

Accepted Manuscript

Title: Effervescence assisted on-site liquid phase microextraction for the determination of five triazine herbicides in water

Author: Xueke Liu Zhigang Shen Peng Wang Chang Liu
Zhiqiang Zhou Donghui Liu



PII: S0021-9673(14)01679-3
DOI: <http://dx.doi.org/doi:10.1016/j.chroma.2014.10.068>
Reference: CHROMA 355946

To appear in: *Journal of Chromatography A*

Received date: 24-6-2014
Revised date: 21-10-2014
Accepted date: 23-10-2014

Please cite this article as: X. Liu, Z. Shen, P. Wang, C. Liu, Z. Zhou, D. Liu, Effervescence assisted on-site liquid phase microextraction for the determination of five triazine herbicides in water, *Journal of Chromatography A* (2014), <http://dx.doi.org/10.1016/j.chroma.2014.10.068>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Effervescence assisted on-site liquid phase microextraction for the determination of five triazine herbicides in water

Xueke Liu, Zhigang Shen, Peng Wang, Chang Liu, Zhiqiang Zhou, Donghui Liu*

Department of Applied Chemistry, China Agricultural University, No.2 Yuanmingyuan West Road, Beijing 100193, P.R. China

*Corresponding author:

Donghui Liu, Department of Applied Chemistry, China Agricultural University, No.2 Yuanmingyuan West Road, Beijing 100193, P.R. China; Tel: +86 10-62731294; Fax: +86 10-62731294; E-mail: liudh@cau.edu.cn

Abstract

A novel effervescence assisted on-site liquid phase microextraction has been developed for the determination of five triazine herbicides in water. The use of an effervescent tablet composed of citric acid, sodium bicarbonate and 1-undecanol (extraction solvent) was the core of the method. The triazine herbicides in water were extracted by 1-undecanol released from tablet under effervescence and determined by ultra-high pressure liquid chromatography tandem mass spectrometer. The experimental variables, including NaCl concentration, temperature, weight of effervescent tablet, volume of extraction solvent and pH value, were screened by a Plackett-Burman design and optimized by a Box-Behnken design. Under the optimized conditions, good linearity was obtained in the range of 0.05 to 10 $\mu\text{g L}^{-1}$ with correlation coefficients ranging from 0.9936 to 0.9988. The limits of quantification were between 7.6 and 26.4 ng L^{-1} , and the recoveries were in 71.4-93.2 % with relative standard deviations of 2.5-10.9%. This method, which does not require centrifugation and any special apparatus, was successfully applied to determine triazine herbicides in real waters, promising to be a way to speed field sampling procedures for the organic pollutants monitoring in water.

Keyword

Effervescent tablet, On-site liquid phase microextraction, Triazine herbicides, Water

Download English Version:

<https://daneshyari.com/en/article/7612227>

Download Persian Version:

<https://daneshyari.com/article/7612227>

[Daneshyari.com](https://daneshyari.com)