Binding and release of Sulfide and Hydrosulfide Anions in Water by Bambusuril Macrocycles

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Abstract

Hydrogen sulfide (**H_2S**) has become an important target for research due to its physiological properties and potential applications in medicine.[1-3] Many synthetic molecules have been reported as exogenous H_2S sources, which rely on chemical reactions for the delivery of the H_2S.[4-6] Bambusurils (**BU**) are a family of host macrocycles that bind inorganic and organic anions with high affinity and selectivity in both organic and aqueous media.[7-9] In this work, supramolecular binding of sulfide (**S^{2-}**) and hydrosulfide (**HS^-**) anions by a synthetic receptor in water have been studied for the first time. Bambusuril macrocycles (**BU**) were used to stabilize these anions in its cavity following by their release into water.[10]

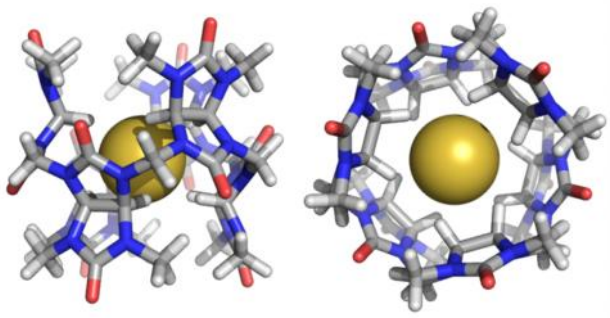

Figure 1. Energy-optimized geometry of the Bambusuril complex with sulfide anion.

Acknowledgments

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