The Spectroscopic Analysis of Di-copper Helicates as Receptors for Encapsulating Anions

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Abstract

The application of neutral dicopper helicates to the encapsulation of a number of anions was investigated. Two dicopper salen derived helicates were studied which contained phenolic and either iminophenyl (**1**) or oxime (**2**) donor groups. UV-visible spectroscopy was used to determine the binding stoichiometry and formation constants of the anion complexes. Complex binding was supported by electrospray ionisation mass spectrometry. Receptor **1** possessed a remarkable selectivity for sulfate in isopropanol (IPA) for which a log K value of 5.07 ± 0.24 was obtained. Receptor **2** bound all anions studied more strongly than **1.** Crystal structural data supports the proposition that there is a steric barrier to contraction of **1** from the bulky iminophenyl groups. Receptor **2** was not restricted by the small oxime moieties allowing for optimum copper-anion interactions.

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