

عنوان مقاله:

Vortex-Assisted Low Density Based Dispersive Liquid-Liquid Microextraction Followed by High Performance Liquid Chromatography for Determination of Three Pesticides Residues from Water Samples

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خلاصه مقاله:

In this study, vortex-assisted low density based dispersive liquid-liquid microextraction followed by high performance liquid chromatography with ultraviolet detector has been developed for the determination of three pesticides including chlorflurenol-methyl, chlorfenvinphos, and diazinon from environmental water samples. Different parameters influencing the extraction efficiency such as the type and volume of extraction and disperser solvent, sample pH, salt addition as well as vortex and centrifugation time were investigated and the optimal conditions were obtained. Under the optimum conditions, the calibration curves were linear in the concentration range of 8.5–100, 3.1–100 and 36.5–600 ng/mL for chlorflurenol-Methyl, chlorfenvinphos and diazinon, respectively, with coefficient of determination (r^2) of 0.993 or better. The limits of detection and quantification of the analytes, which were determined at 3 and 10 signal-to-noise ratio (S/N) ranged from 0.9–11 and 3.1–36.8 ng/mL, respectively. The proposed method has been successfully applied to the analysis of real water samples. The relative recoveries (%RR) studied at two spiking concentration levels were ranging from 76–108%, with the corresponding relative standard deviation (%RSD) ranging from 1.9–9.9%. The results of study demonstrated that the proposed method is efficient for extraction and/or preconcentration of the three pesticides prior to quantitative determination utilizing HPLC–UV/Vis instrument.

کلمات کلیدی:

High Performance Liquid Chromatography, Vortex-Assisted, Low Density, Dispersive Liquid-Liquid Microextraction, Pesticides, Environmental Water

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