Design and Crystallographic Characterization of Multi-Porphyrins Complexes

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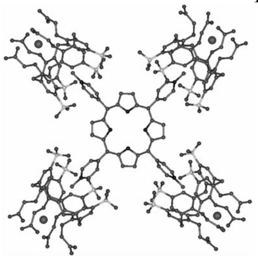
The interactions of the tetracationic *meso*-tetrakis(4-N-methyl-pyridyl)porphyrin (H_2T4) and its metallo-derivatives (MT4) with the octa-anionic form (at neutral pH) of 5,11,17,23tetrasulfonato-25,26,27,28-tetrakis(hydroxycarbonylmethoxy)calix[4]arene (C_4TsTc) leads to a series of complex species whose stoichiometry and porphyrin sequence can be easily tuned. X-ray solid state and solution studies suggest a picture where a central 1:4 (porphyrin to calixarene) unit (Figure) serves as template for obtaining more complex species. The latter arise by step-wise addition of porphyrin molecules above and below the plane of the 1:4 core, allowing to tune the species stoichiometry up to 7:4 [1]. Structural results, reported here strongly suggest that the interactions between the anionic calixarenes and cationic porphyrins are not significantly influenced by the presence of tetra-coordinated metals in the porphyrin core. Finally, an application of the homo-porphyrin complexes as sensors of spermine is reported.



[1] a) Di Costanzo L., et al., *Angew. Chem. Int. Ed. Engl.*, 2001, **40**, 4245; b) Moschetto A., et al., *J. Am. Chem. Soc.*, 2002, **124**, 14536.

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