MS35-P04 | STRUCTURAL STUDIES OF THE HOST-GUEST COMPLEXES OF CARBOXYLATED PILLAR[N]ARENES

Butkiewicz, Helena (Institute of Physical Chemistry Polish Academy of Sciences, Warsaw, POL); Kosiorek, Sandra (Institute of Physical Chemistry Polish Academy of Sciences, Warsaw, POL); Danylyuk, Oksana (Institute of Physical Chemistry Polish Academy of Sciences, Warsaw, POL); Sashuk, Volodymyr (Institute of Physical Chemistry Polish Academy of Sciences, Warsaw, POL)

"Pillar[n]arenes, first reported by Ogoshi in 2008 [1], are highly symmetrical pillar-shaped compounds composed of n hydroquinone units. They also have many hydroxyl groups on both rims. These features and their rigid hydrophobic, electron-rich cavity make them great candidates as host molecules for various electron-deficient or cationic guests. My project focuses on water soluble pillar[n]arenes substituted by carboxyl groups (CPA[n]). Under basic conditions, there are negatively charged carboxylate centers, making the CPA[n] to act as receptors for cations in water. Moreover, these carboxyl groups are located at the terminal positions of flexible aliphatic chains, so they can adjust to the size and shape of guest molecules. Here we want to present X-ray structure of the carboxylic acid substituted pillar[5]arene in the form of its host–guest complexes with viologen derivatives. These studies provide new information on the formation of the host-guest complexes of CPA[n] with viologen derivatives, the interactions responsible for their formation and the aggregation of the molecules in the crystal lattice. In a broader perspective it may have potential applications in drug delivery and molecular recognition systems.

[1] T. Ogoshi, S. Kanai, S. Fujinami, T. Yamagishi, Y. Nakamoto; J. Am. Chem. Soc., 2008, 130, 15, 5022–5023"