

Phosphorylated amino derivatives of thiacalix[4]arene as membrane carriers: Synthesis and host-guest molecular recognition of amino, hydroxy and dicarboxylic acids

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Abstract

Promising membrane transport and separation systems for selected dicarboxylic, α -hydroxy- and α -amino acids based on thiacalixarene platform have been developed. For the first time, p-tert-butyl thiacalix[4]arenes functionalized at the lower rim with aminophosphonate fragments have been obtained and characterized. As was established by UV-vis spectroscopy, membrane extraction and HPLC, the substitution of amino groups by α -aminophosphonate units significantly enhances the selectivity of host molecules that bind to aspartic and glycolic acids. The aminophosphonate compounds synthesized can be used in the development of sensors and systems employed in the purification and separation of organic acids. Copyright © 2013 John Wiley & Sons, Ltd. Promising membrane transport and separation systems for selected dicarboxylic, α -hydroxy- and α -amino acids based on thiacalixarene platform have been developed. As was established by UV-vis spectroscopy, membrane extraction and HPLC, the substitution of amino groups by aminophosphonate units significantly enhances the selectivity of host molecules that bind to aspartic and glycolic acids. Copyright © 2013 John Wiley & Sons, Ltd.

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Keywords

α -aminophosphonates, host-guest molecular recognition, HPLC, membrane transport, organic acids, p-tert-butyl thiacalix[4]arenes