

Synthesis, spectroscopy and magnetic properties of transition-metal complexes with imidazol-2-yl-methyl[*N*-(*n*-butyl)amino]-diphenylphosphine oxide (2-izmape) - structure of [Cu(2-izmape)₂](BF₄)₂ complex.

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A series of three tetrafluoroborate coordination compounds of bioactive imidazol-2-yl-methyl[*N*-(*n*-butyl)amino]-diphenylphosphine oxide (2-izmape) ligand, with the following stoichiometries [Cu(2-izmape)₂](BF₄)₂ and [M(2-izmape)₂](BF₄)₂, M = Ni and Co, were obtained and studied. Stoichiometry and geometry of the compounds was confirmed by spectroscopic and magnetic studies as well as by elemental analyses. In particular, the crystal structures of the copper(II) compound was determined by X-ray diffraction method. The 2-izmape ligand has a potential capacity to coordinate to metal ions by following atoms: phosphoryl oxygen, amino nitrogen and imidazolyl nitrogen. In studied compounds, 2-izmape adopts the didentate *N,N*-coordination mode, bonding metal centers through the imidazolyl and amino nitrogen atoms. Phosphoryl oxygen atom does not participate in coordination. All complexes are monomeric with square planar (Cu) or octahedral (Ni, Co) environment of metal ions. The magnetic studies (1.8–300 K) suggest the possibility of very weak antiferromagnetic (Co) and ferromagnetic (Ni) interaction between paramagnetic centers in crystal lattice. Copper centers are magnetically isolated.

Słowa kluczowe

aminophosphonate ligand, Transition-metal complexes, spectroscopy, magnetism

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