tions of fats was given. It was suggested that the "diene numbers" in oils which by other methods had been shown not to contain conjugate system acids might be due either to unsaponifiable matter or to the presence of unsaturated labile substances, possibly acids, of a nature so far unknown. If further investigation proves the existence of fatty acids with conjugate bonds in many of these common oils, a new chapter in fatty acid chemistry will be opened. I am inclined to believe, however, that the data may simply be indications of hitherto unrecognized labile properties of unsaturated acids.

One cannot observe the voluminous literature in this field without realizing that fat chemistry, or more broadly speaking, lipid chemistry, is taking a foremost place as a branch of chemistry. What we need is further development and refinement of our available methods; new methods of study of glyceride mixtures as they occur naturally; new methods of separating fatty acids, especially the unsaturated acids; more study of the chemistry of the unsaturated acids and their isomers. To date relatively few fats and oils have been exhaustively studied by the best modern methods, and those that have been so studied do not include some of those of great commercial and biological importance; human fat, for example, has not been so studied. As such study progresses more and more of our favorite generalizations will undoubtedly fall and, in fact, are falling by the wayside. We will find, no doubt, fatty acids of uneven carbon series (as we already have in isolated instances). We will find new isomers of the unsaturated acids. We will find branched chain acids. We may find that it will be necessary to develop new methods of saponification before we examine fatty acids in order to avoid change while they are being investigated. There is an increasing amount of evidence of change during exposure to higher temperatures such as are used in vacuum distillation. Methods of avoiding this procedure are essential to further progress. Certainly it will be interesting to follow progress in the field of lipid chemistry during the years immediately before us.

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ABSTRACTS

Oils and Fats

Edited by
M. M. PISKUR and RUTH LINDAHL

An improved Kreis test. W. P. Walters, M. M. Muers and E. B. Anderson. *J. Soc. Chem. Ind.* **57,** 53-6 (1938).—An improved Kreis test is described in which the reaction occurs in a single phase, a soln. of trichloroacetic acid in amyl acetate being substituted for conc. HCl. The technic described gives reproducible quantitative results, and is much more sensitive than previous modifications of the Kreis test, especially in the very early stages of oxidation.

Separation of phosphatides from the sediments in the hydration of vegetable oils. I. Grabovskii. *Masloboino Zhirovoe Delo* **13,** No. 5, 13-14 (1937).—In the acid hydration unfiltered oils give up to 5% and filtered oils up to 1% of sediment. The latter contains a max. of 70% oil and 2-8% phosphatides, based on the dry product. The lab. scheme for sepg. P compds. (90%) consists in 2 alternate extns. with benzene or benzine. In this way, the water is removed with the partly escaping solvent. The latter is removed from the mixt. at 40-60° in vacuo. The mixt. of oil and P compds. is hydrated with HCl or H_2SO_4 for 2-3 hrs. and then centrifuged. The aq. and oil layers are removed, and the phosphatide layer is dehydrated and defatted by distg. off the H_2O with benzine, filtering, concg. and pptg. phosphatides with Me_2CO. (*Chem. Abs.*)

Isolation and properties of gorlic acid, and optically active liquid fatty acids. H. I. Cose and H. T. Cardoso. *J. Amer. Chem. Soc.* **60,** 612-14 (1938).—A liquid fatty acid possessing a high optical activity has been isolated from 2 chaulmoogra oils, **Carpotroche brasiliensis** and **Oncoba echinata.**

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Analysis of chaulmoogra oils. I. Carpotroche brasiliensis (Sapucainha) oil. H. I. Cole and H. T. Cardoso. *J. Amer. Chem. Soc.* **60,** 614-17 (1938).—Compn.: hydnocarpic acid 45.0, Chaulmoogric acid 24.4, palmitic acid 6.6, gorlic or dehydrochaulmoogric 15.4, oleic acid 6.3, keto acids ..., "Tarry acids" none, residue (decompn. products of distillation) 2.3. **II. Oncoba echinata (Gorli) oil.** *Ibid.* 617-9. The percentage compn. of the fatty acid is as follows: palmitic acid 7.8, oleic acid 2.2, gorlic acid 14.7, and chaulmoogric acid 74.9 (loss 0.4%).

PATENTS

Extracting fats. I. C. Kernot. Brit. 468,061.—Fat is extracted from waste meat or offal by hydraulic pressing at high temperatures and in presses constructed so that the charge and pressure equipment are submerged in water; the fat floats and may be skimmed.

Fatty oils rich in vitamins. K. Kawai. Brit. 465,547.—Fish and animal livers are dissolved by heating with aqueous alkali solns. and the oil which floats is collected.

Process of treating animal fat. L. H. Reyerson. U. S. 2,107,505.—To supplant the usual rendering, animal fat is subjected to a current of electricity, passing across the animal fat between electrodes and at the same time treating with hydrogen whereby the material is both heated and the fat hydrogenated.

Whale oil and cattle feed. D. A. Hansen. Brit. 457,348.—Whale meat is subdivided, heated to 35 to 65° C., and pressed to remove the oil. The residue is dried for use as livestock feed.

Food fats. H. C. Lundsgaard. Brit. 468,810.—In production of margarine the ripened milk is satd. with CO_2 at 0-5° C. and this is emulsified with the fat by emulsifiers in a closed container filled with gaseous CO_2. The aim of the process is to improve stability of the product.

Margarine. F. Seelein. Ger. 651,699 Cl. 53h Gr. 1/02.—Milk is cultured, salt added and the ppt. removed. This product can be mixed with fat in the prepn. of margarine in place of the usual cultured milk.

Emulsions. H. Schou. Brit. 472,086.—Condensation products of higher fat acids and polysaccharides are used as emulsifiers for water-and-oil type emulsions.

Emulsions. Soc. pour l'ind. chem. a Bale. Brit. 469,642.—The reaction products of dimethylcyclohexylamine and fat acids are used as emulsifiers.

Splitting fats. Procter & Gamble Co. Brit. 466,596.—Fat is split by heating water and fat separately under pressure between 300 and 600° F. and passing the water and fat continuously in a countercurrent direction in a suitable chamber; the period of contact in said chamber being sufficient to cause substantial splitting of fat into fat acids and glycerin.

Splitting and hydrogenating fats. H. Kaufmann. Brit. 468,170.—Simultaneous splitting and hydrogenation of oil is carried out by hydrogenating in the presence of an amount of water equal to that of the oil.

Stabilization of animal and vegetable fats and oils. H. Bradshaw (to E. I. du Pont). U. S. 2,104,070.—Syringic acids and their alkyl esters are used as antioxidants.

Stabilization of animal and vegetable fats and oils. G. H. Latham (to E. I. du Pont). U. S. 2,104,084.—Vanillyl alcohol, coniferyl alcohol and similar compounds are used as antioxidants.

Stabilizing oils and fats. E. I. du Pont de Nemours & Co. Brit. 470,573.—Sugar amines such as laurylglucamine, amylglycamine, methylfructamine, methylgalactamine, methylglucamine stearate, etc., are used as stabilizers.

Cellulose mixed esters composition containing higher fat acid esters. H. B. Smith (Eastman Kodak Co.). U. S. 2,108,452.—Esters of fat acids with monohydric alcohols of 1-4 carbon atoms are used as plasticizers for cellulose compositions.

ABSTRACTS

Soaps

Edited by M. L. SHEELY

New method for determining the content of fat and other organic acids, unsaponified fat and unsaponifiable substances in soap. B. G. Ravich. *Zavodskaya Lab.* **6,** 822-3 (1937).—A preliminary report on the possibility of detg. the sum of org. matter in soaps by comparing the calorific values of the sample and 100% oleic soap. The detns. are made in a bomb calorimeter. (*Chem. Abs.*)

Wetting and detergency. J. H. W. Booth. *Chemistry and Industry,* 1120 (1937).—In the symposium (Feb., 1937) of the Intern. Soc. Leather Trade Chem. on wetting and detergency, it was suggested that the pptn. of soap by hard H_2O is overcome by the increased soly. of the detergent in the presence of $C_6H_{11}OH$; curves were presented showing increased soly. with increasing soap concn. B. states that the system is more complex and gives a miscibility diagram for soap, creosote and H_2O at 15°. The shape of the boundaries alters with temp. Also, a mixt. of approx. equal wts. of pine oil and soap forms clear solns. in H_2O only below a soap concn. of H/8 at 15° and in a narrow temp. range. It was suggested that the soly. of a soap is increased by micelle formation even if it results from the addition of H_2O in sol. oil, whereas B. feels that micelle formation is the device by which unionized soap is brought into soln. by ionized soap mols. It is suggested that a pure soap micelle consists of a bundle of parallel mols. Thus if 2 mols. are in intimate contact, they might be expected to act as a dibasis mol. having 2 ionization consts., one larger and one smaller than the original. Data are presented to support the theory of soln. of oils in the hydrocarbon portion of soaps. (*Chem. Abs.*)

Direct method of determining the solubility of