



Detection of Biological Agents for the Prevention of Bioterrorism [

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Springer

Chemistry

Mass spectrometry

Biotechnology

System safety

Chemistry

Mass Spectrometry

Security Science and Technology

Environmental Monitoring/Analysis

Biotechnology

Monografía

The threat of biological and chemical terrorism has driven the demand for timely techniques that can quickly detect the agent or agents used in an attack. The detection and/or prevention of these potential security threats provide significant scientific and technical challenges due to the combination of possible agents and modes of delivery available. This book will present a thorough look at the importance and technological challenges of mass spectrometry (MS) for the detection & identification of biological and chemical threats. This new contribution's general aims are to draw the attention of recognized practitioners, experts and graduate students trying to grasp the latest MS developments in the cutting-edge fields of MS-biodefense technologies for the rapid/early/specific sensitive threat detection of pathogens, viruses, explosives, mycotoxins, chemical agents, and biological markers of xenobiotic chemicals

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Contenido: Preface -- Broadband analysis of bioagents by mass spectrometry -- Hollow-fiber flow field-flow fractionation for mass spectrometry: from proteins to whole bacteria -- Mass spectrometry and tandem mass spectrometry for protein biomarker discovery and bacterial speciation -- Intact cell/spore mass spectrometry of fusarium macro conidia for fast isolate and species differentiation -- Bacteriophage amplification-coupled detection and identification of bacterial pathogens -- Matrix assisted laser desorption ionization mass spectrometric analysis of bacillus anthracis: from fingerprint analysis of the bacterium to quantification of its toxins in clinical samples -- Microorganism identification based on MALDI-TOF MS fingerprints -- Mass spectrometric detection of botulinum neurotoxin by measuring its activity in serum and milk -- Functional assays for ricin detection -- Challenges of detecting bioterrorism agents in complex matrices -- DESI-MS/MS of chemical warfare agents and related

compounds -- Mass spectrometry applications for the identification and quantitation of biomarkers resulting from human exposure to chemical warfare agents -- Applications of mass spectrometry in investigations of alleged use of chemical warfare agents -- Mass spectrometry for the analysis of low explosives -- Identification of the bacterial cellular lipid fraction by using fast GC {u00D7} GC-MS and innovative MS libraries -- Endotoxins in environmental and clinical samples assessed by GC-tandem MS -- Imaging mass spectrometry -- 2 and 3d TOF-SIMS imaging for biological analysis -- Application of mass spectrometry for the analysis of vitellogenin, a unique biomarker for xenobiotic compounds -- Mass spectrometry as a powerful analytical technique for the structural characterization of synthesized and natural products

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