

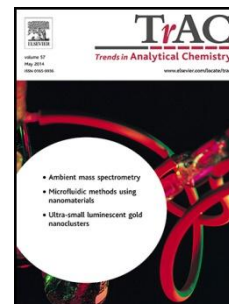
# Accepted Manuscript

Title: Strategies for automating solid-phase extraction and liquid-liquid extraction in radiochemical analysis

Author: Rogelio Rodríguez, Jessica Avivar, Luz O. Leal, Víctor Cerdà, Laura Ferrer

PII: S0165-9936(15)30052-2  
DOI: <http://dx.doi.org/doi: 10.1016/j.trac.2015.09.009>  
Reference: TRAC 14569

To appear in: *Trends in Analytical Chemistry*



Please cite this article as: Rogelio Rodríguez, Jessica Avivar, Luz O. Leal, Víctor Cerdà, Laura Ferrer, Strategies for automating solid-phase extraction and liquid-liquid extraction in radiochemical analysis, *Trends in Analytical Chemistry* (2015), <http://dx.doi.org/doi: 10.1016/j.trac.2015.09.009>.

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.

## Strategies for automating solid-phase extraction and liquid-liquid extraction in radiochemical analysis

Rogelio Rodríguez<sup>a</sup>, Jessica Avivar<sup>b,d</sup>, Luz O. Leal<sup>a</sup>, Víctor Cerdà<sup>c</sup>, Laura Ferrer<sup>b\*</sup>

<sup>a</sup>*Environment and Energy Department, Advanced Materials Research Center (CIMAV) S.C., Chihuahua, Chih. 31136, Mexico.*

<sup>b</sup>*Environmental Radioactivity Laboratory-LaboRA, University of the Balearic Islands, Palma E-07122, Spain.*

<sup>c</sup>*Laboratory of Environmental Analytical Chemistry-LQA<sup>2</sup>, University of the Balearic Islands, Palma E-07122, Spain.*

<sup>d</sup>*Sciware Systems, S.L., spin-off from the University of the Balearic Islands, Bunyola E-07193, Spain.*

\*Corresponding author: [laura.ferrer@uib.es](mailto:laura.ferrer@uib.es)

### Highlights

- Trends in automation of liquid-liquid extraction (LLE) in radiochemical analysis
- Trends in automation of Solid Phase Extraction (SPE) in radiochemical analysis
- Pros and cons of automation of radiochemical analysis by flow analysis techniques
- Strategies for automating SPE and LLE in radiochemical analysis

### Abstract

Radionuclides monitoring is an issue of increasing concern due to their widespread use last years. Thus, efficient methods for radionuclides determination are required. Radionuclides extraction and preconcentration is usually required prior detection, especially when dealing with environmental and biological samples. Most commonly pretreatment techniques in radiochemical analysis are solid-phase extraction and liquid-liquid extraction, providing not only sample clean-up but also high enrichment factors. These protocols are usually long and tedious involving a large consume of reagents and of waste generation what difficult their application in monitoring plans. Flow analysis techniques have proved to be suitable platforms to develop automated radiochemical analyzers, offering advantages such as fast and low-cost methods with low reagents consumption and so waste generation and low manipulation by the analyst. Thus, in this review strategies followed to automate radiochemical analysis exploiting most commonly used pretreatment procedures by flow techniques are presented and critically compared.

Download English Version:

<https://daneshyari.com/en/article/7689162>

Download Persian Version:

<https://daneshyari.com/article/7689162>

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