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### Miniaturized solid phase extraction of flavanones from citrus fruits by ultra high-performance liquid chromatography coupled with quadrupole time-of-flight tandem mass spectrometry

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Traditional solid phase extraction (SPE) method requires large volumes of elution solvent and high consumption of sorbents, making the whole procedure expensive and time consuming. Therefore, to establish a reliable miniaturized SPE approach for the extraction of tested compounds from complex samples is quite meaningful. Moreover, mesoporous molecular sieves have not been explored extensively as a sorbent for miniaturized SPE. In particular, its applications for the extraction of trace compounds from complex fruits are scarce, barring work from our group. This article reported a rapid, simple, optimized, and validated miniaturized SPE method for the separation and quantification of six flavanones in Citrus fruit extracts by ultrahigh-performance liquid chromatography coupled with quadrupole time-of-flight tandem mass spectrometry using a dual electrospray ionization source. The mesoporous molecular sieve SBA-15 as a novel solid sorbent for the extraction of target analytes was characterized by Fourier transform-infrared spectroscopy and scanning electron microscopy. Additionally, compared with other reported extraction techniques, the mesoporous SBA-15 based SPE method possessed the advantages of shorter analysis time and higher sensitivity. Furthermore, considering the different nature of the tested compounds, all of the parameters, including the SBA-15 amount, solution pH, elution solvent, and the sorbent type, were investigated in detail. Under the optimum condition, the instrumental detection and quantitation limits calculated were less than 4.26 and 14.29 ng mL<sup>-1</sup>, respectively. The recoveries obtained for all the analytes were ranging from 89.22% to 103.46%. The experimental results suggest that SBA-15 is a promising material for the purification and enrichment of target flavanones from complex citrus fruit samples.

#### Biography

Jun Cao has completed his PhD from China Pharmaceutical University. After two years of Postdoctoral research in Zhejiang University, he began his work in Hangzhou Normal University. He is a university teacher, Associated Professor. His work involves method of development for analytical purposes related to capillary electrophoresis, liquid chromatography, and mass spectrometry which are directly applicable to biomarker development and analytical assays. Recently, a significant effort has been made in developing affinity methods for phytochemicals. He has published more than 50 papers in reputed journals, such as *Journal of chromatography A*, *Electrophoresis*, *Talanta*, *Analyst*, *Analytical and Bioanalytical Chemistry* and *Journal of Agricultural and Food Chemistry*.

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