

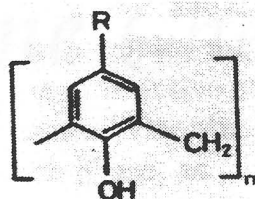
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A Comparative Study Among Acetate Calix[n]arene (n= 4, 6, 8) and a β -Diketone in the Behaviour of Uranium Extraction

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Calixarenes are a new class of macrocyclic molecules formed by 3 - 20 para substituted phenolic units linked by methylene bridges ortho to the OH functions



The calixarene family R= H or alkyl ; n = 3 - 20

Parent phenolic calixarenes as well as their chemically modified derivatives, obtained by substitution of the phenolic hydrogens with various types of ligating group are effective in complexing, extracting or transporting lanthanides, alkaline or alkaline earth metal cations. Fill reports on the binding of actinides metal ions with calixarene show their potential utility on various practical grounds.

In our laboratory we have studied acetatecalix[n]arene-based uranophiles bearing acetate group on the lower rim. They have been synthesized and the extractability (%E) and the selectivity towards uranyl ion (UO_2^{2+}) estimated in a two phase (acetate - toluene) solvent extraction system. %E for acetatecalix [n]arene/htta increases from pH4 and saturation is reached at around pH 5-7 where more than 90% extractability occurs. Extraction of UO_2^{2+} from aqueous acetate solution established that the hexaacetatecalix[6]arene/htta in organic phase can compete efficiently with Ac^- ions in the aqueous phase for UO_2^{2+} whereas in tetraacetatecalix[4]arene/htta and octaacetatecalix[8]arene/htta as a uranophile.

We also found that the selectivity of acetatecalix[n]arene/htta is superior para-tert-butyl calix[n]arene/htta. The results shown that hexaacetate calix[6]arene/htta serve as an excellent UO_2^{2+} selective extraction reagent. The absorption spectra of the complexes formed are discussed.

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