

عنوان مقاله:

Dispersive liquid -liquid microextraction of trace amounts of Cd²⁺ using 8-hydroxyquinoline

محل انتشار:

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خلاصه مقاله:

Rice is the staple food for half the world. Much of this product has been used to its nutrition consumption. As a result, the need for quality control is essential. Environmental pollution, especially pollution with heavy metals such as cadmium, has risks irreparable. In this research, dispersive liquid-liquid micro-extraction (DLLME) method coupled to graphite furnace atomic absorption spectrometry (GFAAS) is used to measure trace amounts of cadmium. This method is simple, eco-friendly with low use of organic solvents and also economic. Cadmium complex was formed with 8-hydroxyquinoline in aqueous solution. pH of this solution was stabilized in 11. Then, 1 mL methanol and 50 μ L Carbon tetrachloride as a dispersive solvent and extraction solvent were rapidly injected into aqueous solution. Resulting cloudy solution after stirring enough was centrifuged and organic phase separated and its cadmium concentration was measured by graphite furnace atomic absorption spectrometry (GFAAS). In this study optimized parameters such as pH, type and volume of extraction solvent, type and volume of dispersive solvent, ligand concentration, extraction time, speed and time of centrifuge. In calibration curve condition, this method was linear in concentration range 0.06- 1.5 ng mL⁻¹. Enrichment factor 138 and limit of detection 0.003 ng mL⁻¹ was obtained. The relative standard deviation was 1.27 ng mL⁻¹. Different samples of rice in different areas were analyzed with presented method.

کلمات کلیدی:

dispersive liquid-liquid micro extraction, Cadmium, optimization, 8-hydroxyquinoline, extraction

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