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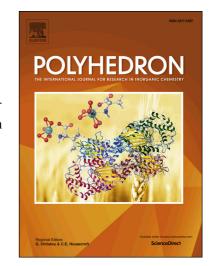
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ACCEPTED MANUSCRIPT

Effect of differently substituted methoxybenzoates on the supramolecular assemblies of three $[Cu(N-hyden)_2](o-/m-/p-methoxybenzoate)_2$ complexes: Synthesis, spectroscopic characterization and single crystal structure determination

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Abstract

Three new anhydrous [copper(II)(N-hyden)₂](o-/m-/p-methoxybenzoate)₂ complexes, **1-3**, (where N-hyden = N-(hydroxyethyl)ethylenediamine) have been prepared by the dropwise addition of N-hyden to the hydrated copper(II) o-/m-/p-methoxybenzoate complexes suspended in a methanol-water (4:1 v/v) mixture, followed by evaporation of the resulting solution at room temperature. They have been characterized by elemental analyses, spectroscopic techniques (FT-IR and UV-Vis), conductance measurements and magnetic susceptibility studies. Single crystal X-ray structure determination showed that complexes **1** and **3** crystallize in the monoclinic system P^2 ₁/c, while complex **2** crystallizes in the triclinic system P^2 ₁; all in centrosymmetric space groups. The X-ray analysis of complexes **1-3** clearly revealed their ionic structures, consisting of one complex cation, [Cu(N-hyden)₂]²⁺, and two respective arylbenzoate (o-/m-/p-methoxybenzoate) anions. The Cu(II) center in each complex is octahedrally coordinated with two tridentate N-hyden ligands, in which two nitrogen and one oxygen atom of two N-hyden ligands are coordinated trans geometries. The crystal lattices in complexes **1-3** are stabilized by non-covalent interactions such as N-H...O, O-H...O hydrogen bonding and C-H... π interactions.

Keywords: copper(II); N-(hydroxyethyl)ethylenediamine); second sphere coordination; spectroscopic techniques; X-ray crystallography

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