

Title: **Preparation of cyclen- and cyclam- based tetradentate ligands and study of their Co(II), Co(III), Fe(II) and Fe(III) coordination compounds.**

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The aim of this project is the synthesis of 4,11-dimethyl-1,4,8,11-tetraazabicyclo[6.6.2]hexadecane and 4,10-dimethyl-1,4,7,10-tetraazabicyclo[5.5.2]tetradecane. To do this, it was necessary to carry out a bibliographic research where it has been seen that the best synthesis was described by Weisman several decades ago. In recent years, the reaction conditions have been modified by other researchers. With this in mind, we have tried to determine the most suitable ones to carry out the synthesis.

In addition, an exhaustive bibliographic study of the complexes formed between these ligands and transition metal ions as Co(II)/Co(III) and Fe(II)/Fe(III) has been undertaken in order to know their synthetic methods and the kind of studies that have been conducted with them. Special attention has been paid to their use as building blocks in the formation of polymetallic species.

Keywords: cross-bridged cyclam, cross-bridged cyclen, cobalt coordination compounds, iron coordination compounds.