

A NEW BOOK ON MONITORING TECHNIQUES

BIOMONITORS AND BIOMARKERS AS INDICATORS OF ENVIRONMENTAL CHANGE: VOLUME II.

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Monitoring the environment is absolutely essential if we are to identify hazards to human health, to assess environmental cleanup efforts, and to prevent further degradation of the ecosystem. Biomonitoring and biomarkers combined with chemical monitoring offer, it will be learned, the best approach to making these assessments. The purpose of this book was the same as that of Volume I, to document recent developments and applications in biomonitoring and biomarker research. The second volume builds on the first (Butterworth et al., Eds. 1995, *Biomonitoring and Biomarkers as Indicators of Environmental Change*, Plenum Publishing, New York) with a compilation of methods enriching the list of possible monitoring systems.

The book is intended for researchers who want to incorporate newer and different technologies in their development of specifically-crafted monitors; students who are learning the field of biomonitoring and regulatory agencies that want to consider newer technologies to replace inadequate and less powerful test regimes.

The book resulted from a symposium of the same title that was held (May 19-22, 1998) as part of the annual conference of the International Association of Great Lakes Research held at the McMaster University in Hamilton, Ontario, Canada. As in the first conference and volume, we searched for systems that would go beyond bioaccumulation of specific pollutant chemicals and their toxic effects on individuals, populations, and communities.

We sought candidate biomonitoring/biomarker systems that included a range of endpoints in a variety of laboratory and sentinel organisms and systems exhibiting high reliability, short turn-around-time and low cost. There was also a need to detect atmospheric pollution, to use plant test systems, and to apply molecular biotechnology to the construction of biomarkers and biomonitoring systems. There were two major changes over the first volume: one section completely devoted to on-line/automated biomonitoring and another section devoted to recombinogenetics offering new methods and applications. In both cases we sought expertise from Europe.

Outcomes of the first volume led to at least two river monitoring projects in Canada and Mexico. In the Canadian project Carl Freeman and the late Robbin Hough, authors in the first volume, instituted with the aid of the First Nation, an automated chemical and biological monitoring system on Walpole Island in the delta of the St. Clair River in Ontario, Canada. The Mexican project is a chemical and biomonitoring

regime on the heavily industrialized Zahuapan River watershed in Tlaxcala State, Mexico led by Alfredo Delgado with the aid of Rafael Villalobos and Sandra Gomez authors in the first volume.

TABLE OF CONTENTS:

1. **Butterworth, F.M., R. Villalobos-Pietrini & M.E. Gonsebatt.** Introduction.

Section I: Automated monitoring:

On-line monitoring

2. **Gunatilaka A., & P. Diehl.** A Brief Review of Chemical and Biological Continuous Monitoring of Rivers in Europe and Asia.

3. **Gunatilaka A., P. Diehl, & H. Puzicha.** The Evaluation of 'Dynamic Daphnia Test' after a Decade of Use: Benefits and Constraints, 4. **Kramer, K.J.M., & E.M. Foekema.** The 'Musselmonitor[®]' as Biological Early Warning System: The First Decade. 5. **Spieser, O.H.** Quantitative Behavior Analysis - A New Approach to the Challenges of Environmental Toxicology. 6. **Spieser, O.H., J. Schwaiger, H. Ferling, & R.-D. Negele.** An Introduction to Behavioral Monitoring - Effects of Nonylphenol and Ethinyl-Estradiol on Swimming Behavior of Juvenile Carp. 7. **Baganz, D., G. Staaks, O.H. Spieser, & C.E.W. Steinberg.** How to Use Fish Behavior Analysis to Sensitive Assess the Hazard Potentials of Environmental Chemicals. 8. **Blübaum-Gronau, M. Hoffmann, O.H. Spieser, & W. Scholz.** Continuous Water Monitoring: Changes of Behavior Patterns as Indicators of Pollutants.

Automation technologies

9. **Das, M., & F.M. Butterworth.** Restoration and Classification of Water-Borne Microbial Images for Continuous Monitoring of Water Quality. 10. **Cowell, D.C, A.K. Abass, A.A. Dowman, J.P. Hart, R.M. Pemberton, & S.J. Young.** Screen-printed Disposable Biosensors for Environmental Pollution Monitoring. 11. **Scully, P., R. Chandy, R. Edwards, D. Merchant, & R. Morgan.** Optical Sensors and Biosensors for Environmental Monitoring

Section II: Recombination and recombinogen detection:

12. **Fahrig, R.** Recombination as Indicator for Genotoxic and "Non-genotoxic" Environmental Carcinogens. 13. **Guzmán-Rincón, J., P. Ramírez-Victoria, & L. Benítez.** Somatic Mutation and Recombination Test in *Drosophila* Used for Biomonitoring of Environmental Pollutants. 14. **McGowen, R.M., D.C. Freeman & F.M. Butterworth.** A New Way to View Complex Mixtures: Measurement of Genotoxic Effects of Mixtures of a Polychlorinated Biphenyl, a Polyaromatic Hydrocarbon, and Arsenic. 15. **Ramos-Morales, P., M.G. Ordaz, A. Dorantes, H. Rivas, P. Campos, M. Martinez, & B. Hernandez.** *Drosophila* is a Reliable Biomonitor of Water Pollution.

Section III: New approaches and applications of established systems: Sentinel systems

16. **Gerhardt, A.** A New Multispecies Freshwater Biomonitor for Ecologically Relevant Control of Surface Waters. 17. **Gonsebatt, M.E., P. Guzman, & J. Blas.** Cytogenetic and Cytotoxic Damage in Exfoliated Cells as Indicators of Effects in Humans. 18. **Hussain, S.P. & C.C. Harris.** p53 Mutation Load: a Molecular Linkage to Carcinogen Exposure and Cancer. 19. **Lovett-Doust, L & J. Lovett-Doust.** Plant Biomonitor in Aquatic Environments: Assessing Impairment via Plant Performance. 20. **Uribe-Alcocer, M., & P. Díaz-Jaimes.** Fish

Chromosomes as Biomarkers of Genetic Damage and Proposal for the Use of Tropical Catfish Species for Short-term Screening of Genotoxic Agents.

Laboratory-based biomonitors.

21. **Jaffe R.L.** The *Tetramitus* Assay. 22. **Rico-Martínez, R. C.A. Velázquez-Rojas, I.A. Pérez-Legaspi, & G.E. Santos-Medrano.** The Use of Aquatic Invertebrate Toxicity Tests and Invertebrate Enzyme Biomarkers to Assess Toxicity in the States of Aguascalientes and Jalisco, Mexico.23. **Gomez-Arroyo, S., M.E. Calderón-Segura, & R. Villalobos-Pietrini.** Biomonitoring of Pesticides by Plant Metabolism: an Assay Based on the Induction of Sister-Chomatid Exchanges in Human Lymphocyte Cultures by Promutagen Activation of *Vicia faba*. 24. **Villalobos-Pietrini, R., S. Gómez-Arroyo, & O. Amador-Muñoz.** Genetic Monitoring of Airborne Particles.

Section IV: Abstracts

25. Abstracts of presentations not submitted as chapters.