

Structural Versatility of 3d-metal Complexes with a Polydentate Oxime-containing Schiff Base Ligand. Y.S. Moroz, I.O. Fritsky, Dept. of Chemistry, Kiev National Taras Shevchenko Univ., 01033 Kiev, Ukraine.

A series of 3d-metal complexes with novel polyfunctional Schiff base ligand (2E)-2-hydroxyimino-N'-(1-(2-Pyridyl)ethylidene)propanohydrazide (POP) containing several donor functions (oximic, hydrazide, hydrazone and pyridine cycle) has been synthesized and characterized by a variety of spectral methods; three complexes of different composition: $[\text{Zn}(\text{POP})\text{Cl}_2]\cdot\text{H}_2\text{O}$ (1), $[\text{Co}(\text{POP-H})_2]\text{NO}_3$ (2) and $[\text{Ni}_4(\text{POP-H})_4(\text{HCOO})_4]\cdot 9\text{H}_2\text{O}$ (3) were studied by X-ray single crystal analysis. In all the complexes 1-3 the primary coordination of the ligand is realized in a tridentate mode via the pyridine and azomethine nitrogen atoms and the amide oxygen. In 1 the ligand is neutral, while in 2 and 3 it is monodeprotonated on account of ionization of the amide group. The later in 2 and 3 even being deprotonated was found to be O-coordinated. In 1, the Zn:POP ratio is 1:1, and two additional sites in the coordination sphere are occupied by the chloride ions giving rise to the coordination number 5 (trigonal bipyramide). In 2 two POP ligands form the octahedral coordination of the central ion. In both 2 and 3 the coordinated ligands still contain vacant donor atoms and potential chelating units which can be utilized in synthesis of polynuclear assemblies of high nuclearity. This approach has been realized in synthesis of tetranuclear complex 3 (Figure) when 1:1 Ni:POP ratio and calculated quantities of alkali and a co-ligand formate was used. In 3 the ligand forms an additional 5-membered chelate ring on account of the oxime nitrogen and amide oxygen atoms, thus the latter bridges two metal ions. Four ligand anions are disposed in such a way that they form a grid tetranuclear molecule.

