عنوان مقاله:

Ferrofluid-based liquid-liquid microextraction method for separation and determination of ascorbic acid in food samples

محل انتشار:

چهارمین کنگره ملی شیمی و نانوشیمی از پژوهش تا فناوری (سال: 1400)

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خلاصه مقاله:

In this study, first, $CoFe_2O_4$ magnetic nanoparticles were synthesized and then were characterized by Fourier transform infrared (FT-IR) spectroscopy, vibrating sample magnetometer (VSM), field emission scanning electron microscopy (FE-SEM) and energy dispersive X-ray (EDX). Ferrofluid-based liquid-liquid microextraction consisting of cobalt ferrite nanoparticles coupled with fluorimetry (LLME-FFs-FL) as a green and efficient approach was used for extraction and determination of ascorbic acid. Three parameters of pH, ferrofluid volume and ultrasonic time were selected as effective factors on the process and optimized by central composite design (CCD). Under optimized conditions, the linear range ۰.۲۶–۵.۷ µM, limit of detection ۰.۰۷۴ µM and the relative standard deviation (R.S.D) %۲ were obtained for target analyte. Finally, the proposed method was successfully applied for preconcentration and determination of ascorbic acid in food samples.

کلمات کلیدی:

$CoFe_2O_4$ magnetic nanoparticles, Ferrofluid, Ascorbic acid, Food samples, Experimental design

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