Supporting Information

Ionic Liquid Supported on Magnetic Graphen Oxide as a Highly Efficient and Stable Catalysts for the Synthesis of Triazolopyrimidines

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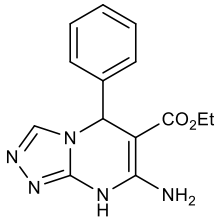
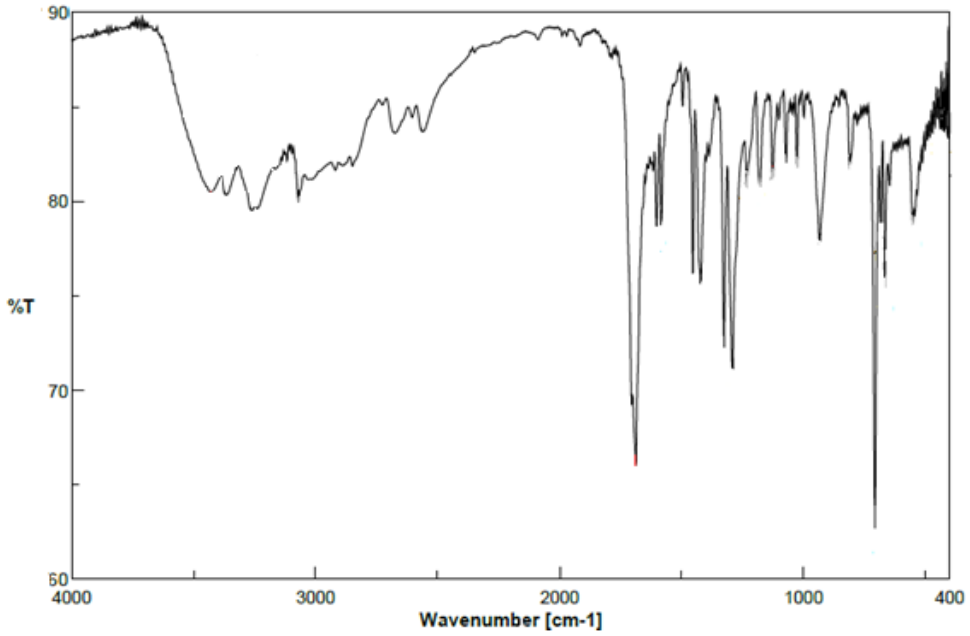
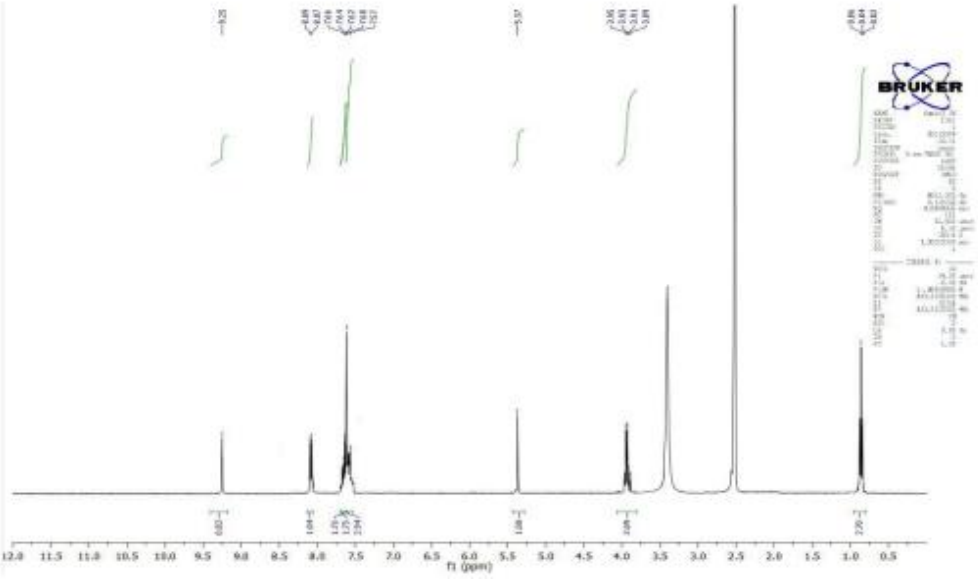
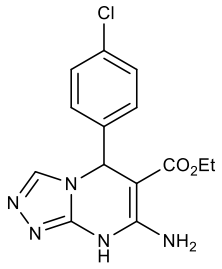
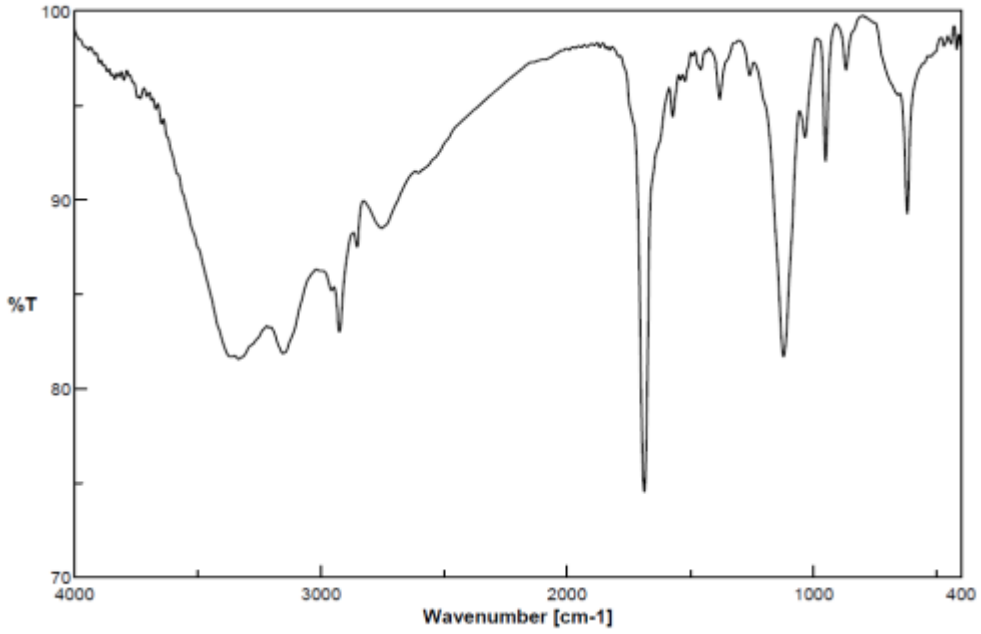
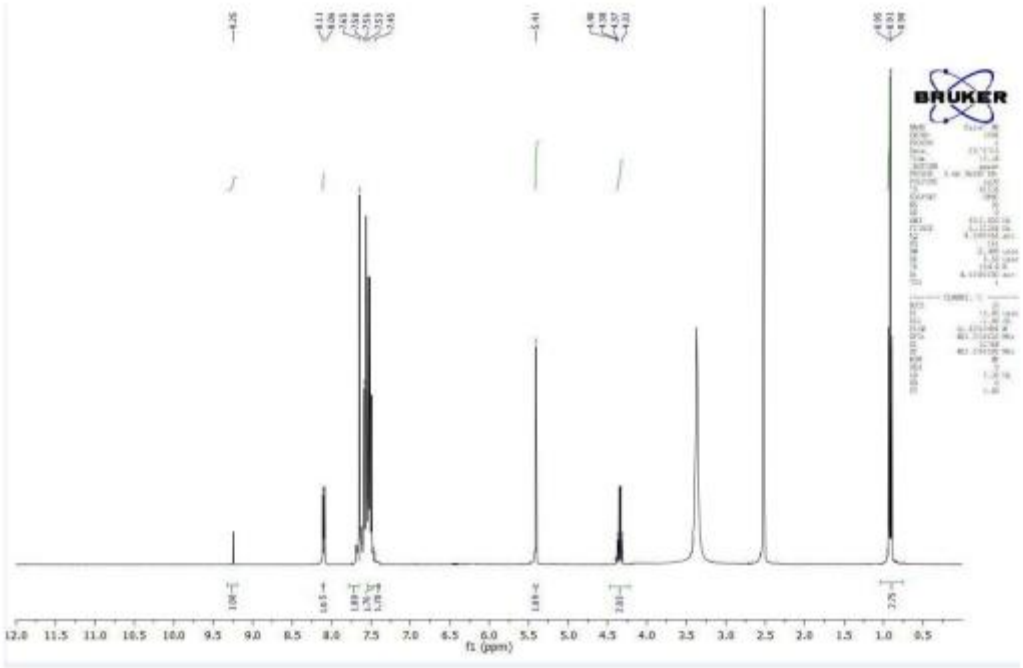

CO2Et
N
N
N
H
NH2

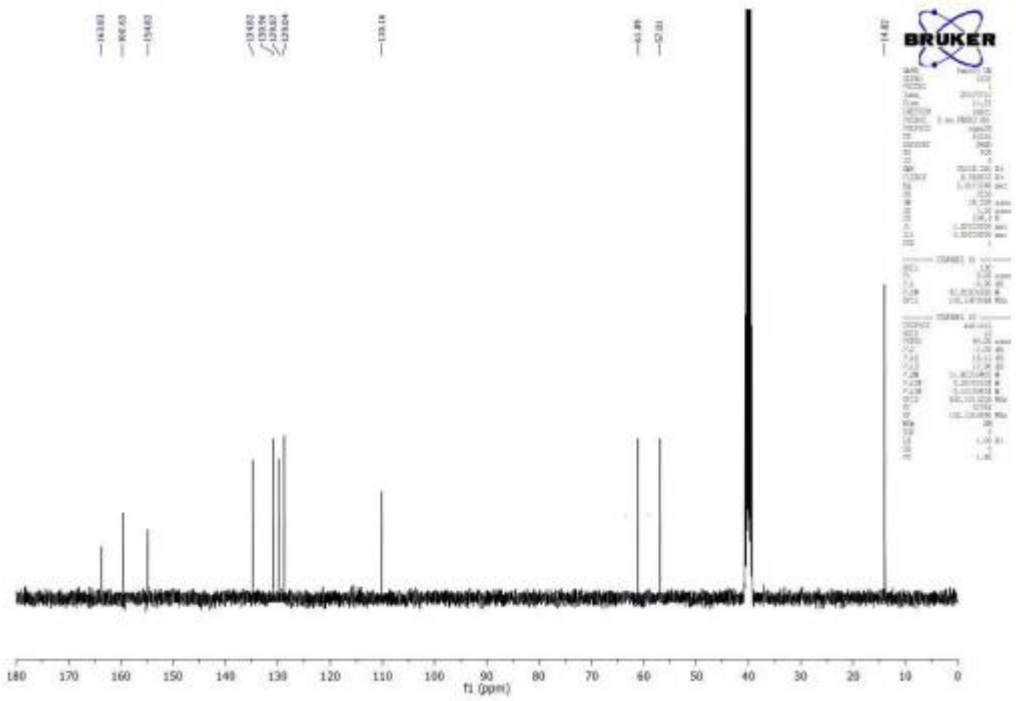

90
80
70
60
%T
4000
3000
2000
1000
400
Wavenumber [cm-1]

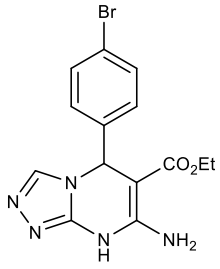

BRUKER
f1 (ppm)

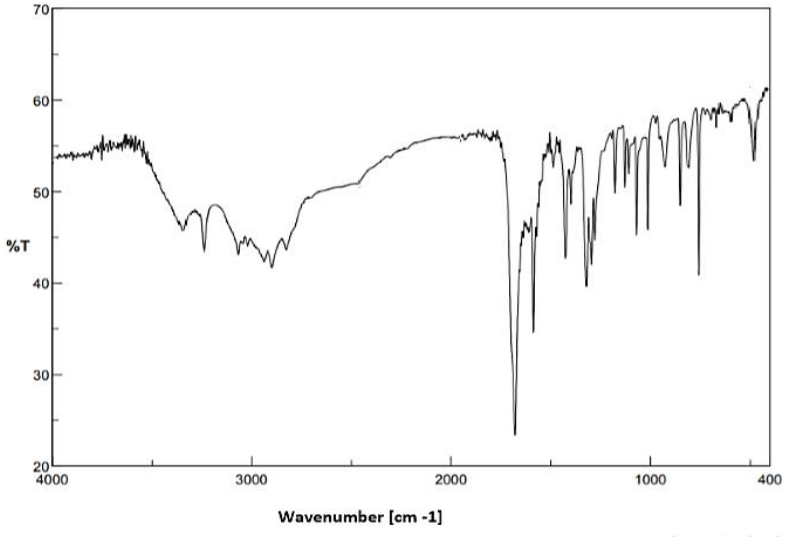

Cl
CO2Et
N
N
N
N
H
NH2

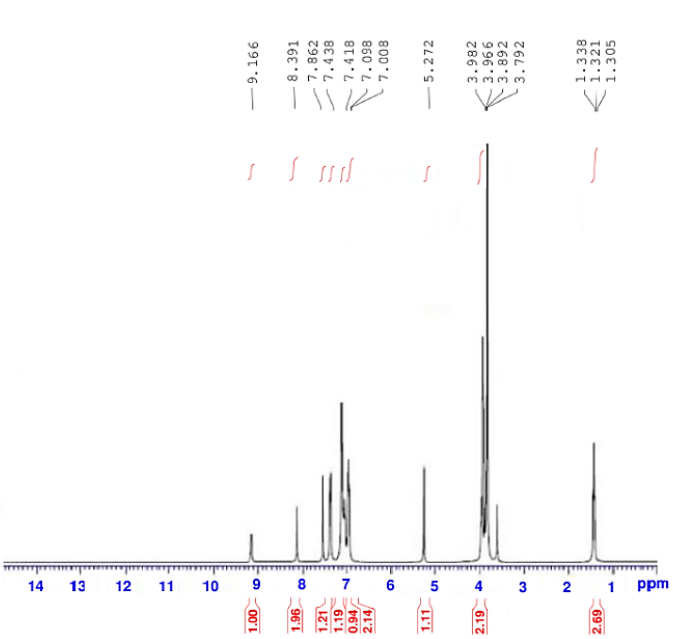

100
90
80
70
%T
4000
3000
2000
1000
400
Wavenumber [cm-1]


BRUKER
12.0
11.5
11.0
10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
f1 (ppm)









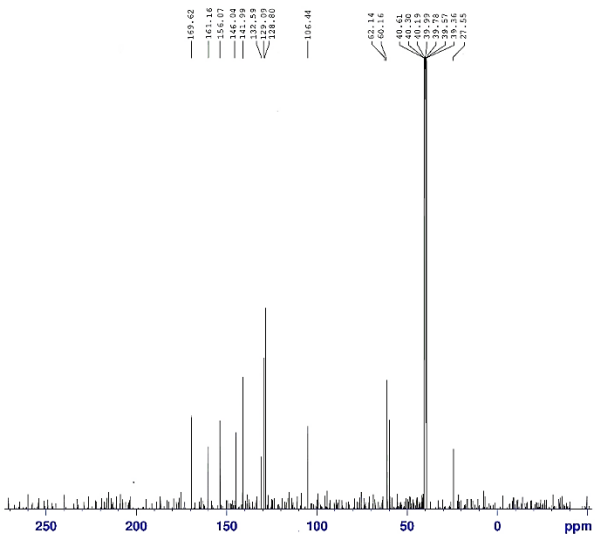
BRUKER

```
Current Data Parameters
NAME                  other
EXPNO                   168
PROCNO                    1

F2 - Acquisition Parameters
Date_              20181103
Time                   9.43
INSTRUM               spect
PROBHD   5 mm Multinucl
PULPROG                zg
TD                    16384
SOLVENT              DMSO
NS                       40
DS                        0
SWH                6265.664 Hz
FIDRES             0.382426 Hz
AQ                 1.3074932 sec
RG                       32
DW                   79.800 usec
DE                    6.00 usec
TE                   300.0 K
D1                2.00000000 sec

======== CHANNEL f1 ========
NUC1                     1H
P1                    9.00 usec
PL1                   3.00 dB
SFO1           250.1322512 MHz

F2 - Processing parameters
SI                       32768
SF              250.1300000 MHz
WDW                         EM
SSB                          0
LB                        0.50 Hz
GB                           0
PC                        1.00
```



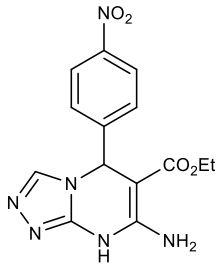
BRUKER

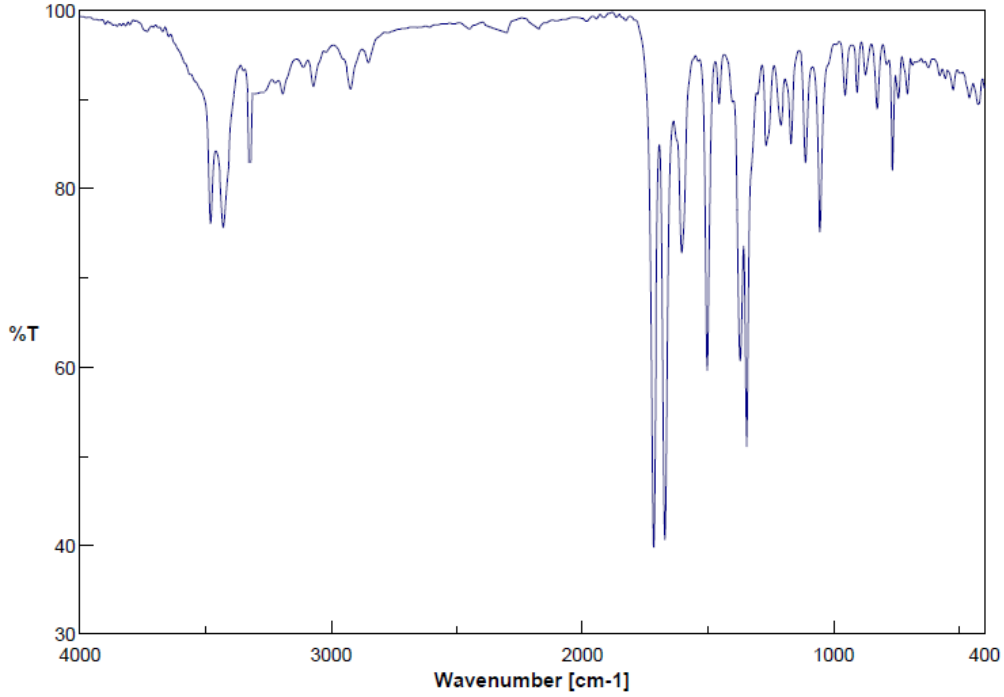
```
Current Data Parameters
NAME                  other
EXPNO                   168
PROCNO                    1

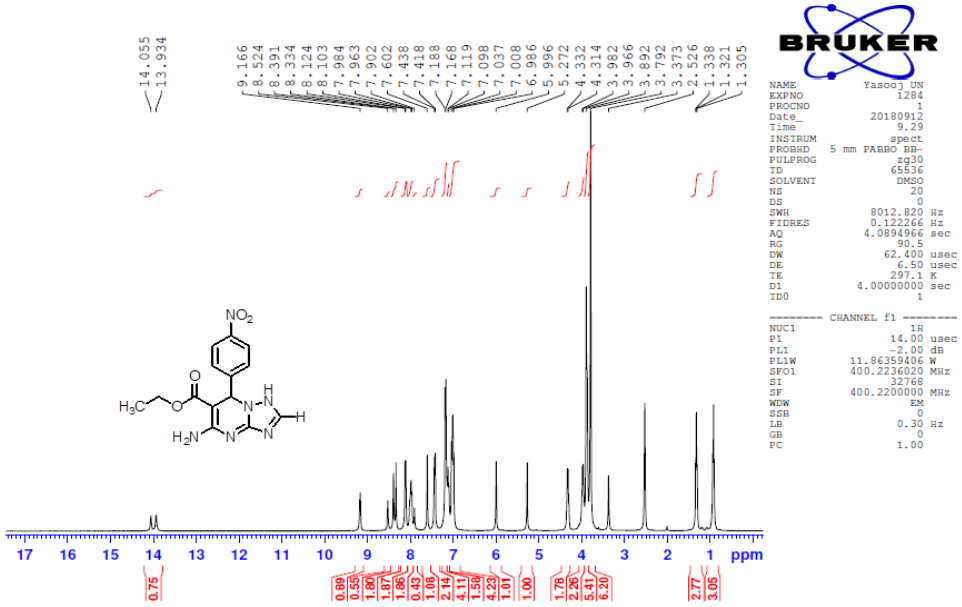
F2 - Acquisition Parameters
Date_              20181103
Time                   9.43
INSTRUM               spect
PROBHD   5 mm Multinucl
PULPROG                zg
TD                    16384
SOLVENT              DMSO
NS                       40
DS                        0
SWH                6265.664 Hz
FIDRES             0.382426 Hz
AQ                 1.3074932 sec
RG                       32
DW                   79.800 usec
DE                    6.00 usec
TE                   300.0 K
D1                2.00000000 sec

======== CHANNEL f1 ========
NUC1                     1H
P1                    9.00 usec
PL1                   3.00 dB
SFO1           250.1322512 MHz

F2 - Processing parameters
SI                       32768
SF              250.1300000 MHz
WDW                         EM
SSB                          0
LB                        0.50 Hz
GB                           0
PC                        1.00
```



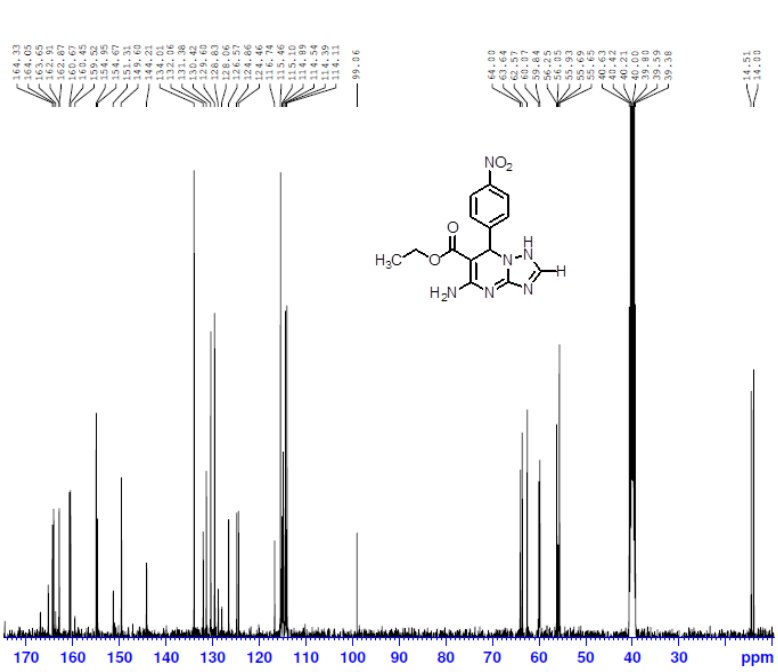




BRUKER

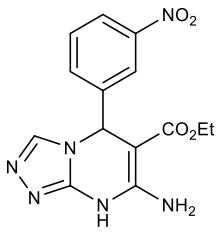
```
NAME                Yasooj UN
EXPNO                    1284
PROCNO                      1
Date_               20180912
Time                    9.29
INSTRUM                spect
PROBHD   5 mm PABBO BB-
PULPROG                zg30
TD                    65536
SOLVENT                DMSO
NS                        20
DS                         0
SWH                8012.820 Hz
FIDRES             0.122266 Hz
AQ                 4.0894966 sec
RG                      90.5
DW                 62.400 usec
DE                  6.50 usec
TE                  297.1 K
D1                 4.00000000 sec
TD0                        1

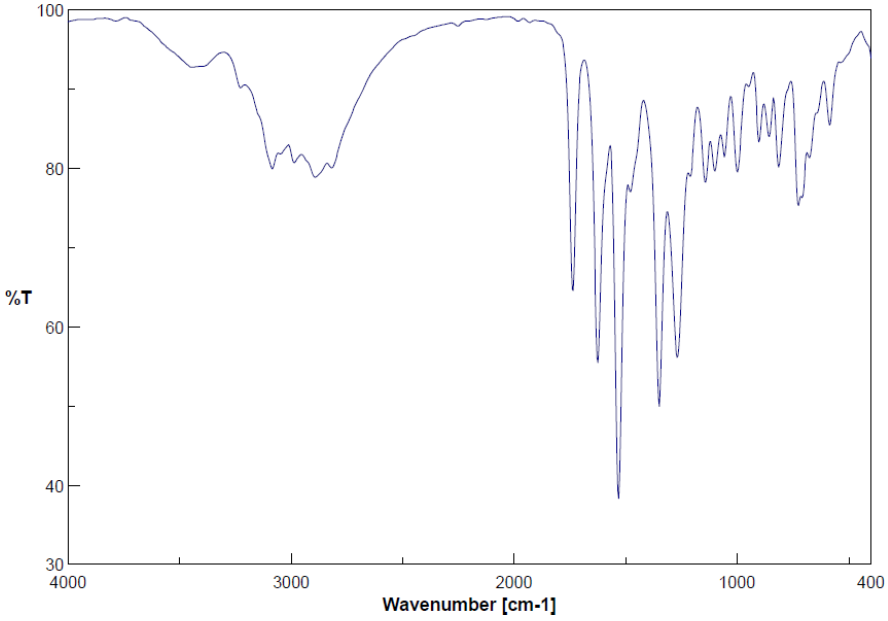
======== CHANNEL f1 ========
NUC1                      1H
P1                 14.00 usec
PL1                 -2.00 dB
PL1W           11.86359406 W
SFO1           400.2236020 MHz
SI                     32768
SF             400.2200000 MHz
WDW                       EM
SSB                        0
LB                  0.30 Hz
GB                         0
PC                      1.00
```

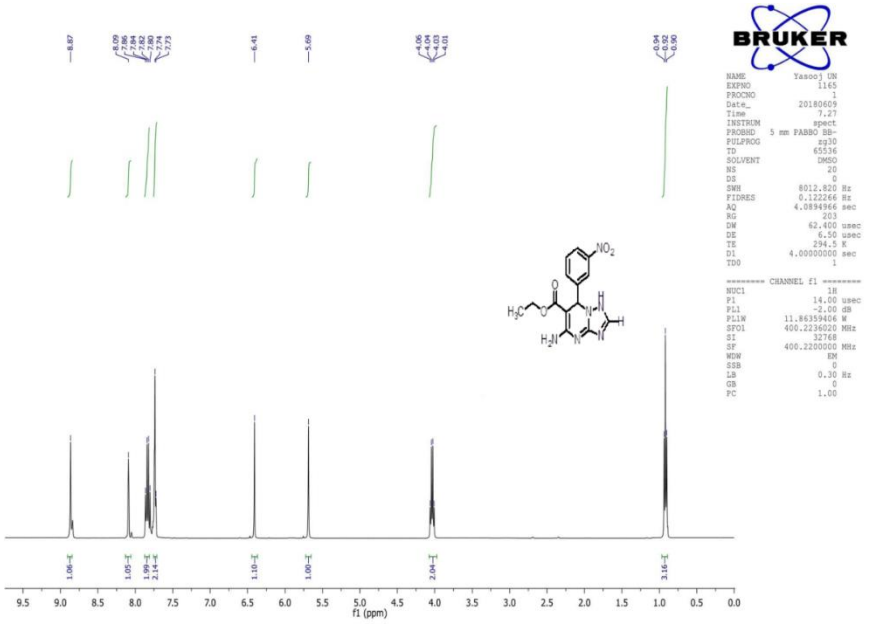


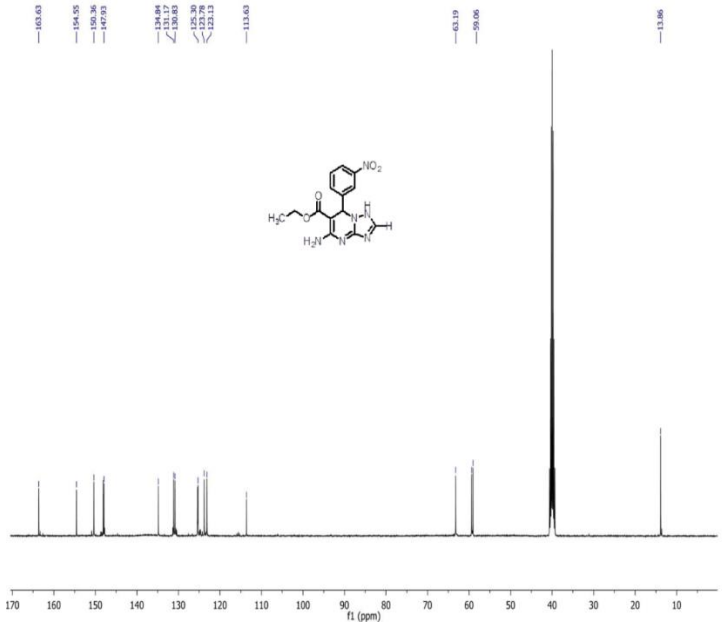
BRUKER

NAME	Yasooj UN
EXPNO	1285
PROCNO	1
Date_	20180912
Time	9.33
INSTRUM	spect
PROBHD	5 mm PABBO BB-
PULPROG	zgpg30
TD	65536
SOLVENT	DMSO
NS	893
DS	0
SWH	35714.285 Hz
FIDRES	0.544957 Hz
AQ	0.9175540 sec
RG	2050
DW	14.000 usec
DE	6.50 usec
TE	297.4 K
D1	1.00000000 sec
D11	0.03000000 sec
TD0	1
CHANNEL f1	
NUC1	13C
P1	9.00 usec
PL1	-0.90 dB
PL1W	42.02801895 W
SFO1	100.6479784 MHz
CHANNEL f2	
CPDPRG2	waltz16
NUC2	1H
PCPD2	90.00 usec
PL2	-2.00 dB
PL12	14.16 dB
PL13	17.90 dB
PL2W	11.86359406 W
PL12W	0.28722104 W
PL13W	0.12139934 W
SFO2	400.2216009 MHz
SI	32768
SF	100.6353990 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.30


NO2
CO2Et
N
N
N
H
NH2

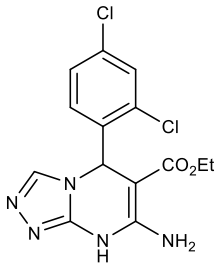

100
80
60
40
30
%T
4000
3000
2000
1000
400
Wavenumber [cm-1]

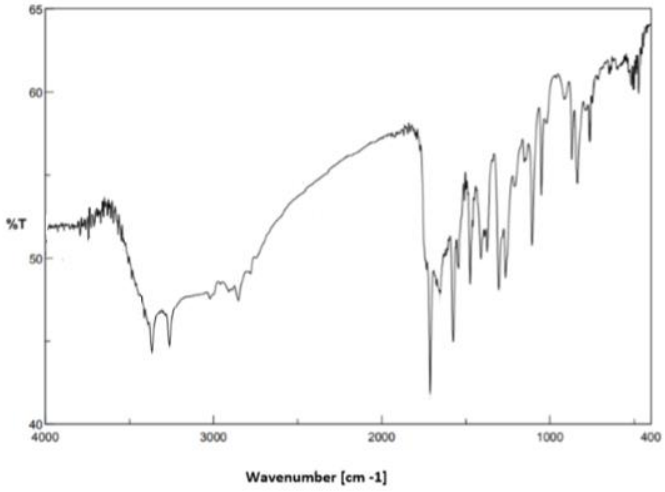

BRUKER
f1 (ppm)

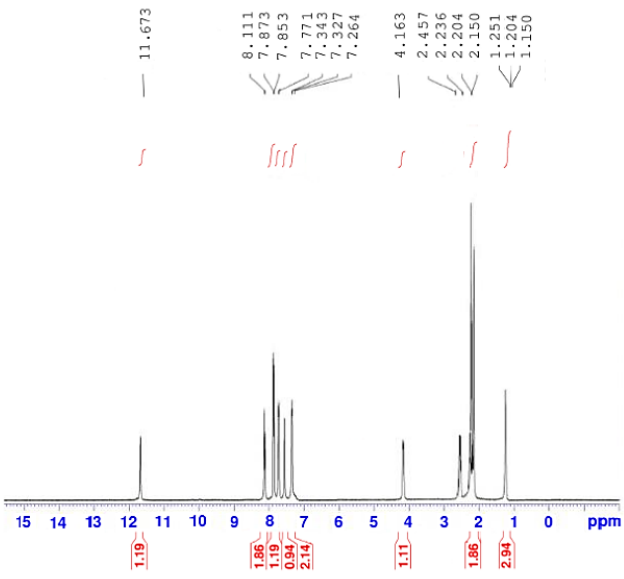


BRUKER

NAME	Yasoo} UN
EXPNO	1166
PROCNO	1
Date_	20180609
Time	20.05
INSTRUM	spect
PROBHD	5 mm PABBO BB-
PULPROG	zgpg30
TD	65536
SOLVENT	DMSO
NS	4451
DS	0
SWH	35714.285 Hz
FIDRES	0.544957 Hz
AQ	0.9175540 sec
RG	2050
DW	14.000 usec
DE	6.50 usec
TE	294.7 K
D1	1.00000000 sec
D11	0.03000000 sec
TD0	1
======== CHANNEL f1 ========	
NUC1	13C
P1	9.00 usec
PL1	-0.90 dB
PL1W	42.02801895 W
SFO1	100.6479784 MHz
======== CHANNEL f2 ========	
CPDPRG2	waltz16
NUC2	1H
PCPD2	90.00 usec
PL2	-2.00 dB
PL12	14.16 dB
PL13	17.90 dB
PL2W	11.86359406 W
PL12W	0.28722104 W
PL13W	0.12139934 W
SFO2	400.2216009 MHz
SI	32768
SF	100.6353990 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40







BRUKER

```
Current Data Parameters
NAME                  other
EXPNO                   169
PROCNO                    1

F2 - Acquisition Parameters
Date_              20181103
Time                   9.58
INSTRUM               spect
PROBHD   5 mm Multinucl
PULPROG                zg
TD                    16384
SOLVENT                DMSO
NS                       40
DS                        0
SWH                6265.664 Hz
FIDRES             0.382426 Hz
AQ                 1.3074932 sec
RG                       32
DW                  79.800 usec
DE                   6.00 usec
TE                  300.0 K
D1                2.00000000 sec

======== CHANNEL f1 ========
NUC1                      1H
P1                    9.00 usec
PL1                   3.00 dB
SFO1            250.1322512 MHz

F2 - Processing parameters
SI                       32768
SF                250.1300000 MHz
WDW                         EM
SSB                          0
LB                    0.50 Hz
GB                           0
PC                    1.00
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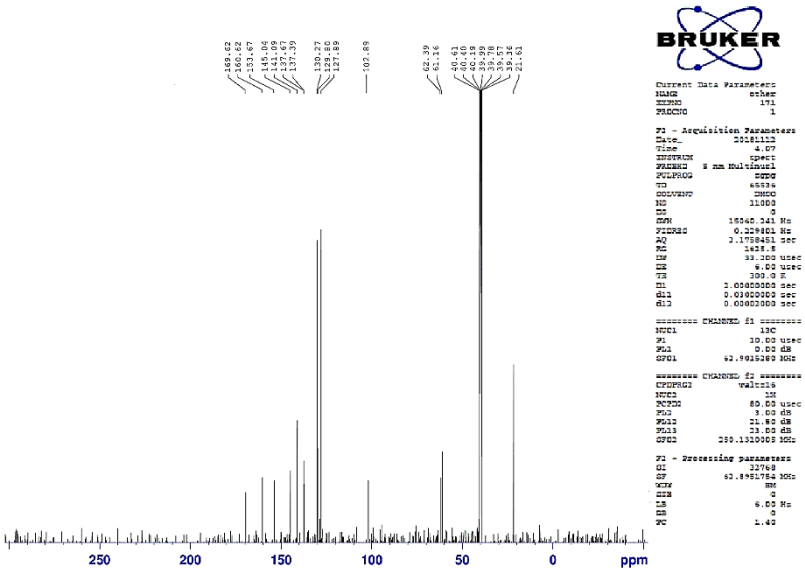
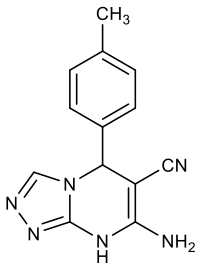
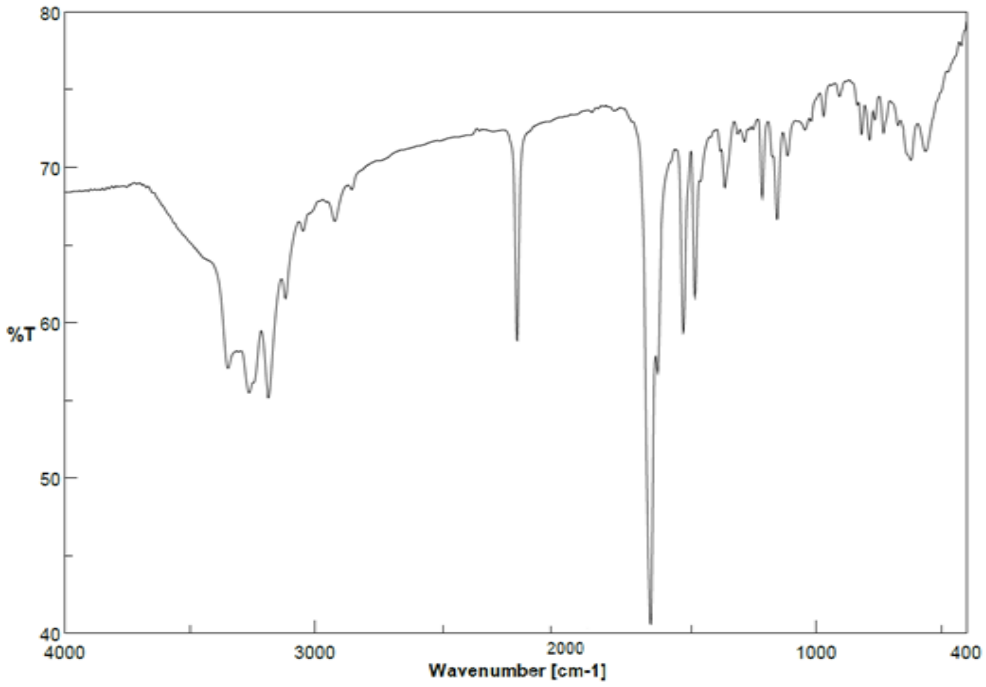
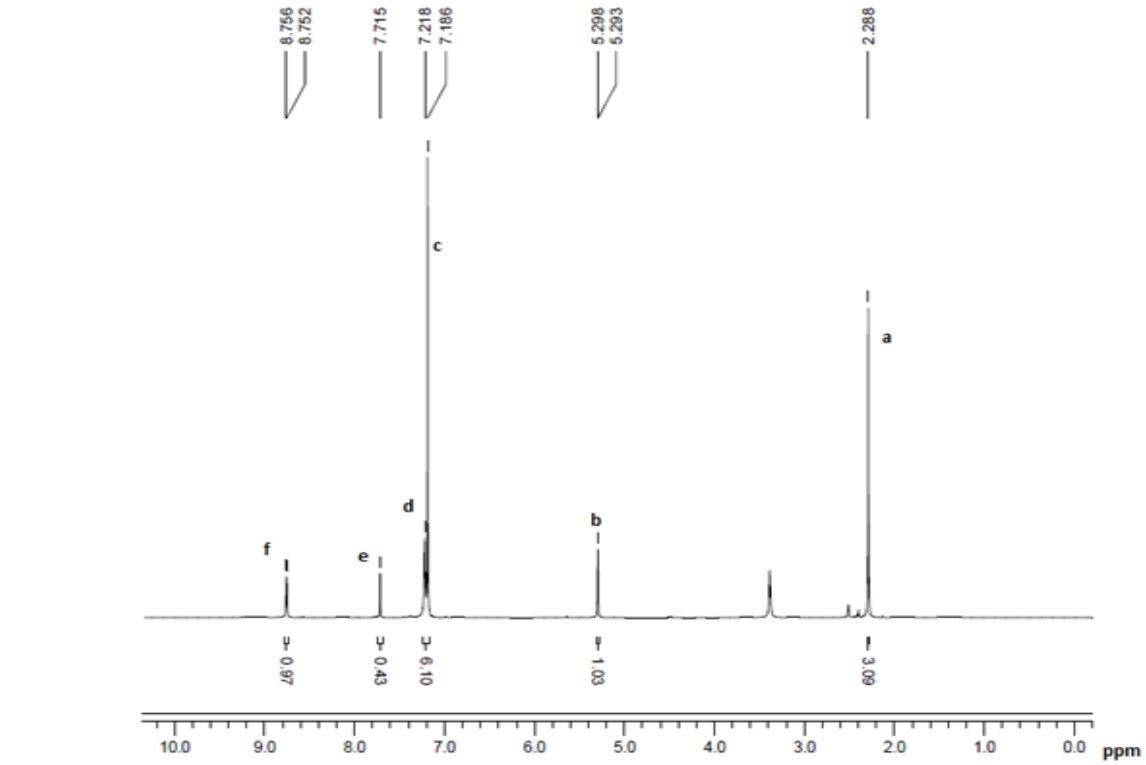
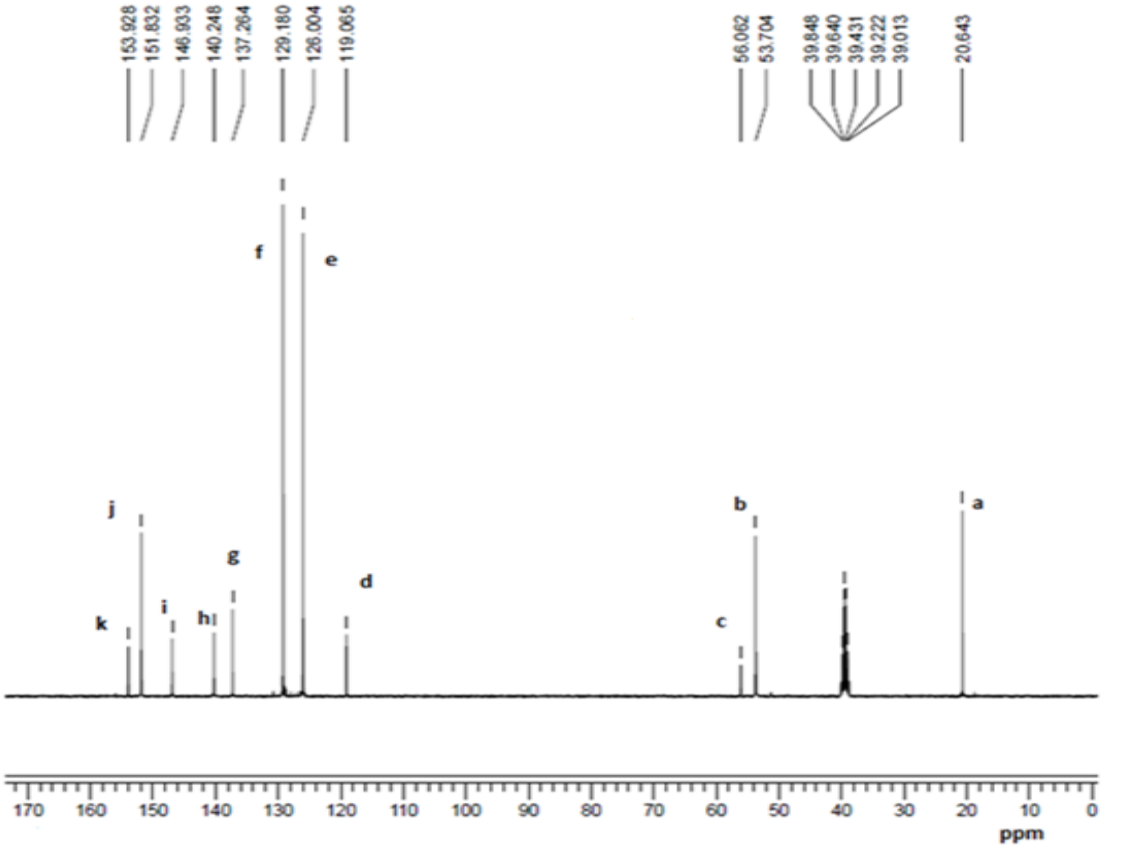
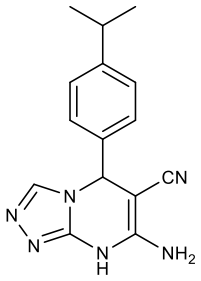

160.62
155.63
151.67
145.06
141.09
137.67
137.39
130.27
129.80
127.89
102.89
62.39
61.16
40.61
40.40
40.19
39.99
39.78
39.57
39.36
21.61
250
200
150
100
50
0
ppm
BRUKER
Current Data Parameters
NAME ether
EXPNO 171
PROCNO 1
F2 - Acquisition Parameters
Date_ 20181113
Time 4.07
INSTRUM spect
PROBHD 5 mm Multinucl
PULPROG zgpg
TD 65536
SOLVENT DMSO
NS 11000
DS 0
SWH 16540.341 Hz
FIDRES 0.252401 Hz
AQ 2.1758451 sec
RG 1628.5
DW 30.300 usec
DE 6.00 usec
TE 300.0 K
D1 2.00000000 sec
d11 0.03000000 sec
d12 0.00002000 sec
======== CHANNEL f1 ========
NUC1 13C
P1 10.00 usec
PL1 0.00 dB
SFO1 62.9915280 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 3.00 dB
PL12 21.80 dB
PL13 23.00 dB
SFO2 250.1330005 MHz
F2 - Processing parameters
SI 32768
SF 62.8981784 MHz
WDW EM
SSB 0
LB 6.00 Hz
GB 0
PC 1.40

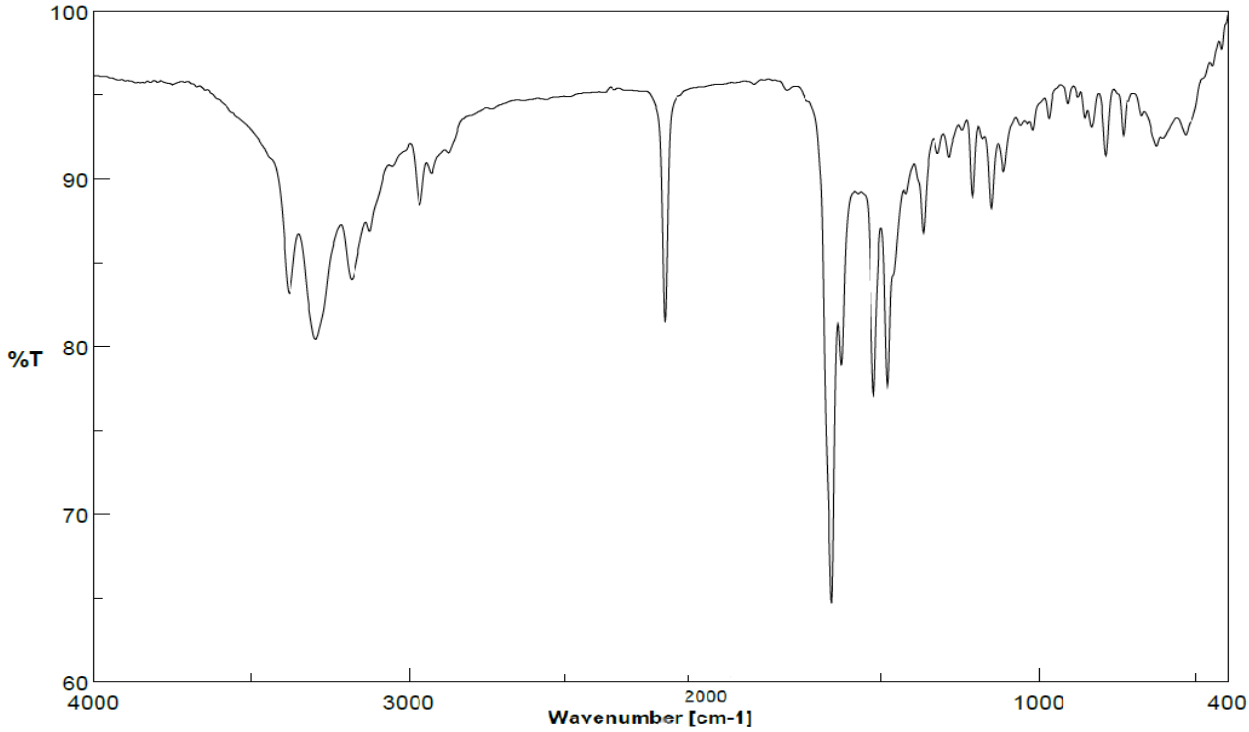

CH3
CN
N
N
N
H
NH2

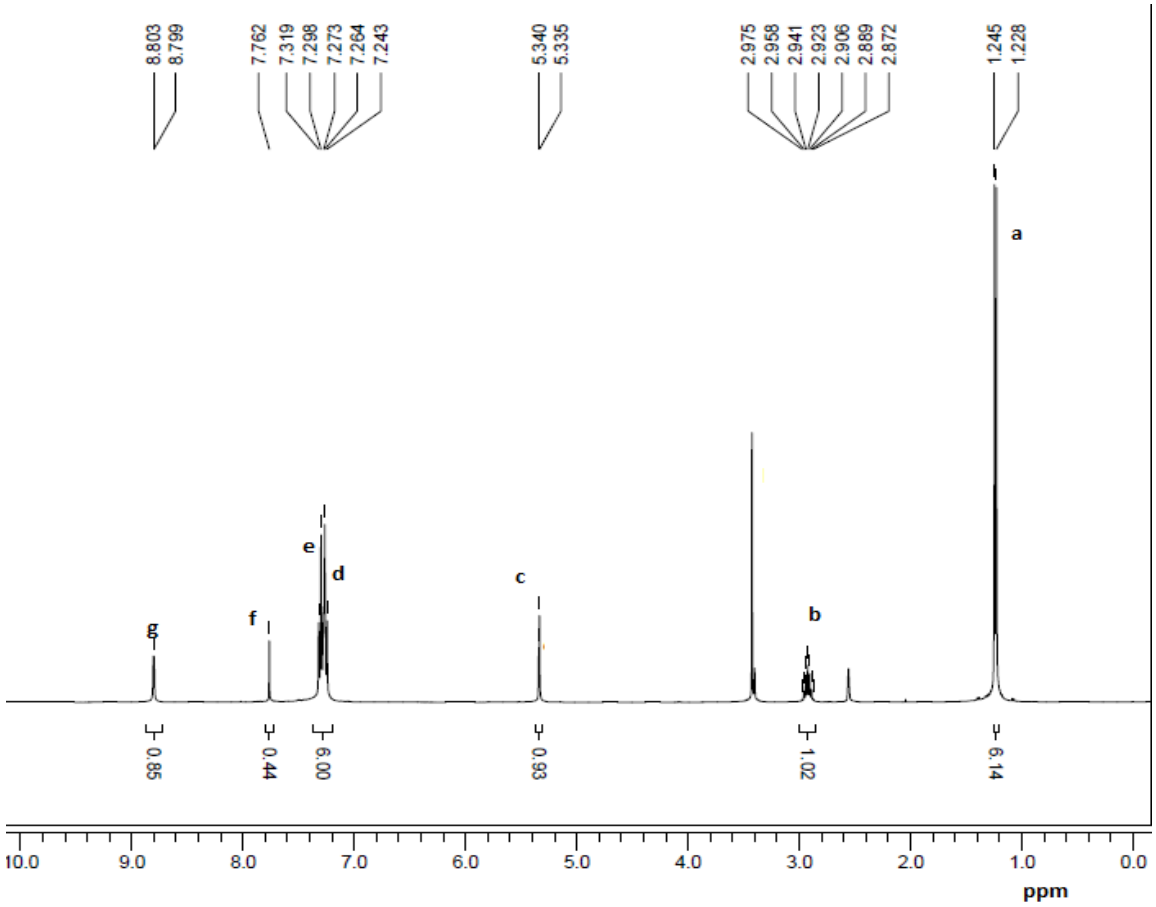

80
70
60
50
40
%T
4000
3000
2000
1000
400
Wavenumber [cm-1]

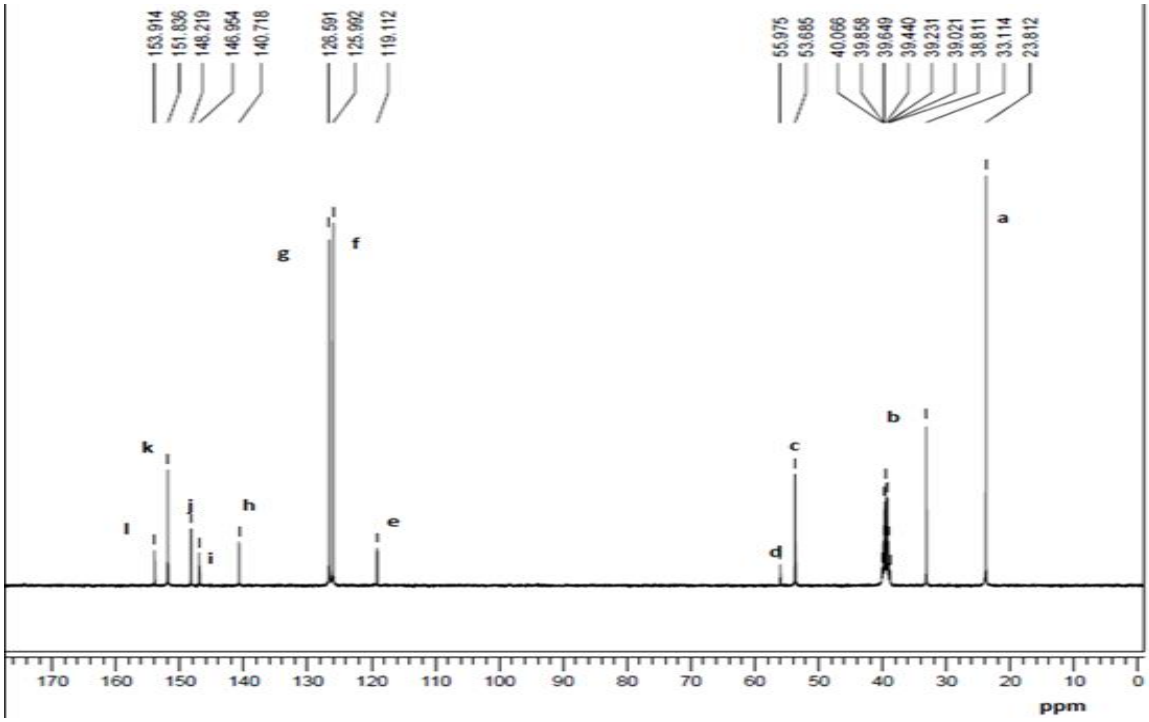

8.756
8.752
7.715
7.218
7.186
5.298
5.293
2.288
a
b
c
d
e
f
0.97
0.43
6.10
1.03
3.09
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
ppm

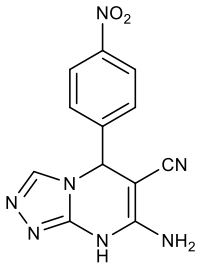

153.928
151.832
146.933
140.248
137.264
129.180
126.004
119.065
56.062
53.704
39.848
39.640
39.431
39.222
39.013
20.643
a
b
c
d
e
f
g
h
i
j
k
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
ppm

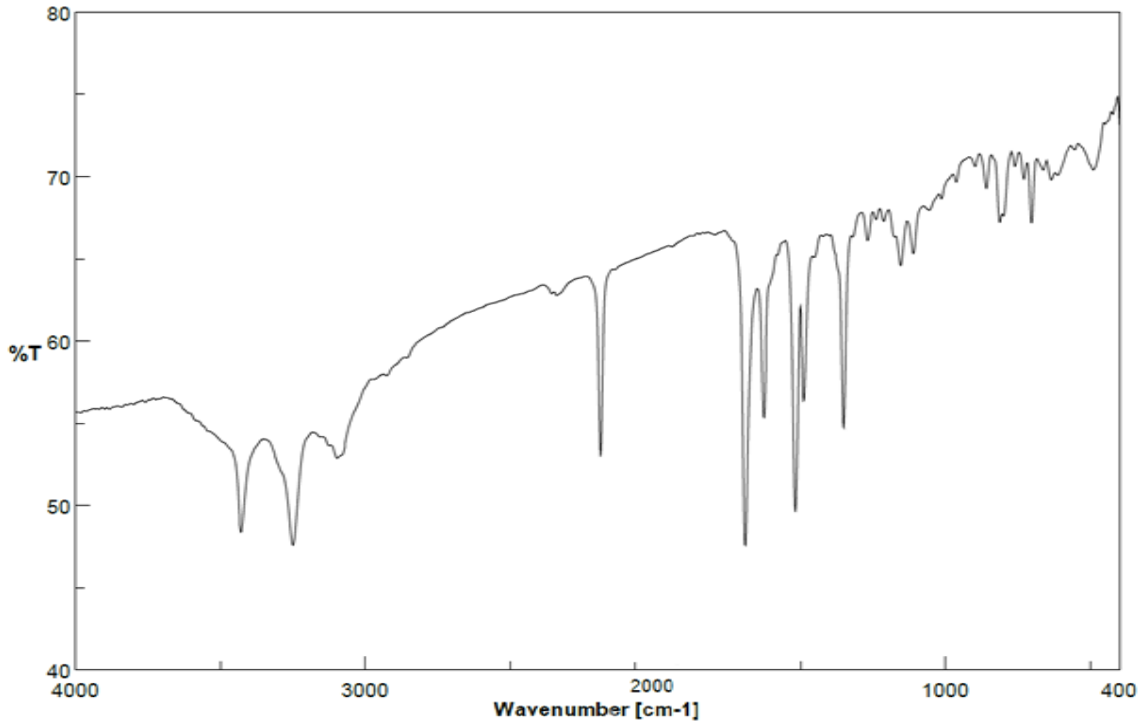

CN
N
N
N
H
NH2

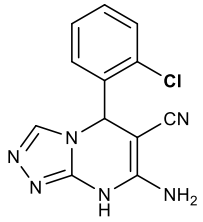

100
90
80
70
60
%T
4000
3000
2000
1000
400
Wavenumber [cm-1]

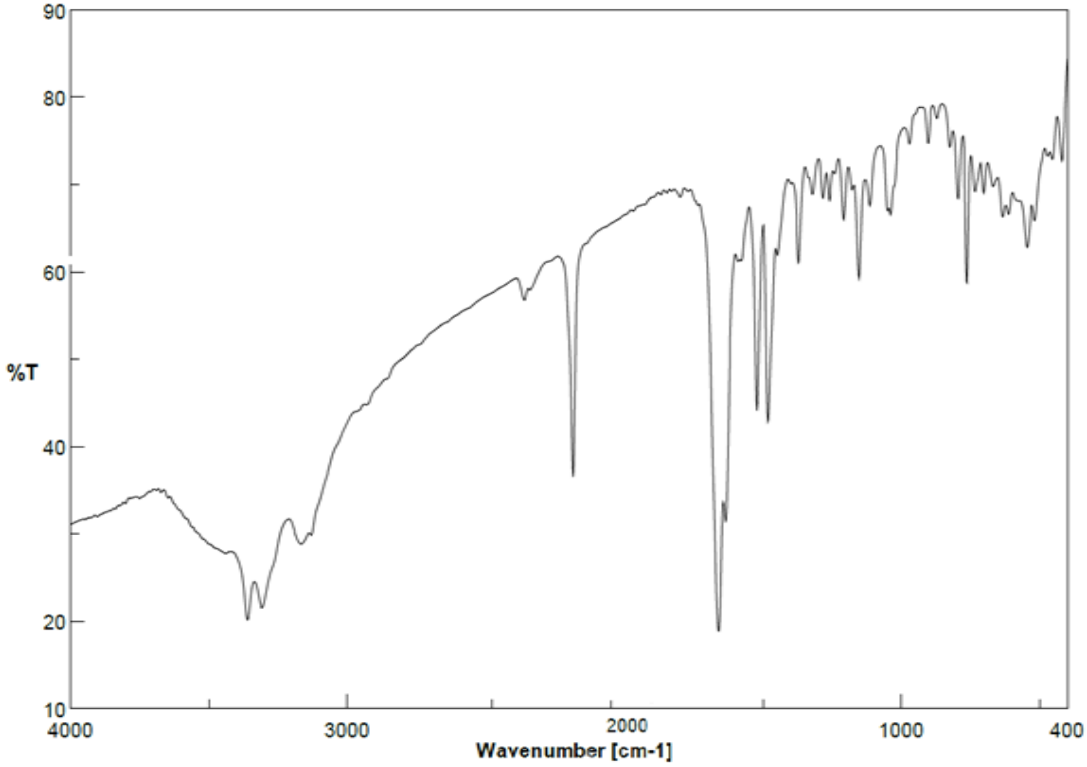

8.803
8.799
7.762
7.319
7.298
7.273
7.264
7.243
5.340
5.335
2.975
2.958
2.941
2.923
2.906
2.889
2.872
1.245
1.228
a
b
c
d
e
f
g
0.85
0.44
6.00
0.93
1.02
6.14
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
ppm

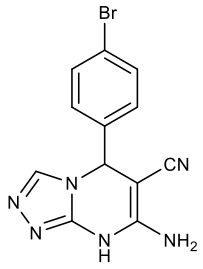

153.914
151.836
148.219
146.954
140.718
126.591
125.992
119.112
55.975
53.685
40.066
39.858
39.649
39.440
39.231
39.021
38.811
33.114
23.812
a
b
c
d
e
f
g
h
k
l
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
ppm

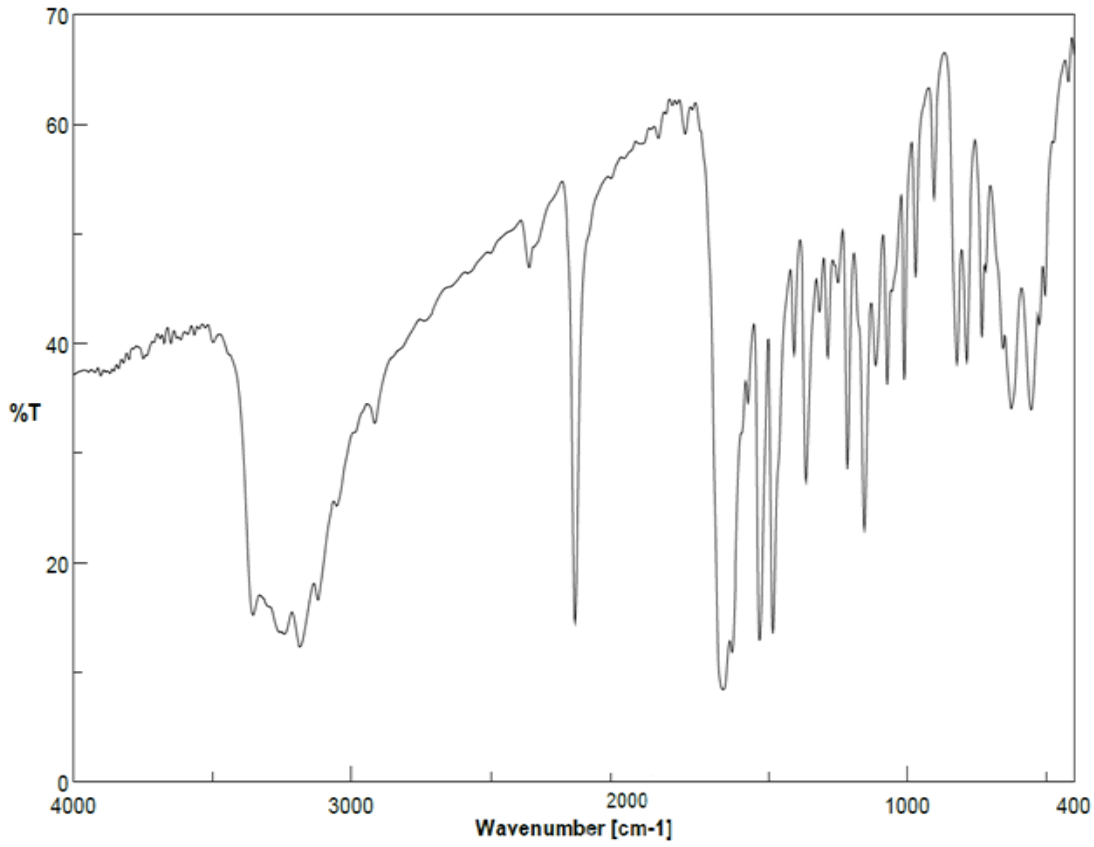

NO2
CN
N
N
N
H
NH2


80
70
60
50
40
%T
4000
3000
2000
1000
400
Wavenumber [cm-1]


Cl
CN
N
N
N
H
NH2


90
80
60
40
20
10
%T
4000
3000
2000
1000
400
Wavenumber [cm-1]


Br
CN
N
N
N
H
NH2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0
%T
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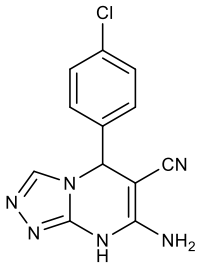
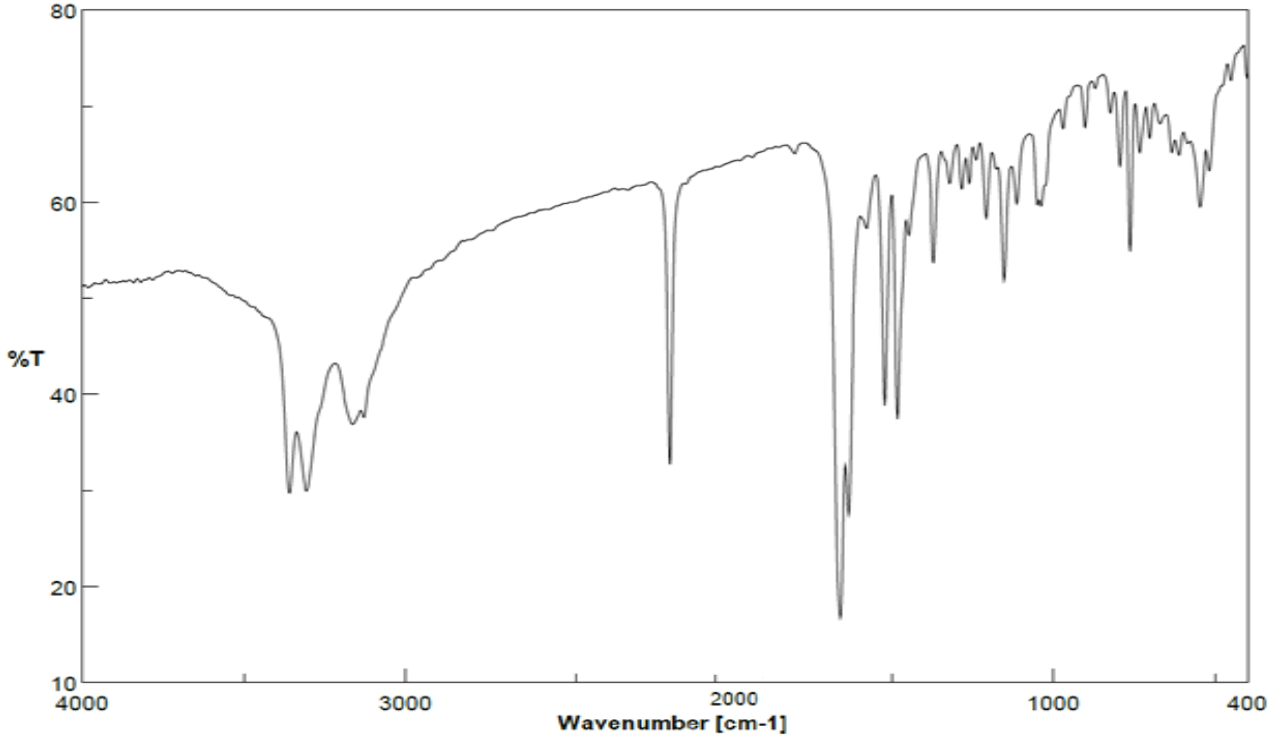
3000
2000
1000
400
Wavenumber [cm-1]


Cl
CN
N
N
N
H
NH2


80
60
40
20
10
%T
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3000
2000
1000
400
Wavenumber [cm-1]