عنوان مقاله:

Separation and Preconcentration System Based upon Molybdenum(IV) Nanoparticles Assisted Ionic Liquid Microextraction for Determination of Zinc in Water and Food Samples by Stopped-FlowInjection Spectrofluorimetry

محل انتشار:

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خلاصه مقاله:

For the first time, molybdenum(IV) nanoparticles assisted in situ solvent formationmicroextraction (MoNPs-ISFME) was combined with stopped-flow injectionspectrofluorimetry (SFIS) for the determination of zinc. In the proposed approach,thiamine was oxidized with zinc (II) to form hydrophobic and highly fluorescentthiochrome (TC), which was subsequently extracted into ionic liquid as an extractantphase. A small amount of an ion-pairing agent was added to the sample solutioncontaining a water-miscible ionic liquid to form a hydrophobic ionic liquid. Aftercentrifuging, phase separation was performed and the enriched analyte was determinedby SFIS. MoNPs-ISFME is an efficient method for separation and preconcentration ofmetal ions from aqueous solutions with high ionic strength. The variables affecting theanalytical performance were studied and optimized. Under optimum experimentalconditions, the proposed method provided a limit of detection (LOD) of 0.035 µg L-1and a relative standard deviation (RSD) of 2.5%. Finally, the proposed method wassuccessfully applied to zinc determination in water and food samples.

کلمات کلیدی:

In situ solvent formation microextraction ; Stopped-flow injection spectrofluorimetry ; Ionic liquid; Zinc

لینک ثابت مقاله در پایگاه سیویلیکا: