



Syntheses and properties of binuclear copper(II) mixed-ligand complexes involving thiodiglycolic acid. The crystal structures of $[(\text{phen})_2\text{Cu}(\mu\text{-tdga})\text{Cu}(\text{phen})](\text{NO}_3)_2 \cdot 5\text{H}_2\text{O}$ and $[(\text{H}_2\text{O})(\text{pmdien})\text{Cu}(\mu\text{-tdga})\text{Cu}(\text{pmdien})(\text{H}_2\text{O})](\text{ClO}_4)_2$.

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Mixed-ligand binuclear Cu(II) complexes involving thiodiglycolate(2-) anion and nitrogen-donor ligands in the coordination sphere of composition $[(\text{phen})_2\text{Cu}(\mu\text{-tdga})\text{Cu}(\text{phen})](\text{NO}_3)_2 \cdot 5\text{H}_2\text{O}$ (**1**) and $[(\text{H}_2\text{O})(\text{pmdien})\text{Cu}(\mu\text{-tdga})\text{Cu}(\text{pmdien})(\text{H}_2\text{O})](\text{ClO}_4)_2$ (**2**), where phen=1,10-phenanthroline, H₂tdga=thiodiglycolic acid, pmdien=N,N,N',N',N''-pentamethyldiethylenetriamine, have been prepared. Temperature dependence of magnetic susceptibility, EPR spectroscopy and single crystal X-ray analysis has been used to characterize these compounds. Magnetic susceptibility measurements over the 1.9–300 K temperature range revealed a weak antiferromagnetic interaction between two copper atoms with the exchange integral value $2J = -4.80 \text{ cm}^{-1}$ for **1** and -0.71 cm^{-1} for **2**. The bridging dianion of thiodiglycolic acid is coordinated in each of the two complexes in a different manner. Syntheses and characterization of two binuclear Cu(II) complexes bridged by thiodiglycolate(2-) anion in combination with nitrogen-donor ligands in the coordination sphere is given. The crystal structures of the complexes show well the different coordination possibilities of the dicarboxylate ligand. Magnetochemical study and EPR spectroscopy in relation to the structures is discussed.

Słowa kluczowe

Copper(II), Thiodiglycolic acid complexes, Crystal structures, EPR, Magnetic properties

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