Record Nr. UNINA9910820047903321 Methylmercury: formation, sources, and health effects / / Andrew P. **Titolo** Clampet, editor Pubbl/distr/stampa New York, : Nova Science Publishers, c2011 **ISBN** 1-61122-217-6 Edizione [1st ed.] Descrizione fisica 1 online resource (217 p.) Environmental science, engineering and technology Collana Environmental health-- physical, chemical and biological factors Altri autori (Persone) ClampetAndrew P Disciplina 615.9/25663 Soggetti Methylmercury - Environmental aspects Methylmercury - Toxicology Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Intro -- METHYLMERCURY FORMATION, SOURCES AND HEALTH EFFECTS -- METHYLMERCURY FORMATION, SOURCES AND HEALTH EFFECTS -- CONTENTS -- PREFACE -- Chapter 1 THE ROLE OF

SELENIUM IN MITIGATING MERCURY TOXICITY -- ABSTRACT --INTRODUCTION -- MERCURY BIOGEOCHEMISTRY AND HUMAN EXPOSURES -- SELENIUM NUTRITION AND PHYSIOLOGY -- MOLECULAR MECHANISMS OF MERCURY-SELENIUM INTERACTIONS -- Silencing of Selenium (SOS-1) -- Sequestration of Selenium (SOS-2) -- SOS-1 and SOS-2 Induced Generation of Apoptosis Initiators -- PROTECTIVE ROLE OF DIETARY SELENIUM AGAINST MERCURY TOXICITY -- FISH CONSUMPTION ADVISORIES -- CONCLUSION -- ACKNOWLEDGMENTS -- REFERENCES -- Chapter 2 FISH AS A DIETARY SOURCE OF MERCURY AND METHYLMERCURY, RISKS AND BENEFITS -- CHEMICAL AND PHYSICAL PROPERTIES OF MERCURY -- INORGANIC FORMS OF MERCURY -- ORGANIC FORMS OF MERCURY -- SOURCES OF MERCURY IN THE ENVIRONMENT -- NATURAL SOURCES -- ANTHROPOGENIC RELEASES FROM THE MOBILIZATION OF MERCURY IMPURITIES IN MATERIALS -- ANTHROPOGENIC RELEASES FROM MERCURY USED IN PRODUCTS AND PROCESSES -- EMISSION OF MERCURY TO THE AIR --EMISSION OF MERCURY TO THE WATER -- EMISSION OF MERCURY TO THE SOIL -- RE-MOBILIZATION OF HISTORIC ANTHROPOGENIC MERCURY -- GLOBAL CYCLING, TRANSPORT AND FATE OF MERCURY IN THE ENVIRONMENT -- MERCURY SPECIES AND TRANSFORMATION IN AQUATIC ENVIRONMENT -- POTENTIAL SOURCES OF EXPOSURE AND OCCURRENCE OF MERCURY IN HUMAN TISSUES -- RISKS AND BENEFITS OF EATING FISH -- FISH CONSUMPTION LIMITS -- TOXICITY OF MERCURY AND METHYLMERCURY -- Pharmacokinetics Effects -- ACUTE TOXICITY -- CHRONIC TOXICITY -- DEVELOPMENTAL TOXICITY -- MUTAGENICITY, NEUROTOXICITY AND CYTOTOXICITY -- DISTRIBUTION OF MERCURY IN FISH SAMPLES -- HUMAN HEALTH RISK ASSESSMENT -- REFERENCES.

Chapter 3 INEXPENSIVE LOW-COST MERCURY SPECIATION BY HYDRIDE GENERATION ATOMIC ABSORPTION SPECTROMETRY AFTER ION EXCHANGE SEPARATION IN A FIA SYSTEM (FIA-IE-HG-AAS) --ABSTRACT -- 1. INTRODUCTION -- 2. EXPERIMENTAL PROCEDURE --2.1. Safety Considerations -- 2.2. Reagents -- 2.3. Instrumentation --2.4. Analytical Procedure -- Retention and Elution Experiments in Batch Mode -- Analysis of Total Mercury by FIA-HG-QFAAS -- Analysis of CH3Hg+ and Hg2+ by FIA-IE-HG-QFAAS -- 3. RESULTS AND DISCUSSION -- 3.1. Optimisation of the FIA-HG-QFAAS Measuring System -- 3.2. Experiments in Batch Mode with the Dowex M-41 Resin -- 3.3. Experiments On-Line: Optimization of the FIA-IE-HG-QFAAS System for Mercury Speciation -- Preliminary Experiments -- Selection of the Best Microcolumn Geometry -- Selection of the Best Elution Conditions -- 3.4. Analytical Figures of Merit -- 3.5. Applicability of the Method: Analysis of Real Samples Doped with the Analytes --CONCLUSION -- ACKNOWLEDGMENTS -- REFERENCES -- Chapter 4 CATHEPSIN-DEPENDENT NEURONAL DEATH PATHWAYS INDUCED BY METHYLMERCURY -- ABSTRACT -- INTRODUCTION -- CATHEPSIN B IN NEURONAL DEATH -- CATHEPSIN B IN METHYLMERCURY-INDUCED NEURONAL DEATH -- INVOLVEMENT OF MICROGLIAL CATHEPSIN B IN PROCESSING OF INTERLEUKIN-1 -- CATHEPSIN D IN NEURONAL DEATH -- CATHEPSIN D IN METHYLMERCURY-INDUCED NEURONAL DEATH --CONCLUSION -- ACKNOWLEDGMENTS -- REFERENCES -- Chapter 5 NOT ONLY CONCENTRATIONS MATTER: SOME PRACTICAL CONSIDERATIONS OF IN VITRO MEHG TOXICITY STUDIES -- ABSTRACT -- INTRODUCTION -- MATERIALS AND METHODS -- RESULTS -- Effects of Cell Density on Apparent Cytotoxicity -- Effects of Medium Volumn on Apparent Cytotoxicity -- Temporal "Commitment Point" of Cell Death -- CONCLUSION -- Kinetics of Toxicity by a Cytotoxic Agent --Commitment Point: A Proposed Experimental Application --ACKNOWLEDGMENTS.

REFERENCES -- Chapter 6 METHYLMERCURY AND TOTAL MERCURY CONTAMINATION IN AN AQUATIC ECOSYSTEM OF HG-MINING RIVER IN GUIZHOU, CHINA -- ABSTRACT -- INTRODUCTION -- MATERIALS AND METHODS -- Sampling Site and Sample Collection -- Trophic Levels (TLs) Calculation -- Chemical Analysis -- RESULTS AND DISCUSSION --Trophic Levels of Organisms from Xiaxi River -- Mercury Concentration and Speciation in Sediment -- Mercury Speciation in Biota --CONCLUSION -- REFERENCES -- Chapter 7 MERCURY METHYLATION VERSUS DEMETHYLATION: MAIN PROCESSES INVOLVED -- ABSTRACT --1. INTRODUCTION -- 1.1. Organomercury Compounds -- 2. MERCURY METHYLATION/DEMETHYLATION PROCESSES -- 2.1. Mercury Methylation Processes -- 2.1.1. Chemical Methylation - Abiotic Processes -- 2.1.2. Biotic Processes -- i. Environmental Factors that Affect Mercury Biotic Methylation -- 2.2. Mercury Demethylation Processes -- 2.2.1. Chemical Demethylation - Abiotic Processes --2.2.2. Biotic Processes -- i. Reductive Methylmercury Degradation -- ii. Organization of the Mer Operon -- iii. Oxidative Methylmercury Demethylation -- iv. Environmental Factors that Affect Mercury Biotic

Demethylation -- 3. CONCLUSIONS -- REFERENCES -- Chapter 8
MEHG-EXPOSURE THROUGH SEAFOOD CONSUMPTION: CHOLINERGIC
MUSCARINIC RECEPTOR AS A TARGET OF TOXICITY AND POTENTIAL
BIOMARKER OF CNS EFFECTS -- ABSTRACT -- INTRODUCTION -- AIM
AND EXPERIMENTAL PROCEDURES -- MAIN FINDINGS -- In Vivo Studies
-- In Vitro Studies on Brain and Lymphocyte MRs -- CONCLUSION -ACKNOWLEDGMENTS -- REFERENCES -- INDEX -- Blank Page.