

ENVIRONMENTAL FRIENDLY METHODS FOR THE EXTRACTION AND DETERMINATION OF PHENOLIC COMPOUNDS IN MARINE SAMPLES

C. Mahugo Santana, M. E. Torres Padrón, Z. Sosa Ferrera, J.J. Santana Rodríguez*

**Department of Chemistry. Faculty of Marine Sciences. University of Las Palmas de Gran Canaria. 35017. Las Palmas de Gran Canaria, Spain. Tel. +34928454425; Fax: +34928452922. E-mail: jsantana@dqui.ulpgc.es*

Due to the widespread use in the industry, the phenolic compounds are present in the environment. However, phenolic compounds are not only generated by human activity, they are also formed naturally as a result of some types of vegetable decomposition. They have a highly toxic character and it is well known that these substances exhibit properties that are hazardous to human health. Owing to their toxicity, and presence in the environment, eleven phenols have been included in the priority pollutant list of the United State Environmental Protection Agency (US-EPA) [1].

High-performance liquid chromatography (HPLC) is frequently used for the analysis of phenolic compounds because unlike in gas chromatography (GC) no derivatization of compounds is needed. An extraction step is required prior to their determination due that these compounds are present in the environment in low concentrations.

Standard and official methods for determining phenols use liquid-liquid (LLE) or solid-liquid extraction (Soxhlet) as extraction techniques. Other methodologies have been developed with a view to eliminating or, at least, minimising the use of organic solvents. Recent studies have demonstrated that micellar systems (surfactant solutions) constitute a real alternative to the organic solvents when they are used as extractants of organic pollutants in liquid and solid environmental samples [2].

We present an overview of results obtained on the application of micellar systems for the extraction of different phenolic compounds from seawater samples and marine sediments. These studies show the advantages of this optimized methodology with respect to the traditional techniques [3,4].

REFERENCES

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