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THE CRYSTAL STRUCTURES OF IMIDAZOLE-[2-(2-HYDROXO-BENZYLIDENE)-N-(PROP-2-EN-1-YL)HYDRAZINCARBOTHIOAMIDE]-COPPER(II) AND (3,5-DIBROMOPYRIDINE)-[2-(2-HYDROXOBENZYLIDENE)-N-(PROP-2-EN-1-YL)HYDRAZINECARBOTHIOAMIDE]COPPER(II) NITRATES

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Salicylidenethiosemicarbazide and its derivatives contain a wide range of donor atoms and form with transition metal ions coordination compounds with various composition, structure, and properties. Many of these coordination compounds possess antimicrobial, antifungal, and antitumor activities. Coordination compounds of copper(II) manifest these properties more often than any other 3d-metal complexes. It was determined that insertion of various amines into inner sphere in many cases results in enhancement of these properties. Therefore, the synthesis and study of new mixed-ligand copper coordination compounds, which contain thiosemicarbazones and amines, are of both scientific and practical interest.

The aim of this work is the synthesis, determination of structural features of imidazole-[2-(2-hydroxobenzylidene)-N-(prop-2-en-1-yl)hydrazinecarbothioamide]copper(II) nitrate (**I**) and (3,5-dibromopyridine)-[2-(2-hydroxobenzylidene)-N-(prop-2-en-1-yl)hydrazinecarbothioamide]copper(II) nitrate (**II**)

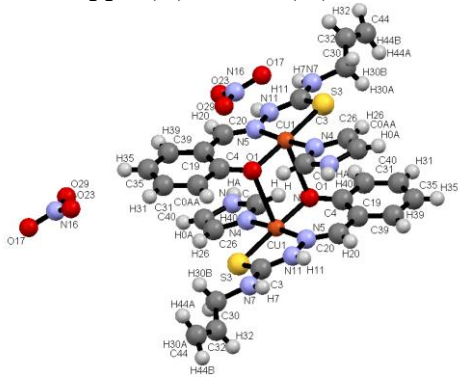


Fig. 1. The molecular structure of **I**

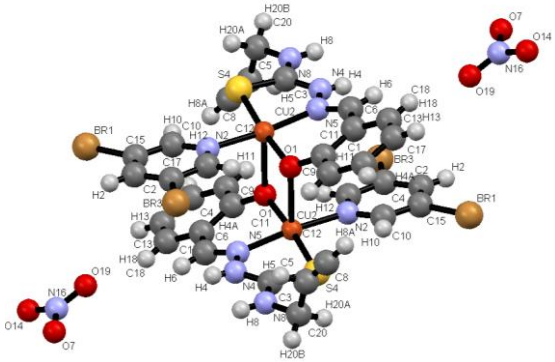


Fig. 2. The molecular structure of **II**

The coordination compunds **I** and **II** were synthesized by the reaction between ethanolic solutions of copper(II) nitrate, salicylaldehyde 4-allylthiosemicarbazone (H_2L) and imidazole or 3,5-dibromopyridine in 1:1:1 molar ratio. The X-ray diffraction analysis of monocrystals of **I** and **II** showed that these complexes have dimeric structures. Phenolic oxygen atoms of H_2L bridge two copper atoms. H_2L acts as a tridentate monodeprotonated ligand. The amines are monodentate. Two nitrate-ions are in the outer sphere.

The synthesized coordination compounds selectively inhibit growth of human promyelocytic leukemia HL-60 cells in the range of concentration 10^{-5} -10^{-7} mol/L. Moreover, the sinthisezed coordination compounds show bacteriostatic activity towards tuberculosis bacteria $H37R_v$ in the range of concentration 10-20 μg/mL.

This work was fulfilled with the financial support of the Project 14.518.04.07A of the State Program.