

Evaluation of apparent formation constants of pentacyclic triterpene acids complexes with derivatized β - and γ -cyclodextrins by reversed phase liquid chromatography

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“...343941 S0021-9673(04)01143-4 10.1016/j.chroma.2004.06.133 Elsevier B.V. Fig. 1 Chemical structures...the triterpene acids were calculated by using Pallas Prolog D software (Compudrug)...”

Abstract

A reversed phase HPLC method has been investigated in order to resolve three main pentacyclic triterpene acids (oleanolic-, betulinic- and ursolic acid) found in a lot of plants. Some of them (oleanolic and ursolic acids) are position isomers and their resolution is highly improved by the addition of derivatized cyclodextrins in mobile phase. The formation of 1:1 inclusion complexes was assumed. Apparent formation constants of triterpene acids with DM- β -CD and HP- γ -CD were determined by HPLC method. Experimental results confirmed the complexation model and explained the modification of elution order according to the type of cyclodextrin added to the mobile phase. The influence of mobile phase organic modifier on apparent formation constants was also investigated. Results proved the competition between cyclodextrins hydrophobic cavity and organic solvent towards triterpene acids affinity.

Keywords: Derivatization, LC; Inclusion complexation; Betulinic acid; Oleanolic acid; Ursolic acid; Triterpenes; Cyclodextrins

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