

Langmuir monolayers and thin films of amphiphilic thiacalix[4]arenes. properties and matrix for the immobilization of cytochrome c

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Abstract

© 2014 American Chemical Society. Formation and properties of Langmuir films of thiacalix[4]arene (TCA) derivatives containing N-donor groups on the lower rim ($Y=O(CH_2)_3CN$; OCH_2CN ; NH_2 ; $OCH_2ArCN-p$) in 1,3-alternate conformation on aqueous subphase and solid substrates have been studied. Only tetra-cyanopropoxy-p-tert-butylthiacalix[4]arene 1 forms a typical monomolecular layer with perpendicular orientation of the macrocycle relative to the water-air interface that is able to immobilize cytochrome c in the entire range of the surface pressure. Obtained monolayers were transferred by Langmuir-Schaefer technique onto quartz, indium-tin oxide (ITO), and silicon. It was demonstrated that protein activity is retained after immobilization on the substrate.

<http://dx.doi.org/10.1021/la504379v>
