

**CRYSTAL STRUCTURES OF COPPER (II) CHLORIDE, NITRATE
AND SULPHATE COMPLEXES WITH THIOSEMICARBAZONE
PYRIDINE-2-CARBOXYALDEHYDE**

Yu. M. Chumakov¹, E. Jeanneau², N. P. Bejenari³, V. I. Tsapkov³, A. P. Gulea³

¹*Institute of Applied Physics of Academy of Sciences of Moldova, Kishinev, Moldova*

²*Laboratoire des Multimateriaux et Interfaces Universite Claude Bernard Lyon, France*

³*State University of Moldova*

E-mail: chumakov.xray@phys.asm.md

Thiosemicarbazones of different aldehydes and ketones take a special place among the organic ligands because of a variety of their donor atoms and ability to change the denticity depending on initial reagents and conditions of their interaction reactions. It is known that the thiosemicarbazone of pyridine-2-carboxyaldehyde (L) possesses the biological activity and belongs to Schiff bases. It has an ability to react with ions of metals by forming chelate coordination compounds. In many cases, the biological activity of medicines is consistent with their complex ability. In this connection the coordination compounds of CuLSO_4 (**I**), Cu(L-H)Cl (**II**) and Cu(L-H)NO_3 (**III**) have been synthesized and studied by X-ray method. Crystal **I** forms a Zwitter-ionic structure where related by symmetry center complexes of CuL are joined by SO_4 -groups in dimers *via* oxygen atoms. In crystal structure of **II** the complexes are also consolidated into dimers due to the center of symmetry by the S atom of the thioamide group of organic ligand. In **I** and **II** the coordination polyhedron of the central atom is an extended tetragonal pyramid. In **I** the base of pyramid consists of donor pyridine and azomethine N and also S and O atoms of SO_4 -group while in **II** the base of a pyramid is formed by the donor atoms and Cl atom. The vertexes of pyramids are occupied by the oxygen atom of neighboring SO_4 -group (in **I**) and S atom of adjacent complex connected with the initial complex by symmetry center (in **II**). In the crystal **III** form the infinite polymeric chains along *c* direction due to the glide plane. The coordination polyhedron of the copper atom is an extended tetragonal bipyramid. Both axial vertexes of bipyramid are occupied by the oxygen atoms of NO_3 - and amidic nitrogen groups. The base of bipyramid consists of donor pyridine and azomethine N and S atoms and also amidic N atom of adjacent complex connected with the initial complex by glide plane. In turn the amidic N atoms of initial complex are located in the basis of coordination bipyramid of neighboring complex, thus forming the infinite polymeric chain along *c* direction.