Title of Article: Synthesis, antibacterial and toxicology study of Mn(II), (Co(II) and Ni(II) complexes of sulfadoxine mixed with pyrimethamine


Abstract: Three mixed ligands metal complex of sulphadoxine and Pyrimethamine were prepared by using Mn(II), Ni(II), Co(II), metal Chloride hexahydrate and characterized by elemental analysis, molar conductivity, magnetic susceptibility measurement, AAS, IR and UV-Vis. Spectroscopy. Some physical parameters were obtained using molar conductance measurement and melting point determination. Based on the analytical and spectroscopic data, the complexes were proposed to have the formulae: \([ML_1L_2](Cl)_2\) (where \(M = Mn(II), Ni(II) and Co(II); L_1 = sulfadoxine, L_2 = pyrimethamine\)). The spectroscopic data proposed that \(L_1\) and \(L_2\) coordinated through \(N\) of \(NH_2\) group in \(L_1\) and through \(N\) atom of \(NH\) group in \(L_2\). Thus pyramethamine was proposed to be a tridentate ligand, while sulphadoxine was proposed to be a monodentate ligand. Mico-analysis further supported the proposed structure for the complexes. The antibactaria activity of the metal complexes were compared with their ligands by screening the against isolates of some strains of \(g(-)\) Escherichia coli, \(g(+)\) Proteus sp., \(g(+)\) Pseudomonas aureginosa and aureginosa and Salmonella typhi by using against the four species used. Toxicology tests against some tissues of albino rat \((Rattus novergicuss)\) revealed toxicity of the complexes in the kidney as compared to the parent drugs. However, ALP values for metal complexes were found to be non-significantly different from the ALP values obtained for livers and the sera. This indicates that the metal complexes are not excessively toxic.