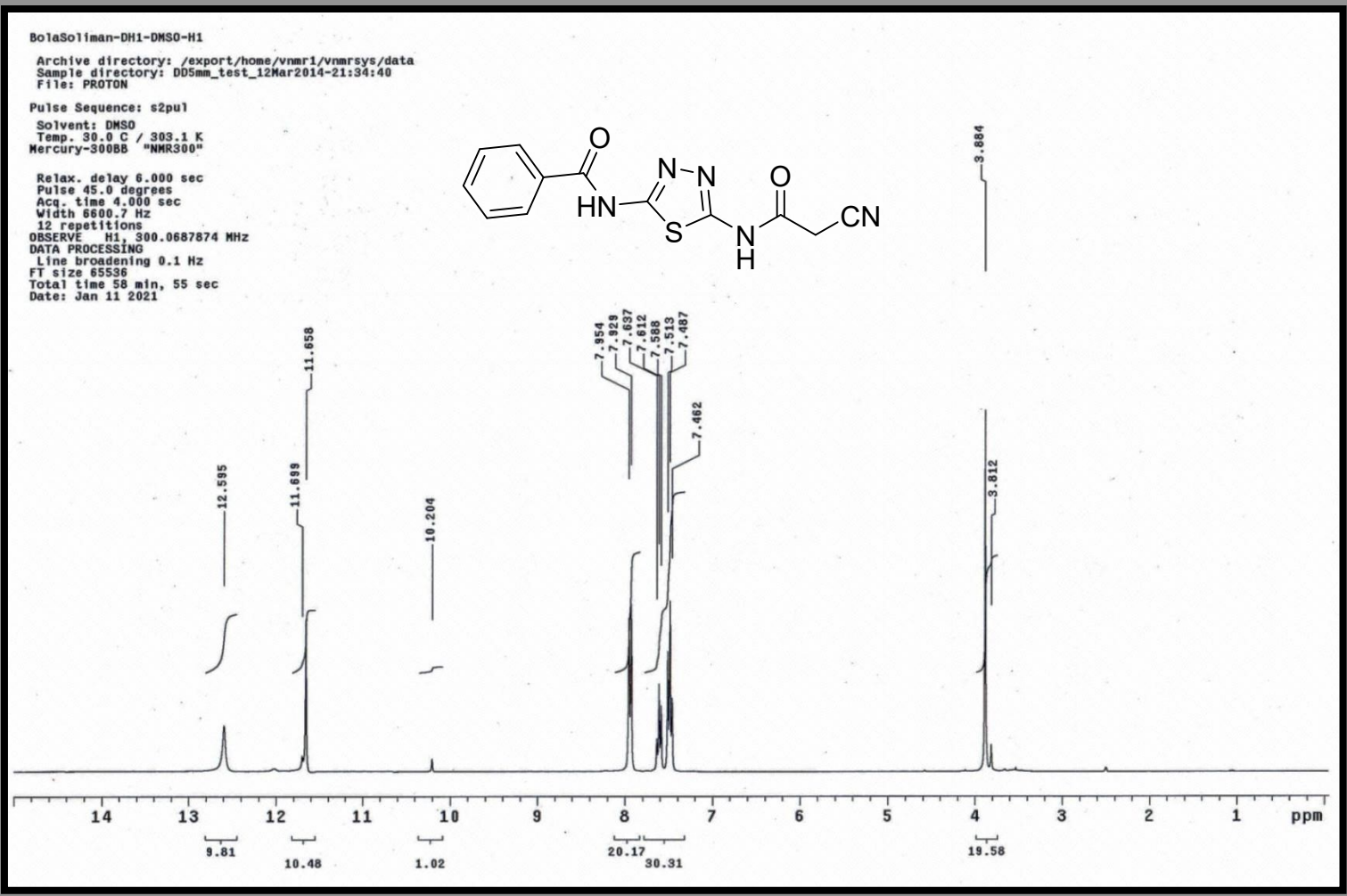


IR spectrum of compound 3



¹H-NMR spectrum (DMSO-d₆) of compound 3

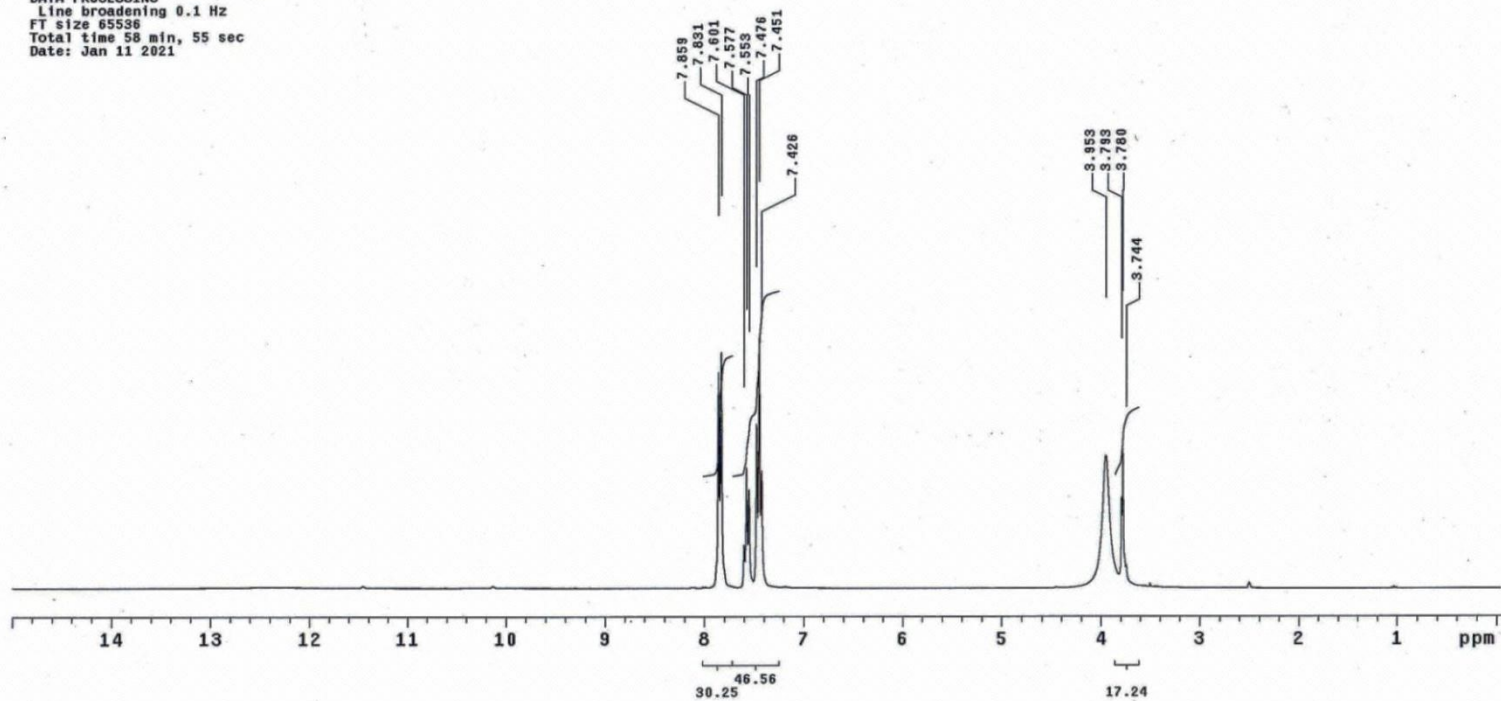
Bo1aSoliman-DH1-DMSO-D20-H1

Archive directory: /export/home/vnmr1/vnmrsys/data
Sample directory: DD5mm_test_12Mar2014-21:34:40
File: PROTON

Pulse Sequence: s2pu1

Solvent: DMSO
Temp. 30.0 C / 303.1 K
Mercury-300BB "NMR300"

Relax. delay 6.000 sec
Pulse 45.0 degrees
Acq. time 4.000 sec
Width 6600.7 Hz
18 repetitions
OBSERVE H1, 300.0687874 MHz
DATA PROCESSING
Line broadening 0.1 Hz
FT size 65536
Total time 58 min, 55 sec
Date: Jan 11 2021



¹H-NMR spectrum (DMSO-d₆+ D₂O) of compound 3

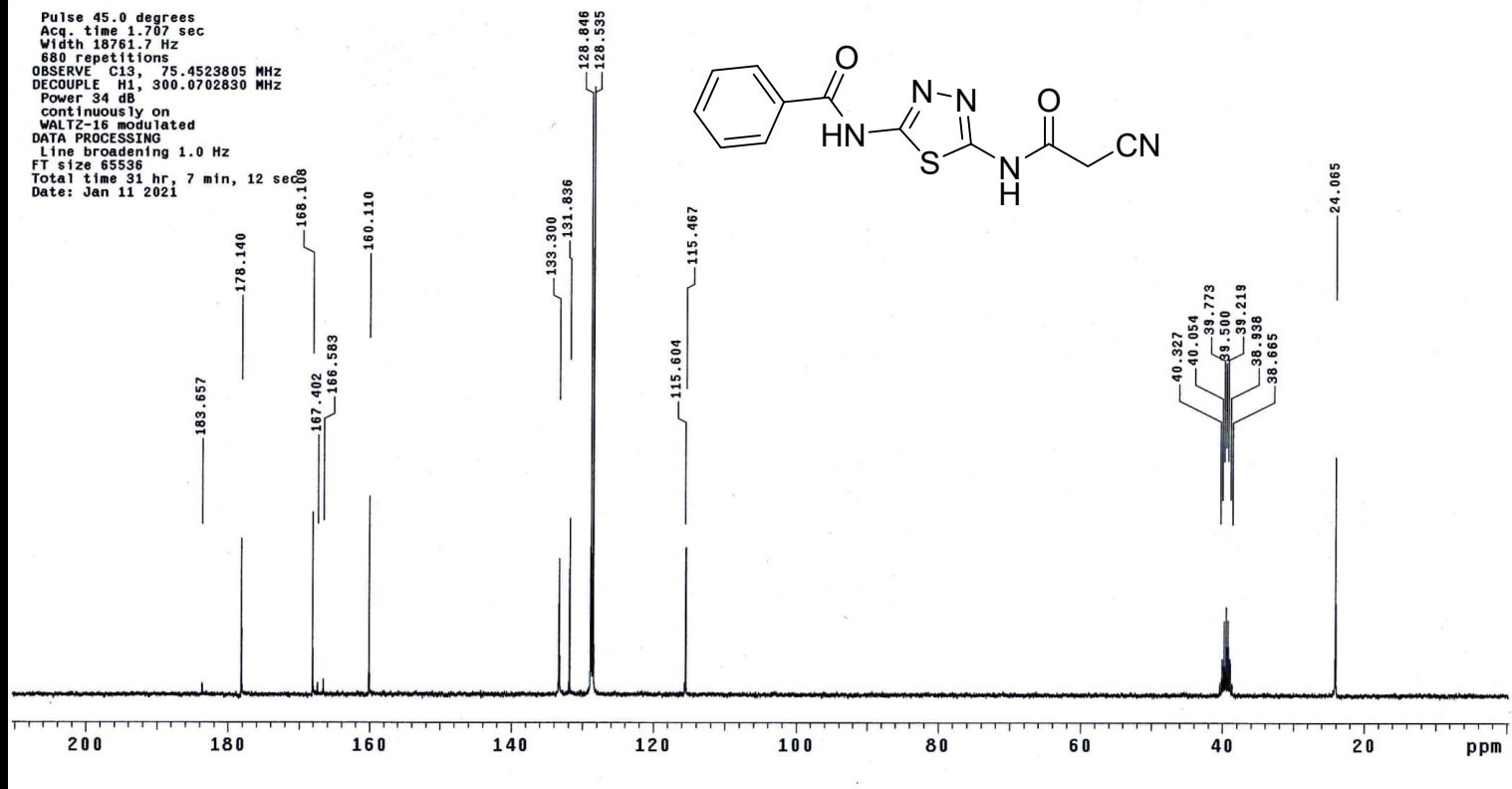
BolaSoliman-DH1-DMSO-C13

Archive directory: /export/home/vnmr1/vnmrsys/data
Sample directory: DD5mm_test_12Mar2014-21:34:40
File: PROTON

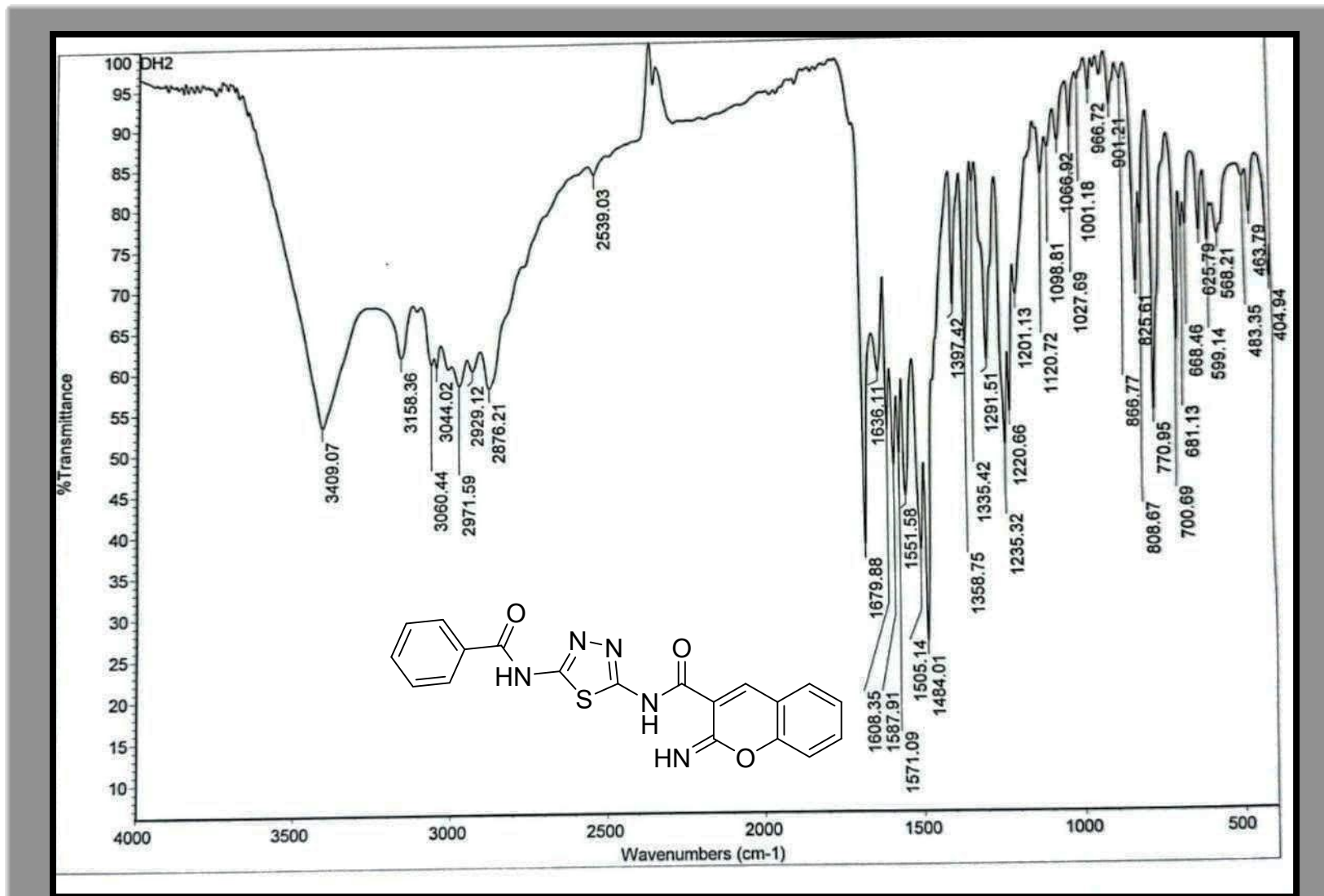
Pulse Sequence: s2pu1

Solvent: DMSO
Ambient temperature
Mercury-300BB "NMR300"

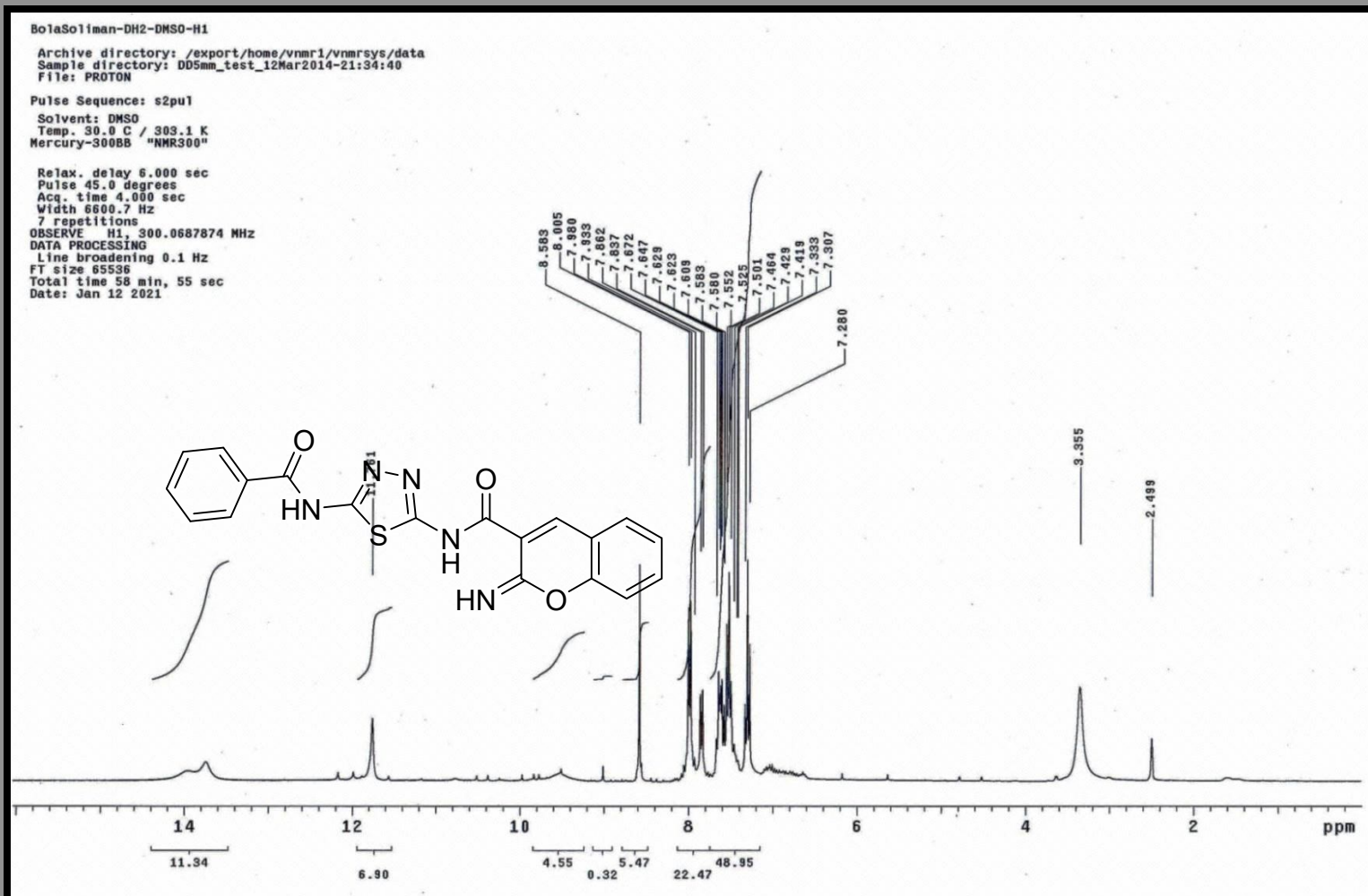
Pulse 45.0 degrees
Acq. time 1.707 sec
Width 13781.7 Hz
680 repetitions
OBSERVE C13, 75.4523805 MHz
DECOUPLE H1, 300.0702830 MHz
Power 34 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 1.0 Hz
FT size 65536
Total time 31 hr, 7 min, 12 sec
Date: Jan 11 2021



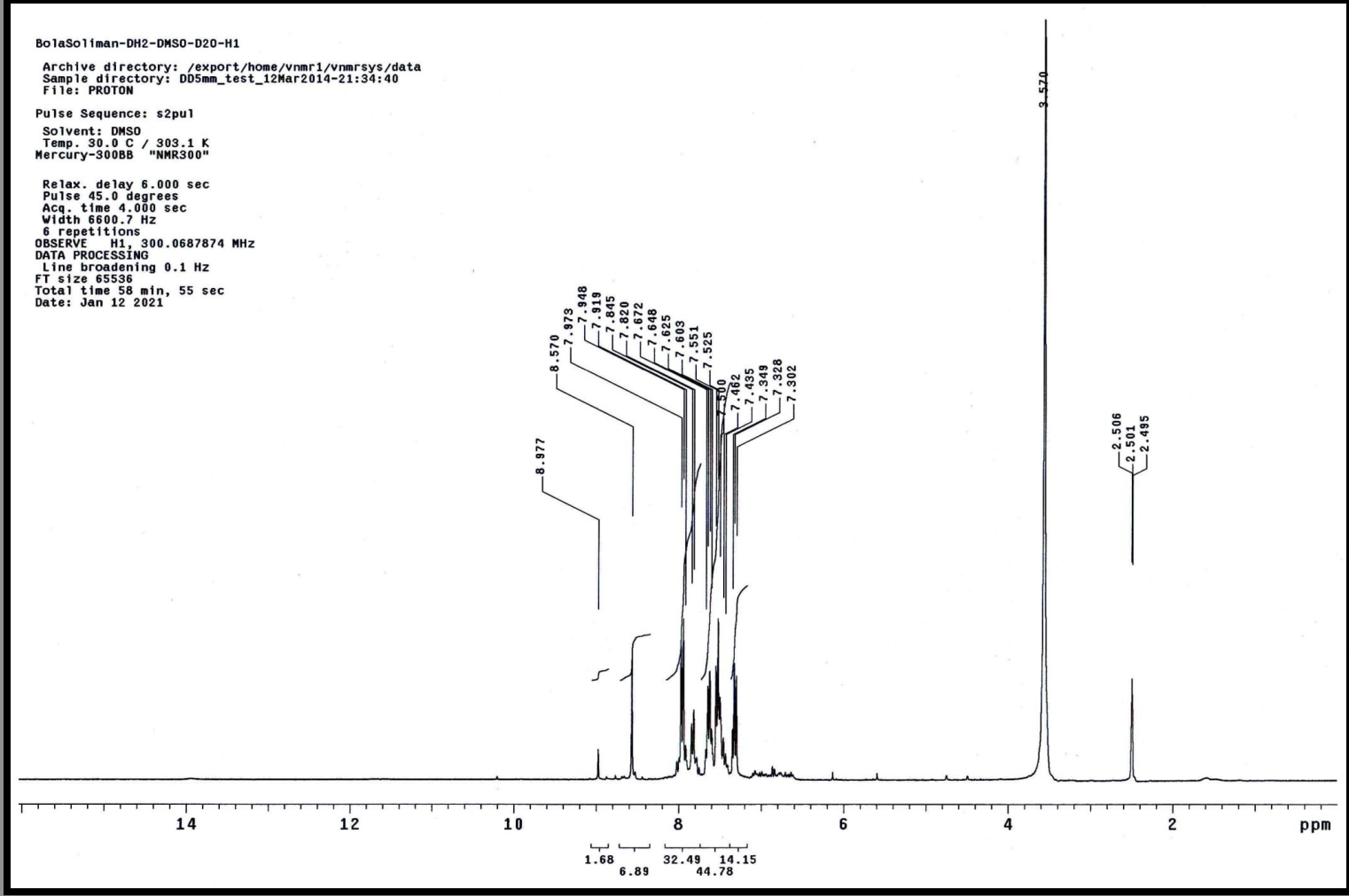
^{13}C -NMR spectrum (DMSO- d_6) of compound 3



IR spectrum of compound 4



¹H-NMR spectrum (DMSO-d₆) of compound 4



¹H-NMR spectrum (DMSO-d₆+ D₂O) of compound 4

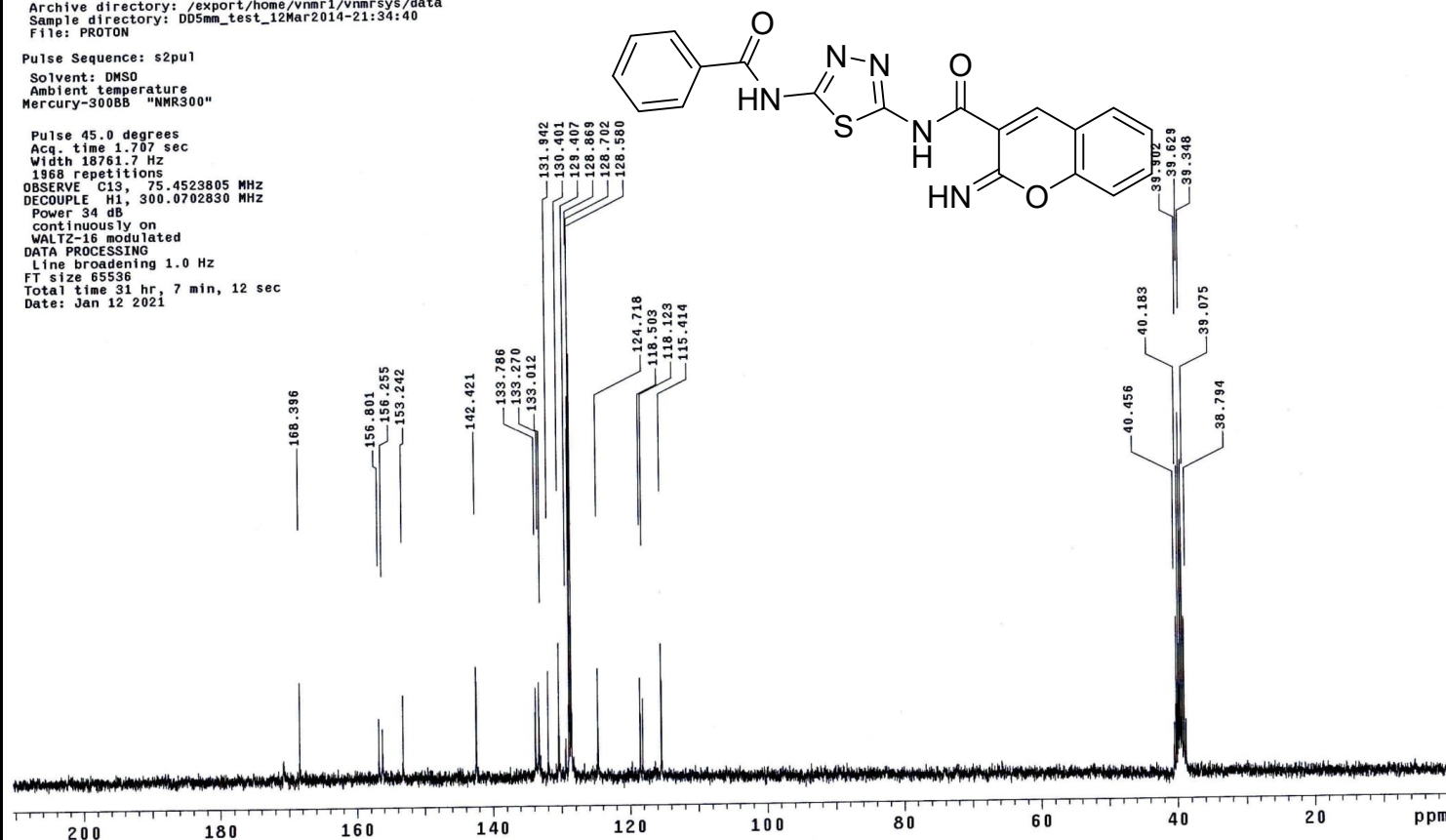
BolaSoliman-DH2-DMSO-C13

Archive directory: /export/home/vnmr1/vnmrsys/data
Sample directory: DD5mm_test_12Mar2014-21:34:40
File: PROTON

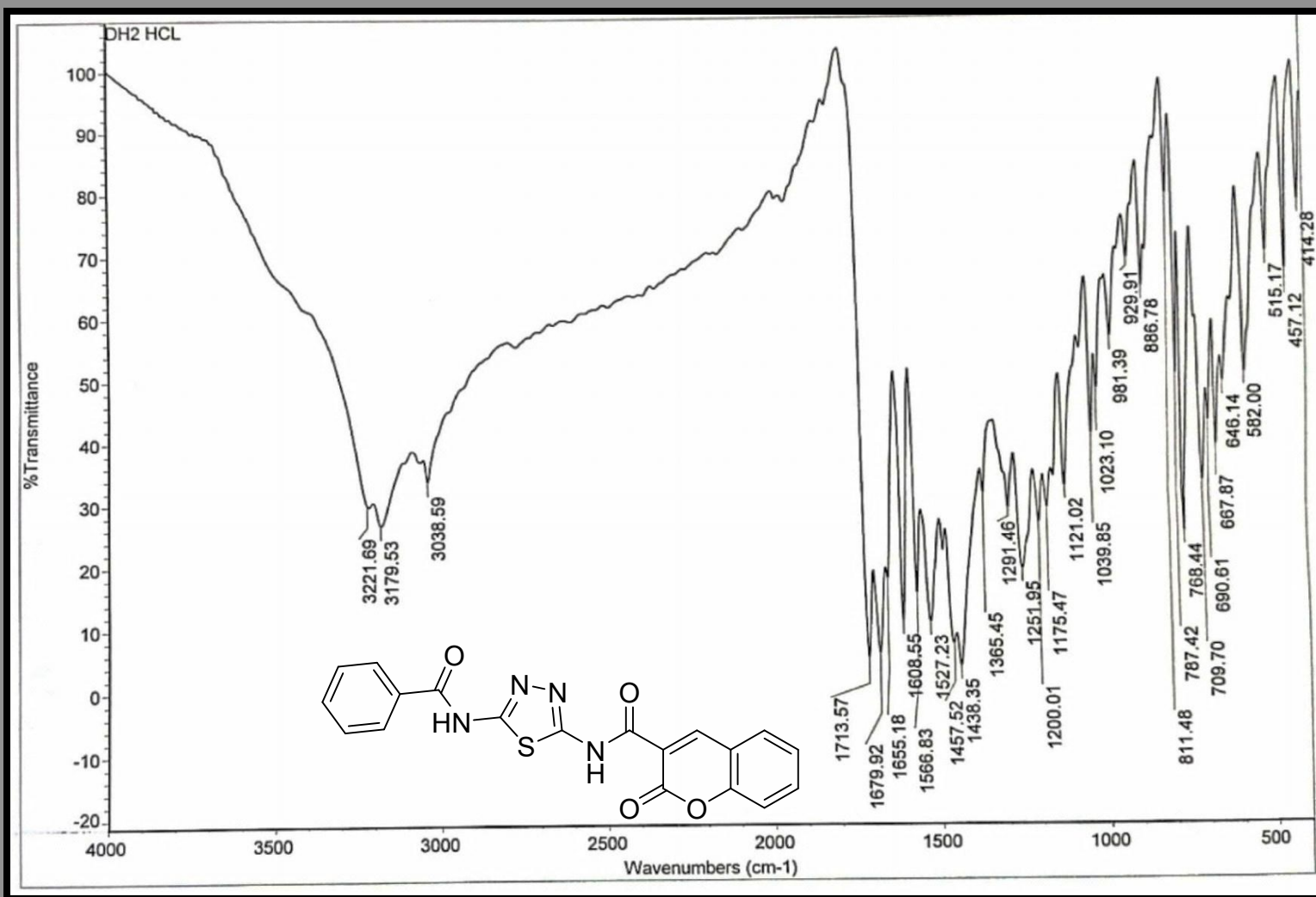
Pulse Sequence: s2pu1

Solvent: DMSO
Ambient temperature
Mercury-300BB "NMR300"

Pulse 45.0 degrees
Acq. time 1.707 sec
Width 18761.7 Hz
1968 repetitions
OBSERVE C13, 75.4523805 MHz
DECOUPLE H1, 300.0702830 MHz
Power 34 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 1.0 Hz
FT size 65536
Total time 31 hr, 7 min, 12 sec
Date: Jan 12 2021



^{13}C -NMR spectrum (DMSO- d_6) of compound 4



IR spectrum of compound 5

Poula Soliman_H_DH2HCI

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13.7501
13.7360

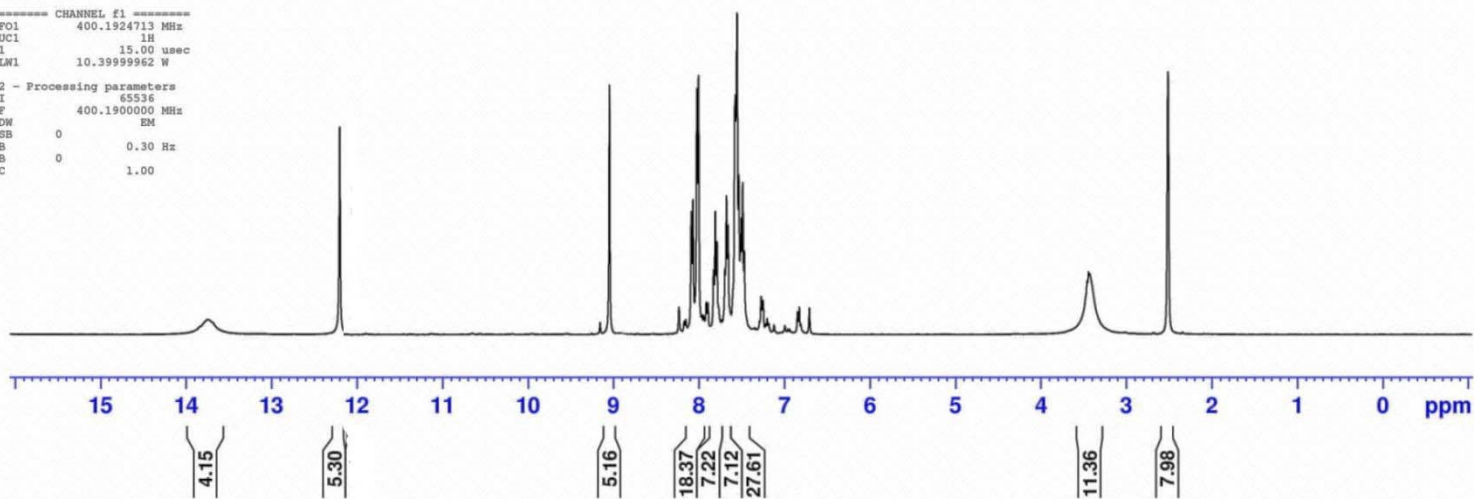
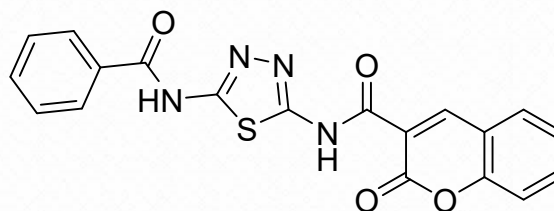
12.2002

9.0445
8.0859
8.0670
8.0215
8.0026
7.8060
7.7866
7.6751
7.6570
7.5769
7.5699
7.5516
7.5316
7.5045
7.4855

3.4558
3.4388
3.4221
2.5092

Current Data Parameters
NAME Poula Soliman_H_DH2HCI
EXPNO 10
PROCNO 1
F2 - Acquisition Parameters
Date_ 20210628
Time 8.55
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT DMSO
NS 32
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 146.06
DW 62.400 usec
DE 6.50 usec
TE 298.1 K
D1 1.0000000 sec
TDO 1

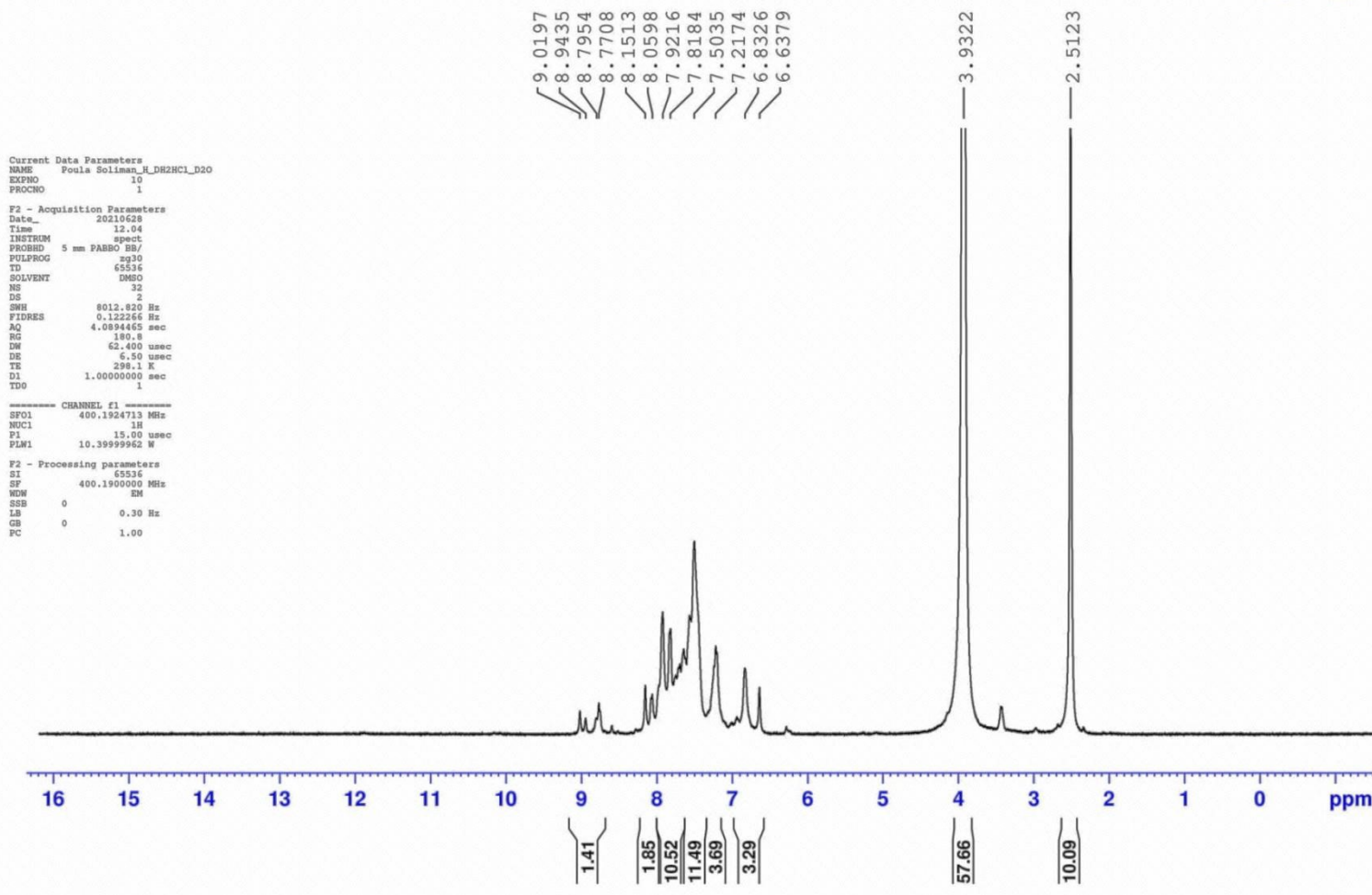
===== CHANNEL f1 =====
SFO1 400.1924713 MHz
NUC1 1H
P1 15.00 usec
PLW1 10.39999962 W
F2 - Processing parameters
SI 65536
SF 400.1900000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹H-NMR spectrum (DMSO-d₆) of compound 5

Poula Soliman_H_DH2HCl_D2O

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$^1\text{H-NMR}$ spectrum ($\text{DMSO-d}_6 + \text{D}_2\text{O}$) of compound 5

Paula Soliman_C_DH2HC1

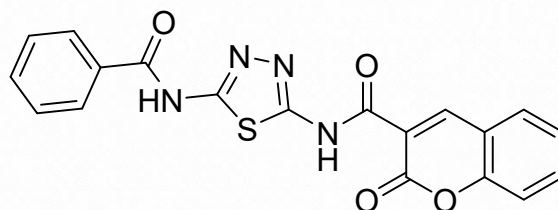
Microanalytical Unit - FOPCU - NMR laboratory
www.pharma.cu.edu.eg dir-mau.fopcu@pharma.cu.edu.eg



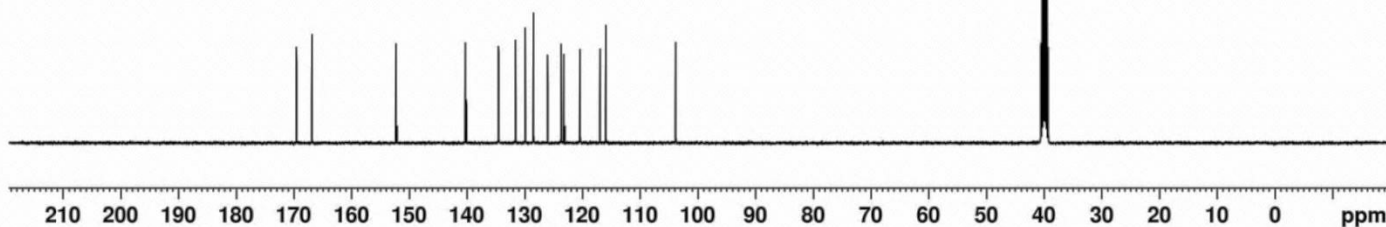
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140.30
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131.67
130.00
128.58
126.28
123.76
123.32
120.23
117.96
116.56
104.51
40.61
40.40
40.19
39.99
39.78
39.57
39.36

Current Data Parameters
NAME Paula Soliman_C_DH2HC1
EXPNO 10
PROCNO 1

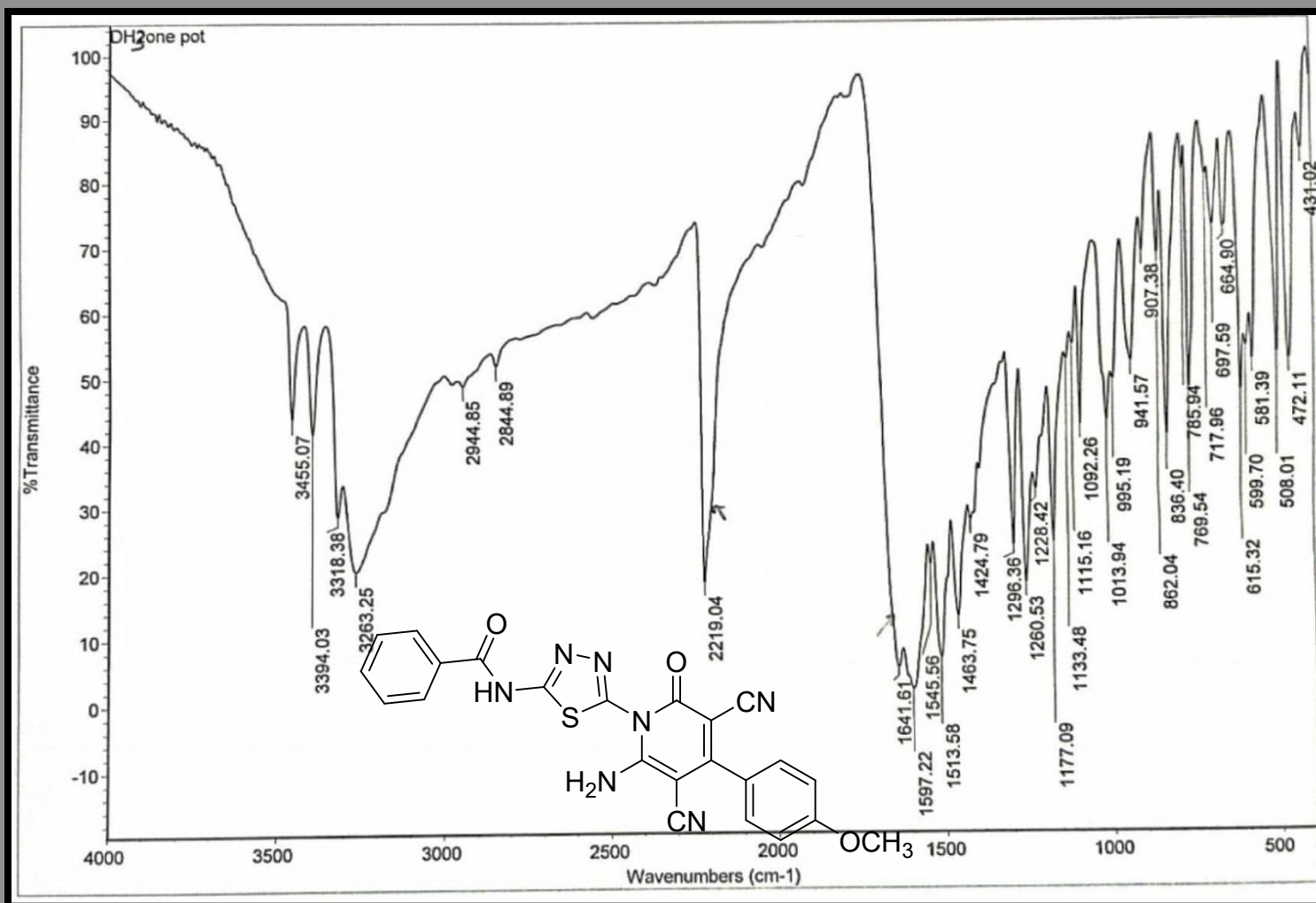
F2 - Acquisition Parameters
Date_ 20210628
Time 1.52
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT DMSO
NS 1500
DS 4
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631488 sec
RG 202.37
DW 20.800 usec
DE 6.50 usec
TE 298.0 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1



----- CHANNEL f1 -----
SF01 100.6379178 MHz
NUC1 13C
P1 10.00 usec
PLW1 45.00000000 W
----- CHANNEL f2 -----
SF02 400.1916008 MHz
NUC2 1H
CPDPRG[2] waltz16



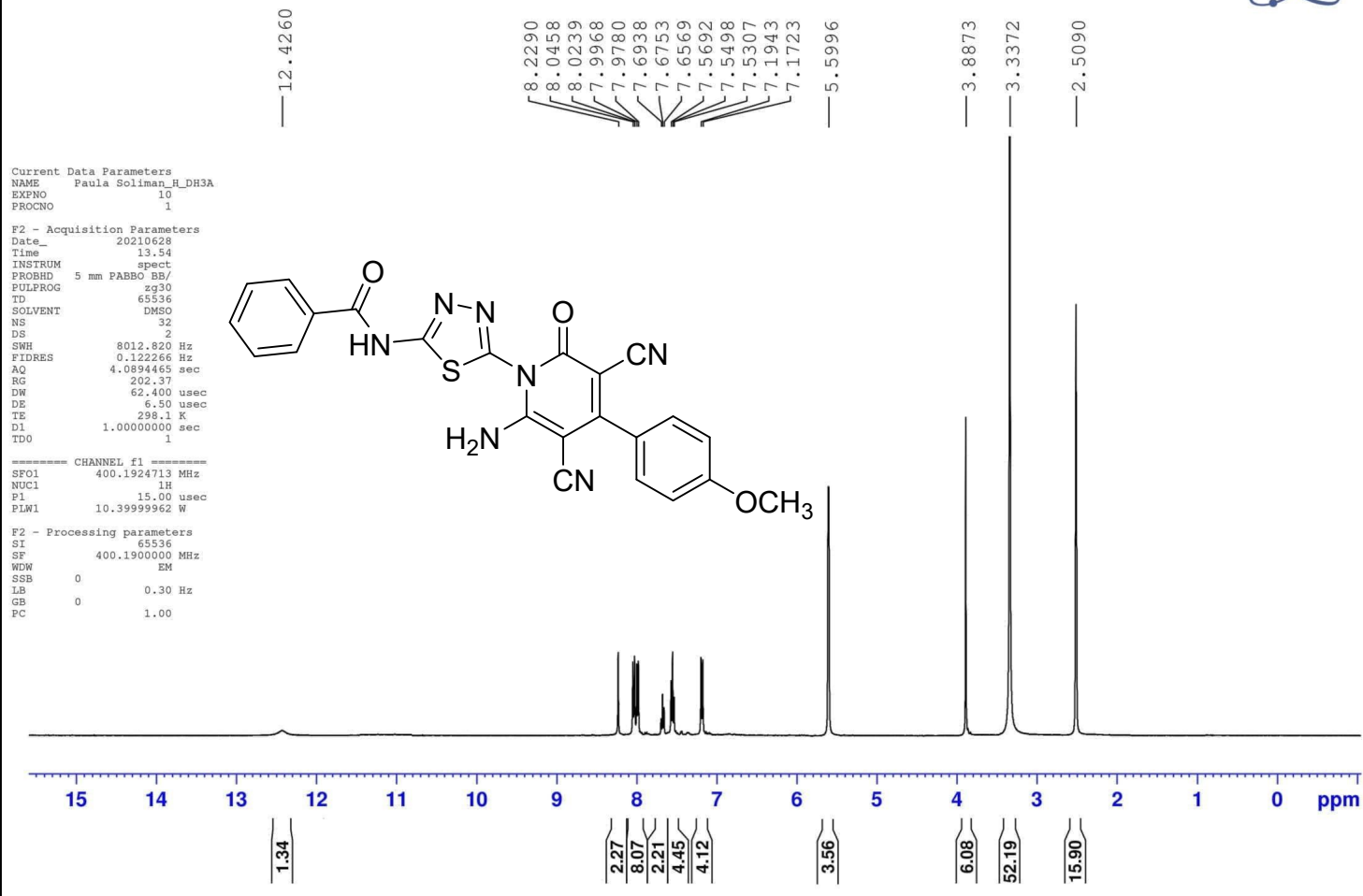
¹³C-NMR spectrum (DMSO-d₆) of compound 5



IR spectrum of compound 6a

Paula Soliman_H_DH3A

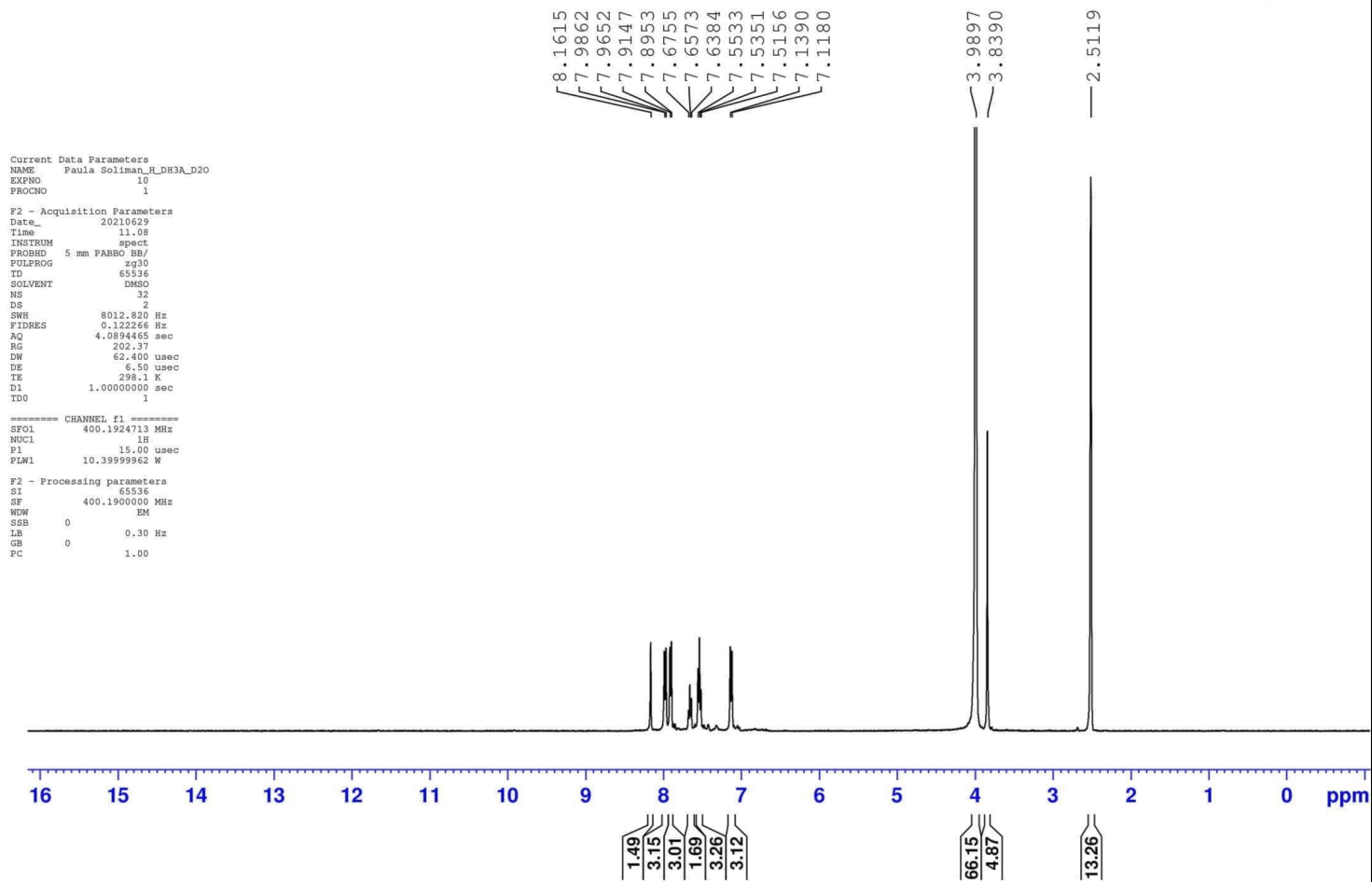
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¹H-NMR spectrum (DMSO-d₆) of compound 6a

Paula Soliman_H_DH3A_D2O

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$^1\text{H-NMR}$ spectrum ($\text{DMSO-d}_6 + \text{D}_2\text{O}$) of compound **6a**

Paula Soliman_C_DH3A

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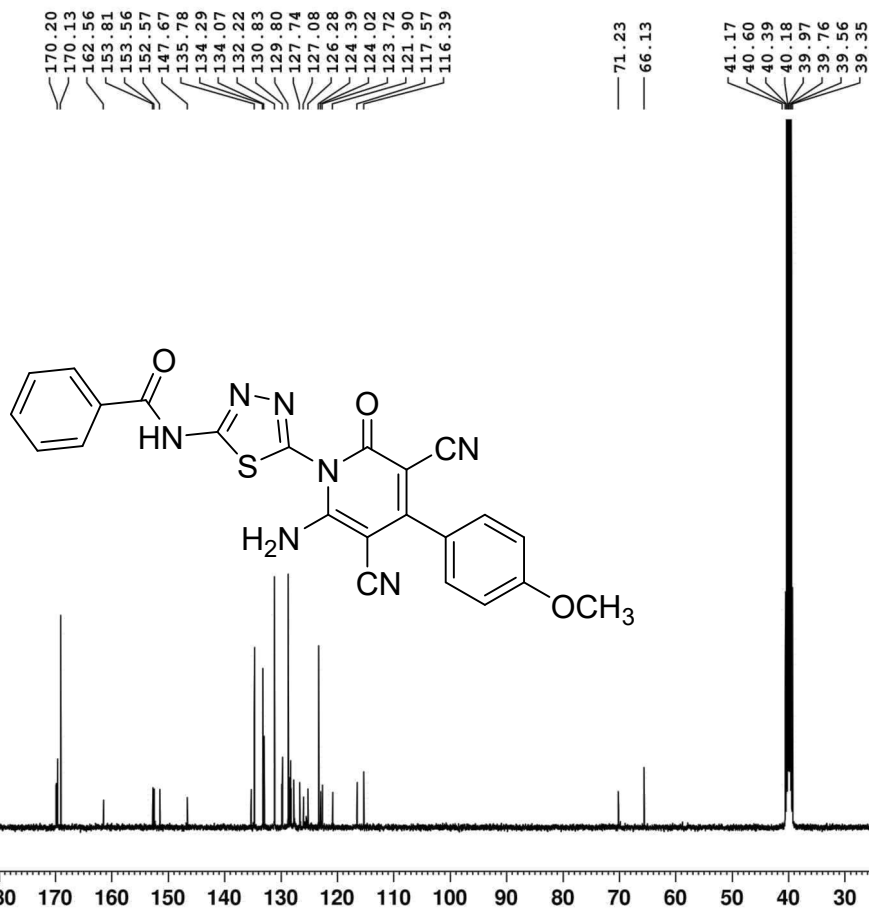


Current Data Parameters
NAME Paula Soliman_C_DH3A
EXPNO 10
PROCNO 1

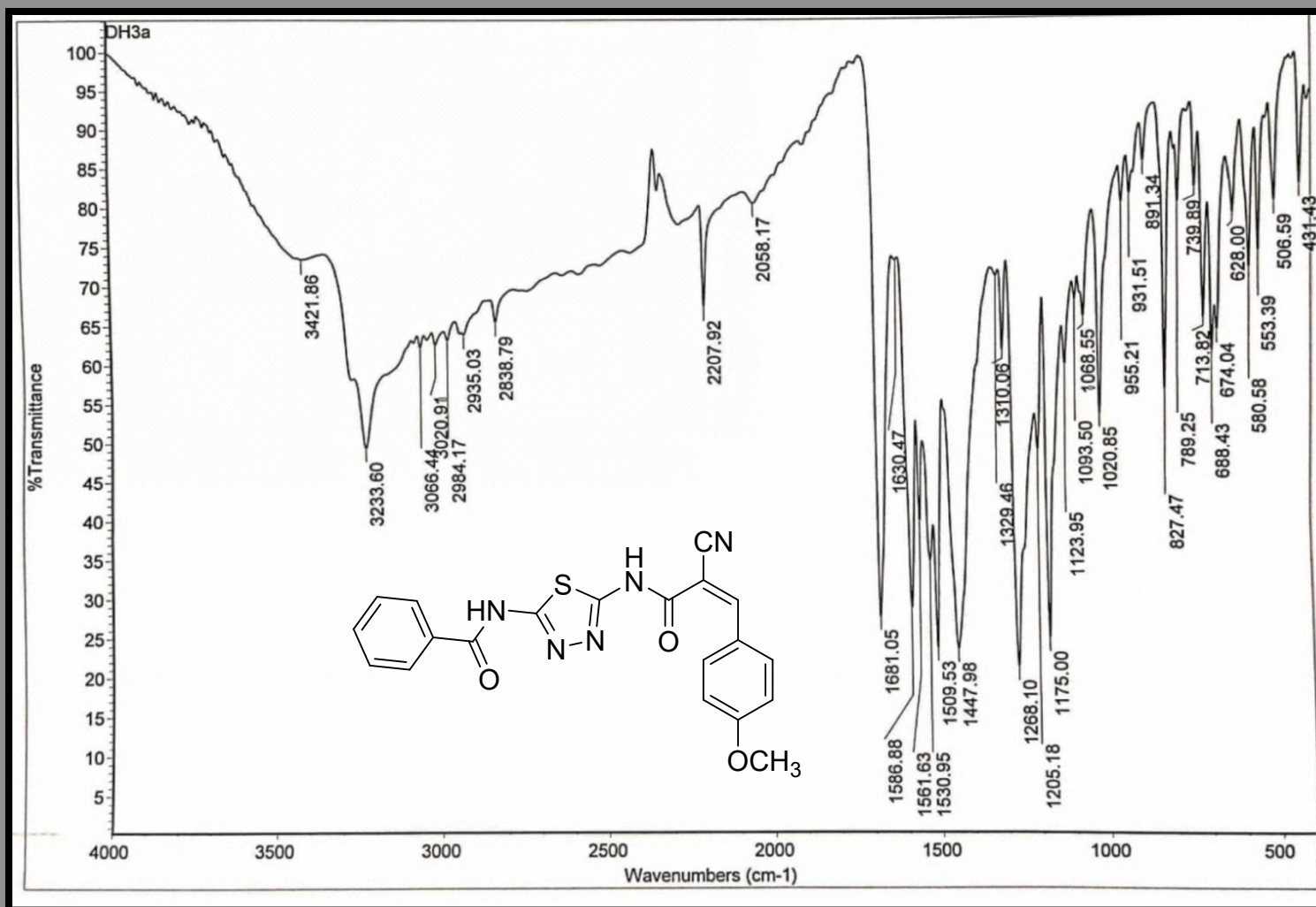
F2 - Acquisition Parameters
Date_ 20210629
Time 9.56
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT DMSO
NS 1500
DS 4
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631488 sec
RG 202.37
DW 20.800 usec
DE 6.50 usec
TE 298.1 K
D1 2.0000000 sec
D11 0.03000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 100.6379178 MHz
NUC1 13C
P1 10.00 usec
PLW1 45.00000000 W

===== CHANNEL f2 =====
SFO2 400.1916008 MHz
NUC2 1H
CPDPRG2 waltz16



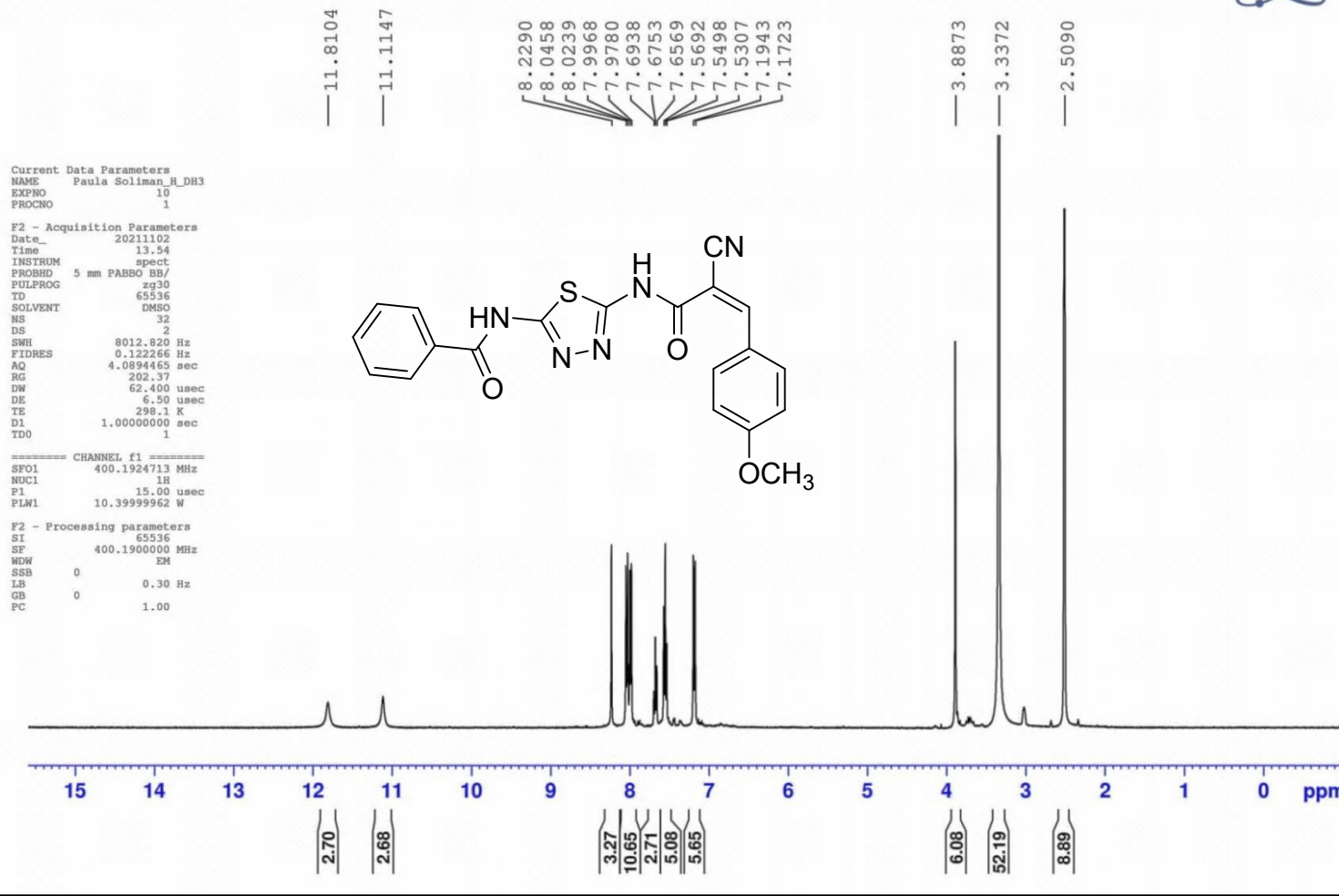
¹³C-NMR spectrum (DMSO-d₆) of compound 6a



IR spectrum of compound **6b**

Paula Soliman_H_DH3

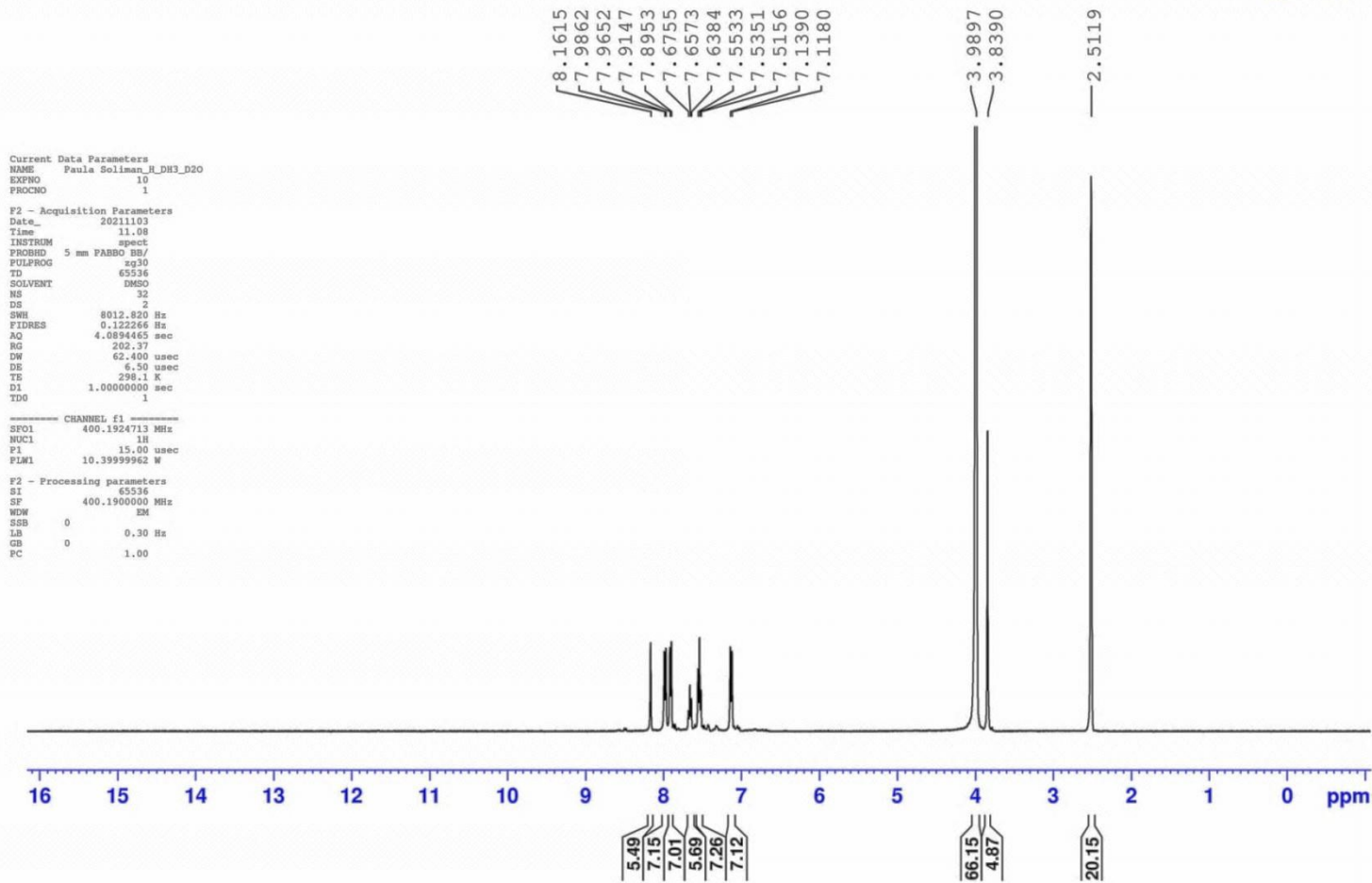
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¹H-NMR spectrum (DMSO-d₆) of compound **6b**

Paula Soliman_H_DH3_D2O

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$^1\text{H-NMR}$ spectrum ($\text{DMSO-d}_6 + \text{D}_2\text{O}$) of compound **6b**

Paula Soliman_C_DH3

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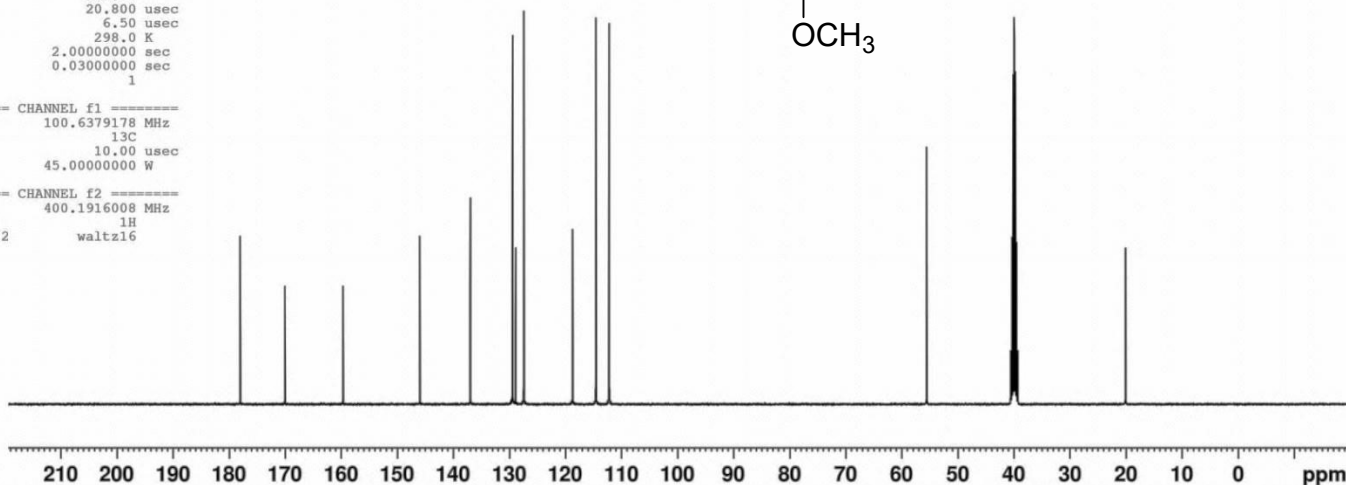
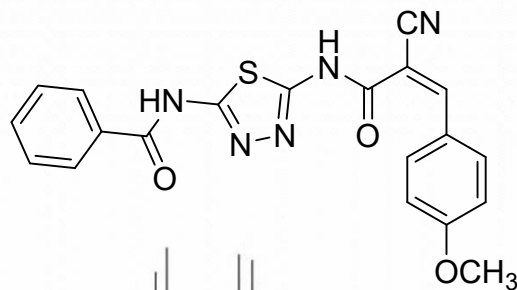


Current Data Parameters
NAME Paula Soliman_C_DH3
EXPNO 10
PROCNO 1

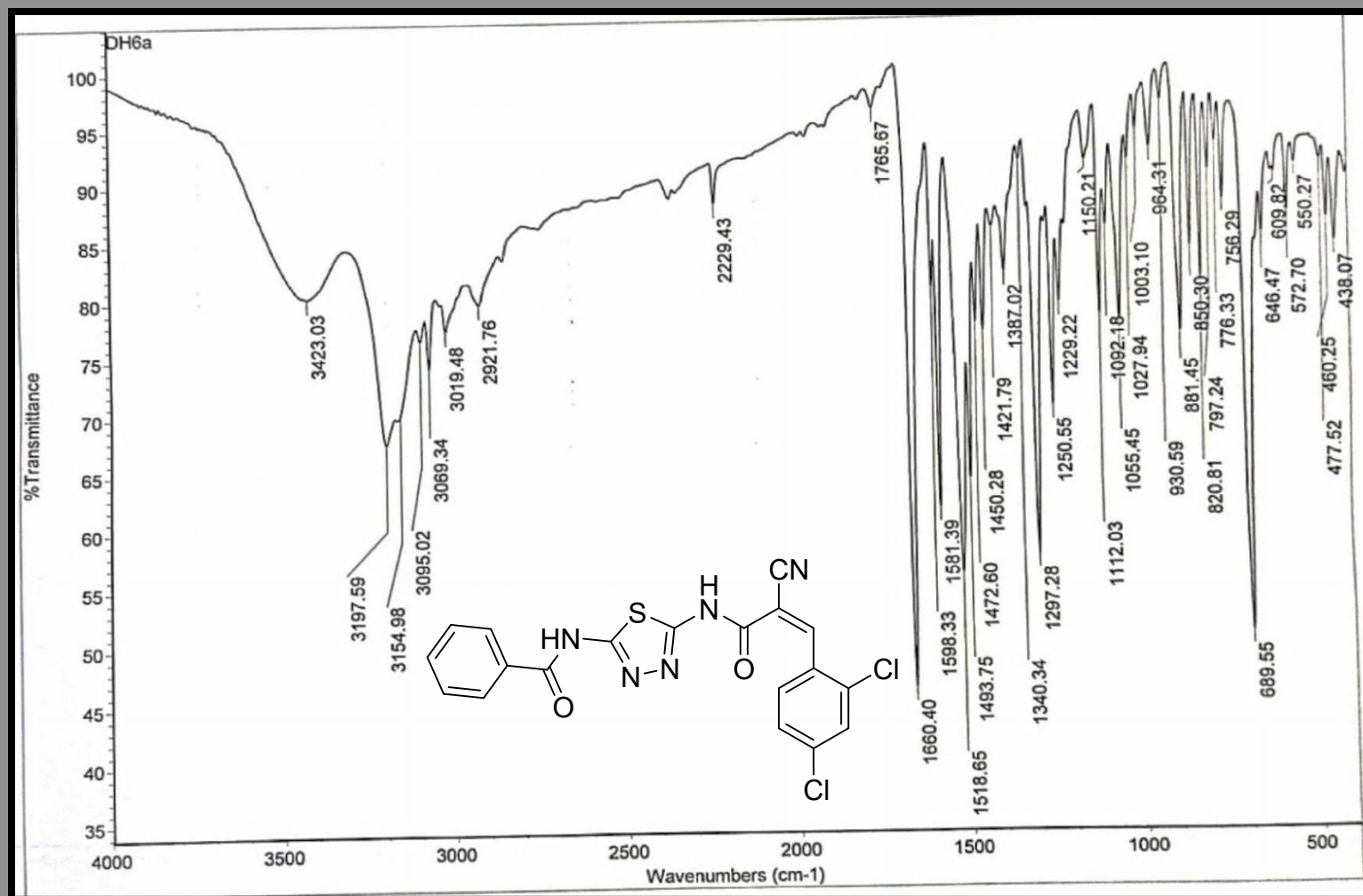
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PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT DMSO
NS 1500
DS 4
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631488 sec
RG 202.37
DW 20.800 usec
DE 6.50 usec
TE 298.0 K
D1 2.0000000 sec
D11 0.03000000 sec
TD0 1

----- CHANNEL f1 -----
SFO1 100.6379178 MHz
NUC1 13C
P1 10.00 usec
PLW1 45.00000000 W

----- CHANNEL f2 -----
SFO2 400.1916008 MHz
NUC2 1H
CPDPRG[2] waltz16



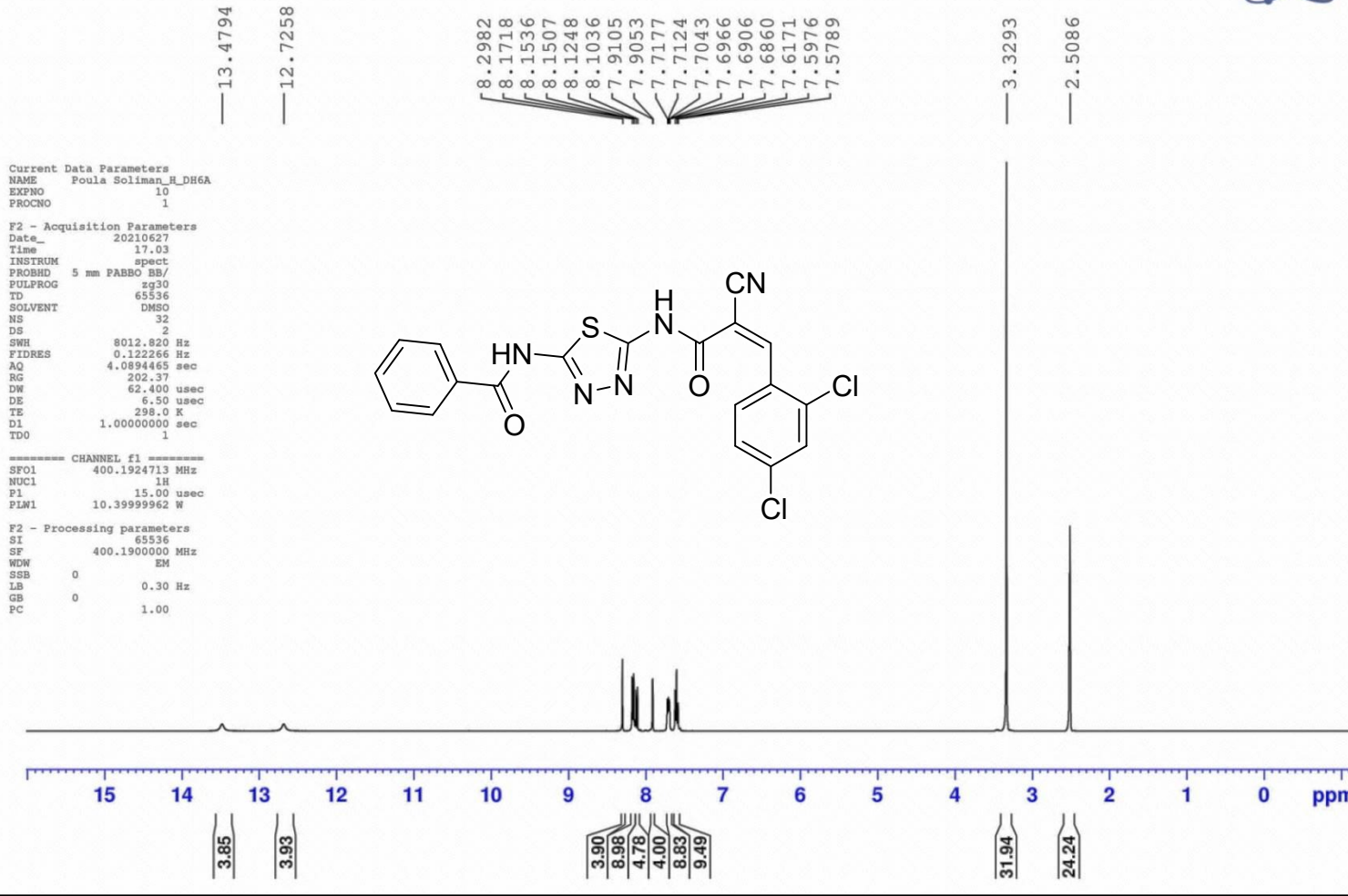
¹³C-NMR spectrum (DMSO-d₆) of compound **6b**



IR spectrum of compound 7a

Poula Soliman_H_DH6A

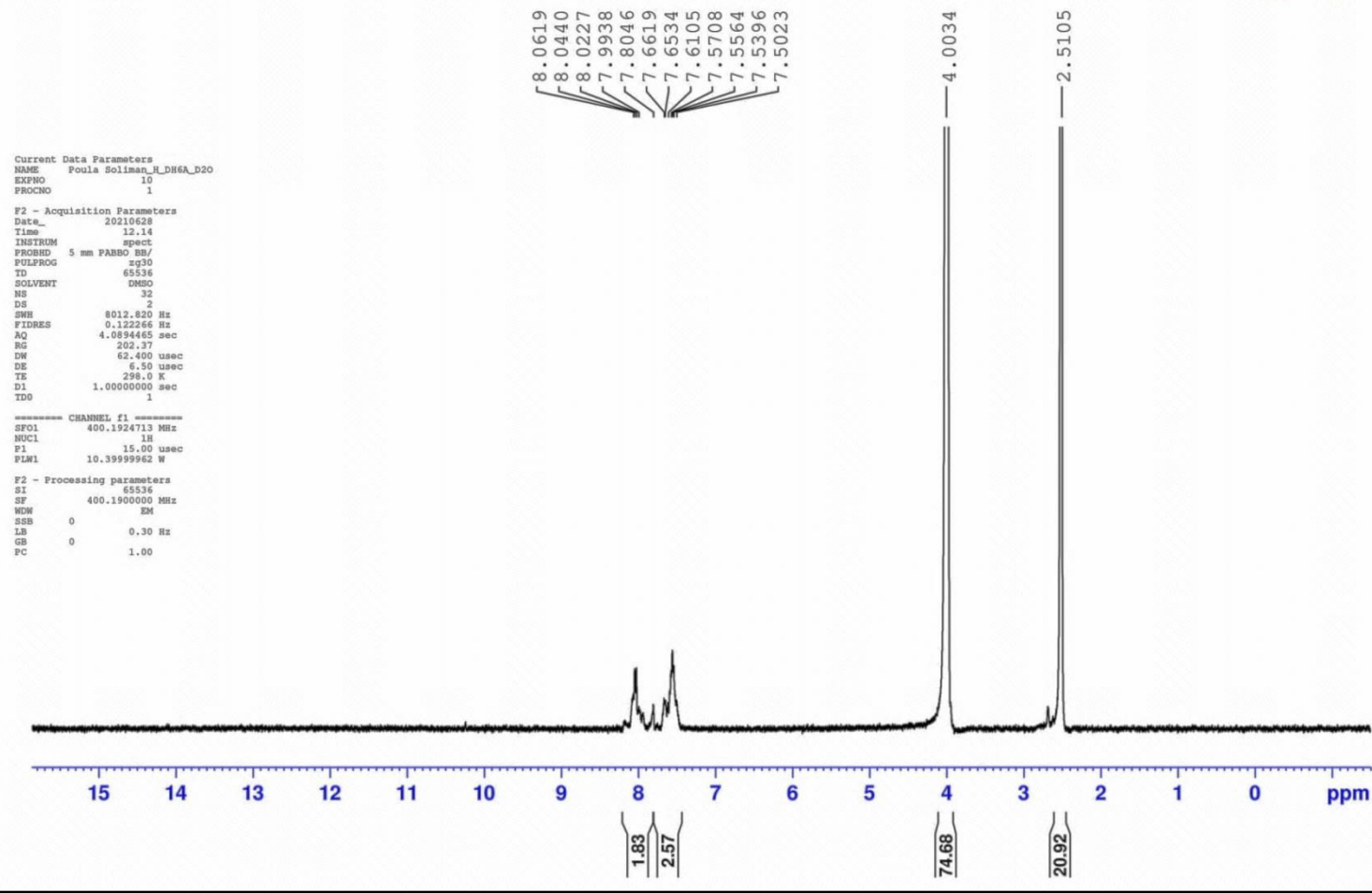
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¹H-NMR spectrum (DMSO-d₆) of compound 7a

Poula Soliman_H_DH6A_D2O

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$^1\text{H-NMR}$ spectrum ($\text{DMSO-d}_6 + \text{D}_2\text{O}$) of compound **7a**

Paula Soliman_C_DH6A

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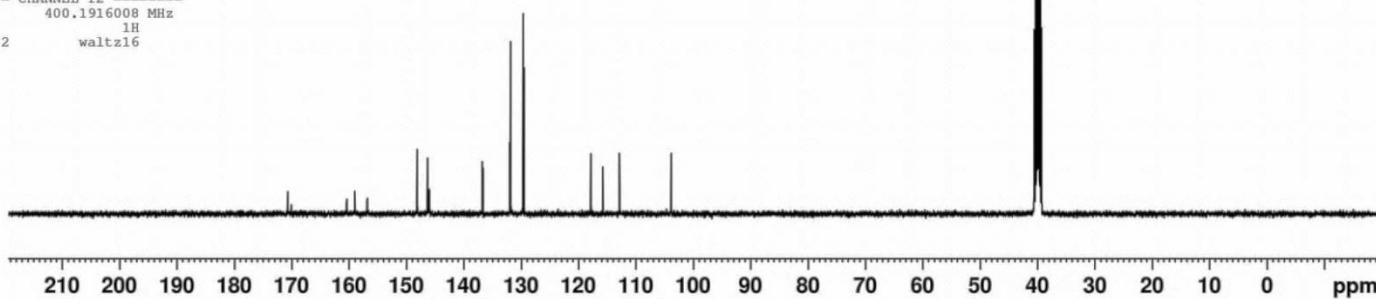
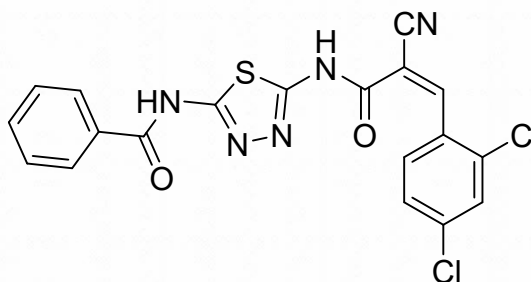
Current Data Parameters
NAME Paula Soliman_C_DH6A
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters
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INSTRUM spect
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PULPROG zgpg30
TD 65536
SOLVENT DMSO
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SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631488 sec
RG 202.37
DW 20.800 usec
DE 6.50 usec
TE 298.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

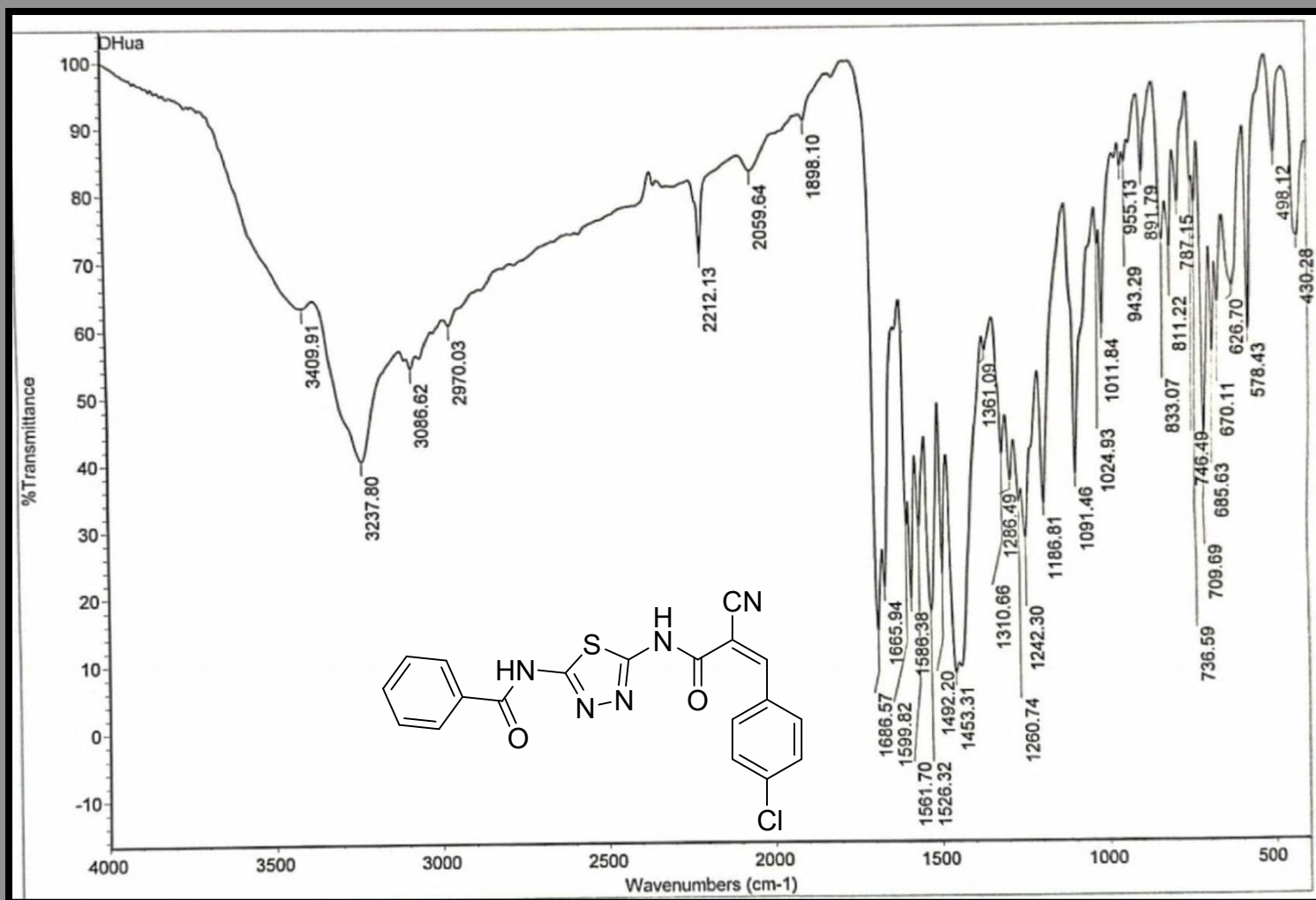
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NUC1 13C
P1 10.00 usec
PLW1 45.00000000 W

----- CHANNEL f2 -----
SFO2 400.1916008 MHz
NUC2 1H
CPDPRG[2] waltz16

170.69
170.08
160.49
159.10
156.91
148.22
146.39
146.12
136.85
132.04
131.93
129.74
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115.85
112.94
103.93
40.62
40.41
40.20
39.99
39.78
39.58
39.37



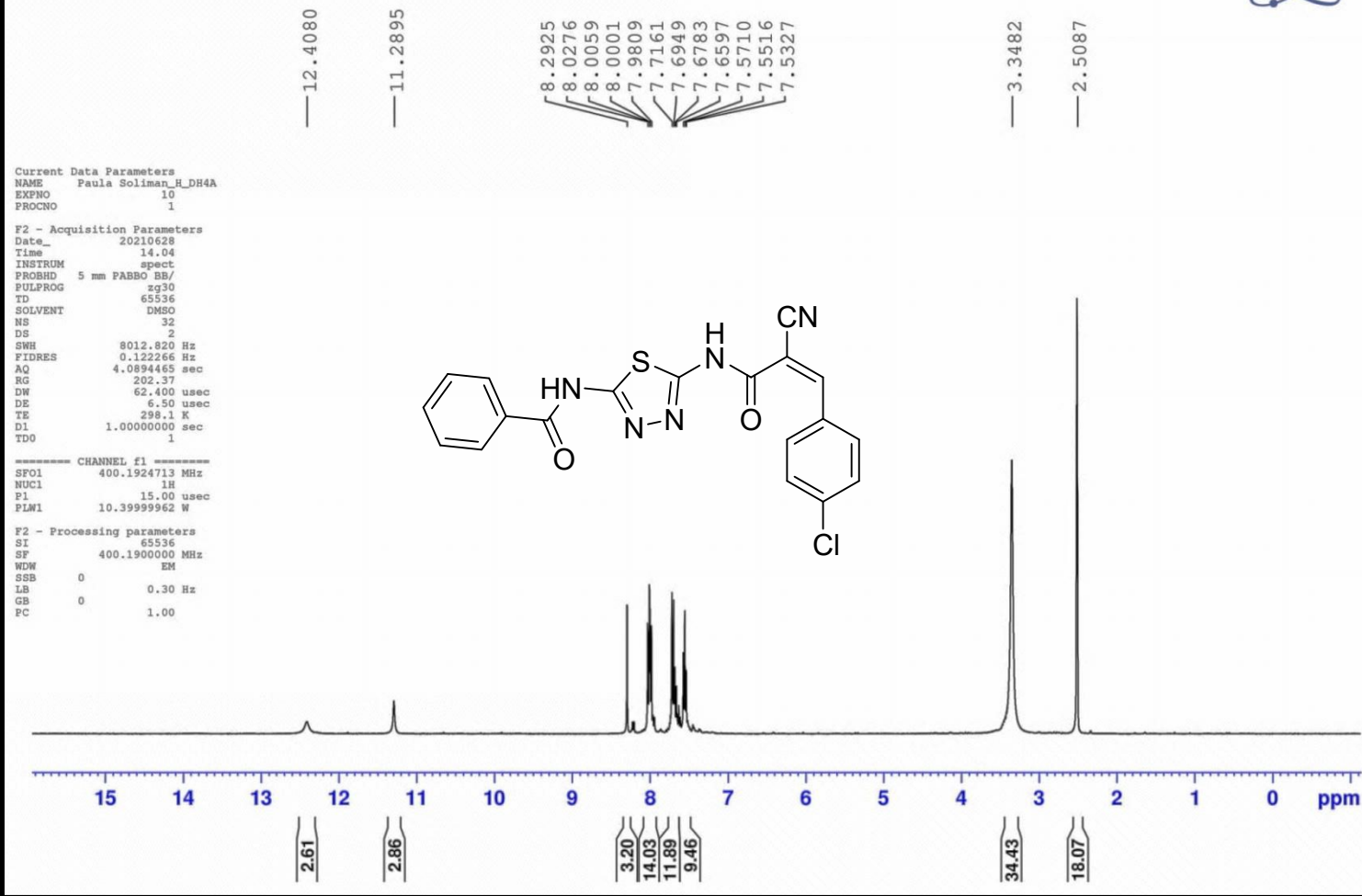
¹³C-NMR spectrum (DMSO-d₆) of compound 7a



IR spectrum of compound **7b**

Paula Soliman_H_DH4A

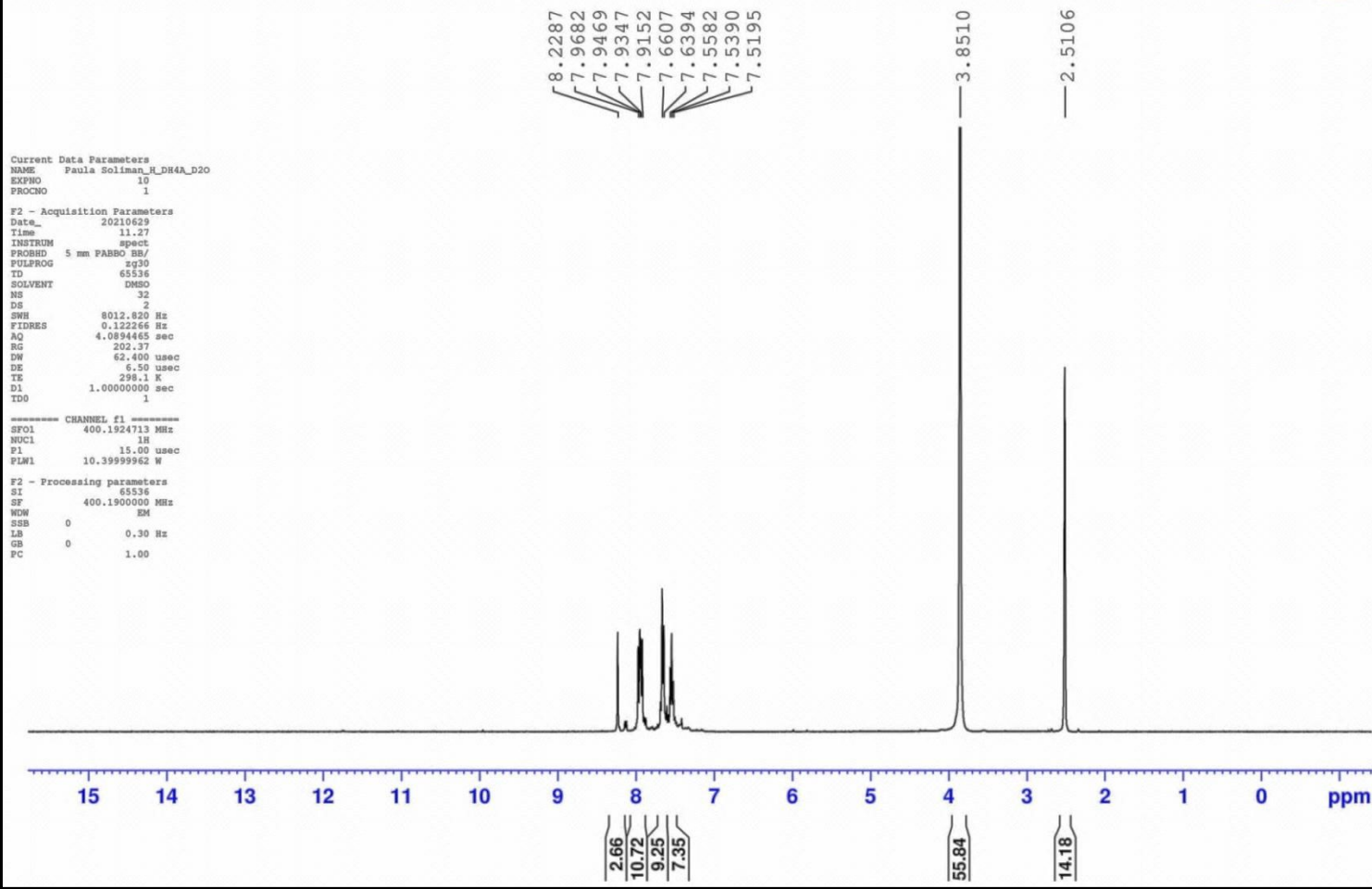
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¹H-NMR spectrum (DMSO-d₆) of compound 7b

Paula Soliman_H_DH4A_D2O

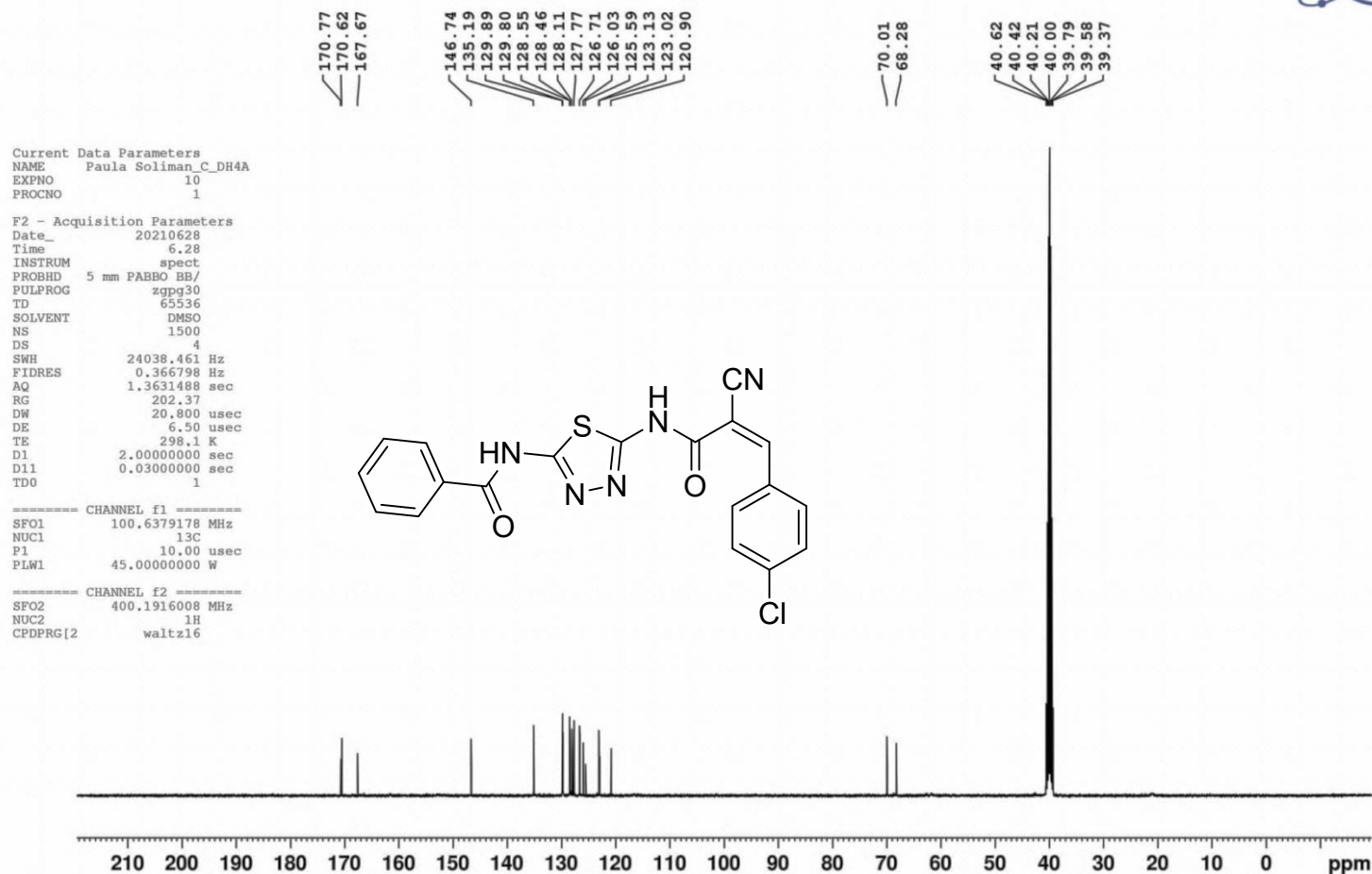
Microanalytical Unit - FOPCU - NMR laboratory
www.pharma.cu.edu.eg dir-mau.fopcu@pharma.cu.edu.eg



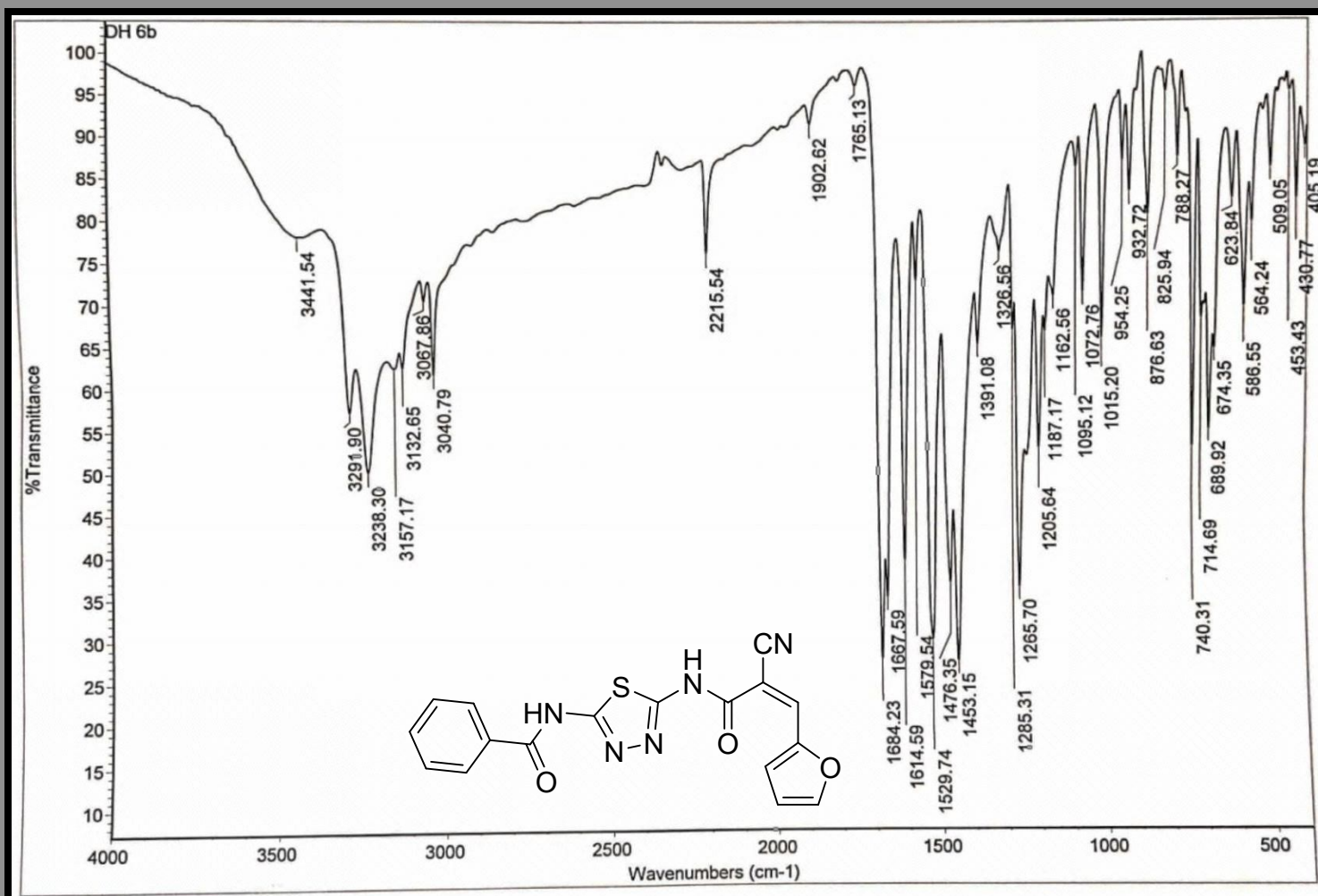
^1H -NMR spectrum (DMSO- d_6 + D_2O) of compound **7b**

Paula Soliman_C_DH4A

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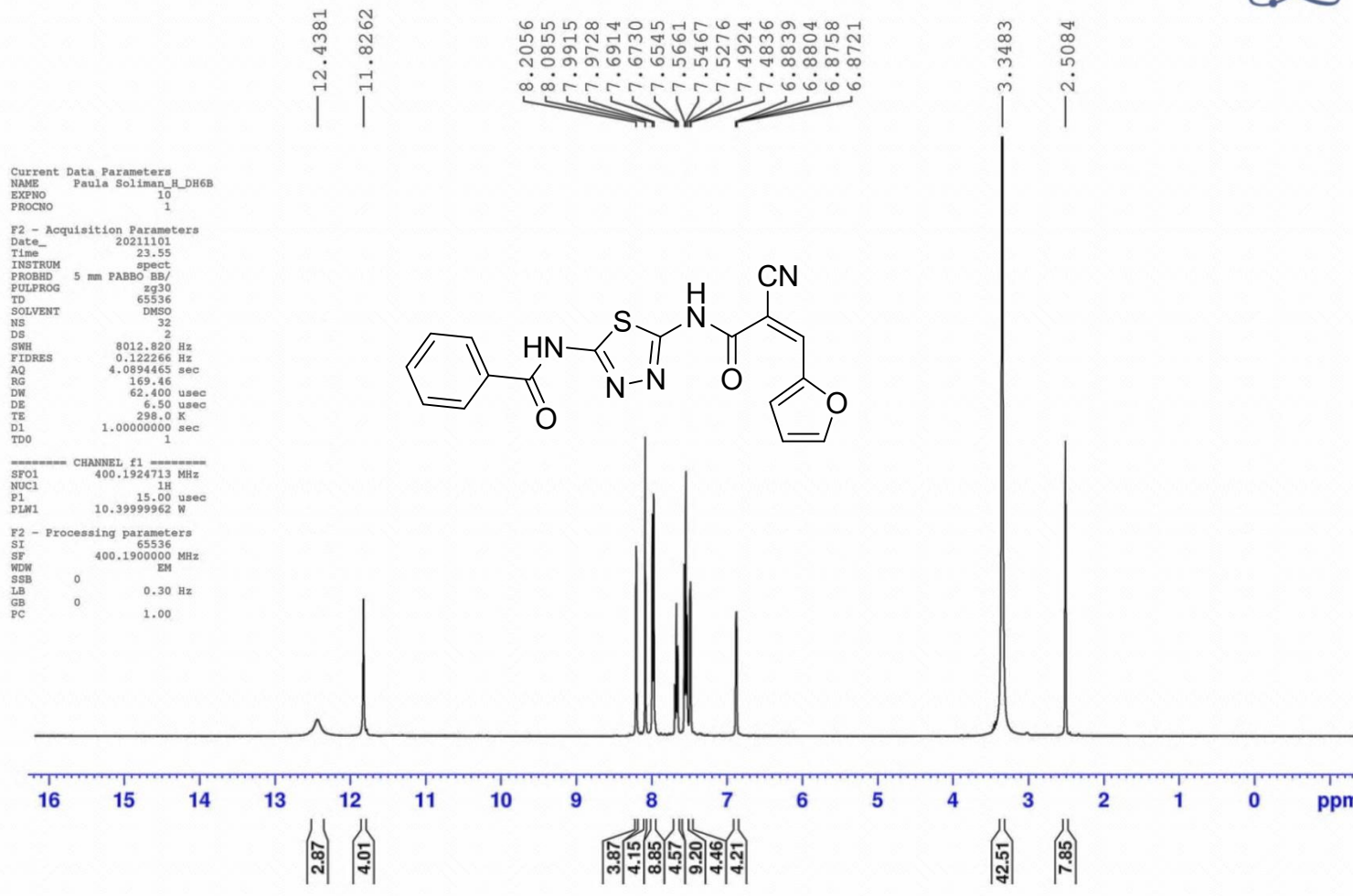
^{13}C -NMR spectrum (DMSO- d_6) of compound **7b**



IR spectrum of compound 7c

Paula Soliman_H_DH6B

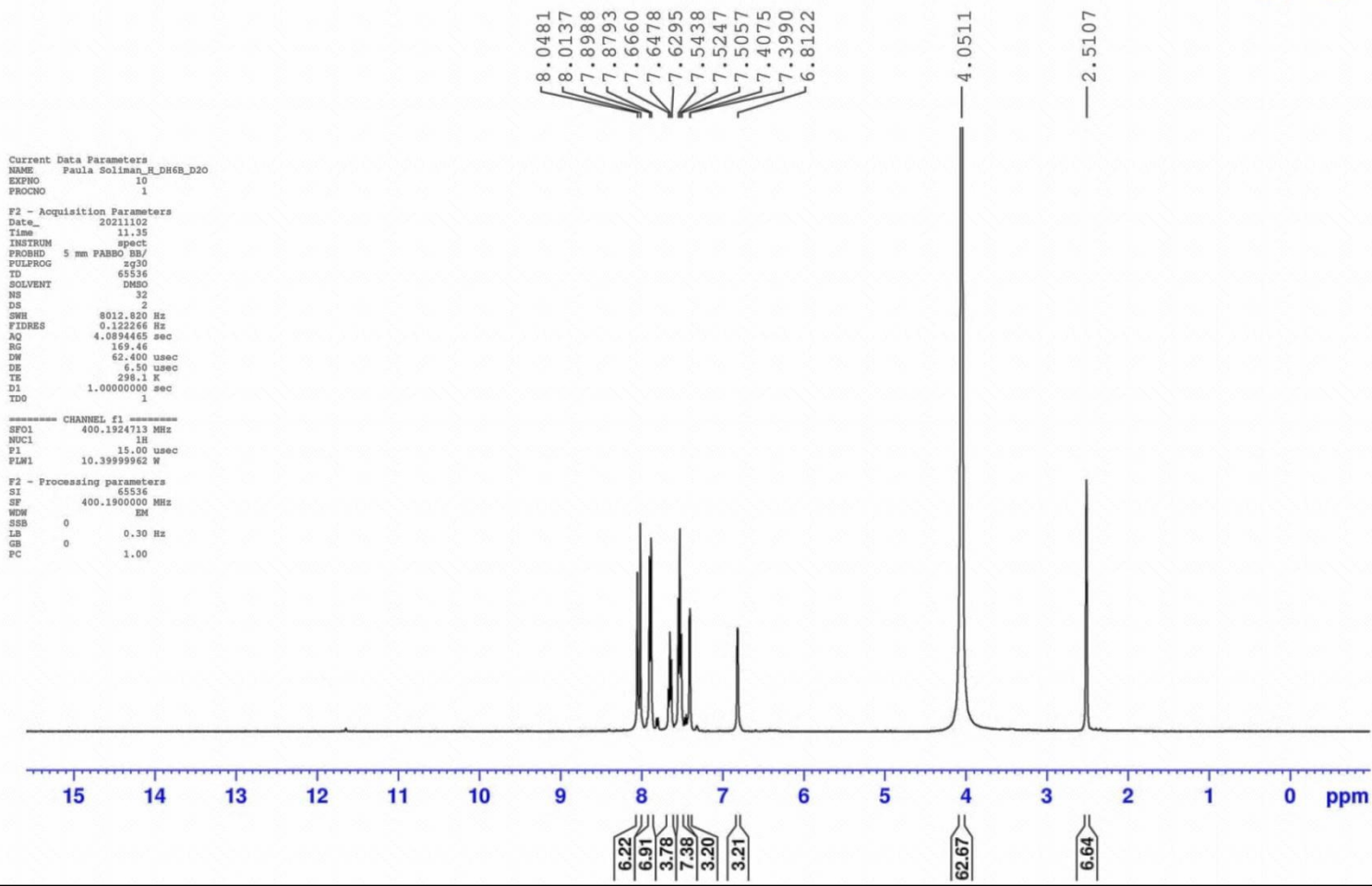
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¹H-NMR spectrum (DMSO-d₆) of compound 7c

Paula Soliman_H_DH6B_D2O

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^1H -NMR spectrum (DMSO- d_6 +D $_2$ O) of compound 7c

Paula Soliman_C_DH6b

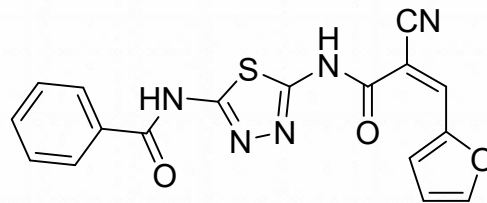
Microanalytical Unit - FOPCU - NMR laboratory
www.pharma.cu.edu.eg dir-mau.fopcu@pharma.cu.edu.eg



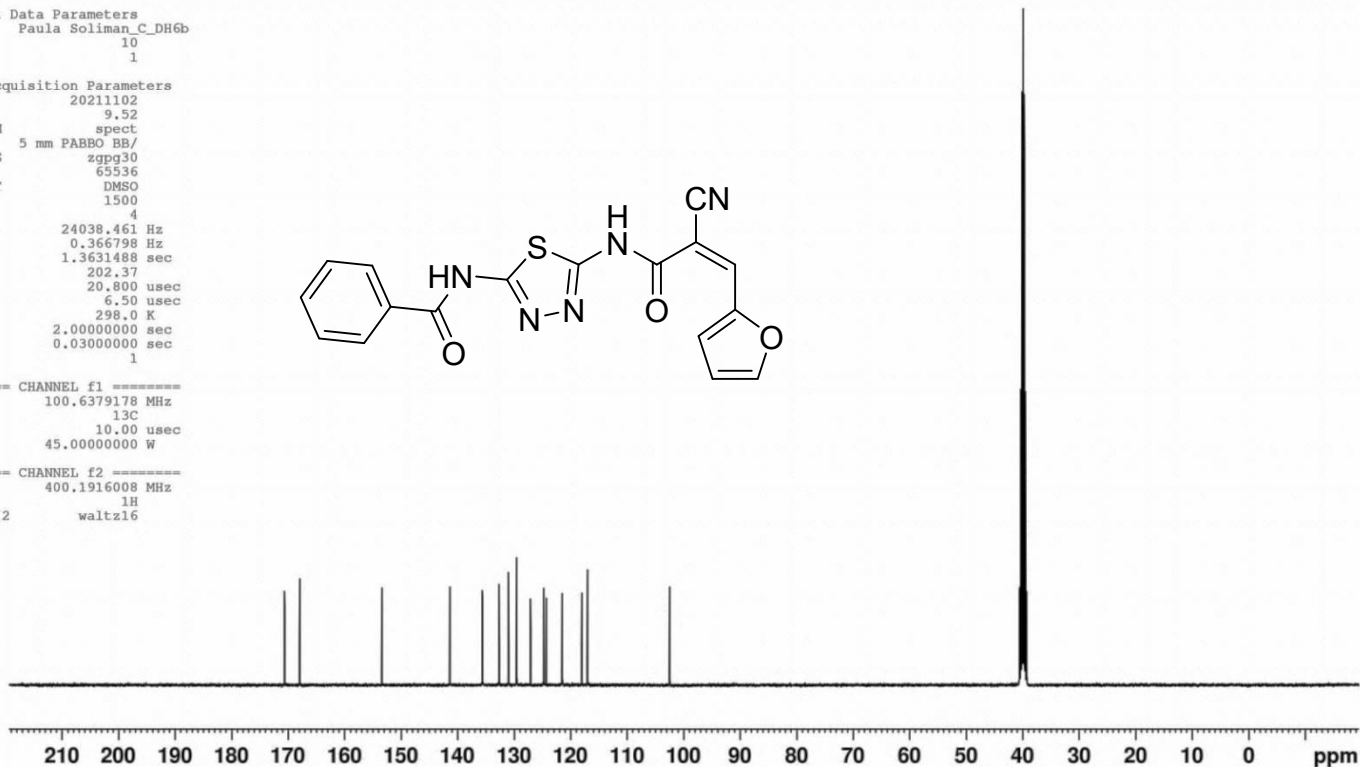
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167.98
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135.63
132.67
131.00
129.58
127.11
124.76
124.32
121.51
118.04
117.04
102.91
40.61
40.40
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39.99
39.78
39.57
39.36

Current Data Parameters
NAME Paula Soliman_C_DH6b
EXPNO 10
PROCNO 1

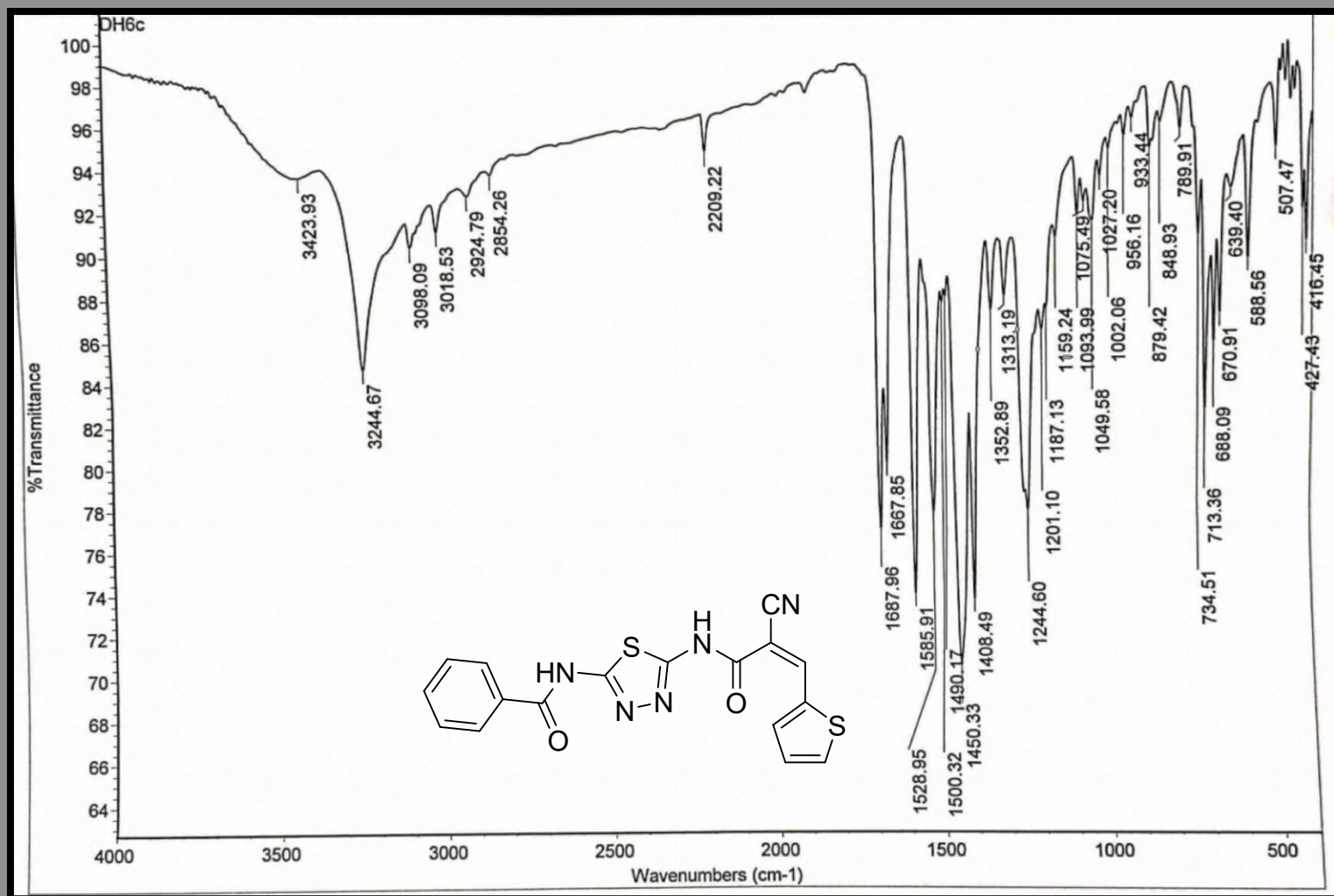
F2 - Acquisition Parameters
Date_ 20211102
Time 9.52
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT DMSO
NS 1500
DS 4
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631488 sec
RG 202.37
DW 20.800 usec
DE 6.50 usec
TE 298.0 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1



----- CHANNEL f1 -----
SFO1 100.6379178 MHz
NUC1 13C
P1 10.00 usec
PLW1 45.00000000 W
----- CHANNEL f2 -----
SFO2 400.1916008 MHz
NUC2 1H
CPDPRG[2] waltz16



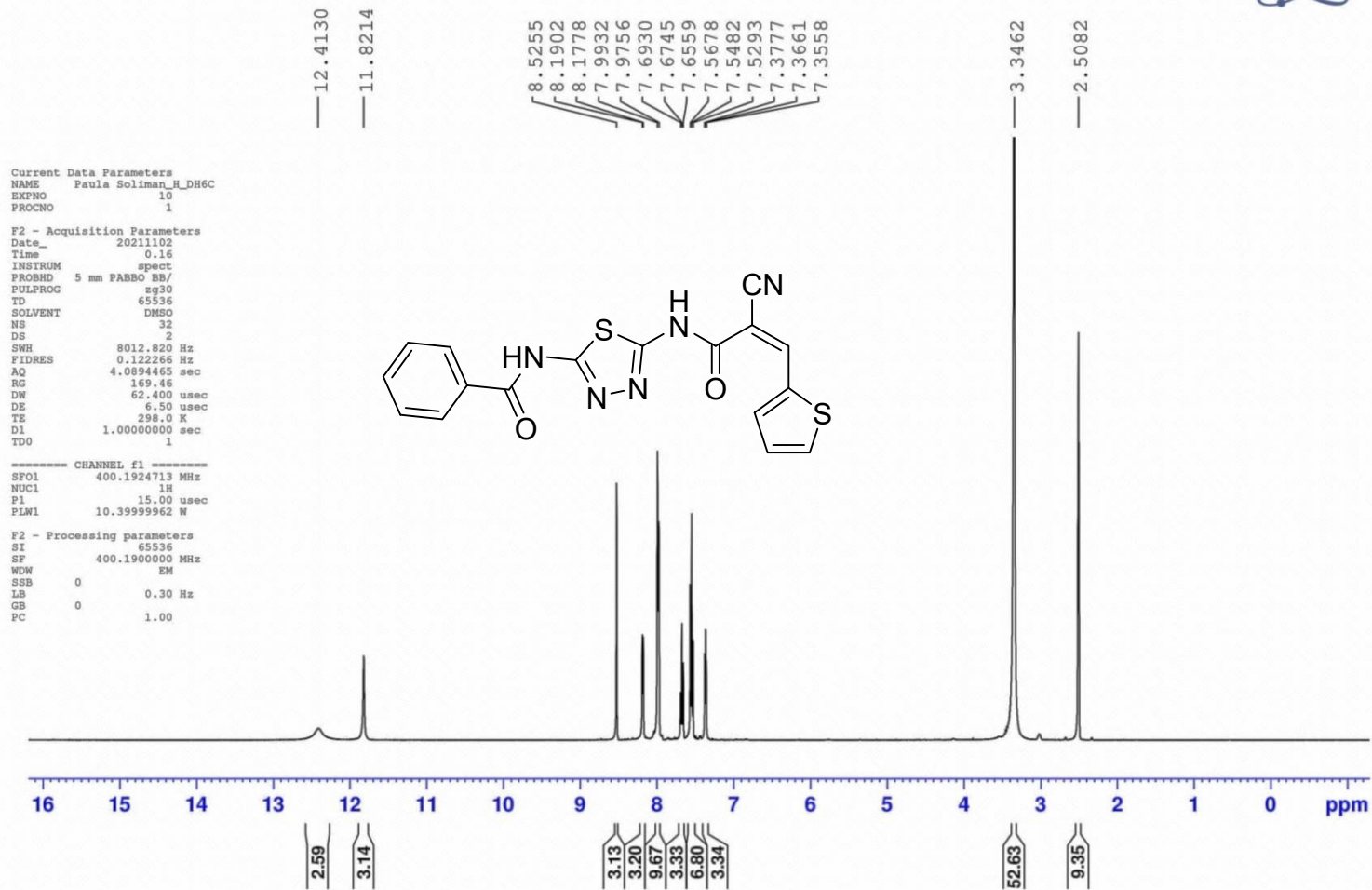
¹³C-NMR spectrum (DMSO-d₆) of compound 7c



IR spectrum of compound 7d

Paula Soliman_H_DH6C

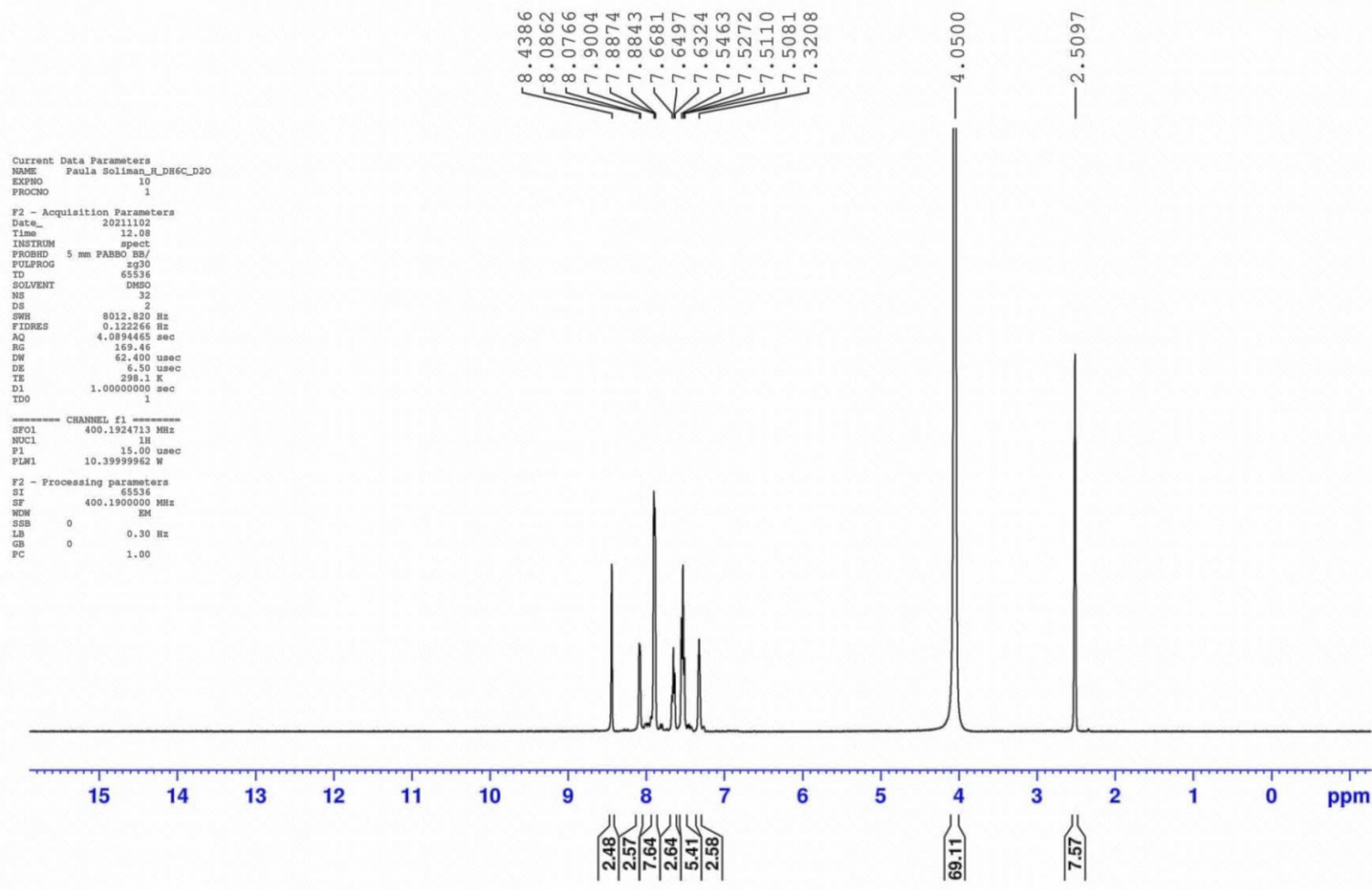
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¹H-NMR spectrum (DMSO-d₆) of compound 7d

Paula Soliman_H_DH6C_D2O

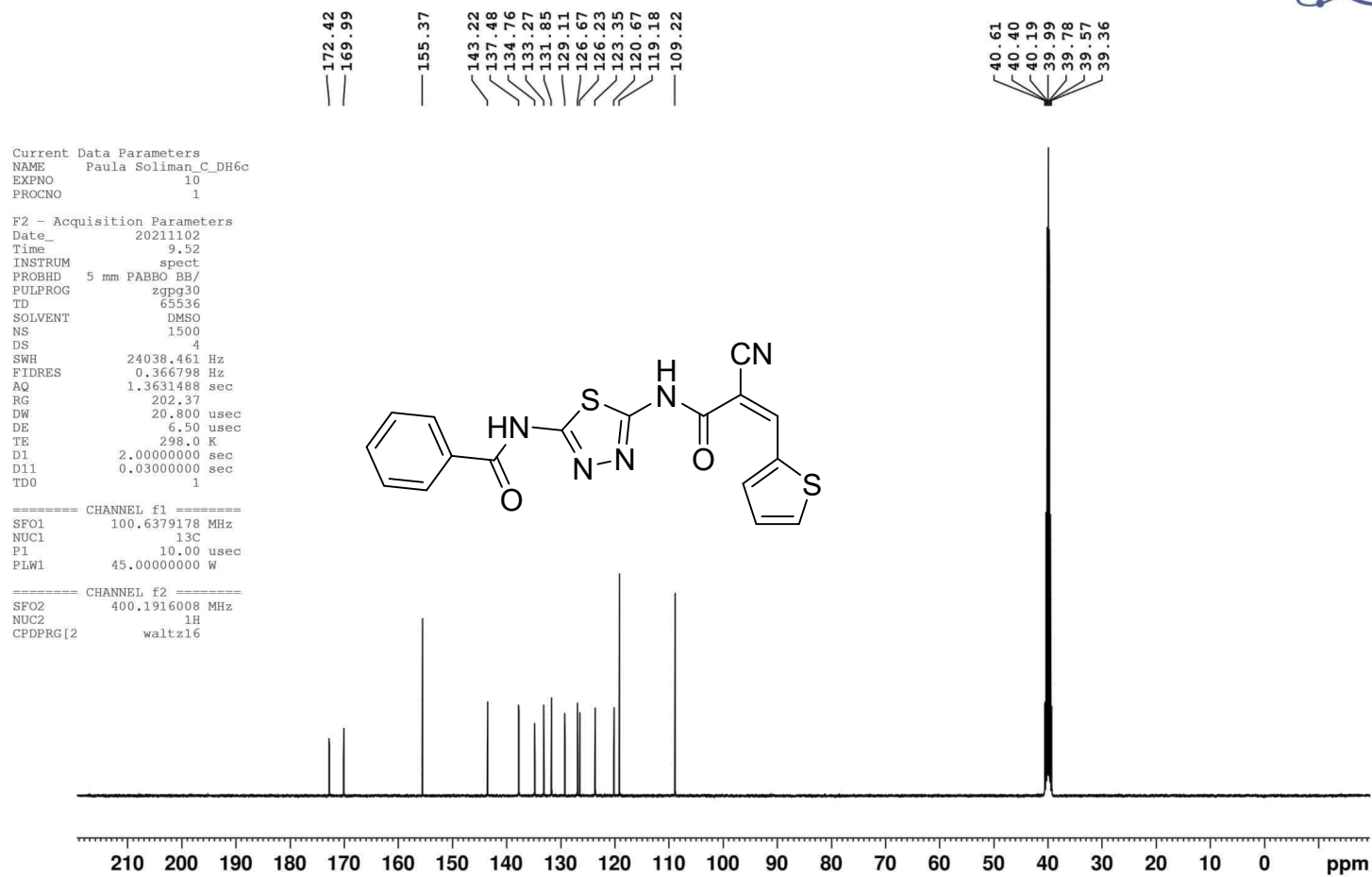
Microanalytical Unit - FOPCU - NMR laboratory
www.pharma.cu.edu.eg dir-mau.fopcu@pharma.cu.edu.eg



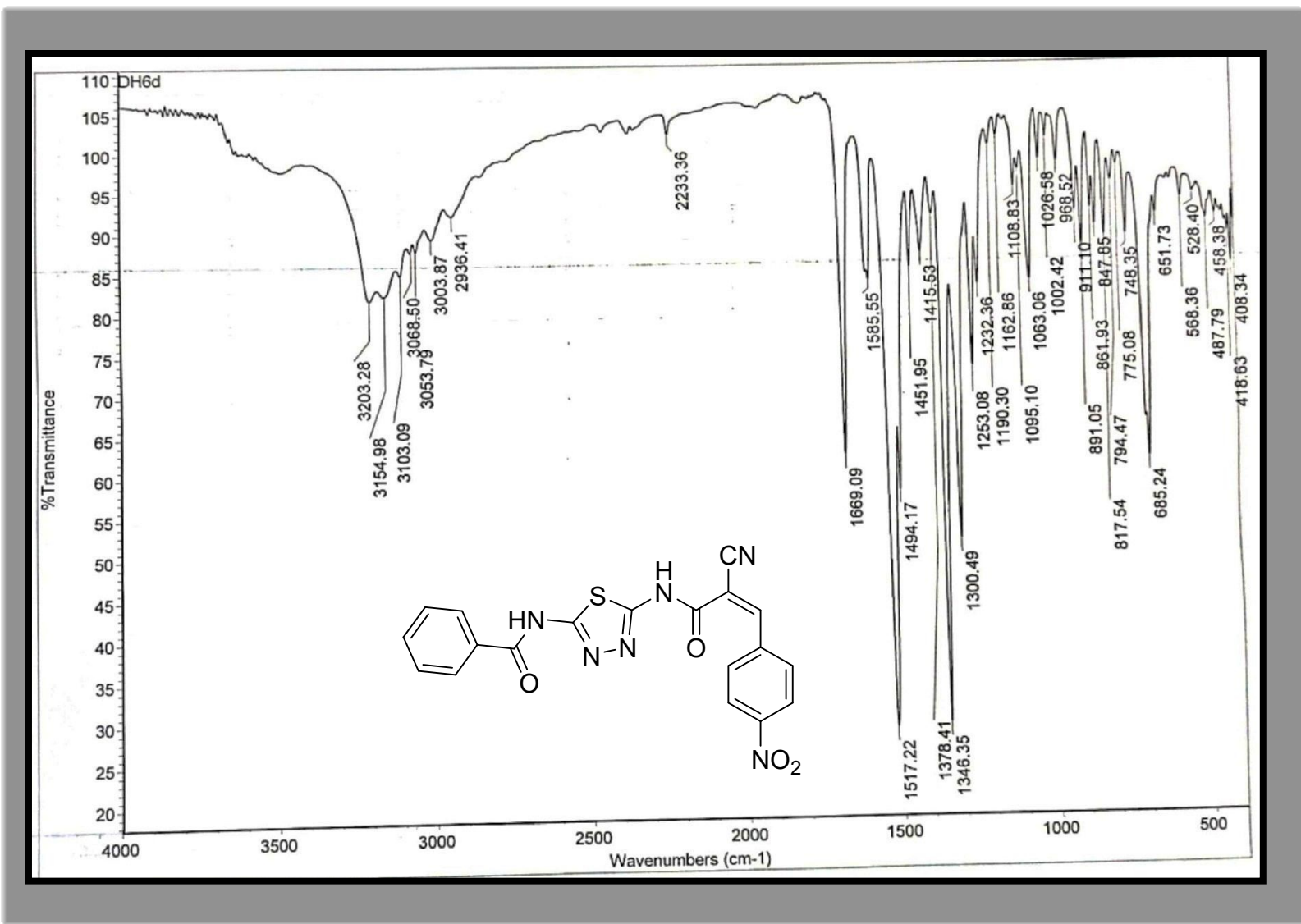
¹H-NMR spectrum (DMSO-d₆+ D₂O) of compound **7d**

Paula Soliman_C_DH6c

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www.pharma.cu.edu.eg dir-mau.fopcu@pharma.cu.edu.eg



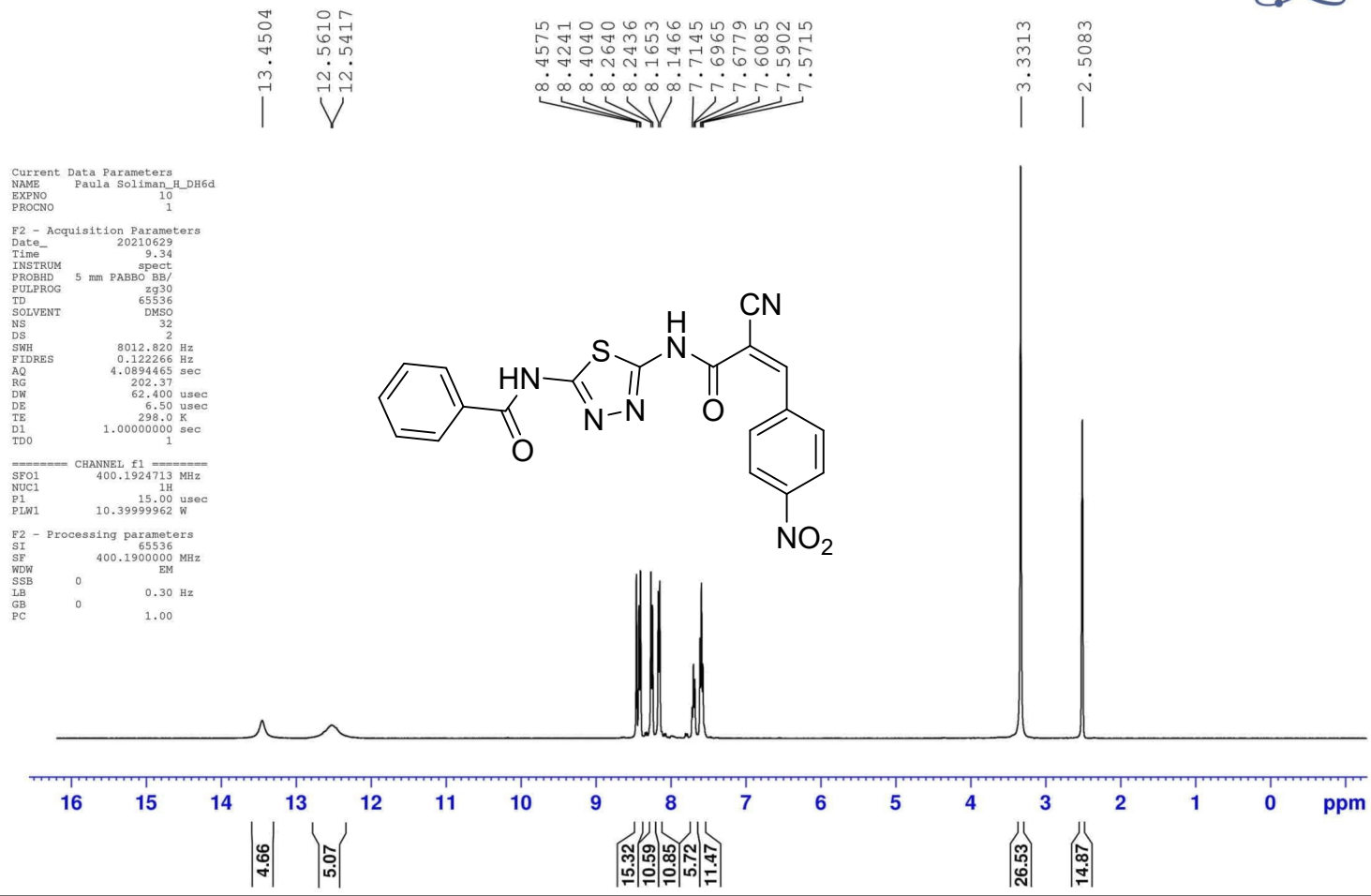
^{13}C -NMR spectrum (DMSO- d_6) of compound **7d**



IR spectrum of compound 7e

Paula Soliman_H_DH6d

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¹H-NMR spectrum (DMSO-d₆) of compound 7e

Paula Soliman_H_DH6d_D2O

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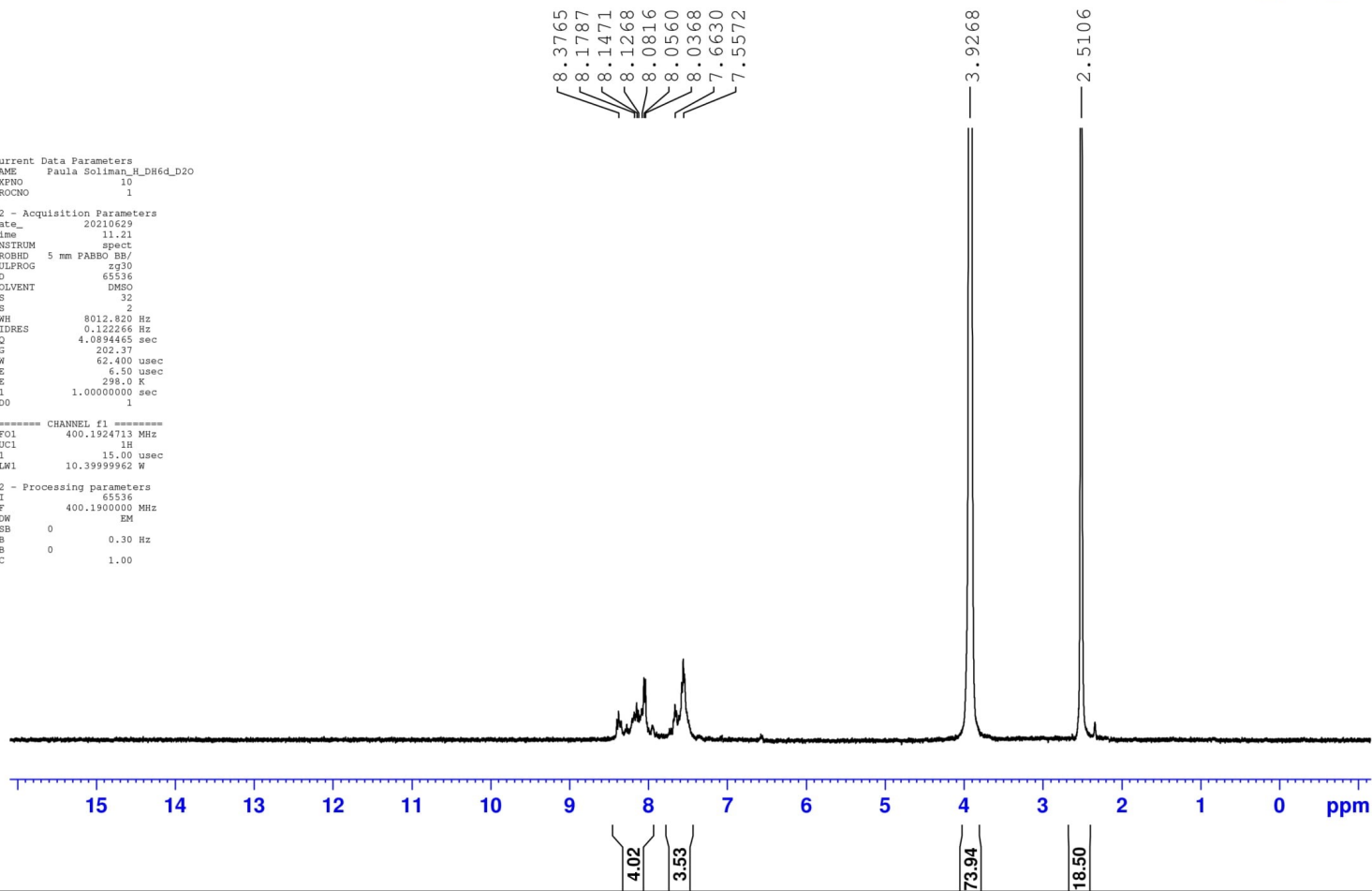
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EXPNO 10
PROCNO 1

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PULPROG zg30
TD 65536
SOLVENT DMSO
NS 32
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SWH 8012.826 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 202.37
DW 62.400 usec
DE 6.50 usec
TE 298.0 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
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NUC1 1H
P1 15.00 usec
PLW1 10.39999962 W

F2 - Processing parameters
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SF 400.1900000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
FC 1.00
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8.3765
8.1787
8.1471
8.1268
8.0816
8.0560
8.0368
7.6630
7.5572



$^1\text{H-NMR}$ spectrum ($\text{DMSO-d}_6 + \text{D}_2\text{O}$) of compound 7e

Paula Soliman_C_DH6d

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174.73
174.14
170.82
161.47
160.65
154.35
148.16
135.78
134.62
131.25
131.05
130.28
129.52
129.28
117.83
116.98
113.29
112.94
40.62
40.41
40.20
39.99
39.78
39.57
39.37

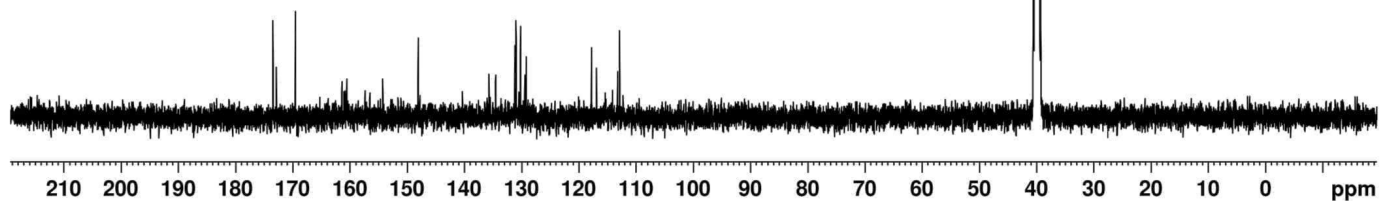
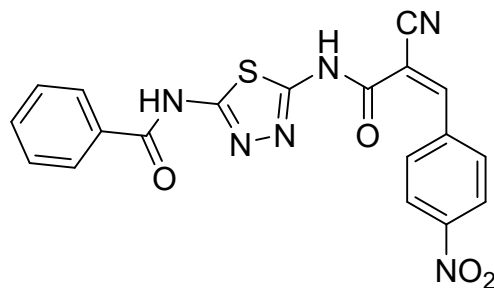
Current Data Parameters
NAME Paula Soliman_C_DH6d
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters

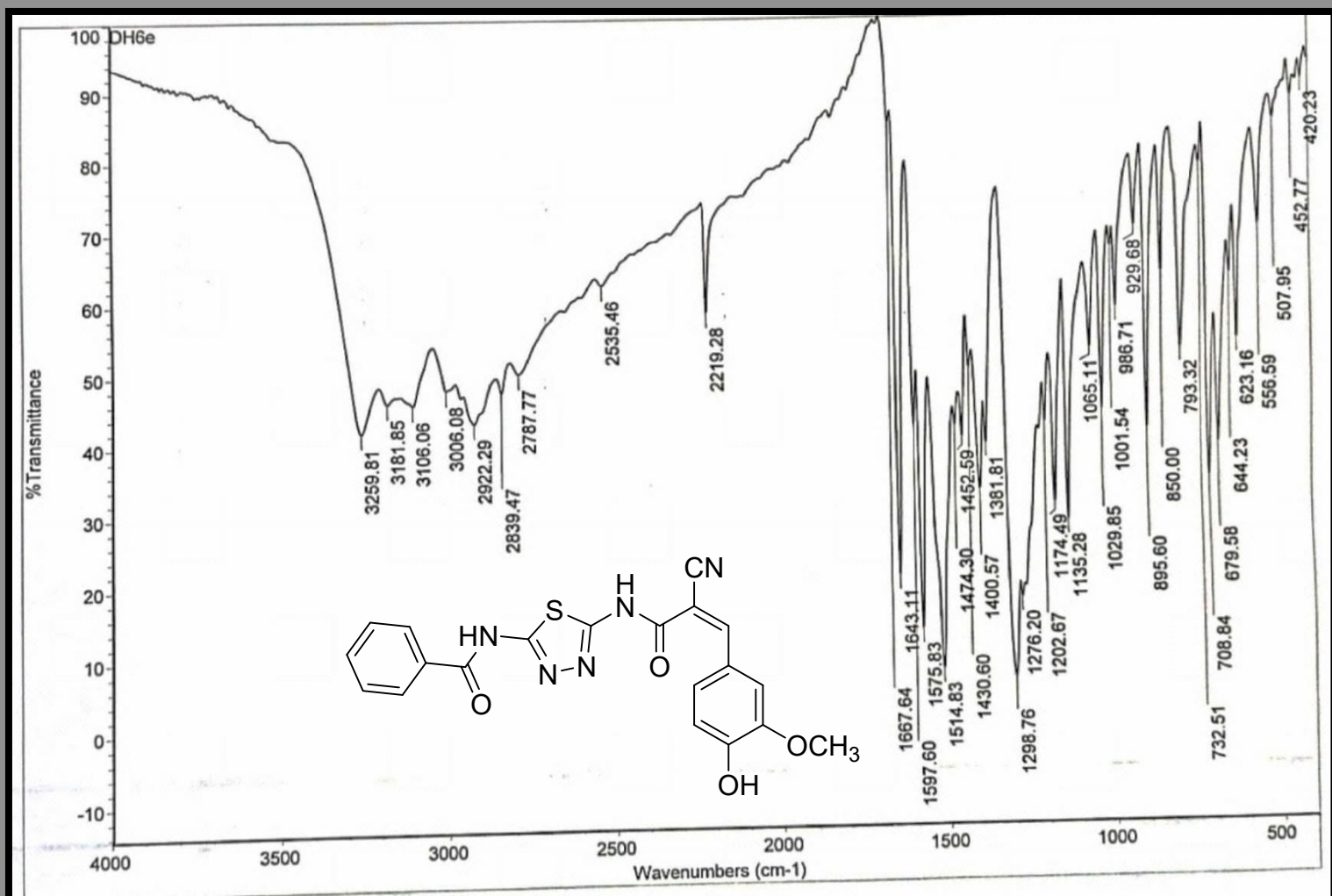
Date_ 20210629
Time 9.45
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PULPROG zgpg30
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SOLVENT DMSO
NS 1200
DS 4
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631488 sec
RG 202.37
DW 20.800 usec
DE 6.50 usec
TE 298.1 K
D1 2.0000000 sec
D11 0.03000000 sec
TDO 1

===== CHANNEL f1 =====
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NUC1 13C
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PLW1 45.00000000 W

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NUC2 1H
CPDPRG[2] waltz16



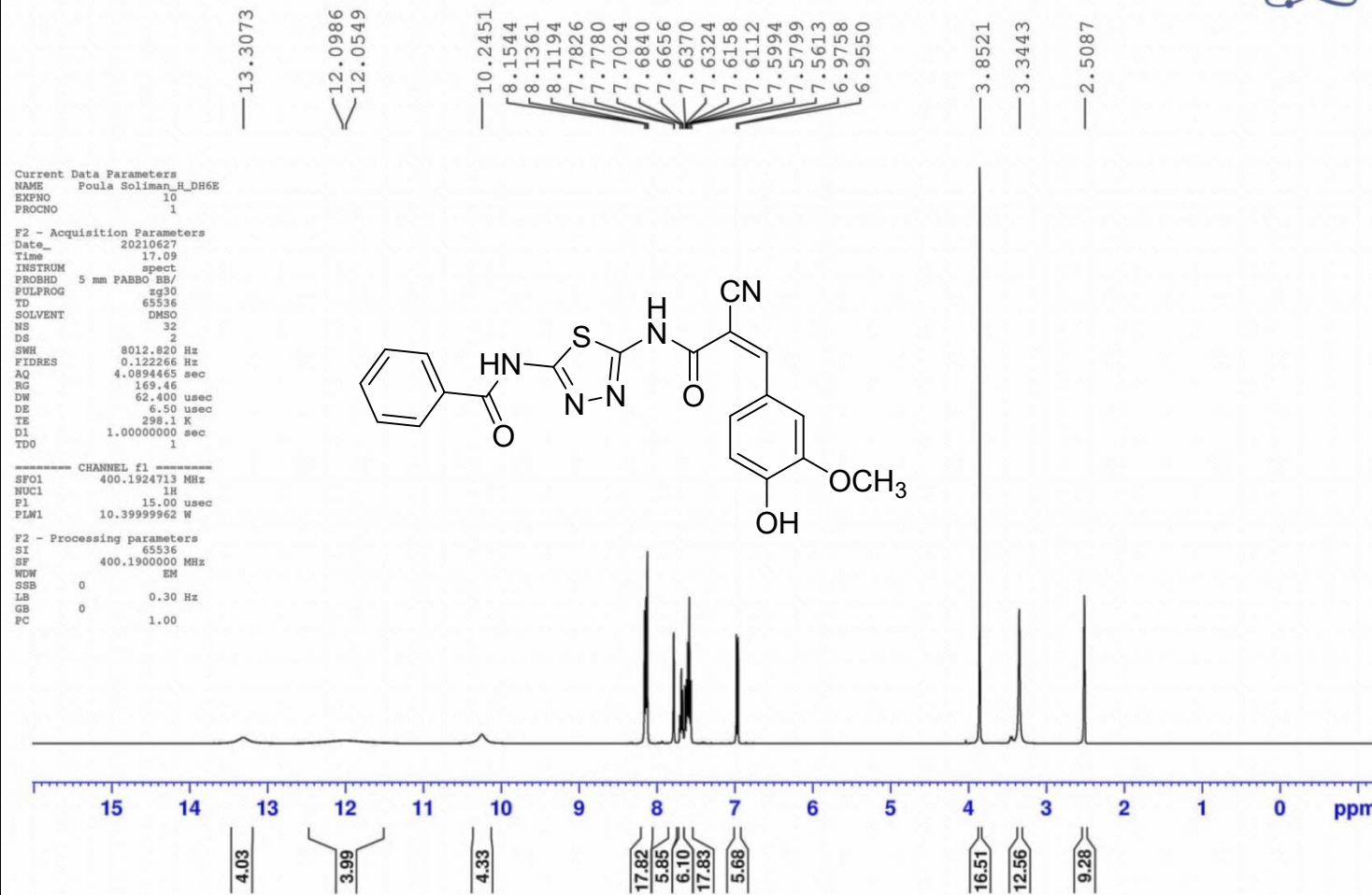
¹³C-NMR spectrum (DMSO-d₆) of compound 7e



IR spectrum of compound 7f

Poula Soliman_H_DH6E

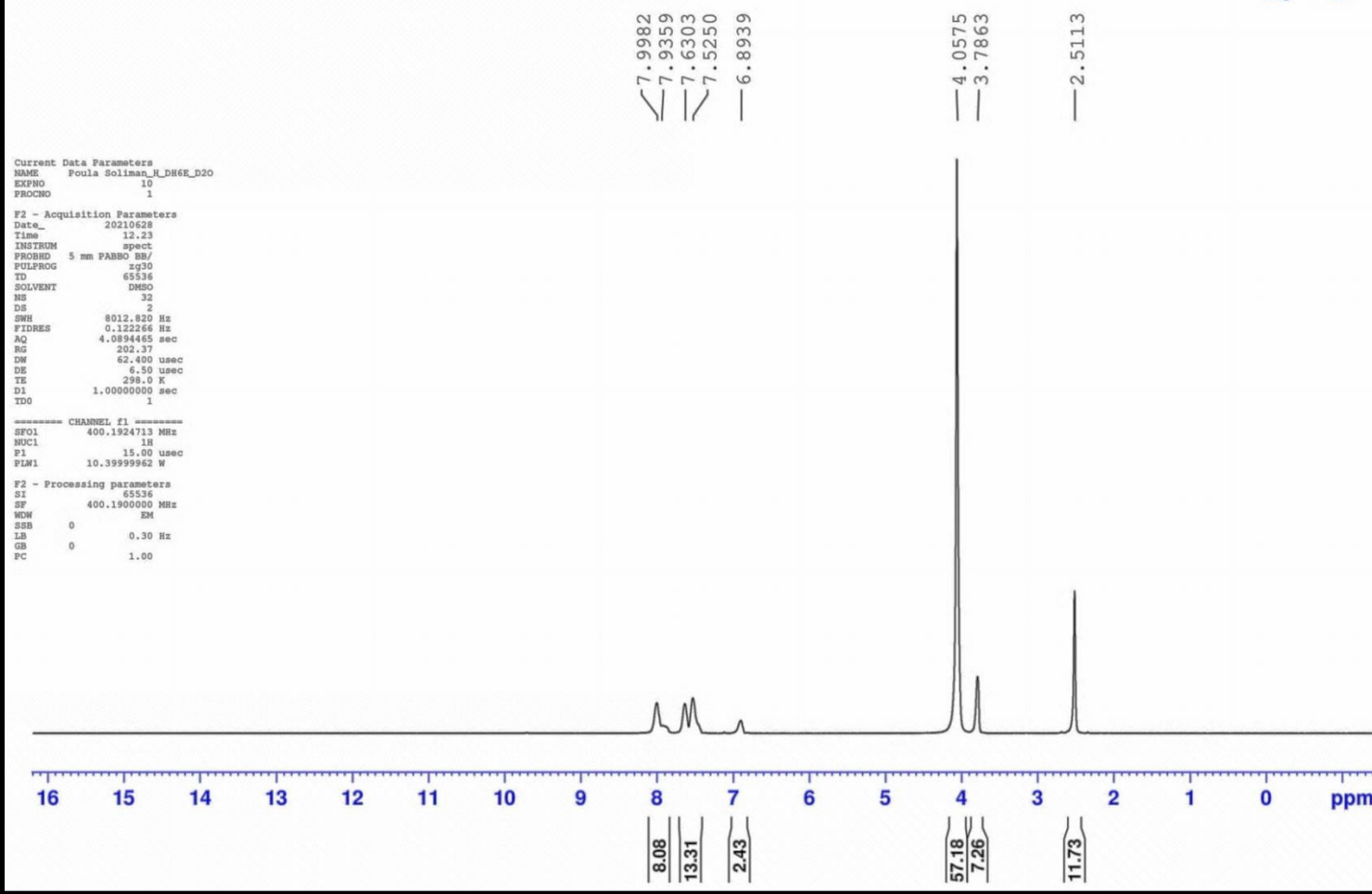
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¹H-NMR spectrum (DMSO-d₆) of compound 7f

Poula Soliman_H_DH6E_D2O

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¹H-NMR spectrum (DMSO-d₆+ D₂O) of compound 7f

Paula Soliman_C_DH6E

Microanalytical Unit - FOPCU - NMR laboratory
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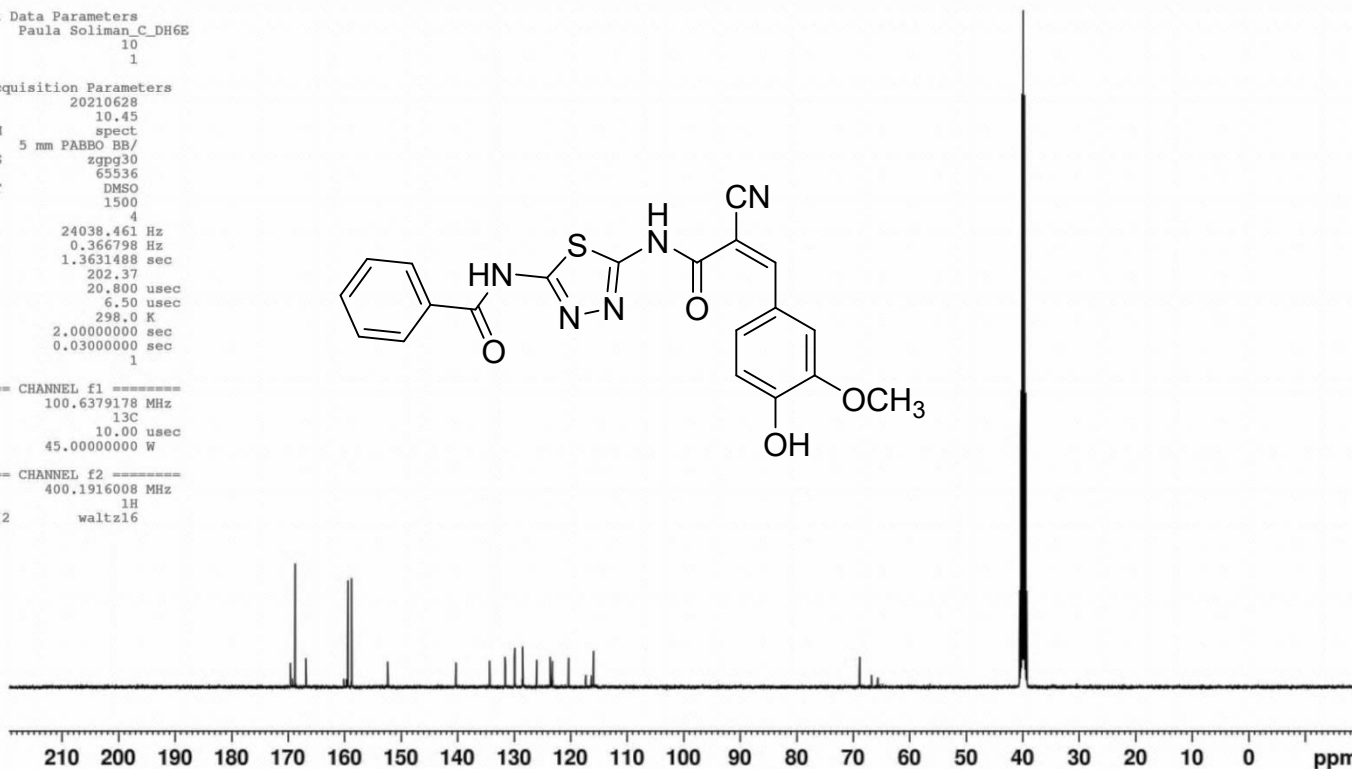
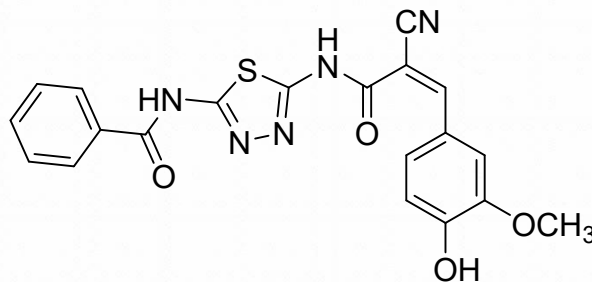


169.66
168.85
166.93
159.51
158.87
152.45
140.38
134.43
131.66
129.98
128.56
126.08
123.69
123.33
120.44
117.41
116.04
68.92
66.81
65.73
40.59
40.38
40.17
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39.75
39.55
39.34

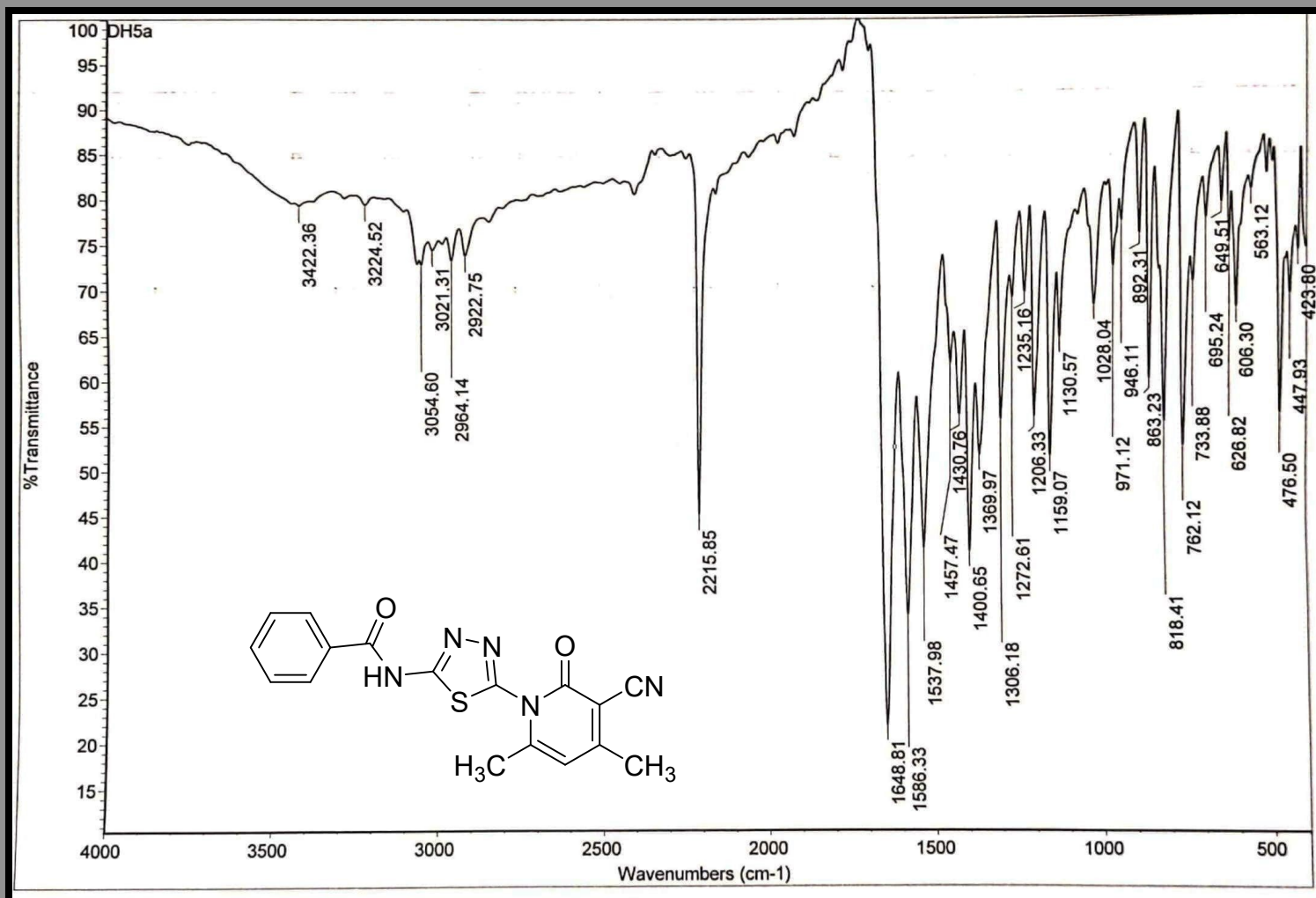
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PROCNO 1

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SOLVENT DMSO
NS 1500
DS 4
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631488 sec
RG 202.37
DW 20.800 usec
DE 6.50 usec
TE 298.0 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

----- CHANNEL f1 -----
SF01 100.6379178 MHz
NUC1 13C
P1 10.00 usec
PLW1 45.00000000 W
----- CHANNEL f2 -----
SFO2 400.1916008 MHz
NUC2 1H
CPDPRG[2] waltz16



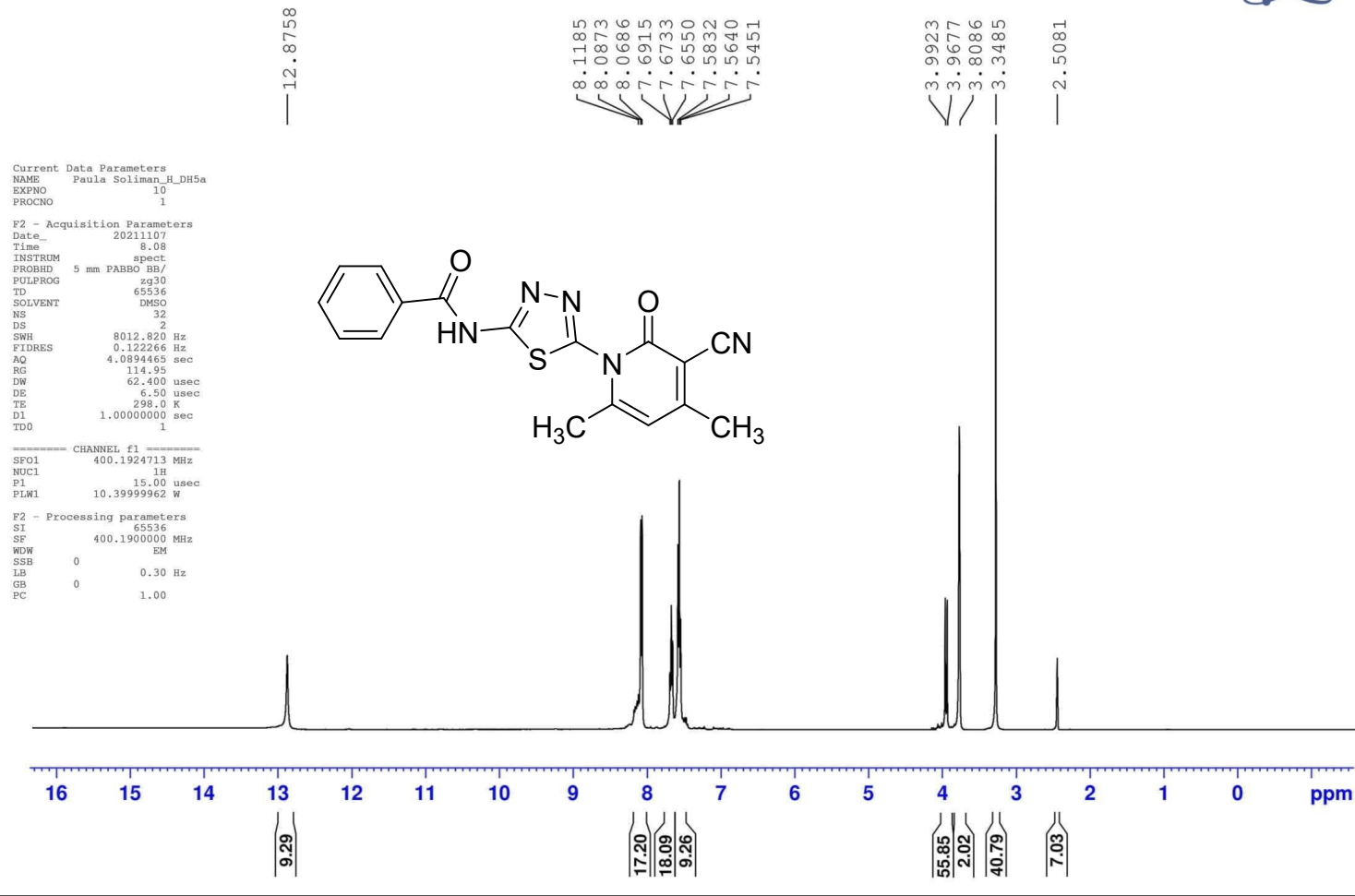
¹³C-NMR spectrum (DMSO-d₆) of compound 7f



IR spectrum of compound 9

Paula Soliman_H_DH5a

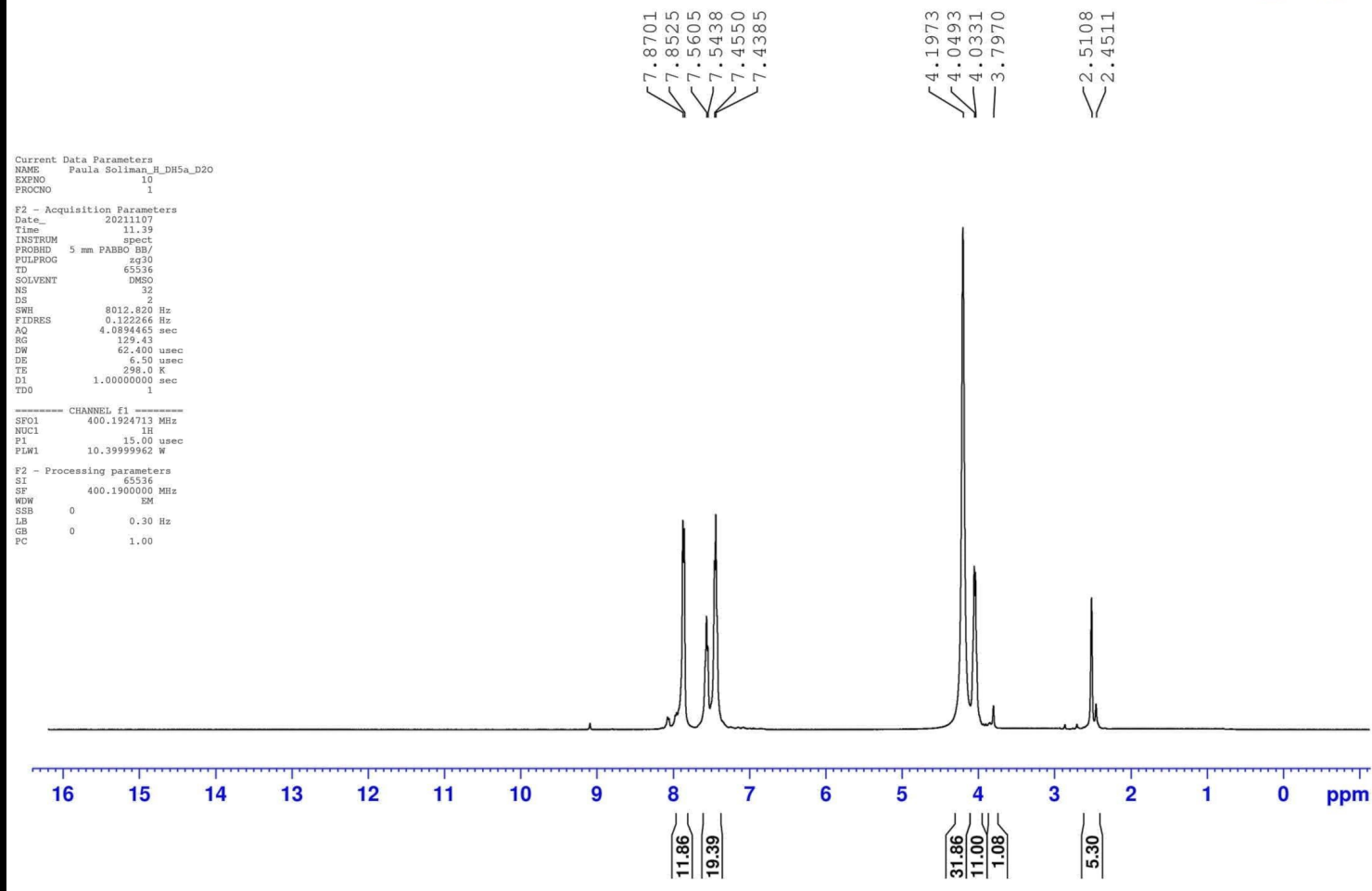
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¹H-NMR spectrum (DMSO-d₆) of compound 9

Paula Soliman_H_DH5a_D2O

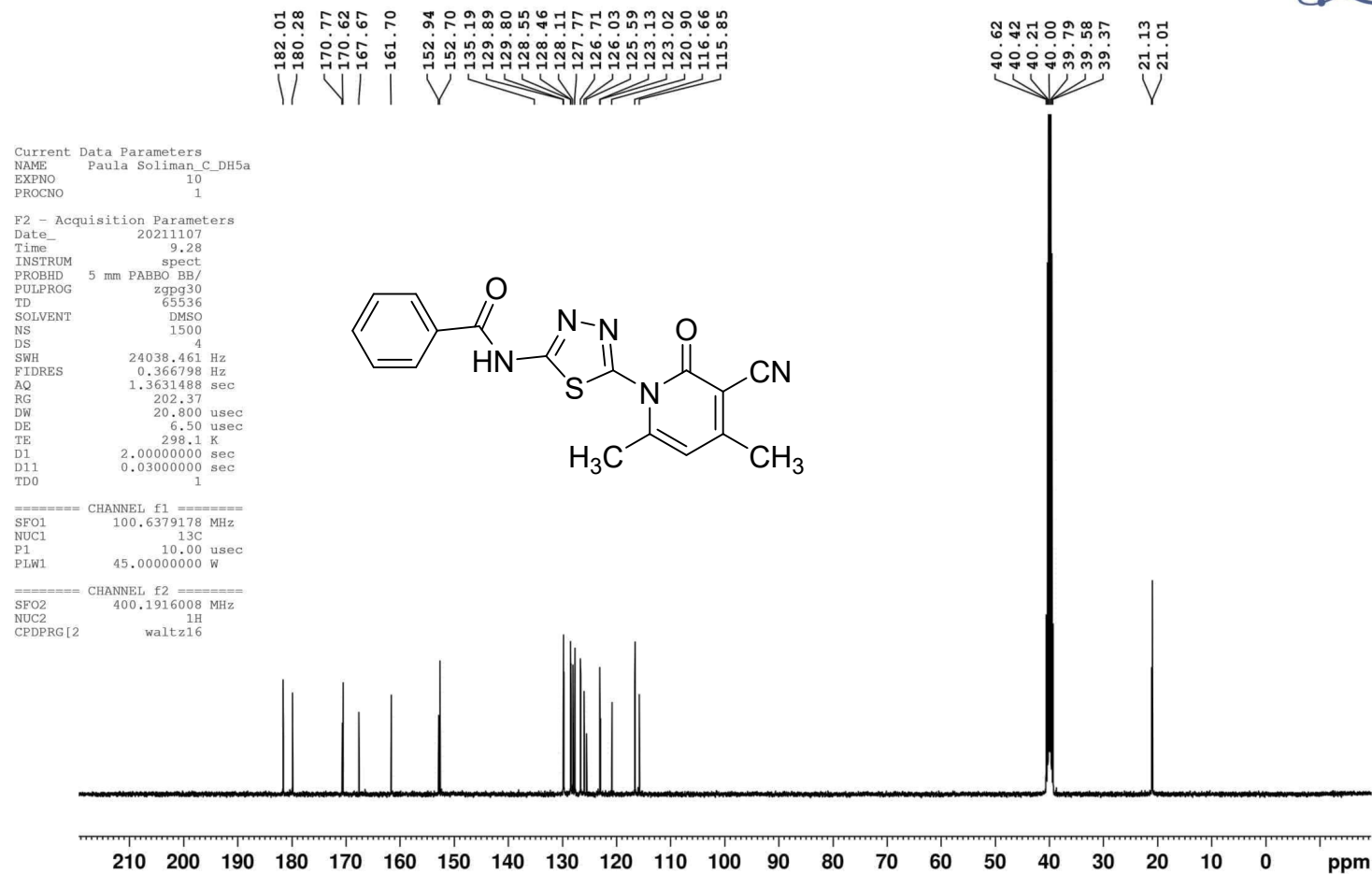
Microanalytical Unit - FOPCU - NMR laboratory
www.pharma.cu.edu.eg dir-mau.fopcu@pharma.cu.edu.eg



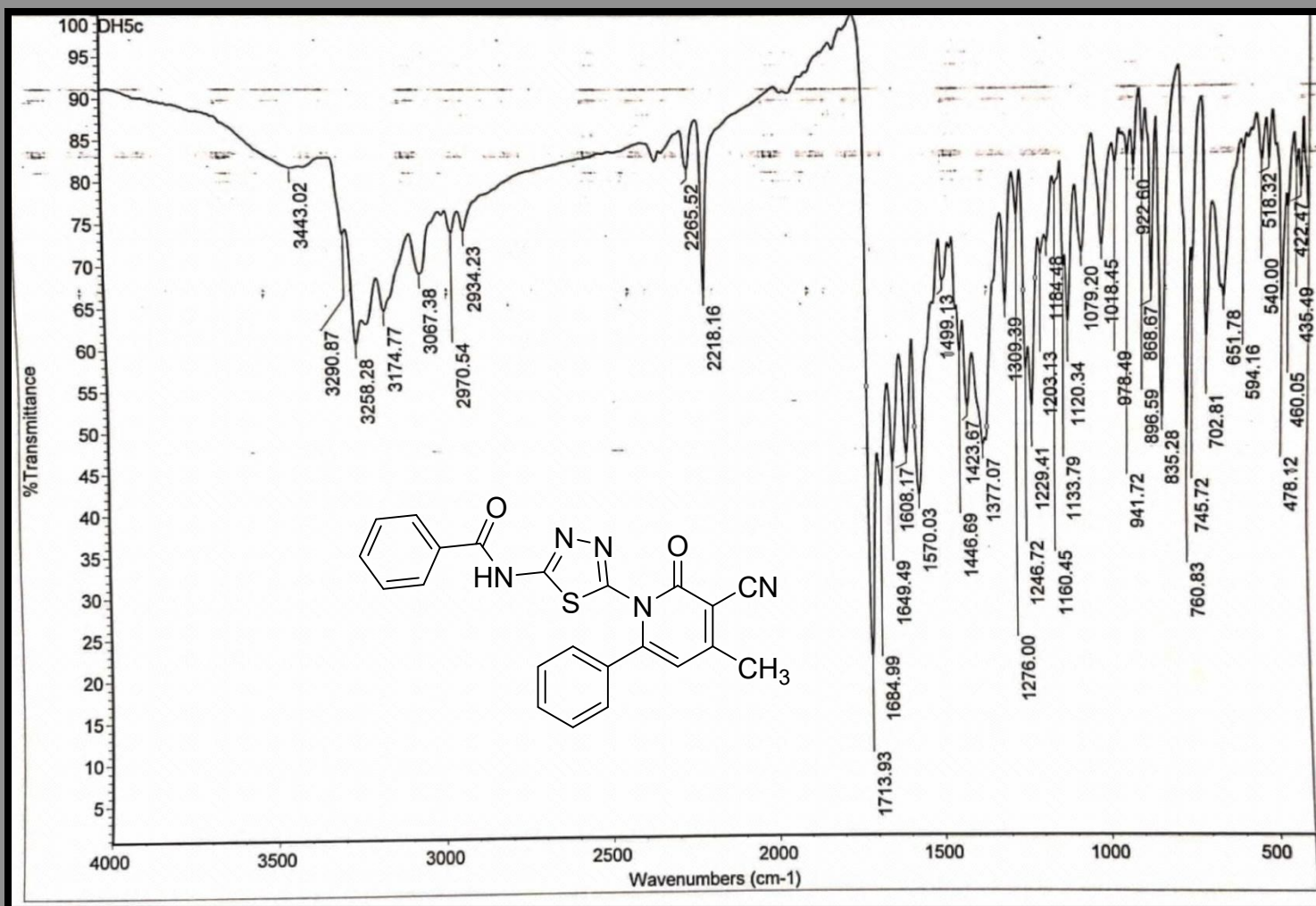
$^1\text{H-NMR}$ spectrum (DMSO- d_6 + D_2O) of compound **9**

Paula Soliman_C_DH5a

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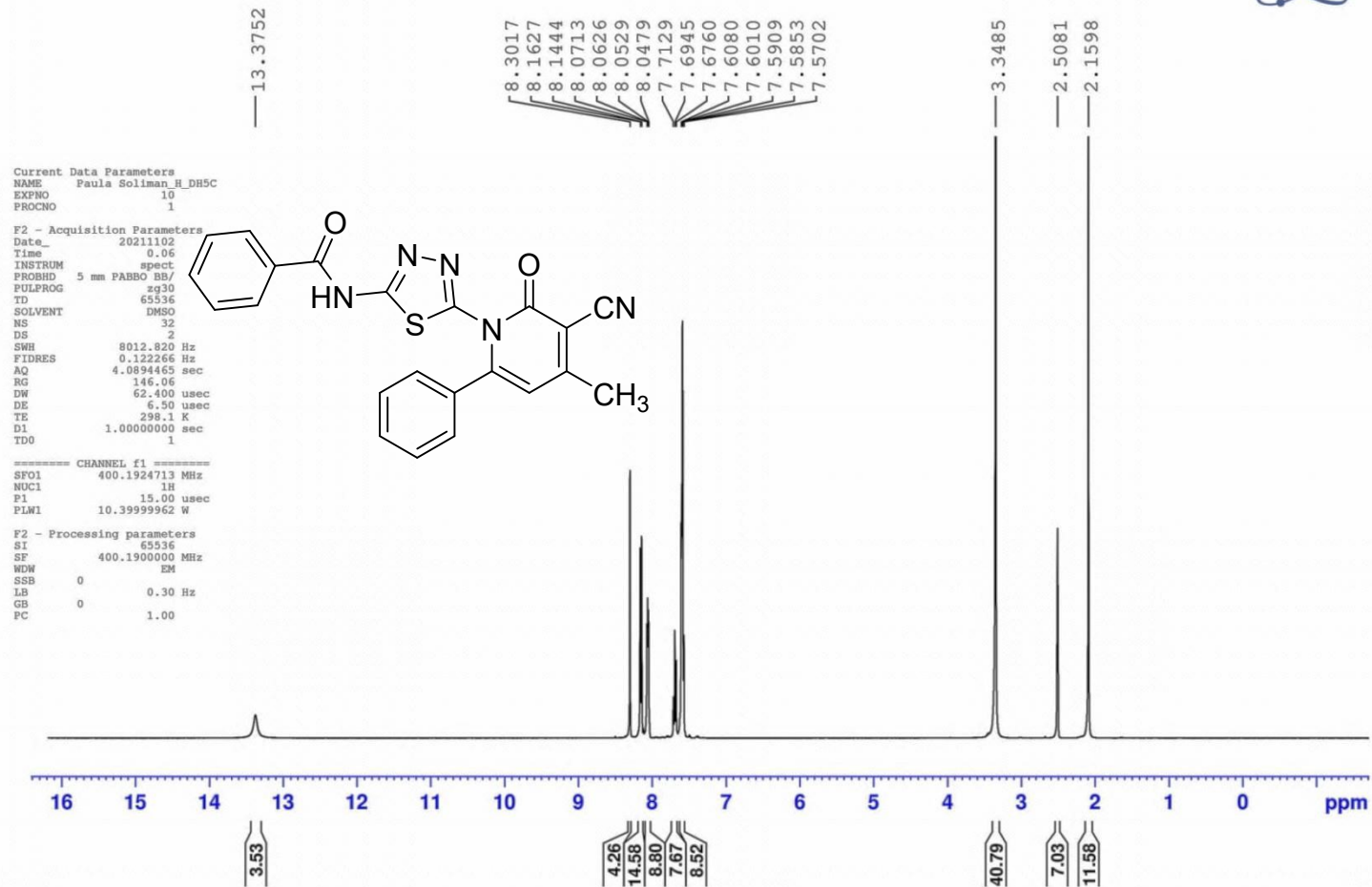
^{13}C -NMR spectrum (DMSO- d_6) of compound 9



IR spectrum of compound 10

Paula Soliman_H_DH5C

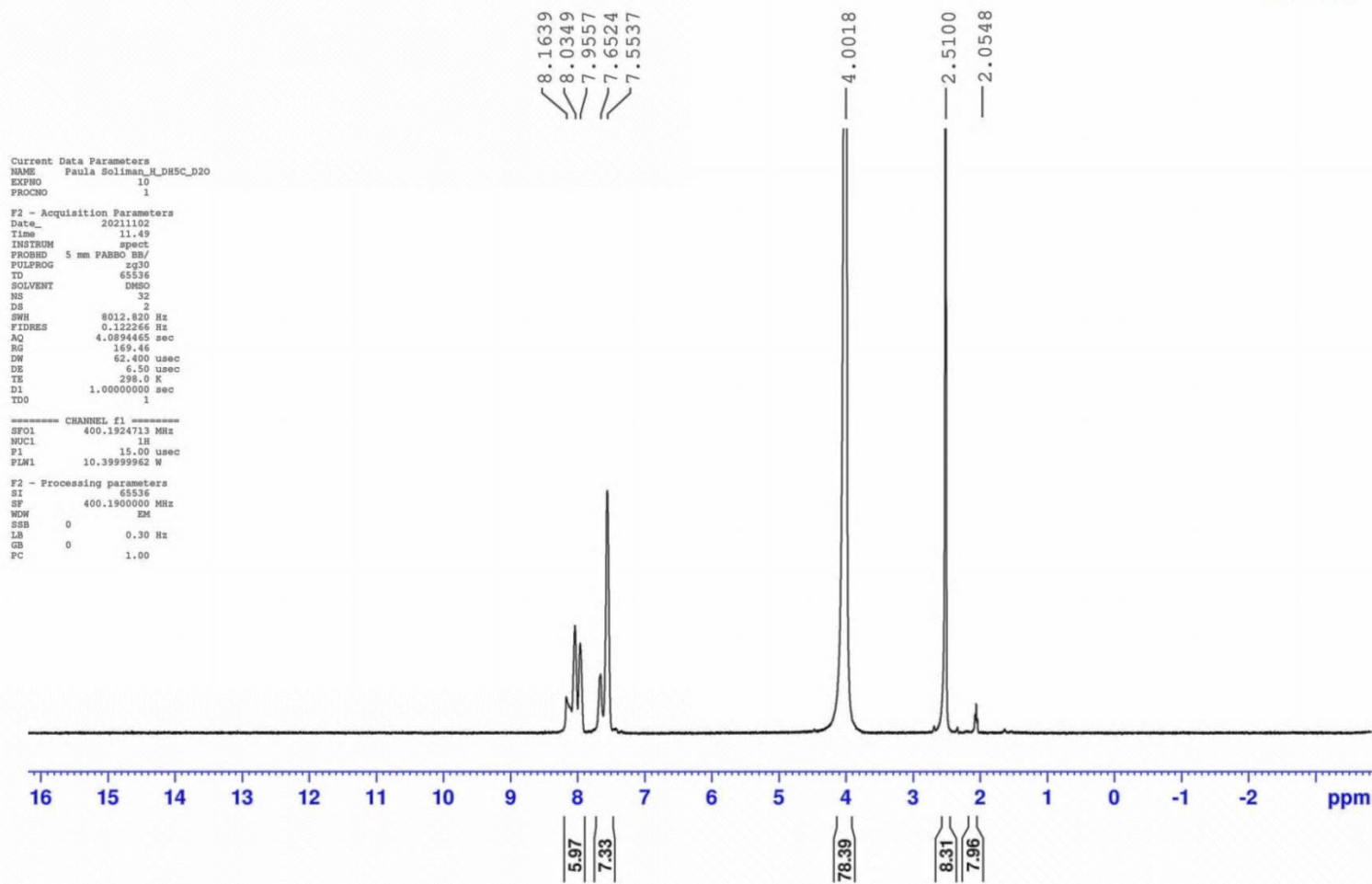
Microanalytical Unit - FOPCU - NMR laboratory
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¹H-NMR spectrum (DMSO-d₆) of compound 10

Paula Soliman_H_DH5C_D2O

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$^1\text{H-NMR}$ spectrum ($\text{DMSO-d}_6 + \text{D}_2\text{O}$) of compound **10**

Paula Soliman_C_DH5C

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169.66
168.85
166.93
159.51
158.87
152.45
140.38
134.43
131.66
129.98
128.56
126.08
123.69
123.33
120.44
117.41
116.04

68.92

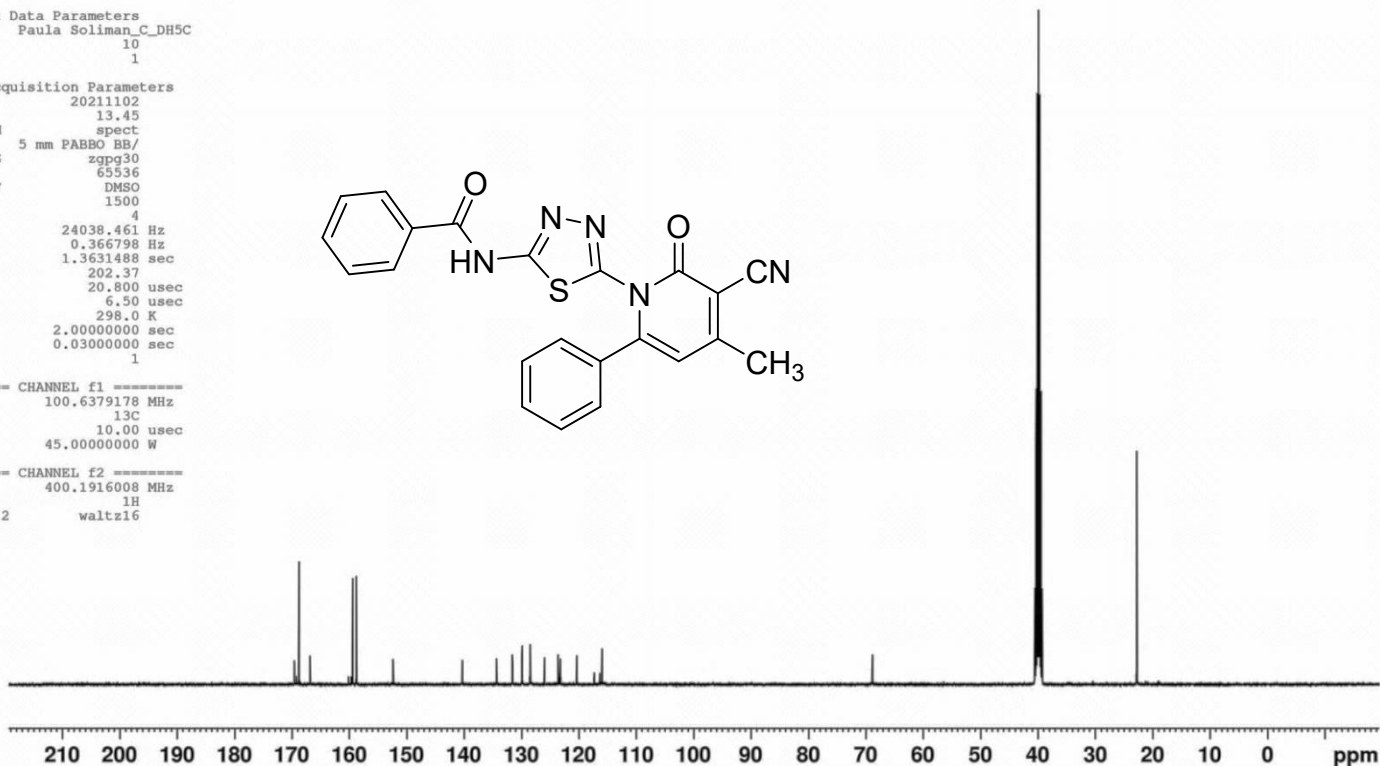
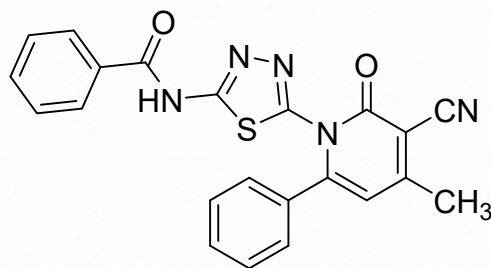
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39.34
22.83

Current Data Parameters
NAME Paula Soliman_C_DH5C
EXPNO 10
PROCNO 1

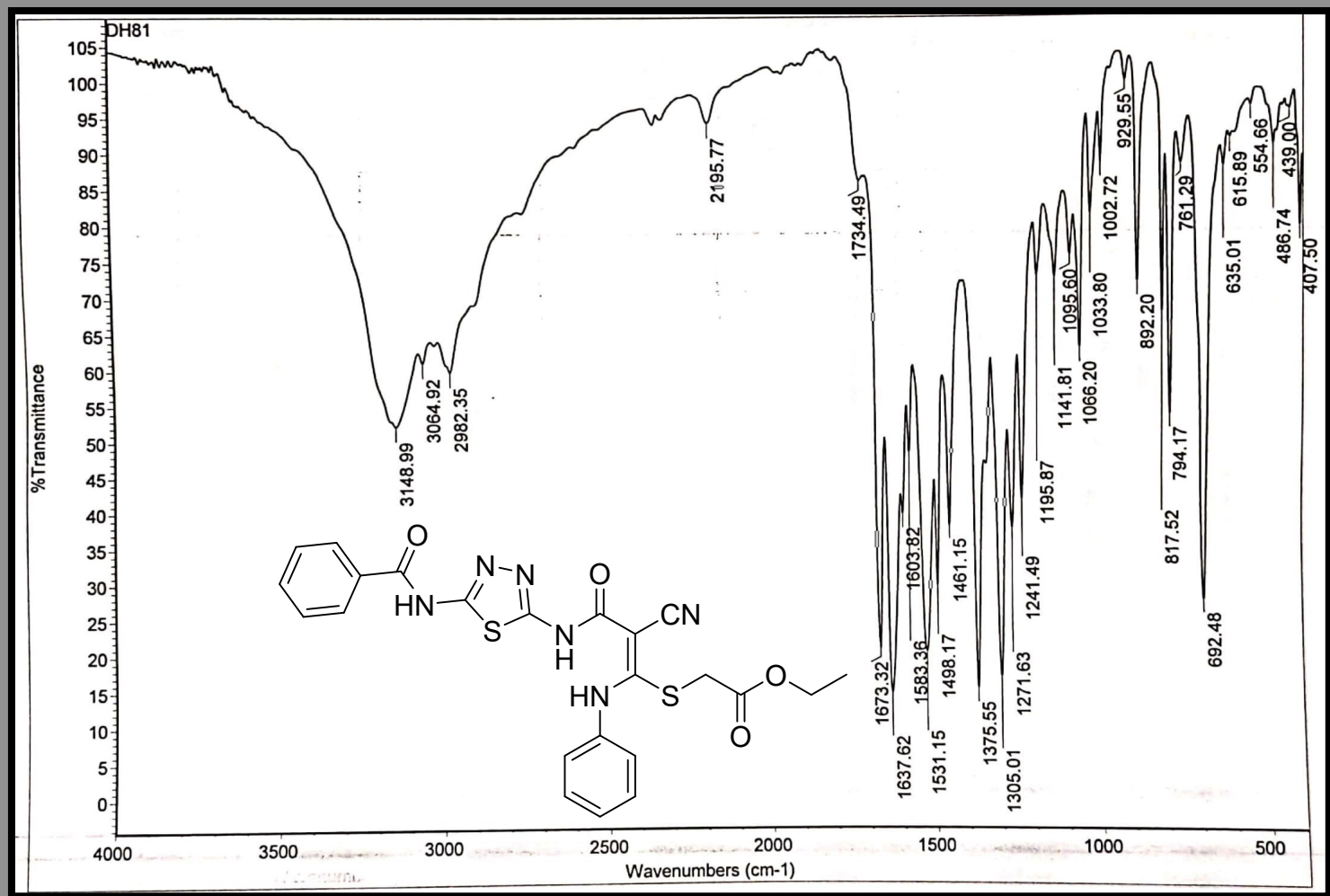
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NS 1500
DS 4
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FIDRES 0.366798 Hz
AQ 1.3631488 sec
RG 202.37
DW 20.800 usec
DE 6.50 usec
TE 298.0 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

----- CHANNEL f1 -----
SFO1 100.6379178 MHz
NUC1 13C
P1 10.00 usec
PLW1 45.00000000 W

----- CHANNEL f2 -----
SFO2 400.1916008 MHz
NUC2 1H
CPDPRG2 waltz16



¹³C-NMR spectrum (DMSO-d₆) of compound 10



IR spectrum of compound 11

Paula Soliman_H_DH81

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13.0754
12.8515
11.9696

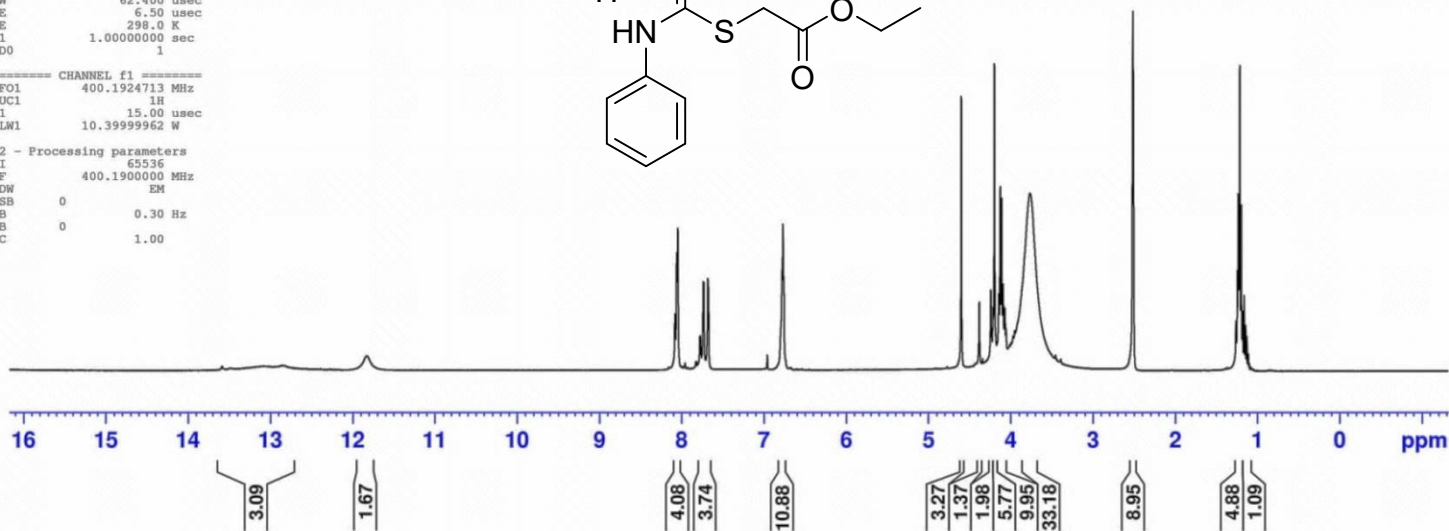
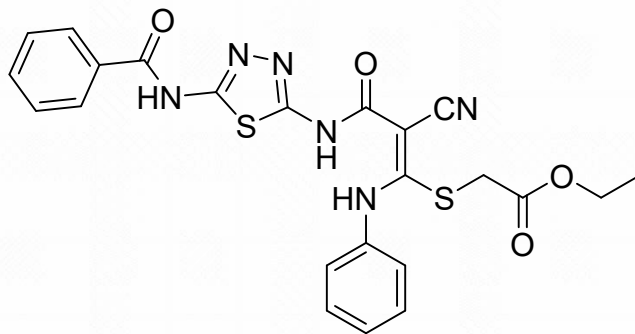
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8.0440
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7.7674
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7.6786
7.6698
6.7743
6.7693
6.7651
6.7613
6.7561
4.5966
4.3781
4.2372
4.2109
4.1936
4.1399
4.1225
4.1047
4.0873
4.0687
4.0542
3.7586
2.5080
1.2569
1.2391
1.2274
1.2098
1.1922
1.1759
1.1575
1.1401
1.1246
1.1069

Current Data Parameters
NAME Paula Soliman_H_DH81
EXPNO 21
PROCNO 1

F2 - Acquisition Parameters
Date_ 20211102
Time 0.01
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PULPROG zg30
TD 65536
SOLVENT DMSO
NS 32
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 146.06
DW 62.400 usec
DE 6.50 usec
TE 298.0 K
D1 1.00000000 sec
TDO 1

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NUC1 1H
P1 15.00 usec
PLW1 10.39999962 W

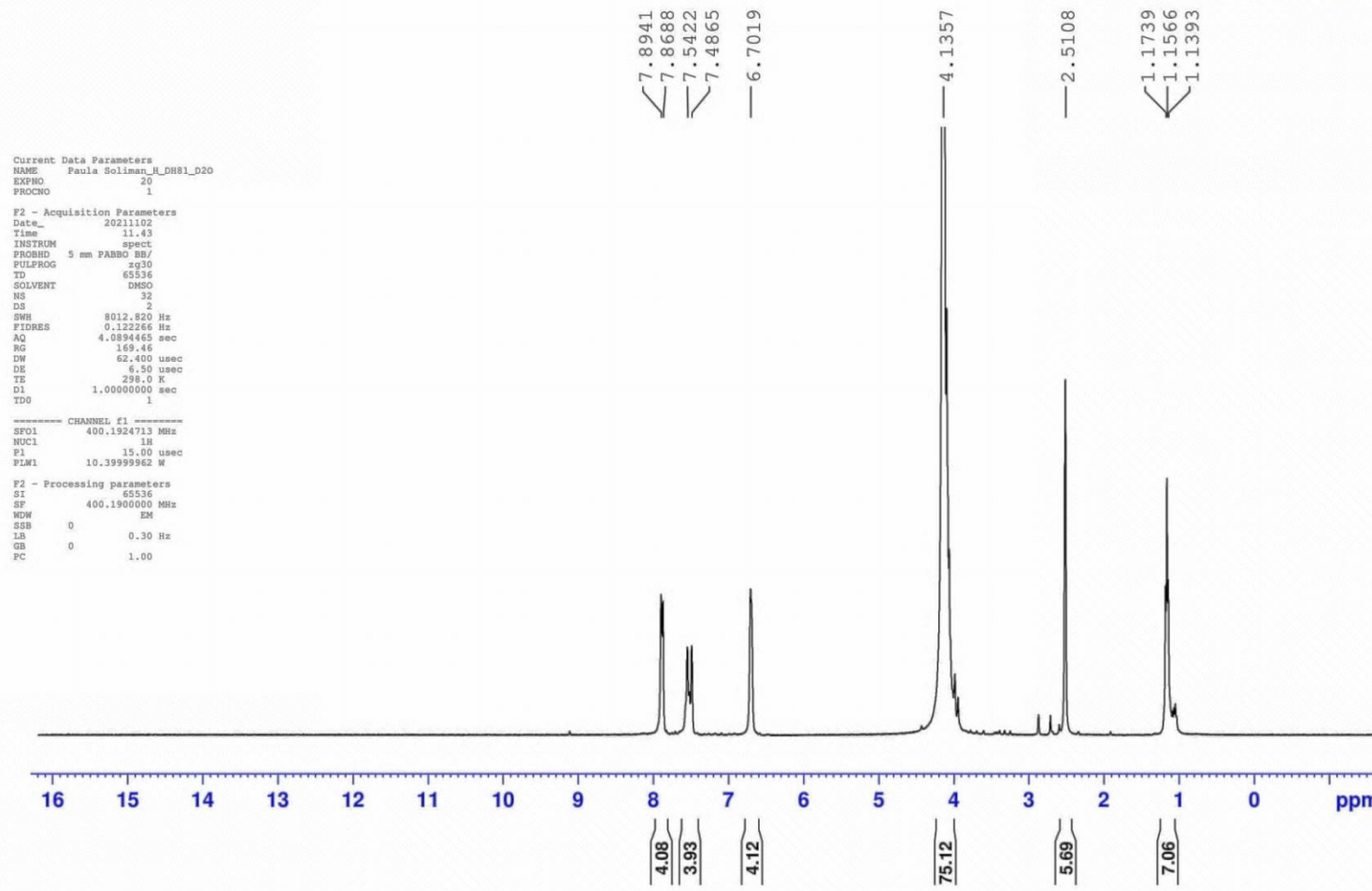
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PC 1.00



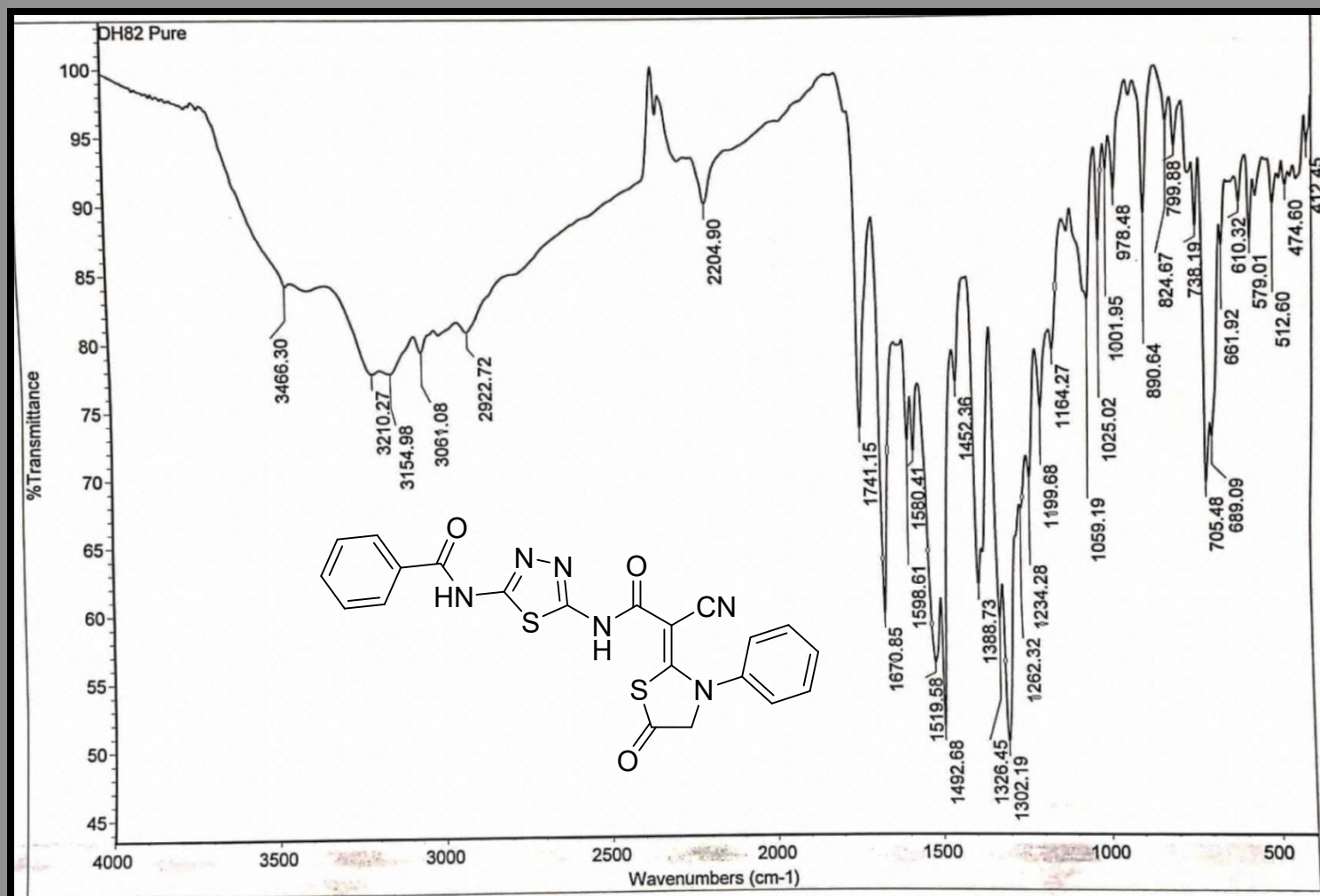
¹H-NMR spectrum (DMSO-d₆) of compound **11**

Paula Soliman_H_DH81_D2O

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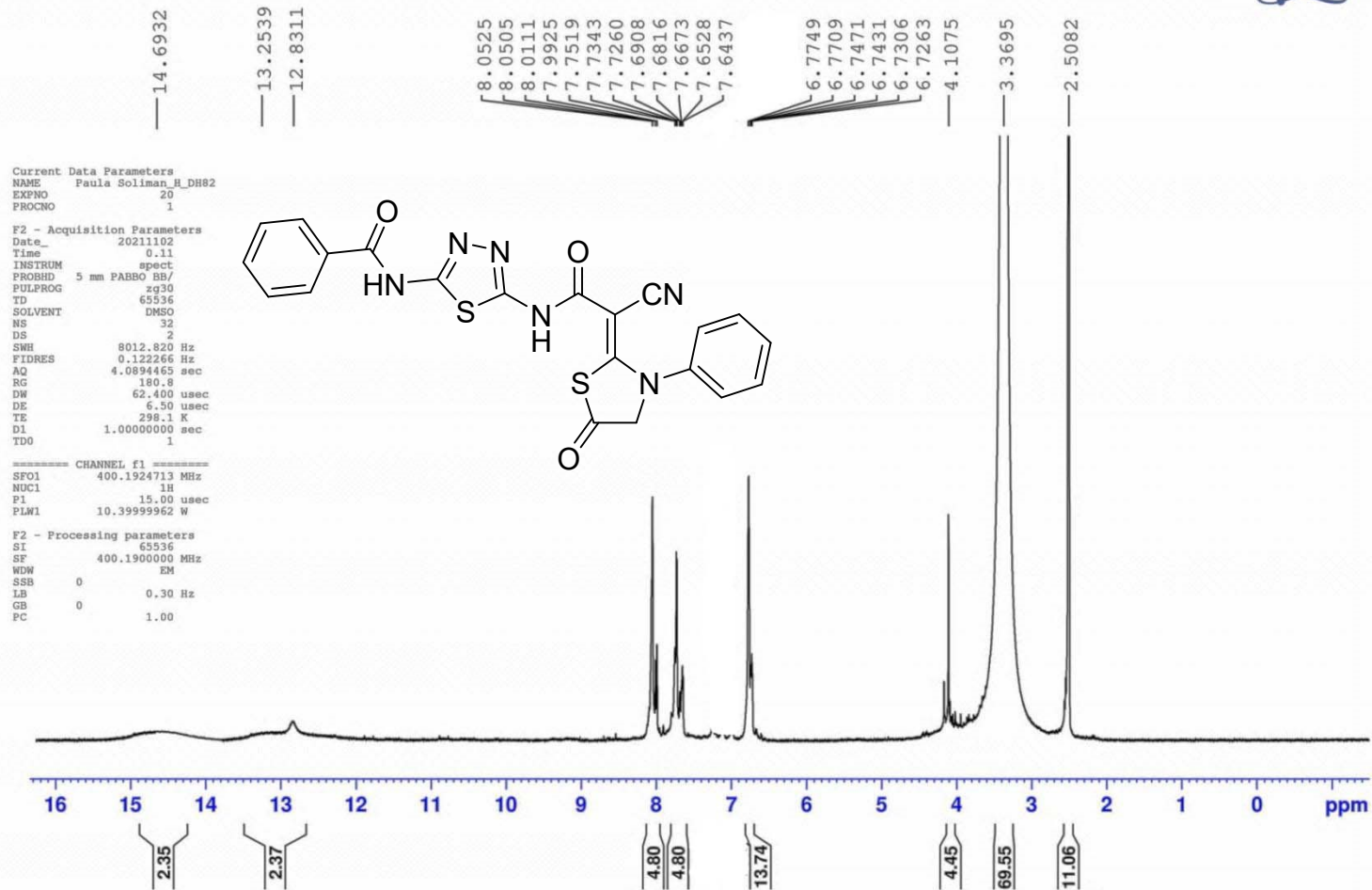
^1H -NMR spectrum ($\text{DMSO-d}_6 + \text{D}_2\text{O}$) of compound **11**



IR spectrum of compound 12

Paula Soliman_H_DH82

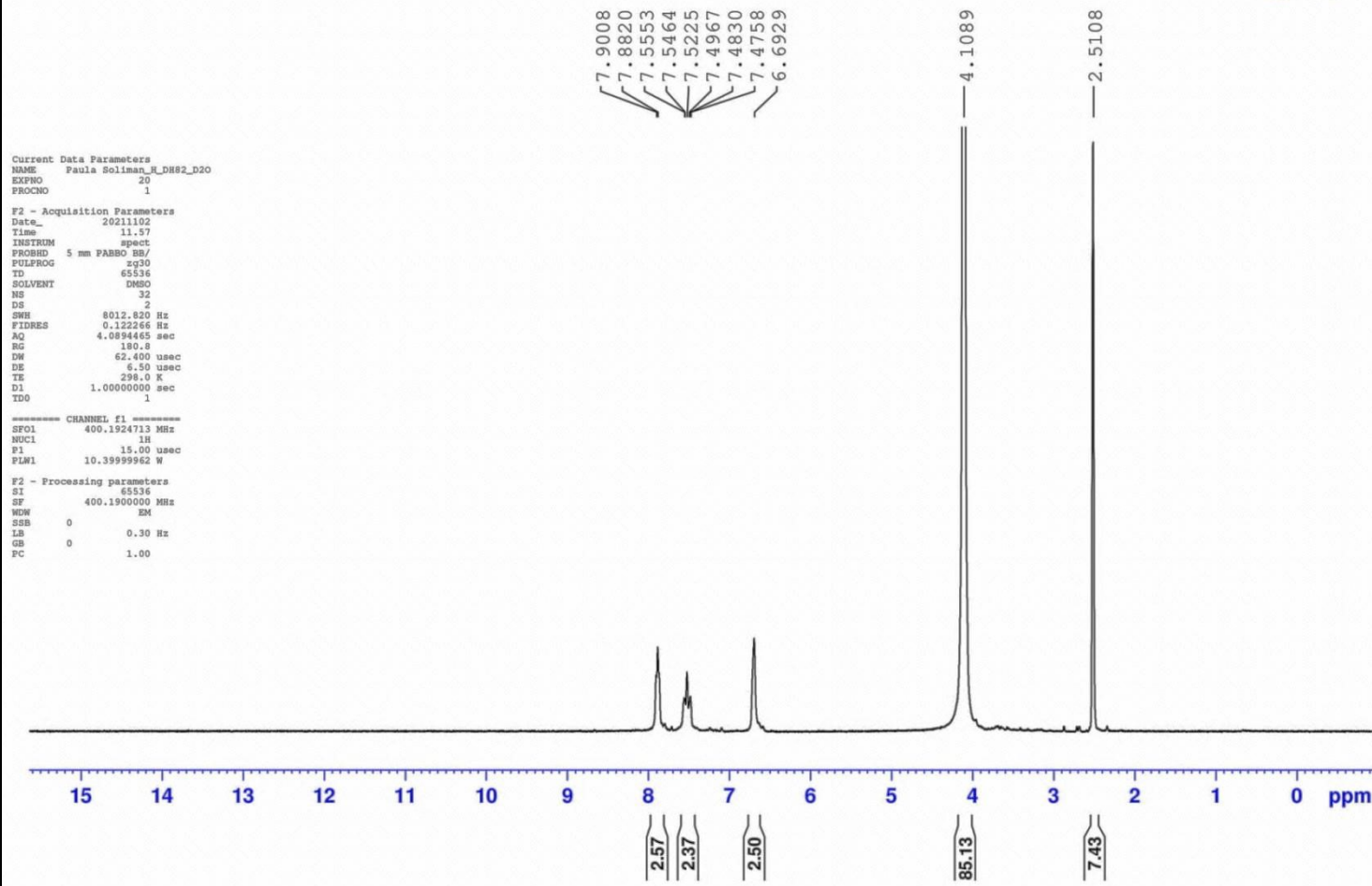
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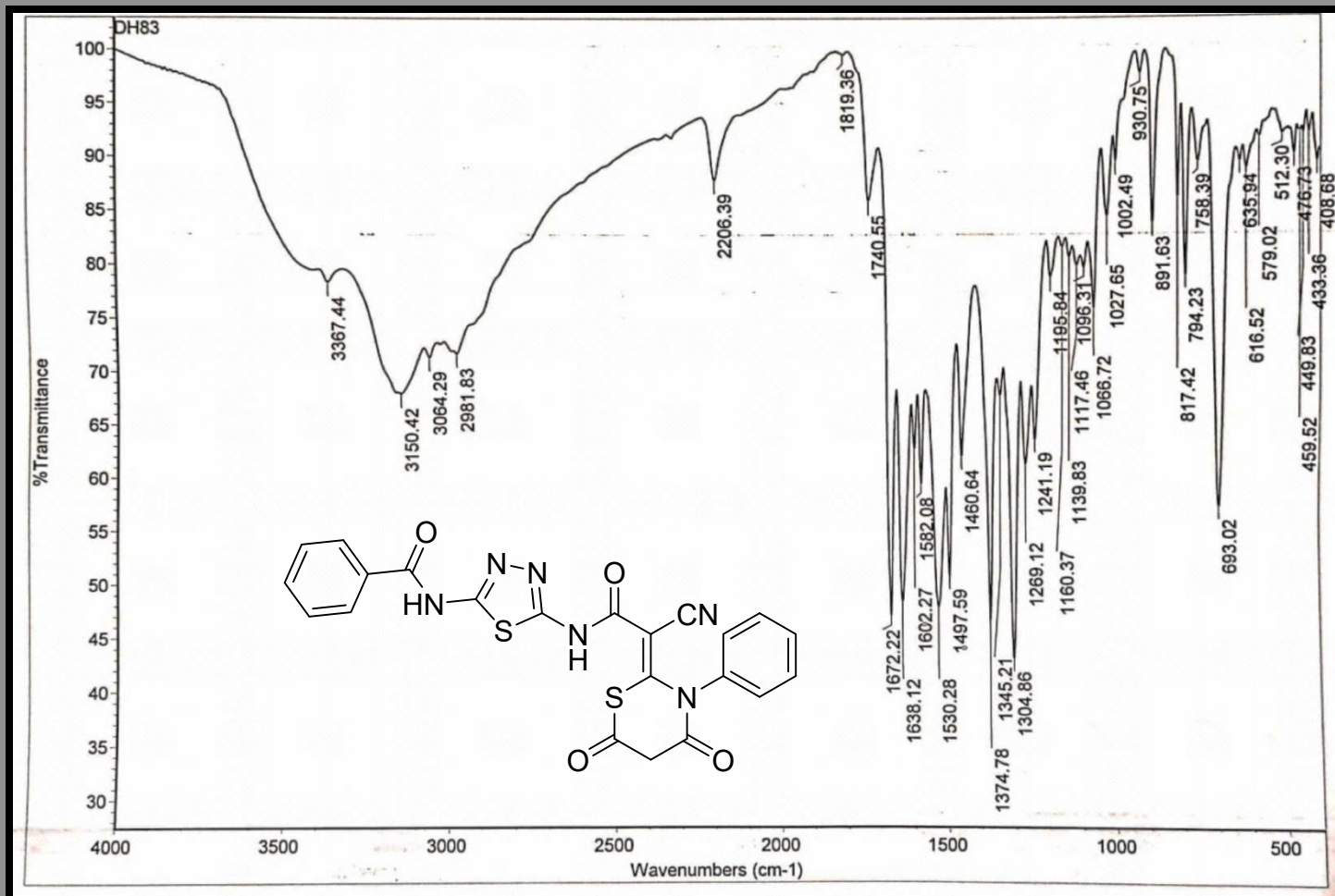
$^1\text{H-NMR}$ spectrum (DMSO- d_6) of compound 12

Paula Soliman_H_DH82_D2O

Microanalytical Unit - FOPCU - NMR laboratory
www.pharma.cu.edu.eg dir-mau.fopcu@pharma.cu.edu.eg



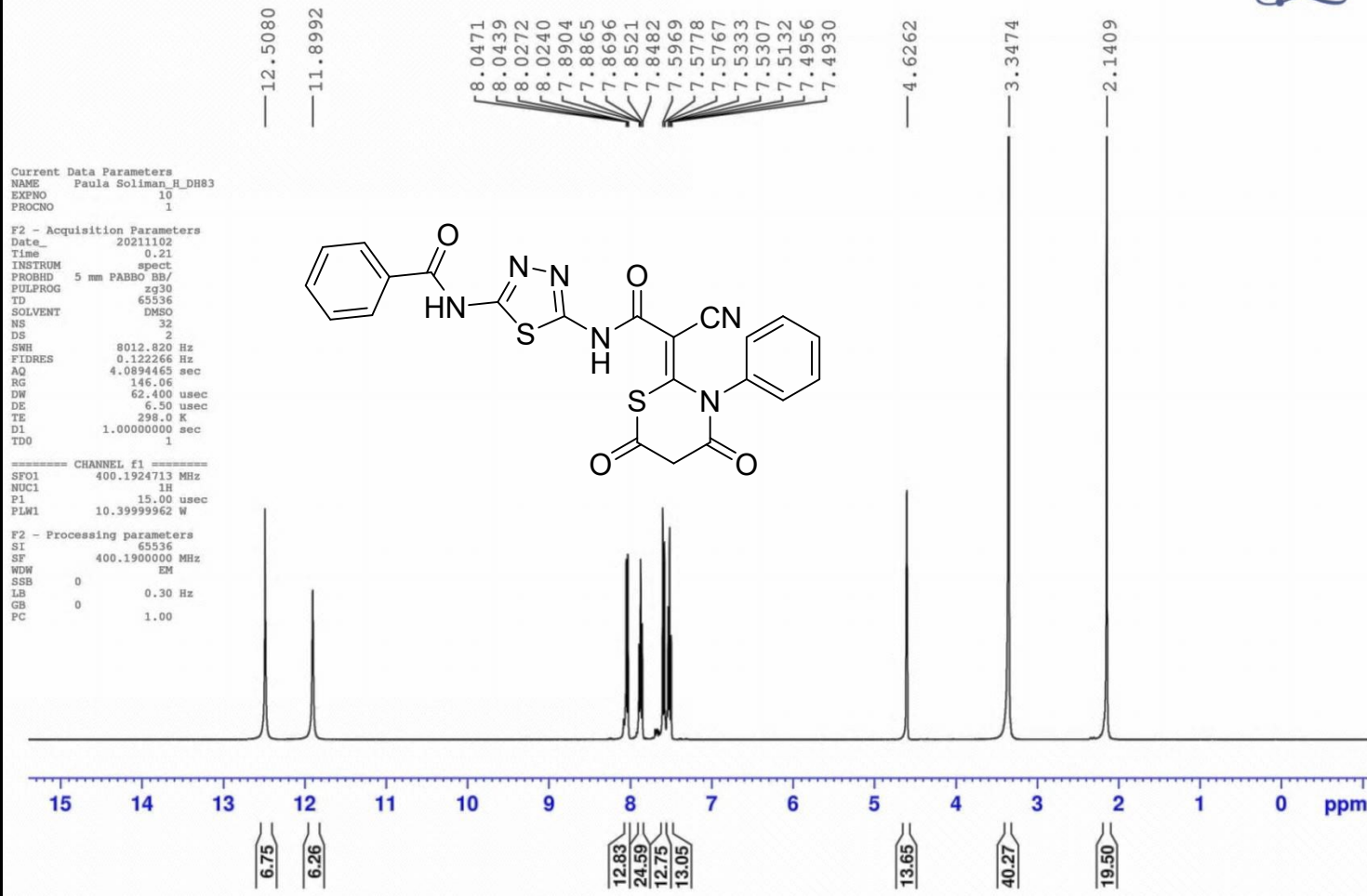
$^1\text{H-NMR}$ spectrum ($\text{DMSO-d}_6 + \text{D}_2\text{O}$) of compound **12**



IR spectrum of compound 13

Paula Soliman_H_DH83

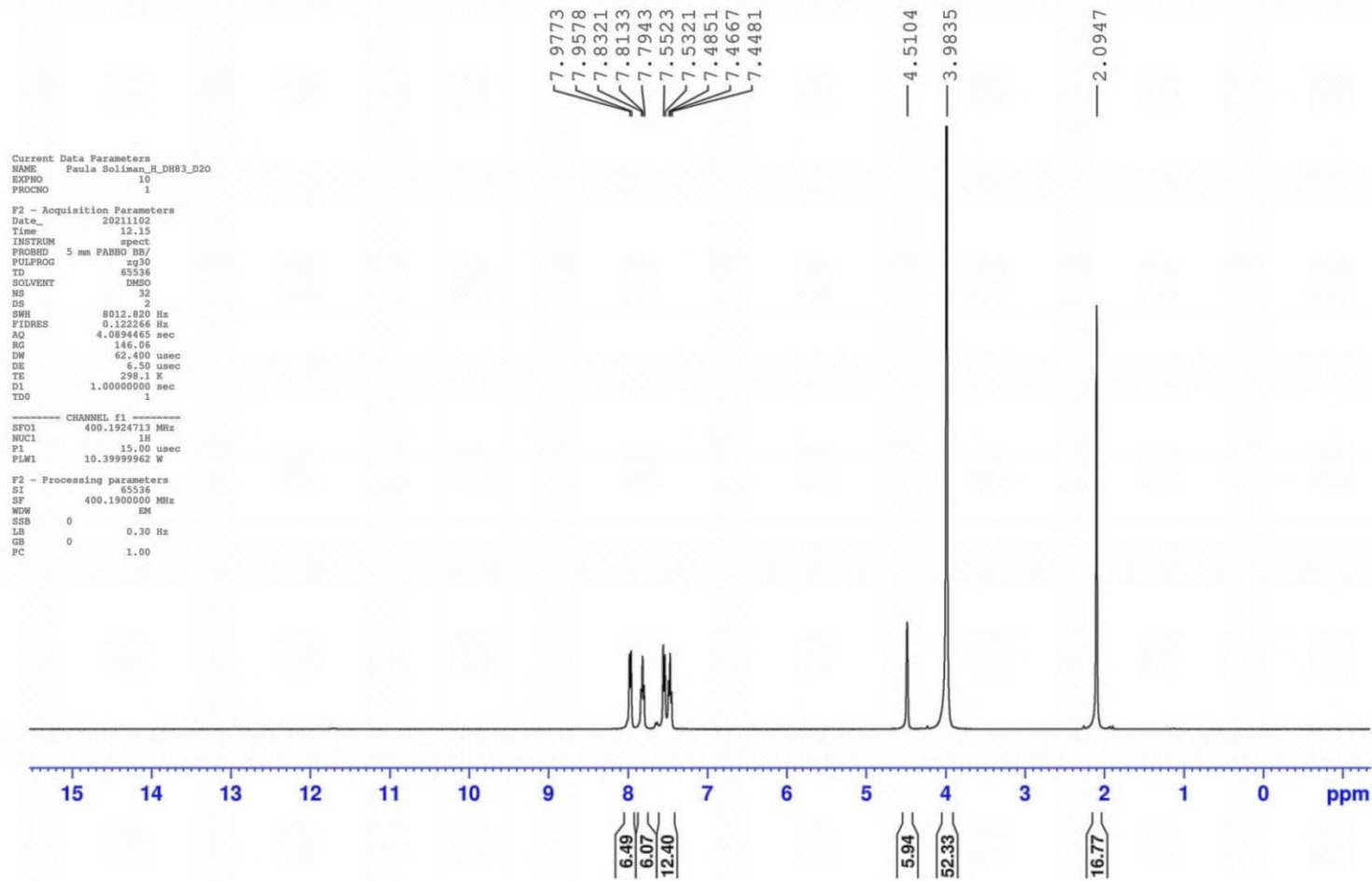
Microanalytical Unit - FOPCU - NMR laboratory
www.pharma.cu.edu.eg dir-mau.fopcu@pharma.cu.edu.eg



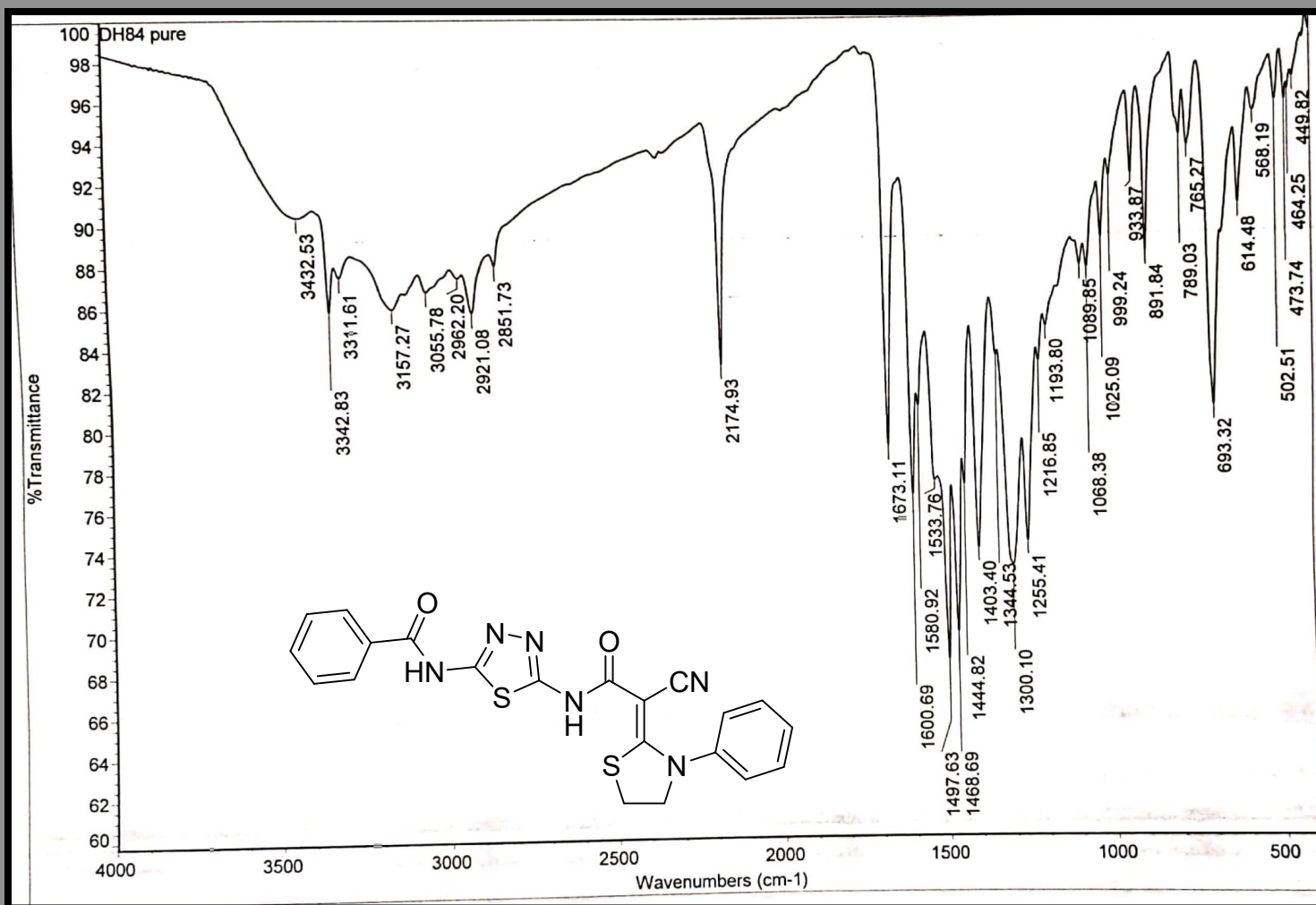
¹H-NMR spectrum (DMSO-d₆) of compound 13

Paula Soliman_H_DH83_D2O

Microanalytical Unit - FOPCU - NMR laboratory
www.pharma.cu.edu.eg dir-mau.fopcu@pharma.cu.edu.eg



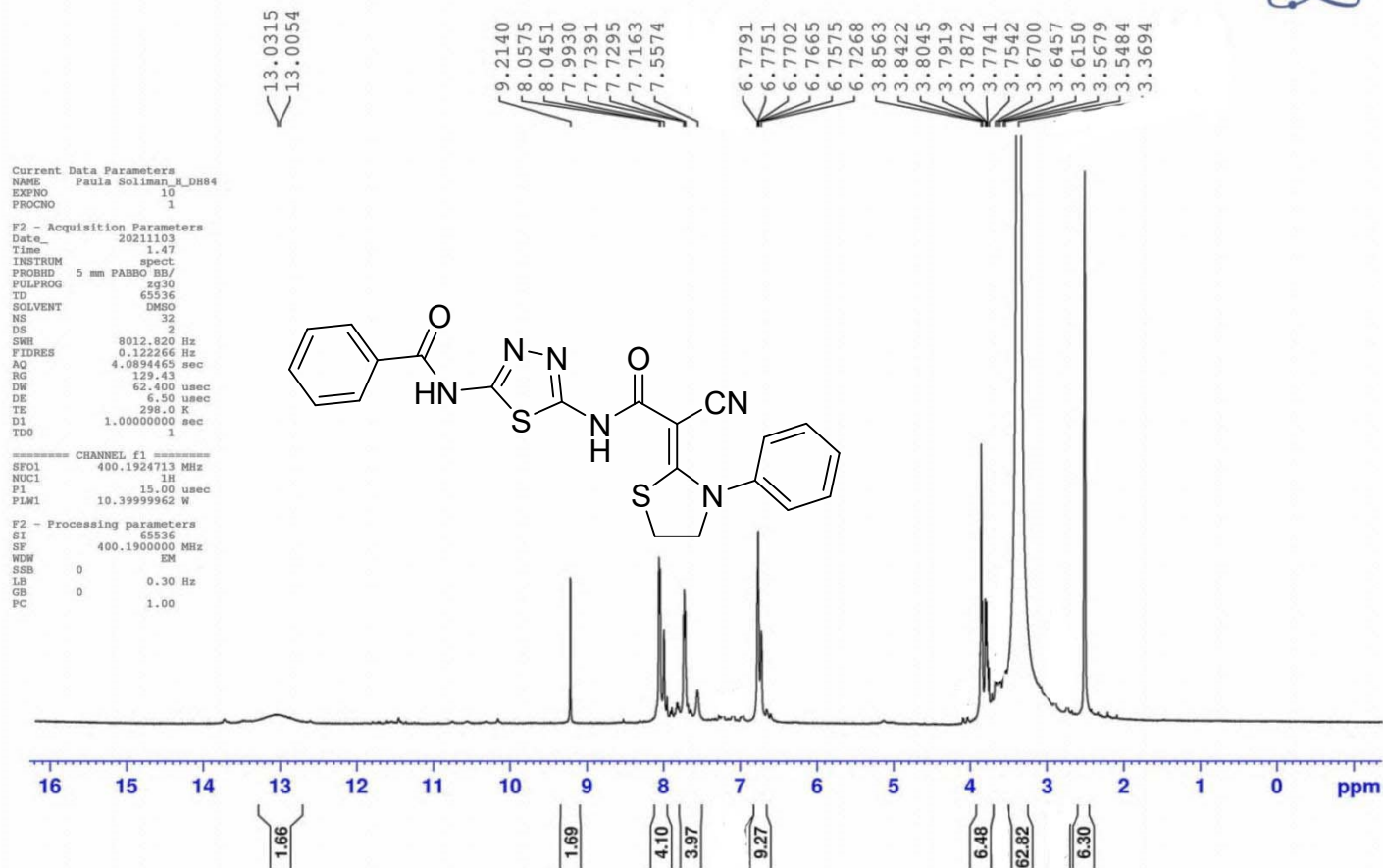
¹H-NMR spectrum (DMSO-d₆+ D₂O) of compound 13



IR spectrum of compound 14

Paula Soliman_H_DH84

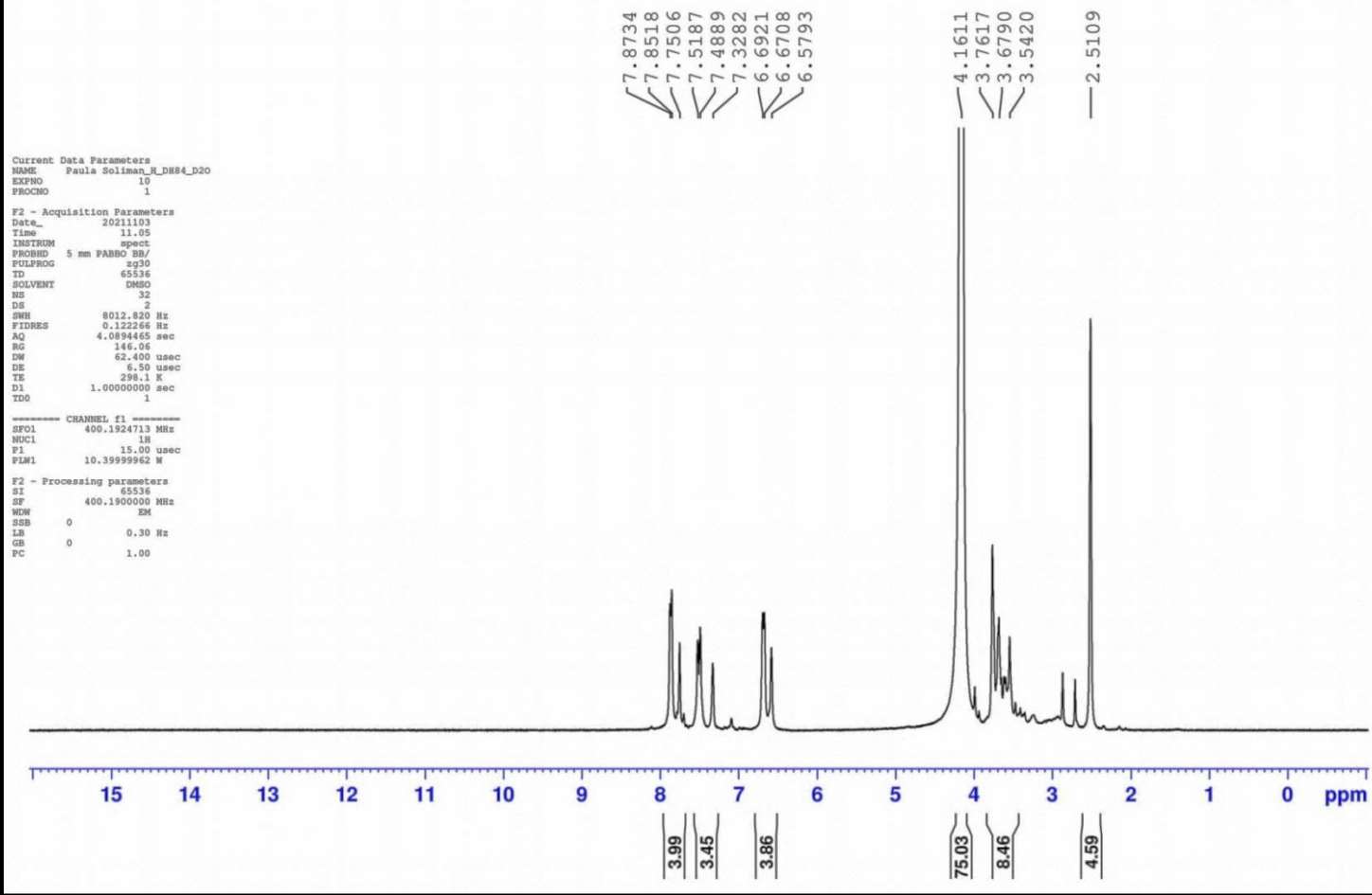
Microanalytical Unit - FOPCU - NMR laboratory
www.pharma.cu.edu.eg dir-mau.fopcu@pharma.cu.edu.eg



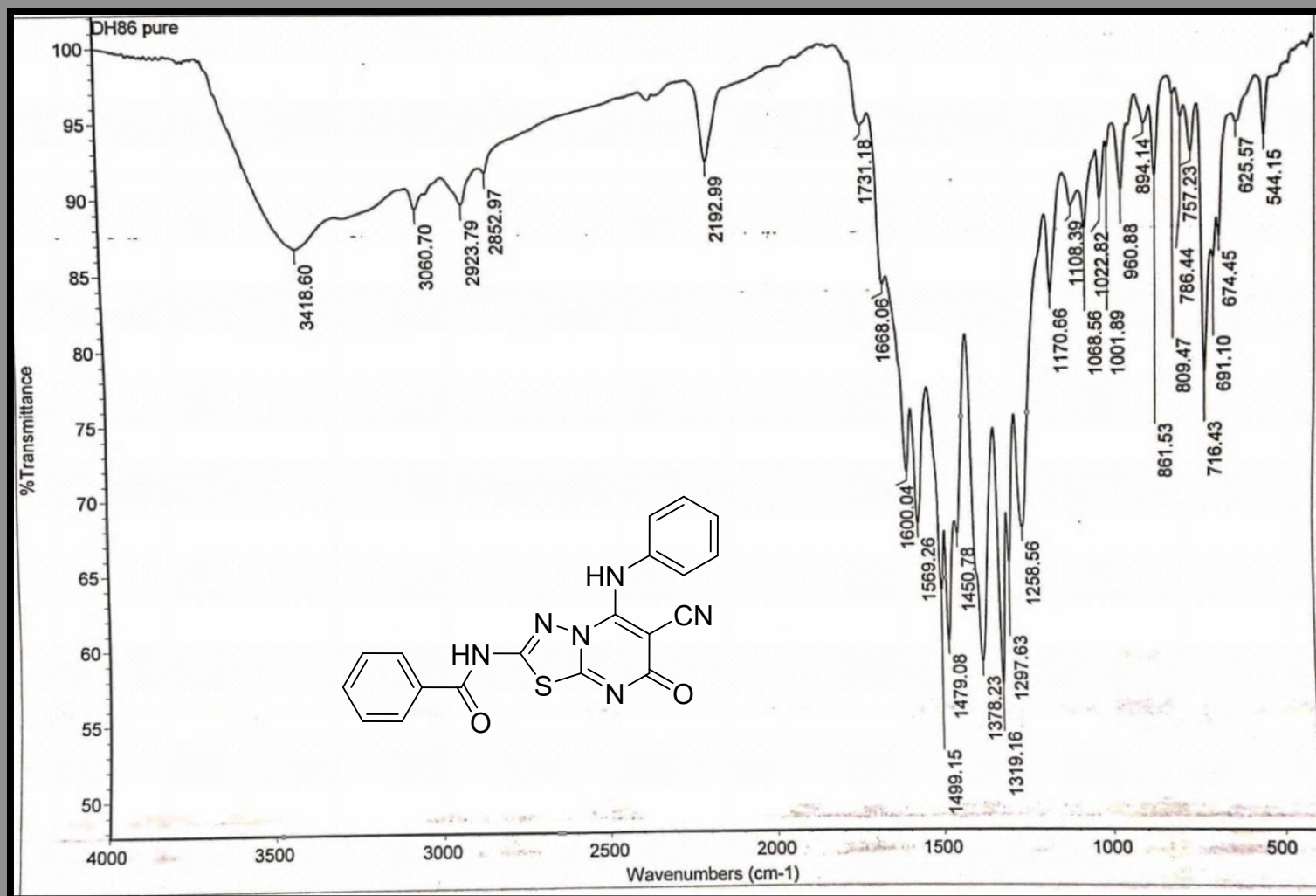
¹H-NMR spectrum (DMSO-d₆) of compound 14

Paula Soliman_H_DH84_D2O

Microanalytical Unit - FOPCU - NMR laboratory
www.pharma.cu.edu.eg dir-mau.fopcu@pharma.cu.edu.eg



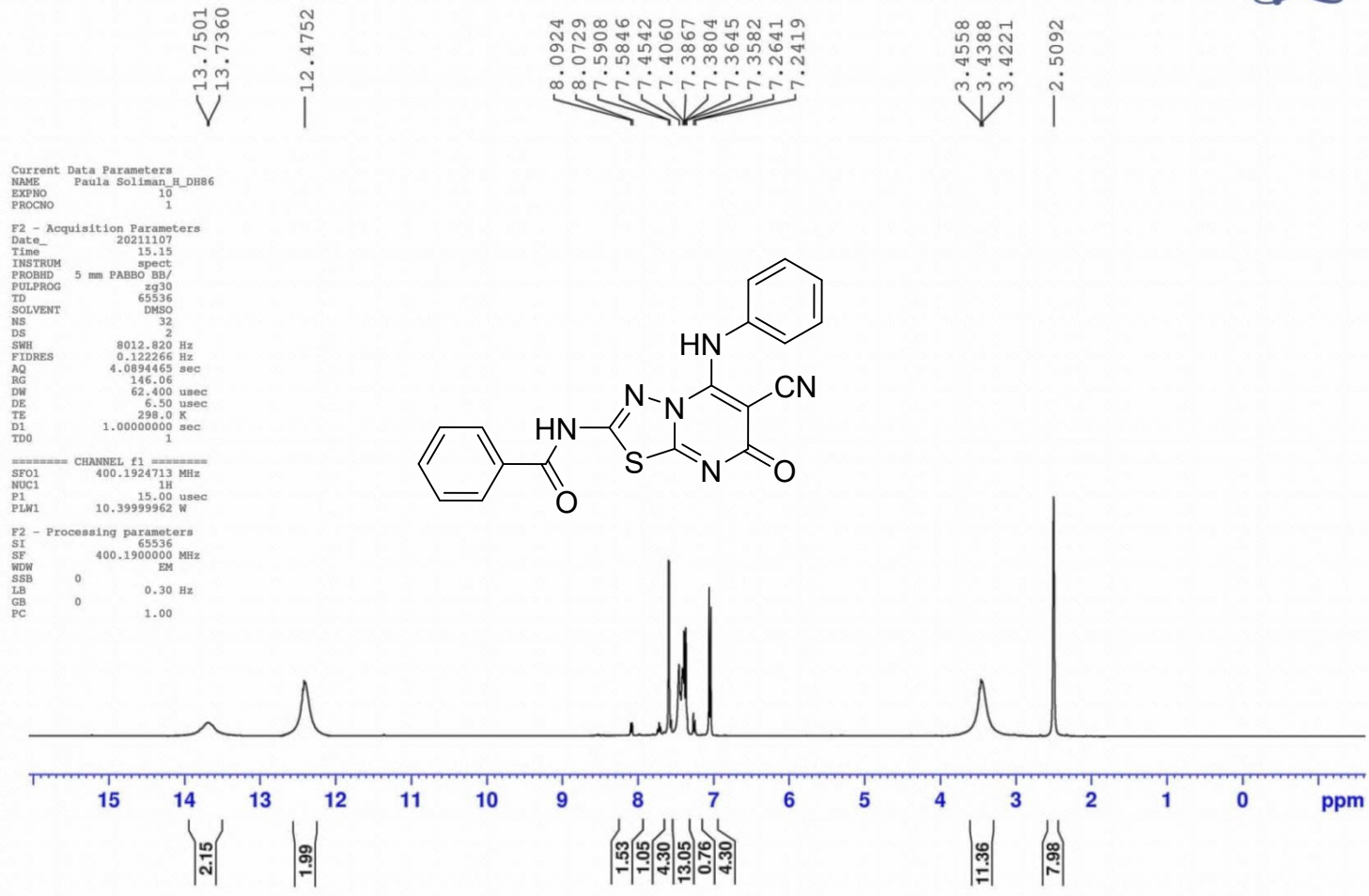
^1H -NMR spectrum ($\text{DMSO-d}_6 + \text{D}_2\text{O}$) of compound **14**



IR spectrum of compound 15

Paula Soliman_H_DH86

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¹H-NMR spectrum (DMSO-d₆) of compound 15

Paula Soliman_H_DH86_D2O

Microanalytical Unit - FOPCU - NMR laboratory
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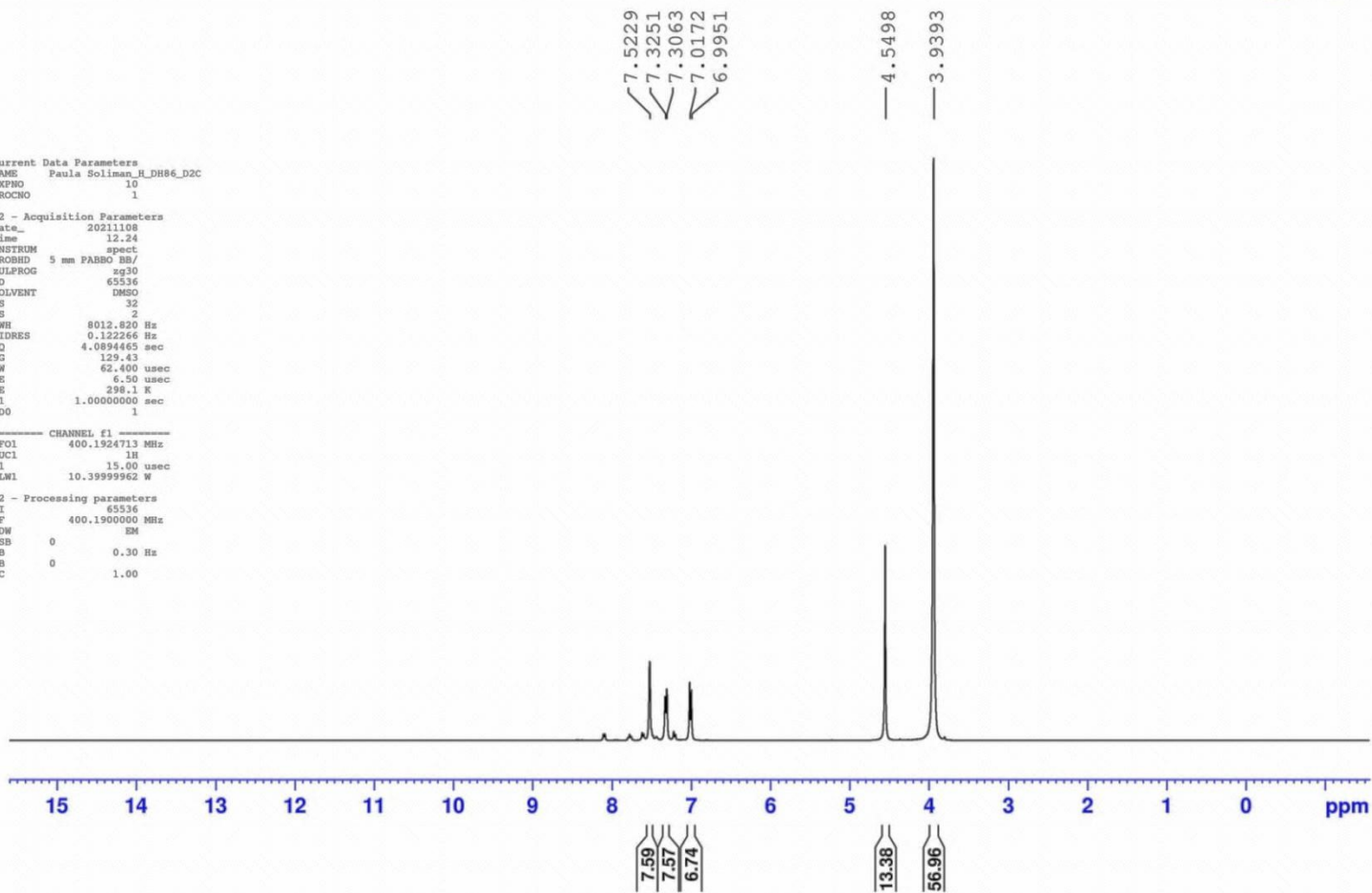


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NAME Paula Soliman_H_DH86_D2O
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PROCNO 1

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FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 129.43
DW 62.400 usec
DE 6.50 usec
TE 298.1 K
D1 1.00000000 sec
TDO 1

CHANNEL f1
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NUC1 1H
P1 15.00 usec
PLW1 10.39999962 W

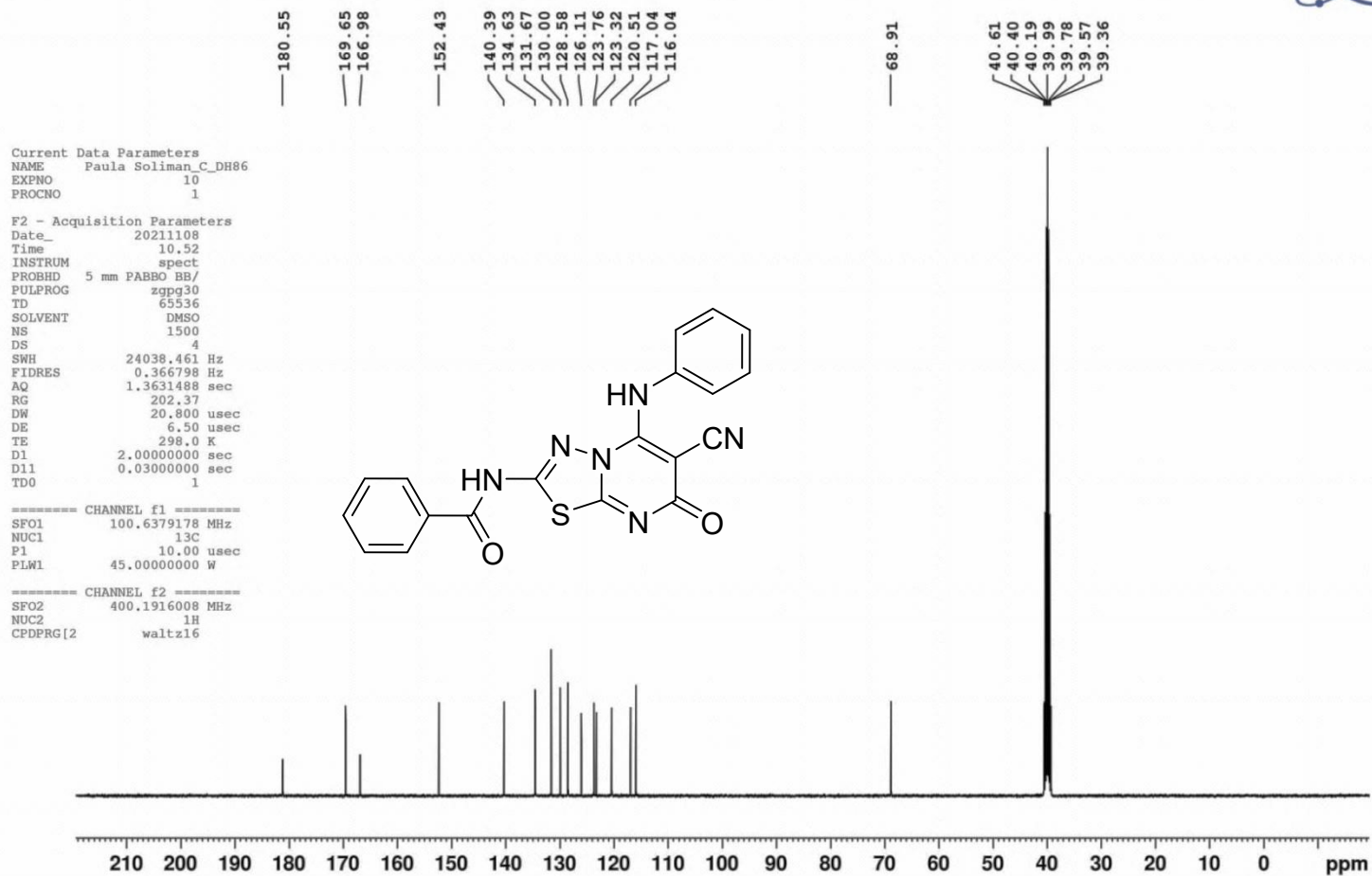
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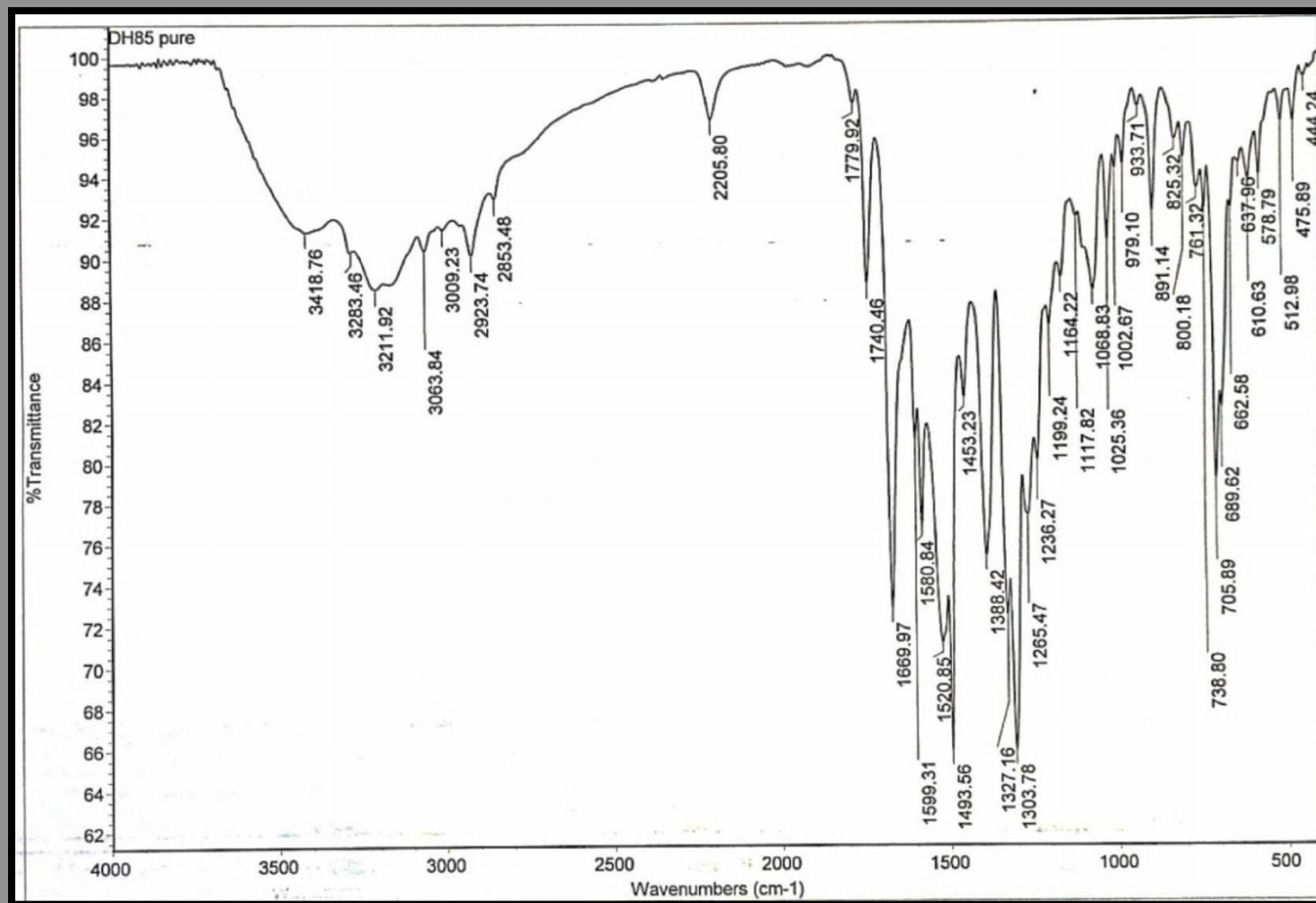
^1H -NMR spectrum (DMSO- d_6 + D $_2$ O) of compound 15

Paula Soliman_C_DH86

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¹³C-NMR spectrum (DMSO-d₆) of compound 15



IR spectrum of compound 16

Poula Soliman_H_DH85

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13.1567
13.1155
13.1095

9.2443
8.1392
8.1205
7.6762
7.6594
7.6103
7.5945
7.5773
7.5442
7.5263
7.4876
7.4677

3.5439

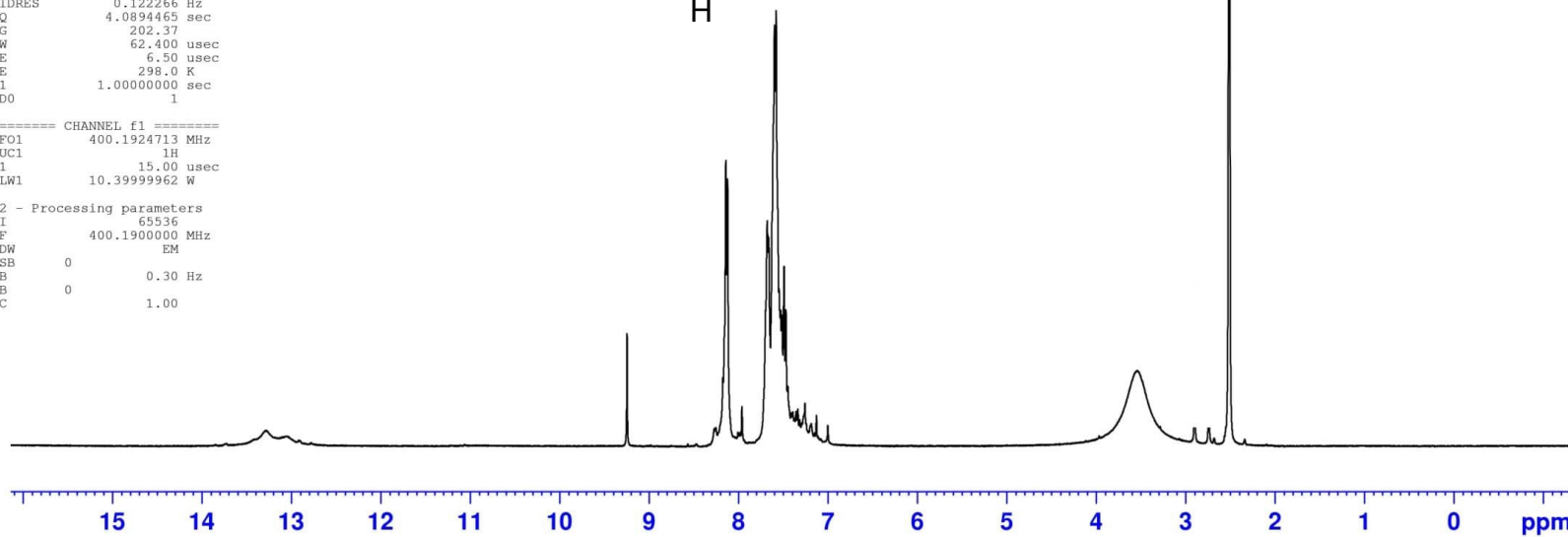
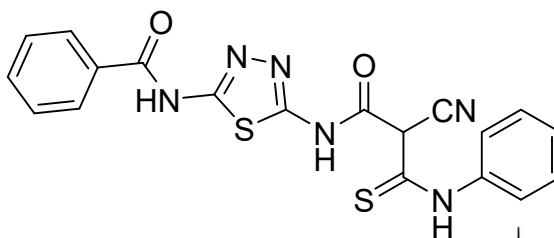
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Current Data Parameters
NAME Poula Soliman_H_DH85
EXPNO 10
PROCNO 1

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Time 17.24
INSTRUM spect
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PULPROG zg30
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SOLVENT DMSO
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DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 202.37
DW 62.400 usec
DE 6.50 usec
TE 298.0 K
D1 1.00000000 sec
TDO 1

==== CHANNEL f1 =====
SFO1 400.1924713 MHz
NUC1 1H
P1 15.00 usec
PLW1 10.39999962 W

F2 - Processing parameters
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4.13

3.79

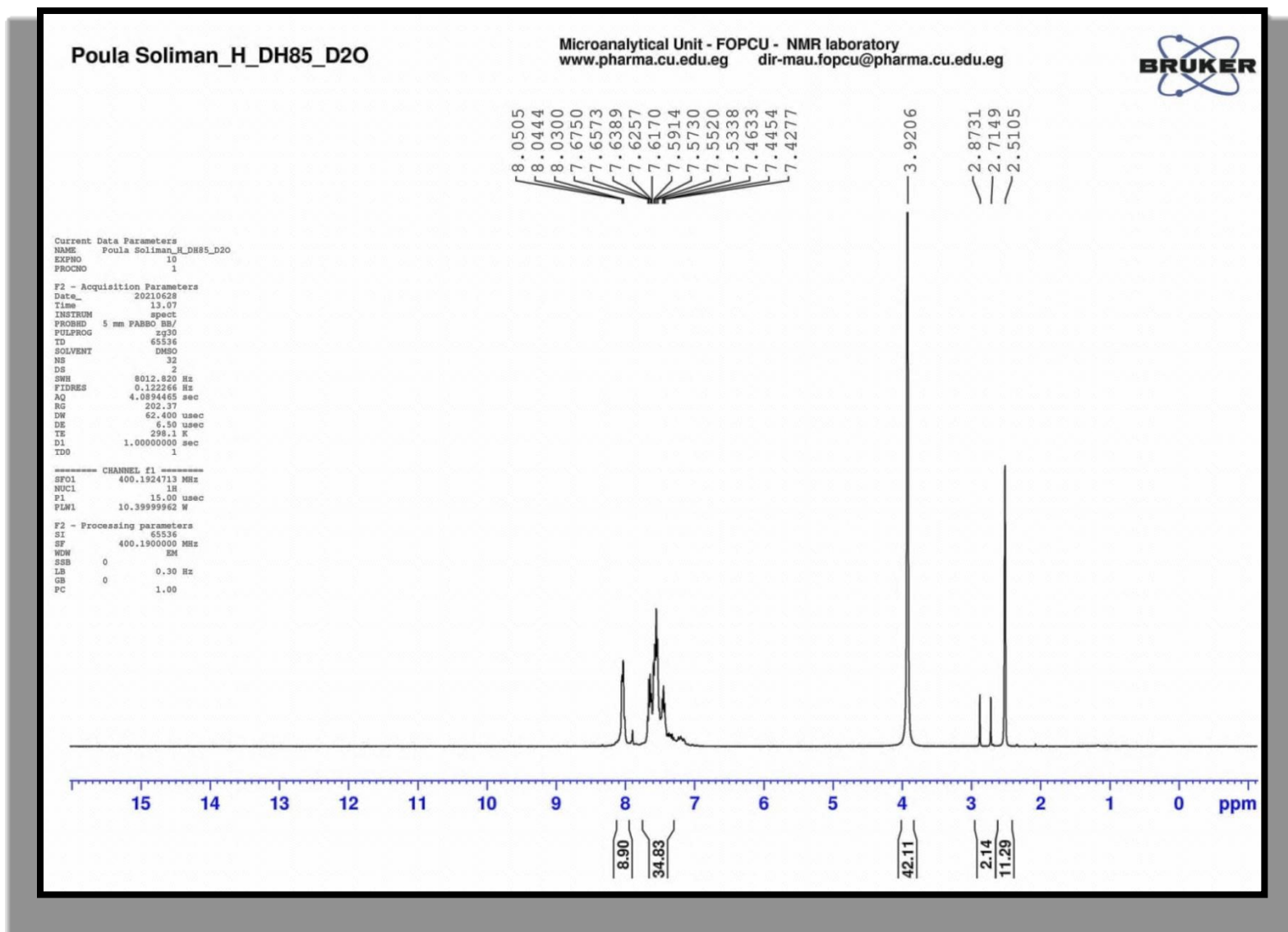
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25.39

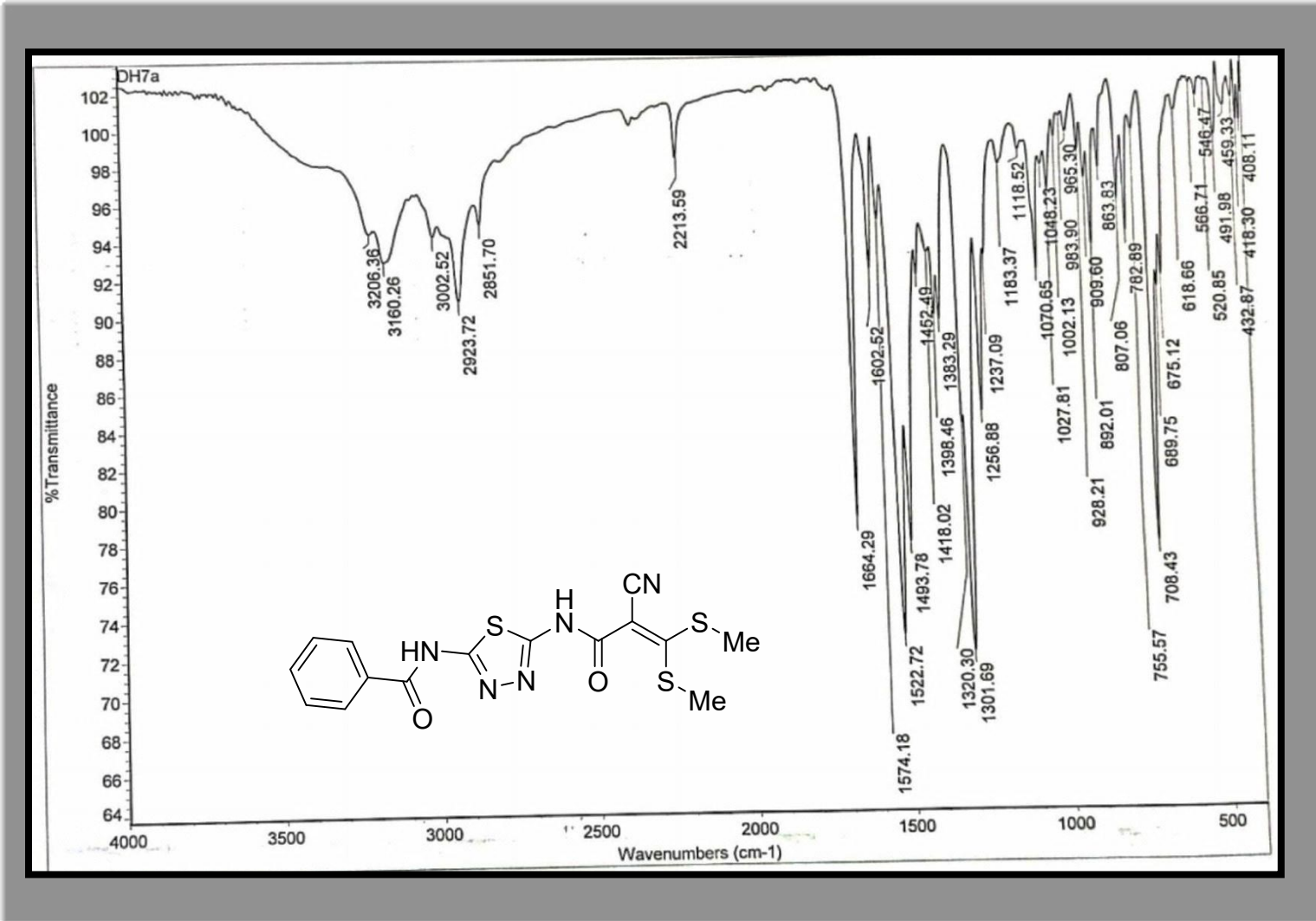
18.69

16.71

$^1\text{H-NMR}$ spectrum (DMSO- d_6) of compound **16**



$^1\text{H-NMR}$ spectrum (DMSO- d_6 + D_2O) of compound **16**



IR spectrum of compound 17

Poula Soliman_H_DH7A

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14.7501
14.7360

13.2549

8.2778
8.2601
8.2567
8.1567
8.1385
7.7109
7.6925
7.6740
7.6066
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7.5684
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7.5339
7.5160

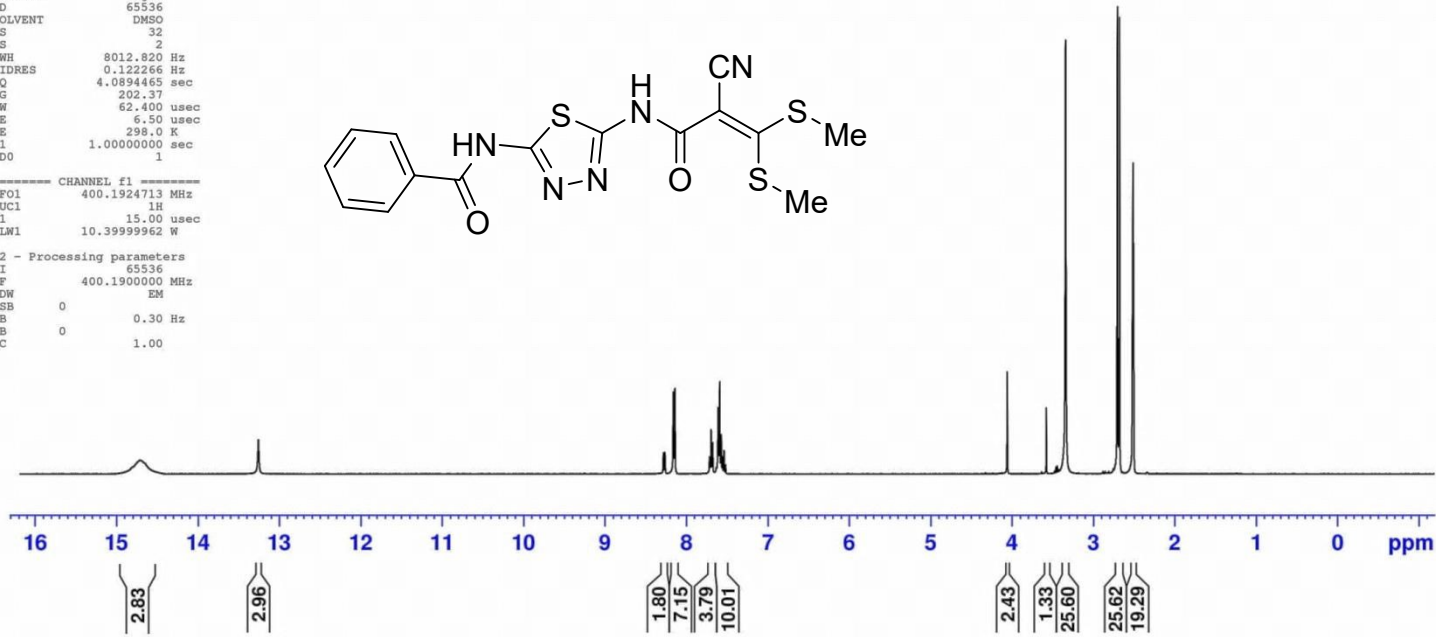
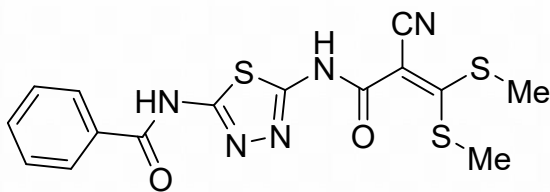
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3.3378
2.7069
2.7003
2.6839
2.6751
2.5086

Current Data Parameters
NAME Poula Soliman_H_DH7A
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters
Date_ 20210627
Time 17.19
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT DMSO
NS 32
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 202.37
DW 62.400 usec
DE 6.50 usec
TE 298.0 K
D1 1.00000000 sec
TD0 1

----- CHANNEL f1 -----
SF01 400.1924713 MHz
NUC1 1H
P1 15.00 usec
PLM1 10.39999962 W

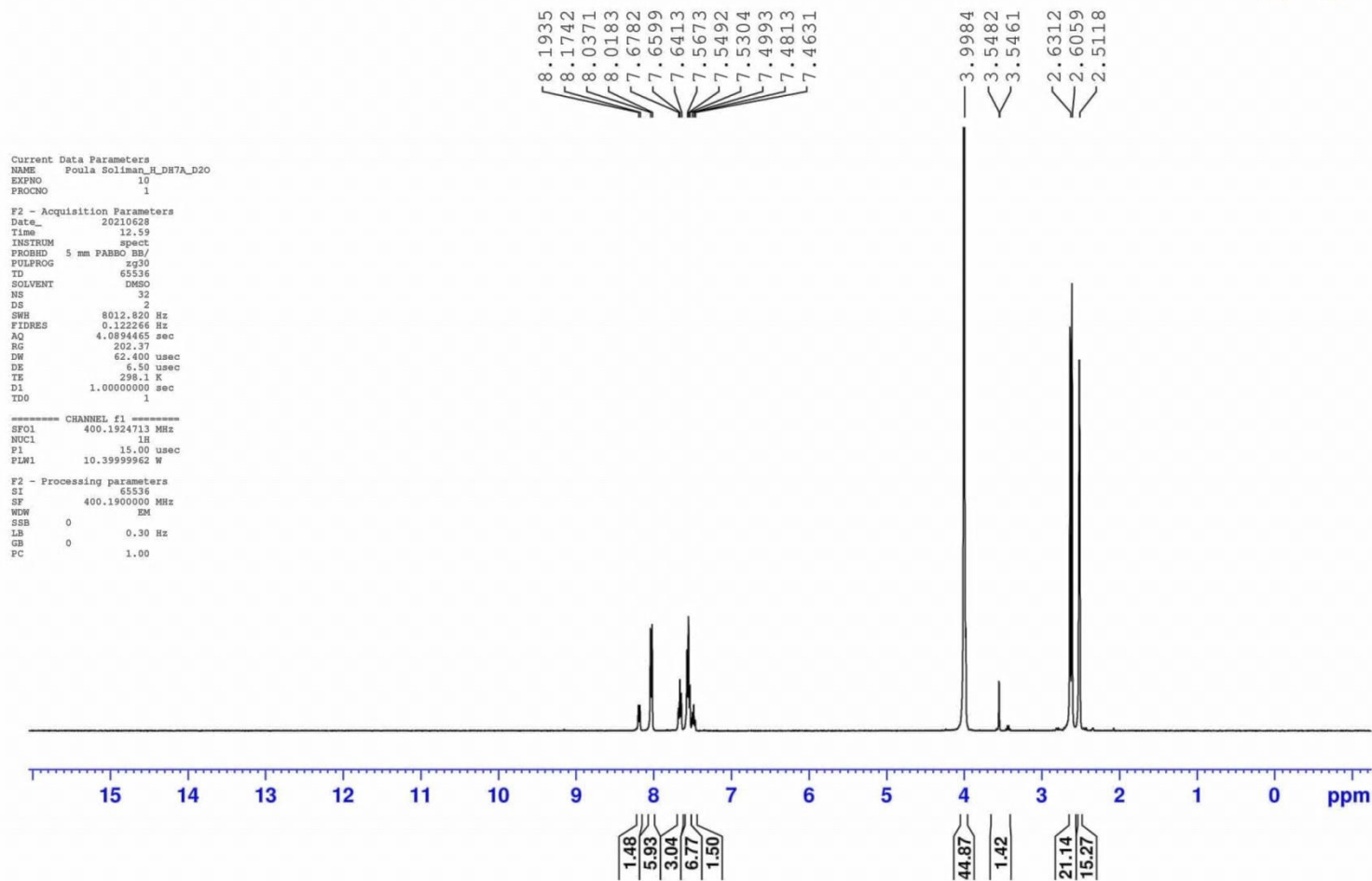
F2 - Processing parameters
SI 65536
SF 400.1900000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹H-NMR spectrum (DMSO-d₆) of compound 17

Poula Soliman_H_DH7A_D2O

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$^1\text{H-NMR}$ spectrum (DMSO- d_6 + D_2O) of compound 17

Paula Soliman_C_DH7A

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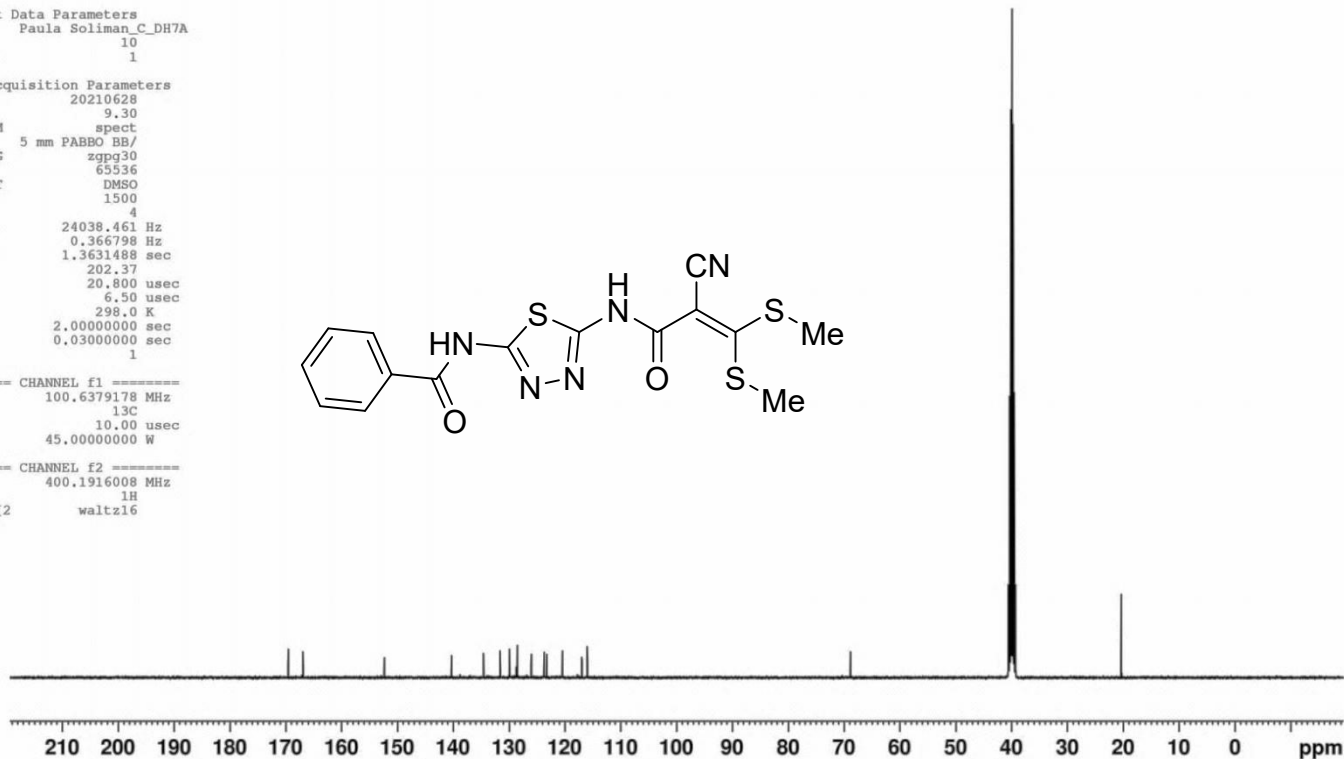
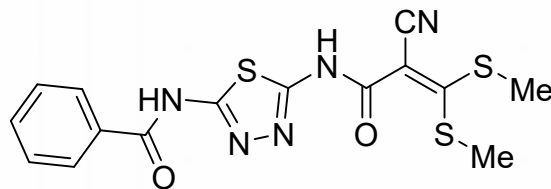
170.64
167.99
153.43
141.38
133.65
132.68
131.00
129.60
127.10
123.78
123.32
121.52
118.04
117.06
69.90
40.62
40.41
40.20
39.99
39.78
39.57
39.36
20.98

Current Data Parameters
NAME Paula Soliman_C_DH7A
EXPNO 10
PROCNO 1

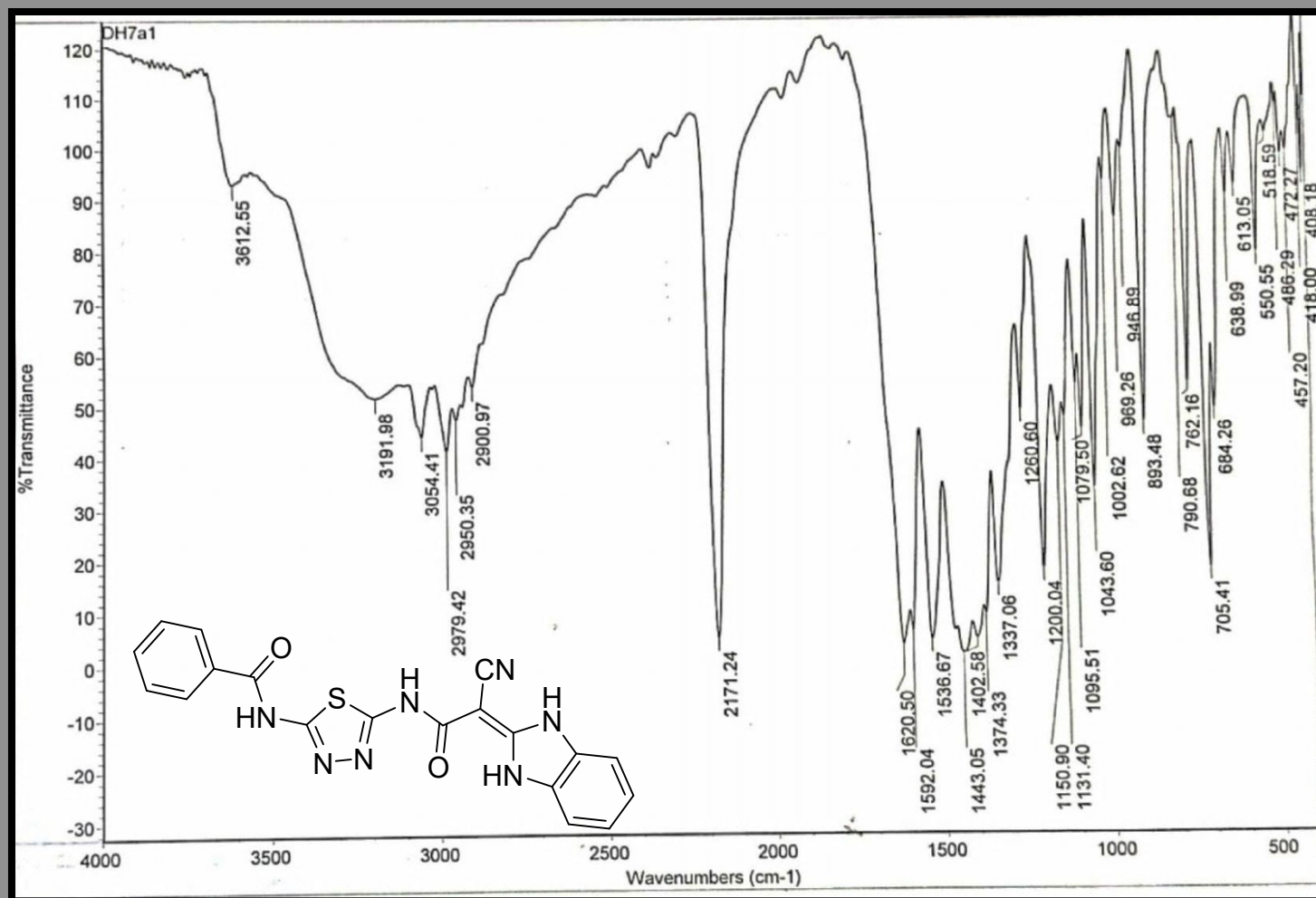
F2 - Acquisition Parameters
Date_ 20210628
Time 9.30
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT DMSO
NS 1500
DS 4
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631488 sec
RG 202.37
DW 20.800 usec
DE 6.50 usec
TE 298.0 K
D1 2.0000000 sec
D11 0.03000000 sec
TDO 1

==== CHANNEL f1 =====
SFO1 100.6379178 MHz
NUC1 13C
P1 10.00 usec
PLW1 45.00000000 W

==== CHANNEL f2 =====
SFO2 400.1916008 MHz
NUC2 1H
CPDPRG[2] waltz16



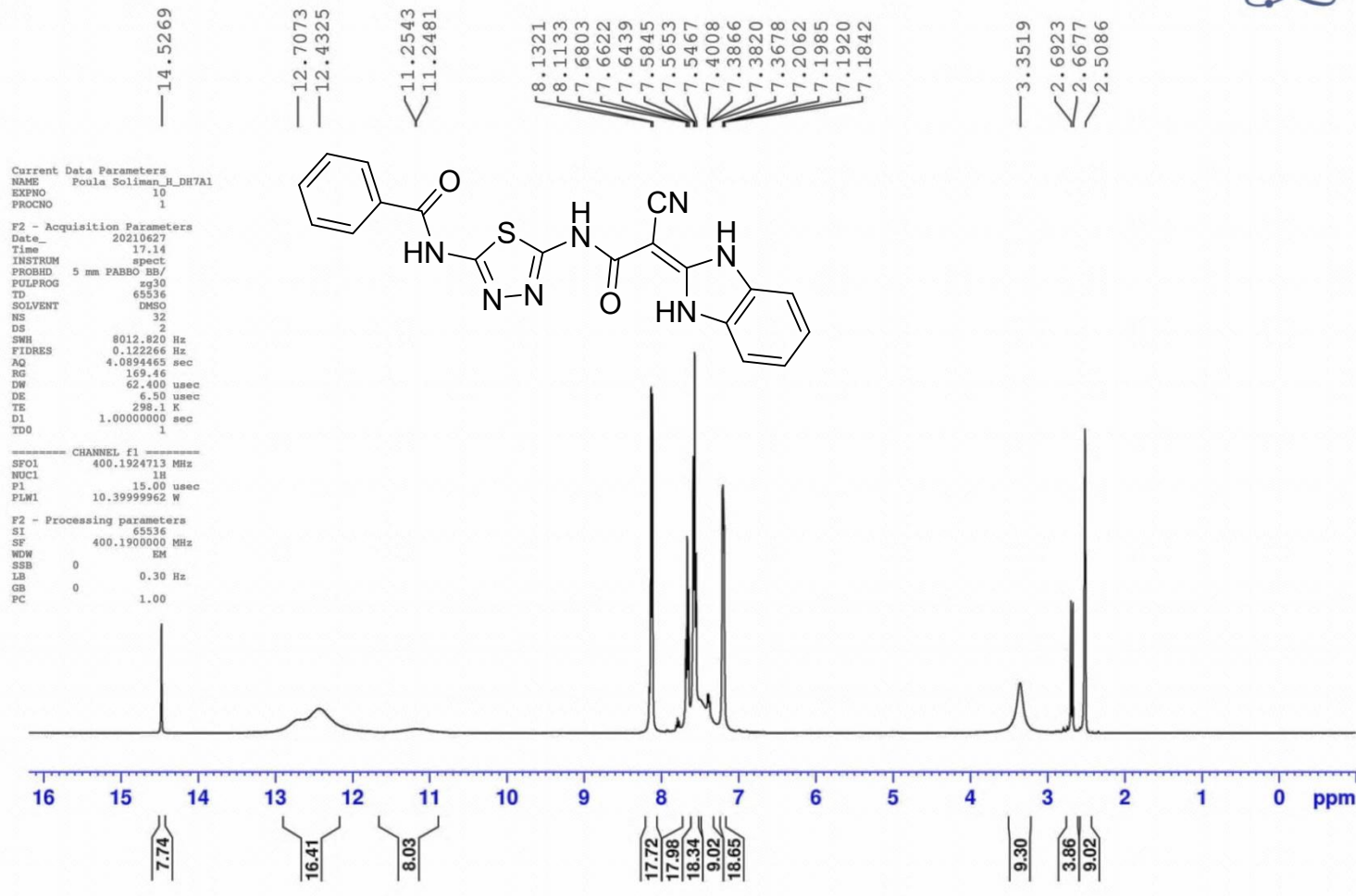
¹³C-NMR spectrum (DMSO-d₆) of compound 17



IR spectrum of compound 18

Poula Soliman_H_DH7A1

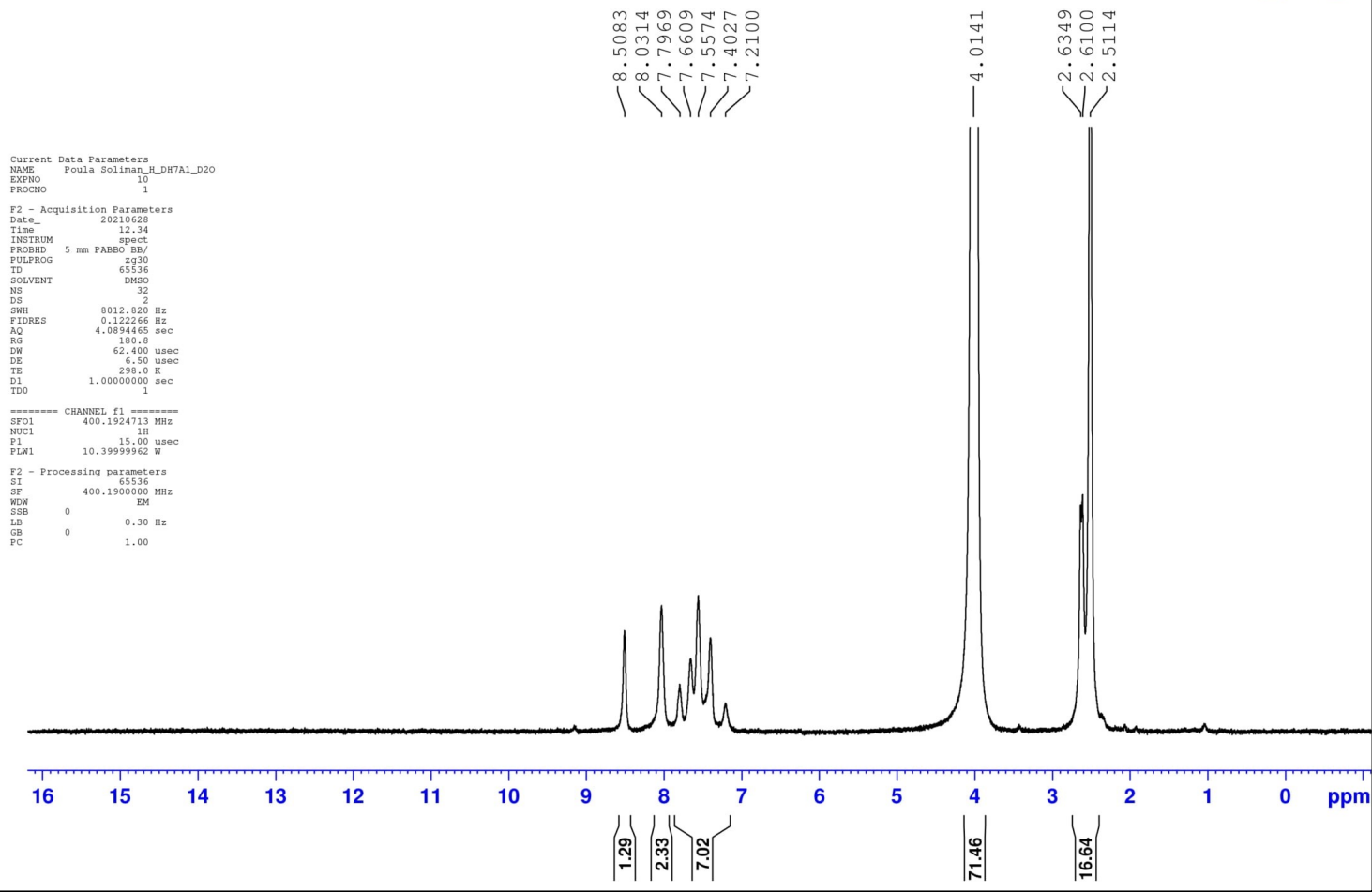
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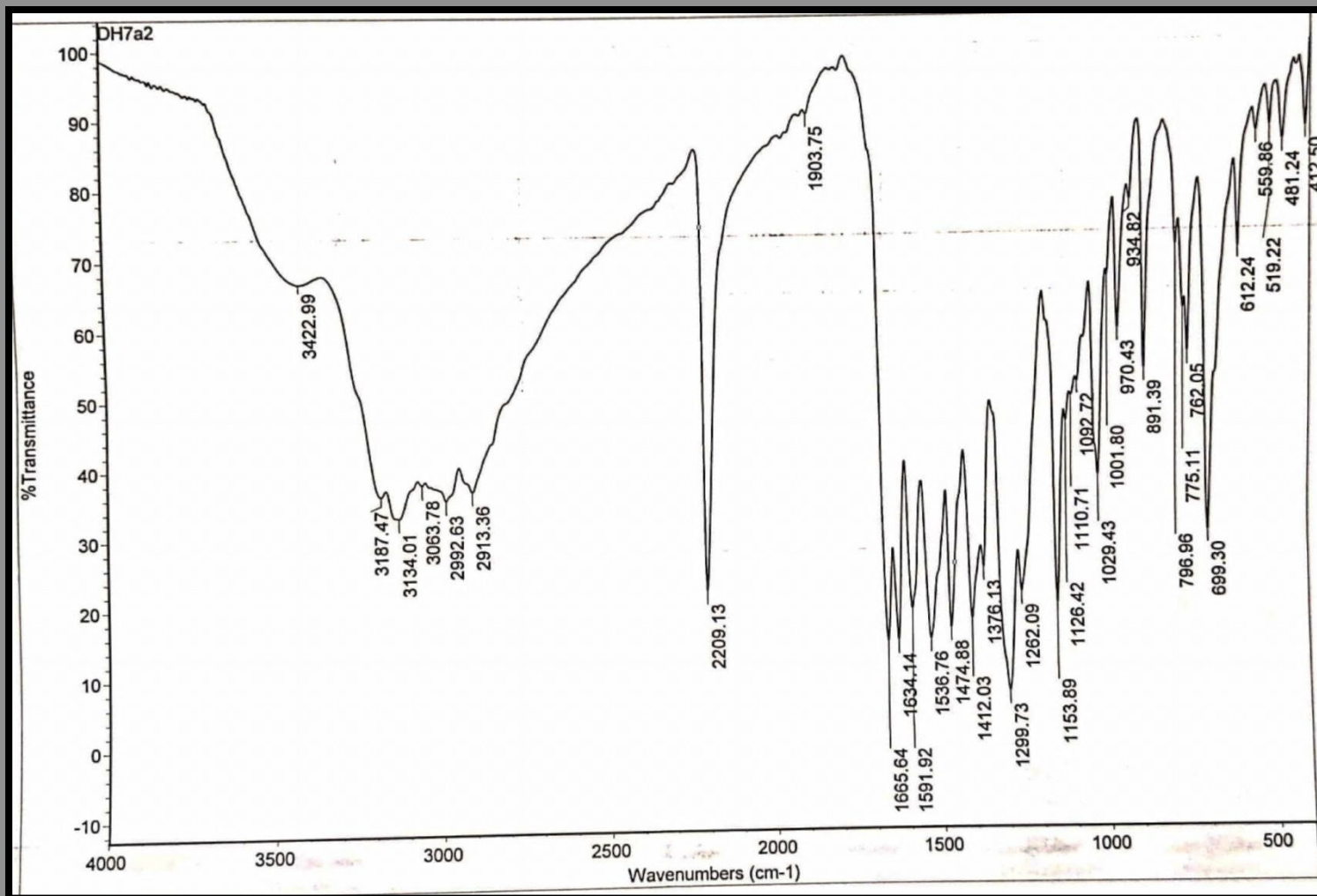
¹H-NMR spectrum (DMSO-d₆+ D₂O) of compound 18

Poula Soliman_H_DH7A1_D2O

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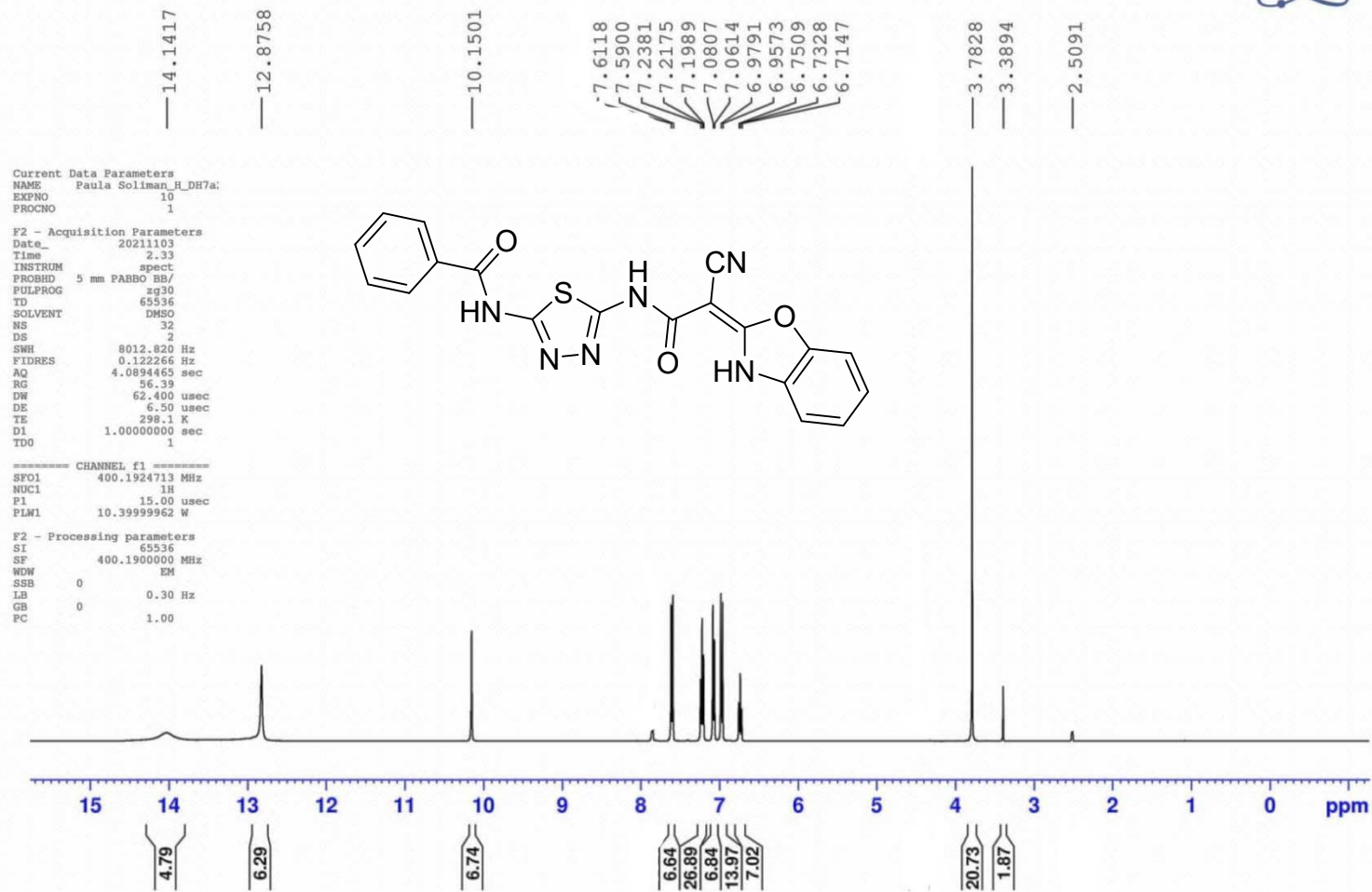
^1H -NMR spectrum (DMSO- d_6 + D_2O) of compound 18



IR spectrum of compound 19

Paula Soliman_H_DH7a2

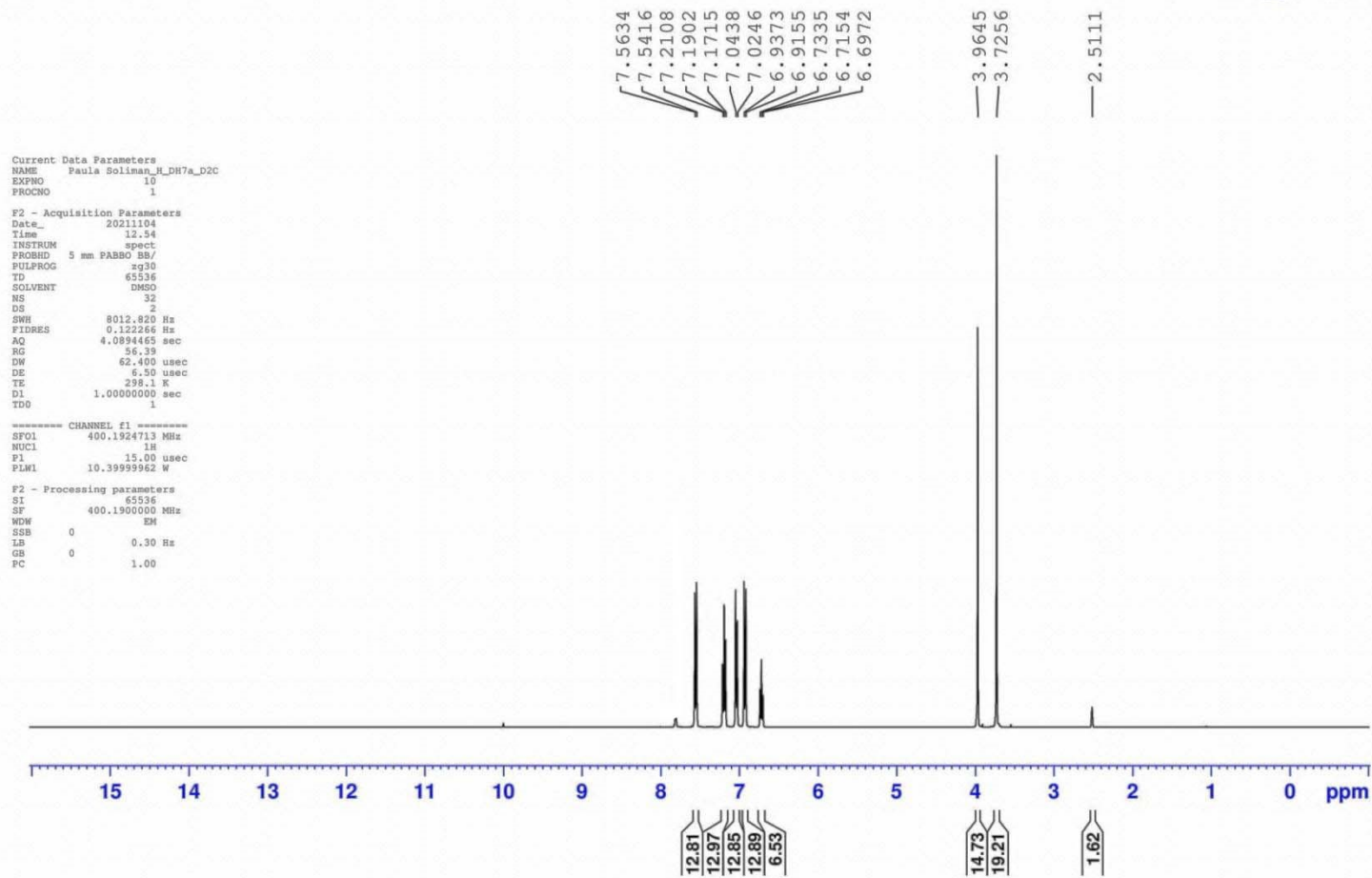
Microanalytical Unit - FOPCU - NMR laboratory
www.pharma.cu.edu.eg dir-mau.fopcu@pharma.cu.edu.eg



¹H-NMR spectrum (DMSO-d₆) of compound 19

Paula Soliman_H_DH7a_D2O

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$^1\text{H-NMR}$ spectrum ($\text{DMSO-d}_6 + \text{D}_2\text{O}$) of compound 19

Paula Soliman_C_DH7a

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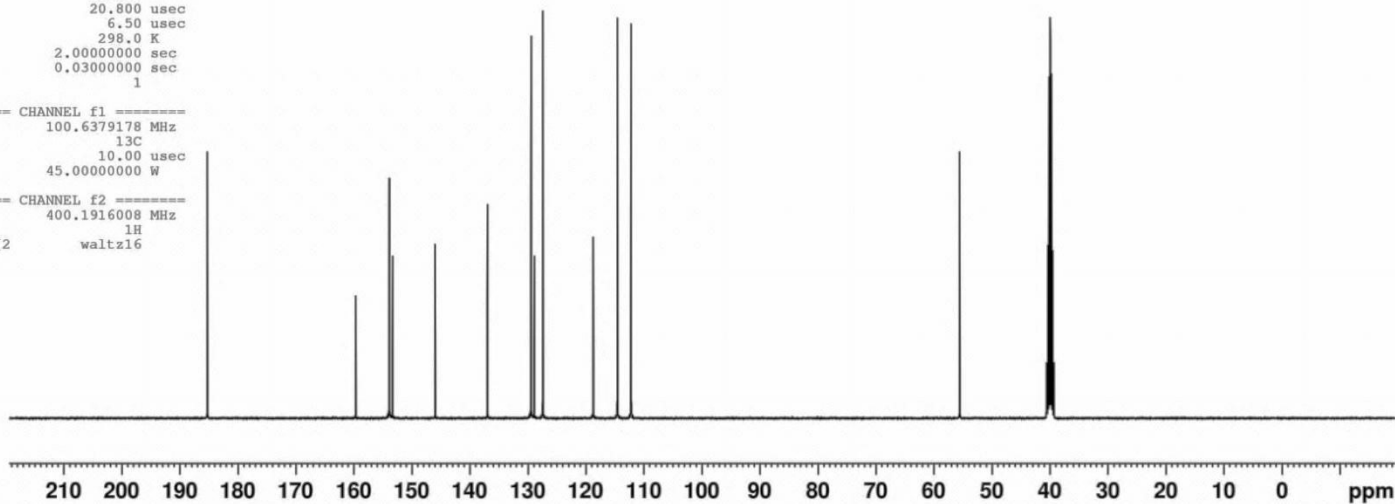
— 185.65
— 159.78
— 155.99
— 154.68
— 146.06
— 137.06
— 129.53
— 128.99
— 127.50
— 118.80
— 114.63
— 112.29
— 55.62
— 40.63
— 40.42
— 40.21
— 40.00
— 39.79
— 39.58
— 39.38

Current Data Parameters
NAME Paula Soliman_C_DH7a
EXPNO 10
PROCNO 1

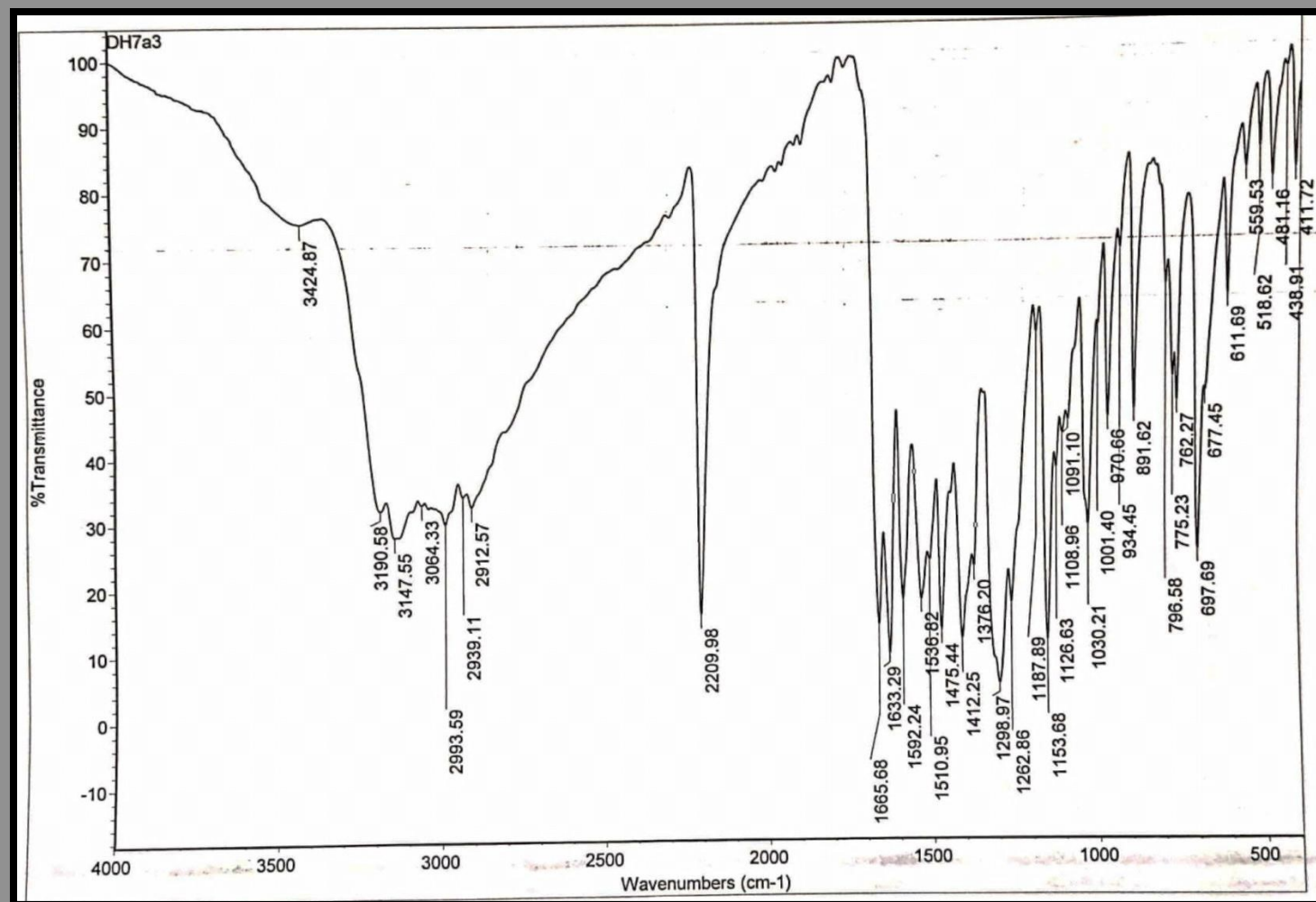
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Time 8.00
INSTRUM spect
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PULPROG zgpg30
TD 65536
SOLVENT DMSO
NS 1500
DS 4
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631488 sec
RG 202.37
DW 20.800 usec
DE 6.50 usec
TE 298.0 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

==== CHANNEL f1 =====
SFO1 100.6379178 MHz
NUC1 13C
P1 10.00 usec
PLW1 45.00000000 W

==== CHANNEL f2 =====
SFO2 400.1916008 MHz
NUC2 1H
CPDPRG[2] waltz16



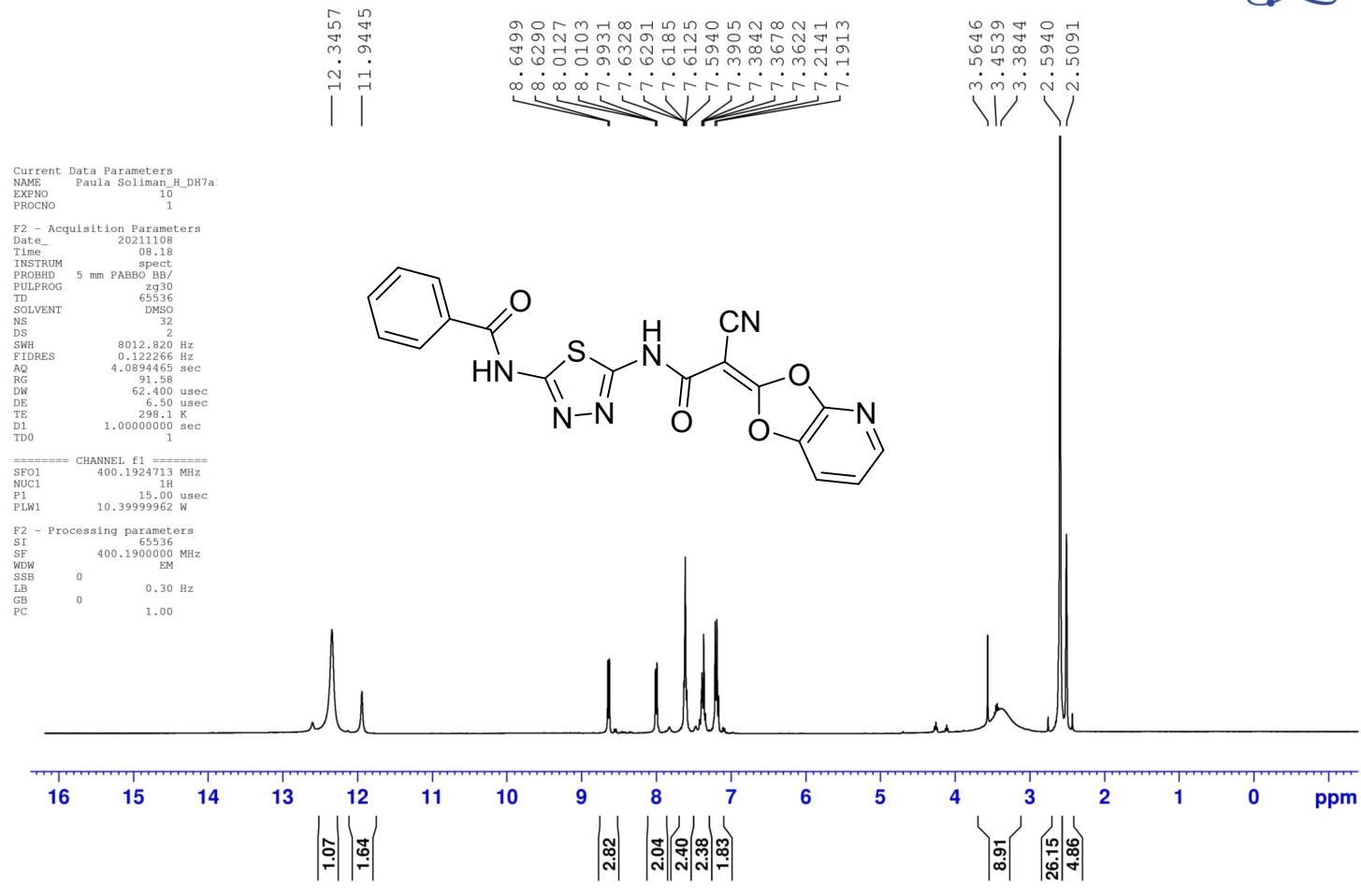
^{13}C -NMR spectrum (DMSO- d_6) of compound **19**



IR spectrum of compound 20

Paula Soliman_H_DH7a3

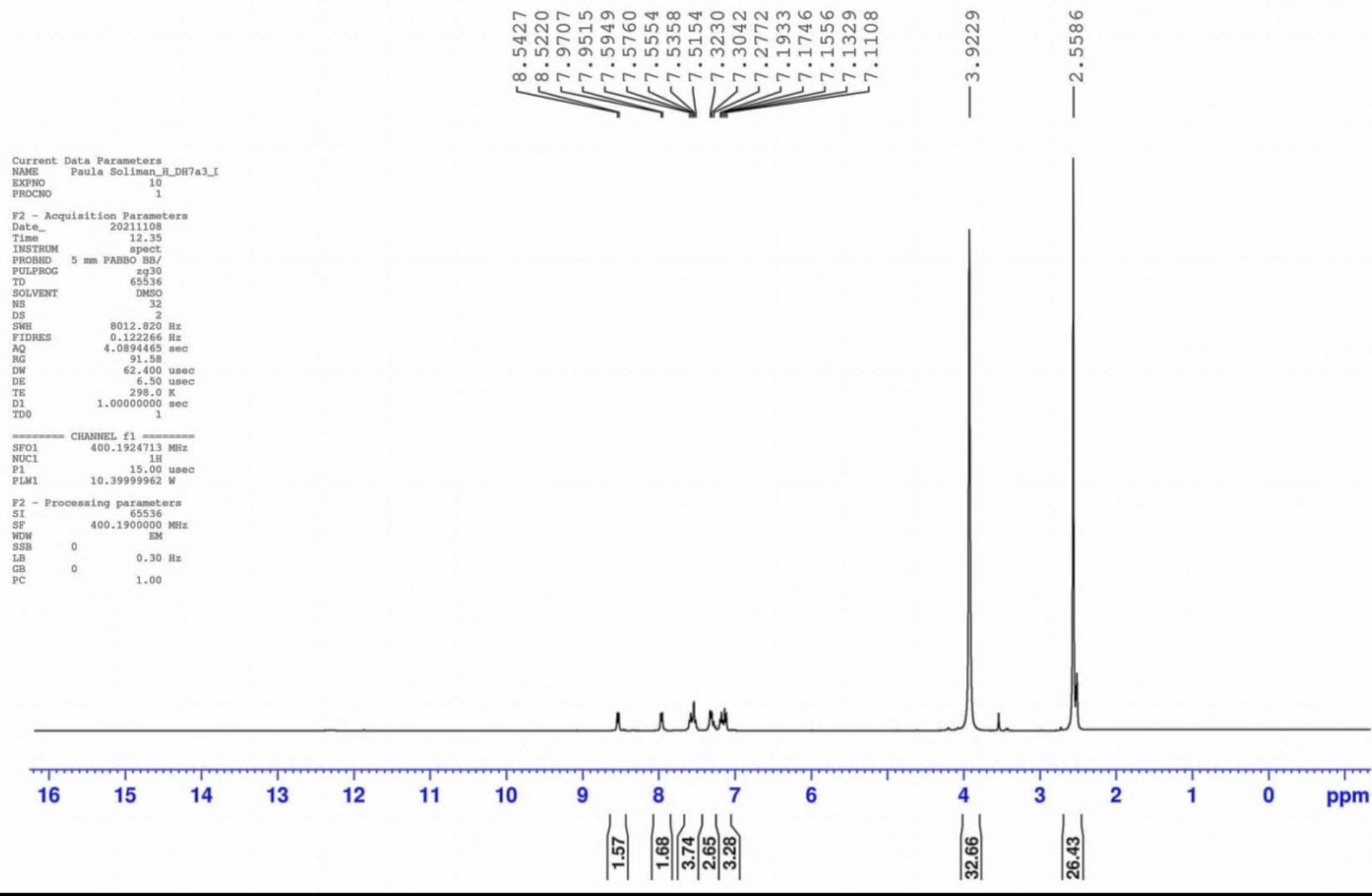
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¹H-NMR spectrum (DMSO-d₆) of compound 20

Paula Soliman_H_DH7a3_D2O

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$^1\text{H-NMR}$ spectrum ($\text{DMSO-d}_6 + \text{D}_2\text{O}$) of compound **20**

Average of Relative viability of cells (%)

Conc. (μ M)	HePG-2
DOX	
100	6.3
50	11.2
25	14.1
12.5	28.3
6.25	45.8
3.125	57.6
1.56	71.2
17	
100	13.7
50	22.1
25	29.5
12.5	45.2
6.25	68.0
3.125	82.3
1.56	98.9
4	
100	36.2
50	49.7
25	63.1
12.5	72.6
6.25	88.3
3.125	100
1.56	100
7d	
100	43.5
50	55.0

25	68.1
12.5	83.4
6.25	94.2
3.125	100
1.56	100
7g	
100	18.6
50	24.2
25	37.9
12.5	51.4
6.25	70.3
3.125	87.5
1.56	98.4
9	
100	31.4
50	46.1
25	54.2
12.5	72.8
6.25	89.6
3.125	100
1.56	100
19	
100	23.9
50	31.8
25	43.6
12.5	54.1
6.25	68.4
3.125	87.0
1.56	100

