

عنوان مقاله:

Separation of deltamethrin and cypermethrin from agricultural soil and water samples using dispersive liquid-liquid microextraction method based on solidification of floating organic drop combined with gas chromatography-mass spectrometry

محل انتشار:

چهارمین همایش ملی انرژی، محیط زیست، کشاورزی و معماری پایدار (سال: 1396)

تعداد صفحات اصل مقاله: 9

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خلاصه مقاله:

In this research study, the rapid and simple method of dispersive liquid-liquid microextraction method based on solidification of floating organic drop (DLLME-SFO) was used for simultaneous separation/preconcentration of deltamethrin and cypermethrin from agricultural soil and water samples. The analytes were determined by gas chromatography-mass spectrometry. The influential parameters of DLLMESFO including type and volume of extraction solvent type, type and volume of dispersive solvent, sample volume were optimized. A mixture of 1 mL methanol as dispersive solvent, 10 μ L 2-dodecanol was rapidly injected into the 10 mL aqueous solution. A cloudy solution was formed. The solution was centrifuged for 3 min at 5500 rpm. The test tube was then cooled in an ice bath. After 5 min the 2-dodecanol solidified and was then transferred to a conical vial; it melted quickly at room temperature and 1 μ L of it was injected into a gas chromatograph-mass spectrometry for analysis. The limits of detection (LOD) of 0.005 and 0.008 μ g L⁻¹ were obtained for deltamethrin and cypermethrin respectively. The linear range of 0.01-500 μ g L⁻¹ with a coefficient (r^2) of 0.999 was obtained for both analytes. The proposed method was successfully applied for determination of trace amount of deltamethrin and cypermethrin in agricultural soil and water samples.

کلمات کلیدی:

dispersive liquid-liquid microextraction, solidification of floating organic drop, pesticides

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