

## Poster Presentation

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### Structural Characterization of Iron(III) Dinuclear Complexes

M. Fuentealba<sup>1</sup>, D. Gonzalez<sup>1</sup>, V. Artigas<sup>1</sup>

<sup>1</sup>Pontificia Universidad Católica de Valparaíso, Instituto de Química, Valparaíso, Chile

Dinuclear complexes have been studied for different purposes: magnetic materials[1], Non-linear optics materials[2], molecular switches [3], mixed-valence systems, etc. With these antecedents in mind, we present in this work a new series of dinuclear Iron(III) complexes formed by different Schiff bases ligands. The reaction starting from the iron chloride salts with the 5-chloro or 5-bromo-salicylaldehyde and ethylenediamine yields two different kinds of dinuclear iron complexes in different reaction conditions. The first one (Fig N°1), are methoxo-bridged dinuclear iron(III) complexes in which each metal centre is coordinated with one mono-condensated Schiff base ligand, one 4-chloro or 4-bromo-2-(dimethoxymethyl)phenoxo ligand and two bridging methoxo ligands. The iron(III) centres are hexacoordinated (FeN<sub>2</sub>O<sub>4</sub>), the coordination sphere is formed by 2 nitrogen atoms of the ethylenediamine fragment, 2 oxygen atoms from the hydroxyl of the Schiff base and two O atoms from the methoxo ligands. Both iron(III) centres are related by a inversion centre. The second one (Fig N°2), the dinuclear complex is formed for the double condensation of ethylenediamine with 5-chloro or 5-bromo-salicylaldehyde and one oxygen from the dianionic ligand act as bridge with another unit. The iron (III) centres are also hexacoordinated (FeN<sub>2</sub>O<sub>3</sub>Cl) formed by 2 nitrogen atoms from ethylenediamine fragment and 3 oxygen atoms from hydroxyl from Schiff base ligands and one chloro ligand. Finally, the electronic and redox properties have been studied by UV-Visible and cyclic voltammetry. ACKNOWLEDGMENT FONDECYT N° 1130640, FONDEQUIP EQM120095 and Beca CONICYT folio 21130944

[1] P. Gütllich , H. A. Goodwin , *Topics in Current Chemistry Vols. 233–235: Spin Crossover in Transition Metal Compounds*, Springer,Vienna, (2004), [2] A. Karakas, A: Elmali, H. Unver, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 68, 3, (2007), 567-572, [3] Y. Garcia, C. Grunert, S. Reiman, et al., (2006),. *Eur. J. Inorg. Chem.*, 2006, 3333–3339



Figure 1.

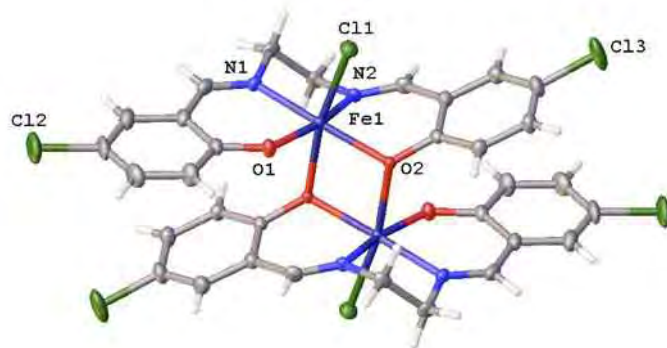


Figure 2.

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