

Methodology

means with the copper sulfate catalyst (1.5 hours digestion) were close behind. Relative standard deviations were generally well below 2% and there was no statistically significant difference between the mercury and copper catalyst procedures. The Uniform Methods Committee approved adoption of the copper catalyst method with

1.5 hour digestion as an official AOCS method.

Acknowledgment

Statistical data were provided by R.H. Albert. Kjeldahl catalysts mix was provided by Pope Kjeldahl Mixtures Inc., Dallas, Texas. The following laboratories participated in the collaborative study: A & L

Plains Agricultural Labs, Lubbock, Texas; Anderson Clayton & Co., Abilene, Texas; Barrow-Agee Laboratories Inc., Memphis, Tennessee; Fox Testing Lab Inc., Lubbock, Texas; Hahn Laboratories, Columbia, South Carolina; Mid-Continent Laboratories Inc., Greenwood, Mississippi; Mid-Continent Laboratories Inc., Jackson, Mississippi; Mid-Continent Laboratories Inc., Memphis, Tennessee; Morris Testing Labs, Macon, Georgia; Pattisons Laboratories, Harlingen, Texas; Plains Coop. Lab., Lubbock, Texas; Pope Testing Labs Inc., Dallas, Texas; Ranchers Cotton Oil, Fresno, California; Southern Cotton Oil Co., Memphis, Tennessee; Woodson Tenent Laboratories, N. Little Rock, Arkansas.

TABLE 8

Cottonseed Meal Analysis: Precision of Results Reported by Six Laboratories^a

Sample	1	2	3	4	5
Mercury Catalyst;					
\bar{x} , % Ammonia	8.58	9.04	8.60	9.01	8.54
SD	0.78	0.43	0.42	0.42	0.27
RSD, %	1.20	1.47	0.81	0.80	0.51
Copper Catalyst, 1 hr digestion;					
\bar{x} , % Ammonia	8.55	9.04	8.54	8.99	8.56
SD	0.71	0.35	0.81	0.45	0.56
RSD, %	1.04	1.61	1.05	0.95	1.08
Copper Catalyst, 1.5 hr digestion;					
\bar{x} , % Ammonia	8.58	9.04	8.55	9.00	8.56
SD	0.58	0.29	0.47	0.40	0.37
RSD, %	1.39	1.50	1.12	1.19	0.79

^aSee Table 6 for individual results reported by each laboratory.

References

1. Rexroad, P.R., and R.D. Cathey, *J. Assoc. Off. Anal. Chem.* 59:1213 (1976).
2. Kane, P.F., *Ibid.* 67:869 (1984).
3. *Official Methods of Analysis of the Association of Official Analytical Chemists*, 14th Edition, Association of Official Analytical Chemists, Arlington, VA, 1984, Method 7.033-7.037.

Publications

Book reviews

Phytic Acid: Chemistry and Applications, edited by Ernst Graf (Pilatus Press, 703 109th Ave. NW, Minneapolis, MN 55422, 1986, 344 pp., US \$54.95, elsewhere \$64.95).

This rather comprehensive paperback volume on phytic acid and its applications contains 20 chapters compiled by various authors. In general, the book is well illustrated although in a few instances, the printing is below standard. An adequate index is provided.

The book deals with the following topics: an overview discussing the possible beneficial effects of phytic acid; phytate metabolism in plants; fine structure of phytate-rich particles in plants; phytate and mineral bioavailability; analytical methods for phytate; phytases; commercial aspects of phytic acid; synthesis

and applications of immobilized phytic acid; radioactively labeled phytic acid and applications; biological properties of phytate-containing radiopharmaceuticals; influence of calcium on trace metal-phytate interactions; phytate and the epidemiology of heart disease, renal calculi and colon cancer; influence of phytic acid on starch digestibility and blood glucose response; inositol phosphates as modulators of oxygen affinity in hemoglobin (this aspect of phytic acid chemistry being the one with which biochemists are probably most familiar); incorporation of phytic acid into erythrocytes and its medical use; short- and long-term physiological effects of improved oxygen transport by red blood cells containing inositol hexaphosphate; cement-forming properties of phytic acid; interactions of inositol phosphates with

mineralized tissues; phytic acid and aflatoxin metabolism; and the use of phytic acid in the stripping volt-ammeteric determination of rare earth metals.

The antinutritional properties of phytic acid, i.e., formation of insoluble complexes with essential metal ions, have been the subject of much research and controversy for many years. Although this book does little toward resolving this controversy, it is timely in view of renewed interest in this important area of research. Each chapter has a reference list at its conclusion that provides an invaluable entry into the literature. This book should prove of interest to readers of *JAACS*. It is recommended reading, particularly for those contemplating research in this area.

W.J. Evans
USDA, SRRC
New Orleans, LA 70179

Publications

Lipids in Modern Nutrition (Nestlé Nutrition Workshop Series, Vol. 13), edited by Marc Horisberger and Umberto Bracco (Raven Press, 1185 Avenue of the Americas, New York, NY 10036, 1987, 248 pp., \$29.50).

Various approaches could be taken to describe lipids in nutrition. This book begins with absorption and then deals with transport and energy production, followed by essential fatty acids, liposoluble vitamins, phosphatidylcholine, pathophysiological aspects of lipids and modification to dietary fat during processing and storage. As is frequently the case with multi-authored books, some overlap of information occurs. However, it is expected that most readers will not read the chapters in sequence, but will concentrate on those of particular interest.

Dietary risk factors for cardiovascular disease, as studied in Moscow, will make interesting reading for those who are accustomed to following investigations in Western countries. Many of the contributed chapters could form the basis of a lively discussion, and all are worth reviewing to appreciate different perspectives.

Joyce Beare-Rogers
Bureau of Nutritional Research
Health Protection Branch
Health and Welfare Canada
Ottawa, Ontario, Canada

Nutritional and Toxicological Significance of Enzyme Inhibitors in Foods (*Advances in Experimental Medicine and Biology*, Vol. 199), edited by Mendel Friedman (Plenum Publishing Corp., 233 Spring St., New York, NY 10013, 1986, 572 pp., \$85 US and Canada, \$102 elsewhere).

This book is comprised of articles that were presented by invited participants in a symposium entitled "Nutritional and Toxicological Significance of Enzyme Inhibitors in Foods" and is part of the series *Advances in Experimental Medicine and Biology*. The symposium was sponsored by the American Institute of Nutrition and was conducted April 21-26, 1985. The contents also include papers from invited contributors not attending the symposium.

This text is similar in topic to a previous volume edited by Friedman (*Nutritional and Toxicological Aspects of Food Safety*, 1984) but is narrower in focus. The book effectively combines both original research and review articles that elucidate the physiological and pathological responses in animals to various enzyme inhibitors, particularly those of concern in plant food products.

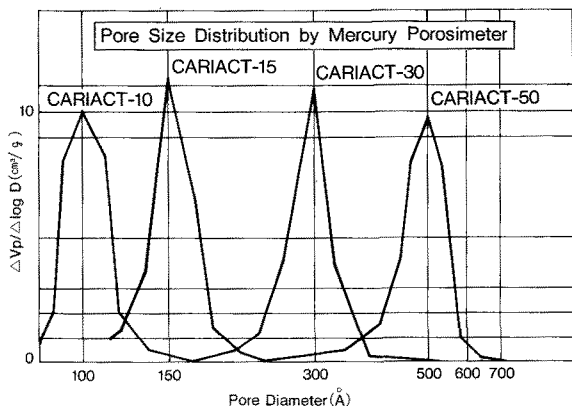
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A strength is the depth and diversity of topics addressed. Research into mechanisms of inhibitor action with regard to nutrition, pancreatic pathology and carcinogenesis is reported. The quantitative and qualitative differences in inhibitors derived from several legume and cereal sources also are discussed. In addition, genetic and processing approaches aimed at modifying inhibitor activity and improving nutritional value are presented. In light of the variable responses among animal species to proteinase inhibitors, the data from human and nonhuman primate investigations are an important complement to the results from numerous rodent studies. Inhibitory actions toward digestive enzymes other than trypsin and chymotrypsin also are included. Several of the papers are particularly helpful because of discussions on methodological problems in the design of animal studies, concerns in the use of inhibitors from various plant sources and pitfalls in the measurement of inhibitor activity using *in vitro* systems. A chapter addressing immunochemical studies of trypsin inhibitor underscores the need for research into toxicological effects in addition to those that are antinutritional or carcinogenic.

In summary, this is a comprehensive collection of articles dealing with nutritional and toxicological effects of enzyme inhibitors in foods. It should be a useful resource for nutritional biochemists, food toxicologists and chemists interested in this focused area of food safety.

Keith W. Singletary
Department of Foods and
Nutrition
University of Illinois
Urbana, IL 61801

Memorias del Primer Seminario Internacional Sobre Extracción y Refinación de Aceites (Oct. 9-11, 1985, Cocoyoc, Morelos, Mexico), by Instituto Mexicano de Aceites, Grasas y Proteínas A.C. (Praza No. 36-2, Col. Juarez, 06600 Mexico City, Mexico, 1986, 181 pp., Spanish).

This book contains a total of 11 individual works presented during the first International Seminar on

Oil Extraction and Refining that took place in Cocoyoc, Mexico. Most of them address the current trends in fats and oils processing technologies. Milling and extraction of soybeans, production of crude oil, physical refining of sunflowerseed oil, prepressed solvent extraction, soybean oil refining, manufacture of finished edible oil and fat products, degumming and neutralizing methods, and sunflowerseed oil processing are covered independently by different authors from America and Europe, some of them with more technical details than others. Bleaching and hydrogenation also are covered, presenting the relationship of various processing parameters with the final quality of the processed products.

This book is recommended for all those readers who are interested in following closely the technical development of the oil and fat industry of Latin American countries.

Jose A. Rojo
Department of Food Science
University of Illinois
Urbana, Illinois
Fundacion CIEPE/Venezuela

Liposomes: From Biophysics to Therapeutics, edited by Mark J. Ostro (Marcel Dekker Inc., 270 Madison Ave., New York, NY 10016, 1987, 393 pp., \$85 US and Canada, \$105, elsewhere).

This book is described as a sequel and update of a 1983 volume entitled **Liposomes** from the same editor and publisher (reviewed in *JAOCS*, March 1984). Other publications on this topic include **Liposomes: From Physical Structure to Therapeutics**, edited by C.G. Knight (Elsevier/North Holland, New York, NY, 1981) reviewed in *JAOCS* in September 1982 and **Liposome Technology** (three volumes), edited by G. Gregoriadis (CRC Press Inc., Boca Raton, FL, 1984) reviewed in *JAOCS* in November 1984. Ongoing and expanded interest in this area is evident in the planned UCLA Colloquium on "Liposomes in the Therapy of Infectious Diseases and Cancer," planned for Lake Tahoe in February 1988.

Ostro's interest is in the commercial development of liposomes. He notes the failure of academic investigators to address or solve some of the pressing practical problems including scale-up, sterilization and storage. A coming of age, however, is proclaimed in terms of several ongoing clinical trials and additional planned trials.

Chapters include **Materials Properties of Liposomal Bilayers**, by S.M. Gruner; **Liposomes as Pharmaceuticals**, by Cullis, Hope, Bally, Madden, Mayer and Janoff; **Polymerized Liposomes**, by S.L. Regen; **Liposome Pharmacokinetics**, by K.J. Hwang; **Ligand Targeting of Liposomes**, by L. Lesser and P. Machy; **Liposome-Medicated Treatment of Viral, Bacterial and Protozoal Infections**, by Popescu, Swenson and Ginsberg; **Application of Liposomes to the Delivery of Antifungal Agents**, by G. Lopez-Berestein and R.L. Juliano; **Liposomes in the Diagnosis and Treatment of Cancer**, by J.N. Weinstein; and **Lamellar Systems for Drug Solubilization**, by A.L. Weiner. Much of the early enthusiasm related to selective targeting seems to have dissipated. In certain special circumstances, however, this delivery system has great potential. The editor has gathered an interesting series of chapters by knowledgeable authors. In a relatively fast-moving field, each new book is a transient, rather expensive update.

This book is recommended to lipid biochemists, particularly those with a clinical orientation.

Lloyd A. Witting
Supelco Inc.
Bellefonte, PA

Proceedings of the 13th Scandinavian Symposium on Lipids (Reykjavik, Iceland, July 1985), edited by Reinhard Marcuse (Lipidforum, c/o Scandinavian Forum for Lipid Research and Technology, Box 5401 S-402 29, Göteborg, Sweden, 1986, 229 pp., \$20).

This book consists of a collection of 34 papers that were presented during the 13th Scandinavian Symposium on Lipids held at Reykjavik, Iceland, June 30-July 3, 1985. This nicely produced book is

Publications

largely free of technical errors. Papers, varying in quality and presented mainly by Scandinavian scientists, cover the aspects of biochemistry, nutrition, technology, composition, production, analysis and physical chemistry as applied to lipids.

This book reflects the work of Scandinavian scientists engaged in lipid research and thus would be a good reference book for institutional libraries and for individuals curious for an insight of lipid research in Scandinavia.

Vijai K.S. Shukla
Aarhus Oliefabrik
Aarhus C
Denmark

New books

The Metabolism, Structure and Function of Plant Lipids (Proceedings of the Seventh International Symposium on Plant Lipids), edited by Paul K. Stumpf and J. Brian Mudd, Plenum Press, 233 Spring St., New York, NY 10013, 1987, 742 pp., \$110.

Handbook on Rice Bran: Processing and Utilization of Products, compiled by B.M. Sheth and B.V. Mehta, The Solvent Extractors' Association of India, 142 Jolly Maker Chamber No. 2, 14th Floor, 225, Nariman Point, Bombay-400021, India, 1987, 856 pp., 100 rupees plus 20 rupees handling.

Fat Production and Consumption: Technologies and Nutritional Implications (NATO Advanced Science Institutes Series), edited by C. Galli and E. Fedeli, Plenum Press, 233 Spring St., New York, NY 10013, 1987, 336 pp., \$62.50.

Basic Biotechnology, by John Bu'Lock and Bjorn Kristiansen, Academic Press, 6277 Sea Harbor Dr., Orlando, FL 32821-9989, 1987, 561 pp., \$29.95 paperback, \$85.50 casebound.

Near-Infrared Technology in the Agricultural and Food Industries, edited by Phil Williams and Karl Norris, American Association of Cereal Chemists (AACC), 3340 Pilot Knob Rd., St. Paul,

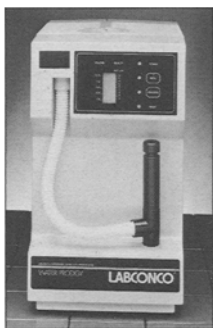
MN 55121, 1987, 330 pp., 328 spectra, 101 tables, \$139 AACC members, \$169 non-members.

Other publications

Nestec Ltd. has published **Nestlé Research News 1986/87**. This year's report focusses predominantly on plant biotechnology. Contact: Nestec Ltd., Nestlé Products Technical Assistance, Corporate Affairs Department, Documentation Centre, 1800 Vevey, Switzerland.

Leatherhead Food Research Association has published two market reports: **International Confectionery Market Report** and **International Bakery and Cereal Products Market Report**. Each is available for £100 (Leatherhead Food R.A. members), £200 (non-members), from Leatherhead Food R.A., Randalls Road, Leatherhead, Surrey KT22 7RY, England.

New Products



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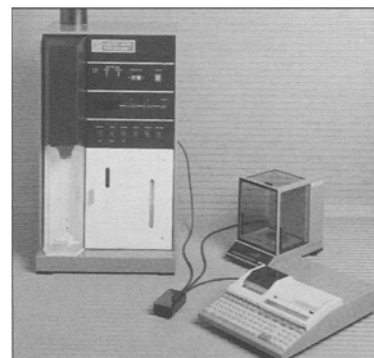
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