Syntheses and Characterization of New Mixed-Ligand Mercury(II) Complexes, $Hg(bpy)_n(SCN)X$ ($X = CH_3COO^-$, NO_3^- and ClO_4^-), Crystal Structure of $[Hg(bpy)_2(SCN)]NO_3$

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The 1:2 and 1:1 mixed-ligand mercury(II) complexes with 2,2'-bipyridine (bpy) containing two different anions, $Hg(bpy)_n(SCN)X$ (X= CH_3COO^-, NO_3^- and ClO_4^-), have been synthesized and characterized by elemental analysis, and IR, ^1H and ^{13}C NMR spectroscopy. The structure of $[Hg(bpy)_2(SCN)]NO_3$ was confirmed by X-ray crystallography. The complex is monomeric and the Hg atom has an unsymmetrical five–coordinate geometry, with four nitrogen atoms of two bpy ligands and one sulfur atom of the thiocyanate ligand as donor atoms. This is in contrast to lead(II) complexes, $[Pb(phen)_2(NO_3)(NCS)]$, $[Pb(phen)(O_2CCH_3)(NCS)]$ where the thiocyanate ligands are coordinated to the lead atom *via* the nitrogen atom. There is a $\pi - \pi$ stacking interaction between the parallel aromatic rings.

Key words: Mercury(II) Complexes, Crystal Structure, Mixed-Anions Complexes, Thiocyanate Ligand