STUDIES IN SYNTHESIS OF SOME LIGANDS CONTAINING SULFA DRUGS AND THEIR METAL COMPLEXES AND ANTIBACTERIAL ACTIVITIES

A Abstract

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ABSTRACT

Transition metals plays a pivotal role in the innovation of novel metal based drugs and also in certain cosmetic formulation. Transition metal complexes are cation and anionic or neutral species which contain co-ordination bond between ligand and metal. There is significant role in application of transition metal complexes as drugs to cure many human diseases. The mode of action of metal complexes drugs on living organism is quite different from non-metals. With different oxidation state of transition metals, it can exploited for designing new drugs. The metal complexes offer a great diversity in their medicinal actions; like anti-cancer, ant-inflammatory, anti- infective, anti-diabetic activities, etc. Transition metal complexes are also important in catalysis. In material/polymer synthesis, photochemistry, etc.

Looking to above properties of transition metal complexes, It was thought to synthesize the ligand having drug segment. With excellent pharmaceutical activity of sulfa drugs, the novel ligands contain various sulfa drugs have been prepared. The sulfa drugs; Viz; Sulfathiazole, Sulfapyridine, Sulfadiazine, Sulfaquinoxaline, sulfapyrondazine and trimethoprim were selected. Each of these drugs having free amine group. So these can easily condensed with tetrahydrophthalic anhydride. The ligands were prepared and characterized duly. The research work has been presented in four chapters;

Chapter – I: Literature pertinent to transition metal complexes, their applications, ligand containing amide group (mainly derived by condensation of acid anhydride and amines) are summarised.

Chapter – II: It presents materials and methods adopted in whole work. Details of chemical reagents either analytical methods like elemental content, spectral techniques, magnetic susceptibility, thermogravimetry, and antimicrobial activity are also furnished in this chapter.

Chapter – III: Various ligand synthesis process based on tetrahydrophthalic anhydride and sulfa drugs have been described in this chapter. Following this, the synthetic details of ligands are given with structural characterisation.

Chapter IV: The measurement of metal-ligand ratio, magnetic moment, thermal stability, and antimicrobial activity of metal chelates have been presented in this chapter and discussed in terms of structural activity relationships.

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