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Dispersive Liquid-Liquid Microextraction Followed by Gas Chromatography-Mass Spectrometry for the Determination of Pesticide Residues in Nutraceutical Drops

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Highlights

- Fast DLLME for isolation of 40 pesticide residues from herbal drops was developed.
- The procedure takes the advantage of the low consumption of organic solvent.
- Sample ethanol was enriched by low volume of methanol to serve as dispersant.
- Proposed method is fast, ecological, and efficient.
- The method is applicable for analysis of nutraceuticals, herbal liqueurs and potions.

Abstract

An economical and rapid method has been developed using dispersive liquid-liquid microextraction (DLLME) coupled with gas chromatography-mass spectrometry to extract and determine forty pesticides in nutraceutical drops containing alcohol. Parameters affecting the DLLME performance, such as solvent selection and volume of extractive and dispersive solvent, salt effect, pH, mixing type and extraction time, were studied. Tetrachloroethane was the selected extraction solvent. Ethanol contained in the sample was enriched by methanol to serve as dispersive solvent. The method was fully validated under the optimized extraction