

Title: **Synthesis of coordination complexes Fe^{III}/Ln^{III} with chiral Schiff bases. Magnetic study.**

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In the MAGMOL research group a star-shaped Fe₄ structure [1] was previously synthesized and the main objective of this work has been to substitute the central Fe^{III} cation by one Ln^{III} cation (Fe₃Ln) with the purpose of studying its magnetic molecular behavior. The 'star-shaped' tetra-iron structure is a well-known kind of cluster synthesized by other groups [2] with other ligands. However, little work has been done with lanthanides in the central position of the star-shaped structure [3][4], being unprecedented with Schiff bases as ligands.

Many coordination compounds varying lanthanides and the stoichiometry of the reaction were synthesized in order to achieve the aforementioned target. The work was carried out using enantiomerically pure chiral Schiff bases as ligands. Afterwards, these coordination compounds were characterized by magnetic measurements.

The expected results were obtained for heavy lanthanides, however this was not achieved with light lanthanides, as they do not react equally and this condition gives the non-substituted Fe₄ structure that is shown below.

Although the crystal structure containing lanthanides could not be obtained during the research, magnetic measurements of some samples did point out the presence of lanthanides in their structures.

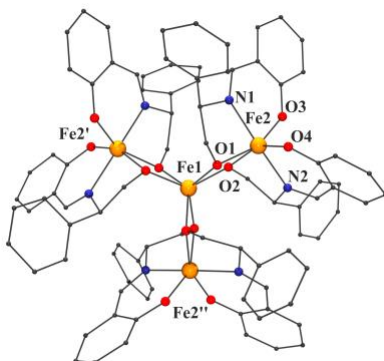


Figure S1. Star-shaped Fe₄ structure.

Keywords: Iron complexes, Schiff bases, magnetic measurements, chirality.