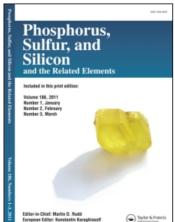
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## Phosphorus, Sulfur, and Silicon and the Related Elements

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# Structure and Physical Properties of Coordination Compounds of 2-Aminoindan-2-Phosphonic Acid with Some D-Electron Elements

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STRUCTURE AND PHYSICAL PROPERTIES OF COORDINATION COMPOUNDS OF 2-AMINOINDAN-2-PHOSPHONIC ACID WITH SOME d-ELECTRON ELEMENTS

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Many complexes of 1-aminoalkylphosphonic acids have been obtained and their structures have been studied [1-3]. On the other hand, 2-aminoindan-2-phosphonic acid (2-AIP), the phosphonic conformationally restricted cyclic analogue of phenylalanine, has been recently obtained [4]. We undertook a study of interaction of cobalt(II), nickel(II), and copper(II) with 2-AIP, to learn how the rigid ligand structure influences the complexes structure.

Based on of elemental analyses, reflectance spectra in the visible region, infrared spectra (IR, FIR), and magnetic susceptibility measurements (295-4.2 K), the compositions of complexes were determined and their structures were suggested.

Only [Cu(OH)(2-AIP)]<sub>2</sub>·H<sub>2</sub>O is a dimer in which copper atoms are bound by the hydroxy bridge [5]. [Ni(2-AIP)(H<sub>2</sub>O)<sub>3</sub>]·2H<sub>2</sub>O and [Co(2-AIP)(H<sub>2</sub>O)<sub>3</sub>]·2H<sub>2</sub>O are polymers in which the bridging role between the neighbouring metal atoms is played by the phosphonic groups. The amino group of 2-AIP takes part in coordination of metals, too. Copper(II) is four-coordinated and form distorted tetrahedral structure. Cobalt(II) and nickel(II) are six-coordinated and form distorted octahedral structures. The cobalt(II) complex exhibits metamagnetism at low temperatures.

The structure of the copper(II) and cobalt(II) complexes with 2-AIP can be compared with structure of copper(II) and cobalt(II) complexes with racemic 1-amino-2-phenylethylphosphonic acid as well as 1-aminocyclopentenyl-1-phosphonic acid.

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