

Synthesis, Characterization and Biological Properties of Ruthenium(III) Complexes

Sampath¹ K., Azarudeen R.², Sathiyaraj S.³, Jayabalakrishnan C.⁴

¹Department of Chemistry, Kumaraguru College of Technology, Coimbatore, Tamil Nadu, India

²Department of Chemical Engineering, Coimbatore Institute of Technology, Coimbatore, Tamil Nadu, India

³Department of Chemistry, Dr.N.G.P. Arts and Science College, Coimbatore, Tamil Nadu, India

⁴PPG College of Arts and Science, Coimbatore, Tamil Nadu, India

Email: sampathchemistry@gmail.com

Abstract

The ruthenium complexes were synthesized from ruthenium(III) metal precursors and thiosemicarbazone ligands by ligand exchange reactions. The structural features of the synthesized complexes were studied by various physico-chemical and spectroscopic techniques. In all the complexes studied, the Schiff bases act as bidentate ligands. The efficiency of the ruthenium(III) complexes towards the biomolecules, the interaction between DNA/BSA was studied. In addition, the cytotoxic properties of the complexes were evaluated against a panel of bacteria and the efficiency of complexes to arrest the growth of HeLa and MCF-7 tumour cell lines have been studied along with cell viability test under *in vitro* conditions. The results showed a dose dependent anti-proliferative effect, thus indicating the biological significance of the complexes. Moreover, the complexes were examined the oxidation inhibition property against the DPPH and OH radicals.