USE OF NON-IONIC SURFACTANTS FOR EXTRACTION AND PRECONCENTRATION OF PCBs PRIOR TO THEIR DETERMINATION BY HIGH PERFORMANCE LIQUID CHROMATOGRAPHY WITH FLUORESCENCE DETECTION

A. Eiguren Fernández, Z. Sosa Ferrera and J.J. Santana Rodríguez

Department of Chemistry, Faculty of Marine Sciences, University of Las Palmas de G.C., 35017 Las Palmas de G.C., Spain

Polychlorinated biphenyls (PCBs) are organic compounds that have different characteristics that make them very useful in industrial applications and products. But these compounds have toxical effects on environment due to their persistent presence. PCBs are present in different media, but always in low concentrations [1]. So the analysis of these compounds in environmental samples requires many preliminary steps, such as extraction and preconcentration.

The use of surfactants (surface active agents) offers the possibility of combining extraction and preconcentration in one step. Moreover, the extracted phase is compatible with the micellar and hidroorganic mobile phase, which facilitates the posterior determination of analytes by HPLC.

The extraction and preconcentration technique used in this study is known as "cloud-point extraction" (CPE). In CPE a solution containing a non-ionic surfactant and the analytes is heated above a critical temperature, and it separates in two isotropic phases: a surfactant-rich phase (wich contains the analytes and a small amount of water) and an aqueous phase [2,3]. The small volume of the extracted phase allows us to obtain high preconcentration factors, so the detection limits could be lower.

After extraction and preconcentration of PCBs, High Performance Liquid Chromatography with fluorescence detection is used for the determination of the different analytes. The methods proposed are applied to determine PCBs in sea water samples.

REFERENCES

1.- Ballschimiter K., *Pure and Applied Chemistry*, vol 68, No 9 (1996) 1771

2.- Hinze W.L. and Pramauro E., *Critical Reviews in Analytical Chemistry*, 24 (2) (1993) 133

3.- Tani H., Kamidate T. and Watanabe H., J. of Chromatography A, 780 (1997) 229