Title: Fe (II) cyanidocomplexes with isocyanido ligands

Student: Pol Domínguez García

Date: June 2019

Supervisor/s: Dra. Montserrat Ferrer García

Departament of Química inorrgànica i orgànica

The aim of this work is to synthesize precursors of bimetallic or polymetallic complexes between iron (II) and cobalt (III) with an azo group. To do so, it has been thought of using isocyanides as bridges. Furthermore, these ligands should stabilize iron (II) complexes as they are easily oxidated to iron (III) due to π acceptor properties.

First, simple alkyl isocyanides with one donor atom have been introduced to the initial iron (II) complex to see if their synthesis was successfully. Later on, more specific isocyanides with an azo group and two donor atoms have been synthesized. These iron (II) isocyanides could be used as precursors to form polymetallic complexes and these azo coordinated compounds could be studied as they have interesting photochemical characteristics.

The synthesized isocyanides have been characterized by MS-ESI, ¹H NMR, ¹³C NMR, IR, UV-Visible and cyclic voltammetry,

Keywords: Isocyanides, iron (II) isocyanides, cation exchange, cyclic voltammetry, polymetallic complexes.