Poster

Macrocyclic molecules as potential drugs carriers

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The design and synthesis of water-soluble, synthetic macrocycles as artificial receptors and biomimetic models for enzymes has been a major subject of interest in recent years. Self-assembly of such synthetic receptors with biorelevant molecules is a powerful tool to understand, model and mimic biological systems and developing new materials with specific properties and functions.

The aim of this presentation is to summarize the up-to date knowledge about the solid-state interactions of some water-soluble macrocyclic molecules with biological compounds. Water-soluble calixarenes, cucurbituriles and cyclodextrins have been chosen due to their good aqueous solubility, low toxicity, interesting biological activities, and ability to generate a wide range of structural variations in solid state complexes. The presence of polar groups and a hydrophobic cavity coupled with hydrogen bonding capability makes these host species complementary, in the sense of supramolecular chemistry, to many molecules of biological interest.

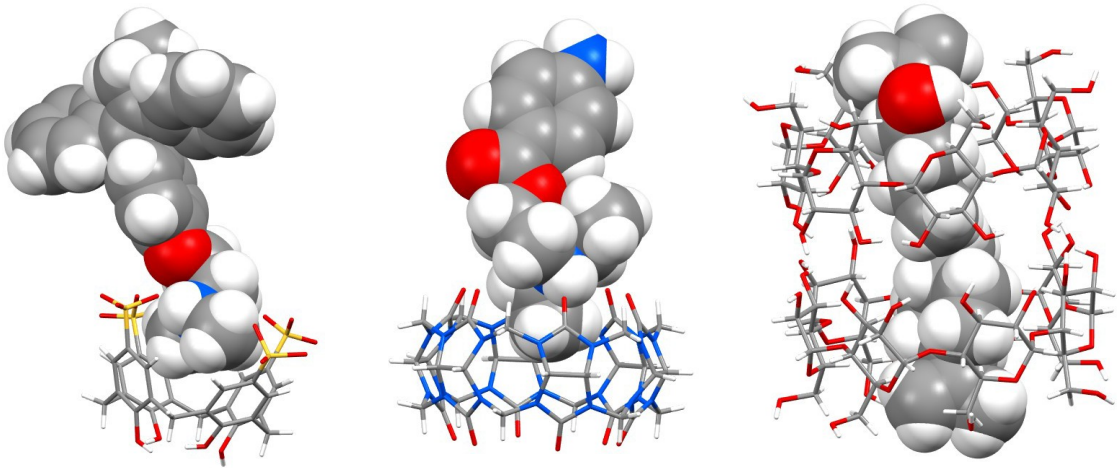

Figure 1. Examples of inclusion of biologically active molecules by: (a) calix[4]arene, (b)cucurbit[6]uril and (c) β-cyclodextrin.