News

(Continued from page 841)

Howard L. Brockman, William E. Momsen and Takahiro Tsujita

Characteristics and Biosynthesis of Seed Lipases in Maize and Other Plant Species

Anthony H.C. Huang, Yon-hui Lin and Shue-mei Wang Lipase Selectivities

Philip E. Sonnet

Studies on Free and Immobilized Lipases from Mucor miehei

Birgitte Huge-Jensen, Donna Rubano Galluzzo and Robert G. Jensen

Lipase Made Active in Hydrophobic Media

Katsunobu Takahashi, Yuji Saito and Yuji Inada

Lipase Immobilized on a Hydrophobic, Microporous Support for the Hydrolysis of Fats

C. Brady, L. Metcalfe, D. Slaboszewski and D. Frank Process Considerations of Continuous Fat Modification with an Immobilized Lipase

L.H. Posorske, G.K. LeFebvre, C.A. Miller, T.T. Hansen and B.L. Glenvig

Characteristics of an Immobilized Lipase for the Commercial Synthesis of Esters

Carl Miller, Helen Austin, Larry Posorske and Jesus Gonzlez

1023 SURFACTANTS & DETERGENTS NEWS

1025 SURFACTANTS & DETERGENTS CALENDAR

1026 INDEX TO ADVERTISERS

1026 CLASSIFIED ADVERTISING

JAOCS

JOURNAL OF THE AMERICAN OIL CHEMISTS' SOCIETY (ISSN: 0003-021X), formerly OIL & SOAP, is published monthly by the AMERICAN OIL CHEM-ISTS' SOCIETY, 1608 Broadmoor Dr., Champaign, IL 61821-0489, USA. Phone (217) 359-2344. Telex: 4938651 AOCS UI. Second class postage paid at Champaign, Illinois, and additional mailing offices. POSTMASTER: Send address changes to Journal of the American Oil Chemists' Society, P.O. Box 3489, Champaign, IL 61821-0489, USA.

SUBSCRIPTIONS for U.S. are \$70 for one year and \$190 for three years. Non-U.S. subscriptions are \$85 for one year and \$235 for three years. Air mail postage is \$60 extra per year.

COPYRIGHT 1988 by the American Oil Chemists' Society. Formerly published as Chemists' Section, Cotton Oil Press, 1917 to 1924; Journal of the Oil and Fat Industries, 1924 to 1931; Oil & Soap, 1932 to 1947. The American Oil Chemists' Society assumes no responsibility for statements or opinions of contributors to its columns. The Journal is indexed in the Applied Science and Technology Index of the H.S. Wilson Company, New York. CLAIMS for copies lost in the mails must be received within 30 days (90 days foreign) of the date of issue. Notice of change of address must be received two weeks before date of issue.

ADVERTISING INSTRUCTIONS AND DEADLINES. Closing date 3rd of month preceding date of issue. Insertion orders received after closing will be accepted by the production manager at advertisers' risk. AOCS cannot guarantee positioning of proofs for ads received after closing. Cancellation date 3rd of preceding month. Send insertion orders and mechanical materials to advertising offices at 1608 Broadmoor, P.O. Box 3489, Champaign, IL 61821-0489, USA. Phone: (217) 359-8028. Telex: 4938651 AOCS UI. Advertising Sales and Production: Arleen Ward, Jennifer Nelson.

MANUSCRIPT PUBLICATION: Submit to the Journal of the American Oil Chemists' Society, P.O. Box 3489, Champaign, IL 61821-0489, USA.

AOCS OFFICERS: President, Timothy L. Mounts, leader, vegetable oil research, USDA Northern Regional Research Center, Peoria, Illinois; Vice President, Roy A. Carr, president, POS Pilot Plant Corporation, Saskatoon, Saskatchewan, Canada; Secretary, M.D. Meiners, food technologist, Best Foods Division of CPC International, Union, New Jersey; Treasurer, R.M. Burton, president, Burton International Biomed Ltd., St. Louis, Missouri; Executive Director, James C. Lyon, AOCS, Champaign, Illinois.

JOURNAL STAFF: Editor: T.H. Applewhite; Associate Editors: G.C. Cavanagh, T.A. Foglia, T.J. Jacks, George Liepa, Raymond Mackay, D.B. Min, T.L. Mounts, E.G. Perkins, L.H. Princen, M.A. Reynolds, M.J. Rosen, J.F. Scamehorn, Edward A. Sedor, G.F. Spencer, W.J. Stancel, M.E. Tuvell, P.J. Wan, D.L. Wharry; Publications Director: George Willhite; Manuscript Production Supervisor: Lee Heissel; Graphics Supervisor: Lee Gross; Staff Editor: Paula Erwin; News Editor: Barbara Fitch Haumann; Circulation Manager: Sandy Burr; Advertising Chairman: K.T. Zilch; Book Review Editor: E.G. Perkins; Index Editor: E.G. Perkins; Technical Correspondent: E.G. Perkins.

Calendar I

AOCS NATIONAL MEETINGS

Annual Meeting, May 3-7, 1989, Convention Center, Cincinnati, Ohio.

AOCS WORLD CONFERENCES

- World Congress on the Utilization of Vegetable Proteins in Human Foods and Animal Feedstuffs, Oct. 2-7, 1988, Singapore.
- World Conference on Edible Fats and Oils Processing: Basic Principles and Modern Practices, Oct. 1-6, 1989, Maastricht, The Netherlands.

1988

July

Short Course on Soybean Extraction and Processing, July 10-15, 1988, Food Protein Research and Devel-

(Continued on page 887)

On the Cover

The cover photograph, courtesy of Genencor Inc. of South San Francisco, California, depicts recombinant lipase crystals from Genencor's protein engineering program. In the Feature section beginning on page 846, articles prepared by *JAOCS* newswriter Anna Gillis highlight current research on lipases. Calendar and a second s

(Continued from page 842)

opment Center, Texas A&M University, College Station, Texas. Contact: Les Watkins, Food Protein Research and Development Center, A&M University, FM-183, College Station, TX 77843-2476, telephone 409-845-2741.

- 8th International Biotechnology Symposium, July 17-22, 1988, Palais des Congrès, Paris, France. Contact: 8th International Biotechnology Symposium, c/o S.O.C.F.I., 14, rue Mandar, 75002 Paris, France.
- Summer Program on Modeling, Simulation and Optimization of Chemical Processes, July 18-27, 1988, Massachusetts Institute of Technology, Cambridge, Massachusetts. Contact: Director of the Summer Session, MIT, Room E19-356, Cambridge, MA 02139.
- 8th International Symposium on the Biological Role of Plant Lipids, July 25-28, 1988, Budapest, Hungary. Details: Tardyné Lengyel Márta, Central Food Research Institute, Budapest, Herman Ottó ut 15, H-1022, Hungary.
- Twelfth International Sunflower Conference, sponsored by the Yugoslav Association of Producers of Plant Oils and Fats and Yugoslav government entities, July 25-29, 1988, Novi Sad, Yugoslavia, Contact: Institute of Field and Vegetable Crops, M. Gorkog 30, 21000 Novi Sad, Yugoslavia.
- International Conference, Health Effects of Fish and Fish Oils, July 30-Aug. 2, 1988, Hotel Newfoundland, St. John's, Newfoundland, Canada. Contact: R.K. Chandra, Janeway Child Health Centre, St. John's, Newfoundland, Canada A1A 1R8.

August

- Rheology Workshop, Aug. 8-10, 1988, Chicago, Illinois, sponsored by the American Association of Cereal Chemists (AACC). Contact: AACC Short Course Program, 3340 Pilot Knob Rd., St. Paul, MN 55121.
- 4th International Diffuse Reflec-

tance Conference, Aug. 14-19, 1988, Wilson College, Chambersburg, Pennsylvania. Contact: Fred McClure, Department of Agricultural Engineering, North Carolina State University, Raleigh, NC 27695-7625.

- Bioavailability '88: Chemical and Biological Aspects of Nutrient Availability, Aug. 21-24, 1988, University of East Anglia, Norwich, England. Details: Bioavailability '88, AFRC Institute of Food Research, Norwich Laboratory, Colney Lane, Norwich, Norfolk NR4 7UA, U.K.
- Analysis of Oils and Fats Workshop, Aug. 22–24, 1988, University of St. Andrews, Scotland. Sponsored by IUPAC Commission VI.3 and arranged in conjunction with the Department of Chemistry at the University of St. Andrews and the Laboratory of the Government Chemist, London, England. Contact: Joyce Beare-Rogers, Bureau of Nutritional Sciences, Health Protection Branch, Department of Health & Welfare, Ottawa, Ontario, Canada K1A OL2.
- New Zealand Institute of Chemistry and New Zealand Biochemical Society joint annual meeting, Aug. 23-26, 1988, Palmerston North, New Zealand. Contact: Conference Secretary, Grasslands Division, DSIR, Palmerston North, New Zealand.
- 102nd Annual International Meeting, Association of Official Analytical Chemists, Aug. 29-Sept.
 1, 1988, The Breakers, Palm Beach, Florida. Contact: Margaret Ridgell, AOAC, 1111 N.
 19th St., Suite 210, Arlington, VA 22209.
- 4th Separation Science & Biotechnology Symposium, Aug. 31-Sept. 3, 1988, Palazzo Feltrinelli, Gargnano del Garda, Italy. Contact: Pier Giorgio Righetti, Professor of Biochemistry and Symposium Chairman, Euro Business Center, PO Box 10552, 1001 EN Amsterdam, The Netherlands.

September

Scientific Congress on Proteins in Food and Nutrition, Sept. 8-9, 1988, Vienna, Austria. Contact: Secretariat of the Scientific Congress on Proteins in Food and Nutrition, c/o Vienna Medical Academy, Alsterstrasse 4, A-1090 Vienna, Austria.

- Annual meeting, German Society for Fat Science (DGF), Sept. 11– 15, 1988, Trier University, Trier, West Germany. Contact: Deutsche Gesellschaft für Fettwissenschaft e.V., Soester Strasse 13, D-4400 Münster, West Germany.
- Industrial Bioprocessing Short Course, Sept. 11–15, 1988, Estes Park, Colorado. Contact: Gwynne Hallock, Colorado State University, Office of Conference Services, Rockwell Hall, Fort Collins, CO 80523.
- 2nd International Symposium on Lipid Metabolism in the Normoxic and Ischemic Heart, Sept. 12-13, 1988, University of Limburg, Maastricht, The Netherlands. Contact: G.J. Van der Vusse, Department of Physiology, University of Limburg, PO Box 616, 6200 MD Maastricht, The Netherlands. Sensory Evaluation of Food

Sensory Evaluation of Food Short Course, Sept. 14–16, 1988, St. Paul, Minnesota, sponsored by the American Association of Cereal Chemists (AACC). Contact: AACC Short Course Program, 3340 Pilot Knob Rd., St. Paul, MN 55121.

- 1988 Corn Refiners Association Scientific Conference, Sept. 18-21, 1988, Marriott Pavilion Hotel, St. Louis, Missouri. Contact: Corn Refiners Association Inc., Suite 1022, 1001 Connecticut Ave. NW, Washington, DC 20036.
- 29th International Conference on the Biochemistry of Lipids, Sept. 19-22, 1988, Tokyo, Japan. Details: 29th ICBL, c/o Prof. Y. Seyama, Department of Physiological Chemistry and Nutrition, Faculty of Medicine, University of Tokyo, Bunkyo-ku, Tokyo 113, Japan.
- International Symposium on Application of Biotechnology for Small Industries' Development in Developing Countries, Sept. 21-24, 1988, Tawana Ramada Hotel, Bangkok, Thailand. Contact: Thailand Management Develop-

Calendar Rates Calendar

ment and Productivity Centre, Department of Industrial Promotion, Ministry of Industry, Rama 6 Rd., Bangkok 10400, Thailand.

- Cosmetic Science '88-Achievements and Aims, 15th International Congress of the International Federation of Societies of Cosmetic Chemists, Sept. 26-29, 1988, Grosvenor House, Park Lane, London, England. Contact: Society of Cosmetic Scientists, Delaport House, 57 Guildford St., Luton, Beds LU1 2NL, England.
- Seminar, Strategies for Making India Self-reliant in Vegetable Oils, Sept. 26-29, 1988, Hyderabad, India. Contact: M.V.R. Prasad, Directorate of Oilseeds Research, Rajendranagar, Hyderabad 50030 A.P., India.
- ISF-JOCS World Congress 1988, Sept. 26-30, 1988, Tokyo, Japan. Contact: ISF-JOCS World Congress 1988, Secretariat, The Japan Oil Chemists' Society, 7th floor, Yushi Kogyo Kaikan, 13-11 Nihonbashi 3-chome Chuoku, Tokyo 103, Japan.

October

- Eastern Analytical Symposium, Oct. 3-7, 1988, New York Hilton Hotel, New York, New York. Contact: Stephen Scypinski, EAS publicity chairman, Berlex Laboratories Inc., 110 E. Hanover Ave., Cedar Knolls, NJ 07927, telephone 201-292-8158.
- Nara Workshop on Functionality of Fats and Lipids, Oct. 4-6, 1988, Nara, Kyoto, Japan. Contact: K. Sato, Faculty of Applied Biological Science, Hiroshima University, Shitami, Saijo-cho, Higashi-Hiroshima 724, Japan.
- International Post-Graduate Course, NMR in Agriculture: Plants, Animals, Products, Oct. 4-15, 1988, Wageningen University, The Netherlands. Contact: Office of Post-Graduate Courses, De Leeuwenborch, Hollandseweg 1, 6706 KN Wageningen, The Netherlands.

- 1st National Symposium on New Crops: Research, Development and Economics, Oct. 23-26, 1988, Adam's Mark Hotel, Indianapolis, Indiana. Contact: Continuing Education Business Office, Room 110, Stewart Center, Purdue University, West Lafayette, IN 47907.
- Vitamin E: Biochemistry and Health Implications, Oct. 31-Nov. 3, 1988, sponsored by the New York Academy of Sciences, The Sheraton Centre, New York, New York. Contact: Conference Department, New York Academy of Sciences, 2 E. 63rd St., New York, NY 10021.

November

- National Renderers Association annual convention, Nov. 1-5, 1988, Marriott's Desert Springs Resort and Spa, Palm Desert, California. Contact: National Renderers Association, 2250 E. Devon, Des Plaines, IL 60018.
- International Symposium on Clinical, Biochemical and Molecular Aspects of Fatty Acid Oxidation, Nov. 6-9, 1988, Penn Tower Hotel, Philadelphia, Pennsylvania. Contact: Paul M. Coates, Division of Genetics, The Children's Hospital of Philadelphia, 34th St. and Civic Center Blvd., Philadelphia, PA 19104.
- 2nd International Seminar on Extraction and Refining of Oils, Nov. 27-30, 1988, Guadalajara, Mexico, sponsored by the Instituto Mexicano de Aceites, Grasas y Proteinas A.C. Contact: Instituto Mexicano de Aceites, Grasas y Proteinas A.C., Praga No. 36, 1er piso, Mexico City 06600, Mexico.
- Short Course, Field and Laboratory Sampling of Food, Drugs and Agricultural Commodities, Nov. 30-Dec. 1, 1988, Arlington, Virgina, sponsored by the Association of Official Analytical Chemists (AOAC). Contact: AOAC, 1111 N. 19th St., Suite 210, Arlington, VA 22209.

1989

January

Second International Safflower Conference, Jan. 9-13, 1989, Hyderabad, India. Contact: Project Director (Oilseeds), Directorate of Oilseeds Research, Rajendranagar, Hyderabad 50030 A.P., India.

February

Fats for the Future II, international conference on oils, fats and waxes, Feb. 12-16, 1989, Auckland, New Zealand. Contact: Jennifer Gray, Conference Secretary, 1989 Oils and Fats Conference, c/o Chemistry Department, University of Auckland, Private Bag, Auckland, New Zealand.

March

World Soybean Research Conference IV, March 5-9, 1989, Buenos Aires, Argentina. Contact: Asociación Argentina de la Soja, Avenida Corrientes 127, 3er Piso, 1043 Buenos Aires, Argentina.

June

First Congress Eurolipid, an international congress marking the centenary of the death of Michel Eugene Chevreul, June 7–9, 1989, Angers, France. Information: French Association for the Study of Fats (AFECG), 10A, rue de la Paix, 75002 Paris, France.

September

International Symposium on Gas Separation Technology, Sept. 10– 15, 1989, Antwerp, Belgium. Contact: R. Dewolfs, University of Antwerp, Department of Chemistry, Universiteitsplein 1, B-2610 Antwerp-Wilrijk, Belgium.