Apr 10th, 9:00 AM - 10:00 AM

Synthesis of a Thirty Member Macrocycle For Use in Host-Guest Chemistry

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Poster Presentation P29

SYNTHESIS OF A THIRTY MEMBER MACROCYCLE FOR USE IN HOST-GUEST CHEMISTRY

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Host-guest chemistry is the study of non-covalent interactions between container molecules and their neutral or ionic guests. Host-guest chemistry has applications in the pharmaceutical and frangrance industries and in the development of chemical sensors. The host-guest chemistry of interest in this study is that between polyoxometalate guests and azamacrocyclic hosts. A polyoxometalate is large polyatomic anion composed of early transition metal atoms, oxygen atoms, and sometimes heteroatoms. In this work, a thirty-membered macrocycle, that contains amine groups (Figure 1) is being prepared as a host for polyoxometalate guests. The two part synthetic strategy employed was first reported by Korendovych et. al for a related macrocycle. Under neutral conditions, the amine groups of the macrocycle will be able to interact with the polyoxometalate through ion-dipole forces. Under acidic conditions, the amine groups would be protonated, and the resulting ammonium groups would interact with the polyoxometalate through ion-ion forces.

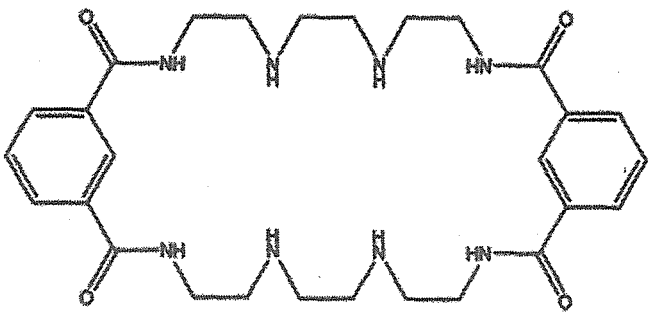

Figure 1