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(MALDI-MS); 2.4 Overview about Coupling Techniques; 2.4.1 LC Couplings; 2.4.2 Coupling of CE and ICP-MS; 2.4.3 Laser Ablation (LA); 2.4.4 Gas Chromatography (GC); 2.5 Final Remarks and Outlook; References; Chapter 3 Quality Control in Speciation Analysis Using HPLC with ICP-MS and ESI MS/MS: Focus on Quantitation Strategies Using Isotope Dilution Analysis; 3.1 Introduction 3.2 Synergetic Use of Elemental and Organic Mass Spectrometry in Compound Quantitation and Quality Assurance of Food Selenium Speciation 3.2.1 Quality Assurance in Species Quantitation; 3.2.2 Quality Assurance in Species Identification; 3.3 The Role of Species-Specific Isotope Dilution in Increasing Metrological Traceability for the Quantification of Bioinorganic Species; 3.3.1 IDMS and Speciation Analysis; 3.3.2 Quantitative Se Speciation in Food/Supplements by Species-Specific IDMS: Production of ""Speciated"" Reference Materials 3.3.3 Species-Specific Double IDMS Quantification of Plasma Selenoproteins: Advantages and Limitations in Comparison with the Species-Unspecific IDMS Approach 3.3.4 Application of Species-Specific Double Spike IDMS to Account for Redox Exchange between Cr(III) and Cr(VI) Species: Practical Considerations for Quality Assurance; References; Chapter 4 Novel Methods for Bioimaging Including LA-ICP-MS, NanoSIMS, TEM/X-EDS, and SXRF; 4.1 Introduction; 4.2 Bioimaging by LA-ICP-MS; 4.2.1 Principle; 4.2.2 Elemental Bioimaging by LA-ICP-MS; 4.2.3 Quantitative Bioimaging by LA-ICP-MS 4.2.4 Proteomic Bioimaging by LA-ICP-MS

Sommario/riassunto

Latest developments, new insights and knowledge derived from speciation analysis in one unique compilation: The reader gets acquainted with relevant instrumental as well as application aspects of metallomics approaches, paving the road to understanding fate, pathway, and action of metals in environment and organisms. Upon an introductory chapter on analytical methods and strategies, the full bandwidth of applications is discussed. Expert chapter authors cast spotlights on recent topics such as metallomics applications to environmental and nutrition studies as well as biology and medicine. Special chapters deal with the impact of manganese and iron on neurodegeneration, and the impact of nanoparticles on health.
