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**Introduction to tissue preparation and the detection of metal
concentrations in biological, medical and environmental
samples**

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Title: **Introduction to tissue preparation and the detection
of metal concentrations in biological, medical and environmental samples**

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Preface and acknowledgements

This work is an introduction to metal analysis in various biological and environmental samples with the focus on sample preparation. Since many of these materials are not commonly studied by commercial laboratories, a full validation of the method needs to be carried out and this may be problematic because such analyses are most often carried out not by chemists, but by other scientists with their own specialist areas, such as biology, ecotoxicology, toxicology. We believe then that this work will be helpful to such scientists, whose speciality lies outside chemistry, but who must implement metal studies as a part of their scientific activity.

A significant number of papers and projects from toxicology deals with metals. The analysis of the concentrations of metals in various materials is common. We decided then to base this review on metal analysis. Summaries of the most important problems that may arise during handling non-standardized samples will therefore be presented with the examples of metal studies. The general scheme and main issues, however, remain valid for general measurements taken during instrumental analysis.

We are both active scientists in the field of biology (especially ecotoxicology, toxicology, and physiology) and environmental chemistry (including biomonitoring). We are specialists in the study of metal concentrations in various environmental elements (soil and water) and animals (birds, and mammals, including man). We run numerous research studies, not only regarding concentrations, but also the influence of those elements on the physiology on toxicological and ecotoxicological levels. All the analytical problems described in this monograph were experienced by us in our projects, so the recommendations for the precautions are very practical.

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