**ABSTRACT**

A new series of Fe(II), Cu(II) and Zn(II) octahedral complexes of 2-hydroxynicotinic acid with hydrazine hydrate was synthesized. The acid acts as diacidic bidentate ligand to give mononuclear complexes with formula M[(C6H3NO3)(N2H4)2]H2O where M= Fe(II), Cu(II) and Zn(II). The nature of bonding and stereochemistry of the prepared hydrazine complexes have been deduced from elemental analysis, IR and thermo gravimetric analysis. In all complexes the 2-hydroxynicotinic acid is attached to metal through its terminal part which contains OH and COOH group whereas hydrazine acts as neutral bidentate ligand. The TG-DTA evinces the stability of the complexes up to 560C˚ and undergoes complete decomposition with the formation of metal oxide as end product. The prepared Fe(II) and Zn(II) complexes were used as precursors for the synthesis of nanometal oxides. Nano particles thus prepared were characterized by scanning electron microscope coupled with energy dispersive X-ray analysis and TEM. In addition, the synthesized complexes are screened for their in vitro antibacterial activity and antifungal studies.