

عنوان مقاله:

Development of Dispersive Liquid–Liquid Microextraction Technique based Low-Density Solvents for the Extraction and Preconcentration of Amoxicillin Antibiotic

محل انتشار:

اولین همایش ملی فناوری های نوین در شیمی و مهندسی شیمی (سال: 1392)

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خلاصه مقاله:

Amoxicillin is the most prescribed for the treatment infections worldwide. Low-density solvents have been used largely in analytical extraction and concentration schemes. Their ability to form a phase with regions of different polarities, acidities and viscosities, where solutes of very different structure can be solubilized has encouraged this use. supramolecular solvents made up of reverse micelles of decanoic acid, dispersed in a continuous phase of THF-Water, was proposed for the simple, fast and efficient microextraction of amoxicillin prior to high performance liquid chromatography (HPLC-UV). The extraction method is based on the fast injection of a mixture of extracting and disperser solvents into the aqueous solution to form a cloudy ternary component solvent (aqueous solution: extracting solvent: disperser solvent) system. The extraction procedure is based on extraction solvents lighter than water and performing of extraction in a specially designed extraction cell. Our attempt were centered on investigating factors affecting the extraction efficiency of amoxicillin such as pH of water sample, percent of THF, percent of decanoic acid, microextraction time and temperature effect were investigated. The method was validated for specificity, linearity, accuracy, precision and limit of detection. In this extraction method, under the optimum conditions, a correlation coefficient of $r^2 = 0.999$ was obtained. The LODs were low of $0.011 \mu\text{g L}^{-1}$ and RSD% ranging from 1-4%. Finally, due to simplicity and high efficiency of proposed method, it can be used successfully for manufacturing process, quality control in product batches, preconcentration and determination of amoxicillin.

کلمات کلیدی:

Amoxicillin, DLLME, Low-density solvents, HPLC

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