SYNTHESIS, CHARACTERIZATION AND ANTIOXIDANT STUDY OF Cu(II) AND Ni(II) HYDROXAMIC ACID COMPLEXES

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ABSTRACT

SYNTHESIS, CHARACTERIZATION AND ANTIOXIDANT STUDY OF Cu(II) AND Ni(II) HYDROXAMIC ACID COMPLEXES

The complexes of copper-benzohydroxamic acid (CuBHA) and nickel-benzohydroxamic acid (NiBHA) were successfully synthesized using benzohydroxamic acid ligand and copper sulfate pentahydrate ($CuSO_4.5H_2O$) and nickel chloride hexahydrate ($NiCl_2.6H_2O$) metal salts. The metal salts and ligand were mixed at a raised temperature and pH adjustment was made to obtain a precipitate. The structures of the complexes were determined by elemental analysis, fourier-transform infrared (FTIR) and magnetic susceptibility. Unfortunately, both complexes have solubility problems in dimethylsulfoxide (DMSO), chloroform, water, methanol and acetone which have restricted them for nuclear magnetic resonance (NMR) characterization. In addition, it was found that both complexes exhibit paramagnetic behavior when magnetic susceptibility characterization was performed. The complexes have been investigated for their reducing power capacity, which will indicate their potential of exhibiting antioxidant property using the FRAP method. From the results obtained, it showed that both $Cu(BHA)_2$ and $Ni(BHA)_2$ are very least likely to have or posses no potential to be antioxidants.