

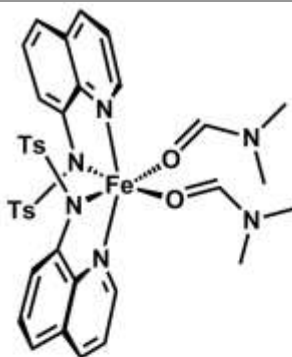
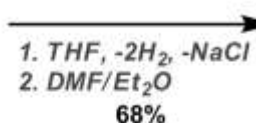
Synthesis and Characterization of Substituted Iron(II) Sulfonamides

Mattson Mathey

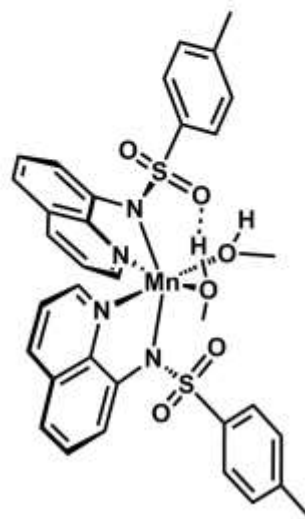
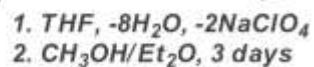
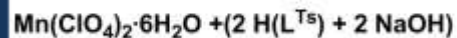
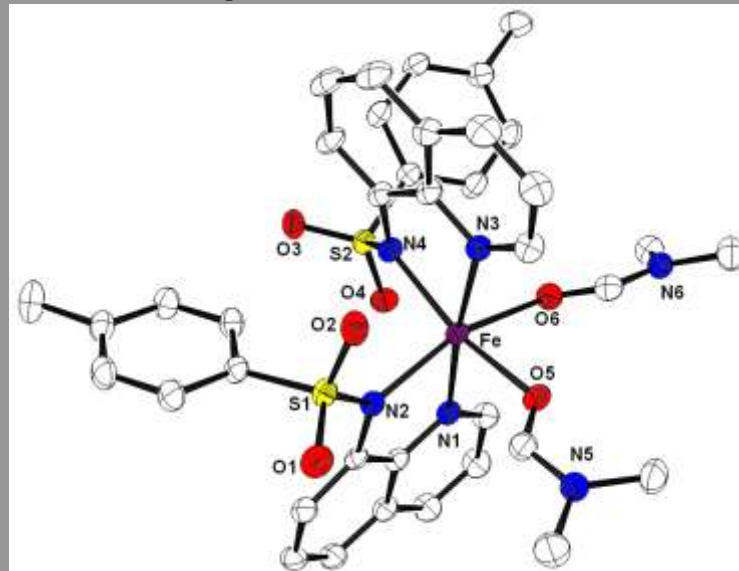
**Department of Chemistry #3838, University of
Wyoming, Laramie, WY 82071**

30 April 2011

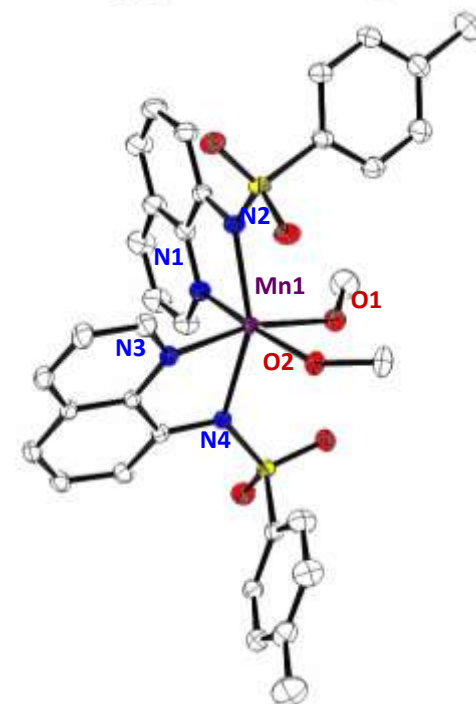
Parent Ligand and Complex



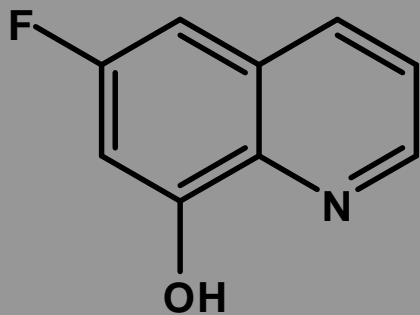
cis-[Fe(L^{Ts})₂(CH₃OH)₂]



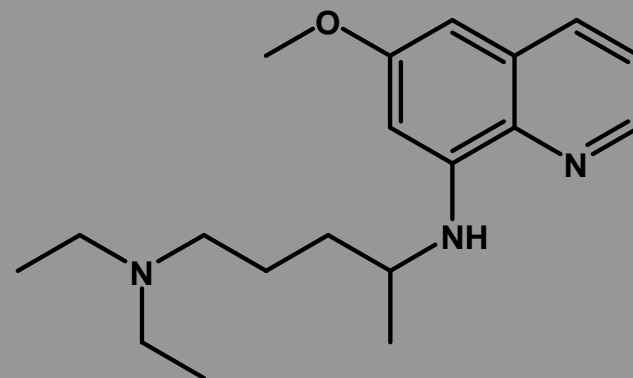
cis-[Mn(L^{Ts})₂(CH₃OH)₂]



Biological Importance



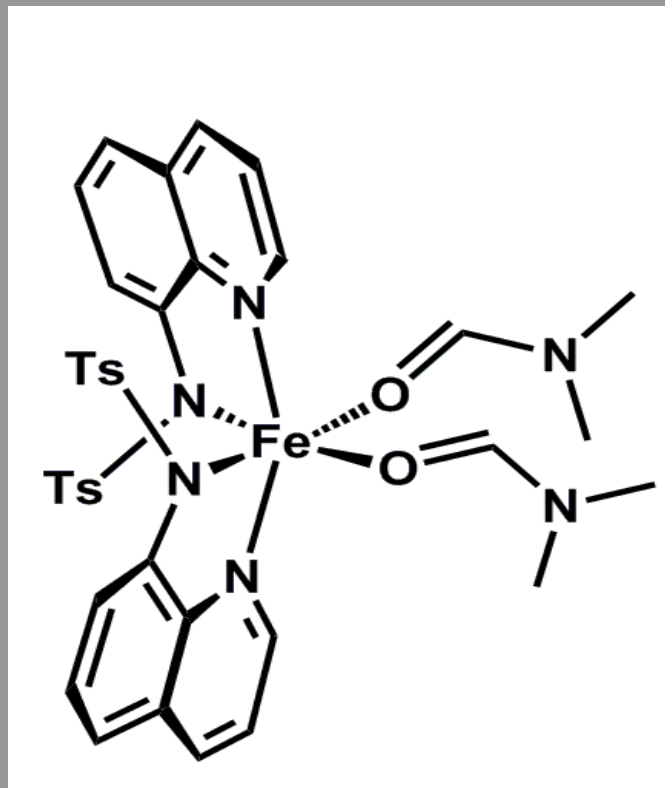
6-fluoro-8-quinolinol



Pamaquine

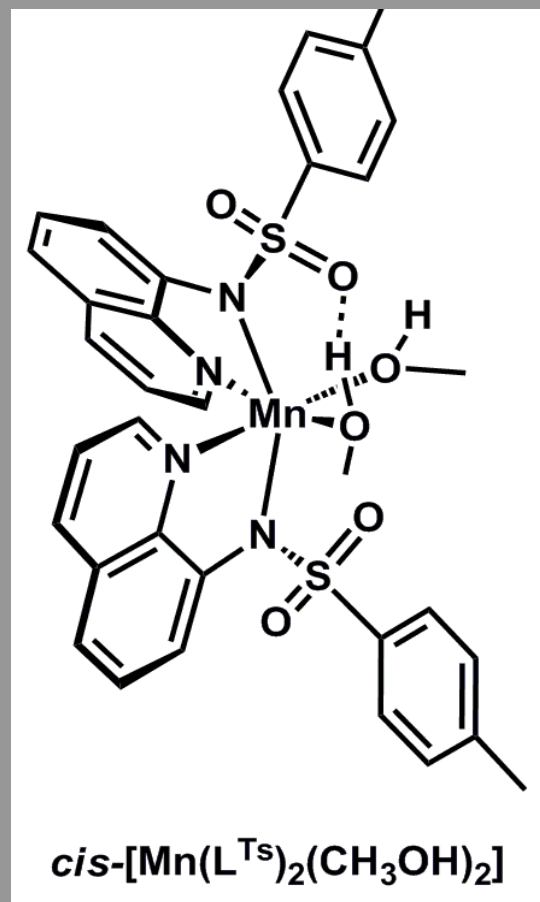
Gershon, H. et. al.; *Monatshfte fur Chemie*. 2002, 133, 1439.
Sveinbjornsson, A. et. al.; *J. Org. Chem.* 1951, 16, 1450
Elderfield, R. et al.; *JACS*. 1946, 68, 1524
Erhardt, S. et al; *Physiol. Behav.* 2007, 92, 203-209

Biological Importance



$cis-[Fe(L^{Ts})_2(DMF)_2]$

$IC_{50}=20 \mu M$

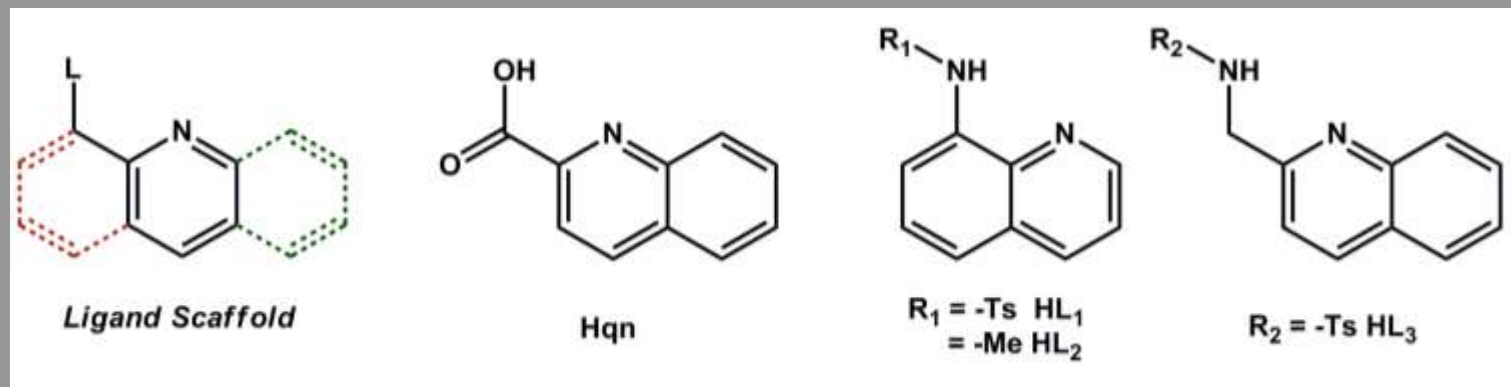


$cis-[Mn(L^{Ts})_2(CH_3OH)_2]$

$IC_{50}=3.4 \mu M$

Values obtained from Mehn/Mandal collaboration

Why quinoline derived ligands?

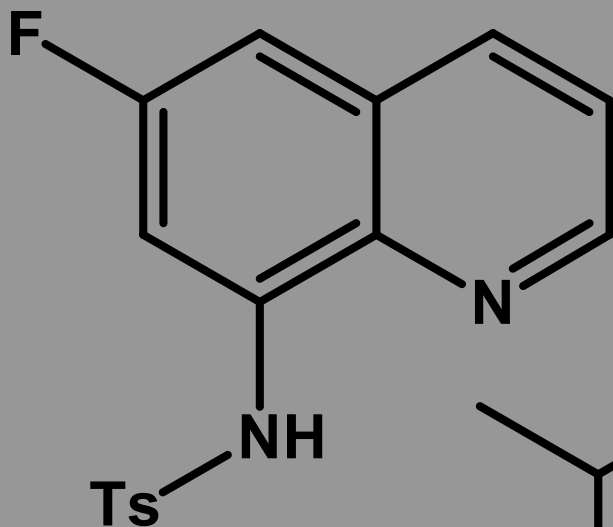


- Bidentate anionic ligands.
- Tunable Sterics and Electronics
 - Using Skraup and Doebner Miller Synthesis

Target Ligands

8-aminotosyl-6-fluoroquinoline

6-F-L^{Ts}



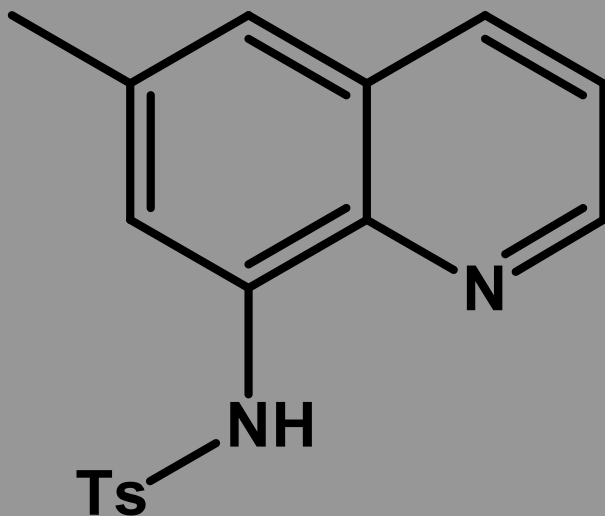
8-aminotosyl-5-methylquinoline

5-Me-L^{Ts}



8-aminotosyl-6-methylquinoline

6-Me-L^{Ts}

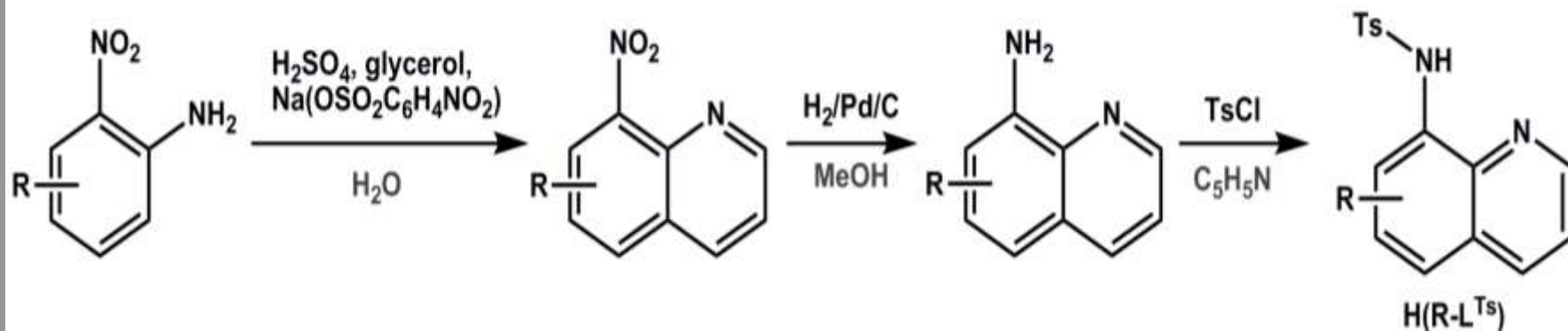


General Scheme

Skraup

Hydrogenation

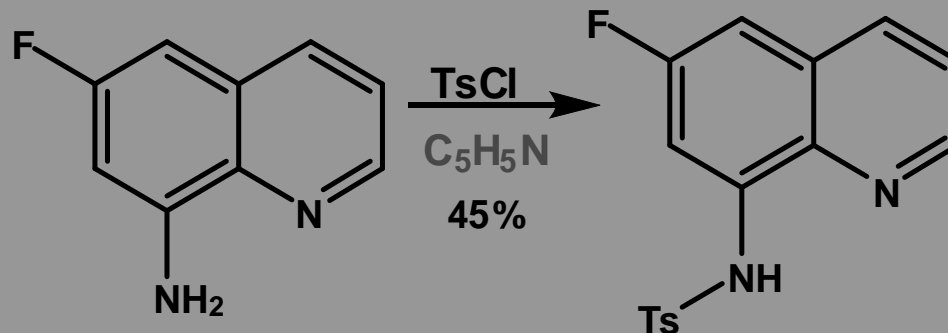
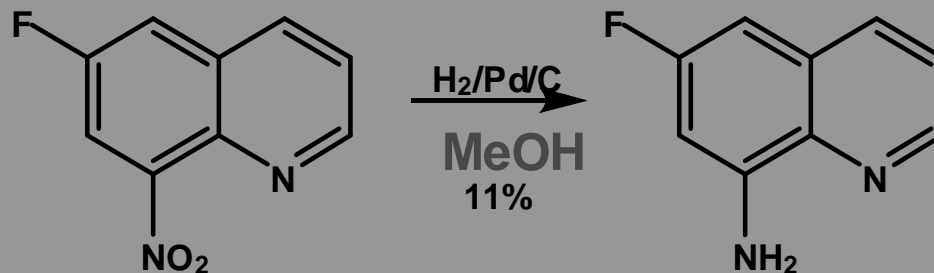
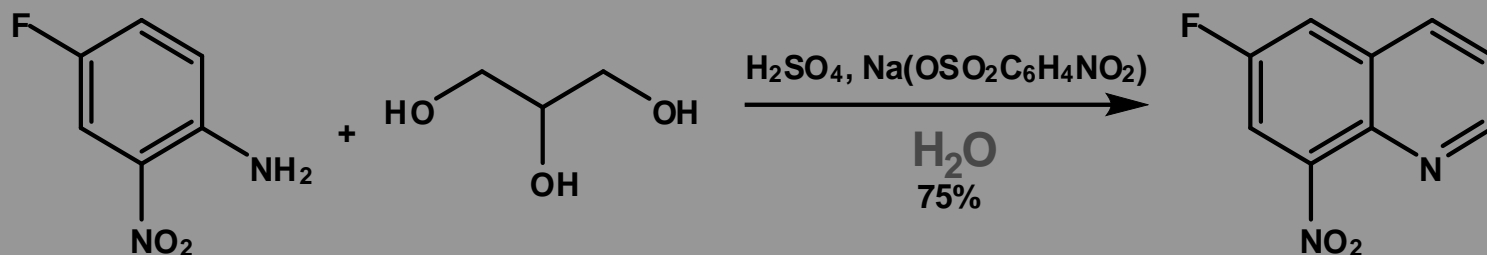
Tosylation



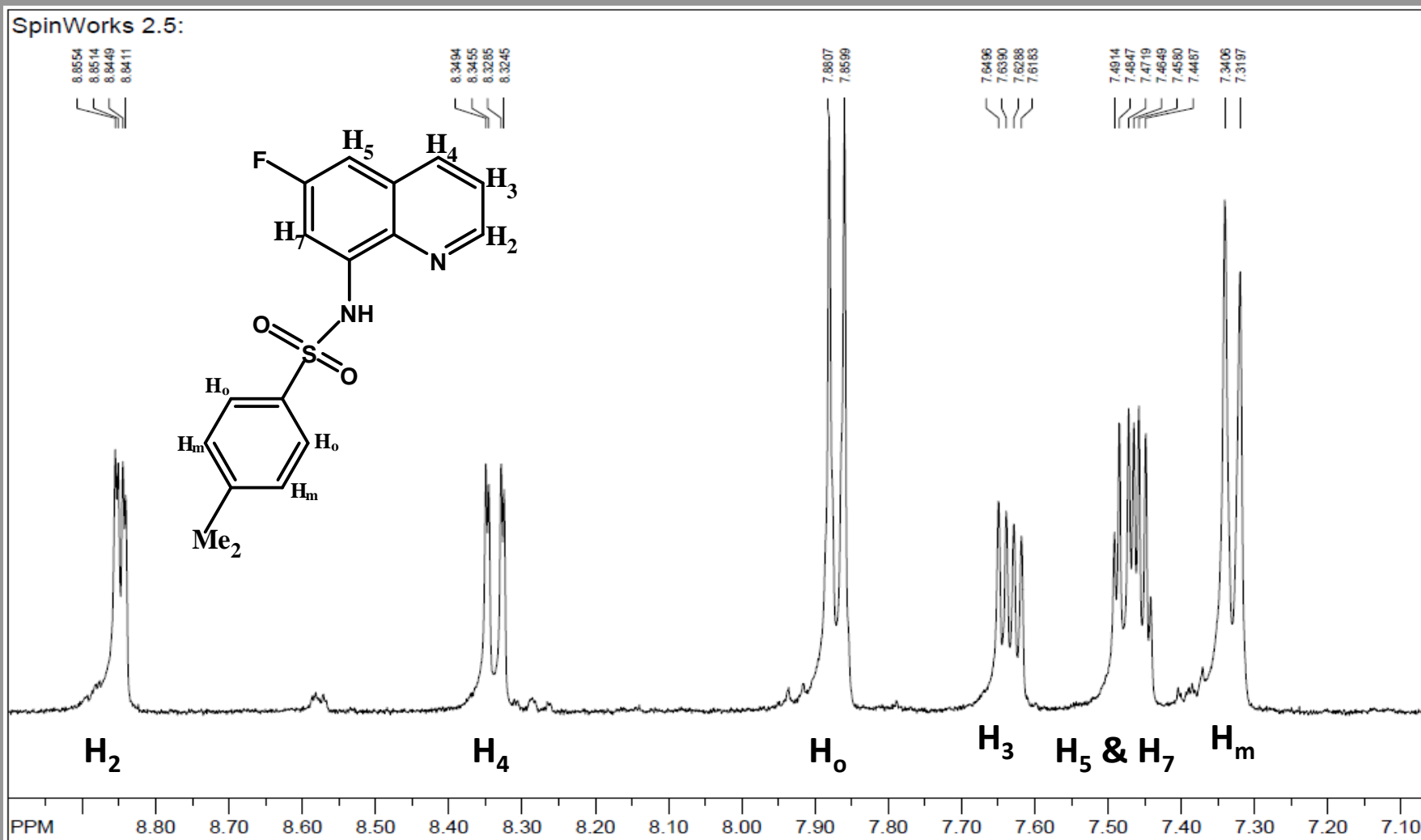
Metallation



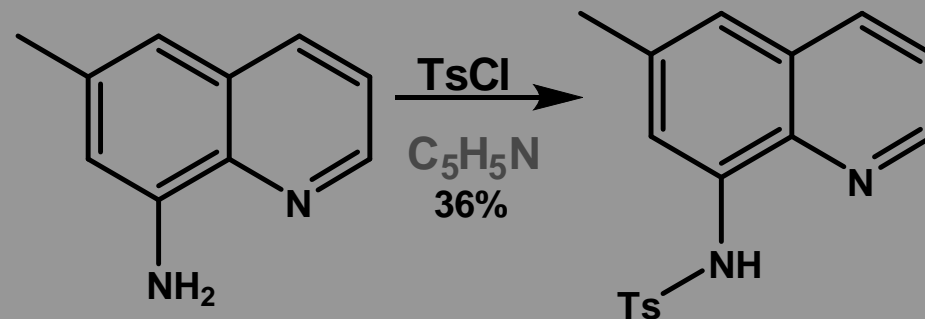
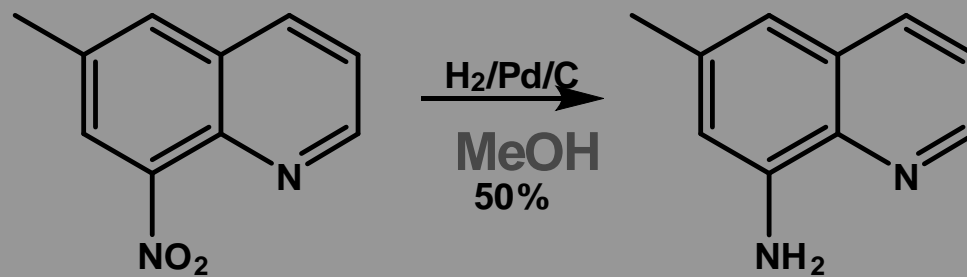
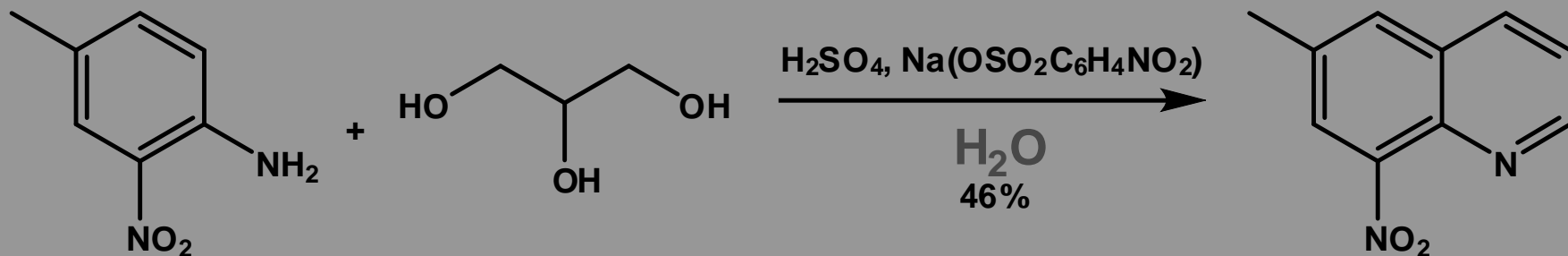
Synthesis of 8-aminosyl-6-fluoroquinoline



8-aminotosyl-6-fluoroquinoline

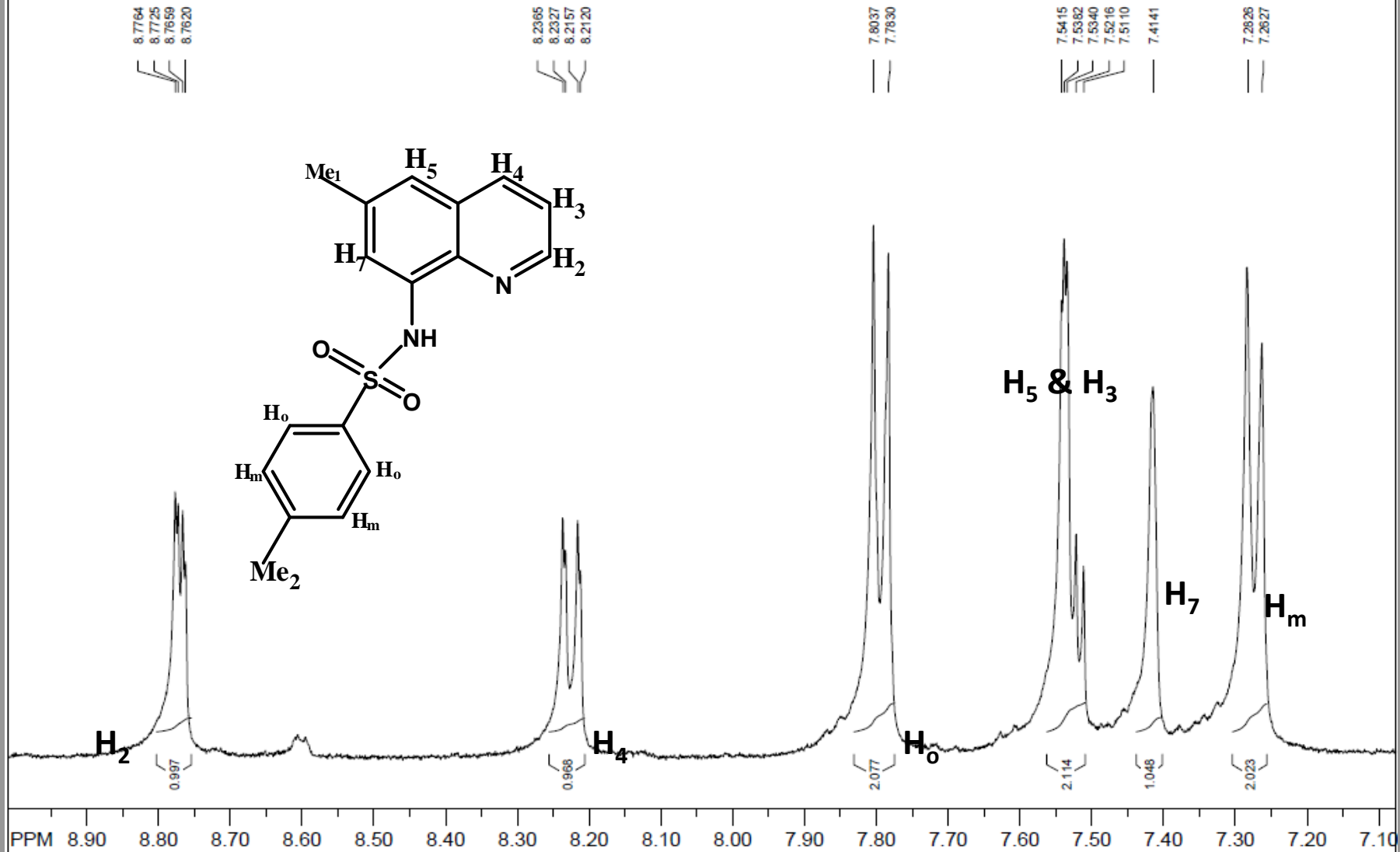


Synthesis of 8-aminotosyl-6-methylquinoline

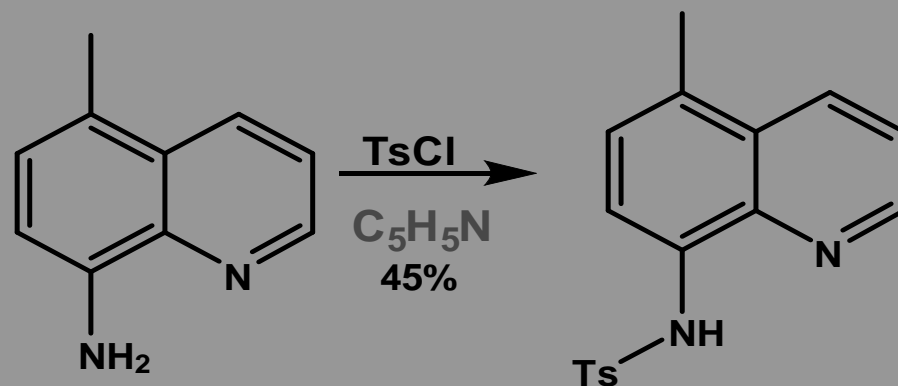
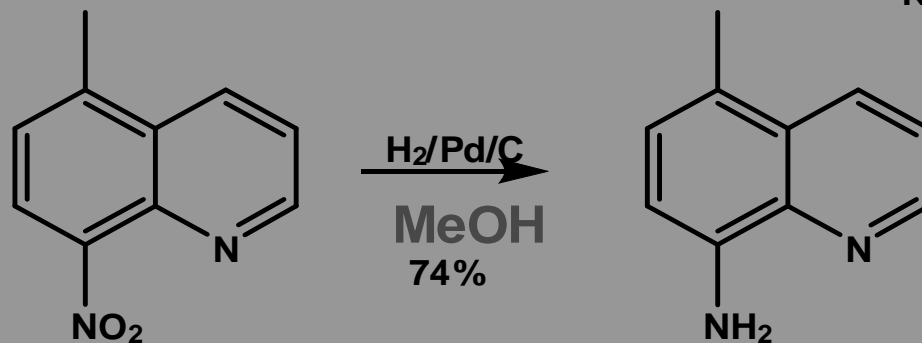
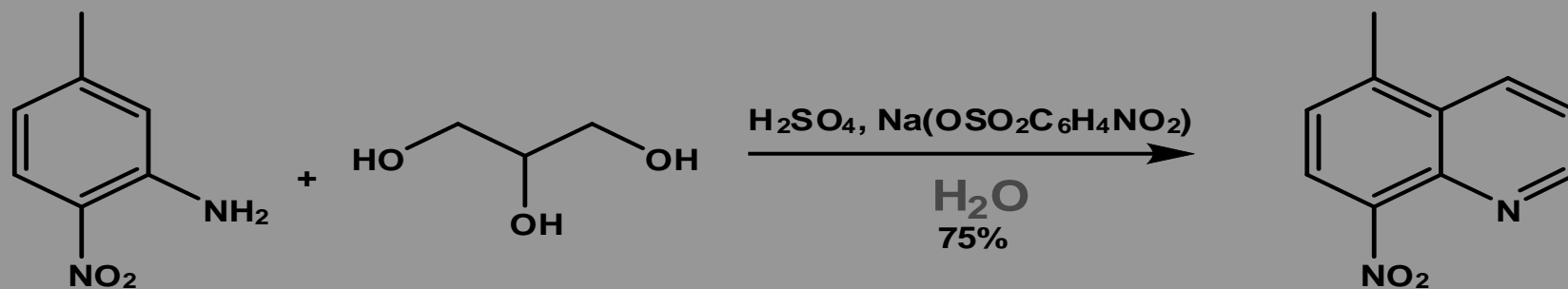


8-aminotosyl-6-methylquinoline

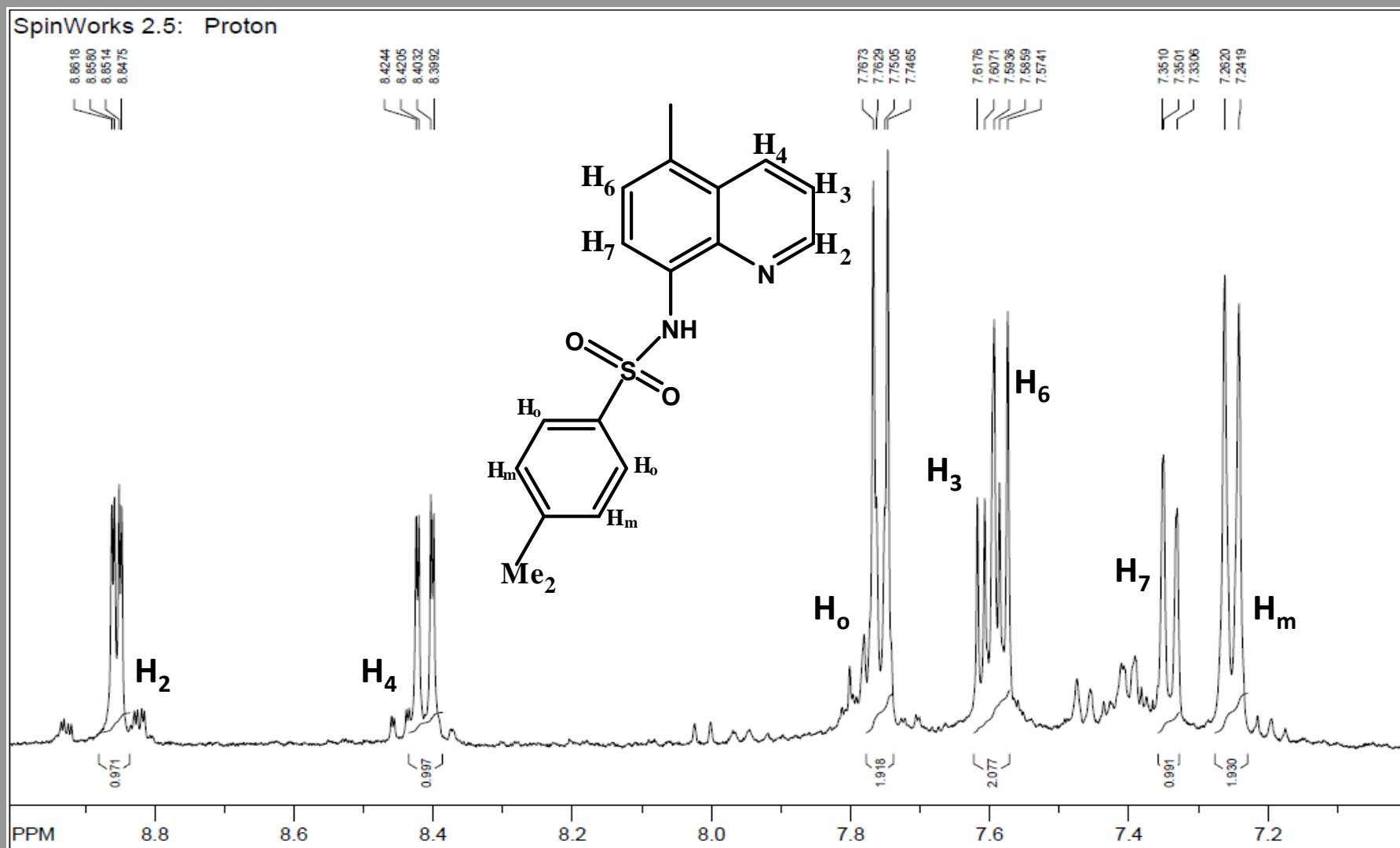
SpinWorks 2.5: Proton



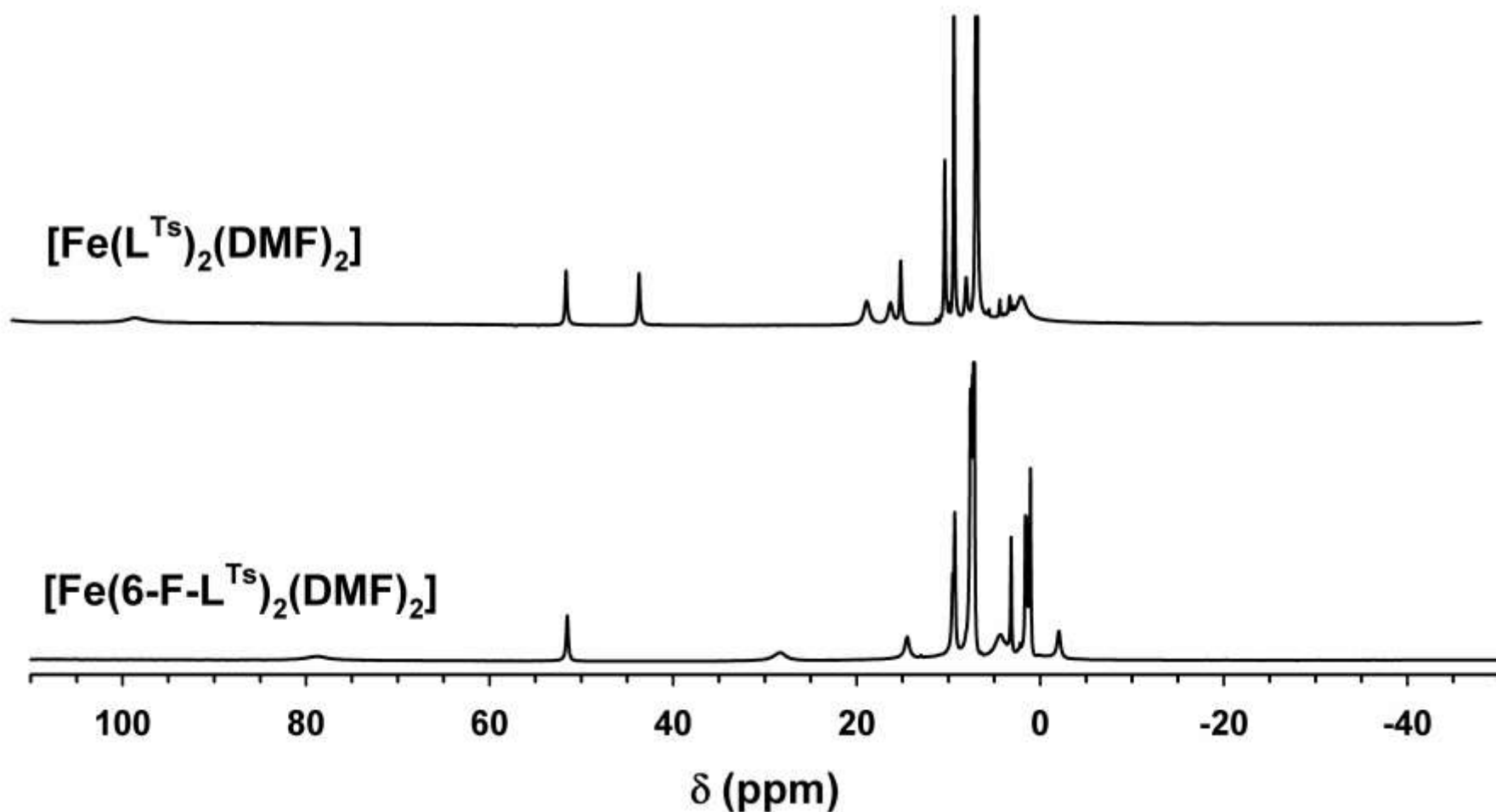
Synthesis of 8-aminotosyl-5-methylquinoline



8-aminotosyl-5-methylquinoline



NMR Using Paramagnetic Parameters



Acknowledgments

- I thank 😊
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