GREEN EXTRACTION METHODS FOR THE DETERMINATION OF ORGANOCHLORINE AND ORGANOPHOSPHORUS PESTICIDES IN ENVIRONMENTAL MARINE SAMPLES

D. Vega Moreno[a], C. Padrón Sanz[b], Z. Sosa Ferrera[a] & J.J. Santana Rodríguez[a]

a) Department of Chemistry, Faculty of Marine Sciences, University of Las Palmas de Gran Canaria, 35017, Las Palmas de Gran Canaria, Spain.
Tel: +34 92845 44 25, Fax:+34 928 45 29 22, e-mail: jsantana@dqui.ulpgc.es
b) Current Address: Department of Marine Sciences, Faculty of Experimental Sciences, Catholic University of Valencia, 46003, Valencia, Spain.

Organochlorine and organophosphorus pesticides are effective against a great variety of insects. They have been used in agricultural crops, residential and commercial buildings, ornamental gardens and plants and also to control de presence of disease-carrying mosquitoes [1]. Their wide use could lead to extensive pollution of the environment and constitutes a potential and deliberate risk to human health.

Among the techniques for the analysis of pesticides, gas-chromatographic multiresidue procedures have been the most used [2]. However, these methods are often too time consuming and use toxic organic solvents for the extraction of these compounds.

To deal with these problems, a micellar media could be used as extractant. Surfactants allow the extraction and preconcentration of target analytes in only one step, as alternative to the use of organic solvents either liquid or solid samples. It is well known that micellar media facilitate the solubilization of different compounds present in different kind of samples [3-6]. Other benefits obtained when micellar media are used, are lesser toxicity and cost than organic solvents.

In this study, the variables that affect the extraction of organochlorine and organophosphorus pesticides by using non-ionic surfactants were determined. Specifically, the application of the cloud point extraction (CPE) and microwave assisted micellar extraction (MAME) methodologies are applied to the determination of these compounds in different marine samples from Gran Canaria Island.

These studies show the advantages of these methodologies with regard to traditional extraction techniques.

References:

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