**ABSTRACT**

Aromatic metal carboxylates are now-a-days used as precursors for the preparation of metal oxides. In this work, we have presented the formation of metal oxides of nano size by the thermal decomposition of the complexes of 1- hydroxy -2-naphthoates of divalent transition metals, Ni, Co, Cd, Zn and Cu with hydrazinium cation, prepared as crystalline compounds with the general formula,(N2H5)2[M{C10H6(O)(COO)}2.(H2O)2 and characterized by spectroscopic techniques (electronic & IR Spectra, powder XRD method, magnetic moment measurements and thermal analytical (TG-DTA)). The reaction of the acid and hydrazine gives crystalline monohydrazinium salt with formula (N2H5)(C10H6(O)(COO).3H2O. The study of thermal degradation of the complexes indicate that they undergo dehydration in the range of 120-200°C and an oxidative decomposition in the range of 261-700°C showing strong exothermic peaks at 315-493°C resulting in the formation of metal oxides as decomposition residues. The metal oxides obtained by the incineration of these precursors in the muffle furnace at their decomposition temperatures, followed by sintering the metal oxides at the same temperature for about 30 minutes, were found to have the particle size in the range of 17-25 nm