



ELSEVIER

Journal of Chromatography A, 975 (2002) 1

---

---

JOURNAL OF  
CHROMATOGRAPHY A

---

---

www.elsevier.com/locate/chroma

---

## Foreword

---

This special issue on *Sample Handling* has been planned to recognise the importance of the steps in an analytical method that go before a chromatographic separation. These are often forgotten in designing a separation but play an important part in many analyses of real samples. Although a method may work with pure or simulated standards the success of the analysis of a matrix will frequently depend on the sample handling stages before the injection step even takes place.

However, sample handling is often relegated to a footnote or is treated in a very brief manner. For many samples the extraction, partitioning and clean-up stages may be more time-consuming and often represent the limiting phase of the overall analytical process. Because it often requires many manual operations it can also be a costly phase. The *Journal of Chromatography A* has recently acknowledged the importance of these steps by establishing a separate section in the Contents lists for *Sample preparation* and appropriately placed it first in the sequence of sections, before *Column liquid chromatography* or *Gas chromatography*.

In the past, sample handling was primarily a matter of solvent extraction, whether by a cold solvent or Soxhlet extraction, followed by liquid-liquid partitioning in a separating funnel. One of the

major areas in which analytical chemistry has advanced in recent years has been in the development of simpler, more easily automated and—because they avoid the use of large volumes of organic solvents—more environmentally friendly methods. Techniques to replace the initial extraction stage include supercritical fluid extraction, pressurised liquid extraction and membrane filtration. Sample concentration methods, including solid-phase extraction, solid-phase microextraction, and stir bar extraction, have all had an impact. Currently important developments have been in making the extraction more selective through affinity chromatography and their synthetic equivalent of molecular imprinted polymers. The much improved performance of headspace and purge-and-trap techniques should also be mentioned.

Many of these approaches are reflected in the current issue through reviews on the application of sample handling in the food industry, extraction with superheated water, pressurised liquid extraction and specific applications to environmental, plant and food matrices, using, amongst others, imprinted polymers and membranes and solvent-free extractions.

Loughborough, UK

Amsterdam, The Netherlands

Roger M. Smith

Udo A.Th. Brinkman