**Abstract:**

**Five new mononuclear Zn(II) complexes, [Zn(bpy)L2], where bpy = 2,2'-bipyridine and L = monoanions of phenylcyanamide (pcyd), 3-chlorophenylcyanamide (3-Clpcyd), 2,3-dichlorophenylcyanamide (2,3-Cl2pcyd), 3-chlorophenylcyanamide (3-Clpcyd), and 4-methoxyphenylcyanamide (4-MeOpcyd) have been synthesized and characterized by elemental analysis, UV-vis, IR, 1H-NMR and cyclic voltammetry (CV). The presence of only one sharp and intense absorption band for cyanamide group (-N=C=N) around 2000-2200 cm-1 for five mononuclear complexes provide evidence that both phenylcyanamide ligands are equivalent in the solid-state and coordinate to Zn(II) via an end-one mode by the nitride N atoms. The electronic spectra of the complexes showed intraligand transition at UV region and an intense CT band at visible region. In the cyclic voltammograms of the complexes, the Zn(II) ion is redox innocent therefore , two irreversible oxidation peaks at the positive potential and one-electron reduction peak at the negative potential were assigned to oxidation of the pcyd ligands and reduction of bpy, respectively.**