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An on-line coupling of nanofibrous extraction with column-switching high performance liquid chromatography - a case study on the determination of bisphenol A in environmental water samples

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Abstract

Polyamide 6 nanofiber polymers were used as modern sorbents for on-line solid phase extraction (SPE) coupled with liquid chromatography. The on-line SPE system was tested for the determination of bisphenol A in river water samples. Polyamide nanofibers were prepared using needleless electrospinning, inserted into a mini-column cartridge (5 x 4.6 mm) and coupled with HPLC. The effect of column packing and the amount of polyamide 6 on extraction efficiency was tested and the packing process was optimized. The proposed method was performed using a 50-µL sample injection followed by an on-line nanofibrous extraction procedure. The influence of the washing mobile phase on the retention of bisphenol A during the extraction procedure was evaluated. Ascentis® Express C18 (10 cm x 4.6 mm) core-shell column was used as an analytical column. Fluorescence detection wavelengths (λ_{ex} = 225 nm and λ_{em} = 320 nm) were used for identification and quantification of Bisphenol A in river