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RESEARCH PAPER

Synthesis and characterization of Co(II) complexes with ester thiosemicarbazone

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ABSTRACT

Complexes of cobalt (II) of general composition $[ML_2X_2]$, $[ML_2X]X$ were prepared with thiosemcarbazones (L^1, L^2, L^3 and L^4). These complexes were characterized by elemental analysis, molar conductances measurements, Magnetic moments IR, electronic spectra, and EPR spectral studies. All are the nonelectrolyte in nature therefor these complexes may formulated $[M(L)_2X_2]$. All the complexes are of high-spin and show octahedral jeometry.

Key Words : Acetoacetic ester thiosemicarbazone, Isopropyl ester thiosemicarbazone, 6-methyl Pyran-2-one-4 hydroxy 3 diacarboxylic acid ester thiosemicarbazone, Biological activity

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The biological and medicinal properties of these ligands and their derivatives have gained much interest. Thiosemicarbazones and their 3d-metal complexes have been found to exhibit anti-fungal[1], anti-bacterial[2], anti-viral[3], anti-tubercular[4] and anti carcinogenic activities [5]. The anti-fungal activity of these compunds is due to the presence of toxophyrically important N–C=S moiety[6]. Thiosemicarbazides and their Schiff bases also display anti-tumour [7-8] activity. It is expected that thio ligands will also show variability in structure and bonding in its transition metal complexes. It has been reported that thiosemicarbazide and its complexes with 3d-metal ions show *in vitro* and *in vivo* anti-tumour activity[9].

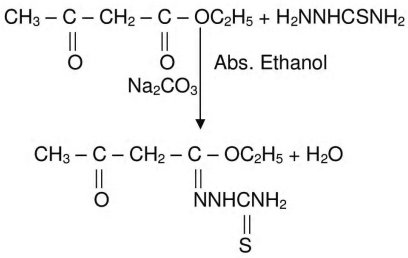
RESEARCH METHODOLOGY

A.R. Grade chemical and fluka reagents were used in the present study. The solvent were purified before use by processing. Semicarbazide hydrochloride, acetoacetic ester, isopropyl ester, methyl ester of 6-methyl Pyran-2-one-4 hydroxy 3 diacarboxylic acid, sodium acetate different metalic salts.

Preparation of ligands:

Preparation of Acetoacetate ester Thiosemicarbazons (L^1):

Hot ethanolic solution of thiosemicarbazide (0.01 mol, 0.91 g) and ethanolic solution of acetoacetic ester (0.01 mol,



Scheme -1

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