

Preface

The determination of chemical species, known as speciation analysis, is nowadays performed routinely in many laboratories to control the quality of the environment (e.g. for tributyltin in water and sediment), food (e.g. methyl-mercury in fish) and health (e.g. Cr species at the workplace) and is being considered in the frame of some EC Directives. The need for a good quality control of speciation analysis has led the EC Community Bureau of Reference (BCR) to organise several series of interlaboratory projects over the last five years, including the preparation of certified reference materials, for the improvement and quality assurance of these determinations.

Classical techniques used in speciation analysis involve a series of analytical steps such as extraction, derivatization, separation and final detection. The multiplication of these steps often enhances the risks of error that may occur during the analytical process. A first workshop on Improvement of Speciation Analyses in Environmental Matrices was organized in Arcachon (France) in 1990 by the EC Community Bureau of Reference and the University of Bordeaux with European specialists; its aim was to establish the state of the art of speciation analysis and to critically discuss the sources of errors likely to be occurring at the different analytical steps. The full outcome of the discussion was published in a special issue of *Mikrochimica Acta* (Vol. 109, No. 1–4, 1992) which presented the different participants' views of this field. However, the quality control of other critical analytical steps, e.g. sampling and storage, was not considered in the discussions.

At this stage, it was necessary to establish the state of the art (including sampling and sample pre-treatment procedures) and progress made, and to discuss the trends expected in the field of speciation analysis. To answer this necessity, the Measurements and Testing Programme (BCR) of the European Commission decided to launch a second workshop on the Trends in Speciation Analysis, which was organized in collaboration with the ENEA (Casaccia Research Centre,

Rome) and held in Rome on 20–22 February 1994. The chairman of the workshop was Philippe Quevauviller. The local organizing committee was chaired by Roberto Morabito.

The workshop was attended by ca. 60 specialists in speciation analysis and focused on three types of activities: plenary lectures, round-table discussions and plenary sessions. The following topics were discussed in round-tables:

- Sampling and storage,
- Extraction,
- Derivatization,
- Separation,
- Trends in hyphenated techniques.

Highlights were the determinations of chemical species of aluminium, arsenic, chromium, germanium, mercury, lead, selenium, tin and metal-binding proteins by a variety of hyphenated techniques. Noticeable trends were the development of coupled high performance liquid chromatography/inductively coupled plasma mass spectrometry techniques, capillary electrophoresis and flow injection/micro-column based techniques.

This special issue of *Applied Organometallic Chemistry* contains selected (peer reviewed) papers covering the analytical expertise of the group participants, as well as a summary paper describing the organisation of the workshop and giving the conclusions of the round-table discussions dealing with organometallic speciation. The issue focuses more particularly on the determination of chemical species of lead, mercury and tin. Other chemical species, along with general aspects of speciation analysis, are dealt with in a separate special issue of *Fresenius' Journal of Analytical Chemistry*.

The editors gratefully acknowledge all the participants' enthusiastic and fruitful discussions which guaranteed the success of the workshop.

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