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A New Perspective of Hollow Fiber-Mediated Extraction: Bundled Hollow Fiber Array-Liquid-Phase Microextraction with Sonication-Assisted Desorption and Liquid Chromatography-Tandem Mass Spectrometry for Determination of Estrogens in Aqueous Matrices

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Abstract

A bundled hollow fiber array (BHF)-liquid-phase microextraction (LPME) approach has been developed for the ultra-high performance liquid chromatography tandem mass spectrometric determination of estrone, 17β-estradiol, estriol, and 17α-ethinylestradiol. The BHF was dipped in n-octanol to impregnate only the wall pores of the hollow fibers without deliberate loading of extractant solvent in the lumens, before placing it in the sample for extraction. Parameters influencing extraction efficiency, such as number of bundled hollow fibers, type of extraction and desorption solvent, agitation mode, extraction temperature and duration, and the salting out effect were examined. Under the most favourable experimental