The 1938-39 Personnel of the Soap Committee is as follows:

M. L. Sheely, Chairman
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J. E. Doherty
L. B. Hitchcock
C. P. Long
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H. P. Trevithick
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Foster D. Snell

# Abstracts

## Oils and Fats

Edited by
**M. M. PISKUR**

FATS FROM WASTE. H. K. Dean. *Soap, Perfumery, & Cosmetics. 13,* 99 (1940). Extraction and use of garbage and sewage fats are discussed.

THE DEVELOPMENT OF THE TECHNICAL APPLICATIONS OF HYDROGENATION. E. F. Armstrong and K. A. Williams. *Chem. & Ind. 59,* 5-9 (1940).

PREPARATION, PROPERTIES, AND THIOCYANOGEN ABSORPTION OF TRIOLEIN AND TRILINOLEIN. D. H. Wheeler, R. W. Riemenschneider, and C. E. Sande. *J. Biol. Chem. 132,* 687-699 (1940).

INTRA MOLECULAR OXIDATION OF LINOLEIC ACID. M. Brambilla. *Ann. chim. applicata 29,* 303-14 (1939). When linoleic acid is heated 3 hrs. at 320-5° in an inert atm. (N), intramol. oxidation takes place with formation of propionic, butyric, caproic and glutaric acids, water, $CO_2$, certain acids recognized as sebacic acids, an unsaponifiable portion contg. ethylenic hydrocarbons and a tarry residue. This behavior is similar to that found when oleic acid is heated (*Chem. Abs.*).

INFORMATION ON AND DETERMINING THE ANTIOXIDANT OF OAT FLOUR. W. Diemair, R. Strohecker and K. Reoland. *Z. Untersuch Lebensm. 79,* 23-42 (1940). Reactions of Strohecker *et al* von Fellenberg, Kreis and the peroxide value were used as criteria for progress of oxidation. Addn. of 10 g. of oat flour yielded some protection to olive oil. Distinct protection to peanut, corn, olive, sesame, almond, poppy seed, soy bean and hardened train oils was obtained on addn. of 1-2.25% solvent extd. oat oil; no retarding of rancidity was obtained on linseed, train liver and certain soy bean oil samples. Partly rancid oils were not precipitibly influenced. In chromatographic adsorption investigations, using animal charcoal, spanish earth, and clarit as absorbents and petrol. ether and $C_6H_6$ as solvents, no characteristic zone formation was observed. The active constituent was not absorbed from the oil. A high P content of the petrol. ether extd. oat oil at first suggested that the antioxidant may be a phosphatide-like material, but, tests did not bear this out. Boiling the oil with acid yielded a ppt. and destroyed the antioxidant. Treatment of the petrol. ether or the alc.-$C_6H_6$ ext. of oat flour with Et or Me alc. or ice cooled acetone yielded a ppt. contg. an antioxidant substance. The ppt. from this petrol. ether ext. gave a much greater antioxidant effect than that from the alc.-$C_6H_6$ ext. The former contd. a 1:17.5 and the latter 1:1.5 P:N ratio. Such a high N content in the most active ppt. suggested the presence of a protein. It gave positive protein reactions and reduced Fehlings soln. The vacuum dried ppt. was insol. in $C_6H_6$, ether, $CHCl_3$, MeOH, EtOH, BuOH, Am. OH, PrOH, $C_6H_5CH_3$, pentane, $H_2O$ and dil. acids. It was sol. in pyridine and alk. water of pH 12.2. Pepsin digestion destroyed the antioxidant capacity and split off a fatty material.

DETERMINING OF VITAMIN E. (THE TOCOPHEROLS). Felix Grandel and Hans Newmann. *Z. Untersuch. Lebensm. 79,* 57-65 (1940). Two biol. and 3 phys.-chem. methods for qual. and quant. detg. vitamin E. were described and discussed. Investigations on 7 wheat germ oils gave the following results:

| *Wheat germ sample* | *Acid No.* | *Peroxide No.* | *Fellenberg reaction* | *Vitamin E content in % tocopherol.* |
|---|---|---|---|---|
| A | 6.4 | 3.9 | — | 0.60 |
| B | 7.0 | 5.1 | + | 0.51 |
| C | 5.3 | 9.0 | + | 0.37 |
| D | 13.2 | 6.0 | + | 0.29 |
| E | 3.9 | 20.2 | ++++ | 0.7 |
| F | 16.6 | 30.9 | ++++ | 0.01 |
| G | 60.3 | 48.1 | ++++ | 0.005 |

The authors conclude that the results show enough correlation for recommending detn. of acid no., peroxide no. and Fellenberg reaction for proximately estg. the vitamin E content of wheat germ oils. There are 14 references.

HYDROGENATION OF WHEAT LECITHIN. A. Schloemer and W. Diemair. *Z. Untersuch. Lebensm. 79,* 43-6 (1940). The alc.- $C_6H_6$ (4:1) ext. of wheat germ was dissolved in ether, the lecithin therein pptd. 9 times with ice-cooled acetone and dried over $P_2O_5$. Abs. alc. dissolved only 65% of the dried product. Alc. solns. of the product were hydrogenation using Pt and Pd catalysts. There was an original rapid $H_2$ uptake followed by a much slower uptake. The tests were stopped at 7 days even though the endpoint of $H_2$ uptake had not been reached. Pt was the more active catalyst. The authors suggested that the break in the curves plotting $H_2$ uptake with time was due to depolymerization or to a variation in the type of double bonds in lecithin.

GROWTH OF RATS ON HIGH FAT AND LOW FAT DIETS, DEFICIENT IN THE ESSENTIAL UNSATURATED FATTY ACIDS. R. G. Sinclair. *J. Nutri., 19,* 131-40 (1940). On a diet of cassein, salt mixture, dried yeast and the fat, elaidin, supplemented with vitamins A and D, rats cease growing when only about 100 gm. in weight. After several weeks at constant weight they go into a decline and die. Since growth and health are readily restored by feeding a little corn oil, the impairment in growth is attributed to a severe deficiency of the essential unsaturated fatty acids. It is concluded that the better growth of rats on a high carbohydrate than on a high fat diet, both equally poor in essential fatty acids, is due, in part at least, to the synthesis of the fatty acids necessary for growth An increase in the requirement of essential fatty acids by rats on a high

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fat diet may also contribute to the poor growth obtained.

Essential fatty acids, vitamin $B_6$, and other factors in the cure of rat acrodynia. H. Schneider, H. Steenbock, and B. R. Platz. *J. Biol. Chem. 132,* 539-551 (1940). Acrodynia can be cured by the so called "essential fatty acids." This action is independent of vitamin $B_6$, since "essential fatty acid" preparations have been shown not to contain any vitamin $B_6$ and to retain their activity after treatment with diazomethane. It can be cured by rice bran concentrate. This action is independent of fatty acids, but is dependent upon vitamin $B_6$ plus a second "accessory factor." This second factor has been shown to be included in the filtrate from the fullers' earth treatment of rice bran concentrate.

The effect of some saturated fatty acids on the respiration of baker's yeast. E. S. Cook and Sis. M. Norbert Morgan. The Biochem. *J. 34,* 15-20, (1940). The addition of non-toxic concentrations of satd. fatty acids to suspensions of baker's yeast causes an increase in $O_2$ uptake. The magnitude of the effect depends both upon the concentration of the acid and its mol. wt. Within limits (valeric to undecoic) the physical effects, as determined by toxicity and respiratory activity, generally appear to increase with lengthening of the carbon chain but a lowering of activity is evident with stearic acid.

### PATENTS

Extracting oil. A. L. Davis and L. H. Bartlett. *U. S. 2,191,455.* Low boiling solvents are used so that the greater portion of the coloring matter is retained by the residue.

Treatment of paper and board. S. Musher (Musher Foundation, Inc.). *U. S. 2,193,695.* Cacoa residue was used as an ingredient for coatings on package paper and board to supply a protective action to rancidifiable packaged goods.

Water dispersible lecithin. S. Jordan. *U. S. 2,193,873.* The lecithin is dissolved in ethyl lactate soln.

Soft lecithin preparation. G. A. Wiesehahn (Amer. Lecithin Co.). *U. S. 2,194,842.* Stearic acid or other fatty acid is added to soy bean phosphatide products to improve the consistency. The final product mixes better with oils.

Resinified soya bean oil product and process of making same. Carleton Ellis (Ellis-Foster Co.). *U. S. 2,194,894.* The resins are prepared by heating mixts. of glycerol, phthalic anhydride and soy bean oil fatty acids.

Polymerizable oils. L. P. Hubbuch (du Pont de Nemours & Co.). *U. S. 2,190,789.* The compn. comprises a product obtained by reacting methacrylic anhydride with polyhydric alc. incompletely esterified with polycarboxylic acid and a fatty oil acid.

Catalytic formation of long-chain aldehydes. W. A. Lazier (du Pont de Nemours & Co.). *U. S.* reissue *21,373.* Dehydrogenation of fatty alcs. to the corresponding aldehyde is accomplished by treatment at 50 atms., at temps. 50-450° and in the presence of chromium sesqui-oxide.

Manufacture and treatment of textile materials. D. Finlayson and R. G. Perry. (Celanese Corp. of Am.). *U. S. 2,195,564.* A textile lubricant comprises of mixtures of pine oil, soap and an alkylolamine.

# Abstracts

## Soaps

**Edited by M. L. SHEELY**

Soap catalyst patent settled. *Oil, Paint and Drug Reporter 137,* 16, 45 (1940). August Edeler and Albert S. Richardson have been awarded priority in an invention concerned with the catalytic action of soap by the United States Court of Customs and Patent Appeals. The court ruled that Edeler and Richardson had put their invention into practical use before Leo C. Brown, who had appealed the case after an adverse decision by the Board of Appeals of the Patent Office. The invention uses soap as a catalyst in the interaction of glycerin and triglycerides, included in a process for development of a substitute for cocoa butter.

The danger from iron in toilet soaps. *Perfumery and Essential Oil Record 31,* 73 (1940). Attention has frequently been drawn to the serious ill-effects of minute amounts of copper, iron, or other metals in soap, and the work of Hagen, Wittka, and others has shown the liability of such contaminants to act catalytically in the oxidation of the soap, with formation of dark spots and development of rancidity. Various precautions have been taken in recent years to avoid metallic contamination, including the introduction in American factories of nickel-lined pans. Obviously, however, it is of little use to ensure the freedom of the freshly boiled soap from the presence of metals if in its subsequent treatment this same freedom from impurity cannot be maintained, and it is unfortunately only too true that the modern methods of rapid drying of soap do involve much greater risk than the old method of drying in frames. The exposure of the soap on metal bands in a chamber where particles of metal may be caught up in the air currents and deposited on the soap is fraught with much danger unless the utmost care is taken. The travelling band should be made of non-corrodible metal, and, if possible, all other metal parts of the drying chamber also. In the case of toilet soaps there is also the further danger of contamination on the mill or in the plodder, and with these soaps, in addition to the bad effects of metal already referred to above, there is also the possibility of reaction taking place between the metal and the perfume or medicament added to the soap, as, for example, the char-