

## SYNTHESIS AND INVESTIGATION BINUCLEAR COPPER (II) BASED ON DERIVATIVES 3-(2-PYRIDYL)-1,2,4-TRIAZOLE

The article is devoted to synthesis and investigation of binuclear copper (II) coordination compounds with derivatives of 3-(2-pyridyl)-1,2,4-triazole. These compounds are pretty interesting, both in terms of coordination chemistry, and with perspective of biochemistry. Such systems attract attention because they can be used as artificial nucleases.

Three new binuclear Cu(II) complexes of 3-(2-pyridyl)-1,2,4-triazole derivatives, 2-[3-(pyridin-2-yl)-1H-pyrazol-5-yl]aniline, 2-[3-(pyridin-2-yl)-1H-1,2,4-triazol-5-yl]ethylamine, 2-[5-(1H-pyrazol-1-ylmethyl)-1H-1,2,4-triazol-3-yl]pyridine, have been prepared and characterized by single crystal X-ray diffraction.

Methods of the synthesis of ligands and complexes based on 3-(2-pyridyl)-1,2,4-triazole derivatives were described in article. The synthesis of ligands based on thermal cyclization of amidrazons obtained by acylation of hydrazides with imidoesters. Coordination compounds with metal to ligand molar ratios 1 to 2 were synthesized according to scheme:  $2\text{Cu}(\text{NO}_3)_2 + 4\text{HL} \Rightarrow \text{Cu}_2(\text{L})_2 + \dots$

In the crystalline state complexes are the centro symmetric dimers. The coordination polyhedra of copper is distorted octahedron formed by two molecules of ligands - in equatorial positions, and molecules of solvent or anions in axial. Thus the axial bonds significantly elongated compared to the equatorial. Coordination number of copper in synthesized compounds is 5 or 6. Coordination of metal ions occurs through the nitrogen of pyridine ring,  $\text{N}_1$  and  $\text{N}_2$  of 1,2,4-triazole and also nitrogen, which involved in substituent in the fifth position of azole. Each ligand forms a five- and six-membered metalocycle with different copper atoms, the distance Cu ... Cu is  $\sim 4\text{\AA}$ .

**Key words: complexes of copper, triazole**