

Trace Element Analysis of Food and Diet

Namik K. Aras and O. Yavuz Ataman

RSC Publishing

Date of publication: 4th April 2006

Hardcover xviii + 344 pages

ISBN: 0854045767

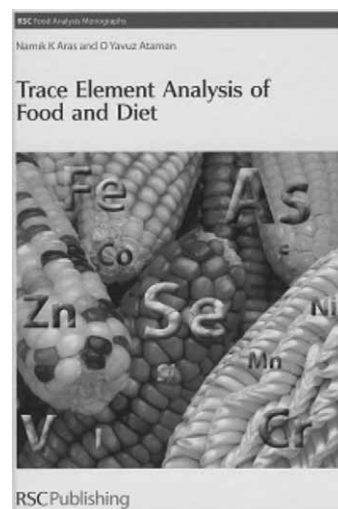
The scope of the Trace Element Analysis of Food and Diet ranges from sampling and sample preparation, including quality assessment and control and statistical treatment of data, to the application of various modern methods.

In the first part, the reader is offered an introduction and the statistical treatment of data, followed by insight into trace analysis in general, with its essentials, and the emphasis on terminology. Next section introduces sampling and sample preparation of specific foodstuffs such as wheat, wheat flour, bread, pasta, rice, potato, meat, fruits and vegetables, milk, fresh eggs and other staple food. Practical advice on sample decomposition and avoiding sample contamination is included. This is followed by a description of the experimental techniques for the collection, preparation and determination of trace elements in food. Modern techniques such as atomic absorption spectrometry, atomic emission spectrometry, atomic fluorescence, plasma techniques: nuclear activation analysis and x-ray methods, for both optical emission and mass spectrometry, are discussed in some details useful for both researchers and technical staff working in this area.

Chapter 11 deals with distribution of an element among the obtained chemical species and the importance of speciation analysis is emphasised. A separate chapter includes comparison and criteria for selecting analytical techniques. The last chapter summarizes the function and procedure for determining essential and toxic elements. Great effort has been made with literature data presented in the form of table for a quick insight into element determined, food source analysed, technique(s) used as well as notes regarding the nature and content of the study analysed. Each chapter ends with the »References and Further Reading« section, providing the readers with both publications on the specific topic and up-to-date selected references.

The book will serve as a valuable aid for researchers involved with trace metal and species analysis in food, diet or other biological and environmental samples. It will also be of particular benefit to anyone required to undertake trace metal analysis, including those in academic chemistry, and food science departments, government testing agencies, as well as national bodies associated with food, agriculture, etc.

Content: Introduction, Statistical Evaluation of Data, Trace Analysis, Sampling and Sample Pretreatment, Spectrochemistry for Trace Analysis, Atomic Absorption Spectrometry, Atomic Emission and Mass Spectrometry using Plasma Techniques, Atomic Fluorescence Spectrometry, Nuclear Activation Analysis, X-Ray Methods, Speciation Analysis, Comparison of Analytical Techniques, Essentiality and Toxicity of some Trace Elements and their Determination



Prof. Dr. Kata Galić