

Abstract

In this study, chitosan-zinc oxide nanoparticles was used as solid-phase dispersion combining with dispersive liquid-liquid microextraction for the determination of thirteen n-alkanes such as C₈H₁₈ to C₂₀H₄₂ in soil samples. The solid samples were directly blended with chitosan - nanoparticles in solid-phase dispersion method. The eluent of solid-phase dispersion was applied as the dispersive solvent dispersive liquid-liquid microextraction. The compounds were used gas chromatography-flame ionization detector analysis. The optimized conditions were 200 μL of extracting solvent volume, 2 mL dispersive solvent volume, an extraction time of 2 min, 1mol L⁻¹ of salt and the ratio of sample:sorbent up to 1:2. Under the optimum conditions detection limits between 0.08 to 2.5 ngg⁻¹ and good linearity with correlation coefficients in the range 0.9991-0.9995 were achieved. The presented procedure was combined the advantages of chitosan-zinc oxide nanoparticles, solid-phase dispersion and dispersive liquid-liquid microextraction, and could be applied for the determination of n-alkanes in complicated soil samples.

Keywords: n-Alkanes; Solid-phase dispersion; Dispersive liquid-liquid microextraction; Soil samples.



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**Extraction of n-Alkanes (C₈-C₂₀) from Soil
Samples by Dispersive Liquid-Liquid
Microextraction and Gas Chromatography**

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