

INCLUSION COMPLEXES OF CUCURBIT[6]URIL WITH ACTIVE PHARMACEUTICAL INGREDIENTS

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The supramolecular complexation of the pharmaceutically active molecule with the macrocyclic receptor offers the opportunity to manipulate physicochemical properties of the active molecule and control its conformation in the solid state.

Cucurbit[*n*]urils (*n* = 5-10) are pumpkin-shaped macrocyclic cavitands that can be readily synthesized in high yields from cheap starting materials, glycoluril and formaldehyde in acidic media. The cucurbituril hydrophobic cavity is accessible through two symmetrical carbonyl lined portals and is able to partially or fully encapsulate a range of guest molecules¹. The molecular recognition properties of these amphiphiles are of interest in nanochemistry where they have potential application in building up new synthetic materials, and in medicinal applications which include drug delivery and sensing.

The solid-state structures of cucurbit[6]uril complexes with Active Pharmaceutical Ingredients (API) will be presented. The structural characterization of the supramolecular systems formed by the complexation of API with the cucurbituril provides valuable chemical information on stoichiometry, geometry and interaction mode between host and guest and is crucial for the development of novel biomaterials, selective sensors, new therapeutics and smart drug delivery systems.

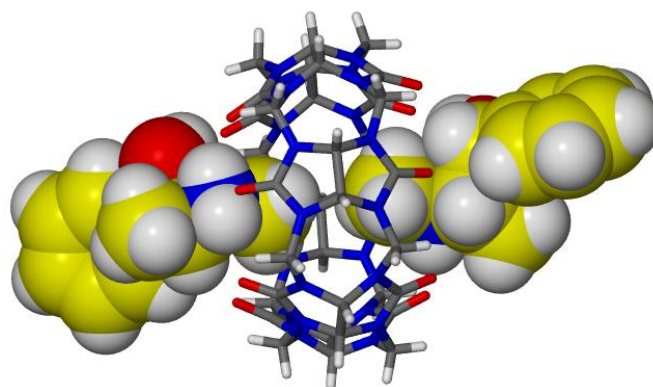


Fig.1 Inclusion complex of cucurbit[6]uril with ephedrine.

1. Isaacs L., *Chem. Commun.* 619 (2009).