Journal of Physical Organic Chemistry 2012 vol.25 N12, pages 1177-1185

Self-assembly of p-tert-butyl thiacalix[4]arenes and metal cations into nanoscale three-dimensional particles

Stoikov I., Yushkova E., Bukharaev A., Biziaev D., Selivanovskaya S., Chursina M., Antipin I., Konovalov A., Zharov I.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

The shape of supramolecular aggregates based on stereoisomers of p-tert-butyl thiacalix[4]arenes functionalized with secondary, tertiary amide and hydrazide groups at the lower rim in cone, partial cone and 1,3-alternate conformations with several metal cations were investigated by atomic force microscopy. The examined p-tert-butyl thiacalix[4]arenes form host-guest complexes; dimers, spherics ellipsoids and elongated nanoscale particles depending on the conformation of macrocycles, the nature of the binding centers and the nature of the metal cation. Only associates formed by p-tert-butyl thiacalix[4]arenes with morpholide groups at the lower rim in cone conformation with silver cations exhibited a higher antimicrobial activity.

http://dx.doi.org/10.1002/poc.2981

Keywords

atomic force microscopy, p-tert-butyl thiacalix[4]arenes, self-assembly