Publications

Book Reviews

Plant Proteins for Human Food, edited by C. E. Bodwell and L. Petit (Martinus Nijhoff/Dr. W. Junk Publishers, PO Box 566, 2501 CN, The Hague, The Netherlands, Nutrition Sciences Series, 1983, 471 pp., $54.50 U.S., 125,000 Dutch guilders. Proceedings of a European Congress, Nantes, France, Oct. 5-7, 1981).

This book is divided into five parts: Part I—The Importance of Plant Protein; Part II—Composition of Raw Materials; Part III—Extraction Processes and End-Product Characteristics; Part IV—Functional Properties; and Part V—Nutritional Aspects.

The book really represents a hard cover binding of material that appeared in Volume 32 (1983) of *Qualitas Plantarum: Plant Foods for Human Nutrition,* which is an international journal with C. E. Bodwell as editor-in-chief. The double pagination is somewhat confusing because the pages have been renumbered, but at the same time the original journal page numbers are retained.

The quality of the articles varies and in some cases the use of acronyms, without identification, is unfortunate. However, the publication will be of interest to those individuals concerned with world food and nutrition problems.

Part I deals with world protein supplies and Part II covers amino acid composition of several oilseeds and cereal grains with particular emphasis on legumes. Part III discusses ways to improve protein content and quality of legume seed, extraction, processing and end-product characteristics. There is also an article devoted to sunflower and rapeseed protein as well as two articles concerned with protein from leaves, including tobacco leaves.

In Part IV, 5 articles are devoted to functional characteristics of various protein sources, and Part V contains 2 articles, one devoted to the influence of processing on nutritional value of proteins and the other to antinutritional factors present in European plant proteins.

I would recommend the book for those individuals interested in international protein problems. I would emphasize that the literature cited is not exhaustive in many of the articles, but may contain some new citations for the American reader.

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Physical Properties of Foods, edited by M. Peleg and E. B. Bagley (AVI Publishing Co., 250 Post Road, Westport, CN 96881, 532 pp., $45 U.S.).

This volume is one of the publications from the Institute of Food Technologists "Basic Symposium Series," the sixth one of which was presented in 1982. The 17 chapters include discussion of the theories and methods of measuring a variety of physical properties by techniques such as colorimetry, electron microscopy and differential scanning colorimetry. The structural and physical properties of meats, plant materials, baked products, powders and fabricated foods are covered in separate sections. Rheological properties of emulsions and dispersions, deformation and structure of solids and factors affecting the expression of fluids from solids constitute another segment of the book. A separate chapter deals with chemical and physical changes that influence the formation of volatile flavor and aroma compounds, and the final chapter is a discussion of structure in dried carbohydrates. The authors, as well as the editors, are generally experts in their respective fields.

The book, intended for food scientists, provides a relatively sophisticated approach to the topic of physical properties of foods. Many of the chapters begin with an introduction of the physical and mathematical principles pertinent to the subjects to be discussed. For example, Bagley's chapter on deformations in food testing begins with mathematical descriptions of viscoelasticity, shear and elongation. Kreger's treatment of emulsions and dispersions includes principles of dimensional analysis. Schwartzberg discusses models for prediction of juice yields and flow in expression processes.

The detailed chapter by Kalab on electron microscopy of food materials is an excellent introduction to the methodology and gives numerous useful references. It contains good descriptions of the various techniques used in preparing samples for different types of electron microscopy.

The chapters on specific food materials (baked products, meats, horticultural products) give in-depth reviews of current research. Coupled with the more theoretical aspects of the study of rheology, the book covers a broad spectrum. Because of this, some readers may find some sections more useful and understandable than others. The level of coverage does vary from chapter to chapter. Overall, this is an excellent reference volume because it provides an overview of many aspects of measurement of physical properties of foods as well as an indication of research prospects and needs.

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Advances in Chromatography, Vol. 22, edited by J. C. Giddings, E. Grushka, J. Cazes and P. R. Brown (Marcel Dekker Inc., 270 Madison Ave., New York, NY 10016, 1983, 323 pp., $49.75).

This year's volume contains seven chapters: HPLC and MS of Biologically Important Neuropeptides, by D. M. Desiderio; HPLC of Amino Acids—Ion-Exchange and Reversed-Phase Strategies, by R. F. Pfeiferal and D. W. Hill; Resolution of Racemates by HPLC, by V. A. Davenkov, A. K. Kurganov and A. S. Bochkov; HPLC of Metal Complexes, by H. Veening and B. R. Willeford; Chromatography of Carotenoids and Retinoids, by R. F. Taylor; HPLC of Porphyrins, by Z. J. Petryka; and Small-Bore Columns in HPLC, by R.P.W. Scott.

The surprising aspect of this volume is the almost total absence of gas chromatography. There are two chapters of possible interest to lipid chemists. Chromatography of carotenoids and retenoids is covered by systematically pro-

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gressing through open column, TLC, paper chromatography, GC, GC-MS, and HPLC. This is a very substantial 60-page chapter with 215 references. An interesting section on carotenoproteins and retinoproteins is included. Scott's chapter on small bore columns is of general interest to all chromatographers. In addition to discussing the characteristics of equipment needed to work with small bore columns, he also reviews the equipment available for such applications. Because a reduction in column diameter from 4.6 mm to 2.1 mm results in an 80% saving in solvent costs, this is definitely the approaching trend.

This is a well presented series with high standards of quality and accuracy. An early double error, page 9, fetomole seleitivity, is the exception not the rule. As previously noted, this is an authoritative series that should be available for reference purposes but usually contains a relatively small percentage of material of direct interest to lipid chemists.

L. A. Witting

Biology of Vitamin E, CIBA Foundation Symposium, 101, edited by R. Porter and J. Whelan (Pitman Books Ltd., 128 Long Acre, London WCZE 9AN, U.K., November 1983, 260 pp., $35).

This volume represents the proceedings of a small symposium on Vitamin E chaired by A. T. Diplock in London, March 8-10, 1983. Many symposia on this topic have been characterized by wildly divergent views expressed in papers, and either no published discussion or a few polite remarks. We now have available a highly enjoyable book, wherein the discussions are frequently longer than the chapters, and the polite remarks are occasionally at least mildly barbed. The symposium consisted of 13 contributions ranging from physical chemistry of model systems to animal studies and clinical trials, with the greatest emphasis on the therapeutic applications. In the introduction, Diplock makes the point ". . . research on this topic has been marked by tremendous controversy. Two controversies have been uppermost: on the fundamental research side, a controversy over whether the only role of Vitamin E is as an antioxidant, or whether it has some other function; and on the clinical side, whether Vitamin E has any therapeutic use in human beings."

To put this statement in historical context, Diplock should be remembered as an author and coauthor on the long series of papers from J. Green's lab published in *Brit. J. Nutr.* in the mid-1960s challenging the biological antioxidant role of Vitamin E. Diplock later conceded in a review on selenium that much of this lengthy argument was negated by the discovery of a lipid peroxide catabolizing enzyme. However, with Lucy, he went on to propose a special physico-chemical interaction of arachidonate and tocopherol in the biological membrane not related to antioxidant activity. Reiteration and extension of this proposal in the present volume elicits critical comment from Ingold and Pryor.

A few years ago, Farrel (*Vitamin E, A Comprehensive Treatment,* ed. L. J. Machlin, Marcel Dekker, Inc., NY, 1980) extensively reviewed the published work on therapeutic uses of Vitamin E. Much of this work, whether yielding positive or negative results, was considered open to criticism on methodological grounds. There are, however, certain circumstances, such as malabsorption syndromes or Abetalipoproteinemia, wherein a Vitamin E deficiency state could conceivably arise. Kayden's chapter on "Tocopherol Content of Adipose Tissue from Vitamin E–Deficient Humans" refers to subjects with cholestatic liver disease or Abetalipoproteinemia. Nelson compares the neutropathological damage in children with congenital biliary atresia with lesions seen in Vitamin E deficient rats and monkeys. Abetalipoproteinemia and other disorders of fat absorption are considered by Muller, Lloyd and Wolff in terms of neurological function. Two chapters consider retrolental fibroplasia and another considers intraventricular hemorrhage in the newborn. Occasionally, the discussions range rather far afield. The chapter by Quintanilha and Packer on vitamin E, physical exercise and tissue oxidative damage for instance is followed by 5-6 pages of a reasonably relevant discussion that then veers sharply off for three pages on the topic of the biological activity chiral forms of α-tocopherol.

This is an interesting book that could profitably be read solely on the basis of the discussions between the participants. It could perhaps be recommended to graduate students interested in lipid biochemistry or to anyone previously confused by the contradictory literature on possible therapeutic usage of vitamin E.

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New Publications

Soymilk Industry and Market: Worldwide and Country-by-Country Analysis, by William Shurtleff and Akiko Aoyagi, The Soyfoods Center, PO Box 234, Lafayette, CA 94549, 1984, 177 pp. plus 100 pages of spiral-bound photocopies of soymilk labels, posters and other graphics, $350.

Trends in Analytical Chemistry, Reference Edition, Vol. 2, edited by Peter T. Shepherd, Elsevier Science Publishers, Science and Technology Division, PO Box 330, 1000 AH Amsterdam, The Netherlands, 1983, 298 pp., US $92.25, Dfl. 240.

Swiss Vet, Swiss Review for Veterinary Medicine, Verlag Dr. Felix Wüst AG, Freiestrasse 204, PO Box 239, CH-8032 Zurich, Switzerland, 1984, a new specialist periodical on animal health/veterinary medicine, published in German.

Fatty Acid Metabolism and Its Regulation, edited by S. Numa, Vol. 7 in New Comprehensive Biochemistry, general editors A. Neuberger and L.L.M. Van Deenen, Elsevier Science Publishers, Science and Technology Division, PO Box 330, 1000 AH Amsterdam, The Netherlands, 1983, 216 pp., US $49.50, Dfl. 129.