

Book reviews

The Metabolism, Structure and Function of Plant Lipids, edited by Paul K. Stumpf, J. Brian Mudd and W. David Nes (Plenum Publishing Corp., 233 Spring St., New York, NY 10013, 1987, 724 pp., \$110 US and Canada, \$132 elsewhere).

This book presents the "Proceedings of the Seventh International Symposium on Plant Lipids," held July 27-Aug. 1, 1986, at the University of California at Davis. This symposium was the first in the series to be held in the U.S. In keeping with the tradition of past symposia, this proceedings publication is dedicated to a major contributor in the field of plant lipid research. A.A. Benson, professor of biology at Scripps Institution of Oceanography, University of California at San Diego, was selected for this honor in recognition of his pioneering work on lipid characterization in plants and marine organisms.

Included in this volume are 128 research and review articles given at the symposium as plenary lectures or posters. These communications form a comprehensive treatment of state-of-the-art knowledge relevant to nine subject areas of interest to researchers and educators in lipid biochemistry. The subject areas are formatted in well-defined chapters that focus on current research efforts in biochemistry of isoprenoids and sterols, function of isoprenoids and sterols in plant membranes, structure and function of lipids, biosynthesis of complex lipids, fatty acid synthesis, oxygenase and desaturase mechanisms, and algal lipids.

Chapters dealing with isoprenoids, sterols and glycerolipids not only provide detailed description of the lipid compositions and biosynthetic systems specific to organs and organelles of numerous higher and lower plant species but also show evidence for important interactions among lipid components and with the proteins of biological membranes. In that regard, a strength of the book is the emphasis placed on the interactions

of isoprenoid compounds and glycerolipids in chloroplasts. However, novel approaches to determine genetic control of gibberellins (diterpenes), carotenoids and prenylquinones; to evaluate the impact of environmental or artificially induced effects upon membrane composition and function; and to demonstrate the pathways for certain value-added natural products, such as musk fragrance compounds, also merit special attention.

Biological regulation of glycerolipid composition in plant tissues is an underlying theme of the chapters devoted to fatty acid and glycerolipid metabolism. Gaining control of the mechanisms governing fatty acid, phospholipid, glycolipid and triacylglycerol composition in plants is a proper exercise of the understanding of lipid biochemistry. The reader will quickly gain an appreciation of how complex this area of research can become. Topics discussed develop an in-depth knowledge base ranging from the initial reactions of fatty acid synthesis to the final mechanisms affecting characteristics of the end products of lipid metabolism. There also are several papers on plant lipoxygenases, an area that should appeal to those interested in alternative systems to improve oil quality.

Perhaps the most timely addition is the chapter on interaction of federal, industrial and university research programs. The need for inter-organizational collaboration may indeed be the key to future success in biotechnological ventures in the fats and oils industry. As the science of lipid biochemistry becomes more sophisticated, the need to expand expertise into the areas of classical and molecular genetics undoubtedly will lead to major breakthroughs of economic and sociological importance. The final chapter of this book outlines several examples of the types of research efforts that should have immediate impact.

In summary, the collection of articles in this book should serve as a rapid reference for current information on a wide range of topics in plant lipidology. It is recommended to students of this area as well as to professionals in all phases

of lipid research and technology.

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The Lipid Handbook, edited by Frank D. Gunstone, John L. Harwood and Fred B. Padley (Chapman and Hall Publishers, 11 New Fetter Lane, London EC4P 4EE, England, 1986, 314 pp., \$195).

Frank Gunstone and his co-editors, along with several other chapter authors, have compiled a major treatise on the chemistry and biochemistry of lipids. The book is divided into two sections: a monograph section containing chapters on all aspects of lipid chemistry and biochemistry, and a reference section containing names, physical properties and references for over 2,000 lipids.

The monograph section, organized much as in Gunstone's earlier books on lipid chemistry, contains chapters on fatty acid and lipid structure, the occurrence and characteristics of fats and oils, and subsequent processing. Further chapters on analytical methods, separation and isolation procedures, physical properties (both structural and optical) are comprehensive. The last chapters discuss lipid metabolism and the medical and agricultural aspects of lipids.

The chapter dealing with major separation and analytical techniques such as distillation and liquid chromatography are treated in a very abbreviated fashion. The topics of thin layer and gas chromatography are treated in several other sections of the book under sections where they are most likely to be used.

The remainder of the chapters are of varying length and detail related to the topic covered. The table of contents contains an outline of the topics to be discussed under each heading. The index is very comprehensive.

The reference or dictionary section of the book contains over 2,000 entries for lipids and their derivatives from the database of Heil-

Publications

bron's Dictionary of Organic Compounds, 5th Edition. Each entry is listed as to scientific name, trivial name, physical properties and references. A compound index contains entries for both the scientific name and the trivial name of the lipid. A formula index also is included.

Lipid chemistry is a very mature science. Advances are being made in the areas of lipid biochemistry and lipid analytical chemistry. The appearance of a major reference work such as this handbook, which covers much of the field, is noteworthy. This should be the first book to reach for to help answer a question concerning lipids. I recommend this book with enthusiasm for the practicing lipid chemist and for those needing a single source for lipid information.

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New books

Recent Advances in Electroorganic Synthesis (Proceedings of the 1st International Symposium on Electroorganic Synthesis), edited by Sigeru Torii, Elsevier Science Publishing Co. Inc., PO Box 1663, Grand Central Station, New York, NY 10163, 504 pp., \$180.

The Alveograph Handbook, by Hamed Faridi and Vladimer Rasper, The American Association of Cereal Chemists, 3340 Pilot Knob Rd., St. Paul, MN 55121, 56 pp., \$48 US, \$52 elsewhere.

Proceedings of the 2nd World Food Technology Congress Proceedings del II Congreso Mundial de Tecnología de Alimentos can be purchased from INTERCONGRES, 646 Gran Via, 4th Floor, 08007 Barcelona, Spain. The four-volume collection includes two volumes on processing and two covering various food industry sectors. The 3,000-page collection costs 24,000 pesetas.

Other publications

Carbohydrate Polymers, edited by J.F. Kennedy, J.R. Mitchell and P.A. Sandford, is available by subscription from Elsevier Applied Science Publishers, Crown House, Linton Road, Barking, Essex IG11 8JU, United Kingdom, or from the Journal Information Center, Elsevier Science Publishing Co. Inc., 52 Vanderbilt Ave., New York, NY 10017, USA. Cost for UK delivery is £170, or £187 elsewhere. The US price of \$327 is subject to exchange rate fluctuations.

The Institute of Shortening and Edible Oils Inc. has released its 1988 edition of **Food Fats and Oils.** Free single copies are available from the Institute of Shortening and Edible Oils Inc., 1750 New York Ave. NW, Washington, DC 20006.

The National Bureau of Standards (NBS) has issued a report offering suggestions for improving analytical lab quality. **The Quality Assurance Handbook—Center for Analytical Chemistry** includes several internal task force reports describing quality assur-

ance programs at the NBS Center for Analytical Chemistry. Contact: The Center for Analytical Chemistry, A309 Chemistry Bldg., National Bureau of Standards, Gaithersburg, MD 20899.

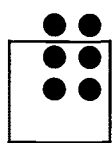
Snack Foods in the U.K., Report 25 in the *Food Market Updates* series, is available from Leatherhead Food R.A. Publications Department, Randalls Road, Leatherhead, Surrey KT22 7RY, England, for £16 to Leatherhead Food members, £48 to nonmembers.

Copies of the **1988 Directory of Manufacturers and Suppliers of Cottonseed Products** are available from the National Cottonseed Products Association, PO Box 12023, Memphis, TN 38182. The directory contains names, addresses, telephone numbers and products of cottonseed oil mills, vegetable oil refineries, dealers and brokers.

Soyatech Inc., PO Box 84, Bar Harbor, Maine, a market research and product development company, has acquired the publishing rights for **Soya Bluebook** from the American Soybean Association.

Palm Oil Developments, Report 7, is available from the Palm Oil Research Institute of Malaysia, PO Box 10620, 50720 Kuala Lumpur, Malaysia.

Oil World Annual 1988 can be purchased from ISTA Mielke GmbH, 2100 Hamburg 90, PO Box 900803, West Germany. The 400-page publication includes data on oilseeds, oils, fats and meals.



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