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-hydroxybenzilideneamino)-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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References