Trinuclear Cu(II) complexes of a chiral N_6O_3 amine.

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Streszczenie

Enantiopure trinuclear Cu(II) complexes **3** and **4** of macrocyclic amine **1** derived from the 3 + 3 condensation of 2,6-diformyl-4-methylphenol and (1*S*,2*S*)-1,2-diaminocyclohexane have been synthesized and characterized by ESI MS and NMR spectroscopy. The X-ray crystal structures of both complexes have been determined. The structure of the chloride derivative **3** indicates unusual combination of distorted tetragonal bipyramidal, square pyramidal and square geometries of the three Cu(II) ions bound by macrocycle **1**. The acetate complex **4** also exhibits unsymmetrical trinuclear core with the bridging and terminal acetate anions. The complexation of Cu(II) ions by macrocycle **1** has been studied using potentiometric methods and both protonation and binding constants of **1** have been determined. The distribution of the complex forms indicates cooperative binding of three metal ions by **1**. The overall magnetic behaviour for **3** corresponds to an antiferromagnetically coupled triangular system. Compound **4** shows the presence of antiferromagnetic coupling (J = −74.9(1) cm^{-1}) between the metal centers in equilateral triangular array.

Adres publiczny

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