

عنوان مقاله:

Preconcentration of trace levels of cadmium (II) using Descurainia Sophia seeds as a green adsorbent for solid phase extraction followed by its determination by flame atomic absorption spectrometry

محل انتشار:

سومین همایش سراسری کشاورزی و منابع طبیعی پایدار (سال: 1394)

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خلاصه مقاله:

For the first time, Descurainia Sophia (DS) seeds as an efficient and green adsorbent were used in solid phase extraction for preconcentration of trace levels of cadmium prior to its determination by flame atomic absorption spectrometry (FAAS). By using a batch method, DS seeds were used as adsorbent to retain Cd (II) in the sample solution. After elution the adsorbent with 3 mol L⁻¹ HCl, the retained Cd (II) was determined by FAAS. Different parameters affecting the extraction efficiency such as pH, amounts of adsorbent, type and concentration of eluent solvent and extraction and desorption time were investigated and optimized. Under the optimum conditions, the calibration curve was linear in the range of 5 – 300 µg L⁻¹ Cd (II) with a correlation coefficient of 0.998. The limit of detection (LOD) was 1.0 µg L⁻¹ and the relative standard deviation (RSD, %) based on seven replicate analysis of 25 µg L⁻¹ Cd (II) was 3.2 %.The accuracy of the proposed method was checked by the analysis of certified reference material (CRM) and spike methods. The results show a good agreement with certified values. The proposed method .was successfully applied to determination of trace levels of cadmium in different water samples

کلمات کلیدی:

Descurainia Sophia seeds, Flame Atomic Absorption Spectrometry, Cadmium, Solid phase extractio

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