
Foreword

Rita R. Plá*

Técnicas Analíticas Nucleares,
Comisión Nacional de Energía Atómica,
Buenos Aires, Argentina
Email: rpla@cae.cnea.gov.ar
*Corresponding author

María Luisa Pignata

Departamento de Química,
Facultad de Ciencias Exactas, Físicas y Naturales,
Universidad Nacional de Córdoba,
Córdoba, Argentina
Email: pignata@com.uncor.edu

Raquel C. Jasan

Técnicas Analíticas Nucleares,
Comisión Nacional de Energía Atómica,
Buenos Aires, Argentina
Email: jasan@cae.cnea.gov.ar

Biographical notes: Rita R. Plá is the Head of the Nuclear Analytical Techniques Group of the Argentine Atomic Energy Commission. Since 1980 she has been working on research and application of neutron activation analysis to the characterisation of different matrices, especially environmental ones. She has been teaching nuclear analytical techniques since 1998, in post-graduate courses of the National Technological University and Cuyo National University. She has coordinated different Latin American research projects related to environmental pollution studies by biomonitoring and direct sampling methods and currently she is the leader on a regional project related to atmospheric pollution biomonitoring and health. Her research objectives involve projects in collaboration with other national and international institutes with emphasis on the application of nuclear analytical techniques in areas such as environmental pollution and geology.

María Luisa Pignata graduated in Biochemical Sciences and subsequently obtained a PhD in Chemical Sciences at the Universidad Nacional de Córdoba, Argentina. Since 1980 she has been working as a Professor of General Chemistry for Biological Sciences. She is the Head of the Contamination and Bioindicators Group of the Multi-disciplinary Institute of Vegetal Biology since 2000. Her research interests focus on biomonitoring the air pollution and the effects of pollutants on plants. She is also serving as Environmental Chemistry Professor for the Environmental Engineering Masters at the Universidad Tecnológica Nacional, Argentina, since 1996. Her research goals emphasise multidisciplinary projects among biology, chemistry, geology and environmental engineering disciplines.

Raquel C. Jasan graduated in Chemistry in 1997 at the University del Salvador, Buenos Aires and as a Specialist in Radiochemistry, in 2001 at Universidad Tecnológica Nacional – Instituto de Estudios Nucleares (CNEA). Since 1998, she has been working at the Ezeiza Atomic Centre of the Argentine Atomic Energy Commission at the Nuclear Analytical Techniques Group, on the application of neutron activation analysis in air pollution studies by biomonitoring and direct sampling including evaluation and interpretation of the data. She has participated in different research projects on the application of nuclear analytical techniques in environmental pollution studies.

The fifth International Workshop on Biomonitoring of Atmospheric Pollution, BioMAP-5, was held in Buenos Aires, Argentina, from 20 to 24 September 2009. The workshop was organised by the Argentine National Atomic Energy Commission (CNEA), together with the National University of Córdoba, with the financial help of CNEA, the National Institute of Tourist Promotion, the National Nuclear Regulatory Authority and different private sponsors: NuclearLab, AADEE, SOLYDES, CONUAR (Argentine Nuclear Fuels), FAE (Especial Alloys) and DIOXITEK.

BioMAP-5 was focused on qualitative and quantitative aspects of biomonitoring of atmospheric pollutants deposition, including issues relating air pollutants to exposure and human health, different aspects of atmospheric pollution biomonitoring and its use for emission source identification. Furthermore, attention was given to atmospheric and terrestrial correlated pollution, combination of source profiles and geographical information, advantages of nuclear and related analytical techniques, and use of different biomonitors.

The workshop gave an overview of current applications of biomonitoring techniques, and the most used materials were mosses, lichens and tree bark although studies involving vascular plants were also presented. There were also some studies using other biomaterials such as mother-milk, scalp hair, human bone and exhaled breath condensate. The advantages of multi-elemental analysis using non-destructive techniques were addressed as well as the importance of biomonitoring atmospheric volatile organic compounds and natural and artificial radionuclides. Relationships of air pollutants to human health and exposure, especially respiratory diseases, were also addressed. Several studies dealt with biological, physical morphological and chemical aspects of biomonitoring of environmental pollution using lichens, mosses, bark tissue and superior plants.

This special double second volume¹ comprises 12 papers and presents different topics related to biomonitoring applications and surveys in different countries. Many of the works included are related to biomonitoring of air pollution regarding selected biomonitor species, biological and chemical aspects of biomonitoring, pollutant distribution patterns and relationships between biomonitoring and soil and atmospheric levels of pollutants at different environments. These surveys, conducted in both urban and rural areas, used multi-elemental determination in lichens, mosses, different epiphytes, tree bark and leaves and crops (fruit trees and coffee).

Relationships between biomonitoring and health problems using lichens and tree bark are addressed in two papers; one of them is aimed to investigate whether elemental air pollutants might be associated with child mortality due to leukaemia in Portugal, while the other deals with trace metal accumulation and respiratory diseases in children in the city of Córdoba (Argentina). Finally, the uses of scalp hair as a monitor of atmospheric pollution and of mosses for depleted uranium monitoring are presented.

We hope that the manuscripts presented in this publication will contribute to general knowledge and further use of biomonitoring of environmental pollution.

On behalf of the National Organising Committee we would like to express our gratitude to the Argentine National Atomic Energy Commission, the Public Relations Department of the Ezeiza Atomic Centre and to all the other sponsors mentioned above, who contributed to the success of BioMAP-5. We would also like to acknowledge the support of the Nuclear Atomic Centre Authorities and the hard work and commitment of all the members of the Nuclear Analytical Techniques Group of CNEA. We would like to close this foreword by expressing our sincere gratitude to the *International Journal of Environment and Health* and to its Editorial Board, in particular Professor Marcelo Enrique Conti, for the two special issues on biomonitoring of air pollution and BioMAP-5.

Note

1 The first volume was published as *Int. J. Environment and Health*, Vol. 4, Nos. 2/3, 2010.