

Copper(II) nickel(II), cobalt(II) and oxovanadium(IV) complexes of substituted hydroxyiminoanilides

S SEVAGAPANDIAN, K NEHRU and P R ATHAPPAN
Department of Inorganic Chemistry, Madurai Kamaraj University, Madurai
625 021, India

Complexes of the general formula, ML_2 [where M = copper(II), nickel(II), cobalt(II) and oxovanadium(IV); L = 1,2,3,5,6,7,8,8a-octahydro-3-hydroxyimino-N-(4-X-phenyl)-1-phenyl-5-(phenyl-methylene)-2-naphthalenecarboxamide (X = H, CH₃, OCH₃, Cl)] have been prepared and characterized on the basis of elemental analysis, magnetic moments, i.e., EPR and electronic spectra. These metal complexes contain N₄ chromophore with the ligand coordinating through the nitrogens of the azomethine and deprotonated anilide functions. Cyclic voltammogram indicates that the copper(II) complexes are reduced quasi-reversibly in acetonitrile solution. Square planar and square pyramidal structures are assigned to the copper(II) and oxovanadium(IV) respectively complexes while tetrahedral geometry is assigned to the nickel(II) and cobalt(II) complexes. Deprotonated anilide nitrogen is involved in coordination and the presence of an electron-donating group at the *p*-position of the anilide function decreases the ΔE values of the *d-d* transitions while the values increase when an electron-withdrawing group is substituted. Line spacing in the EPR spectra of the copper(II) and oxovanadium(IV) complexes increases when CH₃ group is present in the *p*-position of the anilide group and decreases when CH₃ group is replaced with OCH₃ or Cl. The $\nu(C-N)$ of the anilide group and the $\nu(C=N)$ of the azomethine function of the oxime metal complexes are metal-sensitive.