Dependence of $[\text{Fe}^{\text{II}}(L_x)]$-NO binding on Aminocarboxylate Ligand structure: Changes in both non-chelating and chelating atoms

Ryan Hutcheson

I. Introduction
   a. Seven-coordinate nature of $\text{Fe}^{\text{II}}$(EDTA/MIDA) complexes
   b. Structural changes to ligands
      i. EDTA analogs
      ii. MIDA analogs
      iii. Unrelated ligands

II. Techniques
   a. UV/VIS
      i. Metal d-d transitions
      ii. Metal-Ligand ($\text{Fe}^{\text{II}}$-$\text{Fe}^{\text{III}}$) Charge-Transfer transitions
   b. ATR-IR
      i. N-O stretching/bending
   c. Cyclic Voltammetry
      i. Oxidation/Reduction center of $\text{Fe}^{\text{II/III}}$(Lx) complex
      ii. Structural dependence of $\text{Fe}^{\text{III}}$EDTA oxidation

III. Results
   a. UV/VIS – reversible vs. irreversible binding of NO
   b. ATR-IR – NO orientation to metal center (linear vs. bent)
   c. Voltammetry – Stabilization of $\text{Fe}^{\text{II}}$ state

IV. Conclusions
   a. Correlation between three techniques – overlapping evidence
   b. Structural dependence of $\text{Fe}^{\text{II}}$-NO stability constant
   c. Structural dependence of NO reduction
   d. Why $\text{Fe}^{\text{II}}$-NO binding

V. References
   a. Have yet to find (I know what it is)