

SYNTHESIS AND STRUCTURAL CHARACTERIZATION OF DIMERIC AND POLYMERIC COPPER(II) COMPLEXES WITH SCHIFF BASE AS LIGAND

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Abstract

Polynuclear coordination compounds derived from multidentate Schiff base ligands are a source of new materials with applications in catalysis [1], optoelectronic materials [2], and environmental applications [3]. In extension of our previous studies [4] on polynuclear materials, we report the crystal structures and spectroscopic properties of dimeric and polymeric copper(II) complexes with hexadentate Schiff base N,N'-bis[(2-hydroxybenzylideneamino)-propyl]-piperazine (**H₂L**) as ligand. Reaction of Cu(ClO₄)₂ hexahydrate with **H₂L** in the presence of triethylamine affords a polymeric structure [Cu₃L₂(μ₃-ClO₄)_{0.66}](ClO₄)_{1.33}·1.33CHCl₃ (**1**) in which the perchlorate anion acts as a tridentate ligand in a μ₃-manner binding three Cu₃L₂ units. When NaN₃ was added to the above mentioned reaction mixture a new dimeric assembly [Cu₆(C₂₄H₃₀N₄O₂)₄(N₃)₂](ClO₄)₂ (**2**) was obtained in which two azide groups bridge two Cu₃L₂ units in an end-to-end fashion. The same dimeric structure was obtained when the polymer **1** was treated with NaN₃.

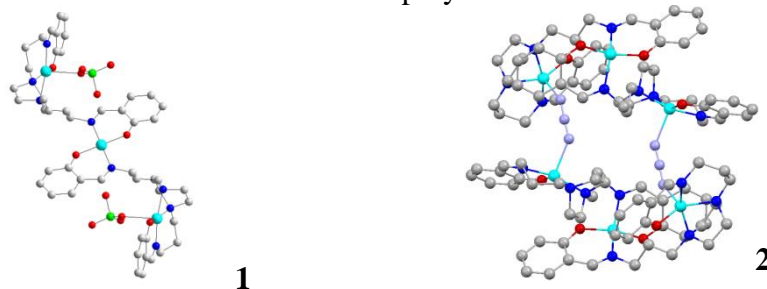


Figure 1. Molecular structure of polymeric (**1**) and dimeric (**2**) copper(II) complexes

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