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Interactions of Metal ions withTrimethoprim and Metformin

Olawale Folorunso AKINYELE[1]*, Sunday Babatunde ADEJAYAN[1], Lateefah Moyosore DUROSINMI[1], Ayowole Olaolu AYENI[1],Temitope Adekunle AJAYEOBA[1]

[1]Department of Chemistry, Obafemi Awolowo University, Ile-Ife, Nigeria

- **Tel: +2348023410301**

Abstract : In this work, metal complexes of trimethoprim mixed metformin were synthesized and characterized by solubility studies, percentage metal analysis, UV-Vis spectroscopy, IR spectroscopy and magnetic susceptibility and conductivity measurements. The IR spectra showedthat the trimethoprim coordinated as a monodentate ligand coordinating to the metal ions via the pyrimidine N(1), metformin acts as a bidentate ligand coordinating through the iminonitrogens. The infrared spectra bands at 450 cm^{-1} and 530 cm^{-1} is ascribed to M –N and M –O bond respectively indicating the formation of these complexes.

The magnetic moment data showed that all the complexes were paramagnetic with values ranging from 1.39 to 6.0 B.M, except $[Zn(TMP)(MET)(H_2O)Cl_2]$ which was diamagnetic. The conductivity results revealed that all the synthesised complexes were non-electrolytes, while the antibacterial studies of the mixed ligand complexes displayed moderate antimicrobial activity in comparison with the free ligands.

Keywords : Trimethoprim; Metformin; covalent; geometry; electronic structure; antibacterial.

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