ABSTRACT

A series of new indole hydrazone Schiff bases and their metal complexes have been synthesized, characterized and evaluated for anti-ulcerogenic activity.The Schiff bases derived from indole-3-acetic acid hydrazide and 2-hydroxyacetophenone and their zinc(II), nickel (II) and copper complexes were synthesized by condensation in ethanol. The IR, ^{1}H and ^{13}C NMR, UV Visible data indicate that the hydrazone ligands are coordinated to zinc metal. Indole hydrazones coordinated to zinc(II), nickel(II) and copper(II) metals as dimer ligands. The IR spectrum of the free ligand indicates that in solid state the ligand remains in the keto form. Recrystallization of ligand and complex 5-methyl-2-hydroxyacetophenone in DMSO obtained suitable crystals for x-ray analysis, indicating two ligands coordinated to the central metal atom. TGA Analysis were also performed showing degradation of the all metal complex to MO. The cyclic voltammetry of these zinc complexes exhibited irrevisible oxidation peaks. The electro-oxidation of zinc(II) complexes displayed a diffusion –controlled electron transfer reaction process.

For the biological testing, the ligands and their metal complexes except for 2-HapIH and $Ni_{5-CH3-2-HapIH}$ show better anti-ulcerogenic activity compared to cimetidine, the standard drug. The results show that substituted ligands inhibit gastric lesion more than the unsubstituted ligand and electron withdrawing substituent shows better inhibition compared to electron donating substituent. Metal complexes show better inhibition of gastric ulcer compared to their free ligands.