

European Club of Centers for Lipid Research

Report of the Marseille meeting, September 3-4, 1976

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The European Club of Centers for Lipid Research met in Marseilles on an invitation of the French member—ITERG—, at the occasion of the 13th I.S.F. World Congress. This meeting was the fifth since the creation of the Club in 1972.

Nine of the ten members attended this meeting: France, Germany, Great Britain, Hungary, Italy, Netherlands, Poland, Scandinavian countries, and Spain. Belgium was not represented.

1975 RESEARCH ACTIVITY AND 1976 RESEARCH PROGRAM

Each member reported on the main activities and realizations of each Center. Hereafter are summarized the highlights of the presentations.

Scandinavian countries

Dr. R. Marcuse as General Secretary of the Lipidforum commented on the research activity of several Scandinavian institutions devoted in part to lipids and related products:

- The Department of Biochemistry and Nutrition of the Technical University of Copenhagen (particularly *trans* fatty acids, positional isomeric fatty acids, diabetes and atherosclerosis, cholesterol metabolism C₂₂ monoene fatty acid separation, etc.),
- The Biochemical Laboratory of the Royal Danemark School of Pharmacy—Copenhagen (metabolism of isomers of unsaturated fatty acids, biosynthesis of prostaglandins, brain lipids, etc.),
- Department of Biochemistry C. of the University of Copenhagen (biosynthesis of triglycerides, oxidation of fatty acids, etc.),
- Departments of Medicine, Serology and Bacteriology of the University of Helsinki (main research on lipases),
- Institute of Vitamin Research, Directorate of Fisheries, Bergen (analysis and nutritional value of fish oils, mainly for their vitamin content, analysis of isomeric fatty acids, etc.),
- Research on edible oils and fats supported by the Norwegian Edible Fat Manufacturers Research Association. This association, founded in 1974, grants financial help to institutes working on a special program (standard for oils and margarines crystallization behavior, industrial wastes, environmental problems).

Several seminars, symposia, and meetings were held in Sweden in 1976.

Great Britain

Dr. P.A.T. Swoboda gave some examples of research developed at the Food Research Institute:

- Fundamental mechanism studies on: volatiles responsible for the fishy and metallic off-flavors (octa

1,5-diene 3,-one; photosensitizers; plant enzymes, branched fatty acids from clostridium, rapeseed meals uses, etc.),

- Analysis: Peroxides analysis by high pressure liquid chromatography, oxidation products from polyunsaturated fatty acids.

Some information concerning the main scientific events organized by the Society of Chemical Industry, and the Chemical Society Lipid Group have been delivered.

Poland

Professor Zwierzykowski delivered its report concerning chemistry and technology of lipids in Poland in 1975.

The main trends developed are the following:

- Transformation of minor components—mainly sterols and phospholipids in oils by technological treatment and changes in fatty acids during hydrogenation;
- Investigation on hydrogenation: kinetics, catalysis;
- Technical derivatives of rapeseed oils;
- Chemistry and physics of surface active agents;
- Investigation on new edible products;
- Improvement of analytical methods.

Hungary

Mrs. E. Kurucz gave a survey of the activity of the Hungarian Research Institute for Vegetable Oil and Detergent Industry. According to the new plan beginning in 1976, the main topics of research are:

- Development of agrotechnics for oil plants and seeds;
- New recipes for oils and margarines;
- Elaboration of cooking fats for special purposes;
- Development of new process which avoids denaturation of proteins and alteration of oils;
- Supervision of new plant and factory and study for improving the technology;
- Analytical studies on flavor and oxidative alteration including cyclic polyaromatic compounds; development of new analytical techniques and standardization.

Italy

Mr. Carola gave the main topics of the Milan Stazione Sperimentale activity. This concerns particularly the olive oil:

- Study of the oil constituents that attract or repel the olive fly (*Dacus oleae*),
- Nutritional value of the olive oil compared with the value of other vegetable oils,
- Better exploitation of husk oil and vegetation water (alpechine),
- Oil alteration in normal conditions and at frying temperatures, studies by modern techniques such as high pressure liquid chromatography.

Some other researches concern the protein constituents and minor components of rapeseed and meal.

The Netherlands

The oils and fats research developed at the Central Institute for Nutrition and Food Research was given by Mr. Vos. The activity is focused on three main points:

- *Analysis, quality control, purity* including: stability of oils (oxygen absorption measured by the Astell apparatus); organoleptic evaluation by sensorial analysis; detection of fat adulteration; determination of the solid fat content by wide line nuclear magnetic resonance; changes on fats and oils during frying; palm oil quality evaluation, etc.,
- *Technology* including: effects of emulsifiers on margarine properties; incidence of roasting on cocoa bean characteristics, etc.,
- *Collaboration with national and international organizations* such as Fats and Oils Group of I.U.P.A.C., Netherlands Normalization Institute, Office International de Cacao et du Chocolat, etc.

France

Mr. Wolff commented on the report circulated to the members which describes the main research fields of ITERG concerning:

- Alteration and preservation of fats and oils; flavor products, nonvolatile components, metal traces evaluation (by Varian Spectrophotometer) and influence;
- Selective hydrogenation by homogen Zeigler catalyst developed in a pilot plant scale on soybean and rapeseed oils;
- Study of frying oils, nutritional evaluation on rats. The oils tested are palm, peanut, soybean, and sunflower oils. No significant differences have been found between these four oils, as fresh as fried oils;
- Study of unsaponifiable matters; sterols composition and sulphur components of Primor oil;
- Vinyl chloride monomer migration in polyvinyl chloride bottles for oil; less than 5 ppb;
- Plastic fats crystallization;
- Purification of wastewaters in tallow rendering houses;
- Practical evaluation of soap properties: penetration resistance, swelling, friction wear, etc.;
- Several improvements of analytical techniques.

Germany

Mr. Mukherjee summarized the activity of the Bundesanstalt für Fettforschung. It concerns particularly:

- Chemical and nutritional properties of rapeseed oils from 'Erglu' and 'Lesira' varieties, including their technology, refining, hydrogenation, etc.;
- Preparation and evaluation of protein concentrates and isolates from rapeseed;
- Sterols determination and analysis from several fats and oils;
- Quality and evaluation of new emulsifiers for food industry.

Spain

Mr. Gracian-Tous delivered a summary of the report

concerning the Instituto della Grasa research activities which are devoted to:

- Evaluation of olive oil stored in tanks coated with epoxy resins. No spoilage of the oil quality has been observed;
- Detection of antioxidants by high speed liquid chromatography;
- Analogic model for the solvent extraction of oil from seed flakes in order to study its mechanism;
- Analysis of the natural diglyceride in olives (which are always in the L.1.3 form);
- Determination of pesticides residues in olives by gas chromatography with an electron capture detector;
- Pickling of olives.

Other research are devoted to wastewater treatments and detergents analysis and evaluation, particularly as residues.

SUPPLIES OF RAW MATERIALS FOR FATS AND OILS INDUSTRIES

Participants joined in a roundtable discussion with the consensus being that the situation varies from one country to another. Some countries report a surplus: olive oil in Spain and Italy; rapeseed oil, tallow, butter, in France, The Netherlands, and Scandinavia; marine oil in Scandinavia or the United Kingdom. Generally there is a shortage of seeds (such as sunflower, soybean, or peanut) and fruits or solid fats (such as palm oil, coconut, palm kernel oil).

Generally, the European countries have a deficit in producing raw materials for the fats industry which must be compensated for by large imports, with a very high deficit in foreign currencies. Governments are trying to reduce the deficit by planning and helping to develop increased cultivation of seeds: rapeseed (new varieties), sunflowerseeds, linseeds, etc.

PLANS FOR 1977 ACTIVITY

The members agreed to a multilingual thesaurus on fats and oils and related products. The draft document will be prepared by France (ITERG), then circulated to the club members for improvement and translation in their own languages. France will have the charge of printing the new final Thesaurus in five languages (English, Italian, French, German, and Spanish) and perhaps eight languages (including Dutch, Russian, and Polish).

The next meeting will take place in June 1977 at Visby (Sweden) on an invitation of Lipidforum. The agenda will include: wastewater treatment—environmental problems; safety in fat and oil industries. ●

L.I.F.E. Newsletter

The latest newsletter from L.I.F.E. (League for International Food Education) includes reports on three programs for sharing information on ways to improve human nutrition.

The International Institute of Protein Food Technology will be holding courses in Santa Monica, CA, from April 4-29 and May 2-25 on texturized vegetable protein and extrusion technology.

A six-week course on soybean processing for food uses is expected to attract 15 to 18 persons to the University of Illinois beginning March 23. The U.S. Department of Agriculture and Agency for International Development are sponsors with the university.

The newsletter also contains reports on the 9th Congress of International Association of Cereal Chemistry held last year in Vienna and on a Dominican Republic CARE project to spread knowledge of beekeeping by training young people 14 to 20 years of age. ●