

N,N'-bis(5-bromo-2-hydroxy-3-methoxybenzylidene)-1,3-diaminopropane Cu-4f-Cu and Cu-4f complexes : synthesis, crystal structures and magnetic properties.

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Streszczenie

Synthesis, crystal structures and magnetic studies of new heterotri- and heterodinuclear complexes having general formulae $[\text{Cu}_2\text{Ln}(\text{L})_2(\text{NO}_3)(\text{H}_2\text{O})_2](\text{NO}_3)_2 \cdot 3\text{H}_2\text{O}$ (where Ln = Ce (**1**), Pr (**2**), Nd (**3**) and La (**4**)), and $[\text{CuLn}(\text{L})(\text{NO}_3)_2(\text{H}_2\text{O})_3\text{MeOH}]\text{NO}_3 \cdot \text{MeOH}$ (where Ln = Dy (**5**) and Er (**6**)), respectively involving the Schiff base (H_2L) as main ligand are reported. The heterotrinnuclear complexes crystallize in the monoclinic space group $C2/c$ with the molecule lying on the twofold axis ($Z' = 0.5$), while the dinuclear complexes (**5** and **6**) form monoclinic crystals with space group $P2_1/n$. The lanthanide(III) cation in $\text{Cu}^{\text{II}}-\text{Ln}^{\text{III}}-\text{Cu}^{\text{II}}$ core is 10-coordinated, whereas in dinuclear compounds the coordination number for Ln(III) ion is only nine. The polyhedra formed around terminal Cu(II) ions in **1–3** have a shape of deformed tetragonal pyramid with water molecule in apical position. In crystals **5** and **6** the Cu(II) has octahedral coordination. The temperature dependence of the magnetic susceptibility and the field-dependent magnetization indicated that the interaction between Cu^{II} and Ln^{III} ions is antiferromagnetic for Ln = Ce, Pr and Nd and ferromagnetic for Ln = Dy and Er.

Słowa kluczowe

Heterotrinnuclear complexes, Heterodinuclear complexes, Schiff-base, crystal structure, magnetic properties

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