

Book Reviews

Biodiversity and Human Health. Edited by Francesca Griffo (American Museum of Natural History, New York, NY) and Joshua Rosenthal (National Institutes of Health, Bethesda, MD). Island Press, Washington, D.C. 1997. xx + 379 pp. 15 x 22.5 cm. \$50.00. ISBN 1-55963-500-2.

This book is a milestone in the discussion of biodiversity and the consequences of its loss, as it comprises the proceedings of a symposium that, for the first time, brings the discussion beyond a consideration of the value of biodiversity as a source of new natural products. *Biodiversity and Human Health* establishes the linkage between habitat destruction and the increase in incidence of infectious disease. Sixteen papers are presented by 26 authors. One example cited by Paul Epstein et al. in their chapter "Biodiversity and emerging infectious diseases: integrating health and ecosystem monitoring" is the emergence of an epidemic of Machupo virus in eastern Bolivia in 1962, resulting from conversion of rainforest habitat to cultivated land, and the subsequent overuse of pesticides that killed natural predators of the vectors of that disease. When the predators were reintroduced, the epidemic of the Bolivian hemorrhagic fever subsided. Francesca Grifo et al., in their paper "The origins of prescription drugs", have provided an extremely thorough analysis of the contemporary role of biodiversity as a source of new drugs. They analyzed the top 150 proprietary drugs, based on a number of times a prescription is filled in the United States, and evaluated their origin as a natural product, semisynthetic, or synthetic. Concluding that 57% of this group of drugs had, in some way, its origins in biological diversity, including animals, plants, fungus, bacteria, and marine organisms, this paper offers compelling evidence of the contemporary importance of natural products in pharmaceuticals. Important chapters for helping to guide field research are those in intellectual property and benefit sharing such as by Katy Moran, "Returning benefits from ethnobotanical drug discovery to native communities", and Thomas Mays et al., "A paradigm for the equitable sharing of benefits resulting from biodiversity research and development." Joshua Rosenthal provides an overview of the International Cooperative Biodiversity Groups, developed and supported by three U.S. government agencies, NIH, AID, and NSF, along with a summary of lessons learned in the early stages of this program. Walter Reid suggests increased collaboration between the biomedical and conservation communities, and there is an interesting afterward by Byron Bailey and John Grupenhoff calling for the creation of a "National Council on Biodiversity and Human Health." Clearly there are many common interests among those professionals who conserve, study, develop, and prescribe biodiversity. Tragically, despite the increased number of meetings, funding, dialog and debate, curricula, publications, and action plans to conserve biodiversity, the shrinkage of wilderness areas on this planet continues to accelerate. As Eric Chivian points out, "Medicine...has a long tradition of acting decisively to prevent life threatening situations from occurring even when all of the evidence is not in." That is certainly a tradition that must be adopted by the conservation community if nature is to be preserved for future generations. *Biodiversity and Human Health* is a thought-provoking series of essays that is a most worthy part of

the dialog on biodiversity, as it contains many suggestions for increasing our effectiveness as a species in preserving the global environment.

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150 and More Basic NMR Experiments: A Practical Course, 2nd Edition. Edited by S. Braun (Technische Hochschule Darmstadt), H.-O. Kalinowski (Justus-Liebig University Gießen), and S. Berger (Universität Leipzig). Wiley-VCH, Weinheim, Germany. 1998. xiii + 596 pp. 17 × 24 cm. \$67.95. ISBN 3-527-29512-7.

Among books available on NMR spectroscopy, this text is unique since it is essentially a laboratory manual for both high-resolution and solid-state NMR spectroscopy. It provides detailed instructions for all possible spectrometer operations, starting with basic operations such as shimming, probe tuning, pulse width calibrations, and sensitivity checks. This is followed by a wide range of one-dimensional experiments and finally 2D and 3D NMR and solid-state NMR spectroscopy. The use of gradient versions of most 1D and 2D experiments is covered, along with the use of shaped pulses for selective excitation. In each case, a recommended set of acquisition parameters and processing parameters is provided along with a brief bibliography. In many cases, brief but useful comments of the relative merits of alternative sequences (e.g., HMQC and HSQC) are provided.

This edition is an expanded version of the first (1996) edition, which was entitled, "100 and More Basic NMR Experiments." The major additions are in the area of solid-state NMR spectroscopy plus some additional gradient versions of 1D and 2D sequences. Its purchase is highly recommended for any university, government, or industrial NMR laboratory. Further, it should be kept in the laboratory, rather than in an office or library, so that it is directly available to spectrometer users. Nevertheless, in spite of its many virtues, this text has significant weaknesses that prevent it from being even more widely useful. The first and most serious problem is that the acquisition and processing parameters are provided only in Bruker nomenclature. An appendix is provided comparing different instrument dialects, but this is incomplete and it would be difficult for someone who is not an expert NMR spectroscopist to do the necessary translation. In view of the significant numbers of Varian spectrometers throughout the world and in North America in particular, this is a significant limitation. I hope that the authors would remedy this in any future edition by providing parallel parameter menus for different spectrometers for each experiment. Second, the acquisition and processing parameters provided for most 2D experiments are designed to provide a quick, relatively low-resolution spectrum for a simple test sample. Inexperienced users may not be aware

how to modify the parameter sets to provide the necessary resolution for more complex samples and further guidance in the text would be helpful. Finally, this reviewer is disturbed by the complete absence of discussion of F1 forward linear prediction. As has been shown elsewhere (Reynolds, W. F.; Yu, M.; Enriquez, R. G.; Leon, I. *Magn. Reson. Chem.* **1997**, 35, 505), this is an extremely useful technique for saving time when acquiring 2D spectra. Thus, while the current edition is already a unique and valuable contribution to the NMR literature, further minor modifications could make it even more valuable.

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Mycotoxins and Phycotoxins: Developments in Chemistry, Toxicology and Food Safety. Edited by Marina Miraglia (Istituto Superiore di Sanita–Food Laboratory, Rome, Italy), Hans P. van Egmond (National Institute of Public Health and the Environment, Bilthoven, The Netherlands), Carlo Brera (Istituto Superiore di Sanita–Food Laboratory, Rome, Italy), and John Gilbert (Ministry of Agriculture, Fisheries and Food, Norwich, U.K.). Alaken, Inc., Fort Collins, CO. 1998. xii + 610 pp. 15 × 22.5 cm. \$180.00. ISBN 1-880293-09-9.

For the veteran scientist in the fields of mycotoxins and phycotoxins, the book offers a treasure trove of detailed, important facts. Conveniently, it has been divided into the following sections: General Overview (Chapters 1–5); Mycotoxins I, Occurrence and Analysis (Chapters 6–21), II Safety Aspects and Regulation (Chapters 22–26), III Mechanisms of Action (Chapters 27–30), IV Mycology (Chapters 31–41); Phycotoxins I, Occurrence and Analysis (Chapters 42–50), II Safety Aspects and Prevention (Chapters 51–61). Data are presented from many countries, and from that perspective, the approach is global. It is clear that attempts are being made to standardize not only acceptable levels of these toxins from country to country but, additionally, bioassays and techniques by which these important secondary metabolites are detected. No doubt, all these aspects have a major impact on international trade, and in this regard, the book is highly useful. One

particularly interesting topic is the role of the individual genotype, the susceptibility to aflatoxins and, presumably, other toxins (Chapter 24, page 221). At some point in the 21st century, gene mapping of individuals will provide actuarial data that will have a profound effect on society.

As one would anticipate, there is a good deal of repetition of facts throughout, and this is to be expected in the publication of a “proceedings”. The Latin maxim certainly applies that, “Repetition is the mother of all studies (*repetitio mater est studiorum*).” Besides, an author cannot be prescient, especially when papers have an early delivery deadline, generally at the meeting site.

There are a number of distressing aspects to the book. There is no index of the subject matter. The first structure, beauvericin, does not appear until page 134 (Chapter 15), followed by diclofopmethyl (Chapter 32, page 304). Finally, the essential mycotoxin structures that are essential to the learning process, especially for those with feeble memories, are revealed in Chapter 40 (pages 363–397). The first phycotoxin, okadaic acid, is presented on page 471 (Chapter 48). For those new to the field, especially undergraduate and graduate students across the broad disciplines of agrochemistry, environmental and food sciences, and the medical profession, the inclusion of the pertinent structures, perhaps in the first section of each major topic, would have conveniently set the stage. Unfortunately, the text is also peppered with spelling errors. There are sentences cut off in midstream in two chapters, leaving the reader befuddled as to what the author intended. One figure has three plates that are not labeled, and chapters appear with acronyms that are not spelled out. All these are irritating and frustrating to the veteran scientist, while the neophyte may well give up in despair. Those who like to annotate books will have a field day and will end up with a fine addition to their libraries, but there will have to be a lot of burning of the midnight oil. With more attention to proof reading and other publication matters, this book would have been excellent.

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