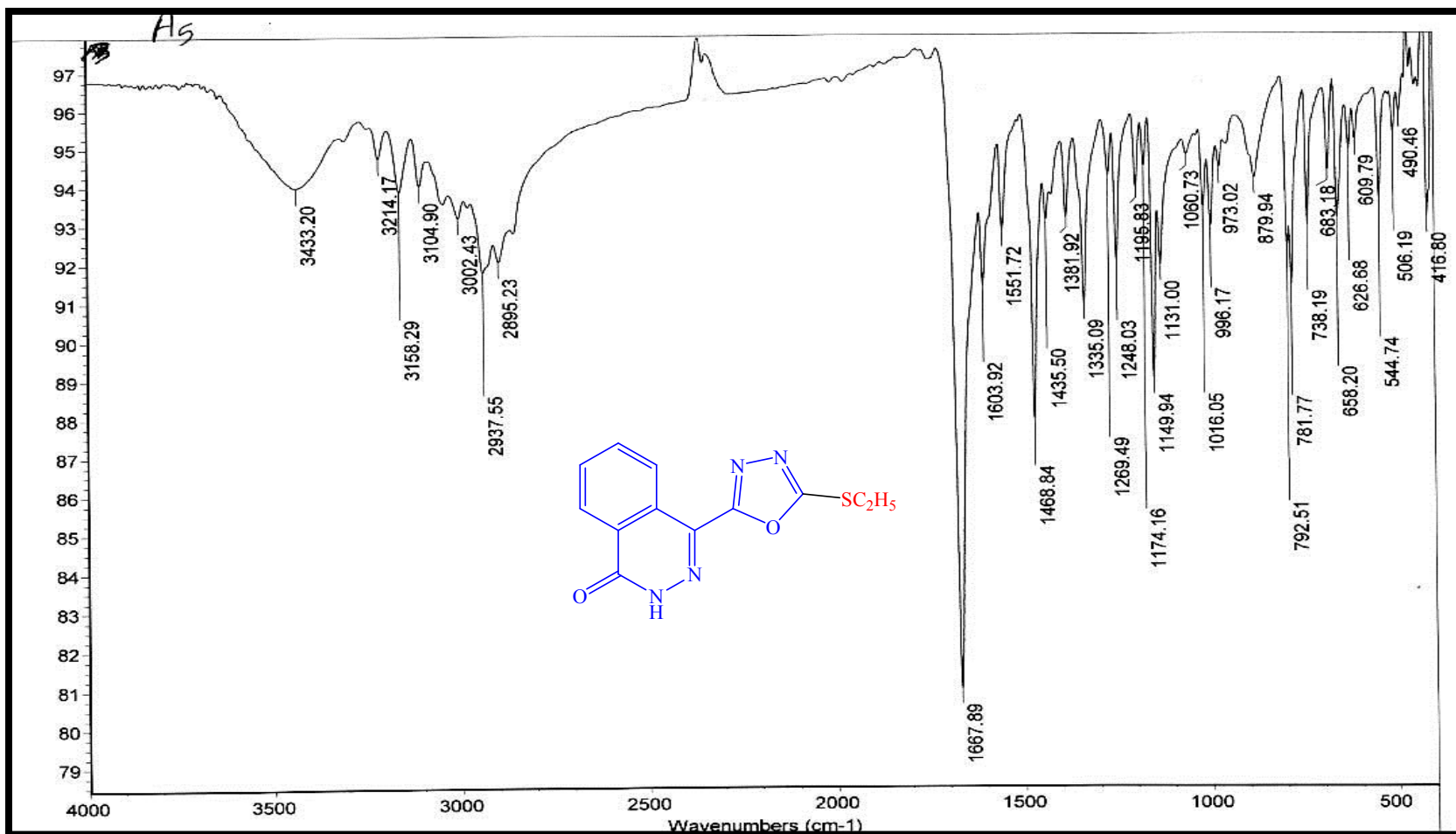
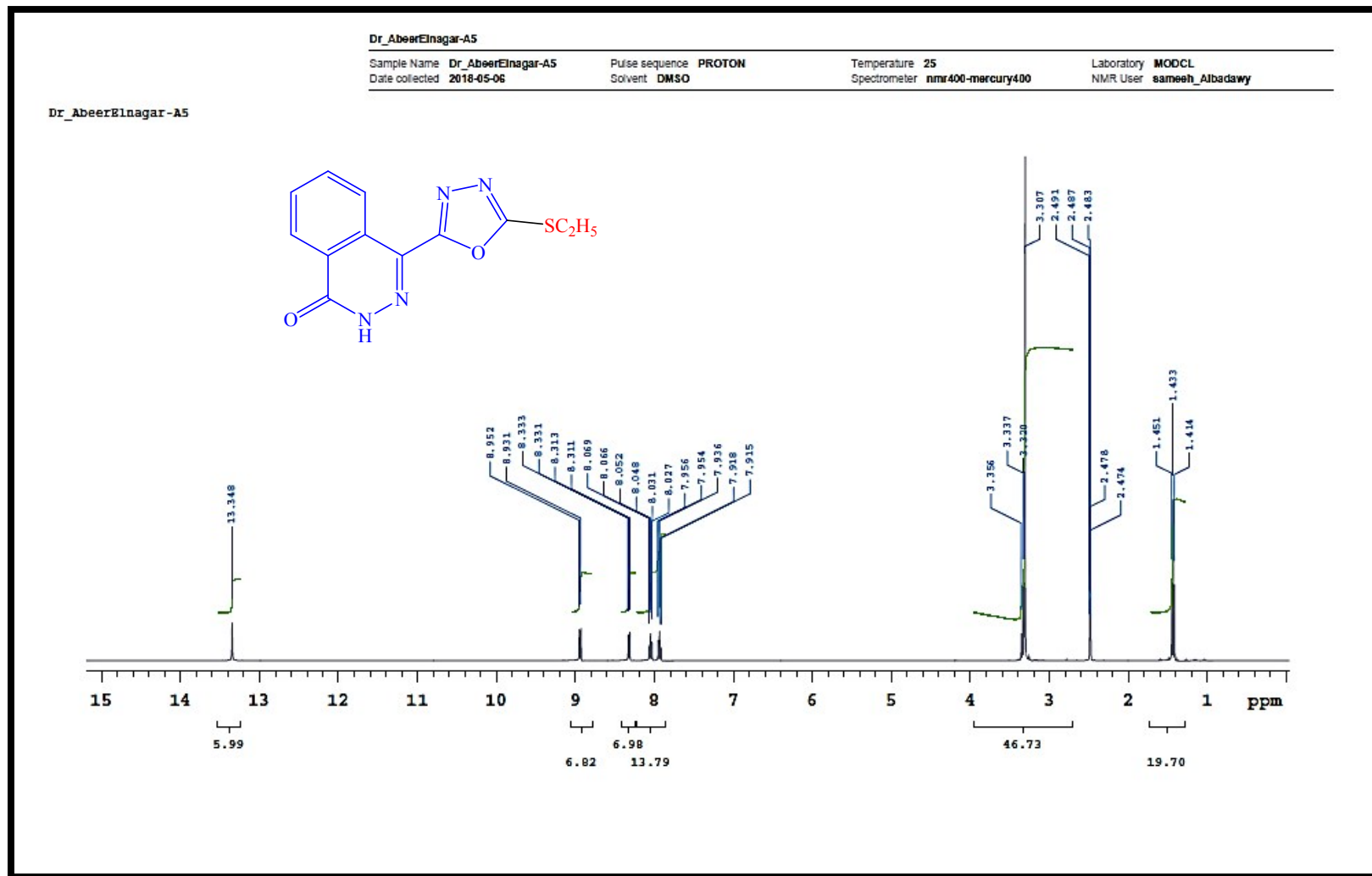


*4-(5-(ethylthio)-1,3,4-oxadiazol-2-yl)phthalazin-1(2H)-one (2a).*

IR



<sup>1</sup>H NMR (DMSO)



Dr\_AbeerElnagar-A5

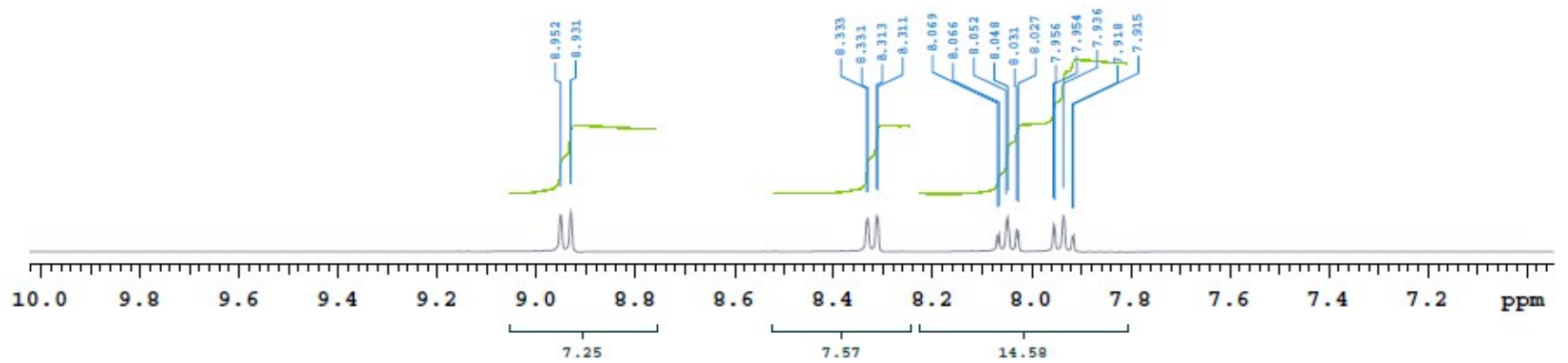
Sample Name **Dr\_AbeerElnagar-A5**  
Date collected **2018-05-06**

Pulse sequence **PROTON**  
Solvent **DMSO**

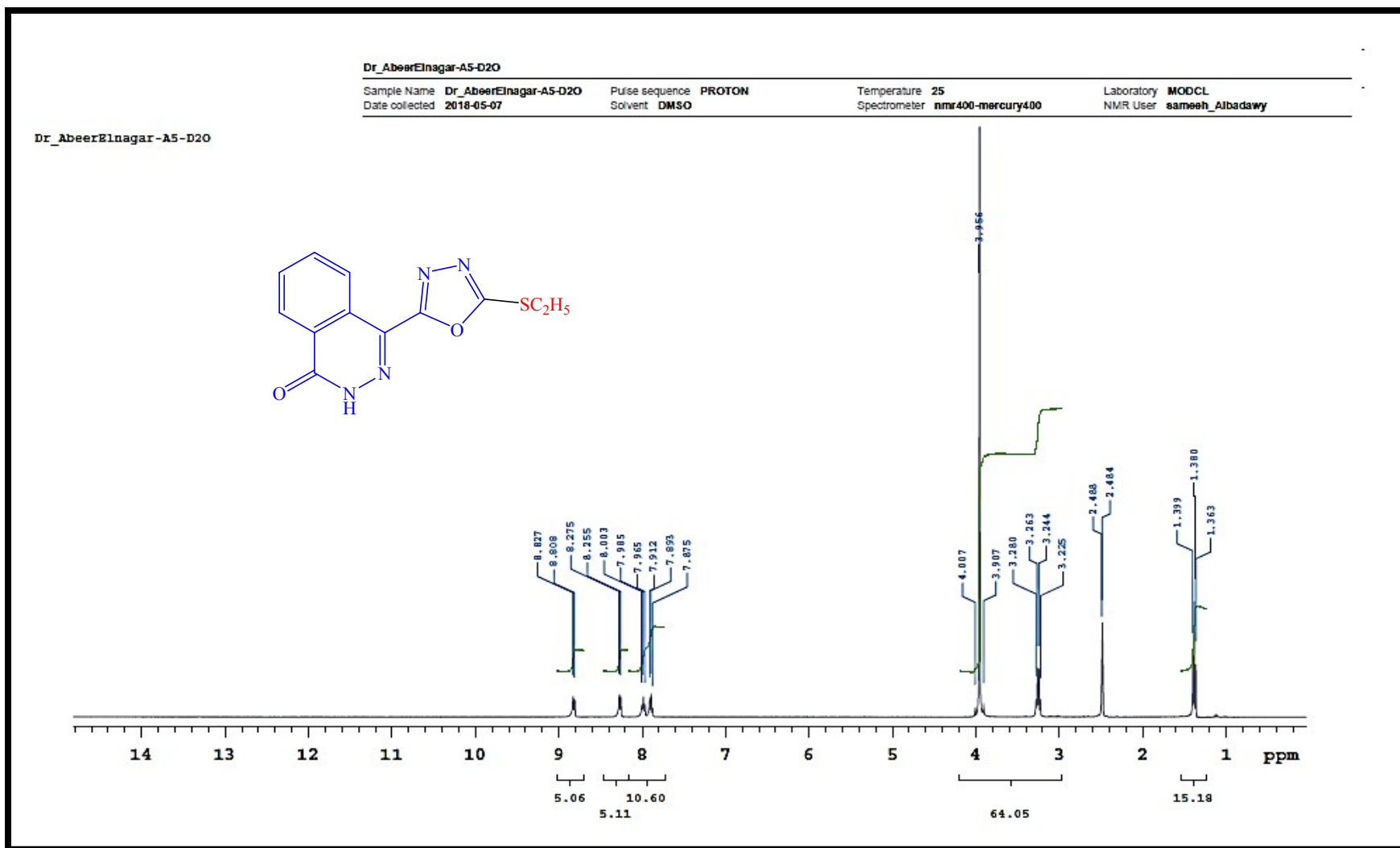
Temperature **25**  
Spectrometer **nmr400-mercury400**

Laboratory **MODCL**  
NMR User **sameeh\_Albadawy**

Dr\_AbeerElnagar -A5

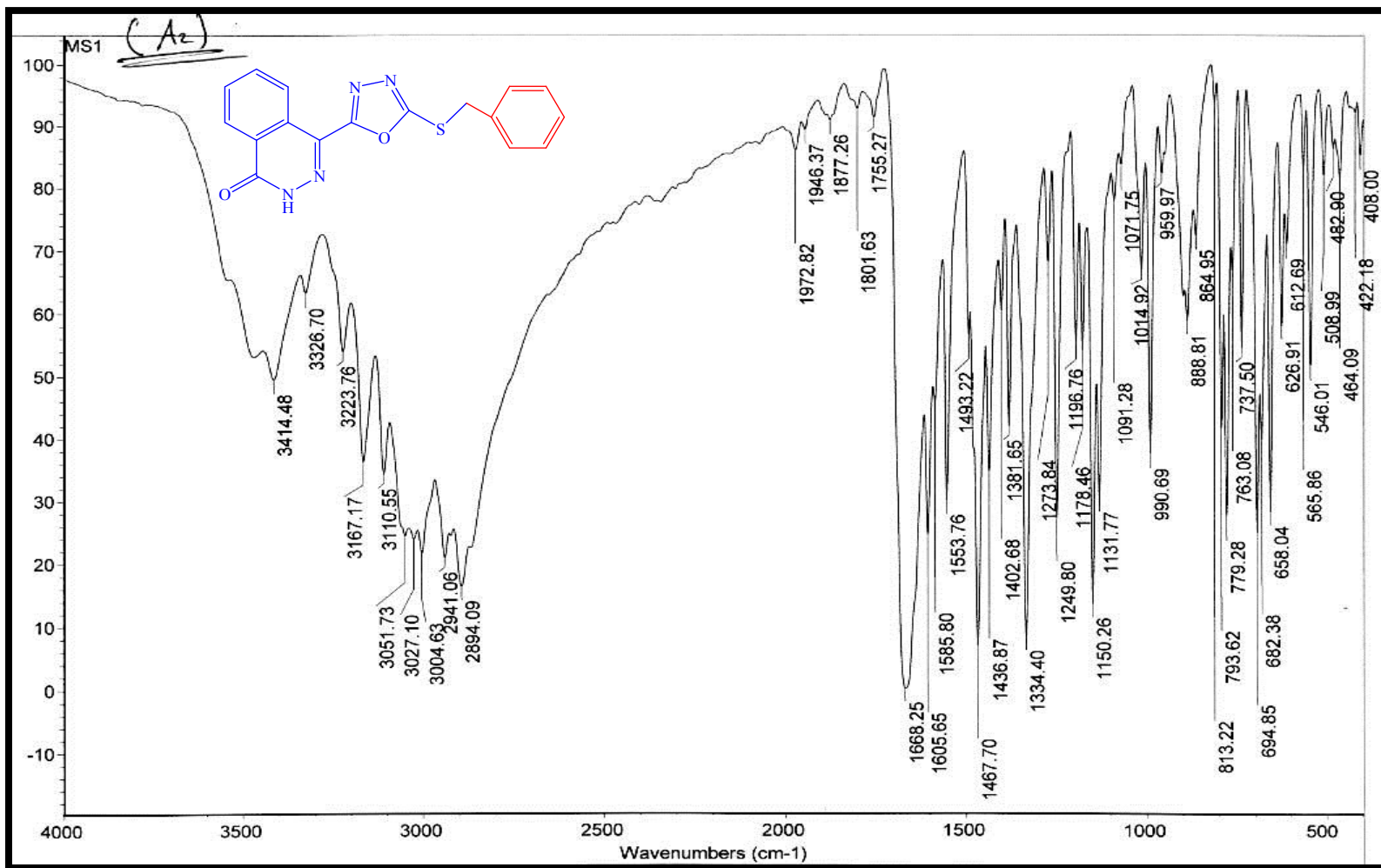


<sup>1</sup>H NMR (DMSO+D<sub>2</sub>O)

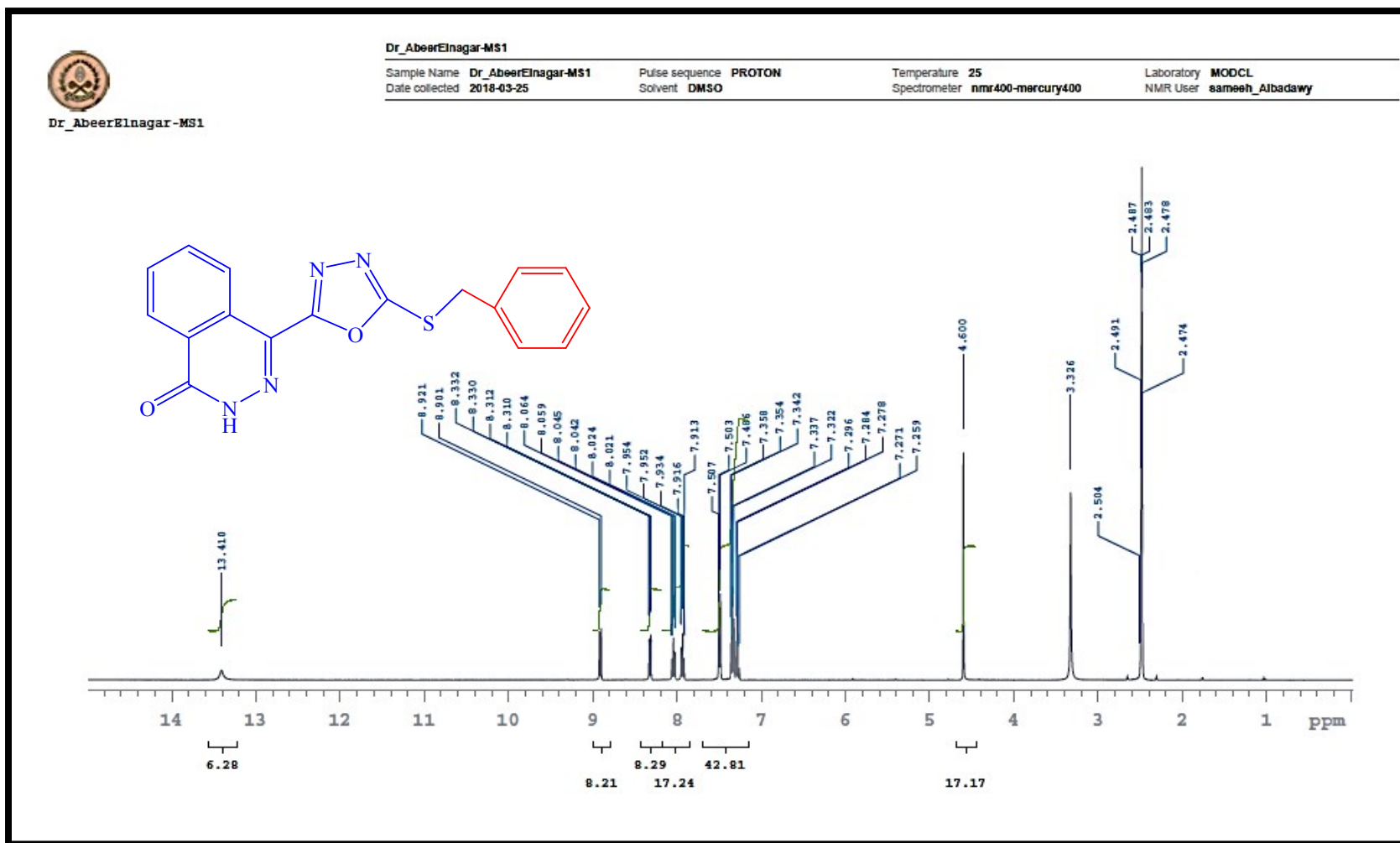


4-(5-(Benzylthio)-1,3,4-oxadiazol-2-yl)phthalazin-1(2H)-one (2b).

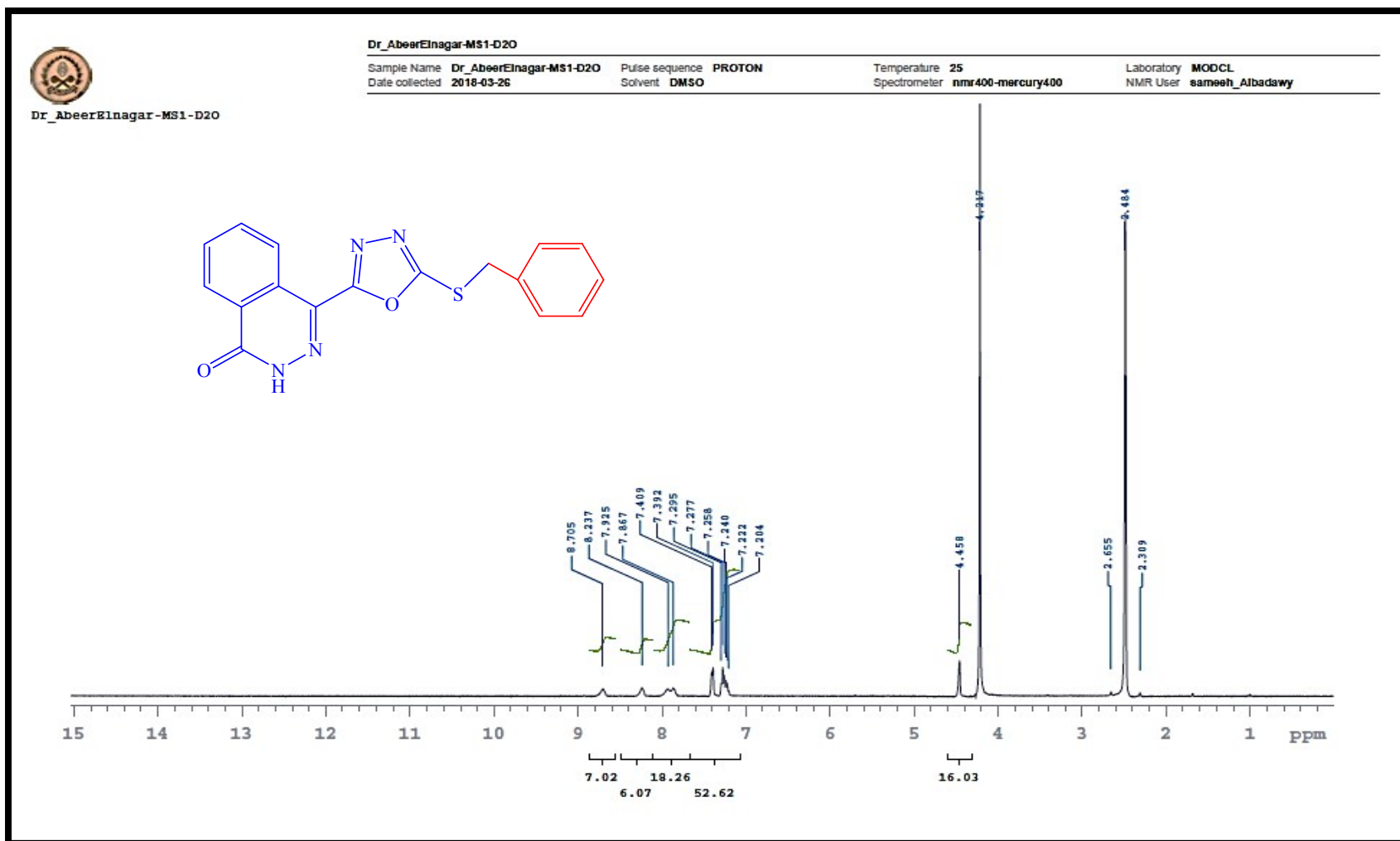
IR



<sup>1</sup>H NMR (DMSO)

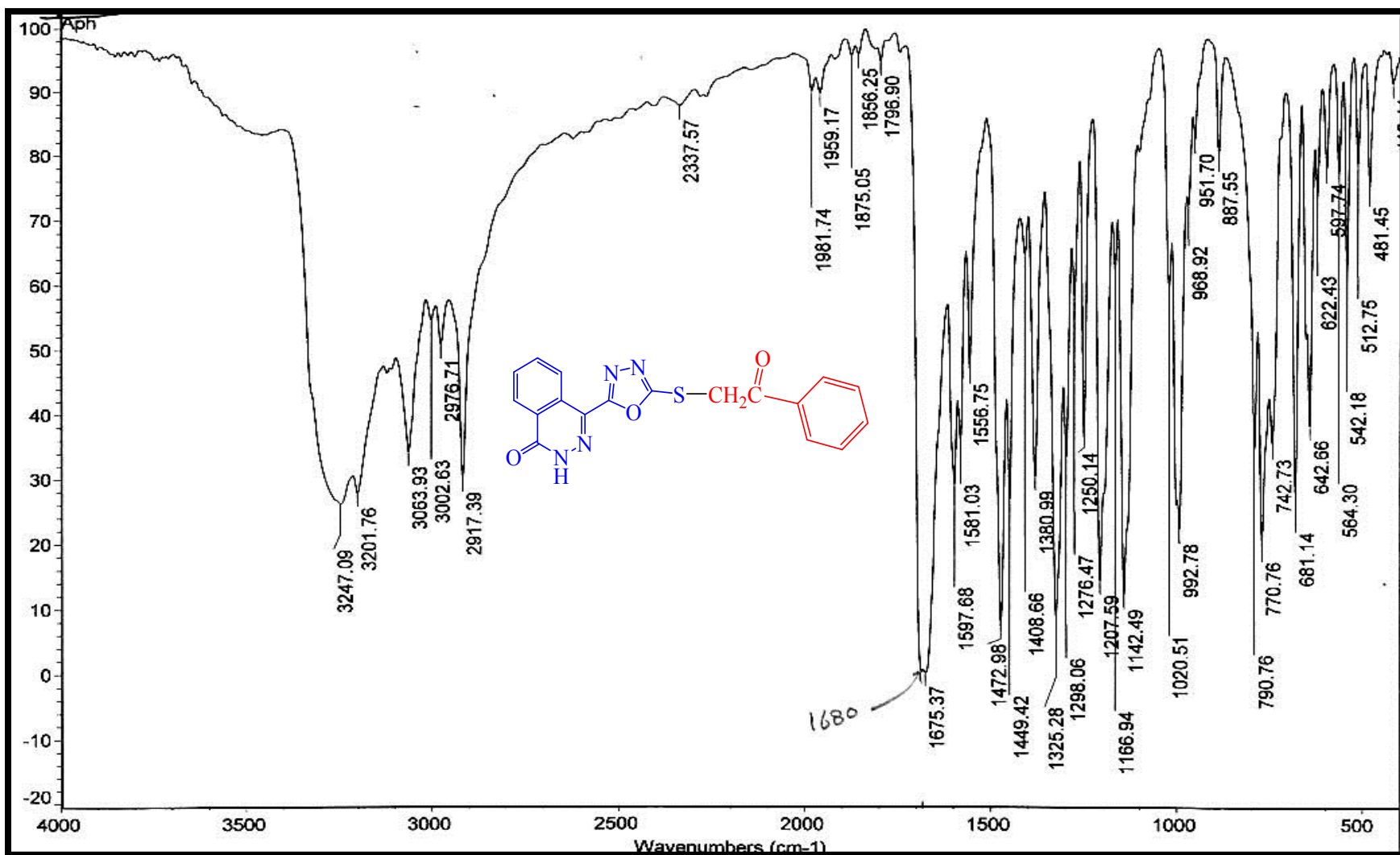


<sup>1</sup>H NMR (DMSO+D<sub>2</sub>O)



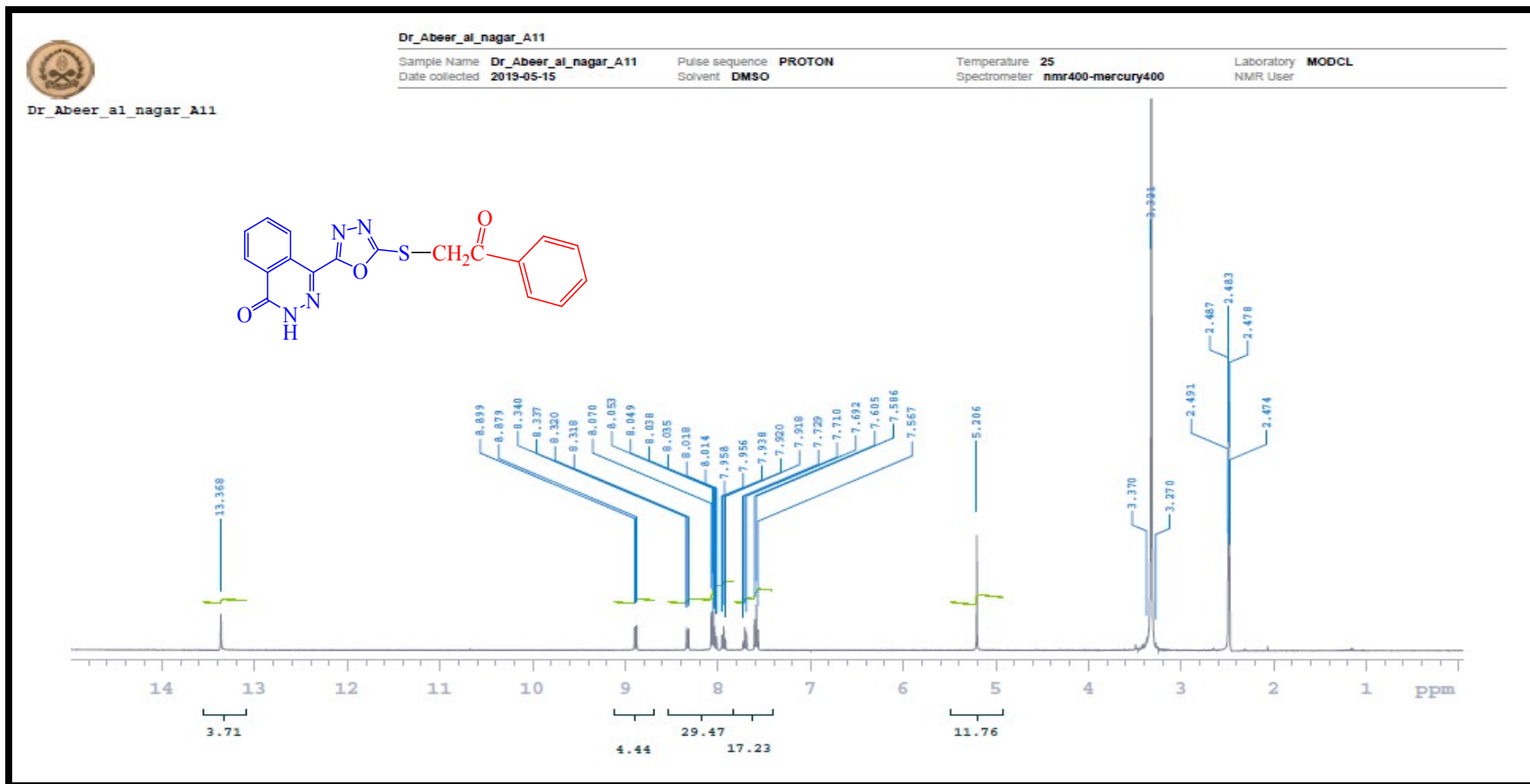
4-(5-((2-oxo-2-phenylethyl)thio)-1,3,4-oxadiazol-2-yl)phthalazin-1(2H)-one (2c).

IR





<sup>1</sup>H NMR (DMSO)

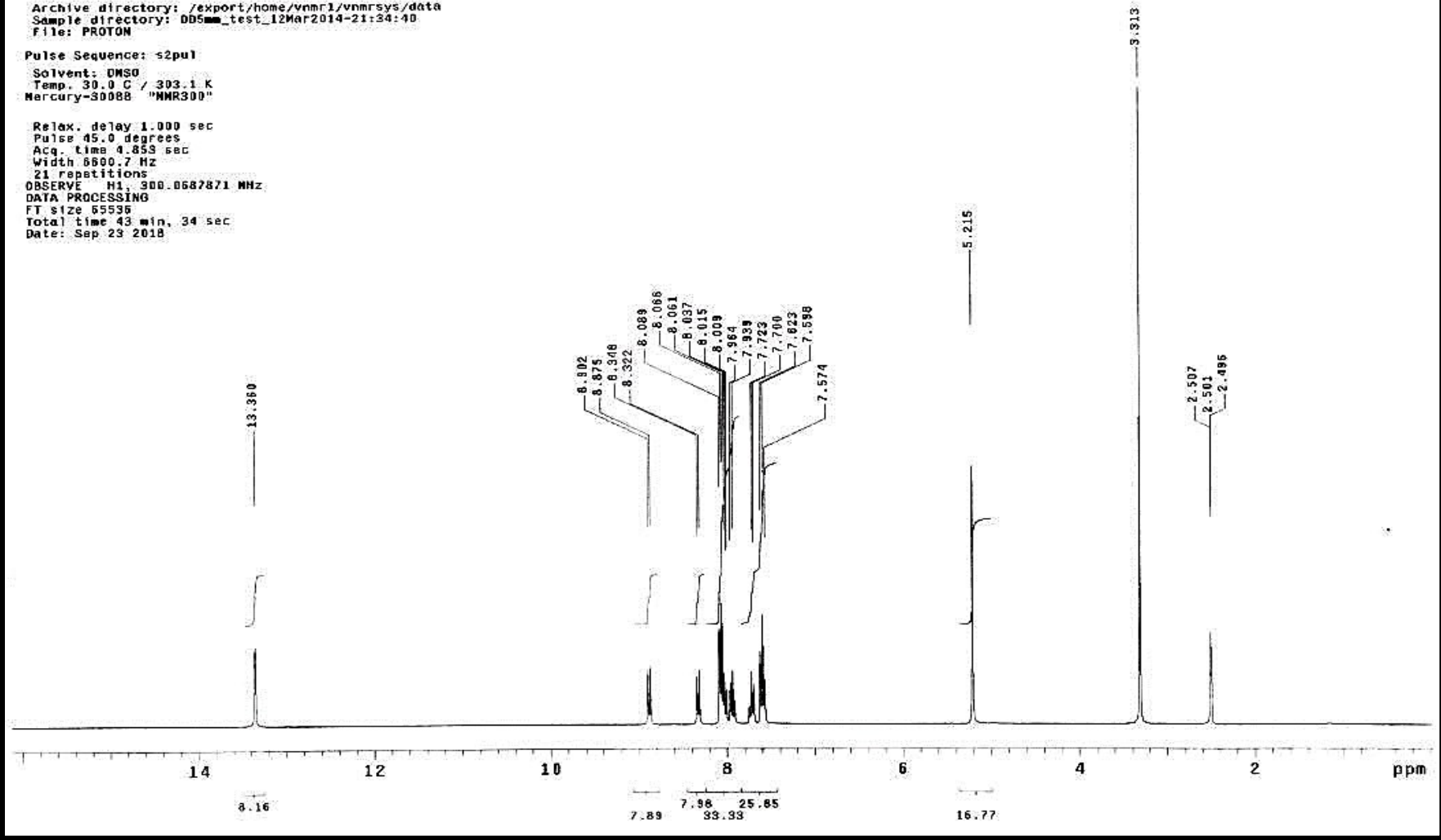


FatmaSaber-A11-DMSO-H1

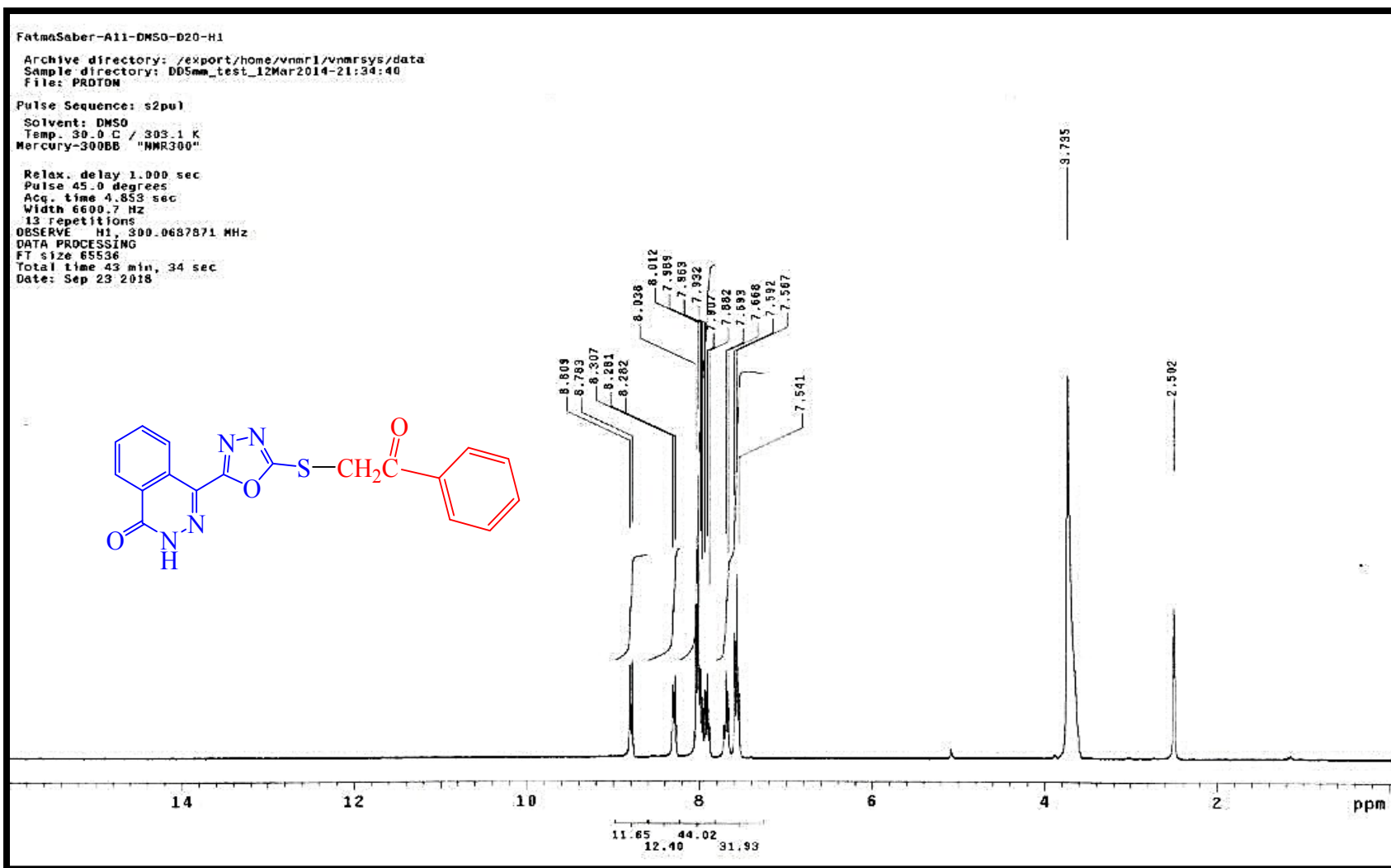
Archive directory: /export/home/vnmr1/vnmrsys/data  
Sample directory: DB5mm\_test\_12Mar2014-21:34:40  
File: PROTON

Pulse Sequence: s2pu1  
Solvent: DMSO  
Temp. 30.0 C / 303.1 K  
Mercury-30088 "MNR300"

Relax. delay 1.000 sec  
Pulse 45.0 degrees  
Acq. time 4.853 sec  
Width 6600.7 Hz  
21 repetitions  
OBSERVE H1, 300.0687871 MHz  
DATA PROCESSING  
FT size 65536  
Total time 43 min, 34 sec  
Date: Sep 23 2018



<sup>1</sup>H NMR (DMSO-D<sub>2</sub>O)



<sup>13</sup>C NMR



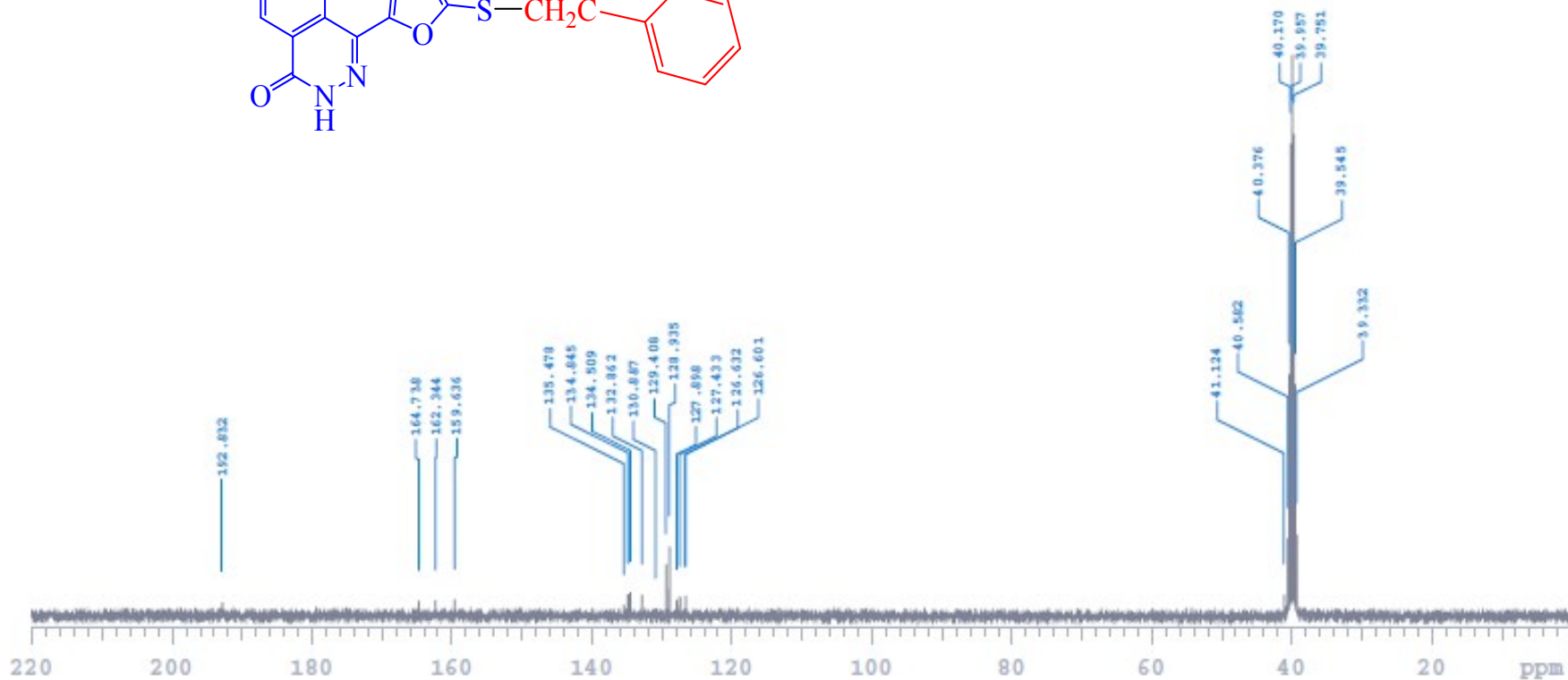
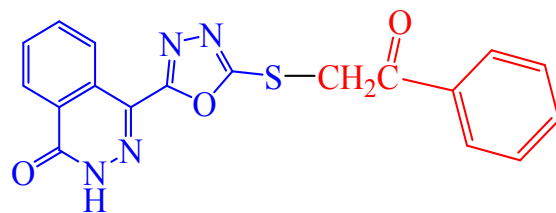
Dr\_Abeer\_al\_nagar\_A11

Sample Name Dr\_Abeer\_al\_nagar\_A11  
Date collected 2019-05-15  
Pulse sequence CARBON  
Solvent DMSO

Temperature 25  
Spectrometer nmr400-mercury400

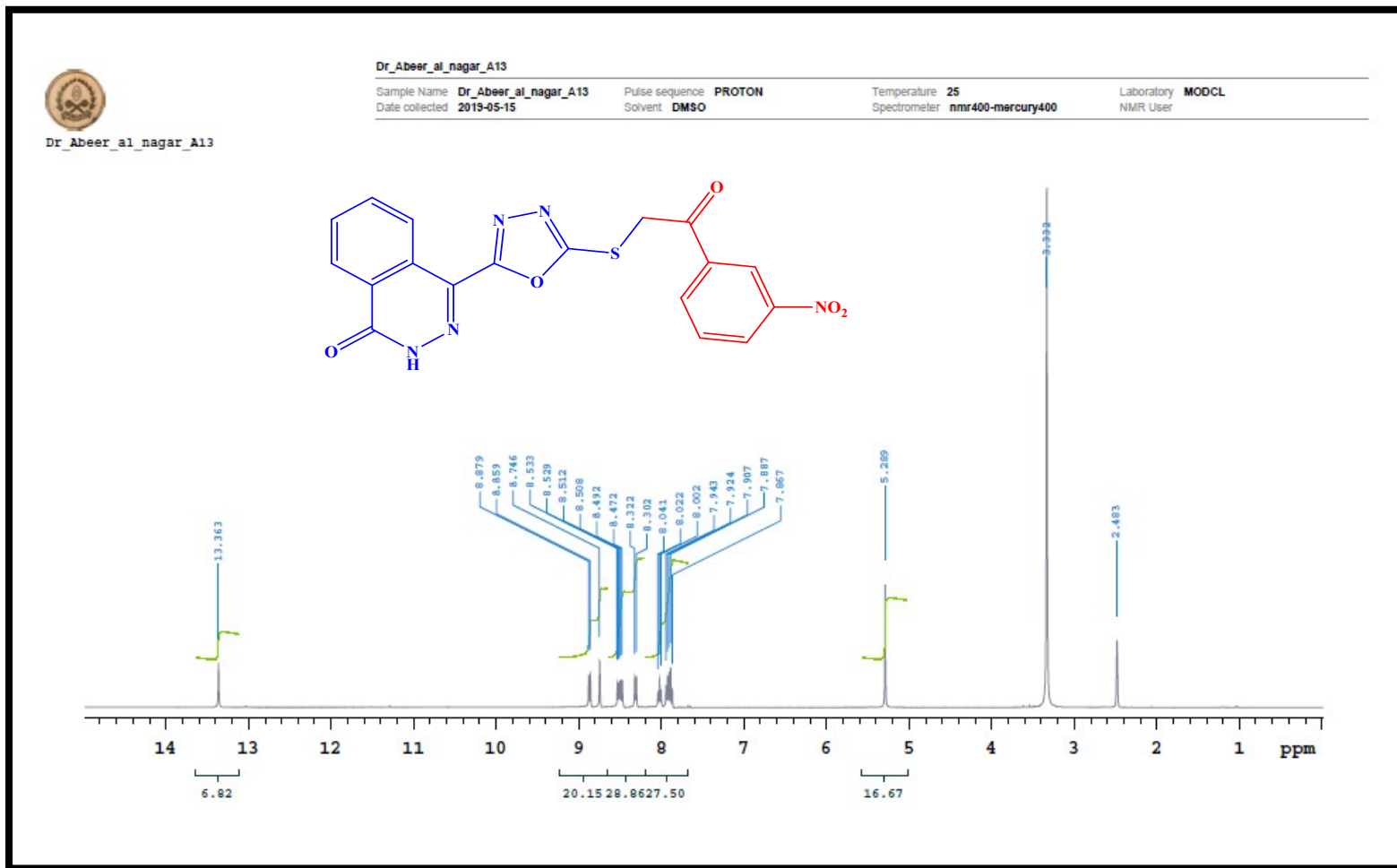
Laboratory MODCL  
NMR User

r\_Abeer\_al\_nagar\_A11

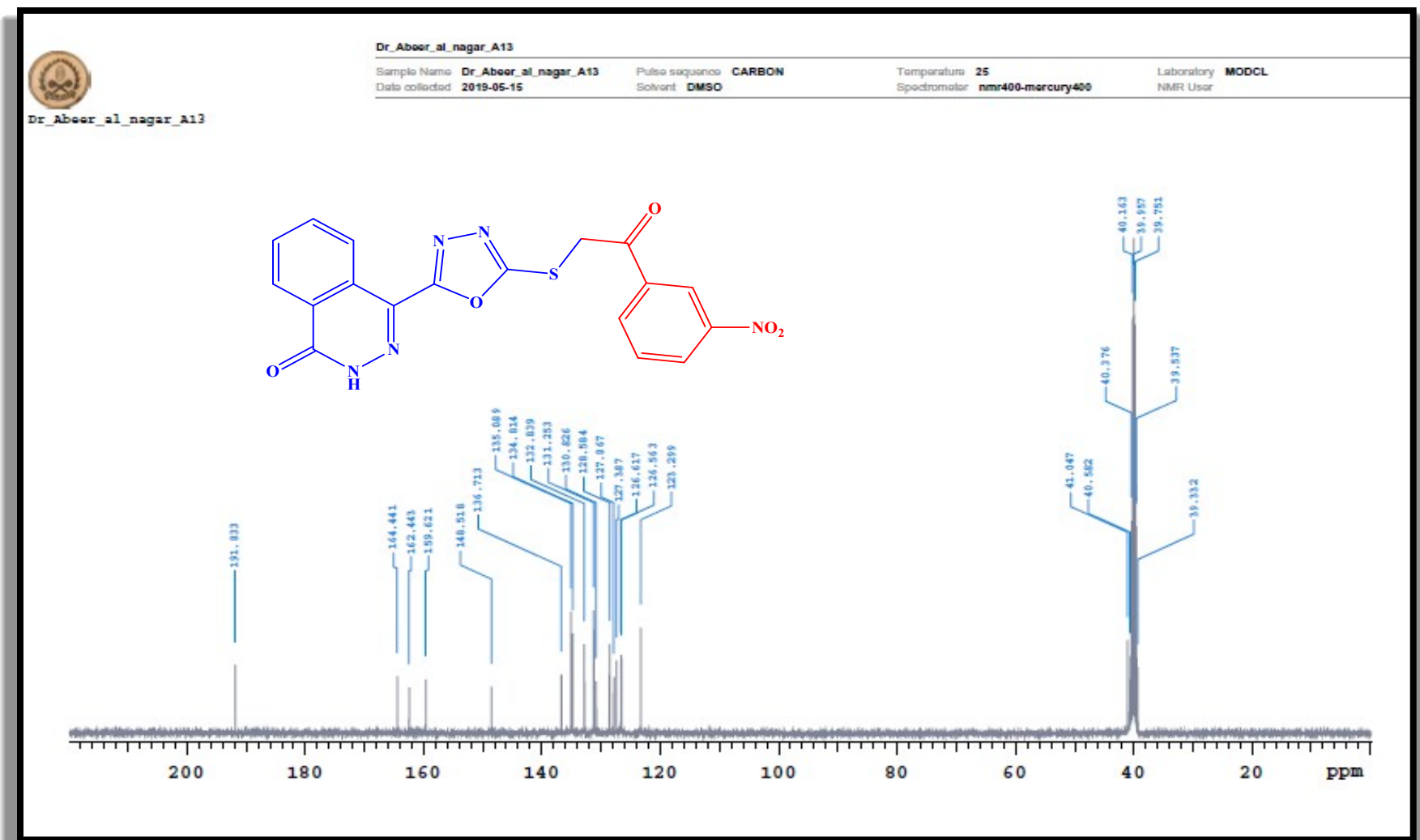


4-(5-((2-(3-nitrophenyl)-2-oxoethyl)thio)-1,3,4-oxadiazol-2-yl)phthalazin-1(2H)-one (2d).

<sup>1</sup>H NMR



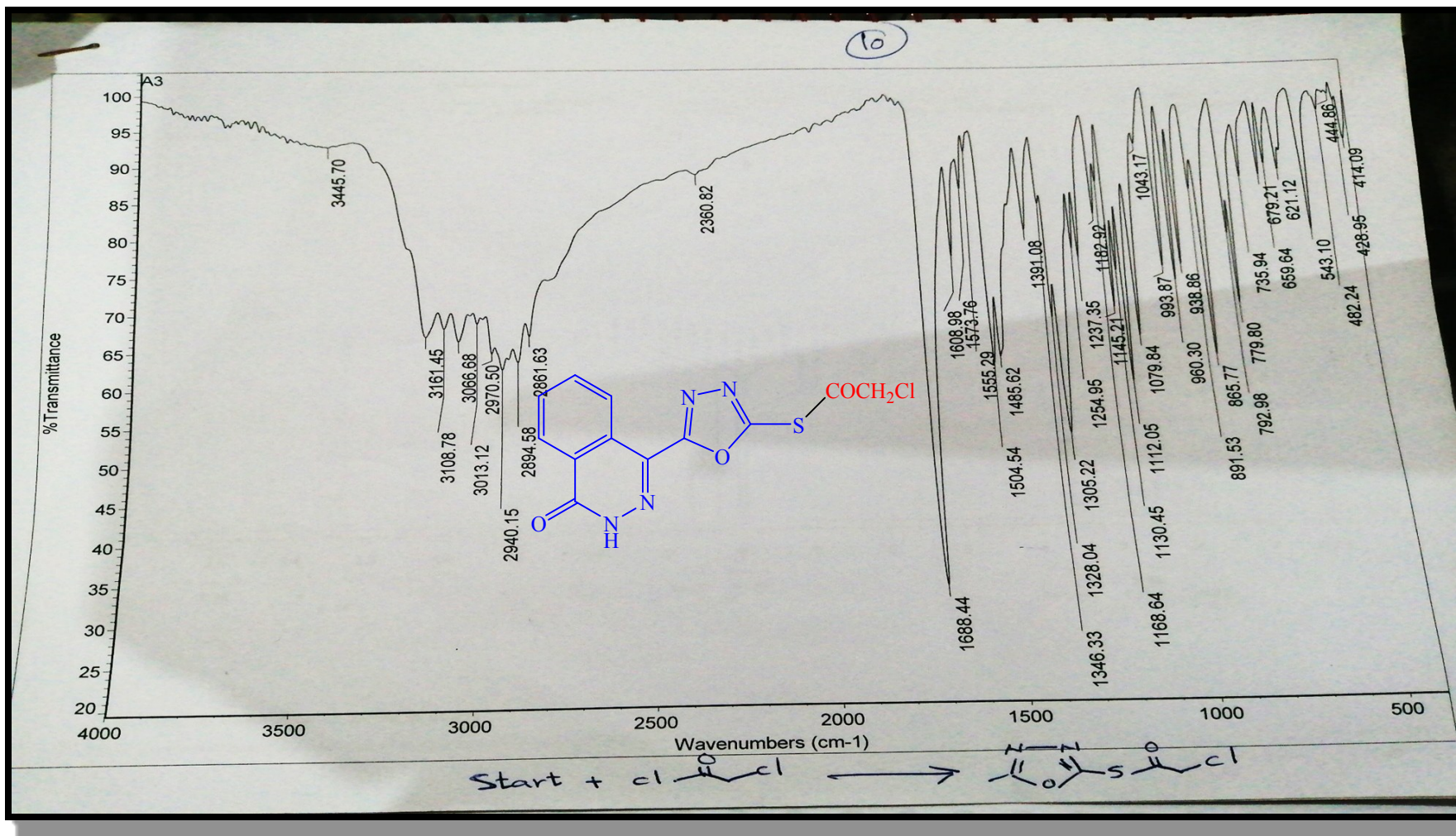
<sup>13</sup>C NMR



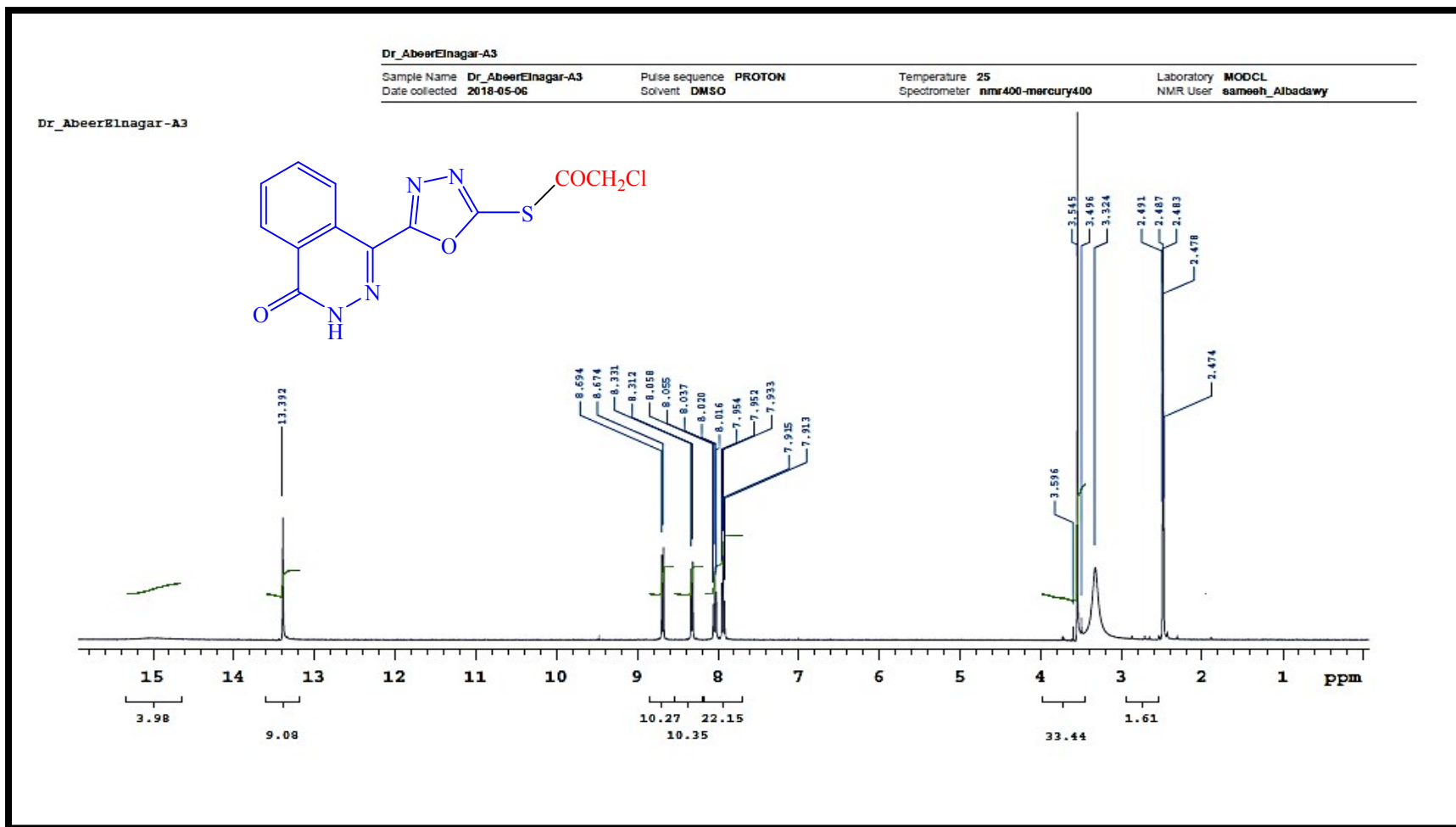


*S*-(5-(4-Oxo-3,4-dihydrophthalazin-1-yl)-1,3,4-oxadiazol-2-yl) 2-chloroethanethioate (2e).

IR



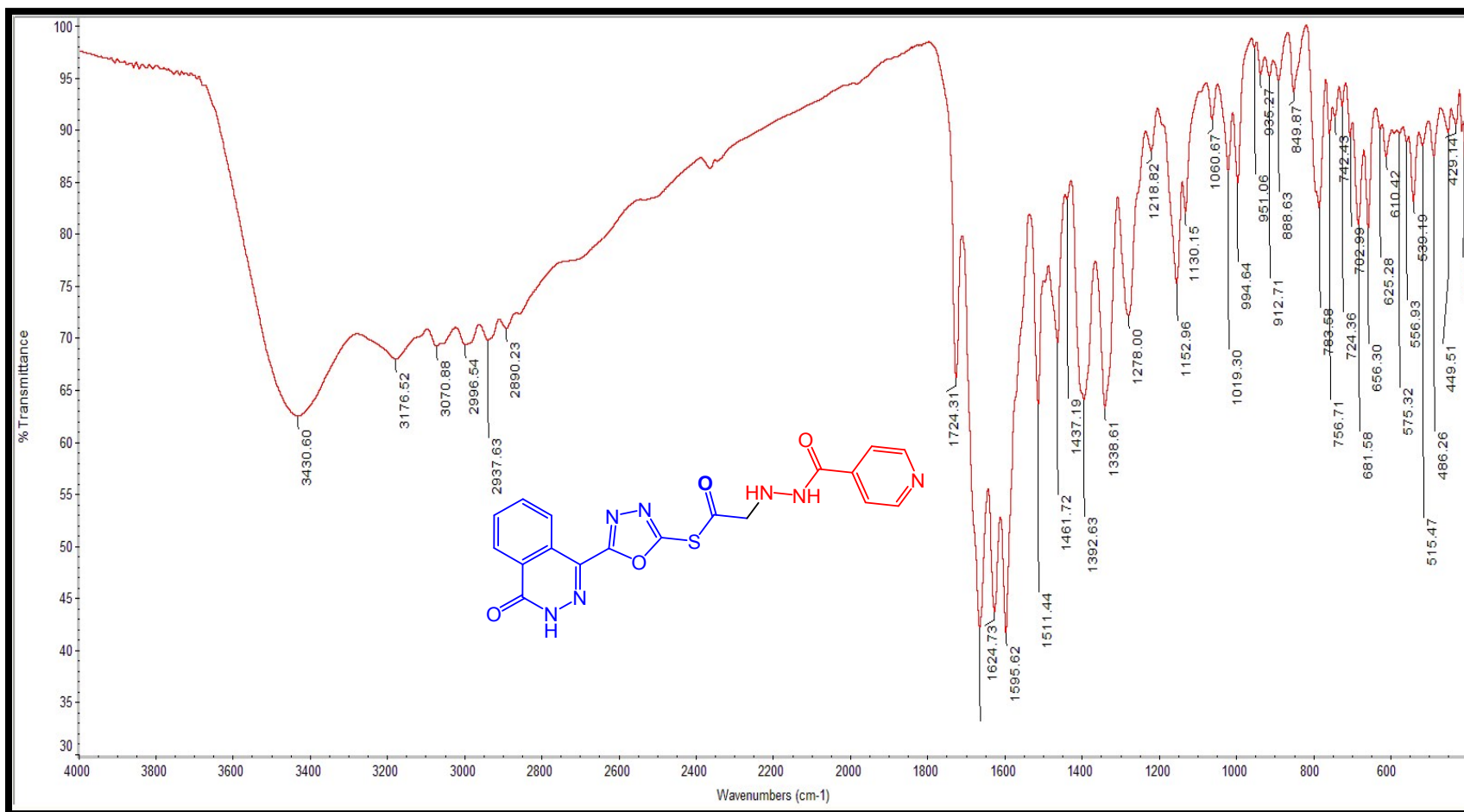
# <sup>1</sup>H NMR (DMSO)



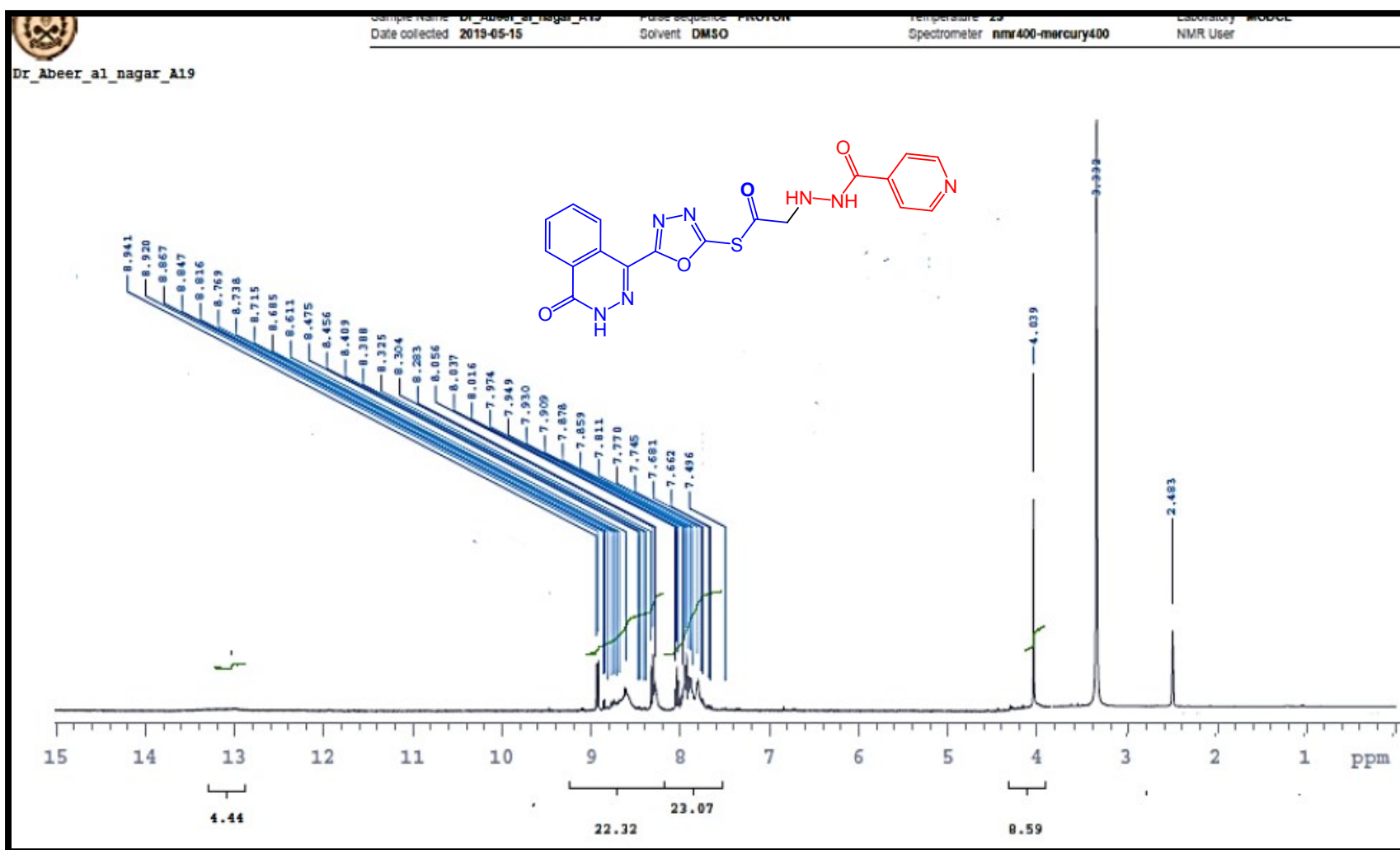


*S*-(5-(4-oxo-3,4-dihydrophthalazin-1-yl)-1,3,4-oxadiazol-2-yl) 2-(2-isonicotinoylhydrazinyl)ethanethioate(3).

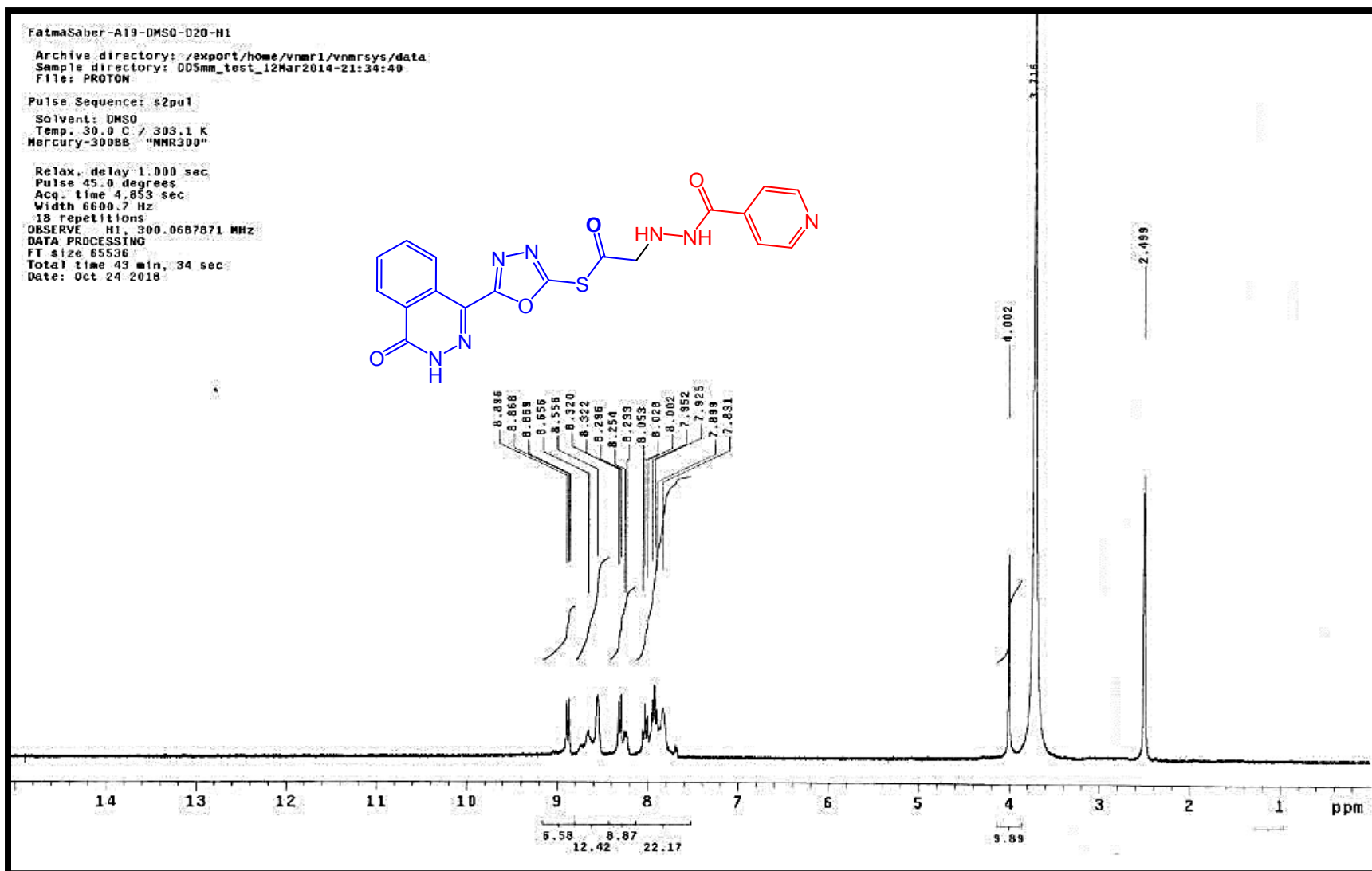
IR



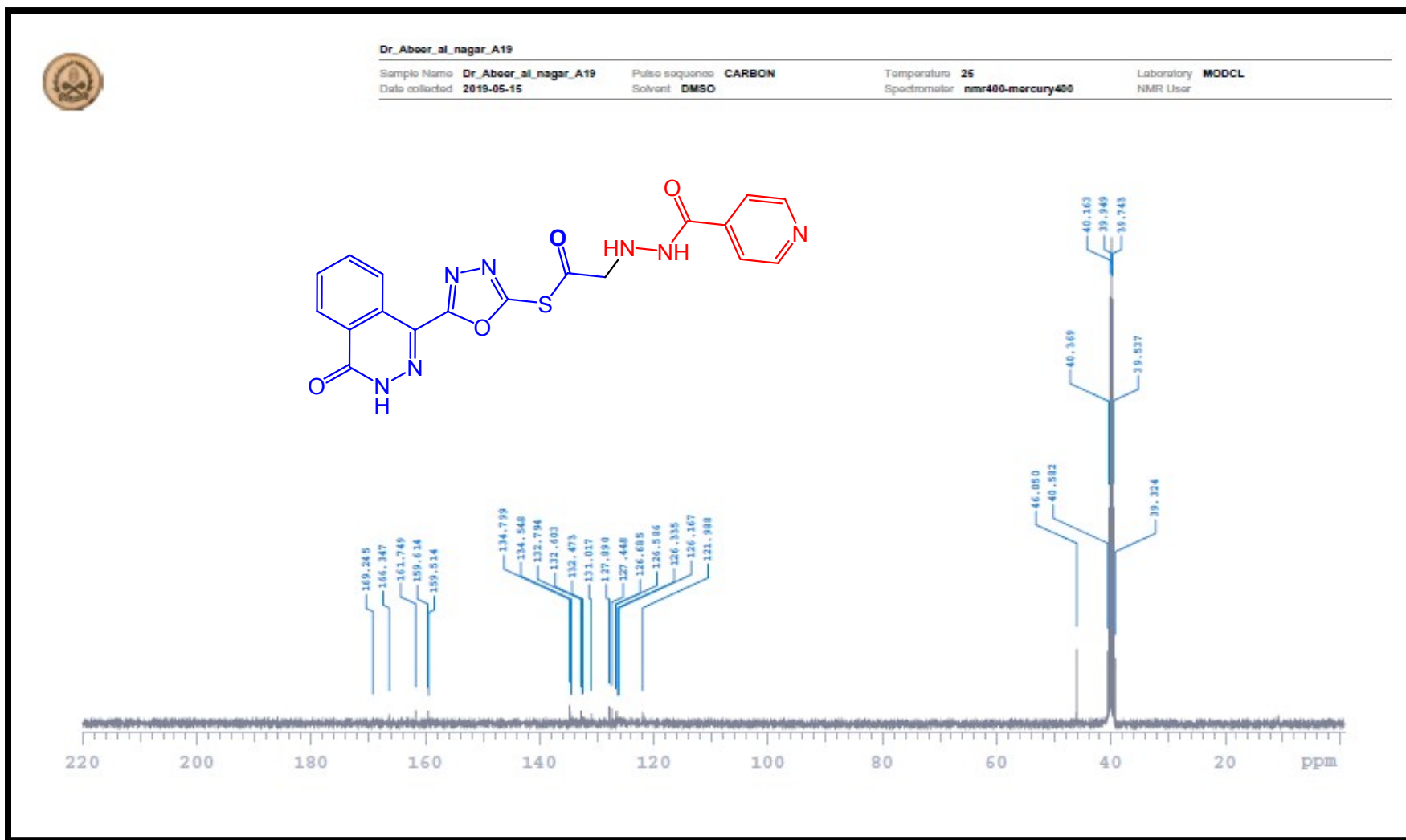
<sup>1</sup>H NMR (DMSO)



<sup>1</sup>H NMR (DMSO-D<sub>2</sub>O)

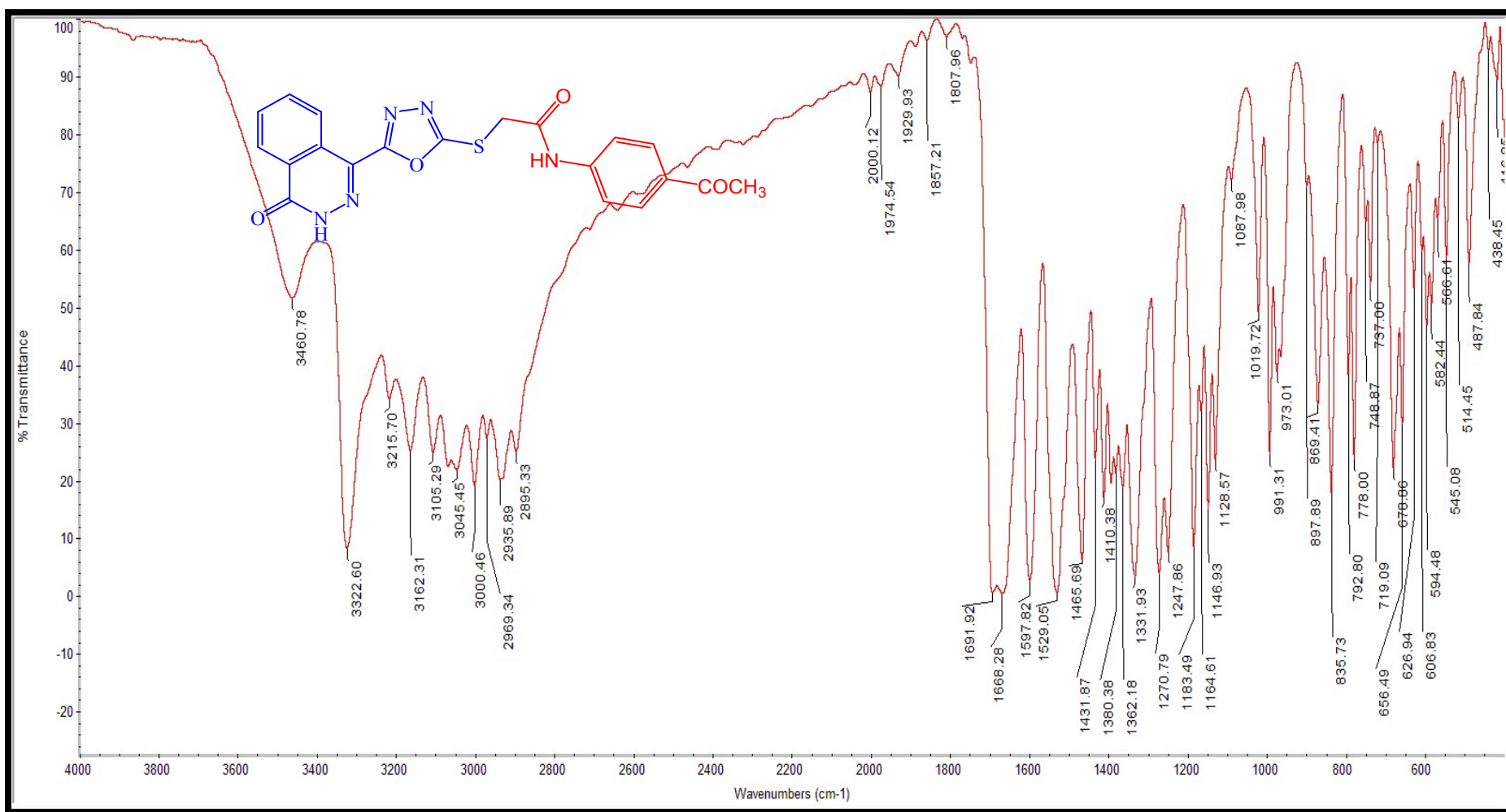


<sup>13</sup>C NMR

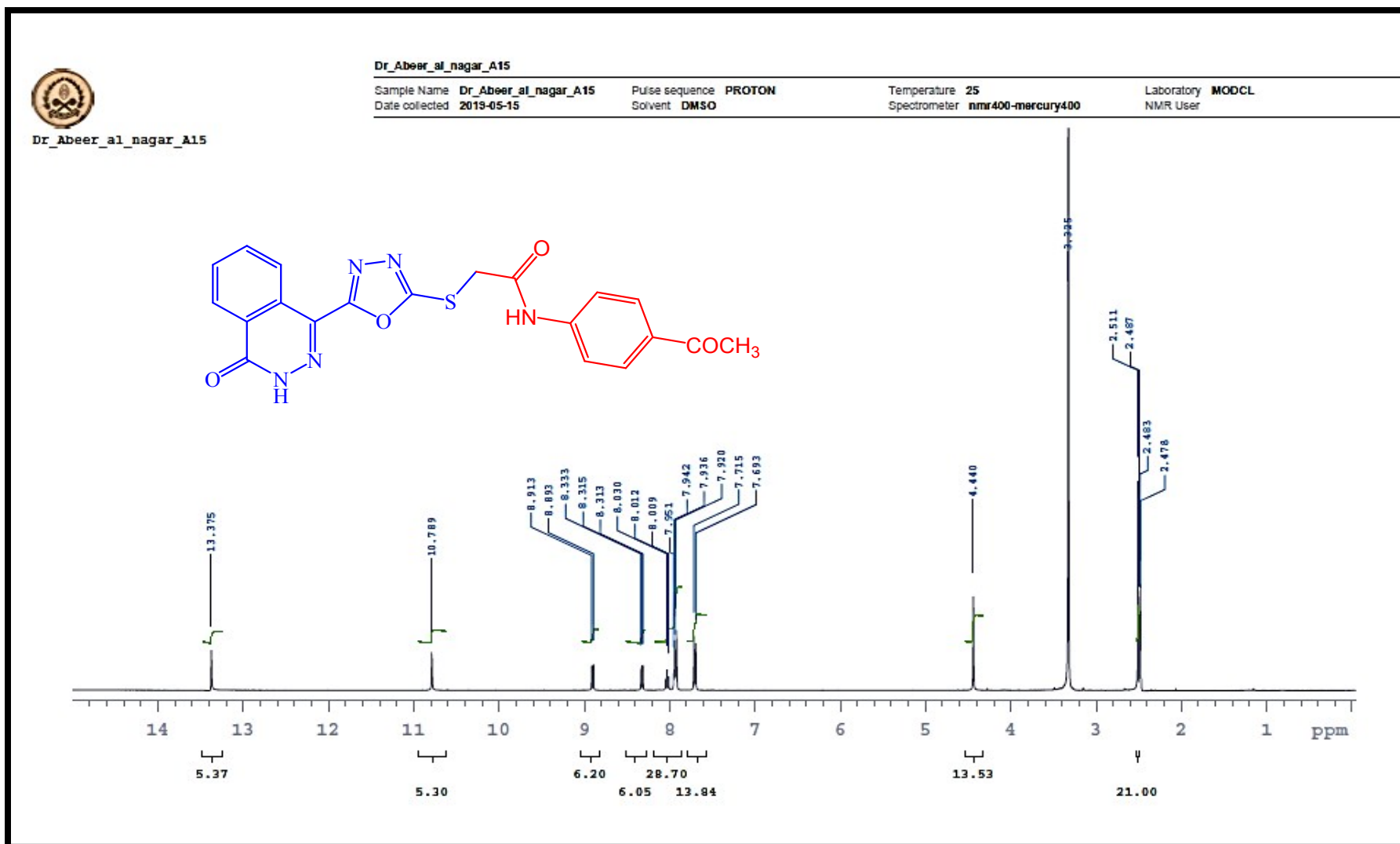


*N*-(4-acetylphenyl)-2-((5-(4-oxo-3,4-dihydrophthalazin-1-yl)-1,3,4-oxadiazol-2-yl)thio) acetamide (4a).

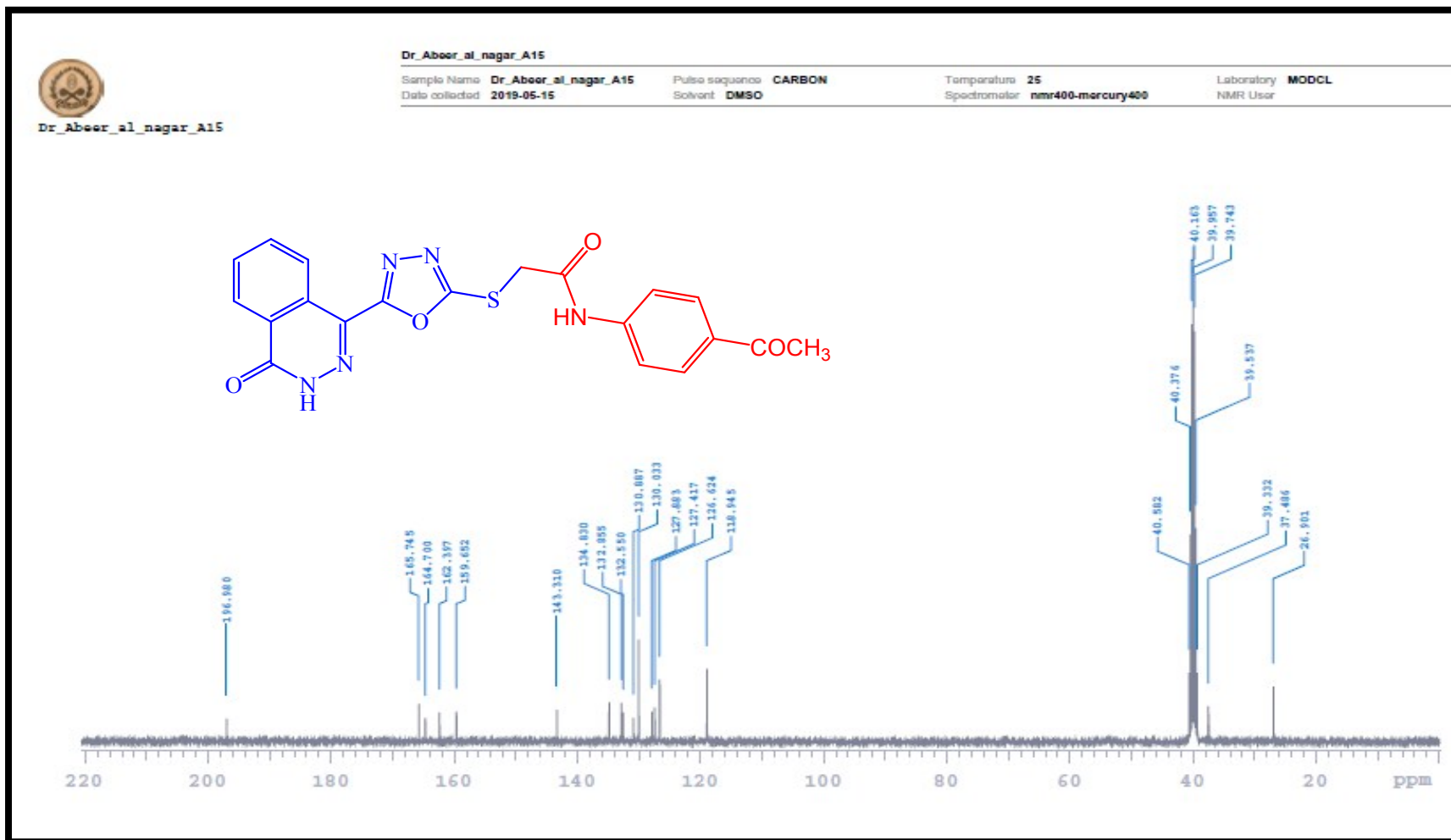
IR



<sup>1</sup>H NMR (DMSO).

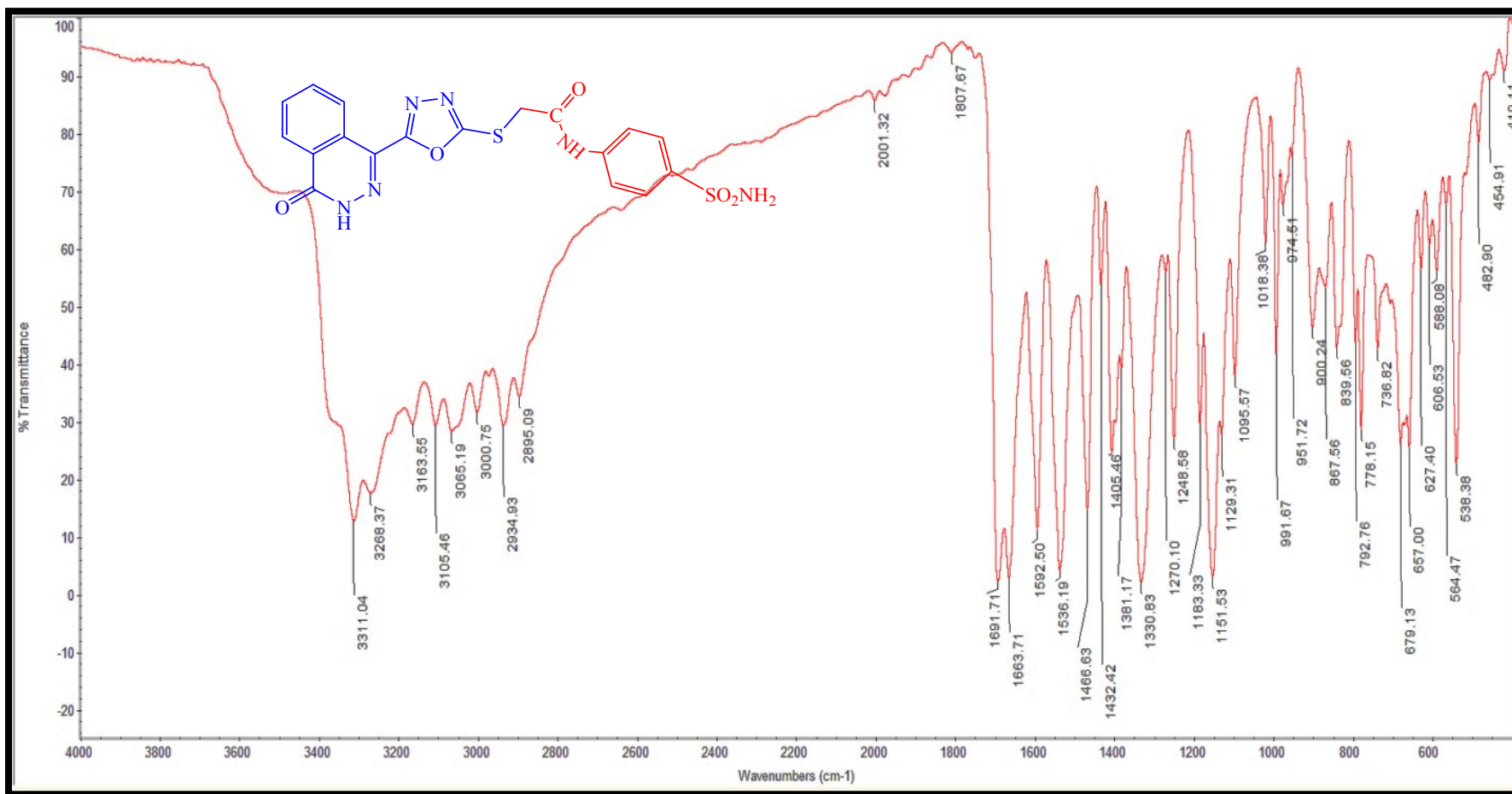


<sup>13</sup>C NMR



*2-((5-(4-oxo-3,4-dihydrophthalazin-1-yl)-1,3,4-oxadiazol-2-yl)thio)-N-(4-sulfamoylphenyl) acetamide (4b).*

*IR*





# <sup>1</sup>H NMR



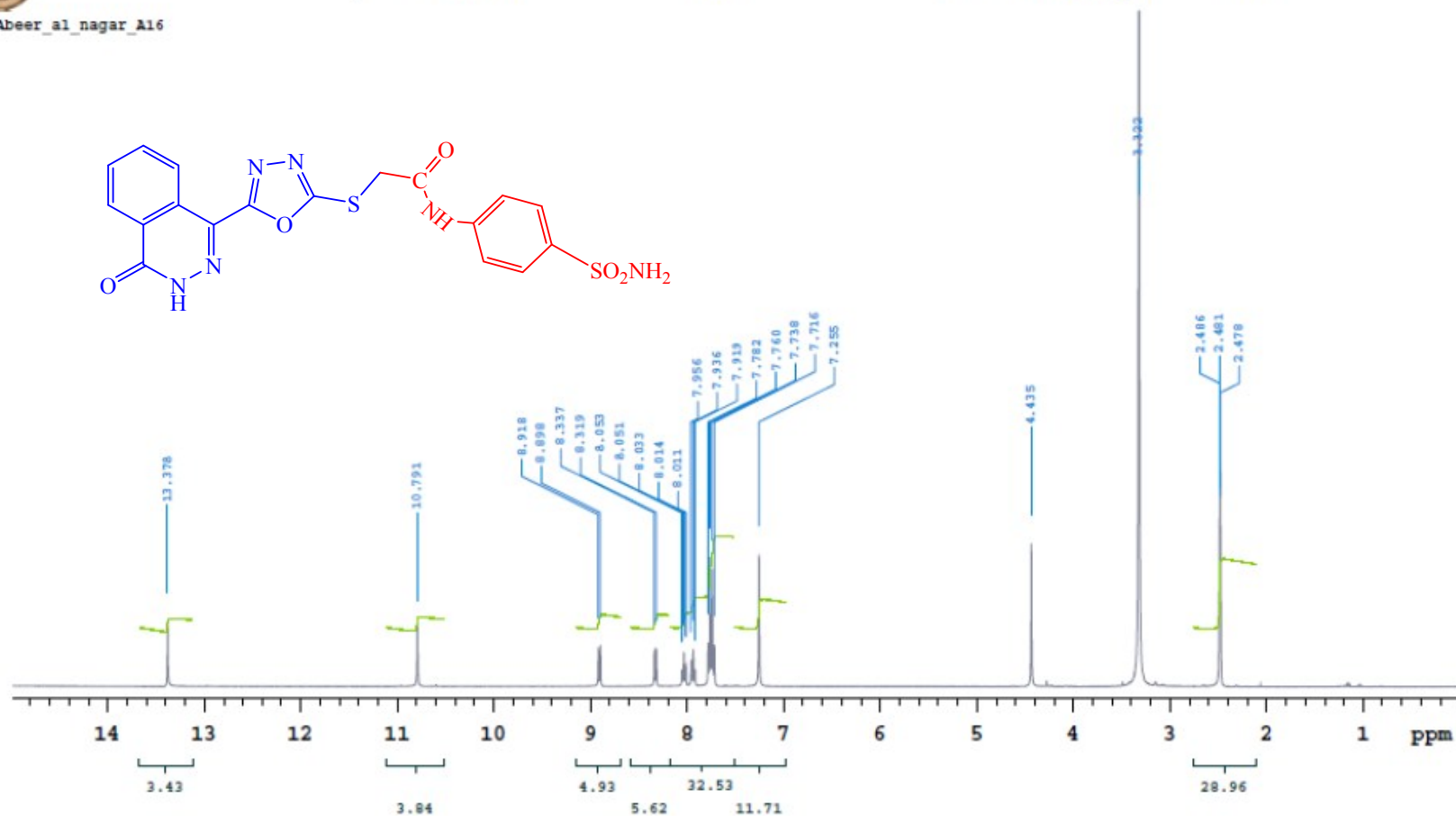
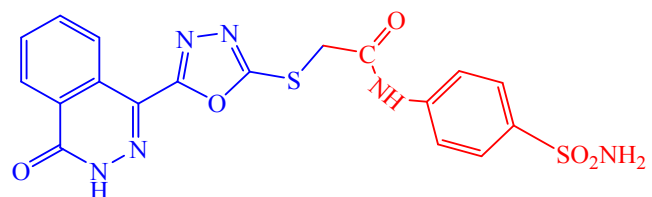
Dr\_Abeer\_al\_nagar\_A16

Sample Name **Dr\_Abeer\_al\_nagar\_A16**  
Date collected **2019-05-14**

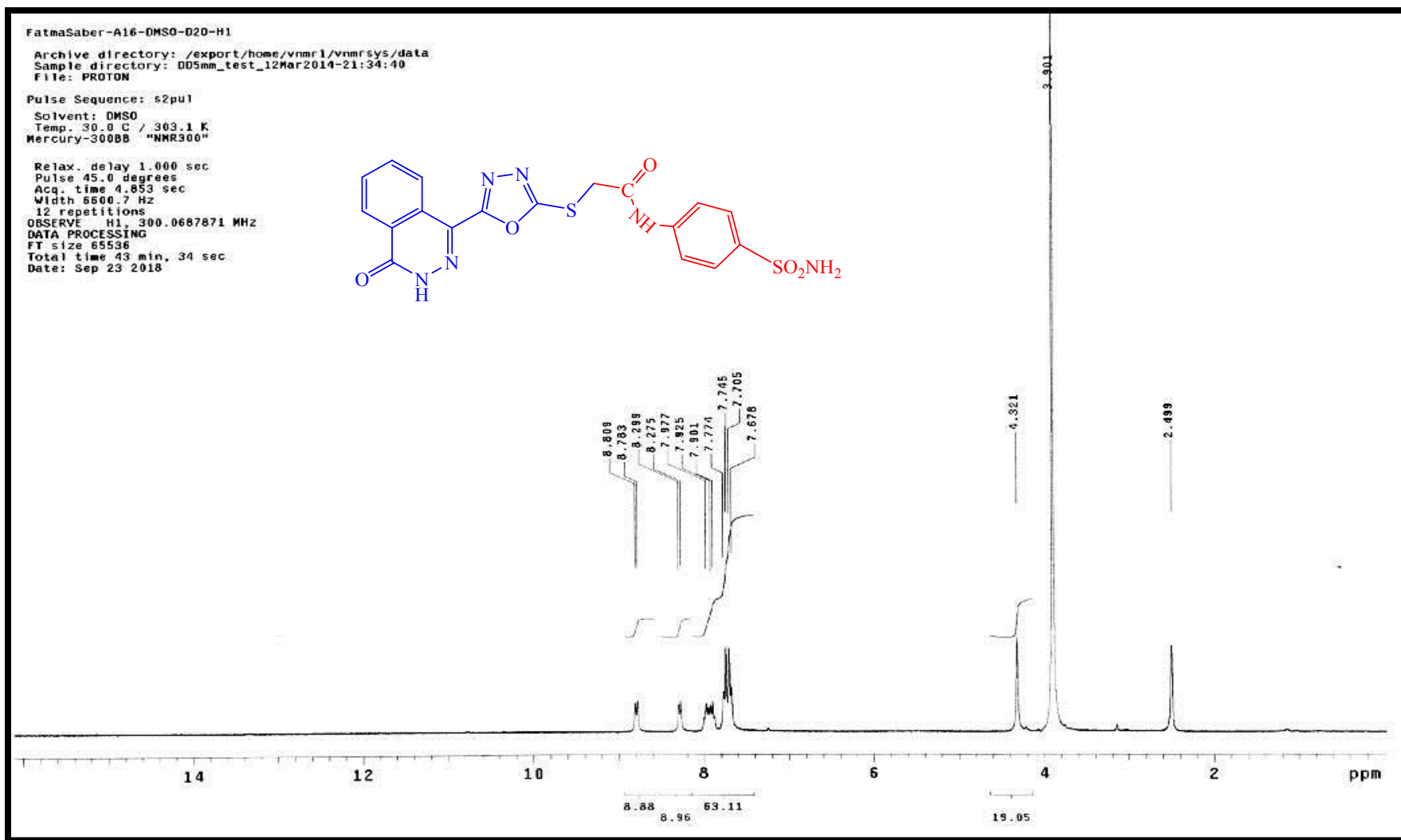
Pulse sequence **PROTON**  
Solvent **DMSO**

Temperature **25**  
Spectrometer **nmr400-mercury400**

Laboratory **MODCL**  
NMR User



<sup>1</sup>H NMR (DMSO-D<sub>2</sub>O)



<sup>13</sup>C NMR



Dr\_Abeer\_al\_nagar\_A16

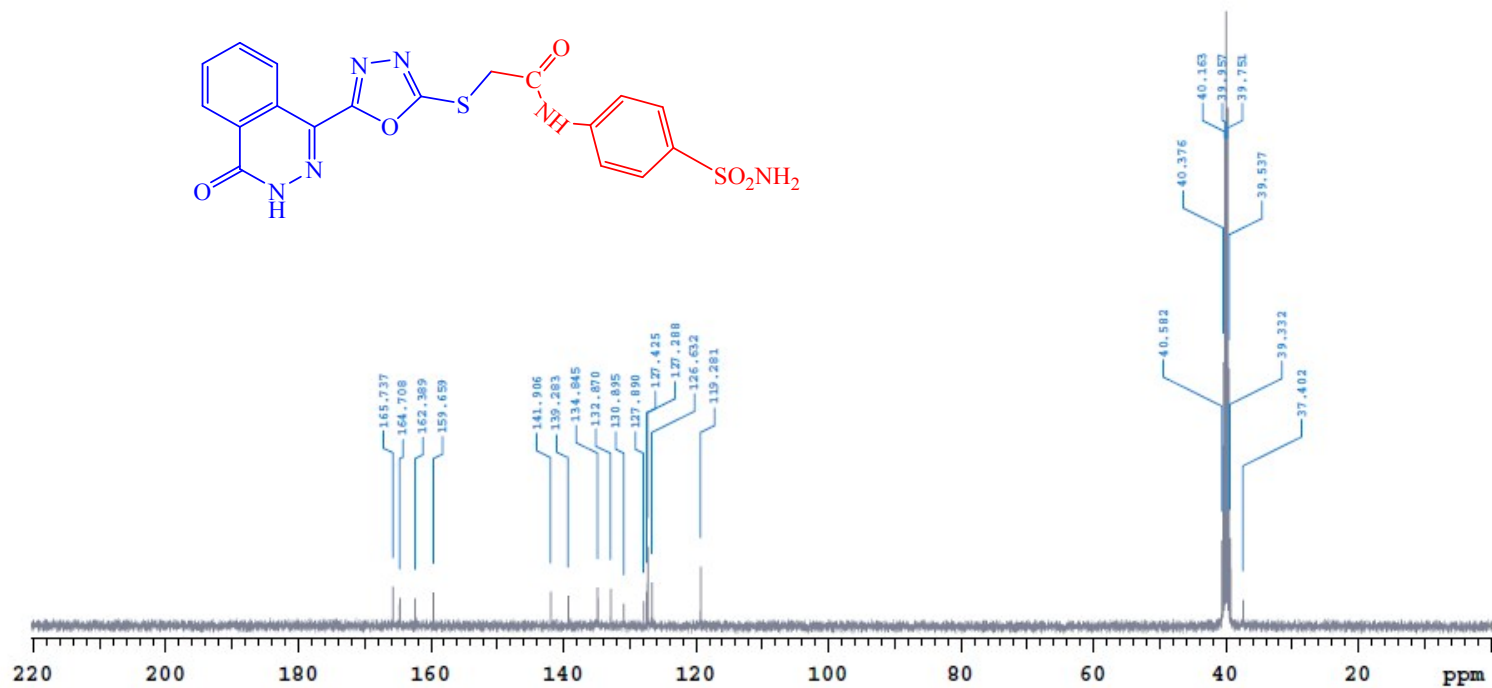
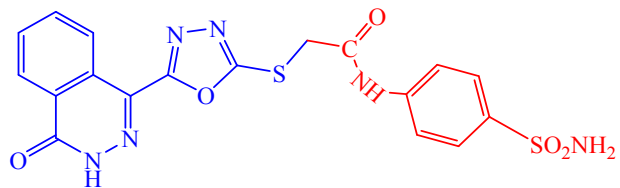
Dr\_Abeer\_al\_nagar\_A16

Sample Name Dr\_Abeer\_al\_nagar\_A16  
Date collected 2019-05-14

Pulse sequence CARBON  
Solvent DMSO

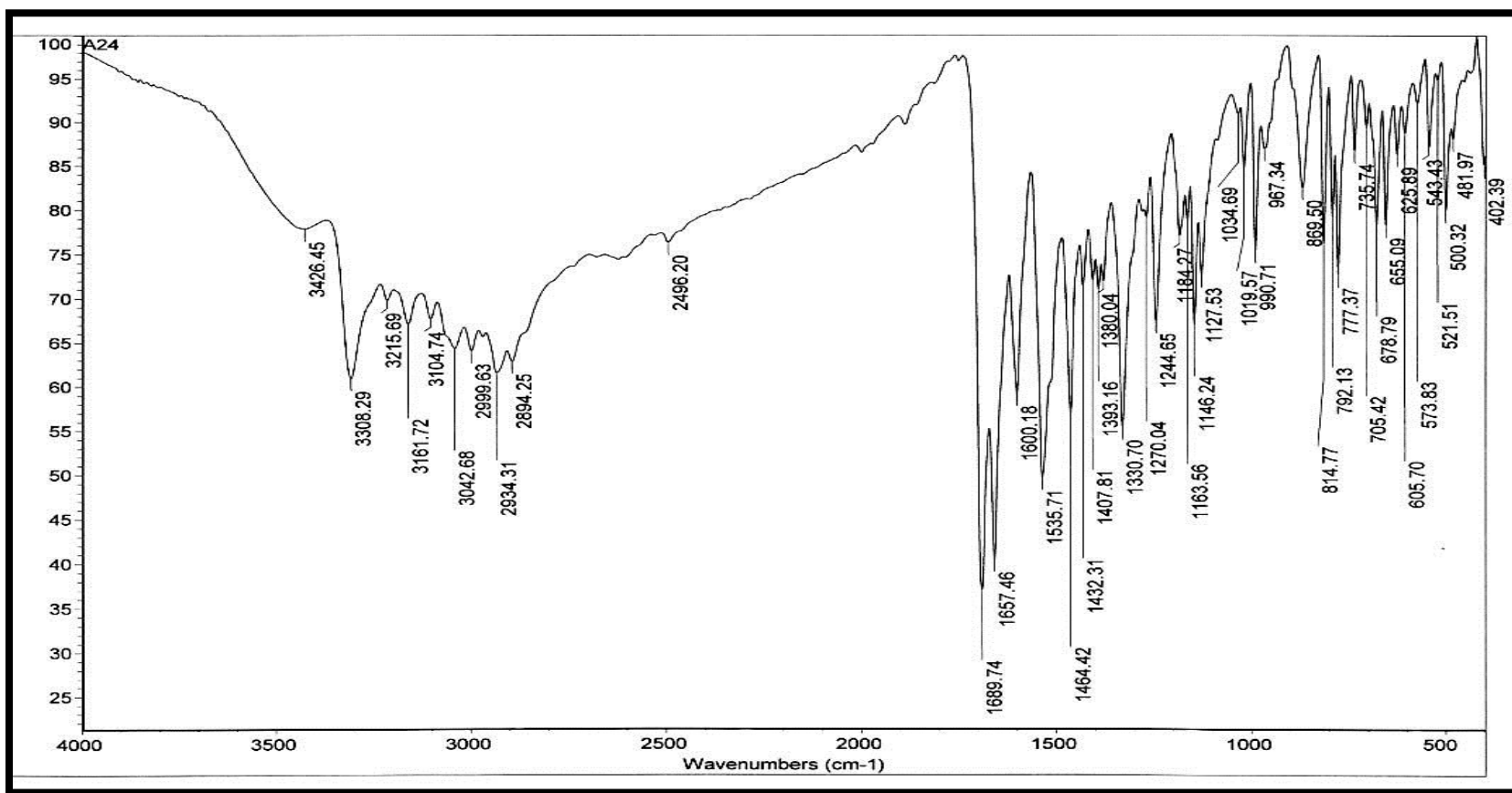
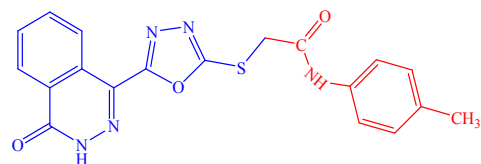
Temperature 25  
Spectrometer nmr400-mercury400

Laboratory MODCL  
NMR User

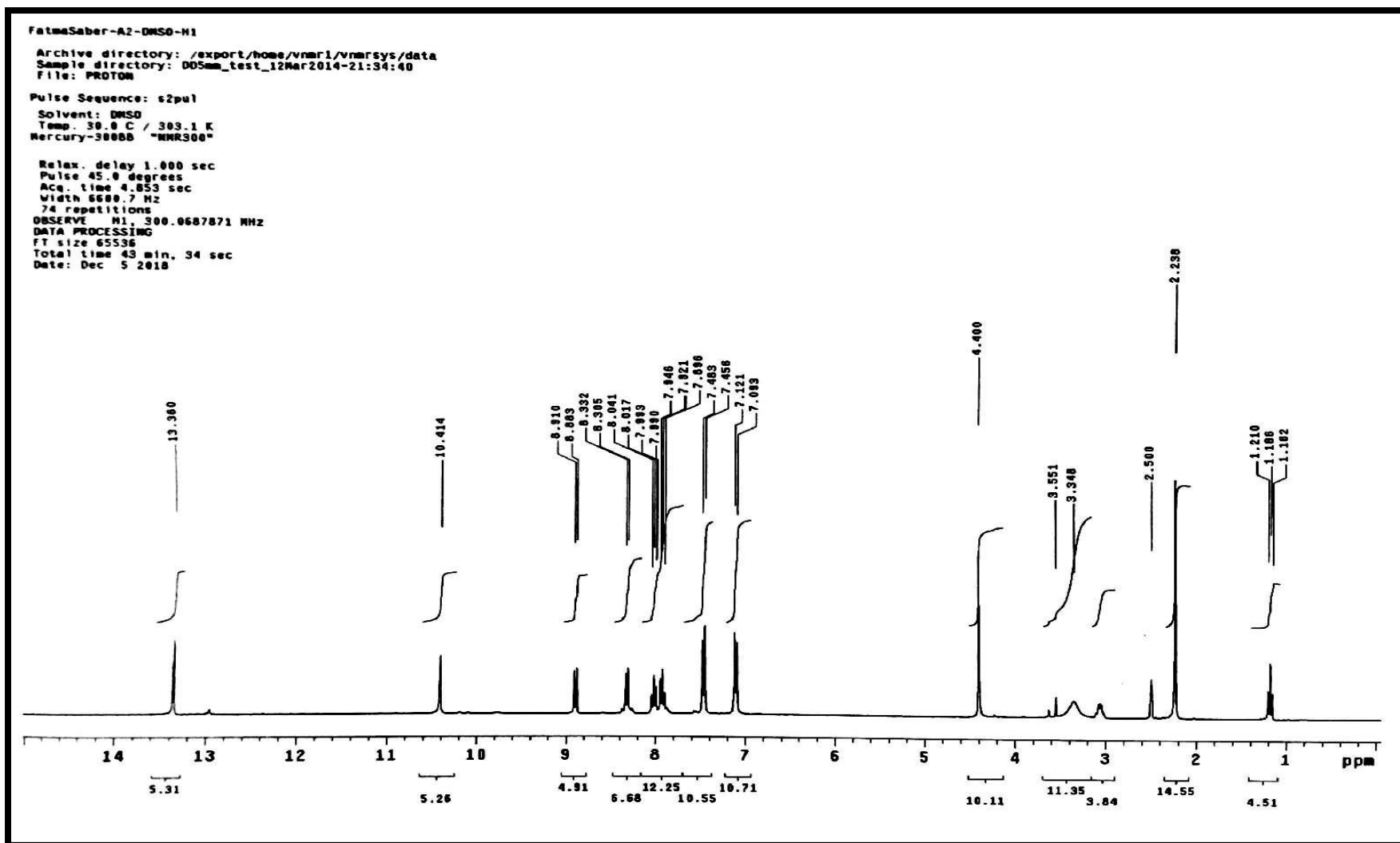


2-((5-(4-oxo-3,4-dihydrophthalazin-1-yl)-1,3,4-oxadiazol-2-yl)thio)-N-(p-tolyl)acetamide (4c).

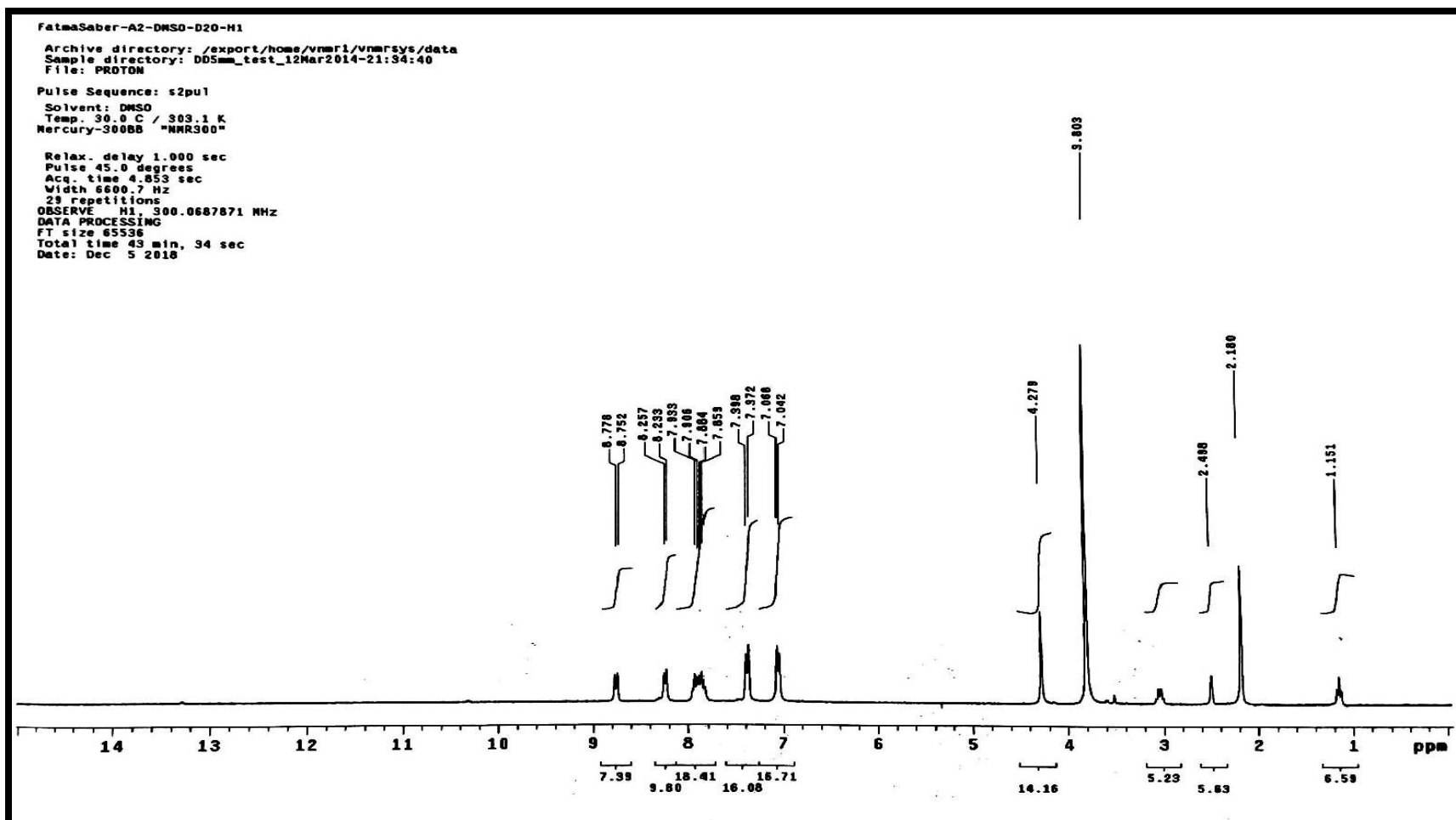
IR



<sup>1</sup>H NMR (DMSO)

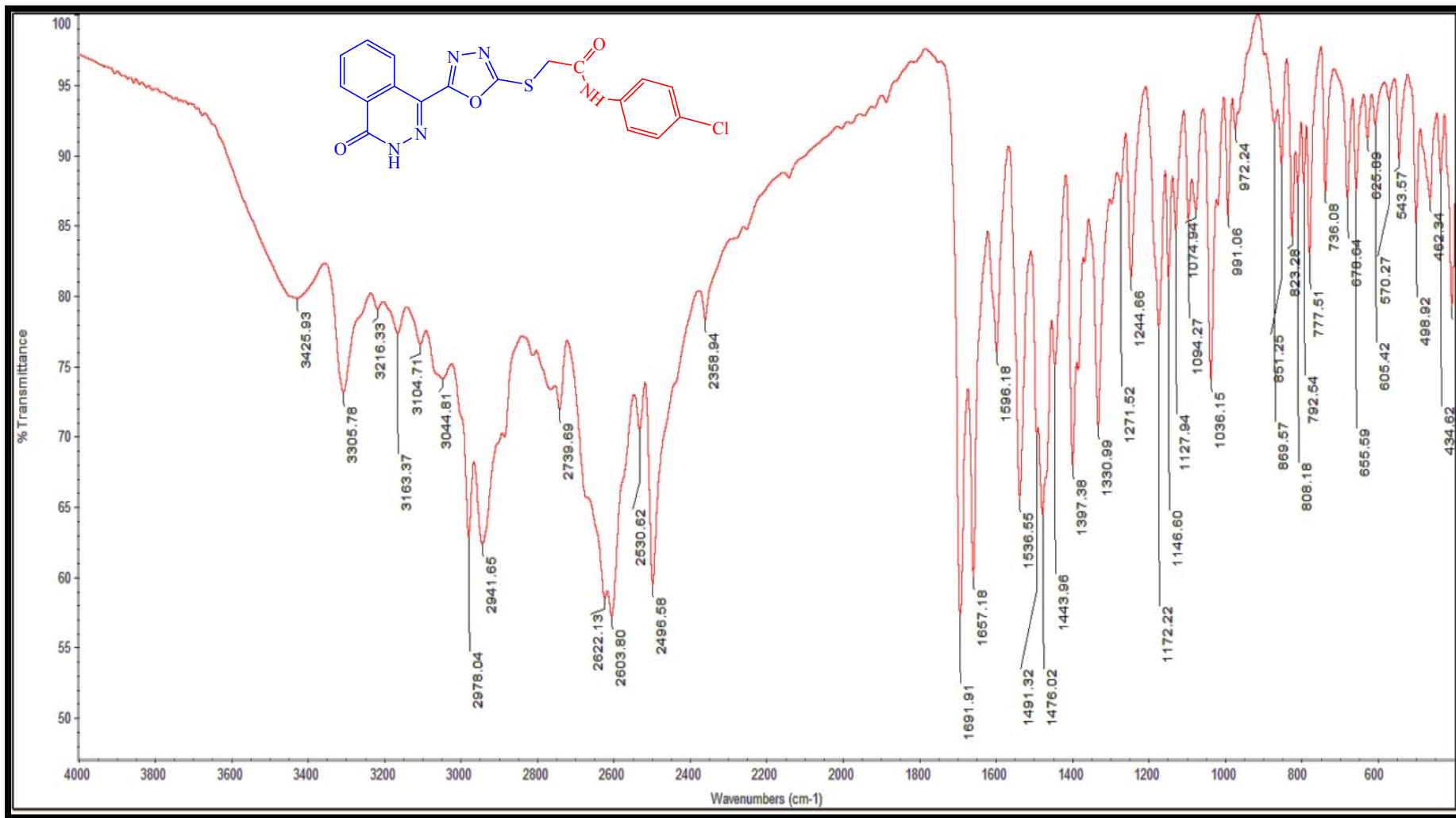


<sup>1</sup>H NMR (DMSO+D<sub>2</sub>O)

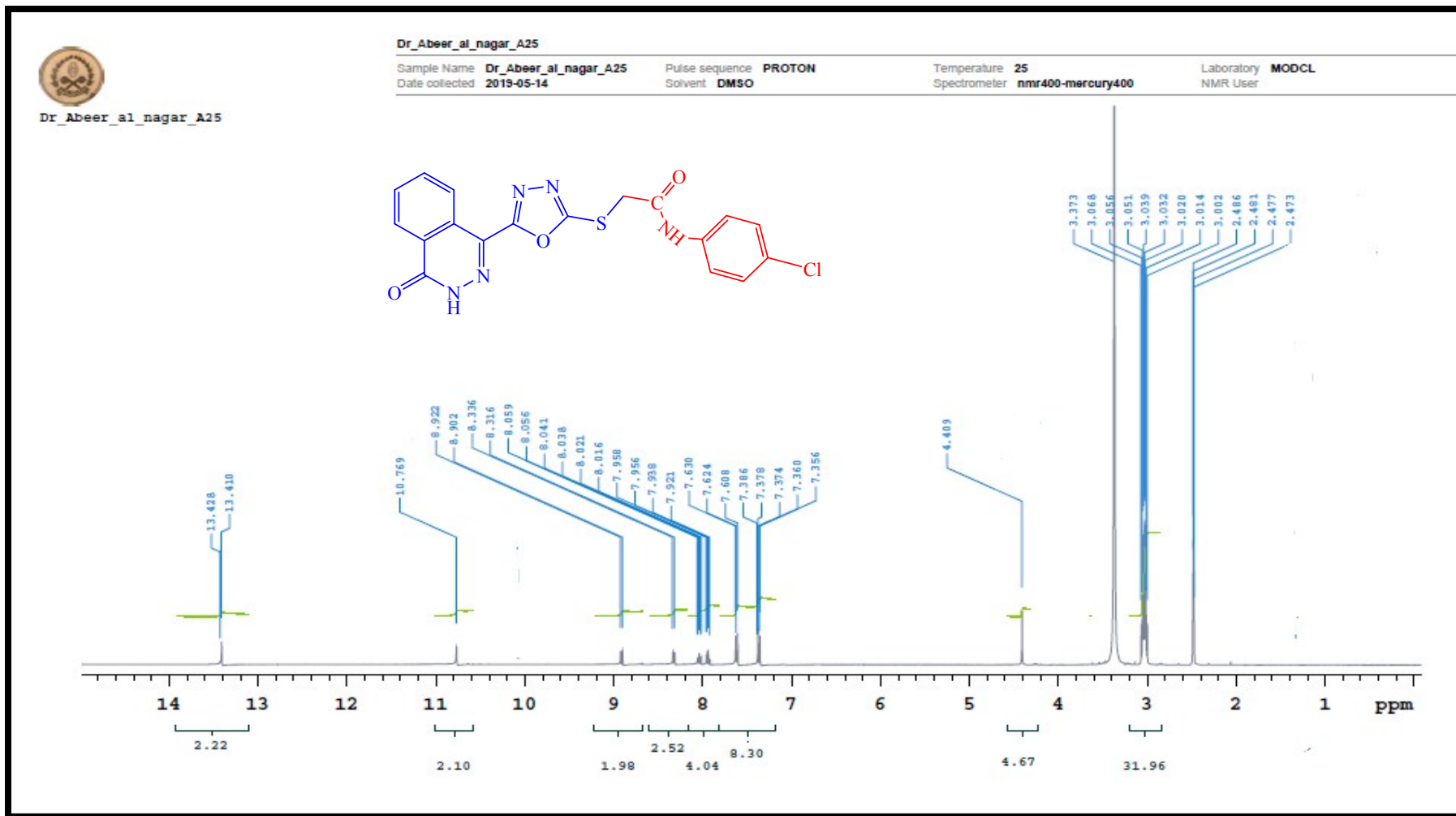


*N*-(4-chlorophenyl)-2-((5-(4-oxo-3,4-dihydrophthalazin-1-yl)-1,3,4-oxadiazol-2-yl)thio) acetamide (4d).

IR

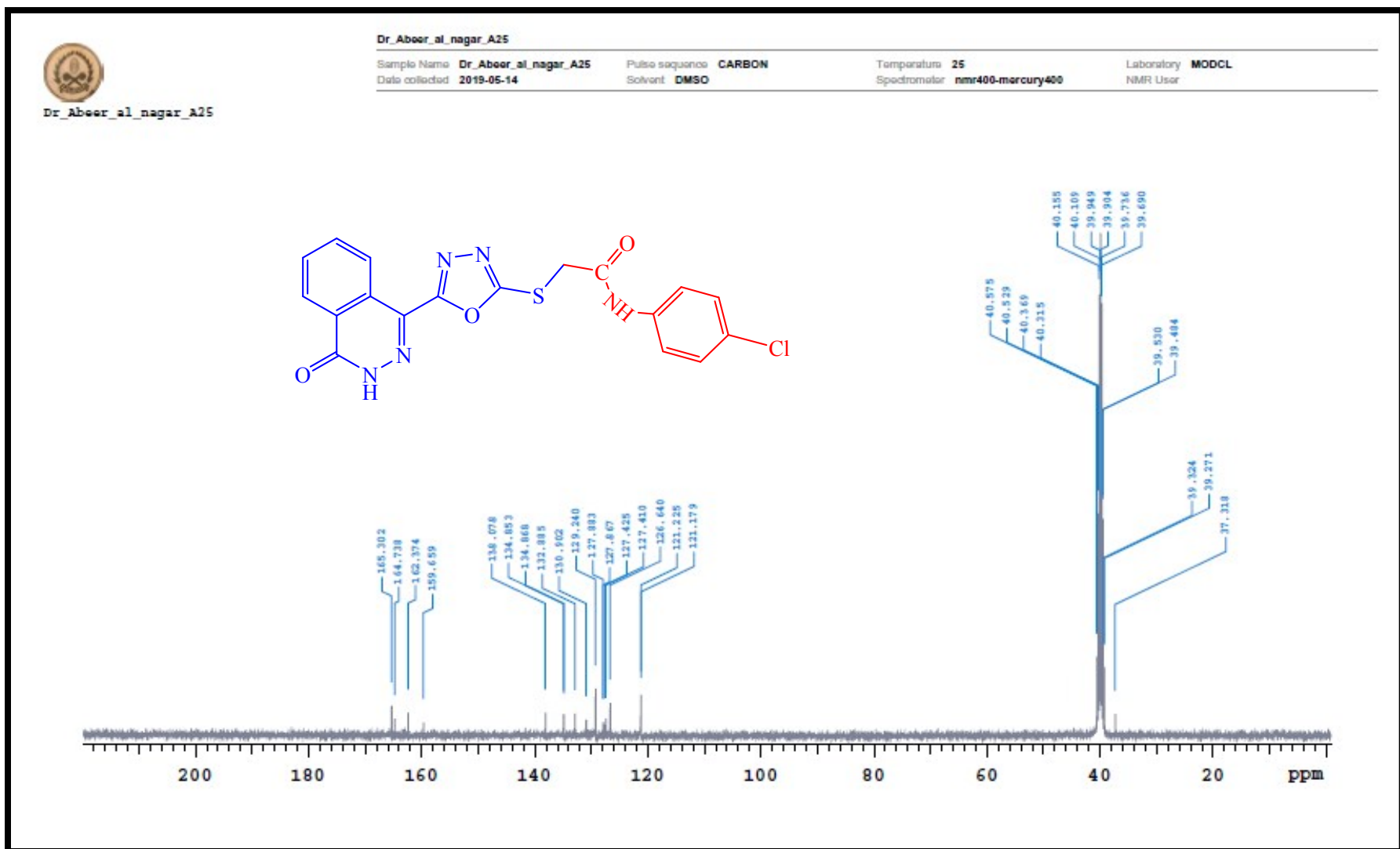


<sup>1</sup>H NMR (DMSO)



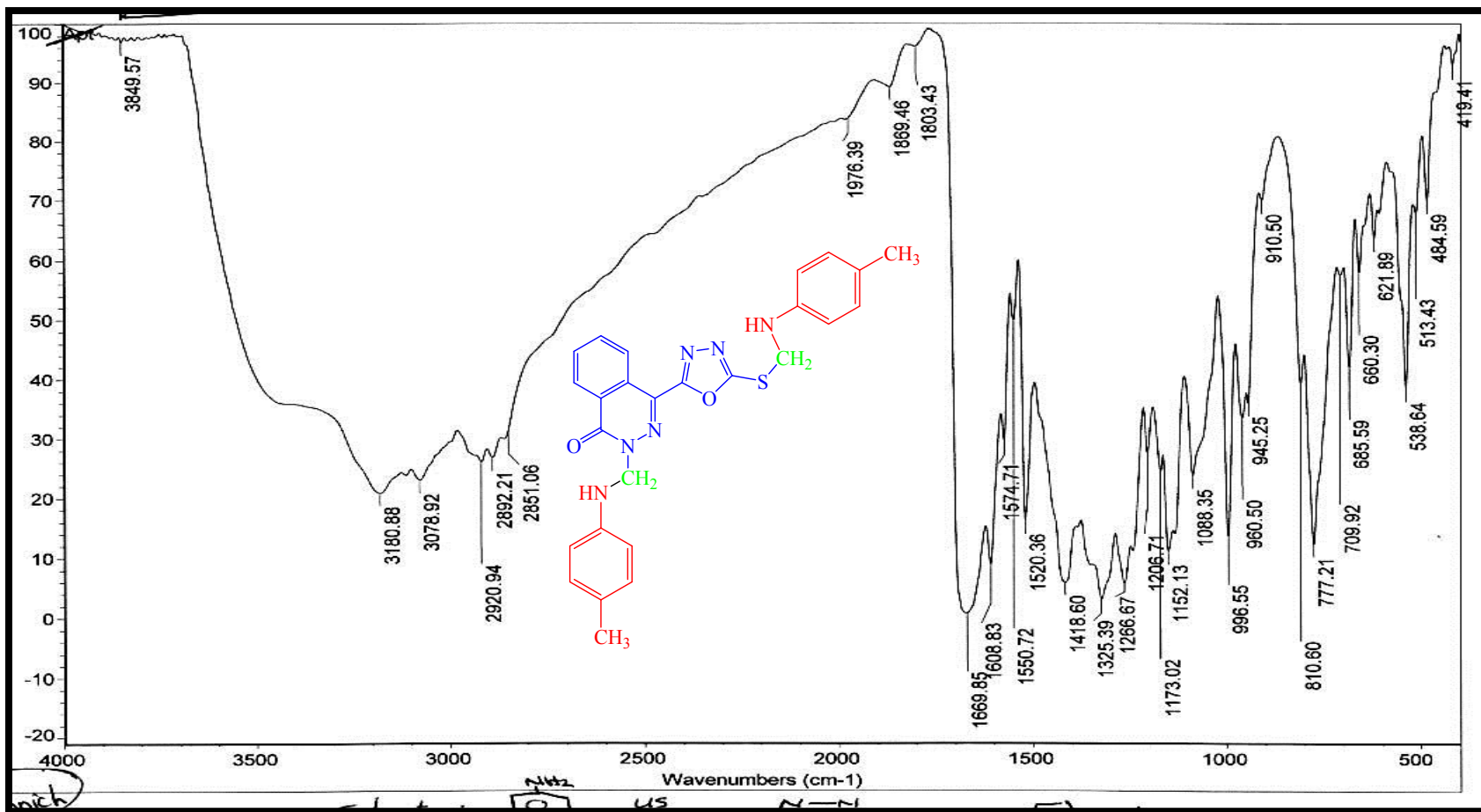


<sup>13</sup>C NMR

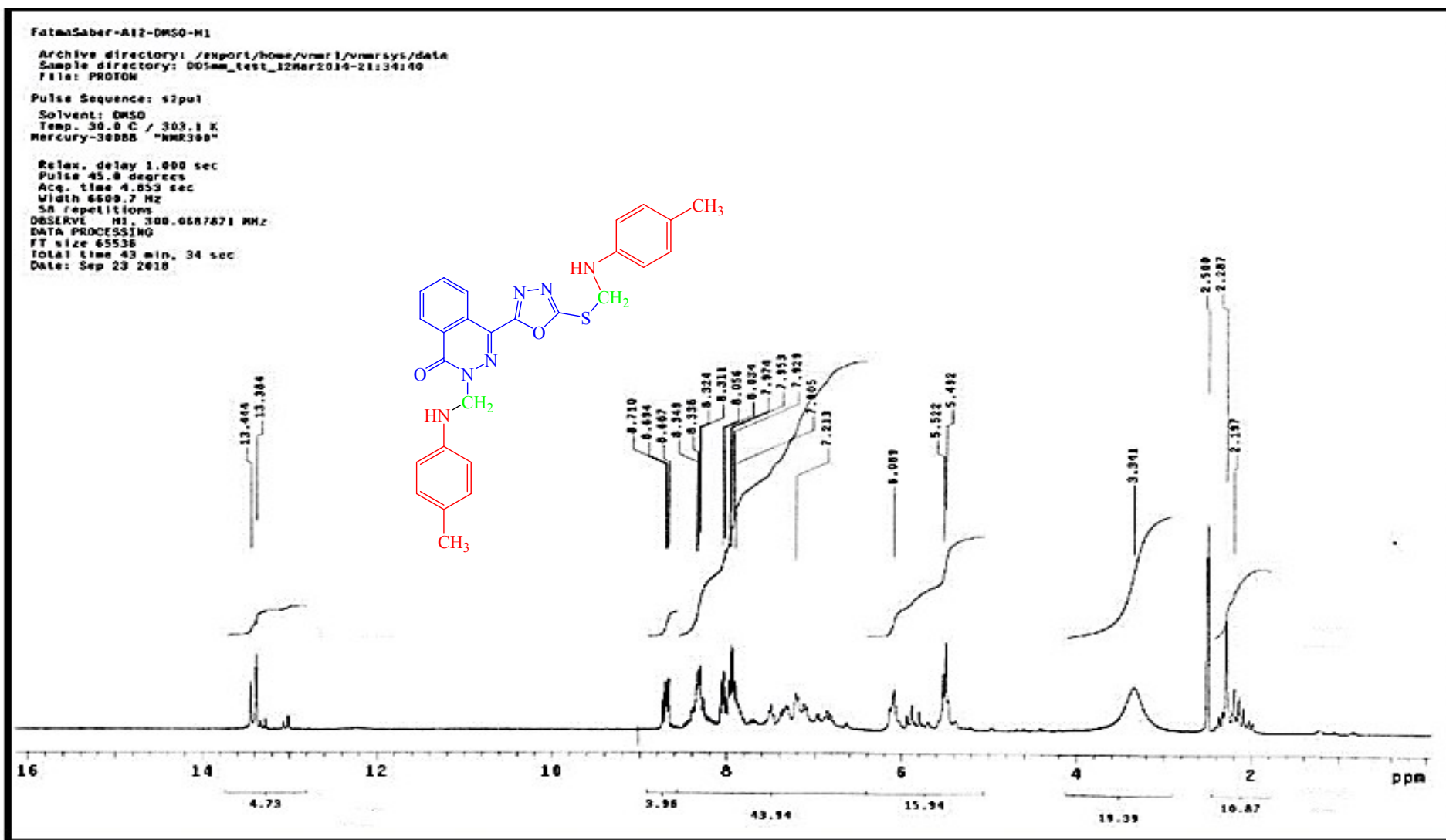


2-((p-tolylamino)methyl)-4-(5-(((p-tolylamino)methyl)thio)-1,3,4-oxadiazol-2-yl)phthalazin-1(2H)-one (7a).

IR

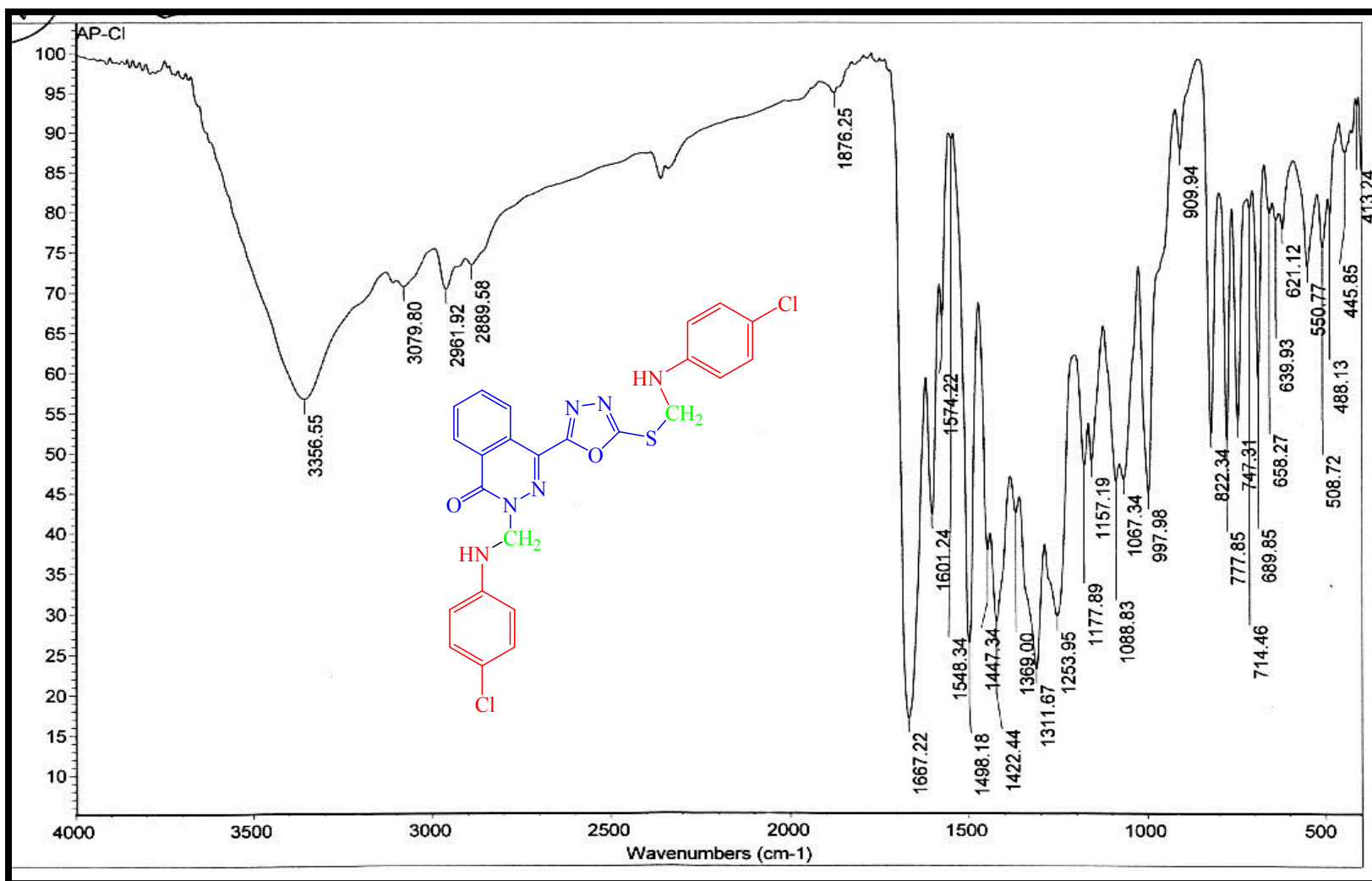


<sup>1</sup>H NMR (DMSO)



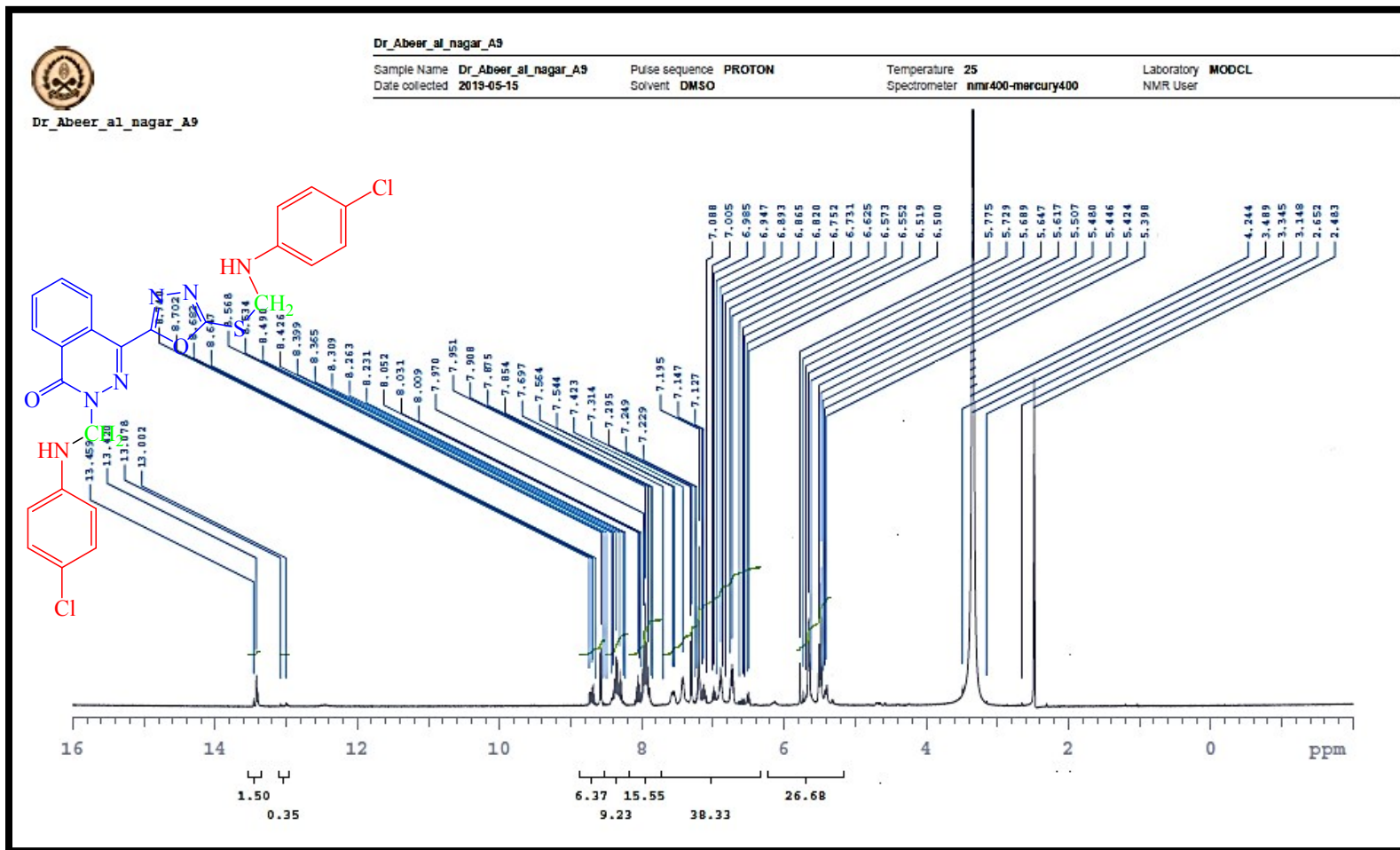
2-(((4-chlorophenyl)amino)methyl)-4-(5-(((4-chlorophenyl)amino)methyl)thio)-1,3,4-oxadiazol-2-yl)phthalazin-1(2H)-one (7b).

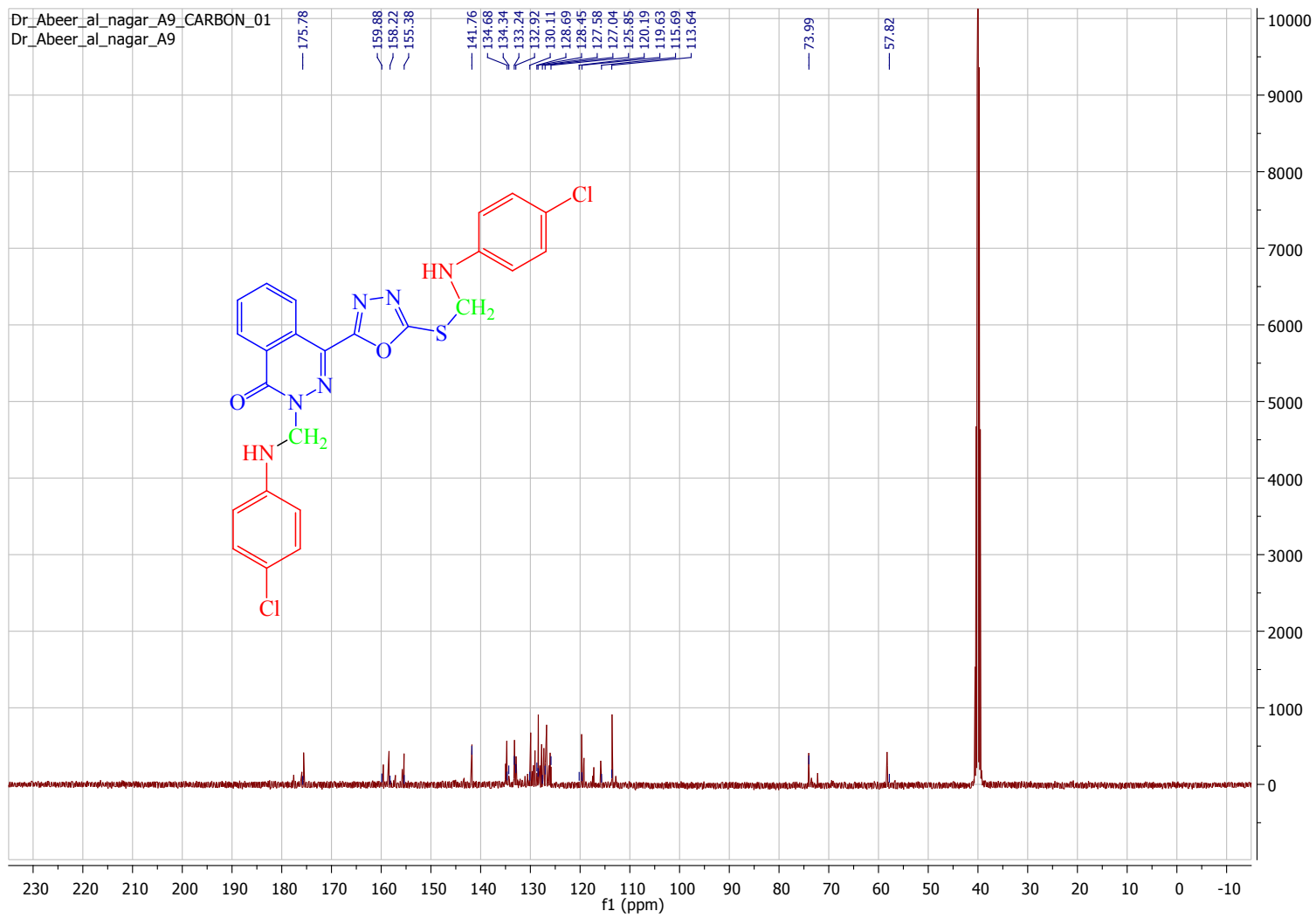
IR



<sup>1</sup>H NMR (DMSO)

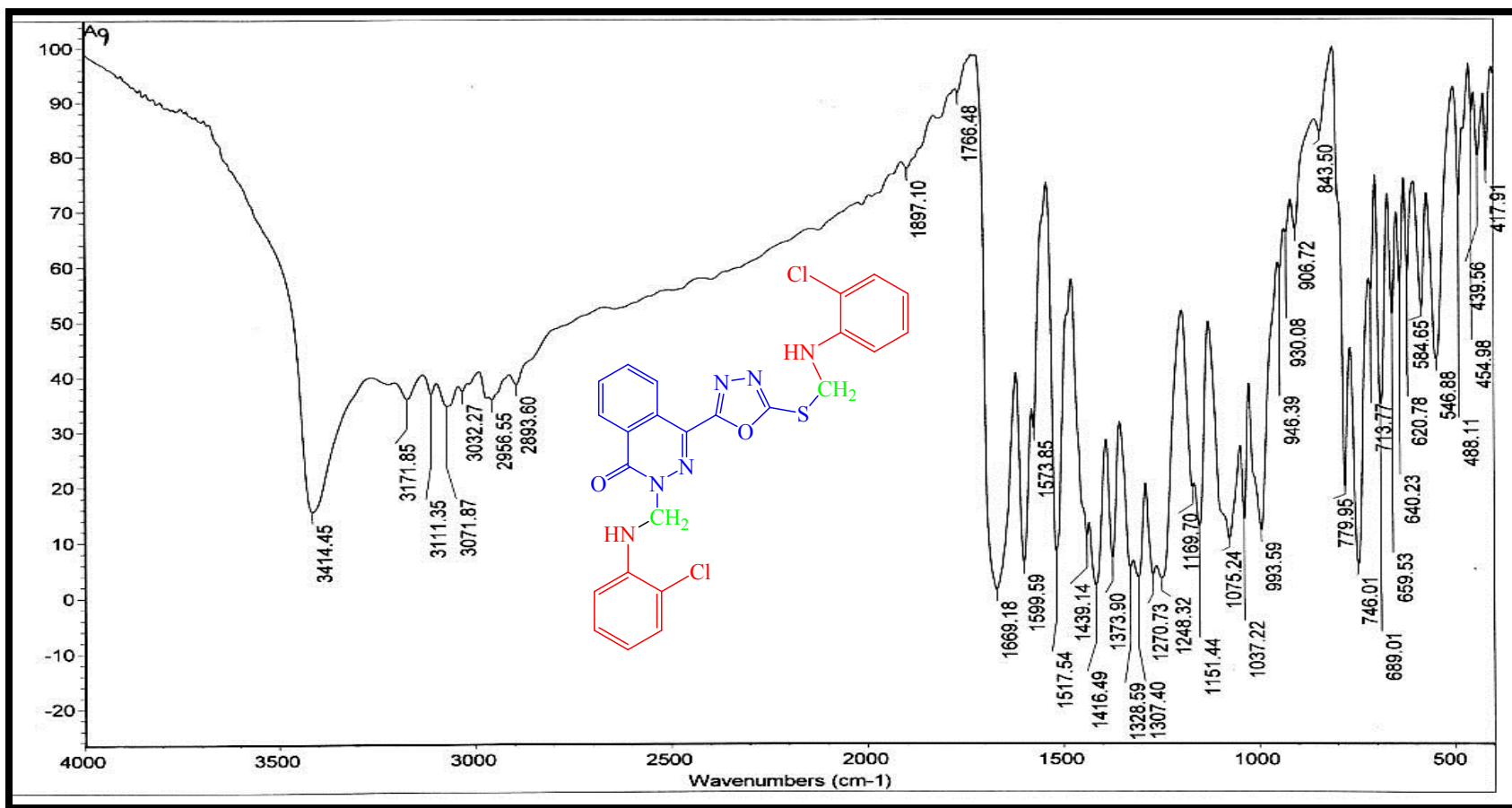
<sup>13</sup>C NMR





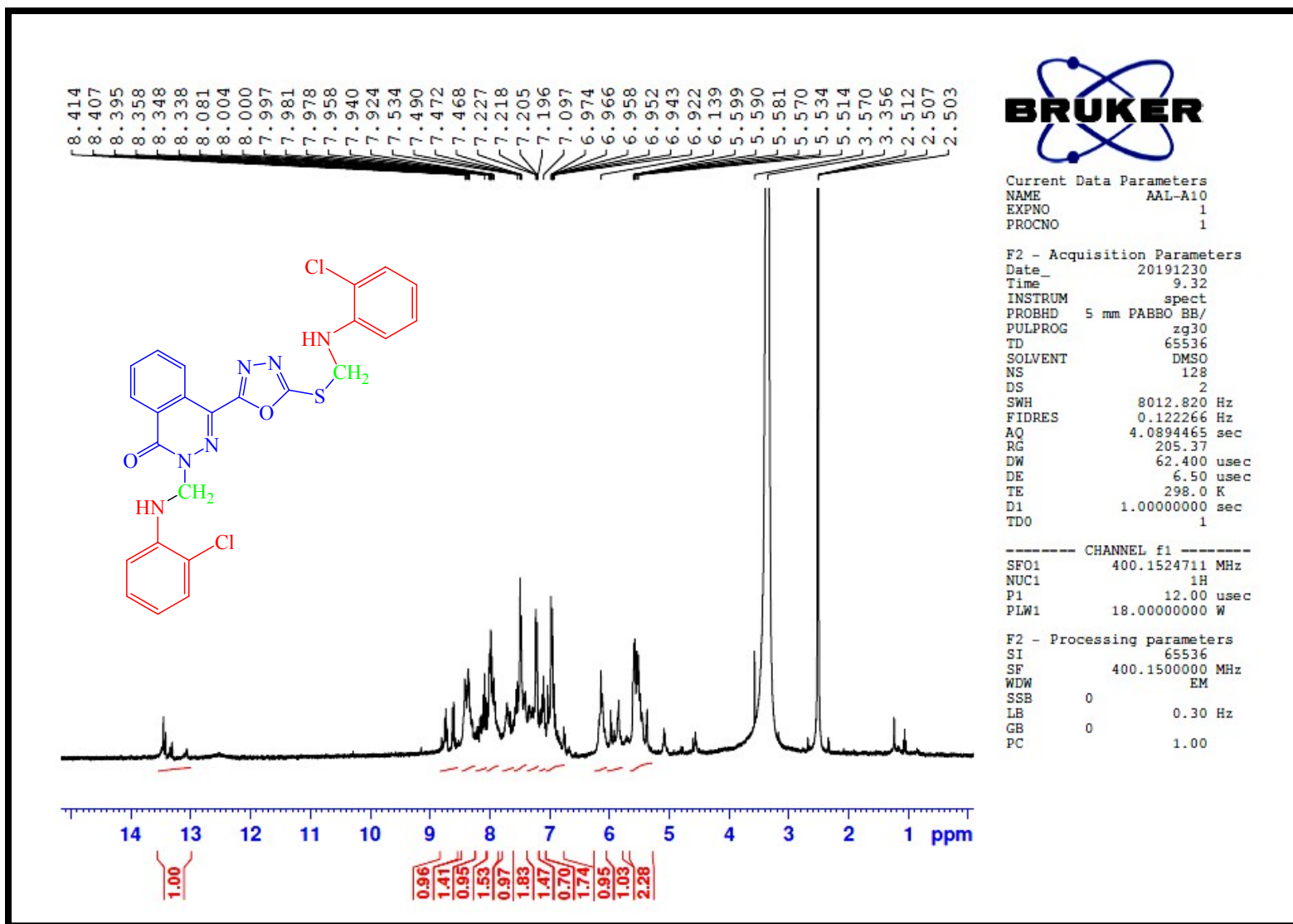
2-(((2-chlorophenyl)amino)methyl)-4-(5-(((2-chlorophenyl)amino)methyl)thio)-1,3,4-oxadiazol-2-yl)phthalazin-1(2H)-one (7c).

IR



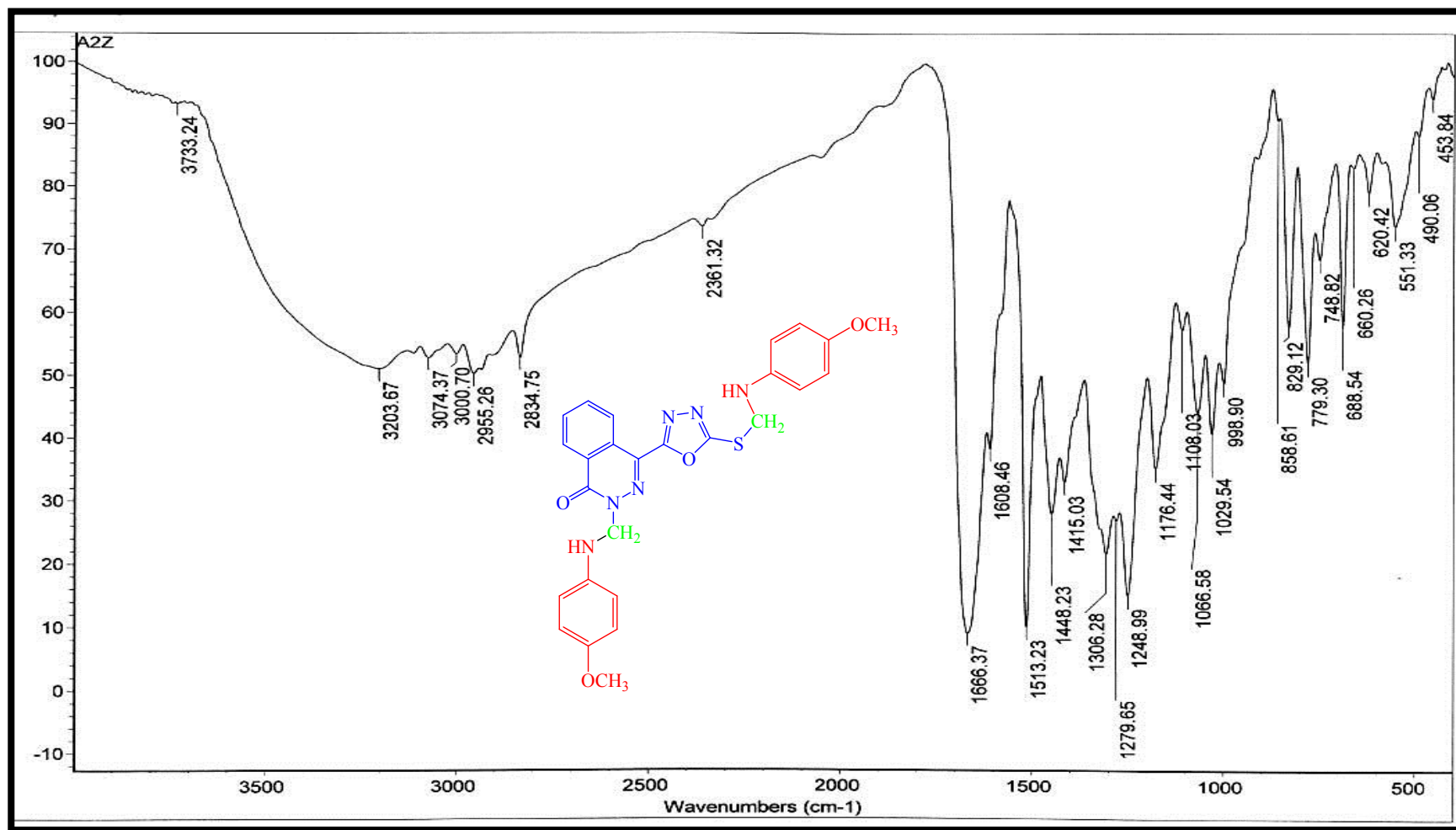


<sup>1</sup>H NMR (DMSO)

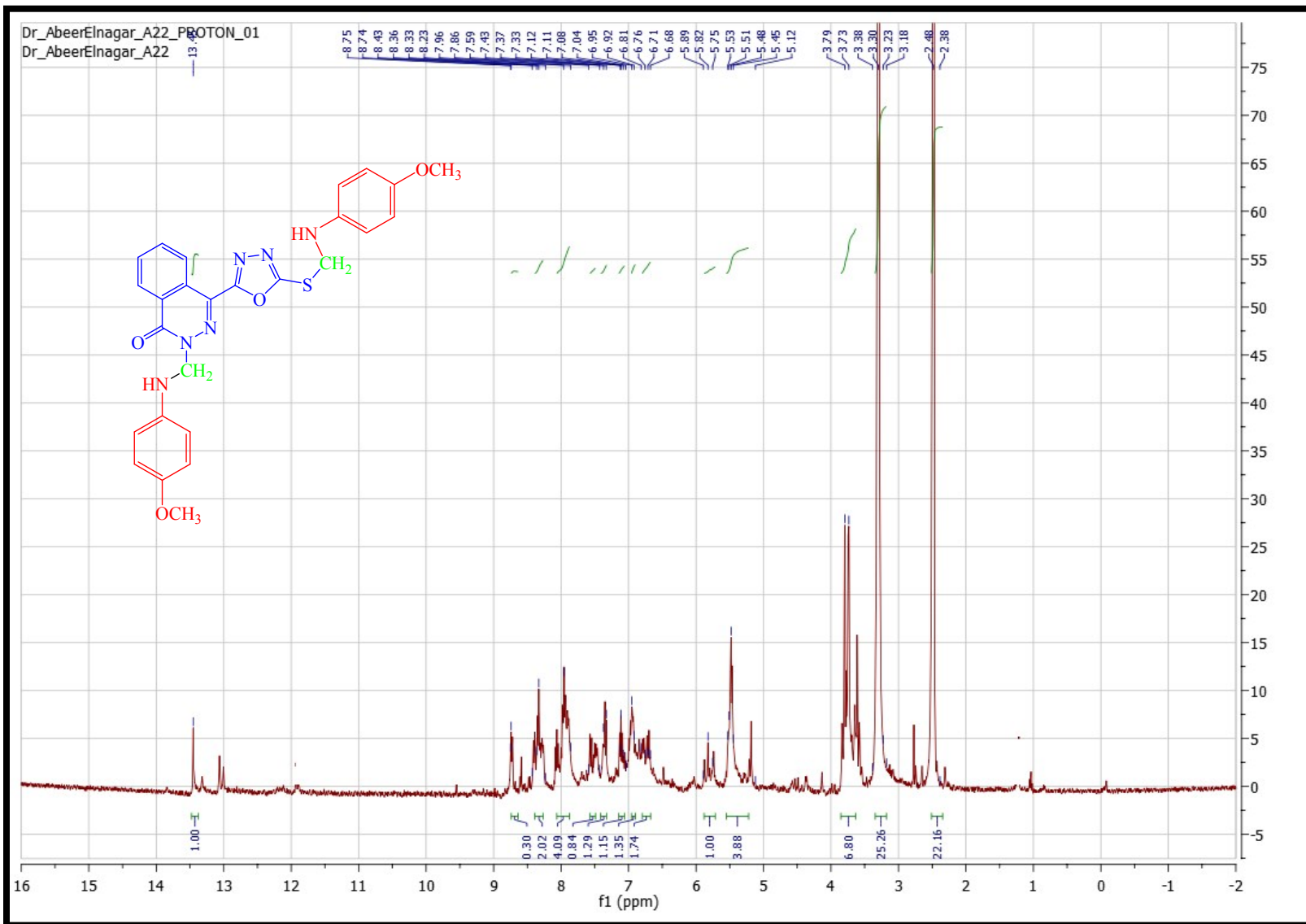




2-(((4-methoxyphenyl)amino)methyl)-4-(5-(((4-methoxyphenyl)amino)methyl)thio)-1,3,4-oxadiazol-2-yl)phthalazin-1(2H)-one (7d).

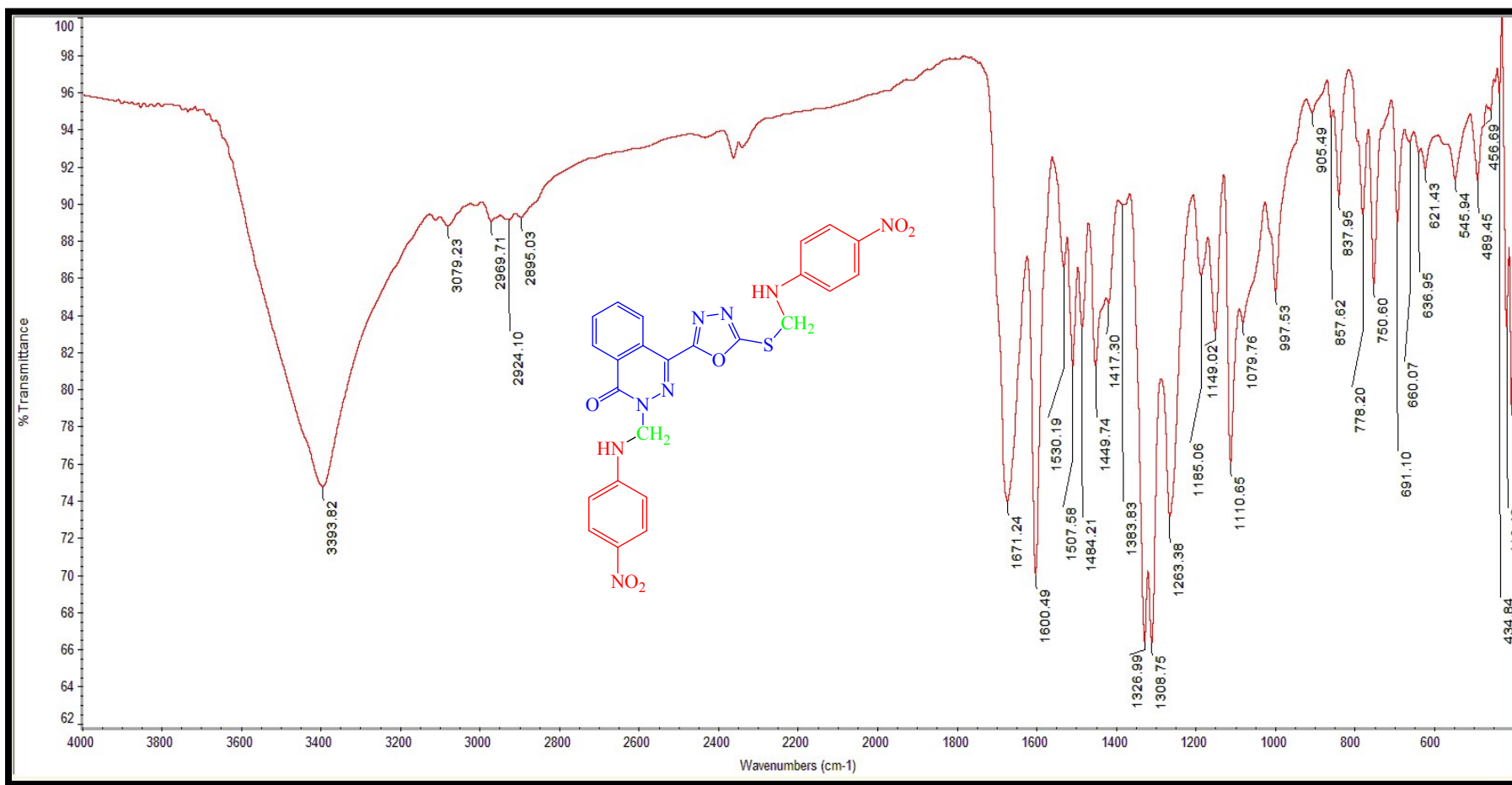


**IR <sup>1</sup>H NMR (DMSO)**

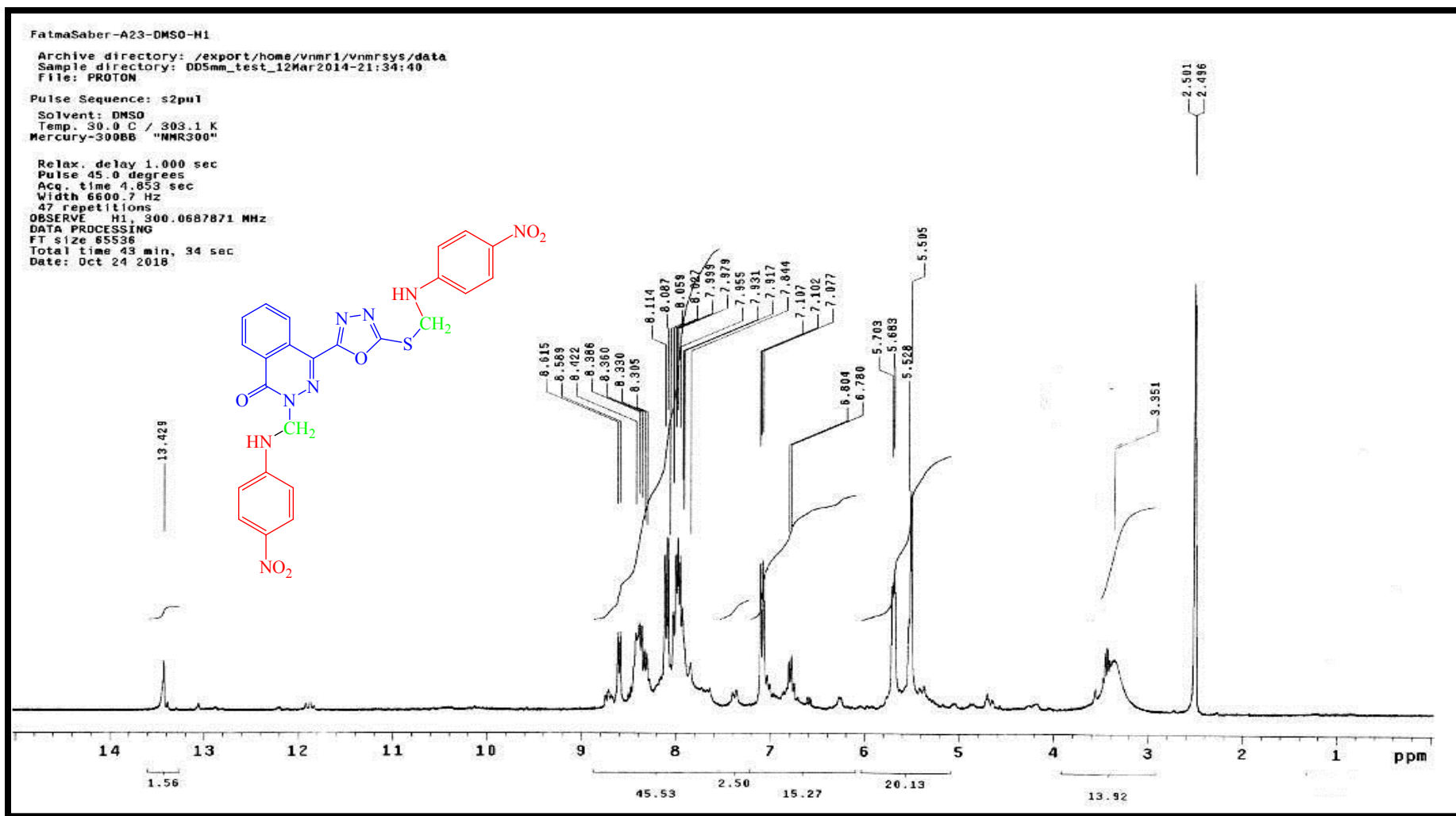


*2-(((4-Nitrophenyl)amino)methyl)-4-(5-(((4-nitrophenyl)amino)methyl)thio)-1,3,4-oxadiazol-2-yl)phthalazin-1(2H)-one(7e).*

IR



<sup>1</sup>H NMR (DMSO)

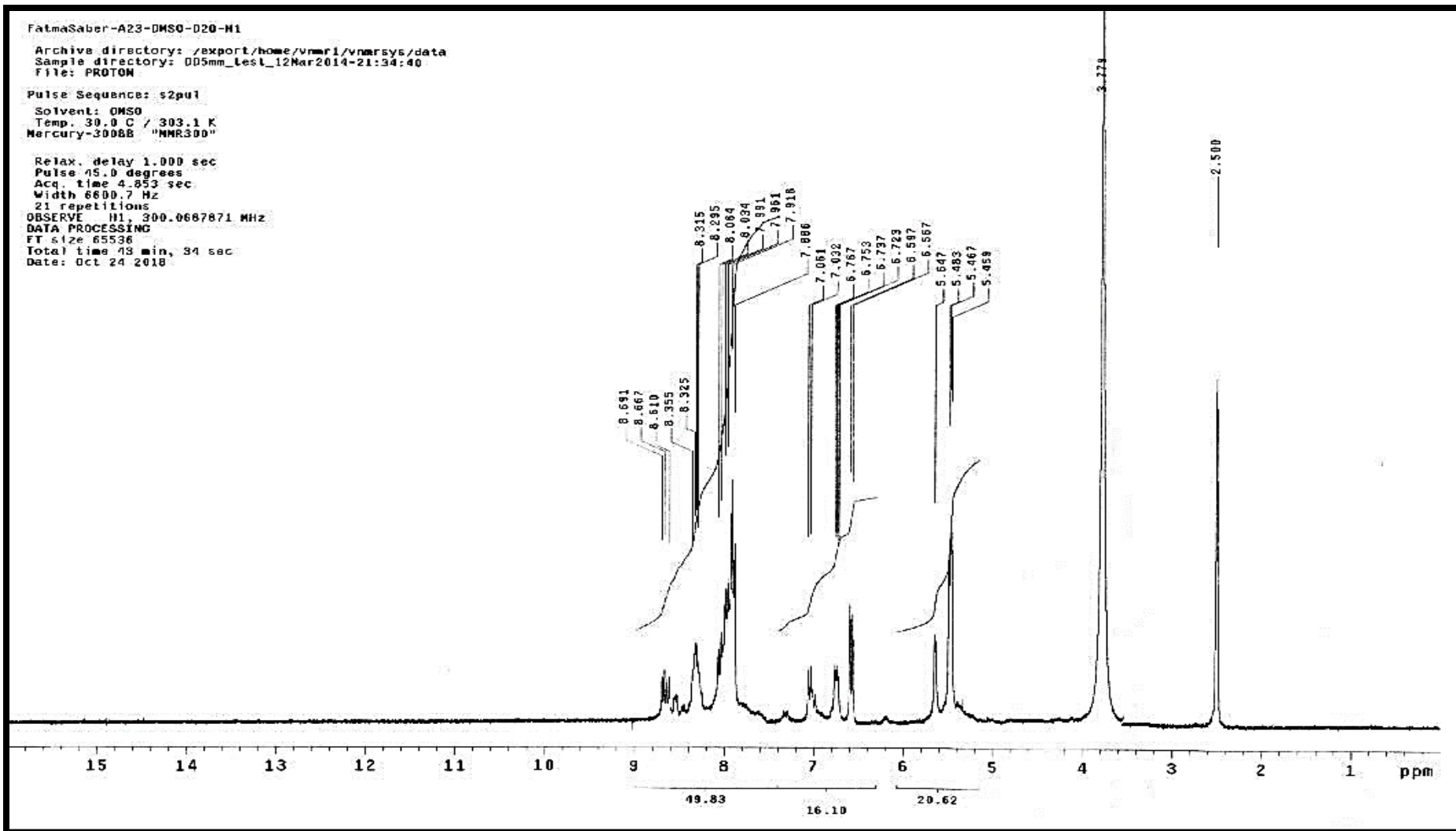


FatmaSaber-A23-DMSO-D20-M1

Archive directory: /export/home/vnmr1/vnmrsys/data  
Sample directory: DD5mm\_LesL\_12Mar2014-21:54:40  
File: PROTON

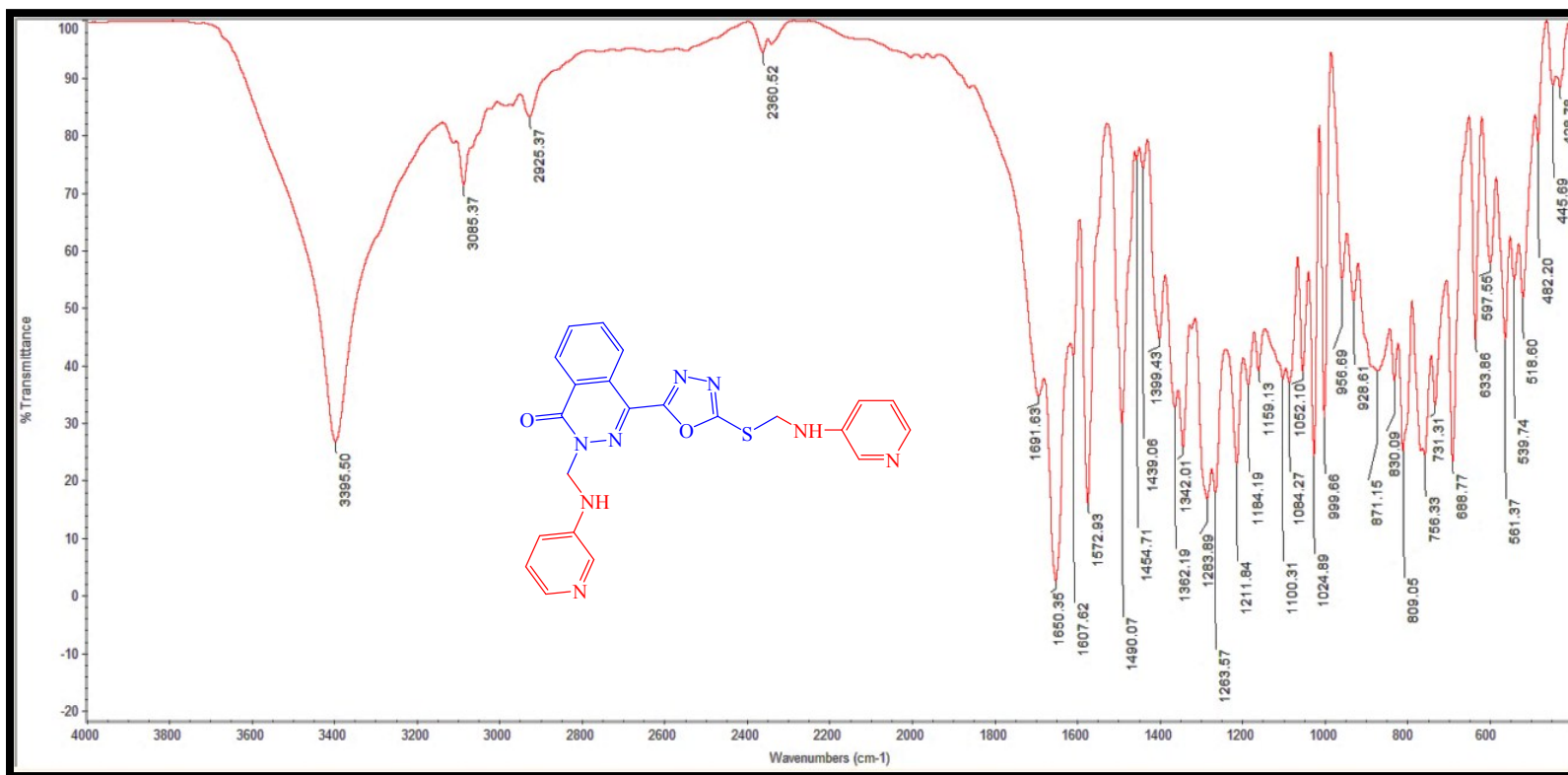
Pulse Sequence: s2pu1  
Solvent: DMSO  
Temp: 30.0 C / 303.1 K  
Mercury-300&B "NMR300"

Relax. delay 1.000 sec  
Pulse 45.0 degrees  
Acq. time 4.853 sec  
Width 6600.7 Hz  
21 repetitions  
OBSERVE H1, 300.0687871 MHz  
DATA PROCESSING  
FT size 65536  
Total time 49 min, 34 sec  
Date: Oct 24 2018



**2-((Pyridin-3-ylamino)methyl)-4-(5-(((pyridin-3-ylamino)methyl)thio)-1,3,4-oxadiazol-2-yl)phthalazin-1(2H)-one (7f).**

**IR**



<sup>1</sup>H NMR (DMSO)

Dr\_AbeerElmagar-A1

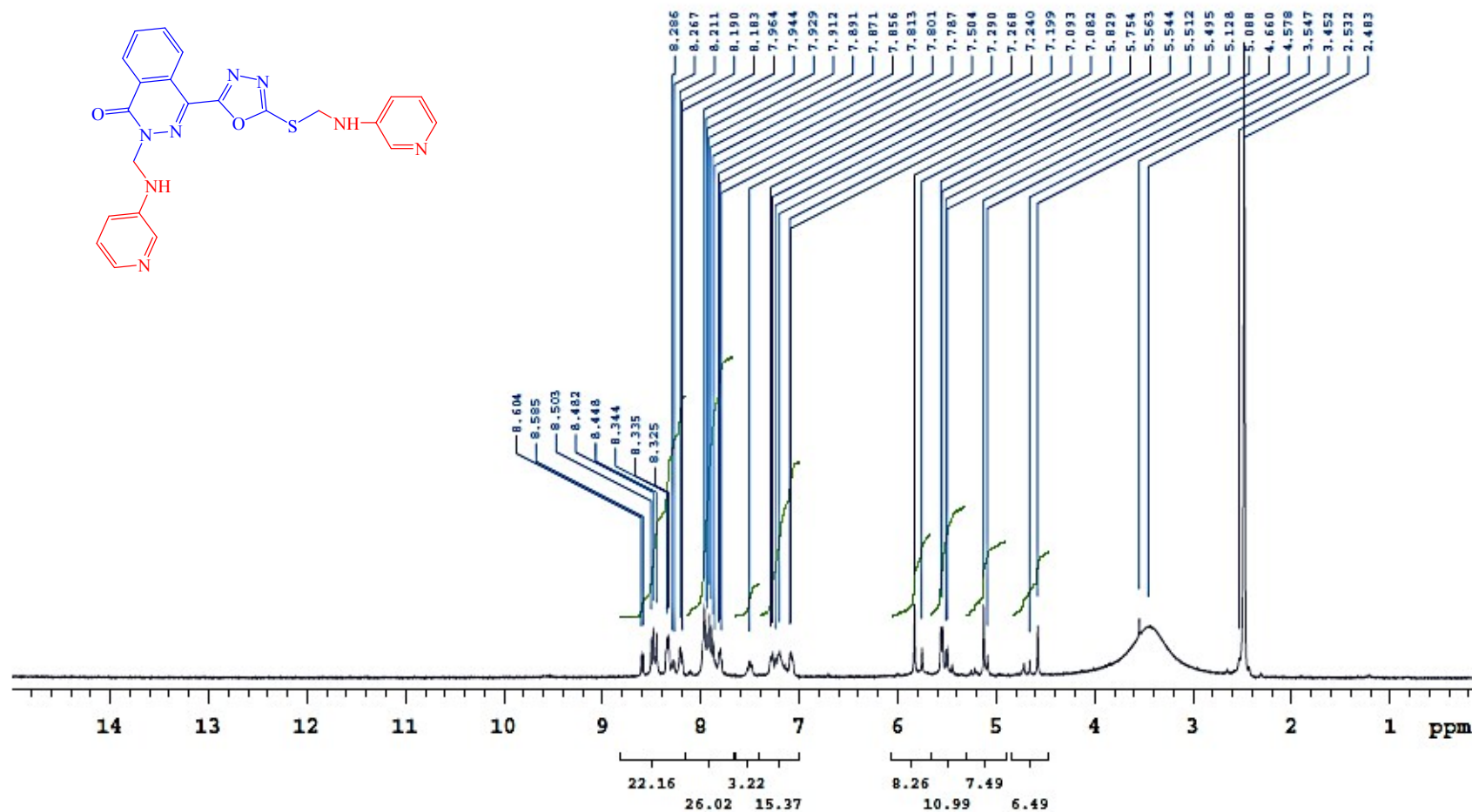
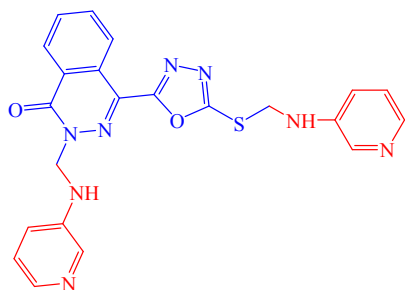
Sample Name Dr\_AbeerElmagar-A1  
Date collected 2018-05-06

Pulse sequence PROTON  
Solvent DMSO

Temperature 25  
Spectrometer nmr400-mercury400

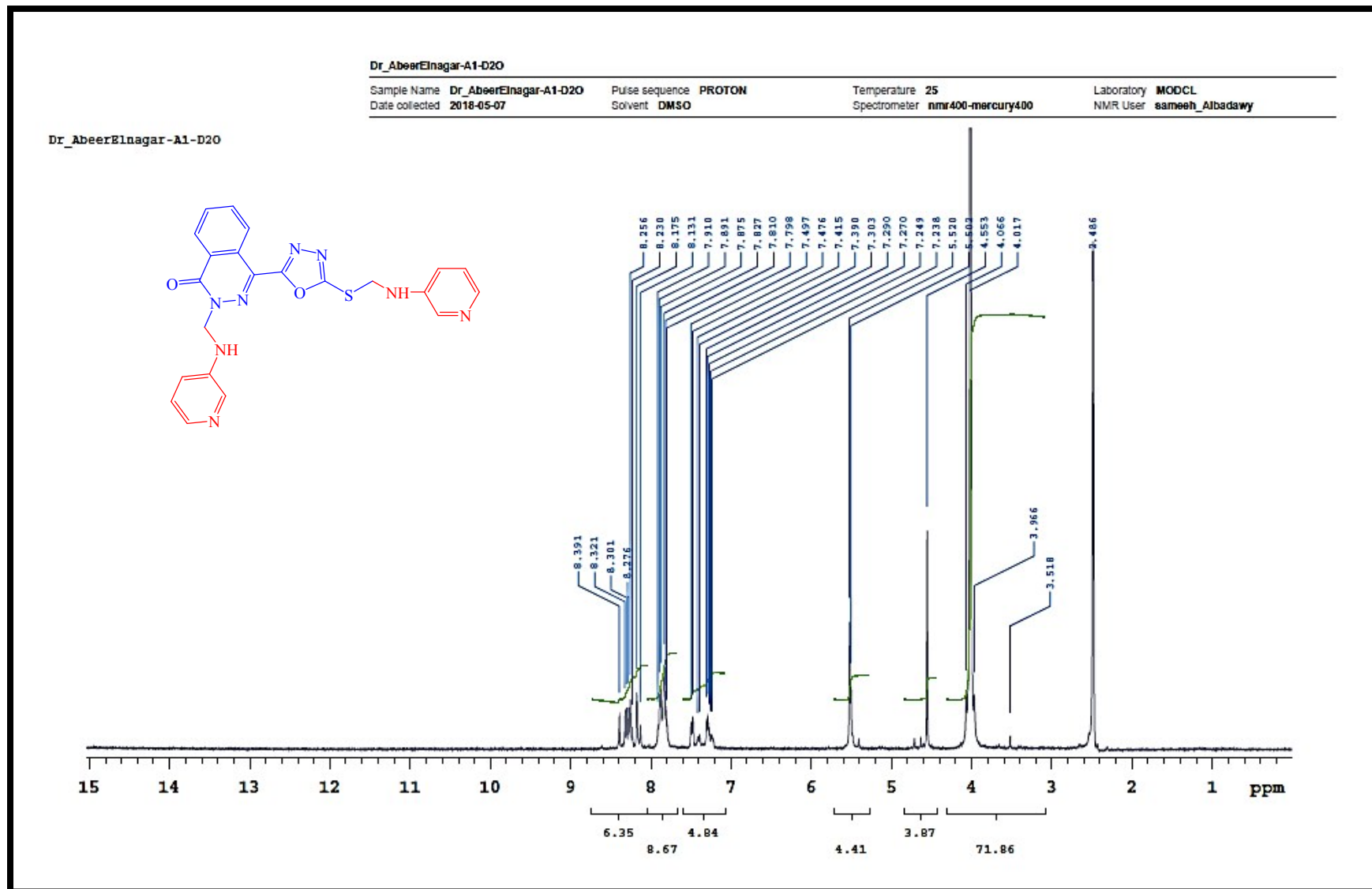
Laboratory MODCL  
NMR User sameeh\_Albadowy

Dr\_AbeerElmagar-A1



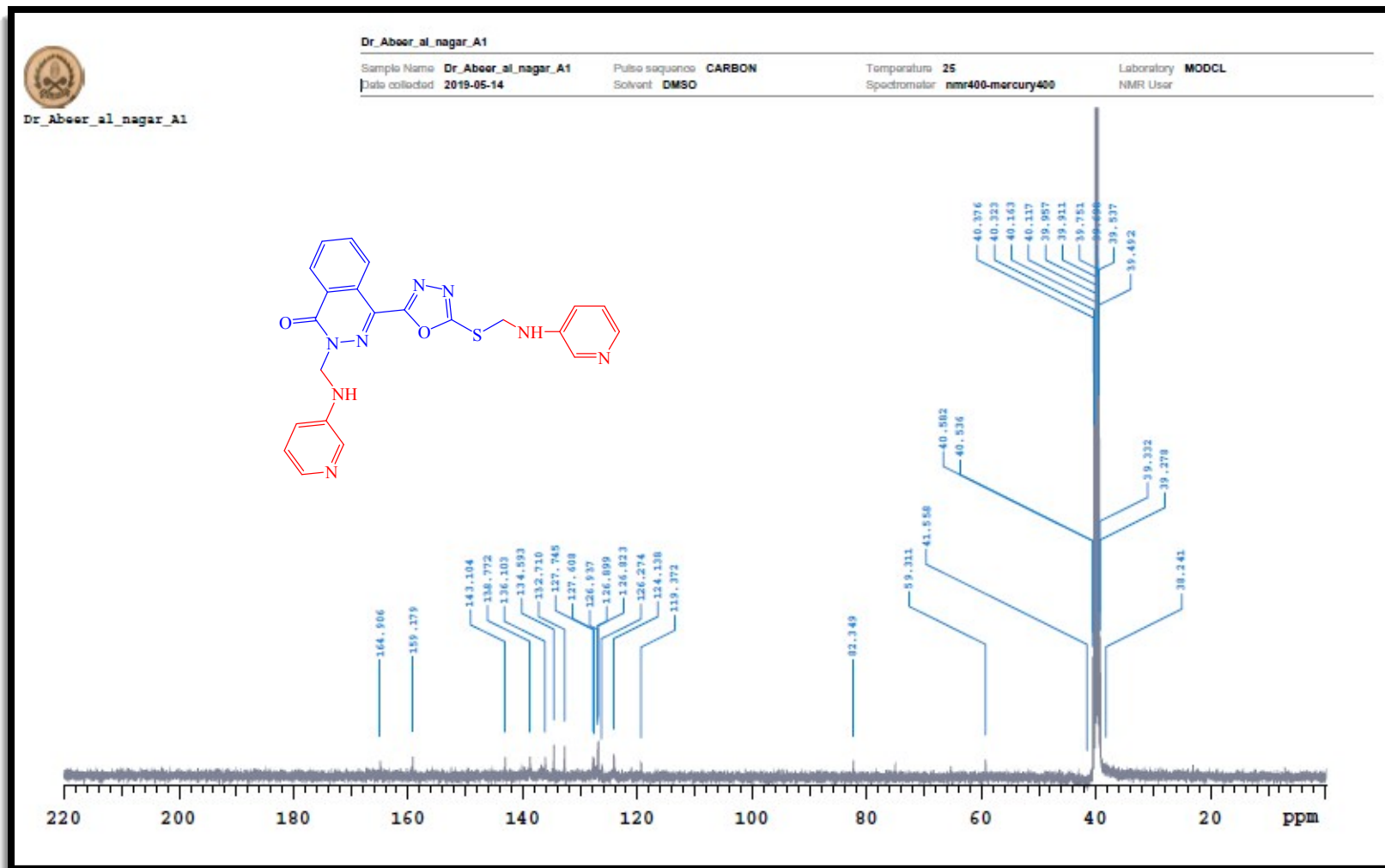


D2O



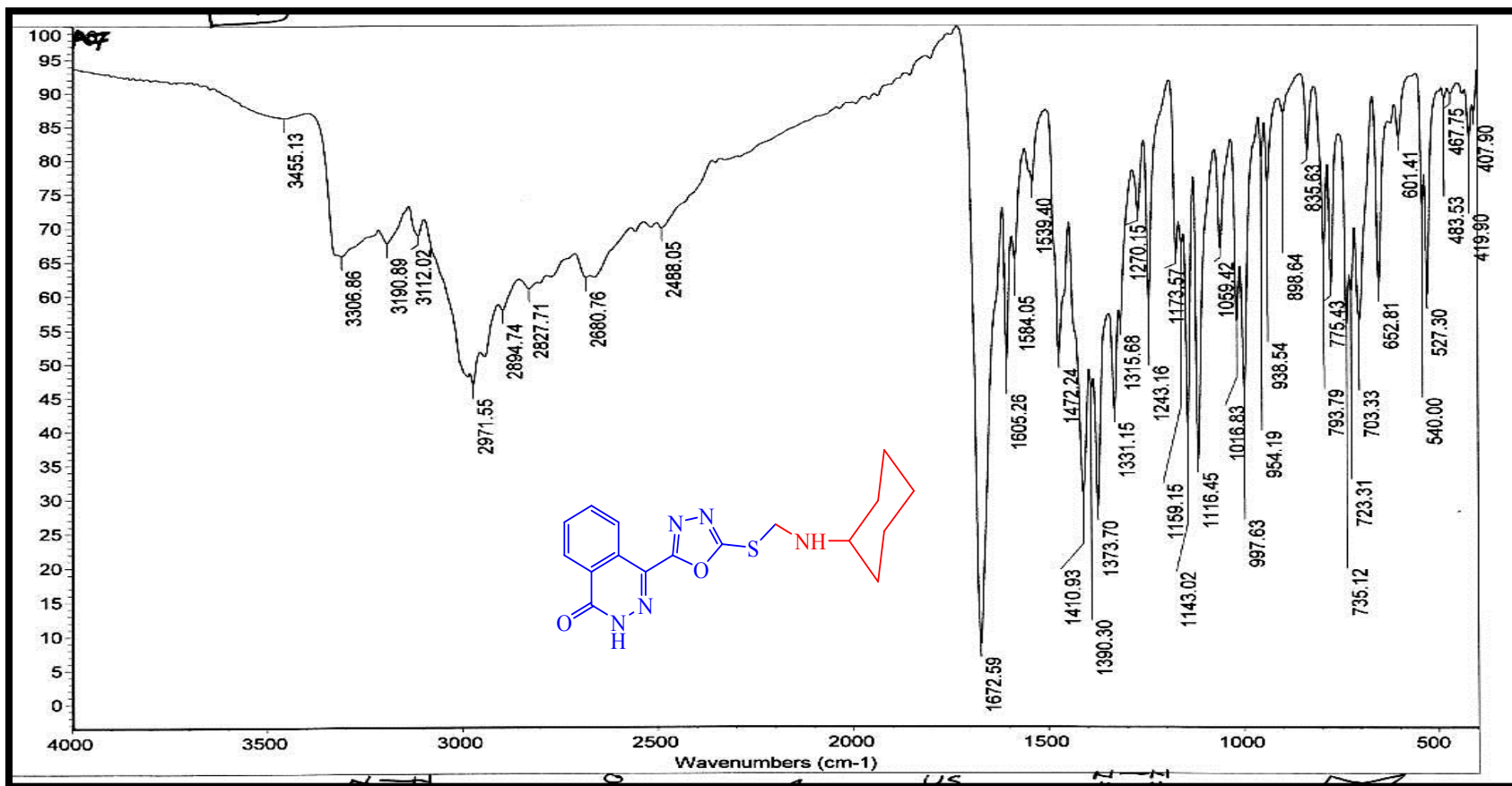


<sup>13</sup>C NMR



4-(5-(((cyclohexylamino)methyl)thio)-1,3,4-oxadiazol-2-yl)phthalazin-1(2H)-one (7g).

IR



***<sup>1</sup>H NMR (DMSO)***

