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Computational Toxicology: Risk Assessment for Pharmaceutical and Environmental Chemicals, S. Ekins (Ed.). John Wiley & Sons Inc., Hoboken, NJ (2007). 836 pp., Price: US\$ 140.00, ISBN: 978-0-470-04962-4

This book is the first in Wiley's new series entitled: "Technologies for the Pharmaceutical Industry." Given the broad scope of the topic, it is not surprising that there are a multitude (70) of contributors from nine countries. The book has five major sections:

- Introduction to toxicology methods (5 papers).
- Computational methods (3 papers).
- Applying computers to toxicology assessment: pharmaceutical (12 papers).
- Applying computers to toxicology assessment: environmental (4 papers).
- New technologies for toxicology: future and regulatory perspectives (3 papers).

Of most interest to readers of this journal will be the papers published in the fourth major section. They are by title:

- The toxicity and risk of chemical mixtures.
- Environmental and ecological toxicology: computational risk assessment.
- Application of QSARs in aquatic toxicology.
- Dermatotoxicology: computational risk assessment.

The editor notes in the Preface that: "This book includes a comprehensive discussion of the state of the art of currently available molecular-modeling software for toxicology and their role in testing strategies for different types of toxicity when used alongside in vitro and in vivo models." The editor later states: "This book is not aimed solely at laboratory toxicologists, as scientists of all disciplines in the pharmaceutical, chemical industries, and environmental sciences will find it of value."

Toxicology is, in the broadest sense, the study of adverse affects of drugs or chemicals on living systems, but how and why are questions that need answers. To this end, modern computational methods are assisting in screening and in answering those questions. As with so many other mysteries of science, computational science and information technology are being employed to explain the unknown, and this task is large. Whereas 212,000 chemicals were known in 1965, 12,000,000 are known now. Given that number, their appearance in water, air and soils with concomitant human exposure is inevitable. Thus, the need for health impact assessment is extremely important.

One technique new to me was the use of QSARs (Quantitative Structure-Activity Relationships) for the prediction of the toxicity of chemicals based on their molecular structure and/or physicochemical properties.

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Bioavailability, Bioaccessibility and Mobility of Environmental Contaminants, J.R. Dean. John Wiley & Sons Inc., Hoboken, NJ (2007). 316 pp., Price: US\$ 170.00, ISBN: 978-0-470-02577-2

This book is the 11th in a series entitled "Analytical Techniques in the Sciences." This series includes a number of open learning/distance learning books which cover major analytical techniques and their applications in the physical, life and materials sciences. Dean, the author of this book, has written two others entitled: (1) *Methods for Environmental Trace Analysis* and (2) *Practical Inductively Coupled Plasma Spectroscopy*.

The goal of this series of books is to provide a broader coverage of the many areas of science in which analytical techniques and methods are commonly utilized. The books are, according to the publisher, "... presented in an easy-to-read, user-friendly style with each chapter including both learning objectives and summaries of the subject matter covered." Also included are self-assessment and discussion questions with responses given in appendix. The book has the following eight chapters:

1. Contaminated land and the link to human health.
2. Sample preparation and analytical techniques for elemental analysis of environmental contaminants.
3. Sample preparation and analytical techniques for persistent organic pollutant analysis of environmental contaminants.
4. Methods used to assess bioavailability of metals.
5. Methods used to assess bioavailability of persistent organic pollutants.
6. Methods used to assess oral bioaccessibility.
7. Selected case studies on bioavailability, bioaccessibility and mobility of environmental contaminants.
8. Recording of information and selected resources.

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Atmospheric Degradation of Organic Substances: Data for Persistence and Long-range Transport Potential, W. Klopfer, B.O. Wanger. WILEY-VCH Verlag GmbH & Co. KgaA Weinheim, Germany (2007). 256 pp., Price: US\$ 190.00, ISBN: 978-3-527-31606-9

Since many commercially important bulk chemicals are volatile, their fate in the atmosphere most commonly is photochemical degradation. Most of the degradation is effected by solar radiation with a minor fraction occurring on soil or water.

This book has two relatively short chapters covering the first 105 pages entitled as follows:

- Significance of photo-degradation in environmental risk assessment.
- Abiotic degradation in the atmosphere.

In the second chapter, the authors detail the reactions that occur photochemically and in that chapter develop the mathematical equations that describe these reactions. Experimental methods for measuring reaction rate constants are described also. The chapter ends with an extensive list of references (240).

The third (and longest) section of the book is a Table of Reaction Rate Constants of Photo-Degradation Processes. Given in this table are the bimolecular reaction rate constants for the atmospheric reaction of chemical substances with reactive atmospheric species: hydroxyl radical, ozone, and nitrate radical. Data are given for 1081 chemicals accumulated from 536 cited references.

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Mass Transfer and Separation Processes: Principles and Applications, D. Basmadjian (Ed.), second ed. CRC Press/Taylor & Francis Group, Boca Raton, FL (2007). 511 pp., Price: US\$ 89.95, ISBN: 978-1-4200-5159-9

This book is a classical chemical engineering text designed for teaching a course on mass transfer and separation processes by emphasizing practical, real-world engineering design processes. Pertinent to this journal are the inclusion of numerous examples drawn from the environmental area. Among those examples are the following:

- Example problem dealing with the aeration of a wastewater treatment trench (aerated lagoon).
- Reactions in biofilters and biofilms.
- Design and performance of a biofilter.
- Reverse osmosis—principles, applications and process design.
- Discharge of a plant effluent into a river.
- Adsorption of a pollutant from groundwater onto soil.
- Solution to the effect of wind on the dispersion of continuous emissions.
- Net rate of global carbon dioxide emissions.
- DDT uptake by fish.
- Adsorption of pollutants on activated carbon.
- Pollutant release from groundwater onto soils.
- Streeter-Phelps oxygen sag curve in a polluted river.

Although the book is not designed to stand alone for an environmental course, it does contain a plethora of useful examples that could well be used in such a course. In that context, this book would be a very useful supplemental resource.

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