Supplementary Materials

Novel Pyridothienopyrimidine Derivatives: Design, Synthesis and Biological Evaluation as Antimicrobial and Anticancer Agents

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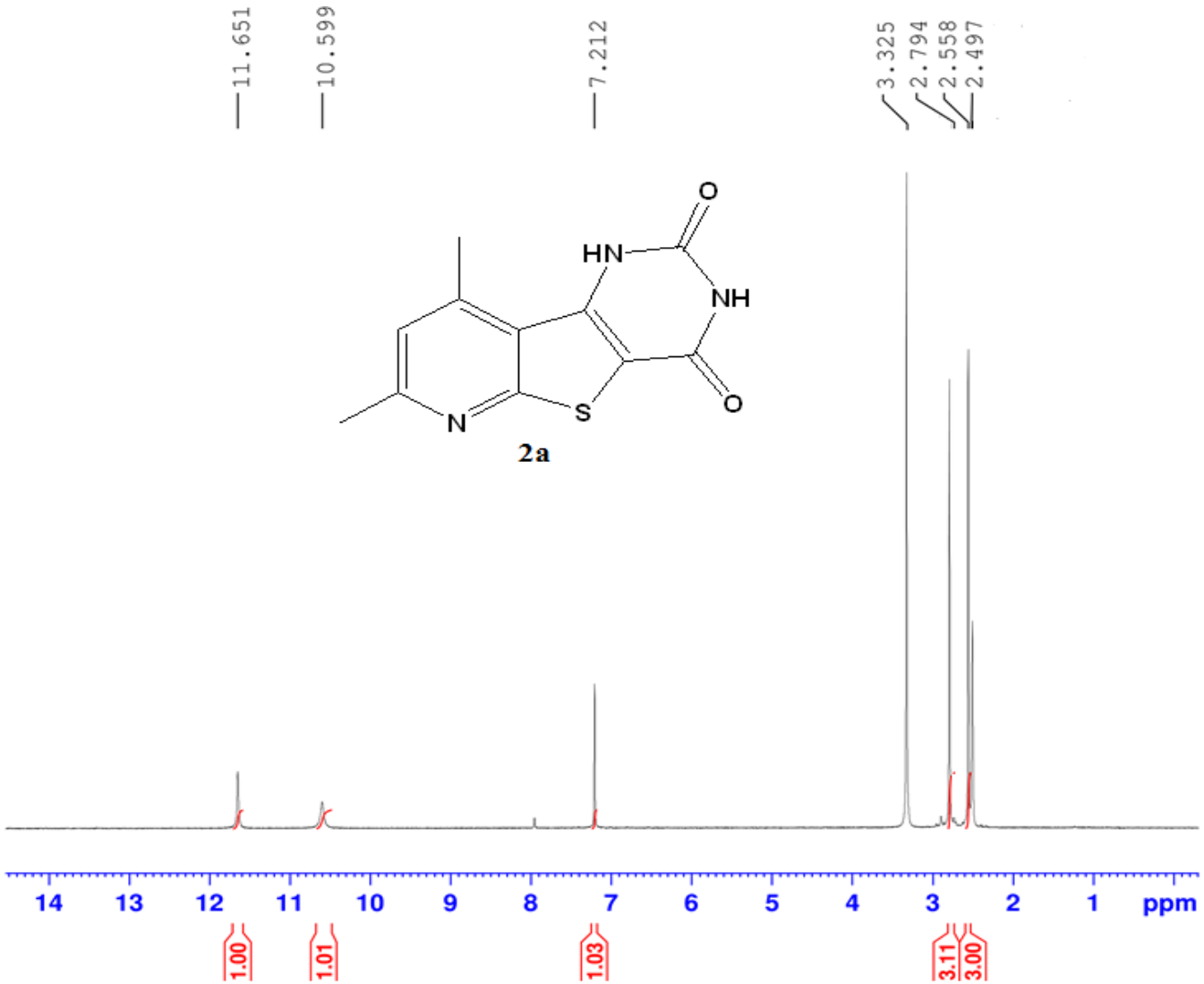

BRUKER

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EXPNO                   1
PROCNO                  1

F2 - Acquisition Parameters
Date_           20210901
Time              11.46
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG           zg30
TD               65536
SOLVENT           DMSO
NS                  24
DS                   2
SWH           8012.820 Hz
FIDRES        0.122266 Hz
AQ            4.0894465 sec
RG               205.37
DW               62.400 usec
DE                6.50 usec
TE               300.0 K
D1           1.00000000 sec
TD0                  1

======== CHANNEL f1 ========
SFO1        400.1524711 MHz
NUC1              1H
P1               12.00 usec
PLW1        18.00000000 W

F2 - Processing parameters
SI               65536
SF          400.1500000 MHz
WDW                EM
SSB       0
LB               0.30 Hz
GB        0
PC               1.00
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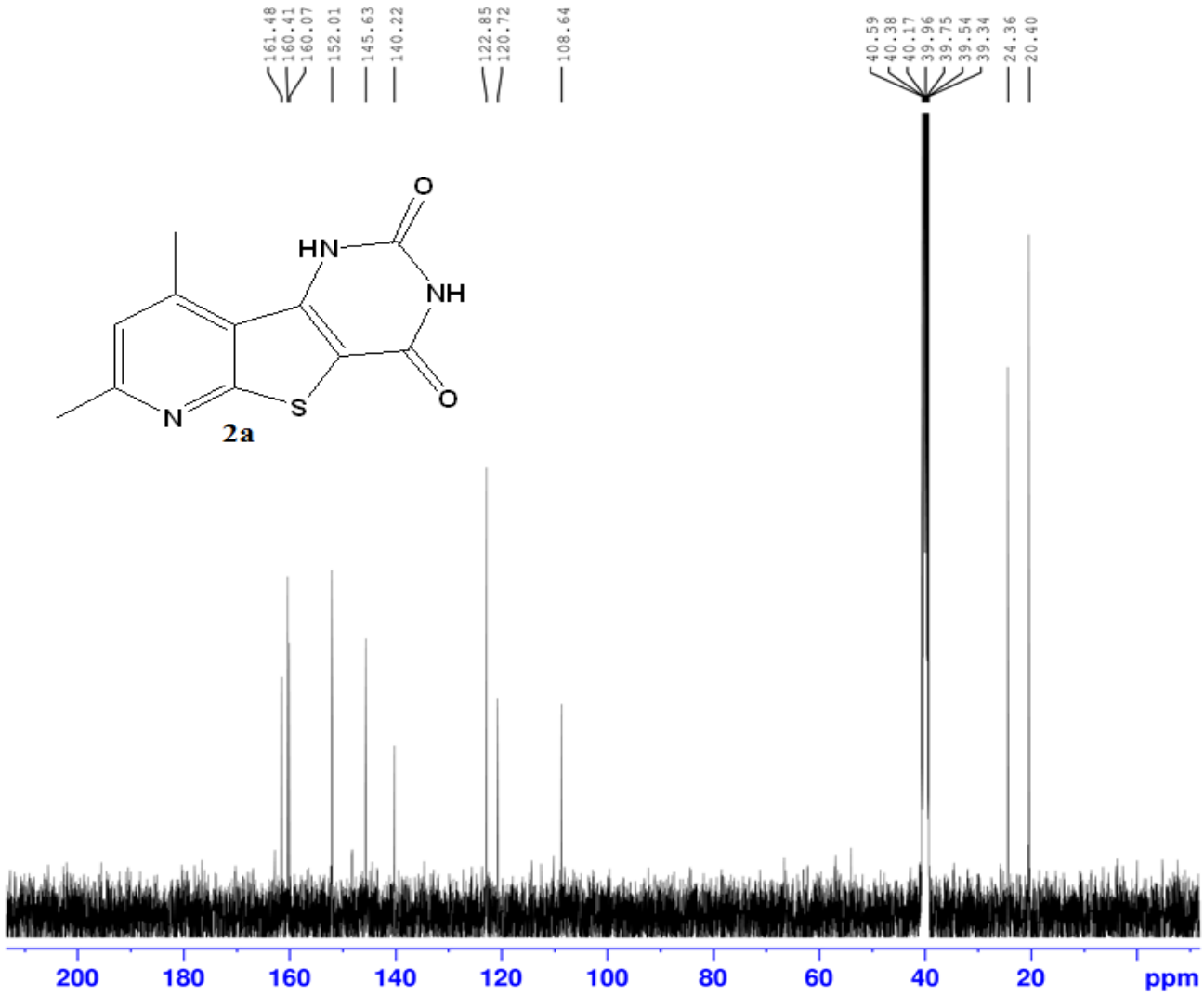

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Current Data Parameters
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EXPNO                 3
PROCNO                1

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Date_          20210919
Time             10.16
INSTRUM          spect
PROBHD   5 mm PABBO BB/
PULPROG        zgpg30
TD              65536
SOLVENT          DMSO
NS               1749
DS                  4
SWH          24038.461 Hz
FIDRES        0.366798 Hz
AQ            1.3631488 sec
RG               205.37
DW               20.800 usec
DE                6.50 usec
TE               300.0 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                 1

======== CHANNEL f1 ========
SFO1        100.6278588 MHz
NUC1               13C
P1               10.00 usec
PLW1        47.00000000 W

======== CHANNEL f2 ========
SFO2        400.1516006 MHz
NUC2               1H
CPDPRG[2        waltz16
PCPD2            90.00 usec
PLW2        18.00000000 W
PLW12        0.34722000 W
PLW13        0.28125000 W

F2 - Processing parameters
SI                32768
SF          100.6177975 MHz
WDW                EM
SSB       0
LB               1.00 Hz
GB        0
PC               1.40
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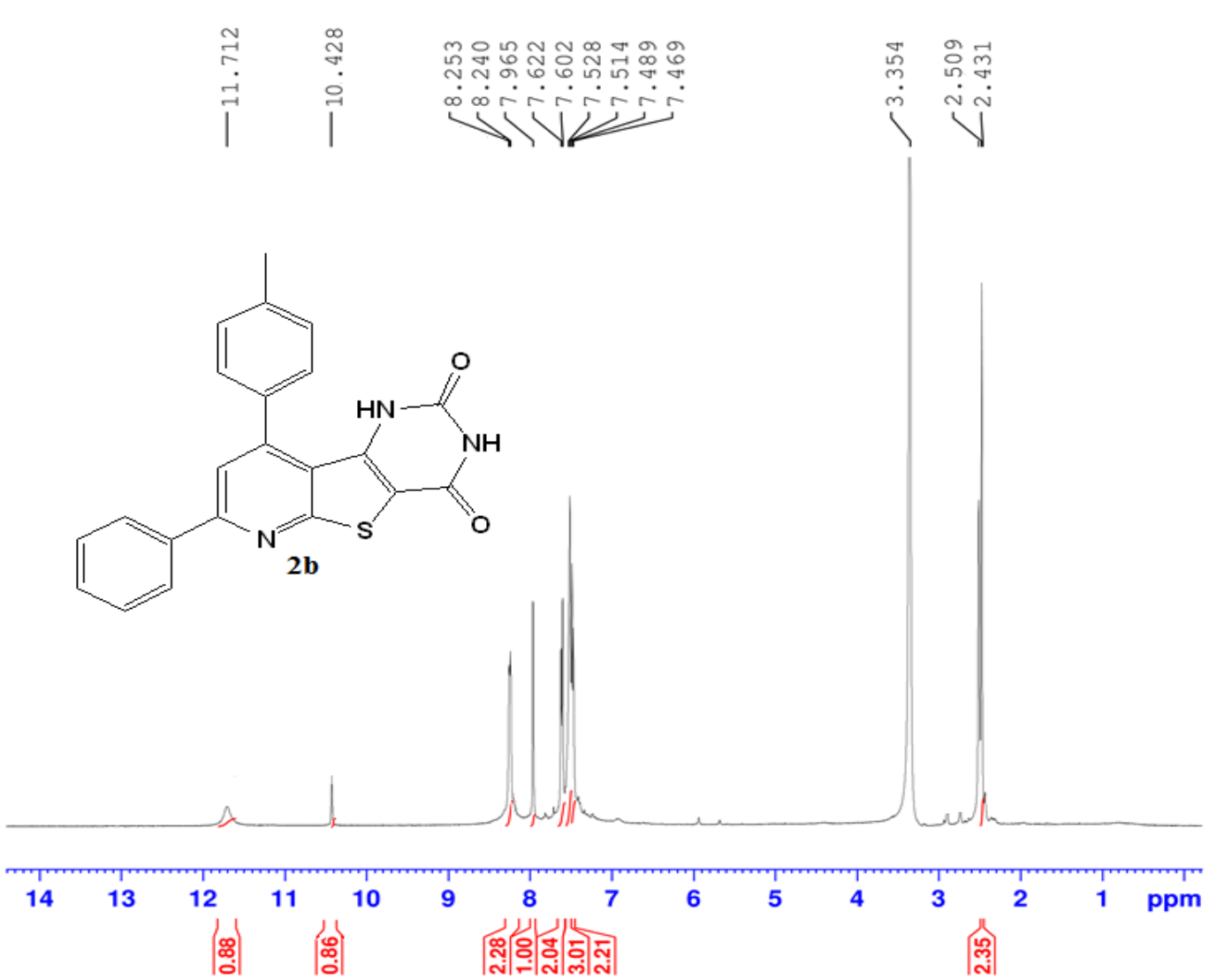


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PROCNO                         1

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Time                       10.35
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PULPROG                     zg30
TD                         65536
SOLVENT                     DMSO
NS                            92
DS                             2
SWH                     8012.820 Hz
FIDRES                  0.122266 Hz
AQ                      4.0894465 sec
RG                         205.37
DW                         62.400 usec
DE                          6.50 usec
TE                         300.0 K
D1                    1.00000000 sec
TD0                            1

======== CHANNEL f1 ========
SFO1                 400.1524711 MHz
NUC1                          1H
P1                         12.00 usec
PLW1                 18.00000000 W

F2 - Processing parameters
SI                         65536
SF                   400.1500000 MHz
WDW                           EM
SSB                0
LB                         0.30 Hz
GB                 0
PC                         1.00
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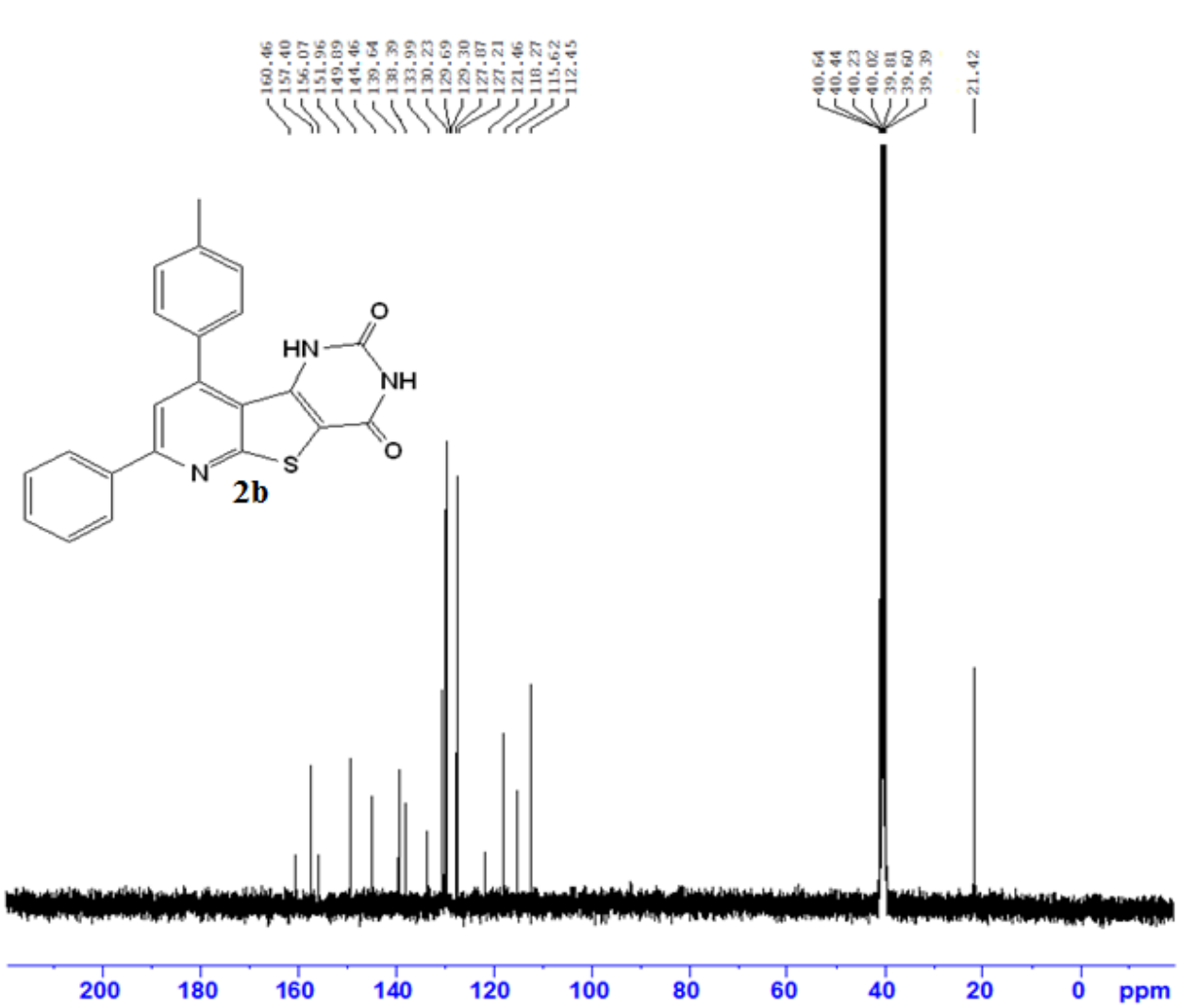

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PROCNO                1

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INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD                65536
SOLVENT            DMSO
NS                 1098
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                205.37
DW                20.800 usec
DE                 6.50 usec
TE                300.0 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1         100.6278588 MHz
NUC1                13C
P1                10.00 usec
PLW1         47.00000000 W

======== CHANNEL f2 ========
SFO2         400.1516006 MHz
NUC2                1H
CPDPRG[2         waltz16
PCPD2             90.00 usec
PLW2         18.00000000 W
PLW12         0.34722000 W
PLW13         0.28125000 W

F2 - Processing parameters
SI                 32768
SF           100.6177975 MHz
WDW                   EM
SSB       0
LB                 1.00 Hz
GB        0
PC                 1.40
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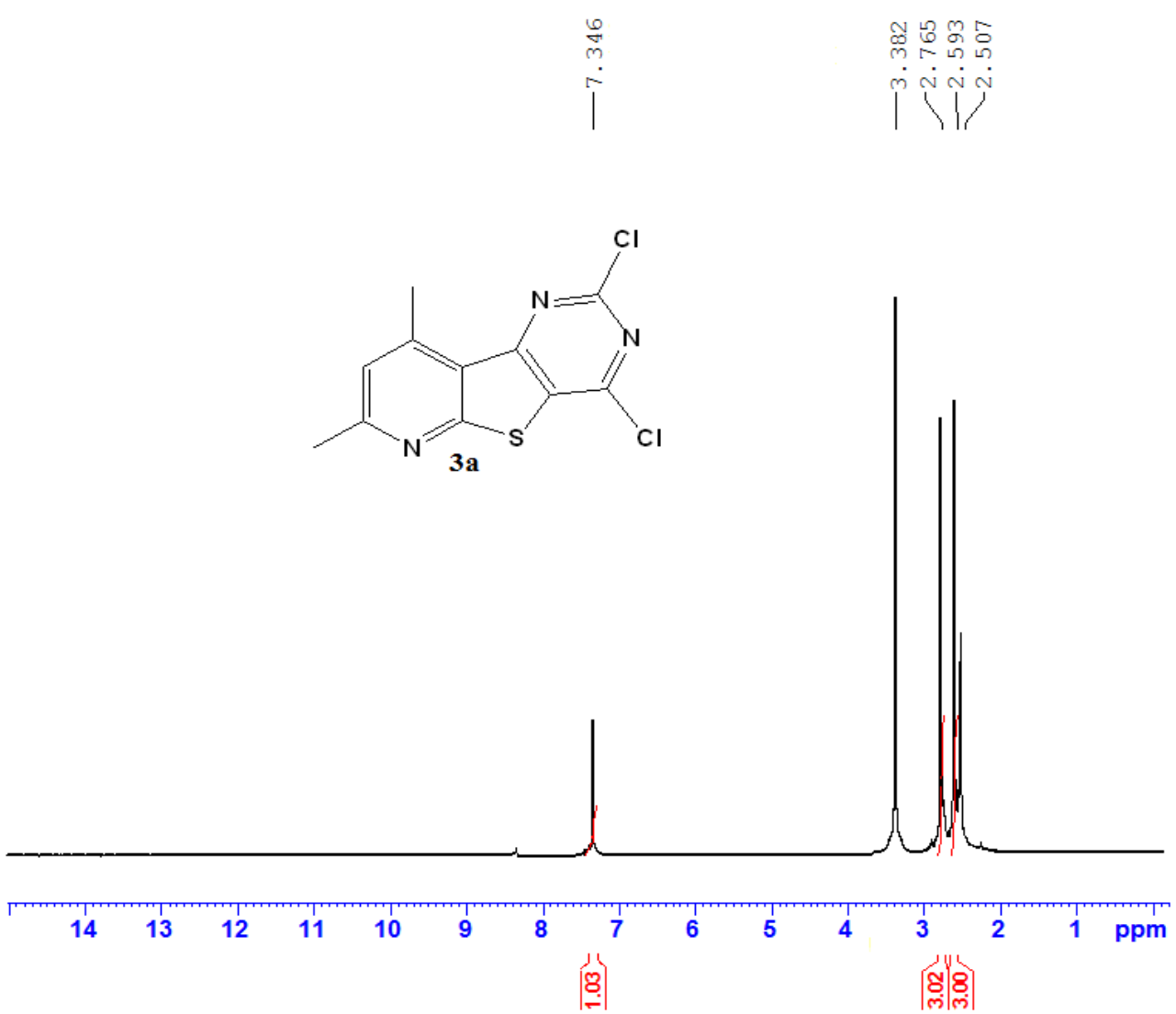


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PROCNO                 1

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Time               10.48
INSTRUM            spect
PROBHD  5  mm  PABBO  BB/
PULPROG             zg30
TD                 65536
SOLVENT              DMSO
NS                     16
DS                      2
SWH              8012.820 Hz
FIDRES           0.122266 Hz
AQ               4.0894465 sec
RG                  205.37
DW                  62.400 usec
DE                   6.50 usec
TE                  300.0 K
D1              1.00000000 sec
TD0                    1

======== CHANNEL f1 ========
SFO1         400.1524711 MHz
NUC1                   1H
P1                  12.00 usec
PLW1         18.00000000 W

F2 - Processing parameters
SI                 65536
SF           400.1500000 MHz
WDW                   EM
SSB       0
LB                  0.30 Hz
GB        0
PC                  1.00
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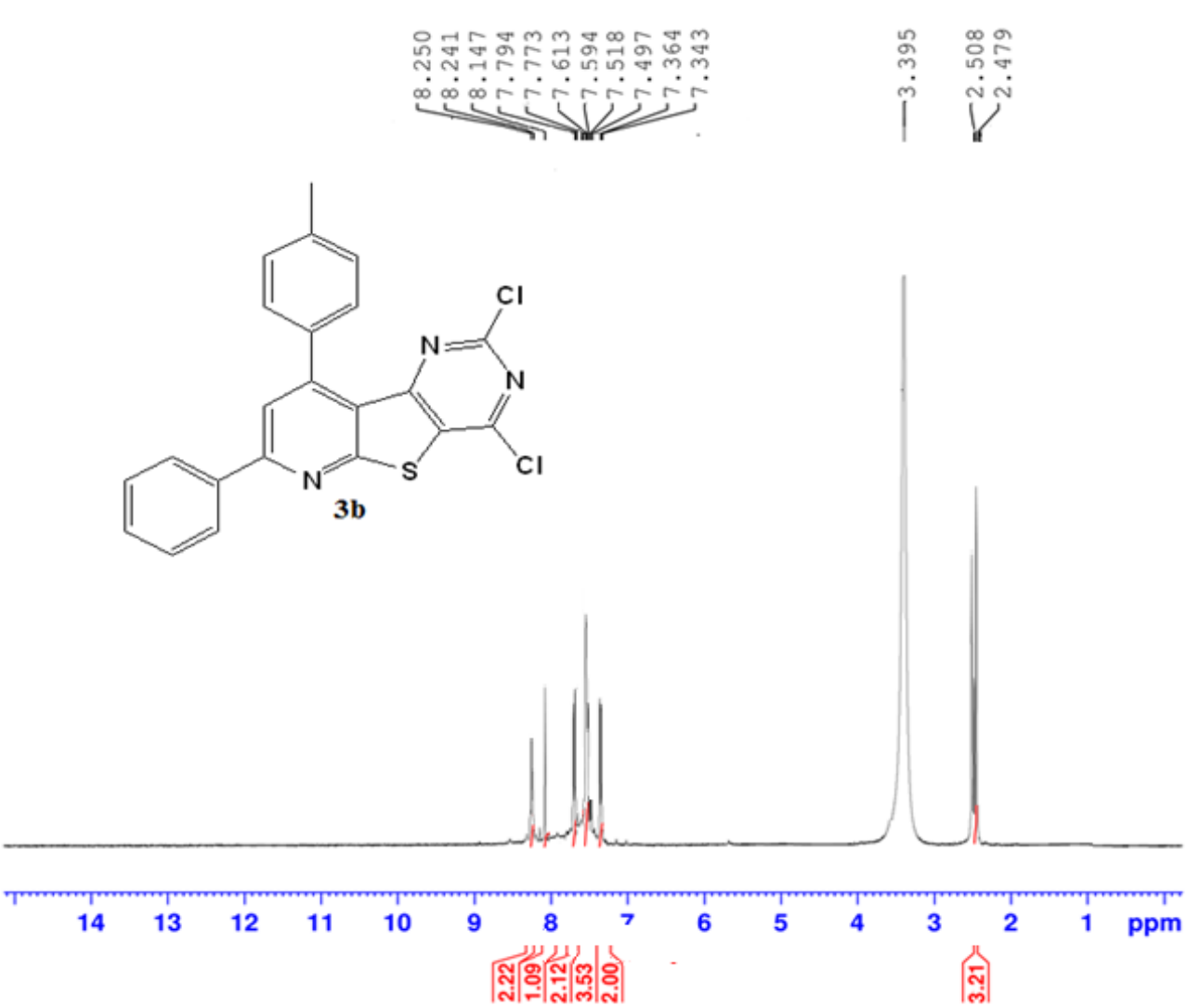

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EXPNO                         1
PROCNO                        1

F2 - Acquisition Parameters
Date_                  20211206
Time                      10.06
INSTRUM                   spect
PROBHD     5 mm PABBO BB/
PULPROG                   zg30
TD                       65336
SOLVENT                   DMSO
NS                          16
DS                           2
SWH                   8019.825 Hz
FIDRES                0.122066 Hz
AQ                    4.0894465 sec
RG                       205.37
DW                       62.400 usec
DE                        6.50 usec
TE                       300.0 K
D1                    1.00000000 sec
TD0                           1

======== CHANNEL f1 ========
SFO1                400.1524711 MHz
NUC1                        1H
P1                       12.00 usec
PLW1                18.00000000 W

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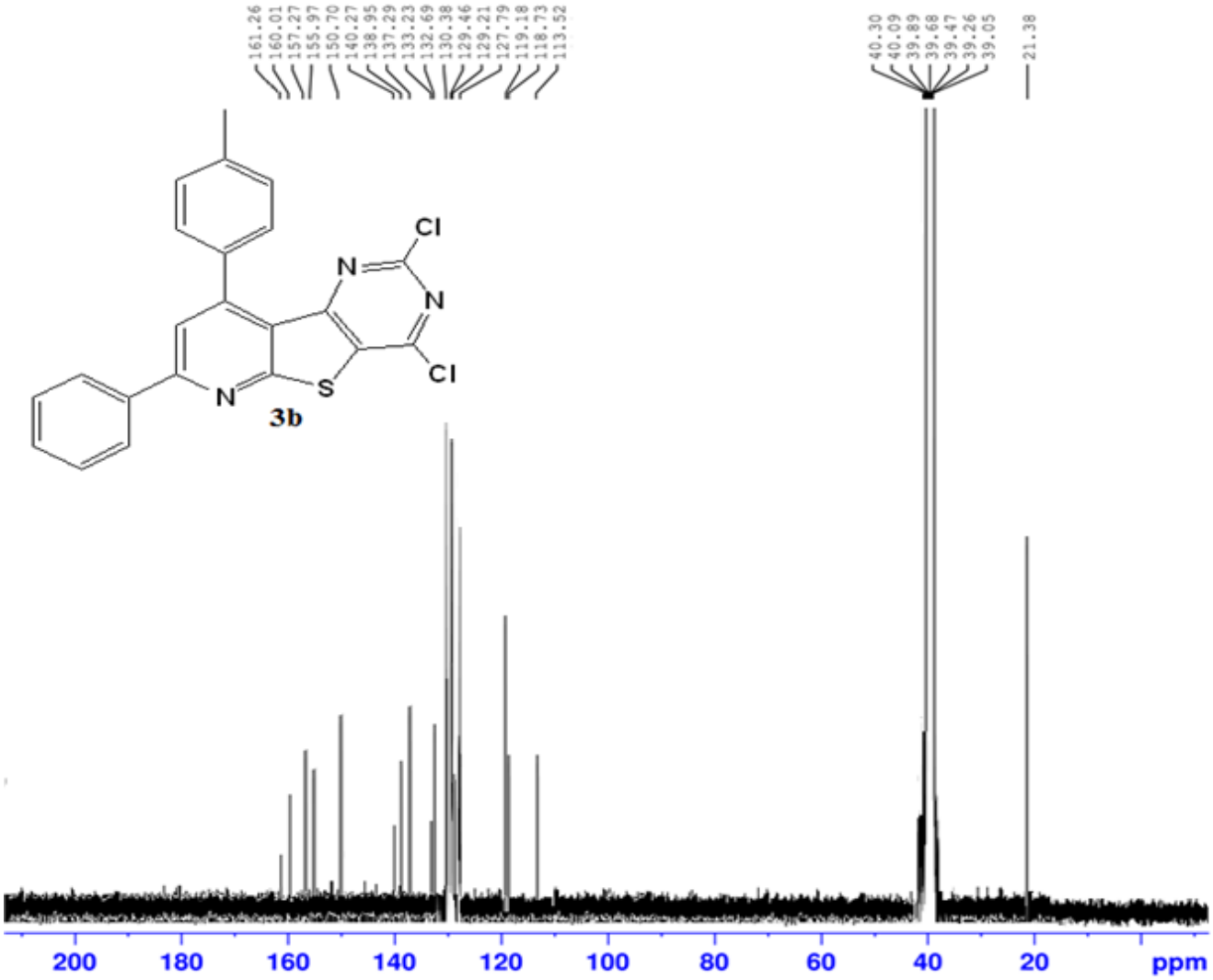

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PROCNO                 1

F2 - Acquisition Parameters
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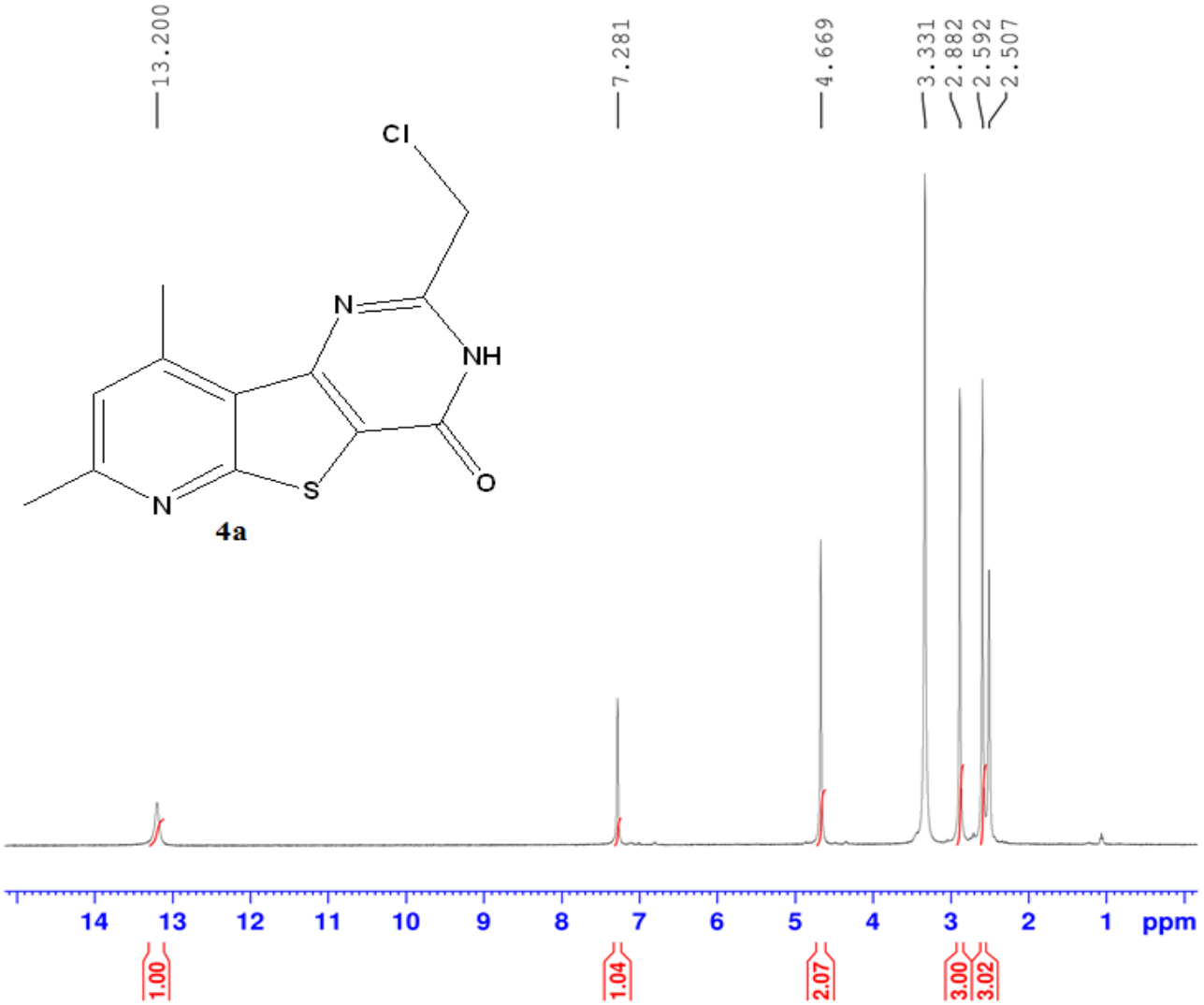
Time                8.57
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG          zgpg30
TD                65536
SOLVENT            DMSO
NS                19000
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ            1.3631488 sec
RG               205.37
DW               20.800 usec
DE                6.50 usec
TE               300.0 K
D1            2.00000000 sec
d11           0.03000000 sec
DELTA         1.89999998 sec
TD0                   1
SFO1         100.6278588 MHz
NUC1                13C
P1                10.00 usec
PLW1         47.00000000 W
SFO2         400.1516006 MHz
NUC2                1H
CPDPRG[2         waltz16
PCPD2             90.00 usec
PLW2         18.00000000 W
PLW12         0.34722000 W
PLW13         0.28125000 W

F2 - Processing parameters
SI                32768
SF           100.6177975 MHz
WDW                  EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```



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PROCNO                 1

F2 - Acquisition Parameters
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Time               11.39
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG            zg30
TD                65536
SOLVENT            DMSO
NS                   56
DS                    2
SWH            8012.820 Hz
FIDRES         0.122266 Hz
AQ             4.0894465 sec
RG                205.37
DW                62.400 usec
DE                 6.50 usec
TE                300.0 K
D1             1.00000000 sec
TD0                    1

======== CHANNEL f1 ========
SFO1         400.1524711 MHz
NUC1                   1H
P1                 12.00 usec
PLW1         18.00000000 W

F2 - Processing parameters
SI                 65536
SF           400.1500000 MHz
WDW                   EM
SSB       0
LB                 0.30 Hz
GB        0
PC                 1.00
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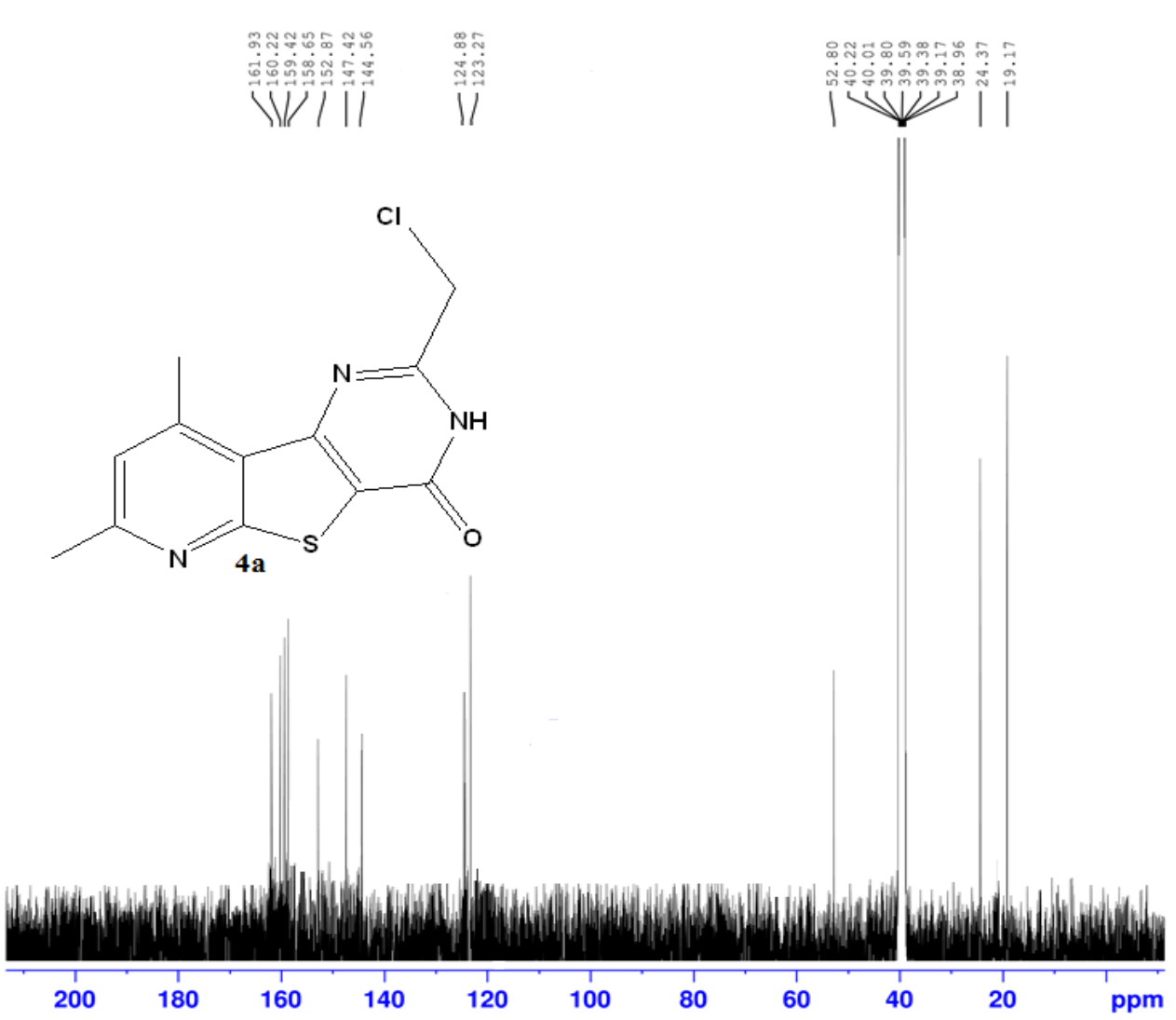

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Current Data Parameters
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EXPNO                  4
PROCNO                 1

F2 - Acquisition Parameters
Date_           20211013
Time                8.37
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG          zgpg30
TD                65536
SOLVENT             DMSO
NS                14937
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ            1.3631488 sec
RG               205.37
DW               20.800 usec
DE                6.50 usec
TE               300.0 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1         100.6278588 MHz
NUC1                 13C
P1                10.00 usec
PLW1         47.00000000 W

======== CHANNEL f2 ========
SFO2         400.1516006 MHz
NUC2                 1H
CPDPRG[2          waltz16
PCPD2             90.00 usec
PLW2         18.00000000 W
PLW12         0.34722000 W
PLW13         0.28125000 W

F2 - Processing parameters
SI                32768
SF           100.6177975 MHz
WDW                  EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```

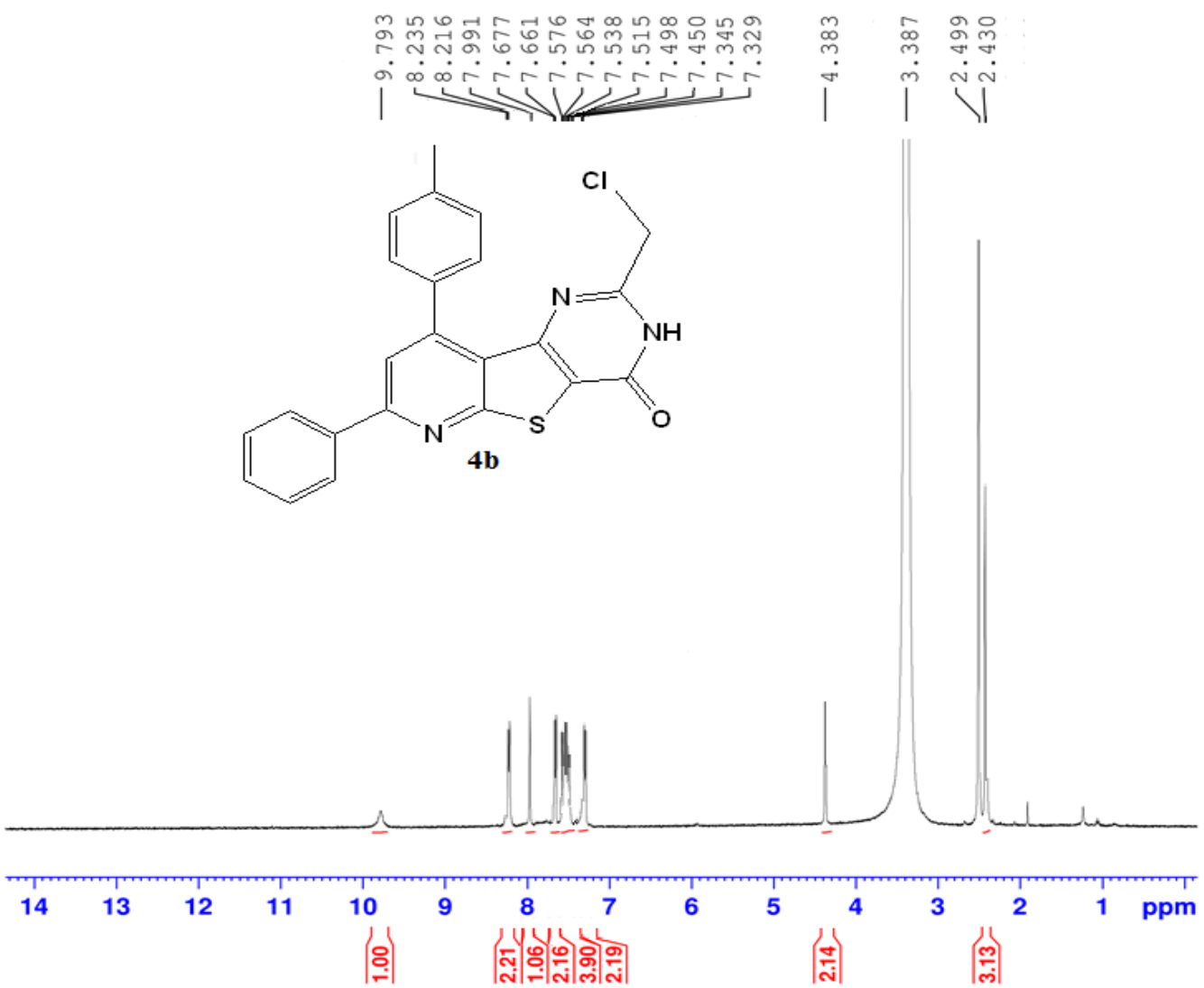

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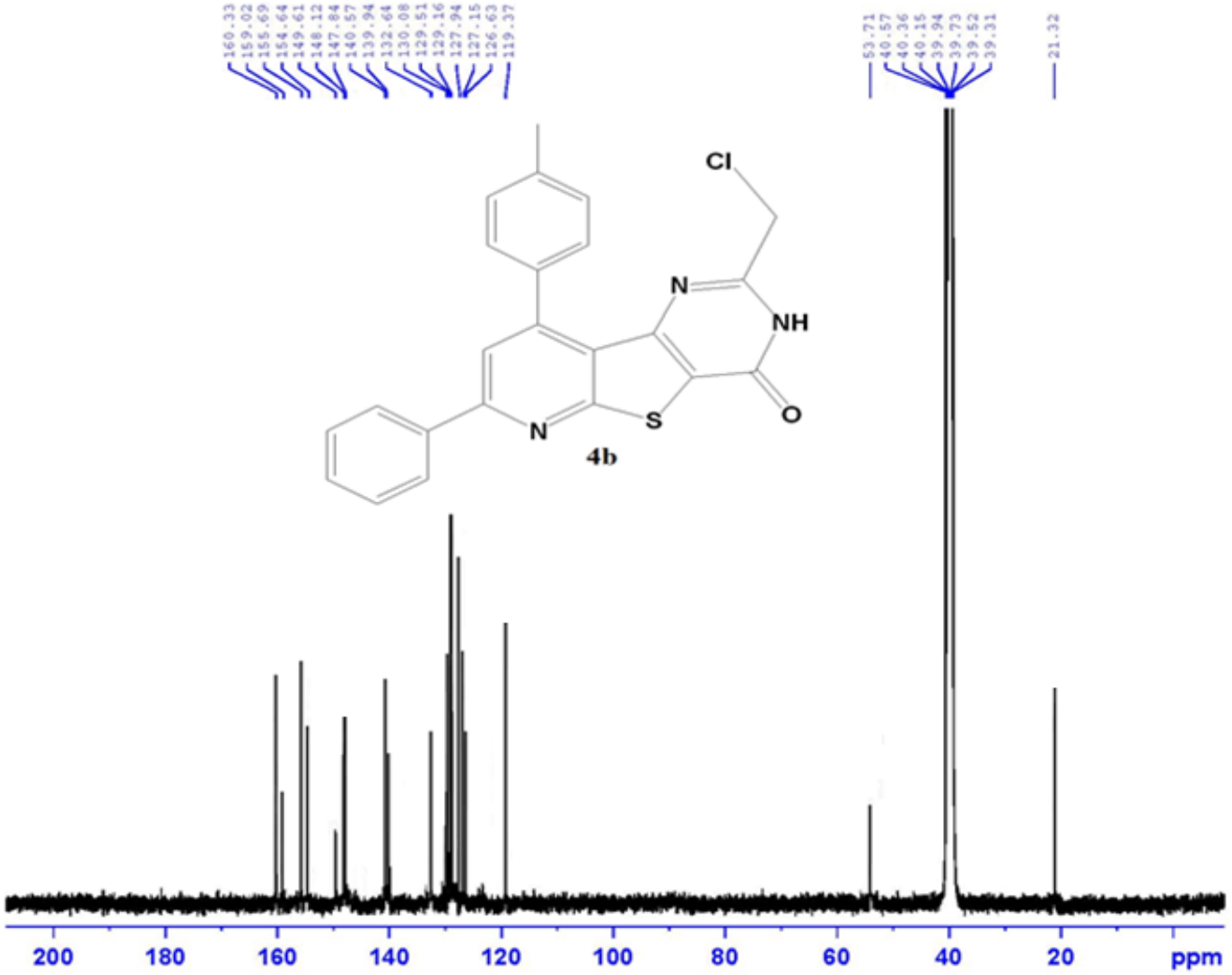
```
Current Data Parameters
NAME      amina-nasr-TP31
EXPNO                   1
PROCNO                  1

F2 - Acquisition Parameters
Date_            20210504
Time                11.06
INSTRUM             spect
PROBHD    5 mm PABBO BB/
PULPROG             zg30
TD                 65536
SOLVENT             DMSO
NS                    91
DS                     2
SWH             8012.820 Hz
FIDRES          0.122266 Hz
AQ              4.0894465 sec
RG                205.37
DW                62.400 usec
DE                 6.50 usec
TE                300.0 K
D1             1.00000000 sec
TD0                    1

======== CHANNEL f1 ========
SFO1          400.1524711 MHz
NUC1                  1H
P1                 12.00 usec
PLW1          18.00000000 W

F2 - Processing parameters
SI                 65536
SF            400.1500000 MHz
WDW                   EM
SSB       0
LB                 0.30 Hz
GB        0
PC                 1.00
```



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Current Data Parameters
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PROCNO                 1

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Time                 20.12
INSTRUM              spect
PROBHD    Z108610_0945 (
PULPROG              zgpg30
TD                   65536
SOLVENT               DMSO
NS                    2130
DS                       4
SWH              24038.461 Hz
FIDRES           0.733596 Hz
AQ               .1631488 sec
RG                   197.77
DW                  20.800 usec
DE                   6.50 usec
TE                  293.9 K
D1              2.00000000 sec
D11             0.03000000 sec
TD0                      1
SFO1           100.6404331 MHz
NUC1                   13C
P1                  10.30 usec
PLW1           47.60000000 W
SFO2           400.2016038 MHz
NUC2                   1H
CPDPRG[2           waltz16
PCPD2               90.00 usec
PLW2           13.60000000 W
PLW12           0.29249999 W
PLW13           0.14713000 W

F2 - Processing parameters
SI                   32768
SF             100.6303750 MHz
WDW                     EM
SSB          0
LB                   1.00 Hz
GB           0
PC                   1.40
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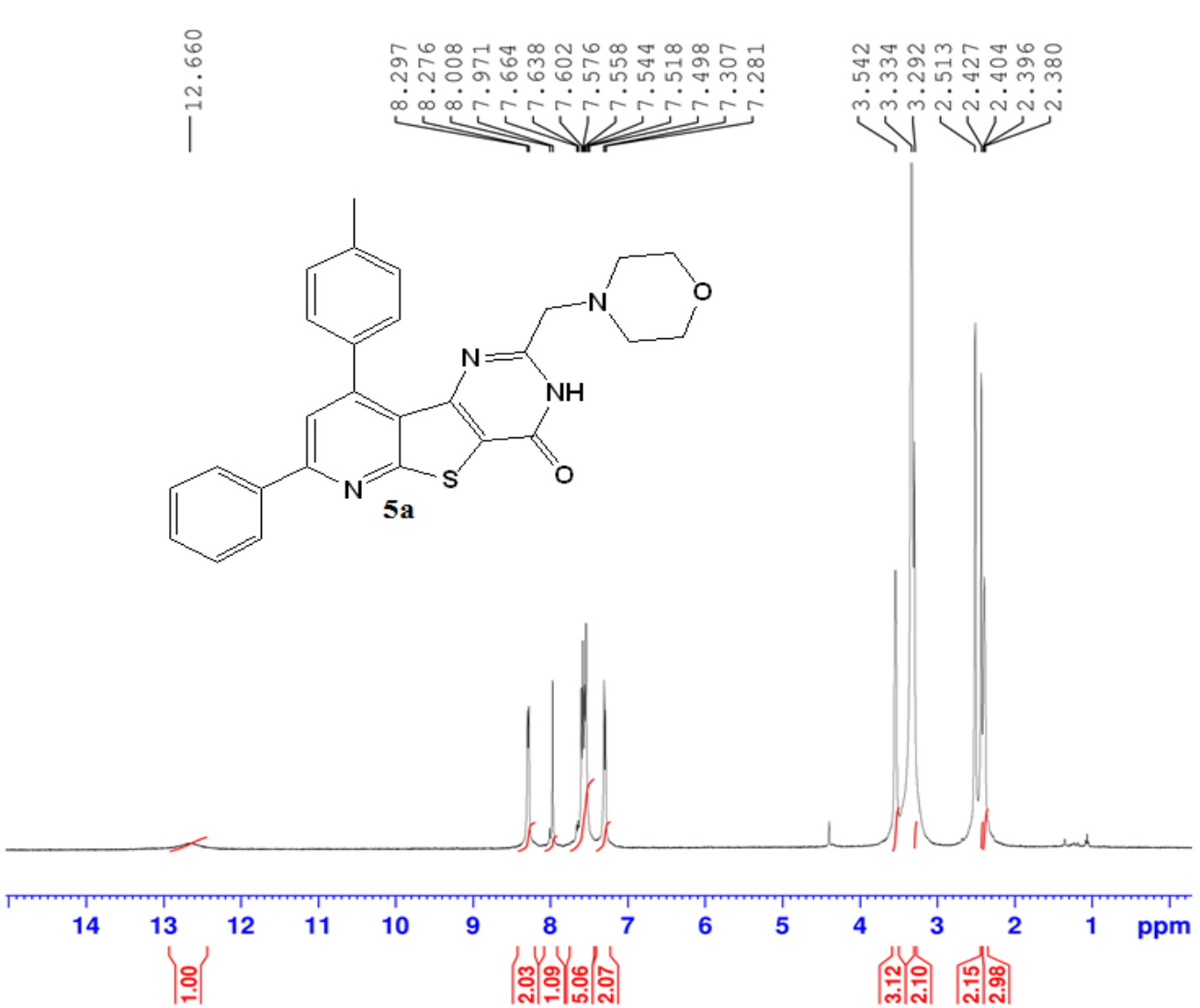

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Current Data Parameters
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PROCNO                 1

F2 - Acquisition Parameters
Date_           20210415
Time              12.09
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG           zg30
TD               65536
SOLVENT           DMSO
NS                 128
DS                   2
SWH           8012.820 Hz
FIDRES        0.122266 Hz
AQ            4.0894465 sec
RG               205.37
DW               62.400 usec
DE                6.50 usec
TE               300.0 K
D1           1.00000000 sec
TD0                  1

======== CHANNEL f1 ========
SFO1        400.1524711 MHz
NUC1               1H
P1               12.00 usec
PLW1        18.00000000 W

F2 - Processing parameters
SI               65536
SF          400.1500000 MHz
WDW                EM
SSB       0
LB               0.30 Hz
GB        0
PC               1.00
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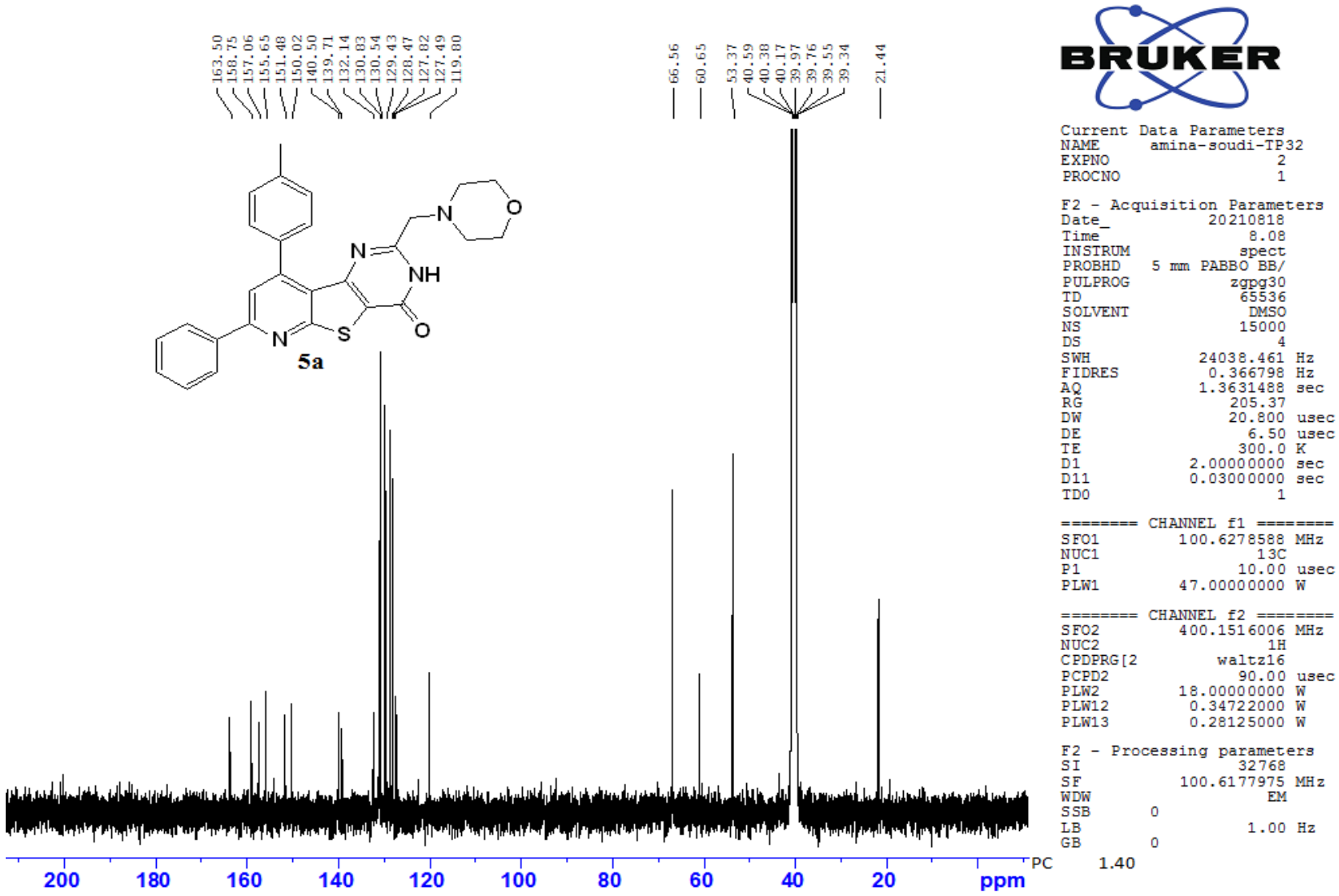

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PROCNO                   1

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Date_           20210818
Time                8.08
INSTRUM            spect
PROBHD    5 mm PABBO BB/
PULPROG          zgpg30
TD                65536
SOLVENT            DMSO
NS                15000
DS                    4
SWH           24038.461 Hz
FIDRES        0.366798 Hz
AQ            1.3631488 sec
RG               205.37
DW               20.800 usec
DE                6.50 usec
TE               300.0 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1         100.6278588 MHz
NUC1                13C
P1                10.00 usec
PLW1         47.00000000 W

======== CHANNEL f2 ========
SFO2         400.1516006 MHz
NUC2                1H
CPDPRG[2         waltz16
PCPD2             90.00 usec
PLW2         18.00000000 W
PLW12         0.34722000 W
PLW13         0.28125000 W

F2 - Processing parameters
SI                32768
SF           100.6177975 MHz
WDW                EM
SSB       0
LB                1.00 Hz
GB        0
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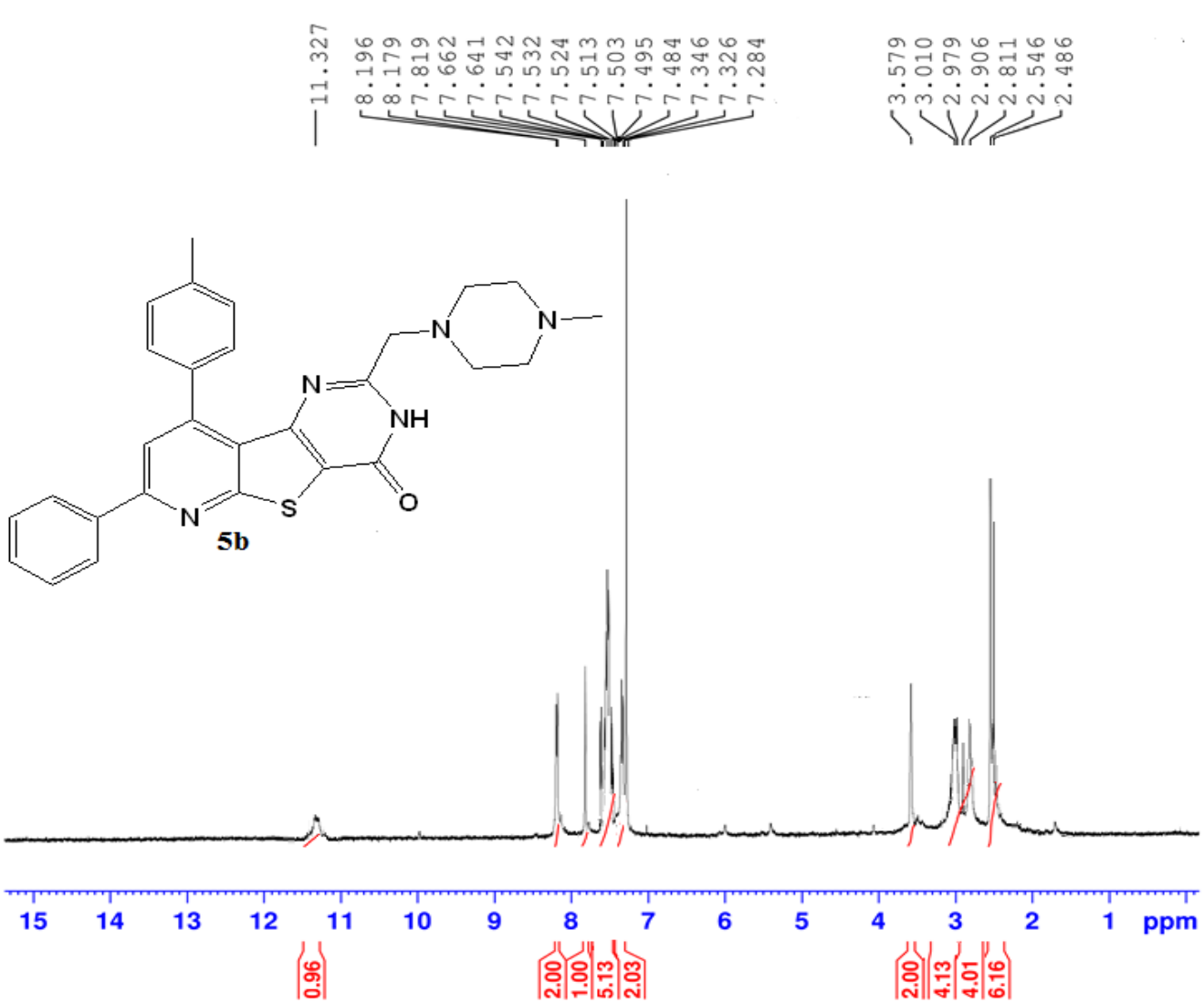

BRUKER

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Current Data Parameters
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EXPNO                  2
PROCNO                 1

F2 - Acquisition Parameters
Date_           20210902
Time               12.58
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG             zg30
TD                 65536
SOLVENT            CDCl3
NS                    93
DS                     2
SWH             8012.820 Hz
FIDRES          0.122266 Hz
AQ              4.0894465 sec
RG                205.37
DW                62.400 usec
DE                 6.50 usec
TE                300.0 K
D1             1.00000000 sec
TD0                    1

======== CHANNEL f1 ========
SFO1         400.1524711 MHz
NUC1                   1H
P1                 12.00 usec
PLW1         18.00000000 W

F2 - Processing parameters
SI                 65536
SF           400.1500000 MHz
WDW                   EM
SSB       0
LB                 0.30 Hz
GB        0
PC                 1.00
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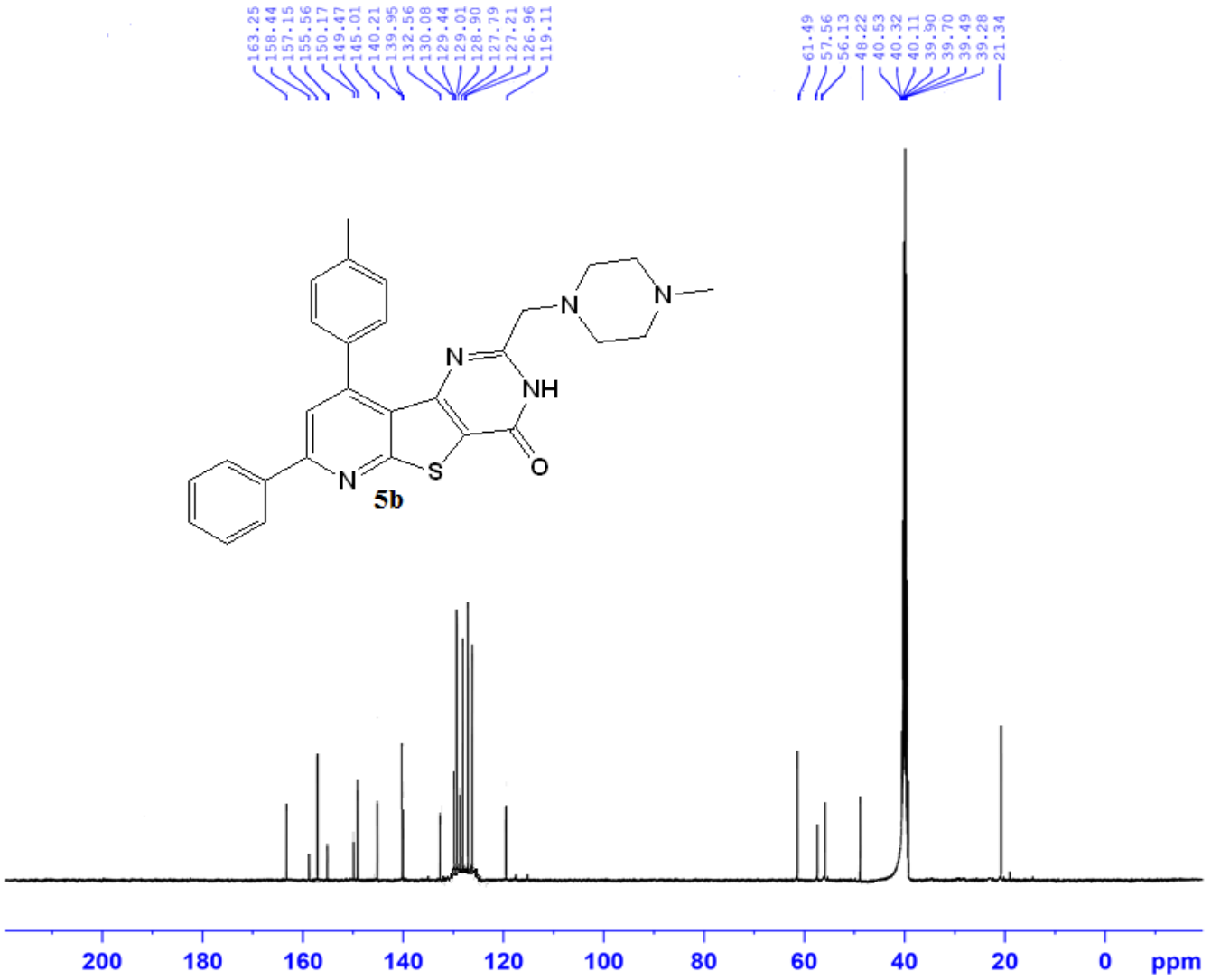

BRUKER

```
Current Data Parameters
NAME      Eman-TP35
EXPNO                10
PROCNO                1

F2 - Acquisition Parameters
Date_          20211205
Time                18.14 h
INSTRUM             spect
PROBHD    Z108618_0945 (
PULPROG          zgpg30
TD                65536
SOLVENT             DMSO
NS                 1024
DS                    4
SWH           24038.461 Hz
FIDRES         0.733596 Hz
AQ             1.3631488 sec
RG                197.77
DW                20.800 use
DE                 6.50 use
TE                295.0 K
D1             2.00000000 sec
D11            0.03000000 sec
TD0                   1
SFO1          100.6404331 MHz
NUC1                13C
P1                 10.00 use
PLW1          47.00000000 W
SFO2          400.2016008 MHz
NUC2                1H
CPDPRG[2         waltz16
PCPD2              90.00 use
PLW2          13.00000000 W
PLW12          0.29249999 W
PLW13          0.14713000 W

F2 - Processing parameters
SI                 32768
SF            100.6303700 MHz
WDW                   EM
SSB       0
LB                 1.00 Hz
GB        0
PC                 1.40
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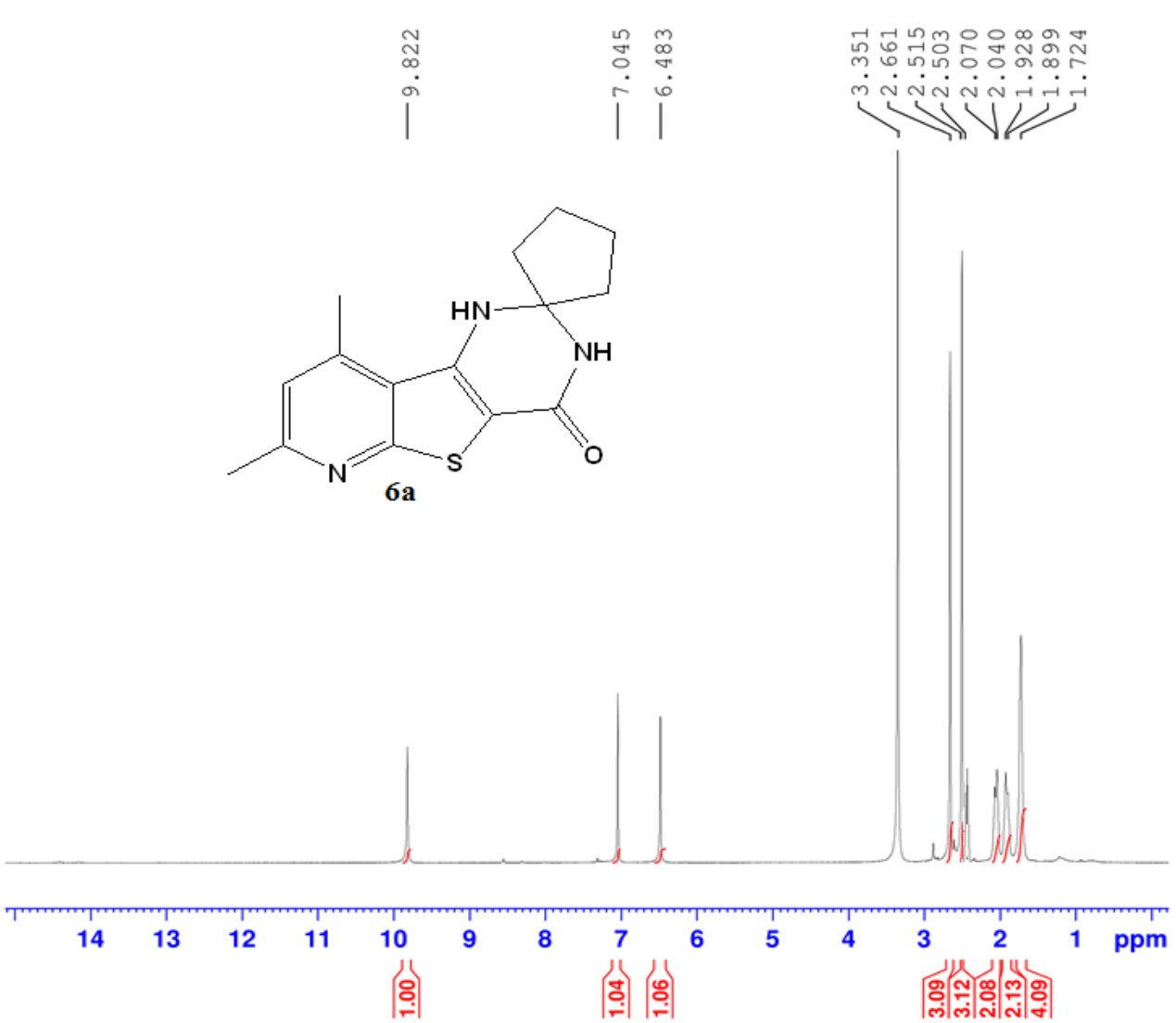

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PROCNO                1

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Time               9.57
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG            zg30
TD                65536
SOLVENT            DMSO
NS                   54
DS                    2
SWH            8012.820 Hz
FIDRES         0.122266 Hz
AQ             4.0894465 sec
RG                205.37
DW                62.400 usec
DE                 6.50 usec
TE                300.0 K
D1             1.00000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1         400.1524711 MHz
NUC1               1H
P1                12.00 usec
PLW1         18.00000000 W

F2 - Processing parameters
SI                65536
SF           400.1500000 MHz
WDW                EM
SSB       0
LB                 0.30 Hz
GB        0
PC                 1.00
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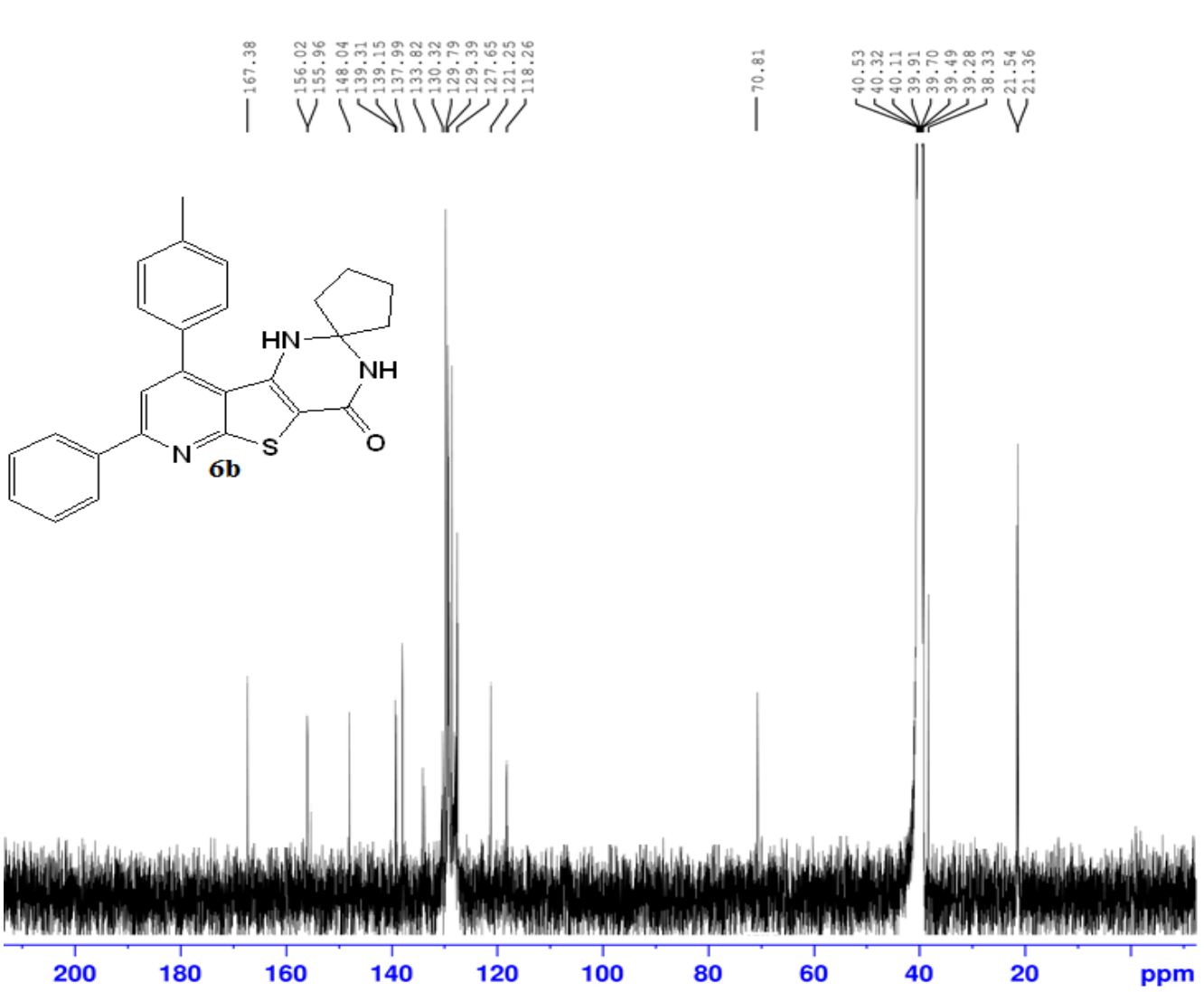

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Current Data Parameters
NAME      amina-nasr-TPP5
EXPNO                  4
PROCNO                 1

F2 - Acquisition Parameters
Date_           20211019
Time                7.37
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG          zgpg30
TD                65536
SOLVENT             DMSO
NS                 15000
DS                     4
SWH            24038.461 Hz
FIDRES          0.366798 Hz
AQ              1.3631488 sec
RG                205.37
DW                20.800 usec
DE                 6.50 usec
TE                300.0 K
D1             2.00000000 sec
D11            0.03000000 sec
TD0                    1

======== CHANNEL f1 ========
SFO1          100.6278588 MHz
NUC1                  13C
P1                 10.00 usec
PLW1          47.00000000 W

======== CHANNEL f2 ========
SFO2          400.1516006 MHz
NUC2                  1H
CPDPRG[2          waltz16
PCPD2              90.00 usec
PLW2          18.00000000 W
PLW12          0.34722000 W
PLW13          0.28125000 W

F2 - Processing parameters
SI                 32768
SF            100.6177975 MHz
WDW                   EM
SSB       0
LB                 1.00 Hz
GB        0
PC                 1.40
```

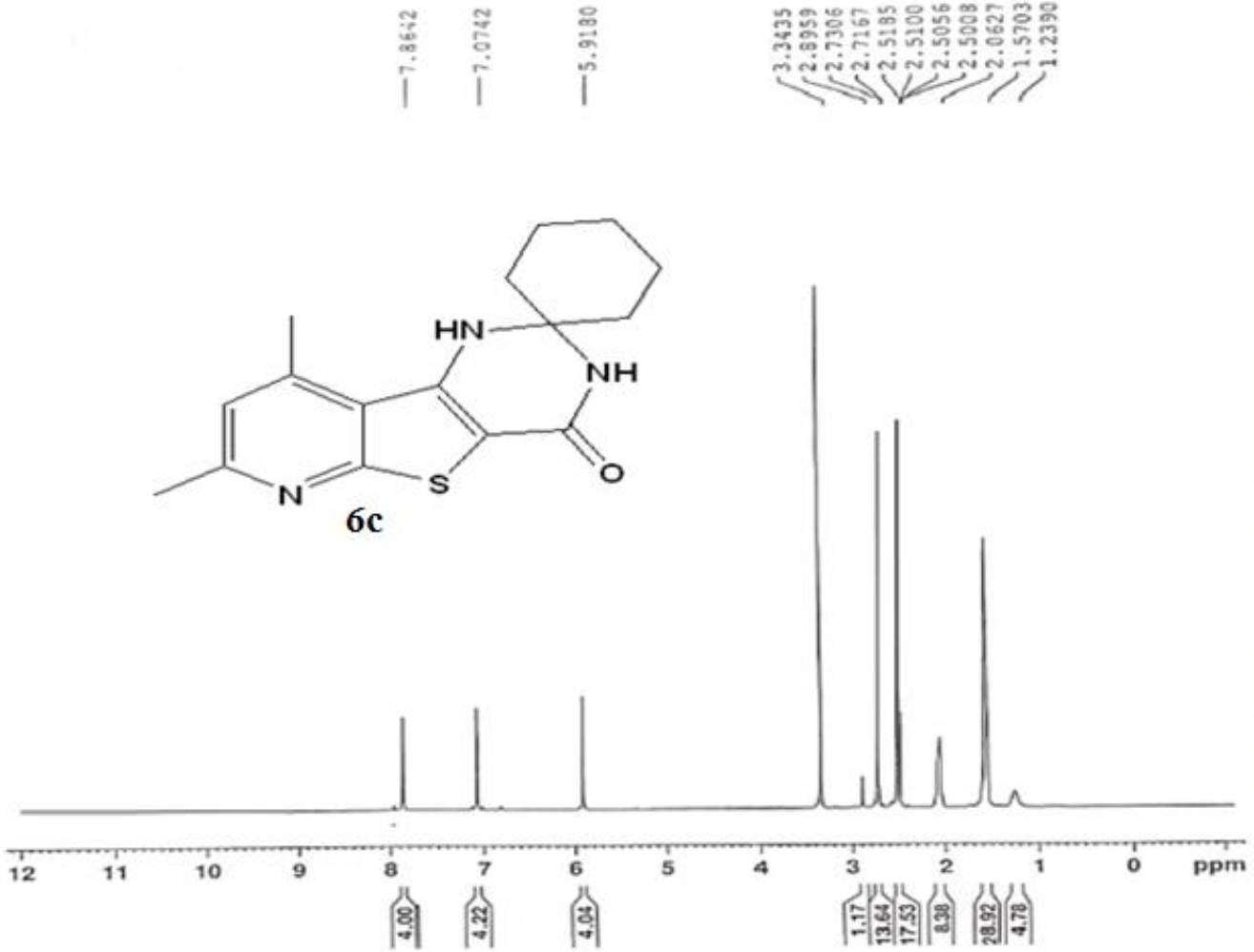

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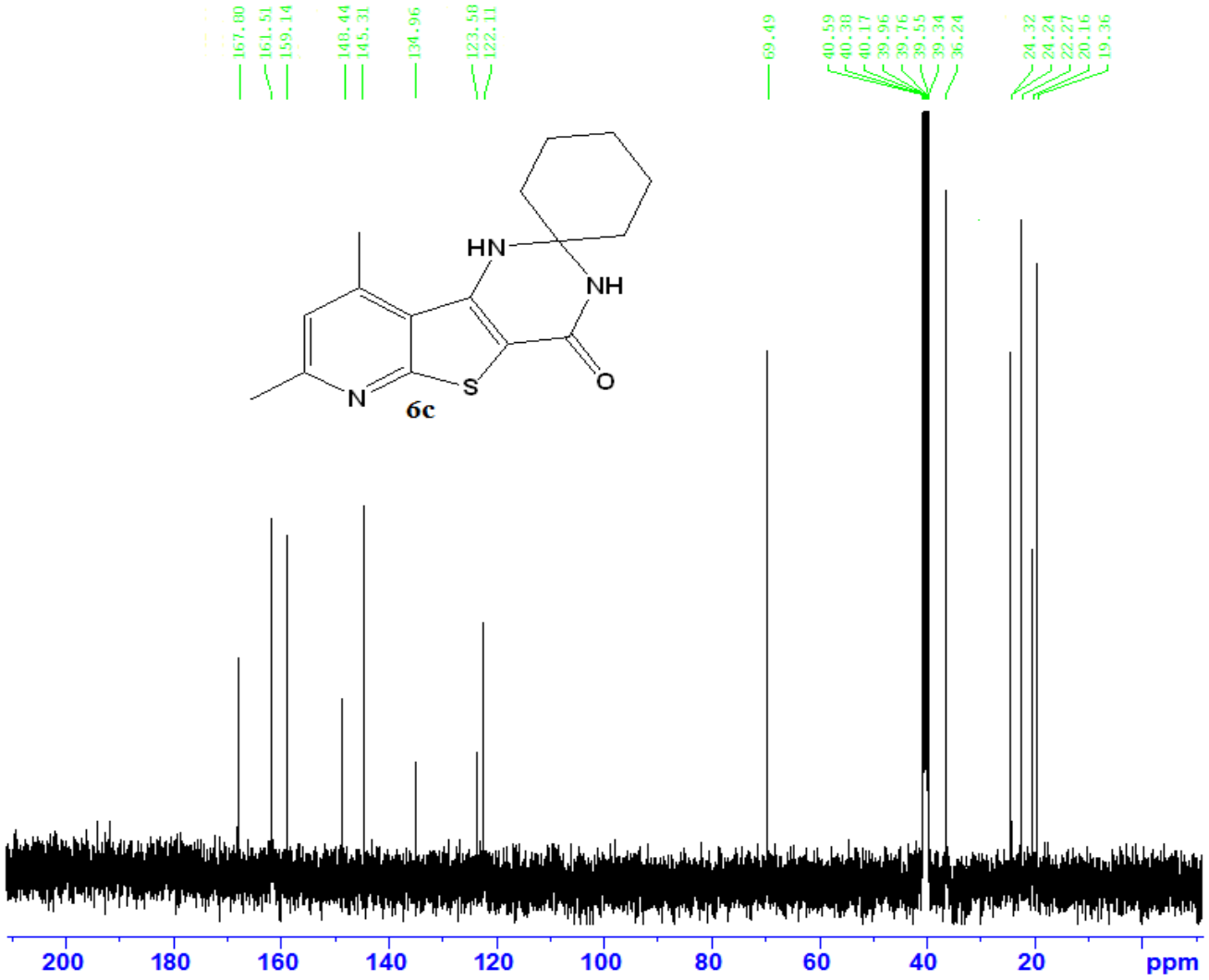
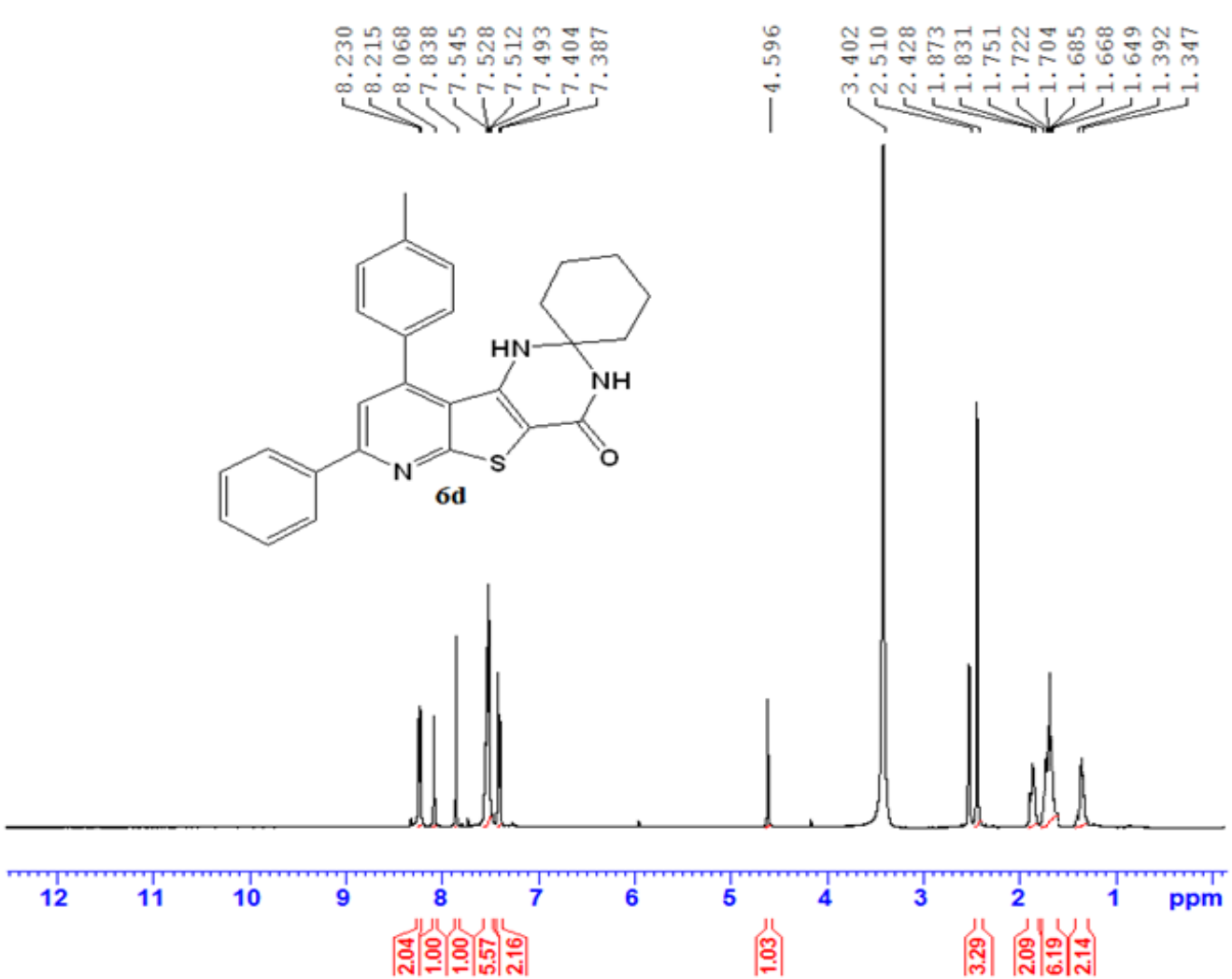
```
Current Data Parameters
NAME      amina-nasr-M5
EXPNO                 1
PROCNO                1

F2 - Acquisition Parameters
Date_          20170913
Time               9.31
INSTRUM           spect
PROBHD 5 mm PABBO BB/
PULPROG           zg30
TD               65536
SOLVENT           DMSO
NS                 121
DS                   2
SWH           8012.820 Hz
FIDRES        0.122266 Hz
AQ            4.0894465 sec
RG               205.37
DW               62.400 usec
DE                6.50 usec
TE               300.0 K
D1            1.00000000 sec
TD0                  1

======== CHANNEL f1 ========
SFO1         400.1524711 MHz
NUC1               1H
P1                12.00 usec
PLW1         18.00000000 W

F2 - Processing parameters
SI               65536
SF           400.1500000 MHz
WDW                EM
SSB       0
LB                0.30 Hz
```

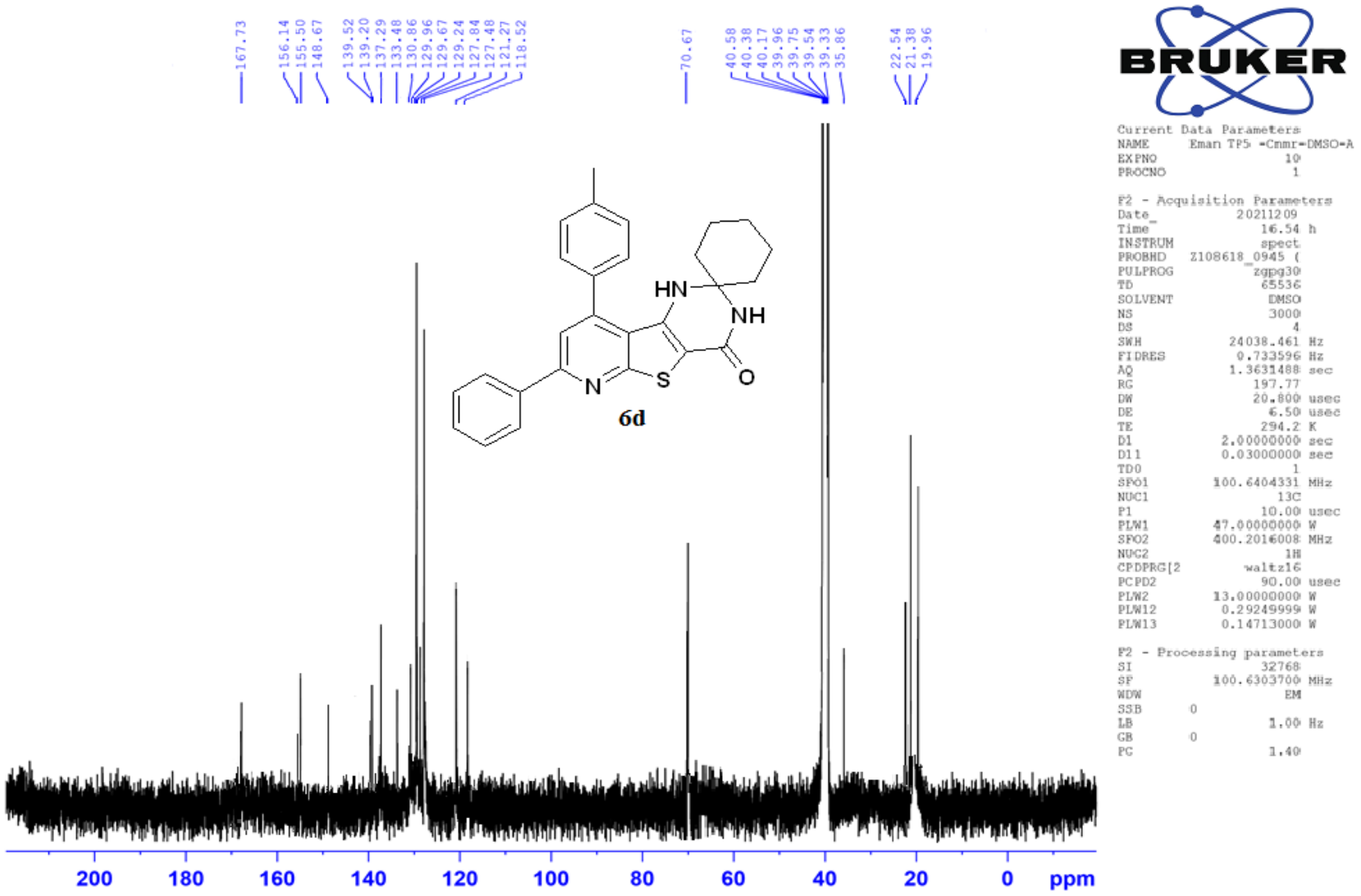



```
Current Data Parameters
NAME       amina-nasr-M5
EXPNO                 1
PROCNO                1

F2 - Acquisition Parameters
Date_          20180919
Time              10.21
INSTRUM           spect
PROBHD    5 mm PABBO BB/
PULPROG        zgpg30
TD              65536
SOLVENT           DMSO
NS                 603
DS                   4
SWH          24038.461 Hz
FIDRES        0.366798 Hz
AQ            1.3631488 sec
RG               205.37
DW               20.800 usec
DE                6.50 usec
TE               299.0 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0                  1

======== CHANNEL f1 ========
SFO1        100.6278588 MHz
NUC1               13C
P1               10.00 usec
PLW1        47.00000000 W

======== CHANNEL f2 ========
SFO2        400.1516006 MHz
NUC2               1H
CPDPRG[2        waltz16
PCPD2            90.00 usec
PLW2        18.00000000 W
PLW12        0.34722000 W
PLW13        0.28125000 W

F2 - Processing parameters
SI                32768
SF          100.6177975 MHz
WDW                EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```



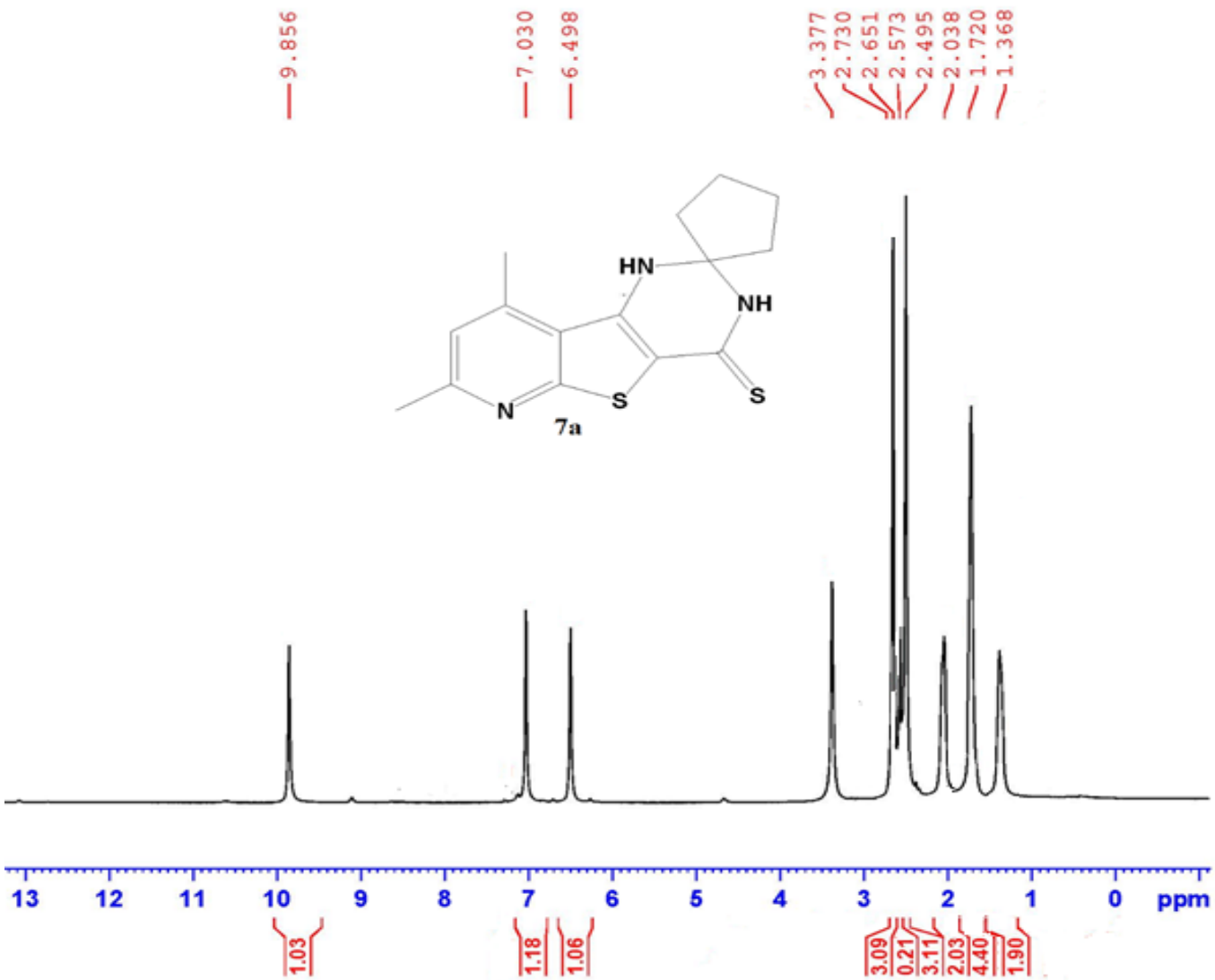
BRUKER

```
Current Data Parameters
NAME                  AA-TP5
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20190609
Time                  11.17
INSTRUM               spect
PROBHD  5  mm  PABBO  BB/
PULPROG                zg30
TD                    65536
SOLVENT                DMSO
NS                        64
DS                         2
SWH                8012.820 Hz
FIDRES                0.122266 Hz
AQ                 4.0894465 sec
RG                    205.37
DW                    62.400 usec
DE                     6.50 usec
TE                    298.0 K
D1                 1.00000000 sec
TD0                        1

======== CHANNEL f1 ========
SFO1           400.1524711 MHz
NUC1                   1H
P1                    12.00 usec
PLW1           18.00000000 W

F2 - Processing parameters
SI                    65536
SF             400.1500000 MHz
WDW                    EM
SSB       0
LB                     0.30 Hz
GB        0
PC                     1.00
```



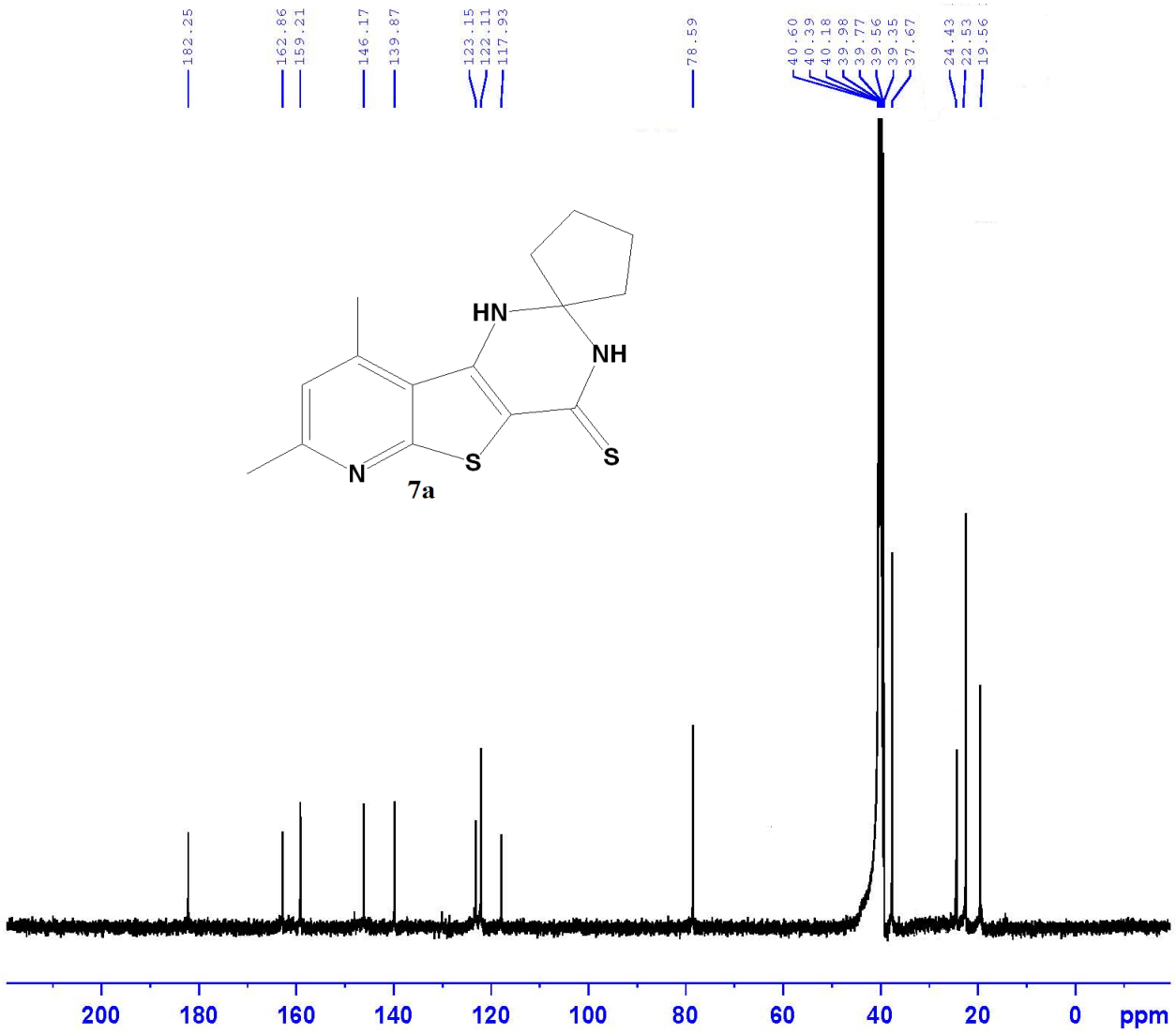
BRUKER

```
Current Data Parameters
NAME      Eman TP5 =Cmmr=DMSO=A
EXPNO                        10
PROCNO                        1

F2 - Acquisition Parameters
Date_              20211209
Time                  16.54 h
INSTRUM                spect
PROBHD    Z108618_0945 (
PULPROG              zgpg30
TD                    65536
SOLVENT                DMSO
NS                     3000
DS                        4
SWH               24038.461 Hz
FIDRES             0.733596 Hz
AQ                 1.3631488 sec
RG                    197.77
DW                    20.800 usec
DE                     6.50 usec
TE                    294.2 K
D1                2.00000000 sec
D11               0.03000000 sec
TD0                       1
SFO1           100.6404331 MHz
NUC1                    13C
P1                    10.00 usec
PLW1           47.00000000 W
SFO2           400.2016008 MHz
NUC2                    1H
CPDPRG[2             waltz16
PCPD2                 90.00 usec
PLW2           13.00000000 W
PLW12           0.29249999 W
PLW13           0.14713000 W

F2 - Processing parameters
SI                    32768
SF             100.6303700 MHz
WDW                      EM
SSB          0
LB                     1.00 Hz
GB           0
PC                     1.40
```

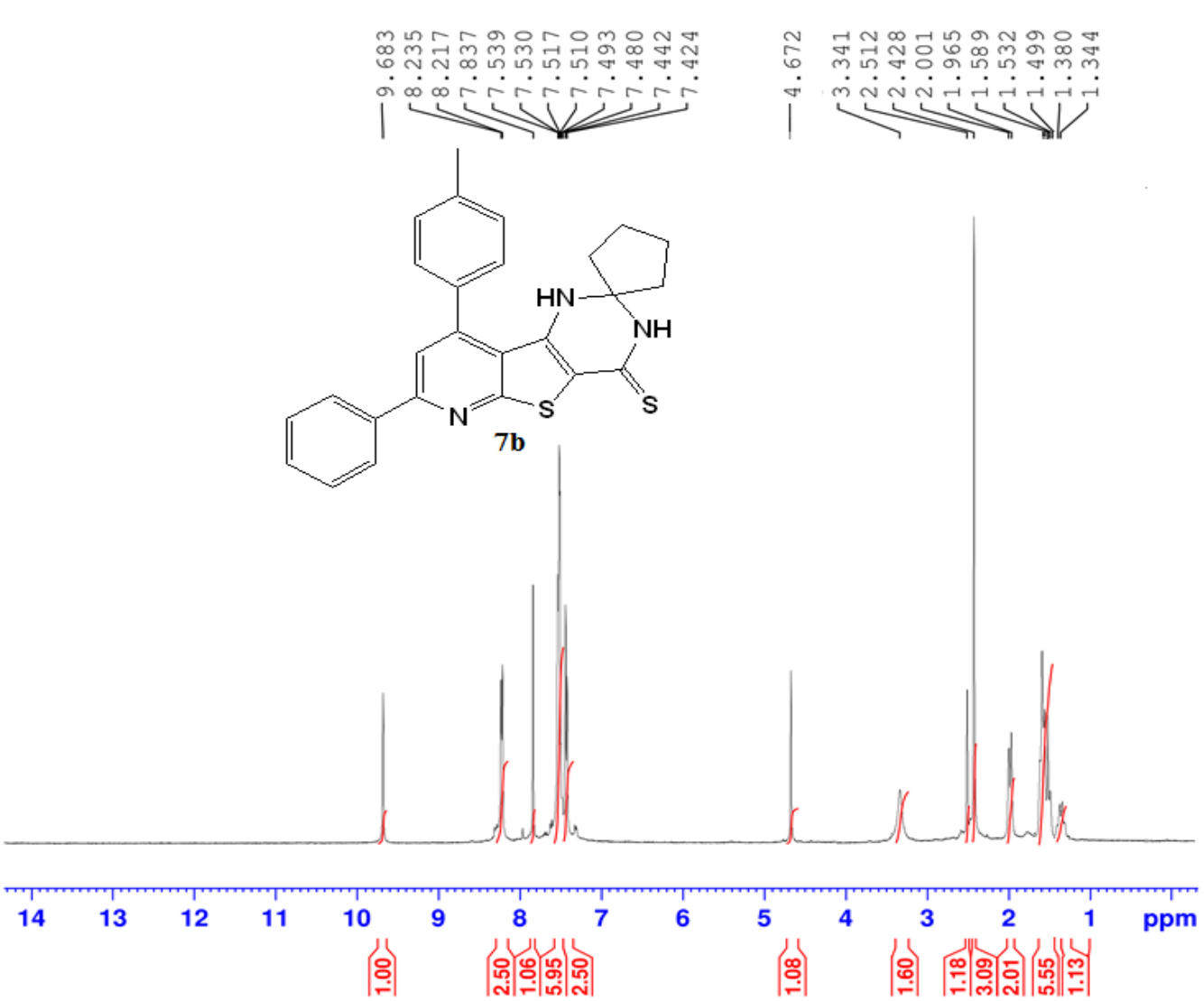


BRUKER

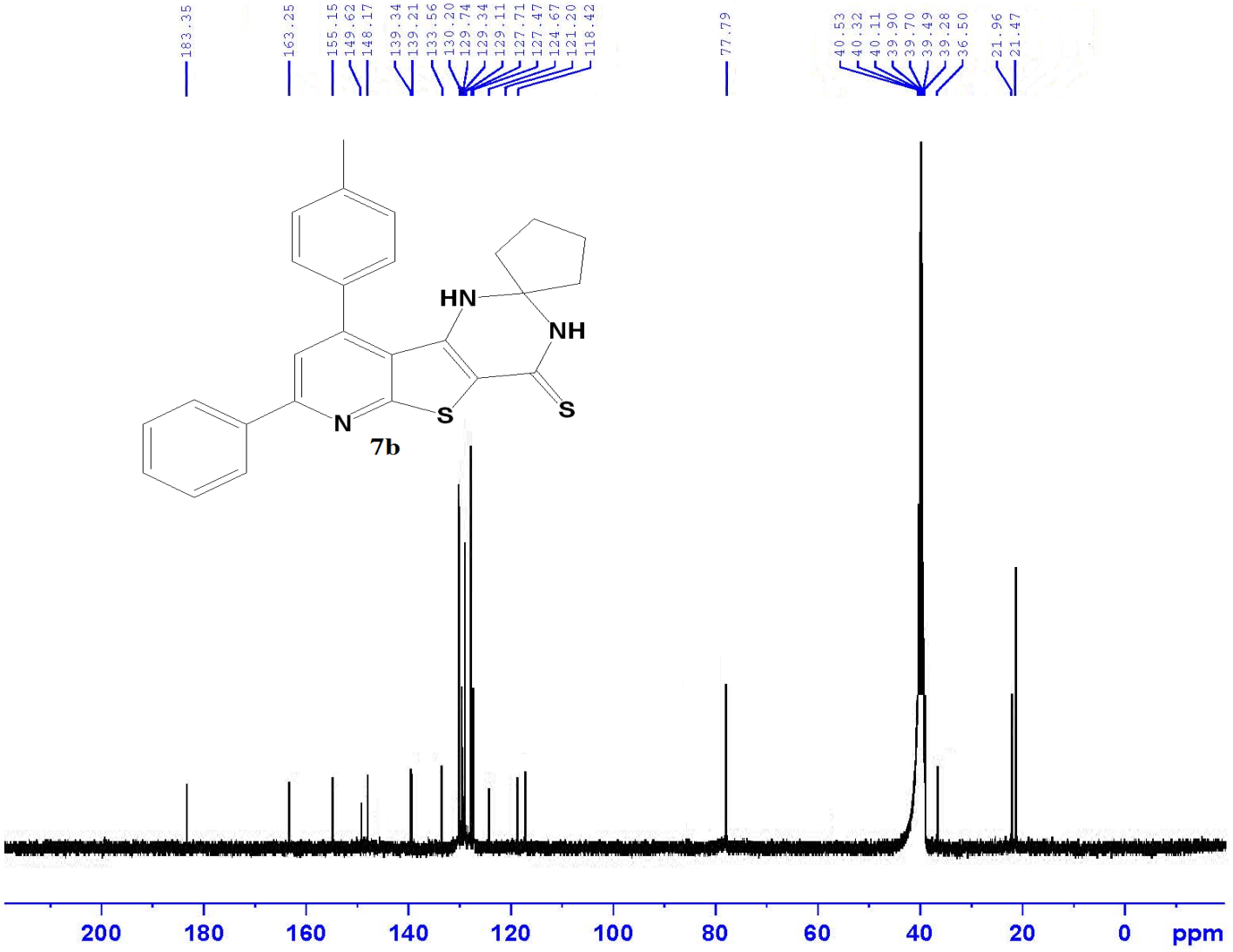
```
Current Data Parameters
NAME      Omina Alsoudi-MP11-SA-1
EXPNO                 10
PROCNO                 1

F2 - Acquisition Parameters
Date_           20190721
Time                11.02 h
INSTRUM             spect
PROBHD   Z108618_0945 (
PULPROG             zg30
TD                 65536
SOLVENT             DMSO
NS                    16
DS                     2
SWH              8012.820 Hz
FIDRES           0.244532 Hz
AQ               4.0894465 sec
RG                  68.17
DW                 62.400 usec
DE                  6.50 usec
TE                 292.9 K
D1              1.00000000 sec
TD0                    1
SFO1           400.2024712 MHz
NUC1                   1H
P1                  13.50 usec
PLW1           13.00000000 W

F2 - Processing parameters
SI                 65536
SF           400.2000000 MHz
WDW                    EM
SSB       0
LB                  0.30 Hz
GB        0
PC                  1.00
```



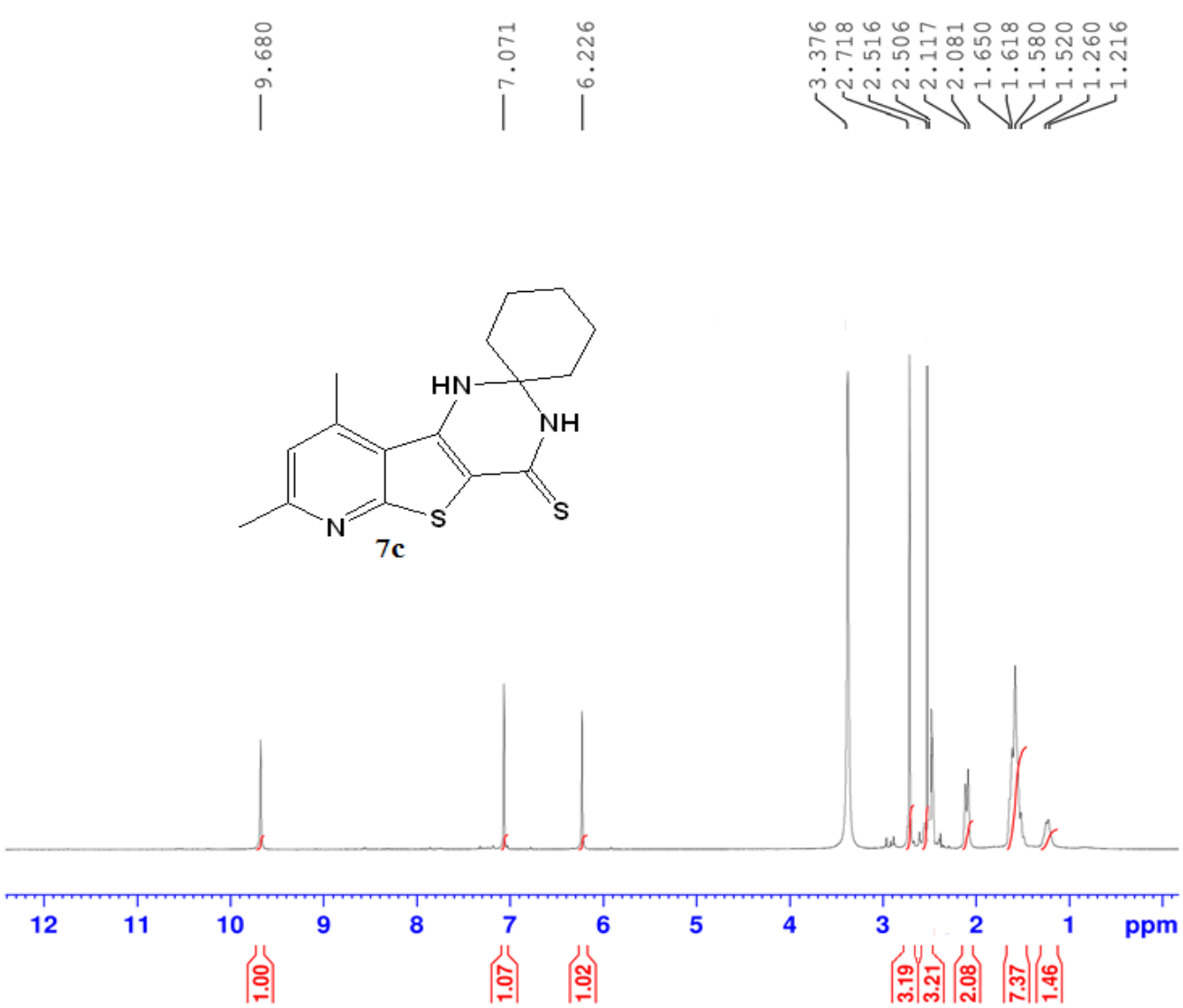

```
Current Data Parameters
NAME      Amina elsaudy-MP11-carbon-NM
EXPNO                 10
PROCNO                 1

F2 - Acquisition Parameters
Date_           20191111
Time                0.34 h
INSTRUM            spect
PROBHD    Z108618_0945 (
PULPROG          zgpg30
TD                65536
SOLVENT             DMSO
NS                  2100
DS                     4
SWH            24038.461 Hz
FIDRES          0.733596 Hz
AQ              1.3631488 sec
RG                197.77
DW                20.800 usec
DE                 6.50 usec
TE                297.8 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                    1
SFO1         100.6404331 MHz
NUC1                13C
P1                 10.00 usec
PLW1        47.00000000 W
SFO2         400.2016008 MHz
NUC2                1H
CPDPRG[2         waltz16
PCPD2              90.00 usec
PLW2        13.00000000 W
PLW12        0.29249999 W
PLW13        0.14713000 W

F2 - Processing parameters
SI                 32768
SF           100.6303700 MHz
WDW                   EM
SSB       0
LB                 1.00 Hz
GB        0
PC                 1.40
```



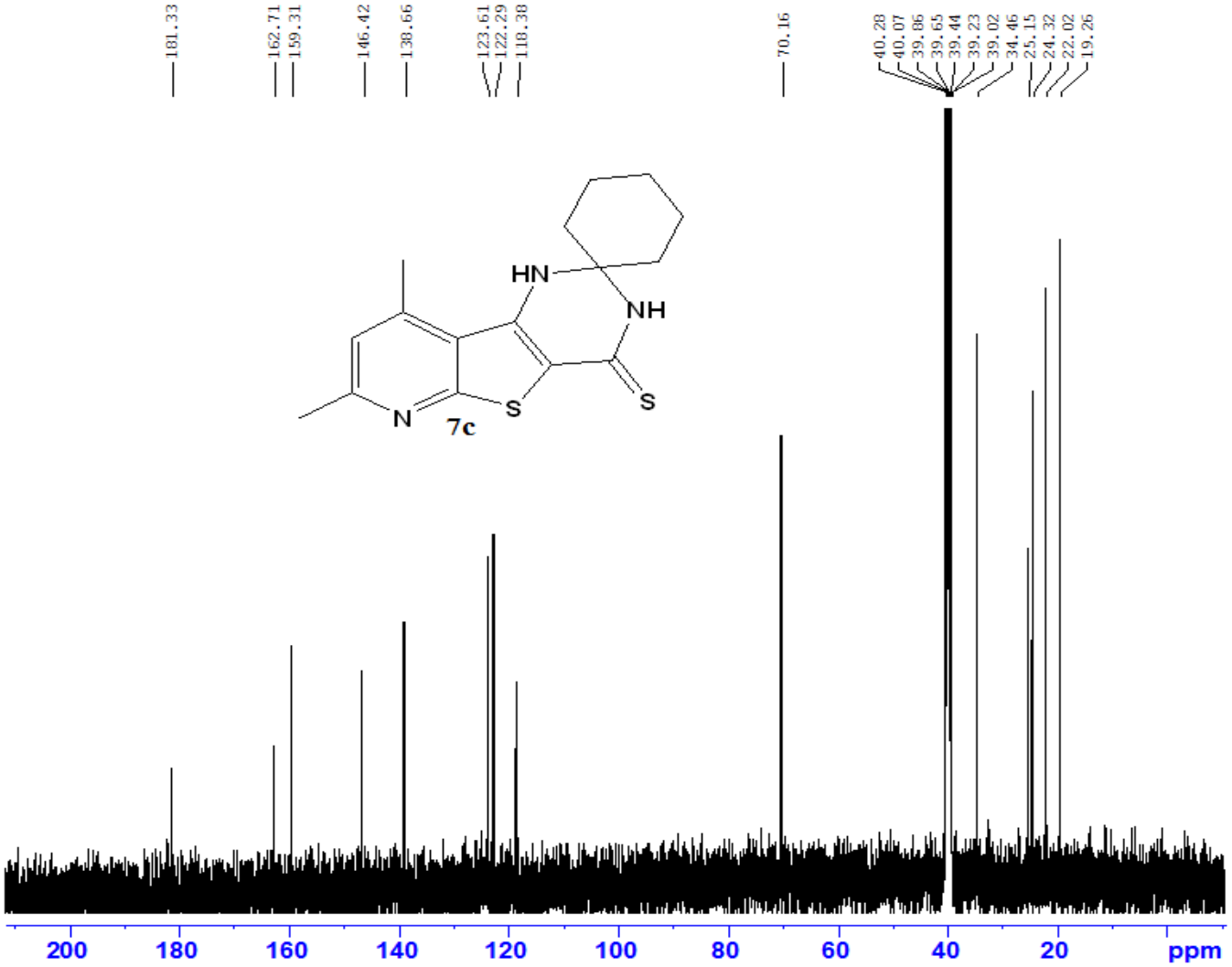

```
Current Data Parameters
NAME      amina-nasr-T_11
EXPNO                   1
PROCNO                  1

F2 - Acquisition Parameters
Date_           20210218
Time               12.00
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG             zg30
TD                 65536
SOLVENT             DMSO
NS                    33
DS                     2
SWH             8012.820 Hz
FIDRES             0.122266 Hz
AQ              4.0894465 sec
RG                 205.37
DW                 62.400 usec
DE                  6.50 usec
TE                 300.0 K
D1              1.00000000 sec
TD0                    1

======== CHANNEL f1 ========
SFO1          400.1524711 MHz
NUC1                  1H
P1                 12.00 usec
PLW1          18.00000000 W

F2 - Processing parameters
SI                 65536
SF            400.1500000 MHz
WDW                   EM
SSB       0
LB                 0.30 Hz
GB        0
PC                 1.00
```



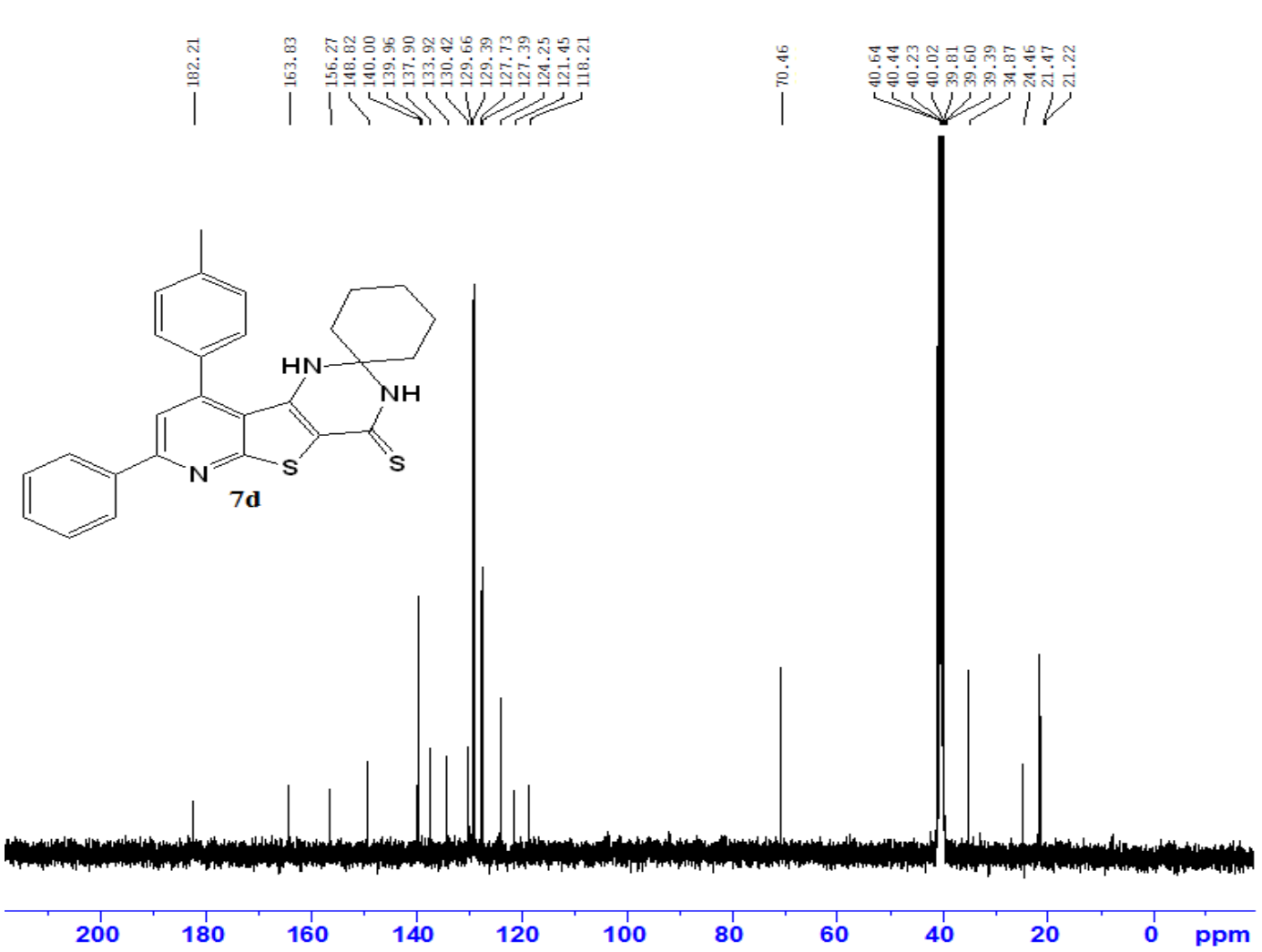

```
Current Data Parameters
NAME      Eman-TPP11-c13-R
EXPNO                   10
PROCNO                   1

F2 - Acquisition Parameters
Date_             20211208
Time                12.14 h
INSTRUM              spect
PROBHD   Z108618_0945 (
PULPROG             zgpg30
TD                   65536
SOLVENT                DMSO
NS                     1024
DS                        4
SWH               24038.461 Hz
FIDRES             0.733596 Hz
AQ                1.3631488 sec
RG                   197.77
DW                  20.800 usec
DE                   6.50 usec
TE                   295.0 K
D1             2.00000000 sec
D11            0.03000000 sec
TD0                       1
SFO1          100.6404331 MHz
NUC1                   13C
P1                  10.00 usec
PLW1          47.00000000 W
SFO2          400.2016008 MHz
NUC2                   1H
CPDPRG[2           waltz16
PCPD2                90.00 usec
PLW2          13.00000000 W
PLW12          0.29249999 W
PLW13          0.14713000 W

F2 - Processing parameters
SI                   32768
SF            100.6303700 MHz
WDW                     EM
SSB       0
LB                  1.00 Hz
GB        0
PC                  1.40
```



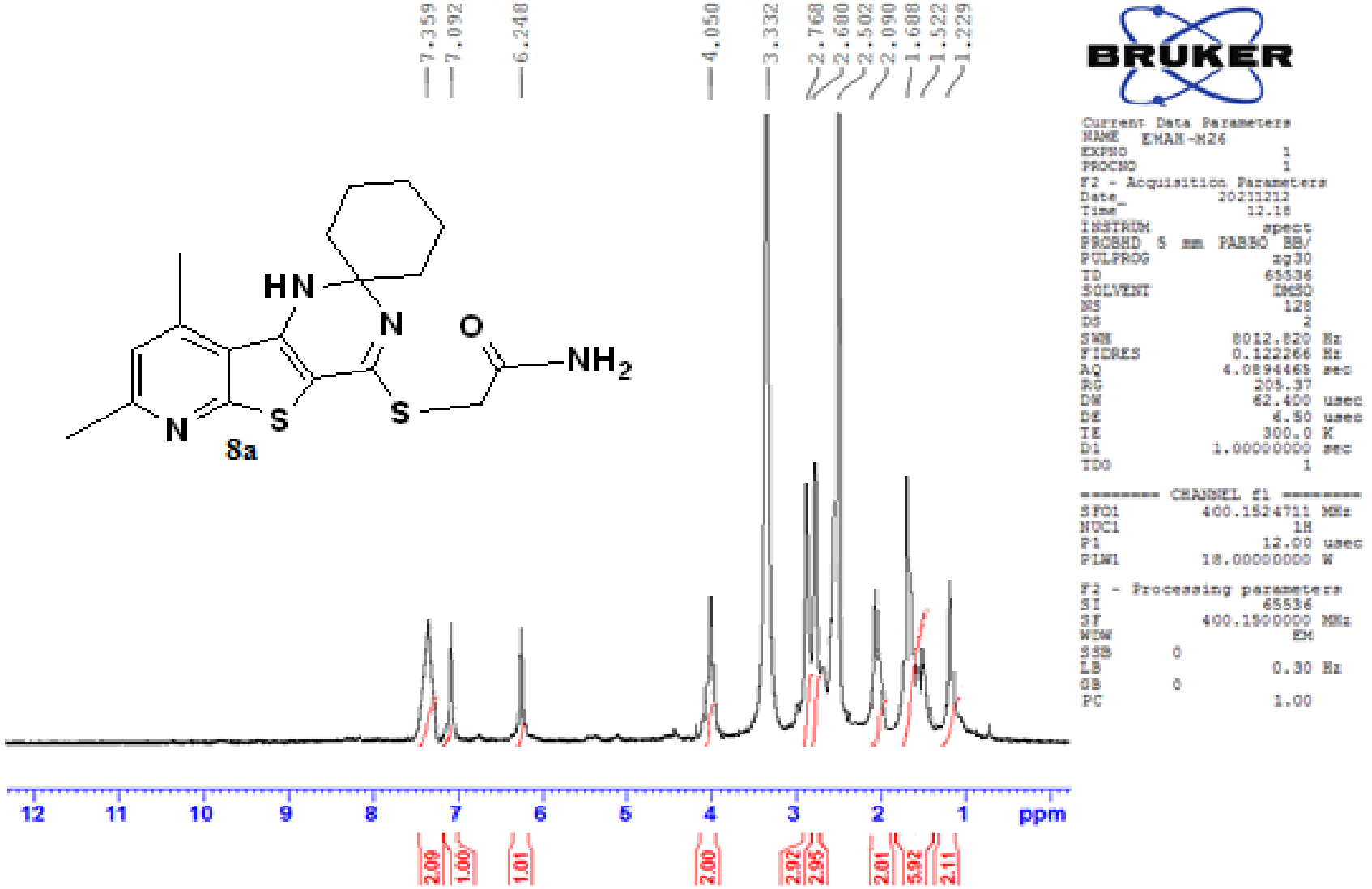

```
Current Data Parameters
NAME       amina-nasr-M4
EXPNO                 1
PROCNO                1

F2 - Acquisition Parameters
Date_          20190103
Time              10.10
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG            zg30
TD                65536
SOLVENT            DMSO
NS                   41
DS                    2
SWH            8012.820 Hz
FIDRES            0.122266 Hz
AQ             4.0894465 sec
RG                205.37
DW                62.400 usec
DE                 6.50 usec
TE                298.0 K
D1             1.00000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1         400.1524711 MHz
NUC1                 1H
P1                12.00 usec
PLW1         18.00000000 W

F2 - Processing parameters
SI                65536
SF           400.1500000 MHz
WDW                  EM
SSB       0
LB                0.30 Hz
GB        0
PC                1.00
```




```
Current Data Parameters
NAME       amina-nasr-M4
EXPNO                  2
PROCNO                 1

F2 - Acquisition Parameters
Date_           20190113
Time               12.29
INSTRUM            spect
PROBHD    5 mm PABBO BB/
PULPROG          zgpg30
TD                65536
SOLVENT            DMSO
NS                 1092
DS                    4
SWH          24038.461 Hz
FIDRES        0.366798 Hz
AQ            1.3631488 sec
RG               205.37
DW               20.800 usec
DE                6.50 usec
TE               298.0 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6278588 MHz
NUC1               13C
P1               10.00 usec
PLW1        47.00000000 W

======== CHANNEL f2 ========
SFO2        400.1516006 MHz
NUC2               1H
CPDPRG[2        waltz16
PCPD2            90.00 usec
PLW2        18.00000000 W
PLW12        0.34722000 W
PLW13        0.28125000 W

F2 - Processing parameters
SI                32768
SF          100.6177975 MHz
WDW                EM
SSB       0
LB               1.00 Hz
GB        0
PC               1.40
```




```
Current Data Parameters
NAME      amina-nasr-TP11
EXPNO                  2
PROCNO                 1

F2 - Acquisition Parameters
Date_           20210218
Time               13.05
INSTRUM            spect
PROBHD    5 mm PABBO BB/
PULPROG          zgpg30
TD                65536
SOLVENT             DMSO
NS                  1098
DS                     4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ            1.3631488 sec
RG               205.37
DW               20.800 usec
DE                6.50 usec
TE               300.0 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0                    1

======== CHANNEL f1 ========
SFO1        100.6278588 MHz
NUC1                13C
P1                10.00 usec
PLW1        47.00000000 W

======== CHANNEL f2 ========
SFO2        400.1516006 MHz
NUC2                1H
CPDPRG[2         waltz16
PCPD2             90.00 usec
PLW2        18.00000000 W
PLW12        0.34722000 W
PLW13        0.28125000 W

F2 - Processing parameters
SI                 32768
SF          100.6177975 MHz
WDW                   EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```



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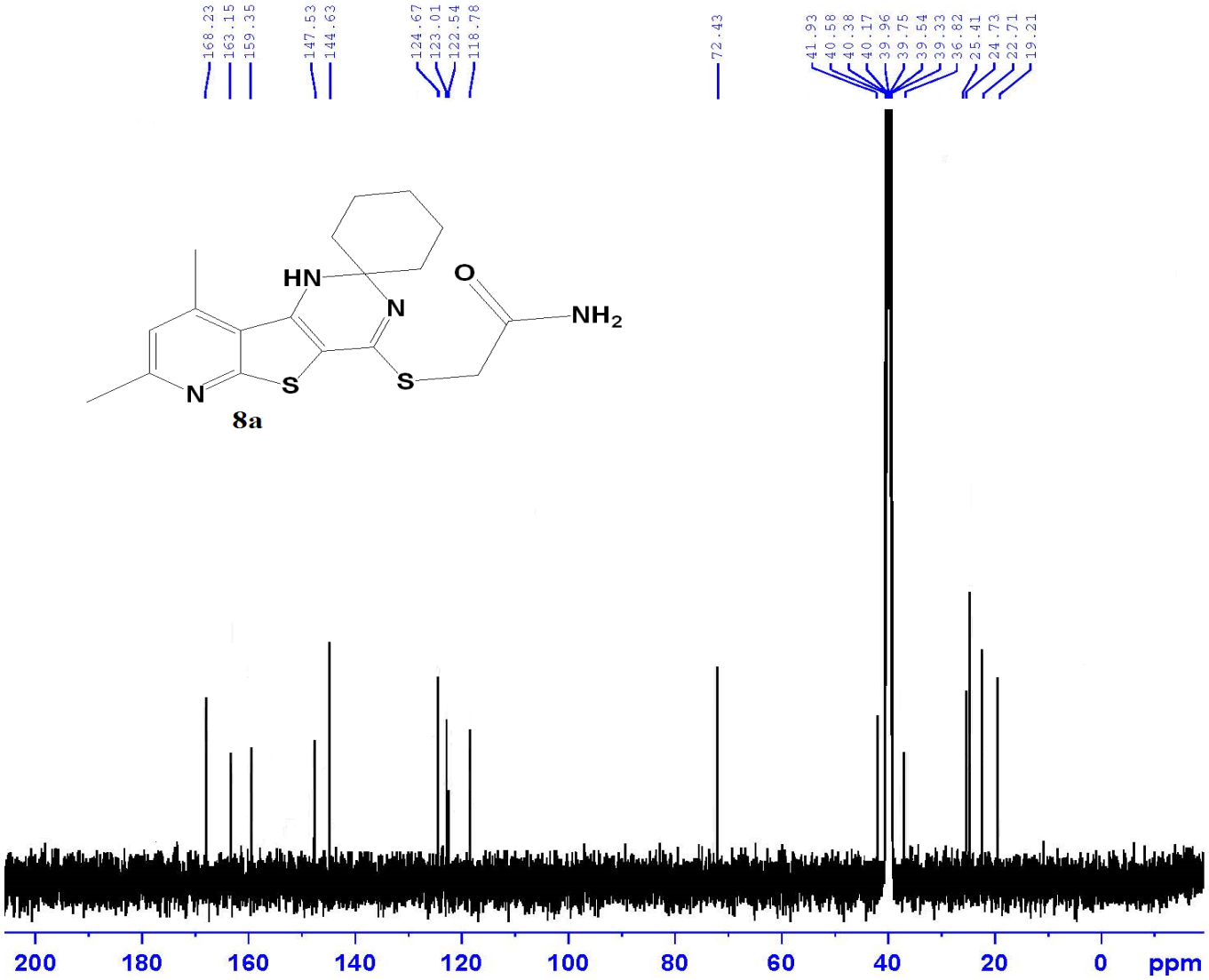
```
Current Data Parameters
NAME   EHAN-H26
EXPNO                  1
PROCNO                 1
F2 - Acquisition Parameters
Date_           20211212
Time              12.18
INSTRUM             spect
PROBHD  5 mm  PABBO BB/
PULPROG             zg30
TD                 65536
SOLVENT             DMSO
NS                   128
DS                     2
SWH              8012.820 Hz
FIDRES           0.122266 Hz
AQ               4.0894465 sec
RG                 205.37
DW                62.400 usec
DE                 6.50 usec
TE                300.0 K
D1           1.00000000 sec
TD0                    1

======== CHANNEL f1 ========
SFO1         400.1524711 MHz
NUC1                   1H
P1                12.00 usec
PLW1         18.00000000 W

F2 - Processing parameters
SI                 65536
SF         400.1500000 MHz
WDW                   EM
SSB       0
LB                0.30 Hz
GB        0
PC                1.00
```



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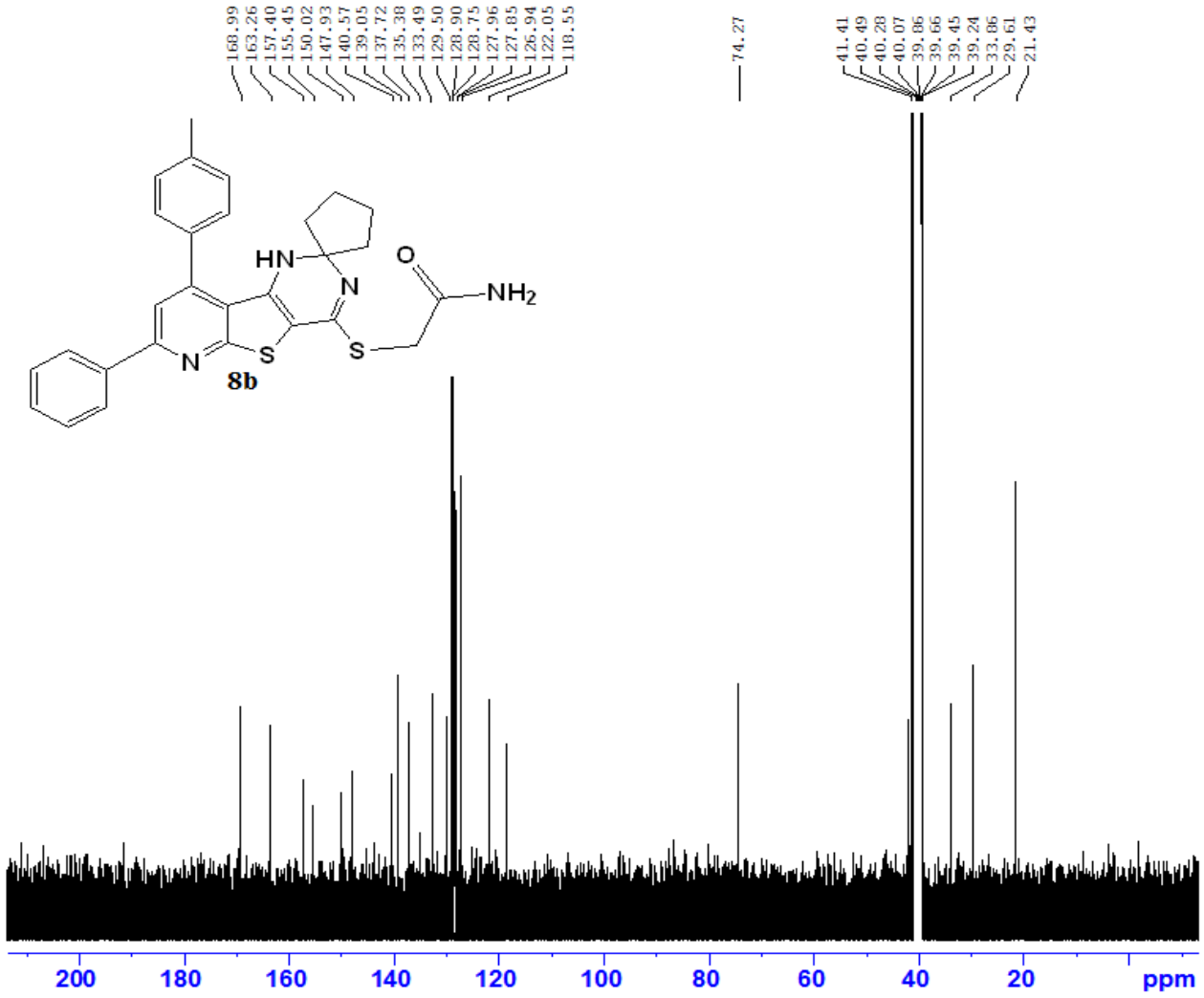
```
Current Data Parameters
NAME      Eman-M 26
EXPNO                10
PROCNO                1

F2 - Acquisition Parameters
Date_          20211209
Time               6.20 h
INSTRUM           spect
PROBHD   Z108618_0945 (
PULPROG        zgpg30
TD              65536
SOLVENT          DMSO
NS                1024
DS                   4
SWH          24038.461 Hz
FIDRES        0.733596 Hz
AQ            1.3631488 sec
RG               197.77
DW               20.800 usec
DE                6.50 usec
TE               293.9 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0                  1
SFO1        100.6404331 MHz
NUC1               13C
P1                10.00 usec
PLW1         47.00000000 W
SFO2        400.2016008 MHz
NUC2               1H
CPDPRG[2        waltz16
PCPD2             90.00 usec
PLW2         13.00000000 W
PLW12         0.29249999 W
PLW13         0.14713000 W

F2 - Processing parameters
SI                32768
SF          100.6303700 MHz
WDW                EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```



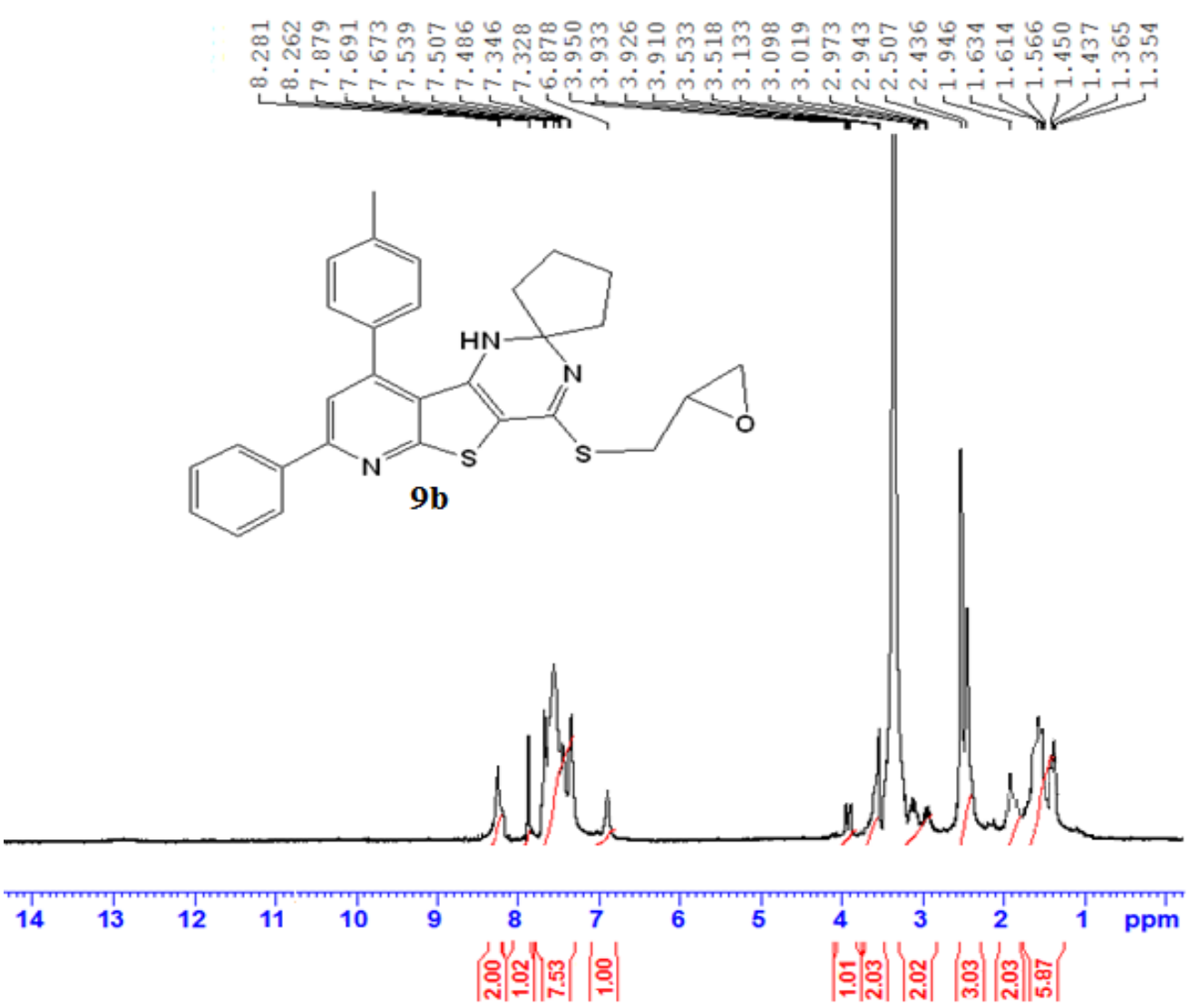

```
Current Data Parameters
NAME      amina-nasr-TPP23
EXPNO                    3
PROCNO                   1

F2 - Acquisition Parameters
Date_           20211018
Time                8.11
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG          zgpg30
TD                65536
SOLVENT            DMSO
NS                15295
DS                    4
SWH           24038.461 Hz
FIDRES        0.366798 Hz
AQ            1.3631488 sec
RG               205.37
DW               20.800 usec
DE                6.50 usec
TE                300.0 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6278588 MHz
NUC1                13C
P1                10.00 usec
PLW1        47.00000000 W

======== CHANNEL f2 ========
SFO2        400.1516006 MHz
NUC2                1H
CPDPRG[2         waltz16
PCPD2             90.00 usec
PLW2        18.00000000 W
PLW12        0.34722000 W
PLW13        0.28125000 W

F2 - Processing parameters
SI                32768
SF          100.6177975 MHz
WDW                EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```



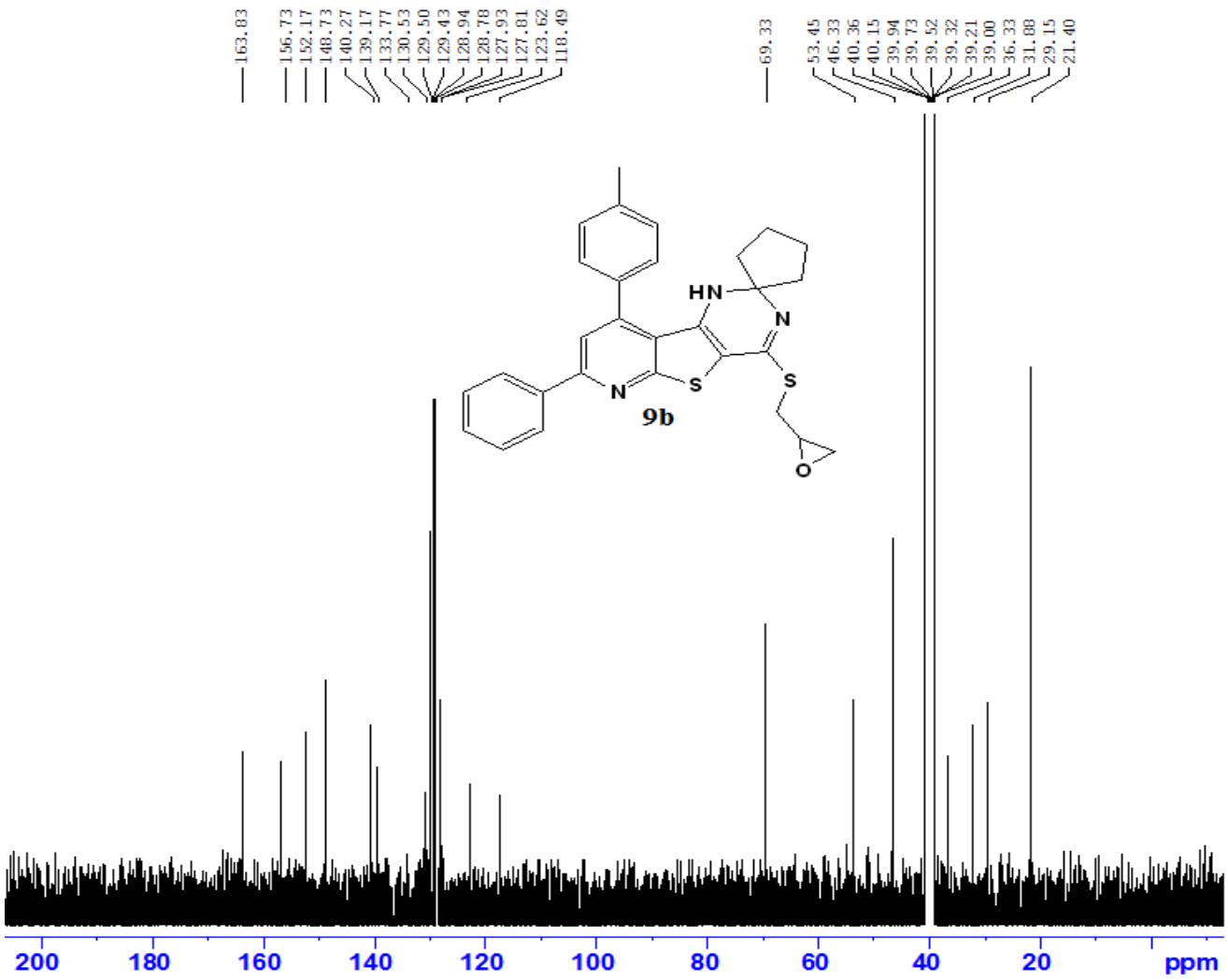
BRUKER

```
Current Data Parameters
NAME      Eman-TPP25
EXPNO                1
PROCNO               1

F2 - Acquisition Parameters
Date_          20211212
Time              12.22
INSTRUM           spect
PROBHD  5  mm  PABBO  BB/
PULPROG           zg30
TD               65536
SOLVENT           DMSO
NS                3000
DS                   4
SWH           24012.820 Hz
FIDRES            0.153066 Hz
AQ            4.2054465 sec
RG                205.37
DW                30.400 usec
DE                 6.50 usec
TE                300.0 K
D1            2.00000000 sec
TD0                  1

======== CHANNEL f1 ========
SFO1         400.1524711 MHz
NUC1               1H
P1                12.00 usec
PLW1         18.00000000 W

F2 - Processing parameters
SI                65536
SF           400.1500000 MHz
WDW                EM
SSB       0
LB                0.30 Hz
GB        0
PC                1.00
```




```
Current Data Parameters
NAME   EMAN - TPP25
EXPNO                  2
PROCNO                 1

F2 - Acquisition Parameters
Date_           20211212
Time              11.25
INSTRUM           spect
PROBHD    5 mm PABBO BB/
PULPROG         zgpg30
TD                65536
SOLVENT            DMSO
NS                   335
DS                     4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                205.37
DW                20.800 usec
DE                 6.50 usec
TE                300.0 K
D1             2.00000000 sec
D11            0.03000000 sec
TD0                    1

======== CHANNEL f1 ========
SFO1         100.6278588 MHz
NUC1                 13C
P1                10.00 usec
PLW1         47.00000000 W

======== CHANNEL f2 ========
SFO2         400.1516006 MHz
NUC2                 1H
CPDPRG[2          waltz16
PCPD2             90.00 usec
PLW2         18.00000000 W
PLW12         0.34722000 W
PLW13         0.28125000 W

F2 - Processing parameters
SI                 32768
SF           100.6177975 MHz
WDW                   EM
SSB       0
LB                 1.00 Hz
GB        0
PC                 1.40
```

Minimum Inhibitory Concentration (MIC) Measurement

The minimum Inhibitory Concentration activity of the compounds was then evaluated using broth dilution method. Whereas, two-fold serial dilution at the concentrations (0.25, 0.5, 1, 2, 4, 8, 16, 32, 64, 128 µg/ml) was used to investigate the Minimum Inhibitory Concentration (MIC) values (expressed in µg/mL) for the target compounds and the reference drugs. The tubes were then inoculated with the test organisms, grown in their suitable broth for 24 h at 37 ˚C for bacteria, yeast and for 48 h at 30˚C for fungi activity (1×10^8 CFU/mL for bacteria and 1 $x10^6$ CFU/mL of yeast and fungi), each 2 mL received 0.1 mL of the above inoculums Positive controls were prepared separately for either bacteria, yeast or fungi with respective organisms in the same culture media without the target compounds. After incubation, the tube with lowest concentration of extract that shows no growth was taken as the MIC value for the respective organism.

In vitro anticancer screening

The cell lines were purchased from the American Type Culture collection as follows: breast carcinoma cell line (MCF-7) and the liver carcinoma cell line (HepG2). Cytotoxic activity screening was performed using MTT assay at Regional Center for Mycology and Biotechnology, Al- Azhar University. Exponentially, cells were placed in 10^4 cells/ well for 24 h, and then add fresh medium which containing different concentration of the tested sample. Serial two-fold dilutions of the tested sample were added using a multichannel pipette. Moreover, all cells were cultivated at 37 °C, 5% CO_2 and 95% humidity. Also, incubation of control cells occurred at 37 °C. However, after incubation for 24 h different concentrations of sample (50, 25, 12.5, 6.25, 3.125, 1.56 and 0 µg L^{-1}) were added and continued the incubation for 48 h, then, add the crystal violet solution 1% to each well for 0.5 h to examine viable cells. Rinse the wells using water until no stain. After that, add 30% glacial acetic acid to all wells with shaking plates on Microplate reader (TECAN, Inc.) to measure the absorbance, using a test wavelength of 490 nm. Besides, compare the treated samples with the control cell. The cytotoxicity was estimated by IC_{50} (the concentration that inhibits 50% of growth of cancer cell) in µM for the tested compounds and the reference drugs doxorubicin and cisplatin.

In vitro EGFR kinase assay

EGFR kinase inhibitory assay were performed for the target compounds **3b**, **4a**, **5a**, **6b**, **8b** and **9b** with erlotinib as a reference inhibitor, by using the EGFR kinase assay kit (Cat. # 40321). The assay Kit is designed to measure EGFR Kinase activity for screening applications using Kinase-Glo® MAX as a detection reagent using Kinase-Glo® MAX as a detection reagent. Thaw 5x Kinase Buffer 1: ATP and PTK substrate Poly (Glu:Tyr 4:1) (10 mg/ml) kinase was provided. Then the master mixture was prepared: N wells x (6 µl 5x Kinase Buffer 1 + 1 µl ATP (500 µM) + 1 µl PTK substrate Poly (Glu:Tyr 4:1) (10 mg/ml)+ 17 µl water) and 25 µl of the mixture was added to every well. The tested compounds were dissolved in DMSO, then 5 µl of their serial two-fold dilutions at concentrations (150, 100, 50, 25, 12.5, 6.25, 3.125 and 1.56 nM) was added in each well labeled as "Test Inhibitor". For the well labeled as "Positive Control", 5 µl of the same solution of the reference drug erlotinib and "Blank", 5 µl of the same solution without inhibitor (Inhibitor buffer). (3 ml of 1x Kinase Buffer 1) was prepared by mixing 600 µl of 5x Kinase Buffer 1 with 2400 µl water. To the wells designated as "Blank", add 20 µl of 1x Kinase Buffer 1. The reaction initiated by adding 20 µl of diluted EGFR enzyme to the wells designated "Positive Control" and "Test Inhibitor Control". Incubate at 30°C for 40 minutes. Thaw Kinase-G lo Max reagent. After the 40 minute reaction, 50 µl of Kinase-Glo Max reagent was added to each well. The plate was covered with aluminum foil and incubate at room temperature for 15 minutes. Then the luminescence was measured using the microplate reader (Infinite M200 microplate reader, Tecan, Männedorf, Switzerland). All assays were performed in triplicate. The relative inhibition (%) of inhibitors were then calculated compared to the control with no inhibitor. Then the IC50 values and their standard deviation (SD) for the tested compounds and the reference drug were determined in (nM).

Molecular docking study

The molecular modeling studies were carried out using Molecular Operating Environment (MOE, 2019.0102) software. All minimizations were performed with MOE until an RMSD gradient of 0.1 kcal·mol^{-1}Å^{-1} with MMFF94x force field and the partial charges were automatically calculated. The X-ray crystallographic structure of Epidermal Growth Factor Receptor (**EGFR**) kinase domain complexed with a quinazoline inhibitor erlotinib (**ERL**) (**PDB ID: 1M17**) was downloaded from the protein data bank(**https://www.rcsb.org/structure/1M17**). For each co-crystallized enzyme; water molecules and ligands which are not involved in the binding were removed, the protein was prepared for the docking study using *Protonate 3D* protocol in MOE with default options. The co-crystalized ligand (**ERL**) was used to define the binding site for docking. Triangle Matcher placement method and London dG scoring function were used for docking

The Dock workflow begins with a prepared receptor and ligand loaded in MOE. The general algorithm is divided into stages,

1. Get the protein structure from protein data bank (PDB file), it's prepared through protonation and adding the required charges, water molecules not involved in interaction are removed.
2. Ligands' structures in suitable format were collected to form a structure database as MDB file and energy minimized to get the suitable conformers for docking procedure.
3. Use triangle matching placement method to generate a collection of poses from the pool of ligand conformations. Each of the generated poses is assigned a score.
4. Initial Scoring, poses generated by the placement methodology can be rescored using London dG method. Typically, scoring functions emphasize favorable hydrophobic, ionic and hydrogen bond contacts. For the Dock framework to work properly, all new scoring methods must assign low scores to good poses.
5. Refinement, poses resulting from the placement stage can be refined using either the explicit molecular mechanics forcefield method or the grid-based energetics method.
6. Final Scoring. The final poses can be rescored using one of several scoring schemes, we use London dG scoring function.
7. Generation of docking results database.