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# CRYSTAL STRUCTURES OF NITRATO-COPPER(II) COMPLEXES COMPRISING 4,4'-BIPYRIDYL AND SALICYLIDEN- OR NAPHTHALIDENAMINOETHANOL

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Copper (II) nitrate with 2-[2-(hydroxyethylimino)-methyl]-phenol ($H_2L$), 2-[2-(hydroxyethylimino)-methyl]-naphtol ($H_2L^1$) and heterocyclic amines has been found to generate polynuclear coordination compounds with antimicrobial properties. It was established that polynuclear complexes are formed depending on the nature of the proton-accepting agent, pH and temperature of the reaction mixture. The structure of these compounds, dentate number of the nitrate group, physicochemical properties and antimicrobial activity are determined by the nature of these amines. It was of great interest to study how the replacement of different amines by 4,4'-bipyridyl (Bipy) affects the complex structure. In connection with this, we have synthesized complexes $[Cu_3(Bipy)_3(H_2O)_2(HL)_2(NO_3)_4]_n$ (**I**) and $[Cu_2(Bipy)(HL^1)_2(NO_3)_2]$ (**II**), where L = 2-[(2-Hydroxy-ethylimino)-methyl]-phenol, $L^1$ = 1-[(2-Hydroxy-ethylimino)-methyl]-naphthalen-2-ol, and determined their crystal structures by X-ray diffraction analysis.

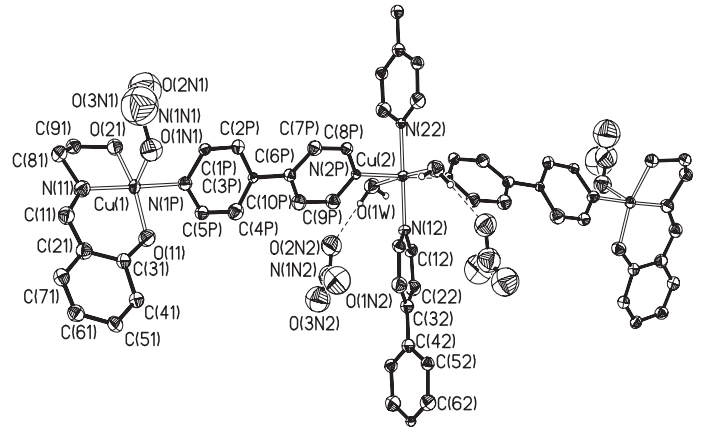



Fig. 1. The fragment of crystal structure **I**.

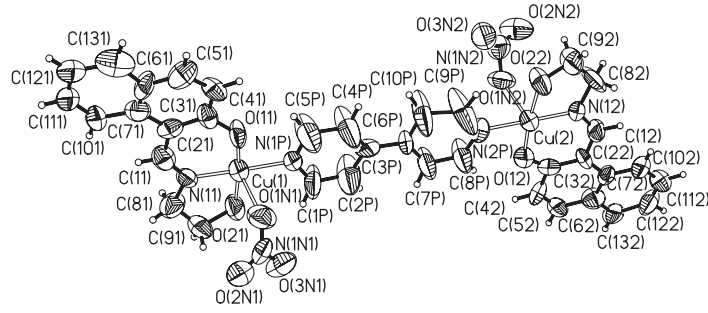



Fig. 2. The fragment of crystal structure **II**.

The crystal structure **I** consists of polymeric bands $[Cu_3(Bipy)_3(H_2O)_2(HL)_2(NO_3)_4]$ along [001] direction. The coordination polyhedra of Cu(1) and of Cu(2) are tetragonal bipyramids. The basic structural unit of **II** is the binuclear complex $[(HL^1)(NO_3)Cu(Bipy)Cu(NO_3)(HL^1)]$ which forms the crystal structure **II** by means of multiple hydrogen bonds.