMSO

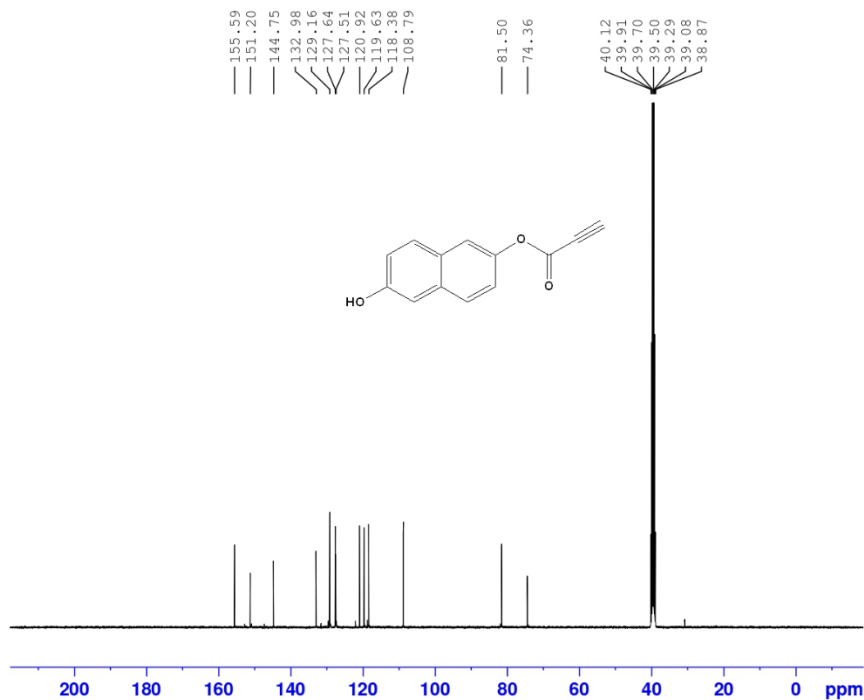


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 PROCNO 1

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 INSTRUM Avance AV Neo 400  
 PROBHD Z108618\_0912 ( )  
 PULPROG zg30  
 TD 65536  
 SOLVENT DMSO  
 NS 16  
 DS 2  
 SWH 8196.722 Hz  
 FIDRES 0.250144 Hz  
 AQ 3.9976959 sec  
 RG 101  
 DW 61.000 usec  
 DE 12.86 usec  
 TE 297.0 K  
 D1 1.00000000 sec  
 TD0 1  
 SFO1 400.1324708 MHz  
 NUC1 1H  
 PO 4.67 usec  
 P1 14.00 usec  
 PLW1 17.11499977 W

F2 - Processing parameters  
 SI 65536  
 SF 400.1300031 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



$^{13}\text{C}$  decoupled spectra Dr. Nouria P123-4 in DMSO

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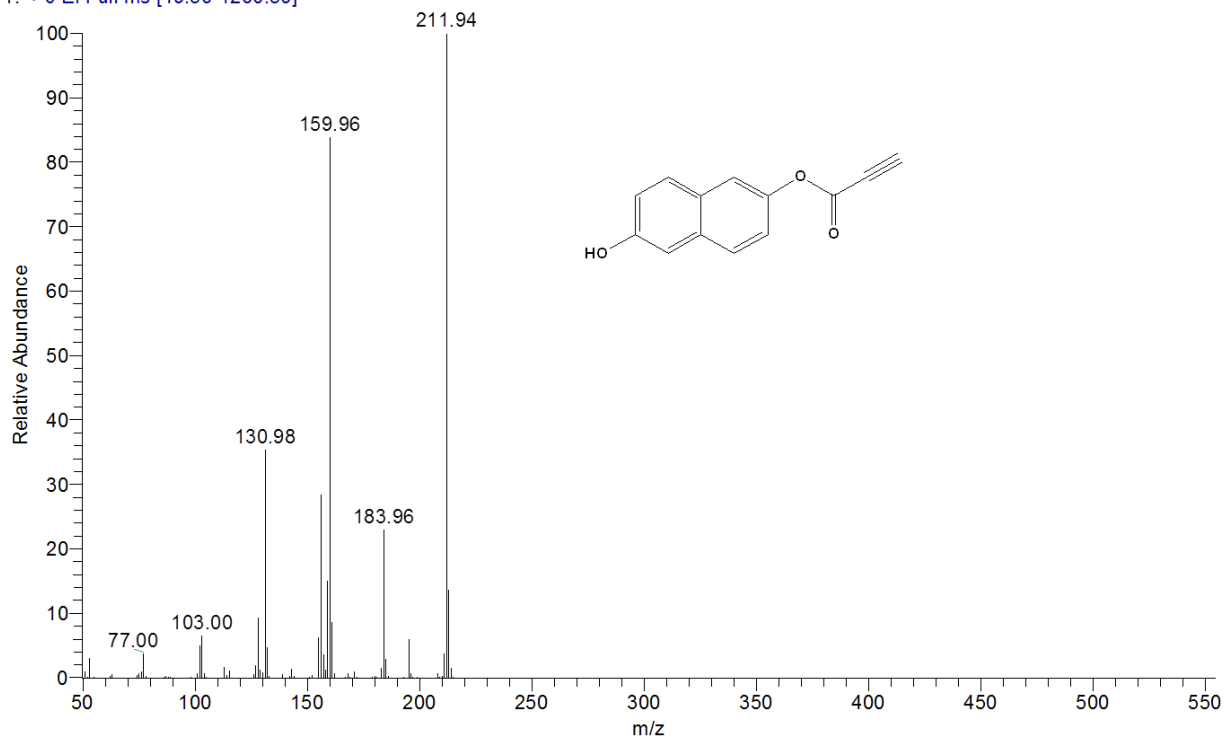
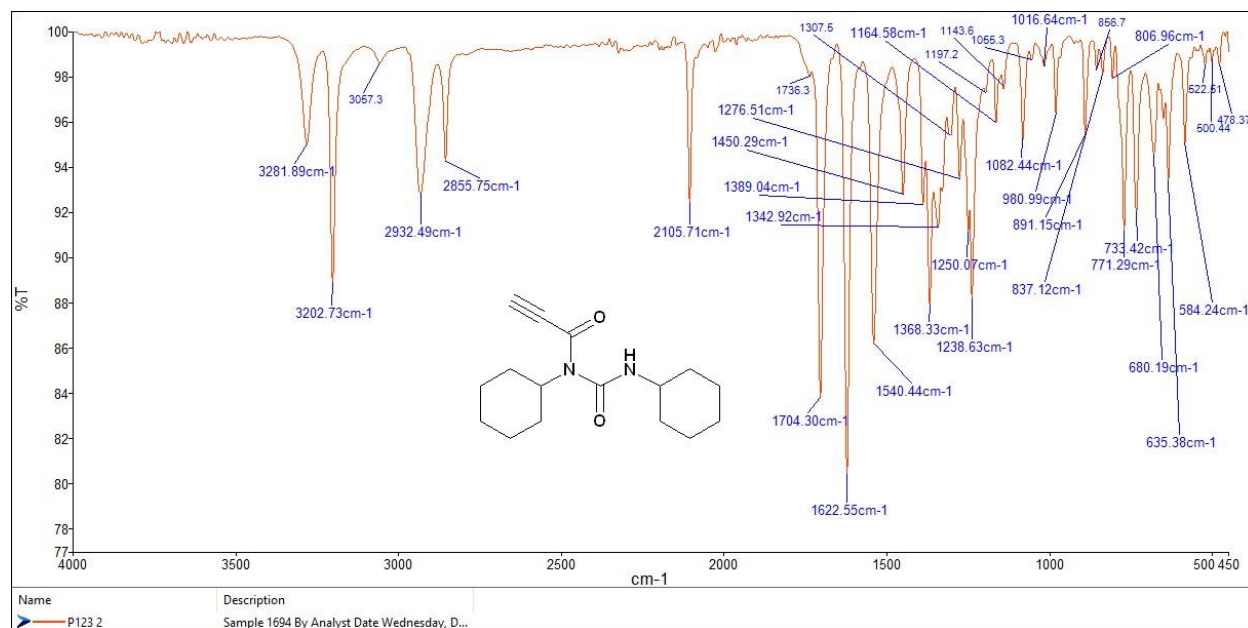
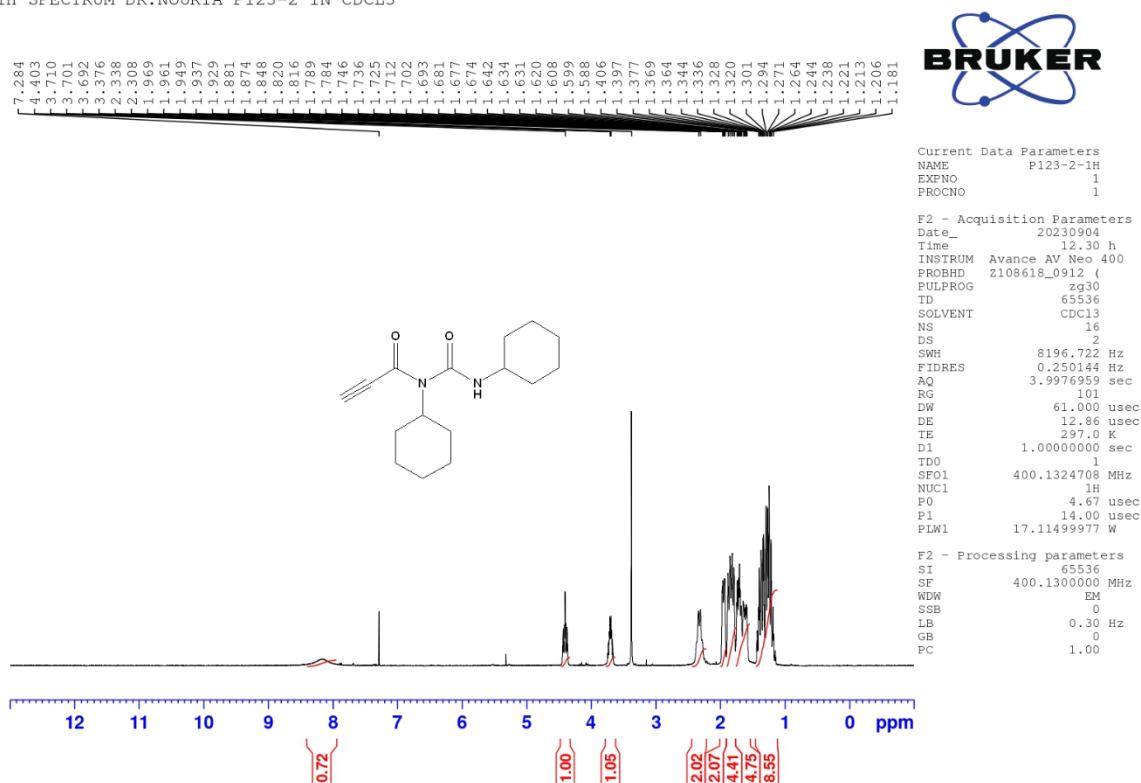


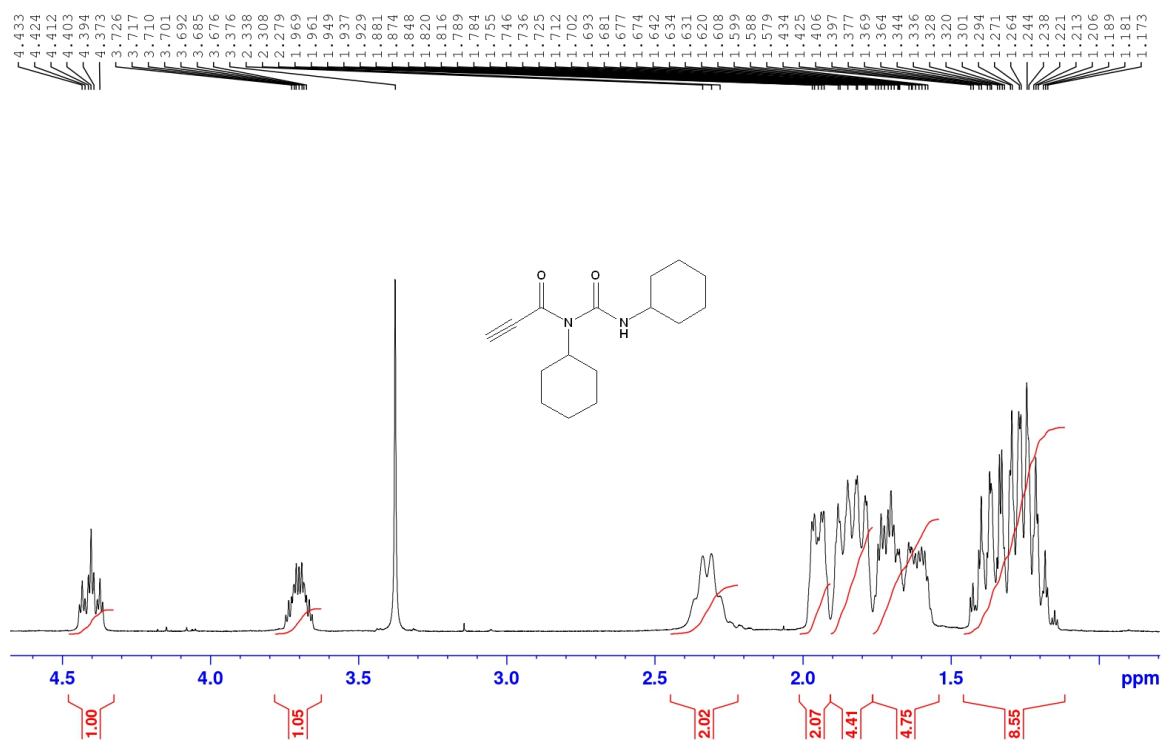
Figure 6. IR,  $^1\text{H}$  NMR,  $^{13}\text{C}$  NMR and EIMS of 11.



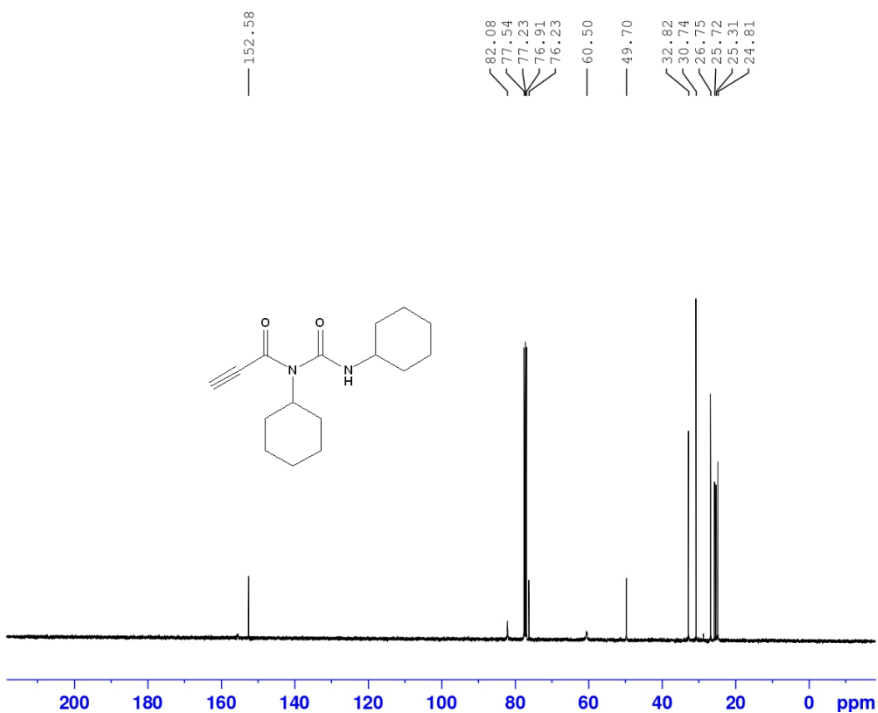
1H SPECTRUM DR.NOURIA P123-2 IN CDCL3



1H SPECTRUM DR.NOURIA P123-2 IN CDCL3



13C decoupled spectra Dr. Nouria P123-2 in CDCl3

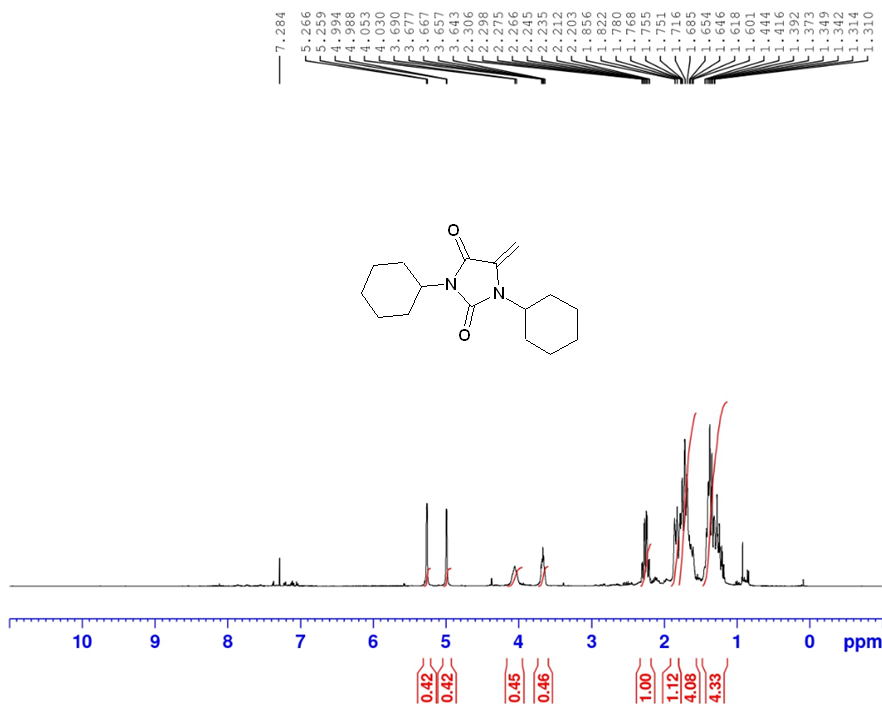
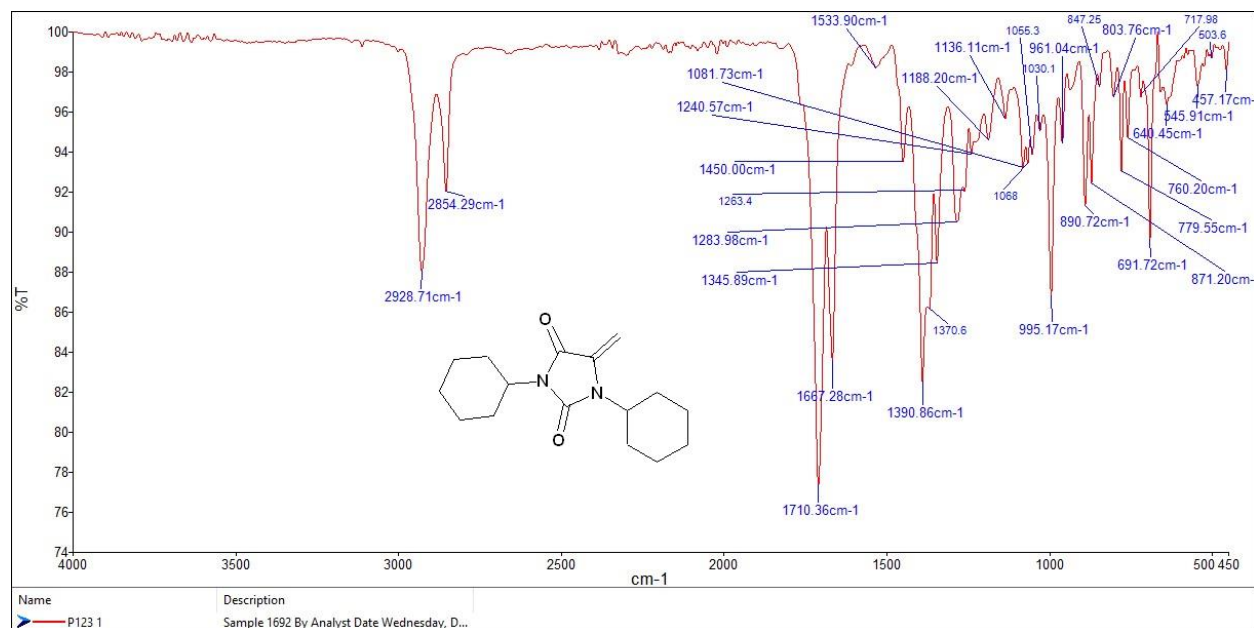


Current Data Parameters  
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 EXPNO 1  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20230912  
 Time 9.38 h  
 INSTRUM Avance AV Neo 400  
 PROBHD Z108618\_0912 ( )  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 854  
 DS 4  
 SWH 23809.523 Hz  
 FIDRES 0.726609 Hz  
 AQ 1.3762560 sec  
 RG 28.5  
 DW 21.000 usec  
 DE 6.50 usec  
 TE 298.1 K  
 D1 2.0000000 sec  
 D11 0.0300000 sec  
 TD0 1  
 SFO1 100.6228298 MHz  
 NUC1 13C  
 P0 3.33 usec  
 P1 10.00 usec  
 PLW1 56.20800018 W  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG2 waltz65  
 PCPD2 90.00 usec  
 PLW2 17.11499977 W  
 PLW12 0.41413999 W  
 PLW13 0.20830999 W

F2 - Processing parameters  
 SI 32768  
 SF 100.6127503 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

Figure 7. IR, <sup>1</sup>H NMR and <sup>13</sup>C NMR of 12.



Current Data Parameters

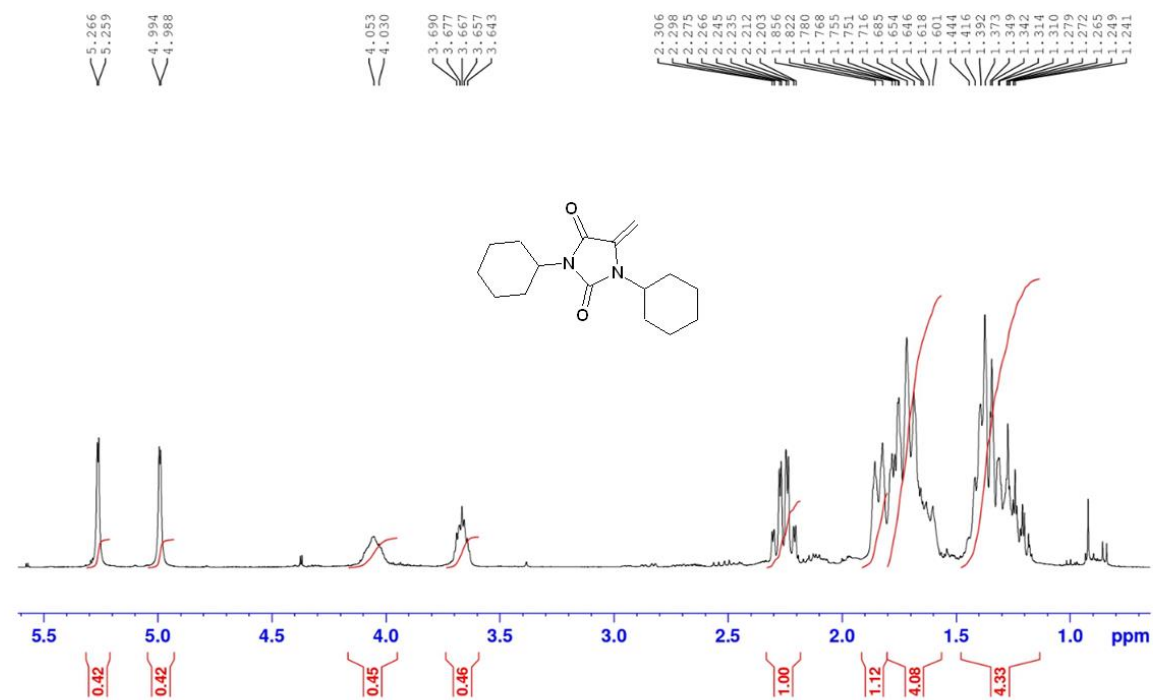
NAME AS-4-1-STAR-1H  
 EXPNO 1  
 PROCNO 1

F2 - Acquisition Parameters

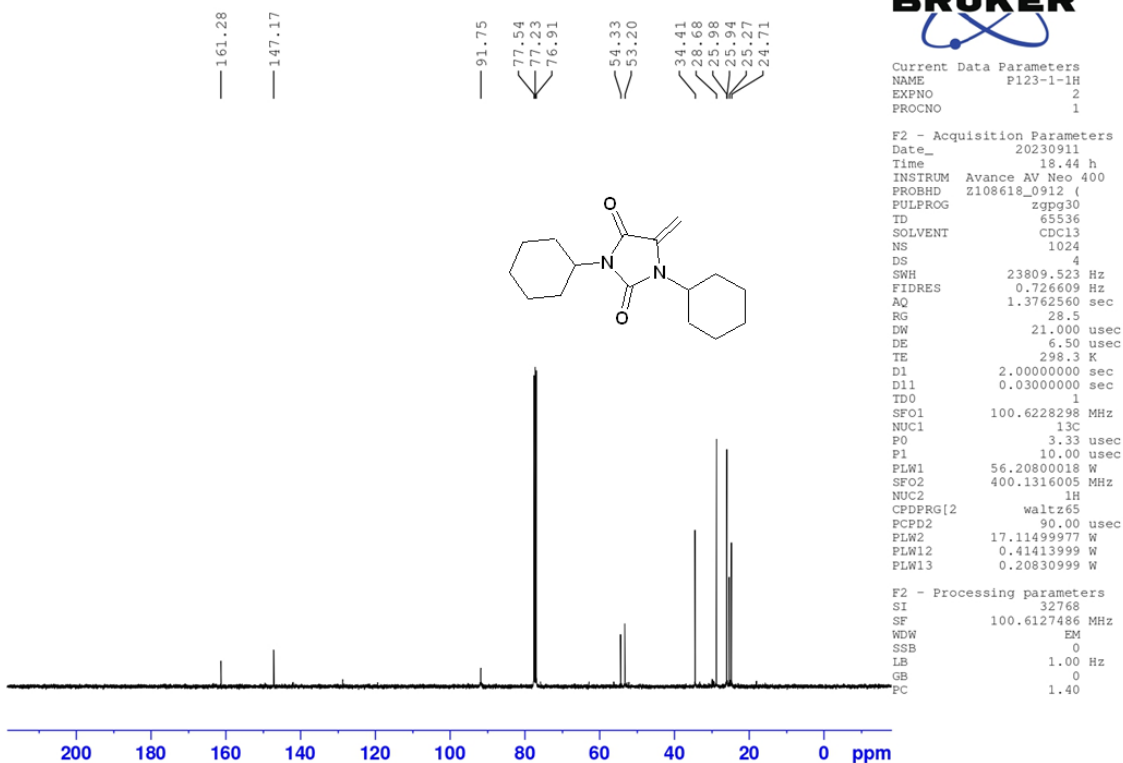
Date\_ 20230625  
 Time 10.24 h  
 INSTRUM Avance AV Neo 400  
 PROBHD zg30  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 16  
 DS 2  
 SWH 8196.722 Hz  
 FIDRES 0.250144 Hz  
 AQ 3.9976959 sec  
 RG 101  
 DW 61.000 usec  
 DE 12.86 usec  
 TE 296.8 K  
 D1 1.00000000 sec  
 TDO 1  
 SFO1 400.1324708 MHz  
 NUC1 1H  
 PO 4.67 usec  
 P1 14.00 usec  
 PLW1 17.11499977 W

F2 - Processing parameters

SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



<sup>13</sup>C decoupled spectra Dr. Nouria P123-1 in CDCl<sub>3</sub>

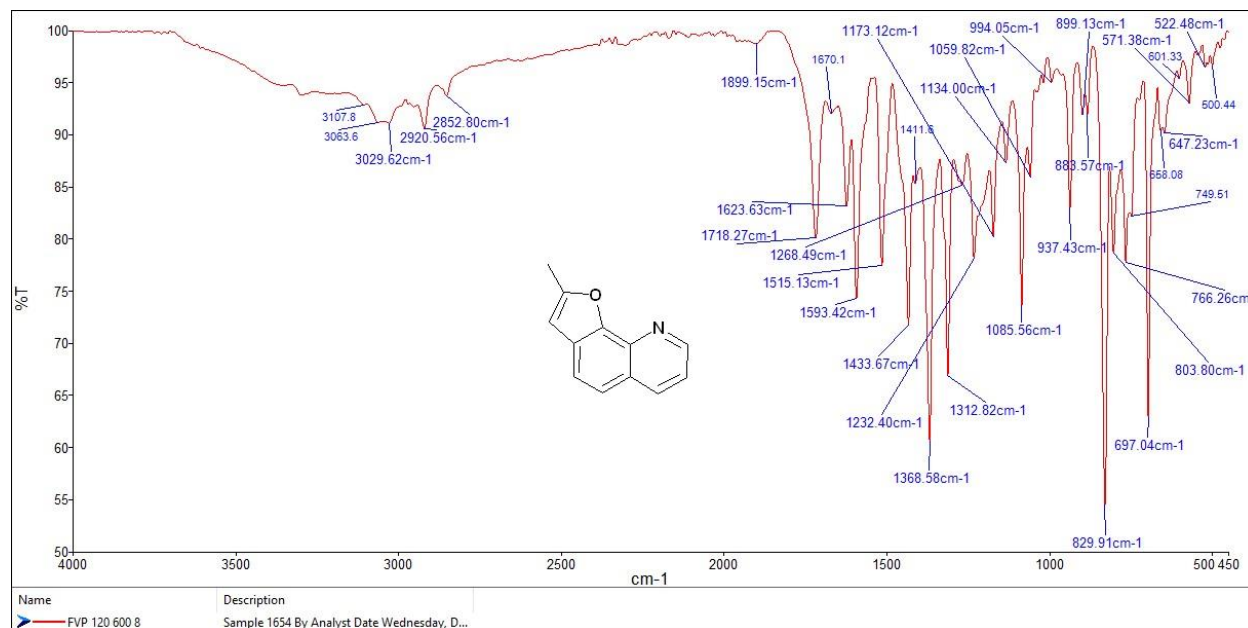


Current Data Parameters  
 NAME P123-1-1H  
 EXPNO 2  
 PROCNO 1

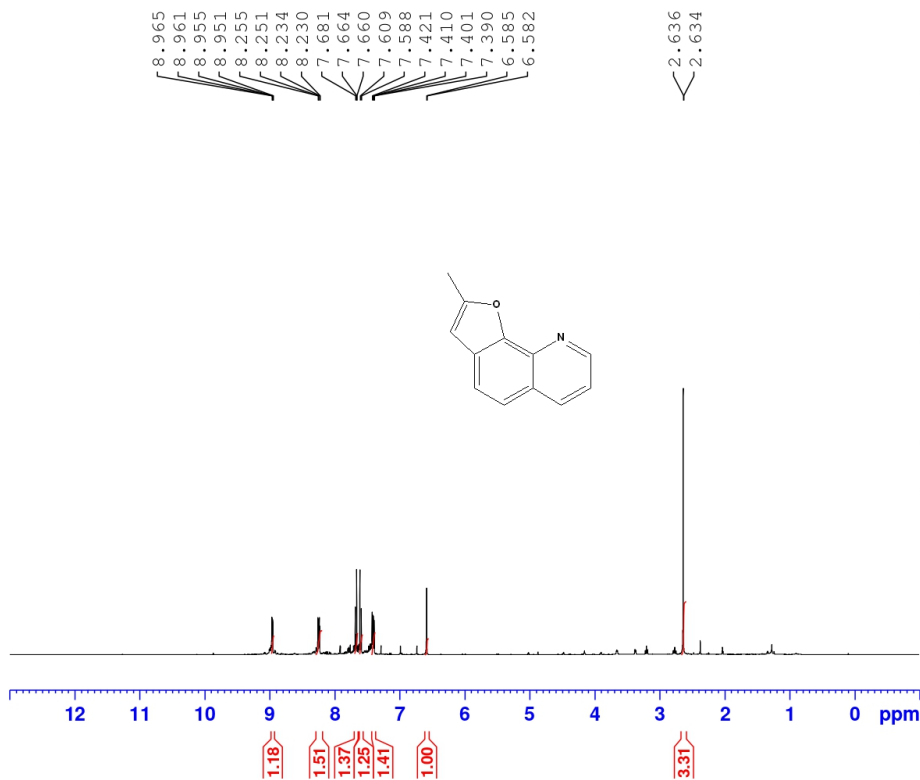
F2 - Acquisition Parameters  
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 Time 18.44 h  
 INSTRUM Avance AV Neo 400  
 PROBHD Z108618\_0912 ( )  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl<sub>3</sub>  
 NS 1024  
 DS 4  
 SWH 23809.523 Hz  
 FIDRES 0.726609 Hz  
 AQ 1.3762560 sec  
 RG 28.5  
 DW 21.000 usec  
 DE 6.50 usec  
 TE 298.3 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1  
 SFO1 100.6228298 MHz  
 NUC1 13C  
 FO 3.33 usec  
 P1 10.00 usec  
 PLW1 56.2080018 W  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG2 waltz65  
 PCPD2 90.00 usec  
 PLW2 17.11499977 W  
 PLW12 0.41413999 W  
 PLW13 0.20830999 W

F2 - Processing parameters  
 SI 32768  
 SF 100.6127486 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

Figure 8. IR, <sup>1</sup>H NMR and <sup>13</sup>C NMR of 13.



1H SPECTRUM DR.NOURIA FVP-P120-600-8 IN CDCL3

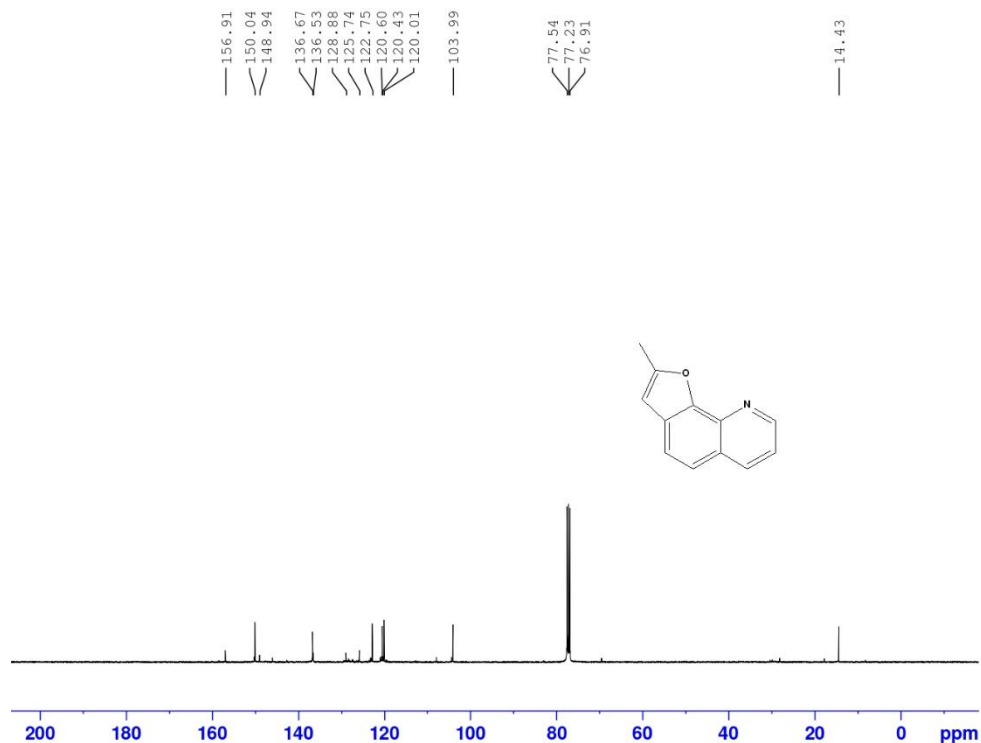
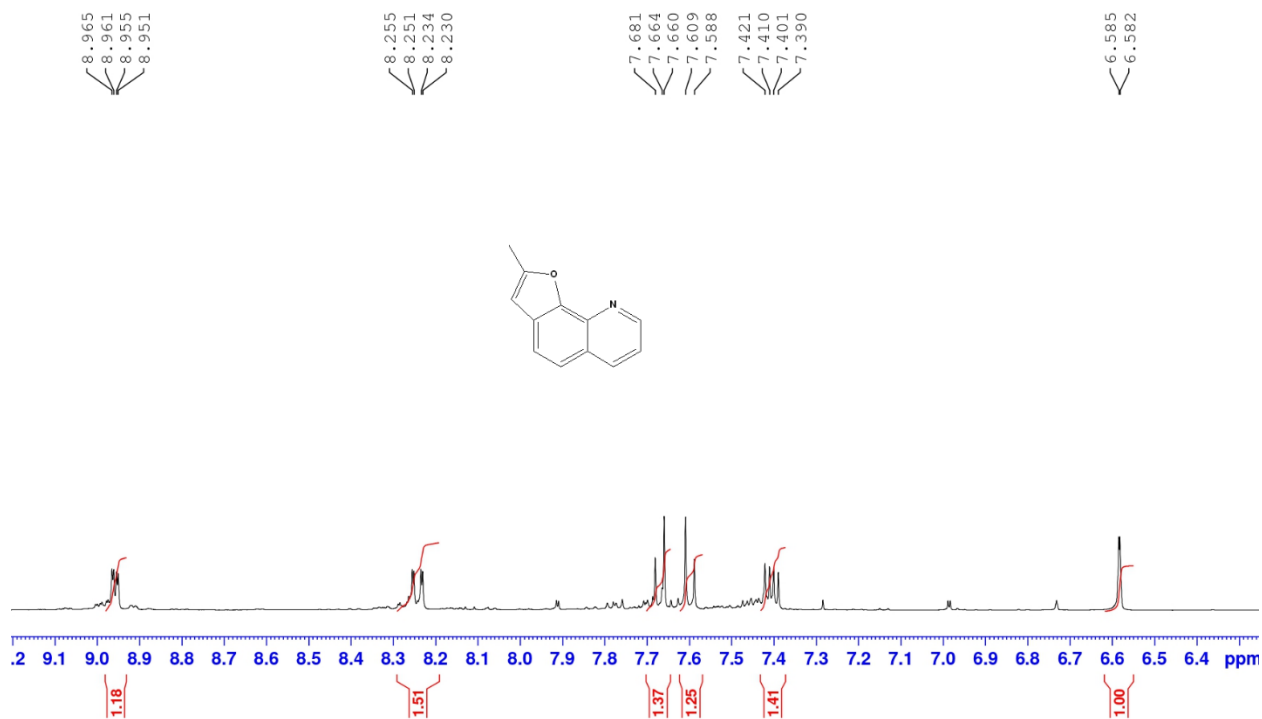


Current Data Parameters  
 NAME FVP-P120-600-8-1H  
 EXPNO 1  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20230831  
 Time 11.11 h  
 INSTRUM Avance AV Neo 400  
 PROBHD z108618\_0912 (   
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 16  
 DS 2  
 SWH 8196.722 Hz  
 FIDRES 0.250144 Hz  
 AQ 3.9976959 sec  
 RG 101  
 DW 61.000 usec  
 DE 12.86 usec  
 TE 297.7 K  
 D1 1.00000000 sec  
 TD0 1  
 SFO1 400.1324708 MHz  
 NUC1 1H  
 P0 4.67 usec  
 P1 14.00 usec  
 PLW1 17.11499977 W

F2 - Processing parameters  
 SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

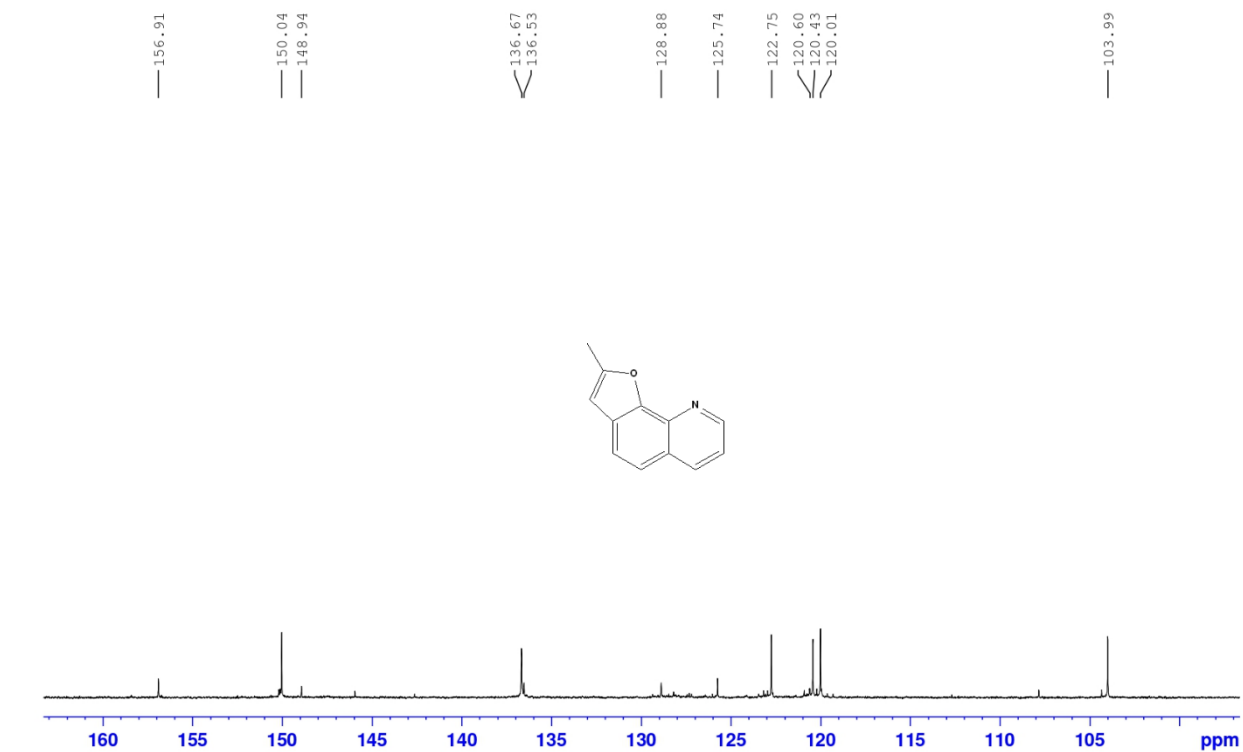
1H SPECTRUM DR.NOURIA FVP-P120-600-8 IN CDCL3



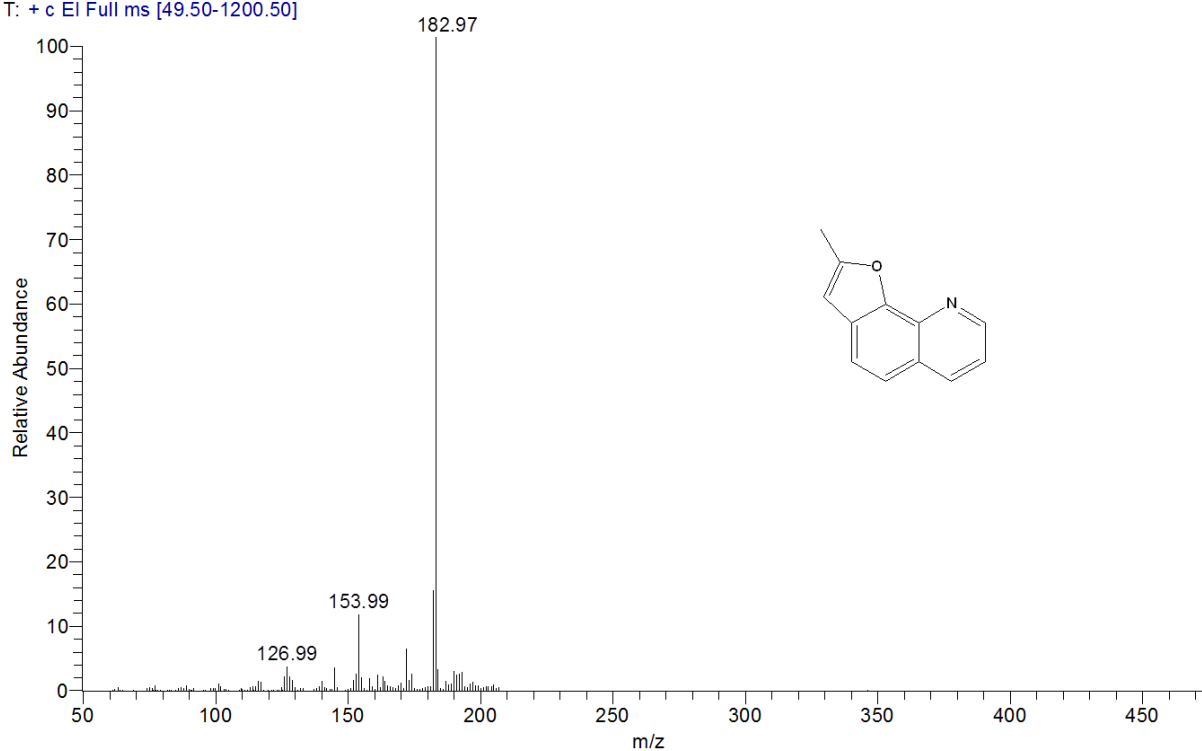
Current Data Parameters  
NAME FVP-P120-600-8-13C  
EXPNO 3  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20230905  
Time 13.19 h  
INSTRUM Avance AV Neo 400  
PROBHD z108618\_0912 ( )  
PULPROG zgpg30  
TD 65536  
SOLVENT CDCl3  
NS 5720  
DS 4  
SWH 23809.523 Hz  
FIDRES 0.726609 Hz  
AQ 1.3762560 sec  
RG 28.5  
DW 21.000 usec  
DE 6.50 usec  
TE 299.7 K  
D1 2.0000000 sec  
D11 0.0300000 sec  
TD0 1  
SFO1 100.6228298 MHz  
NUC1 13C  
P0 3.33 usec  
P1 10.00 usec  
PLW1 56.2080018 W  
SFO2 400.1316005 MHz  
NUC2 1H  
CPDPRG2 waltz65  
PCPD2 90.00 usec  
PLW2 17.11499977 W  
PLW12 0.41413999 W  
PLW13 0.20830999 W

F2 - Processing parameters  
SI 32768  
SF 100.6127503 MHz  
WDW EM  
SSB 0  
LB 1.00 Hz  
GB 0  
PC 1.40

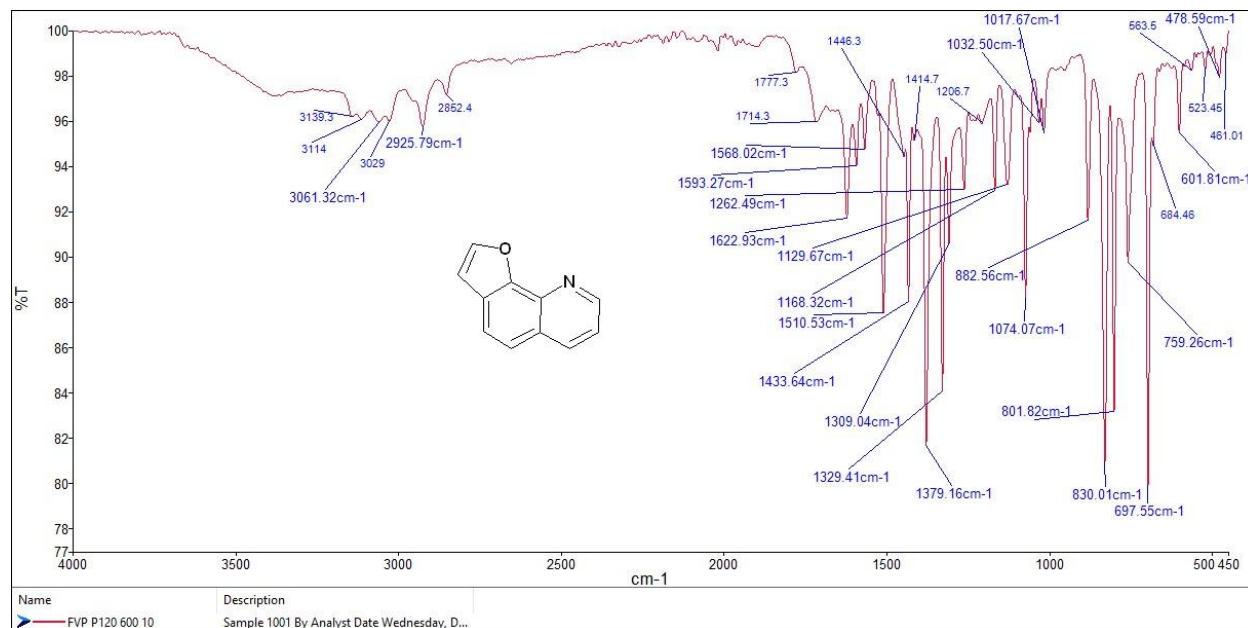


FVP-P120-600-8 #34 RT: 1.61 AV: 1 NL: 6.11E7  
T: + c EI Full ms [49.50-1200.50]

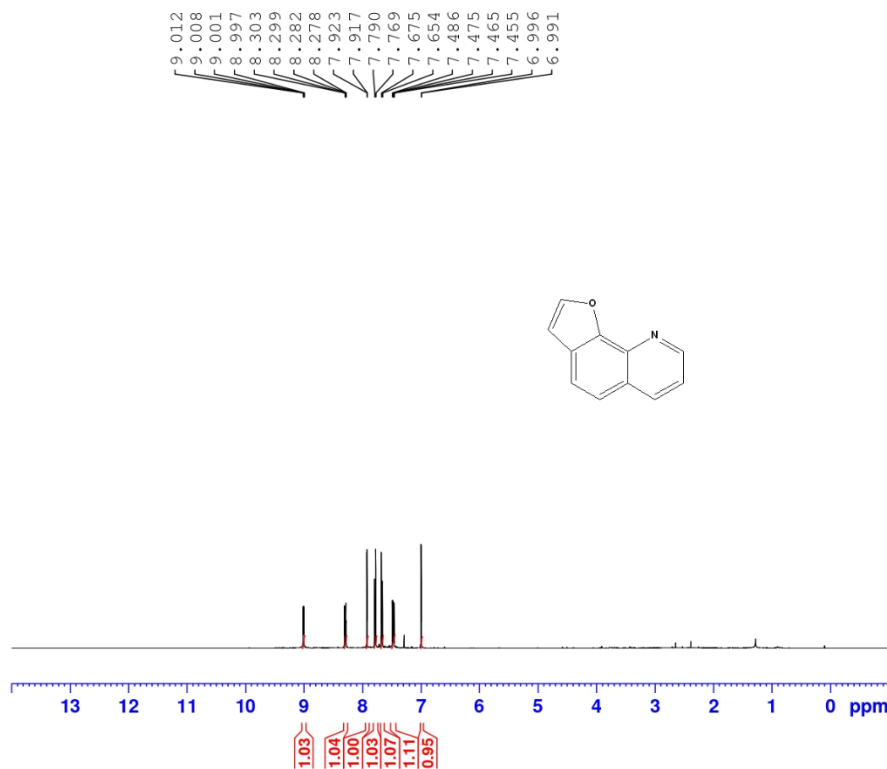


**Figure 9.** IR, <sup>1</sup>H NMR, <sup>13</sup>C NMR and EIMS of **14**.





1H SPECTRUM DR.NOURIA FVP-P120-600-10 IN CDCL3



Current Data Parameters

NAME FVP-P120-600-10-1H  
 EXPNO 1  
 PROCNO 1

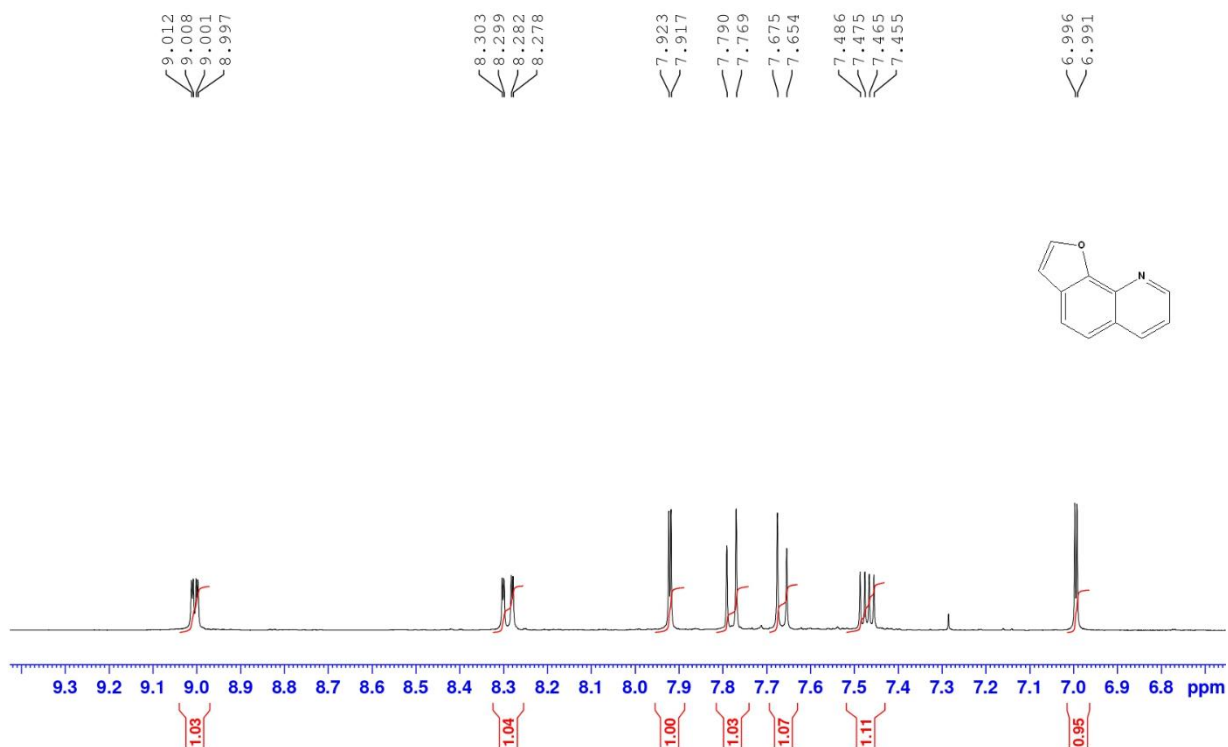
F2 - Acquisition Parameters

Date\_ 20230831  
 Time 11.21 h  
 INSTRUM Avance AV Neo 400  
 PROBHD z108618\_0912 (z130)  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 16  
 DS 2  
 SWH 8196.722 Hz  
 FIDRES 0.250144 Hz  
 AQ 3.9976959 sec  
 RG 101  
 DW 61.000 usec  
 DE 12.86 usec  
 TE 297.7 K  
 D1 1.00000000 sec  
 TD0 1  
 SFO1 400.1324708 MHz  
 NUC1 1H  
 PO 4.67 usec  
 P1 14.00 usec  
 PLW1 17.11499977 W

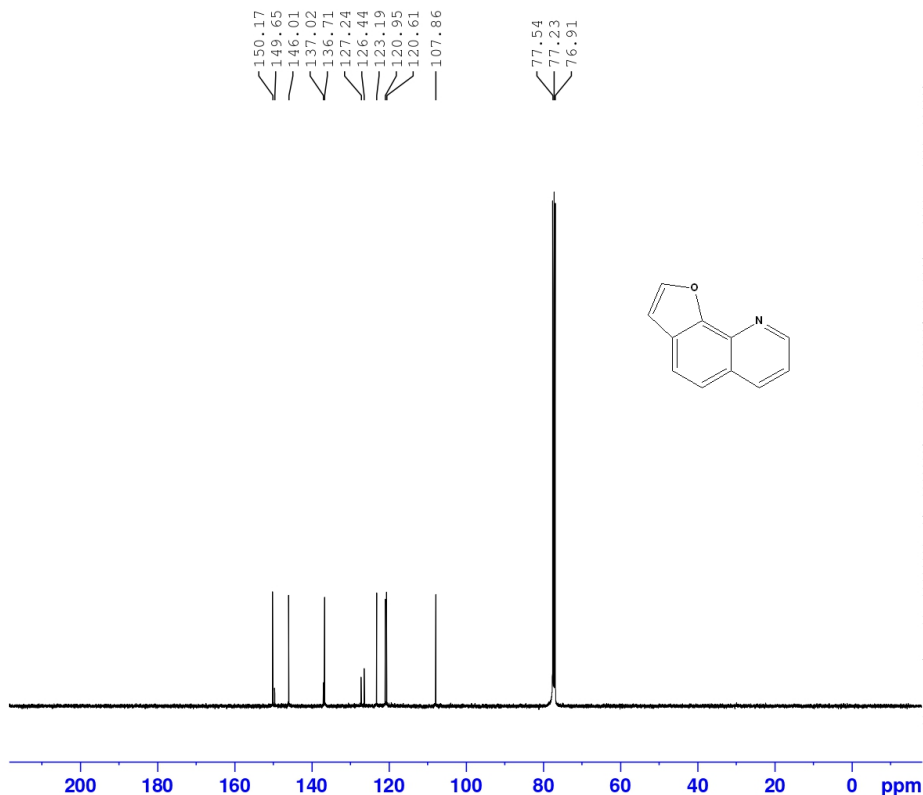
F2 - Processing parameters

SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

1H SPECTRUM DR.NOURIA FVP-P120-600-10 IN CDCL3



13C DECOUPLED SPECTRUM DR.NOURIA FVP-P120-600-10 IN CDCL3



Current Data Parameters  
NAME FVP-P120-600-10-13C  
EXPNO 3  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20230906  
Time 18.56 h  
INSTRUM Avance AV Neo 400  
PROBHD Z108618\_0912 ( zggp30  
PULPROG 65536  
TD 1  
SOLVENT CDCl3  
NS 4096  
DS 4  
SWH 23809.523 Hz  
FIDRES 0.726609 Hz  
AQ 1.3762560 sec  
RG 32  
DW 21.000 usec  
DE 6.50 usec  
TE 297.0 K  
D1 2.00000000 sec  
D11 0.03000000 sec  
TD0 1  
SFO1 100.6228298 MHz  
NUC1 13C  
P0 3.33 usec  
P1 10.00 usec  
PLW1 56.2080018 W  
SFO2 400.1316005 MHz  
NUC2 1H  
CPDPRG[2] waltz65  
PCPD2 90.00 usec  
PLW2 17.11499977 W  
PLW12 0.41413999 W  
PLW13 0.20830999 W

F2 - Processing parameters  
SI 32768  
SF 100.6127503 MHz  
WDW EM  
SSB 0  
LB 1.00 Hz  
GB 0  
PC 1.40

13C DECOUPLED SPECTRUM DR.NOURIA FVP-P120-600-10 IN CDCL3



Current Data Parameters  
NAME FVP-P120-600-10-13C  
EXPNO 3  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20230906  
Time 18.56 h  
INSTRUM Avance AV Neo 400  
PROBHD Z108618\_0912 (   
PULPROG zgpg30  
TD 65536  
SOLVENT CDCl3  
NS 4096  
DS 4  
SWH 23809.523 Hz  
FIDRES 0.726609 Hz  
AQ 1.3762560 sec  
RG 32  
DW 21.000 usec  
DE 6.50 usec  
TE 297.0 K  
D1 2.0000000 sec  
D11 0.0300000 sec  
TD0 1  
SFO1 100.6228298 MHz  
NUC1 13C  
P0 3.33 usec  
P1 10.00 usec  
PLW1 56.20800018 W  
SFO2 400.1316005 MHz  
NUC2 1H  
CPDPRG[2] waltz65  
PCPD2 90.00 usec  
PLW2 17.11499977 W  
PLW12 0.41413999 W  
PLW13 0.20830999 W

F2 - Processing parameters  
SI 32768  
SF 100.6127503 MHz  
WDW EM  
SSB 0  
LB 1.00 Hz  
GB 0  
PC 1.40

FVP-P120-600-10 #20-36 RT: 0.93-1.71 AV: 17 NL: 1.18E7  
T: + c EI Full ms [49.50-1200.50]

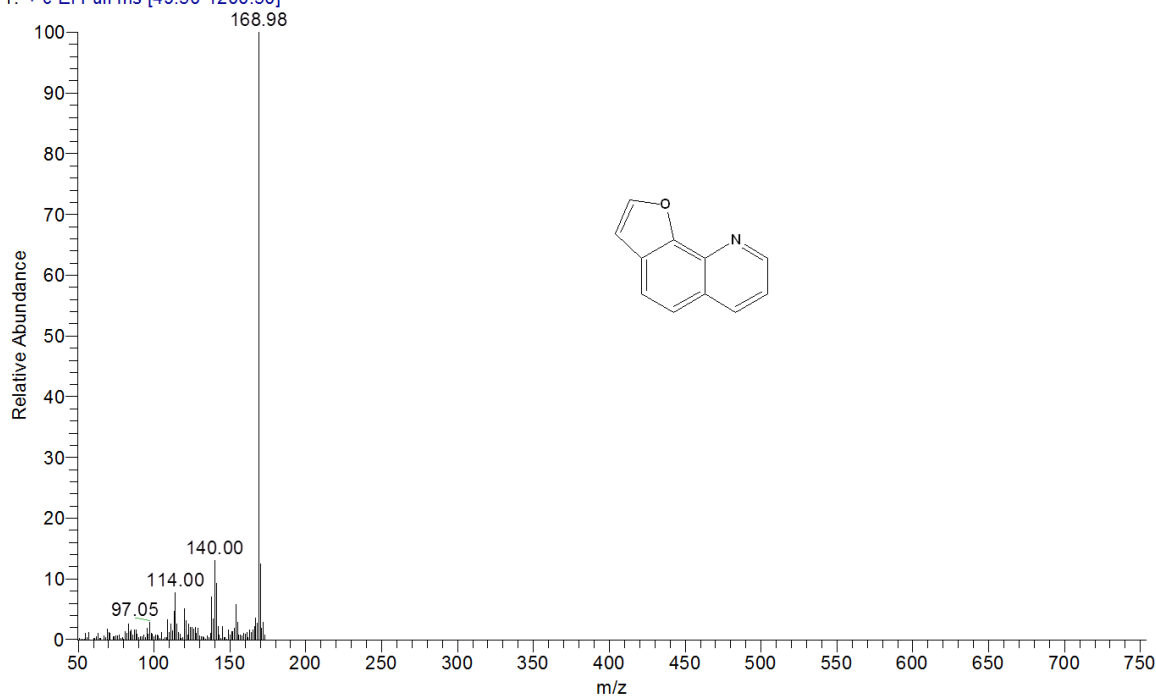
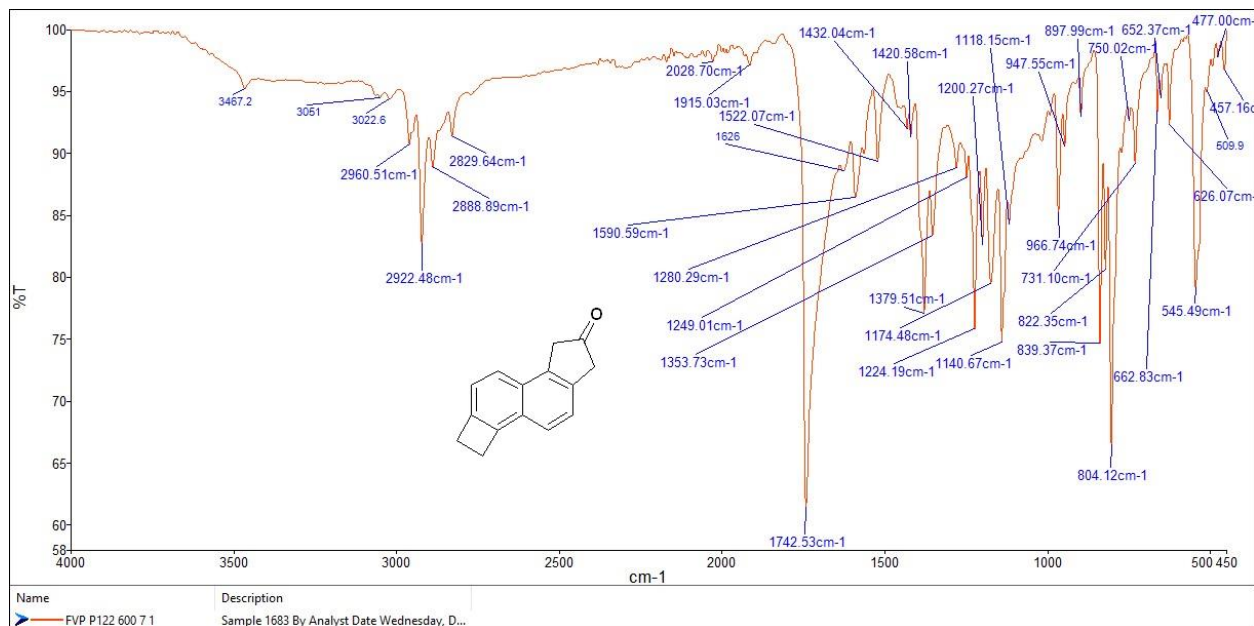
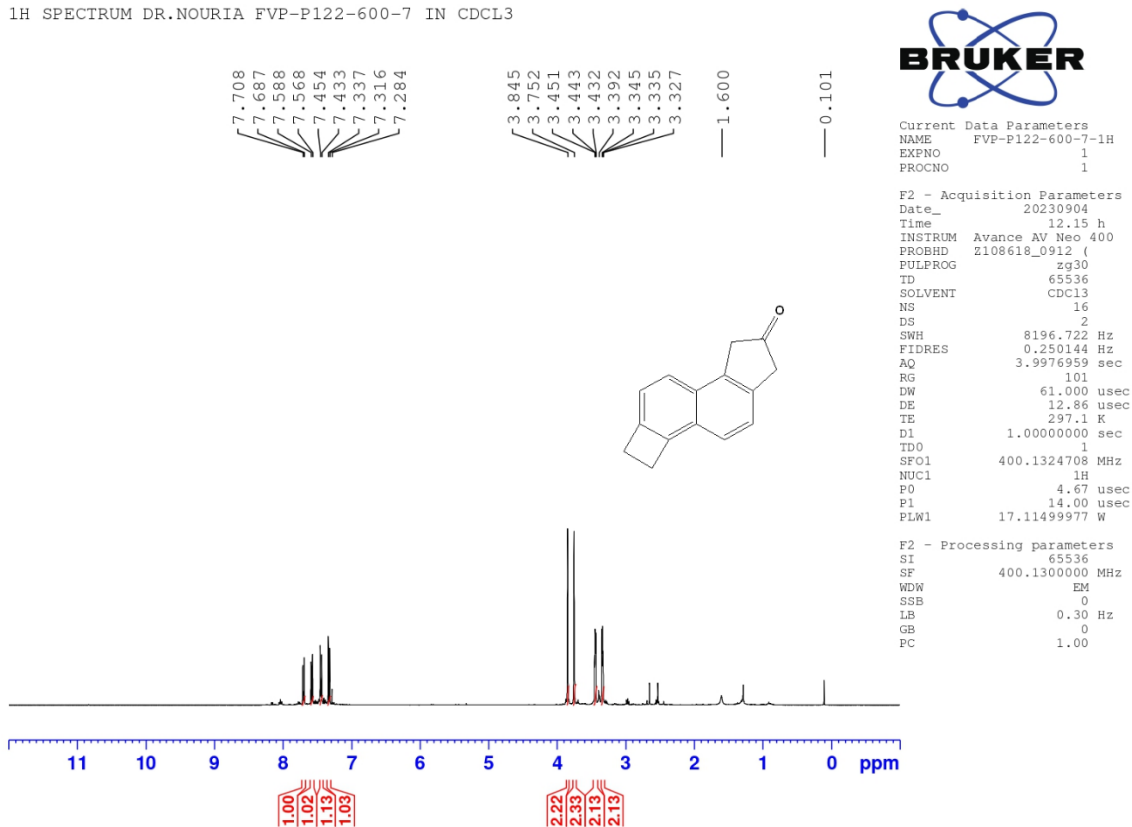


Figure 10. IR,  $^1\text{H}$  NMR,  $^{13}\text{C}$  NMR and EIMS of **15**.



1H SPECTRUM DR.NOURIA FVP-P122-600-7 IN CDCL3



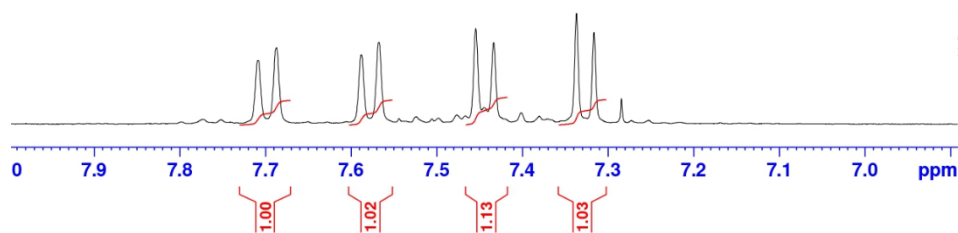
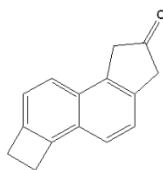
1H SPECTRUM DR.NOURIA FVP-P122-600-7 IN CDCL3

7.708  
7.687  
7.588  
7.568  
7.454  
7.433  
7.337  
7.316  
7.284



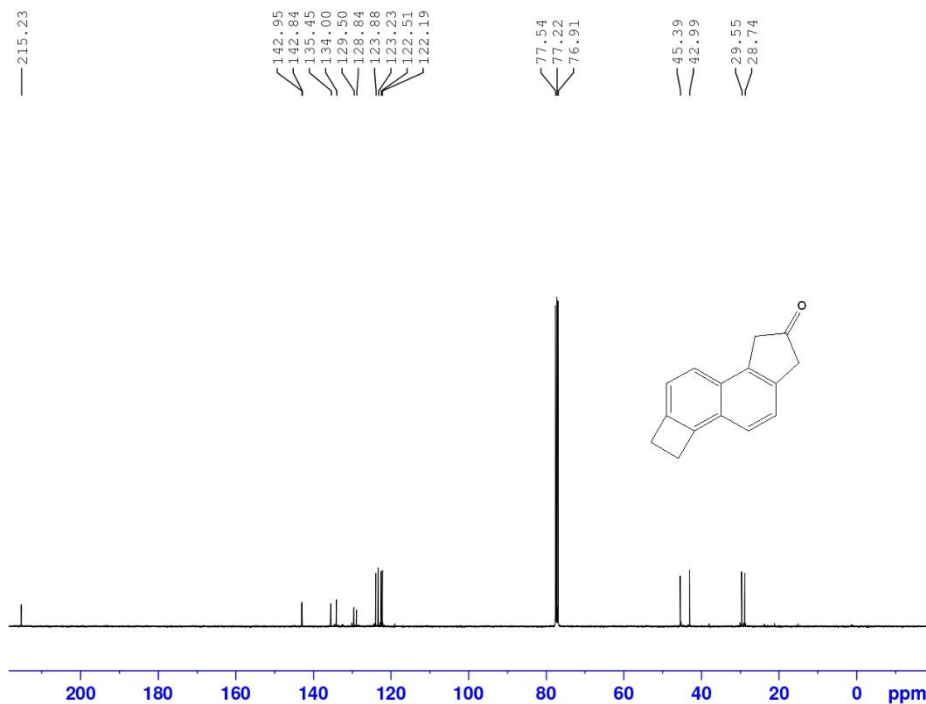
Current Data Parameters  
NAME FVP-P122-600-7-1H  
EXPNO 1  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20230904  
Time 12.15 h  
INSTRUM Avance AV Neo 400  
PROBHD Z108618\_0912 (   
PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 16  
DS 2  
SWH 8196.722 Hz  
FIDRES 0.250144 Hz  
AQ 3.9976959 sec  
RG 101  
DW 61.000 usec  
DE 12.86 usec  
TE 297.1 K  
D1 1.00000000 sec  
TDO 1  
SFO1 400.1324708 MHz  
NUC1 1H  
FO 4.67 usec  
PI 14.00 usec  
PLW1 17.11499977 W



F2 - Processing parameters  
SI 65536  
SF 400.1300000 MHz  
WDW EM  
SSB 0  
LB 0.30 Hz  
GB 0  
PC 1.00

13C DECOUPLED SPECTRUM DR.NOURIA FVP-P122-600-7 IN CDCL3

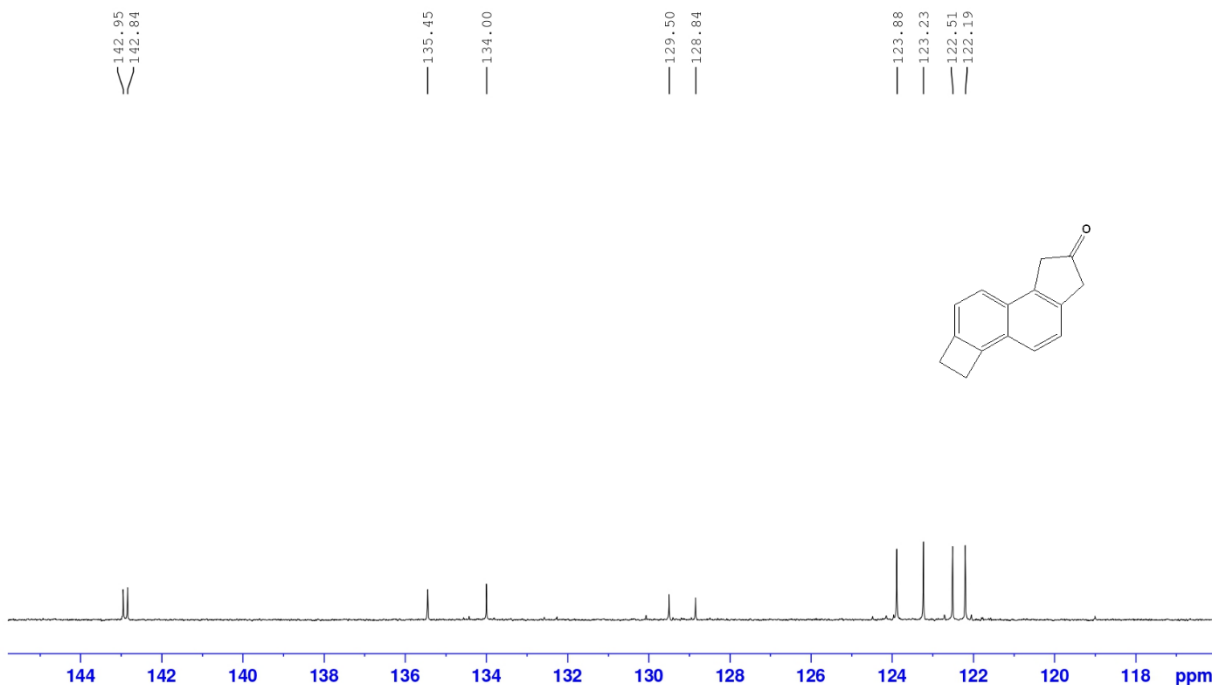


Current Data Parameters  
 NAME FVP-P122-600-7-13C  
 EXPNO 3  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20230904  
 Time 21.56 h  
 INSTRUM Avance AV Neo 400  
 PROBHD Z108618\_0912 ( )  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 8192  
 DS 4  
 SWH 23809.523 Hz  
 FIDRES 0.726609 Hz  
 AQ 1.3762560 sec  
 RG 28.5  
 DW 21.000 usec  
 DE 6.50 usec  
 TE 299.4 K  
 D1 2.0000000 sec  
 D11 0.0300000 sec  
 TD0 1  
 SF01 100.6228298 MHz  
 NUC1 13C  
 PO 3.33 usec  
 P1 10.00 usec  
 PLW1 56.2080018 W  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz65  
 PCPD2 90.00 usec  
 PLW2 17.11499977 W  
 PLW12 0.41413999 W  
 PLW13 0.20830999 W

F2 - Processing parameters  
 SI 32768  
 SF 100.6127482 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

13C DECOUPLED SPECTRUM DR.NOURIA FVP-P122-600-7 IN CDCL3



FVP-P122-600-7 #42 RT: 2.00 AV: 1 NL: 1.84E6  
T: + c EI Full ms [49.50-1200.50]

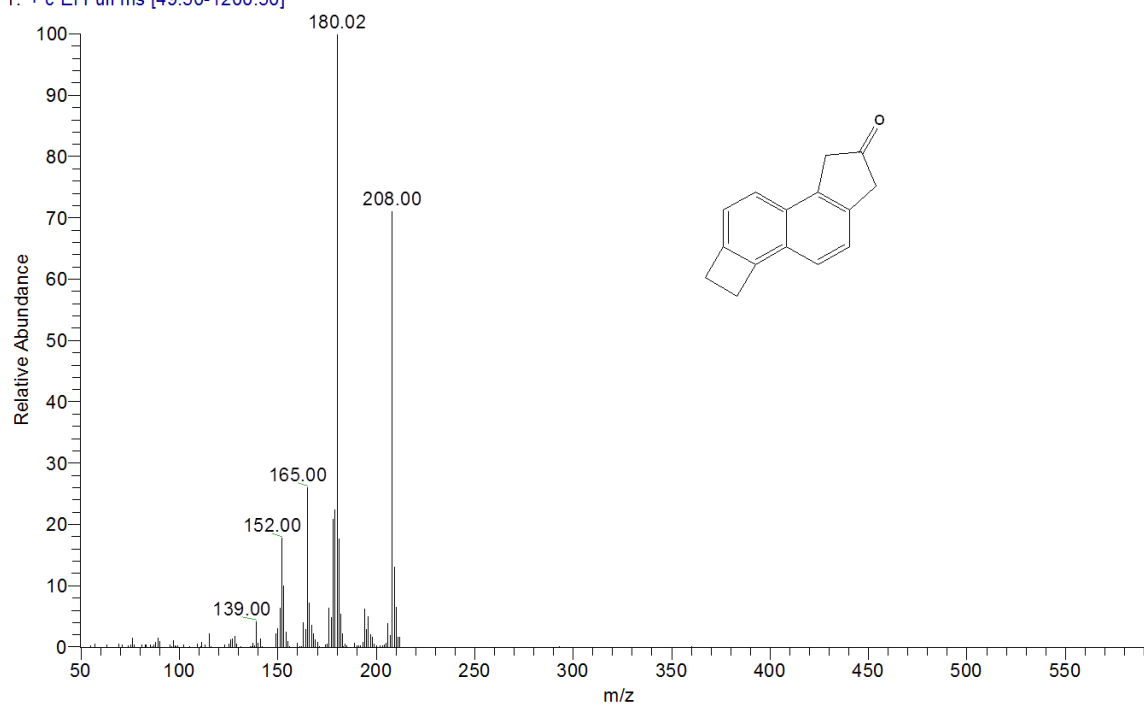
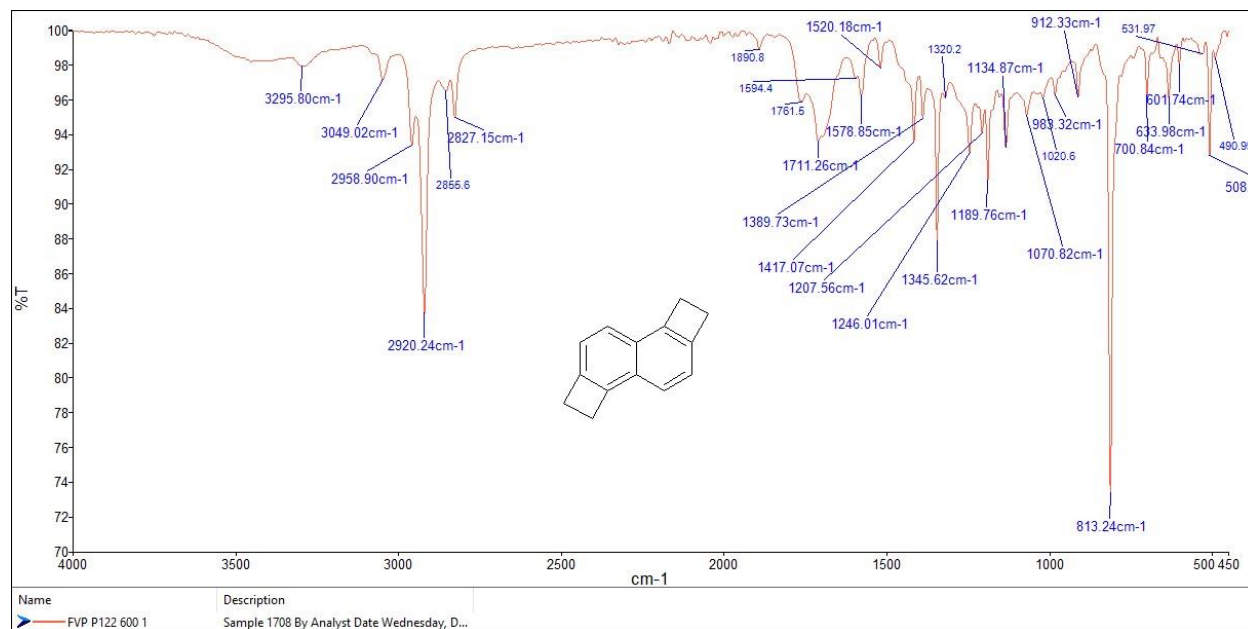
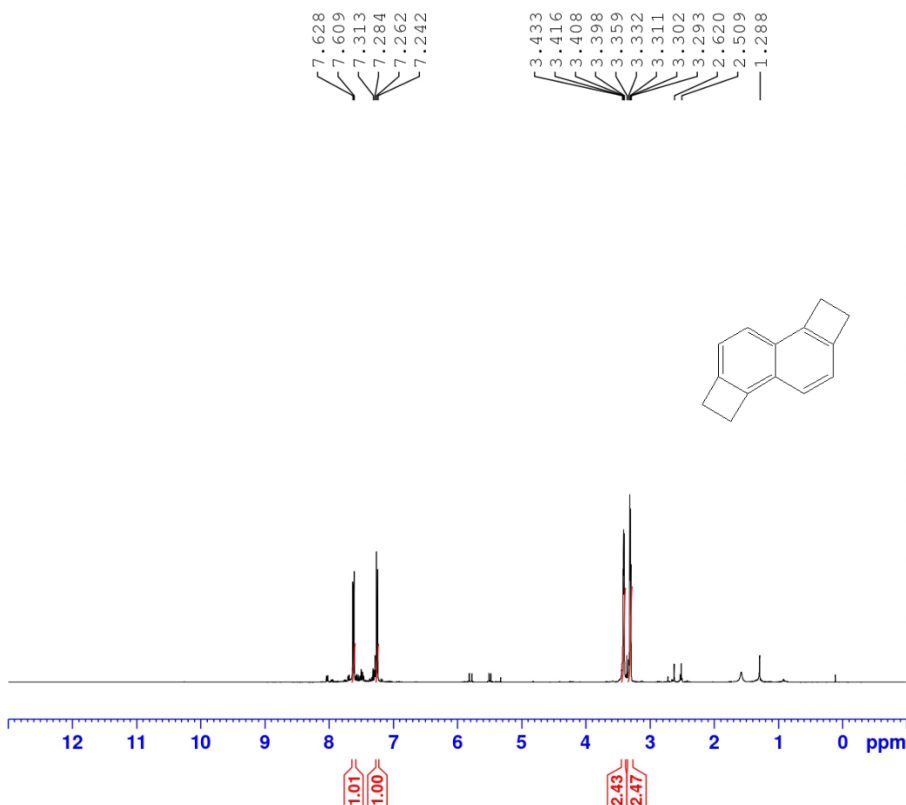


Figure 11. IR,  $^1\text{H}$  NMR,  $^{13}\text{C}$  NMR and EIMS of 16.



1H SPECTRUM DR.NOURIA FVP-P122-600-1 IN CDCL3

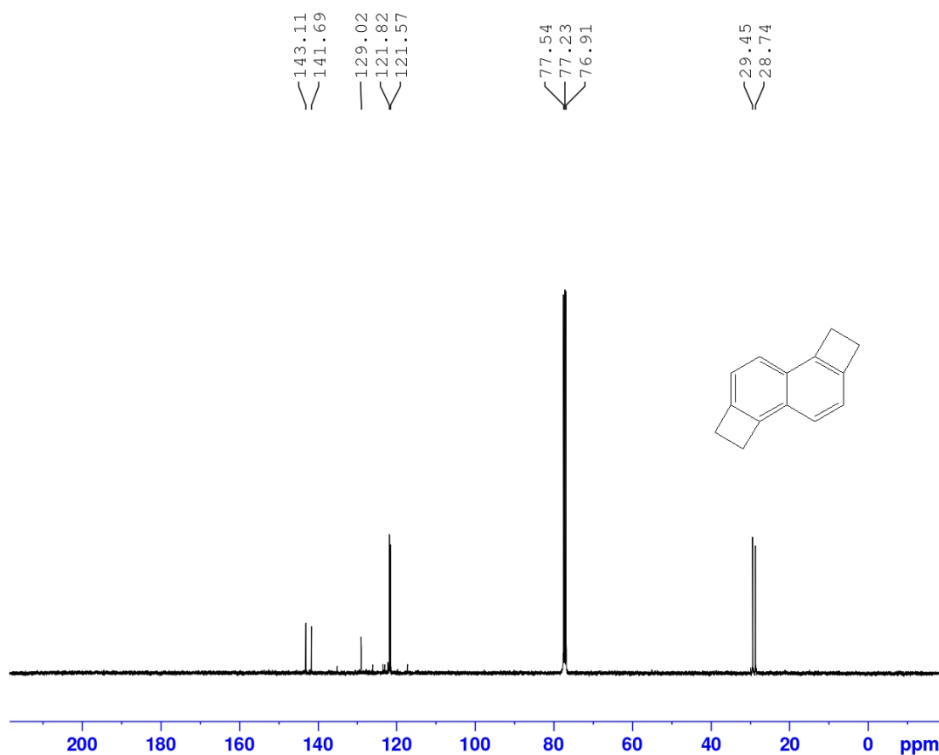


Current Data Parameters  
NAME FVP-P122-600-1-1H  
EXPNO 2  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20230904  
Time 12.45 h  
INSTRUM Avance AV Neo 400  
PROBHD Z108618\_0912 (  
PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 16  
DS 2  
SWH 8196.722 Hz  
FIDRES 0.250144 Hz  
AQ 3.9976959 sec  
RG 101  
DW 61.000 usec  
DE 12.86 usec  
TE 297.1 K  
D1 1.0000000 sec  
TD0 1  
SFO1 400.1324708 MHz  
NUC1 1H  
P0 4.67 usec  
P1 14.00 usec  
PLW1 17.11499977 W

F2 - Processing parameters  
SI 65536  
SF 400.1300000 MHz  
WDW EM  
SSB 0  
LB 0.30 Hz  
GB 0  
PC 1.00

13C DECOUPLED SPECTRUM DR.NOURIA FVP-P122-600-1 IN CDCL3



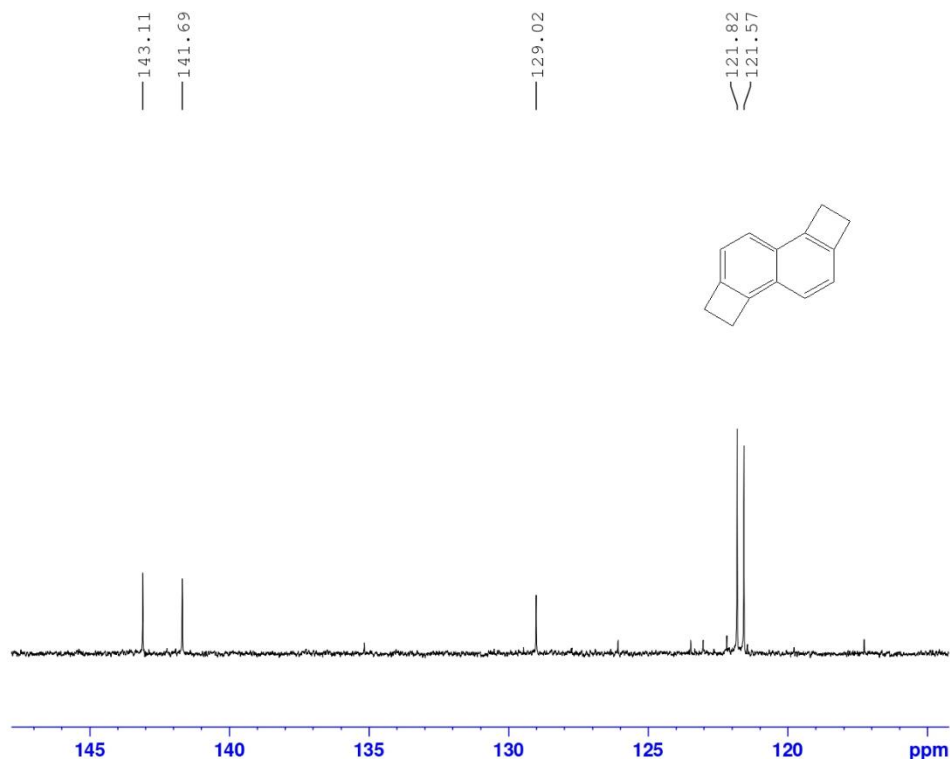
Current Data Parameters  
NAME FVP-P122-600-1-13C  
EXPNO 5  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20230906  
Time\_ 14.57 h  
INSTRUM Avance AV Neo 400  
PROBHD Z108618\_0912 (  
PULPROG zgpg30  
TD 65536  
SOLVENT CDCl3  
NS 1506  
DS 4  
SWH 23809.523 Hz  
FIDRES 0.726609 Hz  
AQ 1.3762560 sec  
RG 32  
DW 21.000 usec  
DE 6.50 usec  
TE 297.0 K  
D1 2.0000000 sec  
D11 0.0300000 sec  
TD0 1  
SFO1 100.6228298 MHz  
NUC1 13C  
P0 3.33 usec  
P1 10.00 usec  
PLW1 56.20800018 W  
SFO2 400.1316005 MHz  
NUC2 1H  
CPDPRG[2] waltz65  
PCPD2 90.00 usec  
PLW2 17.11499977 W  
PLW12 0.41413999 W  
PLW13 0.20830999 W

F2 - Processing parameters  
SI 32768  
SF 100.6127492 MHz  
WDW EM  
SSB 0  
LB 1.00 Hz  
GB 0  
PC 1.40



13C DECOUPLED SPECTRUM DR.NOURIA FVP-P122-600-1 IN CDCL3



Current Data Parameters  
 NAME FVP-P122-600-1-13C  
 EXPNO 5  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20230906  
 Time 14.57 h  
 INSTRUM Avance AV Neo 400  
 PROBHD Z108618\_0912 (4  
 PULPROG zgpg30  
 TD 65536  
 SOLVENTI CDC13  
 NS 1506  
 DS 4  
 SWH 23809.523 Hz  
 FIDRES 0.726609 Hz  
 AQ 1.3762560 sec  
 RG 32  
 DW 21.000 usec  
 DE 6.50 usec  
 TE 297.0 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TDO 1  
 SFO1 100.6228298 MHz  
 NUC1 13C  
 P0 3.33 usec  
 P1 10.00 usec  
 PLW1 56.20800018 W  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG2 waltz65  
 PCPD2 90.00 usec  
 PLW2 17.11499977 W  
 PLW12 0.41413999 W  
 PLW13 0.20830999 W

F2 - Processing parameters  
 SI 32768  
 SF 100.6127492 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

FVP-P122-600-1 #62 RT: 2.97 AV: 1 NL: 1.96E5  
 T: + c EI Full ms [49.50-1200.50]

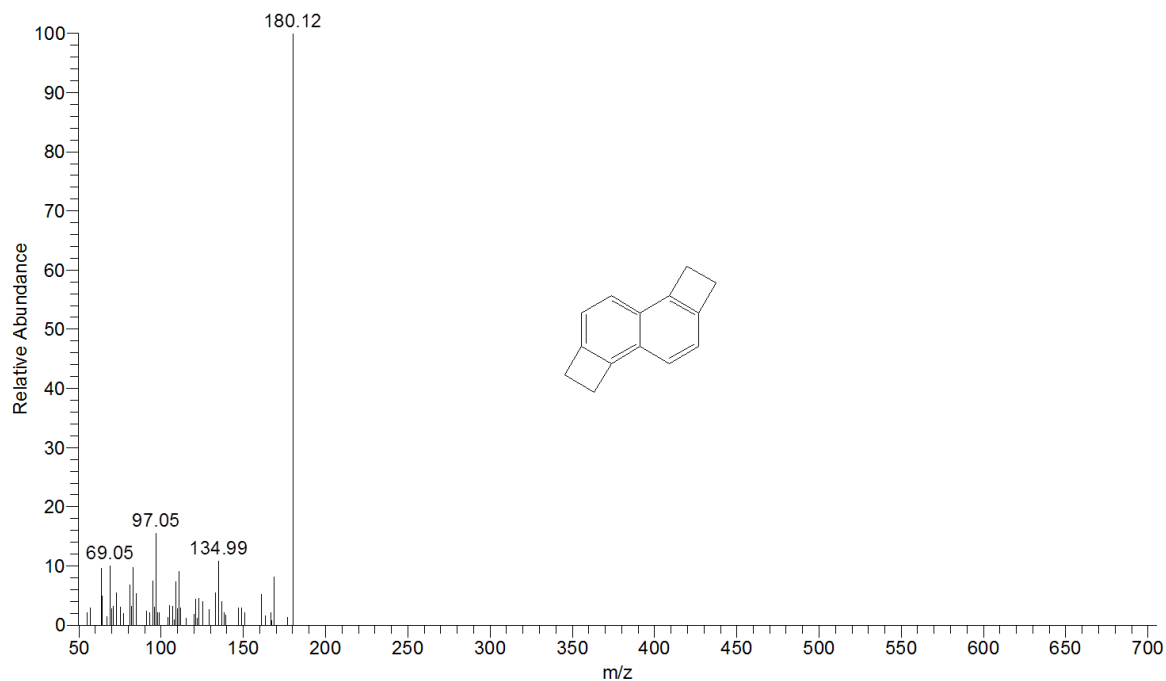
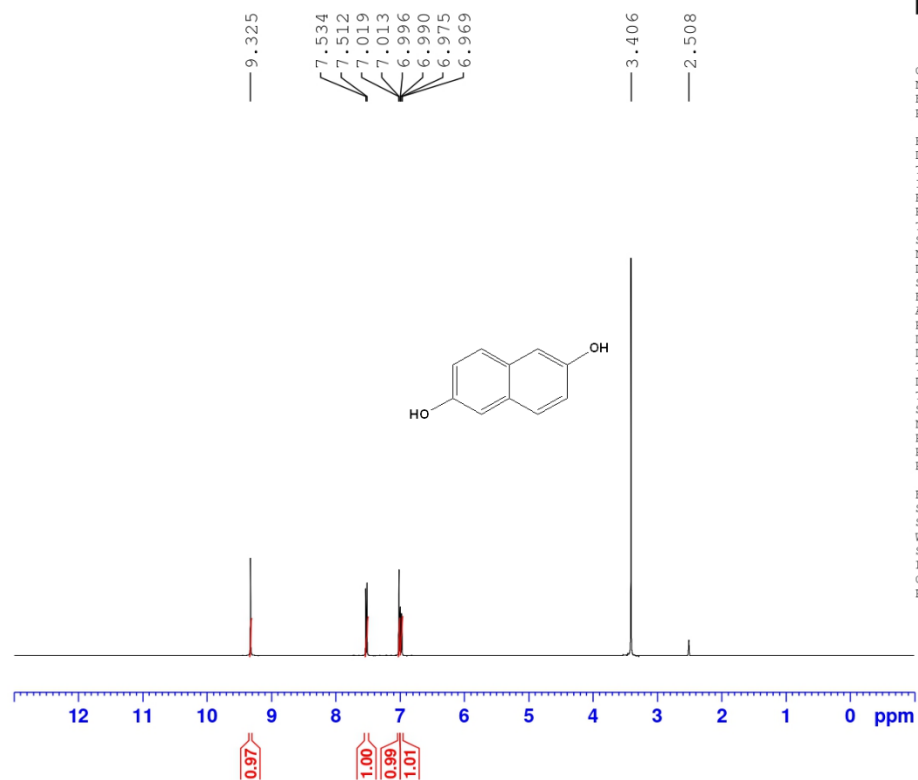


Figure 12. IR, <sup>1</sup>H NMR, <sup>13</sup>C NMR and EIMS of 17.

1H SPECTRUM DR.NOURIA FVP-P122-600-20 IN DMSO

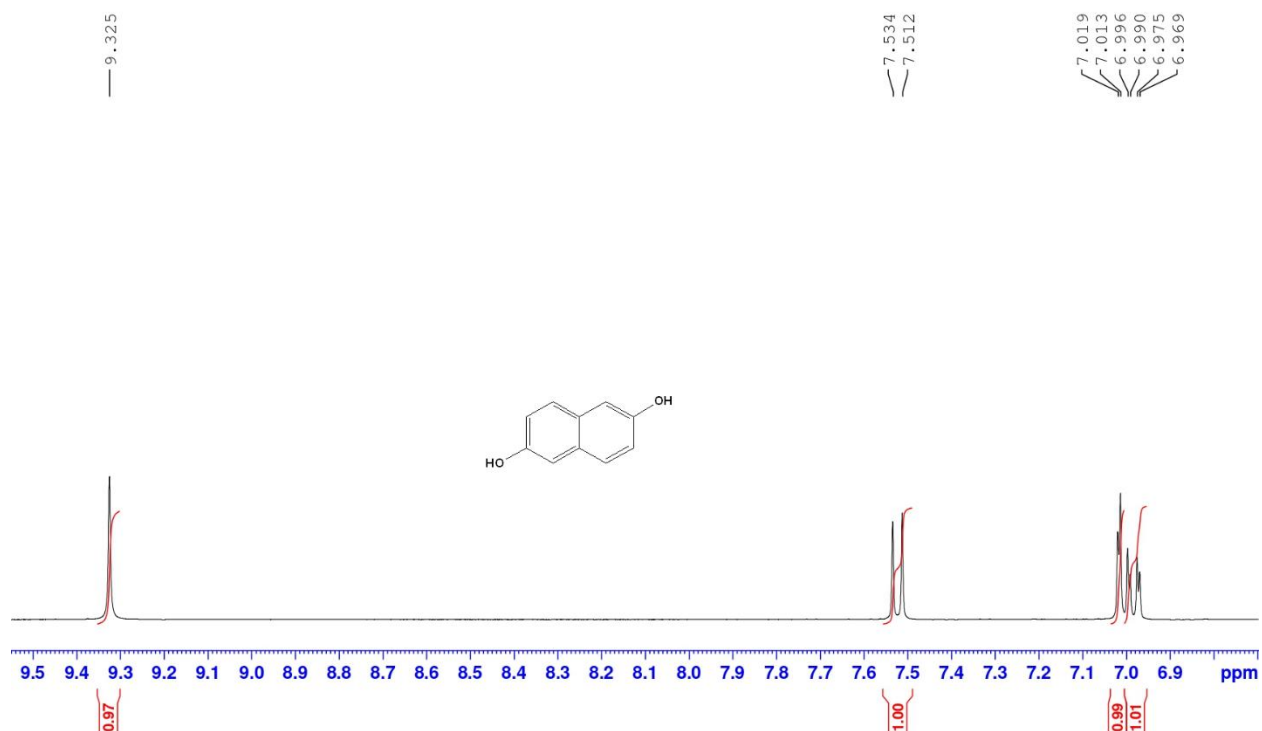


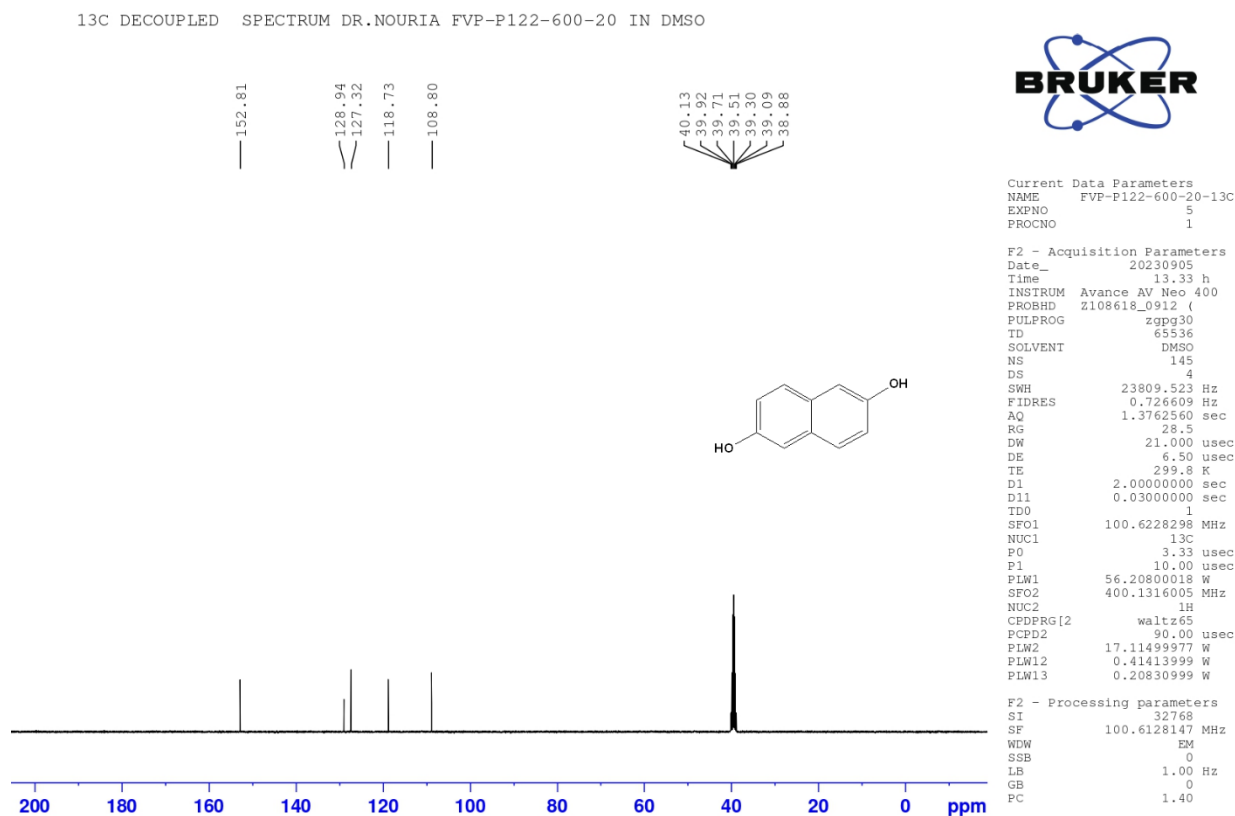
Current Data Parameters  
 NAME FVP-P122-600-20-1H  
 EXPNO 3  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20230904  
 Time\_ 13.51 h  
 INSTRUM Avance AV Neo 400  
 PROBHD Z108618\_0912 ( )  
 PULPROG zg30  
 TD 65536  
 SOLVENT DMSO  
 NS 16  
 DS 2  
 SWH 8196.722 Hz  
 FIDRES 0.250144 Hz  
 AQ 3.9976959 sec  
 RG 101  
 DW 61.000 usec  
 DE 12.86 usec  
 TE 297.8 K  
 D1 1.0000000 sec  
 TD0 1  
 SFO1 400.1324708 MHz  
 NUC1 1H  
 P0 4.67 usec  
 P1 14.00 usec  
 PLW1 17.11499977 W

F2 - Processing parameters  
 SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

1H SPECTRUM DR.NOURIA FVP-P122-600-20 IN DMSO





FVP-P122-600-20 #76 RT: 3.66 AV: 1 NL: 1.07E7  
 T: + c EI Full ms [49.50-1200.50]

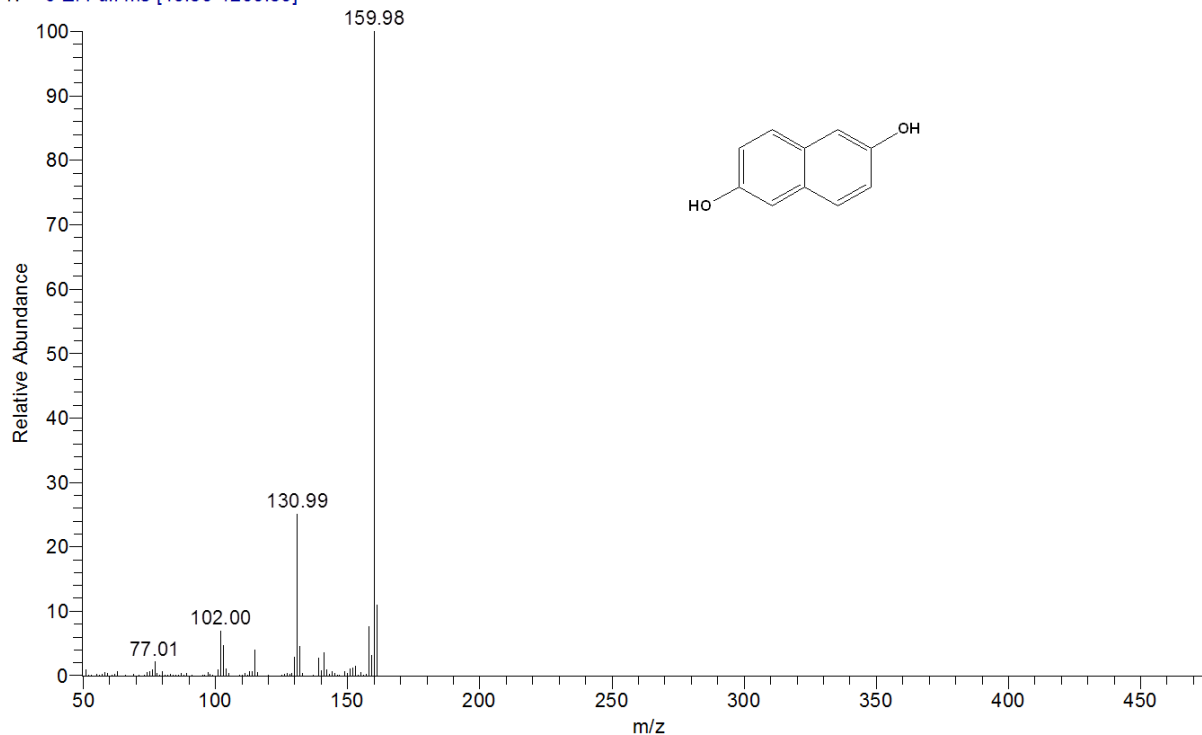
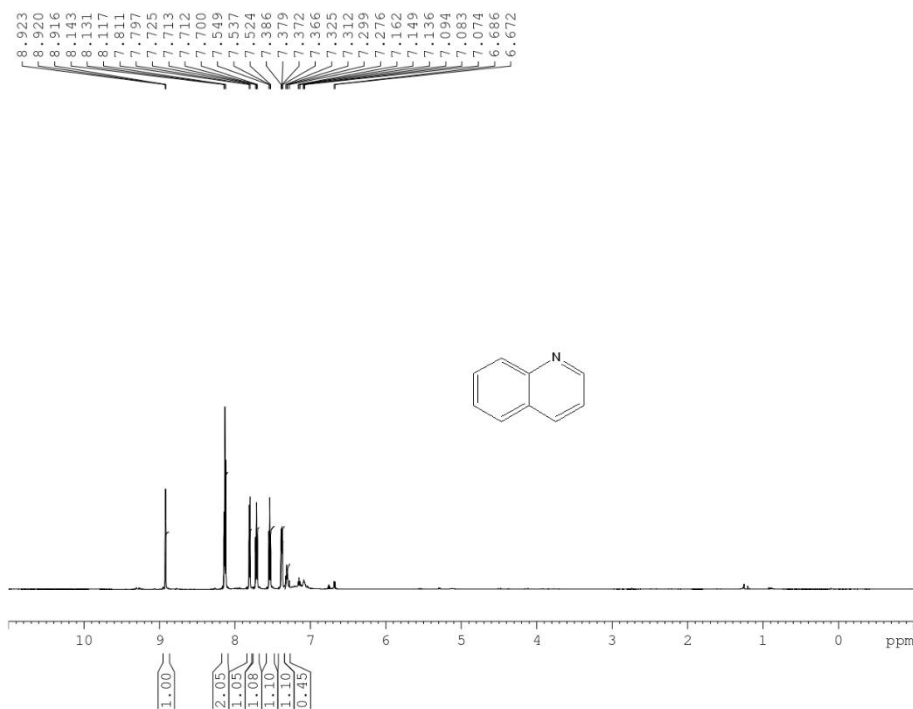


Figure 13.  $^1\text{H}$  NMR,  $^{13}\text{C}$  NMR and EIMS of **3**.

1H spectra Dr.Nouria FVP P3-1-10 in CDCL3



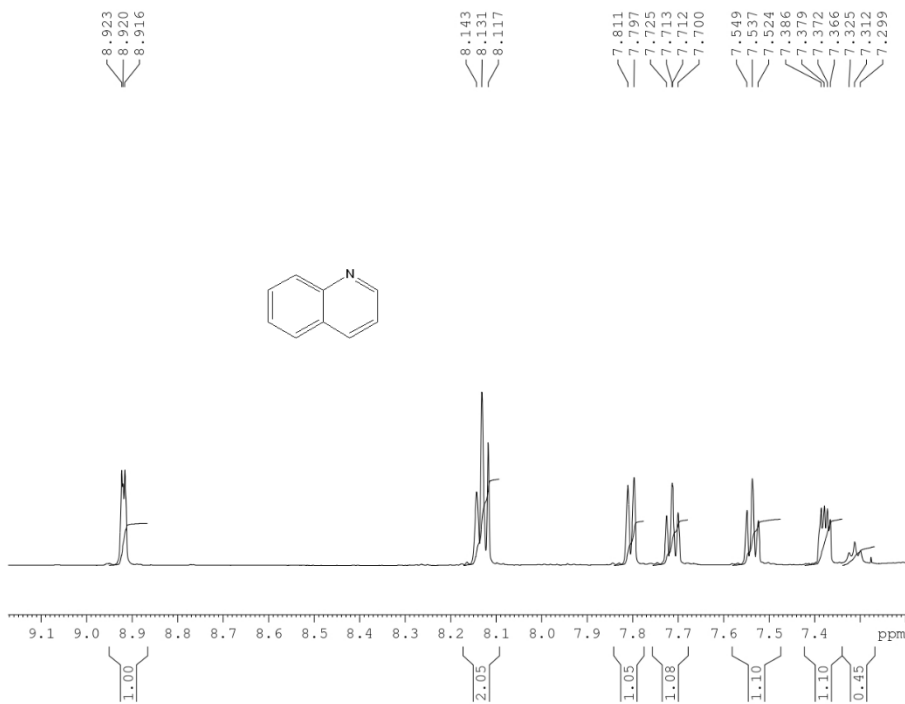
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Current
NAME      FVP-P3-1-10-1H
EXPNO     1
PROCNO    1

F2 - Acquisition Parameters
Date_     20201025
Time      11.12
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   CDCL3
NS         16
DS         2
SWH        12335.526 Hz
FIDRES     0.188225 Hz
AQ         2.6563926 sec
RG         114
DW         40.533 usec
DE         20.00 usec
TE         298.0 K
D1         1.00000000 sec
TD0        1

===== CHANNEL f1 =====
SFO1      600.1337060 MHz
NUC1       1H
P1         10.60 usec
PLW1      27.82500076 W

F2 - Processing parameters
SI         32768
SF         600.1300000 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
```

1H spectra Dr.Nouria FVP P3-1-10 in CDCL3



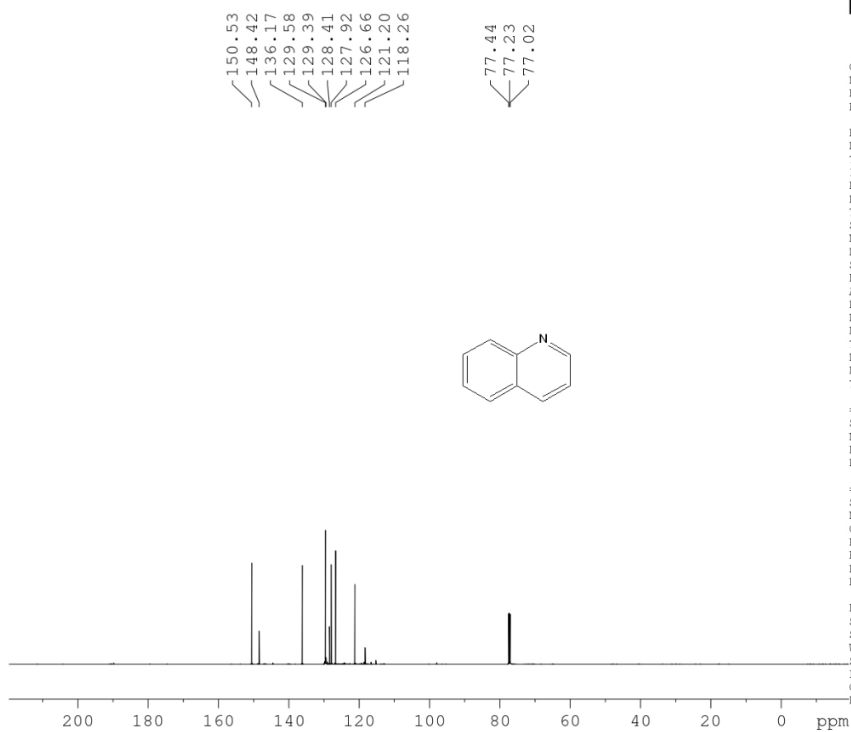
```
Current
NAME      FVP-P3-1-10-1H
EXPNO     1
PROCNO    1

F2 - Acquisition Parameters
Date_     20201025
Time      11.12
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   CDCL3
NS         16
DS         2
SWH        12335.526 Hz
FIDRES     0.188225 Hz
AQ         2.6563926 sec
RG         114
DW         40.533 usec
DE         20.00 usec
TE         298.0 K
D1         1.00000000 sec
TD0        1

===== CHANNEL f1 =====
SFO1      600.1337060 MHz
NUC1       1H
P1         10.60 usec
PLW1      27.82500076 W

F2 - Processing parameters
SI         32768
SF         600.1300000 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
```

<sup>13</sup>C decoupled spectra Dr.Nouria FVP P-3-1-10 in CDCl<sub>3</sub>



Current Data Parameters  
NAME FVP-P3-1-10-1H  
EXPNO 2  
PROCNO 1

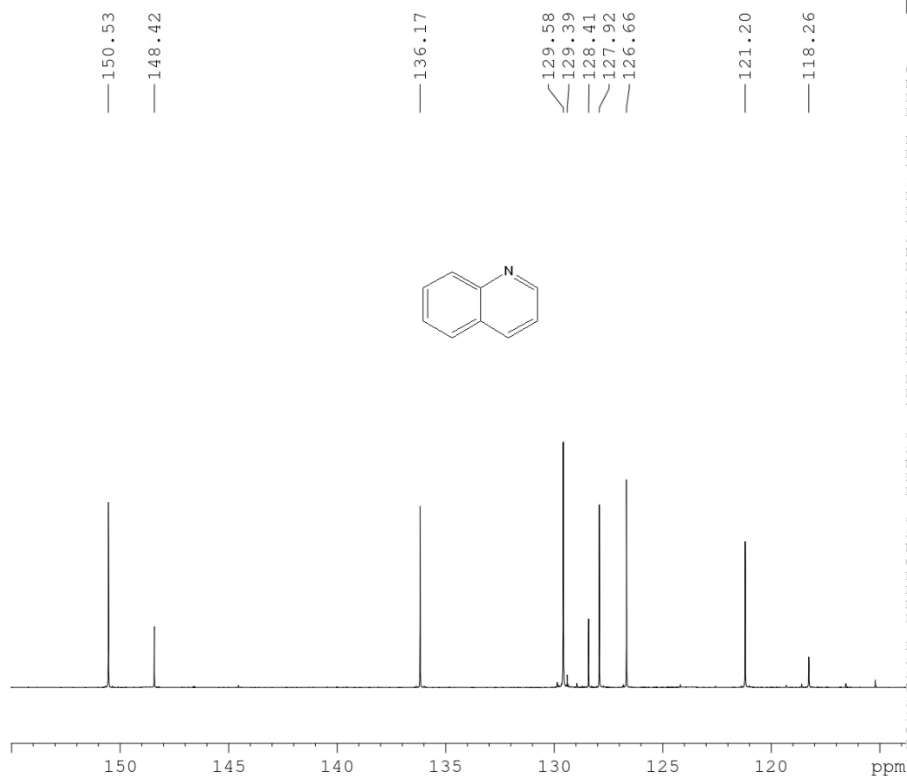
F2 - Acquisition Parameters  
Date\_ 20201026  
Time 9.04  
INSTRUM spect  
PROBHD 5 mm PABBO BB-  
PULPROG zgpg30  
TD 65536  
SOLVENT CDCl3  
NS 7409  
DS 4  
SWH 36057.691 Hz  
FIDRES 0.550197 Hz  
AQ 0.9087659 sec  
RG 203  
DW 13.867 usec  
DE 50.00 usec  
TE 298.7 K  
D1 2.0000000 sec  
D11 0.03000000 sec  
TD0 1

===== CHANNEL f1 =====  
SFO1 150.9178979 MHz  
NUC1 13C  
P1 8.80 usec  
PLW1 78.13500214 W

===== CHANNEL f2 =====  
SFO2 600.1324005 MHz  
NUC2 1H  
CPDPRG[2] waltz65  
PCPD2 70.00 usec  
PLW2 27.82500076 W  
PLW12 0.63804001 W  
PLW13 0.31264001 W

F2 - Processing parameters  
SI 32768  
SF 150.9027899 MHz  
WDW EM  
SSB 0  
LB 1.00 Hz  
GB 0  
PC 1.40

<sup>13</sup>C decoupled spectra Dr.Nouria FVP P-3-1-10 in CDCl<sub>3</sub>



Current Data Parameters  
NAME FVP-P3-1-10-1H  
EXPNO 2  
PROCNO 1

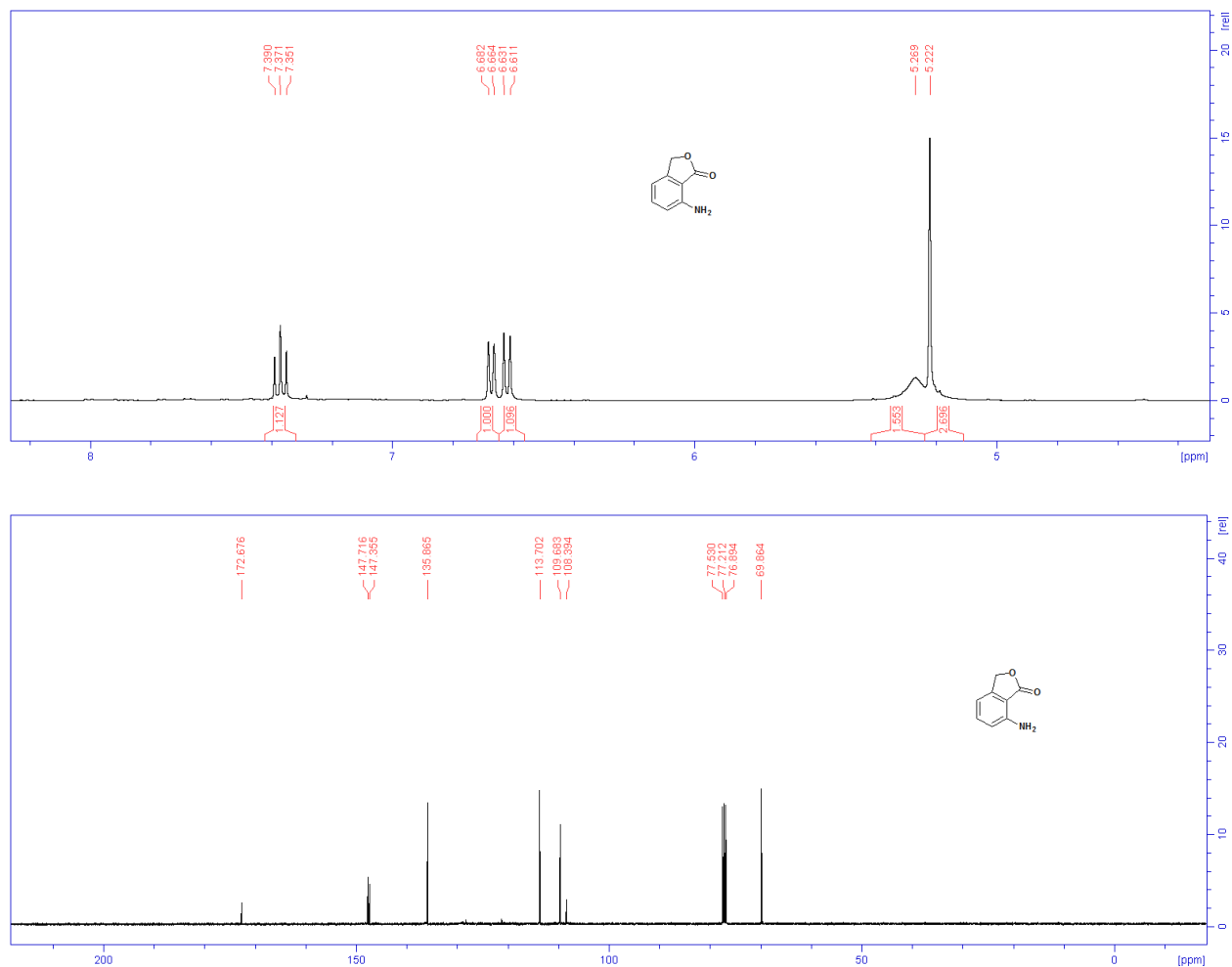
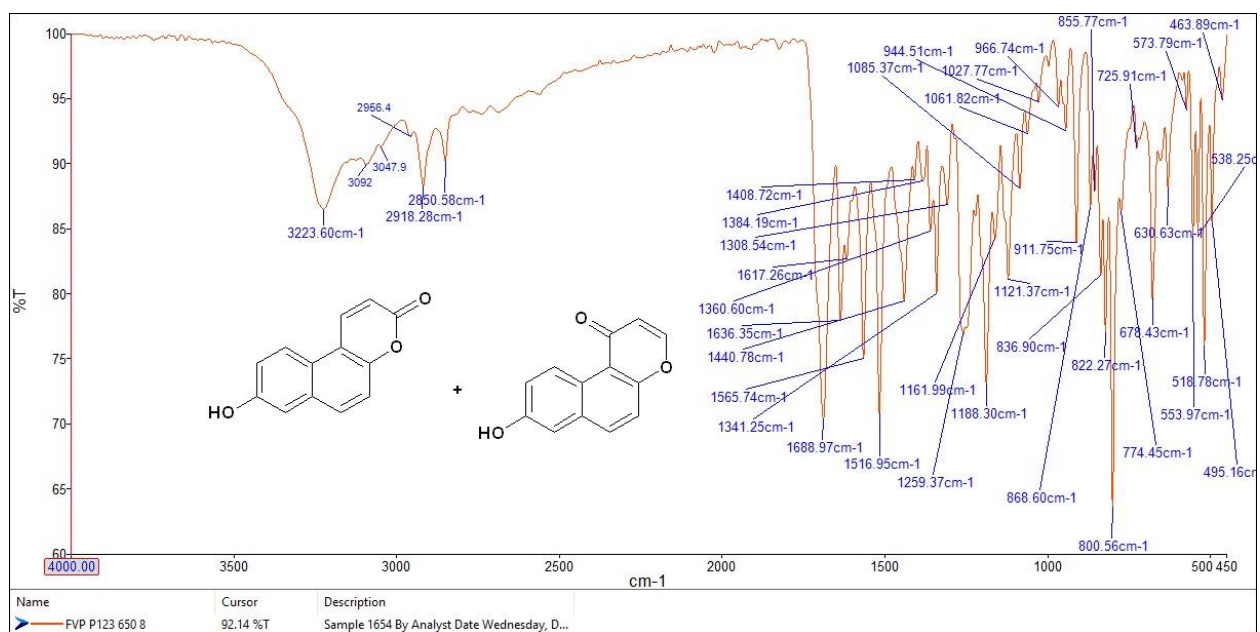
F2 - Acquisition Parameters  
Date\_ 20201026  
Time 9.04  
INSTRUM spect  
PROBHD 5 mm PABBO BB-  
PULPROG zgpg30  
TD 65536  
SOLVENT CDCl3  
NS 7409  
DS 4  
SWH 36057.691 Hz  
FIDRES 0.550197 Hz  
AQ 0.9087659 sec  
RG 203  
DW 13.867 usec  
DE 50.00 usec  
TE 298.7 K  
D1 2.0000000 sec  
D11 0.03000000 sec  
TD0 1

===== CHANNEL f1 =====  
SFO1 150.9178979 MHz  
NUC1 13C  
P1 8.80 usec  
PLW1 78.13500214 W

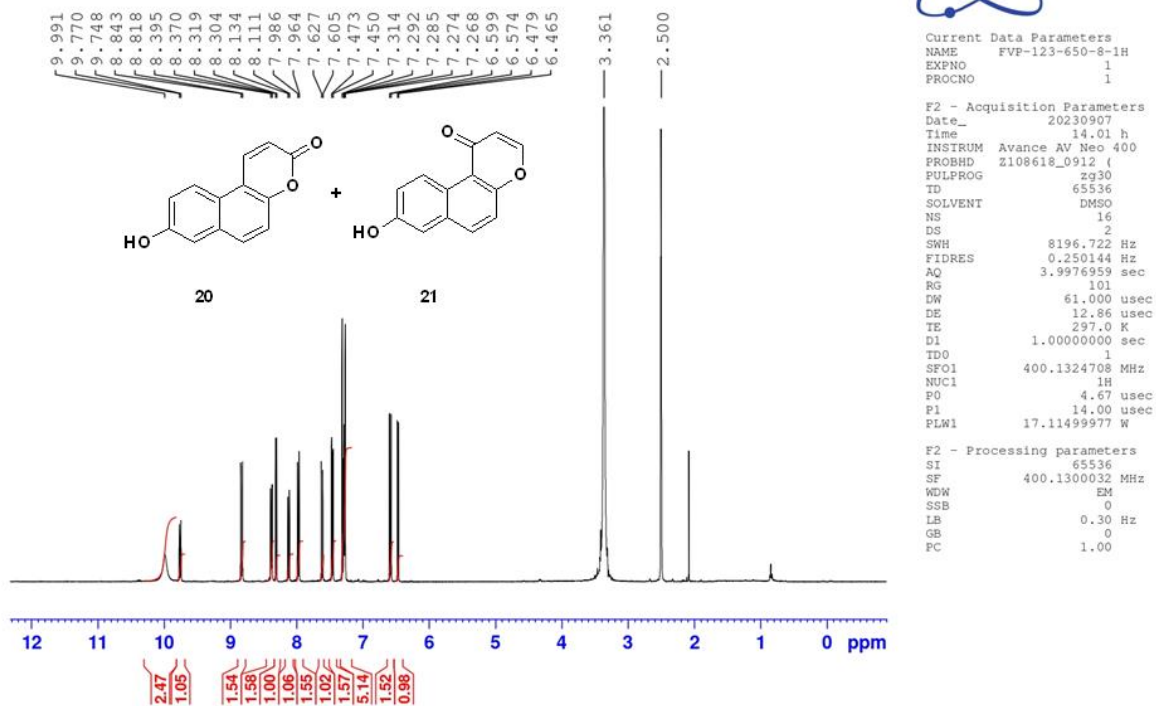
===== CHANNEL f2 =====  
SFO2 600.1324005 MHz  
NUC2 1H  
CPDPRG[2] waltz65  
PCPD2 70.00 usec  
PLW2 27.82500076 W  
PLW12 0.63804001 W  
PLW13 0.31264001 W

F2 - Processing parameters  
SI 32768  
SF 150.9027899 MHz  
WDW EM  
SSB 0  
LB 1.00 Hz  
GB 0  
PC 1.40

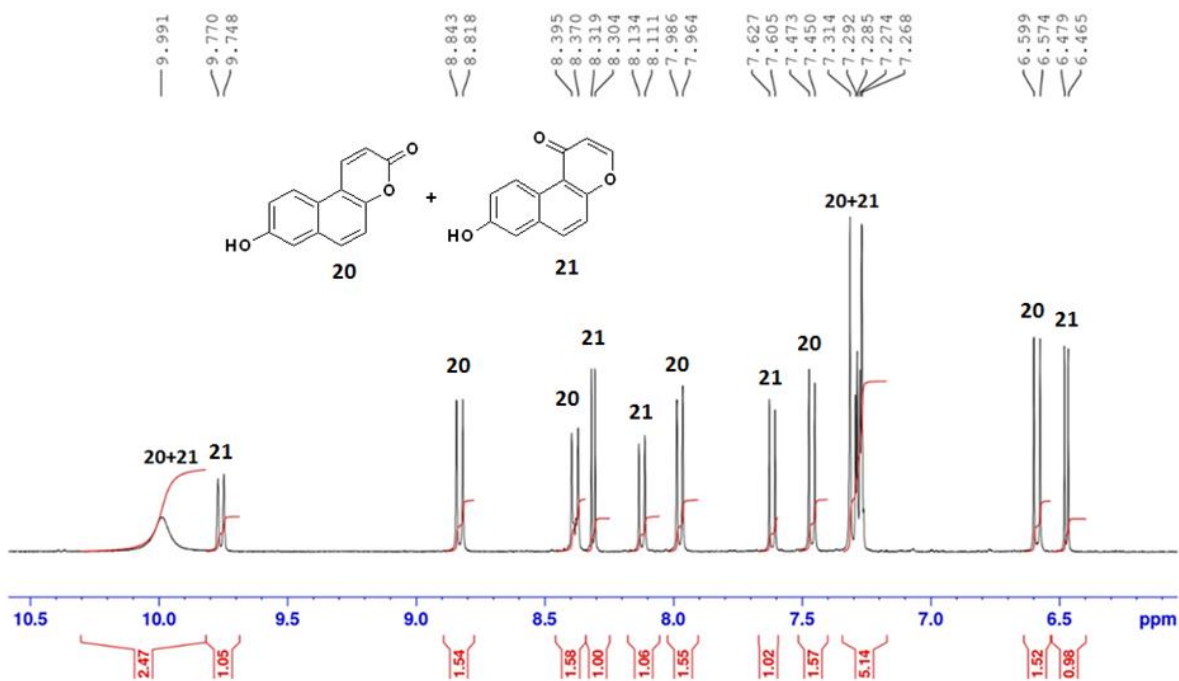
Figure 14. <sup>1</sup>H NMR and <sup>13</sup>C NMR of 18.

Figure 15.  $^1\text{H}$  NMR and  $^{13}\text{C}$  NMR of 19.

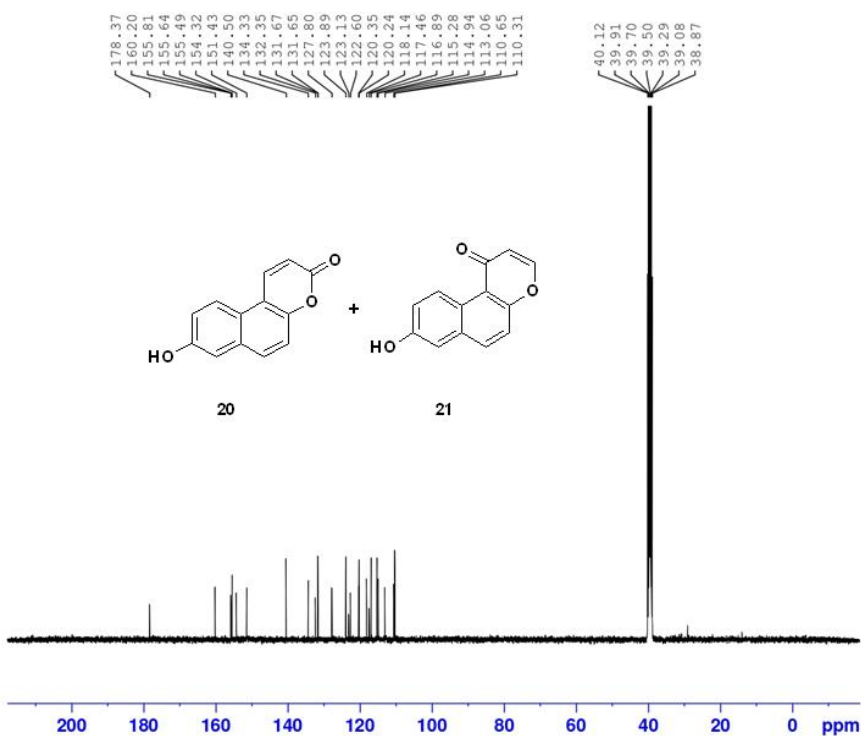
1H spectra Dr.Nouria FVP-123-650-8 in DMSO



1H spectra Dr.Nouria FVP-123-650-8 in DMSO



<sup>13</sup>C decoupled spectra Dr.Nouria FVP-123-650-8 in DMSO

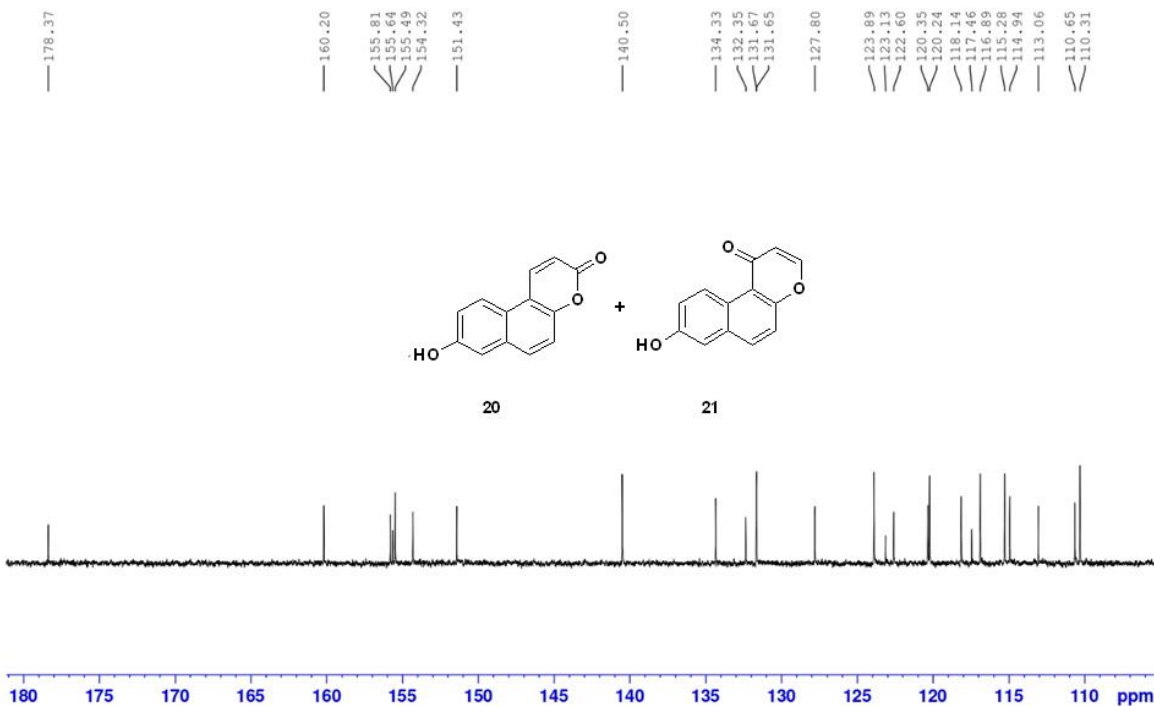


Current Data Parameters  
 NAME FVP-123-650-8-1H  
 EXPNO 2  
 PROCNO 1

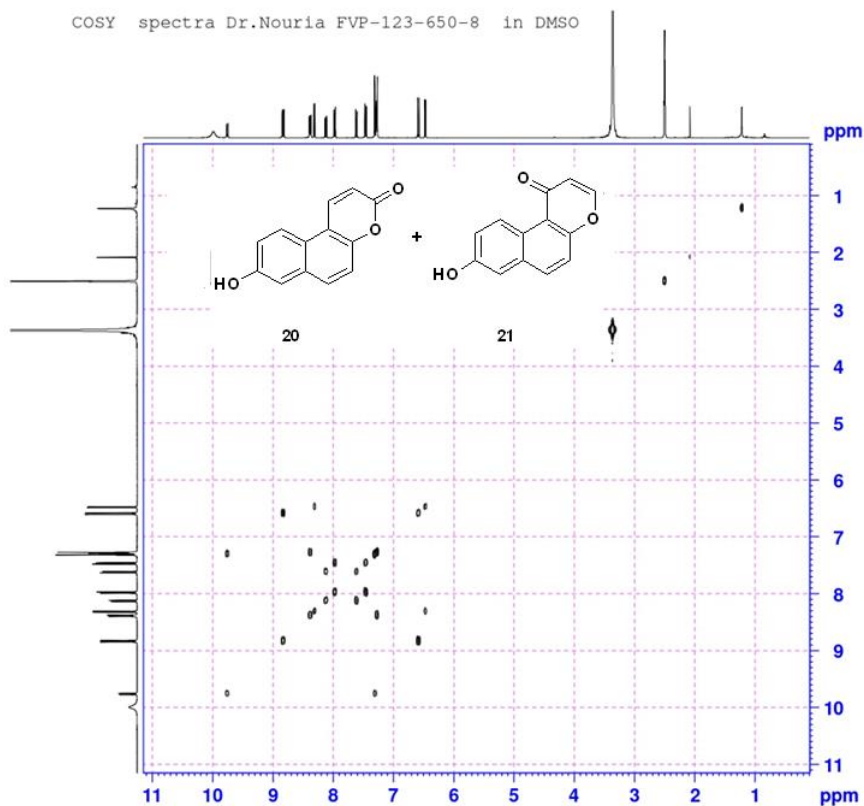
F2 - Acquisition Parameters  
 Date\_ 20230909  
 Time 13.43 h  
 INSTRUM Avance AV Neo 400  
 PROBHD Z108618\_0912 ( )  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT DMSO  
 NS 5120  
 DS 4  
 SNH 23809.523 Hz  
 FIDRES 0.726609 Hz  
 AQ 1.3762560 sec  
 RG 28.5  
 DW 21.000 usec  
 DE 6.50 usec  
 TE 297.0 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1  
 SFO1 100.6228298 MHz  
 NUC1 13C  
 P0 3.33 usec  
 P1 10.00 usec  
 PLW1 56.20800018 W  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG2 waltz65  
 PCPD2 90.00 usec  
 PLW2 17.11499977 W  
 PLW12 0.41413999 W  
 PLW13 0.20830999 W

F2 - Processing parameters  
 SI 32768  
 SF 100.6128146 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 2.00

<sup>13</sup>C decoupled spectra Dr.Nouria FVP-123-650-8 in DMSO







```

Current Data Parameters
NAME      FVP-123-650-8-1H
EXPNO    4
PROCNO   1

F2 - Acquisition Parameters
Date_    20230908
Time     14.05 h
INSTRUM  Avance AV Neo 400
PROBHD   zgpg31z_0912
PULPROG  cosypppgf
TD        65536
SOLVENT  DMSO
NS        4
DS        16
SWH       4424.779 Hz
FIDRES    4.321073 Hz
AQ        0.2314240 sec
RG        64
CW        113.000 usec
DE        6.50 usec
TE        297.0 K
DO        0.0000000 sec
D1        1.96108794 sec
D11       0.0300000 sec
D12       0.0002000 sec
D13       0.0000400 sec
D16       0.0002000 sec
IN0       0.0002600 sec
TD0av     1
SFO1     400.132527 Mhz
NUC1     13
P0        14.00 usec
P1        14.00 usec
P17       2000.00 usec
PLM1     17.1189977 M
PLM10    3.72720003 M
CGRAM[1] SMSQ10.100
GPR1     10.00 %
P16      1000.00 usec

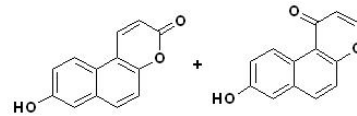
----- F1 INDIRECT DIMENSION -----
t01      128
nuq_F1   11.058291

F1 - Acquisition parameters
TD        128
SFO1     400.1323 Mhz
FIDRES    89.137169 Hz
SW        11.058 ppm
F2MODE    GF

F2 - Processing parameters
SI        1024
SF        400.1300026 Mhz
WDW       Q5INE
SSB        0
LB         0 Hz
GB         0
PC         1.40

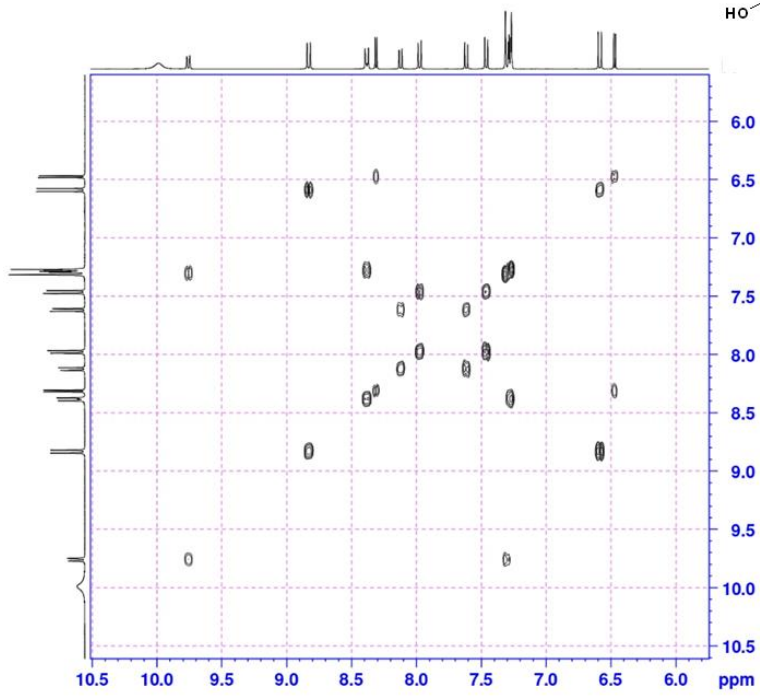
F1 - Processing parameters
SI        1024
MCC       GF
SF        400.1300034 Mhz
WDW       Q5INE
SSB        0
LB         0 Hz
GB         0
    
```

COSY spectra Dr.Nouria FVP-123-650-8 in DMSO



20

21



```

F2 - Acquisition Parameters
Date_      20230909
Time       14.05 h
INSTRUM    Avance AV 400
PROBHD     Z108618_912 (
PULPROG    zgpg30
TD         2048
SOLVENT    DMSO
NS         4
DS         1
SWH         4424.779 Hz
FIDRES     4.321073 Hz
AQ         0.2314240 sec
RG         64
DM         113.000 usec
DE         6.50 usec
TE         297.0 K
D0         0.0000300 sec
D1         1.96108794 sec
D11        0.00000000 sec
D12        0.00002000 sec
D13        0.00000400 sec
D14        0.00020000 sec
TD0        0.00022600 sec
T0ay
SFO1       400.132527 MHz
NUC1       13
P0         14.00 usec
P1         14.00 usec
P17        2500.00 usec
FMR1       17.11489973 M
FLM10      3.72720003 M
GPRAM(1)   SMSQ0.100
GR1        10.00 s
P16        1000.00 usec

----- F1 INDIRECT DIMENSION -----
SOL      DMSO
NUC1     13
P0        14.00 usec
P1        14.00 usec
P17       2500.00 usec
FMR1      17.11489973 M
FLM10     3.72720003 M
GPRAM(1)  SMSQ0.100
GR1       10.00 s
P16       1000.00 usec

F1 - Acquisition parameters
TD         128
SFO1       400.1323 MHz
FIDRES     69.137169 Hz
AQ         11.058 sec
PULPROG    zgpg30

F2 - Processing parameters
SI         1024
SF         400.1300026 MHz
WDW        EM
SSB         0
GB         0 Hz
PC         1.40

F1 - Processing parameters
SI         1024
SF         400.1300024 MHz
WDW        EM
SSB         0
GB         0 Hz
PC         1.40
    
```



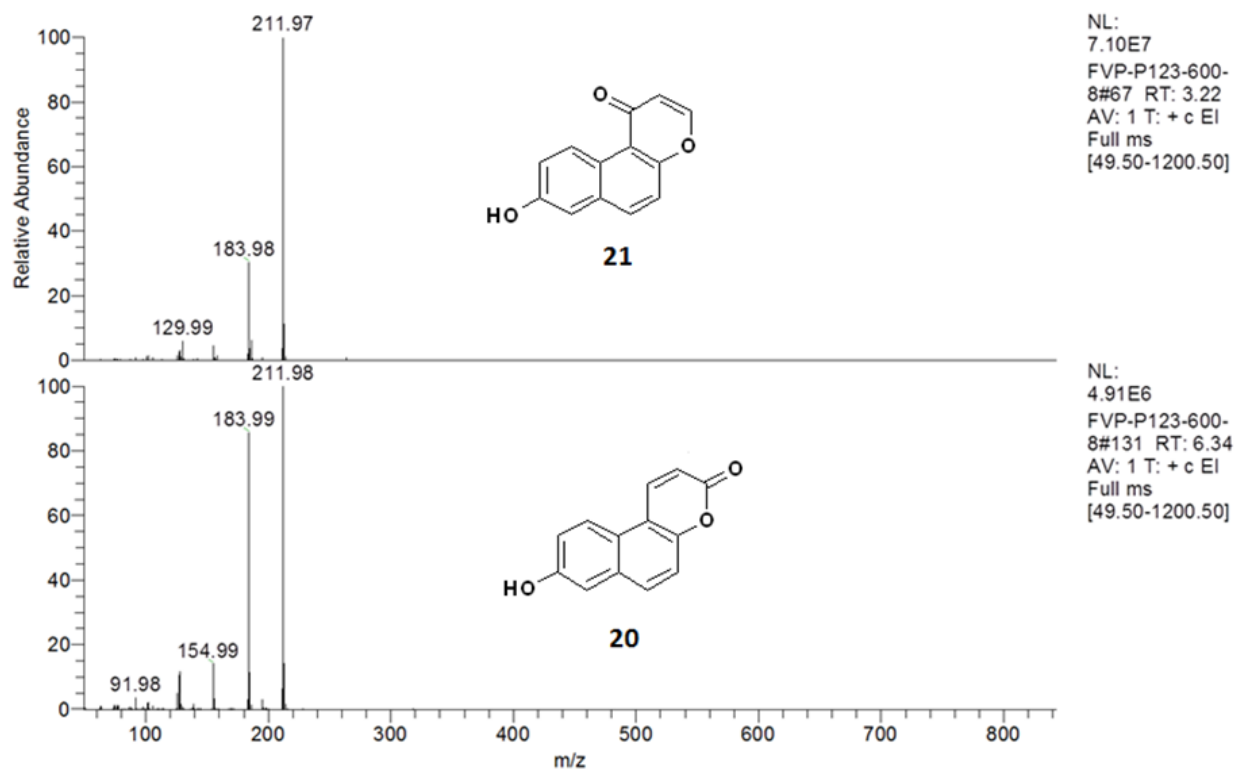


Figure 16. IR,  $^1\text{H}$  NMR,  $^{13}\text{C}$  NMR, COSY,  $^{13}\text{C}$  HSQC and EIMS of **20**&**21**.