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СИНТЕЗ НОВОЙ ЛИГАНДЫ N'-((1E, 2E) -1- (ФУРАН-2-ИЛ) -3- (4-НИТРОФЕНИЛ) АЛЛИЛЛИДЕН) МАЛОНОГИДРАЗИД

Аннотация: *Новый лиганд L = [N '- ((1E, 2E) -1- (фуран-2-ил) -3- (4-нитрофенил) аллилиден) малоногидразид, был синтезирован конденсацией лиганда был охарактеризован и изучен на основе ИК и УФ-видимые, и результаты были совместимы с предложенными структурами.*

Ключевые слова: *лиганд, сложный эфир малоновой кислоты, 4-нитроацетофенон, малоногидразид.*

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SYNTHESIS OF NEW LIGAND N'-((1E,2E)-1-(FURAN-2-yl)-3-(4-NITROPHENYL) ALLYLLIDENE) MALONOHYDRAZIDE

Annotation: *A new ligand L=[N'-((1E,2E)-1-(furan-2-yl)-3-(4-nitrophenyl)allylidene)malonohydrazide]; was synthesized by condensation of The ligand was characterized and studied on the basis of FT-IR, and U.V.–visible and the results were compatible with the proposed structures. nitroacetophenone*

Keywords: *ligand, malono ester ,4-nitroacetophenone, malonoohydrazide.*

1. Introduction

Schiff bases (azomethines) are widely used as biologically active substances, liquid crystals, dyes and polymer stabilizers [1–3]. New applications such as antidepre-ssants, antimicrobial, antitumor, antiphlogogistic and other medicinal agents have been reported for these compounds [4, 5], as-Schiff bases prepared from the interaction between amines and carbonyl groups.

Chalcones are the most important compounds containing carbonyl groups (-CO-CH = CH-) keto-ethylene group, with high biological activity.

Schiff bases were used to preparation of many metal complexes with wide applications, Aydin (2020) prepared Two new Schiff base derivatives N,N-dimethyl-4-((2-(phenylthio)phenyl)imino)propenyl) aniline (CSP) and 2-(4-(dimethylamino) phenyl) allylidene) amino) benzenethiol (CSH) and there complexes with copper [6], KIM (2020) also prepared anew Schiff base N0-

((1E,2E)-3-(4-(dimethylamino) phenyl) allylidene)-3-nitrobenzohydrazide which showed significant selectivity toward mercury ion by color change of pale yellow to orange [7].

In our research, we will prepare new ligand based on Schiff reaction and its complexes with cobalt and copper ions.

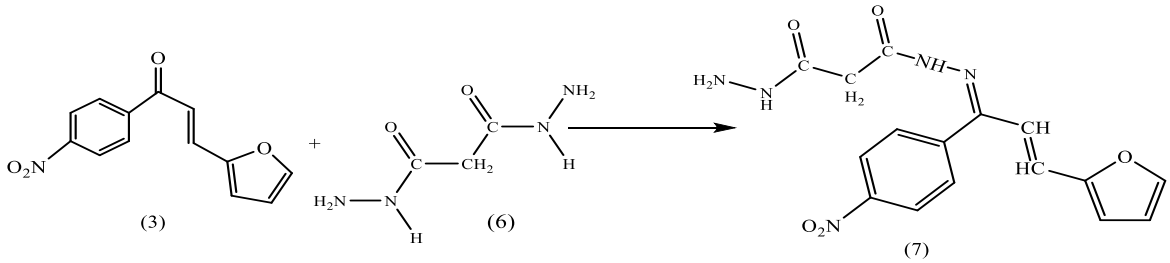
2. Experimental:

2.1. Materials:

All the chemicals used were purchased from both Merck and Sigma Aldrich companies and used without further purification. FT-IR spectra was recorded using Jascow Japanese taype (A) Infrared Spectrophotometer Fourier Transform FT-IR-4100 (KBr). UV spectra was measured on Optizen spectrophotometer 200 -800nm.

2.2. Synthesis of a Schiff base ligand.

The Schiff base ligand used in this study was prepared by refluxing an equimolar mixture of malonohydrazide and (E)-1-(furan-2-yl)-3-(4-nitrophenyl) prop-2-en-1-one in methanolic medium. The solid was recrystallized by hot ethanol, Scheme 1.



Scheme 1. Synthesis route of the main reaction.

3. Results and Discussion:

3.1. Caracterization of L by FT-IR:

The infrared spectra for the present compounds taken in the range 400-4000 cm-1 helps to indicate regions of absorption vibrations. The main stretching modes are for ν(NH2) ν(C=N), ν(C=C) and ν(C=O). The IR data of the spectra of Schiff base ligand (L) are presented in Table 1.

Table 1. Characteristic IR frequencies (cm^{-1}) of the ligand and complexes.

Compounds	ν(NH)	ν(NH_2)	ν(C=N)	ν(C=O)	ν(C-H)SP^2
L	3575	3282, 3176	1620	1683	3051

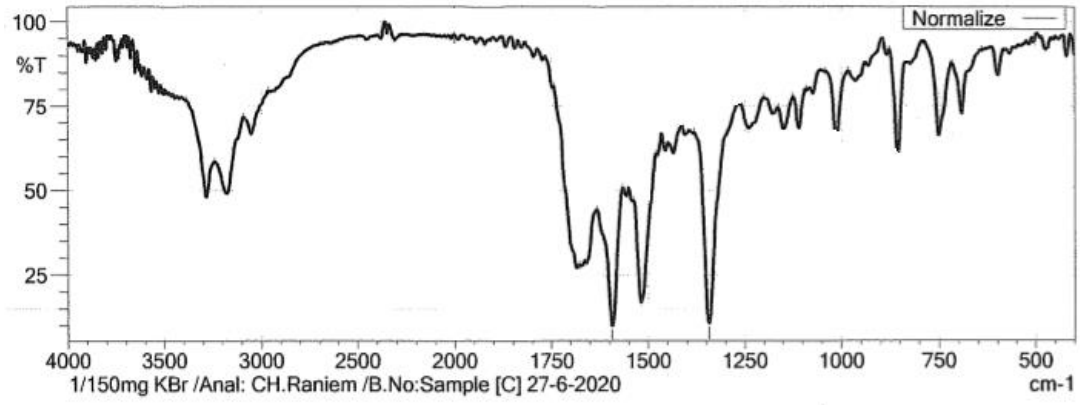


Figure 1: FT-IR spectrum of ligand (L)

3.2. $_1$H-spectroscopic measurements:

Figure 2. Explanation of $_1$H-NMR (ppm) of the ligand (L):

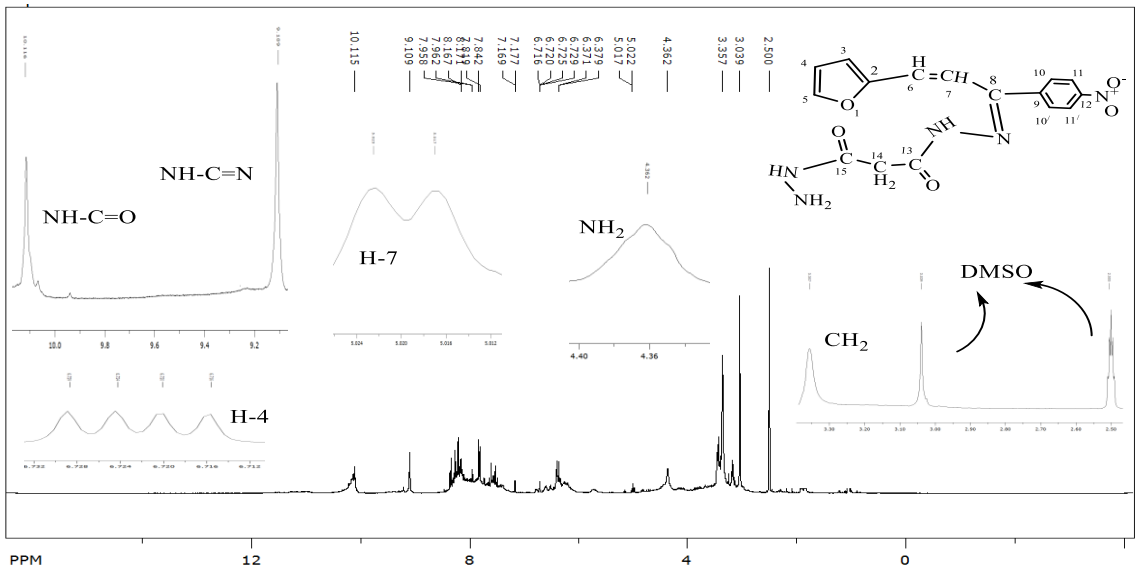


Figure 2: H-NMR spectrum of ligand (L)

Table 2. Explanation of 1H-NMR (ppm) of ligand (L).

H-NMR(δ,ppm)	NO	H-NMR(δ,ppm)	NO
7.96 (d,2H, j=1.6Hz)	11	7.17 (d,1H, j=3.6Hz)	3
3.36 (S,2H)	14	7.16-7.29 (dd,1H, j_1=1.6Hz, , j_1=2Hz)	4

4.36 (S,2H)	NH2	7.84 (d,1H, j=8Hz)	5
10.12 (S,1H)	NH-C=O	6.38 (d,1H, j=4Hz)	6
9.11 (S,1H)	NH-C=N	5.02 (d,1H, j=2Hz)	7
		8.17 (d,2H, j=2Hz)	10

3.3. $_{13}$C-NMR spectroscopic measurements:

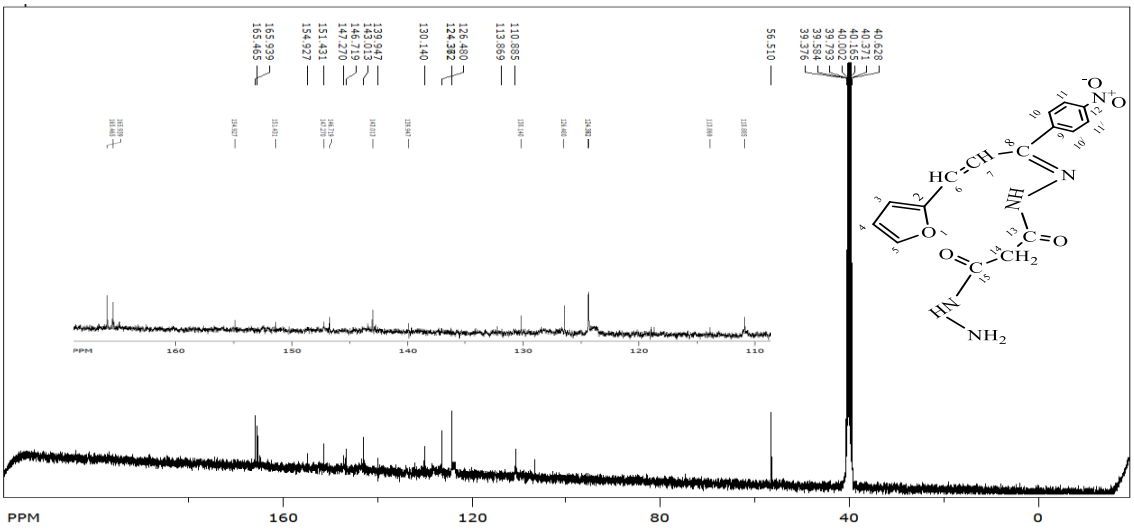


Figure 3: $_{13}$C-NMR spectrum of ligand (L)

δ_C ppm	NO	δ_C Ppm	NO
143.01	**9**	-	**1**
139.35	**10,10/**	151.43	**2**
130.14	**11,11/**	113.87	**3**
147.27	**12**	110.89	**4**
165.94	**13**	146.72	**5**
56.51	**14**	126.48	**6**
165.47	**15**	124.36	**7**
		154.92	**8**

4. Conclusion:

A new ligand L= N'-((1E, 2E)-1-(furan-2-yl)-3-(4-nitrophenyl)allylidene) malonohydrazide; was synthesized by condensation of malonohydrazide with (E)-1-(furan-2-yl)-3-(4-nitrophenyl)prop-2-en-1-one.The ligand was characterized and

studied on the basis of FT-IR, and U.V.–visible and the results were compatible with the proposed structures.

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