

MICROWAVE-ASSITED EXTRACTION OF POLYCHLORINATED DIBENZOFURANS IN MARINE SEDIMENTS WITH MICELLAR MEDIA

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ABSTRACT:

The use of the microwave energy produced by high intensity microwave oven, for the extraction of different kinds of analytes, it is a new methodology which allows a simple and rapid analysis of these compounds in different media [1-4].

Analysis of marine sediments is particularly important because they are considered pollution indicators, since they present a view of the spatial distribution of pollutants. Moreover, these sediments provide a constant source of food for a number of aquatic organisms.

This work shows the results obtained in the optimization process for the application of microwave extraction methodology to the determination of Polychlorinated Dibenzofurans (PCDBFs) present in marine sediment samples, using non-ionic surfactants (Polyoxyethylene 10 lauryl ether and Olygoethylene Glycol Monoalkyl Ether) as extractants and posterior determination by high Performance Liquid Chromatography. The study carried out for the optimization of the conditions consists on the variation of the different parameters that may influence the distribution of the analytes between sediment particles and extractant micelles, which determines the recovery percentages. These parameters are: pH, temperature, and time and number of washing steps.

Once the methodology is optimized, it is applied to two different types of marine sediments, sandy and muddy. The results obtained indicate satisfactory recovery percentages.

References:

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