

**Название публикации:**

Effect of the Compositions of Sample and Polymer Sorbents on the Extraction of Volatile Compounds by Solid-Phase Microextraction

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**Сведения об издании:**

Applied Biochemistry and Microbiology

Volume 54, Issue 1, 1 January 2018, Pages 89-97

**Аннотация:**

A comparative study was performed by solid phase microextraction and capillary gas chromatography to establish the ability of four polymer sorbents of different compositions to extract and concentrate volatile organic compounds from the gas phase above an aqueous solution. All polymer sorbents sorbed nonpolar monoterpene hydrocarbons via a cooperative mechanism with almost equal and high efficiency. Sorbents based on polymethyl disiloxane and its mixture with divinylbenzene were more effective in extracting acetates and sesquiterpenes. As the concentration of these compounds in the gas phase increased, their binding by sorbents decreased. It was found that the determination of polar compounds depended on the presence of a solvent in the system. Compounds that are highly soluble in water (alcohols, ketones, etc.) had low coefficients of distribution between gas and water phases. Consequently, their sorption to any of the polymer sorbents was negligible. In the absence of the solvent, the degree of their extraction from the gas phase above the sample was high. It was shown that the actual composition of compounds in the initial mixture of essential oils could significantly differ from their composition in the gas phase. This method is convenient and informative for the purpose of studying the composition of volatile compounds in the gas phase that determine the flavor of the product.

**Ключевые слова:**

aqueous solutions, capillary gas chromatography, carboxene, divinylbenzene, gas phase, microextraction, mono- and sesquiterpenoids, polydimethylsiloxane, sorption