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SYNTHESIS OF COBALT (II) COMPLEX WITH NEW LIGAND DI (FURANYLE METHYLENE HYDRAZONO) 1.2- DI ACETYLE HYDRAZINE

Annotation: *a new ligand (L)= [(di Furanyle Methylene hydrazono) 1,2-diacetylehydrazine]was synthesized by condensation of 1,2- di acetylehydrazine with hydrazine hydrate then, add the Furfural. Then the reaction of this ligand with Cobalt (II) ion werecarried out using metal Chloride salt by the (1:2) molar ration respectively conduced[Co_2LCl_4].the ligand and complexes wereand studied on the basis of (FT-IR) and (^{1}H-NMR,^{13}C-NMR) .the results were comparative with the proposed structures.*

Key words: *1,2-di acetyle hydrazine -Furfural – Hydrazine Hydrate .*

СИНТЕЗ КОМПЛЕКСА КОБАЛЬТА (II) С НОВЫМ ЛИГАНДОМ ДИ (ФУРАНИЛ МЕТИЛЕН ГИДРАЗОНО) 1,2- ИАЦЕТИЛГИДРАЗИНА

Аннотация: *новый лиганд (L) = [(дифуранилметилгидразоно) 1,2-диацетилгидр- азин] синтезировали путем конденсации 1,2-ди ацетилгидразина с гидразингидратом, затем добавляли фурфурол. Затем реакция этого лиганда с кобальтом (II) иона проводили с использованием соли хлорида металла с*

помощью (1: 2) молярного соотношения соответственно проведенного [Co_2LCl_4]. Лиганд и комплексы исследовали на основе (FT-IR) и (^{1}H-ЯМР, ^{13}C-ЯМР). результаты были сопоставимы с предлагаемыми структурами.

Ключевые слова: *1,2-ди ацетил гидразин - фурфурол - гидразин гидрат.*

1. Introduction:

Schiff bases have been subject of interest as a resutt of their synthetic accessibility and rich coordination chemistry [1,c.617], These compounds [2,c.2048] and their metal complexes have been reported to exhibit a wide spectrum of biological properties [3,c.4368].During the past two decades, considerable attention has been paid to the chemistry of metal complexes of Schiff bases containing nitrogen and other donor atoms [4,c.2175/5,c.207].

2. Experimental

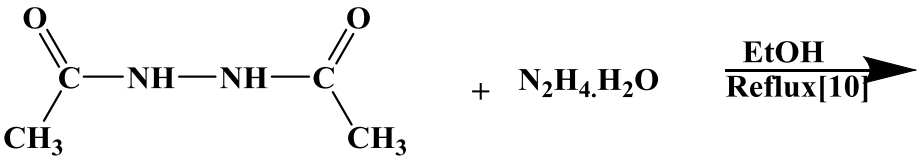
2.1. Apparatus and chemicals:

All the chemicals used were purchased from both Merch and Sigma Aldrich companies and used without further purification. FT-IR spectra was recorded using Jasco Japanese taype (A) Infrared Spectrophotometer Fourier Transform FT-IR-4100(KBr). spectrum NMR proton and carbon device 400 MHzmodel Bruker by Switzerland company.

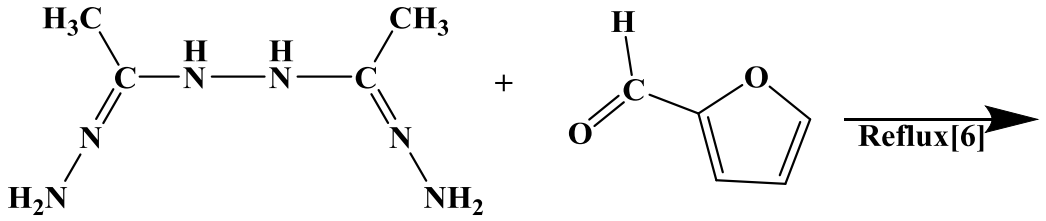
2.2. Eperimental procedure:

2.2.1. Synthesis of the ligand (L):

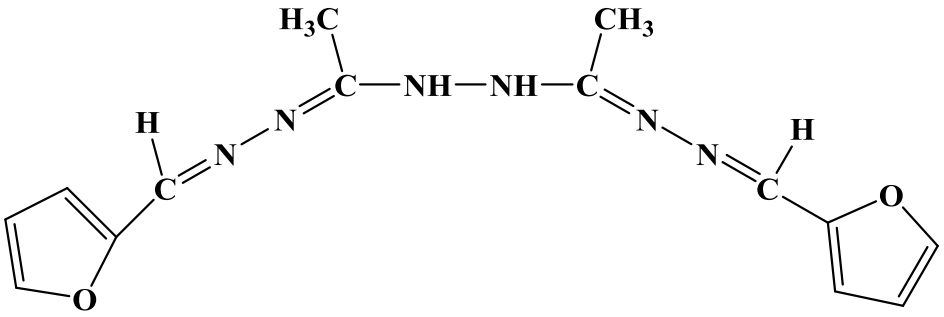
The Schiff base, (L) was prepared by condensation of 1,2-di acetyle hydrazine (1.18gr,10mmol) with hydrazine hydrate (2.5ml) in ethanol 95% (50ml), then adding the furfural (2.5ml). The mixture was refluxed with stirring for 16h.The precipitated [(di Furanyle Methylene hydrazono)1,2-di acetyle hydrazine] were filtered and recrystallized from ethanol. Ligand as yellow crystals was obtaind with a yield of (53%) and m.p=110-115ºC.



1,2- di acetyle hydrazine hydrazine hydrate

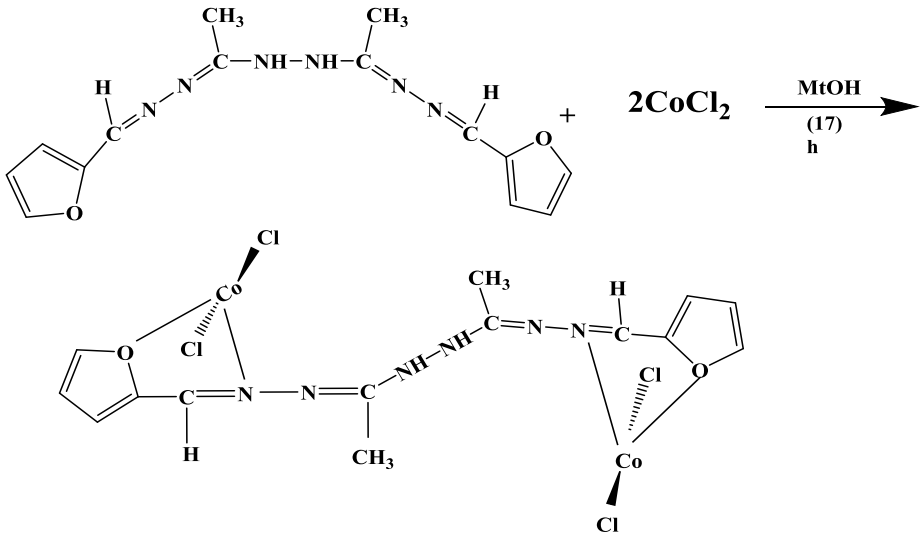


hydrazenyl di methyl asomitine amin furan-2-carbaldehyde



2.2.2. Synthesis of metal complexes:

A solution of ligand (L) (0.15gr, 0.5mmol) in methanol (15ml) was added to a solution of metal cobalt chloride hydrous (0.5×2 mmol) in methanol (10ml), and refluxed for 17h by using a water bath. By cooling the contents, the colored complex separated out in each case. The same was filtered, then washed with ethanol and washed several times with diethyl ether.



3. Results and Discussion:

3.1. (13C and1HNMR) spectroscopic measurements:

The (13C and 1H-NMR) spectroscopic measurement of (L) Schiff base are given in table 1.

Table1.

Explanation of (13C and 1H-NMR) ppm of the ligand (L).

No	13C-NMR(δ ppm)	No	1H-NMR(δ ppm)
C_1	150.89	1	(4.48) 1H,s
C_2	21.22	2	(2) 3H,s
C_3	149.40	3	(8.19) 1H,s
C_4	145.77	4	(6.55-6.56) 1H,d
$C_{5,6}$	112.27	5	(6.18-6.19) 1H,dd
C_7	116.68	6	(7.25-7.26) 1H,d

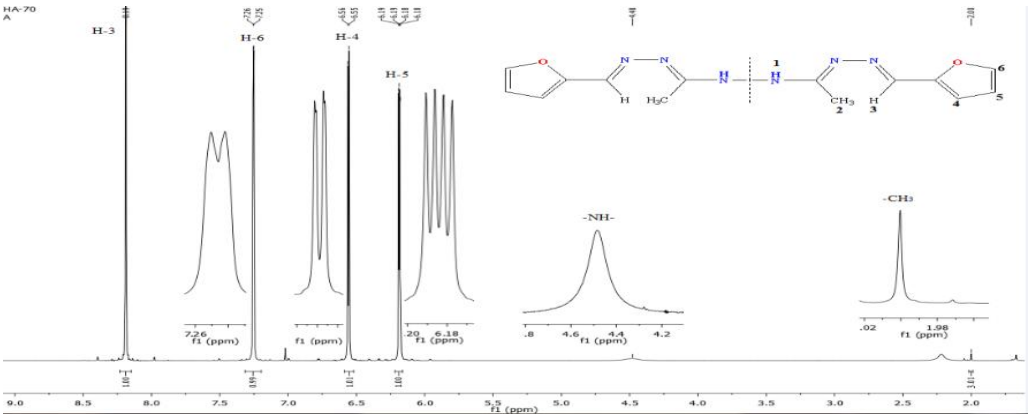


Figure1. 1H-NMR spectrum of the ligand (L) [(di Furanyle Methylene hydrazono)1,2-di acetyle hydrazine] in Cloroform.

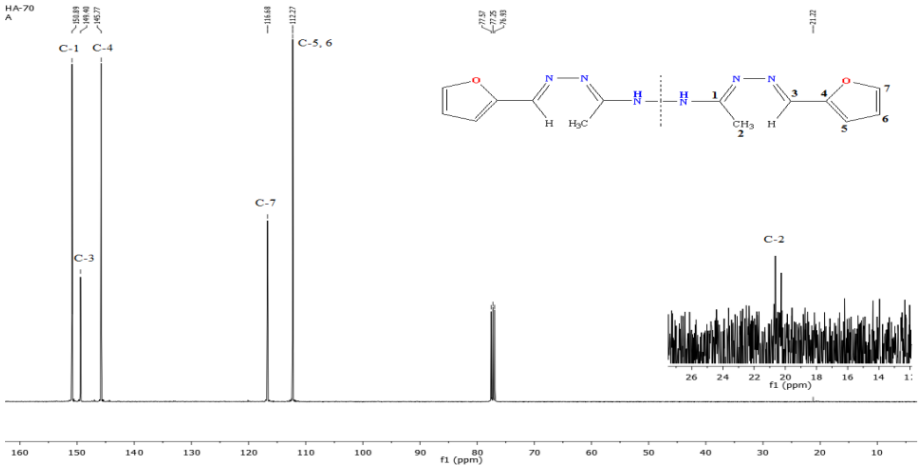


Figure2. 13C-NMR spectrum of the ligand (L) [(di Furanyle Methylene hydrazono)1,2-di acetyle hydrazine] in Cloroform.

3.2. Infrared Spectra:

The infrared spectra for the present compounds taken in the range 400-4000 cm^{-1} help to indicate regions of absorption vibrations. The main stretching modes are for $\nu(C=N)_1$, $\nu(C=N)_2$ and $\nu(C-O-C)$.

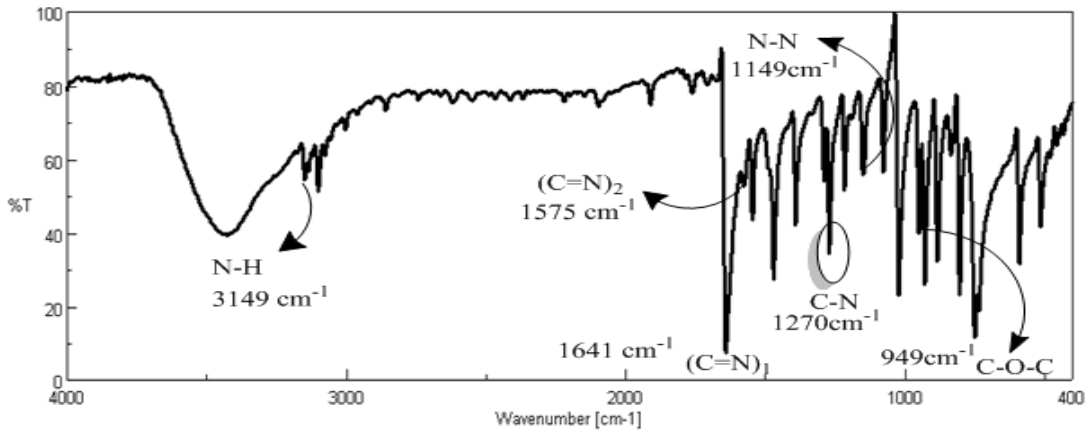


Figure 3. IR absorption spectra of ligand (L)

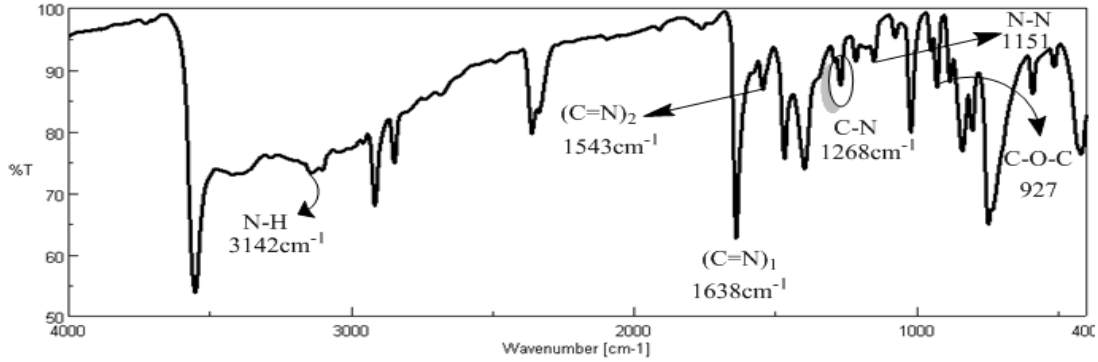


Figure 4. IR absorption spectra of [Co_2LCl_4].

Table 2.

Conductivity and melting point of the ligand and complex.

compounds	M.P(°C)	color	Yield	conductivity μs	$\nu(C=N)_1$ cm^{-1}	$\nu(C=N)_2$ cm^{-1}	$\nu(C-O-C)$ cm^{-1}	Geometry
L	110-115	Yellow	53%	0	1641	1575	949	…
$[Co_2LCl_4]$	>250	Dark red	90%	70	1638	1543	927	Tetrahedral

Conclusion:

The synthesise of a new ligand (L) di(furanyle Methylene Hydrazono)1,2-di acetyle hydrazine was carried by condensation of 1,2-di acetyle hydrazine with hydrazine mono hydrate ,Then add furfural to getting ligand (L).Then the reaction of this ligand with Cobalt(II) ion were carried out using metal Chloride salt by the (1:2) molar ration respectively conduced. [Co2LCl4]

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