

Supporting Information

Chemoselective synthesis of imidazopyrimidine and triazolopyrimidine hybrids using cadmium incorporated fluoroapatite encapsulated $\gamma\text{-Fe}_2\text{O}_3$ magnetic nanocatalyst

Forouzan Shahri,^a Manouchehr Mamaghani,^{a*} Nosratollah Mahmoodi, Moona Mohsenimehr,
Iman Rezaei

*Department of Organic Chemistry, Faculty of Chemistry, University of Guilan, P.O. Box 41335-1914,
Rasht, Iran*

*Corresponding Author E-mail: m-chem41@guilan.ac.ir; mchem41@gmail.com

^aDepartment of Chemistry, Faculty of Sciences, University of Guilan, P.O. Box 41335-1914, Rasht, Iran

Figure 2

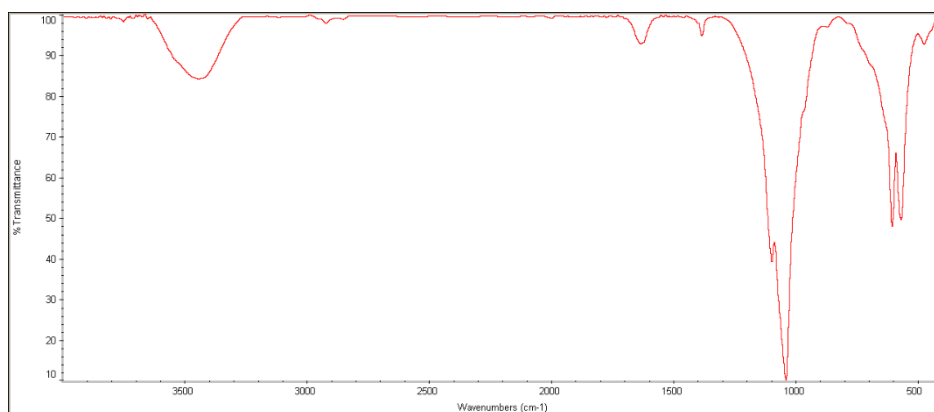
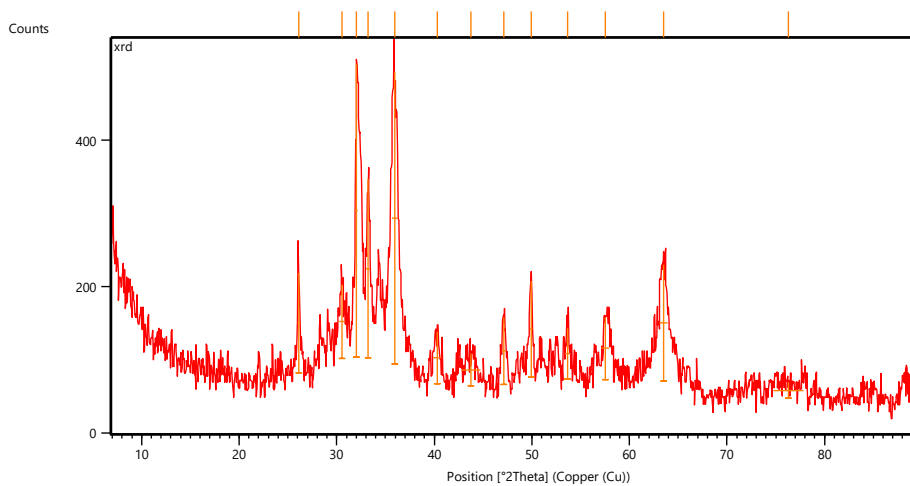
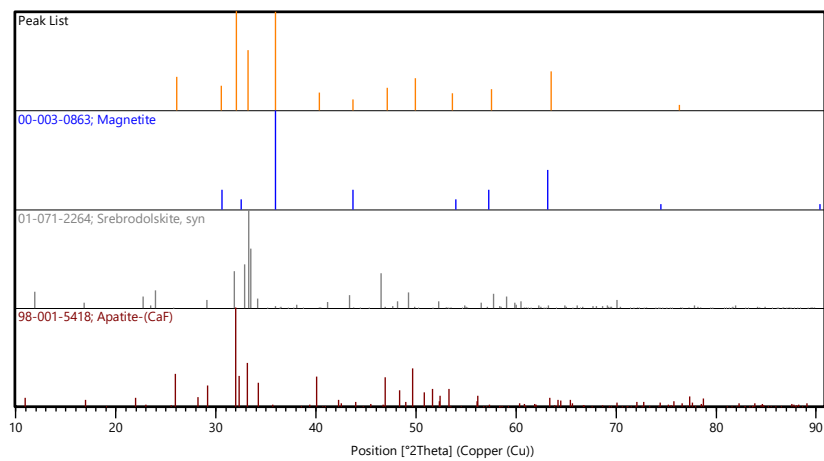
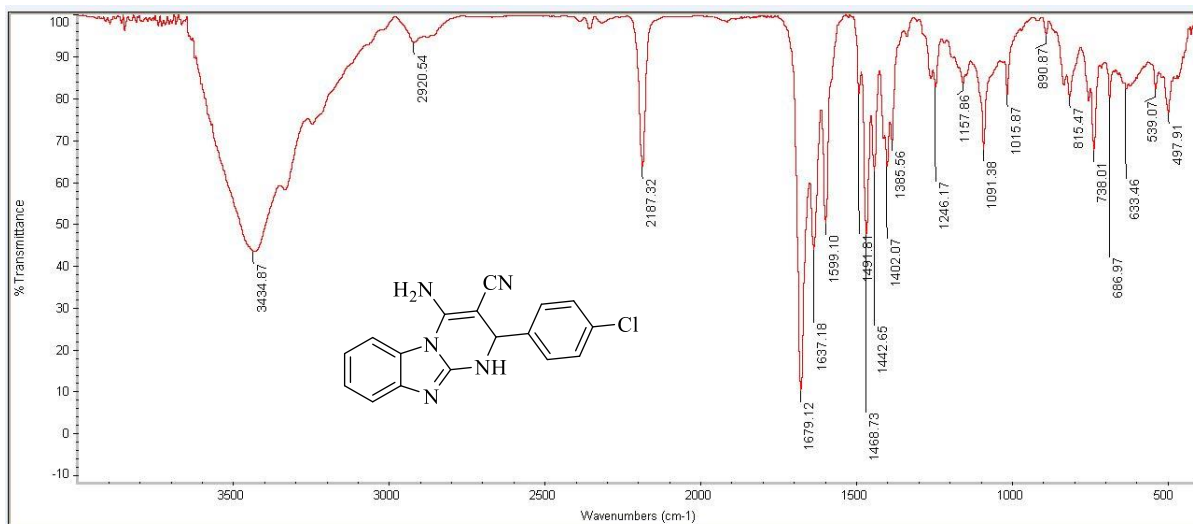


Figure 3

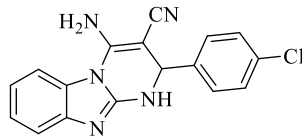
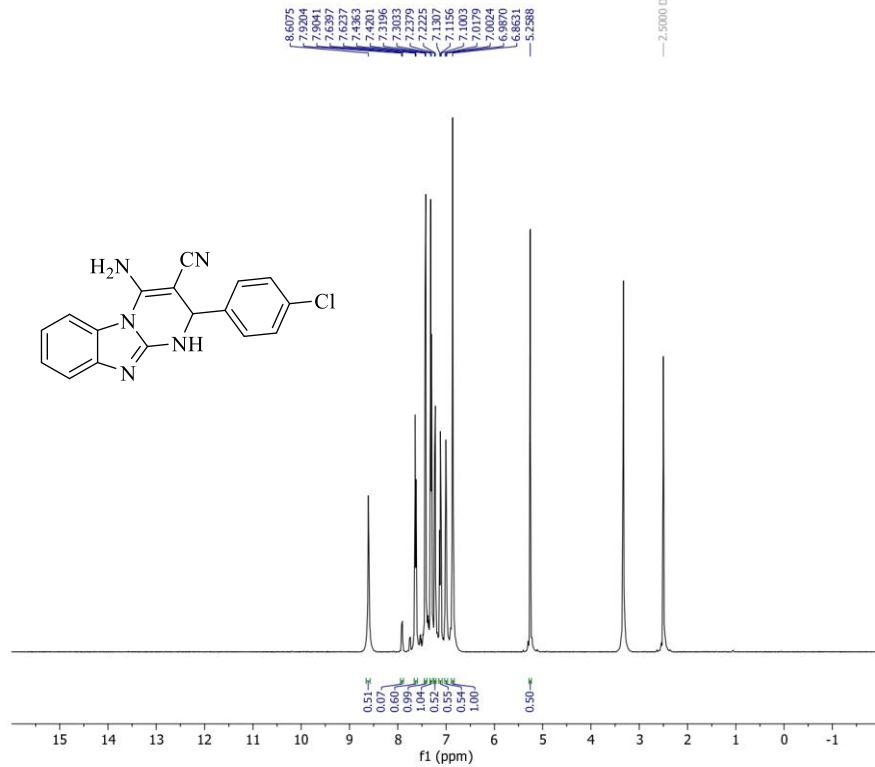




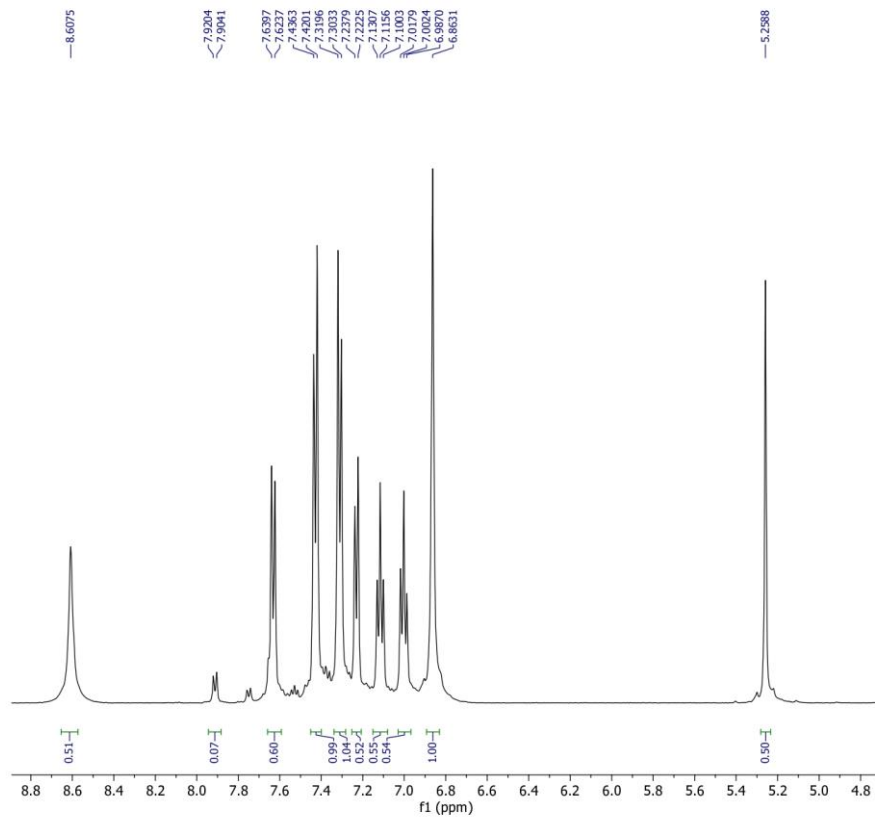
5a



Parameter	Value
1 Data File Name	D:/NMR/ 1400/ 1400-10/ 400-10-21/ Forozan-Shahri/ MahsolZamino4chloro-H.fid/ fid
2 Title	MahsolZamino4chloro-H
3 Comment	
4 Origin	Varian
5 Owner	
6 Site	
7 Instrument	inova
8 Author	
9 Solvent	dmso
10 Temperature	25.0
11 Experiment	1D
12 Probe	ID
13 Number of Scans	8
14 Receiver Gain	30
15 Relaxation Delay	1.0000
16 Pulse Width	5.0000
17 Presaturation	
18 Acquisition Time	1.8229
19 Acquisition Date	2022-01-11T14:06:33
20 Modification Date	2022-01-11T14:07:22
21 Class	
22 Spectrometer	499.33
23 Spectral Width	8987.8
24 Lowest	-929.2
25 Nucleus	1H
26 Acquired Size	16384
27 Spectral Size	65536



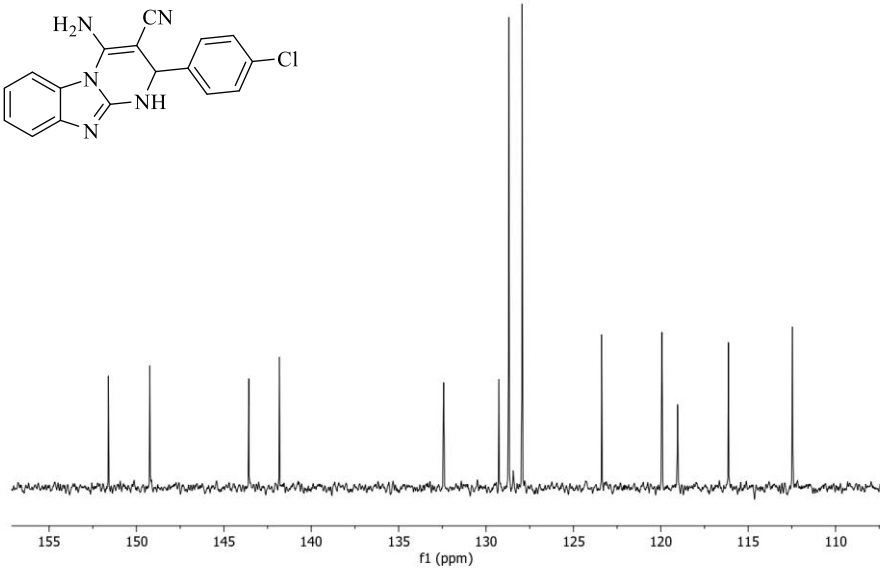
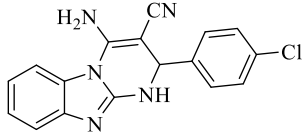
Parameter	Value
1 Data File Name	D:/NMR/ 1400/ 1400-10/ 400-10-21/ Forozan-Shahri/ MahsolZamino4chloro-H.fid/ fid
2 Title	MahsolZamino4chloro-H
3 Comment	
4 Origin	Varian
5 Owner	
6 Site	
7 Instrument	inova
8 Author	
9 Solvent	dmso
10 Temperature	25.0
11 Experiment	1D
12 Probe	ID
13 Number of Scans	8
14 Receiver Gain	30
15 Relaxation Delay	1.0000
16 Pulse Width	5.0000
17 Presaturation	
18 Acquisition Time	1.8229
19 Acquisition Date	2022-01-11T14:06:33
20 Modification Date	2022-01-11T14:07:22
21 Class	
22 Spectrometer	499.33
23 Spectral Width	8987.8
24 Lowest	-929.2
25 Nucleus	1H
26 Acquired Size	16384
27 Spectral Size	65536





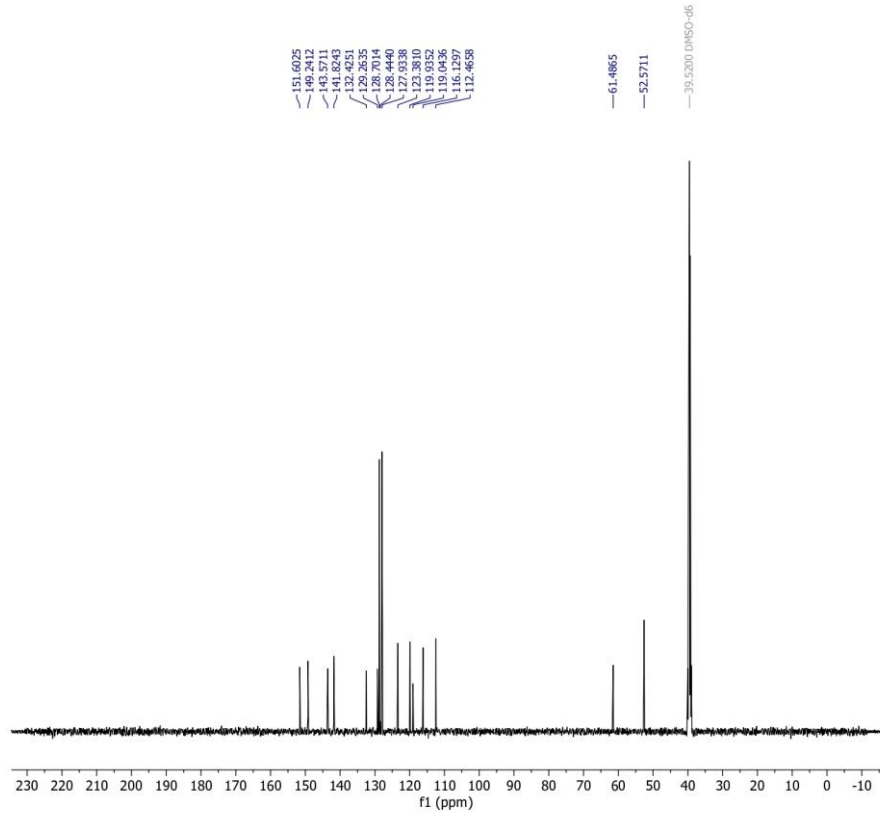
151.6025
149.2412
143.5711
141.8243
132.4251
128.2635
128.7014
128.4440
127.9338
123.3810
119.9352
119.0436
116.1297
112.4658

Parameter	Value
1 Data File Name	D:/NMR/1400/1400-10/400-10-21/ Forozan-Shahri/ MahsolZamino4chloro-C.fid/ fid
2 Title	MahsolZamino4chloro-C
3 Comment	
4 Origin	Varian
5 Owner	
6 Site	
7 Instrument	inova
8 Author	
9 Solvent	dmso
10 Temperature	25.0
11 Experiment	1D
12 Probe	ID
13 Number of Scans	544
14 Receiver Gain	60
15 Relaxation Delay	1.0000
16 Pulse Width	7.5000
17 Presaturation	Frequency
18 Acquisition Time	0.6930
19 Acquisition Date	2022-01-11T14:07:35
20 Modification Date	2022-01-11T14:23:20
21 Class	
22 Spectrometer Frequency	125.57
23 Spectral Width	31384.9
24 Lowest Frequency	-1876.8
25 Nucleus	13C
26 Acquired Size	21750
27 Spectral Size	65536

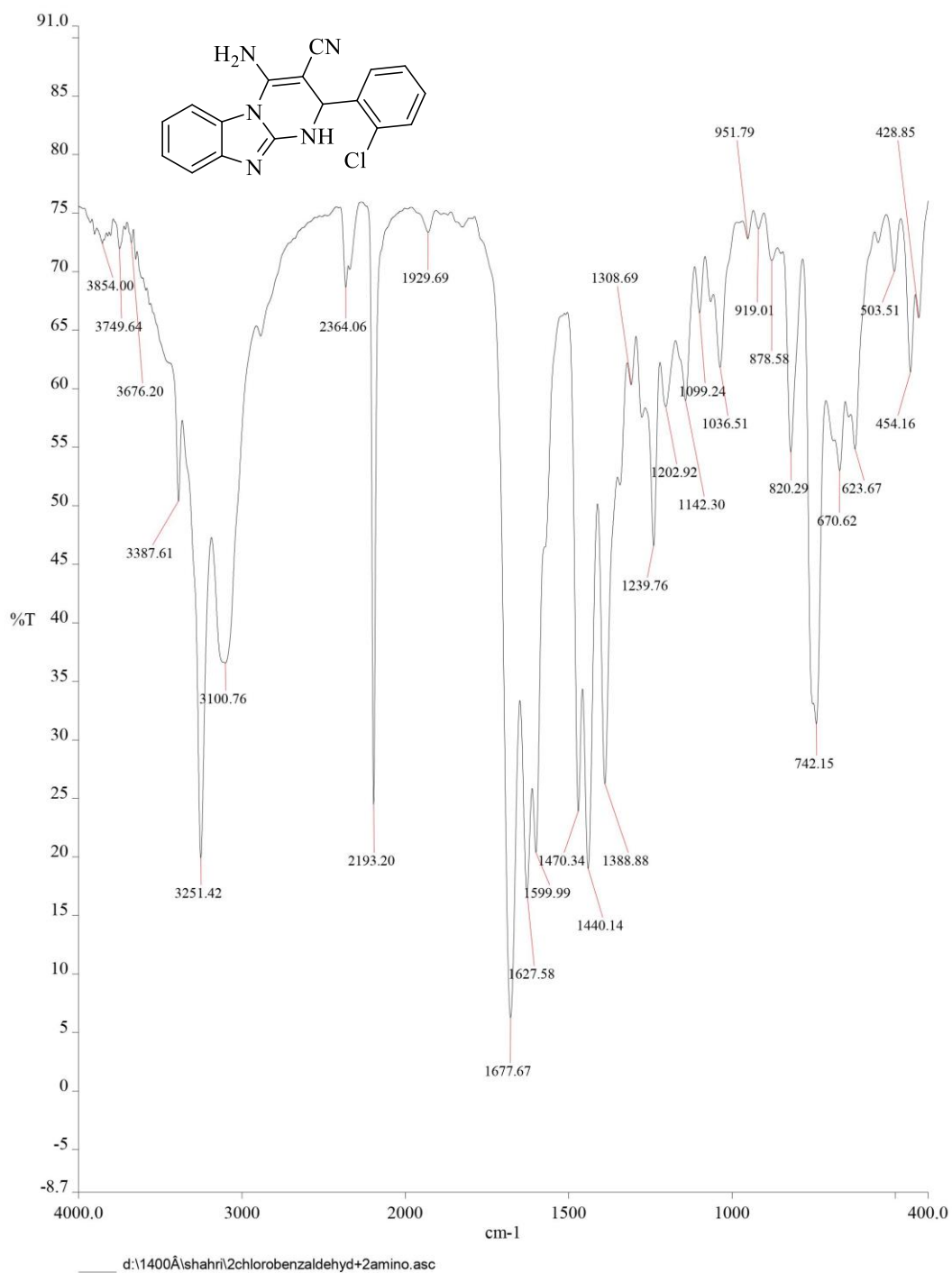


151.6025
149.2412
143.5711
141.8243
132.4251
128.2635
128.7014
128.4440
127.9338
123.3810
119.9352
119.0436
116.1297
112.4658
61.4865
52.5711
39.5200 DMSO-d6

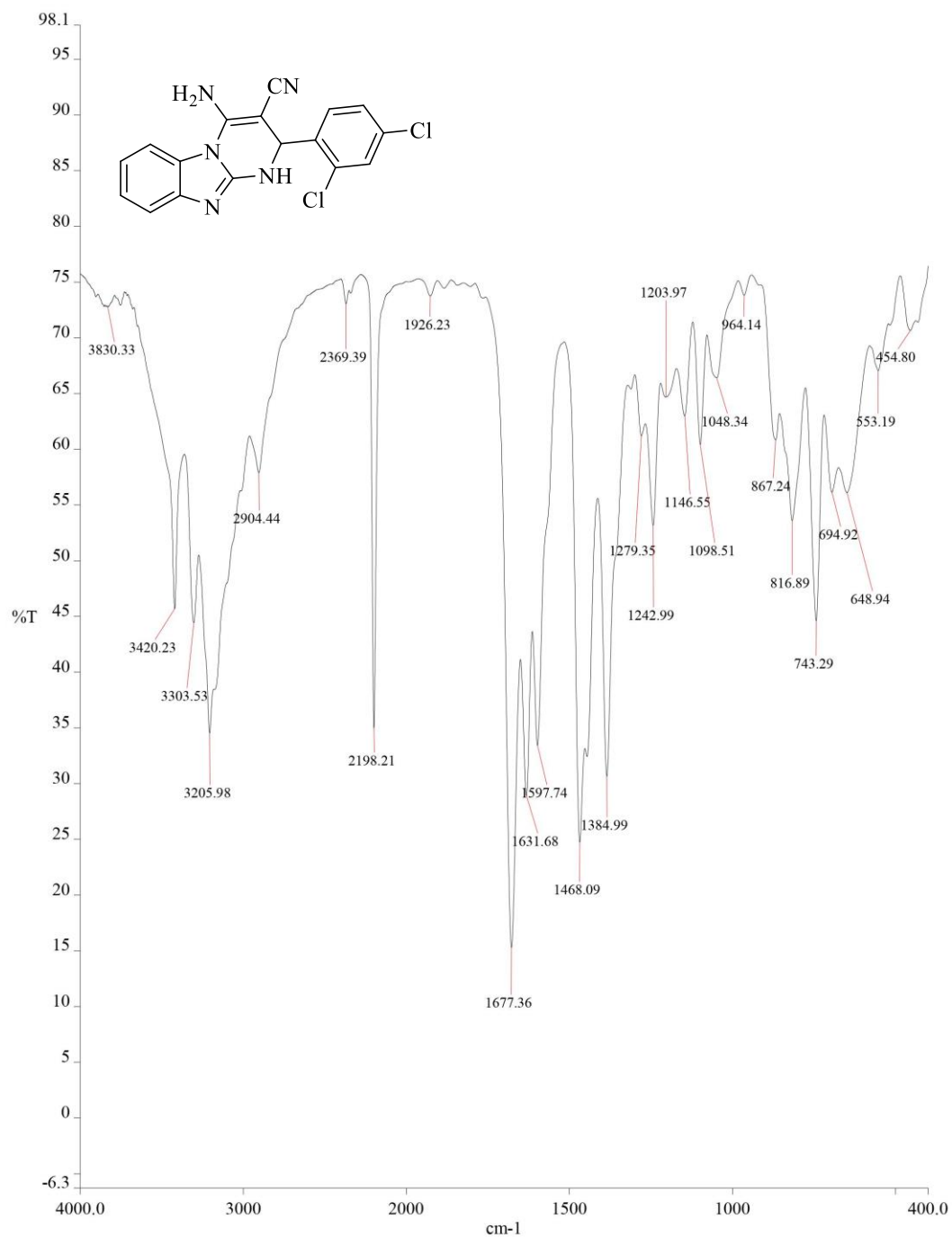
Parameter	Value
1 Data File Name	D:/NMR/1400/1400-10/400-10-21/ Forozan-Shahri/ MahsolZamino4chloro-C.fid/ fid
2 Title	MahsolZamino4chloro-C
3 Comment	
4 Origin	Varian
5 Owner	
6 Site	
7 Instrument	inova
8 Author	
9 Solvent	dmso
10 Temperature	25.0
11 Experiment	1D
12 Probe	ID
13 Number of Scans	544
14 Receiver Gain	60
15 Relaxation Delay	1.0000
16 Pulse Width	7.5000
17 Presaturation	Frequency
18 Acquisition Time	0.6930
19 Acquisition Date	2022-01-11T14:07:35
20 Modification Date	2022-01-11T14:23:20
21 Class	
22 Spectrometer Frequency	125.57
23 Spectral Width	31384.9
24 Lowest Frequency	-1876.8
25 Nucleus	13C
26 Acquired Size	21750
27 Spectral Size	65536



5b

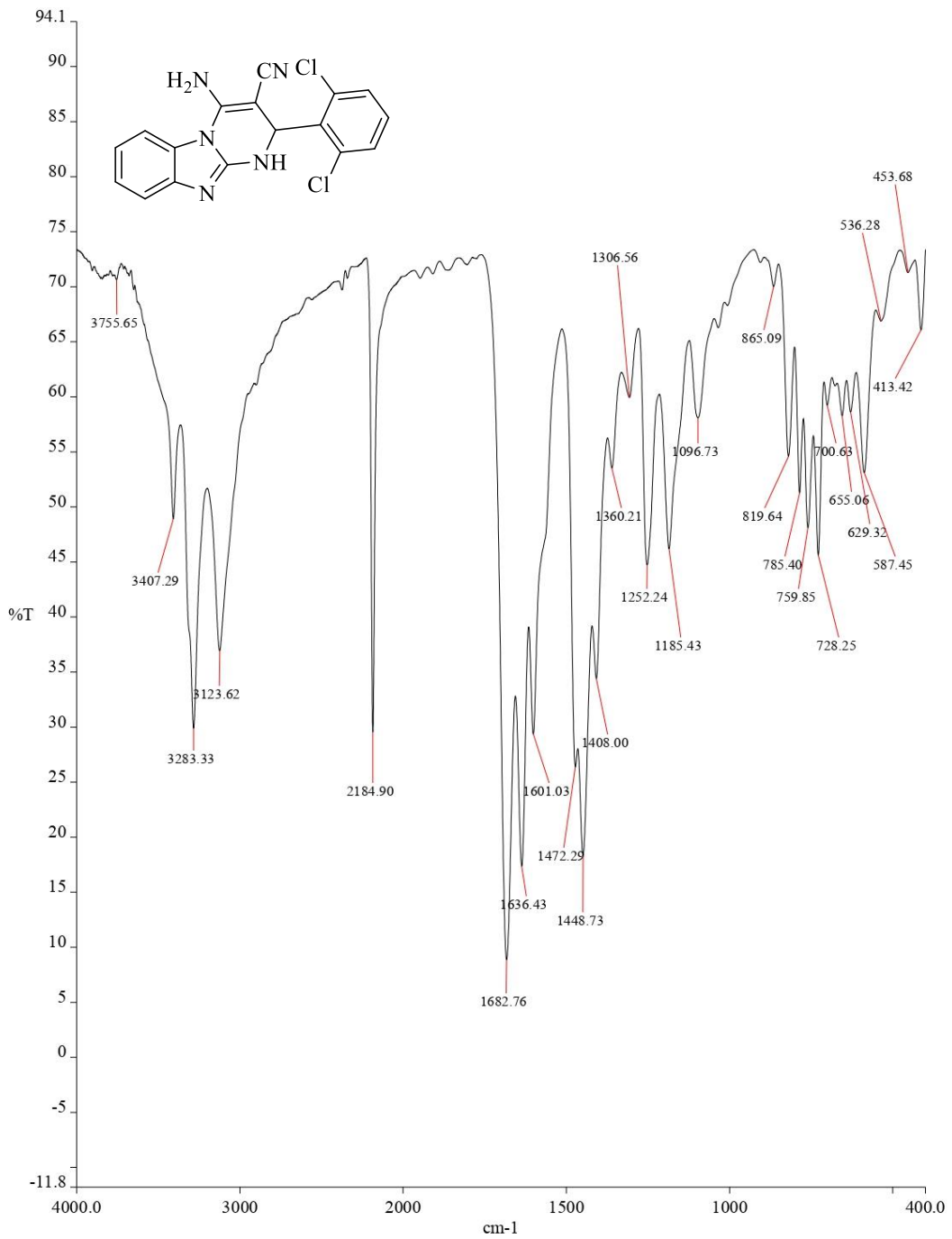


5c



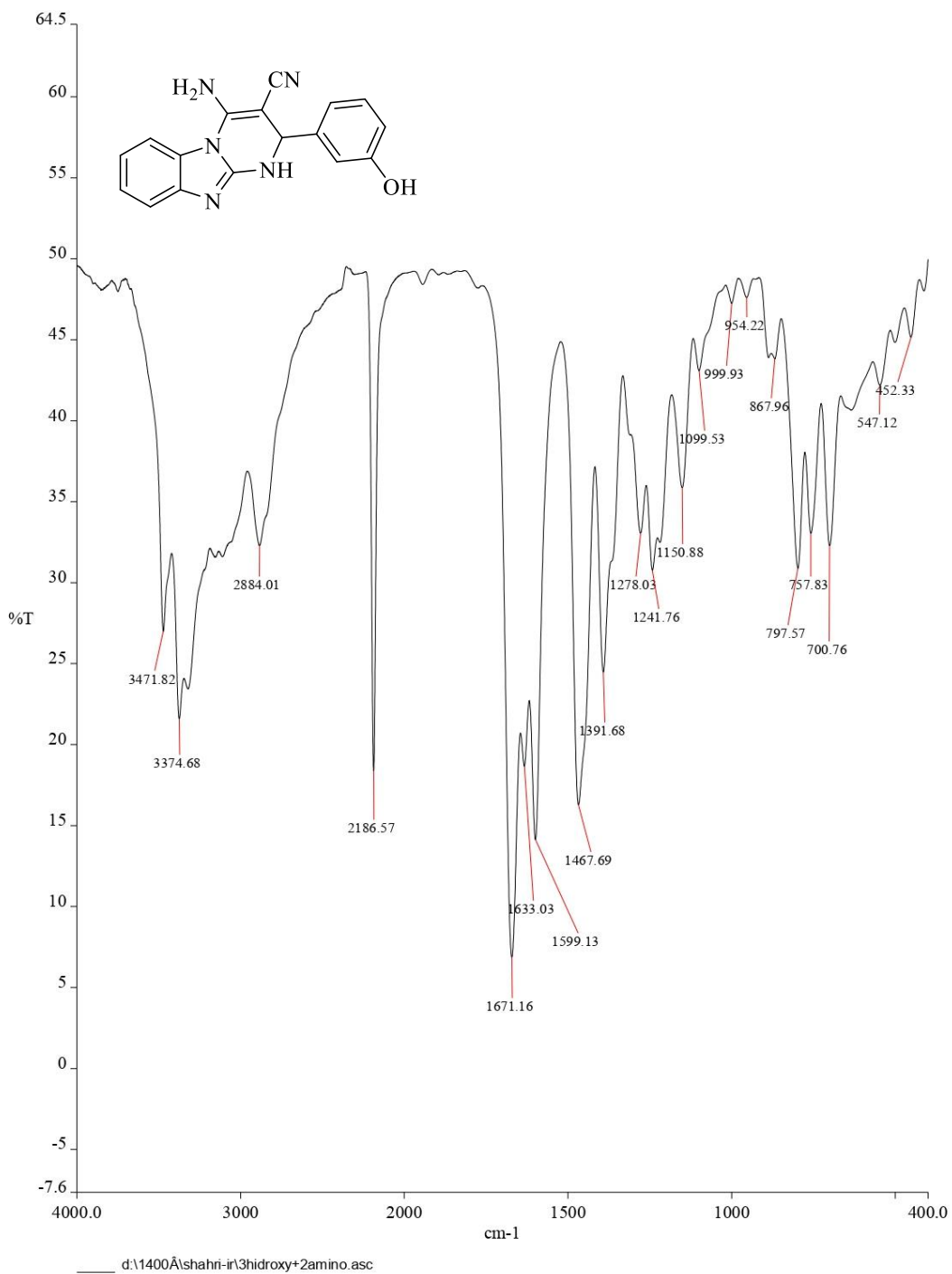
d:\1400\shahr\2,4dchloro benzaldehyd2amino.asc

5d

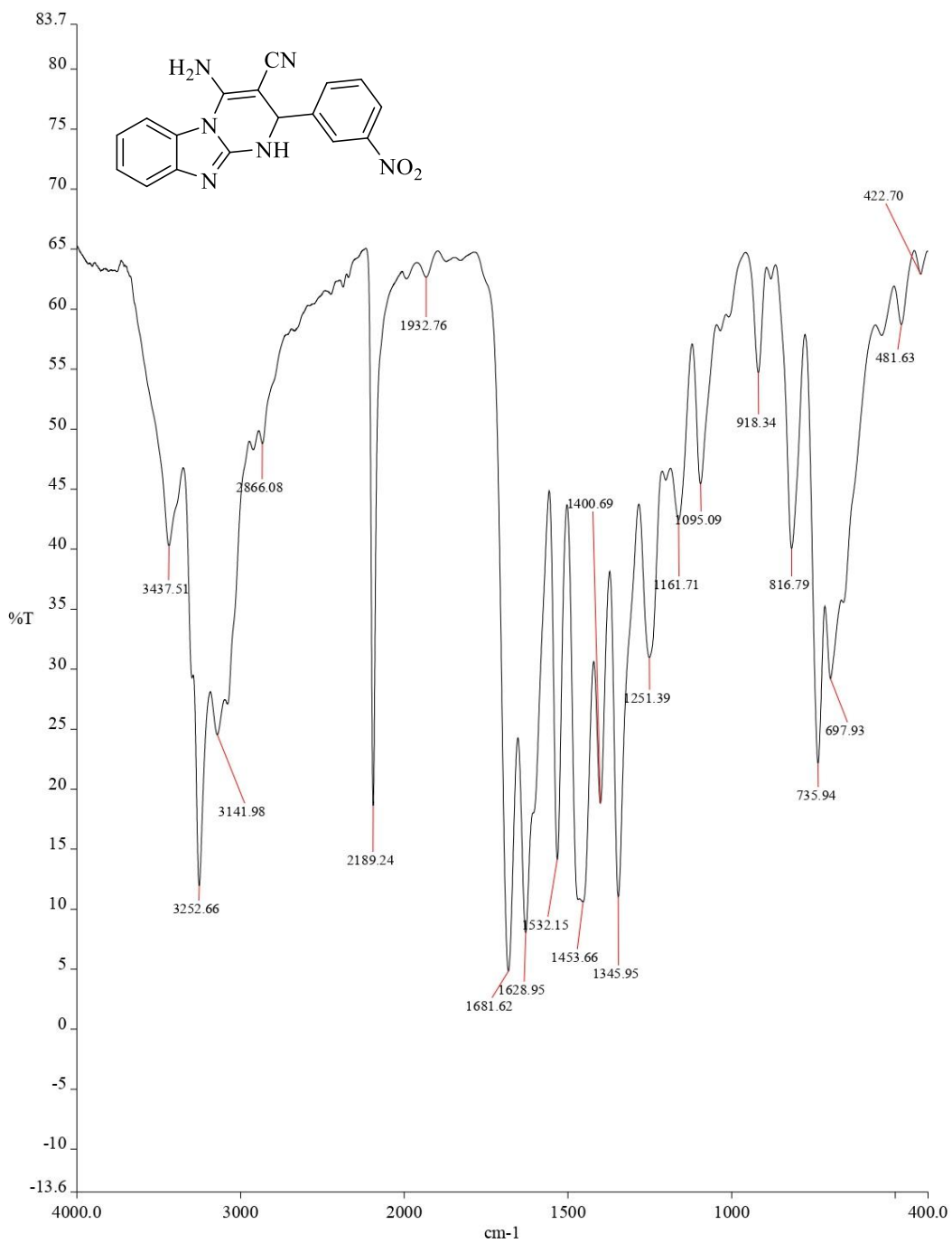


d:\1400Å\shahri-ir\2,6dchloro+2amino.asc

5e

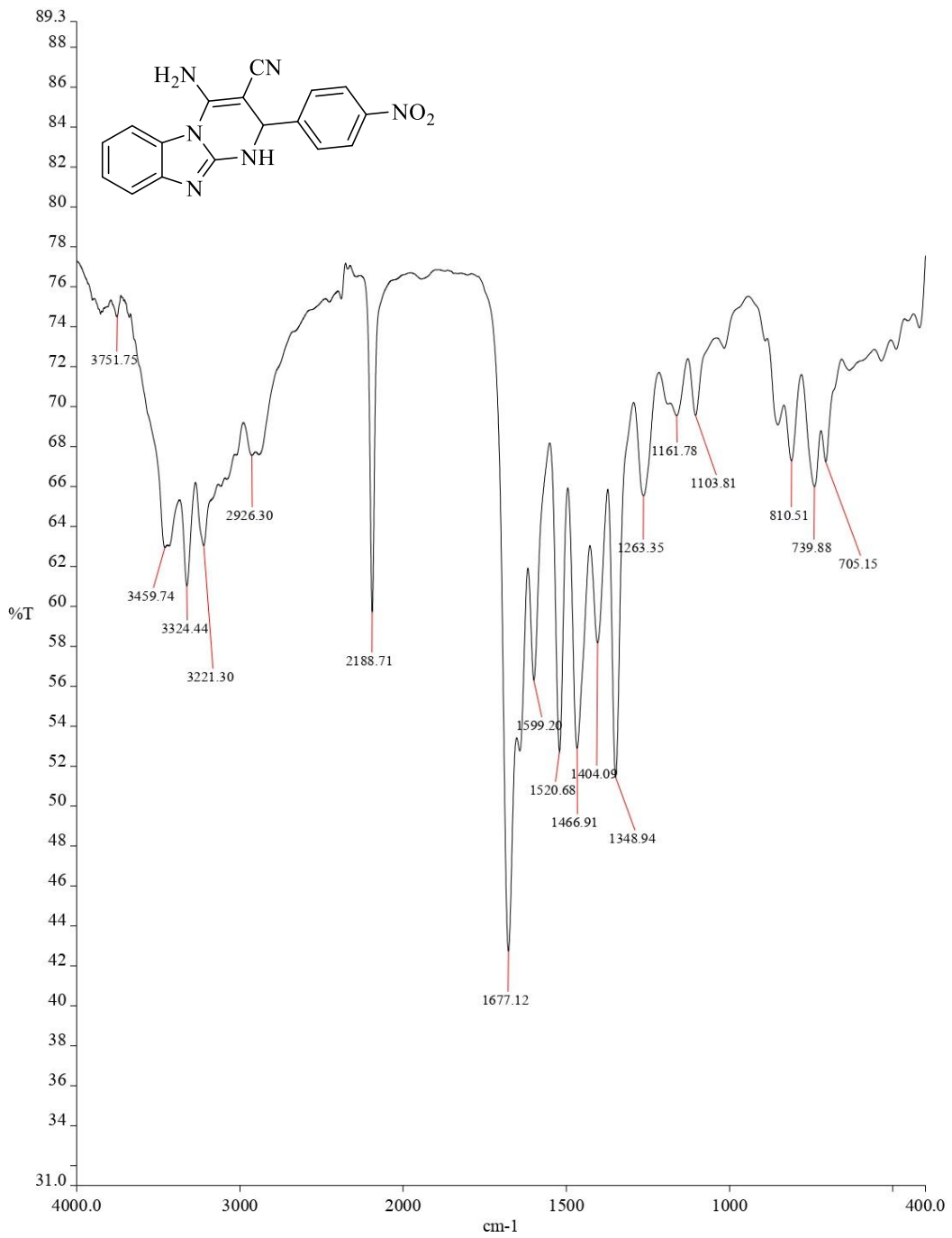


5f



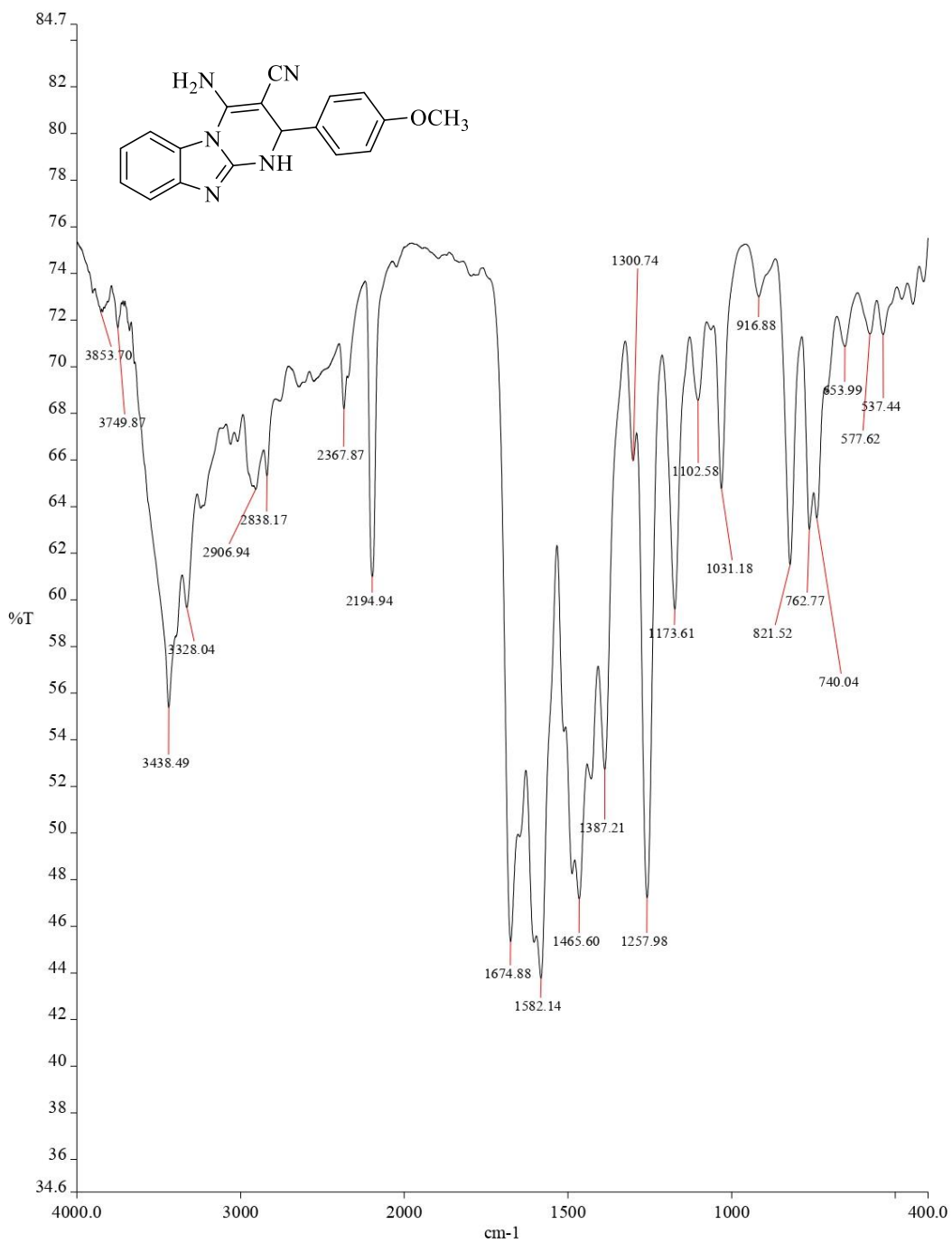
d:\1400\shahri-ir\3nitro+2amino.asc

5g

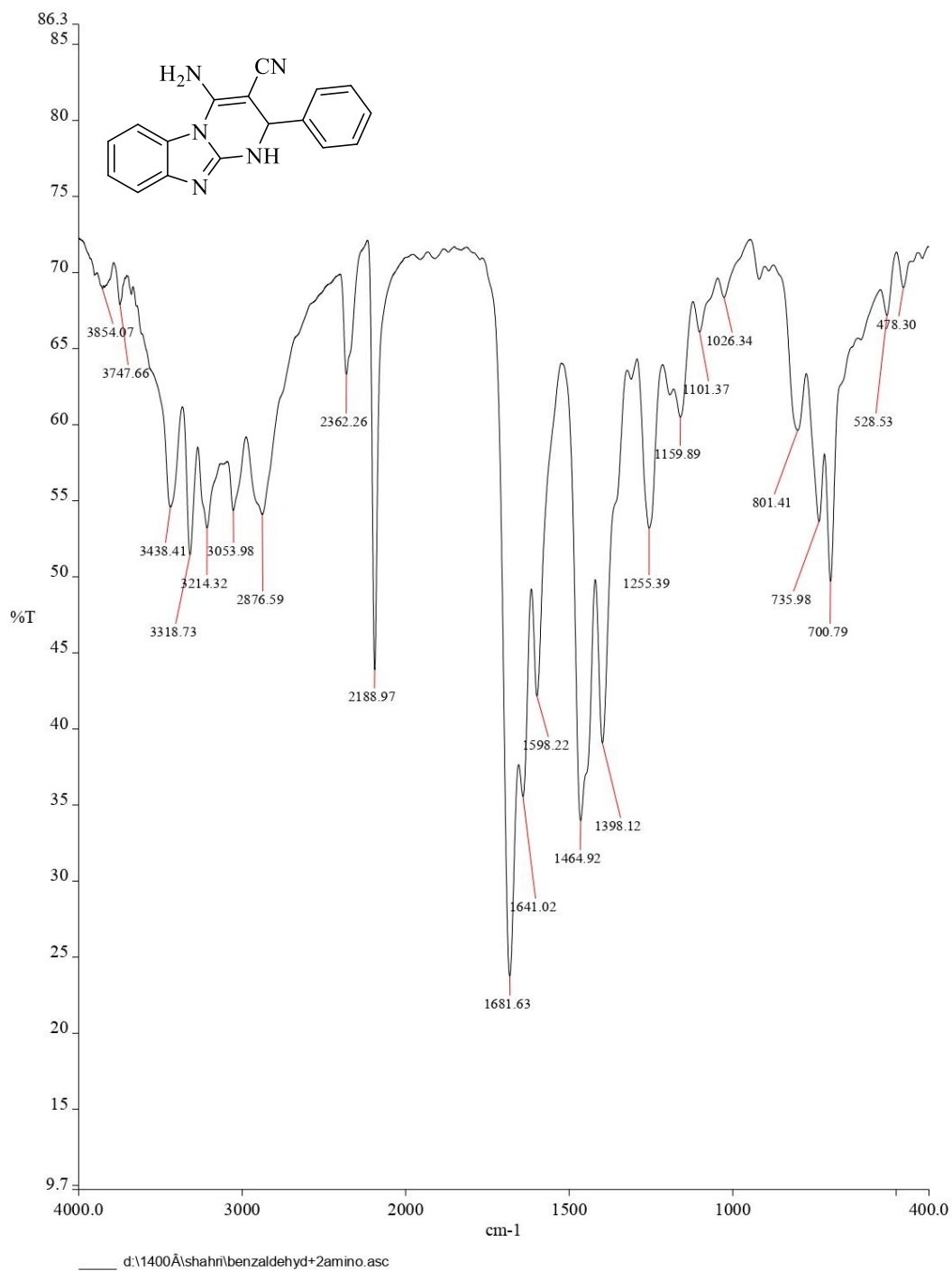


d:\1400Å\shahri-ir\4nitro+2amino.asc

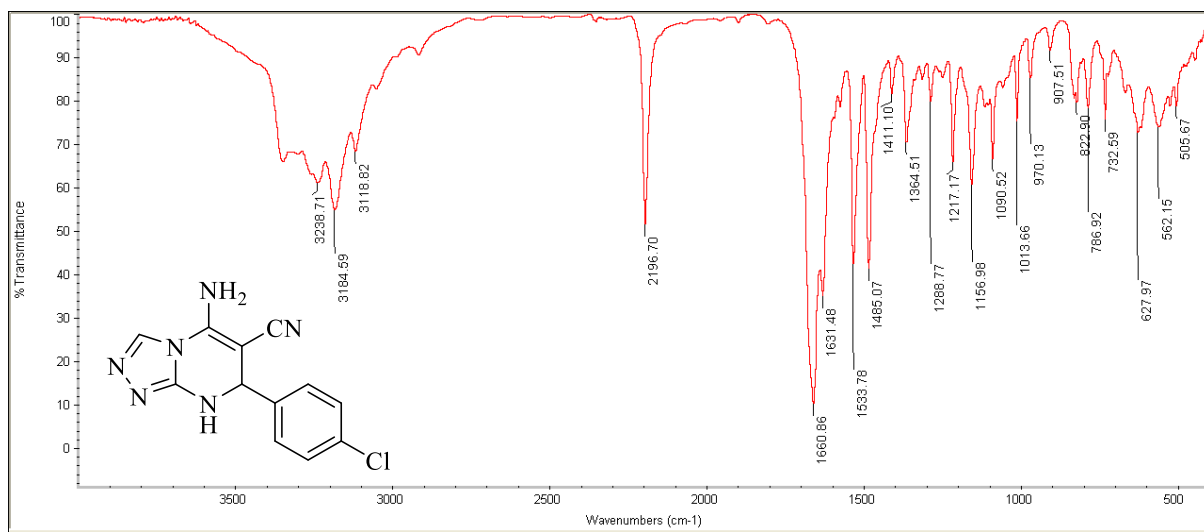
5h



d:\1400Å\shahri4methoxybenzaldehyd+2amino.asc

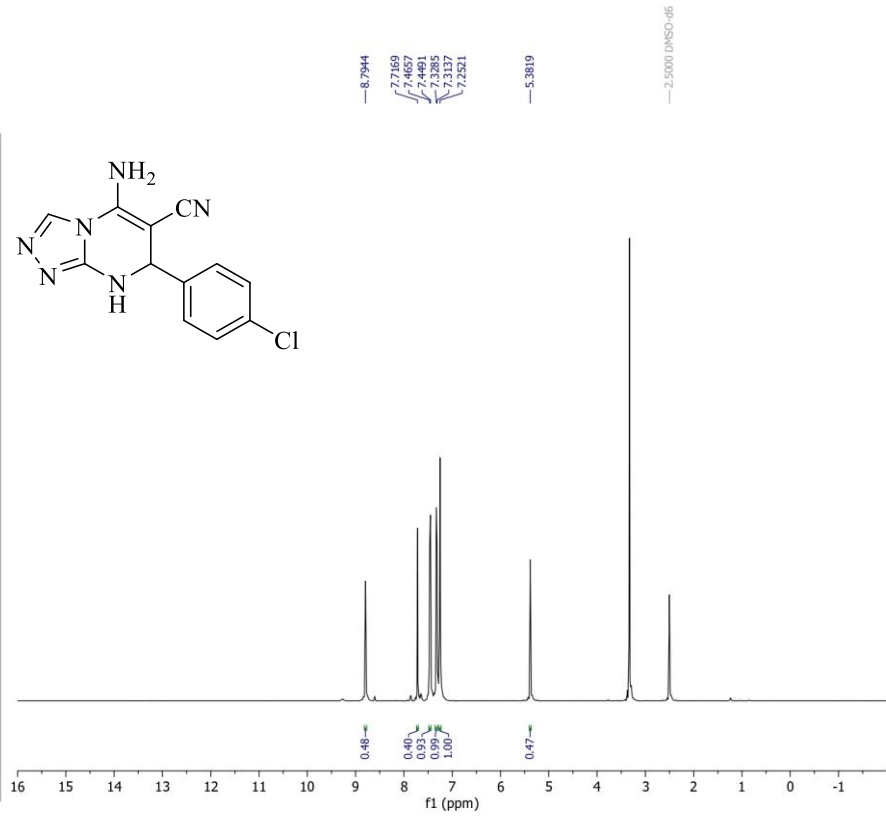
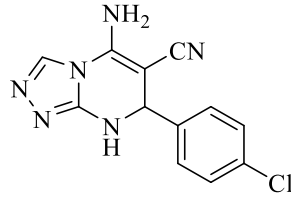


6a

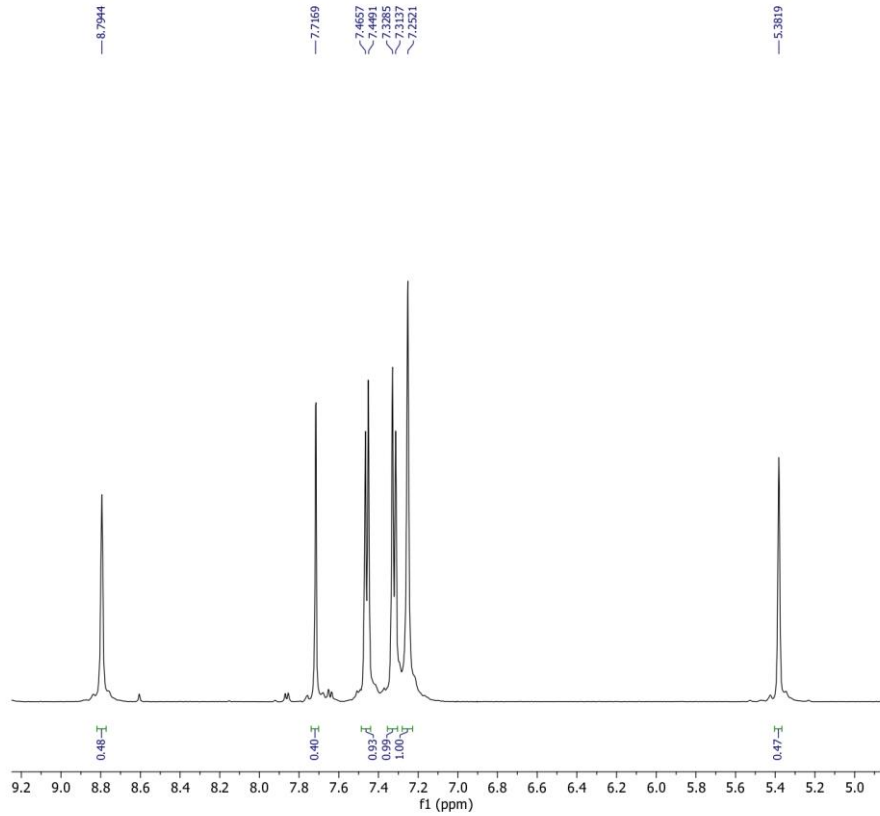




Parameter	Value
1 Data File Name	D:/NMR/1400/1400-10/400-10-21/Forozan-Shahri/MahsoltriazoloHchloro-H.fid/fid
2 Title	MahsoltriazoloHchloro-H
3 Comment	
4 Origin	Varian
5 Owner	
6 Site	
7 Instrument	inova
8 Author	
9 Solvent	dmso
10 Temperature	25.0
11 Experiment	1D
12 Probe	ID
13 Number of Scans	8
14 Receiver Gain	30
15 Relaxation Delay	1.0000
16 Pulse Width	5.0000
17 Presaturation Frequency	
18 Acquisition Time	1.8229
19 Acquisition Date	2022-01-11T14:25:53
20 Modification Date	2022-01-11T14:26:44
21 Class	
22 Spectrometer Frequency	499.33
23 Spectral Width	8987.8
24 Lowest Frequency	-929.2
25 Nucleus	1H
26 Acquired Size	16384
27 Spectral Size	65536

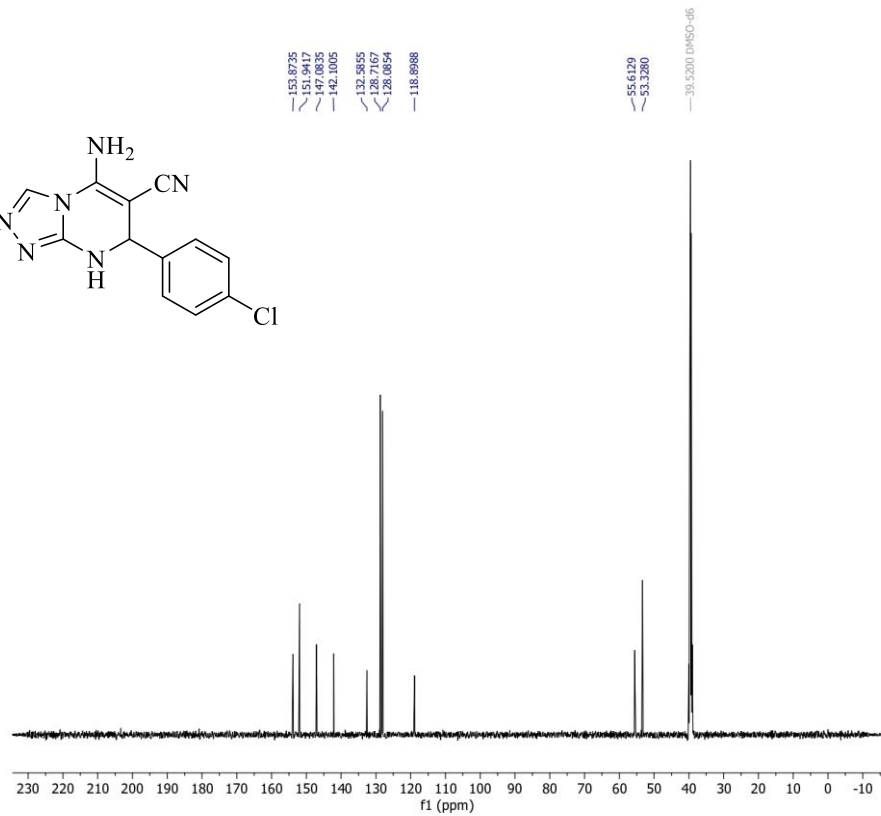
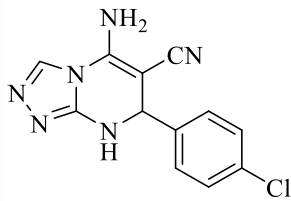


Parameter	Value
1 Data File Name	D:/NMR/1400/1400-10/400-10-21/Forozan-Shahri/MahsoltriazoloHchloro-H.fid/fid
2 Title	MahsoltriazoloHchloro-H
3 Comment	
4 Origin	Varian
5 Owner	
6 Site	
7 Instrument	inova
8 Author	
9 Solvent	dmso
10 Temperature	25.0
11 Experiment	1D
12 Probe	ID
13 Number of Scans	8
14 Receiver Gain	30
15 Relaxation Delay	1.0000
16 Pulse Width	5.0000
17 Presaturation Frequency	
18 Acquisition Time	1.8229
19 Acquisition Date	2022-01-11T14:25:53
20 Modification Date	2022-01-11T14:26:44
21 Class	
22 Spectrometer Frequency	499.33
23 Spectral Width	8987.8
24 Lowest Frequency	-929.2
25 Nucleus	1H
26 Acquired Size	16384
27 Spectral Size	65536

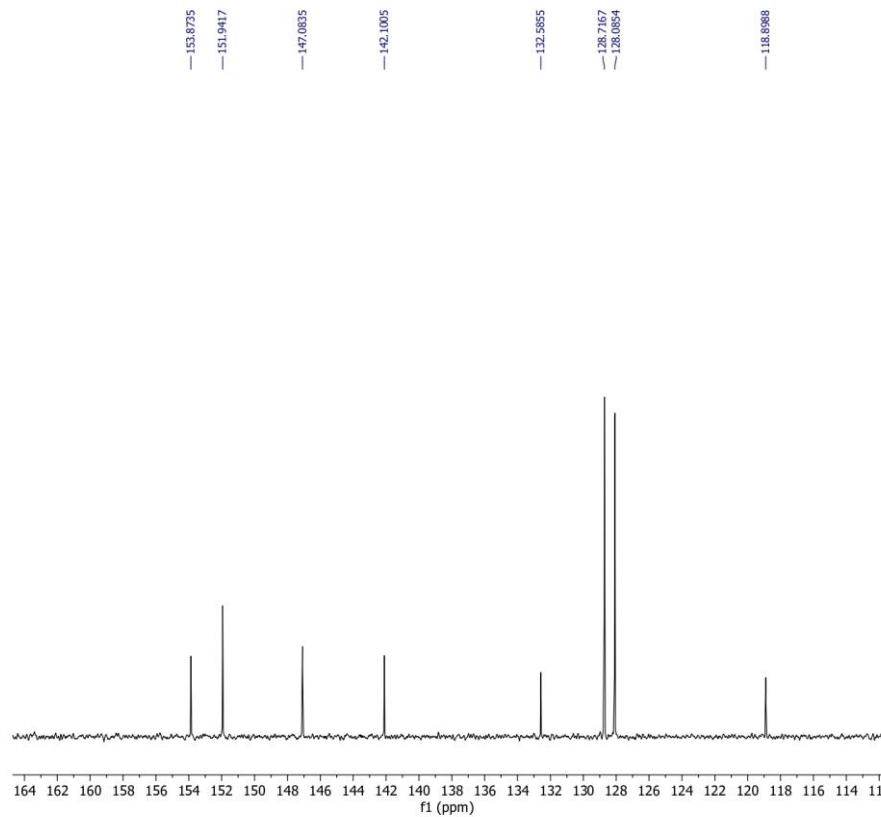




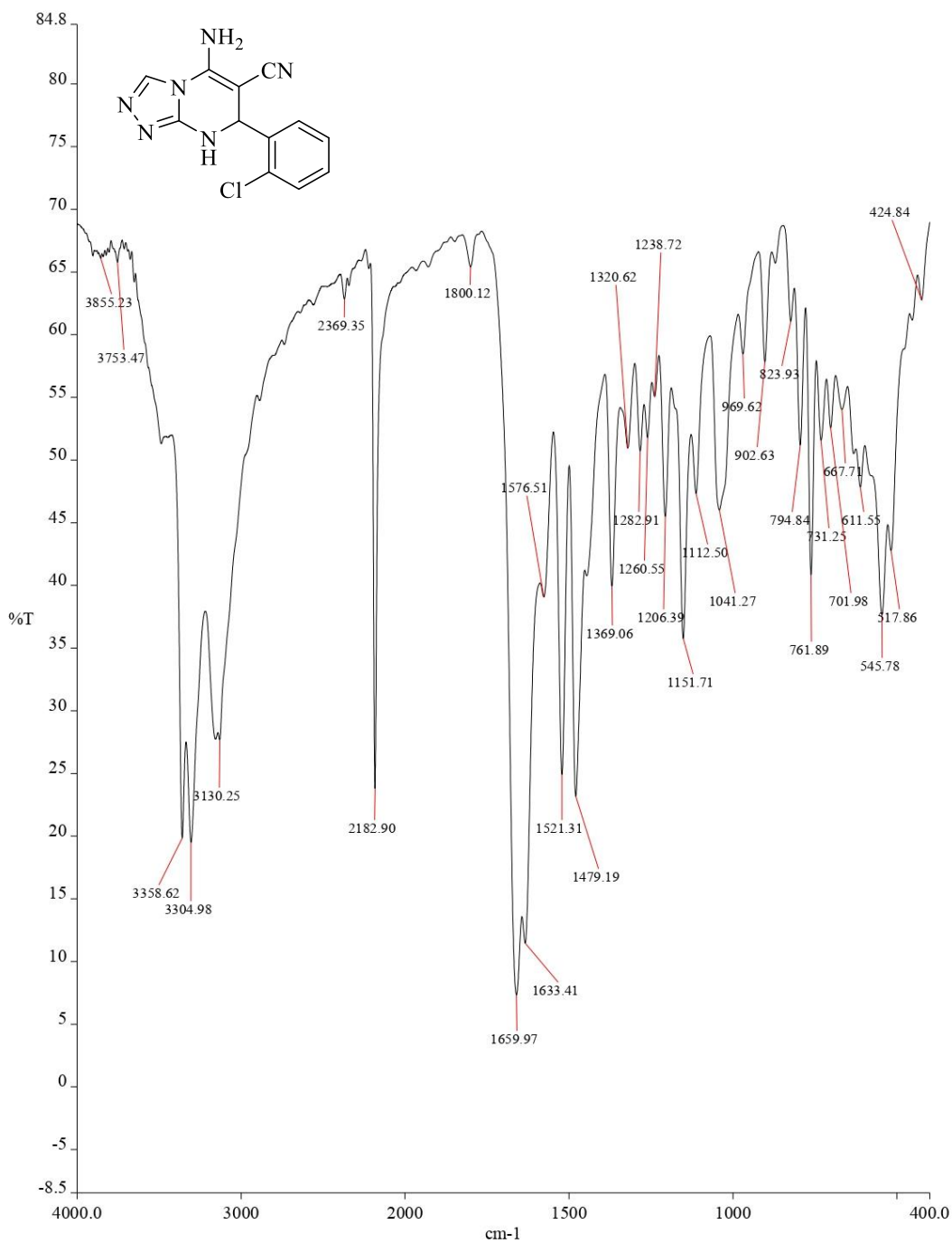
Parameter	Value
1 Data File Name	D:/ NMR/ 1400/ 1400-10/ 400-10-21/ Forozan-Shahri/ MahsoltriazoloHchloro-C.fid/ fid
2 Title	MahsoltriazoloHchloro-C
3 Comment	
4 Origin	Varian
5 Owner	
6 Site	
7 Instrument	inova
8 Author	
9 Solvent	dmso
10 Temperature	25.0
11 Experiment	1D
12 Probe	ID
13 Number of Scans	768
14 Receiver Gain	60
15 Relaxation Delay	1.0000
16 Pulse Width	7.5000
17 Presaturation Frequency	
18 Acquisition Time	0.6930
19 Acquisition Date	2022-01-11T14:28:36
20 Modification Date	2022-01-11T14:50:33
21 Class	
22 Spectrometer Frequency	125.57
23 Spectral Width	31384.9
24 Lowest Frequency	-1876.8
25 Nucleus	13C
26 Acquired Size	21750
27 Spectral Size	65536



Parameter	Value
1 Data File Name	D:/ NMR/ 1400/ 1400-10/ 400-10-21/ Forozan-Shahri/ MahsoltriazoloHchloro-C.fid/ fid
2 Title	MahsoltriazoloHchloro-C
3 Comment	
4 Origin	Varian
5 Owner	
6 Site	
7 Instrument	inova
8 Author	
9 Solvent	dmso
10 Temperature	25.0
11 Experiment	1D
12 Probe	ID
13 Number of Scans	768
14 Receiver Gain	60
15 Relaxation Delay	1.0000
16 Pulse Width	7.5000
17 Presaturation Frequency	
18 Acquisition Time	0.6930
19 Acquisition Date	2022-01-11T14:28:36
20 Modification Date	2022-01-11T14:50:33
21 Class	
22 Spectrometer Frequency	125.57
23 Spectral Width	31384.9
24 Lowest Frequency	-1876.8
25 Nucleus	13C
26 Acquired Size	21750
27 Spectral Size	65536

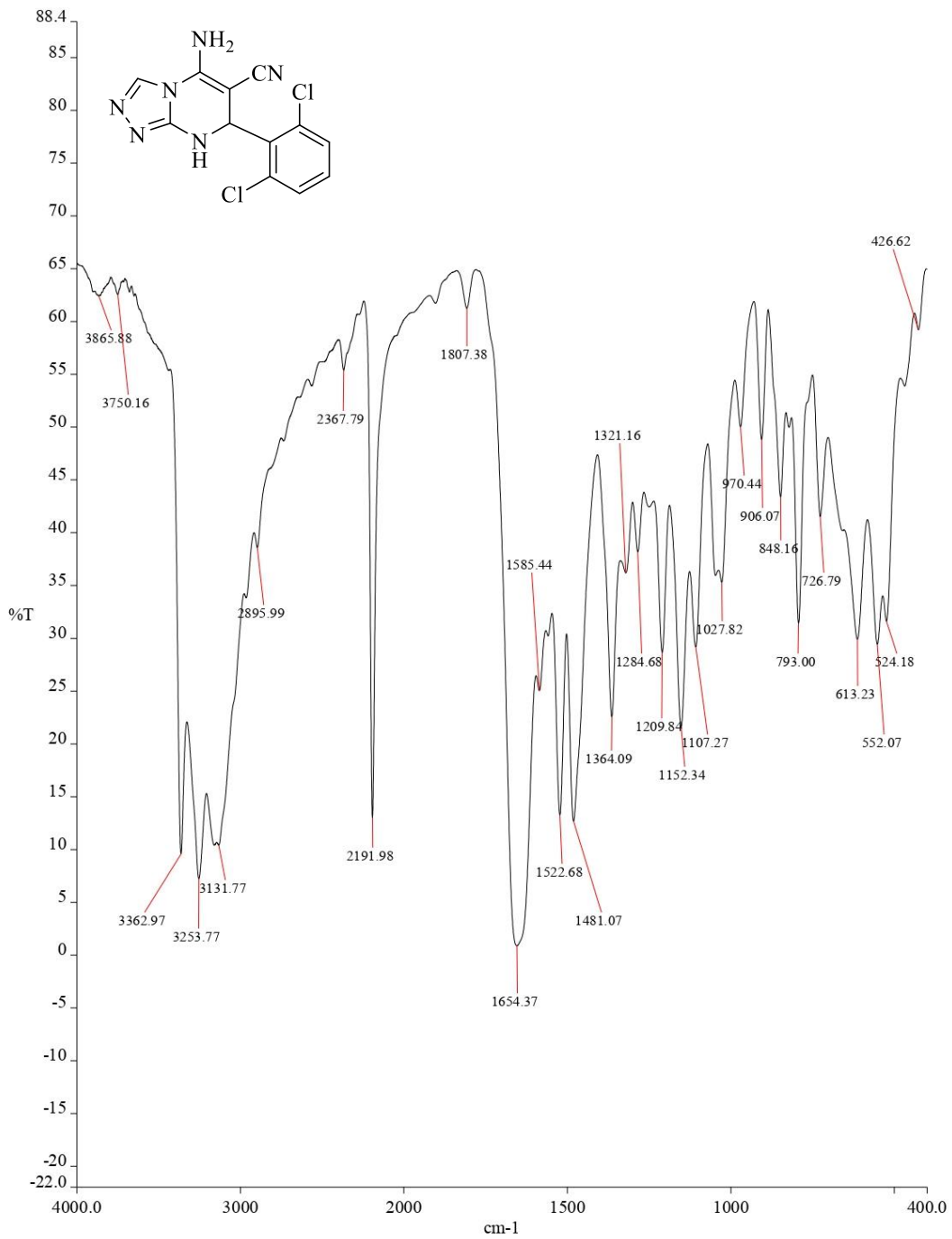


6b



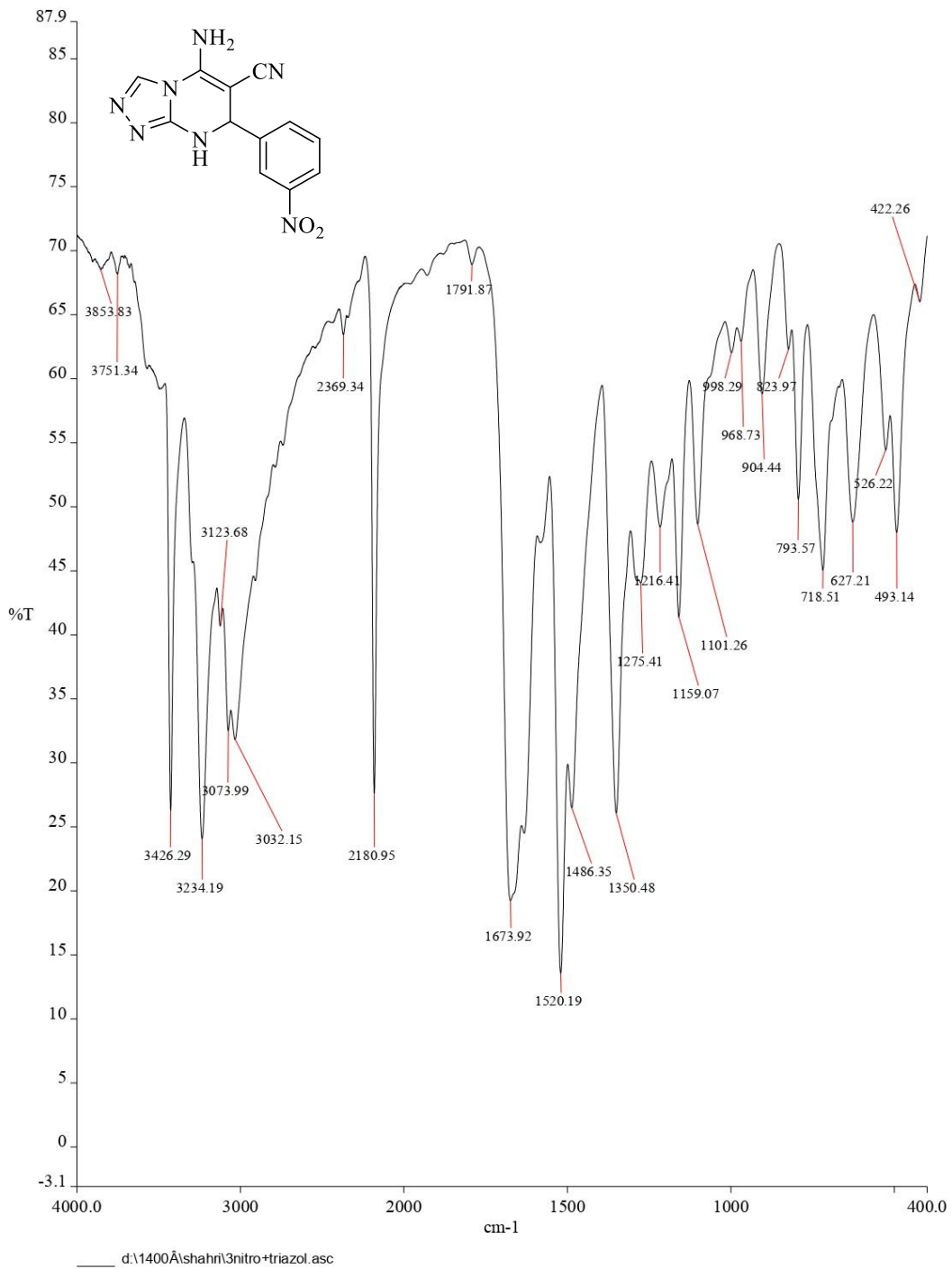
d:\1400Å\shahri\2chloro+triazol.asc

6c

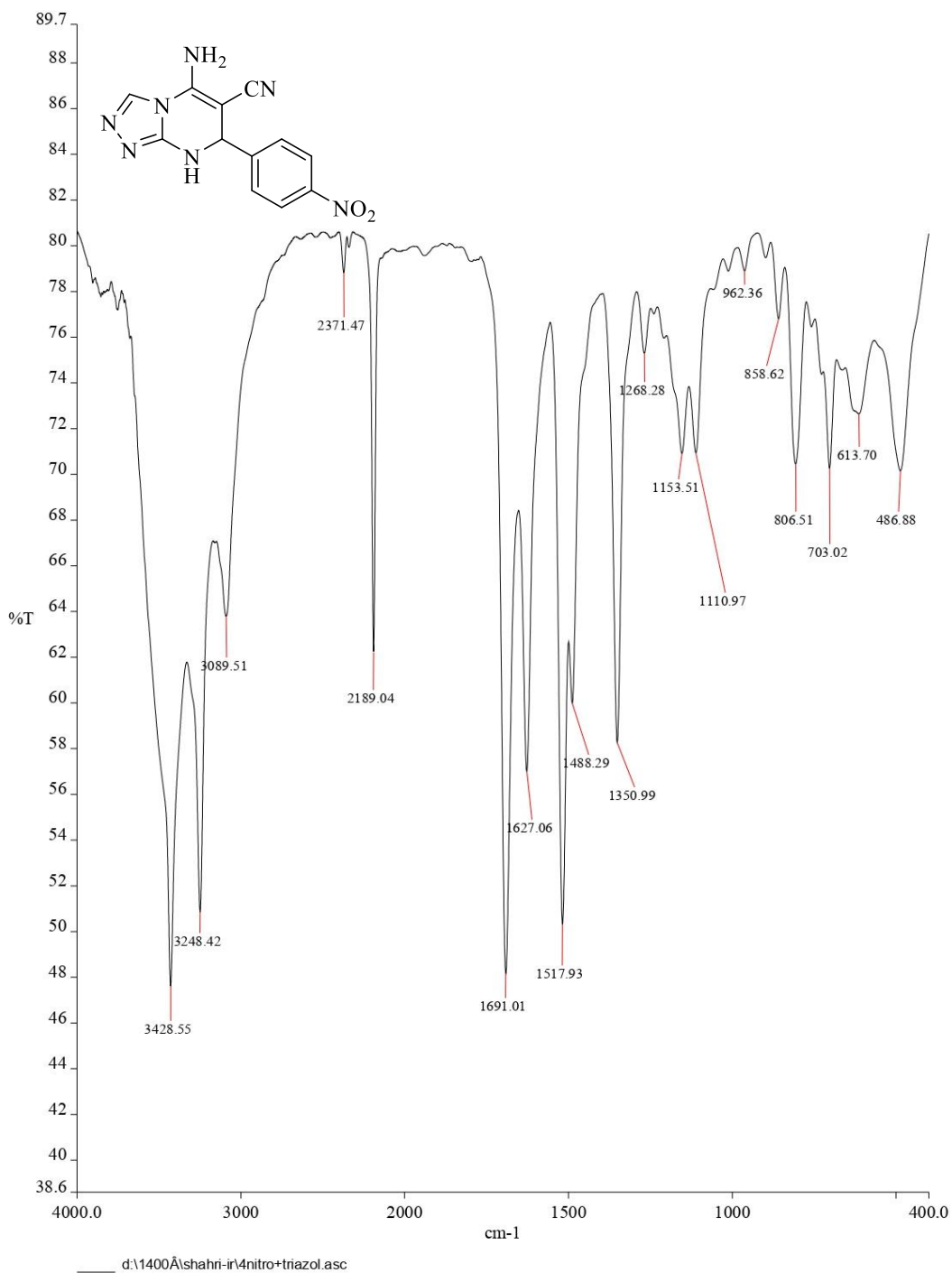


d:\1400Å\shahri2,4dchloro+triazol.asc

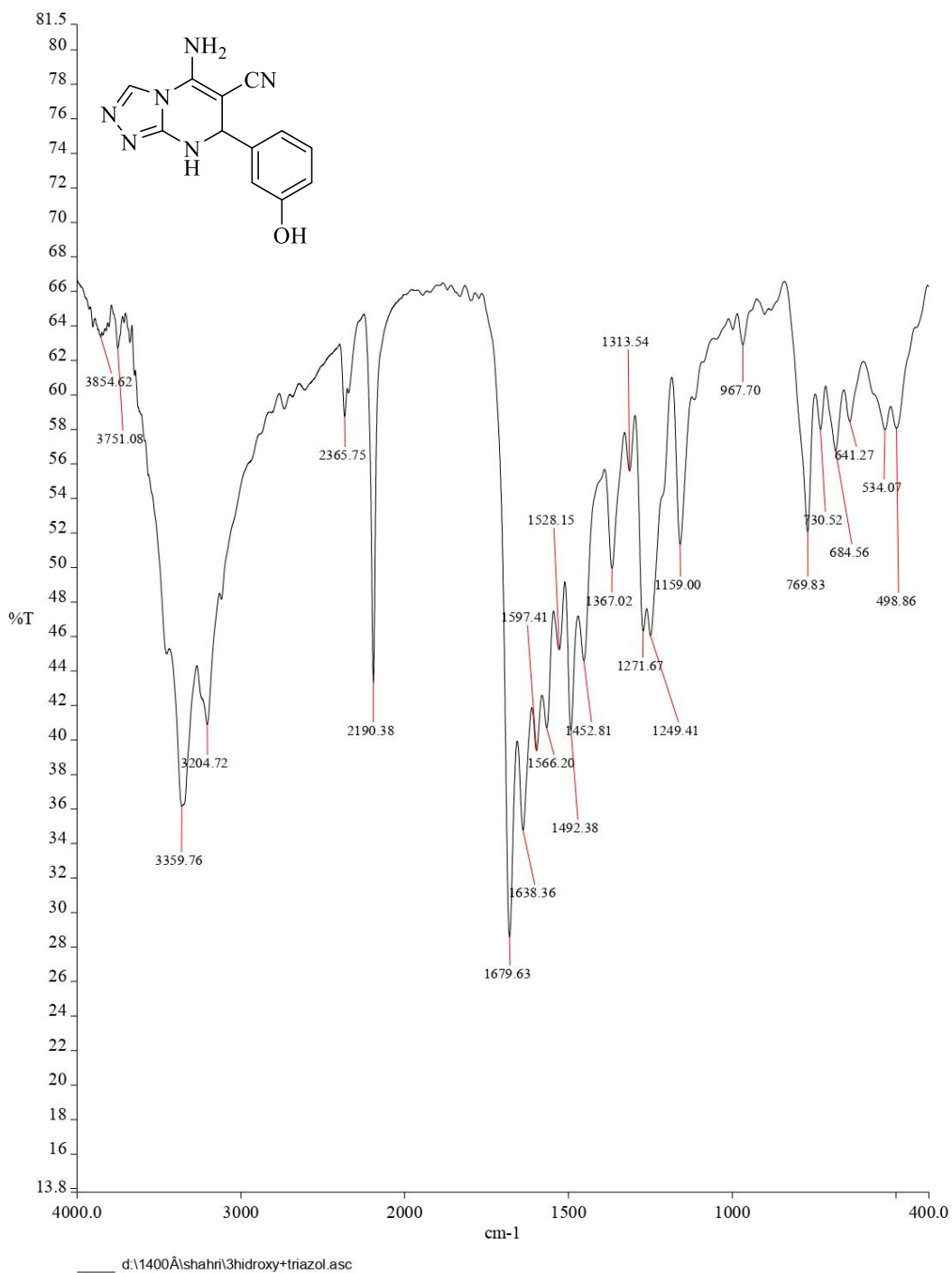
6d



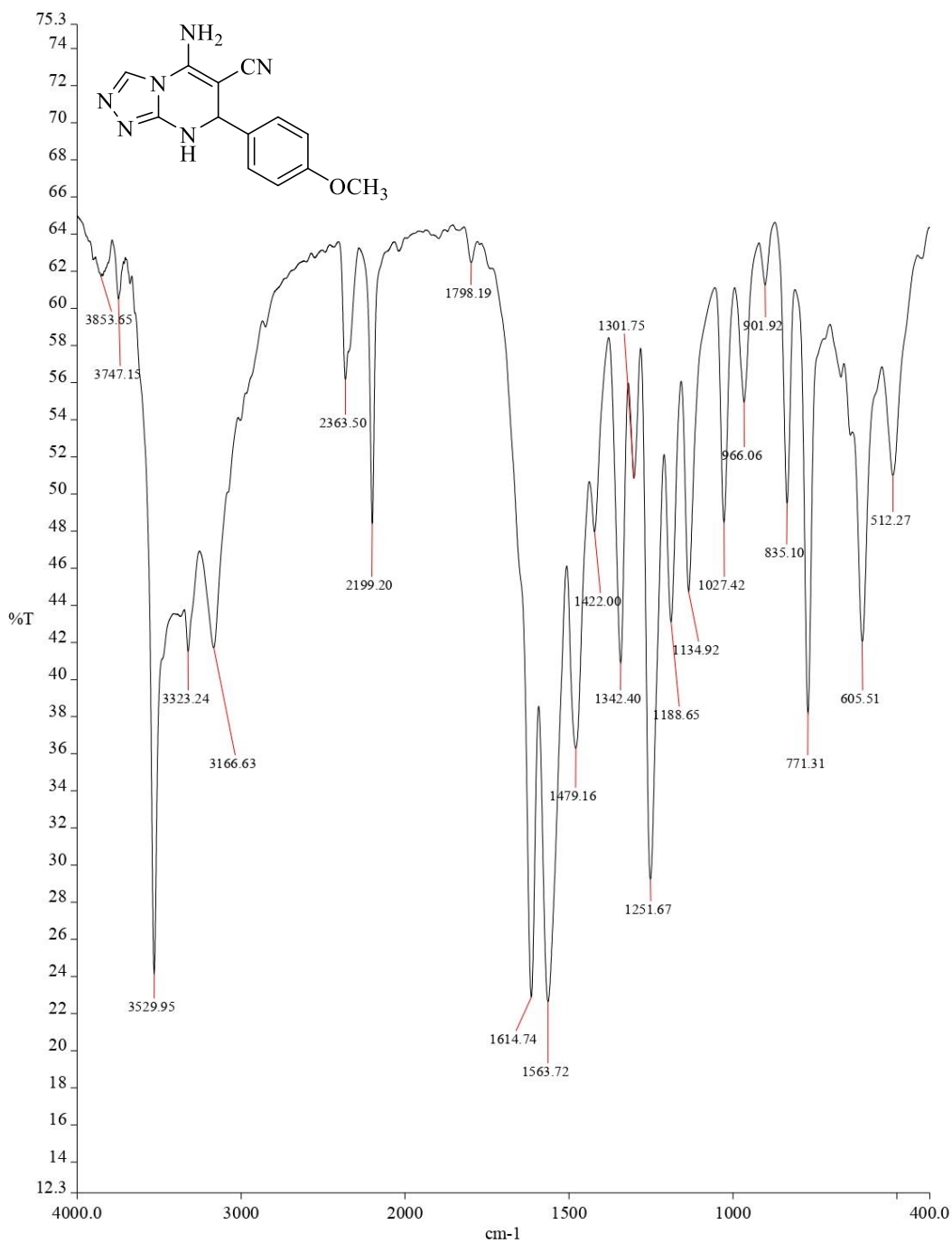
6e



6f



6g



d:\1400Å\shahn4methoxytriazol.asc

6h

