

## Book Reviews

**Plant Resources of South-East Asia No. 17: Fiber Plants.** Edited by M. Brink (Prosea Publication Office, Wageningen University, The Netherlands) and R. P. Escobin (Forest Products Research and Development Institute, Philippines). Backhuys Publishers, Leiden. 2003. 459 pp. 19 × 28 cm. £120. ISBN 90-5782-129-X.

This book is one in a series of 19 volumes dedicated to the purpose of providing information to workers in research, education, and industry concerning plants of commodity. The series is compiled by a consortium of specialists coordinated by seven institutions in Southeast Asia and the Prosea Foundation, Bogor, Indonesia.

In this volume, fiber plants are defined as those grown for use as textiles, paper, cordage, mats, baskets, wickerwork, thatching, and packing. There are 45 major treatments, consisting of 72 species. Brief descriptions of 120 minor species are included, as well as a listing of 450 species whose use as a fiber plant is secondary to other main uses of the plant. Rattans and bamboos are not included, as each have their own volume (Prosea Volumes 6 and 7). Also not included are plants having other major uses, such as palms (nonseed carbohydrates, Prosea Volume 9, or vegetable fat, Prosea Volume 14) and trees with primary timber uses (Prosea Volume 5).

The introductory chapter presents an interesting and comprehensive overview of the topic of fiber plants, containing 10 sections addressing the role of fiber plants (historical, uses, and economic); properties (morphological, chemical, and physical); botany (taxonomy and morphology, growth, and development); ecology (climatic and soil factors); agronomy (production systems, propagation and planting, husbandry, and crop protection); harvesting and processing (harvesting, post-harvest handling and processing, pulping, boards, and artificial fibers); genetic resources and breeding; research and development (by county); and prospects (supply and demand, and research priorities). This serves to acquaint the reader with the definitions and backgrounds of these sections as explored in Chapter 2. It is well-written and informative, and it includes 13 useful tables.

The monographic information relates to the 72 major species, alphabetically arranged, in Chapter 2 and is often accompanied by quality botanical line-drawings. Taxonomy and common names, by country (or language), are fully detailed. "Uses" also include applications other than those related to fiber. This is a comprehensive survey and integration of the available literature.

The 120 species described as "minor fiber plants" in Chapter 3 are given a shorter treatment in six categories consisting of synonyms, vernacular names, distribution, uses, observations, and selected sources. The "observations" section includes an abbreviated version of the 10 topics covered for the major species in Chapter 2. Most entries average approximately half of a page.

Chapter 4 is an alphabetical listing of 450 fiber plants that have major uses other than fiber. Each entry categorizes the use that is considered primary (i.e., essential-oil plants), which also identifies the volume of Prosea in which it appears.

The appendices include citations (52 pp), a glossary of terms (22 pp), a listing of institutional acronyms, and two indices, one of the scientific names (28 pp) and the other of vernacular names (7 pp). The listing by vernacular name makes this work particularly useful for workers and researchers "in the field".

The diverse aspects of this well-written book make it an informative reference for professionals and workers, and interesting reading for the casual reader attracted to fiber plants and products. While it is somewhat disappointing that rattans and bamboos are

not included, it is understood that the sheer volume of information for each requires a separate book. This volume is well deserving of a place in the libraries of those with interest in the topic.

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**Proteins: Structure and Function.** By David Whitford (University of London). John Wiley and Sons, Ltd., Chichester. 2005. x + 528 pp. 19.5 × 24 cm. \$65.00 (paper). ISBN 0-471-49894-7.

The author's experience and excellence as a professor shines through this well-written text. His writing style is easy to read, using clear, simple language whenever possible and presenting numerous concepts of protein biochemistry in a logical progression. The text is written for a slightly advanced undergraduate student who already has a basic grasp of biochemistry and wishes to delve more completely into the world of protein chemistry.

Each chapter is color coded to enable the visually oriented reader to recall more accurately the location of that particular fact that they are trying to recall; the comprehensive and illustrative charts and tables are well organized. The figures are clear and of a size that allows easy perception of details. The general scheme of the text flows from a brief history of protein science to a description of amino acids, then to the three-dimensional structural components of proteins. The contributions of structure to function of two protein classes, fibrous and membrane bound, are examined in more detail before moving to the more mathematically challenging topic of enzyme kinetics and the complex interactions involved in protein synthesis, processing, and turnover.

Having covered the basics of protein science, the author then takes the reader into the mechanics of studying proteins, introducing the major methods of protein expression, purification, and characterization. A nod is given to physical biochemistry toward the end of the text as the thermodynamics of protein folding and refolding are discussed. The final chapter of the text moves the reader out of the laboratory and back into the living system of greatest interest to them, humans, providing a brief summary of the impact of the proper folding and expression levels of proteins on health.

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**DNA Fingerprinting in Plants. Principles, Methods, and Applications. 2nd Ed.** By K. Weising (University of Kassel), H. Nybom (Swedish University for Agricultural Sciences), K. Wolff (University of Newcastle upon Tyne), and G. Kahl (University of Frankfurt). Taylor and Francis, CRC Press, Boca Raton, FL. 2005. xxviii + 444 pp. 6 × 9 in. \$99.95. ISBN 0-8493-1488-7.

This is a must-read book for anyone interested in using DNA-based methods for any aspect of plant science, but particularly for

plant breeding, taxonomy and phylogeny, and, as we have done, detection of contaminating plant, fungal, or bacterial species in dietary supplements. True to its title, this book gives a detailed look at the principles, methods, and applications of DNA fingerprinting in plants. The book is thorough; it comprises nine chapters and four appendices and cites 1623 references. An extremely detailed Table of Contents makes it easy to find whatever topic the reader desires.

The first two chapters of the book define sources of variation in DNA (satellites, transposable elements, etc.) and how these divergences can be detected (using RFLP, RAPDs, AFLP, and their variants). The next set of chapters goes into the nitty-gritty of the type of equipment and reagents needed for these types of analysis and provides a detailed look into the methodologies required. The latter of these chapters is the longest one in the book and covers everything that the reader needs to know: safety procedures, DNA isolation methods, and how-to-do-it information about the majority of molecular techniques necessary for fingerprinting.

The second half of the book contains chapters that will help in choosing which methods to use, with cross-references to earlier chapters for easier navigation. These chapters, which are also well referenced, serve as a good starting point for looking for more detailed information on topics of interest. A chapter devoted to data analysis, including algorithms for statistical analysis and computer programs, is included. Another chapter, on applications, gives a comprehensive look at how specific fingerprinting techniques have been used and exemplifies the well-thought-out organization of the book. For example, one of the main subheadings in Chapter 6 on Applications, "Genetic Diversity", is further subdivided into how fingerprinting has been used for the analysis of cultivars, populations, hybridization, plant conservation, and germplasm characterization. Each of these topics is further broken down with several relevant and interesting case studies on how particular methods have specifically been applied. Throughout the book, the authors make an effort to point out the pros and cons of different techniques and analyses. They also include a chapter comparing different marker systems. Finally, there is a very brief introduction to more recent methodologies such as SNPs, microarrays, and expression analysis. However, as the authors point out, this is not a main focus of the book, but the references can be used for acquiring more detailed information.

The appendices include an extensive list of DNA isolation protocols, optimized for different plant species. There is also an appendix that refers to computer programs that will be of value in the analysis of particular methodologies, and another appendix that lists commercial companies used for supplies.

The authors have successfully produced a book that is clear, is easy to navigate, and serves as the first place to look for answers about DNA fingerprinting. It is not only an excellent resource for researchers wishing to get started in fingerprinting methodologies but also a good benchtop guide for those already involved. It is one that we recommend to experienced personnel and beginners alike. We predict that the next edition will include applications for investigating the integrity and purity of botanicals and dietary supplements.

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**Quaternary Stereocenters. Challenges and Solutions in Organic Synthesis.** Edited by J. Christoffers and A. Baro (Universität Stuttgart). Wiley-VCH, Weinheim. 2005. xxiii + 336 pp. 7 × 10.5 in. \$170.00. ISBN 3-527-31107-6.

The construction of quaternary stereocenters is perhaps the most significant challenge in synthetic organic chemistry, and this book covers the topic with sufficient depth and clarity. The term "quaternary stereocenter", for the purposes of the present monograph, includes both all-carbon quaternary stereocenters as well as tertiary alcohols, ethers, and amines. Obviously, this is a topic that can never be exhaustively covered in one volume, but the authors have attempted to put together suitable examples highlighting solutions and significant achievements in this area.

The book is written in 12 chapters; among the groups of reactions covered in separate chapters are aldol reactions, Michael reactions, rearrangements, cycloadditions, asymmetric cross-coupling, alkylation of ketones and imines, allylic allylation, radical reactions, and enzymatic methods. In addition, the first two chapters present construction of quaternary stereocenters in important natural products (Chapter 1) and important pharmaceuticals and intermediates (Chapter 2) by using a reaction type approach for Chapter 1 and a structural class based approach for Chapter 2.

Throughout the book there is liberal use of reaction schemes and figures, providing relevant mechanistic interpretations of reaction pathways and outcomes. Most chapters also conclude with a summary section; this should have been done for all chapters. In some instances, the information presented in the first chapter, "Important Natural Products", could have been subsumed into subsequent chapters, since this chapter essentially highlights a variety of reaction types and strategies (such as cycloadditions and rearrangements) covered later. The important topics of carbometalations and C–H functionalization reactions included in the first chapter should be more adequately covered in separate chapters.

Overall, this book is recommended as a good resource for the practicing synthetic chemist in academia or industry, as well as for graduate students seeking a greater understanding of this challenging area of synthetic organic chemistry. The information is organized in a manner that is easy to find, based on reaction type; recent references are provided for further reading.

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**Pharmacy and the U.S. Health Care System. 3rd Edition.** Edited by M. I. Smith (MIS Pharmaceutical Consultants), A. I. Wertheimer (Temple University), and J. E. Fincham (University of Georgia). Haworth Press, Binghamton, NY. 2005. xxiv + 476 pp. 15 × 21 cm. \$49.95. ISBN 0-7890-1876-4.

The U.S. health-care delivery system is complex, dynamic, and, at times, unpredictable. Policy decisions made locally, regionally, or nationally, in both the public and private sectors, have direct and indirect implications for pharmacy. The editors of this book suggest that pharmacists have an obligation to understand the broader health-care environment in which pharmacy operates; it is not enough to be skilled in the basic pharmaceutical sciences, nor is it enough to be a competent provider of pharmacotherapy. Successful pharmacists should be able to confidently discuss options for financing and organizing health care. They should be informed participants in debates surrounding controversial issues not only at the individual-patient level but also at the societal level. To be a valued member of the health-care team, successful pharmacists need to understand who comprises the team and the issues faced by these other participants. The purpose of this book is to help student pharmacists learn about these and many other issues, with the ultimate goal to enhance the level of service provided to patients.

Although the primary market for this book is pharmacy students, practicing pharmacists and pharmaceutical scientists might also

benefit from many of the chapters. The editors have enlisted an impressive cadre of individuals to serve as chapter authors. Most of the chapters are well referenced and address critical issues facing pharmacy and the broader health-care system. Chapters focus not only on the financing of health care but also on the many players in the system, including health-care professionals, hospitals, long-term care facilities, pharmaceutical manufacturers and wholesalers, and health-care consumers. Although there is a separate chapter on diversity issues with respect to health-care delivery, cultural issues are woven into numerous chapters, as are discussions about the impact of population trends on the profession of pharmacy. The potential impact of various technologies is discussed, and an entire chapter is devoted to the many issues surrounding biotechnology. Two chapters provide thoughtful discussions of the future of pharmacy. Although the book could serve as a stand alone textbook for a health-care systems course in a pharmacy curriculum, because of some unique content, it could also serve as an appropriate complement to other books that have a similar focus.

The edited nature of the book, while definitely a strength, is also a weakness, as there is some redundancy in the chapters. In addition, although the editors have tackled many of the important issues facing the current health-care system, there are some topics that could use a more in-depth treatment (e.g., outcomes assessment, outcomes management, health-care quality, and drug safety). The discussion of topics related to patient behavior is impressive, with a primary focus on patient behavior regarding prescription medications and a secondary focus concerning patients' decisions with respect to over-the-counter (OTC) products. There is little discussion of consumers' use of complementary and alternative medical practices.

Overall, this book represents a nice addition to the bookshelf of any individual who wishes to learn more about health-care delivery in the United States and the specific role of pharmacy.

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**Proteomics Today.** By M. Hamdan and P. G. Roghetti (GlaxoSmith-Kline and University of Verona, respectively). Wiley-Interscience, Hoboken. 2005. xvii + 426 pp. 6 × 9½ in. \$89.95. ISBN 0-471-64817-5.

This is an excellent book on a very timely topic, offering an overall insight to readers on protein assessment using mass spectrometry, electrophoresis, and microarray technology. Some parts of the book are written in storybook narration, but the comments of the authors are critical and often candid, sometimes with a good sense of humor (see p 186). The authors have done an impressive job of covering the immense literature available on the subject.

The book is divided into two parts. The first part (Chapters 1–3), written by Hamdan, summarizes general mass spectrometric techniques, application of proteomic techniques in cancer research, and protein quantification strategies. The first chapter provides an overview of historic development of mass spectrometric techniques and their application to modern proteome analysis. The second chapter, on proteomics in cancer research, a field many agree to be still in its infancy, provides a good summary of what has been achieved. The comments on the promise, potential, and limitations of the SELDI MS techniques are particularly useful to anyone interested in cancer biomarker discovery. The third chapter reviews various strategies for protein quantification. Although several other reviews on the subject are available, this chapter is written with authority. The author's considerable experience permits him to comment on limitations and pitfalls of various procedures such as ICAT and MCAT.

The second part of the book has three chapters written by Roghetti for practicing proteomics researchers. In fact, this section serves as a laboratory handbook since many experimental protocols are described in detail with many useful illustrations. Chapter 4 is on isoelectric focusing; both conventional and immobilized pH gradient methods are covered. The contents are valuable not only to those wanting to learn the techniques but also to experienced researchers. The last two chapters describe both 1D and 2D gel electrophoresis techniques.

In conclusion, this book is a superb resource for all those interested in proteomics. Undoubtedly, it provides an appreciation of all techniques involved in modern proteomics analysis. This book deserves a place not only in the library but also on the lab bench of every proteomics researcher.

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