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Special Issue Reprint

Solid-Phase Microextraction and Related Techniques in Bioanalysis

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Bioanalysis of endogenous substances, metabolites, and contaminants poisons is important in analyses of biological functions, metabolomics, forensic toxicology, patient diagnosis and biomonitoring of human exposure to hazardous chemicals. In these analyses, methods of sample preparation are essential for the isolation and concentration of target analytes from complex biological matrices. These processes, however, are time-consuming, labor-intensive and error-prone, and markedly influence the reliability and accuracy of determining target analytes. Thus, efficient sample preparation techniques and their integration with analytical methods have become significant. Solid-phase microextraction (SPME) is a simple and convenient sample preparation technique that has enabled automation, miniaturization, high-throughput performance, and online coupling with analytical instruments. Moreover, SPME has reduced analysis times, as well as solvent and disposal costs.

This reprint consists of 14 original, peer-reviewed papers for the Special Issue in the MDPI journal *Molecules*. The topics covered include headspace fiber SPME (HS-SPME) gas chromatography-mass spectrometry (GC-MS), HS-in-needle microextraction GC-MS, thin film SPME liquid chromatography-tandem mass spectrometry (LC-MS/MS), magnetic solid phase extraction LC-MS/MS, in-tube SPME LC-MS/MS and in-tube SPME LC-UV. Samples analyzed include plant-derived volatile organic compounds; body odor; metabolites in urine, plasma and saliva sample; and biomarkers of tobacco smoke exposure in hair and environmental estrogens.



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