

ABSTRACT

Metal complexes due to their diverse properties have been used in various medical, clinical and industrial fields. For being, having such vast applications worldwide their production is increasing with every passing day.

In the present study complexes were obtained by the reaction of Cobalt nitrate (metal salt) and cis, cis, cis, cis, cyclopentanetetracarboxylic acid (ligand) in different ratios and different solvents through sonication, reflux and simple stirring methods under different pH and temperature conditions. The precipitates were characterized physically and chemically. The appearance of different color, melting points and solubilities of precipitates were assigned to complex formation. In similar approach results of atomic absorption spectroscopy, UV-Visible spectroscopy and FTIR were also different which again provided confirmation of complex formation and assisted to construct proposed structure of complex 1 and complex 2. Fluorescence analysis was studied under excitation range of 200-800nm and emissions were observed in the range of 400-800nm and results of this analysis confirmed their fluorescent behavior due to adsorption of fluorescein dye on the surface of these complexes. The quenching abilities of complex 1 and complex 2 were also observed against picric acid and 4-nitrophenol respectively. Results of all the attended techniques reported metal ligand complex formation and consistency of difference in results yielded basics for establishment of experimental data. Due to efficient performance, these complexes can be utilized as promising candidate for detection of poisonous and explosive metals.

Key Words: Metal complexes, Reflux, sonication, poisonous and explosive