

*Structural characterisation of pentacoordinated Iron(III) complexes [Fe(Hsalpm-5-R)Cl₂].*Vania Artigas¹, Paul G. Waddell², Michael R. Probert², Mauricio Fuentealba¹¹Instituto De Química, Pontificia Universidad Católica De Valparaíso, Valparaíso, Chile, ²Department of Chemistry, Newcastle University, Newcastle, United Kingdom
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Spin-Crossover properties of homoleptic iron(III) complexes containing two tridentate Schiff base ligands [FeN₄O₂] has been reported in the last decade [1-2]. However, to the best of our knowledge, just one example of a heteroleptic iron(III) coordination compound with Spin-Crossover properties has been published recently [3]. According to this, and with the aim of developing new materials with Spin-Crossover properties, we carried out the synthesis of three pentacoordinated iron(III) complexes [Fe(Hsalpm-5-R)Cl₂] (Hsalpm-5-R= N-(pyridin-2-ylmethyl)-5-methoxy-salicylideneamine), N-(pyridin-2-ylmethyl)-5-Bromo-salicylideneamine) and N-(pyridin-2-ylmethyl)-5-Chloro-salicylideneamine). These complexes are likely precursors to obtain new heteroleptic Iron(III) complexes containing different tridentate Schiff base ligands.

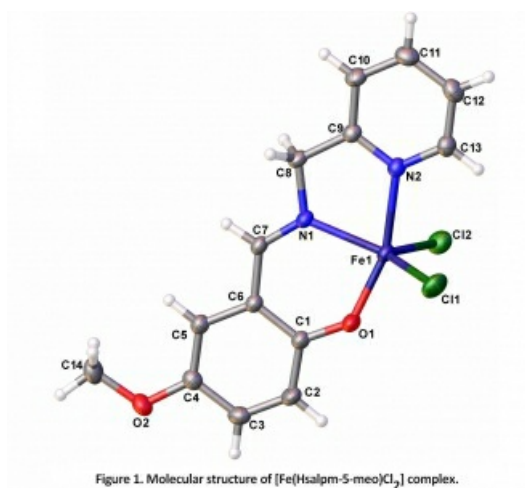
The iron(III) complexes were synthesised via reaction between the Schiff base N₂O ligand Hsalpm-5-meo, Hsalpm-5-Br and Hsalpm-5-Cl with excess Iron(III) chloride using a Schlenk tube equipped with a condenser. The reaction mixture was heated under reflux for 3h, and the resulting solution was allowed to evaporate slowly for 2 weeks to obtain suitable single crystals (Figure 1.).

The structural characterisations showed, in all cases, that the iron(III) centre is pentacoordinated and the coordination polyhedron can be described as a distorted trigonal bipyramid formed by the two nitrogen atoms and one oxygen from the Schiff base ligand and two chloride ligands.

[1] Zhang, L. et al. (2010) Chem Commun (Camb), 46, 2554–2556.

[2] Harding, D. J. et al. (2016) Coord. Chem. Rev., 313, 38-61.

[3] Phonsri, W. et al. (2016) Chem. Commun., 52, 1443-1446.



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