



SPQ - ANALÍTICA - 2014

14-15 APRIL 2014, Coimbra, Portugal

Contributions to separation processes for sample treatment in flow analysis

António O. S. S. Rangel

*CBQF - Centro de Biotecnologia e Química Fina – Laboratório Associado, Escola Superior de Biotecnologia, Universidade Católica Portuguesa/Porto, 4200-072 Porto
arangel@porto.ucp.pt*

Sample preparation for instrumental analysis often involves complex and time-consuming wet chemistry procedures. This sample treatment may be needed for a number of purposes such as analyte pre-concentration, dilution, minimisation of interferences or analyte derivatization. The consequent time gap between sampling and instrumental measurement often limits the usefulness of the information to be obtained from analytical processes. This point is particularly relevant for monitoring dynamic systems, namely for gathering data both on space and temporal dimensions.

One possible approach to tackle the abovementioned issues and achieve real-time measurements is to devise flow-based systems to implement separation processes like gas diffusion, dialysis, solid phase extraction, and chromatography-like separations. When these processes are carried out in flow analysis, relatively efficient systems can be implemented, both in terms of analytical figures of merit and also response time.

In this paper, recent contributions of the group on this issue are presented, using different flow modes (flow injection, sequential injection, micro-sequential injection), with membrane separation or solid phase separation processes, and applied to environmental and food analysis.

Acknowledgements: this work was supported by National Funds from Fundação para a Ciência e a Tecnologia (FCT) through projects PTDC/AAG-MAA/3978/2012, PTDC/AAC-AMB/104882/2008, and PEst-OE/EQB/LA0016/2011.