Safflower Utilization Research Conference

Sponsored by the
West Coast Oilseeds Development Committee
and the
Western Utilization Research and
Development Division
Agricultural Research Service
U.S. Department of Agriculture
Glenn Fuller, General Chairman
May 25 and 26, 1967

TENTATIVE PROGRAM

May 25, 1967

First Session: Safflower Seed, G. O. Kohler, Chairman

Over-All View of Safflower Utilization Research, *G. O. Kohler,* WURDD
Economics of Safflower Production and Utilization, *M. D. Miller,* Extension Division, University of California, Davis, California
Plant Science Related to Utilization, *R. W. Howell,* Crops Research Division, Beltsville, Maryland
Plant Breeding Experiments at the University of Arizona, *D. D. Rubis,* University of Arizona
Sampling and Analysis of Safflower Seed, *E. Jacobson,* Pacific Vegetable Oil Corporation
Composition of Safflower Seed, *J. Goggolz,* WURDD

Second Session: Safflower Oil, T. H. Applewhite, Chairman

Color and Odor Problems in Safflower Oil, *R. G. Binder* and *H. J. Burkhardt,* WURDD
Composition of Safflower Oil, *T. H. Applewhite,* Pacific Vegetable Oil Corporation
The Relation of Polyunsaturated Fats to Heart Disease, *L. W. Kinsell,* Institute for Metabolic Research
Autoxidation and Antioxidants in Safflower Oil, *A. R. Kemmerer,* University of Arizona
High-Temperature Stability of Safflower Oil, *G. Fuller,* WURDD
Market Potential of High Oleic Safflower Oil, *C. L. Rasmussen,* WURDD
Safflower Industrial Use Research, *B. Freedman* and *G. Fuller,* WURDD

Dinner Program

Safflower Around the World, *P. F. Knowles,* University of California, Davis, California

May 26, 1967

Third Session: Safflower Meal, Glenn Fuller, Chairman

Amino Acid Composition of Safflower Meal: A Fast Hydrolysis Procedure, *G. O. Kohler* and *R. Palter,* WURDD
Application of Automated Analysis to Estimations of Lysine and Total Amino Acids in Safflower Seed Hydrolysates, *L. M. White* and *M. A. Gauger,* WURDD
Lysine Content of Single Safflower Kernels, *A. T. Noma, B. A. Ricci,* and *L. M. White,* WURDD
Safflower Meal in Poultry Rations, *D. D. Kuzmicky,* WURDD
Safflower Protein Products in Human Nutrition, *A. E. Goodban,* WURDD
Safflower and the World Food Problem, *G. O. Kohler,* WURDD

Tour of the Laboratory (Optional)

LAW & COMPANY
CHEMISTS
Consulting and Analytical
Atlanta, Ga. Montgomery, Ala. Wilmington, N.C.

(Continued from page 228A)

buffer (pH 9.6) and deoxycholate. This activity cannot be found in serum obtained prior to the injection of heparin. Post-heparin serum lecithinase can be distinguished from the heat-stable pancreatic lecithinase by the markedly different effects of heat, paraoxon and EDTA, and from serum lecithin: cholesterol acyltransferase by the differential effect of *p*-hydroxymercuribenzoate. In contrast to the acyltransferase and to pancreatic lecithinase, which are active at the β(C-2)-position of lecithin, post-heparin serum lecithinase is active at the α'(C-1)-position.

MICROREACTOR FOR METHANOLYSIS OF TRIGLYCERIDES BEFORE GAS-LIQUID CHROMATOGRAPHY. V. L. Davison and H. J. Dutton (North. Reg. Res. Lab., Peoria, Ill. 61604). *J. Lipid Res.* **8**, 147–9 (1967). A rapid, accurate microtechnique has been developed for gas chromatographic determination of the fatty acid composition of small (2–3 μl) samples of vegetable oils. This microtechnique combines transesterification and sample injection into a single operation. The fatty acid compositions of soybean, linseed and safflower oils thus determined compare favorably with those obtained by the usual two-step procedure.

SEPARATION OF STEROL ACETATES BY COLUMN AND THIN-LAYER ARGENTATION CHROMATOGRAPHY. H. E. Vroman and C. F. Cohen (Entomol. Res. Div., Agr. Res. Service, U.S.D.A., Beltsville, Md. 20705). *J. Lipid Res.* **8**, 150–2 (1967). Column and thin-layer chromatographic systems employing silver nitrate-impregnated adsorbents are described for the separation of sterol acetates which differ in the number of double bonds in the steroid nucleus or side chain.

REVERSED-PHASE PARTITION THIN-LAYER CHROMATOGRAPHY OF RAT LIVER-LECITHINS TO YIELD EIGHT SIMPLE PHOSPHATIDYL CHOLINES. G. A. E. Arividson (Dept. of Physiolog. Chem., Univ. Lund, Lund, Sweden). *J. Lipid Res.* **8**, 155–8 (1967). The four fractions obtained by argentation thin-layer chromatography of intact rat liver lecithins can be further subdivided by reversed-phase partition thin-layer chromatography on hydrophobic kieselguhr. The resultant eight fractions contain virtually only one saturated and one unsaturated acid each.

EFFECT OF ASCORBIC ACID ON CERTAIN BLOOD FAT METABOLISM FACTORS IN ANIMALS AND MAN. B. Sokoloff, M. Hori, C. Saelhof, B. McConnell and T. Imai (Southern Bio-Res. Inst., Florida Southern College, Lakeland). *J. Nutr.* **91**, 107–118 (1967). The possible relationship between certain fat metabolism disturbances and alterations in ascorbic acid metabolism was studied, including the influence of long-term, heavy-dose ascorbic acid therapy on blood cholesterol, lipoprotein lipase (LPL) and triglycerides in animals and man. Rabbits (180) were divided into 3 groups: a) control; b) fed cholesterol, 100 mg/kg body weight/day; and c) cholesterol, 100 mg/kg body weight/day, plus ascorbic acid, 150 mg/kg body weight/day for 8 months. The total cholesterol was decreased from 1234 ± 8.8 (SD) in the cholesterol group to 308 ± 4.0 mg/100 ml in animals receiving ascorbic acid. The triglycerides were decreased from 195 ± 9.5 mg/100 ml, average, to 89 ± 1.4 mg/100 ml. The activity of LPL, 0.189 in the cholesterol, increased almost to the normal level of $0.45 + 0.02$ unit. Histopathologic examination showed pronounced atheromatous-like lesions in the vascular system of the cholesterol group, and mild incipient pathologic alterations in the cholesterol-ascorbic acid group.

THE CITRATE CLEAVAGE PATHWAY AND LIPOGENESIS IN RAT ADIPOSE TISSUE: REPLENISHMENT OF OXALOACETATE. F. J. Ballard and R. W. Hanson (Fels Research Inst., Temple Univ. School of Med., Phil., Penn. 19140). *J. Lipid Res.* **8**, 73–9 (1967). Fatty acid synthesis via the citrate cleavage pathway requires the continual replenishment of oxaloacetate within the mitochondria, probably by carboxylation of pyruvate. Malic enzyme, although present in adipose tissue, is completely localized in the cytoplasm and has insufficient activity to support lipogenesis. Pyruvate carboxylase was found to be active in both the mitochondria and cytoplasm of epididymal adipose tissue cells; it was dependent on both ATP and biotin. Alterations in dietary conditions induced no significant changes in mitochondrial pyruvate carboxylase activity, but the soluble activity was depressed in fat-fed animals. The possible importance of the soluble activity in lipogenesis lies in its participation in a soluble malate transhydrogenation cycle with NAD malate dehydrogenase and malic enzyme, whereby a continual supply of NADPH is produced. Consequently, the pyruvate carboxylase in adipose tissue both generates mitochondrial oxaloacetate for the citrate cleavage pathway and

(Continued on page 232A)