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Special Issue Reprint

Applications of Solid-Phase Microextraction and Related Techniques

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Most analytical instruments currently in use struggle to directly manage complex matrices such as environmental, food, and biological samples, making sample pretreatment essential. In the analytical process from sampling to data analysis, sample pretreatment plays a vital role in extracting, separating, and concentrating target analytes. It also enhances detection, improves sensitivity and accuracy, and reduces instrument maintenance and operating costs, all of which significantly impact the reliability and accuracy of analytical results. Therefore, developing efficient sample pretreatment technologies and integrating them into various analytical instruments remains a key challenge.

This reprint comprises three peer-reviewed review articles and nine original research papers contributed by research groups for a Special Issue of the MDPI journal *Molecules*. The topics covered include comprehensive review articles on advanced coating materials, such as metal-organic frameworks, covalent organic frameworks, hybrid graphene-based materials, and molecularly imprinted polymers. Additionally, the reprint presents various SPME and related microextraction methods employing multi-walled carbon nanotube-ionic liquid/polyaniline adsorbents, MonoTrap, covalent organic polymer mixed-matrix membranes, magnetic persimmon leaf composites, and capillary coatings as extraction materials.



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