

عنوان مقاله:

Separation and determination of cadmium in water samples based on functionalized carbon nanotube by syringe filter membrane-micro solid-phase extraction

محل انتشار:

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نویسنده:

Jamshid Rakhshshah - *Separation and determination of cadmium in water samples based on functionalized carbon nanotube by syringe filter membrane-micro solid-phase extraction*

خلاصه مقاله:

A simple and fast separation of cadmium (Cd) based on functionalized carbon nanotubes with ۲,۳-dimercapto-۱-propanol (CNTs@DHSP) was achieved in water samples before a determination by atom trap flame atomic absorption spectrometry (AT-FAAS). In this study, Cd(II) ions were extracted by syringe filter membrane-micro solid phase extraction procedure (SFM- μ -SPE). Firstly, ۲۰ mg of the CNTs@DHSP as solid-phase added to ۲۰ mL of water sample in a syringe, then dispersed for ۳ min after adjusting pH up to ۷ and pass through SFM very slowly. After extraction, the Cd(II) ions were back-extracted from SFM/CNTs@DHSP by ۱.۰ mL of eluent in acidic pH. Finally, the cadmium concentration was measured by AT-FAAS. Under the optimal conditions, the linear range (۲-۹۰ μ g L⁻¹), LOD (۰.۷۵ μ g L⁻¹) and enrichment factor (۱۹.۶) were obtained (RSD<1.۵%). The adsorption capacity of Cd(II) with the CNTs@ DHSP was obtained about ۱۵۲.۶ mg g⁻¹. The method was validated by certified reference materials (SRM, NIST) and ET-AAS .in water samples

کلمات کلیدی:

Cadmium, Separation, Water, Functionalized carbon nanotubes, Syringe filter membrane micro solid phase extraction, Atom trap flame atomic absorption spectrometry

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