

# Synthesis, antimicrobial and antimalarial activity of 1, 4-benzothiazepine and pyrazoline derivatives incorporating carbazole moiety

V. A. Kadnor<sup>1</sup>, S. N. Shelke<sup>2\*</sup>

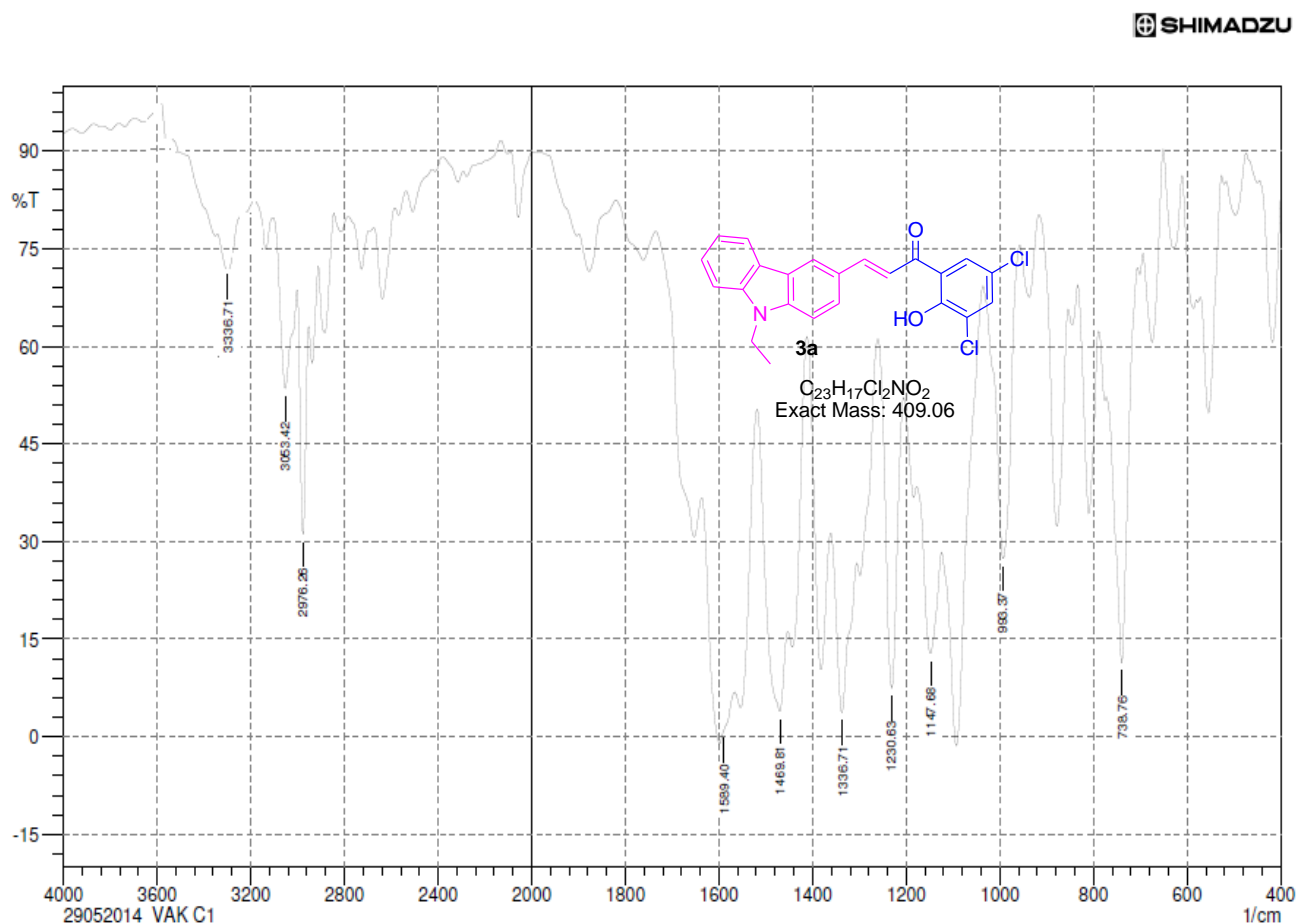
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<sup>2</sup> Department of Chemistry, S. S. G. M. College, Kopargaon, Ahmednagar, MS 423601, India.

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## Representative Spectra:

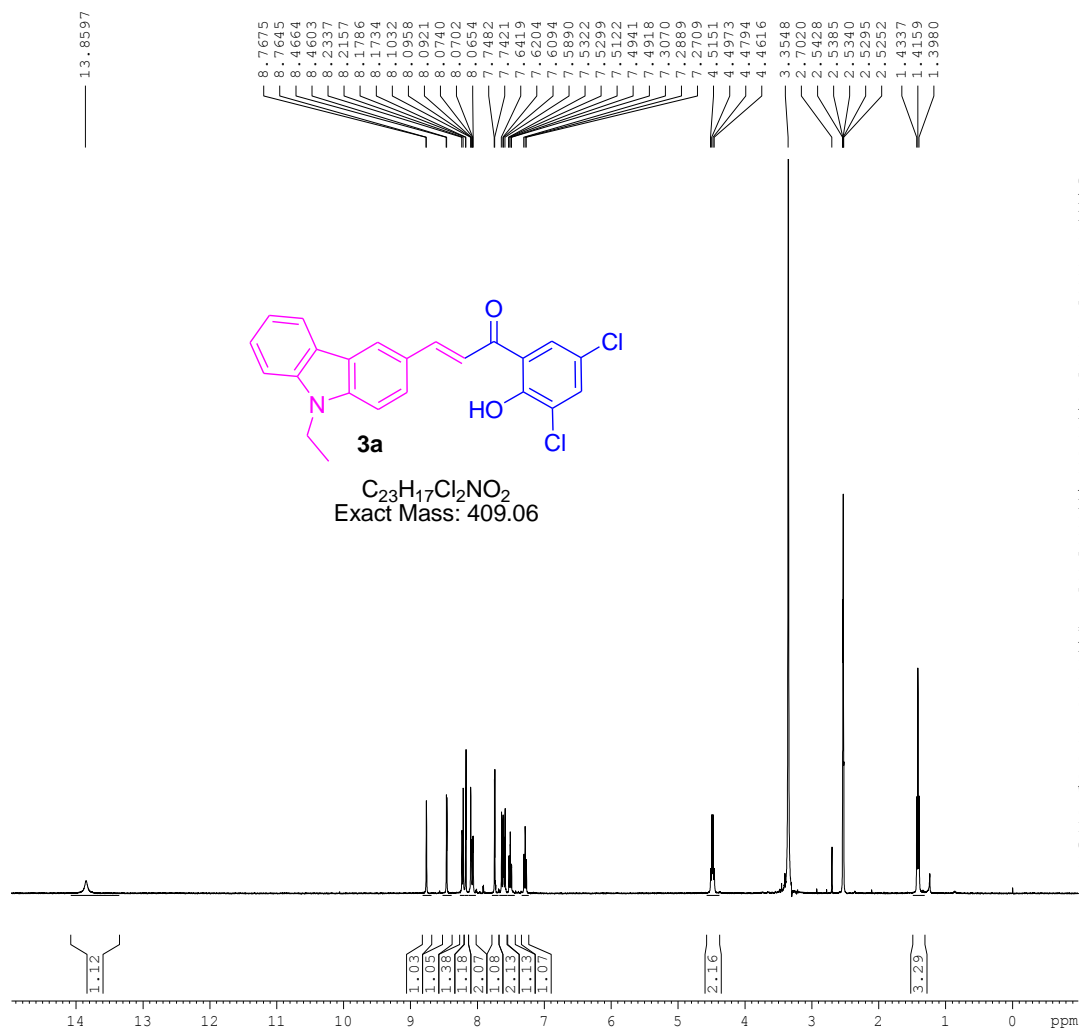
### FTIR of compound 3a:



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# <sup>1</sup>H NMR of compound 3a:

C-2



BRUKER  
AVANCE II 400 NMR  
Spectrometer  
SAIF  
Panjab University  
Chandigarh

Current Data Parameters  
NAME Nov25-2013  
EXPNO 460  
PROCNO 1

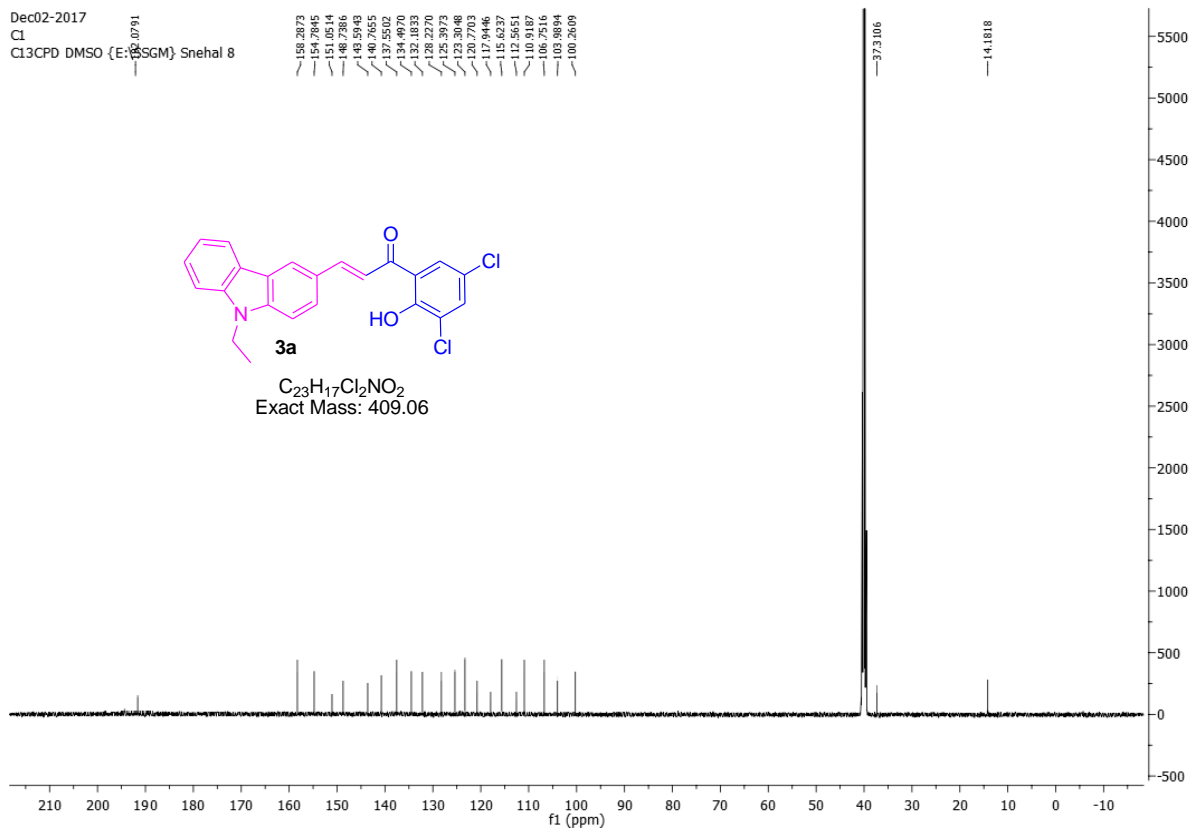
F2 - Acquisition Parameters  
Date\_ 20131125  
Time 16.29  
INSTRUM spect  
PROBHD 5 mm PABBO BB-  
PULPROG zg30  
TD 65536  
SOLVENT DMSO  
NS 8  
DS 2  
SWH 12019.230 Hz  
FIDRES 0.183399 Hz  
AQ 2.7263477 sec  
RG 406  
DW 41.600 usec  
DE 6.00 usec  
TE 294.6 K  
D1 1.00000000 sec  
TD0 1

==== CHANNEL f1 =====  
NUC1 1H  
P1 10.90 usec  
PL1 -3.00 dB  
SFO1 400.1324710 MHz

F2 - Processing parameters  
SI 32768  
SF 400.1299900 MHz  
WDW EM  
SSB 0  
LB 0.30 Hz  
GB 0  
PC 1.00

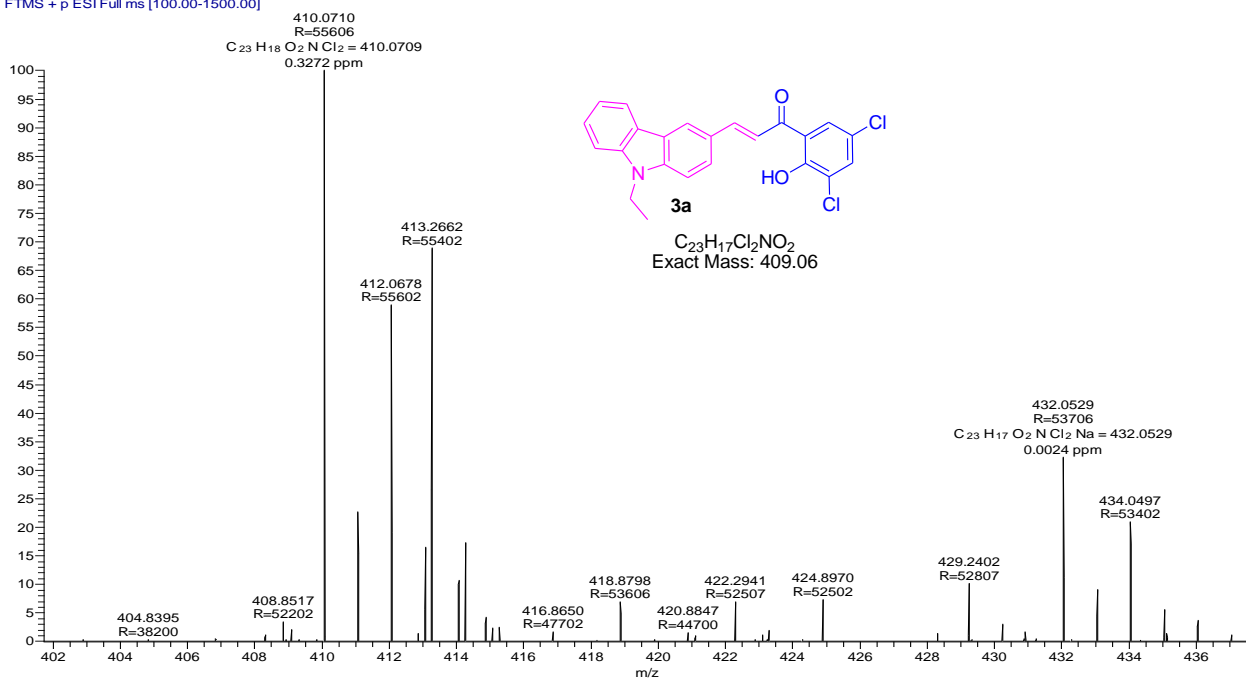
avtar\_saifpu@yahoo.co.in

### <sup>13</sup>C NMR of compound 3a:

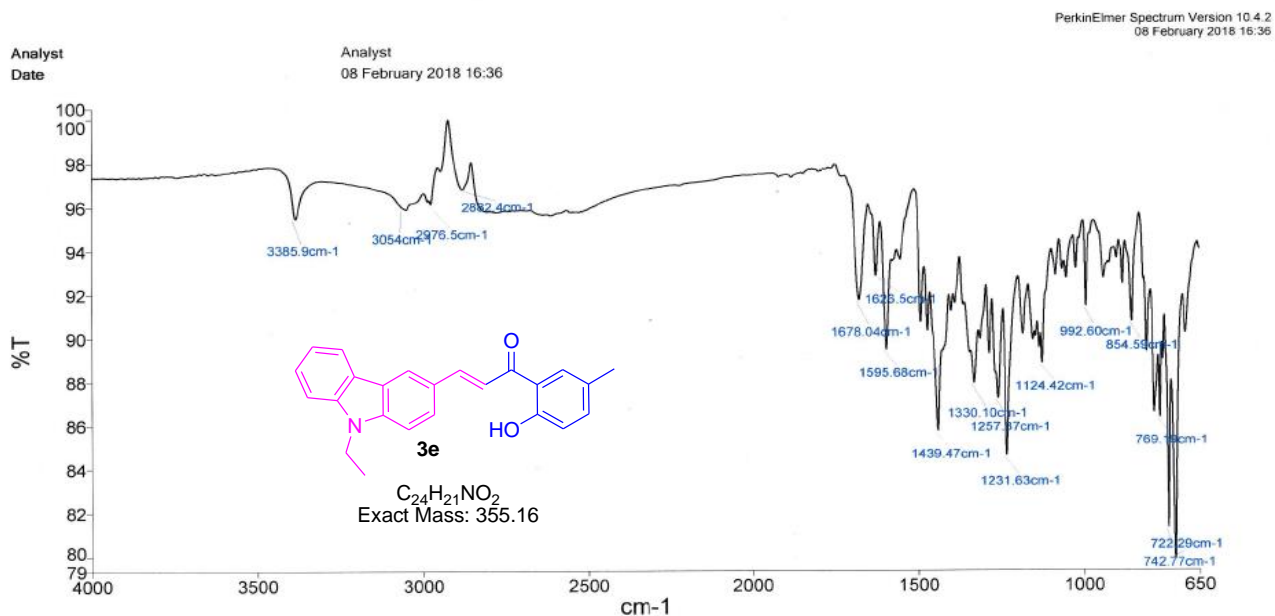


### HRMS of compound 3a:

C-2 #328 RT: 1.46 AV: 1 NL: 1.34E7  
 T: FTMS + p ESI Full ms [100.00-1500.00]

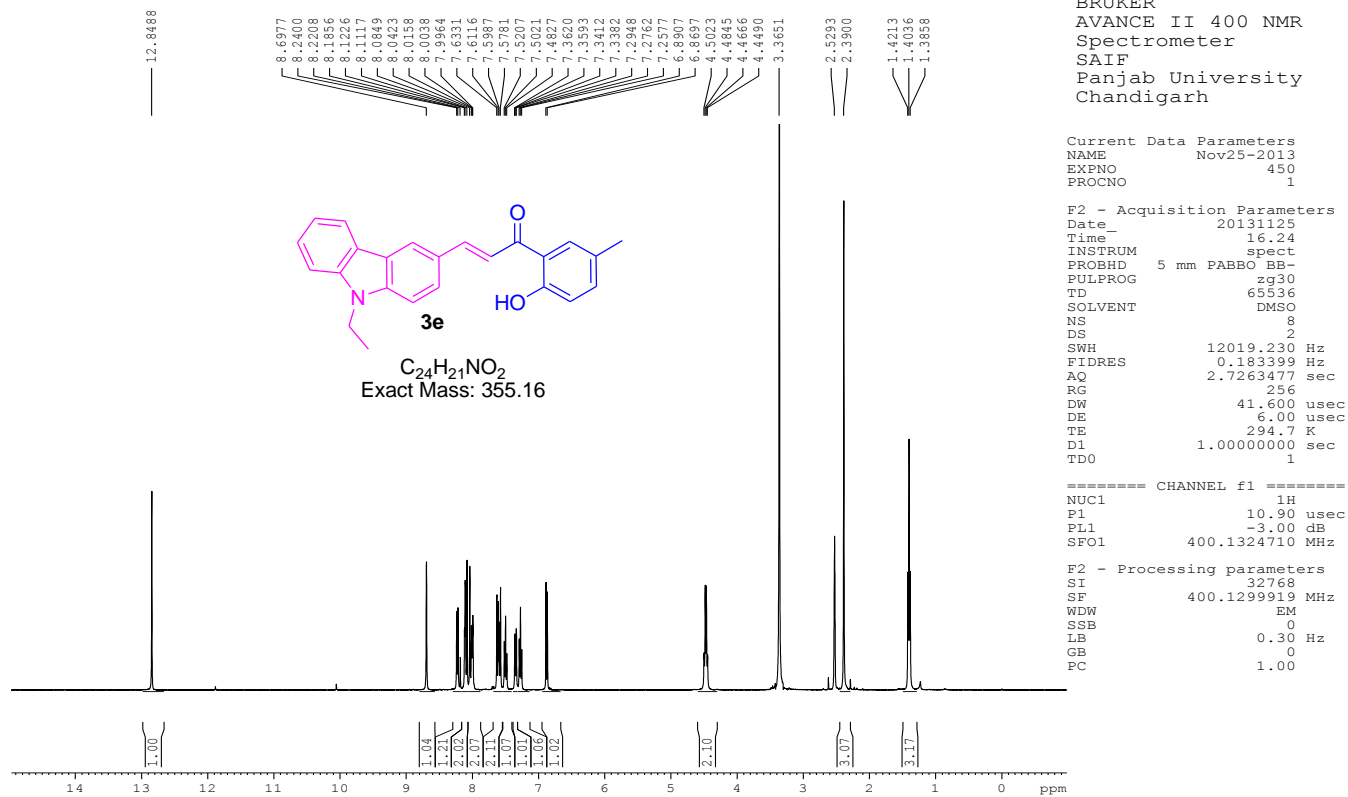


## FTIR of compound 3e:



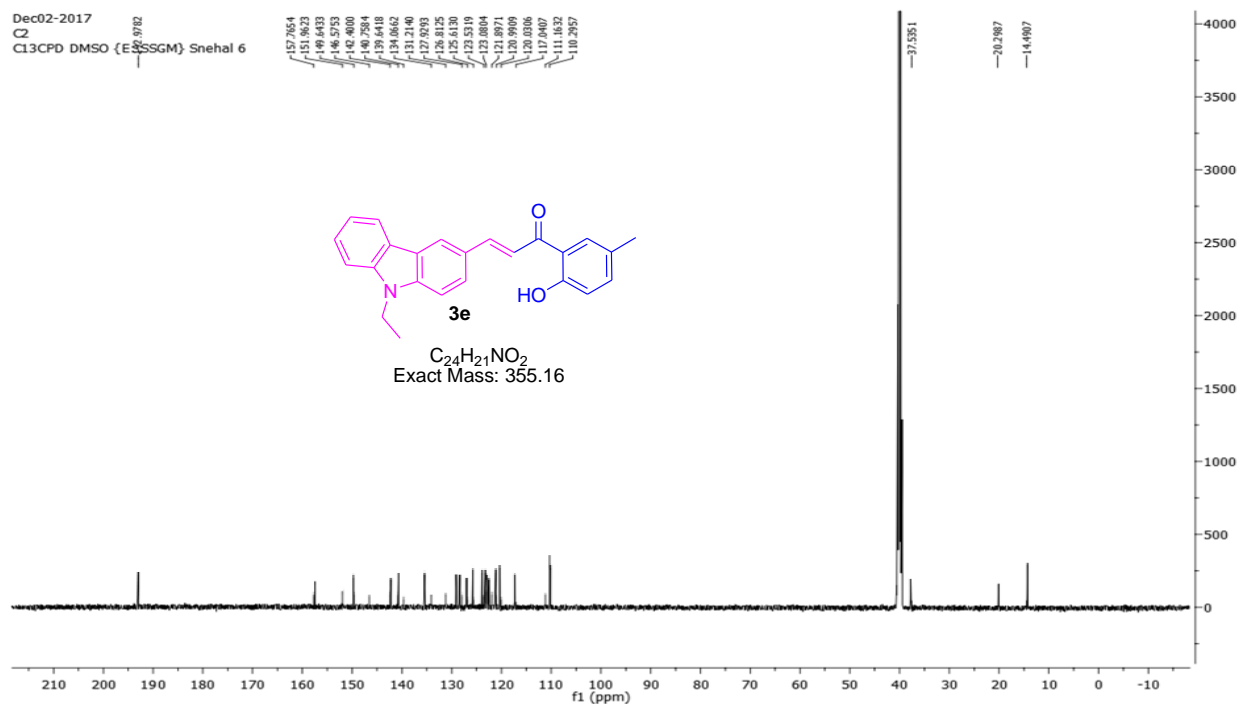
## <sup>1</sup>H NMR of compound 3e:

C-1



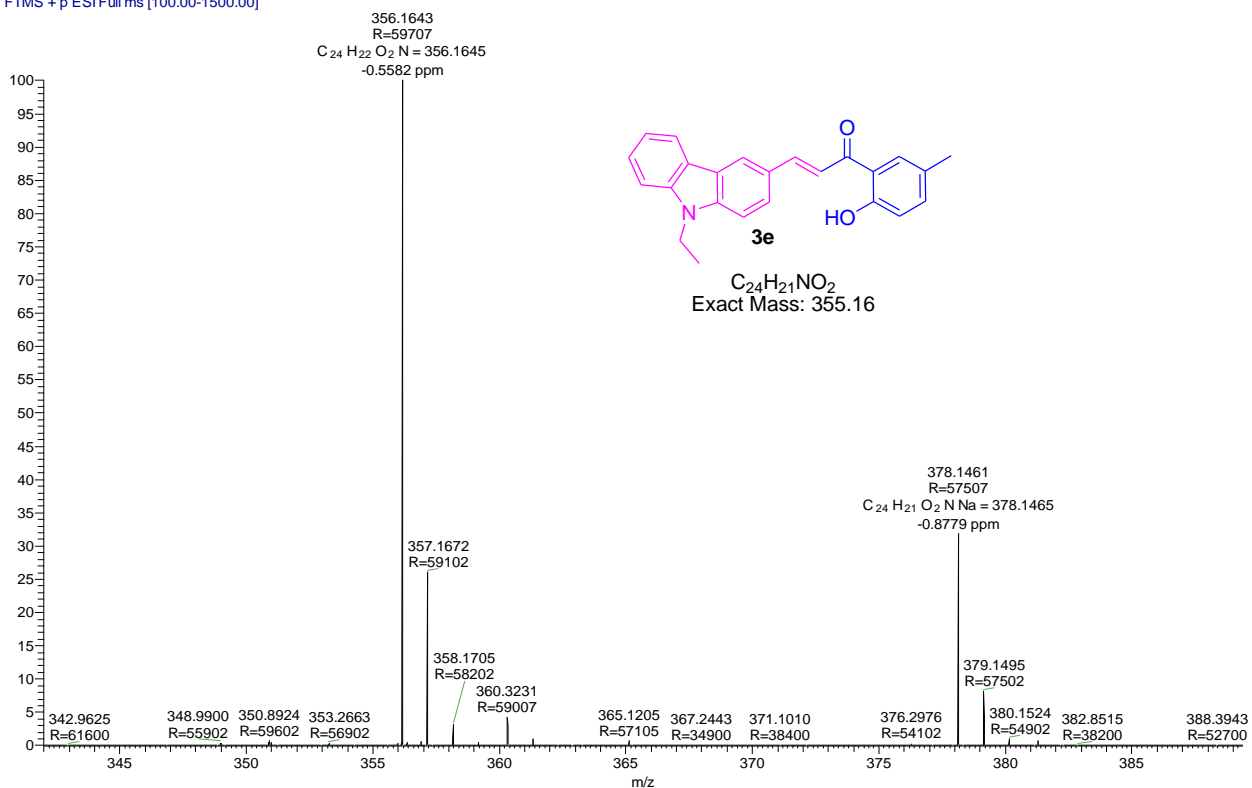
avtar\_saifpu@yahoo.co.in

### <sup>13</sup>C NMR of compound 3e:

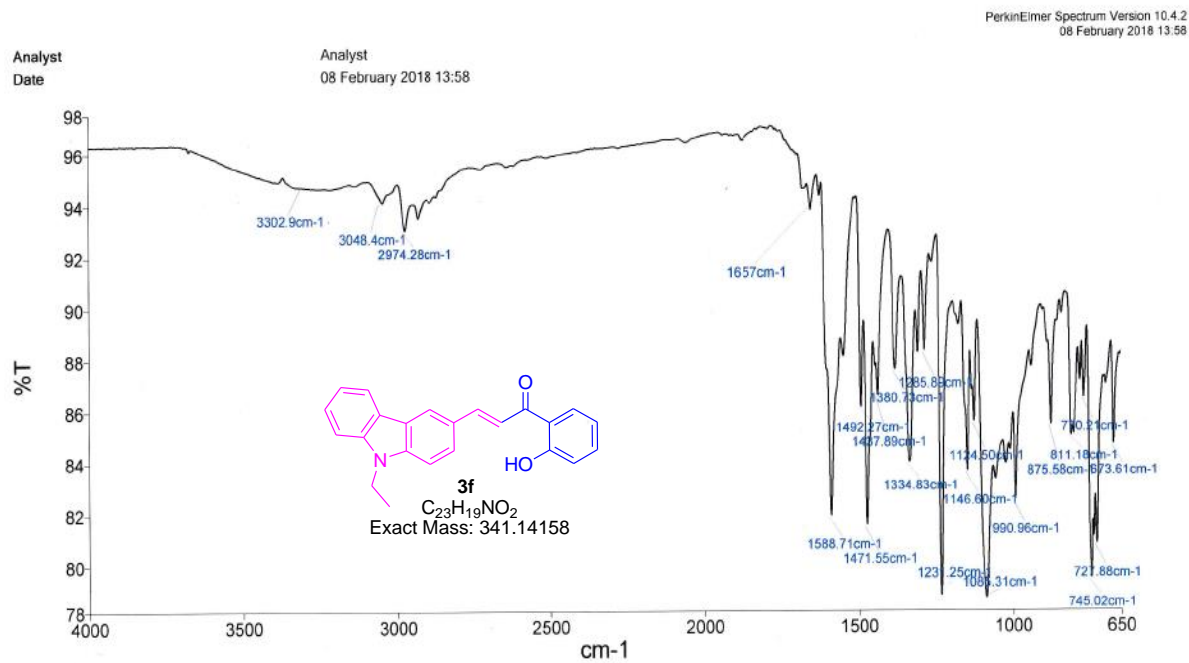


### HRMS of compound 3e:

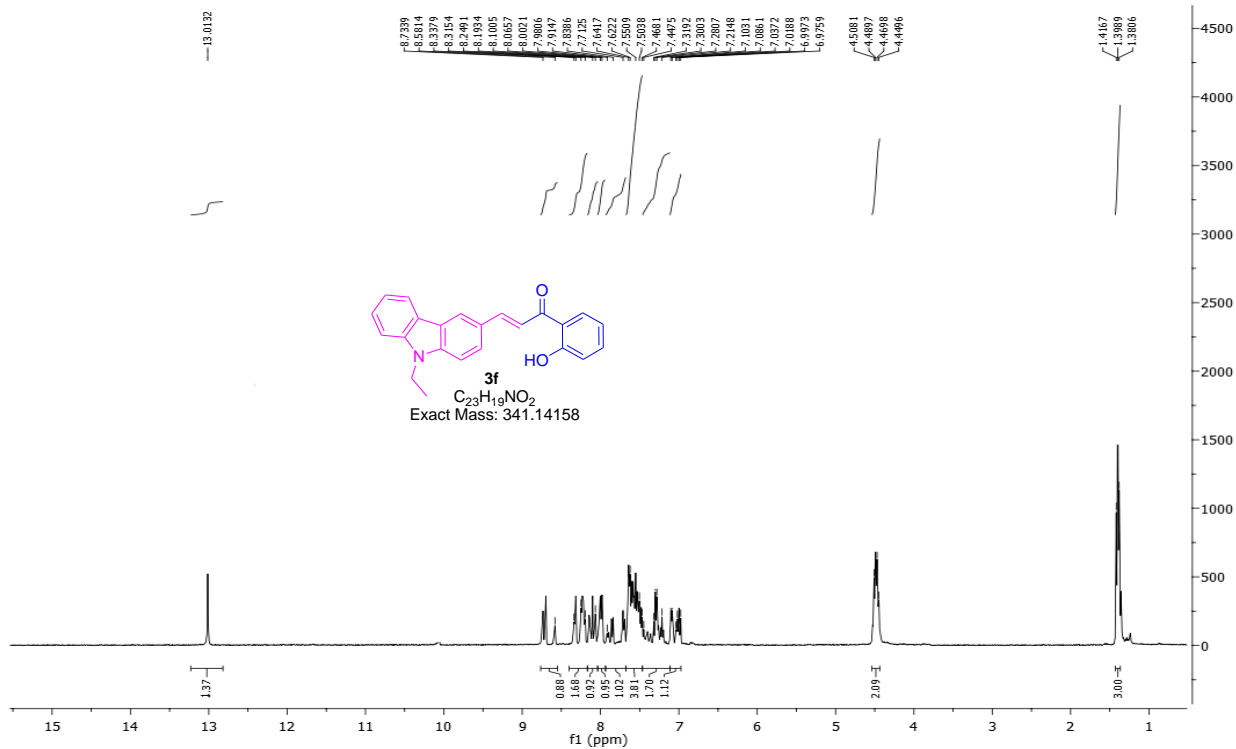
C-1 #214 RT: 0.95 AV: 1 NL: 2.01E8  
T: FTMS + p ESI Full ms [100.00-1500.00]



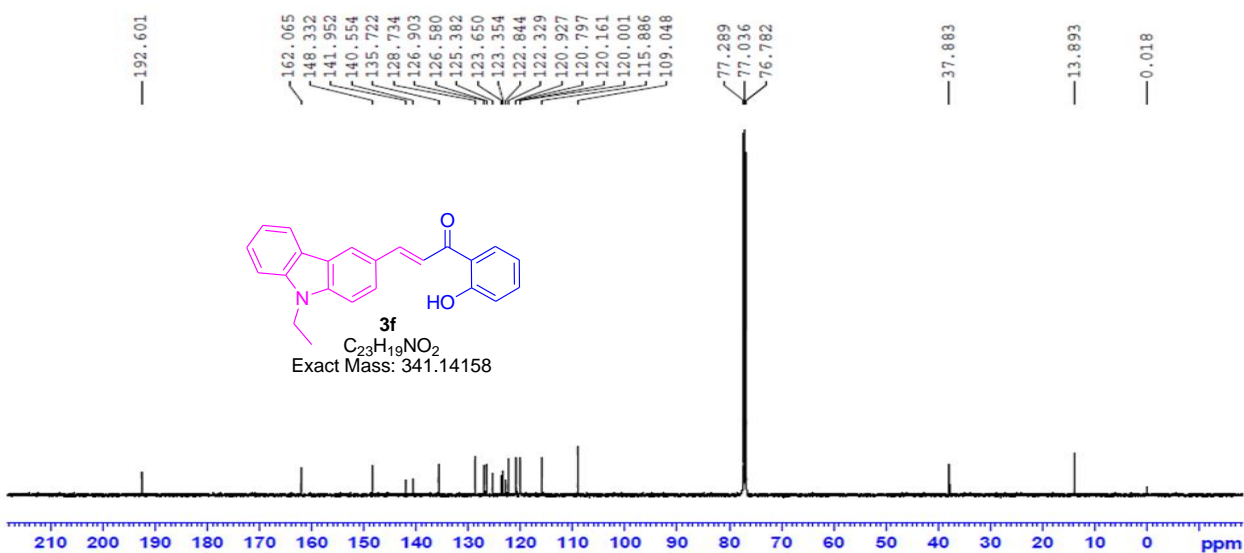
## FTIR of compound 3f:



## <sup>1</sup>H NMR of compound 3f:



### <sup>13</sup>C NMR of compound 3f:



### MS of compound 3f:

#### Openlynx Report -

Sample: 10

Vial: 1:B,1

ID: 18-49902-STEP-1-E4

File: 18-49902-STEP

Date: 28-Feb-2018

Time: 09:41:01

Description:

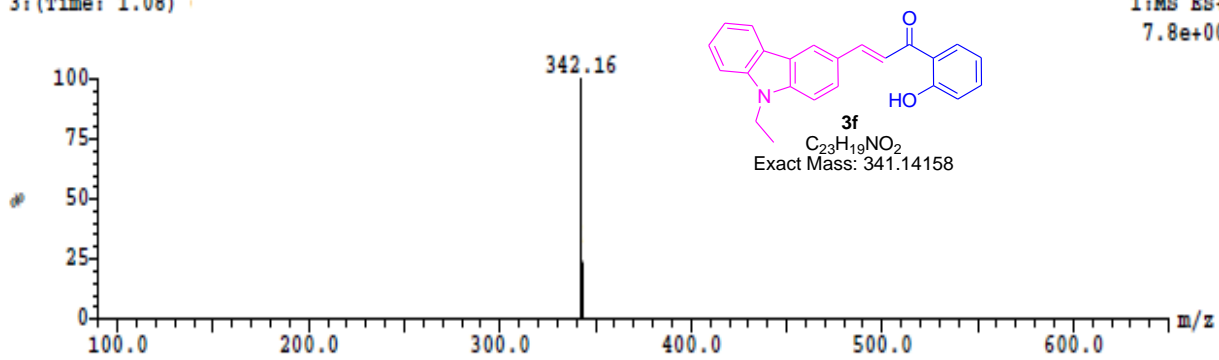
Method: HSS-T3-ST-GR-1-6MIN.olg

Printed: Wed Feb 28 09:43:15 2018

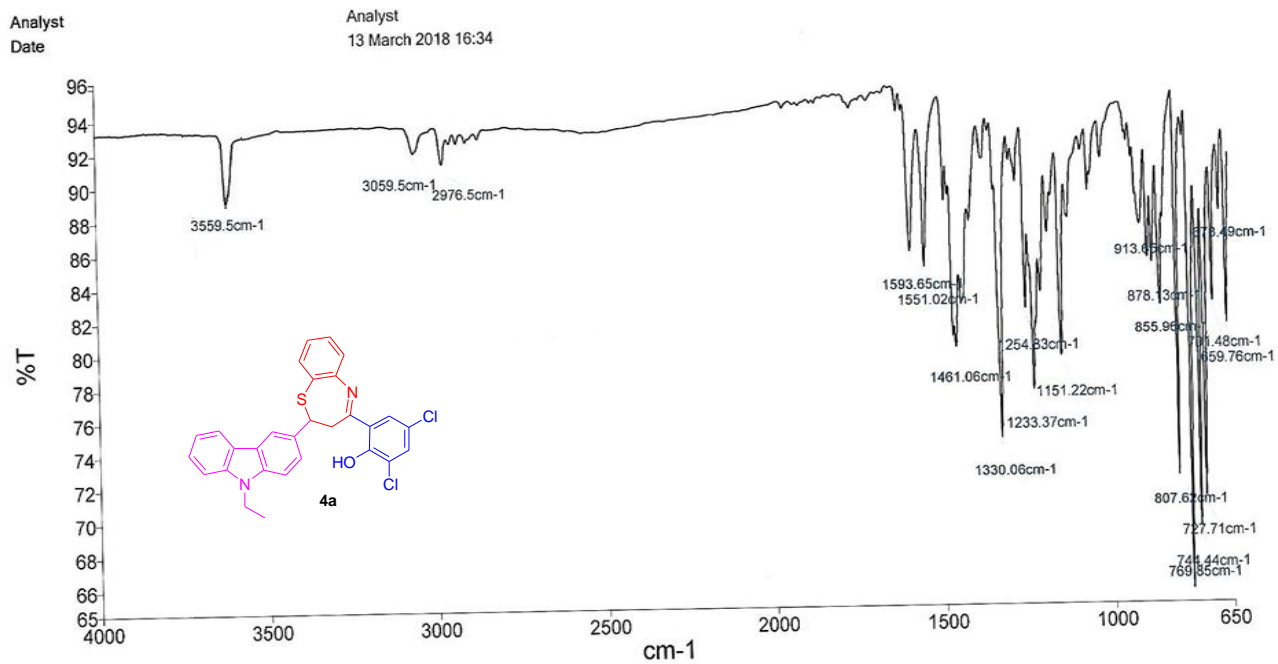
#### Sample Report (continued):

Peak ID	Compound	Time	Mass Found
3		1.08	

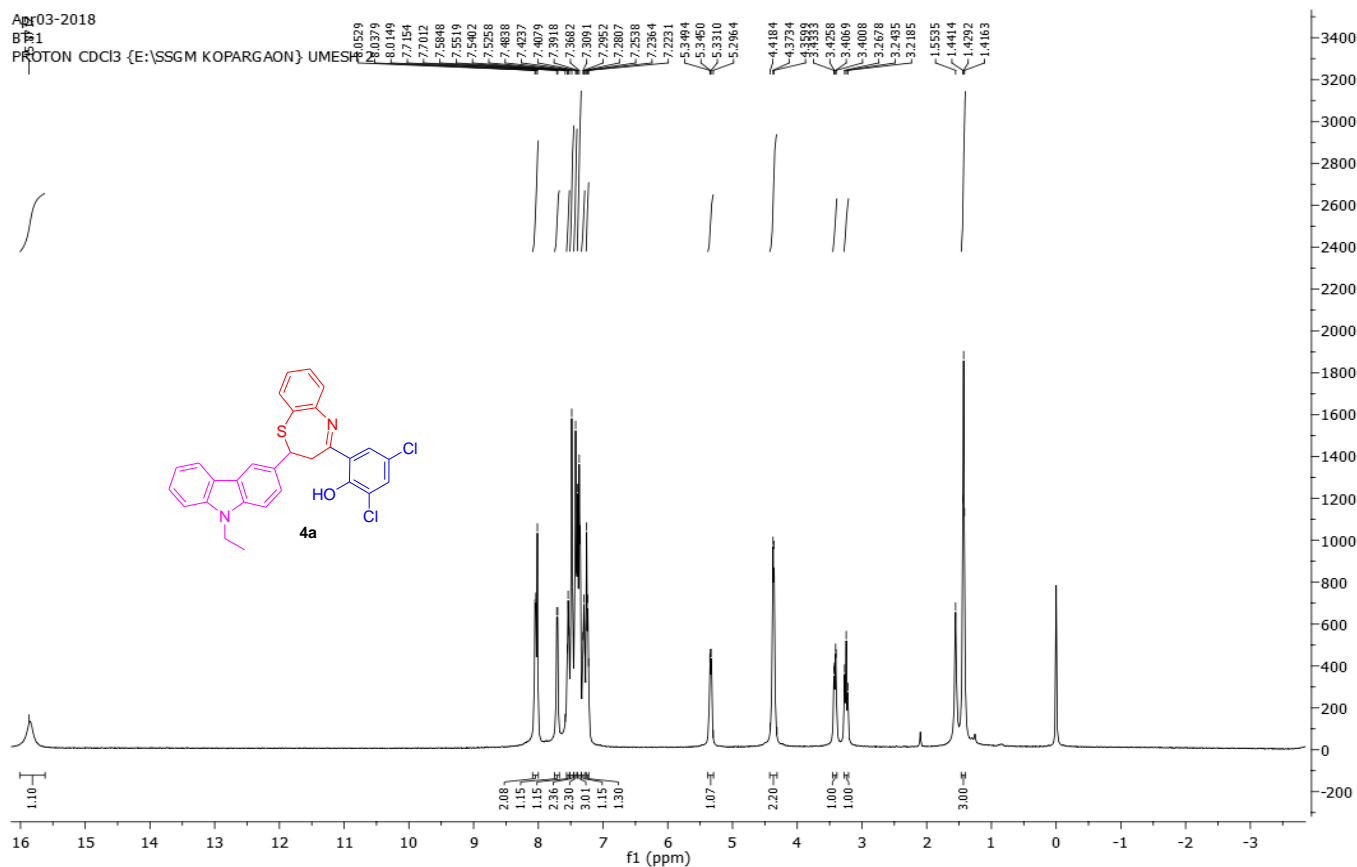
3: (Time: 1.08)



## FTIR of compound 4a:



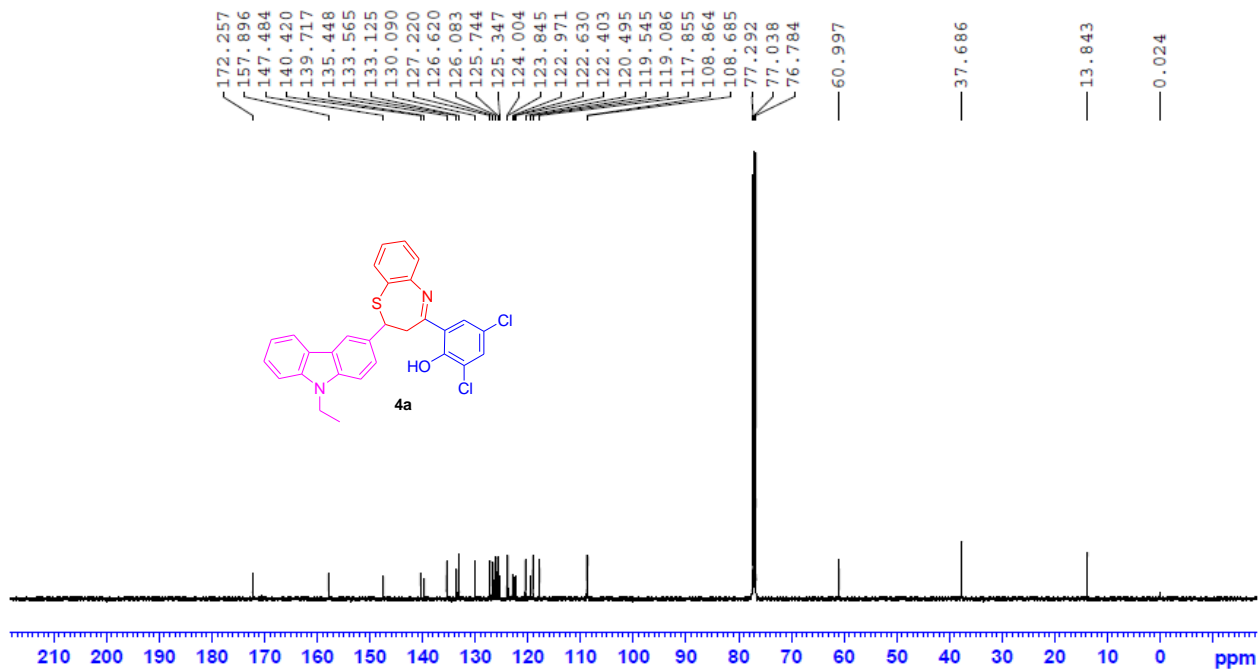
## <sup>1</sup>H NMR of compound 4a:





### <sup>13</sup>C NMR of compound 4a:

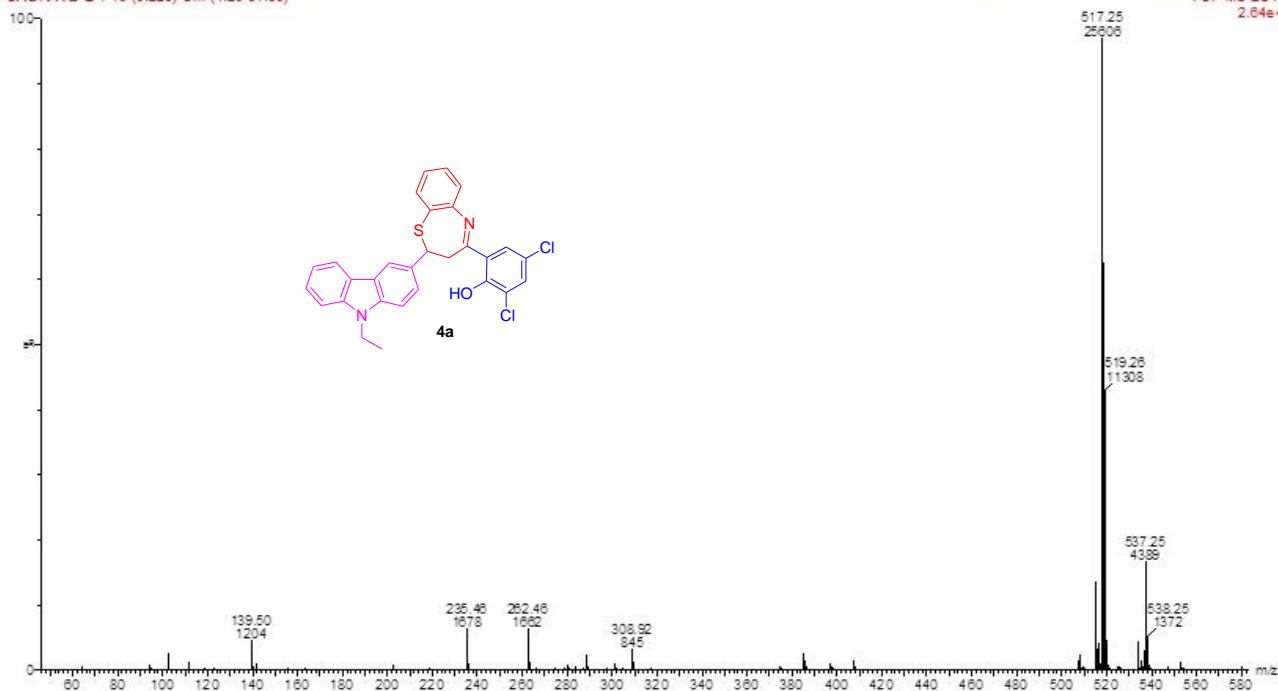
BT-1  
C13CPD CDCl3 {E:\SSGM KOPARGAON} UMESH 2



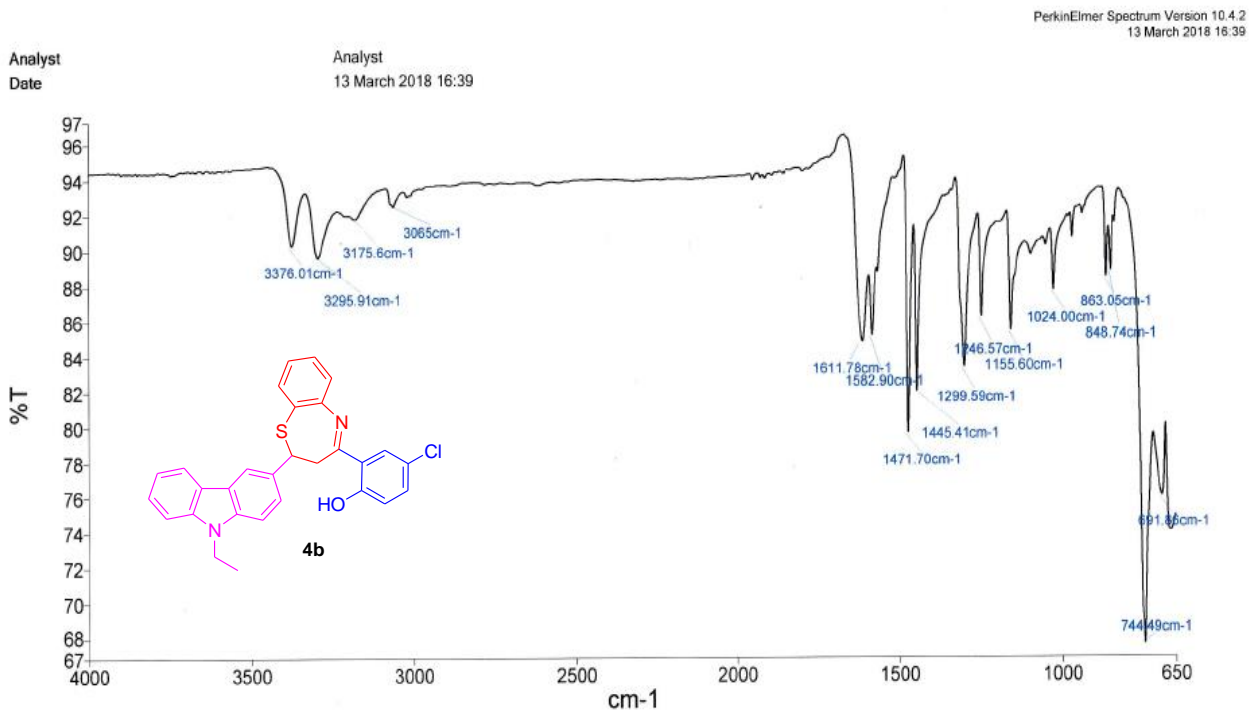
### MS of compound 4a:

WATERS, Q-TOF MICROMASS (ESI-MS)  
GADHAVE Q-1 10 (0.228) Cm (4:20-31:00)

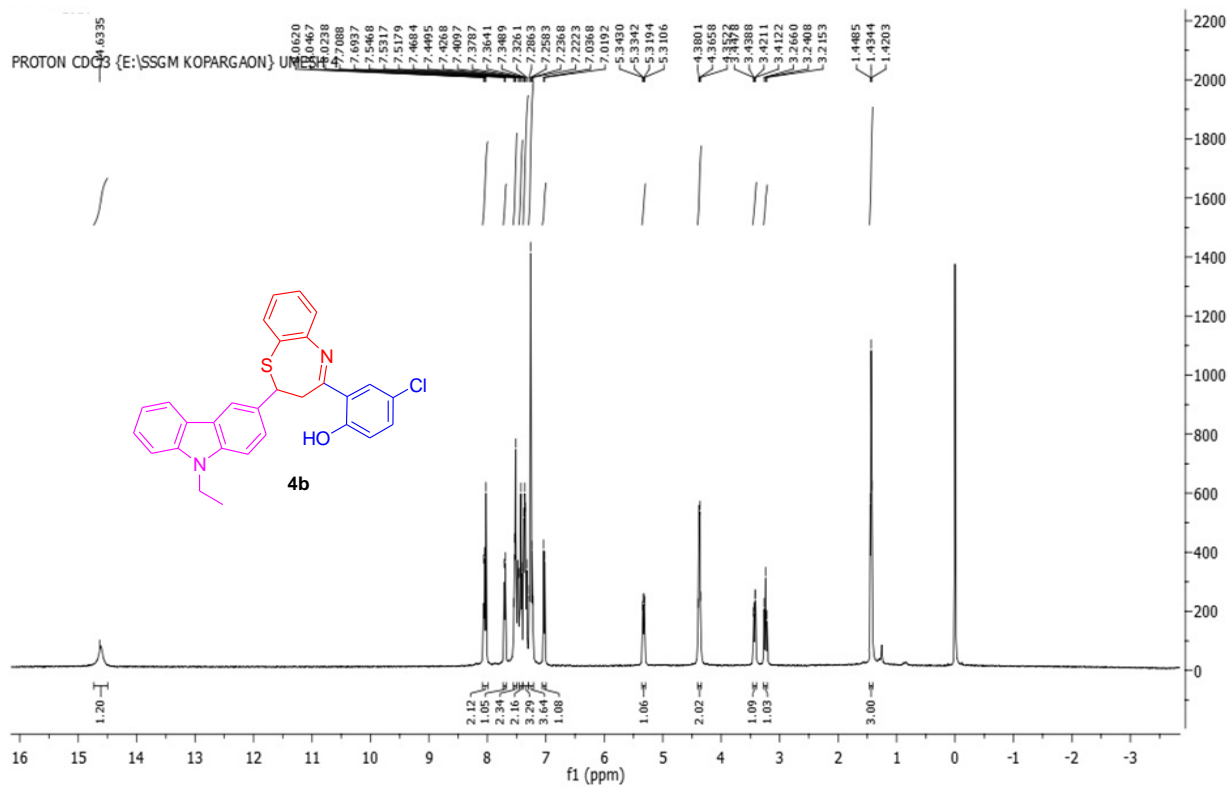
SAIF/CIL, PANJAB UNIVERSITY, CHANDIGARH  
TOF MS ES+  
2.64e4



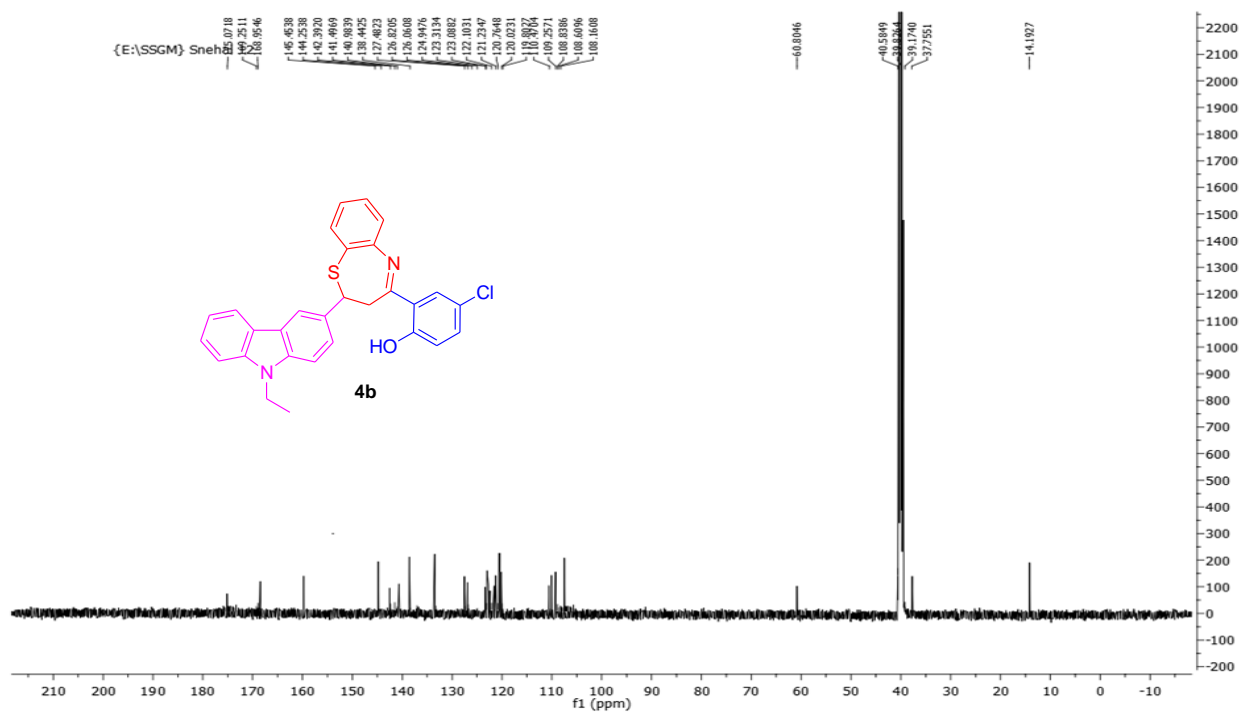
## FTIR of compound 4b:



## <sup>1</sup>H NMR S of compound 4b:



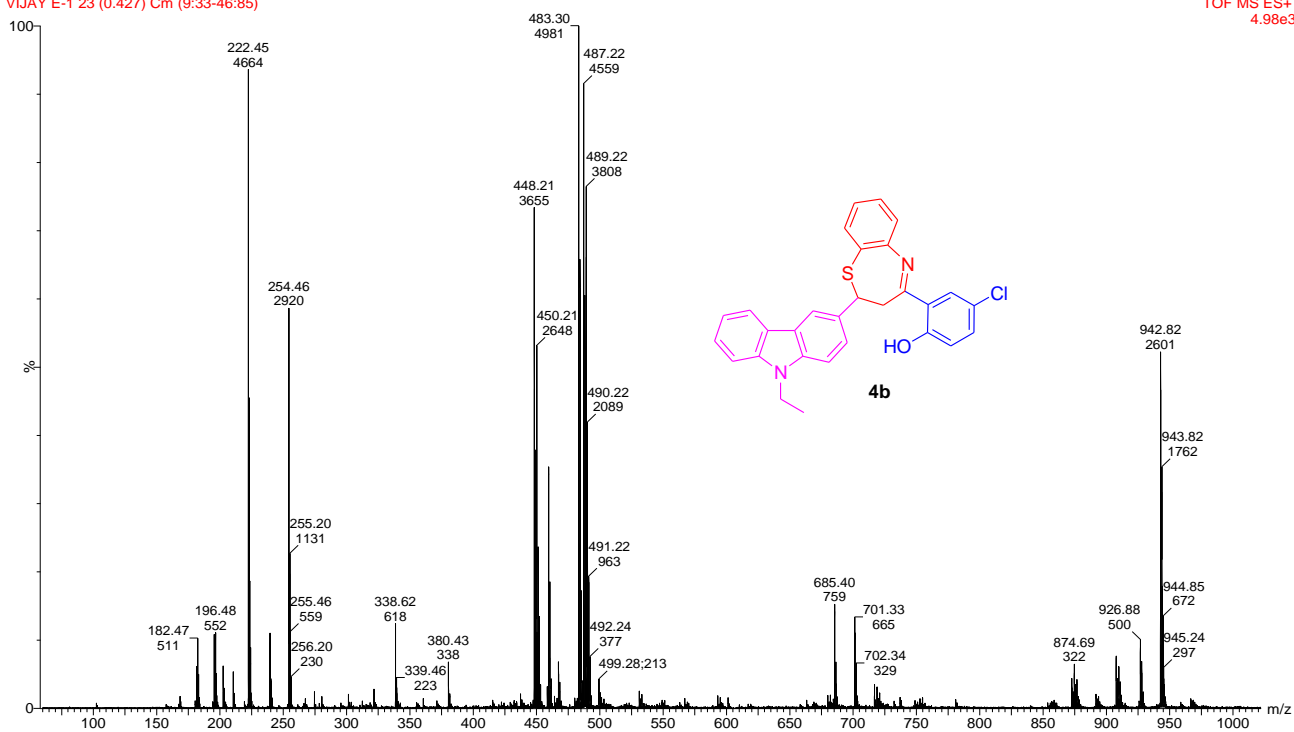
### <sup>13</sup>C NMR of compound 4b:



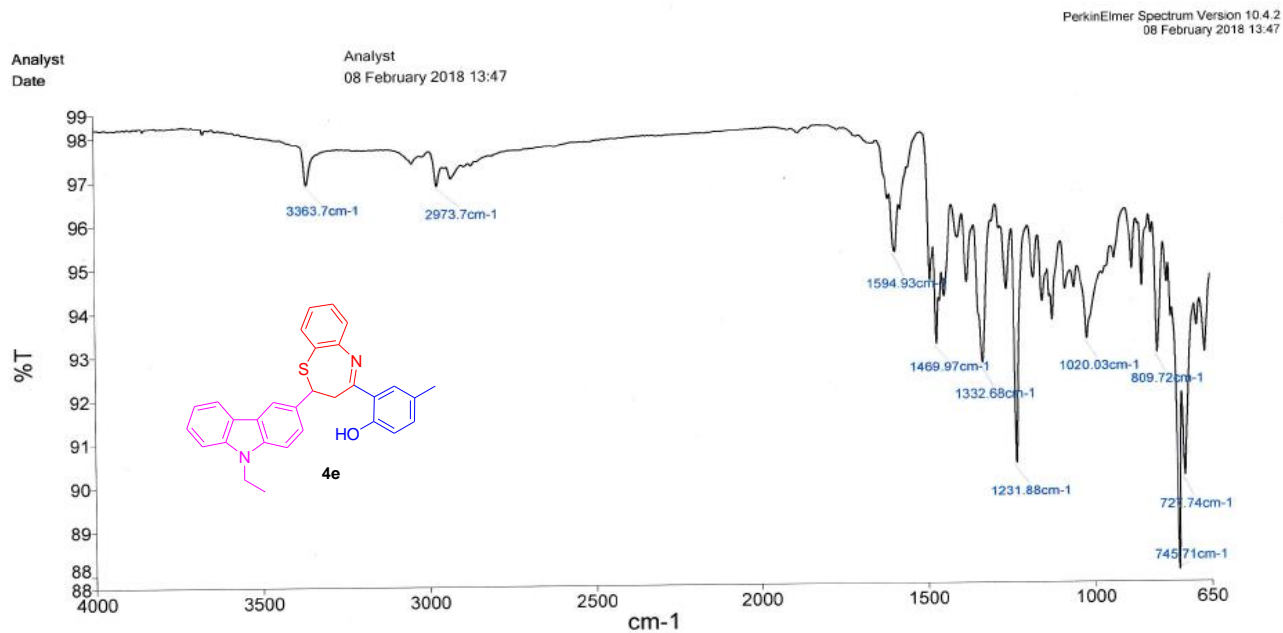
### MS of compound 4b:

WATERS, Q-TOF MICROMASS (ESI-MS)  
VIJAY E-1 23 (0.427) Cm (9:33-46:85)

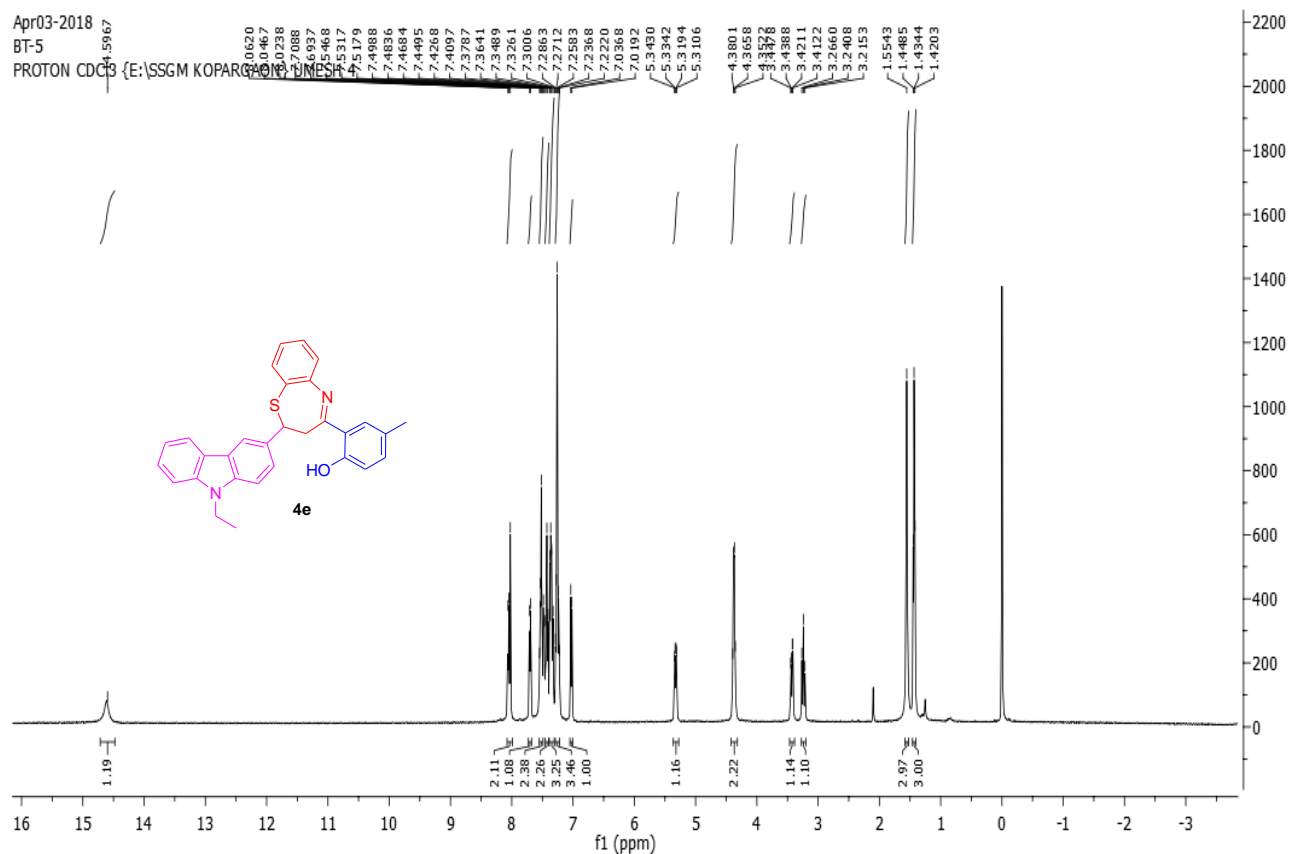
SAIF/CIL, PANJAB UNIVERSITY, CHANDIGARH  
TOF MS ES+  
4.98e3



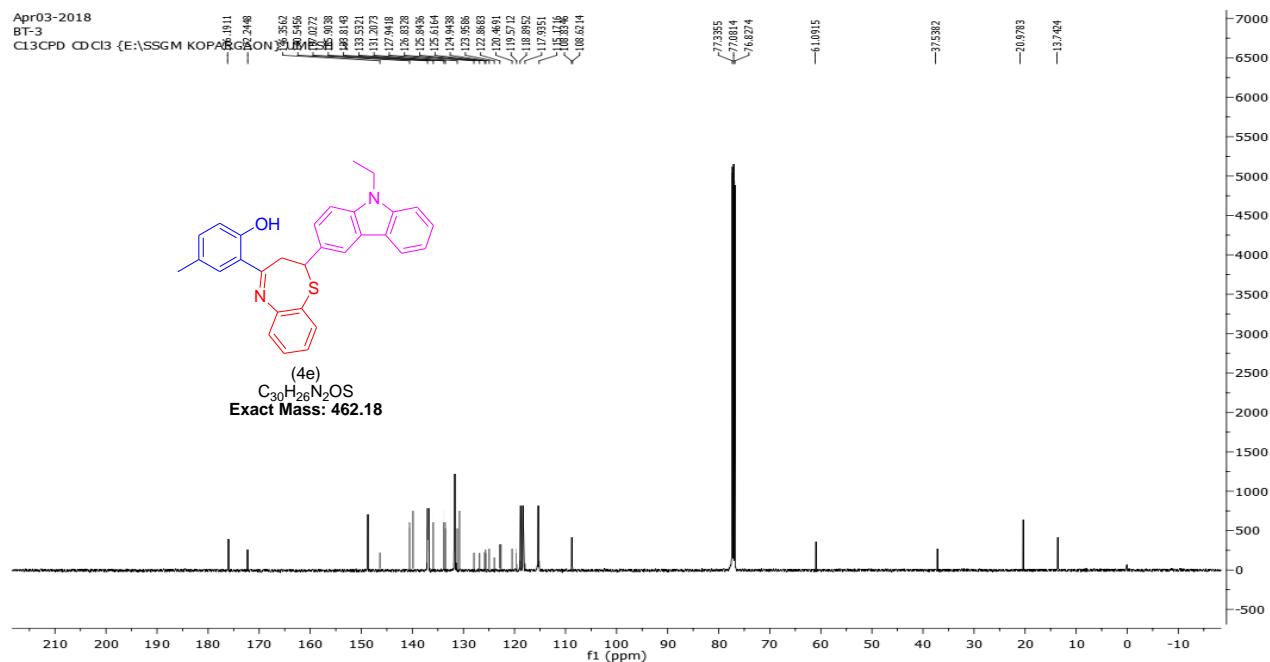
## FTIR of compound 4e:



## <sup>1</sup>H NMR of compound 4e:



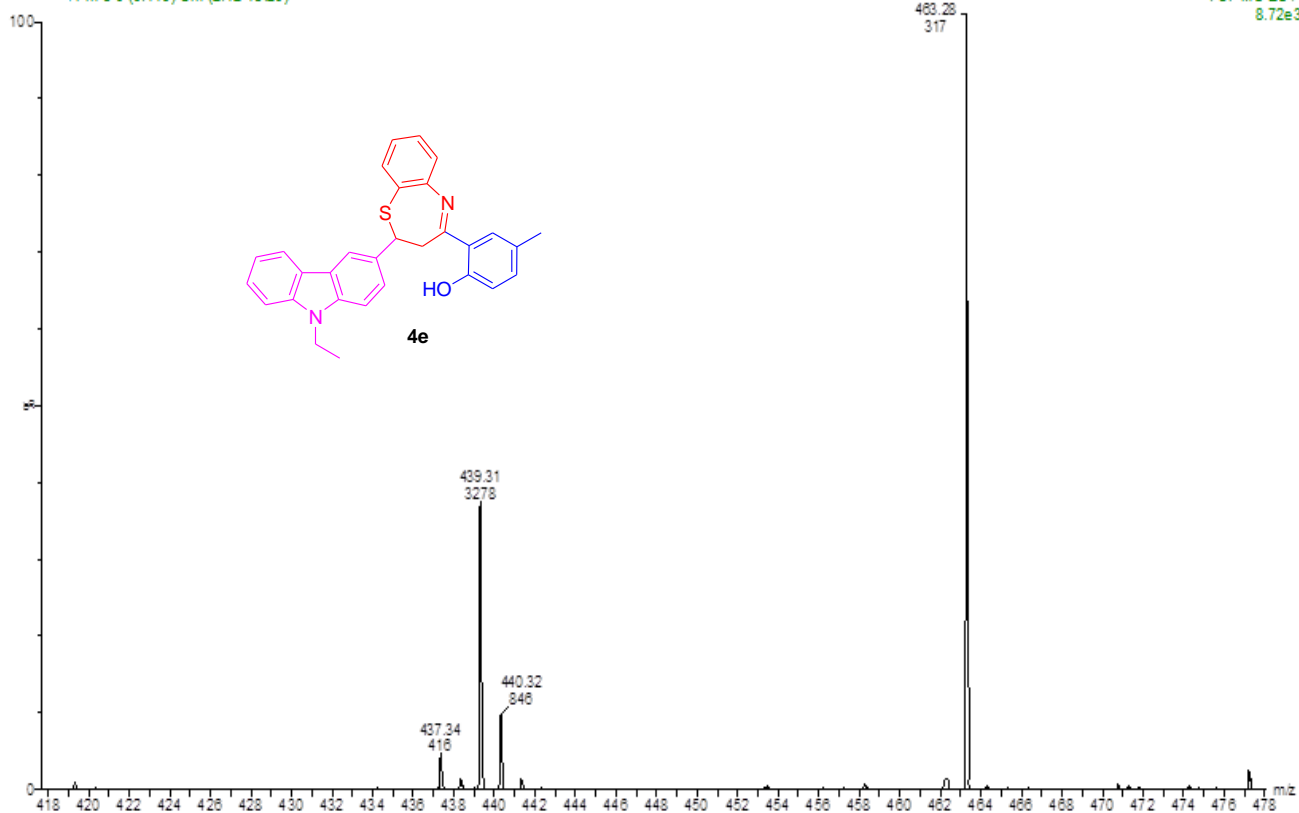
### <sup>13</sup>C NMR of compound 4e:



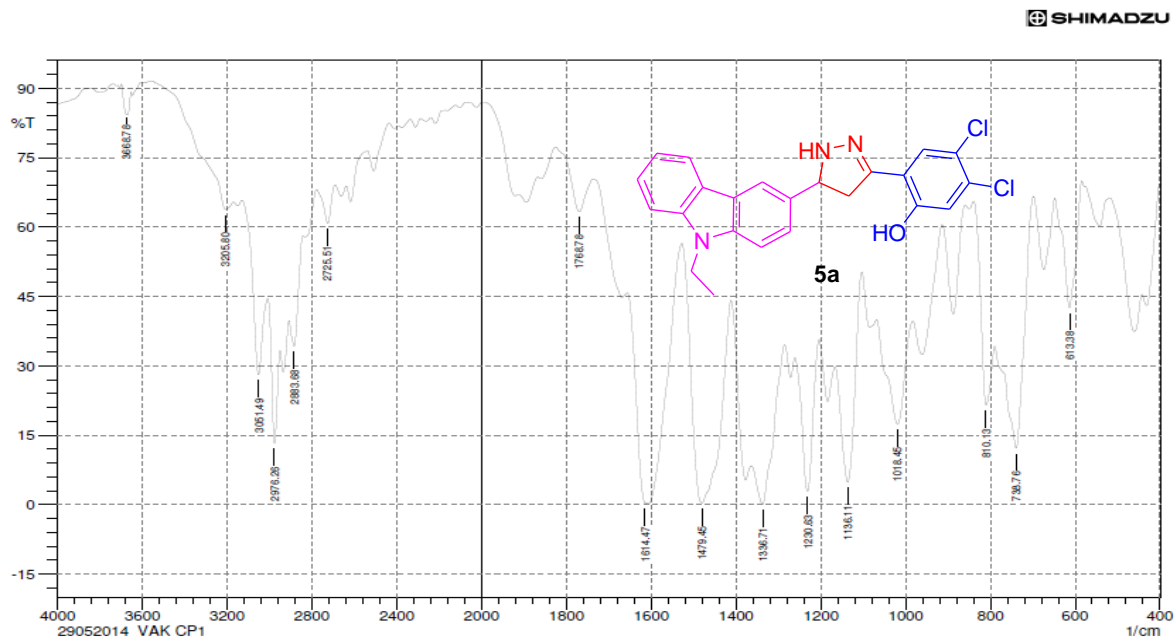
### MS of compound 4e:

WATERS, Q-TOF MICROMASS (ESI-MS)  
Pm-8 5 (0.113) Cm (2:12-18.25)

SAIF/CIL,PANJAB UNIVERSITY,CHANDIGARH  
TOF MS ES+  
8.72e3



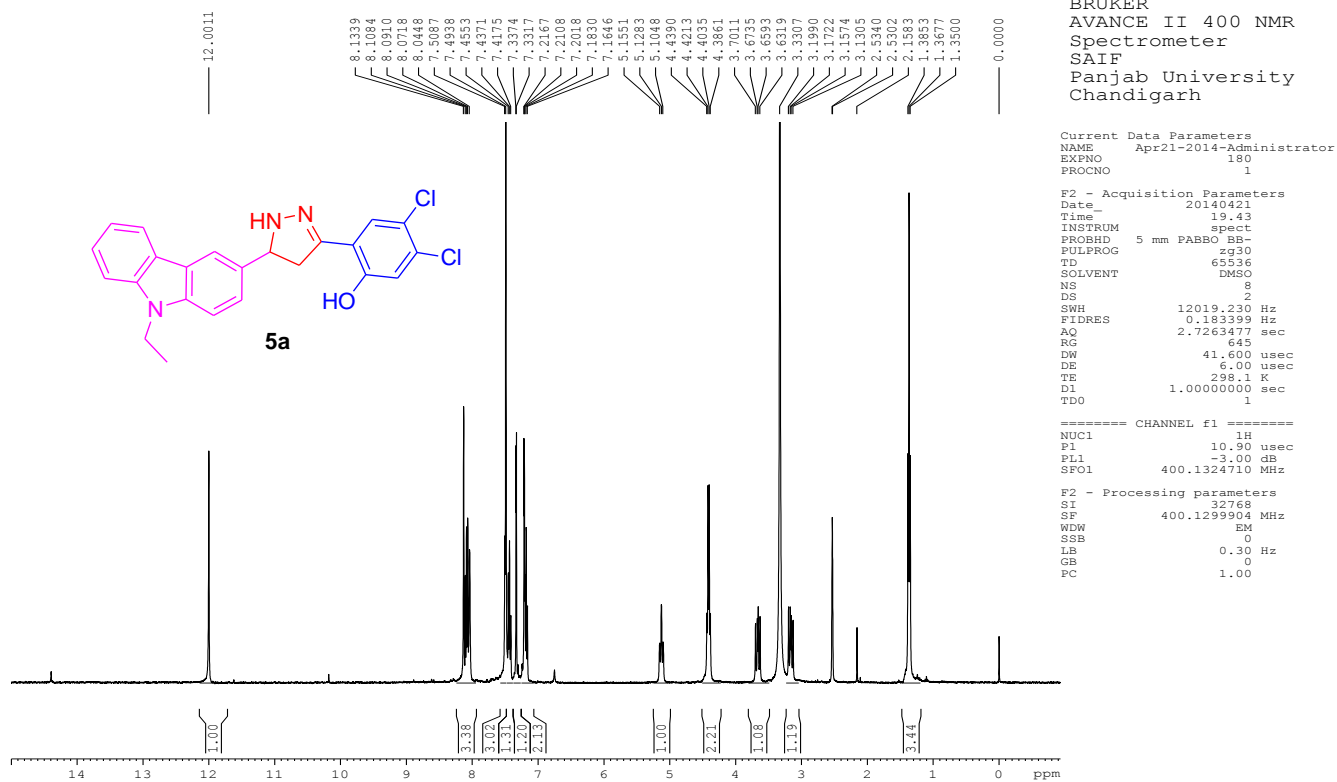
# FTIR of compound 5a:



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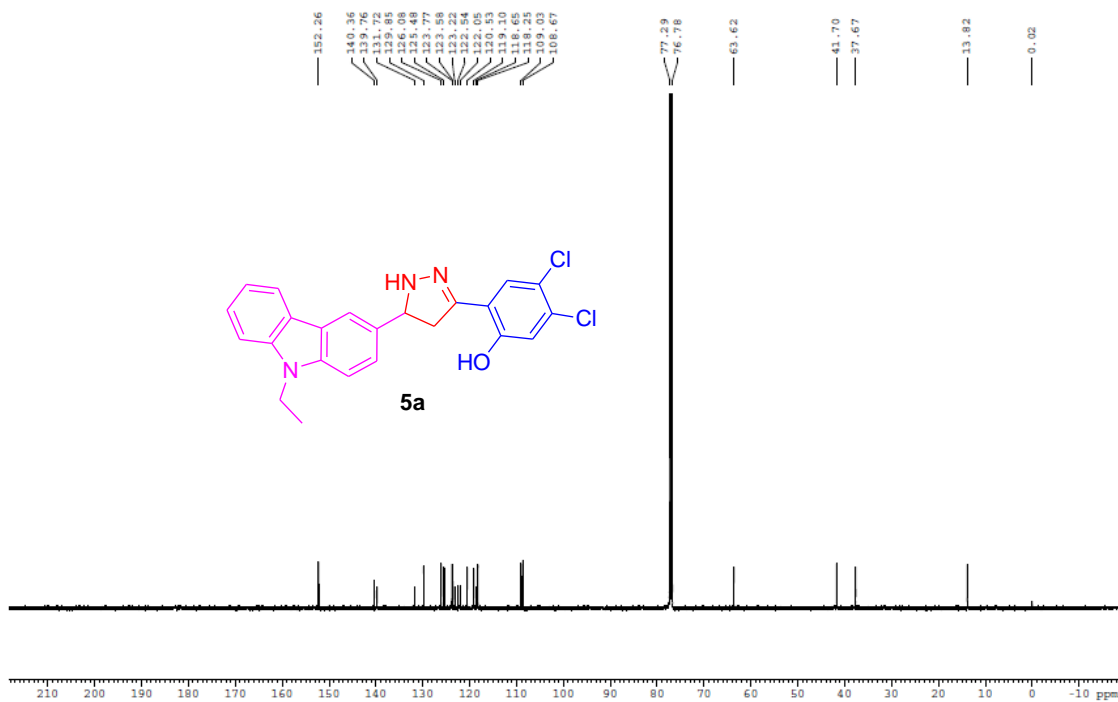
# <sup>1</sup>H NMR of compound 5a:

CP2



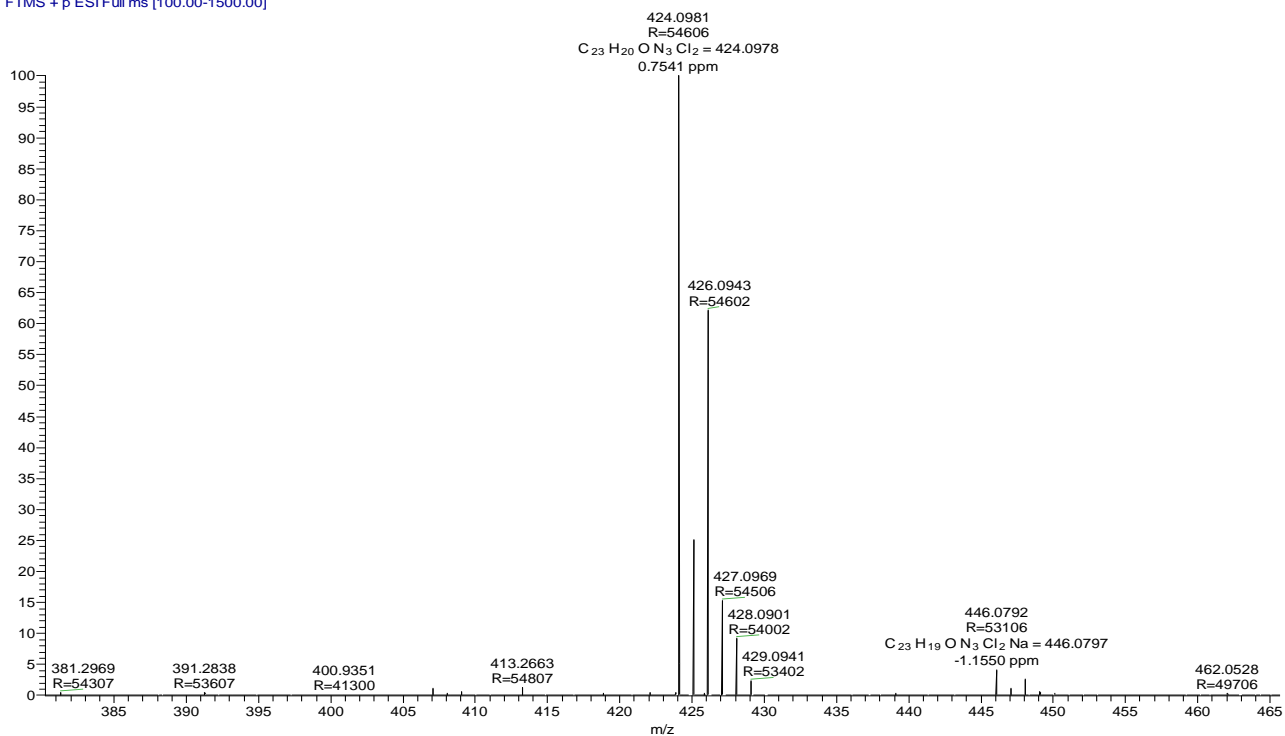
## <sup>13</sup>C NMR of compound 5a:

CP2  
C13CPD CDCl3 {E:\SSGM} Snehal 4

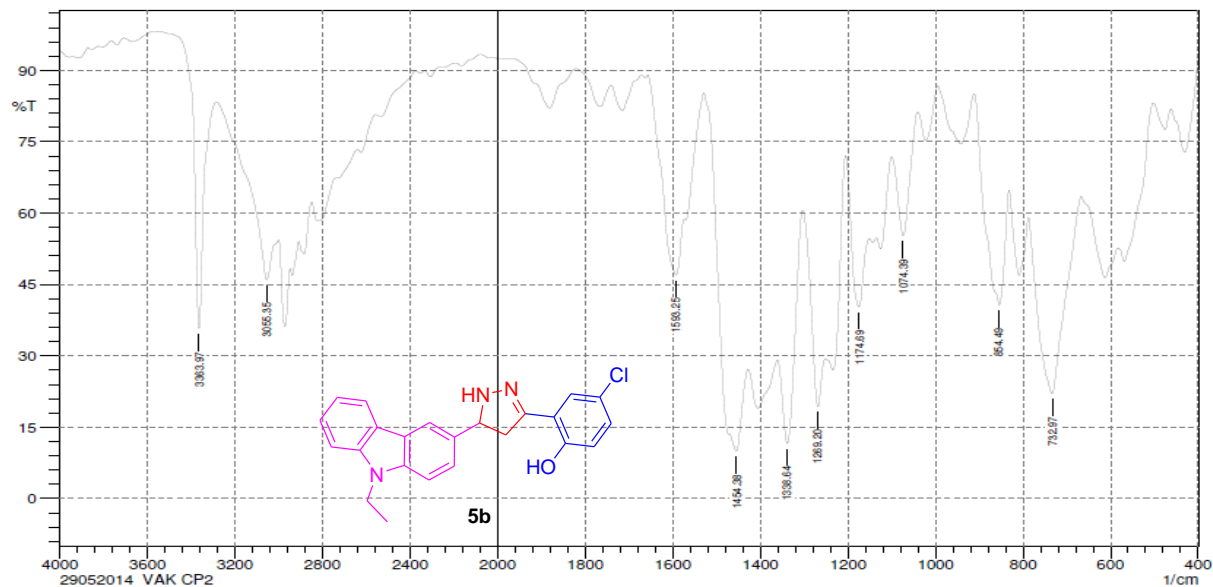


## HRMS of compound 5a:

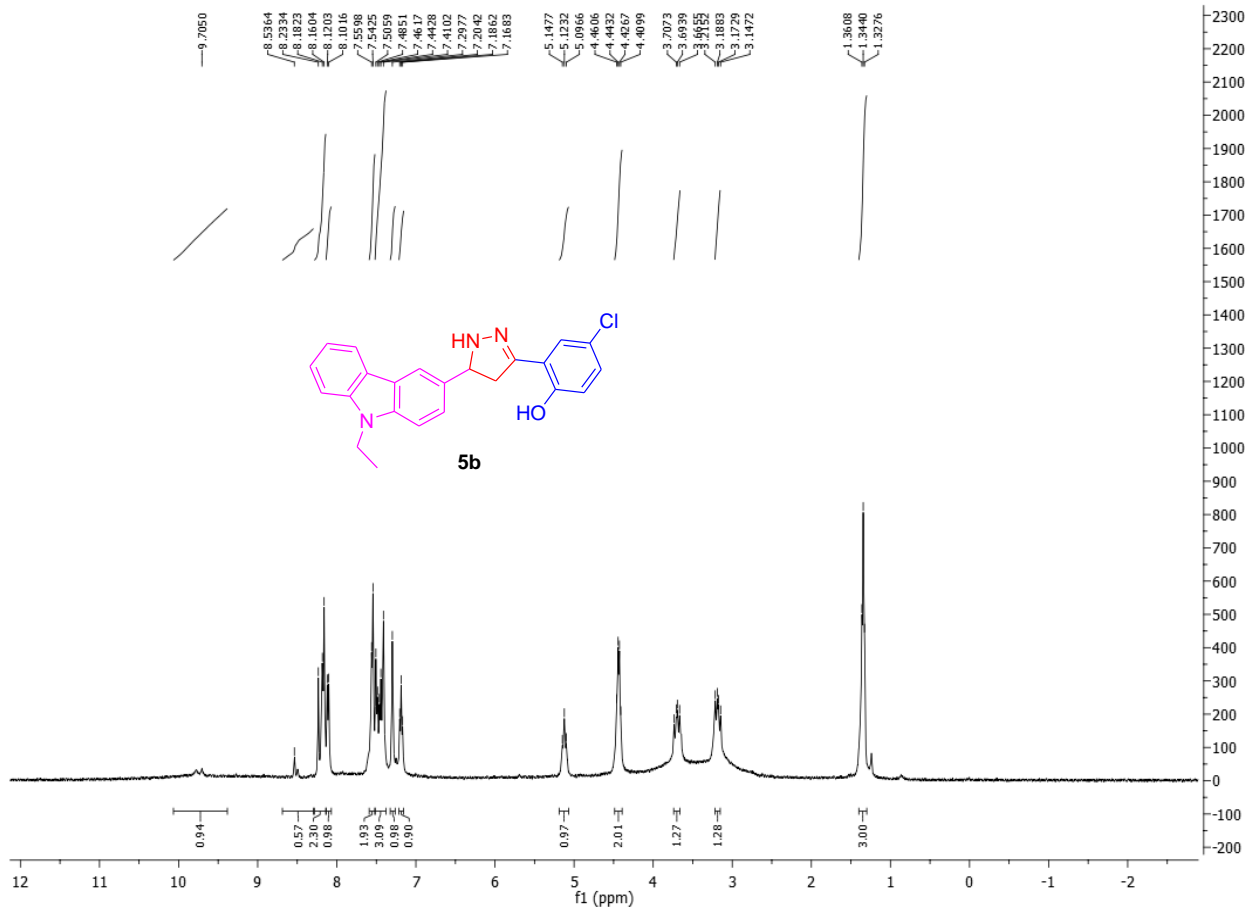
CP-2 #204 RT: 0.91 AV: 1 NL: 3.85E8  
T: FTMS + p ESI Full ms [100.00-1500.00]



**FTIR of compound 5b:**

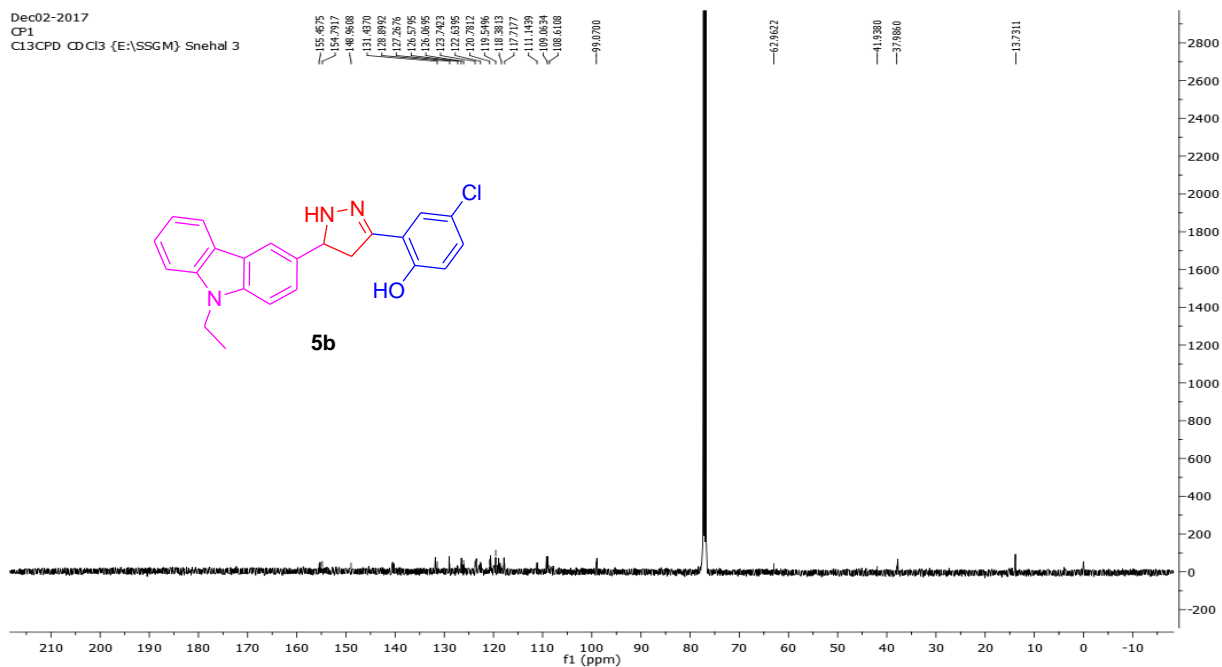


**<sup>1</sup>H NMR of compound 5b:**



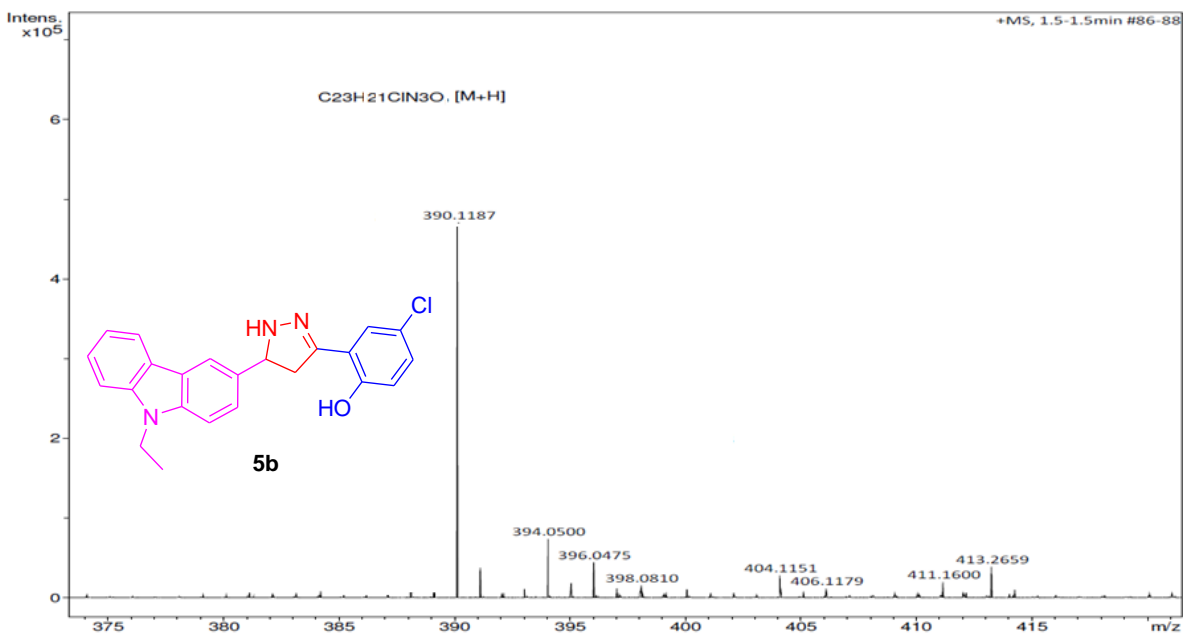


### <sup>13</sup>C NMR of compound 5b:



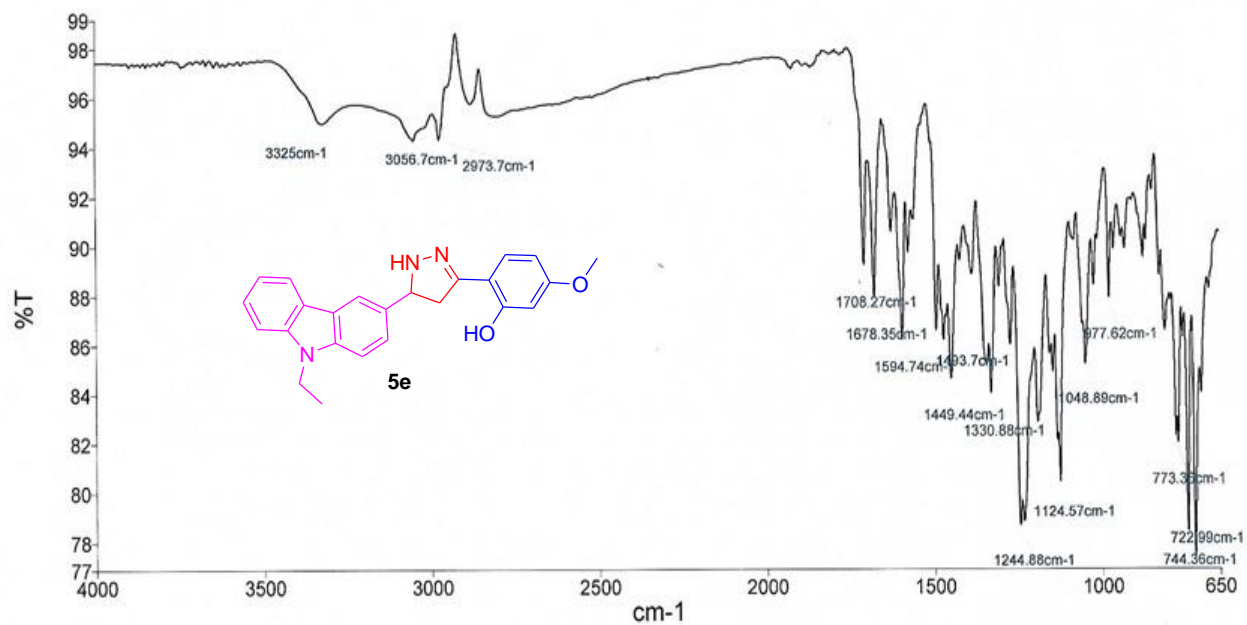
### HRMS of compound 5b:

Acquisition Parameter		Ion Polarity	Positive	Set Nebulizer	1.7 Bar
Source Type	ESI	Set Capillary	4500 V	Set Dry Heater	200 °C
Focus	Active	Set End Plate Offset	-500 V	Set Dry Gas	7.0 l/min
Scan Begin	50 m/z	Set Charging Voltage	2000 V	Set Divert Valve	Waste
Scan End	600 m/z	Set Corona	0 nA	Set APCI Heater	0 °C

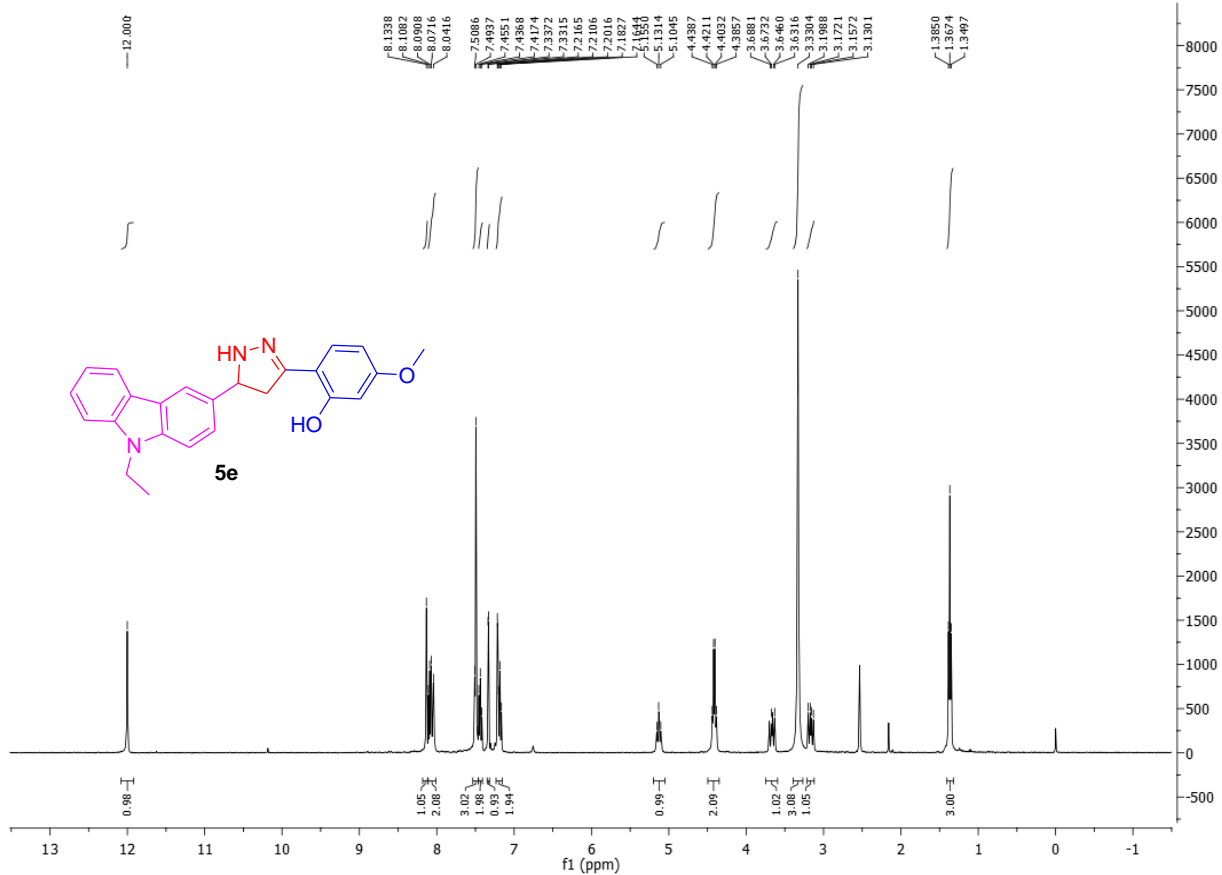


Meas. m/z	#	Ion Formula	Score	m/z	err [mDa]	err [ppm]	mSigma	rdb	e <sup>-</sup>	Conf	N-Rule	Adduct
390.11856	1	C <sub>23</sub> H <sub>21</sub> ClN <sub>3</sub> O	100.00	390.11876	0.1	0.2	14.8	15.5	even		ok	M+H

### FTIR of compound 5e:



### <sup>1</sup>H NMR of compound 5e:



# <sup>13</sup>C NMR of compound 5e:

