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Synthesis, Characterization, and Biological Studies on Riluzole Schiff base Metal Complexes

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ABSTRACT

Microwave assisted synthesis has received considerable attention as a powerful synthetic tool for metal complexes in many fields of inorganic chemistry, organic chemistry and material science. In this study, we focus on microwave-assisted synthesis of Schiff base ligand and their metal complexes. Schiff base ligand, was obtained from the condensation of Riluzole (6(trifluoromethoxy) benzothiazole-2-amine) and 2-hydroxy acetophenone with high atom economy of 95% and metal complexes of the type $ML_{n=1.2}(\text{H}_2\text{O})_{n=0.1.2} \text{Cl}_{n=0.1}$, where M is the metal ion and L is the ligand Synthesized metal complexes were characterized by using elemental analysis, conductance, magnetic susceptibility measurements, mass, UV-Vis, IR, ¹HNMR and ESR. The Schiff base behaves as a bidentate ligand and it coordinates through the oxygen atom of the deprotonated phenolic group and the nitrogen of imine group. All these complexes were nonelectrolyte in nature. On the basis of the spectro-chemical data indicates that, the structure for all the coordination metal complexes of Mn(II), Co(II), Fe(III), Ni(II), Cr(III) and Cu(II) shows octahedral geometry, whereas Zn(II), Cd(II), and Hg(II) complexes gives tetrahedral geometry and ZrO(II) and VO(II) complexes indicate the square pyramidal geometry. All these complexes were screened for their antibacterial activity by agar cup-plate method against various organisms, and the results were compared.

Keywords: 2-hydroxy acetophenone; 6(trifluoromethoxy) benzothiazole -2-amine; metal complexes; microwave-assisted synthesis.
