



Second Laureate Fundamental Research



◆ **Project title:** Headspace solvent microextraction or direct solvent microextraction and gas chromatographic determination of trace amounts of organic pollutants such as plasticizers and organophosphorous pesticides in mineral and farm water samples

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Abstract:

The present study is a part of the project entitled: Headspace solvent microextraction or direct solvent microextraction and gas chromatographic determination of trace amounts of organic pollutants such as plasticizers and organophosphorous pesticides in mineral and farm water samples.

One version of LPME was reported in 2007 by a group of Iranian scientists in Tarbiat Modares University. In their design, a droplet ($V < 10 \mu\text{L}$) of immiscible organic solvent such as 1-undecanol was added to a liquid sample and they were stirred vigorously to maximize contact between sample and droplet. The vapor pressure and toxicity of the solvent is low and it may be considered as a green solvent. Under optimized stirring conditions, the droplet remained intact at the top-centre of the vial. After completion of extraction (usually $< 10 \text{ min}$) the vial was transferred into an ice bath to solidify the droplet which was easily removed, melted and drawn into a syringe for insertion into chromatographic, atomic absorption, atomic emission and so on instruments.

By using this method preconcentration factors > 1000 can be obtained. Thus the proposed method were applied for determining $\mu\text{g/L}$ and even ng/L levels of different contaminants such as PAHs, OCPs, OPPs, plasticizers, bisphenol A, As, Se and heavy metal ions in very complex water samples. This method is simple, fast, inexpensive and environmental friendly and two articles related to this subject were introduced as efficient works by www.separationsnow.com web site.

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