SYNTHESIS, CHRATERIZATION AND ANTI-MICROBIAL ACTIVITY OF Fe (II), CO (II) AND NI (II) METAL WITH ETHYLENEDIAMINE SCHIFF BASES

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Abstract : Schiff bases derived from bi-dentate ligand Bis-(4-Hydroxy-3 Methoxy Benzylidene ethylenediamine and a series of transition metal complexes of Fe (II), CO (II) And NI (II) with were prepared in methanol Solution and its nitrates separately in stoicheometric proportion1:2 mix together. Mixture was reflex for 6 hours, Adjust the PH of solution 7-8 by using alcoholic ammonia solution. The metal complexes has been characterized on the basis of elemental analysis, conductance. The ligand and metal complexses were screened for their Antimicrobial activites against Escherichia Coli, Staphylococcus Aureus, Salmonell Typhi.

Key Word: Schiff Bases , Ligands, Metal Complexes, Anti-microbial Activity.

I. INTRODUCTION

Nitrogen and oxygen atoms, donor Schiff bases and their transition metal complexes play significant interest in coorination chemistry. The Schiff bases and their metal complexes have great importance recently[1-5] because of their applications analytical, bio-chemical, biological, Clinical, Microbial, anticancer, antitumor, analgetic, antipyretic, antifungal activity, ligands play important role in complex formation .ligands act as breeding group to form stable metal complex. the metal complex depends on the affinity of metal ion reacts with ligands. Schiff base ligands do have great importance because of their excellent chemical, electrochemical and photochemical properties of as well as potential biological applications. They have been stuied as class of ligands [6-8] and known to coordinate with metal ions through the azomethine Nitrogen atom.The synthesis of transition metal complexes with Schiff bases are studied due to sensivity, selectivity and flexibility towords metal.[9] These are used as catalyst. In this paper we describe the behavior of the bi-dentate Schiff base ligand with Fe(II) ,Co(II) and Ni.(II).

II. RESEARCH METHODOLOGY

Synthesis of Schiff base ligands :
Compound containing an Azomethine group (-CH=N-) are known as Schiff bases. They are formed by Condensation of a Primary amine with Carbonyl compounds.

Preparation of Schiff base Ligands:
A series of Schiff base ligands were prepared by reacting the ethylenediamine with vanillin separately

Preparation Of Bis (4-Hydroxy-3-Methoxy benzylidene) ethylenediamine :
To a mixture of Vanilin (608mg, 4mmol) dissolved in methanol (25 ml) was added 2-3 drops of glacial acetic acid and mixture was refluxes for 3 hours. On cooling Solid was filtered washed with water and recrystalized from alcohol.

1.Preparation Of Bis (4-Hydroxy-3-Methoxy benzylidene) ethylenediamine) FE(II) Complex.:
Bis ((4-Hydroxy-3-Methoxy benzylidene) ethylenediae(500mg 2mmol) and Nitrates of Iron (250mg 1 mmol) Separately. The mixture was refluxed for 6 hours pH of the solution is adjusted to 7-8 using alcoholic ammonia.
A dark red product was isolated after reduction of volume by evaporation.The solid was filtered of, washed with methanol and dried under vacuum.

2. Preparation Of Bis (4-Hydroxy-3-Methoxy benzylidene) ethylenediamine) Co (II) Complex.:
Bis ((4-Hydroxy-3-Methoxy benzylidene) ethylenediae(500mg 2mmol) and Nitrates of cobalt (250mg 1 mmol) Separately. The mixture was refluxed for 6 hours pH of the solution is adjusted to 7-8 using alcoholic ammonia.
A Dark brown product was isolated after reduction of volume by evaporation.The solid was filtered of, washed with methanol and dried under vacuum.

3. Preparation Of Bis (4-Hydroxy-3-Methoxy benzylidene) ethylenediamine) NI (II) Complex.:
Bis ((4-Hydroxy-3-Methoxy benzylidene) ethylenediae(500mg 2mmol) and Nitrates of nickel (250mg 1 mmol) Separately. The mixture was refluxed for 6 hours pH of the solution is adjusted to 7-8 using alcoholic ammonia.
A Brown product was isolated after reduction of volume by evaporation.The solid was filtered of, washed with methanol and dried under vacuum.

Anti-Microbial Activity of Ligands and its Metal Complexes.
The Anti bacterial activity of bidetate Schiff base and their metal(II) complexes were screened against microorganism. The microorganismed in the present investigation included E.Coli, Stathylococcus aureus and Salmonela Typhi Minimum inhibitory concentration (MICS) method was used to determine anti-bacterial activity of synthesized complex. The diffusion method is very

simple, it requires commercial disk, medium used is Mucller Hinton agar with 2% of Glucose and diameter of inhibition zone is usually read at 24 hours after incubation at 37^0C.The antibacterial activity was estimated on the basis of size of inhibition zone around the paper disk on seeded agar plates. Streptomycin was used as std. The Result are prepared in table.

Results:

1. No inhibition Zone to the Schiff base .i.e. Bis (4-Hydroxy-3-Methoxy benzylidene) ethylenediamine
2. Bis (4-Hydroxy-3-Methoxy benzylidene) ethylenediamine) FE(II) Complex show highest antibacterial activity against E.Coli and Salmonella Typhi
3. Bis (4-Hydroxy-3-Methoxy benzylidene) ethylenediamine) Co(II) Complex.:show highest antibacterai activity against E.Coli and Stathylococcus aureus
4. Bis (4-Hydroxy-3-Methoxy benzylidene) ethylenediamine) FE(II) Complex show highest antibacterial activity against E.coli.

Compounds	**Pathogen**		
	Escherichia Coli	Stathylococcus aureus	Salmonella Typhi
Bis (4-Hydroxy-3-Methoxy benzylidene) ethylenediamine	_ _ _ _	-- --	-- --
Bis (4-Hydroxy-3-Methoxy benzylidene) ethylenediamine) Fe(II) Complex	+++	++	+++
Bis (4-Hydroxy-3-Methoxy benzylidene) ethylenediamine) Co(II) Complex.:	+++	+++	++
Bis (4-Hydroxy-3-Methoxy benzylidene) ethylenediamine) Fe(II) Complex.	+++	++	++

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