

An Expeditious Microwave Assisted One-Pot Sequential Route to Pyridofused Imidazo[4,5-*c*] quinolines in Green Media

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Experimental Section

General Procedure

Unless otherwise indicated all common reagents and solvents were used as obtained from commercial suppliers without further purification. ^1H NMR (400 MHz) and ^{13}C NMR (100 MHz) were recorded on a Bruker DRX400 spectrometer. Chemical shifts are reported in ppm relative to the internal solvent peak. Coupling constants, J , are given in Hz. Multiplicities of peaks are given as: d (doublet), m (multiplet), s (singlet), and t (triplet). Mass spectra were recorded on a Perkin Elmer Calrus 600 GC-MS spectrometer. IR spectra were recorded on a Bomem DA8 3FTS spectrometer. Microwave assisted reactions were carried out in a Catalyst Scientific Microwave oven system (Model No: CATA R (Catalyst System, Pune) operating at 2450 MHz equipped with glass vial extension by a condenser was used for performing the reaction. The microwave was equipped with a temperature control system (external probe).

2-(2-nitrophenyl)imidazo[1,2-*a*]pyridine 3a.

Yield = 0.36 g, 95%; Yellow solid; R_f = 0.5 (20%EtOAc/*n*-hexane); ^1H NMR (400 MHz, CDCl_3) δ 8.10 (d, J = 6.76 Hz, 1H), 7.99 (d, J = 7.8 Hz, 1H), 7.76 (s, 1H), 7.71 (d, J = 8.04 Hz, 1H), 7.62 (t, J = 6.9 Hz, 2H), 7.45 (t, J = 7.8 Hz, 1H), 7.19 (t, J = 7.24 Hz, 1H), 6.80 (t, J = 6.76 Hz, 1H); ^{13}C NMR (100 MHz, CDCl_3) δ 144.0, 140.0, 134.9, 126.5, 126.1, 123.2, 122.4, 120.5, 120.0, 118.2, 112.6, 107.6, 105.3; MS (GC-MS): 239; HRMS (EI, m/z) calcd for $\text{C}_{13}\text{H}_9\text{N}_3\text{O}_2$: m/z 239.0695; Found 239.0697; IR (cm^{-1} , KBr) 3149, 3020, 1519, 1354, 1276, 1193.

2-(imidazo[1,2-*a*]pyridin-2-yl)aniline 4a.

Yield = 0.415 g, 93%; white solid; R_f = 0.4 (20%EtOAc/*n*-hexane); ^1H NMR (400 MHz, CDCl_3) δ 8.12 (d, J = 6.6 Hz, 1H), 7.80 (s, 1H), 7.57 (d, J = 9 Hz, 1H), 7.51 (d, J = 7.68 Hz, 1H), 7.16-7.09 (m, 2H) 6.79-6.70 (m, 3H); ^{13}C NMR (100MHz, CDCl_3) δ 146.6, 145.8, 144.5, 128.9, 128.2, 125.2, 124.1, 117.3, 117.2, 116.8, 112.4, 108.3; MS (GC-MS) 209;

HRMS (EI, m/z) calcd for C₁₃H₁₁N₃: m/z 209.0953; Found 209.0950; IR (cm⁻¹, KBr) 3448, 3296, 1595, 1315, 937, 731.

8-methyl-2-(2-nitrophenyl)imidazo[1,2-*a*]pyridine 3b.

Yield = 0.435 g, 92%; white solid; R_f = 0.5 (20%EtOAc/*n*-hexane); ¹H NMR (400 MHz, CDCl₃) δ 8.01-7.90 (m, 2H), 7.71 (d, *J* = 8.8 Hz, 2H), 7.61 (t, *J* = 6.8 Hz, 1H), 7.45 (t, *J* = 7.6 Hz, 1H), 6.97 (d, *J* = 6.8 Hz, 1H), 6.71 (t, *J* = 6.8 Hz, 1H), 2.61 (3H); ¹³C NMR (100MHz,CDCl₃) δ 149.3, 145.9, 139.6, 131.8, 131.5, 128.3, 128.1, 127.9, 123.7, 123.5, 123.4, 112.8, 110.9, 16.9 MS (GC-MS) 253; HRMS (EI, m/z)calcd for C₁₄H₁₁N₃O₂: m/z 253.0851; Found 253.0835; IR (cm⁻¹, KBr) 3059, 1658, 1554, 1315, 1423, 778.

2-(8-methylimidazo[1,2-*a*]pyridin-2-yl)aniline 4b.

Yield = 0.39 g, 95%; white solid; R_f = 0.48 (20%EtOAc/*n*-hexane); ¹H NMR (400 MHz, CDCl₃) δ 7.90 (d, *J* = 8 Hz, 1H), 7.70 (s, 1H), 7.44 (d, *J* = 7.6 Hz, 1H), 7.03 (t, *J* = 8 Hz, 1H), 6.86 (d, *J* = 8.4 Hz, 1H), 6.68 (d, *J* = 8.4 Hz, 1H), 6.67-6.58 (m, 2H), 2.53 (3H); ¹³C NMR (100MHz,CDCl₃) δ 145.9, 145.0, 128.7, 128.0, 127.1, 123.0, 122.9, 117.2, 116.8, 116.8, 112.4, 108.6, 16.9; MS (GC-MS) 223; HRMS (EI, m/z)calcd for C₁₄H₁₃N₃: m/z 223.1109; Found 223.1109; IR (cm⁻¹, KBr) 3057, 1604, 1463, 773, 729.

7-methyl-2-(2-nitrophenyl)imidazo[1,2-*a*]pyridine 3c

Yield = 0.43 g, 91%; white solid; R_f = 0.51 (20%EtOAc/*n*-hexane); ¹H NMR (400 MHz, CDCl₃) δ 8.20 (d, *J* = 8 Hz, 1H), 7.89 (d, *J* = 7.2 Hz, 1H), 7.88-7.76 (m, 2H), 7.68 (d, *J* = 7.2 Hz, 1H) 7.51 (d, *J* = 6.8 Hz, 1H), 7.31 (d, *J* = 6.8 Hz, 1H), 6.68 (d, *J* = 6.91 Hz, 1H), 2.83 (3H); ¹³C NMR(100MHz,CDCl₃) δ 148.1, 146.8, 134.2, 131.7, 130.6, 128.8, 128.4, 126.8, 125.2, 123.5, 122.9, 122.0, 112.6, 17.6; MS (GC-MS) 253; HRMS (EI, m/z)calcd for C₁₄H₁₁N₃O₂: m/z 253.0851; Found 253.0841; IR (cm⁻¹, KBr) 3057, 1718, 1589, 1460, 796.

2-(7-methylimidazo[1,2-*a*]pyridin-2-yl)aniline 4c.

Yield: 0.372 g, 90%; white solid; $R_f = 0.45$ (20%EtOAc/*n*-hexane); $^1\text{H NMR}$ (400 MHz, CDCl_3) δ 8.0 (d, $J = 6.8$ Hz, 1H), 7.72 (s, 1H), 7.50 (d, $J = 7.6$ Hz, 1H), 7.34 (s, 1H), 7.10 (t, $J = 8.4$ Hz, 1H), 6.72 (t, $J = 6.1$ Hz, 2H), 6.62 (d, $J = 6.8$ Hz, 1H), 2.39 (3H); $^{13}\text{C NMR}$ (100MHz, CDCl_3) δ 135.2, 128.7, 128.1, 124.4, 117.3, 116.9, 116.7, 115.6, 115.1, 107.7, 21.3; MS (GC-MS) 223; HRMS (EI, m/z) calcd for $\text{C}_{14}\text{H}_{13}\text{N}_3$: m/z 223.1109; Found 223.1101; IR (cm^{-1} , KBr) 3414, 1712, 1604, 1456, 769.

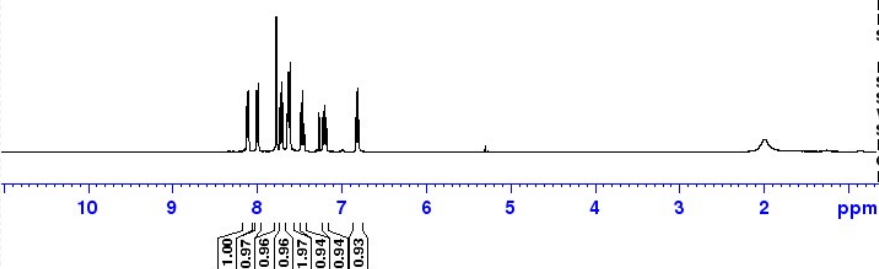
6,8-difluoro-2-(2-nitrophenyl)imidazo[1,2-*a*]pyridine 3d.

Yield = 0.375 g, 89 %; white solid; $R_f = 0.4$ (20%EtOAc/*n*-hexane); $^1\text{H NMR}$ (400 MHz, CDCl_3) δ 8.14 (d, $J = 8.32$ Hz, 2H), 7.72 (t, $J = 7.48$ Hz, 2H), 7.61 (t, $J = 7.32$ Hz, 1H), 7.43 (d, $J = 7.4$ Hz, 2H); $^{13}\text{C NMR}$ (100MHz, CDCl_3) δ 158.1, 156.5, 145.3, 135.1, 134.9, 134.7, 131.8, 129.1, 128.1, 127.8, 124.8, 124.4; MS (GC-MS) 275; HRMS (EI, m/z) calcd for $\text{C}_{13}\text{H}_7\text{F}_2\text{N}_3\text{O}_2$: m/z 275.0506; Found 275.0500; IR (cm^{-1} , KBr) 2814, 1627, 147, 1180, 781.

2-(6,8-difluoroimidazo[1,2-*a*]pyridin-2-yl)aniline 4d.

Yield = 0.345 g, 91%; white solid; $R_f = 0.42$ (20%EtOAc/*n*-hexane); $^1\text{H NMR}$ (400 MHz, CDCl_3) δ 8.01 (d, $J = 6.4$ Hz, 2H), 7.95 (s, 2H), 7.68-7.64 (m, 1H), 7.36 (t, $J = 7.2$ Hz, 1H), 6.89 (t, $J = 8$ Hz, 1H); $^{13}\text{C NMR}$ (100MHz, CDCl_3) δ 149.5, 146.9, 139.9, 132.0, 131.4, 130.1, 129.4, 128.1, 124.6, 110.7; MS (GC-MS) 245; HRMS (EI, m/z) calcd for $\text{C}_{14}\text{H}_{13}\text{N}_3$: m/z 245.0765; Found 245.0750; IR (cm^{-1} , KBr) 3369, 2872, 1618, 1435, 769, 750.

Signature SIF VIT VELLORE
KC-816-02



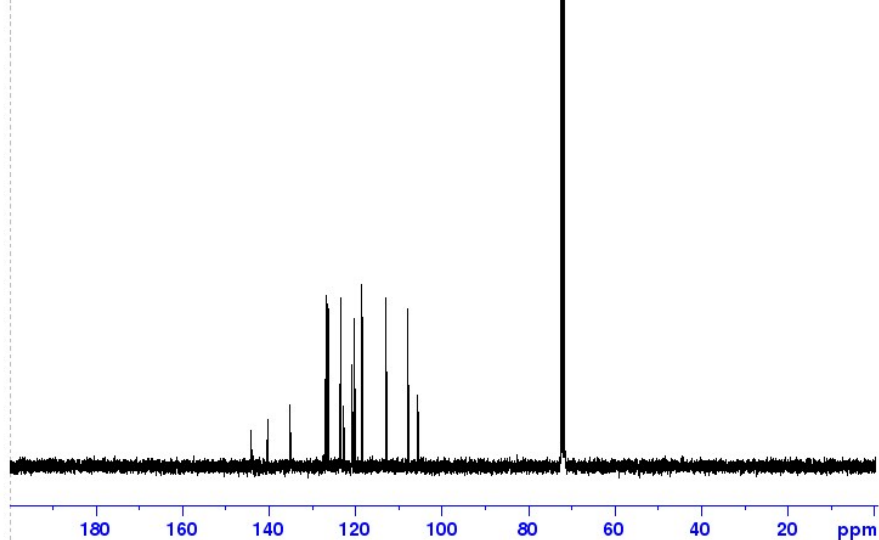
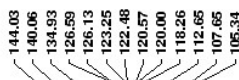
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DS 2
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FIDRES 0.125483 Hz
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Signature SIF VIT VELLORE
KC-816-02



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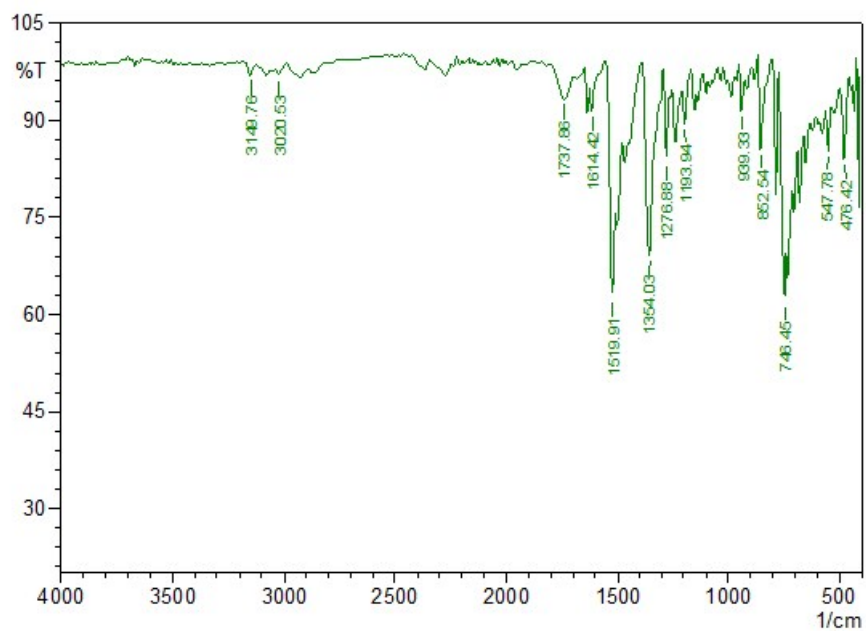
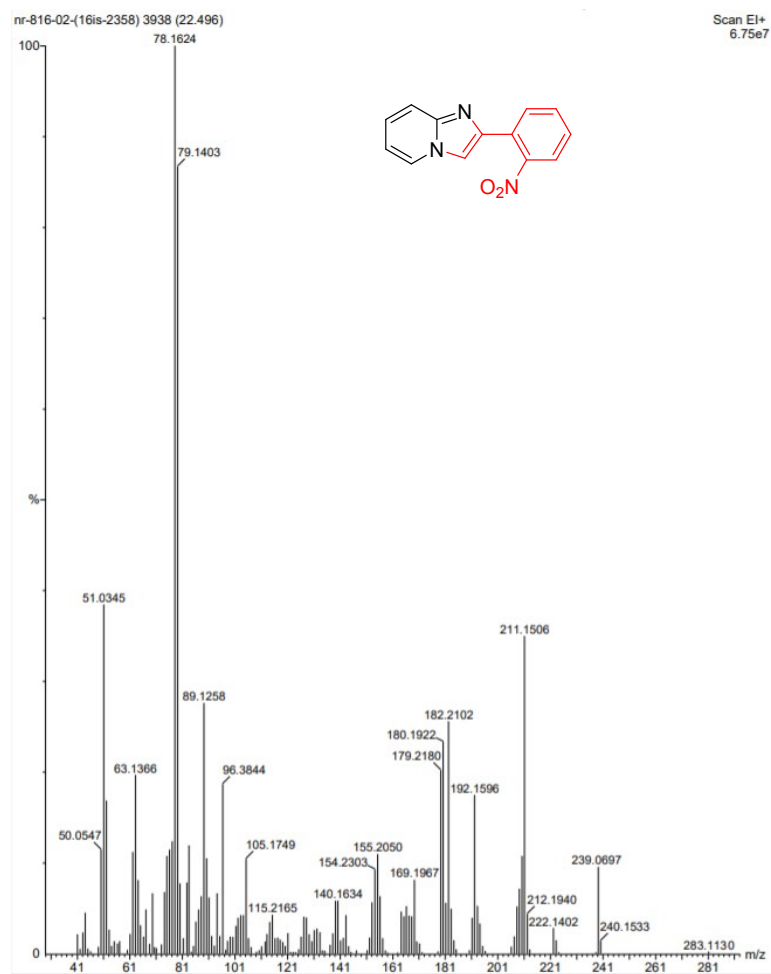
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SOLVENT DMSO
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SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631488 sec
RG 199.6
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TE 300.9 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

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===== CHANNEL f2 =====
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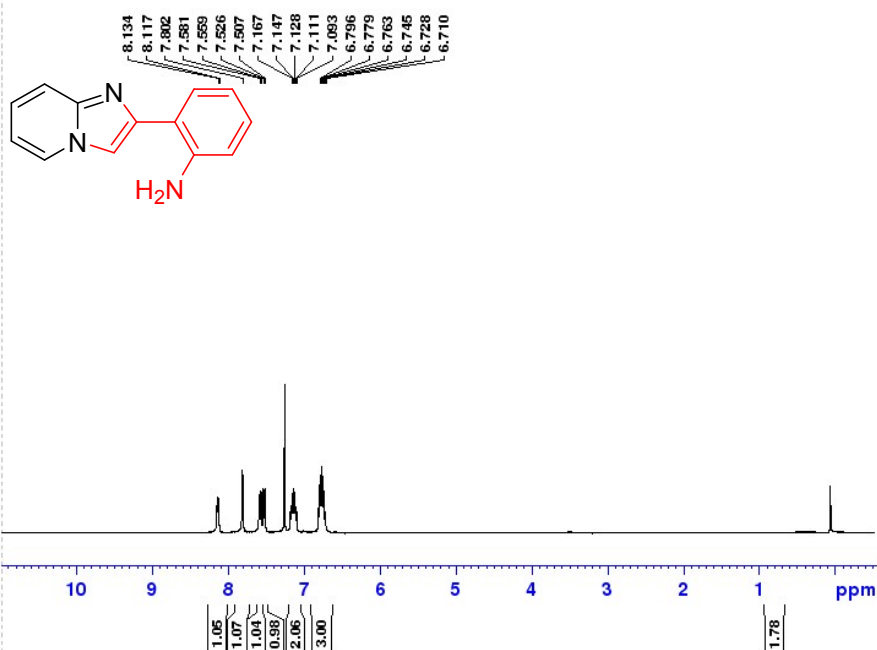
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¹H-NMR and ¹³C-NMR of compound **3a** in CDCl₃



Mass and IR of Compound **3a**

Signature SIF VIT VELLORE
KC-816-03



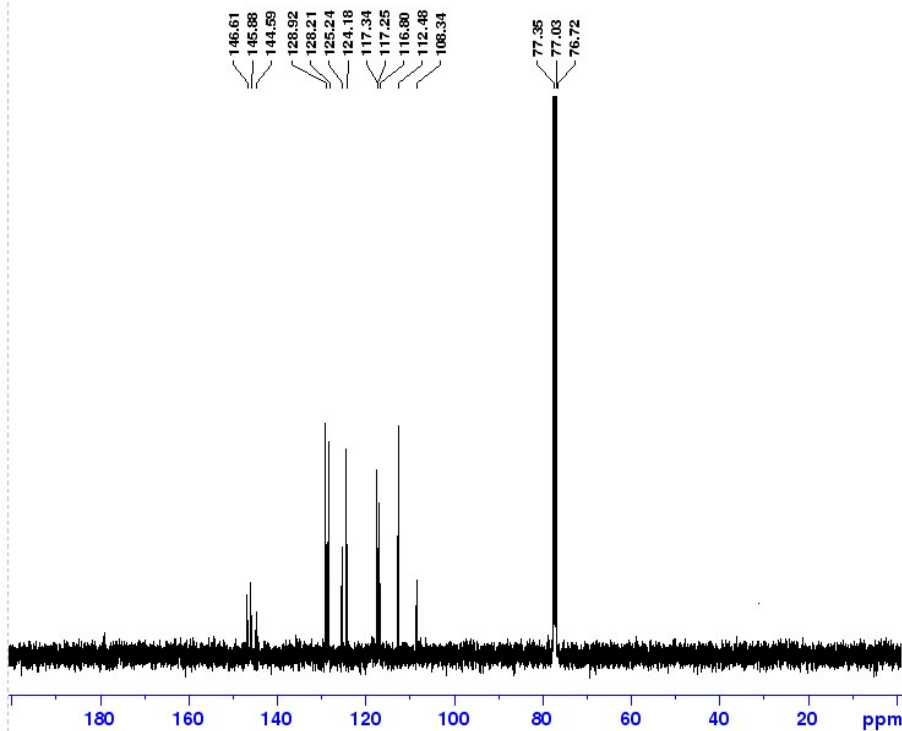
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TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8223.685 Hz
FIDRES 0.125483 Hz
AQ 3.9845889 sec
RG 175.97
DW 60.800 usec
DE 6.50 usec
TE 299.5 K
D1 1.0000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 14.25 usec
PLW1 14.0000000 W
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F2 - Processing parameters
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SF 400.2580175 MHz
WDW EM
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Signature SIF VIT VELLORE
NR-916-03



Current Data Parameters
NAME Amino
EXPNO 12
PROCNO 1

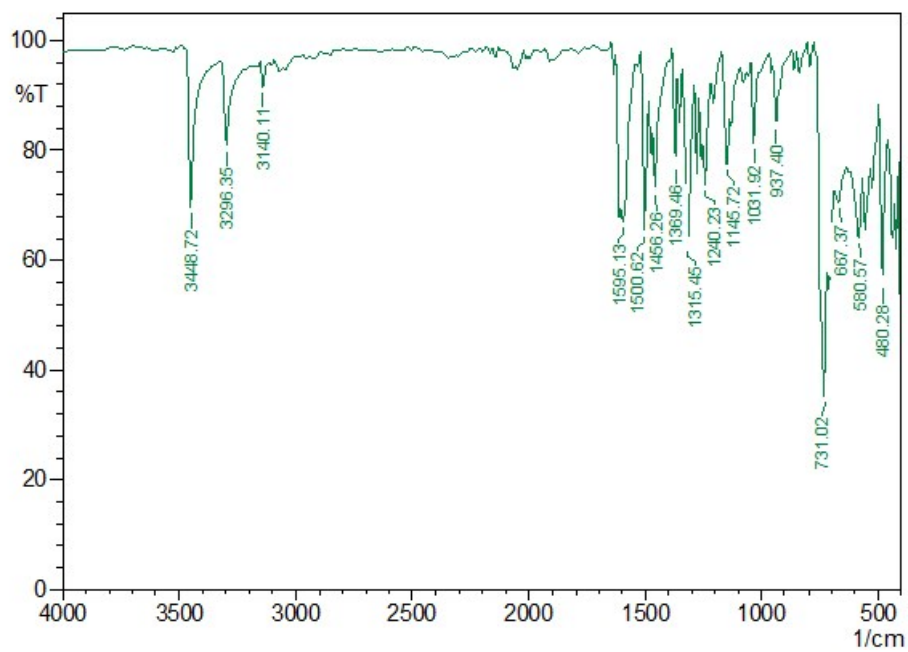
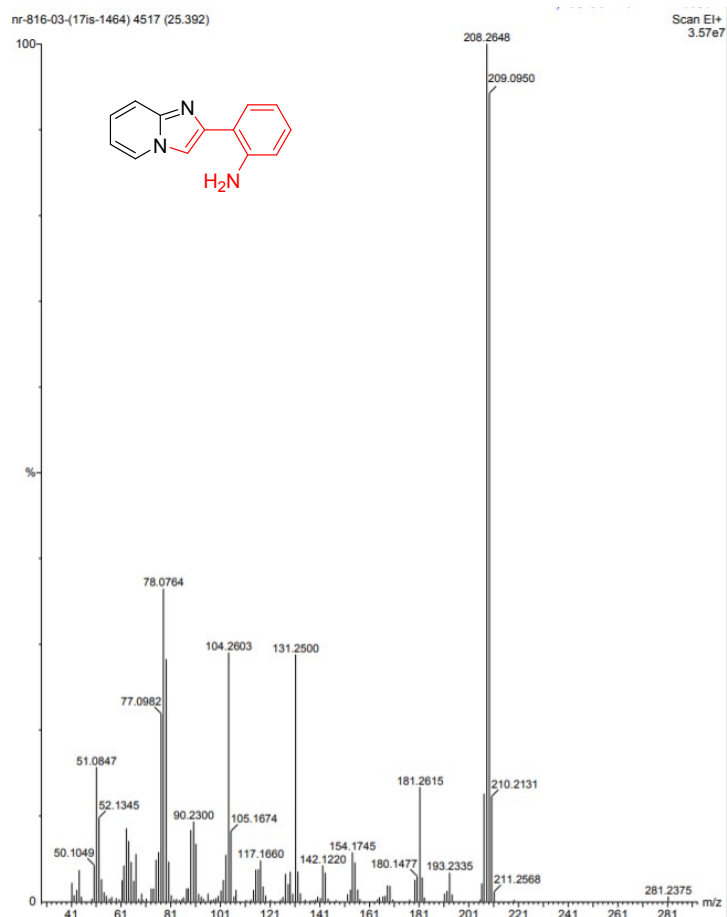
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SOLVENT CDCl3
NS 512
DS 4
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FIDRES 0.366798 Hz
AQ 1.3631488 sec
RG 156.91
DW 20.800 usec
DE 6.50 usec
TE 300.5 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 13C
P1 9.80 usec
PLW1 58.0000000 W
SFO1 100.6550182 MHz

===== CHANNEL f2 =====
CPDPRG[2] waltz16
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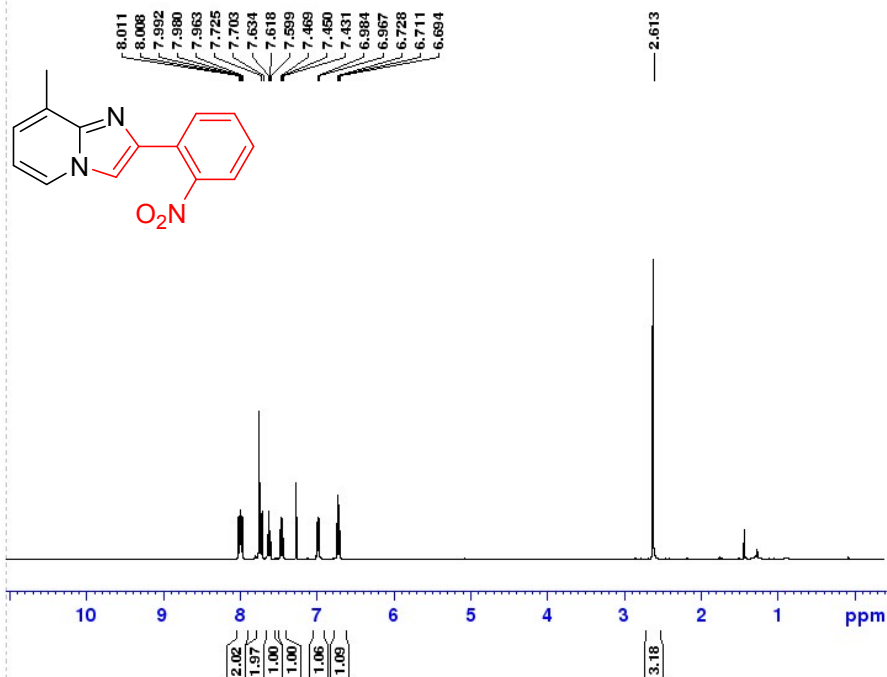
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$^1\text{H-NMR}$ and $^{13}\text{C-NMR}$ of compound **4a** in CDCl_3 .



Mass and IR of Compound 4a.

Signature SIF VIT VELLORE
NR-517-3-ME-NO

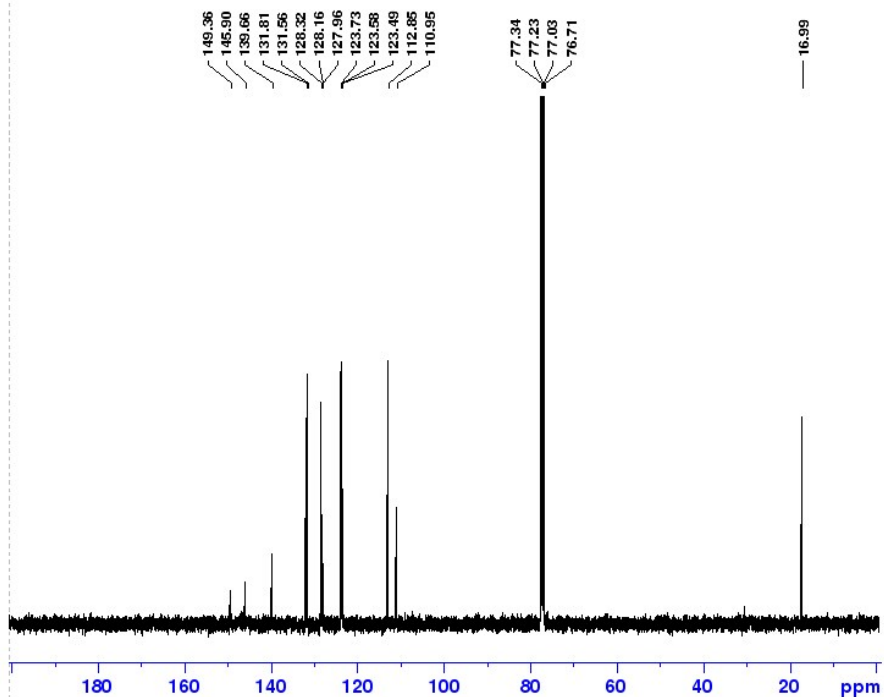


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EXPNO 31
PROCNO 1

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PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.244532 Hz
AQ 4.0894465 sec
RG 175.97
DW 62.400 usec
DE 6.50 usec
TE 300.9 K
D1 1.00000000 sec
TD0 1
SFO1 400.2604716 MHz
NUC1 1H
P1 14.25 usec
PLW1 14.00000000 W

F2 - Processing parameters
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Signature SIF VIT VELLORE
NR-517-3-ME-NO

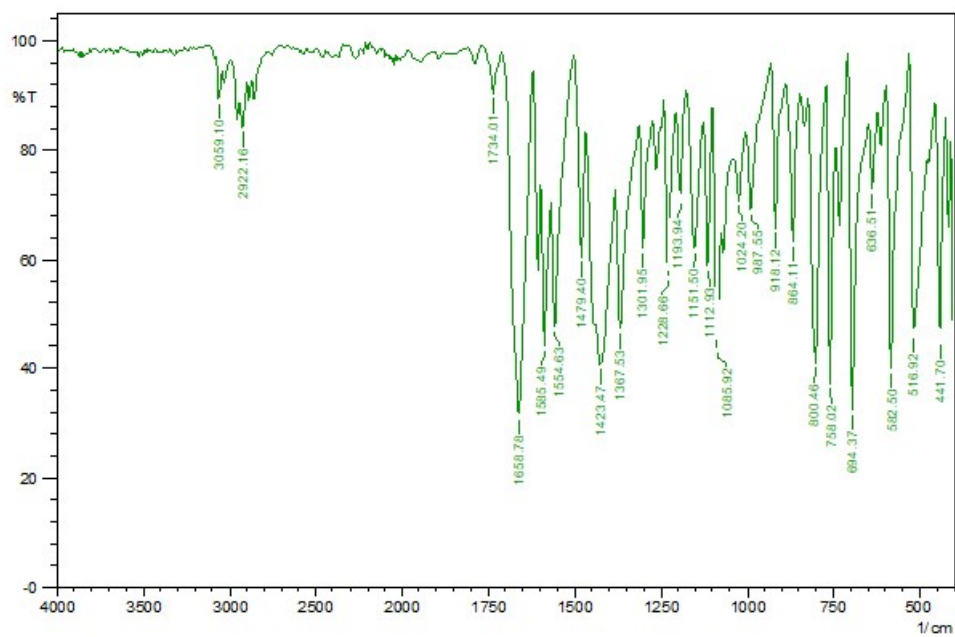
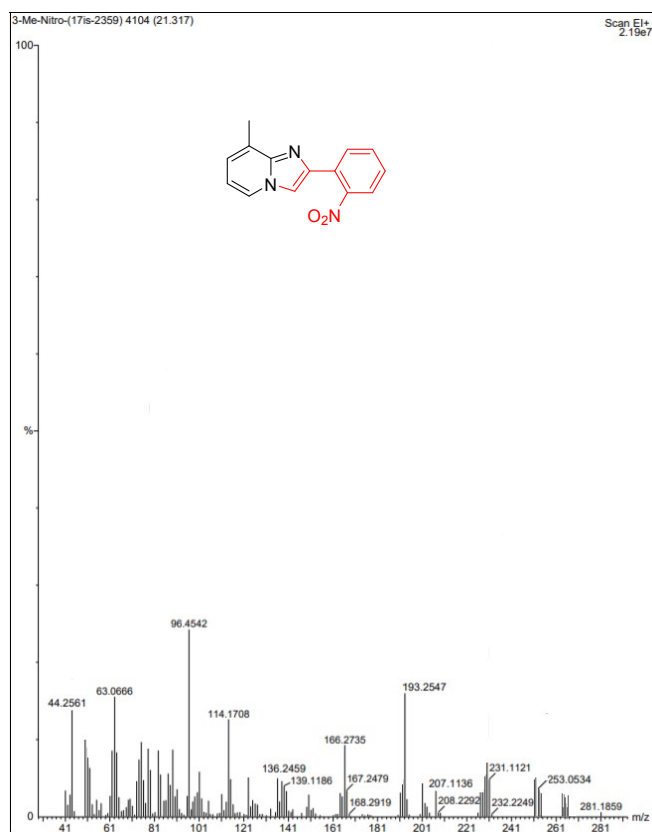


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EXPNO 32
PROCNO 1

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PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 1.3631488 sec
RG 112.69
DW 20.800 usec
DE 6.50 usec
TE 301.4 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
SFO1 100.6550186 MHz
NUC1 13C
P1 9.80 usec
PLW1 58.0000000 W
SFO2 400.2596010 MHz
NUC2 1H
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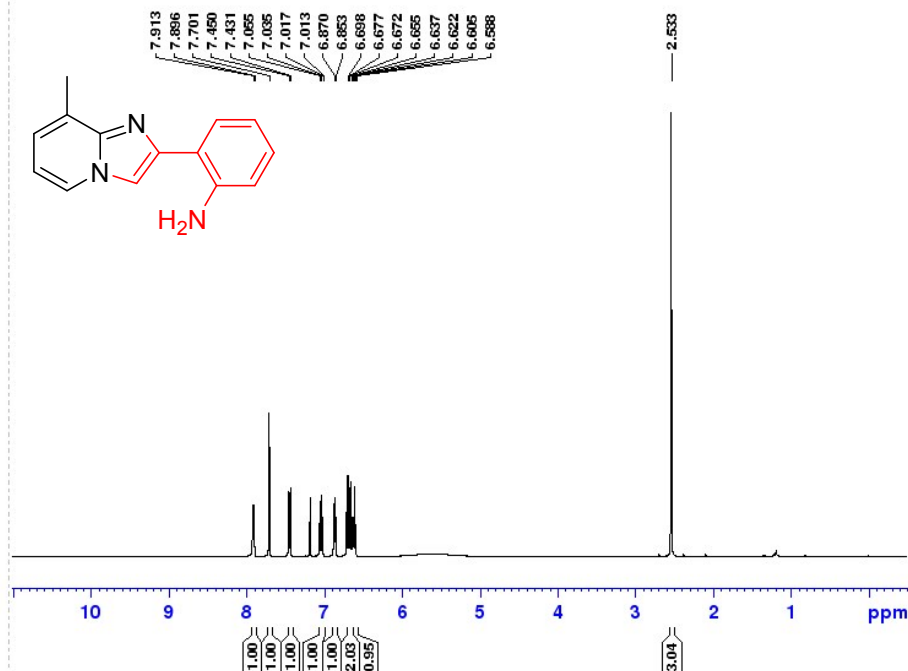
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^1H -NMR and ^{13}C -NMR of compound **3b** in CDCl_3 .



Mass and IR of Compound **3b**.

Signature SIF VIT VELLORE
NR-517-3-ME-NH

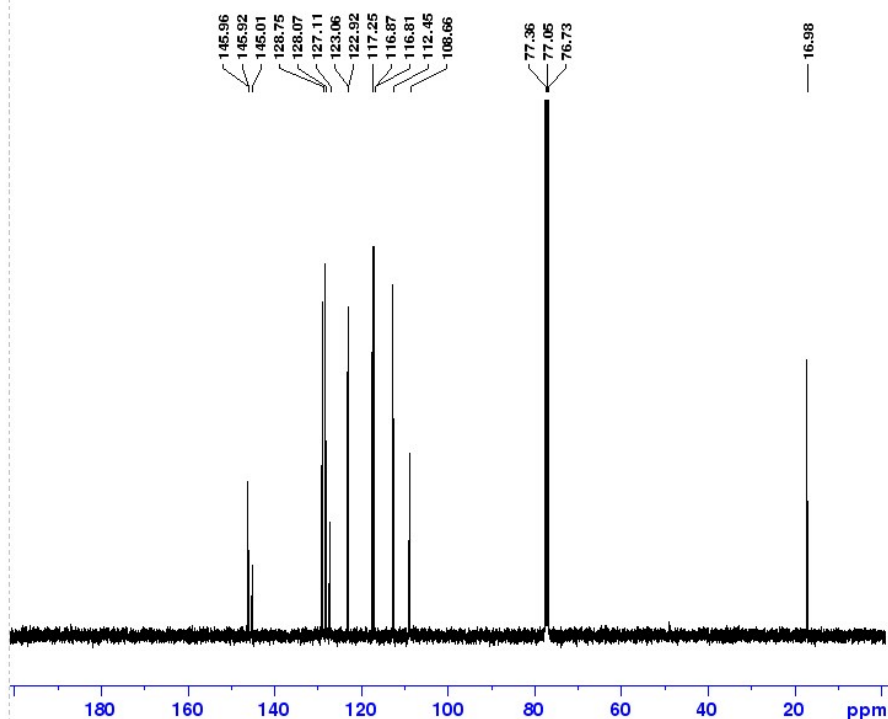


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PROCNO 1

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TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.244532 Hz
AQ 4.0694465 sec
RG 143.73
DW 62.400 usec
DE 6.50 usec
TE 300.7 K
D1 1.0000000 sec
TD0 1
SFO1 400.2604716 MHz
NUC1 1H
P1 14.25 usec
PLW1 14.0000000 W

F2 - Processing parameters
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PC 1.00

Signature SIF VIT VELLORE
NR-517-3-ME-NH

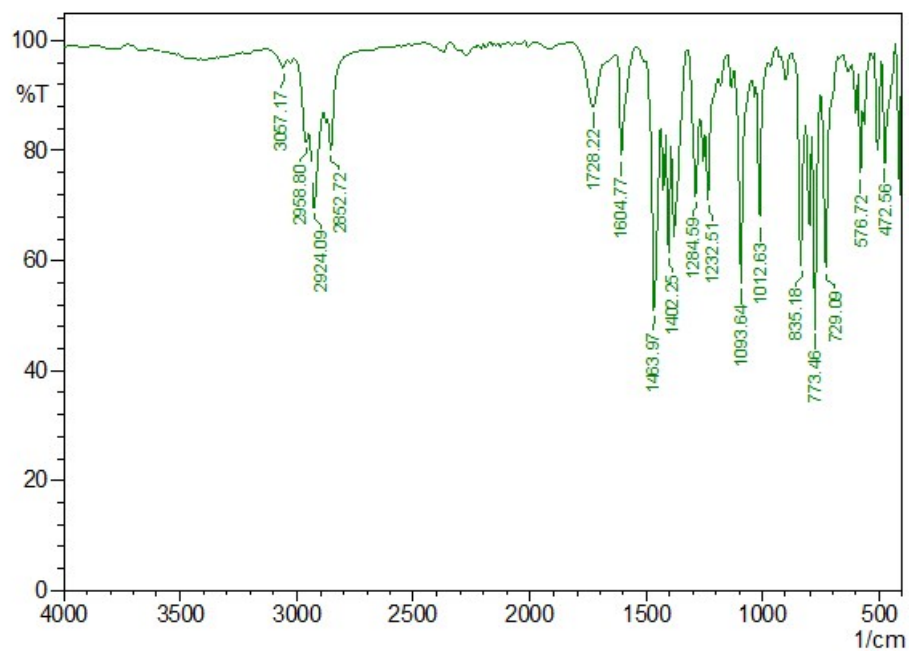
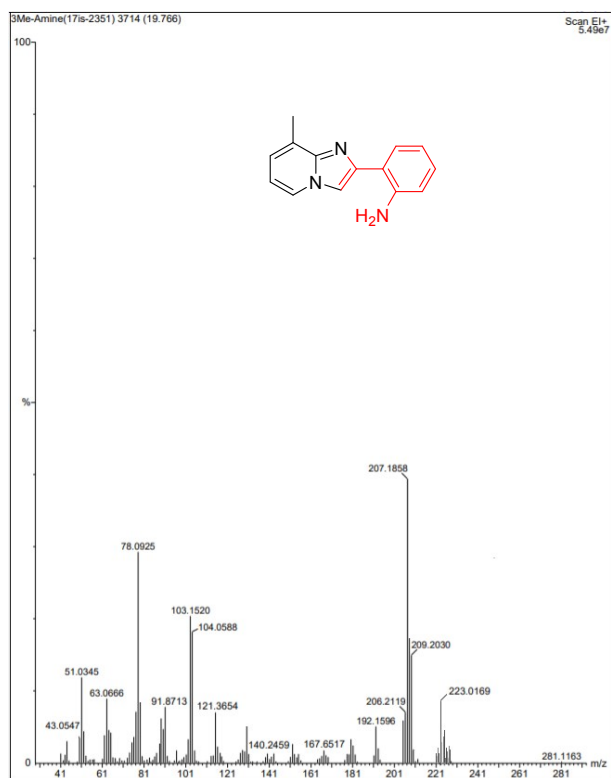


Current Data Parameters
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EXPNO 34
PROCNO 1

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PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 1.3631488 sec
RG 88.69
DW 20.800 usec
DE 6.50 usec
TE 302.2 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1
SFO1 100.6550186 MHz
NUC1 13C
P1 9.80 usec
PLW1 58.0000000 W
SFO2 400.2596010 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 14.0000000 W
PLW12 0.35097000 W
PLW13 0.17654000 W

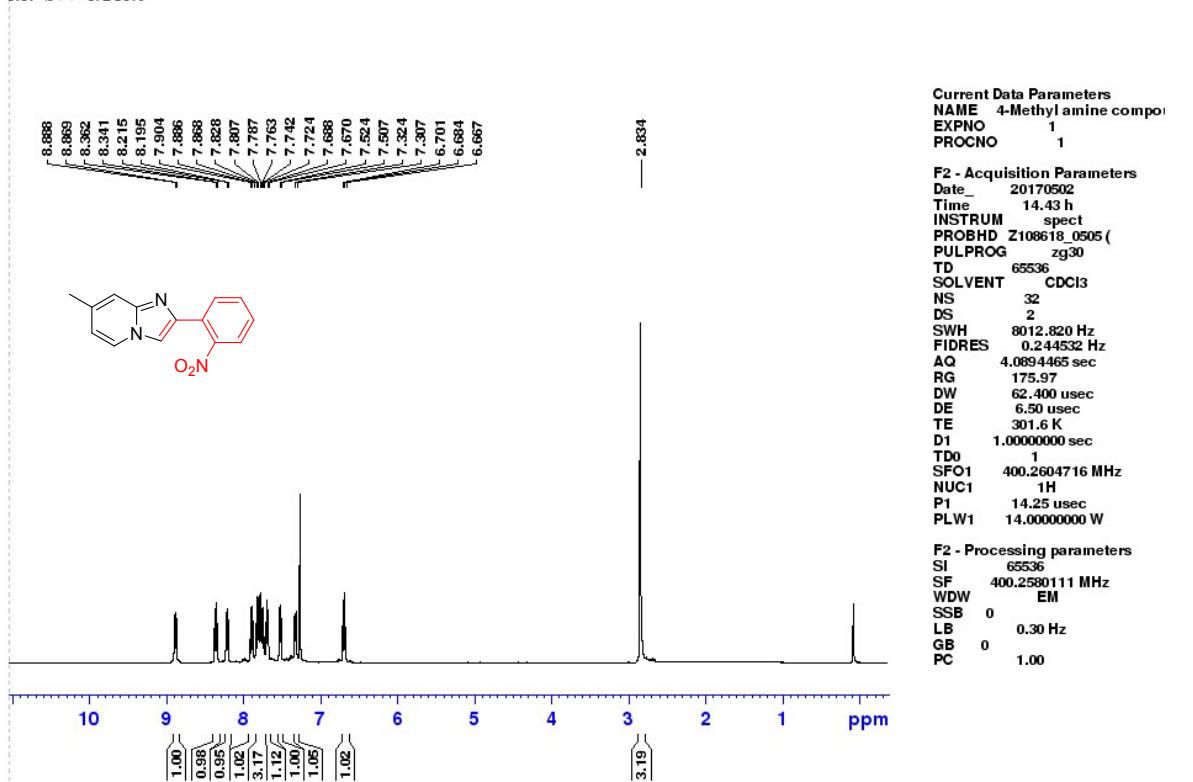
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¹H-NMR and ¹³C-NMR of compound **4b** in CDCl₃.

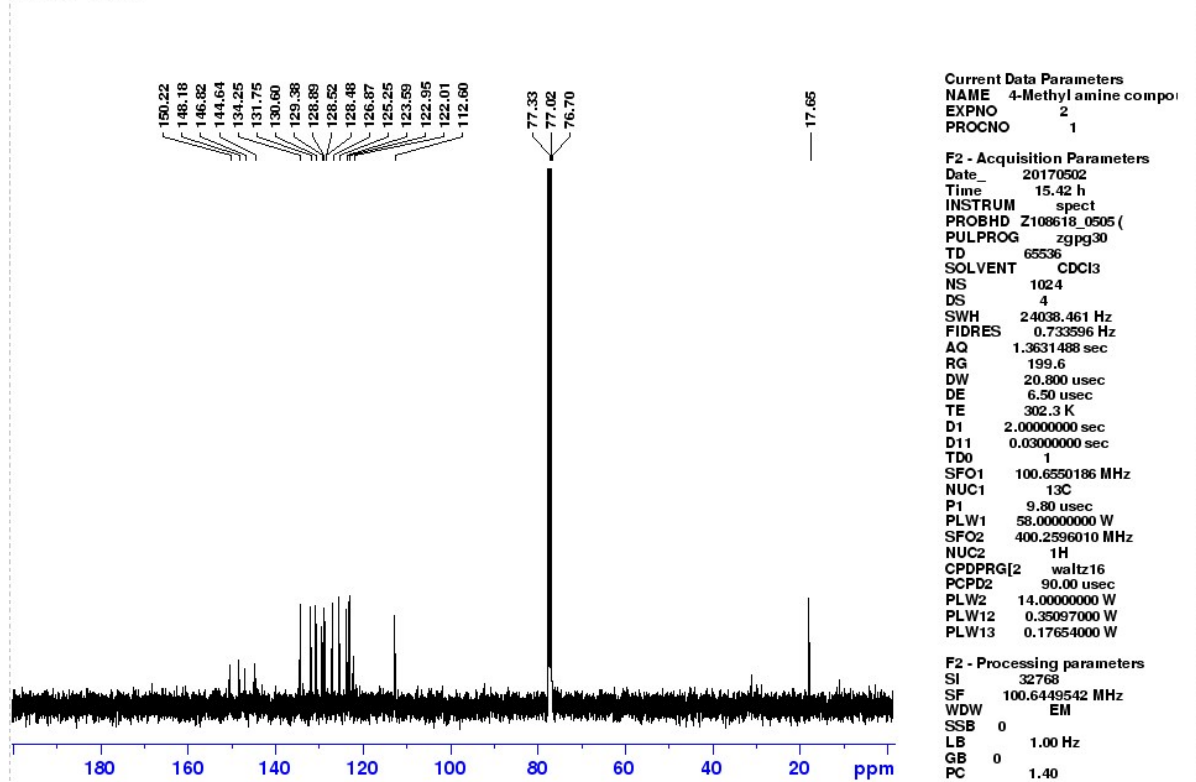


Mass and IR of Compound **4b**

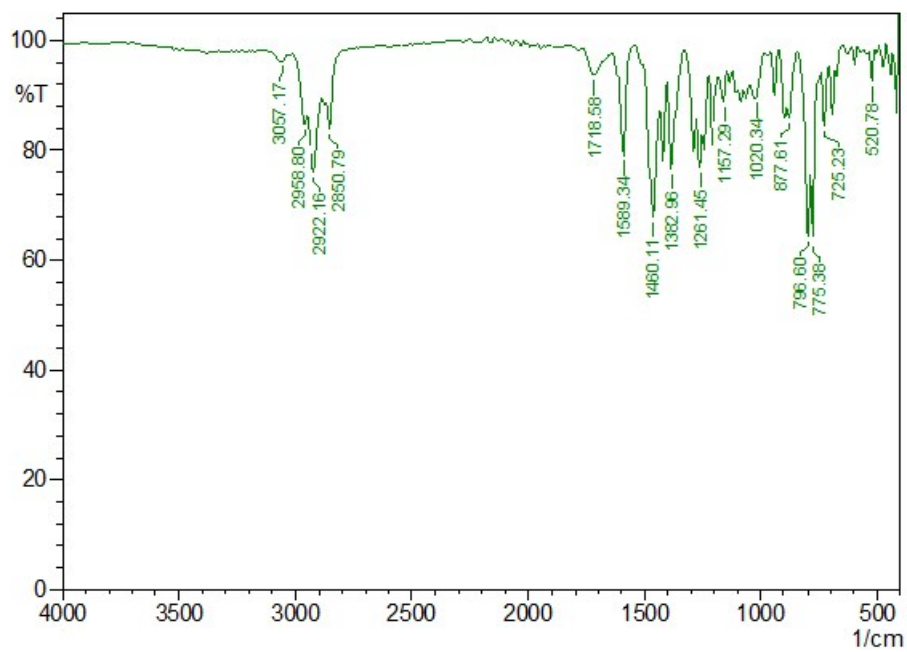
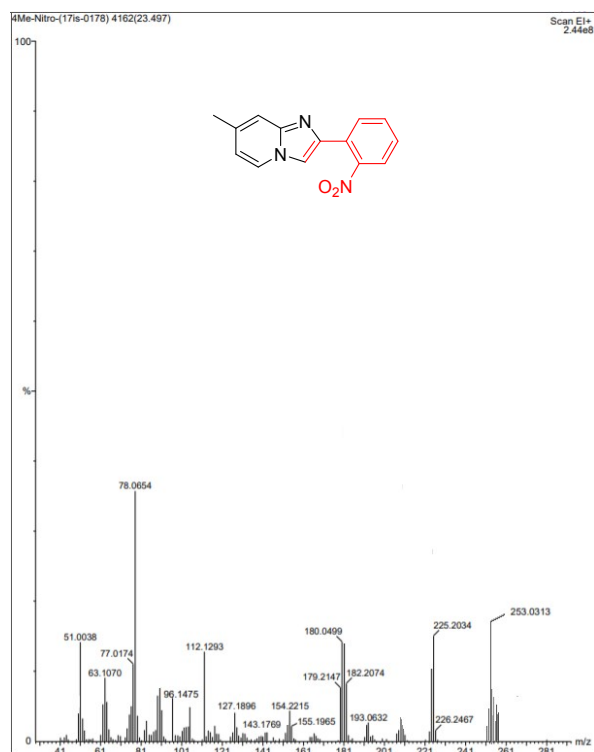
Signature SIF VIT VELLORE
NR-S77-NITRO



Signature SIF VIT VELLORE
NR-S77-NITRO

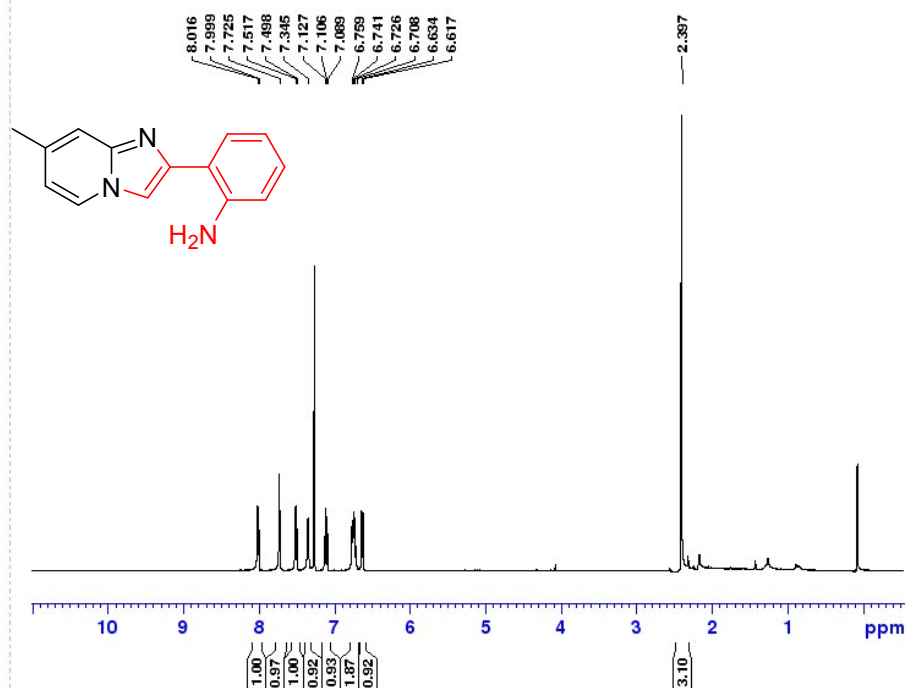


$^1\text{H-NMR}$ and $^{13}\text{C-NMR}$ of compound **3c** in CDCl_3 .



Mass and IR of Compound 3c.

Signature SIF VIT VELLORE
NR-517-PCT-AM

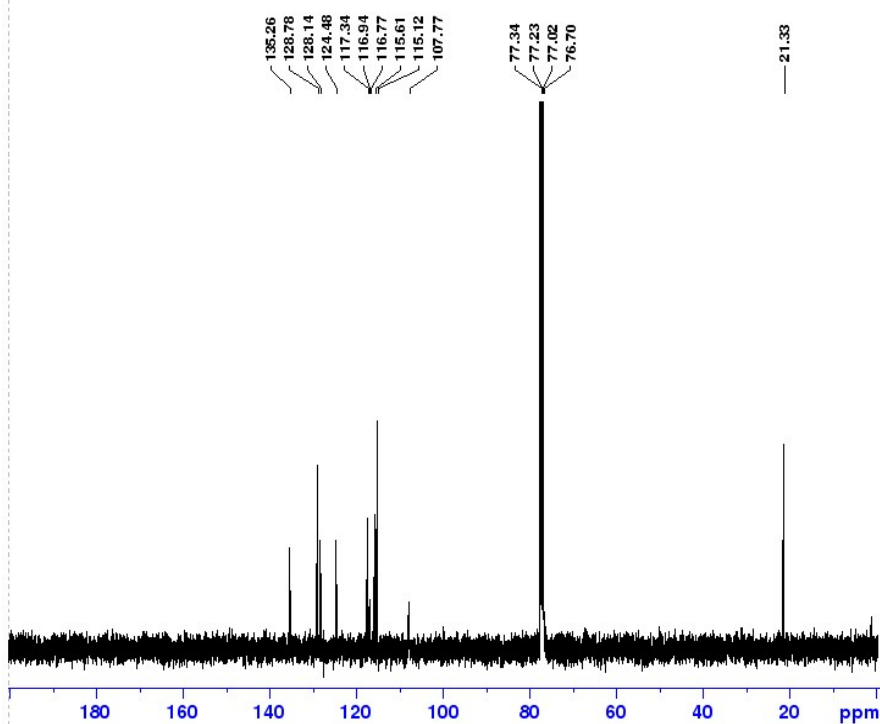


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PROCNO 1

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SOLVENT CDCl3
NS 16
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SWH 8012.820 Hz
FIDRES 0.244532 Hz
AQ 4.0894465 sec
RG 199.6
DW 62.400 usec
DE 6.50 usec
TE 300.4 K
D1 1.00000000 sec
TD0 1
SFO1 400.2604716 MHz
NUC1 1H
P1 14.25 usec
PLW1 14.00000000 W

F2 - Processing parameters
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SF 400.2580111 MHz
WDW EM
SSB 0
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GB 0
PC 1.00

Signature SIF VIT VELLORE
NR-517-PCT-AM

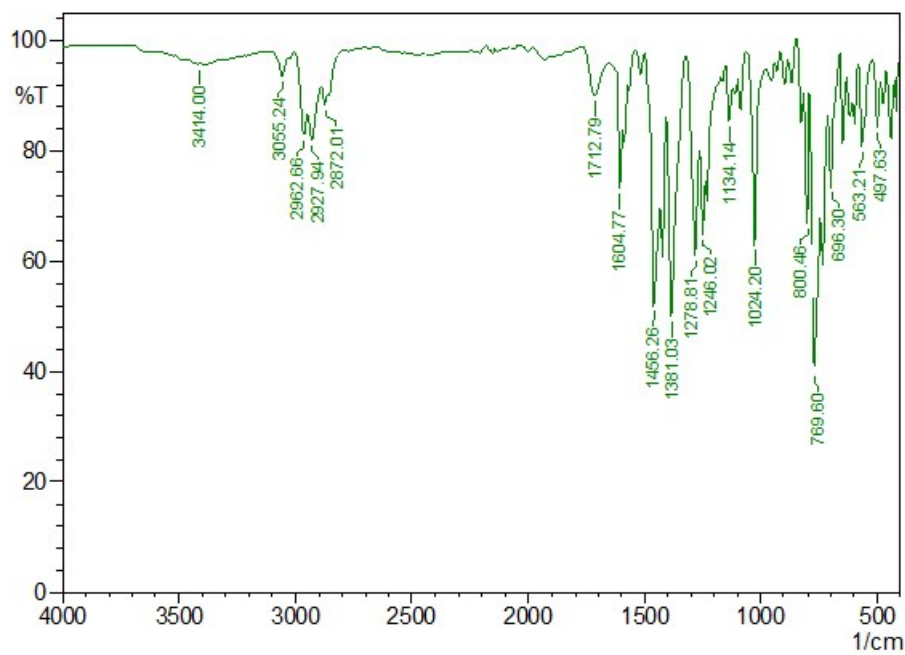
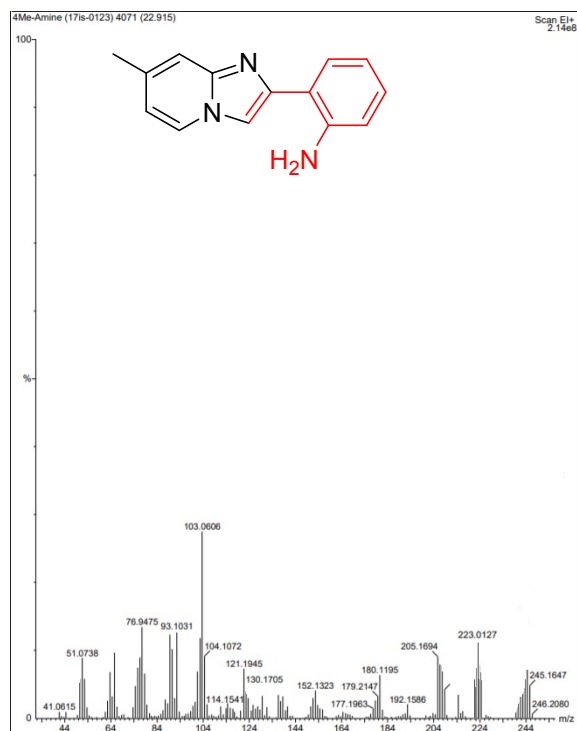


Current Data Parameters
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EXPNO 8
PROCNO 1

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SOLVENT CDCl3
NS 838
DS 4
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 1.3631488 sec
RG 156.91
DW 20.800 usec
DE 6.50 usec
TE 301.3 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
SFO1 100.6550186 MHz
NUC1 13C
P1 9.80 usec
PLW1 58.00000000 W
SFO2 400.2596010 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 14.00000000 W
PLW12 0.35097000 W
PLW13 0.17654000 W

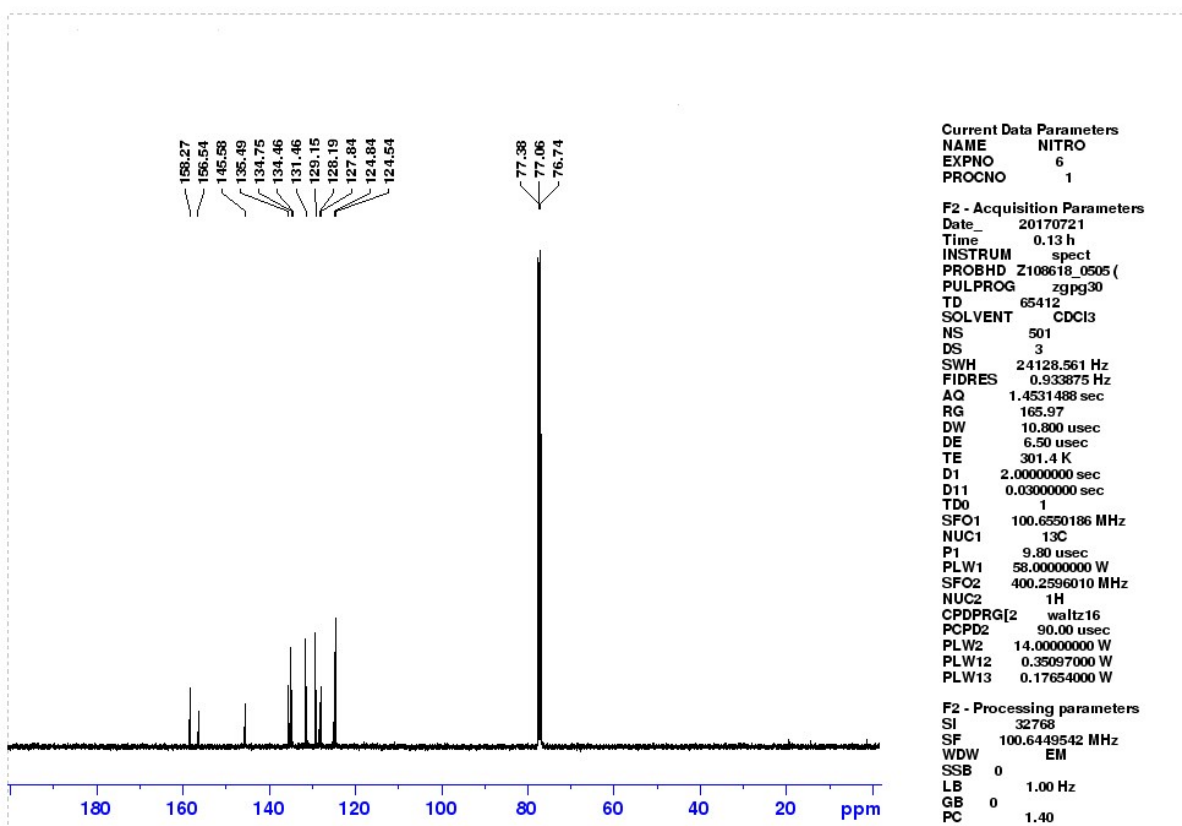
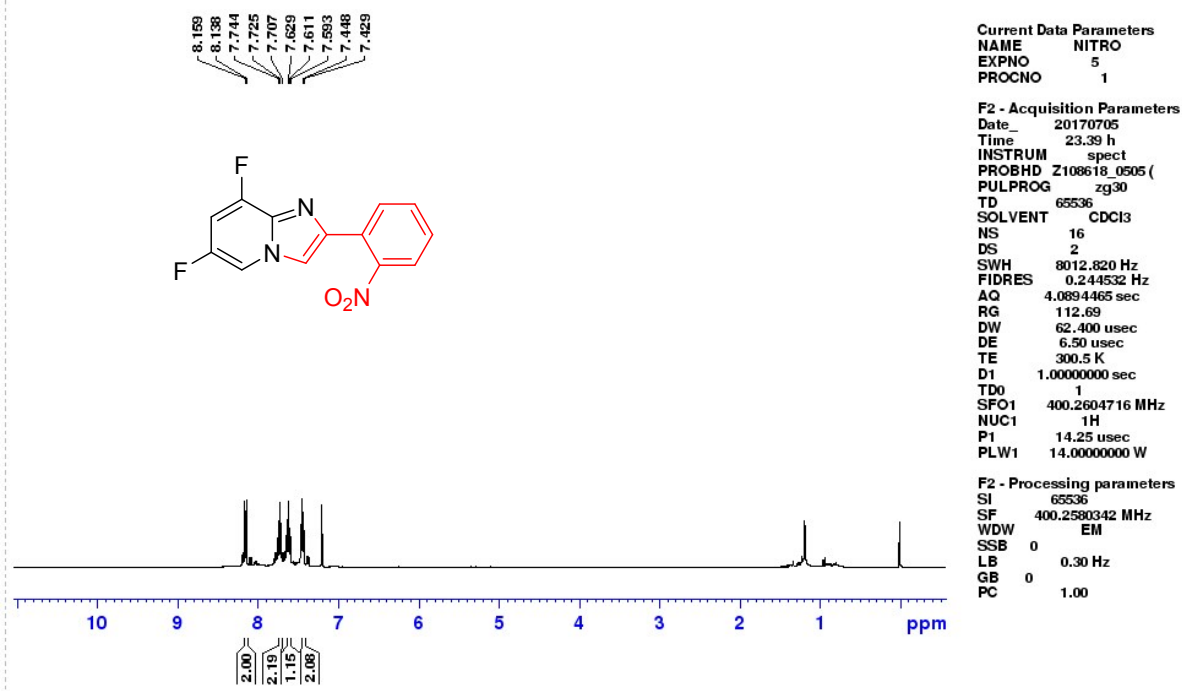
F2 - Processing parameters
SI 32768
SF 100.6449542 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

¹H-NMR and ¹³C-NMR of compound 4c in CDCl₃.

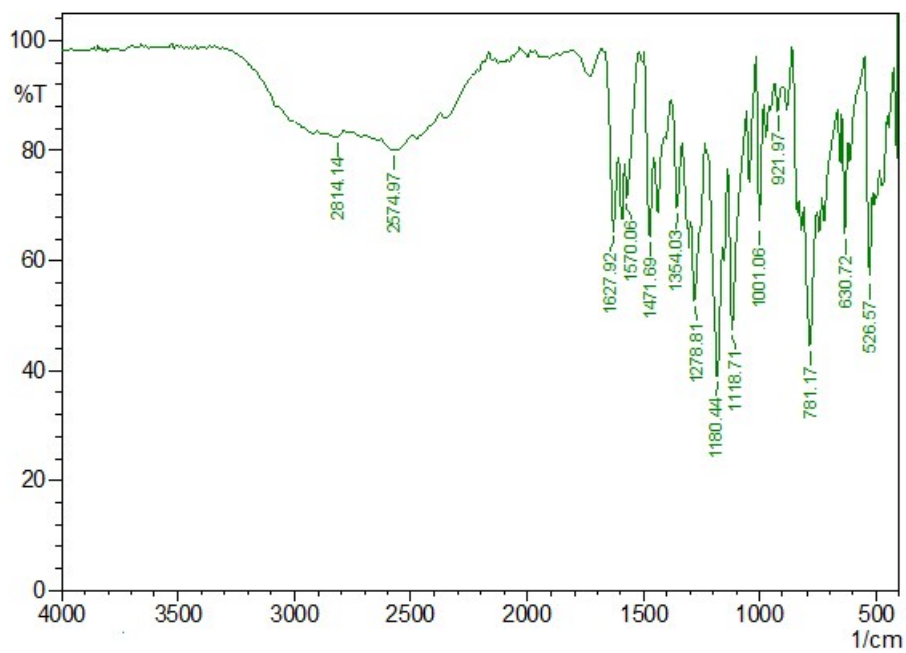
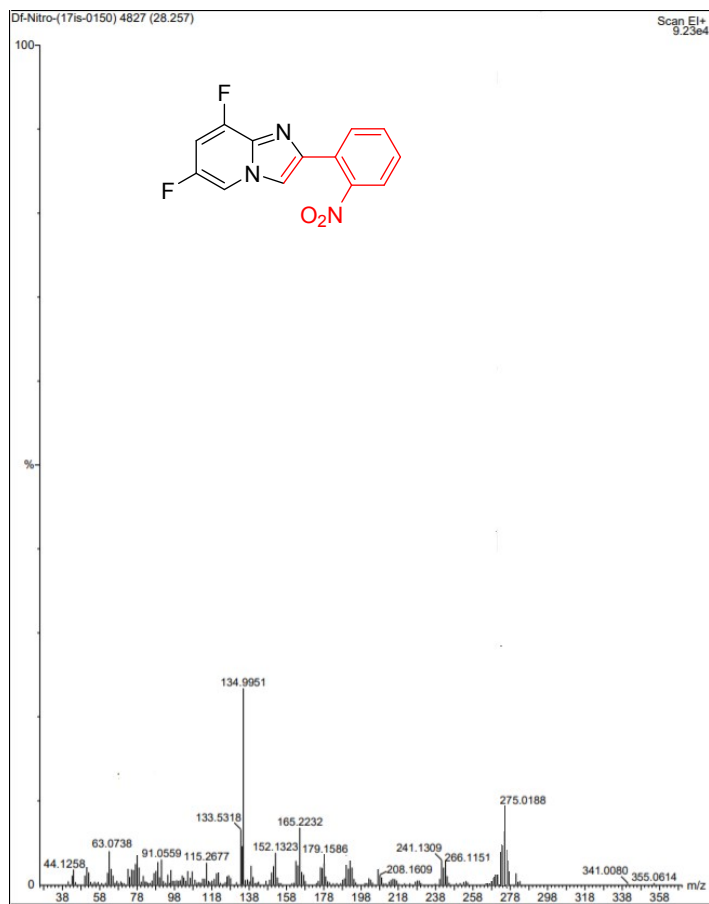


Mass and IR of Compound **4c**.

Signature SIF VIT VELLORE
NR-717-DF-N

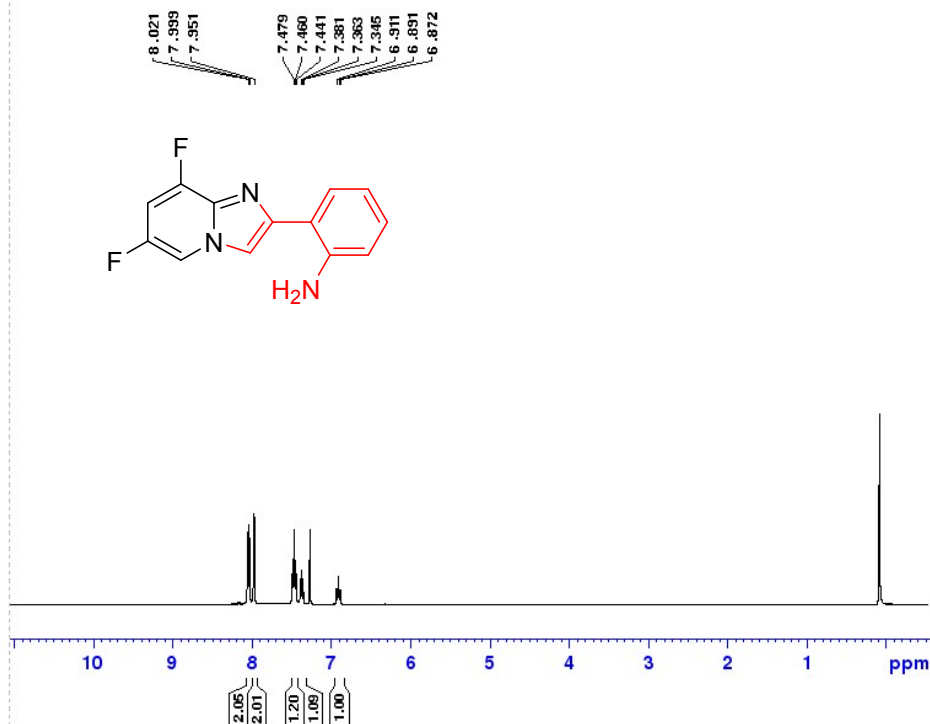


¹H-NMR and ¹³C-NMR of compound **3d** in CDCl₃.

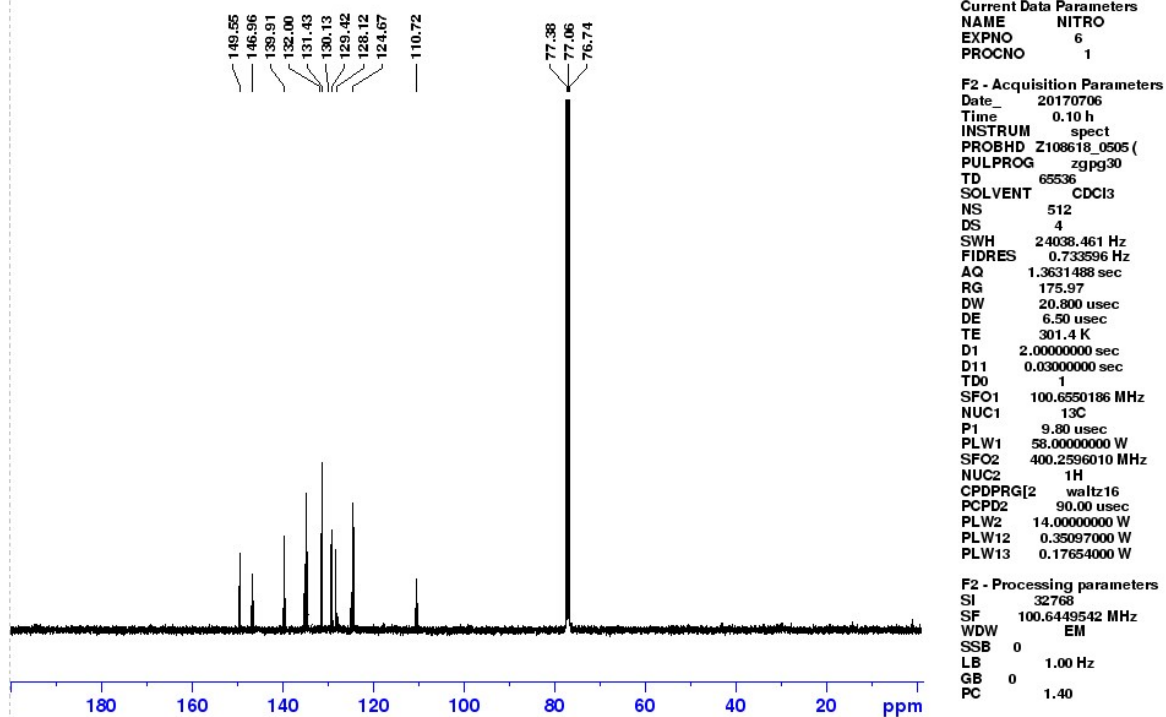


Mass and IR of Compound 3d.

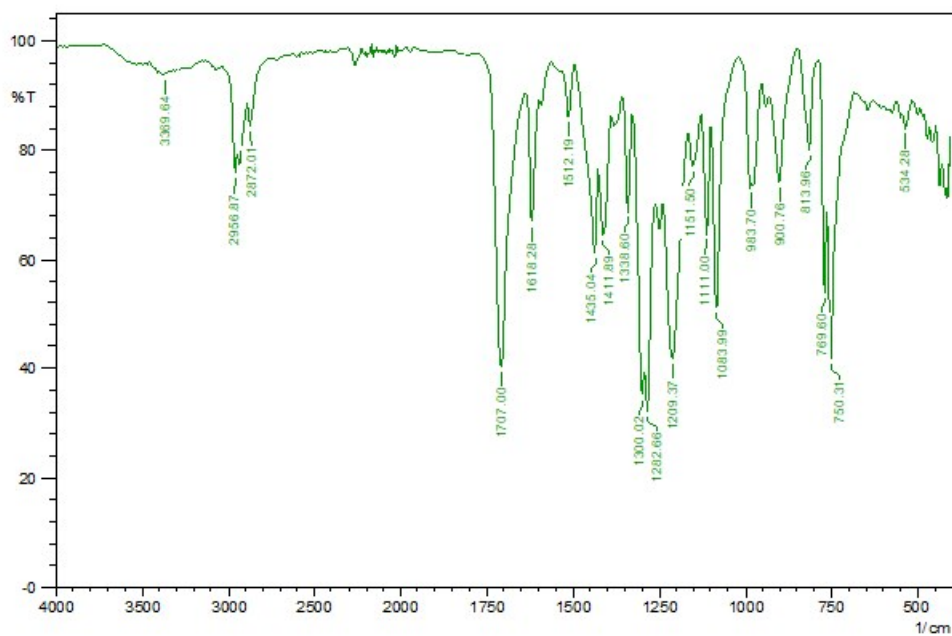
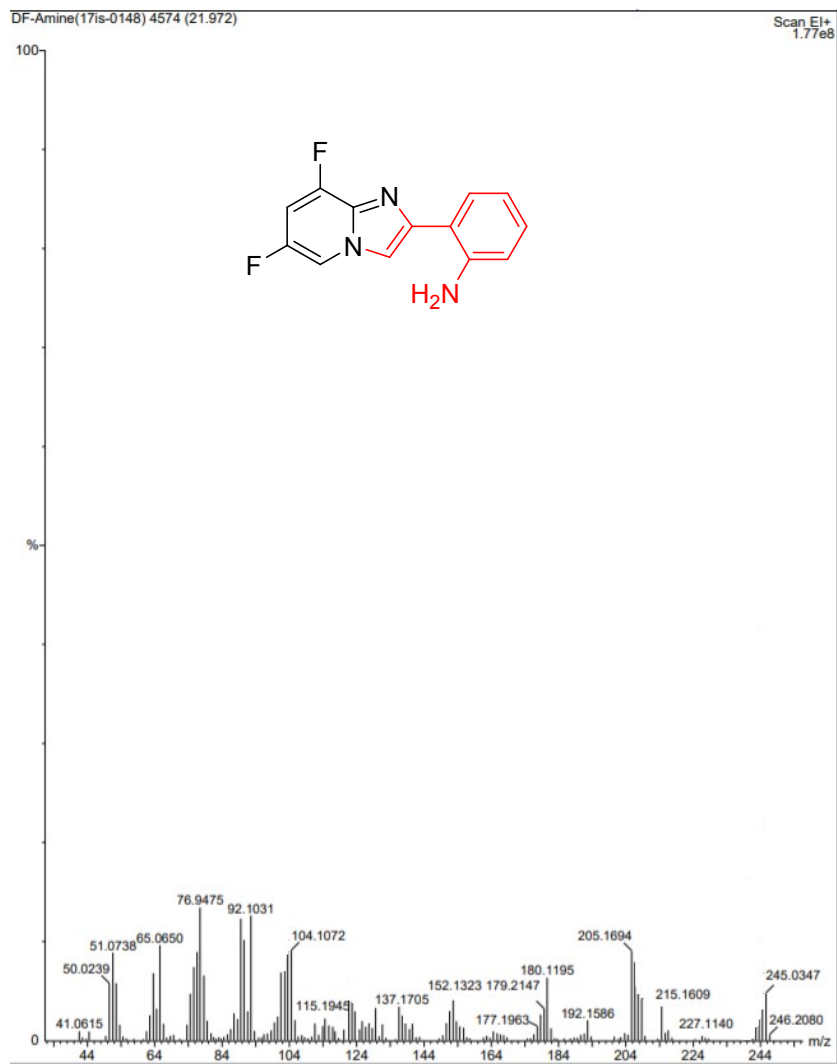
Signature SIF VIT VELLORE
NR-1116-1



Signature SIF VIT VELLORE
NR-717-DF-N

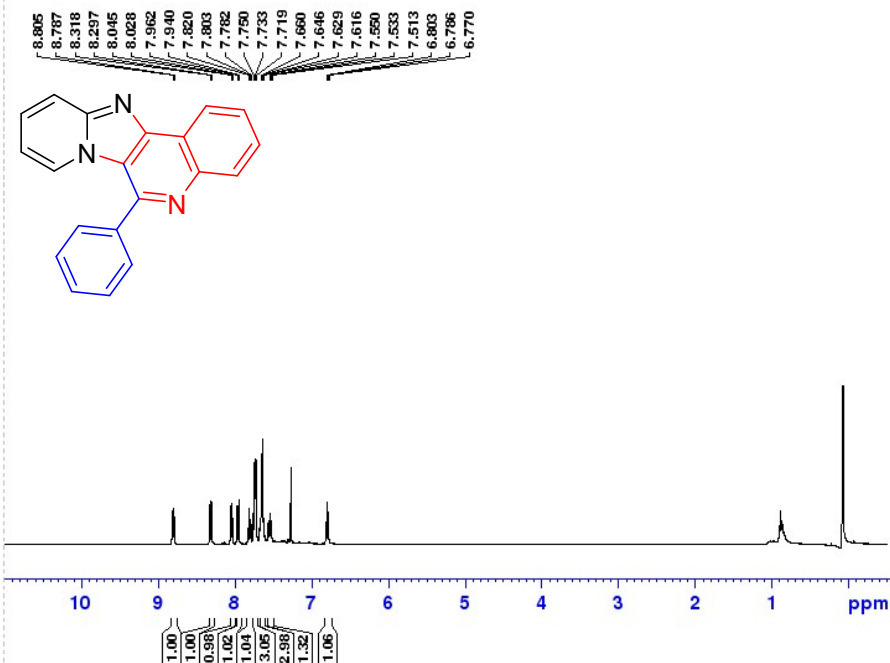


¹H-NMR and ¹³C-NMR of compound **4d** in CDCl₃



Mass and IR of Compound 4d.

Signature SIF VIT VELLORE
NR-916-04-02



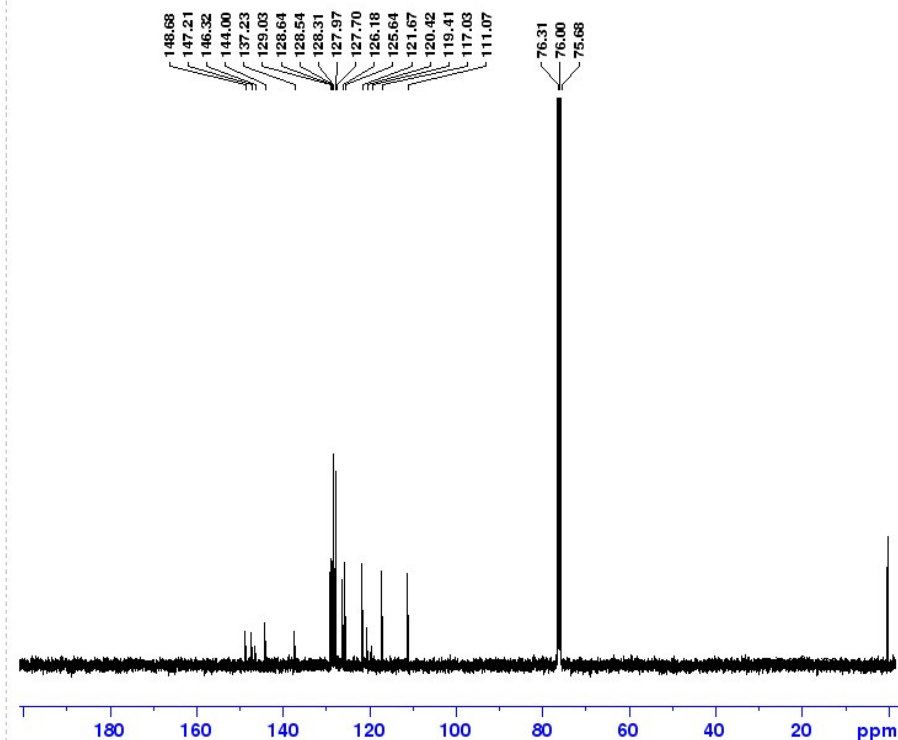
Current Data Parameters
NAME NR-916-04-2-1H-NMR
EXPNO 13
PROCNO 1

F2 - Acquisition Parameters
Date_ 20160916
Time 14.49
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8223.685 Hz
FIDRES 0.125483 Hz
AQ 3.9845889 sec
RG 143.73
DW 60.800 usec
DE 6.50 usec
TE 299.8 K
D1 1.0000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 14.25 usec
PLW1 14.0000000 W
SFO1 400.2604718 MHz

F2 - Processing parameters
SI 65536
SF 400.2580126 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Signature SIF VIT VELLORE
NR-916-04-02



Current Data Parameters
NAME NR-916-04-2-13C-NMR
EXPNO 14
PROCNO 1

F2 - Acquisition Parameters
Date_ 20160916
Time 15.19
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631488 sec
RG 156.91
DW 20.800 usec
DE 6.50 usec
TE 300.6 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1

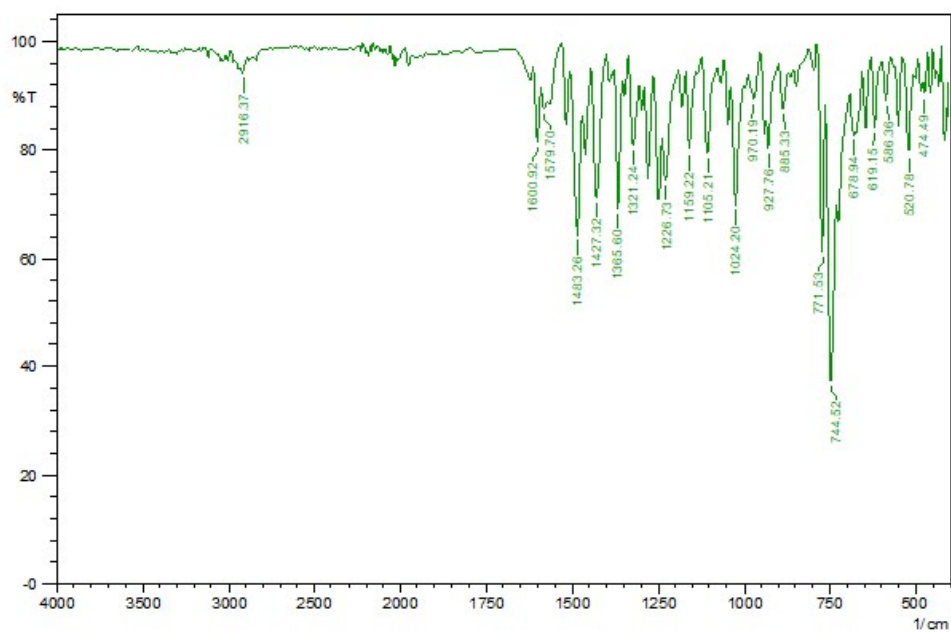
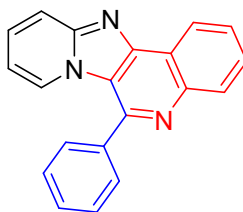
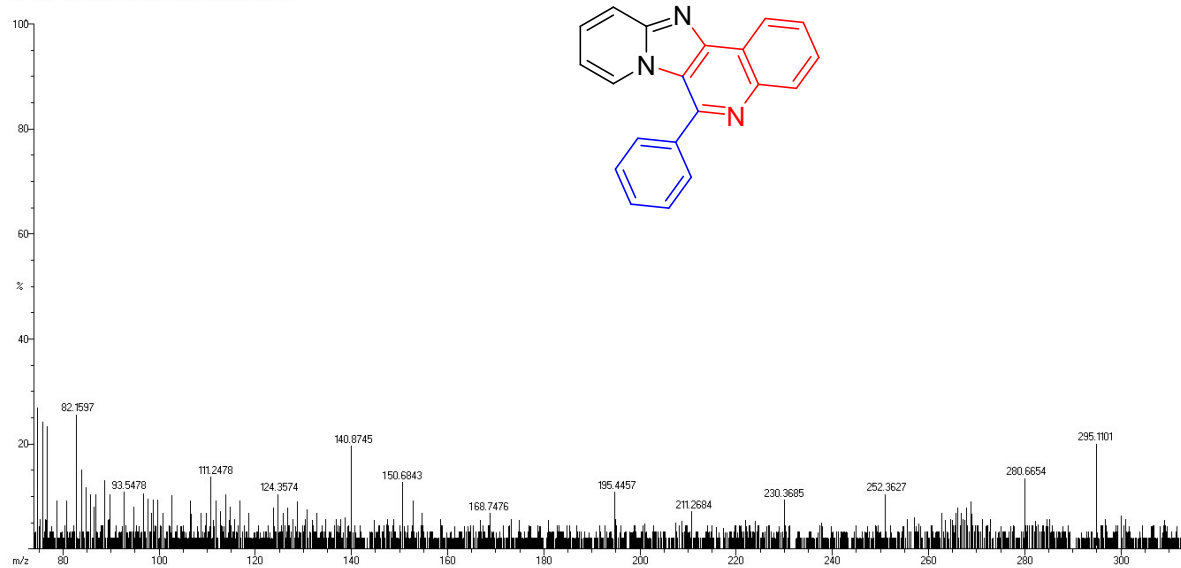
===== CHANNEL f1 =====
NUC1 13C
P1 9.80 usec
PLW1 58.0000000 W
SFO1 100.6550182 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 90.00 usec
PLW2 14.0000000 W
PLW12 0.35097000 W
PLW13 0.28428999 W
SFO2 400.2596010 MHz

F2 - Processing parameters
SI 32768
SF 100.6450582 MHz
WDW EM

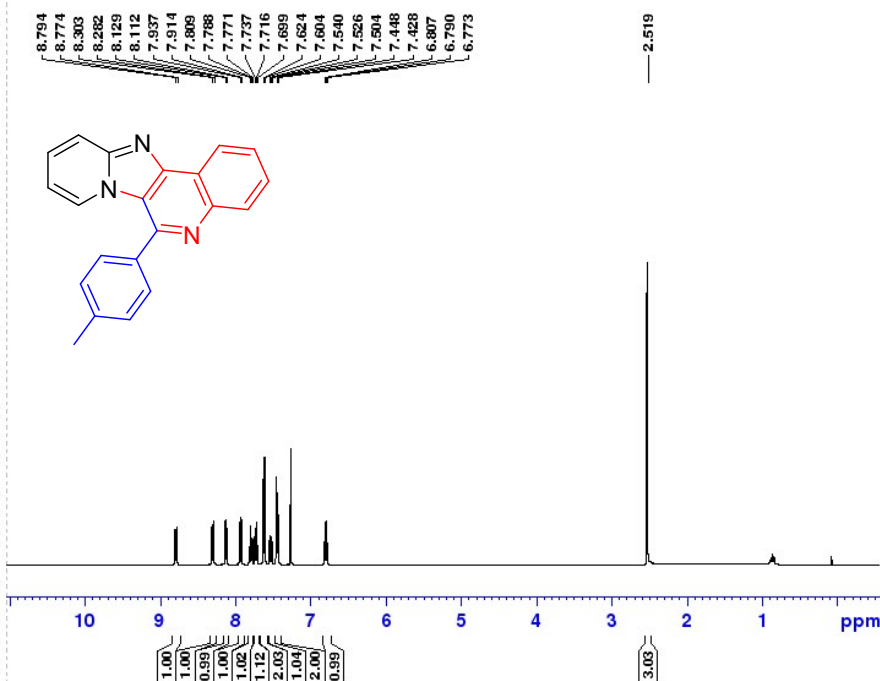
$^1\text{H-NMR}$ and $^{13}\text{C-NMR}$ of compound **6a** in CDCl_3 .

P:01
Scan: 245 TIC=7348080 Base=8.3%FS Mono=2411 RT=13.2578



IR and HRMS of compound **6a**

Signature SIF VIT VELLORE
NR-PCT-517-15

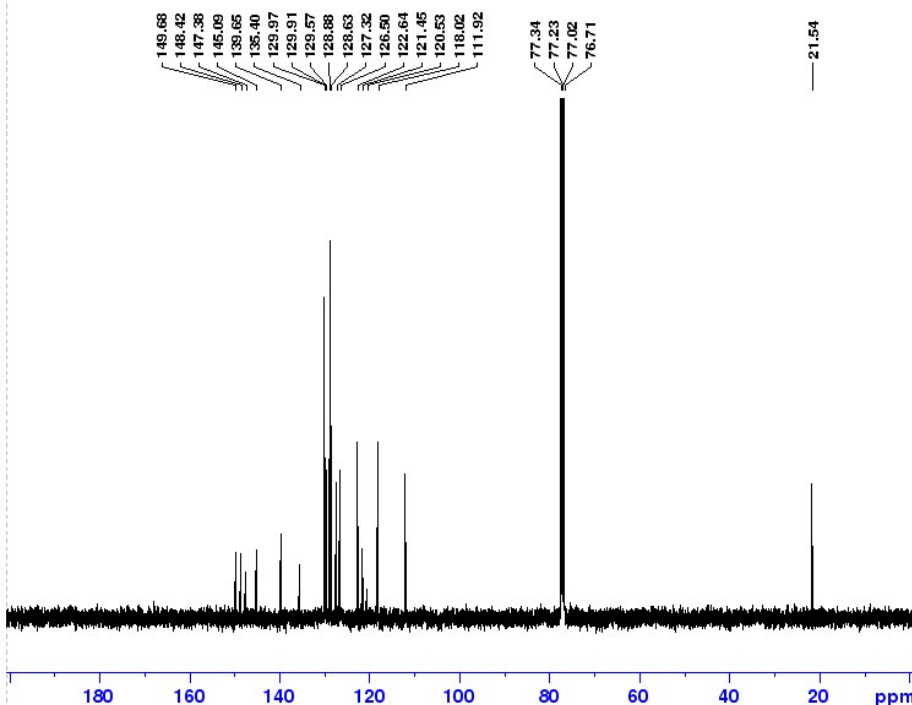


Current Data Parameters
NAME Derivative-7-Toulaldehy
EXPNO 3
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170705
Time 22.29 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.244532 Hz
AQ 4.0894465 sec
RG 156.91
DW 62.400 usec
DE 6.50 usec
TE 299.9 K
D1 1.00000000 sec
TD0 1
SFO1 400.2604716 MHz
NUC1 1H
P1 14.25 usec
PLW1 14.00000000 W

F2 - Processing parameters
SI 65536
SF 400.2580113 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Signature SIF VIT VELLORE
NR-PCT-517-15



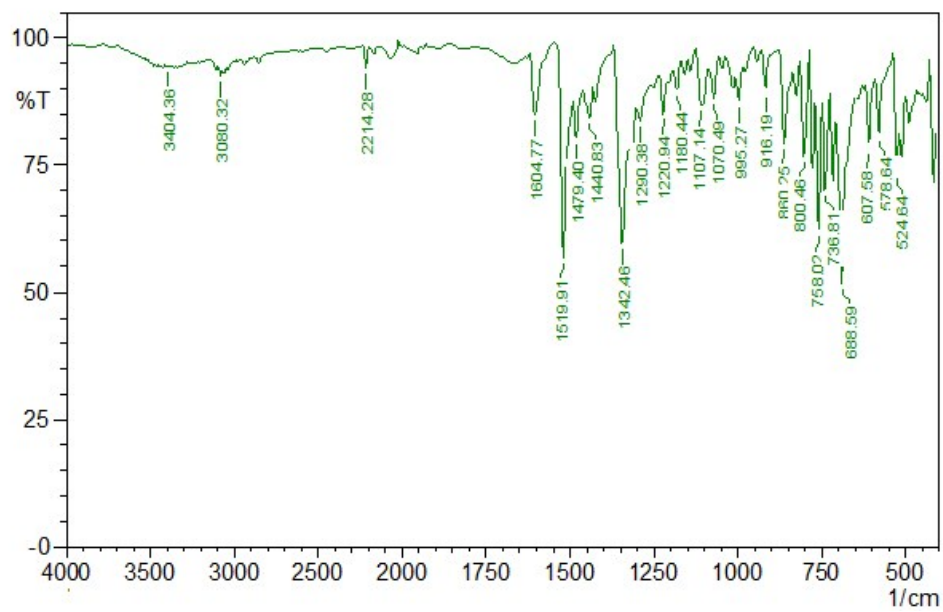
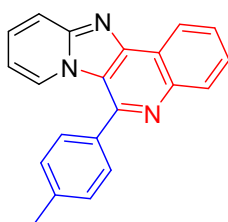
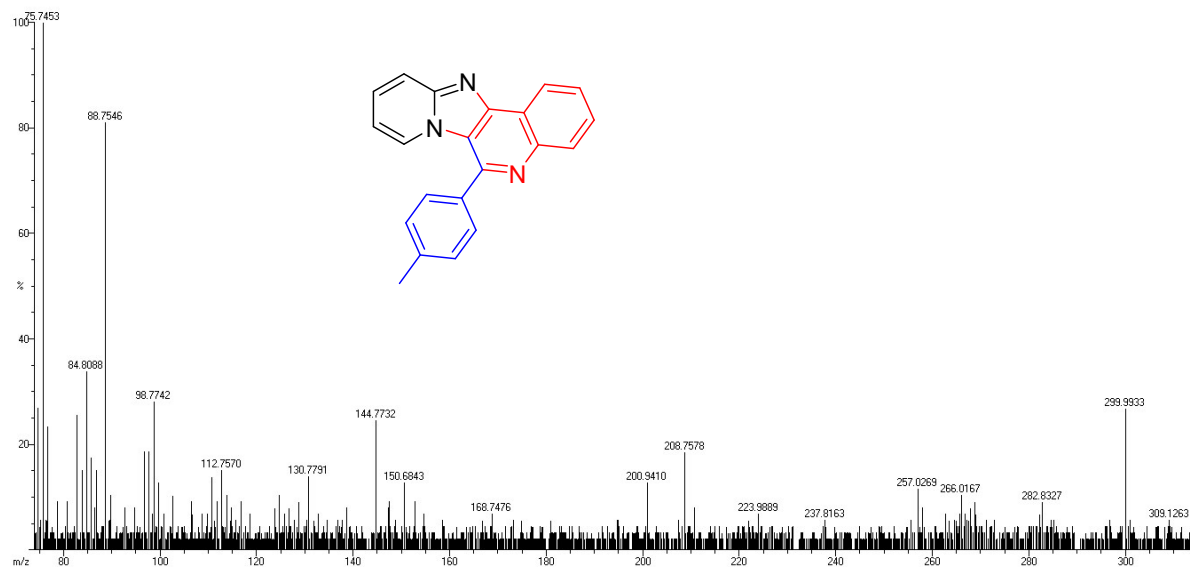
Current Data Parameters
NAME Derivative-7-Toulaldehy
EXPNO 4
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170705
Time 23.00 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 1.3631488 sec
RG 127.79
DW 20.800 usec
DE 6.50 usec
TE 301.2 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
SFO1 100.6550186 MHz
NUC1 13C
P1 9.80 usec
PLW1 58.00000000 W
SFO2 400.2596010 MHz
NUC2 1H
CPDPRG2 waltz16
PCPD2 90.00 usec
PLW2 14.00000000 W
PLW12 0.35097000 W
PLW13 0.17654000 W

F2 - Processing parameters
SI 32768
SF 100.6449542 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

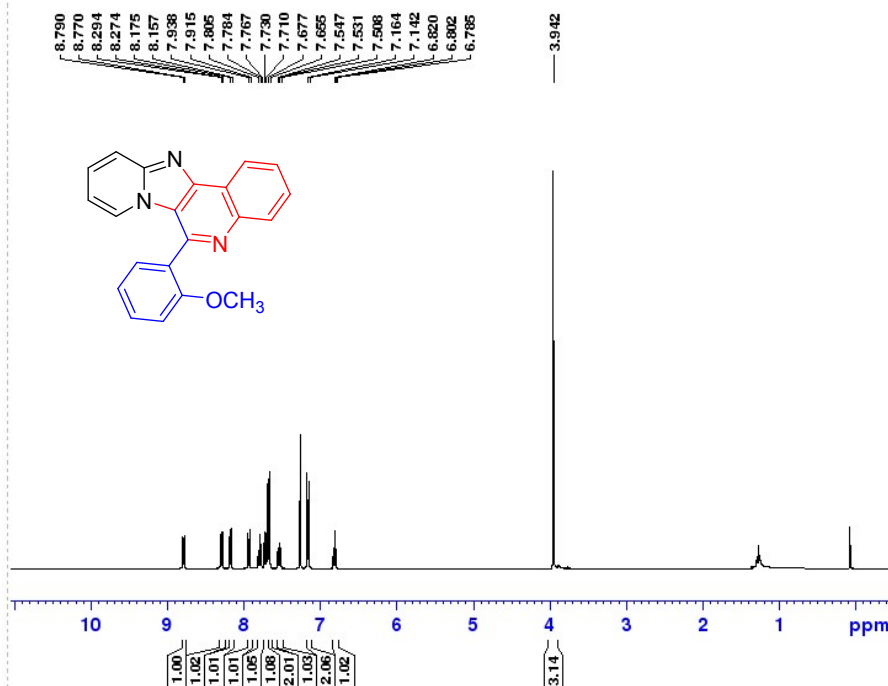
^1H -NMR and ^{13}C -NMR of compound **6b** in CDCl_3

15
Scan 2252 TIC=7349080 Base=8.3%FS Hconc=2417 RT=12.72

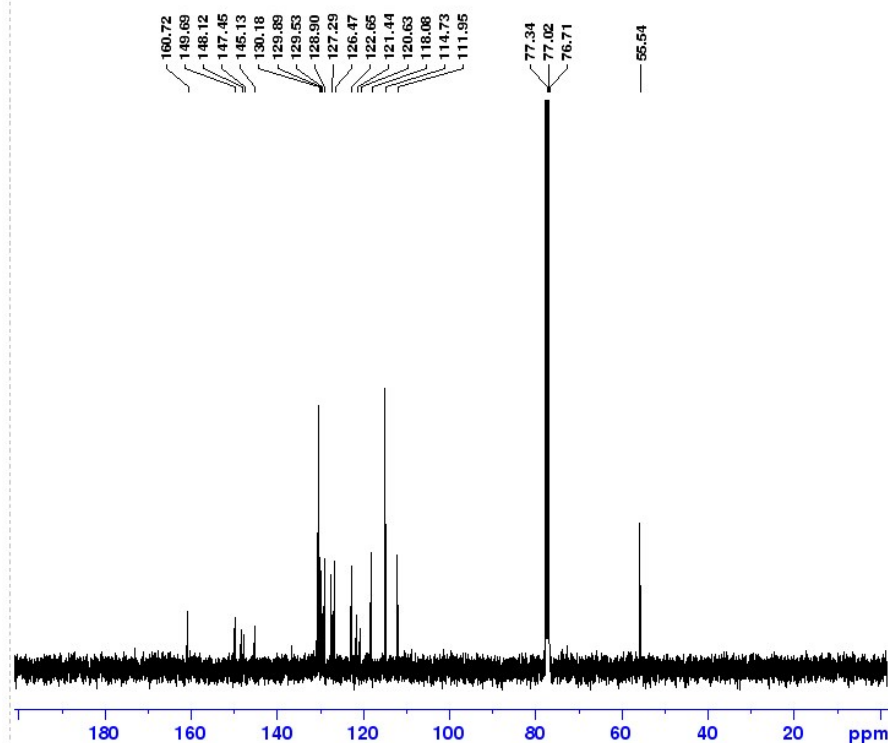


IR and HRMS of compound **6b**

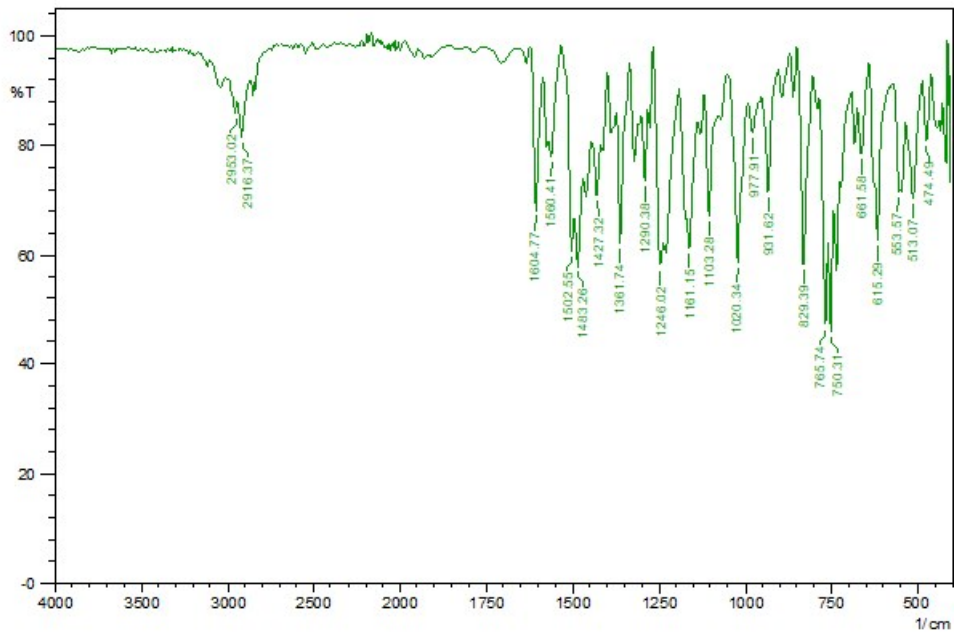
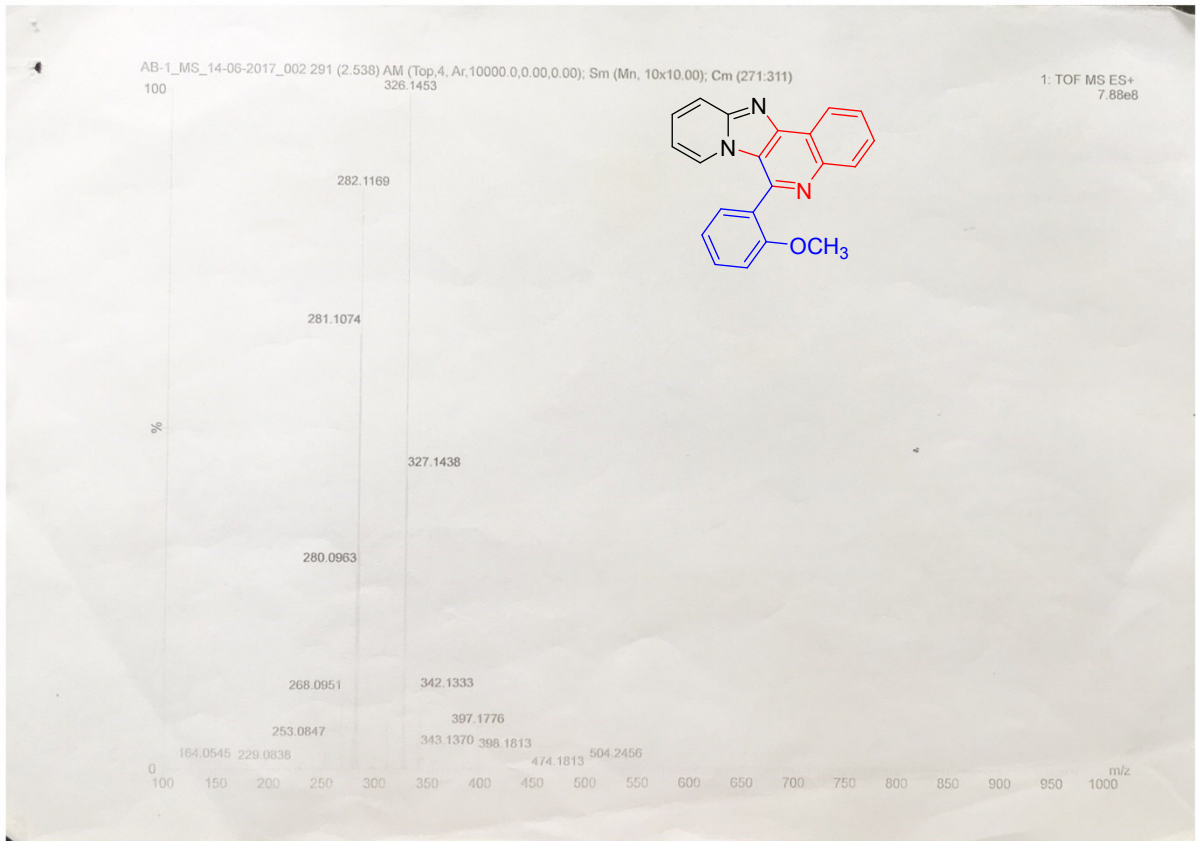
Signature SIF VIT VELLORE
NR-916-4



Signature SIF VIT VELLORE
NR-916-4

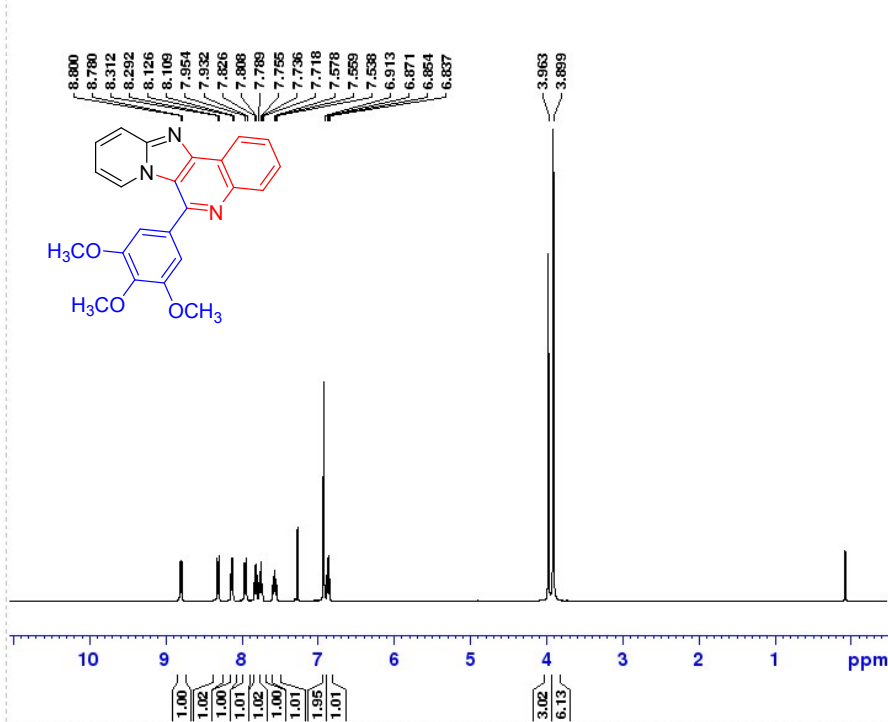


$^1\text{H-NMR}$ and $^{13}\text{C-NMR}$ of compound **6c** in CDCl_3 .

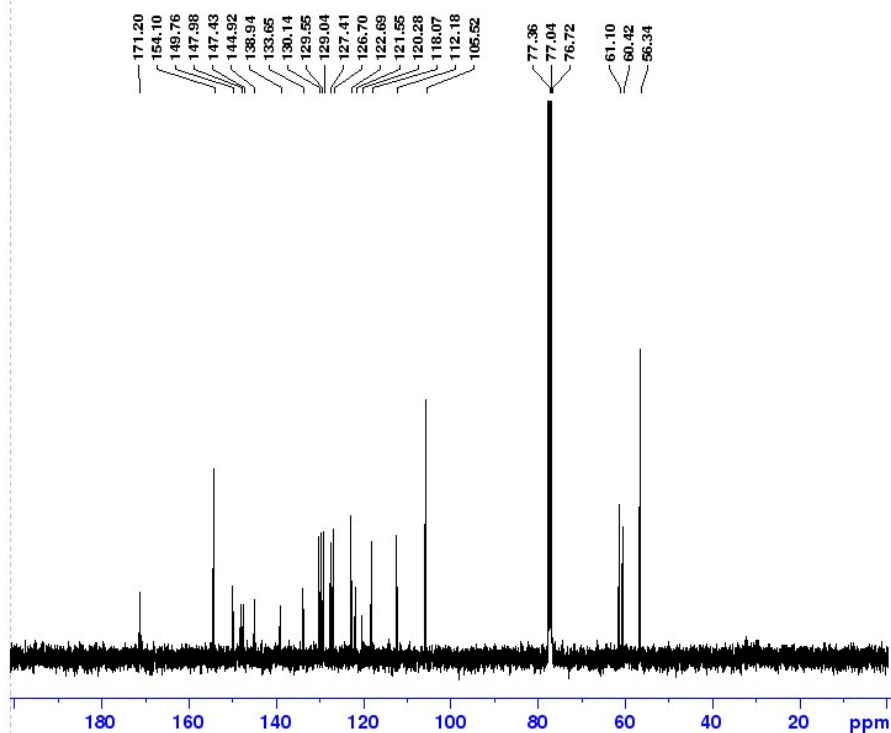


IR and HRMS of compound **6c**

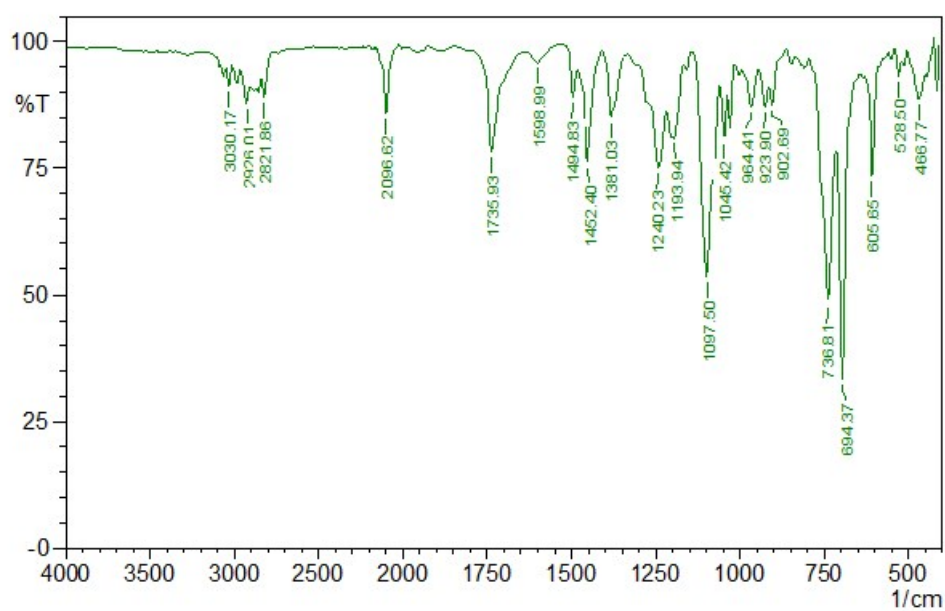
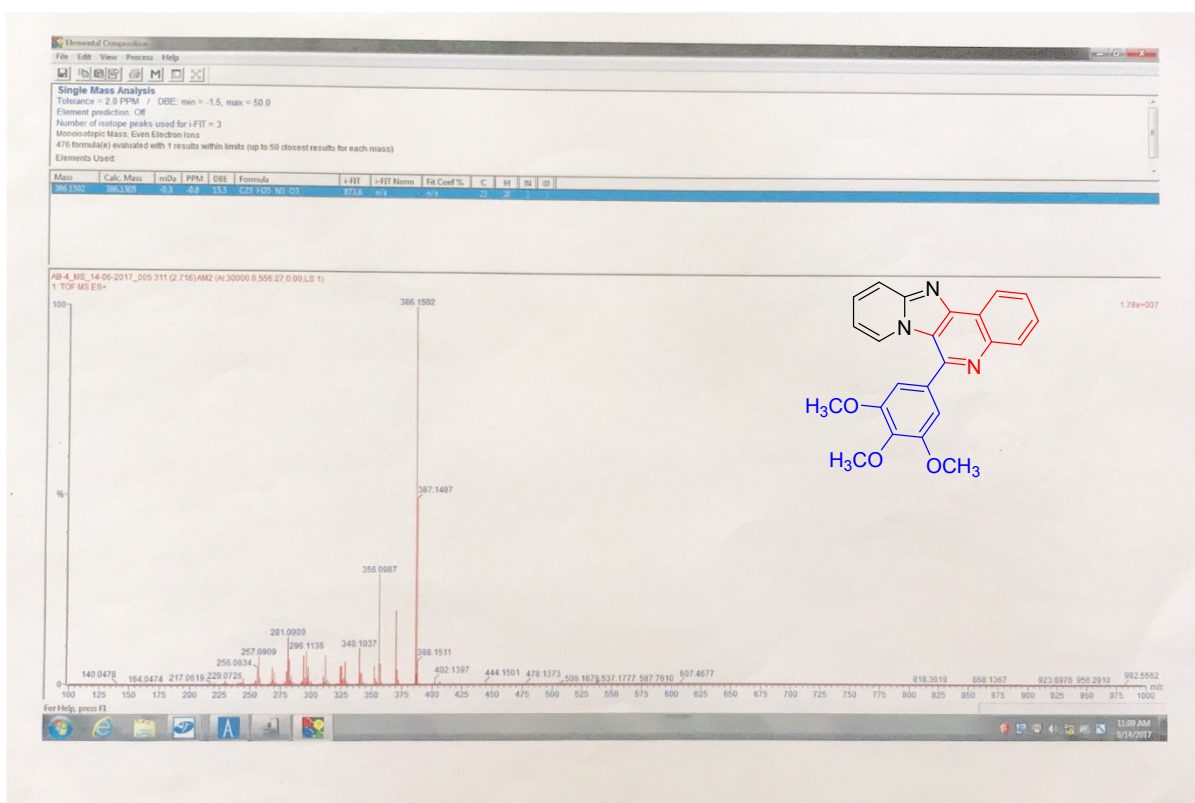
Signature SIF VIT VELLORE
NR-1016-7



Signature SIF VIT VELLORE
NR-1016-7

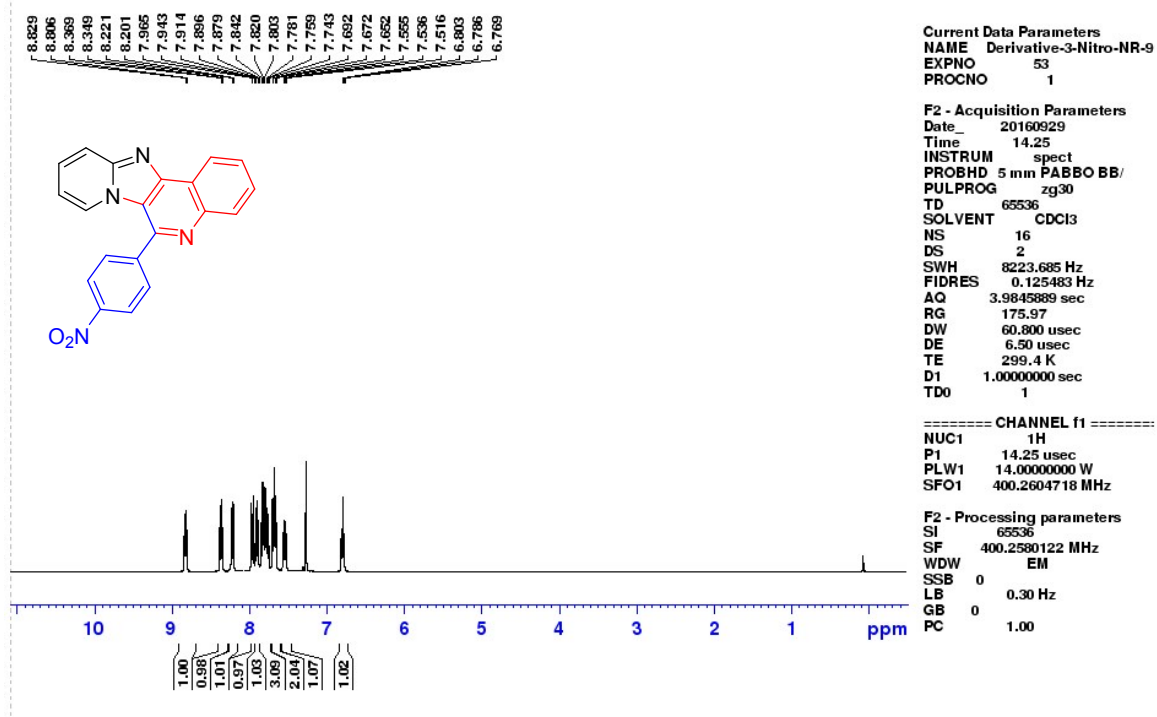


$^1\text{H-NMR}$ and $^{13}\text{C-NMR}$ of compound **6d** in CDCl_3

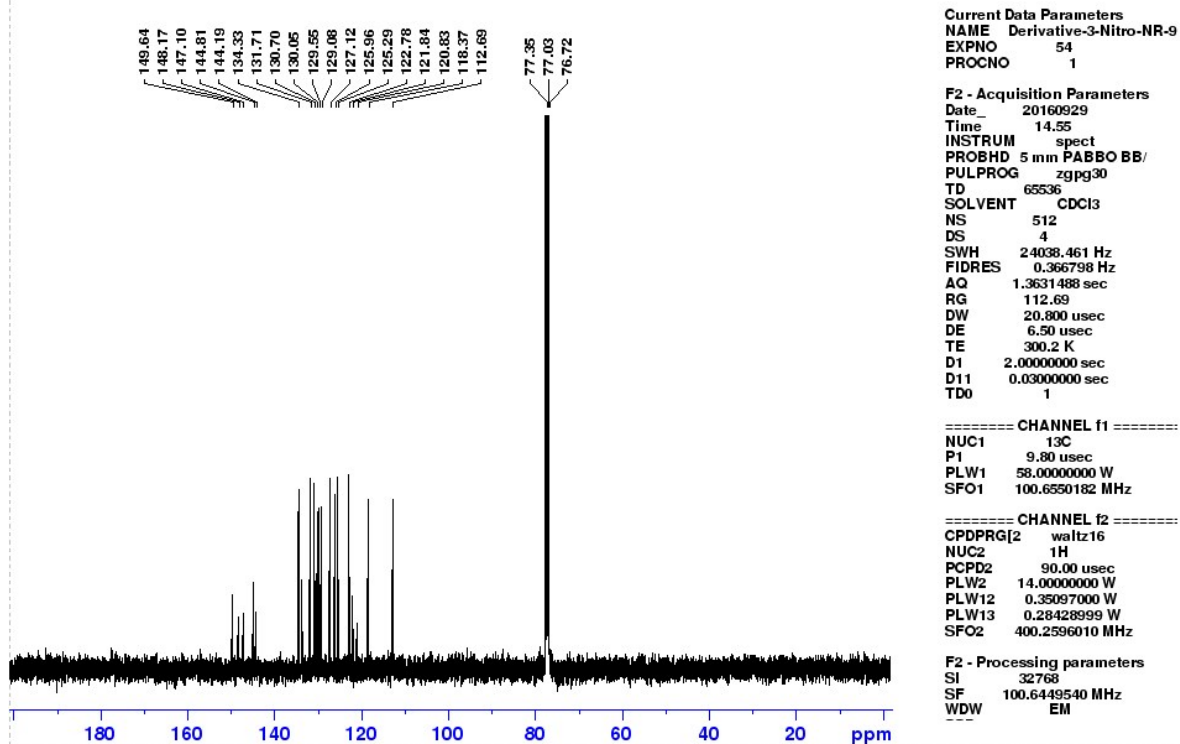


IR and HRMS of compound **6d**

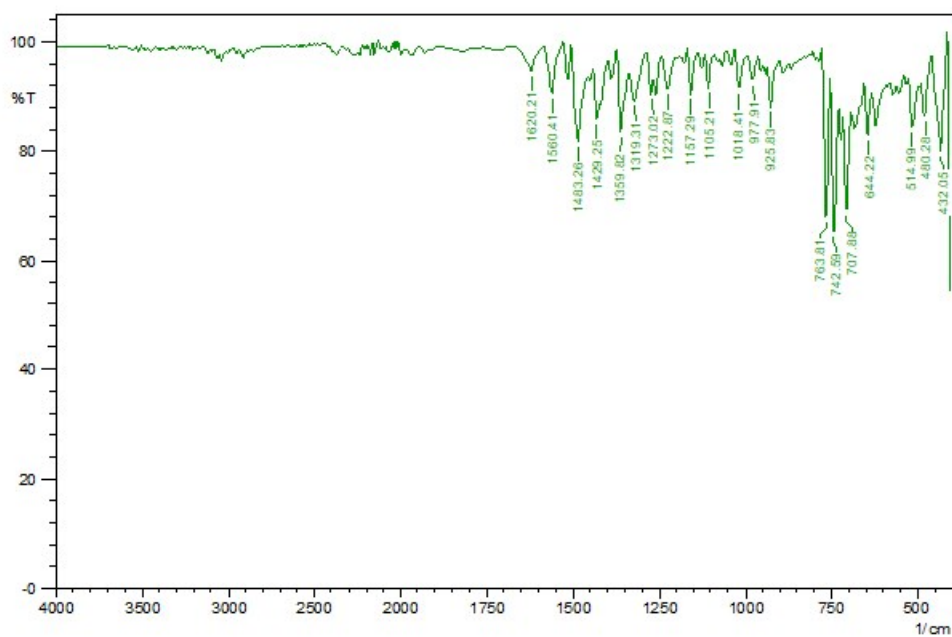
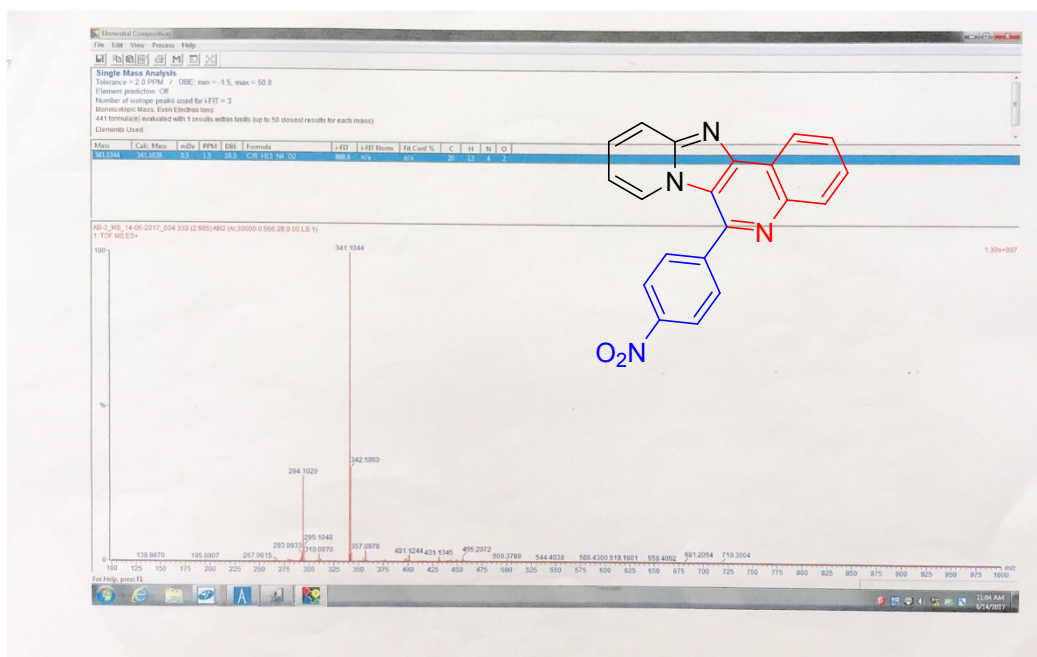
Signature SIF VIT VELLORE
NR-916-5-2



Signature SIF VIT VELLORE
NR-916-5-2

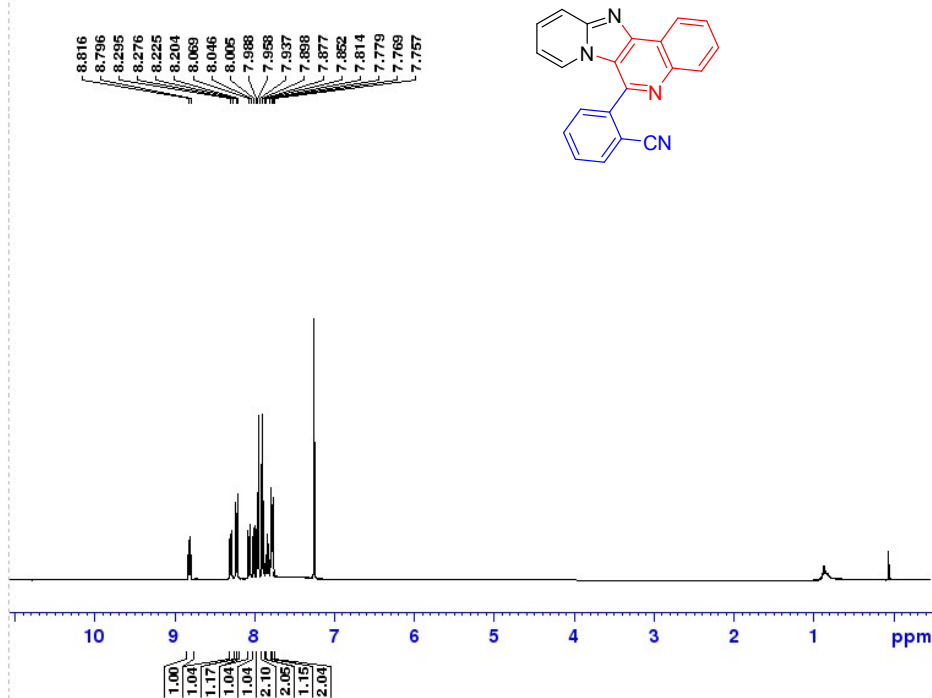


$^1\text{H-NMR}$ and $^{13}\text{C-NMR}$ of compound **6e** in CDCl_3



IR and HRMS of compound **6e**

Signature SIF VIT VELLORE
NR-1016-10

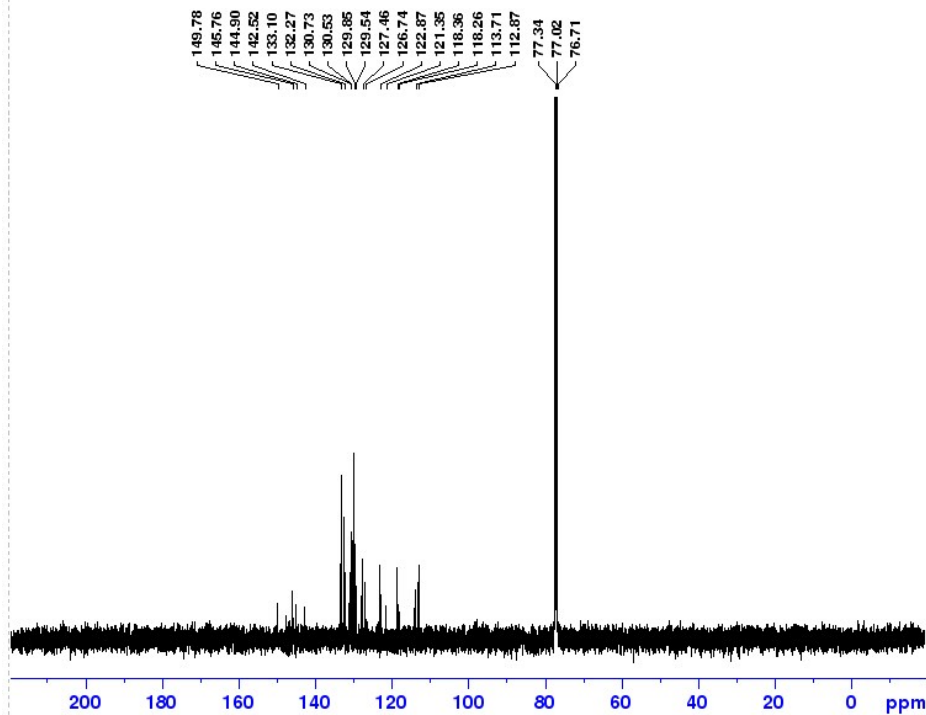


Current Data Parameters
NAME Derivative-6-Cyano-NR-
EXPNO 20
PROCNO 1

F2 - Acquisition Parameters
Date_ 20161026
Time 16.04 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.244532 Hz
AQ 4.0894465 sec
RG 199.6
DW 62.400 usec
DE 6.50 usec
TE 299.0 K
D1 1.00000000 sec
TD0 1
SFO1 400.2604716 MHz
NUC1 1H
P1 14.25 usec
PLW1 14.00000000 W

F2 - Processing parameters
SI 65536
SF 400.2580157 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Signature SIF VIT VELLORE
NR-1016-10

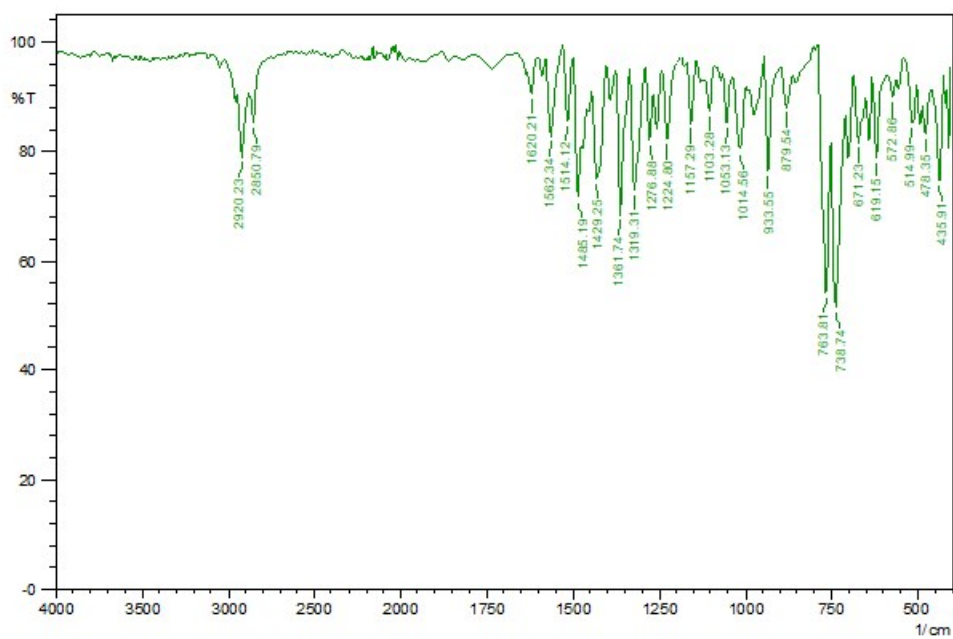
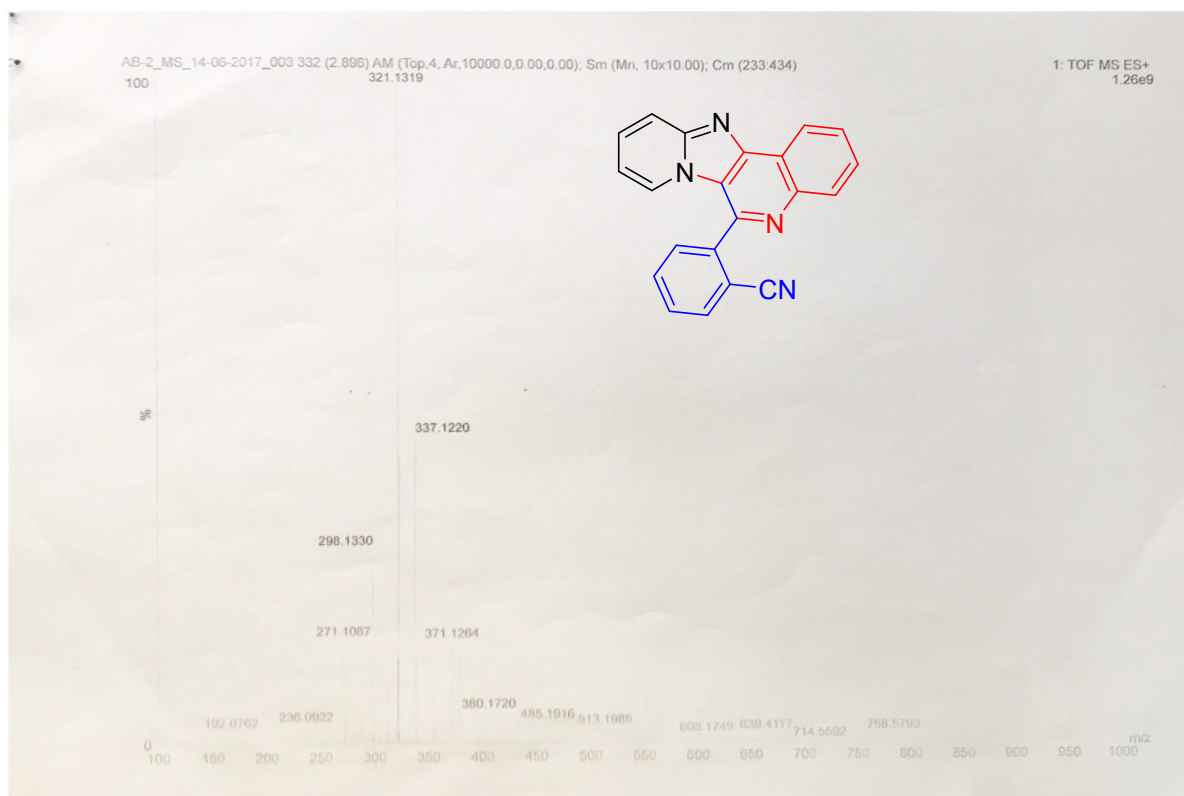


Current Data Parameters
NAME Derivative-6-Cyano-NR-
EXPNO 21
PROCNO 1

F2 - Acquisition Parameters
Date_ 20161026
Time 16.34 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 1.3631488 sec
RG 156.91
DW 20.800 usec
DE 6.50 usec
TE 299.7 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
SFO1 100.6550186 MHz
NUC1 13C
P1 9.80 usec
PLW1 58.00000000 W
SFO2 400.2596010 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 14.00000000 W
PLW12 0.35097000 W
PLW13 0.17654000 W

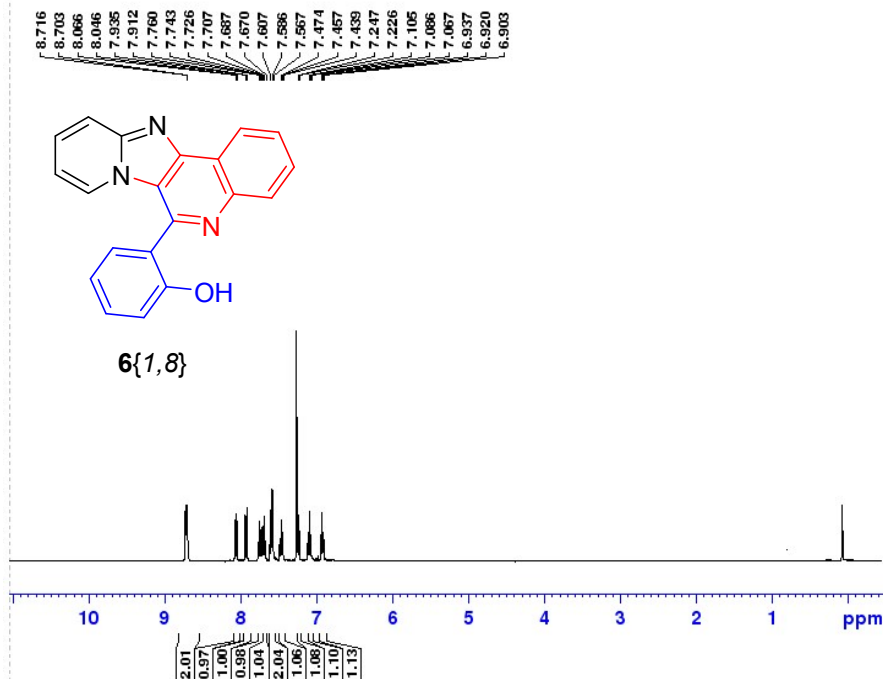
F2 - Processing parameters
SI 32768
SF 100.6449542 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

¹H-NMR and ¹³C-NMR of compound **6f** in CDCl₃



IR and HRMS of compound **6f**

Signature SIF VIT VELLORE
NR-1016-8

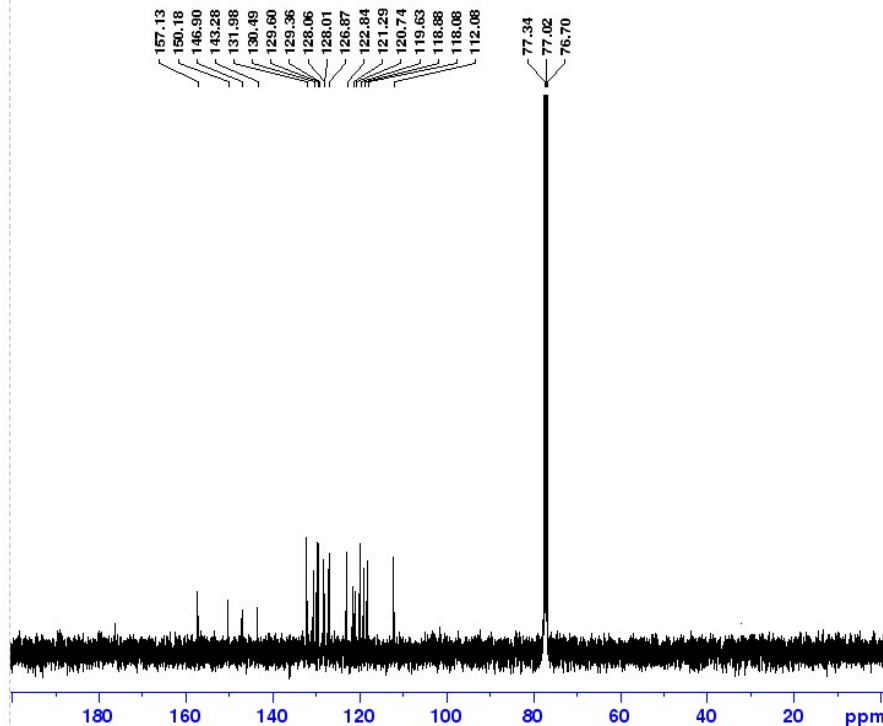


Current Data Parameters
NAME Derivative-5 salicaldeh
EXPNO 18
PROCNO 1

F2 - Acquisition Parameters
Date_ 20161024
Time 21.20 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.244532 Hz
AQ 4.0894465 sec
RG 199.6
DW 62.400 usec
DE 6.50 usec
TE 299.7 K
D1 1.00000000 sec
TD0 1
SFO1 400.2604716 MHz
NUC1 1H
P1 14.25 usec
PLW1 14.0000000 W

F2 - Processing parameters
SI 65536
SF 400.2580100 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Signature SIF VIT VELLORE
NR-1016-8

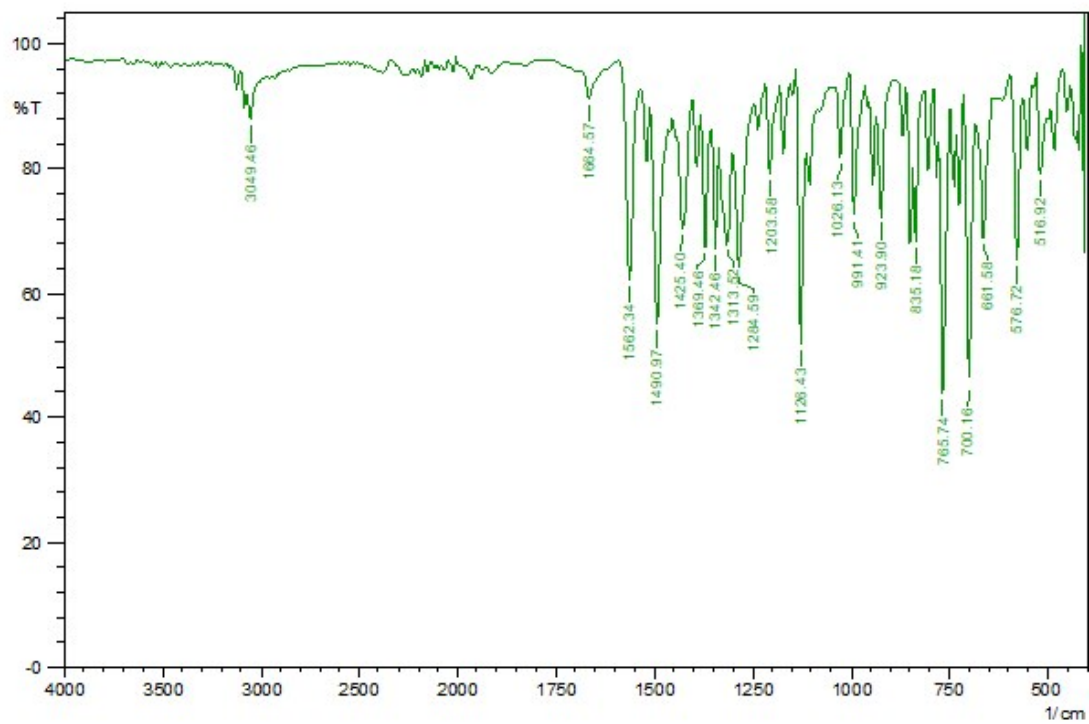
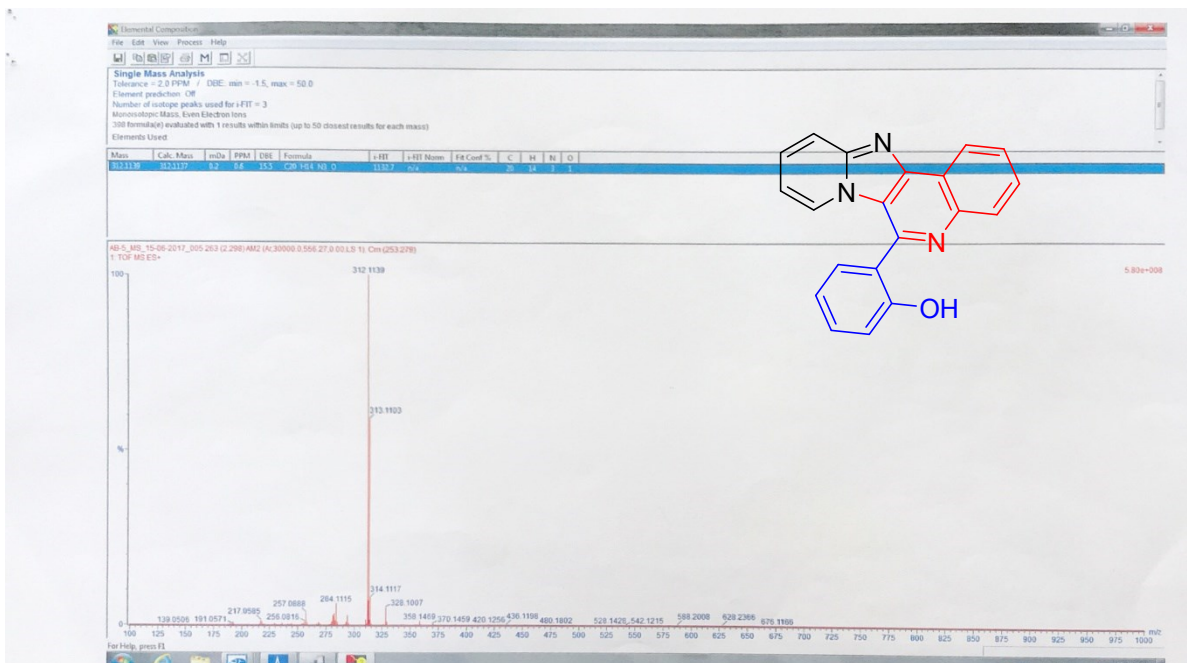


Current Data Parameters
NAME Derivative-5 salicaldeh
EXPNO 19
PROCNO 1

F2 - Acquisition Parameters
Date_ 20161024
Time 21.49 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 1.3631488 sec
RG 143.73
DW 20.800 usec
DE 6.50 usec
TE 300.4 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
SFO1 100.6250186 MHz
NUC1 13C
P1 9.80 usec
PLW1 58.0000000 W
SFO2 400.2596010 MHz
NUC2 1H
CPDPRG2 waltz16
PCPD2 90.00 usec
PLW2 14.0000000 W
PLW12 0.35097000 W
PLW13 0.17654000 W

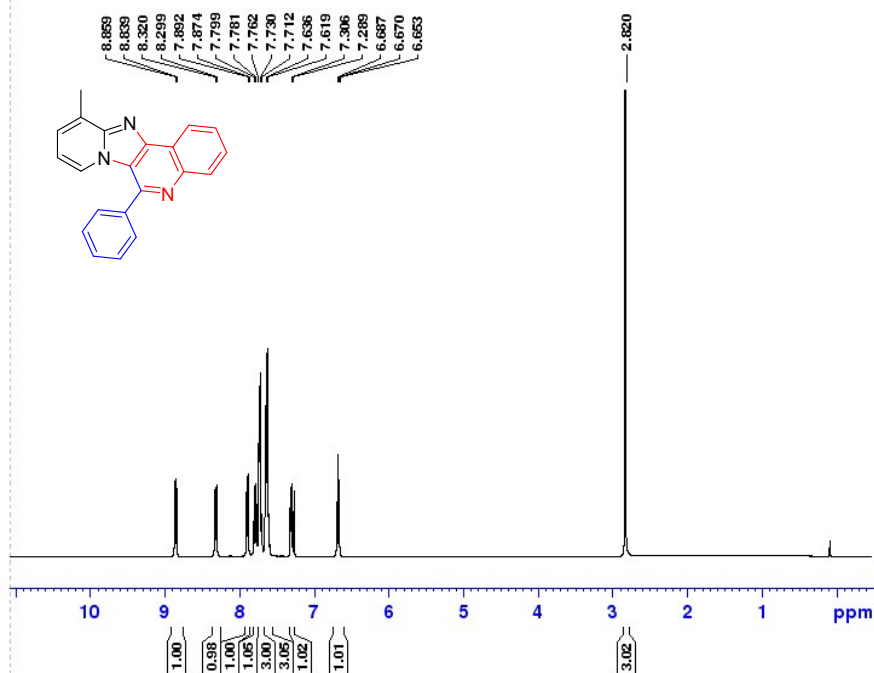
F2 - Processing parameters
SI 32768
SF 100.6449542 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

¹H-NMR and ¹³C-NMR of compound **6g** in CDCl₃



IR and HRMS of compound **6g**

Signature SIF VIT VELLORE
NR-417-PCT-3

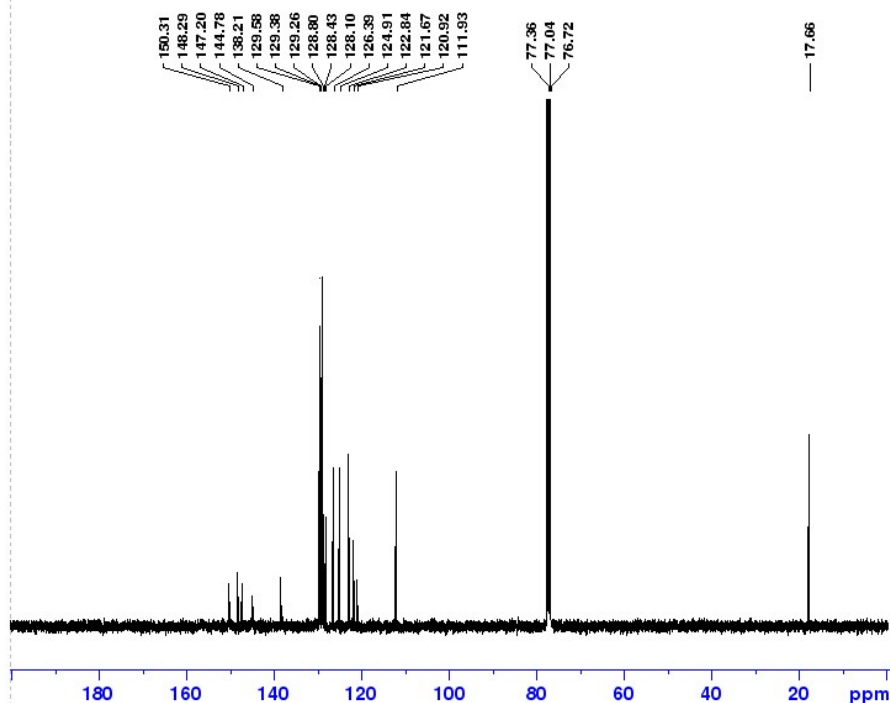


Current Data Parameters
NAME Derivative-1-benzaldeh
EXPNO 30
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170403
Time 11.00 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.244532 Hz
AQ 4.0894465 sec
RG 143.73
DW 62.400 usec
DE 6.50 usec
TE 298.5 K
D1 1.0000000 sec
TD0 1
SFO1 400.2604716 MHz
NUC1 1H
P1 14.25 usec
PLW1 14.0000000 W

F2 - Processing parameters
SI 65536
SF 400.2580099 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Signature SIF VIT VELLORE
NR-417-PCT-3



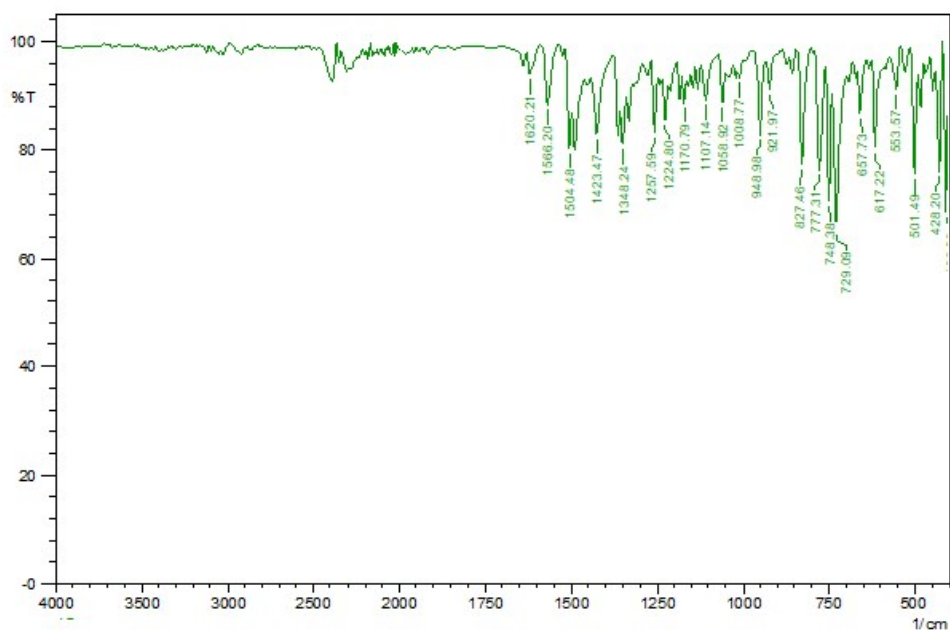
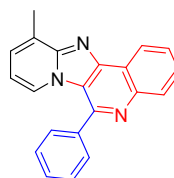
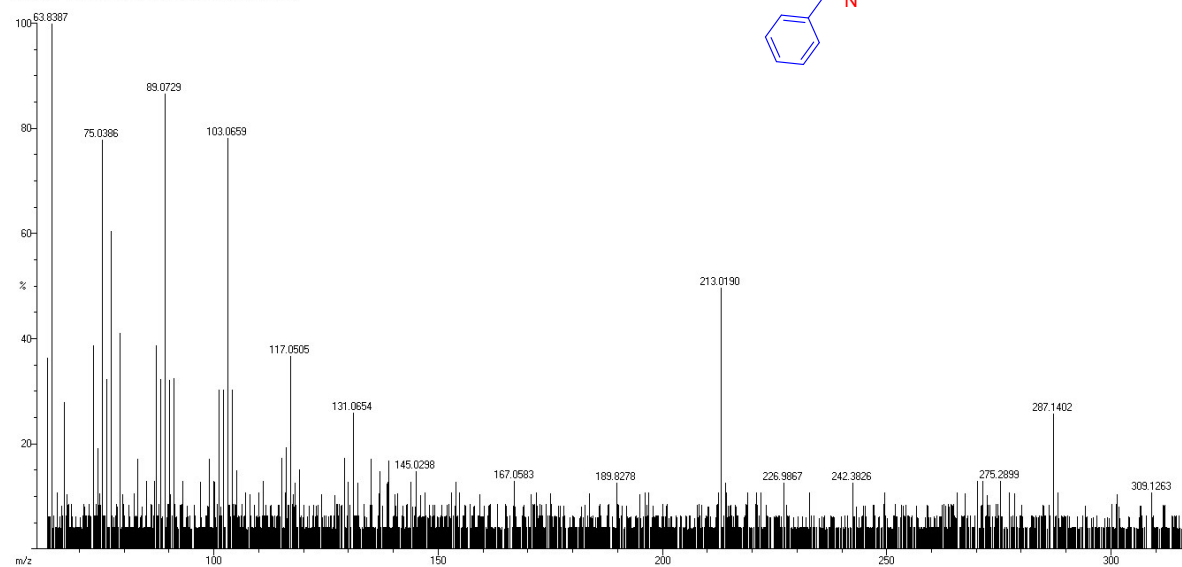
Current Data Parameters
NAME Derivative-1-benzaldeh
EXPNO 31
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170403
Time 11.31 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 1.3631488 sec
RG 88.69
DW 20.800 usec
DE 6.50 usec
TE 299.4 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1
SFO1 100.6550186 MHz
NUC1 13C
P1 9.80 usec
PLW1 58.0000000 W
SFO2 400.2596010 MHz
NUC2 1H
CPDPRG2 waltz16
PCPD2 90.00 usec
PLW2 14.0000000 W
PLW12 0.35097000 W
PLW13 0.17654000 W

F2 - Processing parameters
SI 32768
SF 100.6449542 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

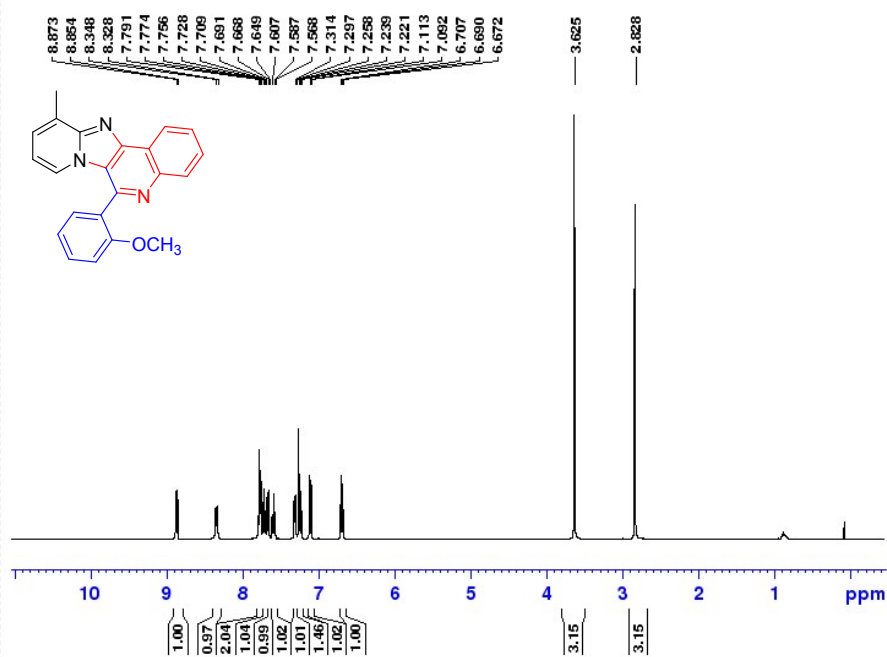
$^1\text{H-NMR}$ and $^{13}\text{C-NMR}$ of compound **6h** in CDCl_3 .

P-17
Scan: 2602 TIC=7291312 Base=4.5%FS #Ions=2526 RT=14.54



HRMS and IR of compound **6h**.

Signature SIF VIT VELLORE
NR-417-PCT-6

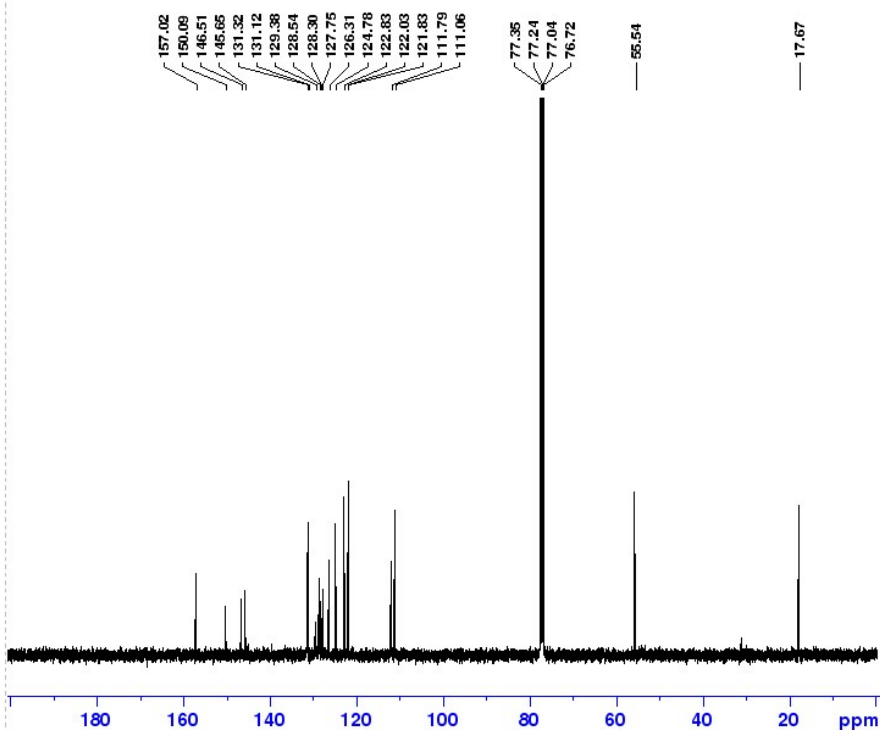


Current Data Parameters
NAME Derivative-4-2-Methoxy
EXPNO 11
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170410
Time 23.23 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.244532 Hz
AQ 4.0894465 sec
RG 143.73
DW 62.400 usec
DE 6.50 usec
TE 298.3 K
D1 1.00000000 sec
TD0 1
SFO1 400.2604716 MHz
NUC1 1H
P1 14.25 usec
PLW1 14.00000000 W

F2 - Processing parameters
SI 65536
SF 400.2580105 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Signature SIF VIT VELLORE
NR-417-PCT-6

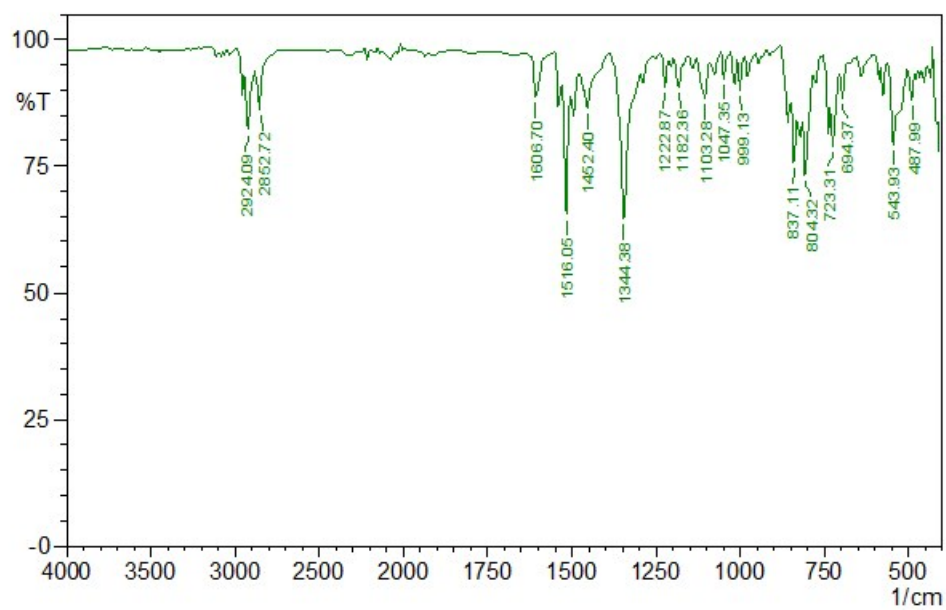
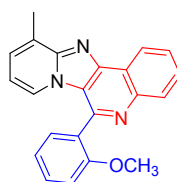
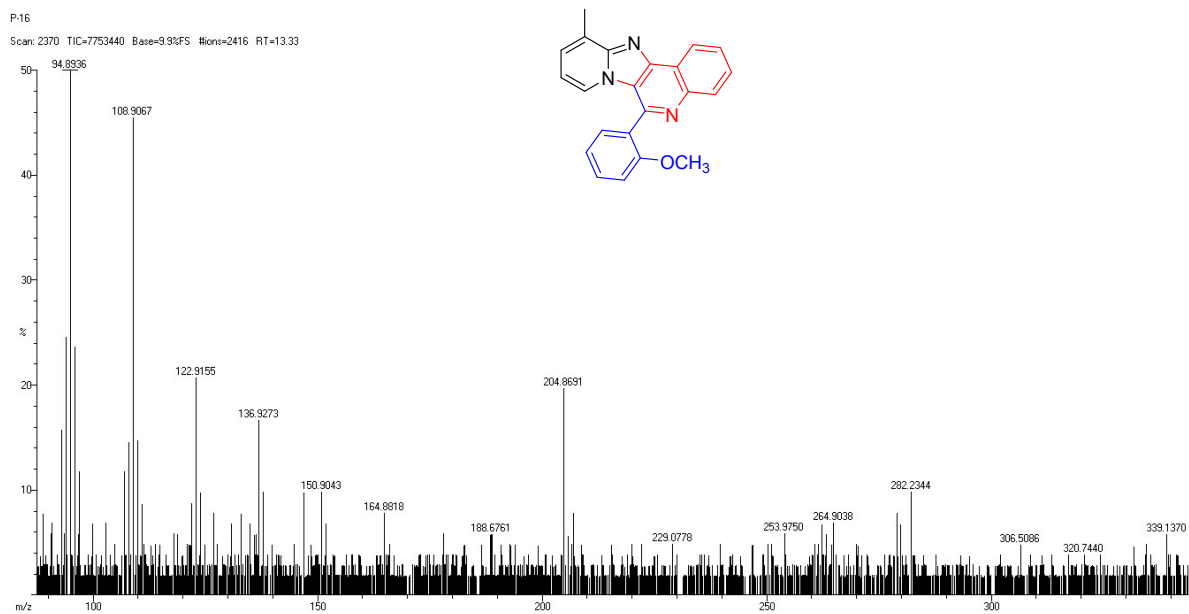


Current Data Parameters
NAME Derivative-4-2-Methoxy
EXPNO 12
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170410
Time 23.52 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 1.3631488 sec
RG 156.91
DW 20.800 usec
DE 6.50 usec
TE 299.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
SFO1 100.6550186 MHz
NUC1 13C
P1 9.80 usec
PLW1 58.0000000 W
SFO2 400.2596010 MHz
NUC2 1H
CPDPRG2 waltz16
PCPD2 90.00 usec
PLW2 14.0000000 W
PLW12 0.35097000 W
PLW13 0.17654000 W

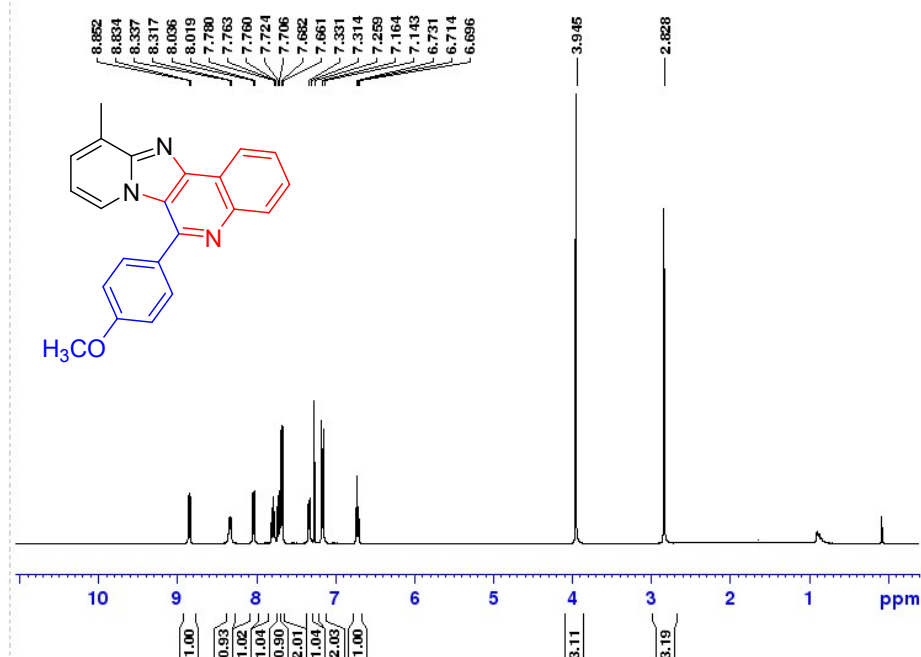
F2 - Processing parameters
SI 32768
SF 100.6449542 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

$^1\text{H-NMR}$ and $^{13}\text{C-NMR}$ of compound **6i** in CDCl_3



HRMS and IR of compound **6i**

Signature SIF VIT VELLORE
NR-417-PCT-5

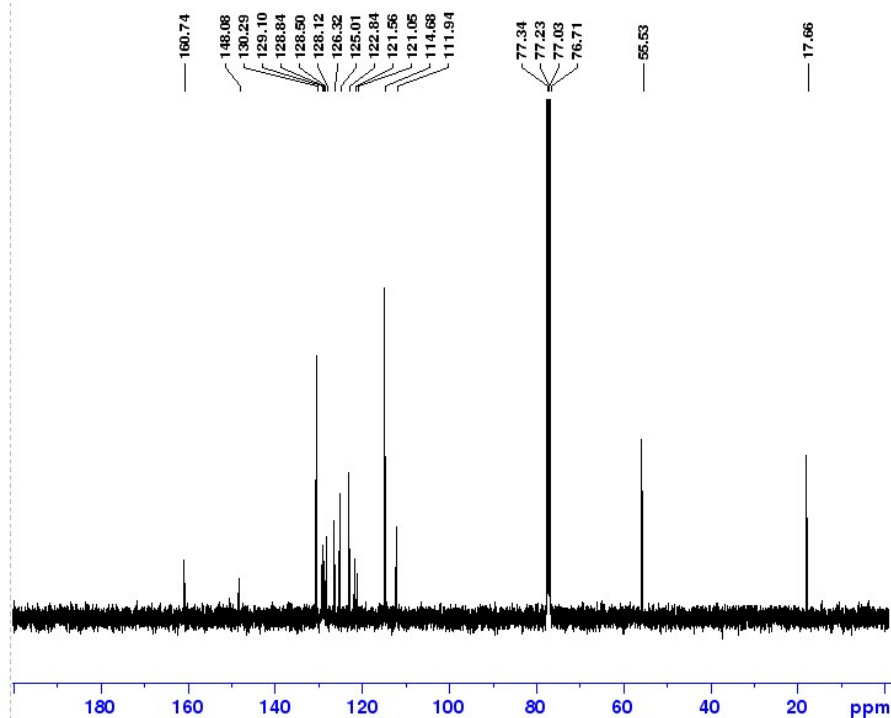


Current Data Parameters
NAME Derivative-3- 4-Methoxy
EXPNO 7
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170407
Time 20.39 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.244532 Hz
AQ 4.0894465 sec
RG 175.97
DW 62.400 usec
DE 6.50 usec
TE 298.5 K
D1 1.0000000 sec
TD0 1
SFO1 400.2604716 MHz
NUC1 1H
P1 14.25 usec
PLW1 14.0000000 W

F2 - Processing parameters
SI 65536
SF 400.2580099 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Signature SIF VIT VELLORE
NR-417-PCT-5

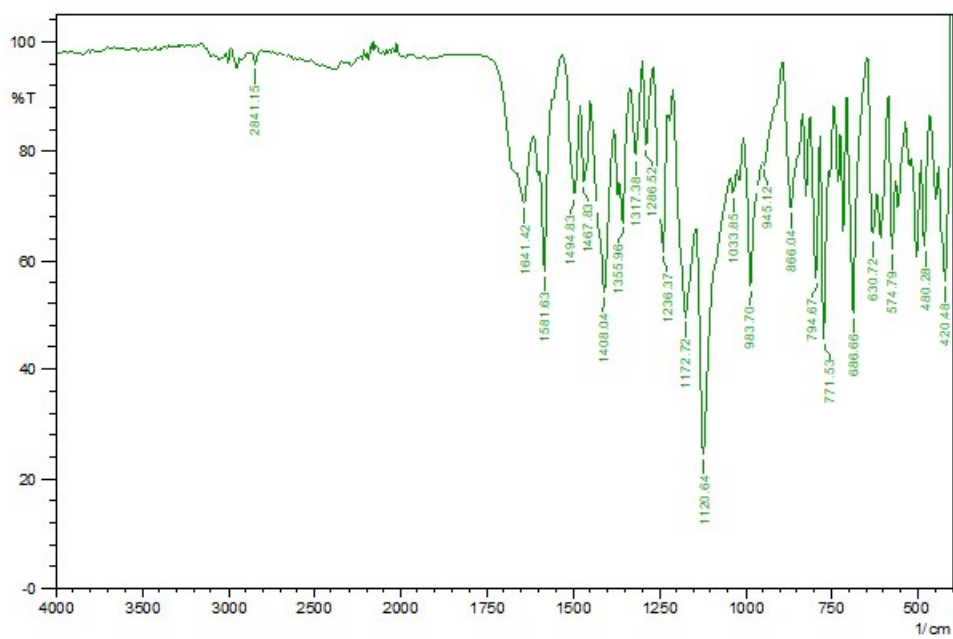
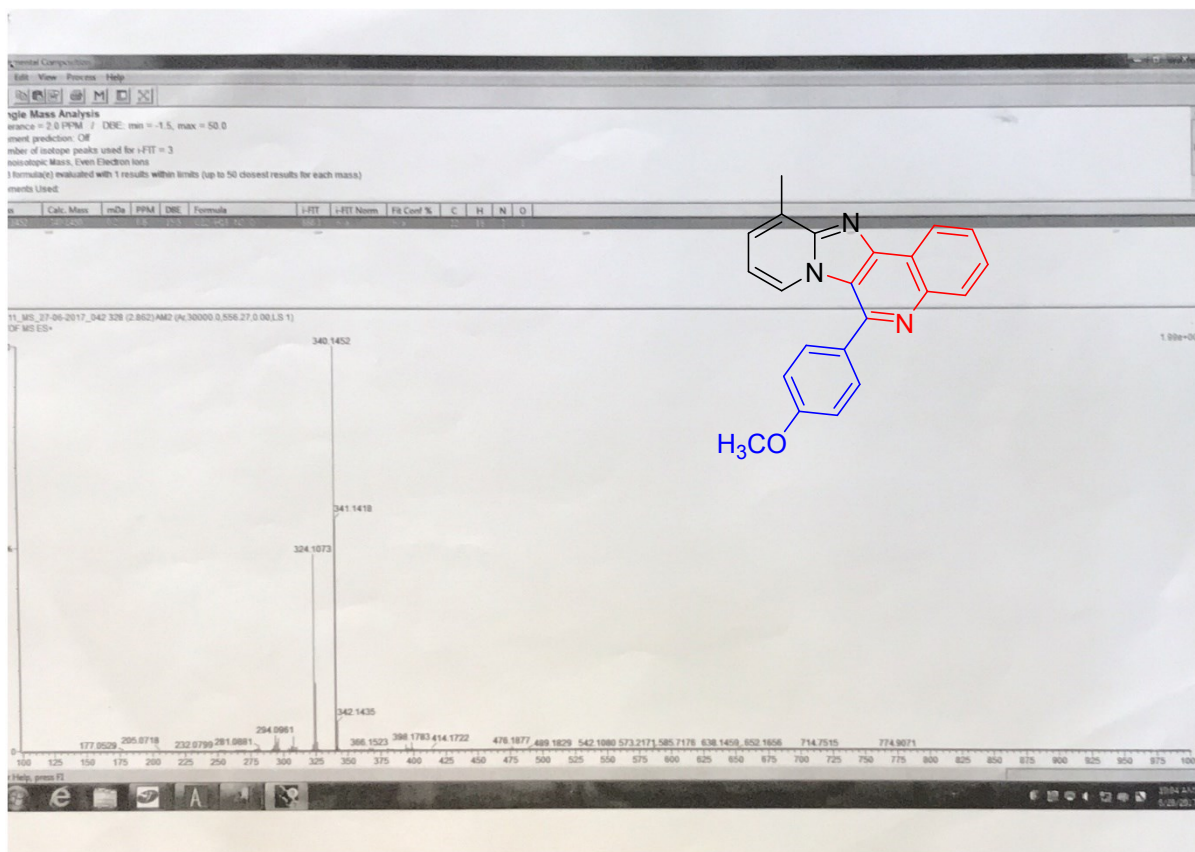


Current Data Parameters
NAME Derivative-3- 4-Methoxy
EXPNO 8
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170407
Time 21.09 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 1.3631488 sec
RG 156.91
DW 20.800 usec
DE 6.50 usec
TE 299.2 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1
SFO1 100.6550186 MHz
NUC1 13C
P1 9.50 usec
PLW1 58.0000000 W
SFO2 400.2596010 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 14.0000000 W
PLW12 0.35097000 W
PLW13 0.17654000 W

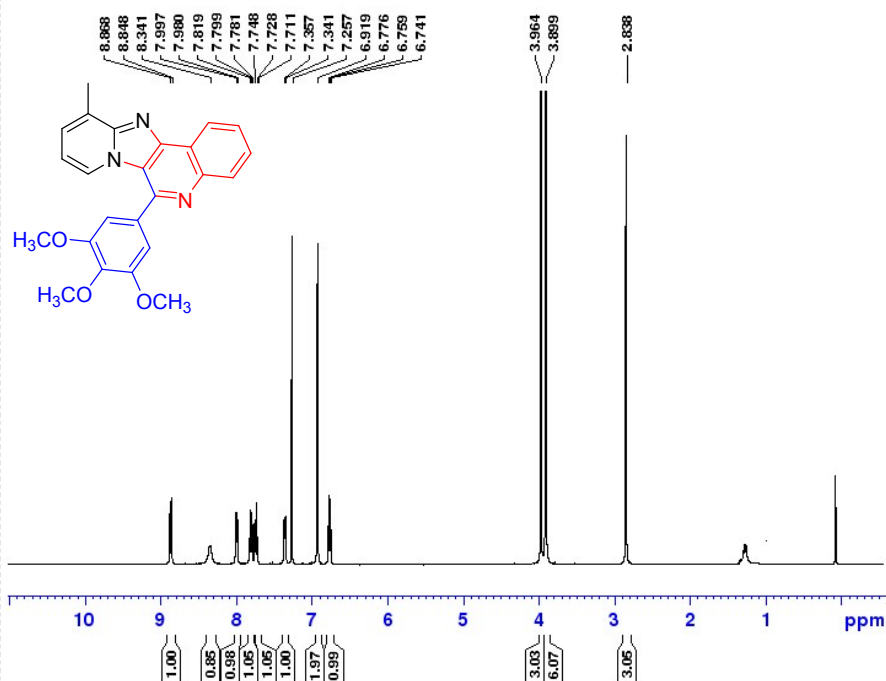
F2 - Processing parameters
SI 32768
SF 100.6449542 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

$^1\text{H-NMR}$ and $^{13}\text{C-NMR}$ of compound **6j** in CDCl_3



HRMS and IR of compound **6j**.

Signature SIF VIT VELLORE
NR-417-PCT-7

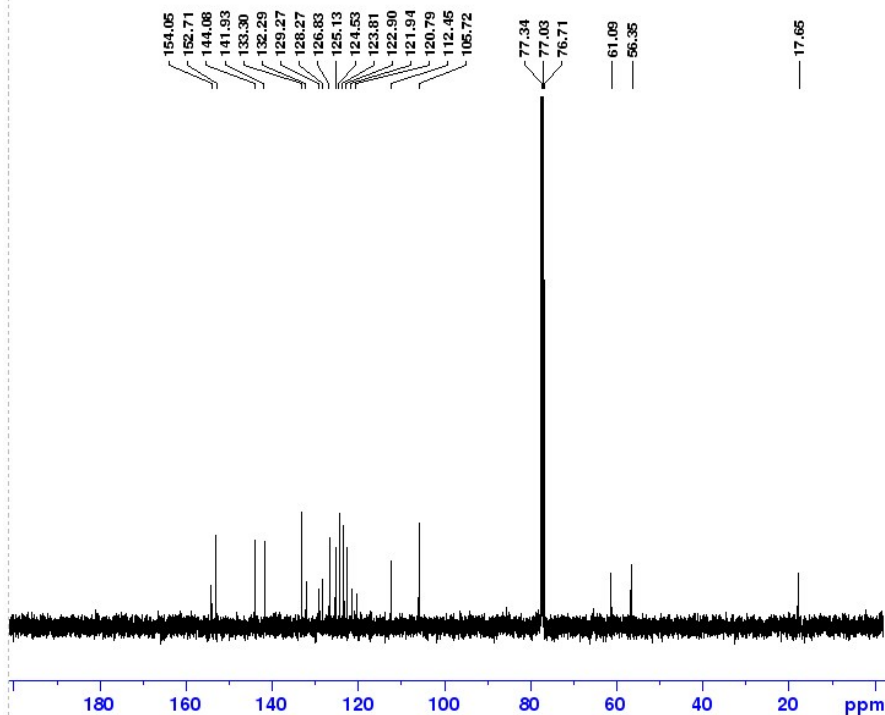


Current Data Parameters
NAME Derivative-5-3,4,5 tri me
EXPNO 16
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170412
Time 17.13 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.244532 Hz
AQ 4.0894465 sec
RG 199.6
DW 62.400 usec
DE 6.50 usec
TE 299.7 K
D1 1.00000000 sec
TD0 1
SFO1 400.2604716 MHz
NUC1 1H
P1 14.25 usec
PLW1 14.00000000 W

F2 - Processing parameters
SI 65536
SF 400.2580107 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Signature SIF VIT VELLORE
NR-417-PCT-7



Current Data Parameters
NAME Derivative-5-3,4,5 tri me
EXPNO 17
PROCNO 1

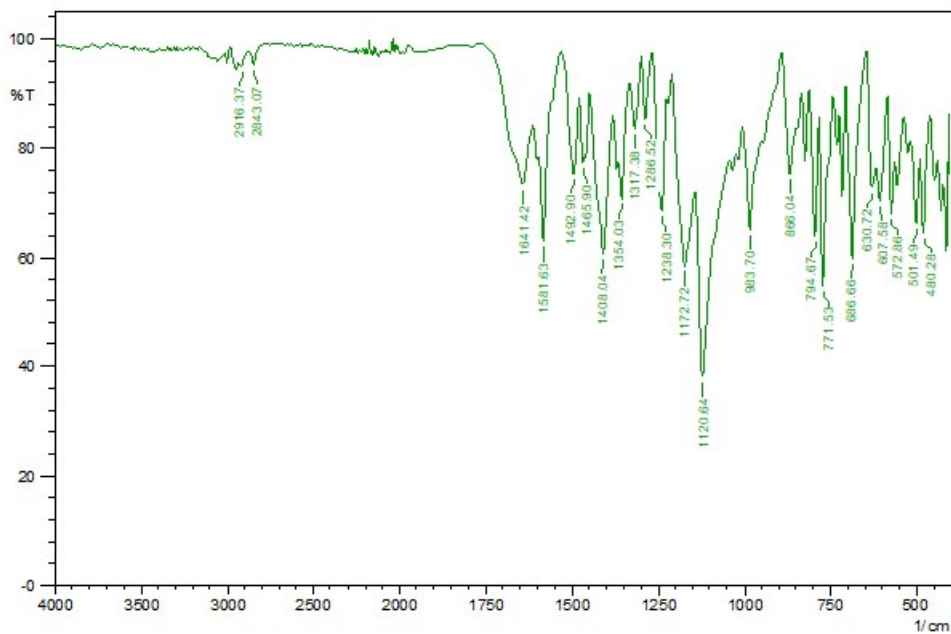
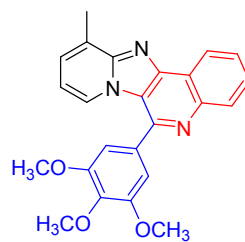
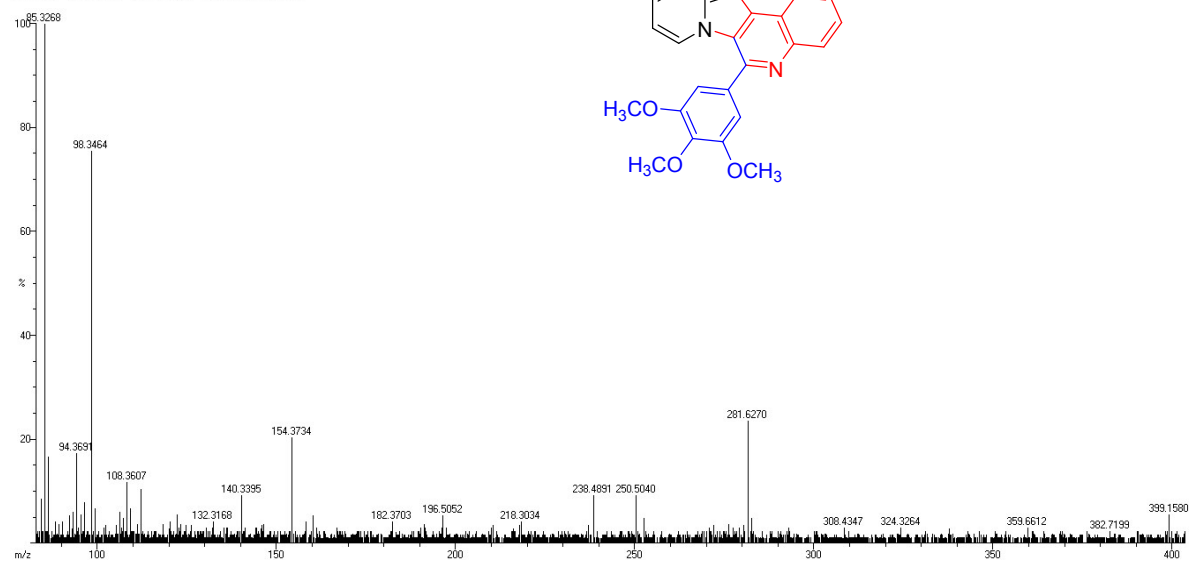
F2 - Acquisition Parameters
Date_ 20170412
Time 17.33 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 56
DS 4
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 1.3631488 sec
RG 156.91
DW 20.800 usec
DE 6.50 usec
TE 300.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
SFO1 100.6550186 MHz
NUC1 13C
P1 9.80 usec
PLW1 58.00000000 W
SFO2 400.2596010 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 14.00000000 W
PLW12 0.35097000 W
PLW13 0.17654000 W

F2 - Processing parameters
SI 32768
SF 100.6449542 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

$^1\text{H-NMR}$ and $^{13}\text{C-NMR}$ of compound **6k** in CDCl_3

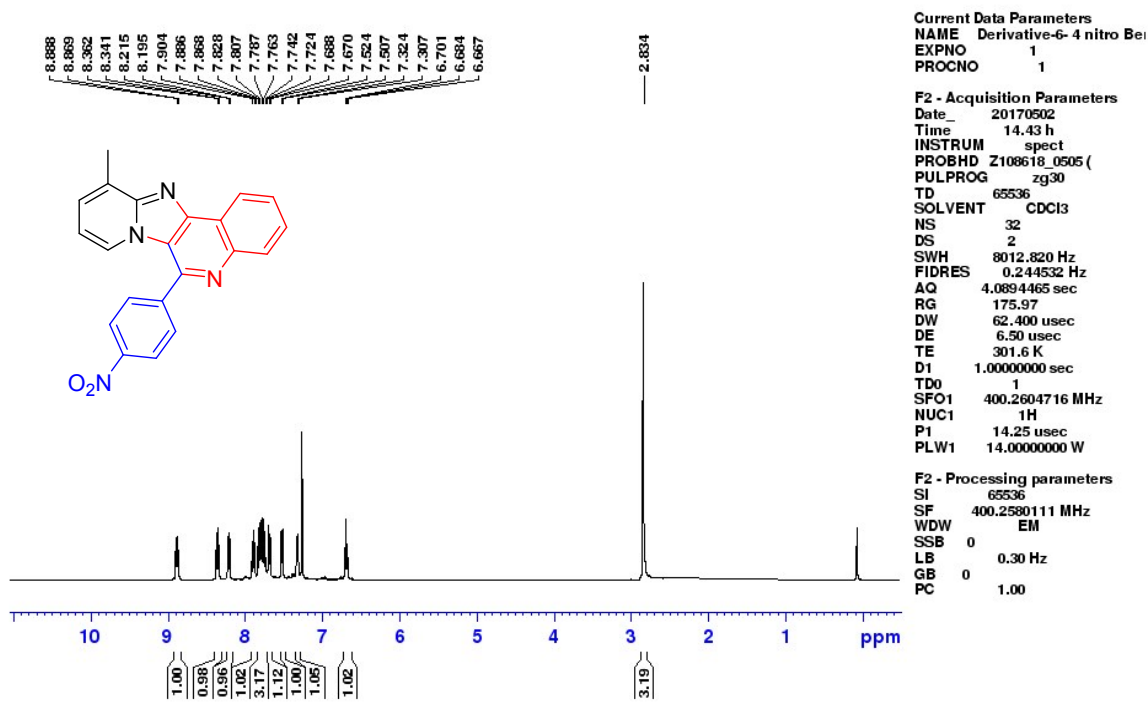
P-18

Scan: 2010 TIC=7191376 Base=15.63FS Hione=2400 RT=11.46

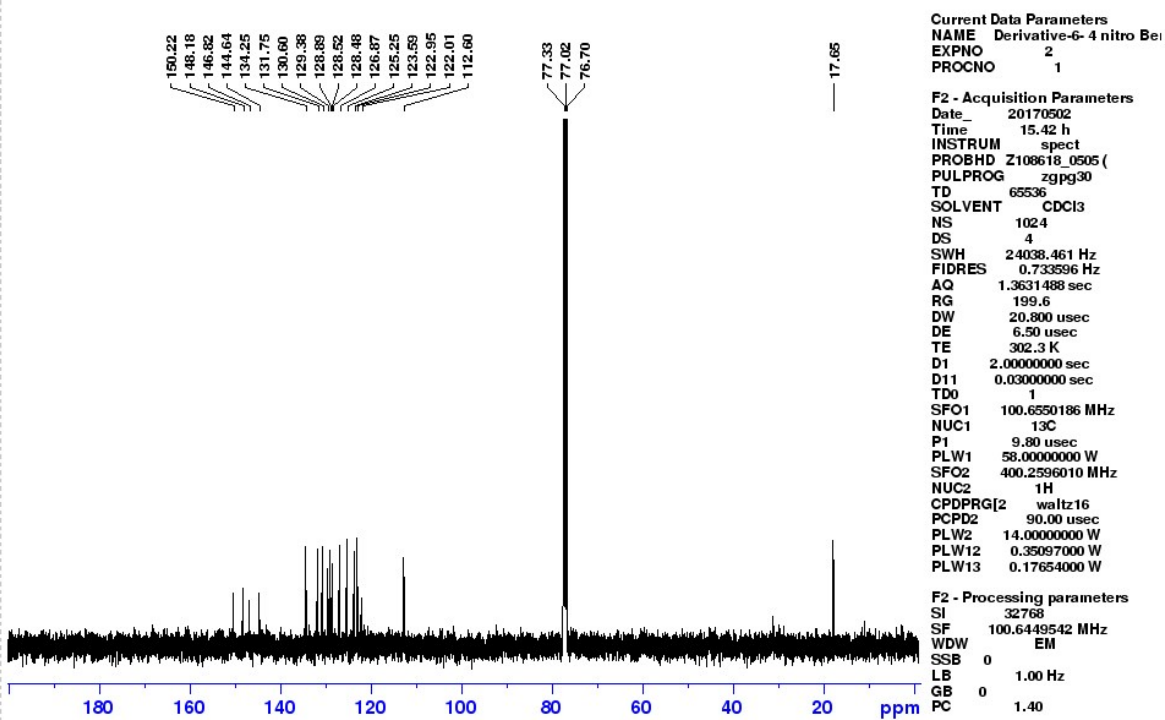


HRMS and IR of compound 6k

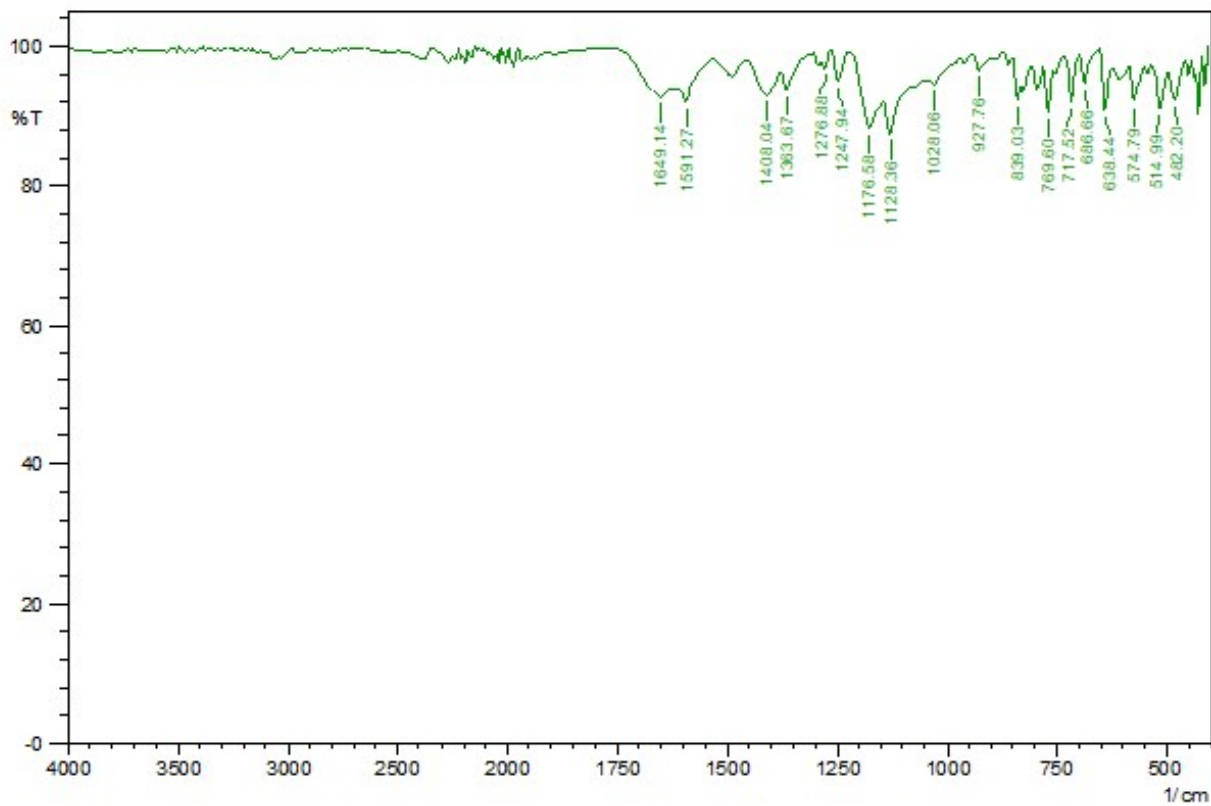
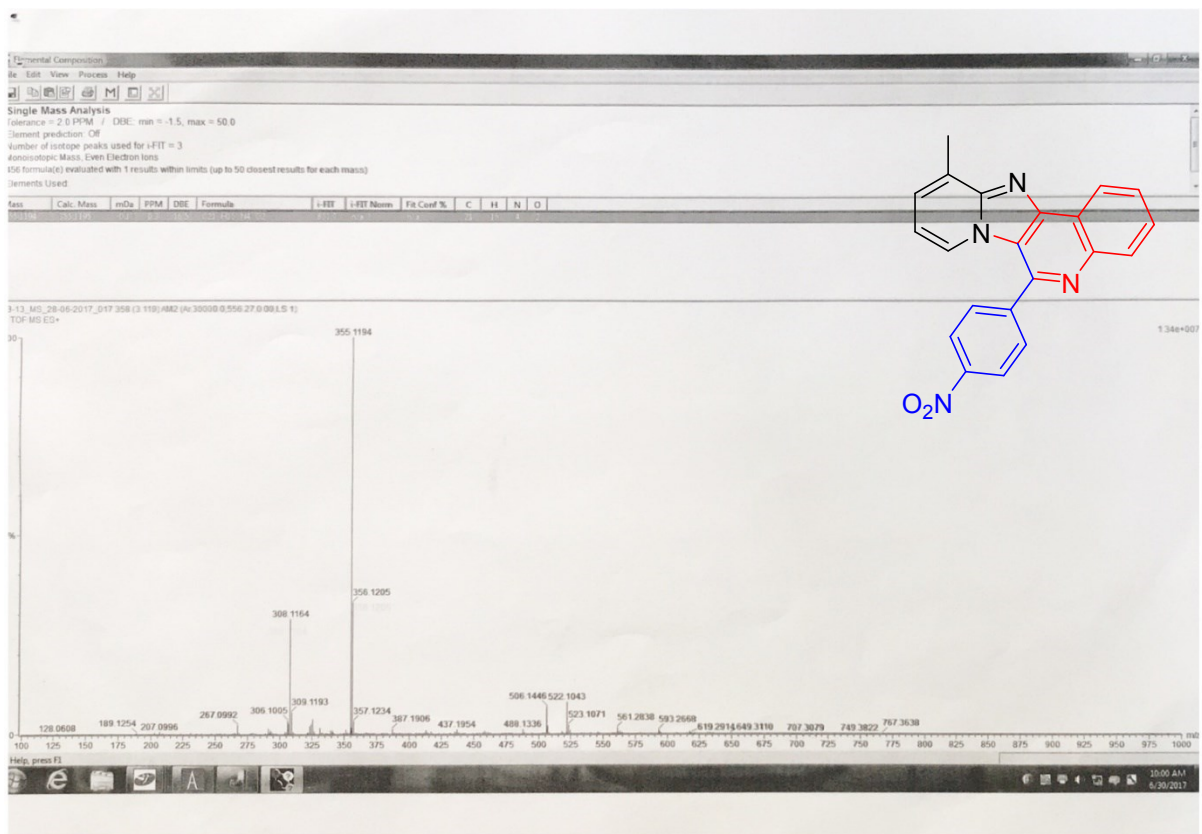
Signature SIF VIT VELLORE
NR-S77-NITRO



Signature SIF VIT VELLORE
NR-S77-NITRO

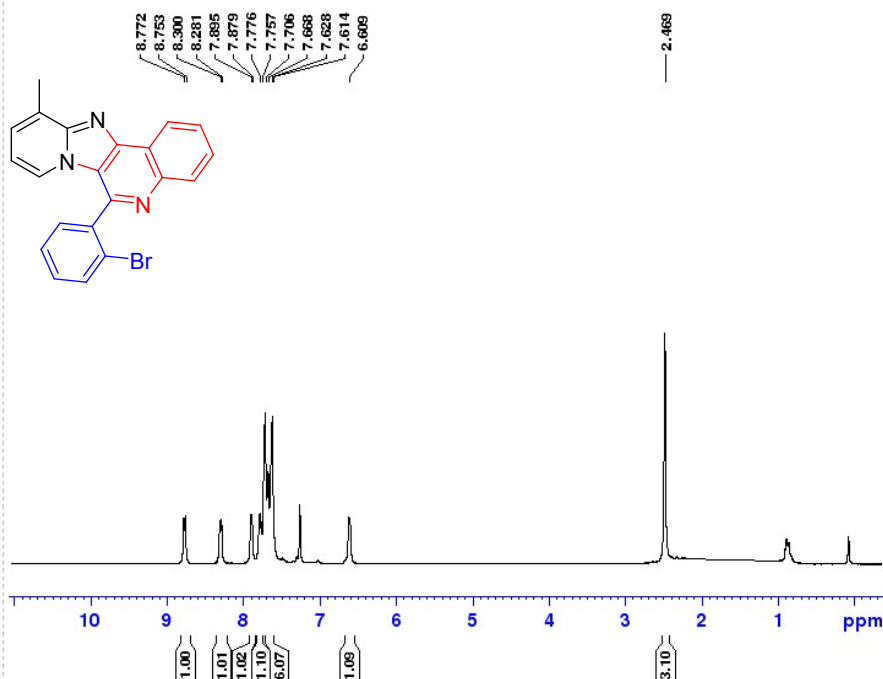


¹H-NMR and ¹³C-NMR of compound 6l in CDCl₃.



HRMS and IR of compound **61**

Signature SIF VIT VELLORE
NR-PCT-577-9

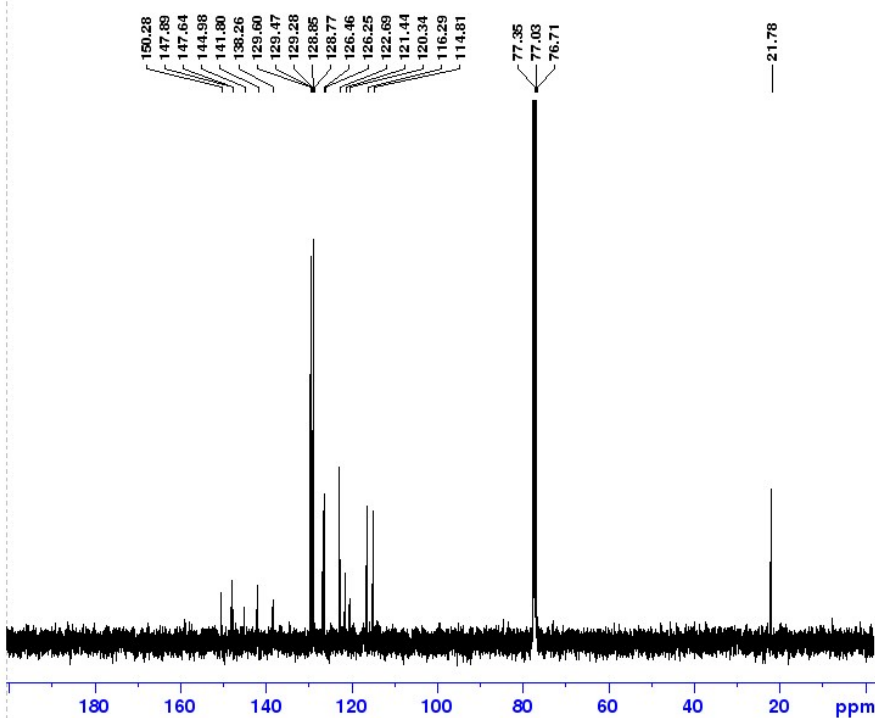


Current Data Parameters
NAME Derivative-2-Br-Benzak
EXPNO 9
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170506
Time 12.24 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.244532 Hz
AQ 4.0894465 sec
RG 156.91
DW 62.400 usec
DE 6.50 usec
TE 299.1 K
D1 1.0000000 sec
TD0 1
SFO1 400.2604716 MHz
NUC1 1H
P1 14.25 usec
PLW1 14.0000000 W

F2 - Processing parameters
SI 65536
SF 400.2580126 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Signature SIF VIT VELLORE
NR-PCT-577-9

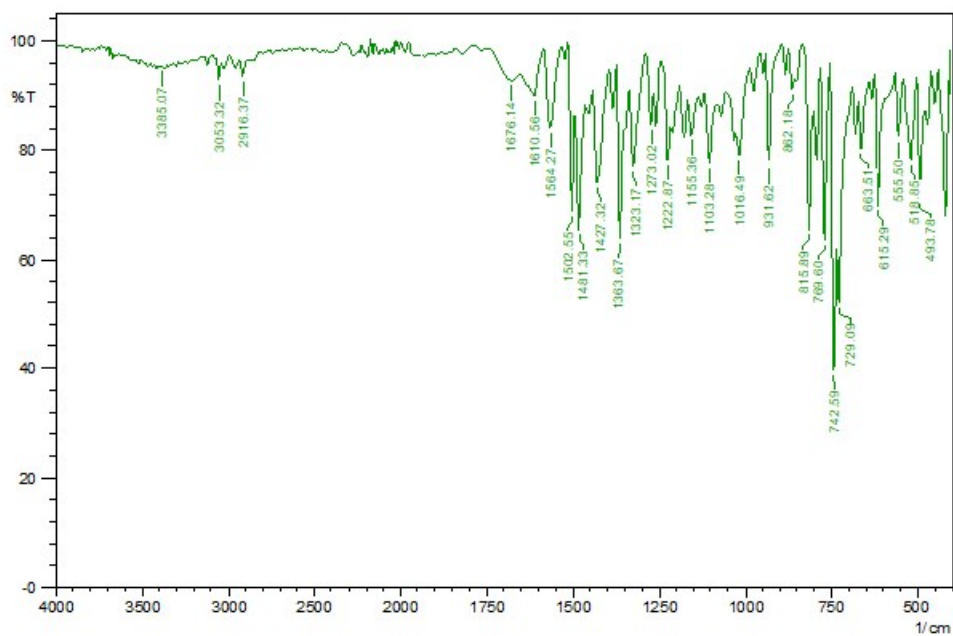


Current Data Parameters
NAME Derivative-2-Br-Benzak
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170506
Time 15.30 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 1.3631488 sec
RG 156.91
DW 20.800 usec
DE 6.50 usec
TE 299.9 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1
SFO1 100.6550186 MHz
NUC1 13C
P1 9.80 usec
PLW1 58.0000000 W
SFO2 400.2596010 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 14.0000000 W
PLW12 0.35097000 W
PLW13 0.17654000 W

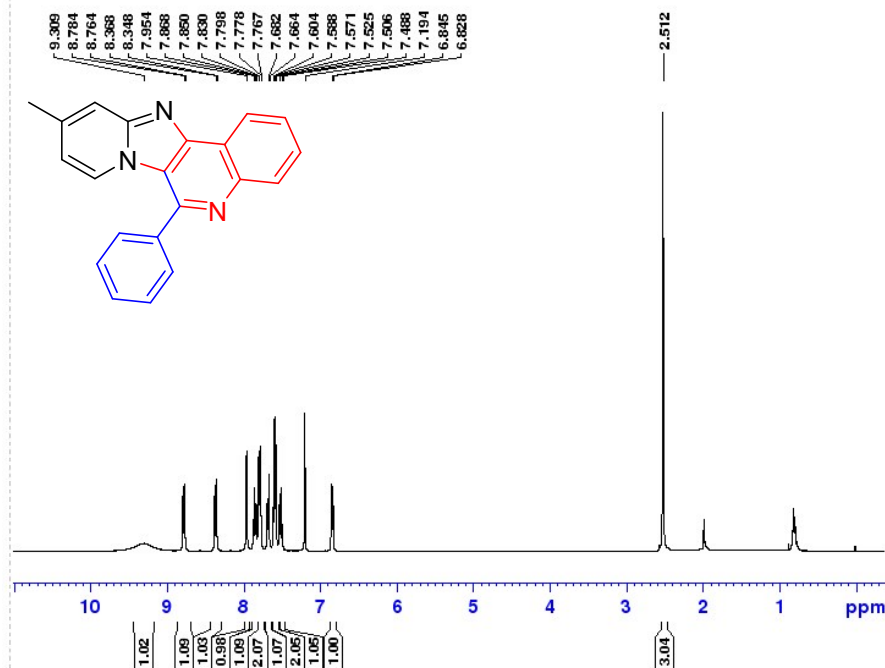
F2 - Processing parameters
SI 32768
SF 100.6449542 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

$^1\text{H-NMR}$ and $^{13}\text{C-NMR}$ of compound **6m** in CDCl_3 .



HRMS and IR of compound 6m.

Signature SIF VIT VELLORE
NR-517-PCT-10

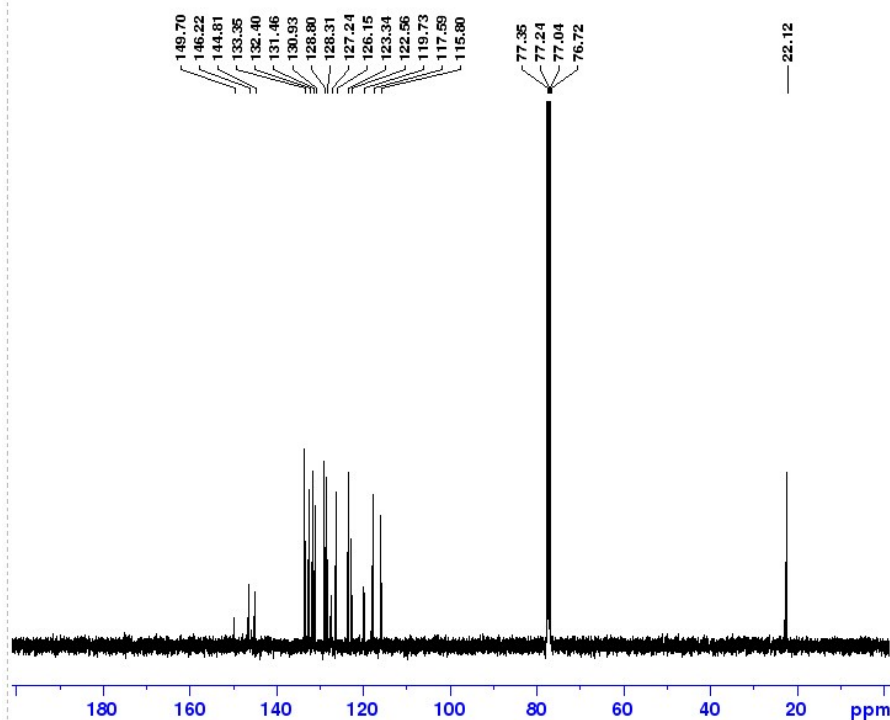


Current Data Parameters
NAME benzaldehyde derivati
EXPNO 20
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170510
Time 7.13 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.244532 Hz
AQ 4.0894465 sec
RG 127.79
DW 62.400 usec
DE 6.50 usec
TE 297.7 K
D1 1.00000000 sec
TD0 1
SFO1 400.2604716 MHz
NUC1 1H
P1 14.25 usec
PLW1 14.00000000 W

F2 - Processing parameters
SI 65536
SF 400.2580359 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Signature SIF VIT VELLORE
ND-517-PCT-10

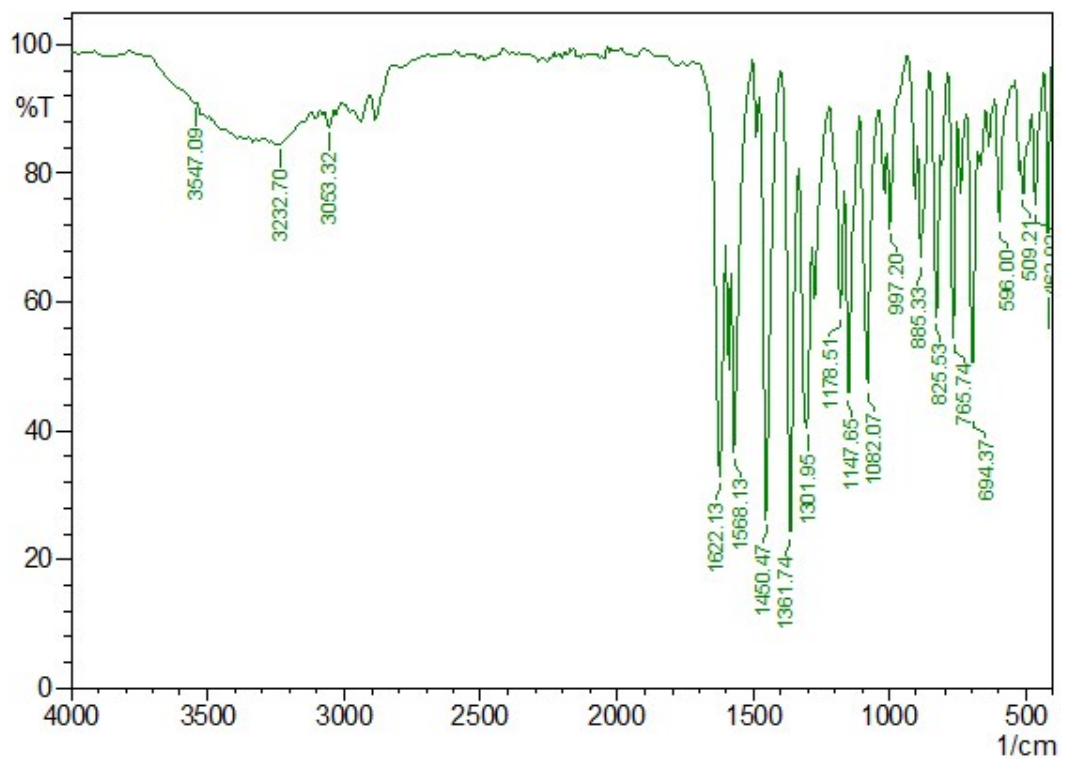
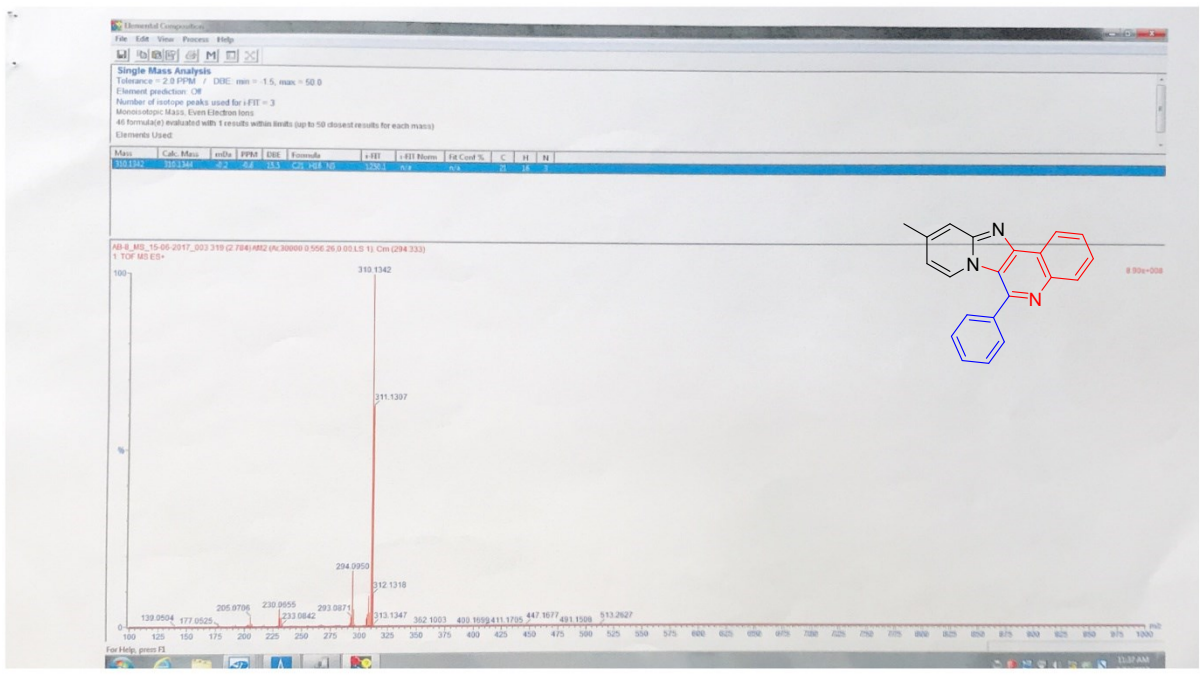


Current Data Parameters
NAME benzaldehyde derivati
EXPNO 19
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170508
Time 16.17 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 1.3631488 sec
RG 199.6
DW 20.800 usec
DE 6.50 usec
TE 300.0 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
SFO1 100.6550186 MHz
NUC1 13C
P1 9.80 usec
PLW1 58.00000000 W
SFO2 400.2596010 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 14.00000000 W
PLW12 0.35097000 W
PLW13 0.17654000 W

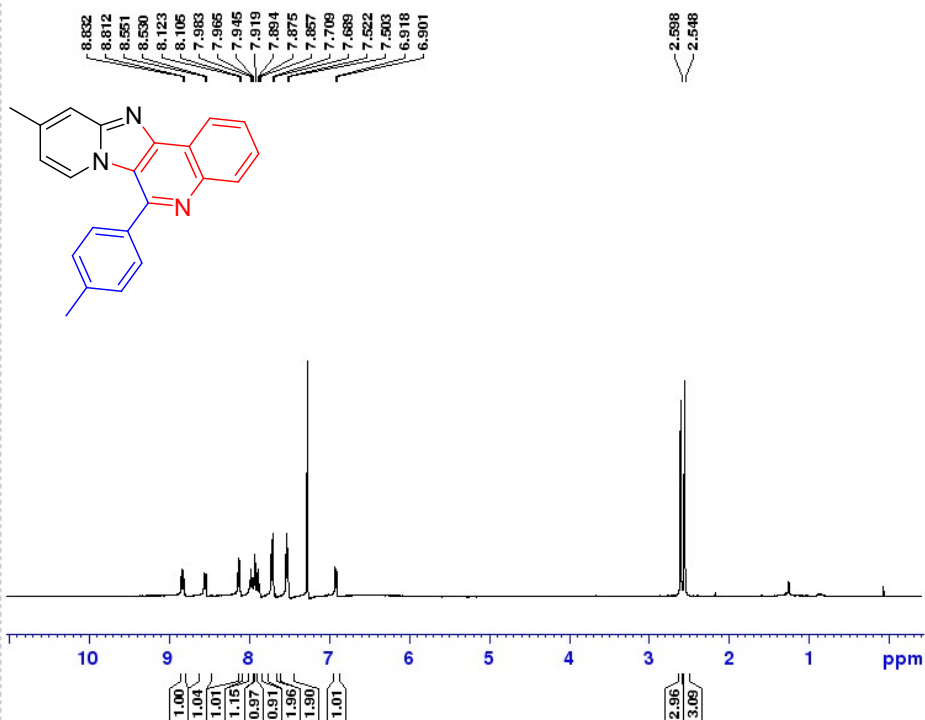
F2 - Processing parameters
SI 32768
SF 100.6449542 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

¹H-NMR and ¹³C-NMR of compound **6n** in CDCl₃.



HRMS and IR of compound **6n**.

Signature SIF VIT VELLORE
NR-517-PCT-13

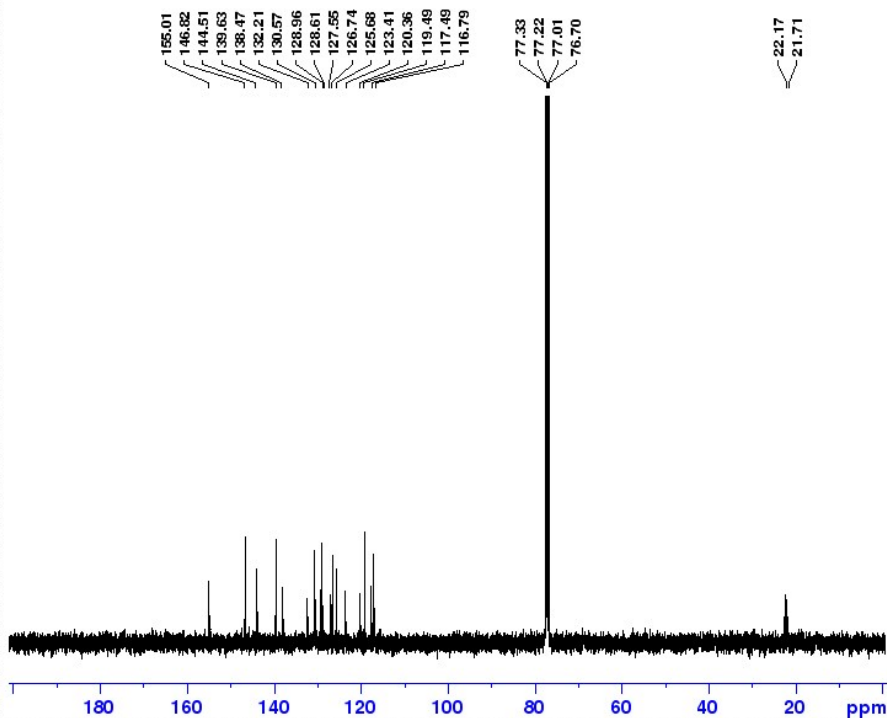


Current Data Parameters
NAME P-Toulaldehyde deriva
EXPNO 27
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170512
Time 16.00 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.244532 Hz
AQ 4.0894465 sec
RG 199.6
DW 62.400 usec
DE 6.50 usec
TE 300.6 K
D1 1.0000000 sec
TD0 1
SFO1 400.2604716 MHz
NUC1 1H
P1 14.25 usec
PLW1 14.0000000 W

F2 - Processing parameters
SI 65536
SF 400.2580113 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Signature SIF VIT VELLORE
NR-517-PCT-13



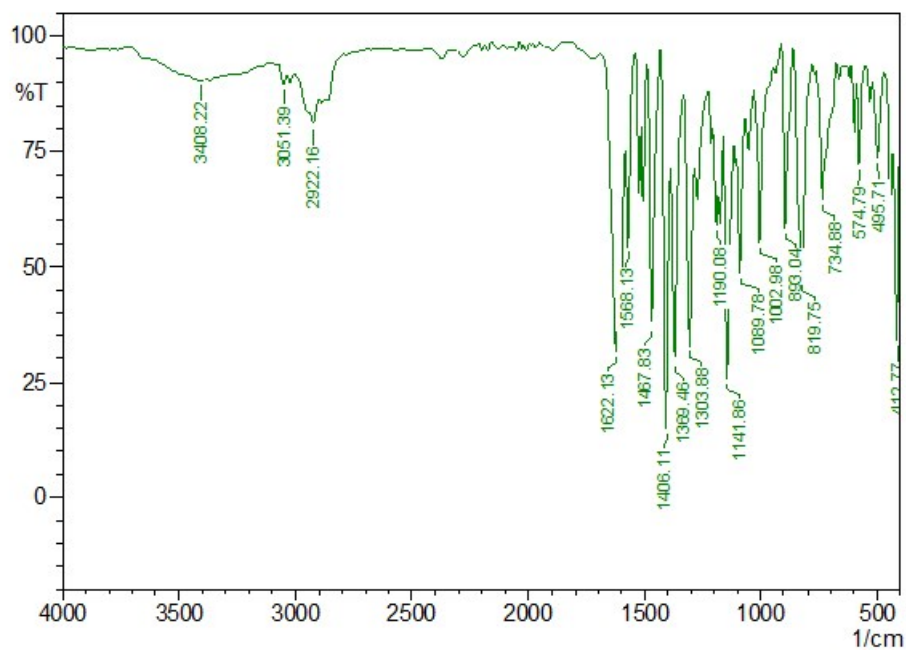
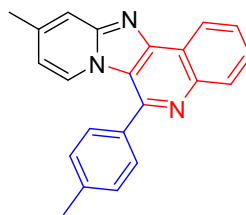
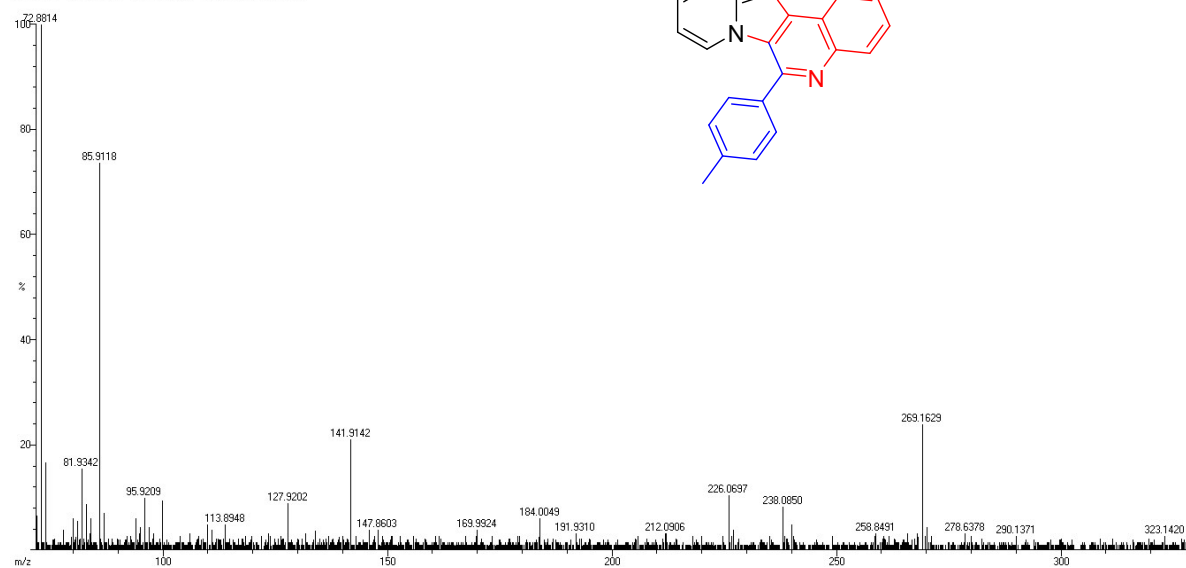
Current Data Parameters
NAME P-Toulaldehyde deriva
EXPNO 28
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170512
Time 16.29 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 1.3631488 sec
RG 199.6
DW 20.800 usec
DE 6.50 usec
TE 301.3 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1
SFO1 100.6550186 MHz
NUC1 13C
P1 9.80 usec
PLW1 58.0000000 W
SFO2 400.2596010 MHz
NUC2 1H
CPDPRG2 waltz16
PCPD2 90.00 usec
PLW2 14.0000000 W
PLW12 0.35097000 W
PLW13 0.17654000 W

F2 - Processing parameters
SI 32768
SF 100.6449542 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

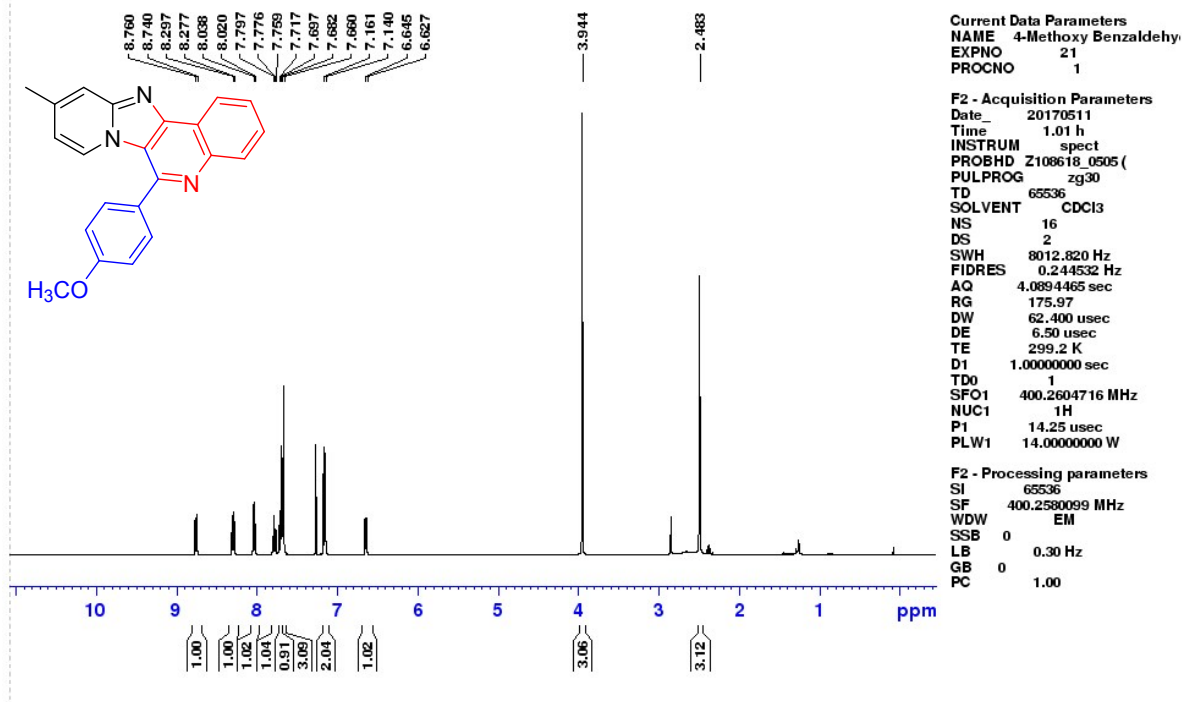
$^1\text{H-NMR}$ and $^{13}\text{C-NMR}$ of compound **60** in CDCl_3 .

P-19
Scan: 2007 TIC=7202016 Base=17.5%FS #ions=2425 RT=11.44

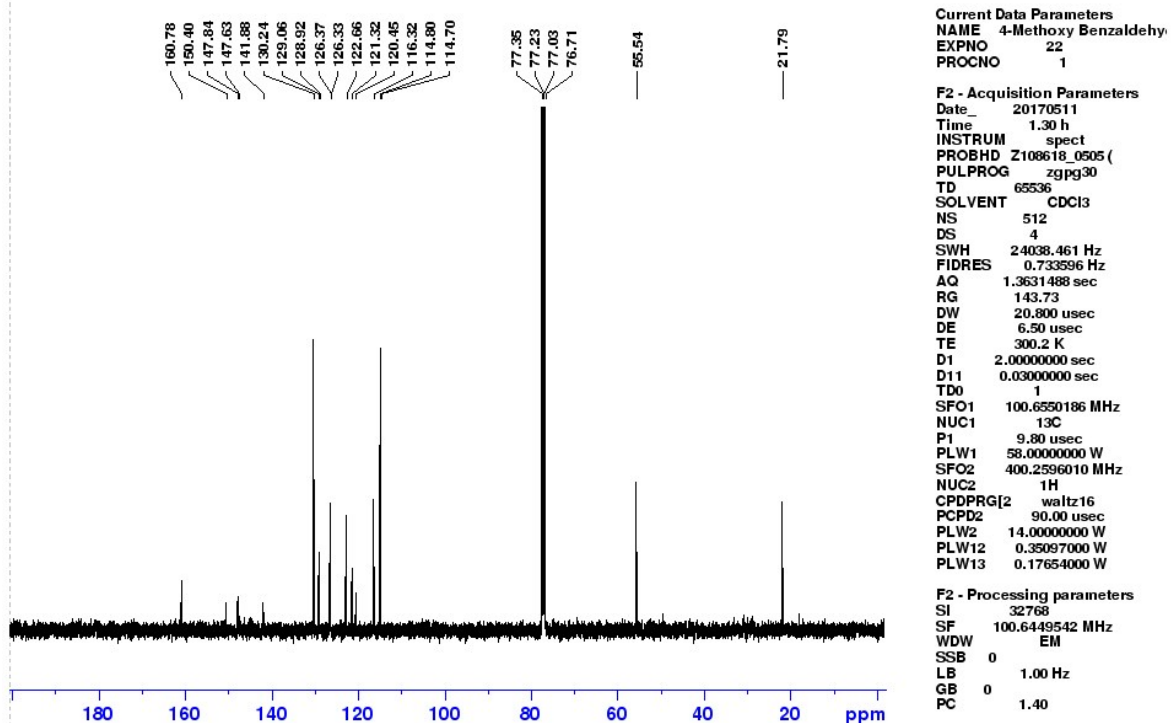


HRMS and IR of compound 60.

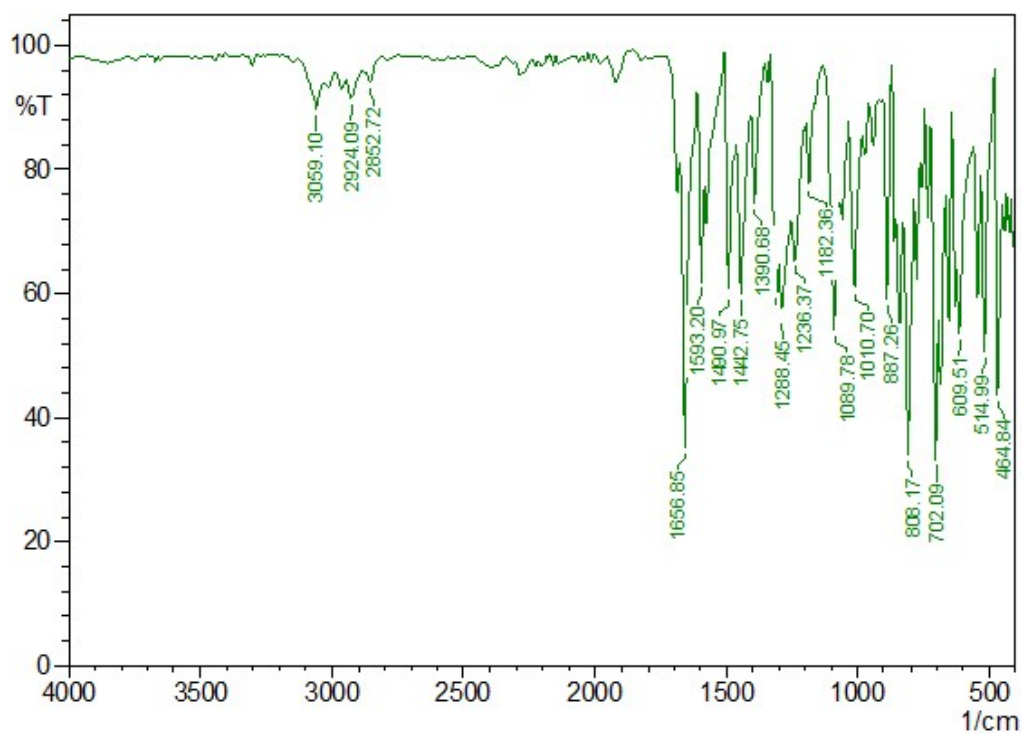
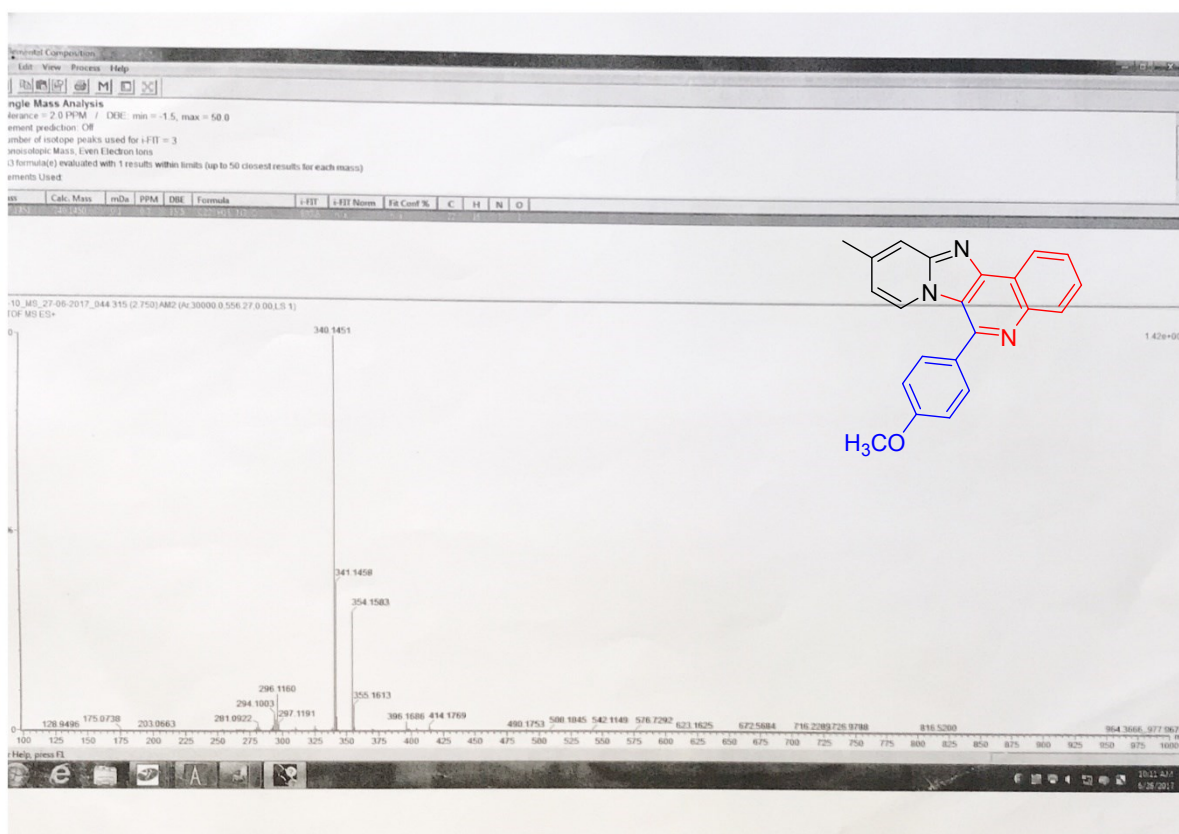
Signature SIF VIT VELLORE
NR-PCT-517-11



Signature SIF VIT VELLORE
NR-PCT-517-11

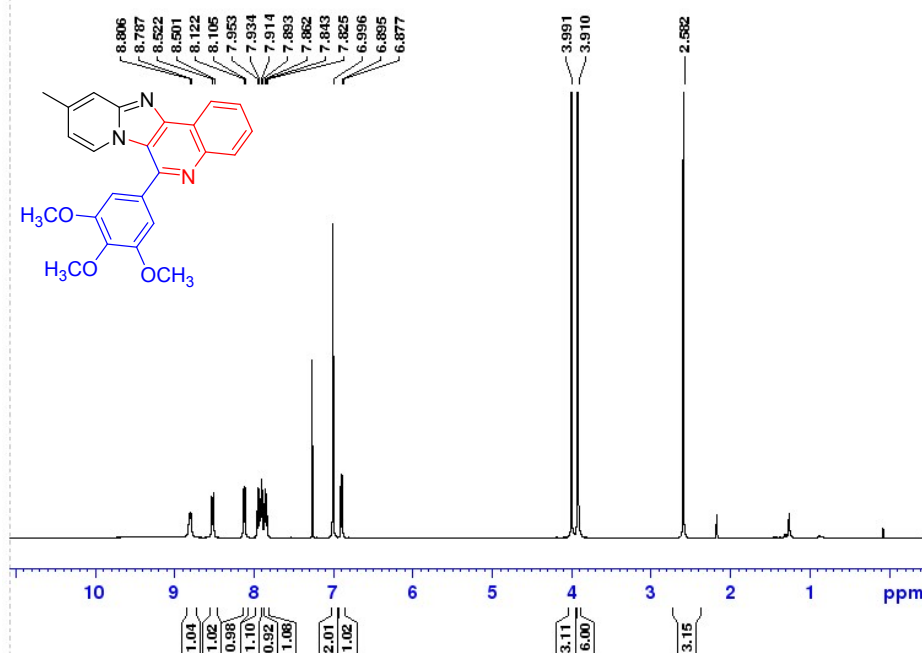


¹H-NMR and ¹³C-NMR of compound **6p** in CDCl₃.



HRMS and IR of compound **6p**.

Signature SIF VIT VELLORE
NR-PCT-517-12

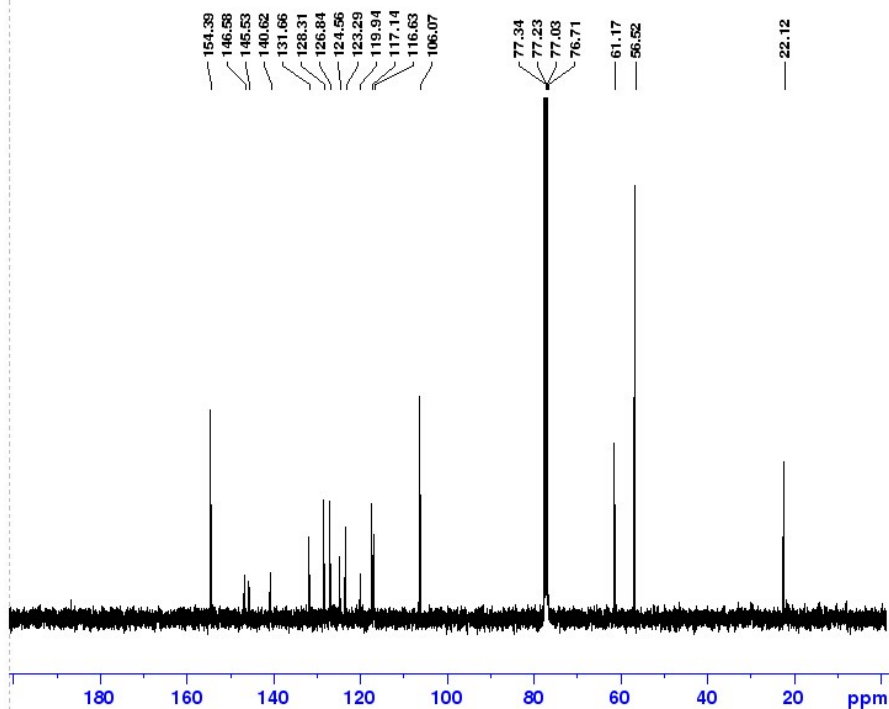


Current Data Parameters
NAME 3,4,5-Tri methoxy deriv
EXPNO 25
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170511
Time 16.18 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.244532 Hz
AQ 4.0894465 sec
RG 156.91
DW 62.400 usec
DE 6.50 usec
TE 300.9 K
D1 1.00000000 sec
TD0 1
SFO1 400.2604716 MHz
NUC1 1H
P1 14.25 usec
PLW1 14.00000000 W

F2 - Processing parameters
SI 65536
SF 400.2590101 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Signature SIF VIT VELLORE
NR-PCT-517-12

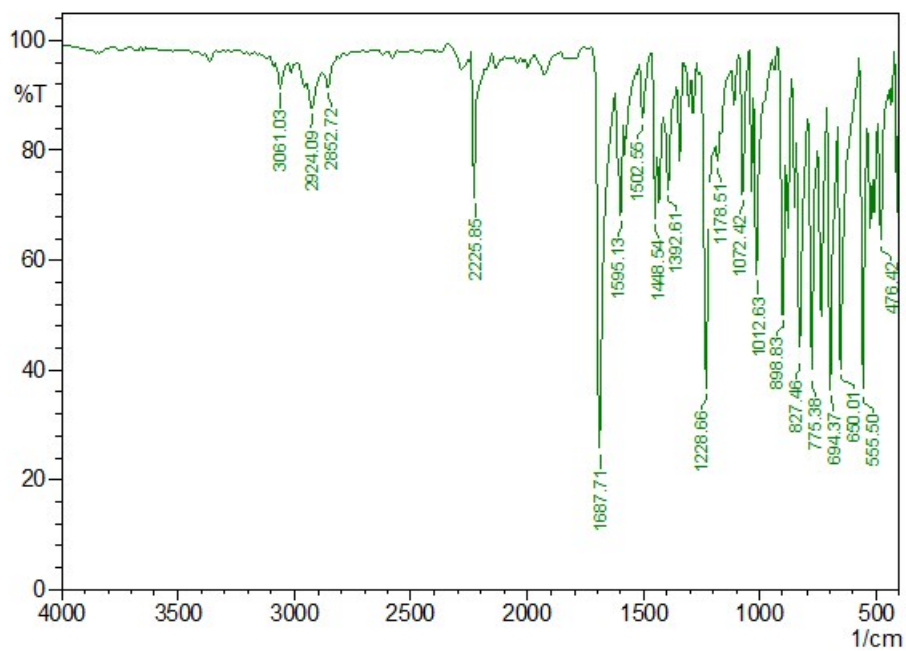
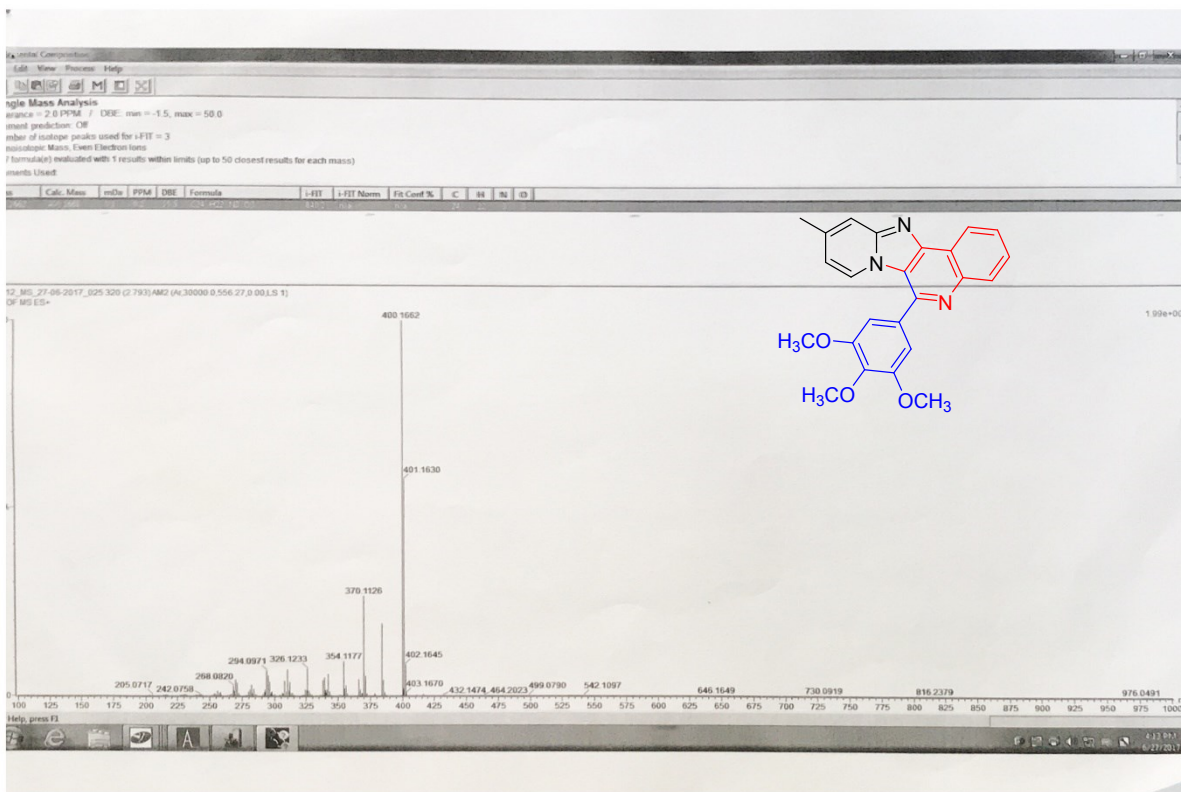


Current Data Parameters
NAME 3,4,5-Tri methoxy deriv
EXPNO 26
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170511
Time 16.48 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 1.3631488 sec
RG 199.6
DW 20.800 usec
DE 6.50 usec
TE 301.8 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
SFO1 100.6550186 MHz
NUC1 13C
P1 9.80 usec
PLW1 58.00000000 W
SFO2 400.2596010 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 14.00000000 W
PLW12 0.35097000 W
PLW13 0.17654000 W

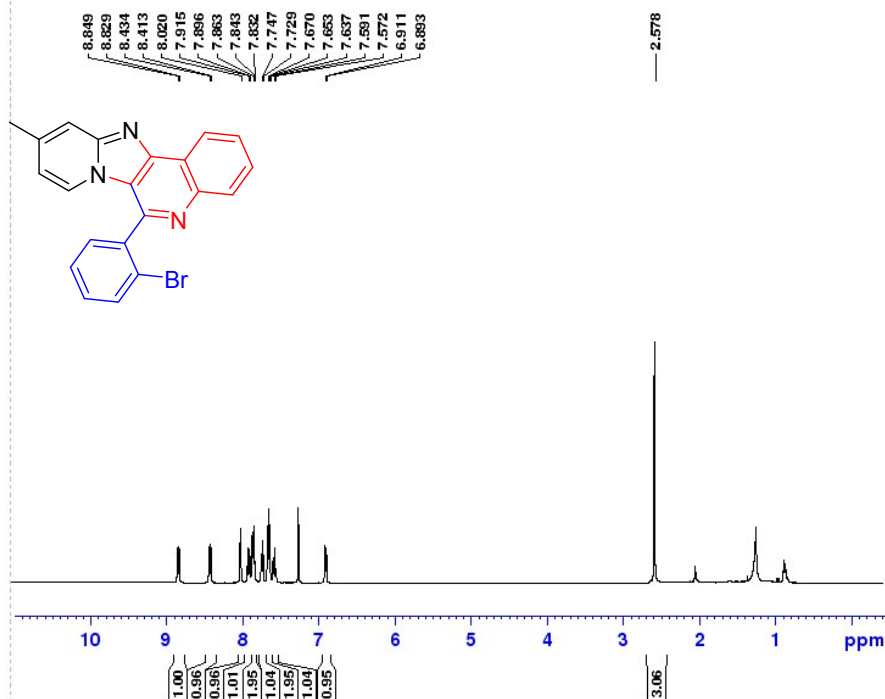
F2 - Processing parameters
SI 32768
SF 100.6449542 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

¹H-NMR and ¹³C-NMR of compound **6q** in CDCl₃.



HRMS and IR of compound **6q**.

Signature SIF VIT VELLORE
NR-517-PCT-10

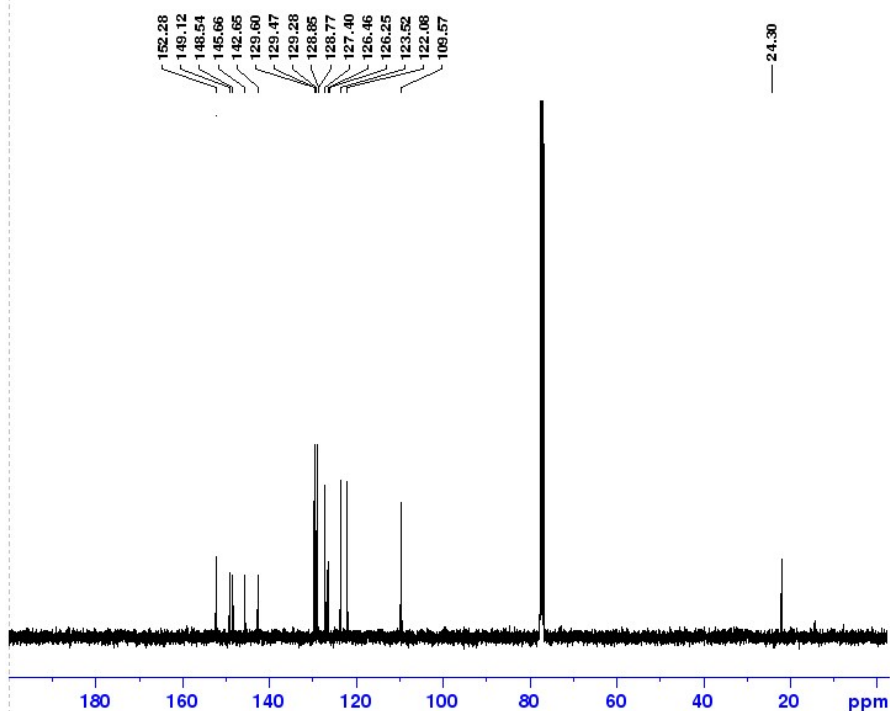


Current Data Parameters
NAME 2-bromo benzaldehyde
EXPNO 20
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170510
Time 7.13 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.244532 Hz
AQ 4.0894465 sec
RG 127.79
DW 62.400 usec
DE 6.50 usec
TE 297.7 K
D1 1.0000000 sec
TD0 1
SFO1 400.2604716 MHz
NUC1 1H
P1 14.25 usec
PLW1 14.0000000 W

F2 - Processing parameters
SI 65536
SF 400.2590097 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Signature SIF VIT VELLORE



Current Data Parameters
NAME Derivative-2-Br-Benzal
EXPNO 10
PROCNO 1

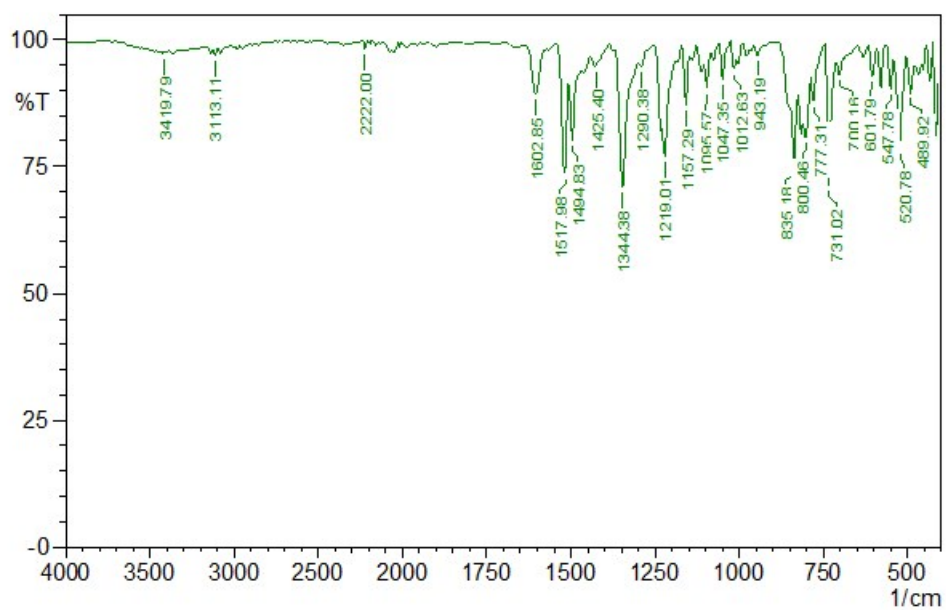
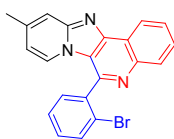
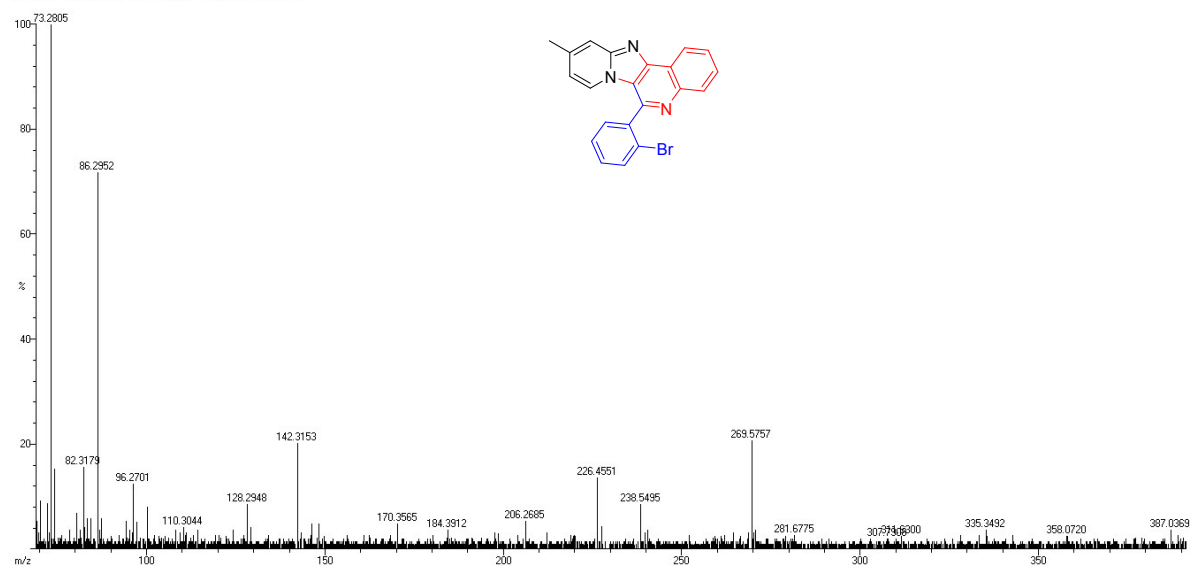
F2 - Acquisition Parameters
Date_ 20170519
Time 15.30 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 540
DS 4
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 1.3631488 sec
RG 156.91
DW 20.900 usec
DE 6.50 usec
TE 299.9 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1
SFO1 100.6550186 MHz
NUC1 13C
P1 9.80 usec
PLW1 58.0000000 W
SFO2 400.2596010 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 14.0000000 W
PLW12 0.35097000 W
PLW13 0.17654000 W

F2 - Processing parameters
SI 32768
SF 100.6449542 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

$^1\text{H-NMR}$ and $^{13}\text{C-NMR}$ of compound **6r** in CDCl_3

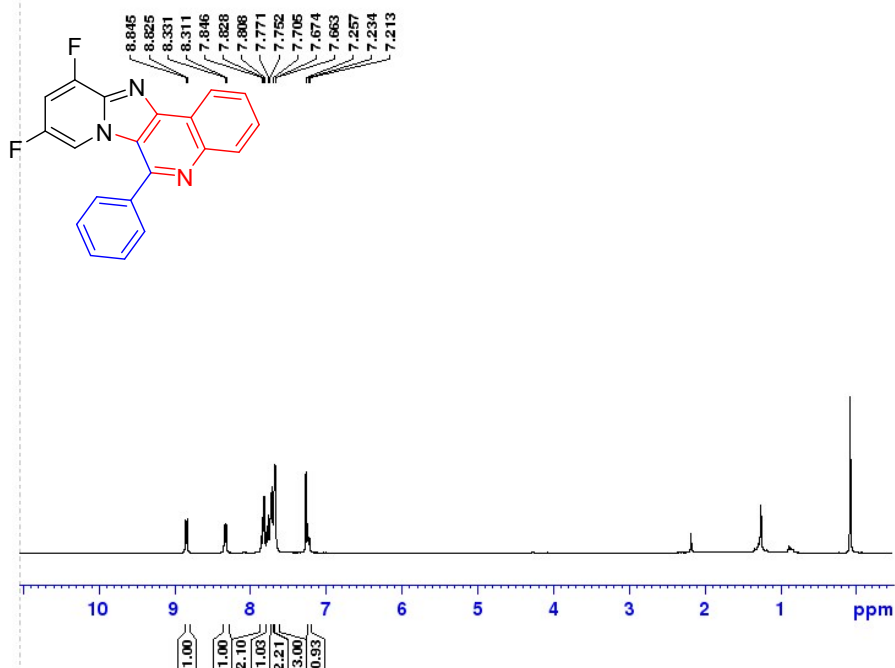
P-14

Scan: 2009 TIC=7318512 Base=17.8%FS #Ions=2459 RT=11.45



HRMS and IR of compound **6r**.

Signature SIF VIT VELLORE
NR-317-D2-PCT

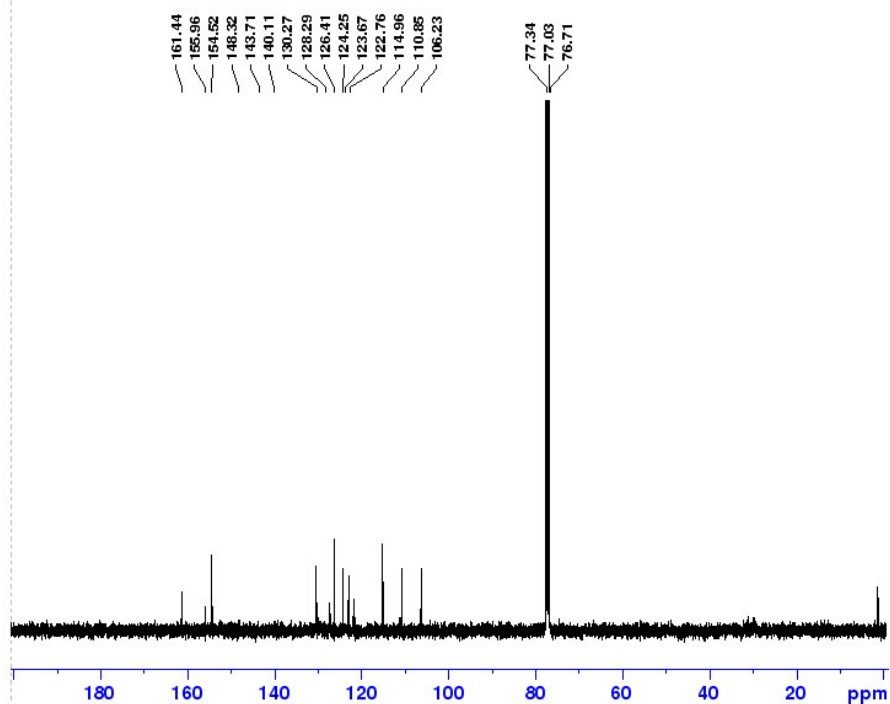


Current Data Parameters
NAME Derivative -2-benzene
EXPNO 24
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170325
Time 14.19 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.244532 Hz
AQ 4.0894465 sec
RG 156.91
DW 62.400 usec
DE 6.50 usec
TE 297.7 K
D1 1.0000000 sec
TD0 1
SFO1 400.2604716 MHz
NUC1 1H
P1 14.25 usec
PLW1 14.0000000 W

F2 - Processing parameters
SI 65536
SF 400.2590109 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Signature SIF VIT VELLORE

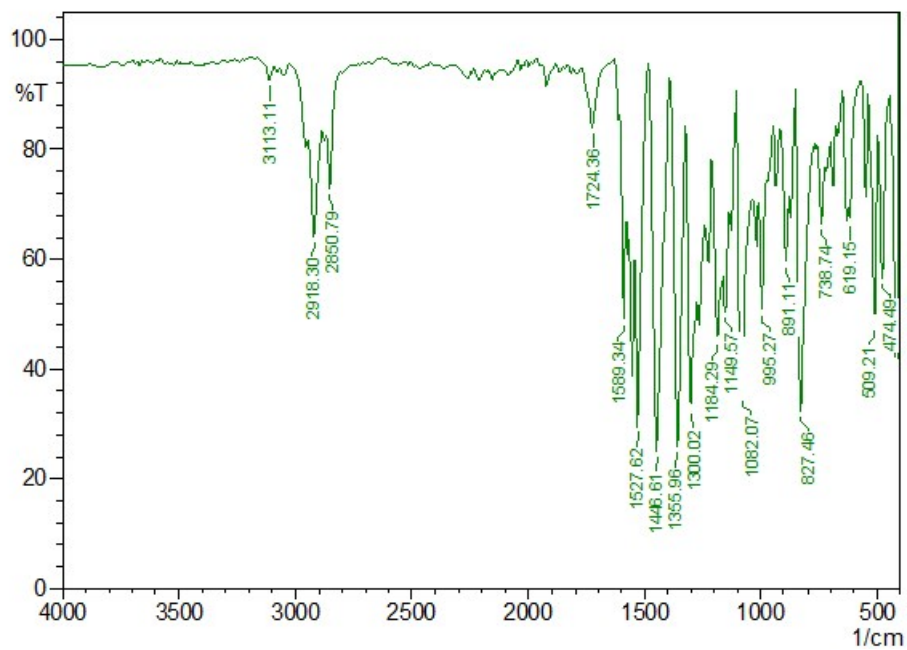


Current Data Parameters
NAME Derivative-1
EXPNO 16
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170310
Time 2.45 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 503
DS 6
SWH 24038.367 Hz
FIDRES 0.23596 Hz
AQ 7.46314841sec
RG 111.73
DW 20.200 usec
DE 5.50 usec
TE 158.3 K
D1 3.0000000 sec
D11 0.0300000 sec
TD0 1
SFO1 100.6550186 MHz
NUC1 13C
P1 9.80 usec
PLW1 58.0000000 W
SFO2 400.2596010 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 14.0000000 W
PLW12 0.35097000 W
PLW13 0.17654000 W

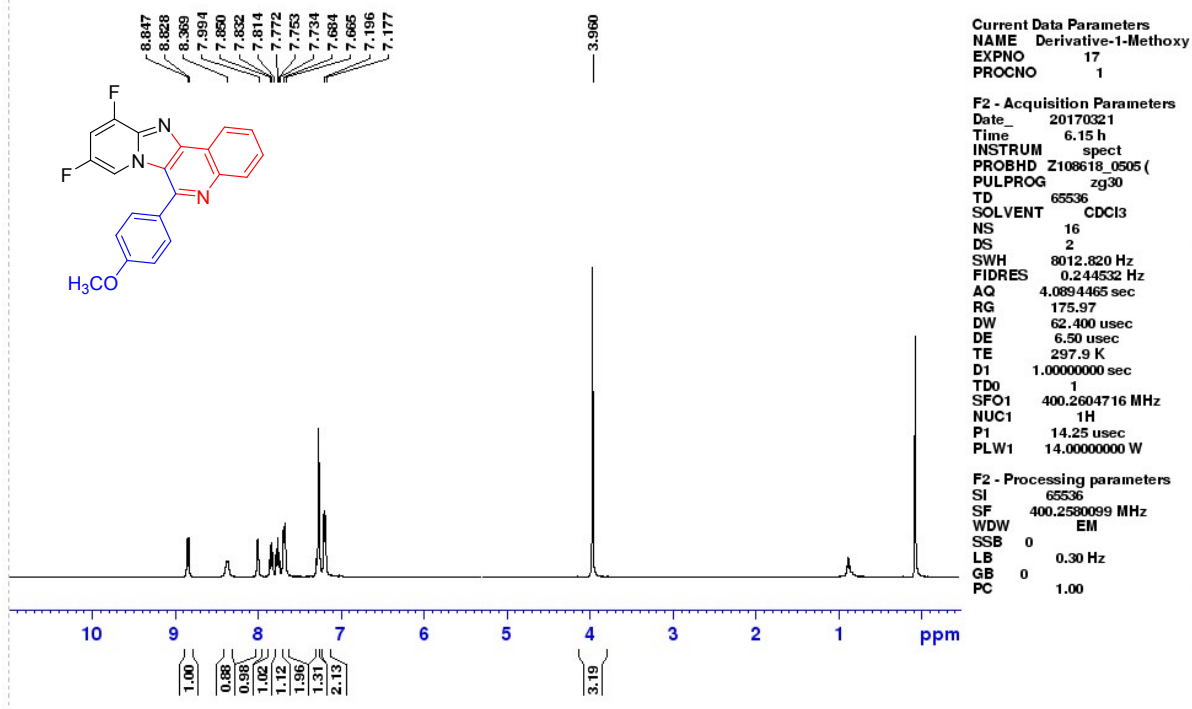
F2 - Processing parameters
SI 32768
SF 100.6449542 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

¹H-NMR and ¹³C-NMR of compound 6s in CDCl₃.

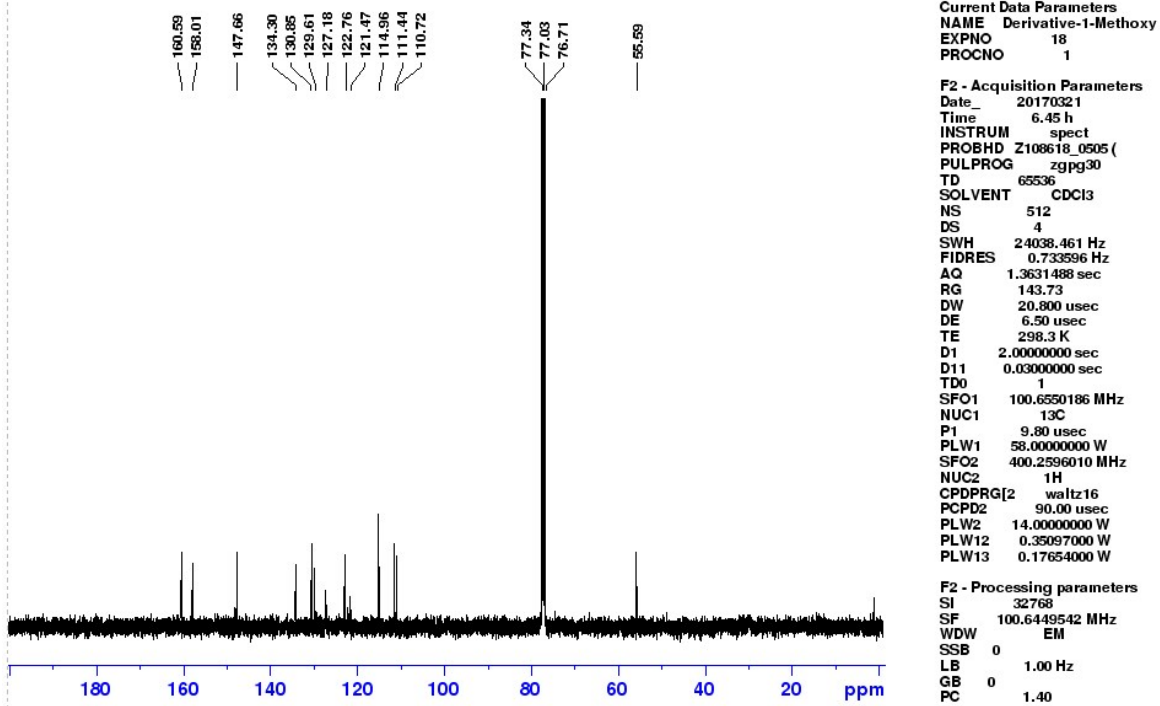


HRMS and IR of compound 6s.

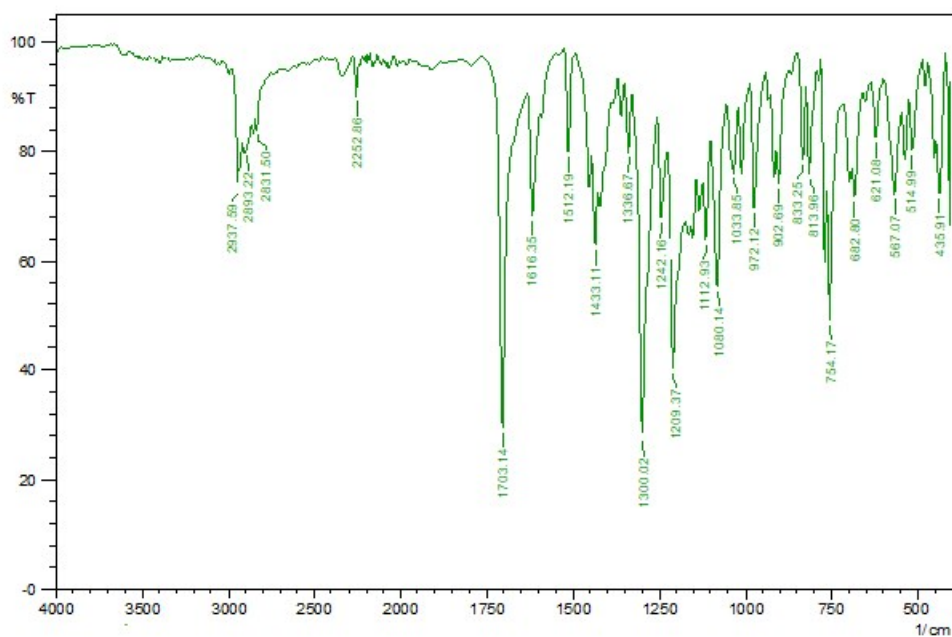
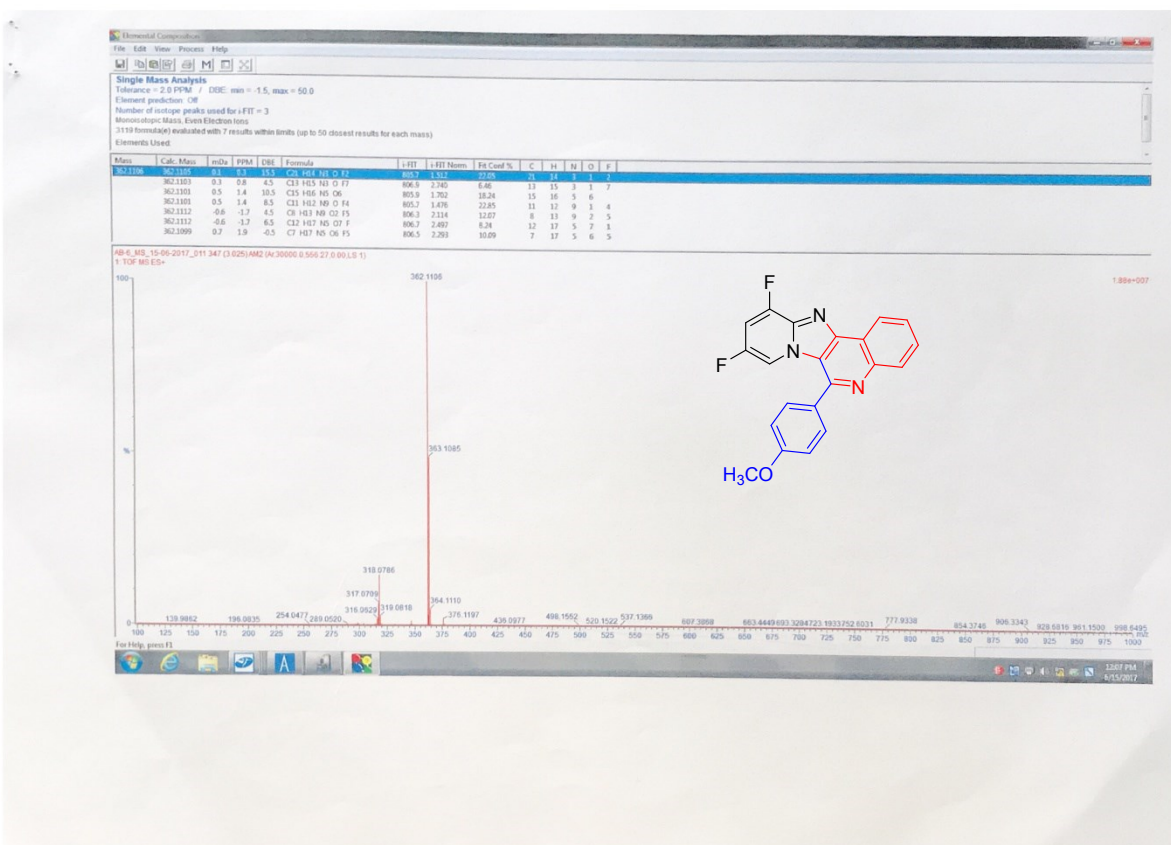
Signature SIF VIT VELLORE
NR-317-P-2



Signature SIF VIT VELLORE
NR-317-P-2

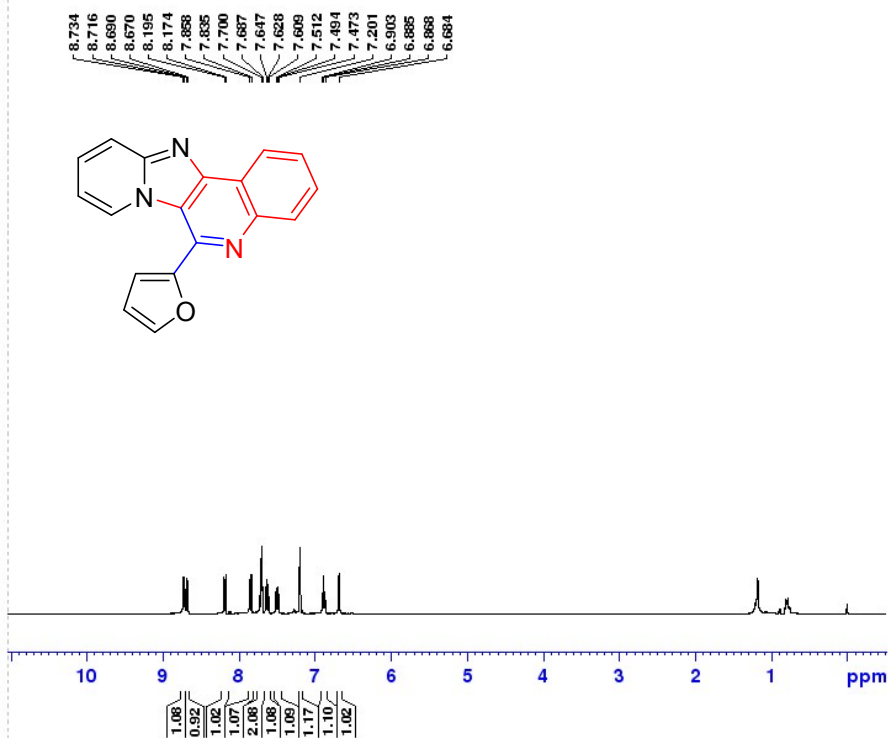


¹H-NMR and ¹³C-NMR of compound **6t** in CDCl₃.



HRMS and IR of compound **6t**.

Signature SIF VIT VELLORE
NR-1220-FU

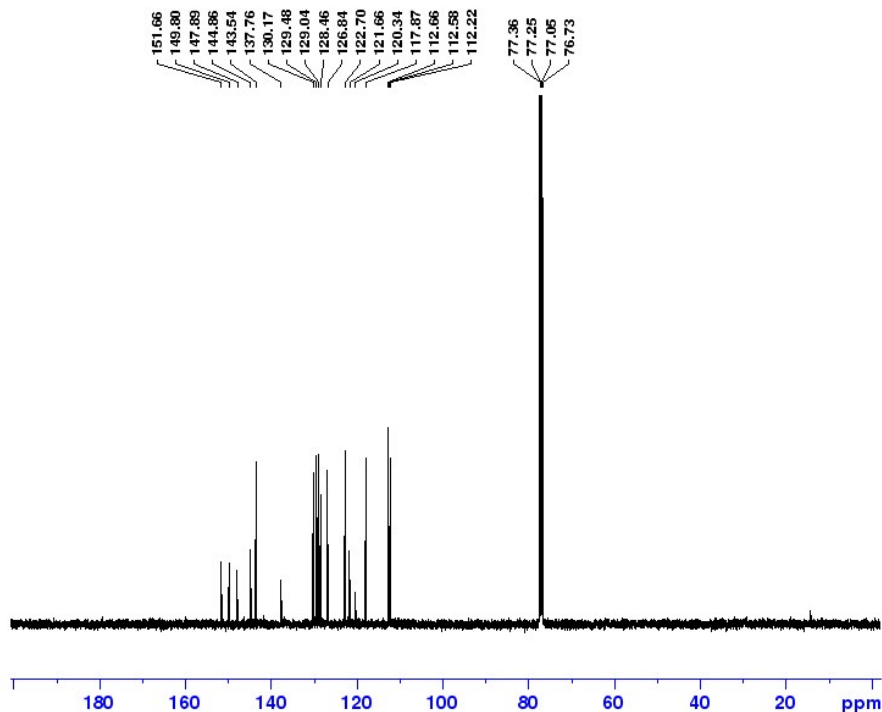


Current Data Parameters
NAME Furfuraldehyde
EXPNO 16
PROCNO 1

F2 - Acquisition Parameters
Date_ 20201228
Time 15.08 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.244532 Hz
AQ 4.0894465 sec
RG 112.69
DW 62.400 usec
DE 6.50 usec
TE 301.2 K
D1 1.0000000 sec
TD0 1
SFO1 400.2604716 MHz
NUC1 1H
P1 14.07 usec
PLW1 16.0000000 W

F2 - Processing parameters
SI 65536
SF 400.2580376 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Signature SIF VIT VELLORE
NR-1220-FU



Current Data Parameters
NAME 29-12-2020
EXPNO 17
PROCNO 1

F2 - Acquisition Parameters
Date_ 20201228
Time 15.39 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 1.3631488 sec
RG 156.91
DW 20.800 usec
DE 6.50 usec
TE 301.6 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1
SFO1 100.6550185 MHz
NUC1 13C
P1 10.52 usec
PLW1 58.0000000 W
SFO2 400.2596010 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 16.0000000 W
PLW12 0.3910400 W
PLW13 0.1966899 W

F2 - Processing parameters
SI 32768
SF 100.6449540 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

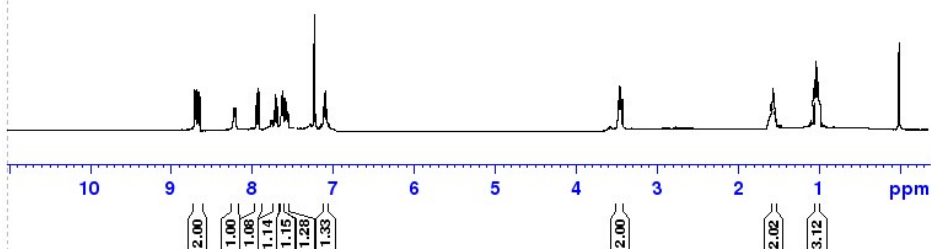
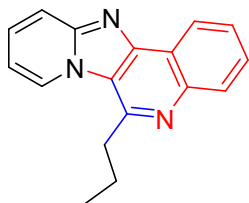
$^1\text{H-NMR}$ and $^{13}\text{C-NMR}$ of compound **6u** in CDCl_3 .

Signature SIF VIT VELLORE
NR-1220-But

8.706
8.689
8.667
8.647
8.224
8.204
7.940
7.918
7.724
7.706
7.685
7.635
7.617
7.596
7.575
7.554
7.110
7.084
7.077

3.472
3.462
3.432

1.581
1.568
1.544
1.040
1.022
1.005



Current Data Parameters
NAME New folder
EXPNO 18
PROCNO 1

F2 - Acquisition Parameters
Date_ 20201230
Time 7.37 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.244532 Hz
AQ 4.0894465 sec
RG 35.49
DW 62.400 usec
DE 6.50 usec
TE 302.0 K
D1 1.00000000 sec
TD0 1
SFO1 400.2604716 MHz
NUC1 1H
P1 14.07 usec
PLW1 16.00000000 W

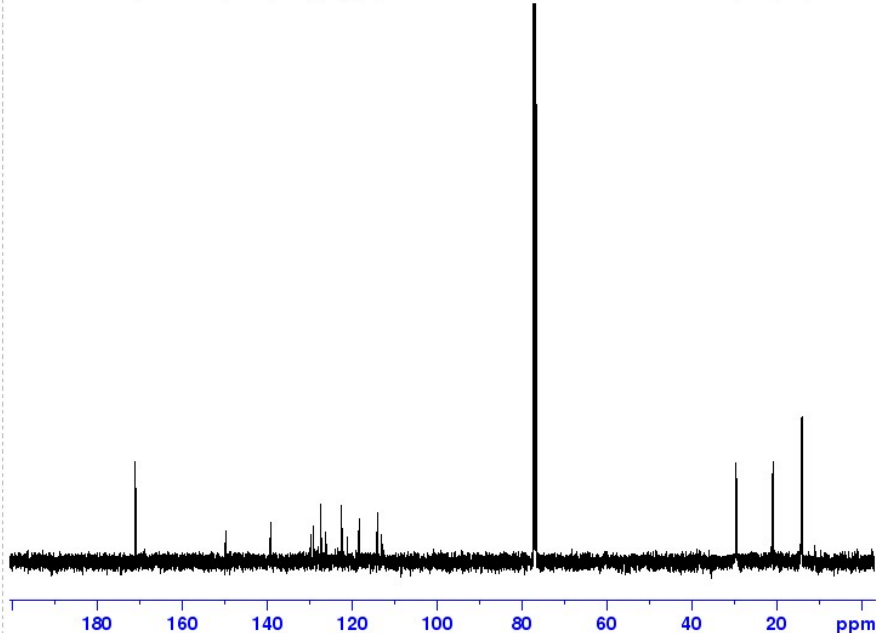
F2 - Processing parameters
SI 65536
SF 400.2590219 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Signature SIF VIT VELLORE
NR-1220-But

171.07
149.72
139.19
129.83
129.03
127.45
126.30
123.32
122.63
121.11
118.39
114.01
113.13

77.36
77.25
77.05
76.73

29.61
20.95
14.12



Current Data Parameters
NAME Butaraldehyde
EXPNO 19
PROCNO 1

F2 - Acquisition Parameters
Date_ 20201230
Time 8.09 h
INSTRUM spect
PROBHD Z108618_0505 (
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 1.3631488 sec
RG 112.69
DW 20.800 usec
DE 6.50 usec
TE 302.6 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
SFO1 100.6550185 MHz
NUC1 13C
P1 10.52 usec
PLW1 58.00000000 W
SFO2 400.2596010 MHz
NUC2 1H
CPDPRG2 waltz16
PCPD2 90.00 usec
PLW2 16.00000000 W
PLW12 0.39104000 W
PLW13 0.19668999 W

F2 - Processing parameters
SI 32768
SF 100.6449540 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

$^1\text{H-NMR}$ and $^{13}\text{C-NMR}$ of compound **6v** in CDCl_3 .

