

Fats & Oils News

Panel suggests more studies on *trans* FA

Concluding there is little reason for concern over the safety of *trans* fatty acid in the American diet, an ad hoc review panel on *trans* fatty acid has recommended, however, that additional studies be conducted to better understand its properties and effects.

Preparing a comprehensive review of the health aspects of *trans* fatty acid for the Food and Drug Administration's Center for Food Safety and Applied Nutrition, the panel, selected by the Federation of American Societies for Experimental Biology (FASEB), suggested the following investigations be conducted to better define the physiological properties of partially hydrogenated vegetable oils and their component fatty acids:

*Additional studies on the isomeric fatty acid composition of human adipose tissues. The panel suggested these be designed to correlate adipose tissue composition with dietary fat composition as determined by dietary record and analysis.

*Further studies on the geometrical and positional fatty acid isomers in various lipid classes of human tissues to confirm and expand current information on the accumulation and discrimination against specific isomers.

*Studies on the cholesterolemic properties of the major positional and geometrical isomers of 18:1 fatty acids present in partially hydrogenated vegetable oils relative to oleic acid using diets and protocols similar

to those used by F. H. Mattson, E. J. Hollenbach and A. M. Klingman, as published in the *American Journal of Clinical Nutrition* in 1975. The panel suggested these could determine the relative concentrations of high density and low density lipoproteins as well as total cholesterol.

*Additional studies with spontaneous, chemically induced and transplanted tumors to compare the effects of *trans* fatty acids with those of saturated and polyunsaturated fatty acids. The panel noted that past studies in this area were limited in design.

*Studies on the modulation of immune function in response to defined antigens. The panel suggested investigating changes in membrane fluidity, receptor availability and mobility, enzyme activity and levels of prostaglandins and leukotrienes.

In its review, the panel determined that *trans* fatty acid content in the U.S. food supply for the past 20 years remained constant at about eight grams per capita per day, representing about 5.6% of the fat consumed. The panel adjusted data for food disappearance (see Table I) to reflect food processing and food services losses, particularly the discarding of used deep frying fats. Meanwhile, figures submitted to the panel by the Institute of Shortening and Edible Oils, in cooperation with the Association of Margarine Manufacturers, estimated *trans* fatty acid availability in the diet at approximately 7.6 grams per capita per day (see Table II), or 5.4% of the total available fat.

Polyunsaturated Fatty Acids

A monograph edited by Wolf-H. Kunau and Ralph T. Holman, 258 p.
Hardbound—\$20 for AOCS members and students, \$30 for nonmembers.

This monograph records the contributions of twenty noted researchers who contributed to the 1975 AOCS symposium on unsaturated fatty acids. The symposium was premised on the increasing need to combine separate disciplines in lipid research. Speakers thus were invited who specialized in chemical, physical and biochemical properties of lipids. Topics included biosynthesis, oxidation and regulation of metabolism, analysis, chemistry/physicochemistry, and experimental and clinical data. Illustrations and references enhance this collection.

Please send me _____ copy/copies of **Polyunsaturated Fatty Acids**.

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TABLE I
Fats and *trans* Fatty Acids Available in the U.S. Food Supply, 1965, 1972, 1983, Per Capita/Day^a

Item	1965			1972			1983		
	Fat (g)	<i>trans</i> acids		Fat (g)	<i>trans</i> acids		Fat (g)	<i>trans</i> acids	
		%	g		%	g		%	g
Total fat	145			156			166.3		
Animal	96			97			94.6		
Vegetable	49			59			71.7		
Selected sources									
Salad and cooking oils	17.4	9.4	1.63	22.9	9.7	2.22	30.8	10.0	3.08
Shortening (vegetable)	12.2	22.5	2.74	14.6	19	2.77	18.3	16.3	2.98
Margarine (vegetable)	9.3	34.8	3.23	10.3	26.7	2.75			
Hard							6.37	23.9	1.52
Soft							2.59	16.2	0.42
Butter	6.4	3.4	0.22	4.9	3.4	0.17	5.1	3.4	0.17
Lard	11.4			8.6			3.9		
Direct	8.0			4.0			2.2		
Indirect	3.5			3.0			1.7		
Edible beef fat	2.4	6.55	0.16	3.0	6.55	0.20	5.9	6.55	0.38
Meat, poultry, fish									
Beef	16.8	5.8	0.97	19.6	5.8	1.14	18.1	5.8	1.04
Pork				29.3			27.9		
Fat cuts	14.7			17.2			11.7		
Lean pork	10.4			12.1			16.2		
Poultry	3.0			3.6			8.0		
Dairy Products									
Excluding butter	21.2	3.4	0.72	19.9	3.4	0.68	18.3	3.4	0.62
Whole fluid milk	11.7			9.5			5.4		
Low fat milk							2.0		
Fluid cream	1.5			1.0			1.3		
Cheese	3.6			4.8			7.2		
Frozen desserts	2.5			2.5			2.4		
Total <i>trans</i> fatty acids		9.7			9.9			10.2 (8.3) ^b	
Percent of total fat		6.7			6.2			6.1 (5.9) ^b	

^aAvailability of fat in the U.S. food supply as indicated by USDA production and sales data. These figures do not represent actual per capita consumption of fats.

^bAssumes 11 g/capita/day of frying oils used by food processors (Rizek et al. in *Dietary Fats and Health*, 1983, published by the American Oil Chemists' Society) and 75% of separable fat of retail cuts of beef were discarded.

Source: *Health Aspects of Dietary trans Fatty Acids*, FASEB, 1985.

TABLE II
trans Fatty Acid Levels in the Diet, 1963-1984 (in grams per person per day)

Year	Salad and cooking oils	Household shortenings	Margarines	Food service fats and oils	Industrial fats and oils ^a	Meat and dairy products	Totals
1963	0.06	1.01	2.48	NA ^b	1	1.54	—
1970	0.38	0.76	2.73	1.35	1	1.48	7.70
1975	0.49	0.75	2.73	NA ^b	1	1.41	—
1980	0.35	0.60	2.73	1.54	1	1.33	7.55
1984	0.31	0.55	2.85	NA ^b	1	1.38	—

^aEstimated

^bNA—Not available

Source: J. Edward Hunter, based on data from the Institute of Shortening and Edible Oil and the National Association of Margarine Manufacturers. Published in *Health Aspects of Dietary trans Fatty Acids*, FASEB, 1985.

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The panel said the daily per capita figures were consistent with the *trans* fatty acid content found in human adipose tissue. "Fatty acids in adipose tissue have low turnover rates and reflect long-term average fatty acid composition in the diet," the panel's report concluded. It predicted that both total fat and *trans* fatty acid consumption will remain about the same or decrease slightly in the next five years. The panel said it based that prediction on recommendations by government agencies and medical associations that U.S. residents decrease their fat consumption and on potential savings to industry by using unhydrogenated vegetable oils or oils with lower degrees of hydrogenation.

The major sources of *trans* fatty acids in the American diet are hydrogenated vegetable oil products and the fats of ruminant animals, principally beef and milk fats. In ruminant fats, the *trans* fatty acid content varies with the composition of the feed ingested by the animal. In hydrogenated vegetable oil products, variations have resulted from technological changes to improve physical properties and to increase ratios of polyunsaturated to saturated fatty acids.

Because *cis* octadecenoate positional isomers are present in hydrogenated vegetable oils, the panel said, possible effects of *cis* isomers also need to be taken into consideration in interpreting biological properties of hydrogenated fats. The panel noted that long-term and multigenerational rodent and rabbit feeding studies with hydrogenated oils have not revealed carcinogenicity or other histopathological effects attributable to *trans* fatty acids.

The panel's report cited infrared spectrometry and gas liquid chromatography as the best methods for routine determination of total *trans* isomer content of fats, oils and lipid extracts.

The report, compiled from data in the literature and from comments made to the panel by knowledgeable investigators in the field, was prepared and edited by Frederic R. Senti for the Life Sciences Research Office, FASEB, under the direction of the ad hoc review panel. Copies of the 137-page report entitled *Health Aspects of Dietary trans Fatty Acid* are available for \$12 each from FASEB's Special Publications Division, 9650 Rockville Pike, Bethesda, MD 20814.

Canadians to form AOCS section

AOCS members in Canada decided in October to form their own section of AOCS.

More than 80 persons attended a two-day symposium at the Banting Research Center, Ottawa. At the conclusion, the consensus was to form a new geographical section. The necessary petition and accompanying paperwork were prepared for presentation to the AOCS Governing Board. Informal conversation indicated a similar meeting may be held in Canada during late 1986.

The meeting in Ottawa was organized by AOCS President Joyce Beare-Rogers with approximately 30 speakers, on topics ranging from oilseed processing to biomedical aspects of fats and oils.

The Ottawa meeting brought together persons from throughout Canada with varying levels of experience. Sol W. Gunner, director general for the Food Directorate of Health and Welfare, Canada, noted in opening the meeting that speakers came

from "shore-to-shore" of Canada, with three speakers from Nova Scotia on the Atlantic Ocean and one from British Columbia on the Pacific Ocean. C. Y. Hopkins, a member of AOCS since 1955, was among the speakers, as were graduate students from Canadian universities.

Subject matter was equally diverse. Several papers were presented on canola, including the effects of late harvest, effects of chlorophyll on hydrogenation of canola oil, new processing technology and studies on quality and stability of canola oil. Others focused on analytical topics as well as biochemical and biomedical topics. A complete list of topics and speakers was published in the September *JAOCs* (p. 1308).

Once the new geographical section is approved formally by the Governing Board, potential members in Canada would be asked to enroll. The members then would elect officers and begin regular section activities.

Third largest U.S. soybean crop harvested

The 1985 U.S. soybean crop was estimated in October by the U.S. Department of Agriculture at 2.108 billion bushels, which would be the third largest harvest in history.

Yield, meanwhile, was forecast at a record 33.9 bushels per acre, compared to 28.2 bushels per acre in 1984 and the record 32.1 bushels per acre of 1979. Larger harvests were recorded in 1979, with 2.261 billion bushels, and in 1982, 2.19 billion bushels. Soybean production in 1984 totaled 1.861 billion bushels.

The quality of beans harvested early was good,

with protein content around 49% and oil content about 18-19%, according to the Oct. 21 issue *Update*, a weekly newsletter published by the American Soybean Association.

Meanwhile, USDA predicted record world oilseed production in 1985/1986 would be about 4.3% above that of 1984/1985. All of the major oilseeds except cottonseed were projected to increase. Cottonseed output, however, was expected to drop, due mostly to a reduction of the cotton area in China.

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In a report on 1985 oilseed usage, the USDA said that a lack of Western European sales of soybean meal to the Soviet Union, coupled with increased wheat feeding and record EEC oilseed production, held soybean demand to a small increase. This increase was more than filled by near-record oilseed exports from South America to Western Europe. Consequently, U.S. soybean sales were expected to decline from 1984/1985's level.

USDA said that in Japan, feed grain and soybean imports fell slightly. U.S. soybean exports to Japan

were reduced by sluggish feed consumption, the substitution of fish and rapeseed meals and by strong South American competition. Consequently, U.S. soybean exports to Japan were expected to remain near the 1984 level of 4.2 million tons despite a reduction in the average export price.

China, meanwhile, has dramatically increased its farm production, making it a formidable competitor in Asian markets for corn, cotton and soybeans.

In South Asia, increased Malaysian palm oil supplies and increased domestic oilseed production have reduced U.S. sales opportunities, the USDA said.

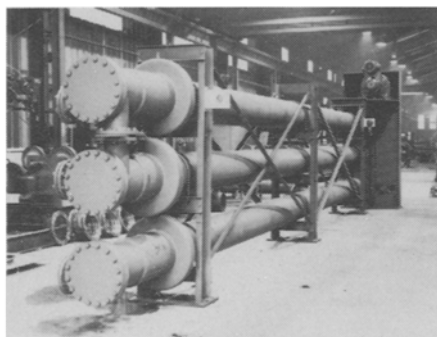
Lipid studies win Nobel

Drs. Michael S. Brown and Joseph L. Goldstein were named recipients of the 1985 Nobel Prize in Medicine for their research on how low density lipoprotein receptors influence cholesterol and atherosclerosis. The recipients are faculty members of the University of Texas Southwestern Medical School at Dallas.

The pair discovered LDL receptors in the early 1970s when studying how skin cells use cholesterol. Since then their work has increased knowledge about such receptors and their function. Basically, they have shown that cholesterol uptake is influenced by the number of receptors produced by the body's cells. The more functioning receptors, the more cholesterol-bearing low density lipoprotein is removed from the

bloodstream. Cells use cholesterol from the bloodstream in producing new cell membrane. The work by Brown and Goldstein has shown there is an internal regulatory mechanism that reduces the number of receptors produced if sufficient cholesterol is present inside the cell. In persons with a hereditary deficiency of receptors, the cell's internal cholesterol production will function even if there is excess cholesterol in the bloodstream, because that cholesterol is not available to the cells.

In the media coverage of their award, it was noted that their work might mean that someday "man could have his steak and eat it too," meaning their work might lead someday to ways of regulating cholesterol disposal rather than trying to regulate cholesterol intake.



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Mexican seminar draws 155 participants



Gerardo Feldhaus of Quimica Sumex, Mexico, and Werner Zschau of Süd-Chemie, Munich, answered questions on bleaching techniques used in oil processing. According to organizers, the seminar almost was canceled after the earthquake, but Feldhaus encouraged them to hold it in Cocoyoc, to follow a symposium sponsored by Süd-Chemie.



Miguel Machuca and Jose Becerra, program chairman, were the primary organizers of the international seminar held in Mexico.



Participants from 18 countries listened to talks translated simultaneously into English and Spanish.

One hundred fifty-five persons from 18 countries met in Mexico in October for an international seminar on edible oil processing and refining, sponsored by the Instituto Mexicano des Aceites, Grasas y Proteinas, a group which formed just a year ago.

The course, originally scheduled for Mexico City, was moved to Cocoyoc, a community approximately 60 miles south of Mexico City, due to the Mexican earthquake several weeks earlier. Also held in Cocoyoc that week was a symposium sponsored by Sud-Chemie for technical people in the fats and oils industry.

Participants at the international seminar included technical personnel from processing facilities and representatives from equipment suppliers. Some came from the United States and abroad to make contacts for possible marketing of their equipment or services. Others from processing facilities throughout Latin America were there to learn how to make improvements and to compare experiences with others in the industry.

Topics included the importance of soybean milling and extraction in Mexico, efficient use of resources in the solvent plant, crude oil production, finished products, the current technology on pre-press solvent extraction, expeller extraction, critical considerations on soybean oil refining, degumming and neutralizing methods for vegetable and animal oils and fats, the importance of bleaching in oil processing, sunflower oil processing and selective hydrogenation. A final talk on stability, storage and conditioning of fluid edible oils was not given, but seminar organizers said it will be published in the final proceedings, expected to be available in several months. Speakers represented the American Soybean Association, the National Sunflower Association, Crown Iron Works, De Smet, French Oil Mill Machinery Co., Anderson International in Mexico, Alfa-Laval, Quimica Sumex and Harshaw-Filtrol Partnership.

Speakers such as Dave Erickson of the American Soybean Association pointed out that in making decisions for their companies, those in the industry should first determine the simplest operation to produce the best quality product for their market. Outlining the processing steps possible, Erickson told participants, "We recommend the philosophy of minimizing treatment practices to ensure the maximum quality oil."

Tomás Limón, of Aceitera Tapatia S.A., Guadalajara, Mexico, explained that in Mexico, more soybean oil is consumed than any other vegetable oil. He projected that by 1990, an estimated 87 million people will consume 1,130,000 tons of oil a year in Mexico. Limón said that Mexican

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processors do not ripen the seed before processing. "Each region, each country is subjected to different conditions. These will determine what choices should be made in making a decision for equipment," Limón said. Meanwhile, Miguel Angel Tenorio, representing Anderson International in Mexico, explained that what works for one plant doesn't necessarily work well for others. "You must look for the proper manner of operating your facility," he said.

Speaking on efficient utilization of resources in the solvent plant, Jeffrey Scott of England, representing Crown Iron Works, recommended that perhaps the largest savings could be made by changing inefficient desolventizers.

A number of speakers pointed out that processors cannot expect good results from bad seed—that the quality of the finished product can be affected by early treatment of the oilseeds received for processing, for example. Gerardo Feldhaus of Grupo Sumex, Mexico City, explained that as most processors in Mexico import raw oilseeds, care has to be taken from the beginning in seed handling and storage. Erickson, meanwhile, explained that improperly refined vegetable oils can cause flavor problems: that if there is oxygen left inside the oil, it can oxidate even if the oil isn't exposed to the air. Robert Hastert of Harshaw-Filtrol, addressing the question of improper handling of products during processing, quoted the comic strip "Pogo": "We have found the enemy and they is us." Hastert added, "Dave Erickson said that if your deodorizer is dirty, you deserve the problems you get. Also, any mistake you make early in the process is what you have to live with. Your sins live after you."

While most of the talks centered on soybean

processing, Ed Campbell of Archer Daniels Midland Co., representing the National Sunflower Association, spoke on sunflower oil processing.

Participants attended from West Germany, Belgium, Columbia, Chile, Ecuador, the United States, Haiti, Honduras, England, Panama, Nicaragua, Peru, the Dominican Republic, El Salvador, Sweden, Uruguay, Venezuela and Mexico.

Miguel Machuca, general manager of the Mexican National Fats and Oils Industry Association and director general of the Instituto Mexicano des Aceites, Grasas y Proteinas, said organizers of the seminar were pleased with the attendance, particularly in light of a communications breakdown due to damage from the Mexican earthquake. He explained that while the group had sponsored regional meetings on agricultural development, this was the first international meeting it has sponsored. The results, he said, were so encouraging that the group will look forward to others, perhaps on a yearly basis. The institute, he said, is open to membership from throughout the world. "We believe the technology is universal, but Mexico and other parts of Latin America have the need for the dissemination of more knowledge. We need the technical support from others, such as Americans and Europeans, who have that knowledge," he said. He explained that in Mexico, both the latest technology and outdated equipment are being used. "Such seminars, we believe, bring together an exchange of information, promoting development, teamwork and technical cooperation," he added.

One suggestion by participants was that future seminars include round table discussions. Seminar organizers said that would be considered.



Tomas Limón of Guadalajara, Mexico, was one of the speakers representing the American Soybean Association.



Session breaks allowed time for informal exchanges of ideas.

Haitians attend seminar

J.M. Ernst Robert and Daniel Danache of Haiti were among the participants at the Mexican seminar on edible oil processing and refining held in October. Robert and Danache work for Enaol, a government-run soybean and oilseed processing plant which opened five years ago. According to Robert and Danache, the facility is the only processing plant in Haiti and serves as both an extraction and refining operation. They reported that there are a number of

private refineries on Haiti which buy crude and partially refined oil from Enaol; these then do bleaching and deodorizing before reselling the oil.

They reported that the Enaol facility daily handles 360 metric tons of soybeans to produce 75 metric tons of refined oil. "It is a growing company," Robert explained, adding that the two attended the seminar to exchange ideas with and learn what is new from others in the industry.

AOAC report

(Former AOCS President David Firestone serves as general referee on fats and oils for the Association of Official Analytical Chemists. The following is Firestone's report to the AOAC annual meeting, held in late October in Washington, D.C. The report includes a summary of actions by the International Union for Pure and Applied Chemistry [IUPAC] Commission on Fats and Oils which met earlier in the year in Lyon, France. Firestone is senior research chemist with the Food and Drug Administration's Division of Chemical Technology in Washington.)

Antioxidants

Associate Referee B. D. Page is continuing to investigate procedures to confirm the presence of antioxidants detected by the HPLC method (1). Capillary GC confirmation of the relatively volatile antioxidants BHA, BHT, TBHQ and Ionox-100 was investigated. HPLC peaks (in about 1 ml effluent) were collected in water and the water was passed through a C-18 Sep-pak or similar cartridge. The antioxidant was eluted from the cartridge and 1 μ l injected onto the capillary column (on-column injector, flame ionization detector). BHA and BHT recoveries (10 ppm in sample) were about 80%; Ionox-100 recoveries were about 70%. TBHQ recoveries were poor, no more than 10%. Additional work is planned on capillary GC confirmation of HPLC peaks.

Emulsifiers

Associate Referee H. Bruschweiler has carried out a second collaborative study of a method for determination of mono- and diglycerides using capillary GC. The method involves direct conversion of the mono- and diglycerides in monoglyceride concentrates or in fats and oils into trimethylsilyl ether derivatives prior to capillary GC. Bruschweiler also conducted a collaborative study of a method for determination of lauryl sulfate in fats and oils by the methylene blue procedure. A recommendation for adoption of the methods will be made after publication of the methods and collaborative study results.

Hydrogenated Fats

Associate Referee R. A. DePalma is planning an interlaboratory study of a capillary GC method for determination of C-18 monoene *trans* levels in hydrogenated fats and oils. The method involves conversion of the sample to methyl esters followed by analysis of the esters on a 60 m 2340 (75% cyanopropylmethyl silicone) fused silica capillary column.

Lower Fatty Acids

Associate Referee G. Bigalli participated in an IUPAC Commission on Oils, Fats and Derivatives' international collaborative study of two GC methods for determination of butyric acid. The first method, based on that published by Phillips and Sanders (2),

provides for determination of free (underivatized) butyric acid after saponification of the fat sample with potassium hydroxide solution followed by acidification with phosphoric acid to liberate the fatty acids and separation of the short chain (soluble) fatty acids by filtration. The second method, based on that published by Kuzdzal-Savoie and Kuzdzal (3), requires saponification of the fat with barium hydroxide solution prior to acidification and filtration to separate the short chain fatty acids. Four samples (butyric acid content in the range of 0.2-3.5%) were examined by 14 collaborators. Repeatability and reproducibility coefficients of variation were 3-4% and 4-10%, respectively, for test portions with 1.8-3.5% butyric acid examined by both methods (4). For the sample containing 0.2% butyric acid, repeatability and reproducibility coefficients of variation were 4.5% (modified P-S method) and 4.9% (modified K-S method), 12.9% (modified P-S method) and 22.6% (modified K-S method), respectively. Both methods were judged to be satisfactory, although the collaborators generally favored the P-S method in terms of simplicity and analysis time. A recommendation for adoption of a method for butyric acid will be made after IUPAC approval and publication of the collaborative study results.

Marine Oils

Associate Referee R. G. Ackman is continuing study of methodology for analysis and identification of marine oils. He is planning a collaborative study on the use of flexible fused silica bonded Carbowax columns for analysis of marine oil fatty acid methyl esters by GC.

Olive Oil Adulteration

Methods used in Italy, supplied by the associate referee, are under review. Lercker and coworkers (5) proposed a method for detection of as little as 10% of esterified oil in olive oil by direct analysis of the monoglycerides (as trimethylsilyl derivatives) from enzymatic lipolysis of olive oil samples using capillary GC. V. M. Kapoulas (6) suggested validation of a standard method for detecting small amounts (<10%) of vegetable oils such as soybean oil in olive oil based on analysis of the triglycerides or specific triglyceride fractions. One method suggested was based on analysis of the triglycerides by reversed-phase HPLC.

Oxidized Fats

There was no associate referee activity on this topic during the past year.

Pork Fat in Other Fats

There was no associate referee activity on this topic during the past year. Rugraff and Karleskind (7) reported a sensitive method for determining pork fat in beef fat, based upon oxidation of the unsaturated glycerides, isolation of the saturated glycerides by silica gel column chromatography, hydrolysis of the saturated glycerides by pancreatic lipase, isolation of the 2-monoglycerides by TLC and analysis of the 2-monoglyceride fatty acids by capillary GC. The

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authors stated that less than 2% of pork fat can be detected in tallow with this procedure.

Sterols and Tocopherols

Associate Referee R. J. Reina is reviewing methodology for GC determination of sterols and tocopherols. Reina participated in an IUPAC Commission on Oils, Fats and Derivatives' collaborative study of an HPLC method for determination of tocopherols.

Other Topics

The general referee recommends that the Wiley method for determining the melting point of fats and fatty acids be revised to allow use of 30 x 3.5-3.8 cm i.d. test tubes. This specification revision would permit easier fabrication of the tubes, which are no longer generally available from commercial sources.

The general referee recommends that an appropriate precision statement be added to the official first action GC method for total *trans* acid isomers in margarines (8).

The IUPAC Commission on Oils, Fats and Derivatives completed study of a GC method for determination of triglycerides in fats and oils (9,10). The method involves the separation of triglycerides into groups containing the same number of carbon atoms by direct GC of lipid solutions on methyl polysiloxane columns under temperature programmed conditions. Equivalent results can be obtained using a packed column or a short (<5 m) capillary column. Statistical analysis of the collaborative results indicated that determination of the major triglyceride components of both animal and vegetable fats and oils can be carried out with an acceptable degree of precision. The referee recommends that the GC method for determination of triglycerides (IUPAC Method 2.323) be adopted official first action.

Commission on Oils, Fats and Derivatives, Applied Chemistry Division, IUPAC

The commission met Sept. 1-3, 1985, at the Ecole Centrale de Lyon, Lyon, France, during the 33rd IUPAC General Assembly. The commission discussed 22 projects and topics including methods for emulsifiers, polycyclic aromatic hydrocarbons, erythrodiol in olive oil and grapeseed oil, sterols, mineral oil residues, commercial lecithin products, phospholipids in commercial lecithins, solvent residues in oils and oilseed cakes, triglyceride composition by HPLC, butyric acid (butterfat content), tocopherols, metals in edible oils by direct graphite furnace atomic absorption spectroscopy, fat content of foods, other vegetable oils in olive oil, antioxidants by HPLC and polymers in heated oils.

The commission discussed the results of collaborative studies of methods for emulsifiers, thiobarbituric acid value, linolenic acid and other n-3 polyenoic

acids, solvent residues in oils, butyric acid, tocopherols by HPLC and phospholipids in commercial lecithins. Methods were adopted for determination of phospholipids and butyric acid. The texts of methods for erythrodiol, total sterols (enzymatic procedure), total hexane in oilseed cakes and emulsifiers by GC after hydrolysis and silylation have been prepared for publication. The commission also has prepared guidelines for conducting collaborative studies and evaluating their results. A 7th edition of the commission's *Standard Methods* will be published in 1986. The commission's next meeting will be Sept. 2-4, 1986, in Vienna, Austria.

Recommendations

(a) Revise Wiley melting point method to allow use of a 30 x 3.5-3.8 cm i.d. test tube.

(b) Revise the official first action GC method for total *trans* acid isomers in margarines to include a precision statement.

(c) Adopt as official first action IUPAC Method 2.323, determination of triglycerides by GC.

(d) Continue study on all other topics.

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New sunflower yearbook

The International Sunflower Association says its inaugural 1985 *Year Book* will be ready for distribution early in 1986. The book will cost US\$25 and may be ordered from the Secretary General, International

Sunflower Association, PO box 337, Toowoomba, Queensland 4350, Australia.

Colin Seccombe, secretary general for the association, said the publication is designed to improve communication between sunflower researchers and industry representatives in all nations. The book

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specifically is aimed at those involved in improving crop production through better breeding, plant protection and agronomy.

Persons working with sunflower are encouraged to submit their new data and information for publication in the annual yearbook. Plans are to include abstracts of all research papers written during the preceding year and to consider publication of full papers where the work is deemed highly innovative. Persons with materials of interest should submit them to Mr. Secombe at the above address. While not all material can be published because of space limitations, the association will include all relevant and important information, Secombe said.

The publication will be in English. No advertising will be accepted.

New bleaching earth plant

American Colloid Co., a mining and specialty chemical manufacturer, has constructed a bleaching earth producing plant at the company's bentonite processing facility in Aberdeen, Mississippi. The 15,000-ton-a-year facility is the second bleaching earth producing plant in the U.S. Plant startup was set for fall 1985. Sales are slated to be handled out of the company's Memphis, Tennessee, regional office. The bleaching earth will be used in production and decolorizing of vegetable oils and animal fats. The Aberdeen facility addition is phase one of a two-phase project. The second phase, slated to be completed by 1990, will result in clay catalyst production.

Sunflowers hit by frost

A killing frost in October damaged approximately 15% of the 1985 sunflowerseed crop in North Dakota and Minnesota, according to Larry Kleingartner of the National Sunflower Association.

Before the frost, oil yields of 47-48%, and even 51%, were noted, Kleingartner said. However, with the frost, he said, oil yields in the latter part of the crop were expected to be lower than normal. "It'll probably mean it'll work out to be an average oil yield overall," he said.

Sol Nadel of National Sun Industries, Enderlin, North Dakota, however, reported that the sunflower crop was of good quality. "In South Dakota, there has been excellent oil content. In other parts, the average oil content is 43-44%, which is good," he said, adding that harvesting was behind schedule due to a relatively wet fall.

Measuring total body fat

Beaming light through the skin may become a routine way to obtain a quick reading of total body fat, according to USDA scientists. According to the summer 1985 issue of USDA's *National Food Review*,

scientists have developed a new method, called infrared interactance, using short wavelengths of light to measure fat at key spots on the body. The method makes use of the principle that fat, water, protein and other body constituents absorb different parts of the near-infrared spectrum. When near-infrared light is beamed through the skin one wavelength at a time, each wavelength is either absorbed or reflected, depending on the type of tissue hit.

Chung receives award

AOCS member Dr. Okkyung K. Chung, research chemist for USDA's Grain Marketing Laboratory in Manhattan, Kansas, has been named the recipient of the second annual best paper award presented by the International Wheat Gluten Association (IWGA). The award is in recognition of outstanding achievement for product development and research on wheat gluten and related industry products. Dr. Chung's paper, "Lipid-Protein Interactions in Wheat Flour, Dough, Gluten and Protein Fractions," is slated for publication in *Cereal Food World* in March 1986.

EMI opens western office

EMI Corporation of Des Plaines, Illinois, has opened a western marketing office in Scottsdale, Arizona, under the management of Arnold E. Gavin. EMI supplies process systems and facilities to the oilseed industry. The address is EMI EX/IM Corp., 8260 E. Raintree Dr., Suite 111, Scottsdale, AZ 85260.

Kingsbaker to head NFPA panel

C. Louis Kingsbaker Jr. of Atlanta, Georgia, has been appointed chairman of the National Fire Protection Association's Standard 36 Committee for solvent extraction plants. Kingsbaker succeeds Paul C. Lamb, chairman of the solvent committee since its organization in 1957, who retired. Kingsbaker had served for nine years as AOCS representative to the committee, then subsequently as an independent expert.



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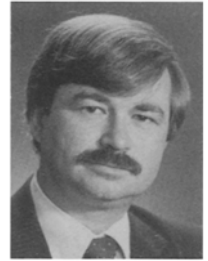
DNA Plant Technology Corp. and United Fruit Co. have announced a joint venture for developing and commercially applying techniques for large-scale cloning of superior varieties of oil palm trees.

Staley Continental Inc. has located its corporate office at One Continental Towers, 1701 Golf Rd., Rolling Meadows, IL 60008. Staley Continental was formed in February 1985 as a result of the reorganization of A.E. Staley Mfg. Co. after acquisition of CFS Continental in late 1984.

John Hughes has been elected president of the American Colloid Co., Skokie, Illinois. Hughes, who served as executive vice president for the past three years, replaces Roy H. Harris, who will continue as a director and consultant to the company.

AOCS member Josef Wagner has joined Glyco Inc. as quality assurance manager for the company's Williamsport, Pennsylvania, facility. Meanwhile, Michael J. Reale has been named Glyco's director of regulatory affairs for health, safety and environment.

SVO Enterprises Corp. has appointed Richard W. Schoenfeld as manager of marketing and sales.



J. Wagner



M.J. Reale



R.W. Schoenfeld

Obituary

WILHELM MELLOH

AOCS has been informed of the death of Dr. Wilhelm Melloh on Sept. 30, 1985. Dr. Melloh, 56, of REWO Chemische Werke GmbH, West Germany, was a member of the program and steering committee for the 1983 AOCS World Conference on Oleochemicals held in Montreux, Switzerland. He also cochaired the session on fatty chemical applications and analysis at that meeting.