



## **Electrospun polyacrylonitrile nanofibers as fiber coating in solid phase microextraction**

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Solid-phase microextraction (SPME) is widely used to preconcentrate analytes from sample. In addition, electrospinning is the interesting method to prepare a coating material of SPME fiber. Electrospinning is the method to produce nanofibers with high surface to volume ratio that leads to good extraction efficiency. Therefore, electrospun polyacrylonitrile (PAN) nanofibers were fabricated as fiber coating on a metal wire for a homemade SPME in this study. In the electrospinning process, the 7 wt% PAN in DMF, 23 kV of applied voltage, 8  $\mu\text{L}/\text{min}$  of feed rate, and 12 cm of distance between needles and collector were set to fabricate nanofibers on a metal wire. The SEM images show that the fiber coating's surface was porous, and homogeneous. The average nanofibers diameter was 404 nm. The homemade SPME unit was then applied for extraction of 6 polycyclic aromatic hydrocarbons (PAHs) in water by headspace technique. PAHs were desorbed from SPME fiber directly in the GC injection port by thermal desorption and analyzed by GC-FID. The optimum extraction condition was extraction time of 30 min and extraction temperature of 40  $^{\circ}\text{C}$  at concentration level of 100 ppb PAHs. Desorption time and desorption temperature were optimized at 5 min and 200  $^{\circ}\text{C}$ , respectively.

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