



Comparison of silica gel modified with three different functional groups with C-18 and styrene–divinylbenzene adsorbents for the analysis of selected volatile flavor compounds.

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Streszczenie

A comparison of SPE cartridges produced in authors laboratory containing silica modified by addition of three functional moieties with standard C-18 and SDVB cartridges was made in terms of their applicability for the isolation of flavor compounds. Compounds found in wine and grapes were used for model mixture, which was spiked into a grape juice. Functionalized phases for SPE were prepared modifying silica gel with alkoxysilanes with different functional groups: (3-(phenylamino)-propyltrimethoxysilane, octyltriethoxysilane and octadecylsilane. The functionalization was carried out by the dry method, which resulted 5, 10 and 20 weight parts of initial support. Functionalized phases were characterized using FT-IR, elemental analysis and NMR. Performance for new phases compared to "standard" ones (C-18 and SDVB (styrene-divinylbenzene) varied, depending on the group or type of analyzed compound. They were more efficient in extraction of methyl anthranilate and vanilins. For extraction of terpenes, C-6 alcohols, isoprenoids, benzene derivatives and phenols their efficiency was comparable to that of C-18. Functionalized laboratory-made mixed phases are suitable for extraction of flavor compounds from grape juice. They are suitable for extraction of compounds belonging to different chemical classes with the efficiency comparable to C-18 and SDVB phases. The production of such functionalized phases can be easily performed in the laboratory, at a very low cost, comparing to C-18 or SDVB cartridges. This makes the proposed functionalized phases an interesting alternative, in sample preparation for analysis and particularly in preparative/flash chromatography.

Słowa kluczowe

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