

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

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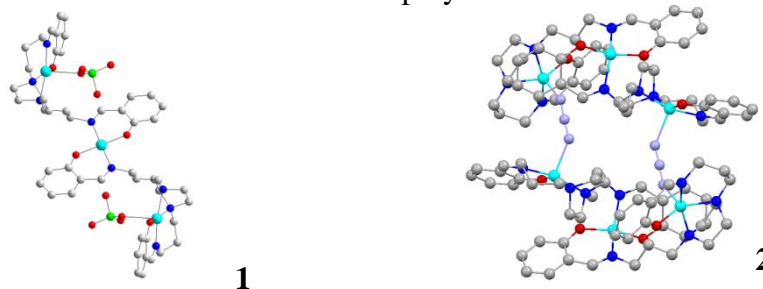
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**Abstract**

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 (**H<sub>2</sub>L**) as ligand. Reaction of Cu(ClO<sub>4</sub>)<sub>2</sub> hexahydrate with **H<sub>2</sub>L** in the presence of triethylamine affords a polymeric structure [Cu<sub>3</sub>L<sub>2</sub>(μ<sub>3</sub>-ClO<sub>4</sub>)<sub>0.66</sub>](ClO<sub>4</sub>)<sub>1.33</sub>·1.33CHCl<sub>3</sub> (**1**) in which the perchlorate anion acts as a tridentate ligand in a μ<sub>3</sub>-manner binding three Cu<sub>3</sub>L<sub>2</sub> units. When NaN<sub>3</sub> was added to the above mentioned reaction mixture a new dimeric assembly [Cu<sub>6</sub>(C<sub>24</sub>H<sub>30</sub>N<sub>4</sub>O<sub>2</sub>)<sub>4</sub>(N<sub>3</sub>)<sub>2</sub>](ClO<sub>4</sub>)<sub>2</sub> (**2**) was obtained in which two azide groups bridge two Cu<sub>3</sub>L<sub>2</sub> units in an end-to-end fashion. The same dimeric structure was obtained when the polymer **1** was treated with NaN<sub>3</sub>.



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

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**References**

- [1] K.C. Gupta, A. K. Sutar, *Coord. Chem. Rev.* 252(2008)1420.
- [2] C.M. Che, C.C. Kwok, S.W. Lai, A.F. Rausch, W.J. Finkenzeller, N.Y. Zhu, H. Yersin, *Chem. Eur. J.* 16(2010) 233.
- [3] D. Gopi, K. Govindaraju, L. Kavitha, *J. Appl. Electrochem.* 40(2010) 1349.
- [4] C. Crețu, R. Tudose, L. Cseh, W. Linert, E. Halevas, A. Hatzidimitriou, O. Costișor, A. Salifoglou, *Polyhedron* 34(2015) 48.