



Synthesis And Bio-Spectral Studies of Ni(II) Complex of 2'-Hydroxy-4'-Methoxyacetophenoneoxime (HMAOX)

F. Rehman^{1*}, M. Bhardwaj¹ and U.K. Jetley²

1. Dept. of Analytical Chemistry, Faiz-E-Aam Degree College, Meerut. U.P, **INDIA**

2. Dept. of Applied Science, HRIT, Gaziabad, U.P, **INDIA**

Email: rehman12366@yahoo.com, ukjetley@gmail.com

Accepted on 29th December 2013

ABSTRACT

*Ni(II) complex of 2'-hydroxy-4'-methoxyacetophenoneoxime (HMAOX) was synthesized from paeonol oxime by using standard protocol, and characterized by elemental analyses, melting point determination and spectral data. The ML₂ (metal/ligand) stoichiometry of the complex was determined by spectrophotometric and potentiometric studies, and mass spectral data. The value of stability constant of the complex was found to be 2.36×10^8 while its standard free energy of formation is $11.436 \text{ kcal mol}^{-1}$ at 27°C. Beer's law is obeyed in the concentration range 25-140 ppm of Ni. The value of molar extinction coefficient and sensitivity as per Sandell's scale were found to be $4.56 \times 10^3 \text{ L.mol}^{-1} \text{ cm}^{-1}$ and $0.128 \mu\text{g Ni/cm}^2$ respectively. The IR studies reveal that the phenolic proton is lost on complexation and the oxygen of the phenolic (-OH) and nitrogen of the oximino (=NOH) groups coordinate with Ni(II) ion. The electronic spectra and magnetic susceptibility measurement indicate that the complex is diamagnetic and square-planar in nature. The antimicrobial activity of different concentrations of ligand and its Ni(II)-complex has been evaluated against *Aspergillus niger*, *Aspergillus flavus*, *Aspergillus nidulans* and *Alternaria alternata* fungi and *Staphylococcus*, *Streptoproteus*, *Staph* and *Escherchia coli* bacteria. The results indicated that the ligand (HMAOX) and its Ni(II) complex have good anti-microbial properties as compared to the standard drugs (fluconazole and ciprofloxacin). The activity index (AI) for the, bioactivity was also derived.*

Keywords: Ni(II)-complex, Spectra, Thermodynamic parameters, Antimicrobial screening.
