Study of Enrichment Effect of Hollow-Fiber Solid Phase Microextraction (in Chinese)

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Abstract:

A novel hollow-fiber solid phase microextraction (HF-SPME) technique coupled with flash evaporation-gas chromatography (FE-GC) using a pyrolysis-GC system was developed. The study mainly focused on the extraction efficiency of polysulfone membranes for fatty acid methyl ester, phthalate esters and polycyclic aromatic hydrocarbons under the optimal extraction conditions. After the extraction, target analytes were thermally desorbed at a high temperature of 300 ºC in the pyrolysis furnace and separated and analyzed by gas chromatography. The results showed that the enrichment effect was different, which was related to the structures of the targets. The compounds with longer branches were adsorbed difficultly for the strong resistance; the compounds containing benzene ring were more easily extracted. However, the more benzene rings the compounds contain, the worse enrichment effect was obtained. The results demonstrated that this is a simple, environmentally friendly and accurate method for the extraction of trace compounds in water samples.

Frontier Labs Products used:

Multi-functional pyrolyzer (PY-2020iD)