**ABSTRACT**

Reaction of hydrazine and 3-hydroxy-2-naphthoic acid with some transition metal ions forms two types of complexes: (i) [M(N2H4 ){C10H6 (3- O)(2-COO)(H2O)2 ] where M=Ni, Co, Cd and Zn, at pH 9 and (ii) [M(N2H5 )2{C10H6 (3-O)(2-COO)}2 ].xH2O where M=Ni & x =1; M=Co, Cd, Mn& x=3; and M=Zn, Cu & x =0 at pH 4. Analytical data confirms the compositions of the complexes. The acid shows dianionic nature in these complexes. The magnetic moments and electronic spectra suggest the geometry of the complexes. IR data indicates the nature of hydrazine and presence of water in the complexes. Simultaneous TG-DTA studies shows different thermal degradation patterns for the two types of complexes. The first type shows formation of no stable intermediates whereas the second type shows the respective metal hydroxynaphthoate intermediates. The final products in both the types are found to be metal oxides of nano size. XRD patterns show isomorphism among the complexes with similar molecular formulae.