Supplementary Material

Design, synthesis, and antimicrobial evaluation of newly developed pyridine and pyrimidine derivatives derived from enaminones

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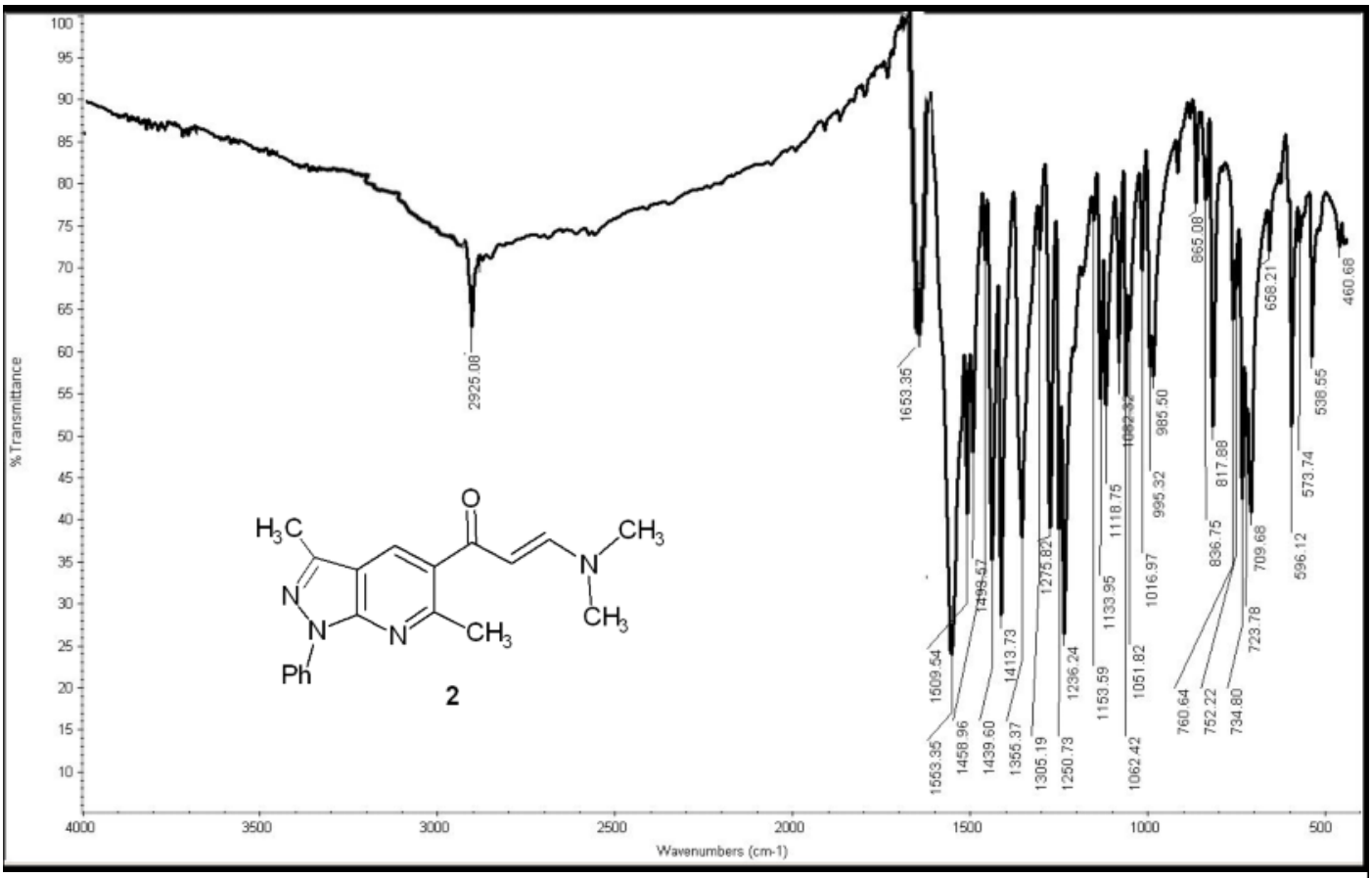
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1355.37
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1118.75
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1051.82
1016.97
995.32
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836.75
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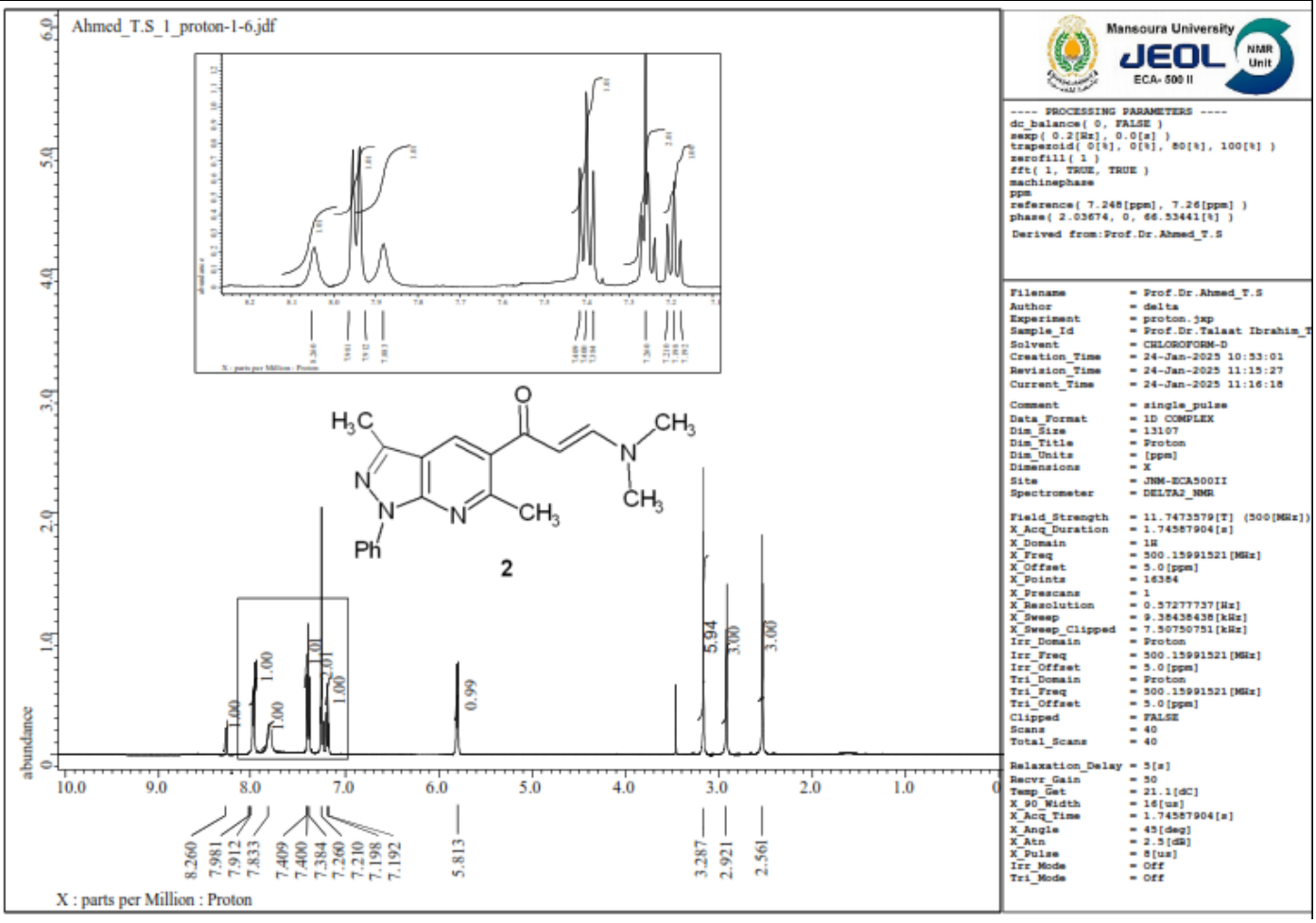
460.68
2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Mansoura University
JEOL
ECA- 500 II
NMR Unit
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ppm
reference(7.248[ppm], 7.26[ppm])
phase(2.03674, 0, 66.53441[%])
Derived from:Prof.Dr.Ahmed_T.S
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Author = delta
Experiment = proton.jxp
Sample_Id = Prof.Dr.Talaat Ibrahim_T
Solvent = CHLOROFORM-D
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X_Offset = 5.0[ppm]
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X_Sweep_Clipped = 7.50750751[kHz]
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Irr_Freq = 500.15991521[MHz]
Irr_Offset = 5.0[ppm]
Tri_Domain = Proton
Tri_Freq = 500.15991521[MHz]
Tri_Offset = 5.0[ppm]
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X_90_Width = 16[us]
X_Acq_Time = 1.74587904[s]
X_Angle = 45[deg]
X_Atn = 2.5[dB]
X_Pulse = 8[us]
Irr_Mode = Off
Tri_Mode = Off
2
abundance
X : parts per Million : Proton
8.260
7.981
7.912
7.833
7.409
7.400
7.384
7.260
7.210
7.198
7.192
5.813
3.287
2.921
2.561

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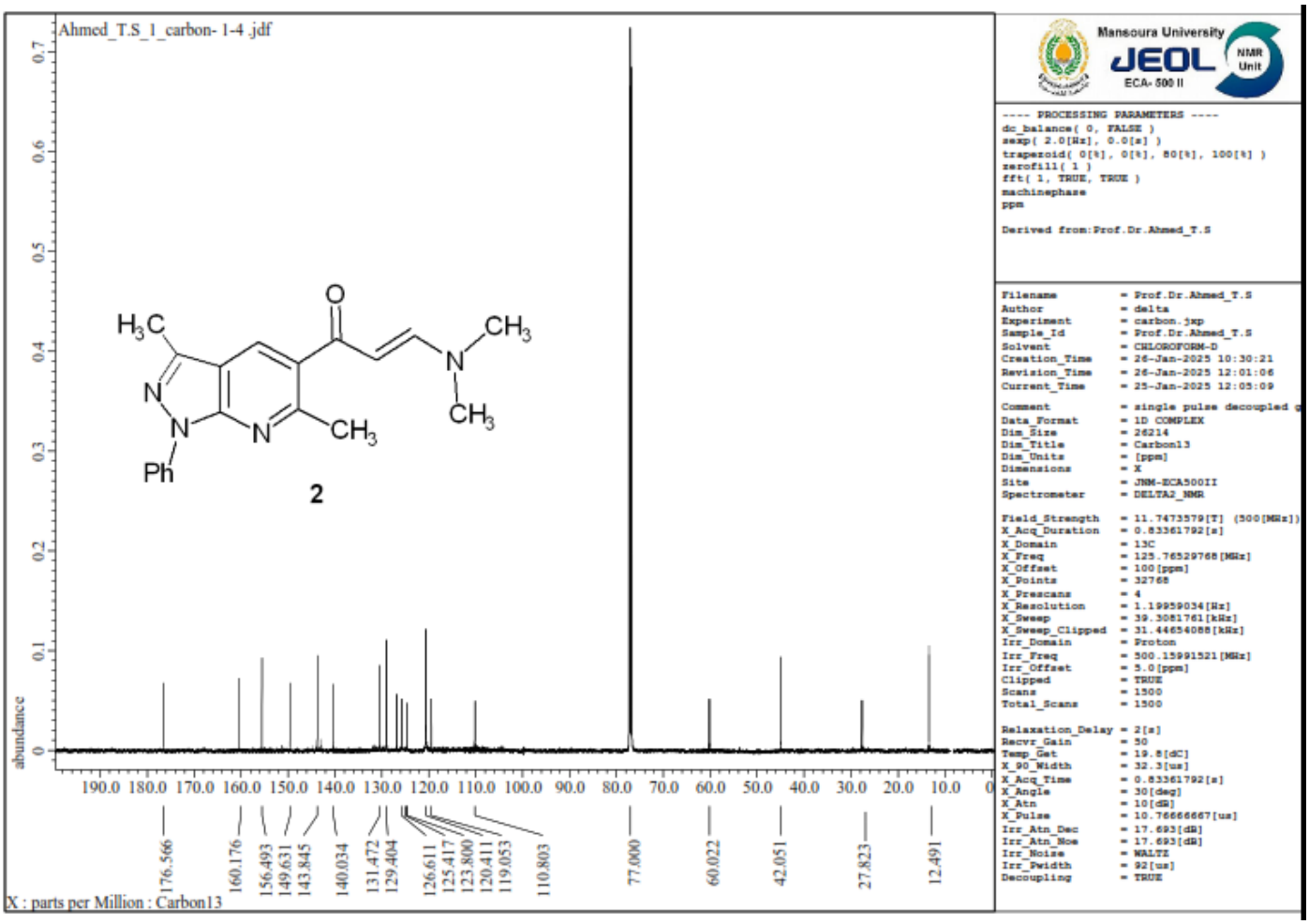
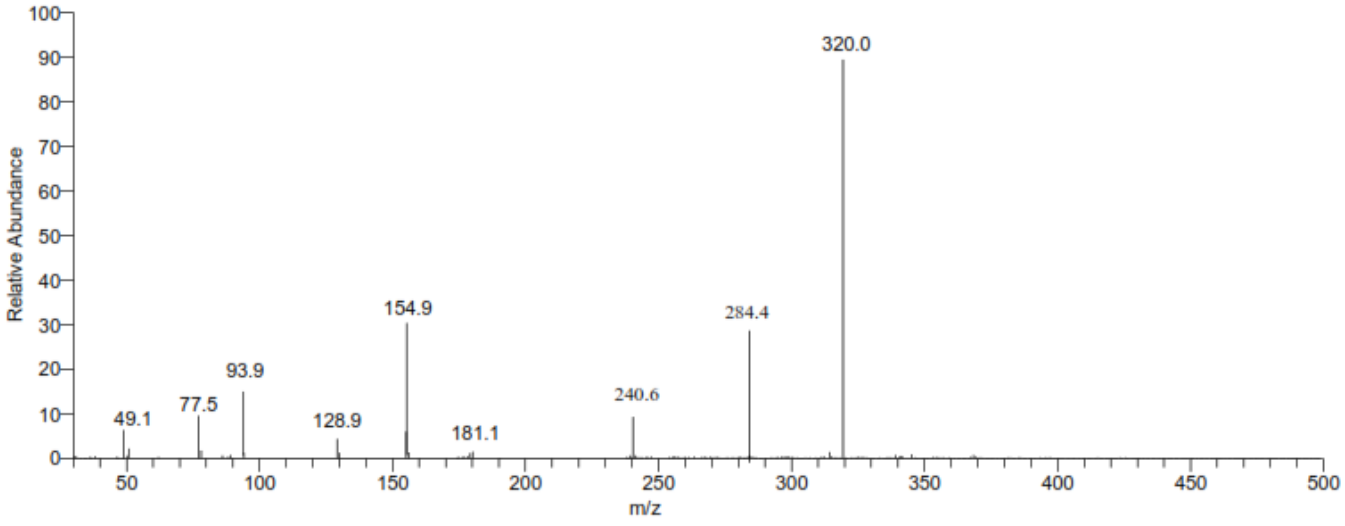
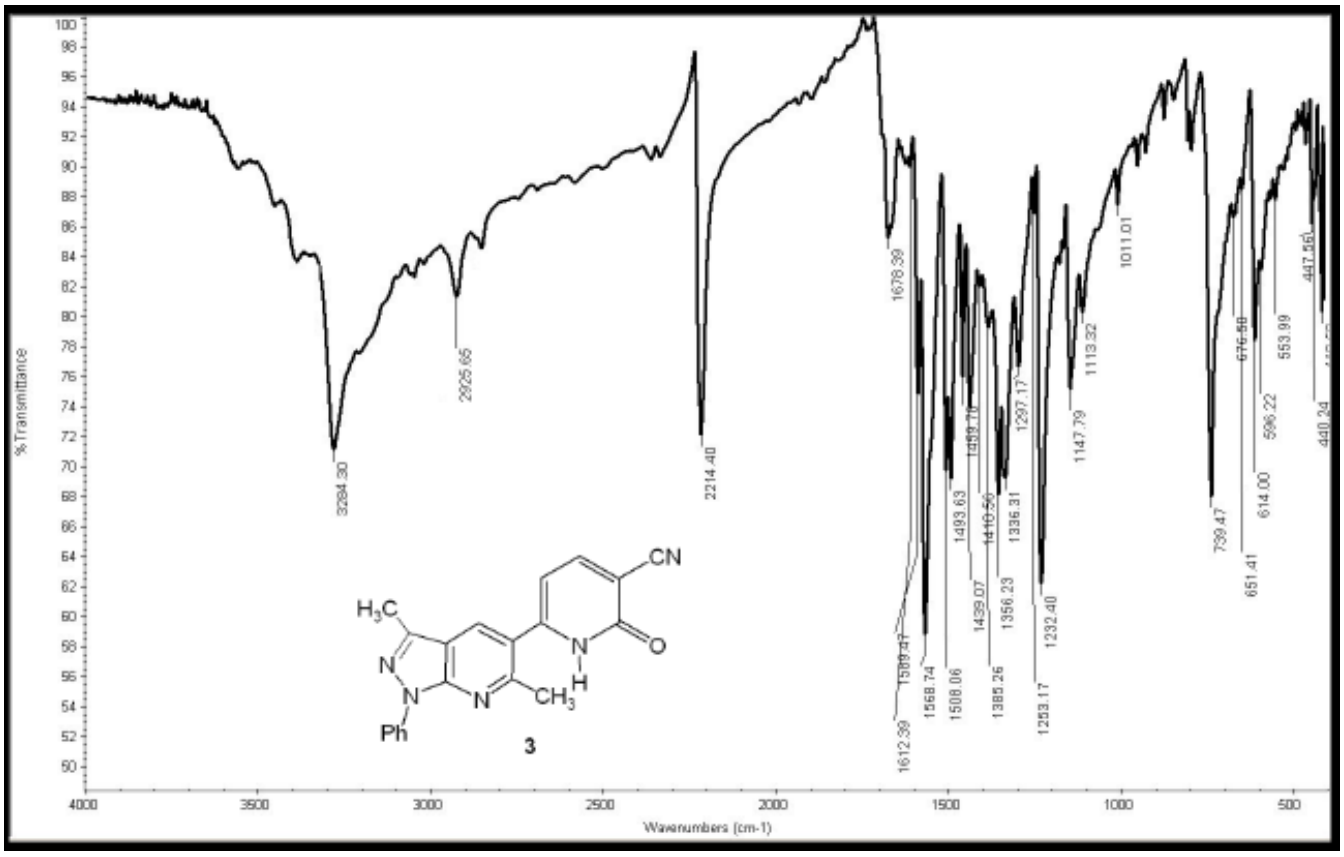




Compound 2

 ©AUTHOR(S)


% Transmittance
Wavenumbers (cm-1)
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2214.40
1678.39
1612.39
1509.47
1568.74
1508.06
1493.63
1439.07
1410.56
1385.26
1356.23
1336.31
1297.17
1253.17
1232.40
1147.79
1113.32
1011.01
739.47
676.58
651.41
614.00
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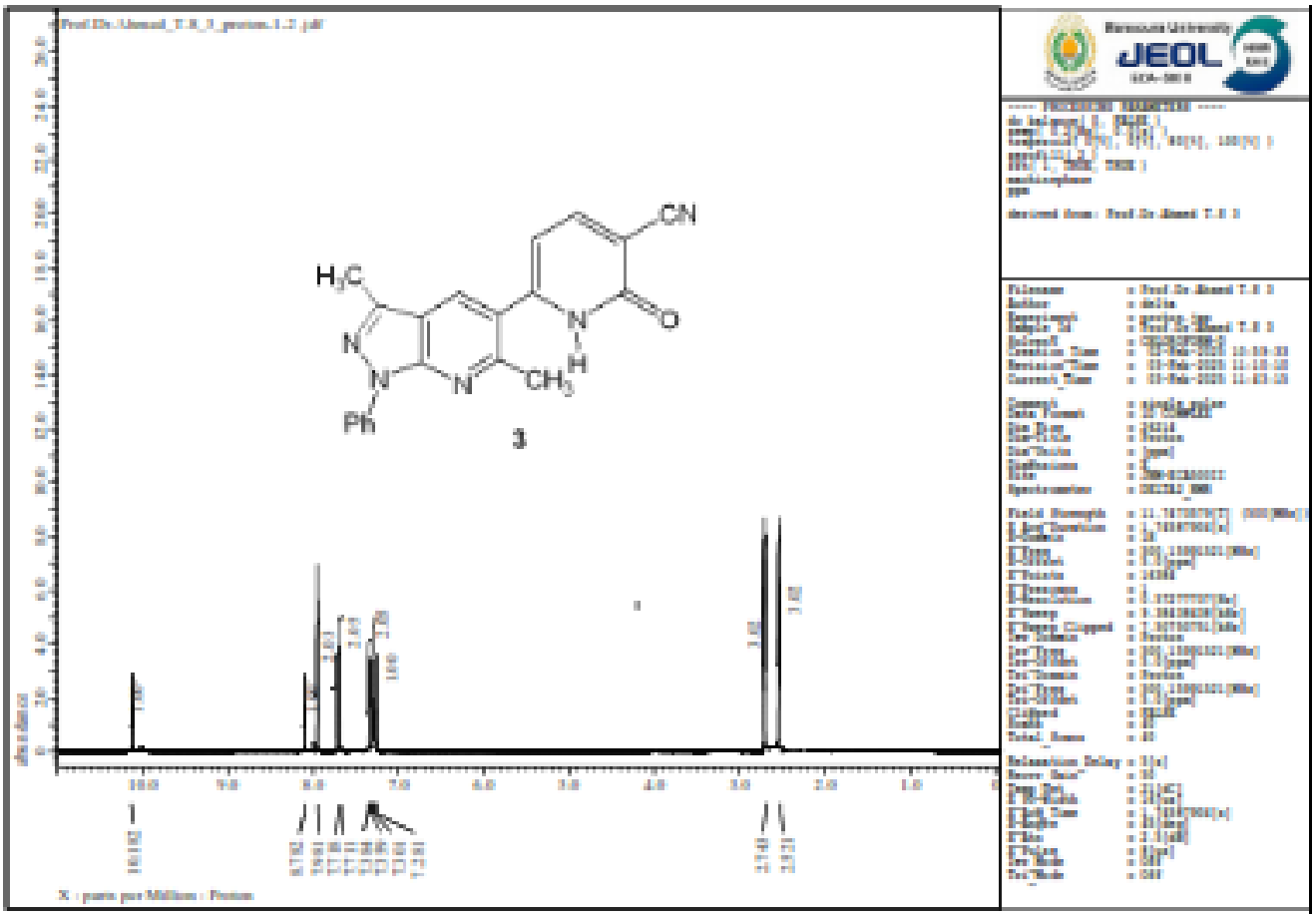
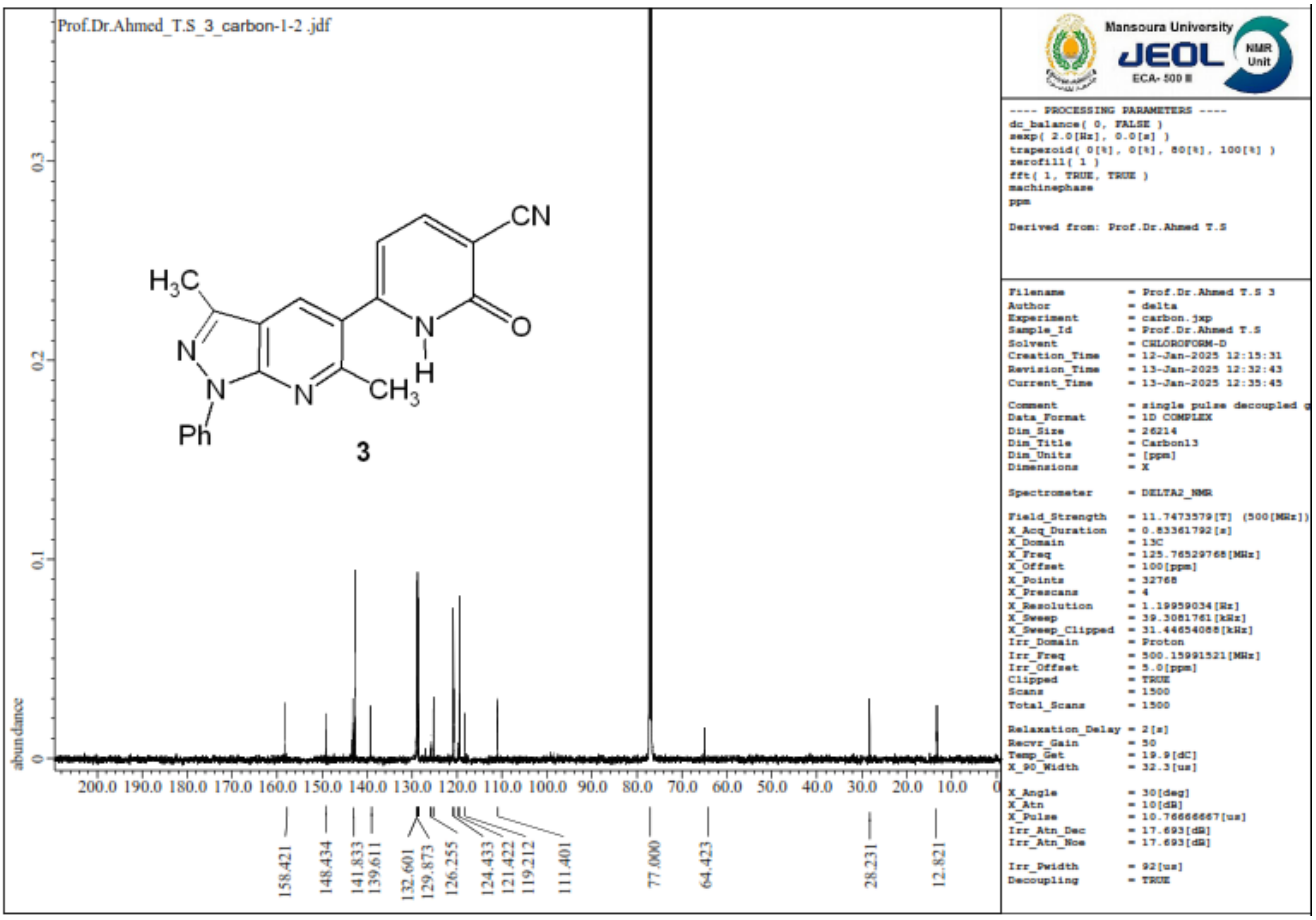
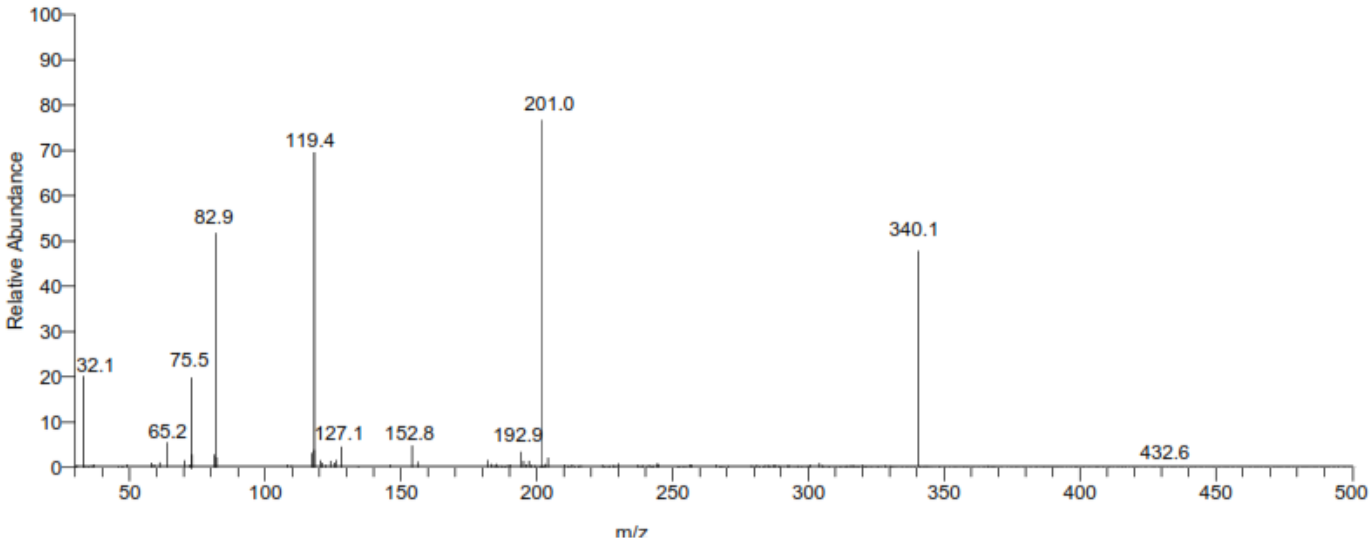
H
N
CH3
3


CN
H3C
N
N
Ph
O
H
N
CH3
3

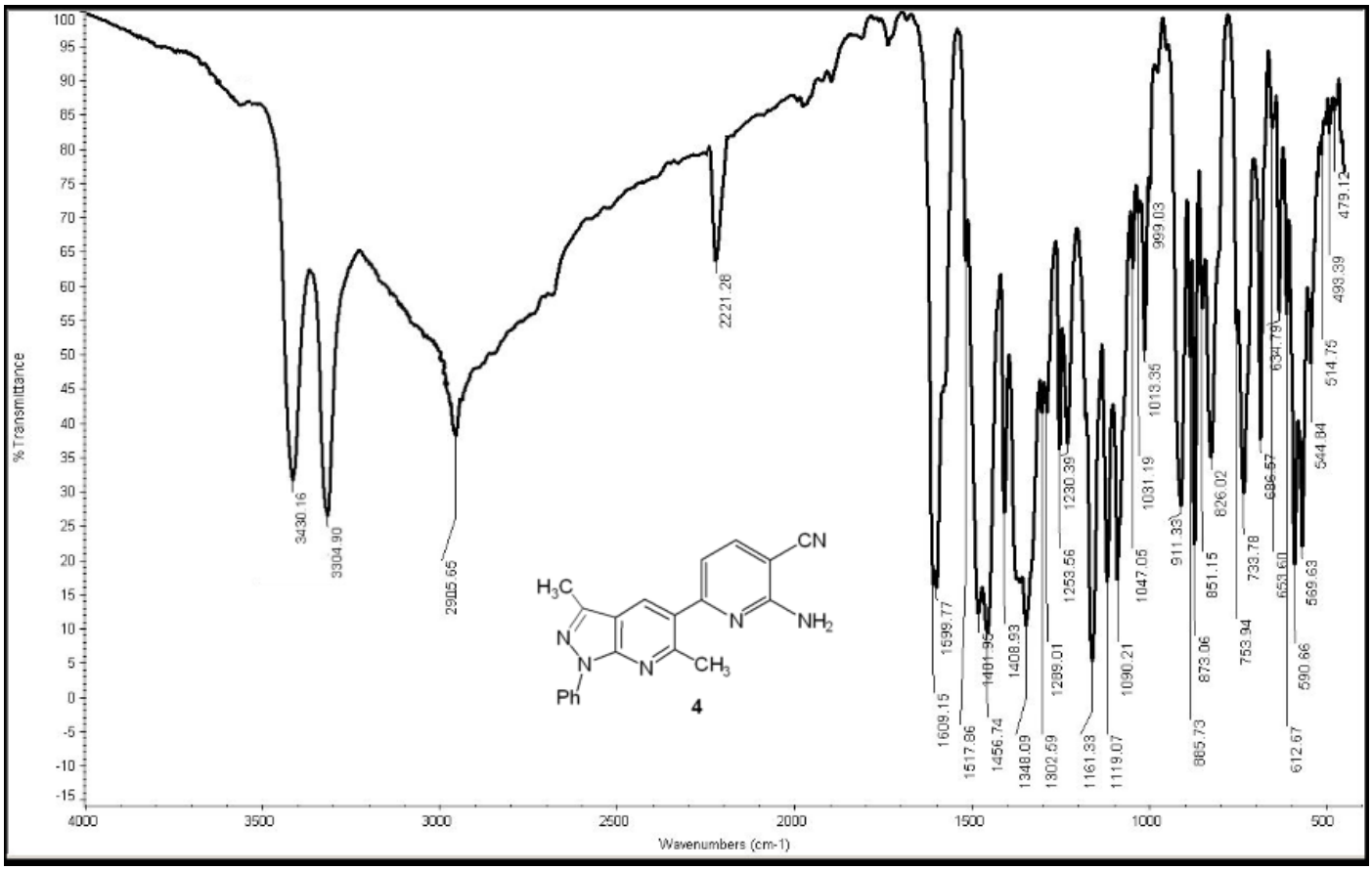
 ©AUTHOR(S)





Compound 3

 ©AUTHOR(S)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Wavenumbers (cm-1)
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1481.95
1456.74
1408.93
1348.09
1302.59
1289.01
1253.56
1230.39
1161.33
1119.07
1090.21
1047.05
1031.19
1013.36
999.03
911.33
885.73
873.06
851.15
826.02
753.94
733.78
684.57
658.61
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590.66
559.63
544.84
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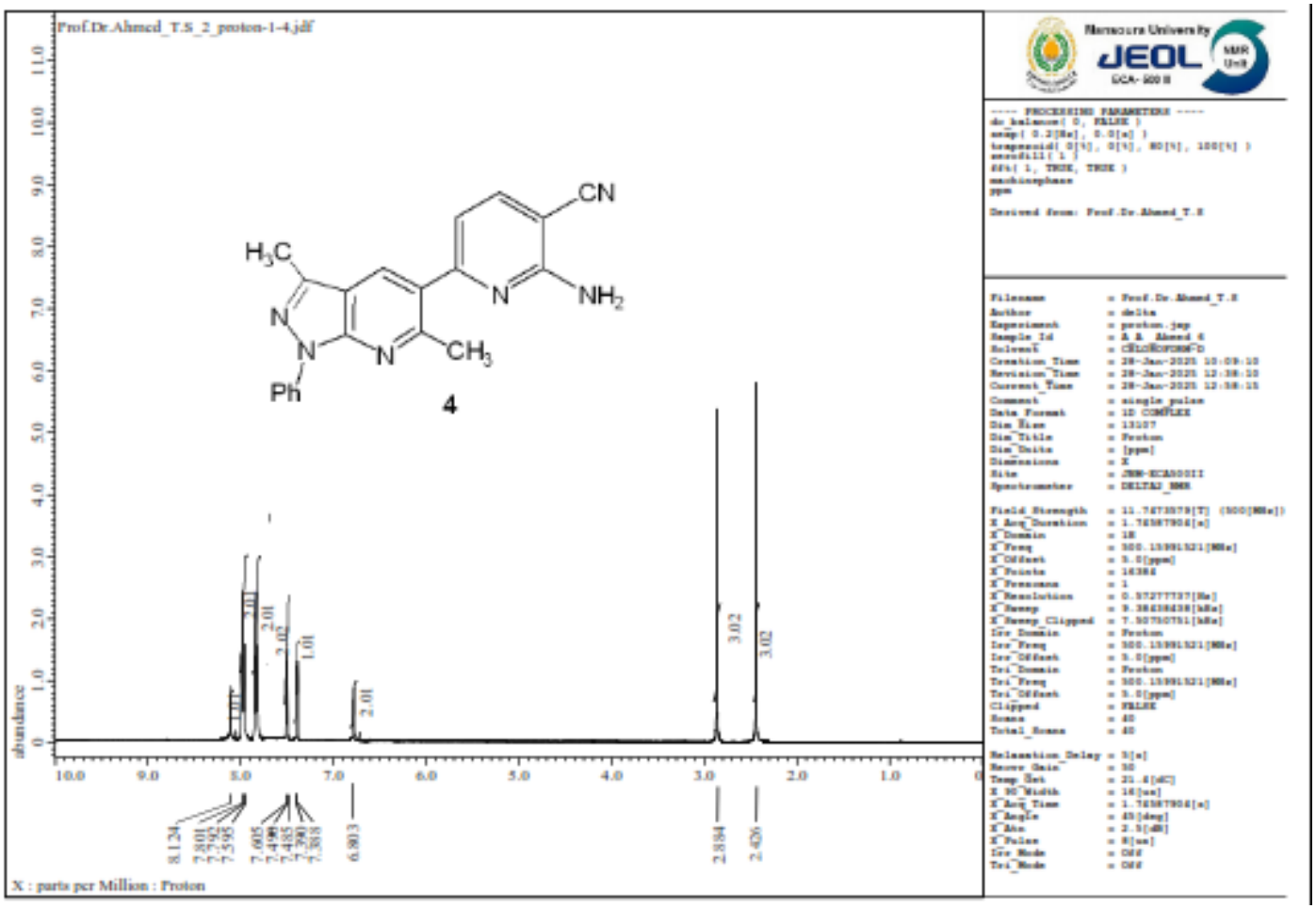
CN
NH2
CH3
Ph
4


Prof.Dr.Ahmed_T.S_2_proton-1-4.jdf
Mansoura University
JEOL
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Author = delta
Experiment = proton.jap
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Solvent = CHLOROFORM-D
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Dimensions = X
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X_Domain = 1H
X_Freq = 500.1599153[MHz]
X_Offset = 5.0[ppm]
X_Points = 16384
X_Prescans = 1
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X_Sweep = 9.3843848[kHz]
X_Sweep_Clipped = 7.5075075[kHz]
Irr_Domain = Proton
Irr_Freq = 500.1599153[MHz]
Irr_Offset = 5.0[ppm]
Tri_Domain = Proton
Tri_Freq = 500.1599153[MHz]
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Recvr_Gain = 50
Temp_Set = 25.6[dC]
X_90_Width = 16[us]
X_Acq_Time = 1.7838790[s]
X_Angle = 45[deg]
X_Atn = 2.5[dB]
X_Pulse = 8[us]
Irr_Mode = Off
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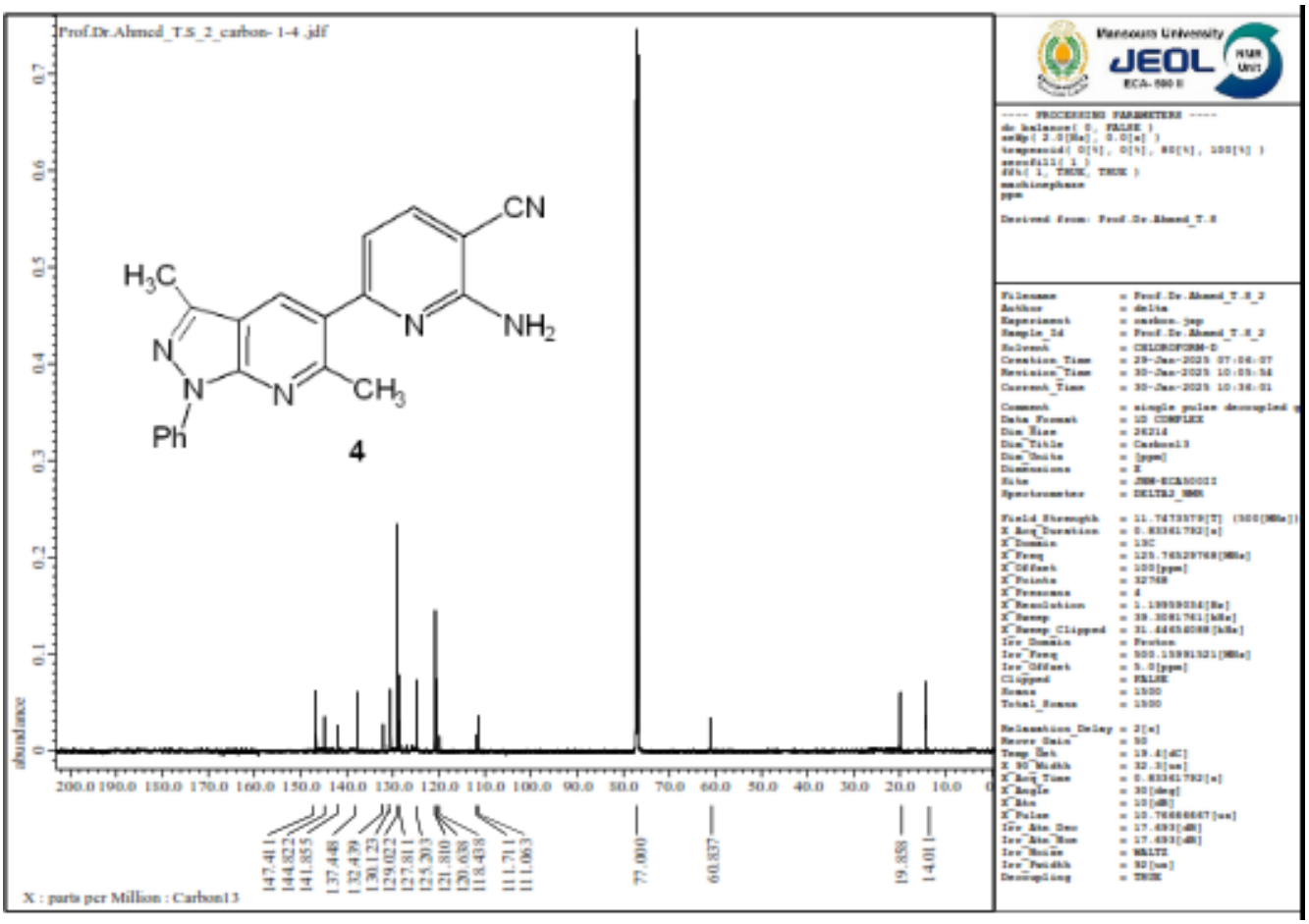
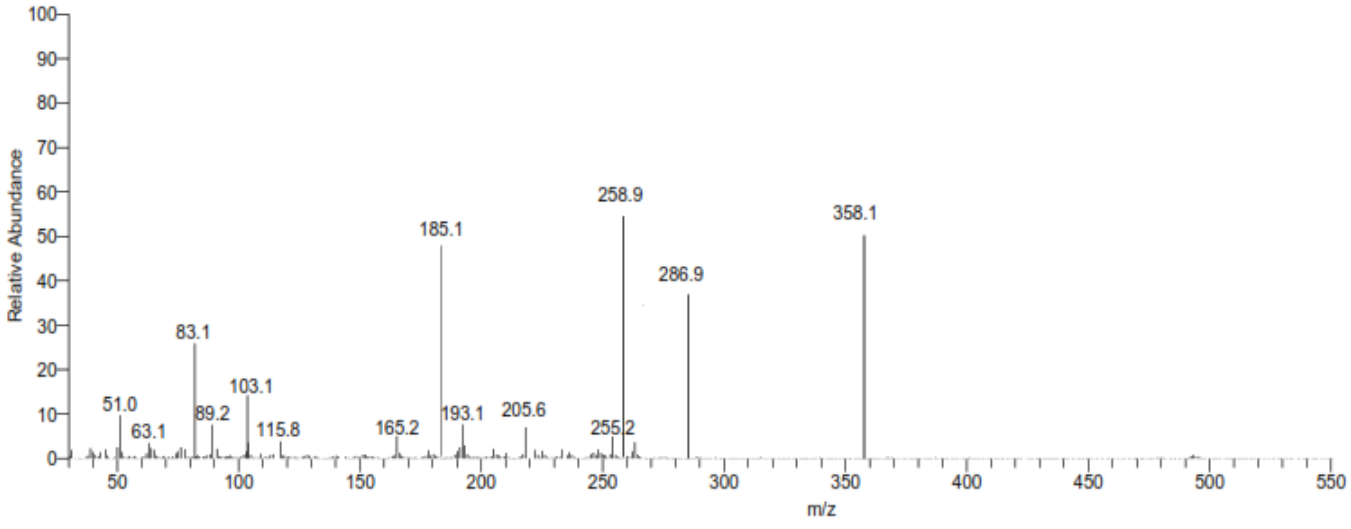
CN
NH2
CH3
Ph
4
abundance
X : parts per Million : Proton





Compound 4

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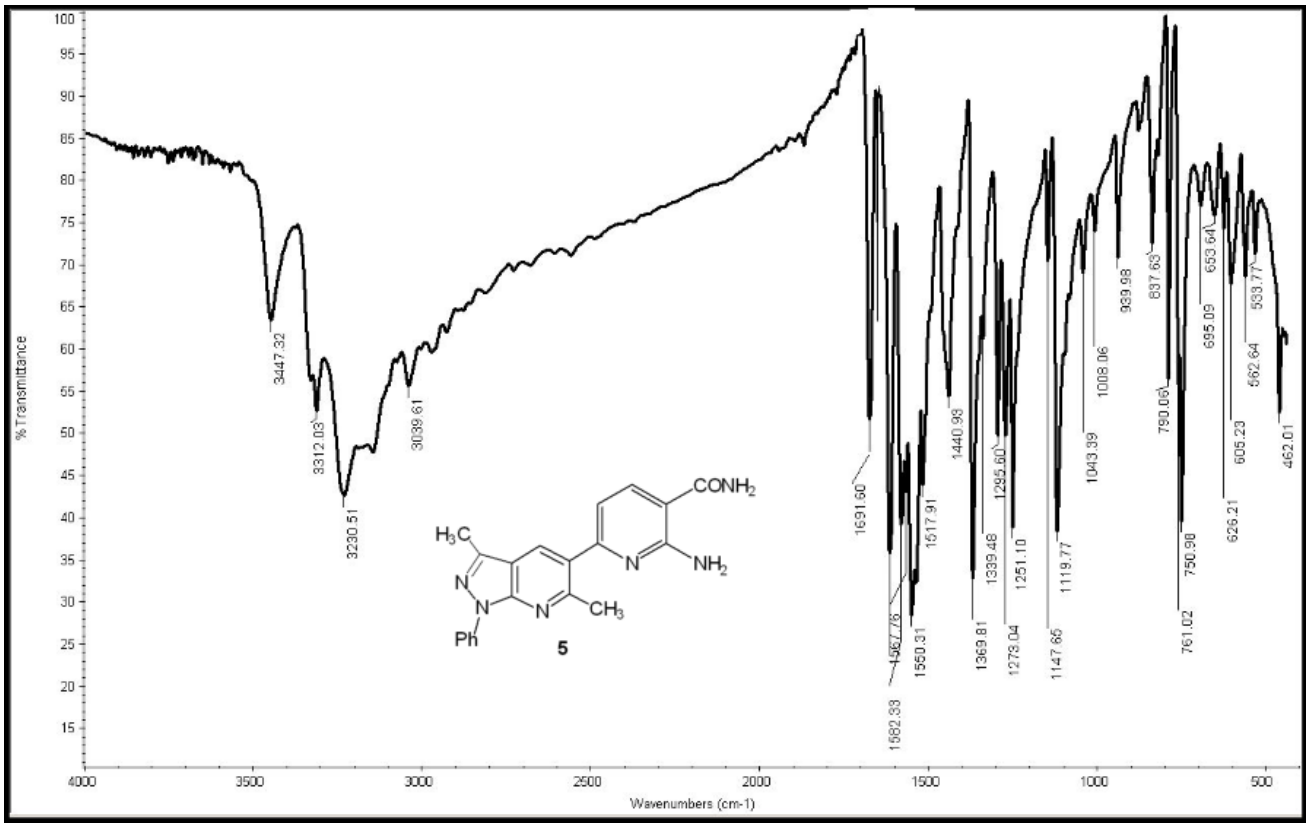
% Transmittance
Wavenumbers (cm-1)
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3230.51
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1582.33
1440.98
1369.81
1339.48
1295.60
1251.10
1278.04
1147.65
1119.77
1043.39
1008.06
939.98
837.63
790.06
761.02
750.98
695.09
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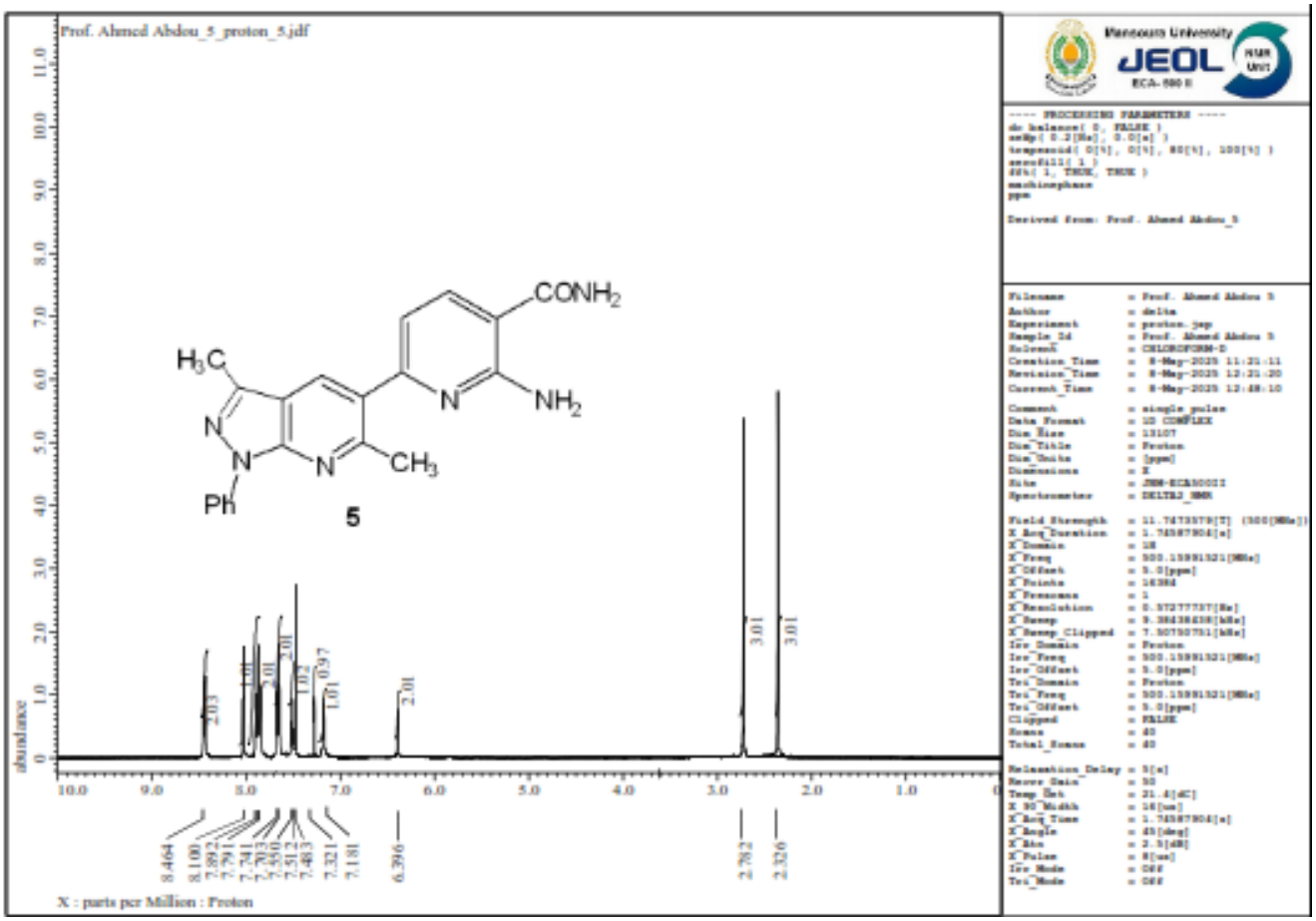
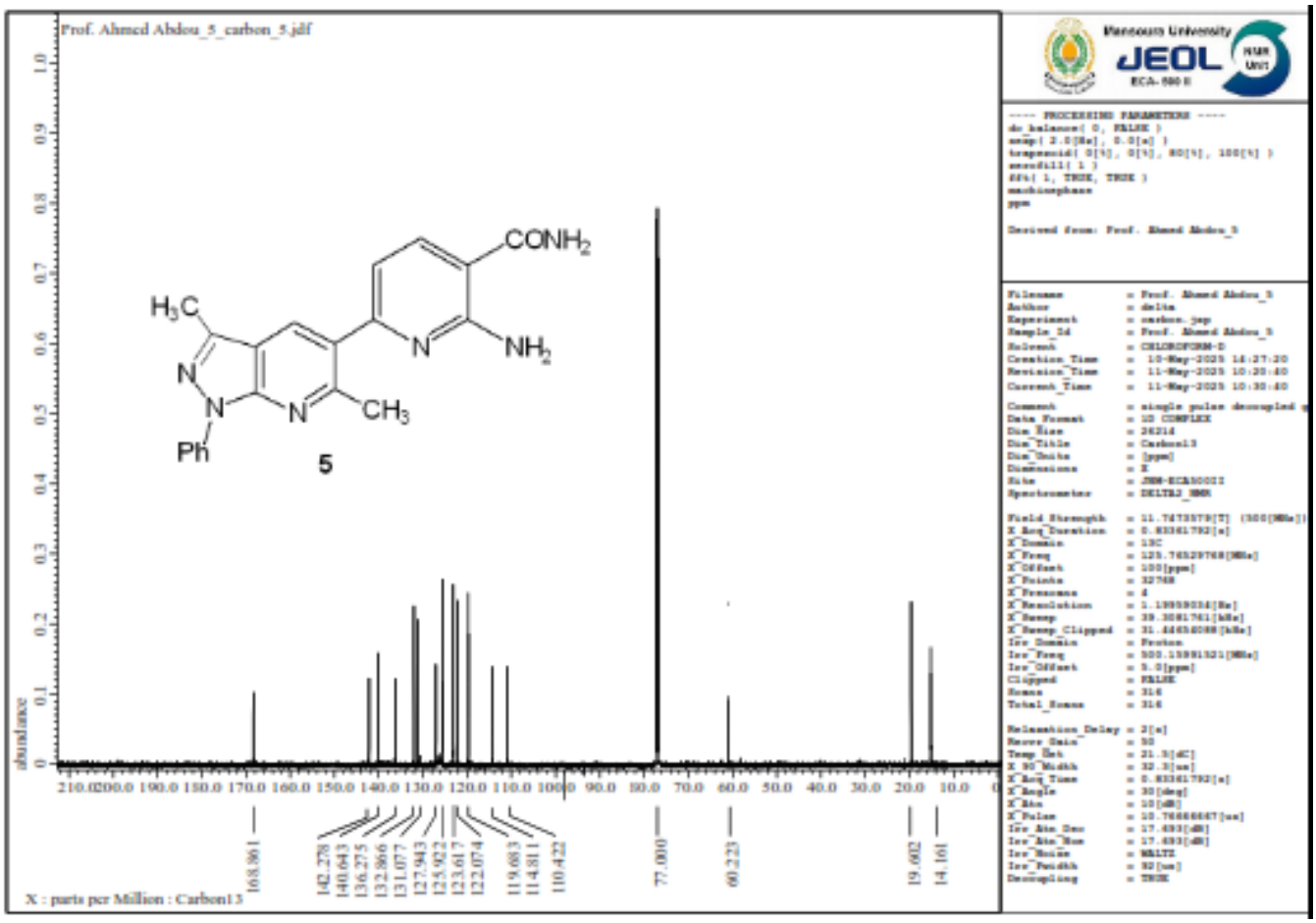
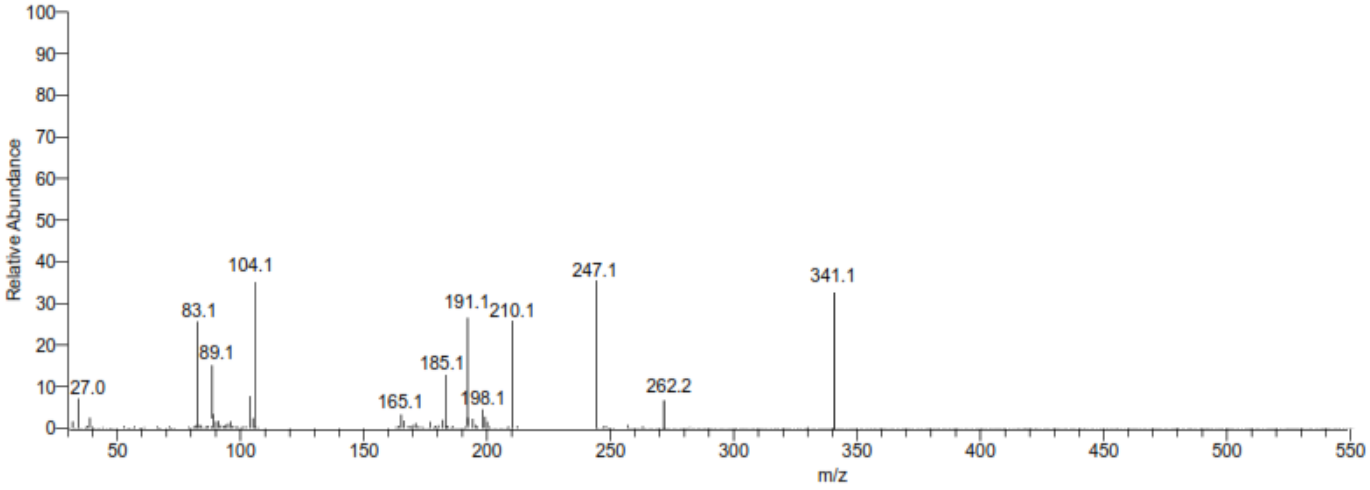
CONH2
NH2
H3C
CH3
N
Ph
5


Prof. Ahmed Abdou_5_proton_5.jdf
Mansoura University
JEOL
ECA-500 II
abundance
X : parts per Million : Proton
CONH2
NH2
H3C
CH3
N
Ph
5

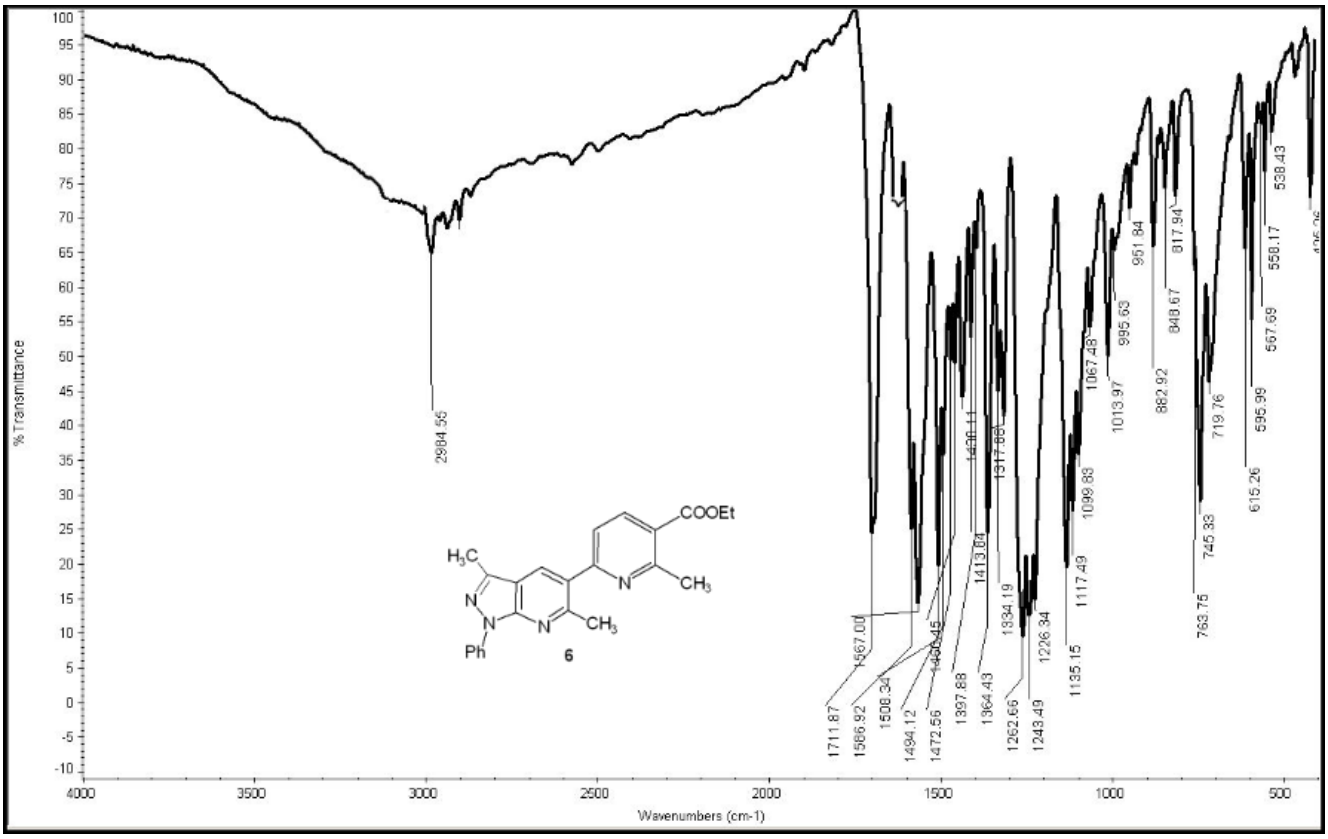
 ©AUTHOR(S)





Compound 5

 ©AUTHOR(S)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1440.45
1397.88
1364.43
1334.19
1262.66
1243.49
1226.34
1135.15
1117.49
1099.83
1067.48
1013.97
995.63
951.84
882.92
848.67
817.94
763.75
745.38
719.76
615.26
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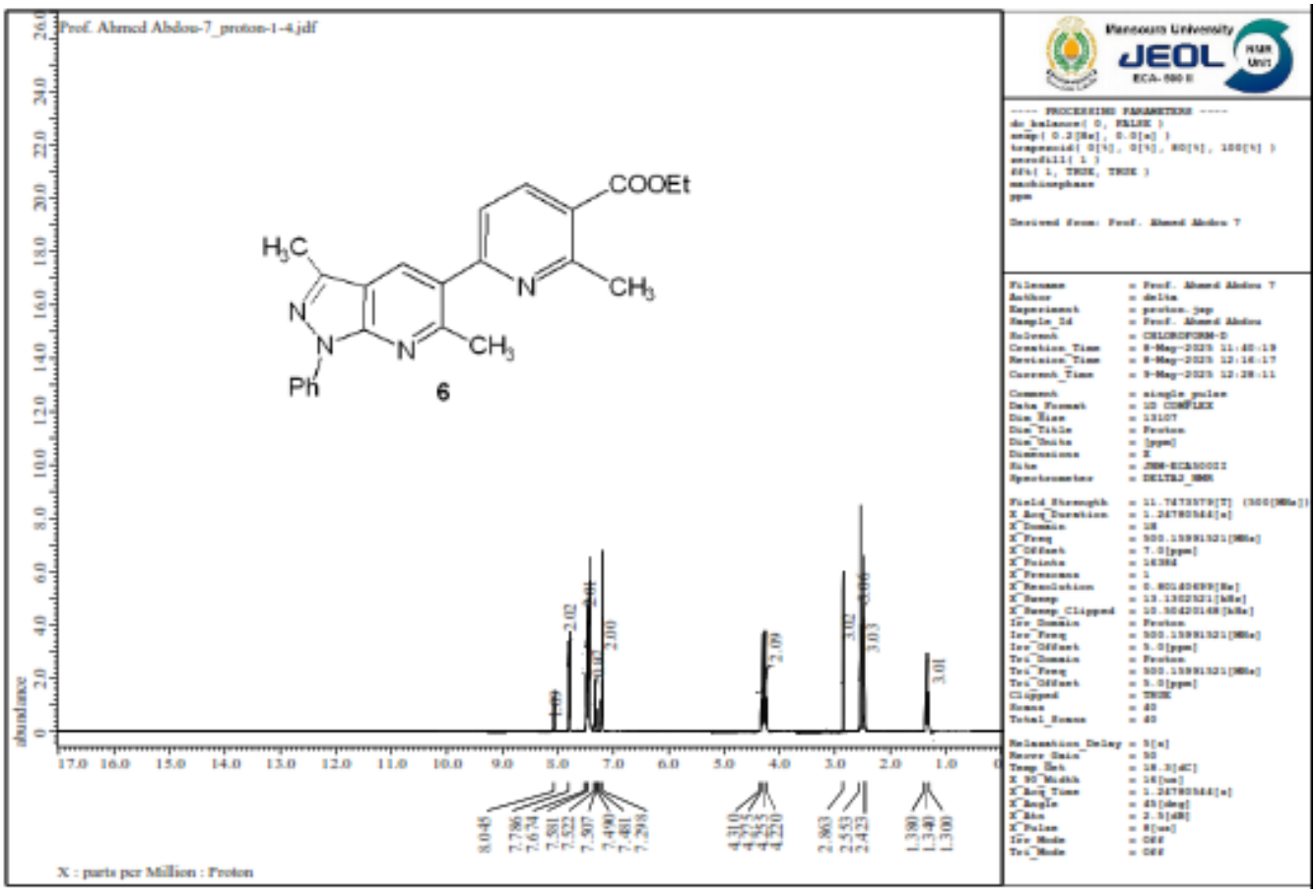
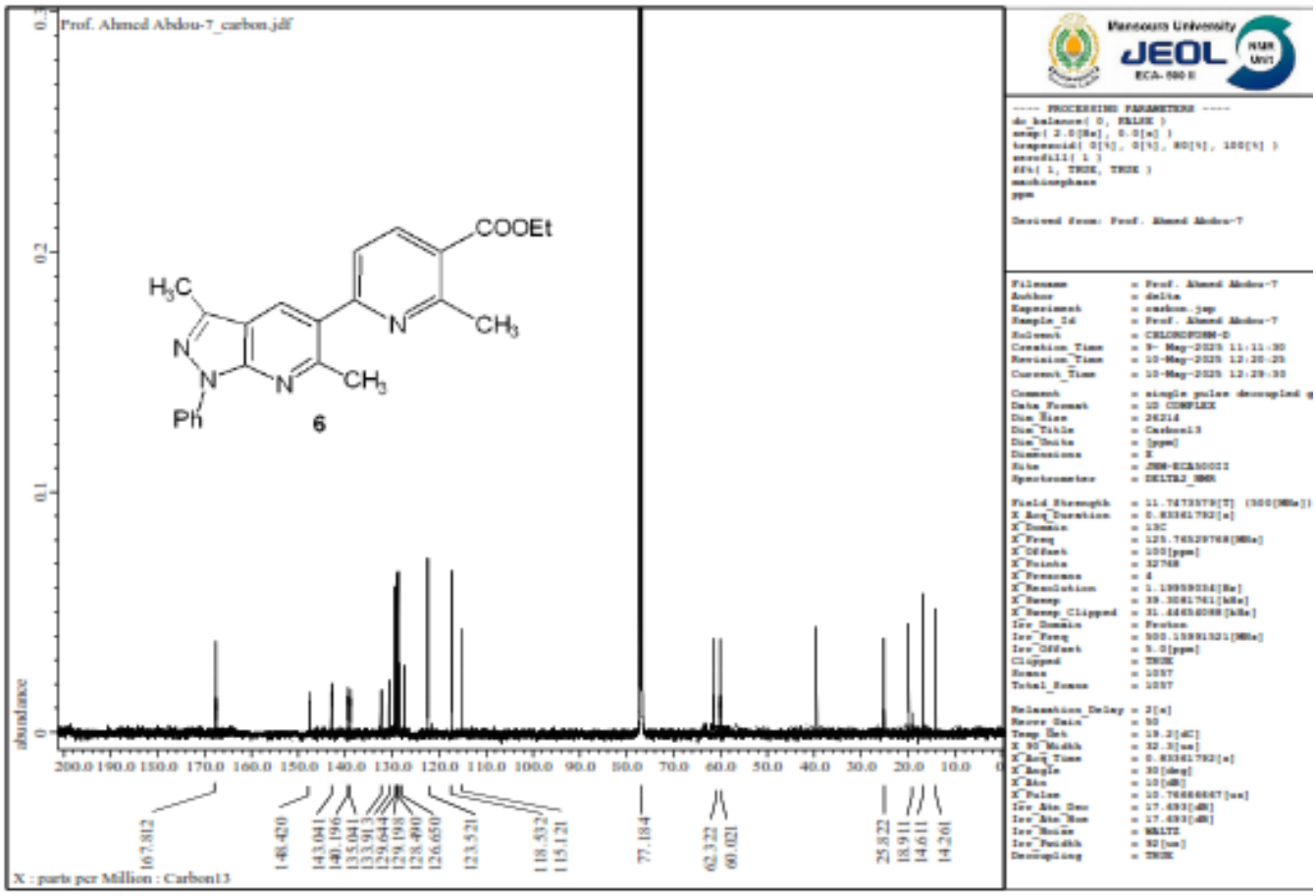
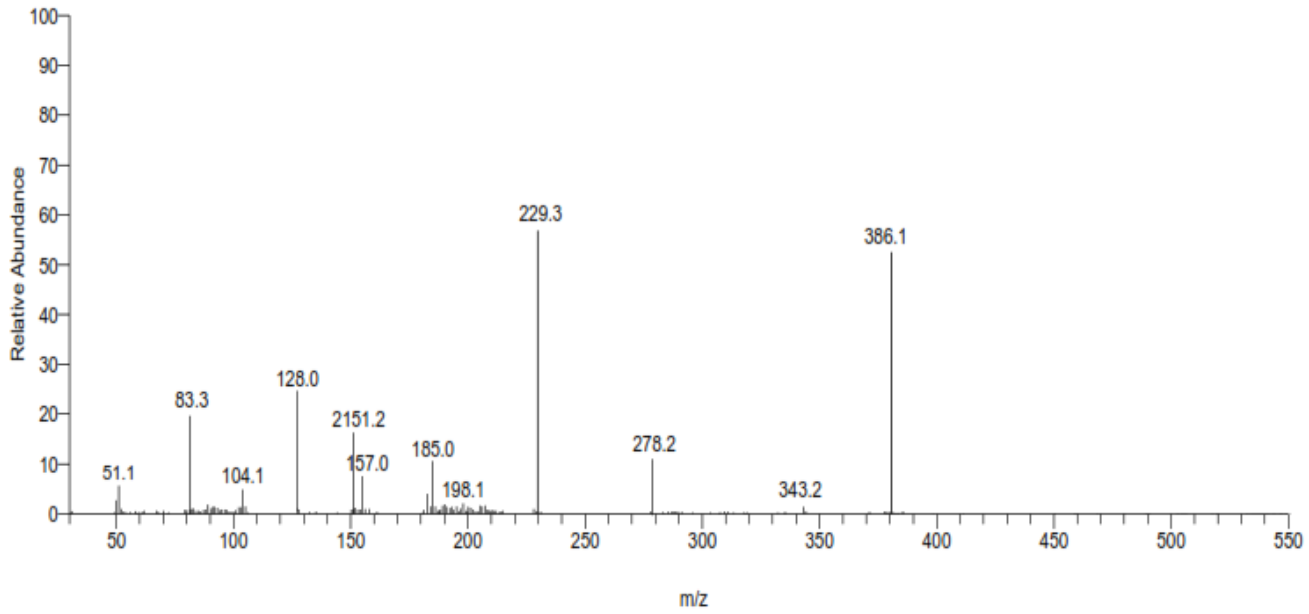
567.69
558.17
538.43
COOEt
H3C
CH3
N
N
N
CH3
Ph
6


Prof. Ahmed Abdou-7_proton-1-4.jdf
Mansoura University
JEOL
ECA-500 II
abundance
X : parts per Million : Proton
COOEt
H3C
CH3
N
N
N
CH3
Ph
6

 ©AUTHOR(S)





Compound 6

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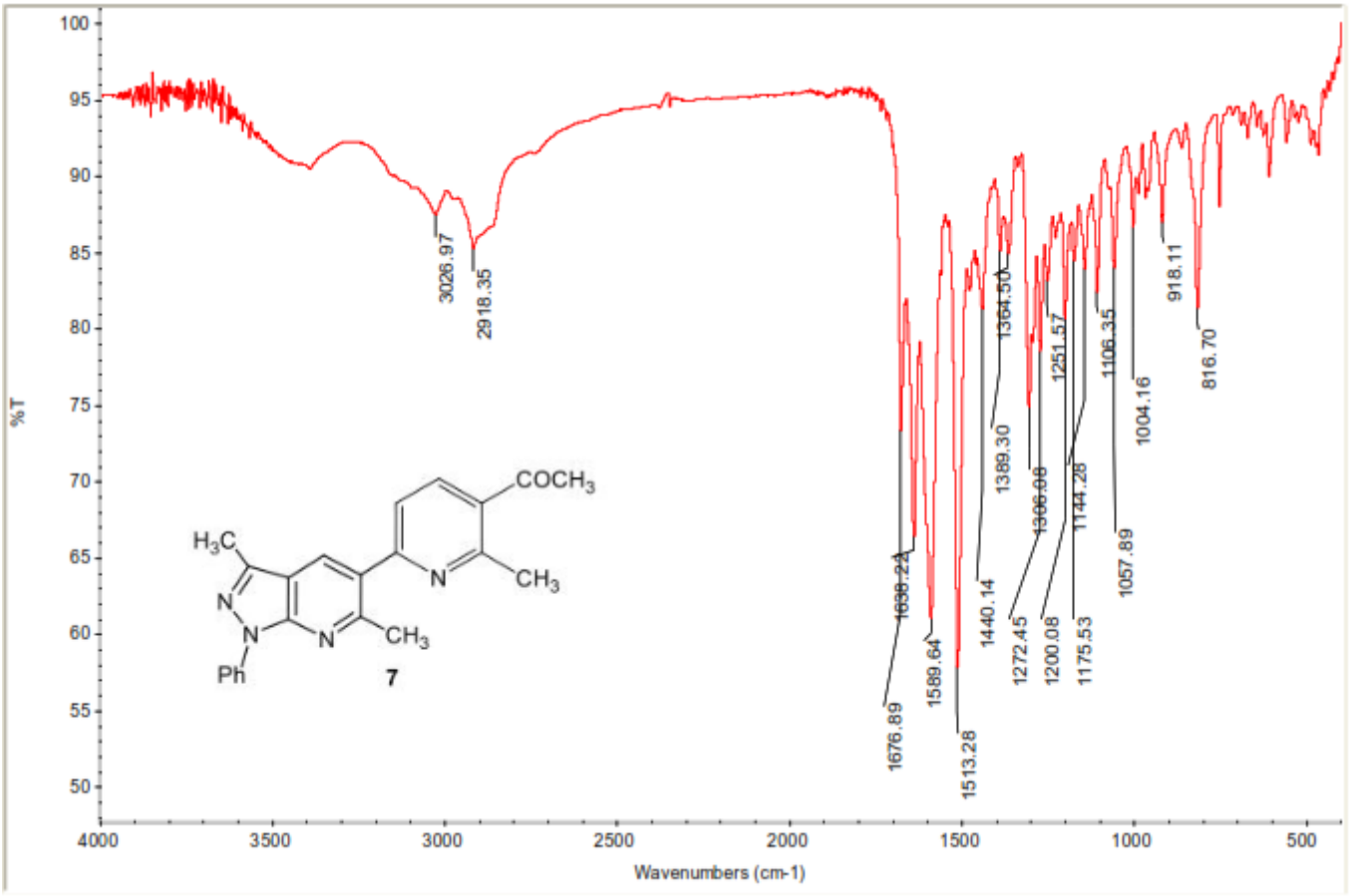
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1638.22
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1513.28
1440.14
1389.30
1364.50
1306.08
1272.45
1251.57
1200.08
1175.53
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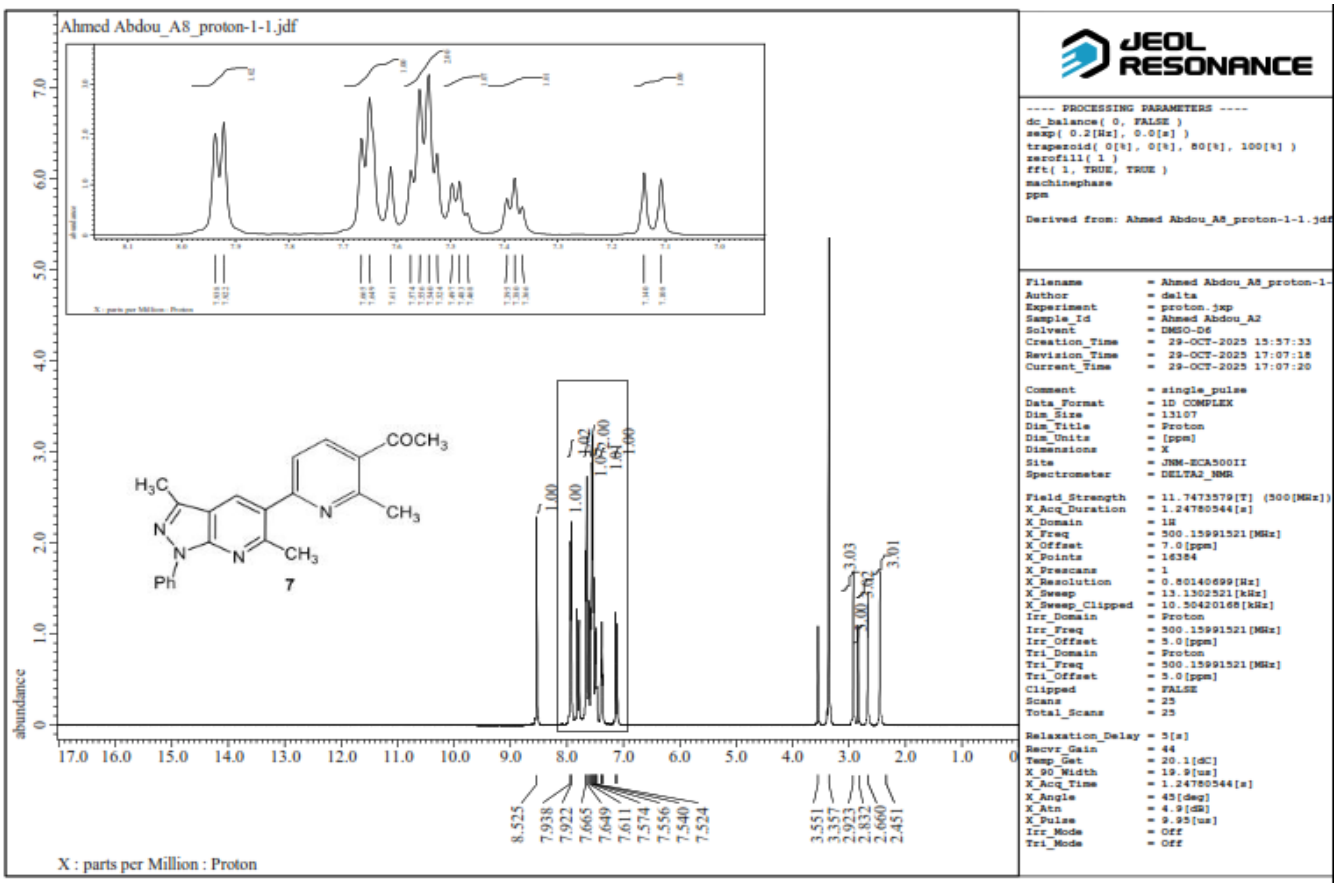
1057.89
1004.16
918.11
816.70
COCH3
H3C
CH3
CH3
Ph
7


Ahmed Abdou_A8_proton-1-1.jdf
JEOL RESONANCE
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trapezoid(0[%], 0[%], 80[%], 100[%])
zerofill(1)
fft(1, TRUE, TRUE)
machinephase
ppm
Derived from: Ahmed Abdou_A8_proton-1-1.jdf
Filename = Ahmed Abdou_A8_proton-1-
Author = delta
Experiment = proton.jxp
Sample_Id = Ahmed Abdou_A2
Solvent = DMSO-D6
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Revision_Time = 29-OCT-2025 17:07:18
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Dim_Title = Proton
Dim_Units = [ppm]
Dimensions = X
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Spectrometer = DELTA2_NMR
Field_Strength = 11.7473579[T] (500[MHz])
X_Acq_Duration = 1.24780544[s]
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X_Freq = 500.15991521[MHz]
X_Offset = 7.0[ppm]
X_Points = 16384
X_Prescans = 1
X_Resolution = 0.80140699[Hz]
X_Sweep = 13.1302521[kHz]
X_Sweep_Clipped = 10.50420168[kHz]
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Irr_Freq = 500.15991521[MHz]
Irr_Offset = 5.0[ppm]
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Tri_Freq = 500.15991521[MHz]
Tri_Offset = 5.0[ppm]
Clipped = FALSE
Scans = 25
Total_Scans = 25
Relaxation_Delay = 5[s]
Recvr_Gain = 44
Temp_Get = 20.1[dC]
X_90_Width = 19.9[us]
X_Acq_Time = 1.24780544[s]
X_Angle = 45[deg]
X_Atn = 4.9[dB]
X_Pulse = 9.95[us]
Irr_Mode = Off
Tri_Mode = Off
COCH3
H3C
CH3
CH3
Ph
7
abundance
X : parts per Million : Proton
8.525
7.938
7.922
7.665
7.649
7.611
7.574
7.556
7.540
7.524
3.551
3.357
2.923
2.832
2.660
2.451

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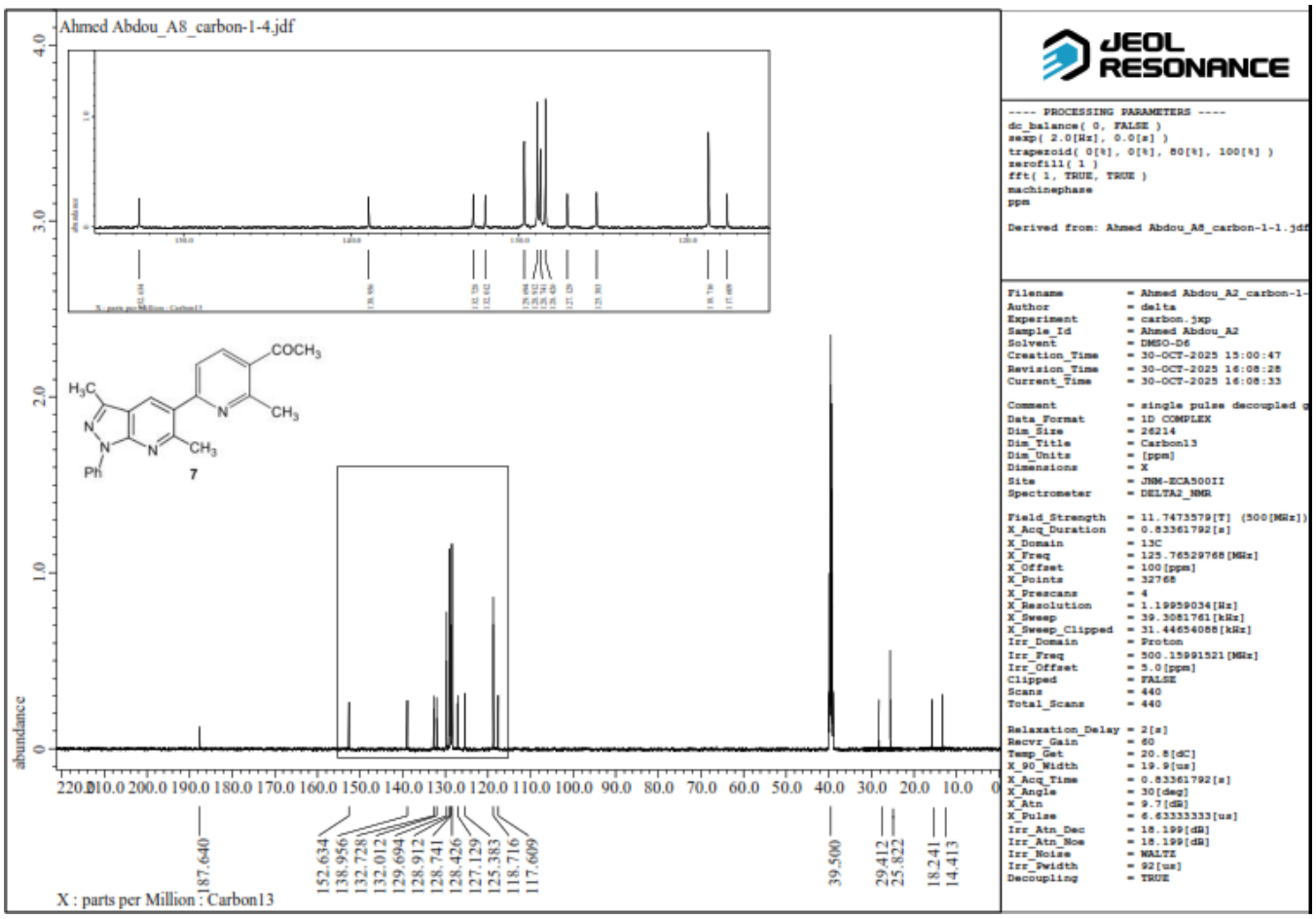
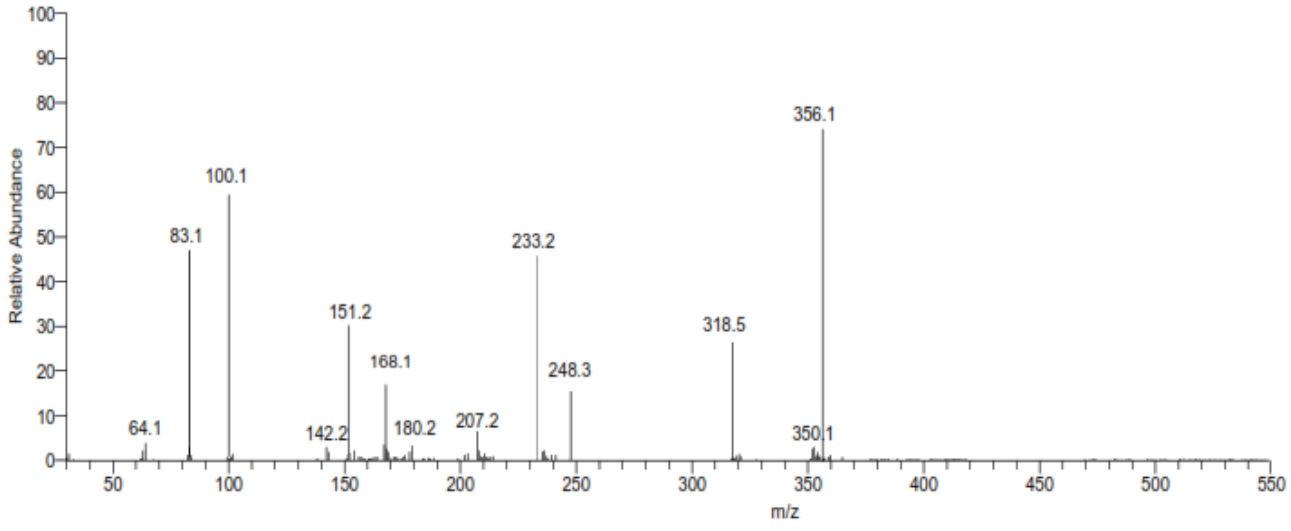
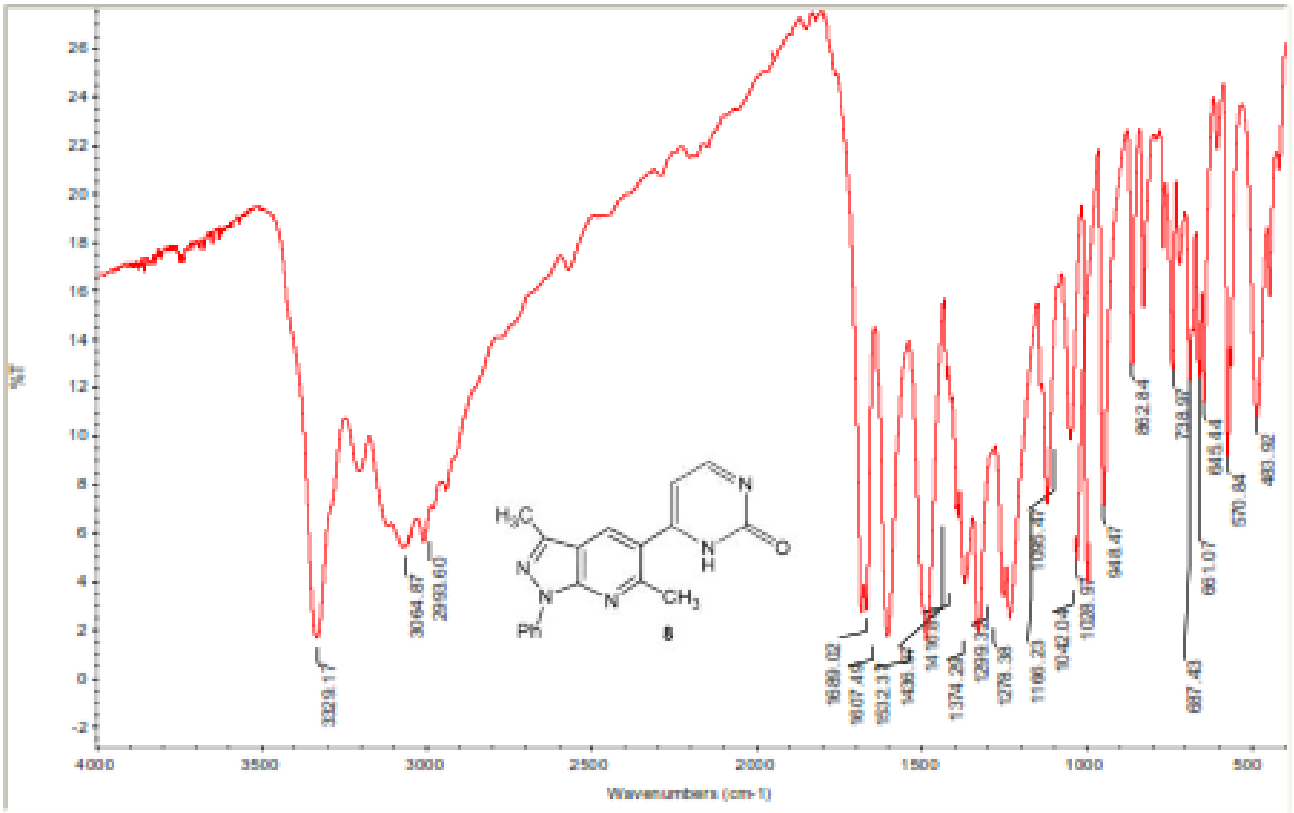




Compound 7

 ©AUTHOR(S)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Wavenumbers (cm-1)
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2993.60
1689.02
1607.45
1532.31
1436.54
1374.29
1299.32
1278.36
1166.23
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570.84
497.43
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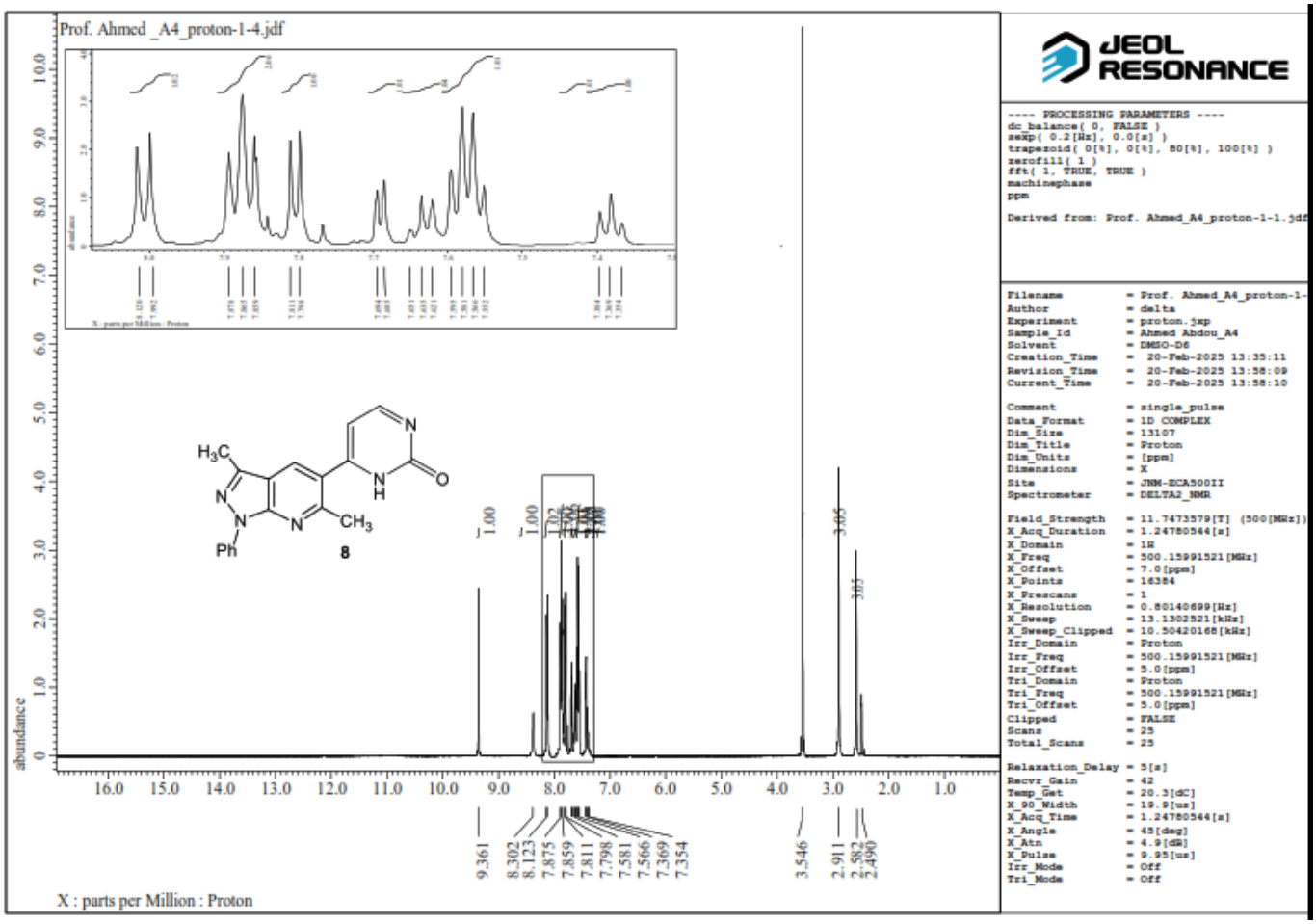
8


Prof. Ahmed _A4_proton-1-4.jdf
JEOL RESONANCE
---- PROCESSING PARAMETERS ----
dc_balance(0, FALSE)
expl(0.2[Hz], 0.0[s])
trapezoid(0[%], 0[%], 80[%], 100[%])
zerofill(1)
fft(1, TRUE, TRUE)
machinephase
ppm
Derived from: Prof. Ahmed_A4_proton-1-1.jdf
Filename = Prof. Ahmed_A4_proton-1-
Author = delta
Experiment = proton.jxp
Sample_Id = Ahmed Abdou_A4
Solvent = DMSO-D6
Creation_Time = 20-Feb-2025 13:35:11
Revision_Time = 20-Feb-2025 13:58:09
Current_Time = 20-Feb-2025 13:58:10
Comment = single_pulse
Data_Format = 1D COMPLEX
Dim_Size = 13107
Dim_Title = Proton
Dim_Units = [ppm]
Dimensions = X
Site = JNM-ECA500II
Spectrometer = DELTA2_NMR
Field_Strength = 11.7473579[T] (500[MHz])
X_Acq_Duration = 1.24780544[s]
X_Domain = 1H
X_Freq = 500.15991521[MHz]
X_Offset = 7.0[ppm]
X_Points = 16384
X_Prescans = 1
X_Resolution = 0.80140699[Hz]
X_Sweep = 13.1302521[kHz]
X_Sweep_Clipped = 10.50420168[kHz]
Irr_Domain = Proton
Irr_Freq = 500.15991521[MHz]
Irr_Offset = 5.0[ppm]
Tri_Domain = Proton
Tri_Freq = 500.15991521[MHz]
Tri_Offset = 5.0[ppm]
Clipped = FALSE
Scans = 25
Total_Scans = 25
Relaxation_Delay = 5[s]
Recvr_Gain = 42
Temp_Get = 20.3[dC]
X_90_Width = 19.9[us]
X_Acq_Time = 1.24780544[s]
X_Angle = 45[deg]
X_Atn = 4.9[dB]
X_Pulse = 9.95[us]
Irr_Mode = Off
Tri_Mode = Off
abundance
X : parts per Million : Proton
8
9.361
8.302
8.123
7.875
7.859
7.811
7.798
7.581
7.566
7.369
7.354
3.546
2.911
2.582
2.490

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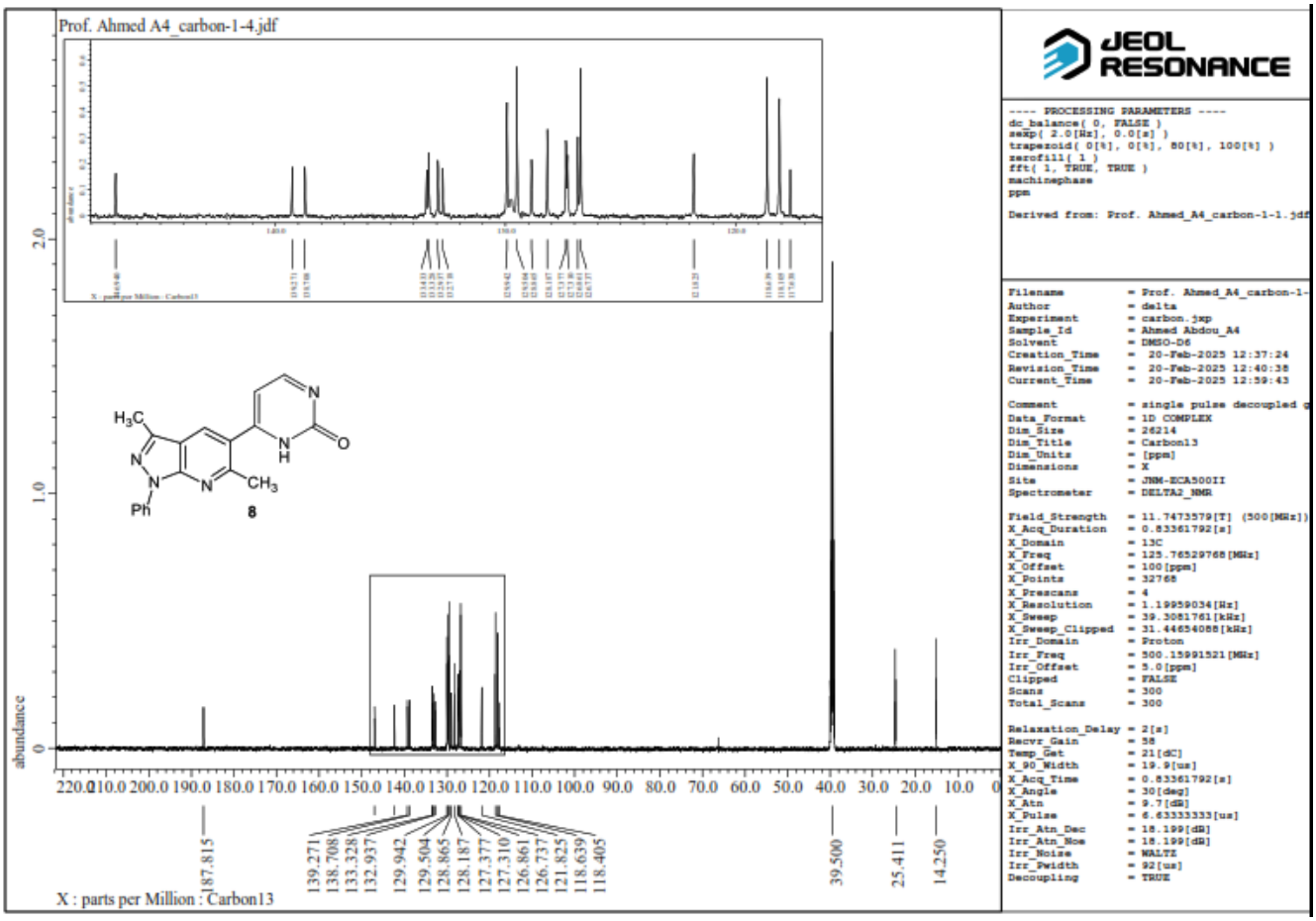

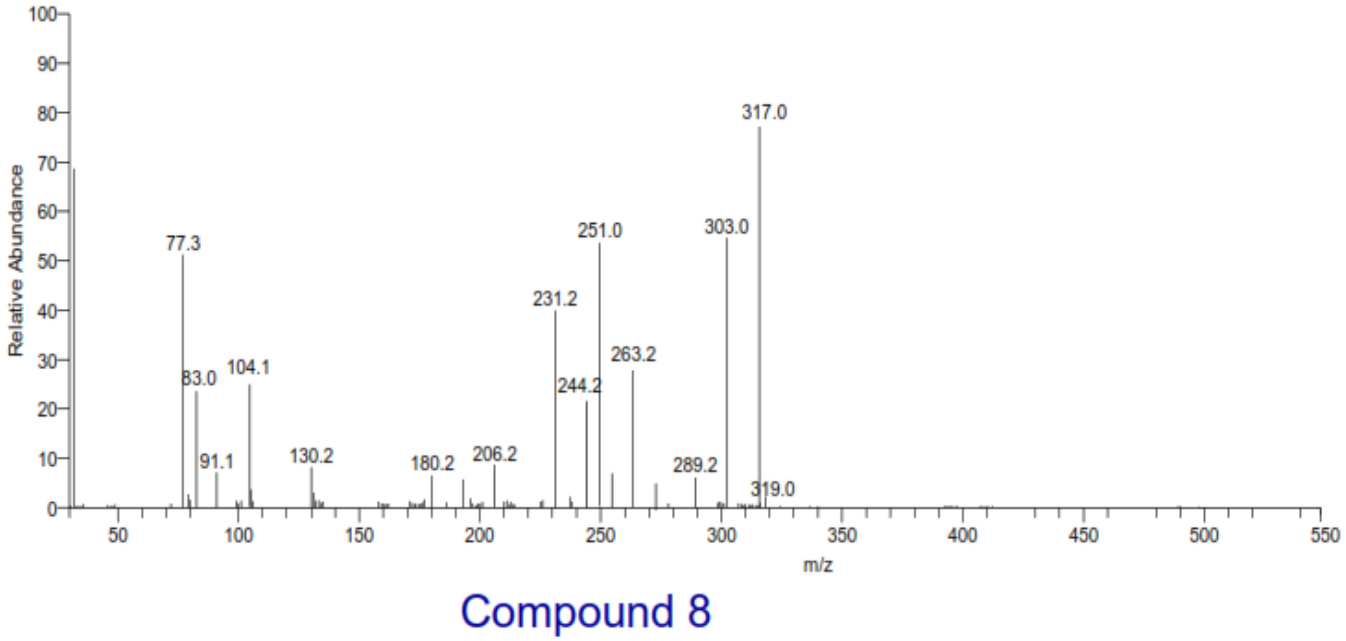

Compound 8

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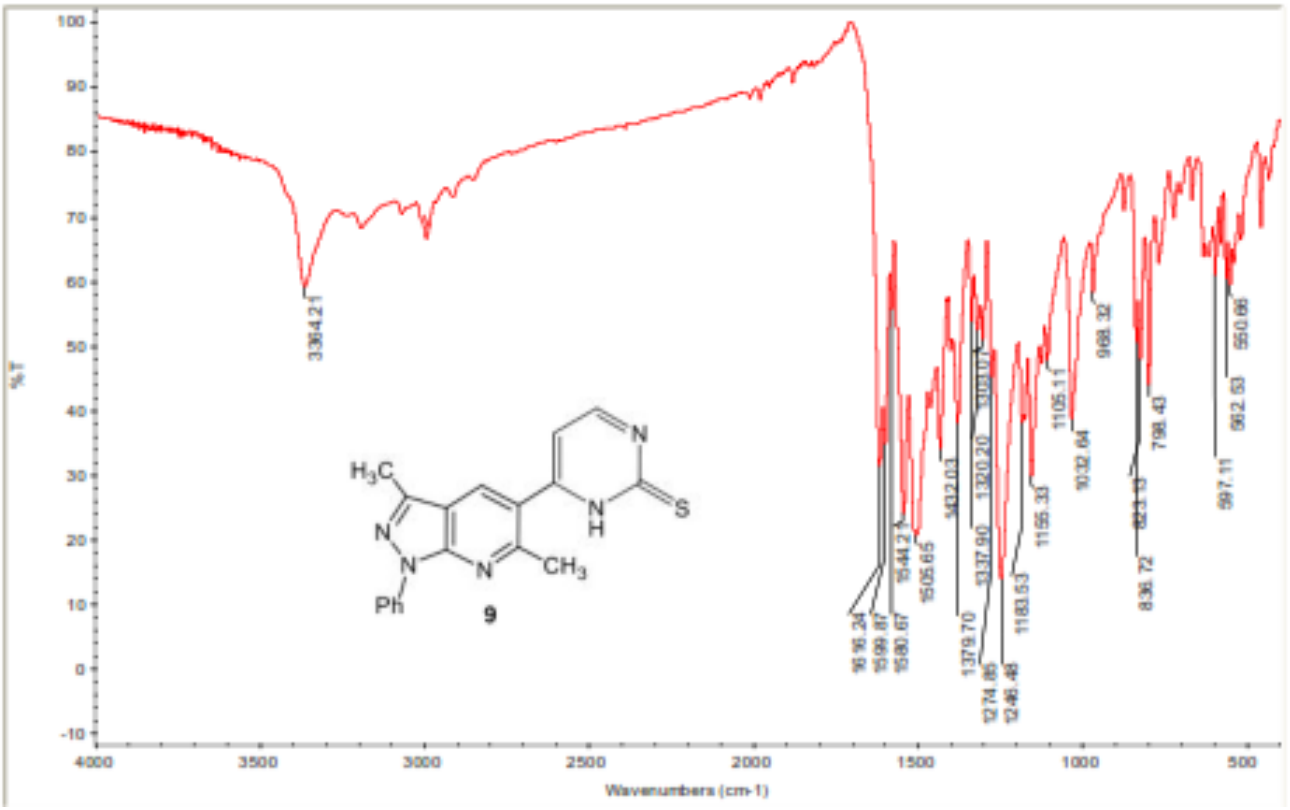
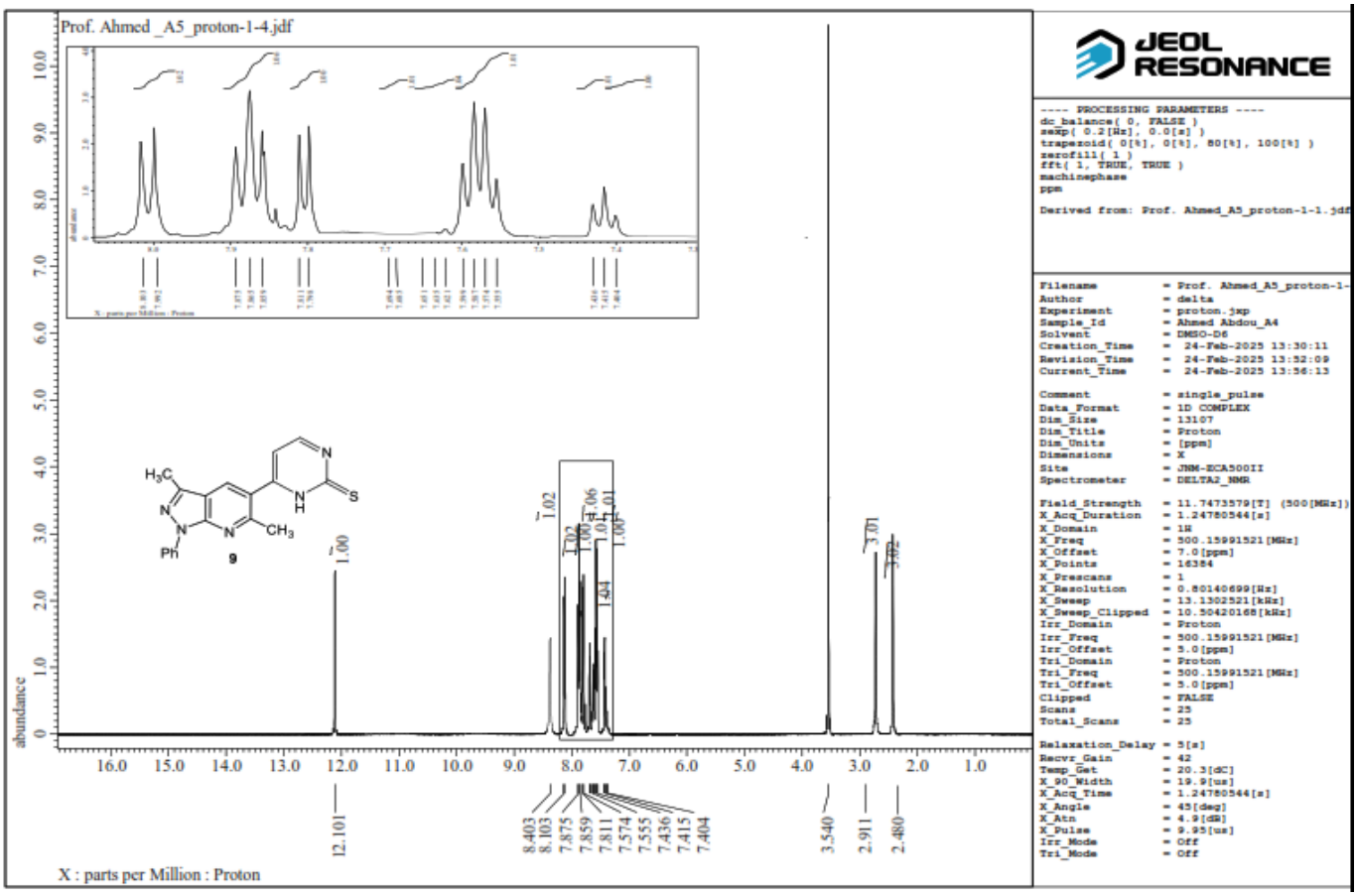

%T
Wavenumbers (cm-1)
3364.21
1616.24
1599.87
1580.67
1544.21
1505.65
1412.03
1379.70
1320.20
1274.85
1246.48
1183.53
1155.33
1105.11
1032.64
968.32
836.72
798.43
662.53
597.11
550.66
H3C
CH3
Ph
9


Prof. Ahmed _A5_proton-1-4.jdf
JEOL RESONANCE
---- PROCESSING PARAMETERS ----
dc_balance(0, FALSE)
expb(0.2[Hz], 0.0[s])
trapezoid(0[%], 0[%], 80[%], 100[%])
zerofill(1)
fft(1, TRUE, TRUE)
machinephase
ppm
Derived from: Prof. Ahmed_A5_proton-1-1.jdf
Filename = Prof. Ahmed_A5_proton-1-
Author = delta
Experiment = proton.jxp
Sample_Id = Ahmed Abdou_A4
Solvent = DMSO-D6
Creation_Time = 24-Feb-2025 13:30:11
Revision_Time = 24-Feb-2025 13:52:09
Current_Time = 24-Feb-2025 13:56:13
Comment = single_pulse
Data_Format = 1D COMPLEX
Dim_Size = 13107
Dim_Title = Proton
Dim_Units = [ppm]
Dimensions = X
Site = JNM-ECA500II
Spectrometer = DELTA2_NMR
Field_Strength = 11.7473579[T] (500[MHz])
X_Acq_Duration = 1.24780544[s]
X_Domain = 1H
X_Freq = 500.15991521[MHz]
X_Offset = 7.0[ppm]
X_Points = 16384
X_Prescans = 1
X_Resolution = 0.80140699[Hz]
X_Sweep = 13.1302521[kHz]
X_Sweep_Clipped = 10.50420168[kHz]
Irr_Domain = Proton
Irr_Freq = 500.15991521[MHz]
Irr_Offset = 5.0[ppm]
Tri_Domain = Proton
Tri_Freq = 500.15991521[MHz]
Tri_Offset = 5.0[ppm]
Clipped = FALSE
Scans = 25
Total_Scans = 25
Relaxation_Delay = 5[s]
Recvr_Gain = 42
Temp_Get = 20.3[dC]
X_90_Width = 19.9[us]
X_Acq_Time = 1.24780544[s]
X_Angle = 45[deg]
X_Atn = 4.9[dB]
X_Pulse = 9.95[us]
Irr_Mode = Off
Tri_Mode = Off
abundance
X : parts per Million : Proton
12.101
8.403
8.103
7.875
7.859
7.811
7.574
7.555
7.436
7.415
7.404
3.540
2.911
2.480
H3C
CH3
Ph
9

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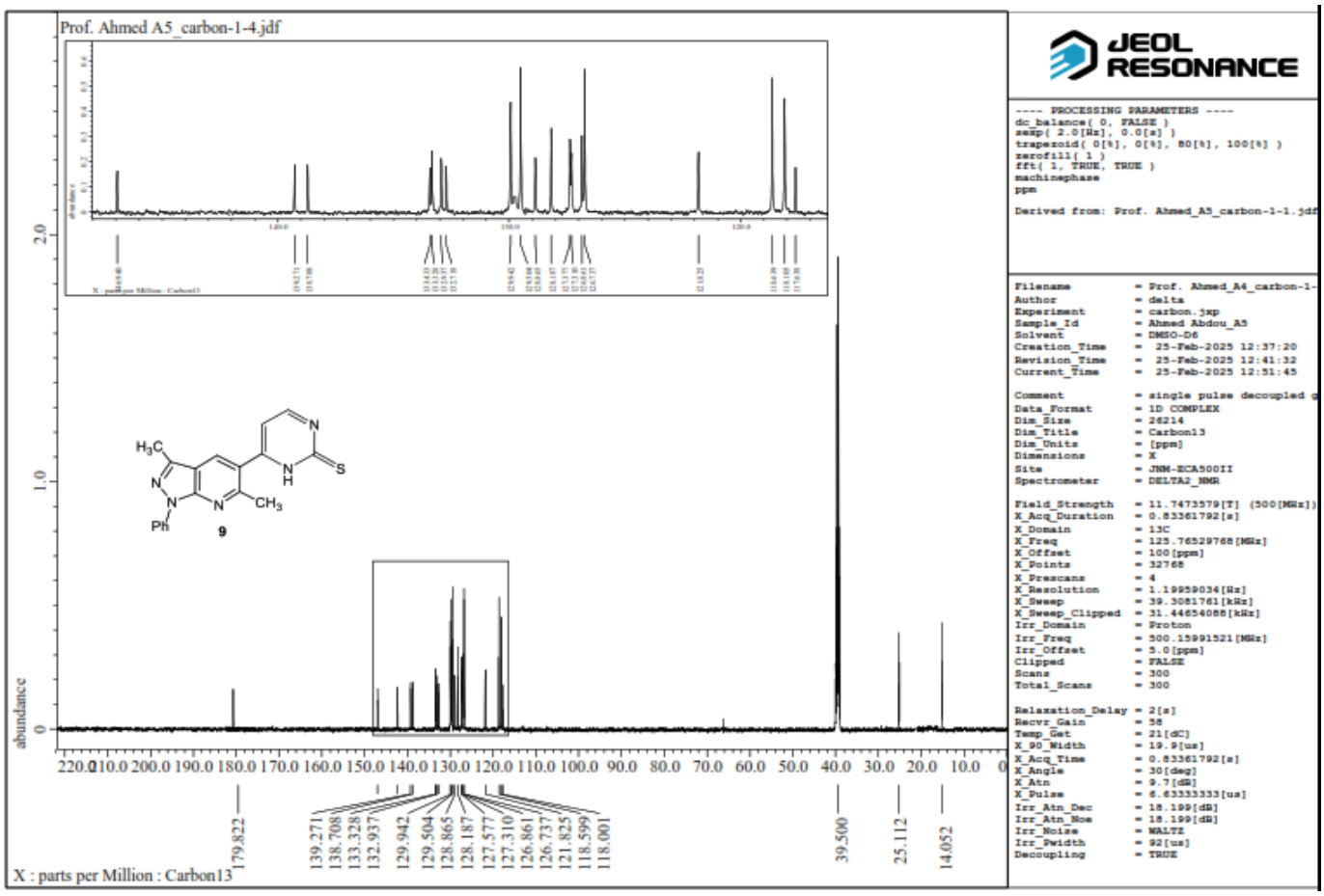

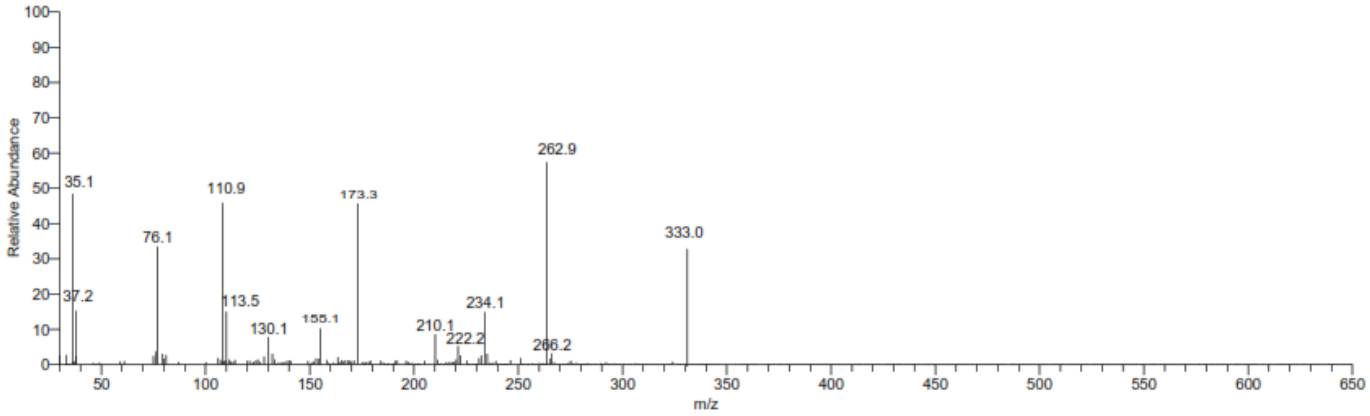

Compound 9

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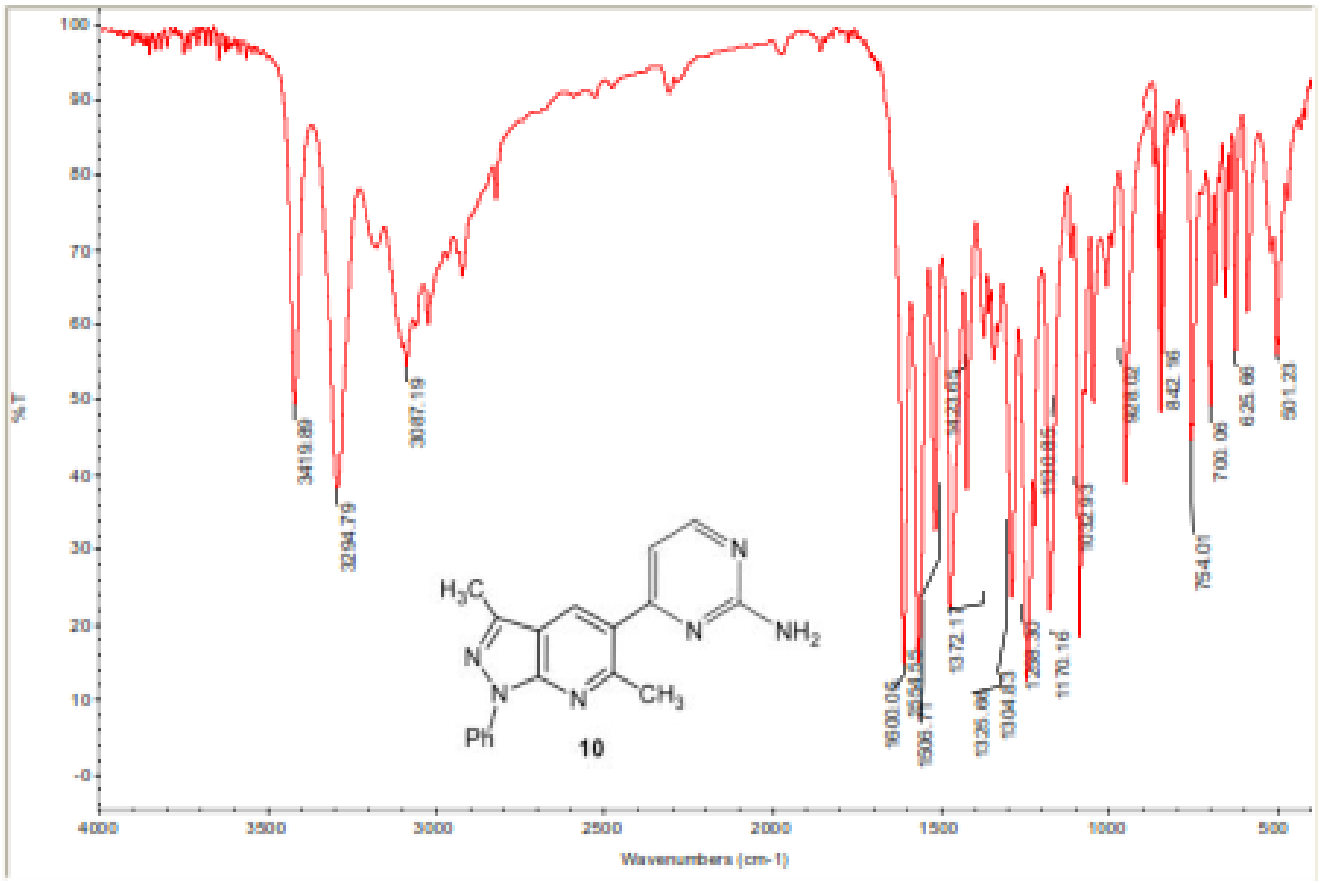
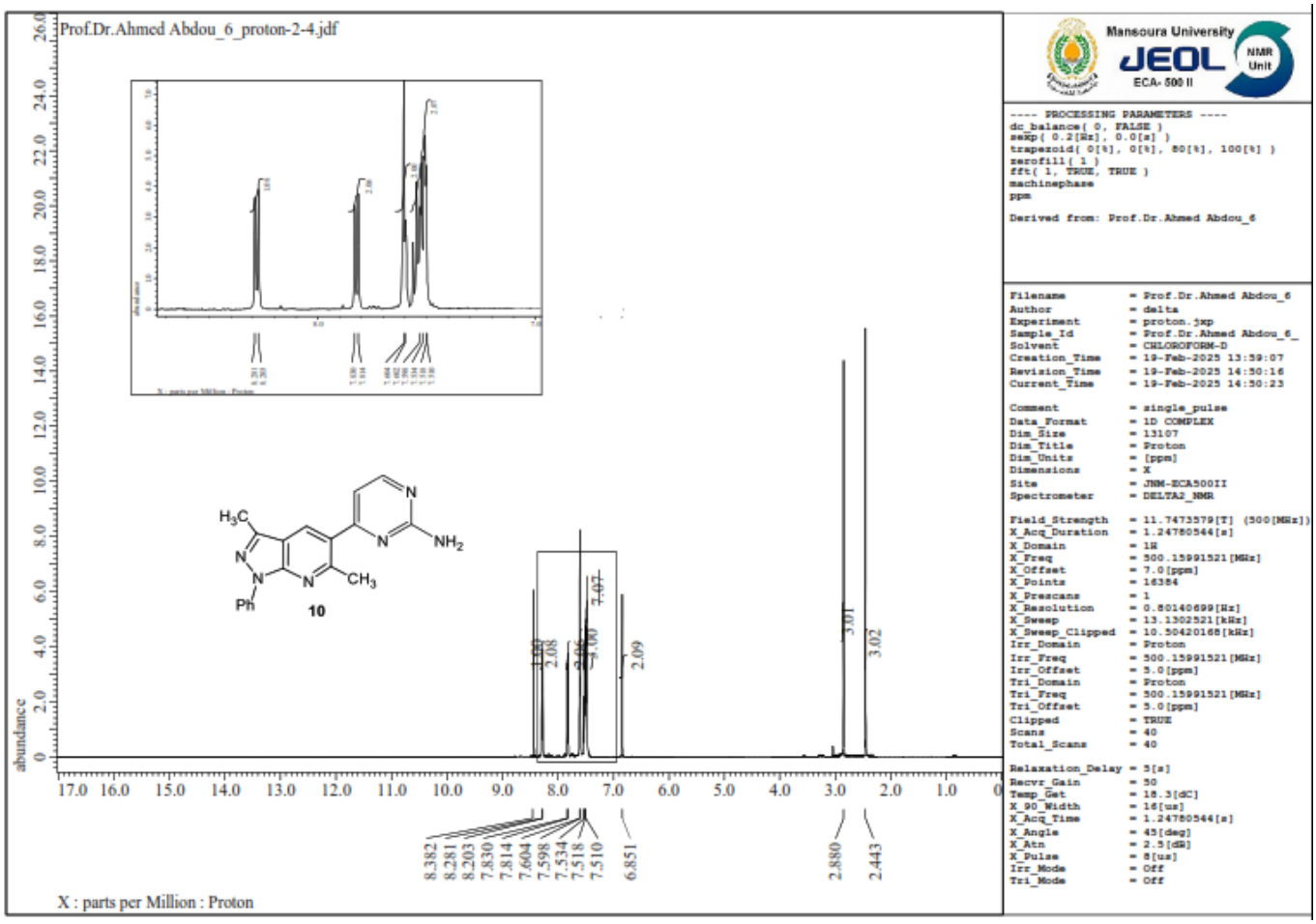

%T
Wavenumbers (cm-1)
3419.69
3294.79
3067.19
1600.05
1568.77
1372.11
1325.66
1104.83
1170.16
842.96
754.01
700.06
625.66
501.23
H3C
N
NH2
CH3
Ph
10


Prof.Dr.Ahmed Abdou_6_proton-2-4.jdf
Mansoura University
JEOL
NMR Unit
ECA-500 II
---- PROCESSING PARAMETERS ----
dc_balance(0, FALSE)
expk(0.2[Hz], 0.0[s])
trapezoid(0[%], 0[%], 80[%], 100[%])
zerofill(1)
fft(1, TRUE, TRUE)
machinephase
ppm
Derived from: Prof.Dr.Ahmed Abdou_6
Filename = Prof.Dr.Ahmed Abdou_6
Author = delta
Experiment = proton.jxp
Sample_Id = Prof.Dr.Ahmed Abdou_6_
Solvent = CHLOROFORM-D
Creation_Time = 19-Feb-2025 13:59:07
Revision_Time = 19-Feb-2025 14:50:16
Current_Time = 19-Feb-2025 14:50:23
Comment = single_pulse
Data_Format = 1D COMPLEX
Dim_Size = 13107
Dim_Title = Proton
Dim_Units = [ppm]
Dimensions = X
Site = JNM-ECA500II
Spectrometer = DELTA2_NMR
Field_Strength = 11.7473579[T] (500[MHz])
X_Acq_Duration = 1.24780544[s]
X_Domain = 1H
X_Freq = 500.15991521[MHz]
X_Offset = 7.0[ppm]
X_Points = 16384
X_Prescans = 1
X_Resolution = 0.80140699[Hz]
X_Sweep = 13.1302521[kHz]
X_Sweep_Clipped = 10.50420168[kHz]
Irr_Domain = Proton
Irr_Freq = 500.15991521[MHz]
Irr_Offset = 5.0[ppm]
Tri_Domain = Proton
Tri_Freq = 500.15991521[MHz]
Tri_Offset = 5.0[ppm]
Clipped = TRUE
Scans = 40
Total_Scans = 40
Relaxation_Delay = 5[s]
Recvr_Gain = 50
Temp_Get = 18.3[dC]
X_90_Width = 16[us]
X_Acq_Time = 1.24780544[s]
X_Angle = 45[deg]
X_Atn = 2.5[dB]
X_Pulse = 8[us]
Irr_Mode = Off
Tri_Mode = Off
abundance
X : parts per Million : Proton
8.382
8.281
8.203
7.830
7.814
7.604
7.598
7.534
7.518
7.510
6.851
2.880
2.443
H3C
N
NH2
CH3
Ph
10

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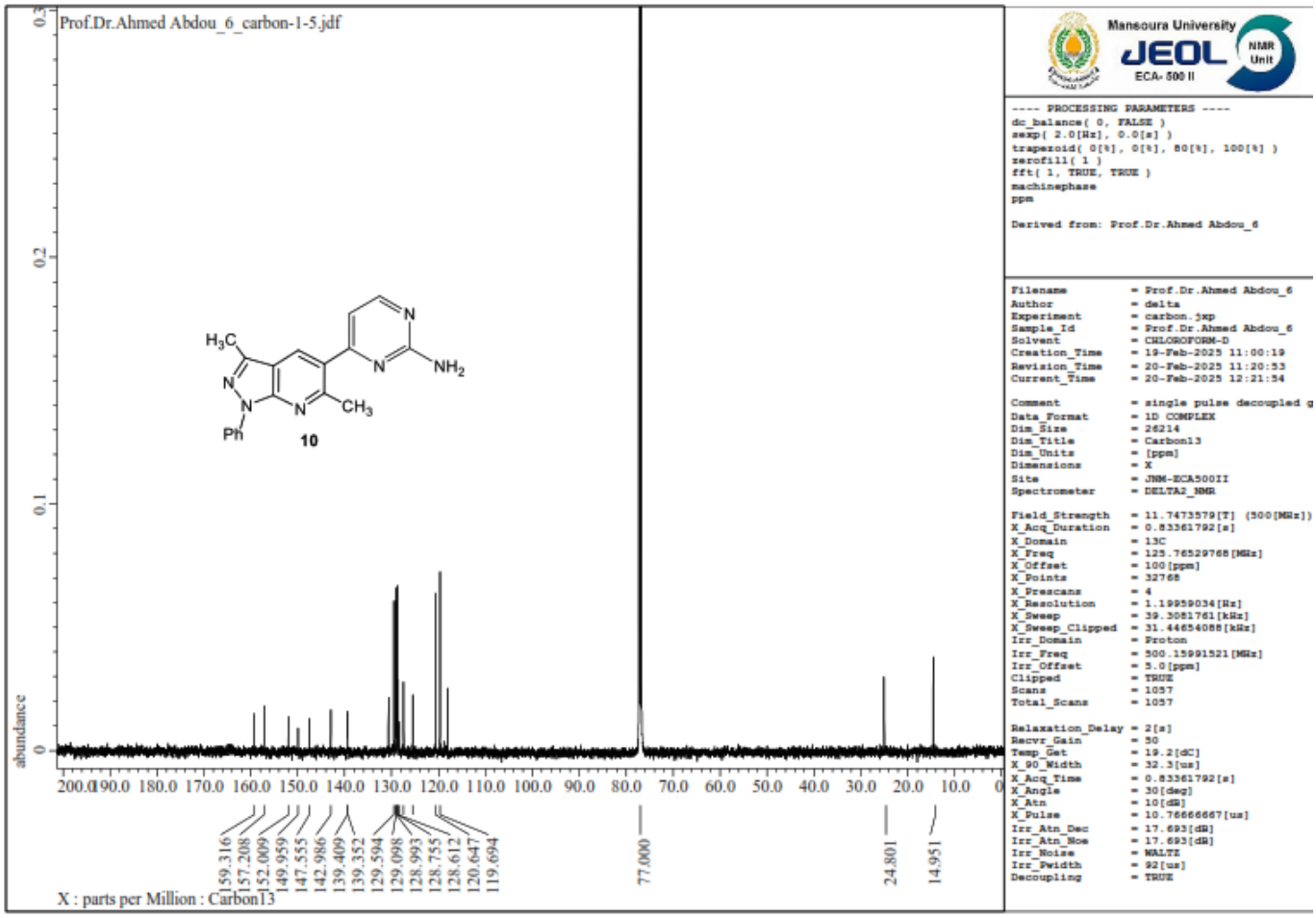

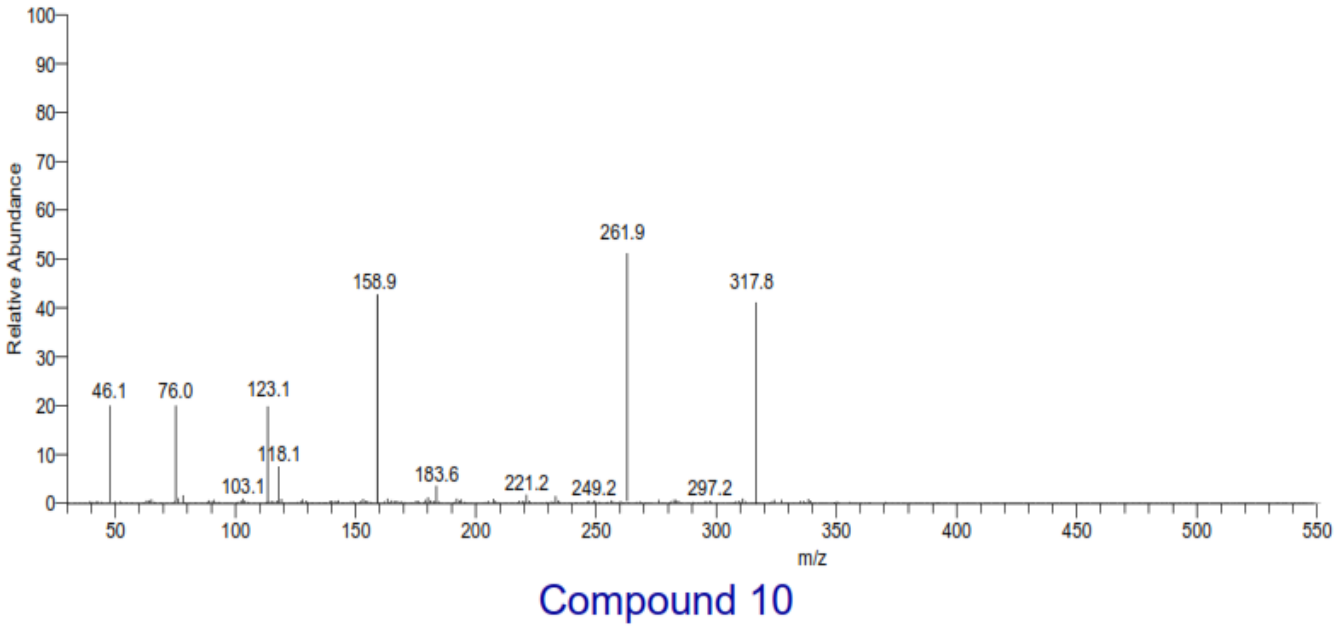

Compound 10

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