

Bambusurils in supramolecular chemistry

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Bambusurils (**BU**) are macrocyclic molecules consisting of glycoluril units connected by one row of methylene bridges. They are formed under acidic conditions from formaldehyde and 2,4-disubstituted glycoluril in the presence of template.¹

The six membered macrocycles are potent anion receptors in both organic and aqueous solutions. They form stable inclusion complexes with inorganic as well as organic anions, provided that the negatively charged guest has sufficiently small size to fit in the flexible **BU** cavity.

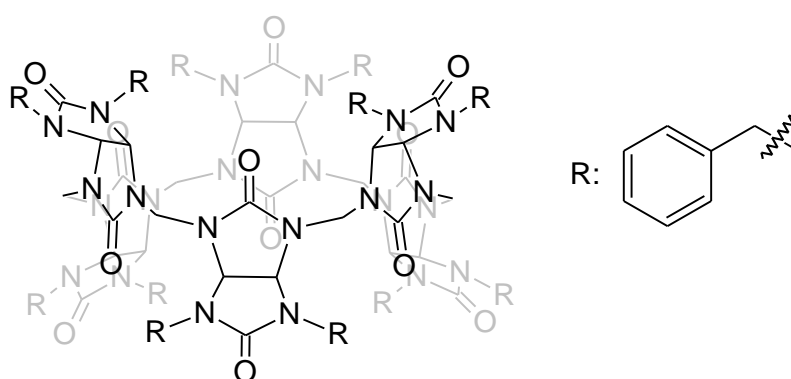


Figure 1. Dodecabenzylbambus[6]uril used in the studies.

Two supramolecular studies utilizing **BU** will be presented:

In the first study an interesting phenomena was observed in chloroform where the stoichiometry of complexes with organic anions can be influenced by the presence or absence of water molecules. Complexes mediated by water molecules are important in natural systems and this supramolecular structure represents a novel example of an artificial system.²

In the second study an application of **BU** as an anion receptor will be presented. Based on its selective response towards various anions as detected by NMR spectroscopy we were able qualitatively and quantitatively analyze complex mixtures of NMR inactive anions.³

1. J. Svec, M. Necas and V. Sindelar, *Angew. Chem., Int. Ed.*, 2010, **49**, 2378–2381.
2. V. Havel, V. Šindelář, M. Nečas and A. E. Kaifer, *Chem. Commun.* 2014, **50**, 1372–1374.
3. V. Havel, M. A. Yawer and V. Šindelář, *Chem. Commun.*, 2015, DOI: 10.1039/C4CC10108A.