ABSTRACTS

Oils and Fats

Edited by
M. M. PISKUR and RUTH LINDAHL

Fat acid synthesis by the oxidation of hydrocarbons. G. Wietzel. *Angew. Chem.* **51,** 531-7 (1938).—Method is described and a flow sheet of the plant is illustrated.

Theory and practice of deodorizing fats and oils. M. Singer. *Seifensieder-Ztg.* **65,** 487-9, 507-9 (1938).—A review.

The spreading capacity of butter. G. W. S. Blair, *J. Dairy Res.* **9,** 208-14 (1938).—A simple rheometer is described with which the rate of compression of cylinders of butter can be measured.

The elaidinizing of oleic acid and cis-transisomerism. S. H. Bertram. *Öle, Fette, Wachse Seife, Kosmetik,* **1938.**—No. 7, 1-4. Elaidinization could serve as an economical, technical method for hardening oils if there were no reactions which produced highly colored, odorous and off-tasting secondary products. Only oils having a high content of the simple unsatd. acids; i. e., oleic and erucic acids, could be hardened by elaidinization. The author found that 1/10 to 1% Se acts as a favorable catalyst at temps. between 150 and 240° C. Analysis for satd. acids in the elaidinized products from oleic acid, by the oxidation method showed that no satd. acids were formed; detn. of *n*, I no., and mol. wt. showed that polymerization, dehydrogenating and formation of secondary products was not measurable. Only 66 to 67% of the oleic acid was converted into elaidic acid whether the original oleic acid was pure or mixed with paraffin or with stearin. The behavior of the reaction with Se suggests that it is a trimolecular reaction. This was substantiated by plotting time with formation of elaidic acid at 150° C. and calculating the constants for the reaction using the equation for mono-, bi-, and trimolecular reaction. With the tri-molecular equation *k* did not significantly vary with the course of the reaction. The report contains 25 references to literature on the subject.

The relation between vitamin B$_6$ and the unsaturated fatty acid factor. T. W. Birch. *J. Biol. Chem.* **124,** 775-93 (1938).—Evidence is presented which shows that two factors are concerned in the production and cure of the acrodynia-like dermatitis of rats. One is the water-soluble basic substance vitamin B$_6$; the other is fat-soluble and is present in the fatty acid fraction of maize oil. The evidence indicates that the fat-soluble factor is similar to the "fatty acid factor" of Burr and Burr and to the fat-soluble antidermatitis factor of Hogan and Richardson. It is suggested that the physiological function of vitamin B$_6$ is connected with the utilization of the unsaturated fatty acids.

Fat metabolism in fishes. XIII. Factors influencing the composition of the depot fat of fishes. J. A. Lovern. *Biochem. J.* **32,** 1214-24 (1938).—"Using eels (*Anguilla vulgaris*) as experimental animals, an attempt has been made to determine the separate effects of diet, temperature and salinity on the composition of the depot fats of fish. On a diet low in fat (1.1%), the ingested fat had no detectable effect on the depot fat. On a diet high in fat (20.7%), the eel's depot fat was appreciably modified, but the quantitative relationship between the amount ingested and the effect produced was obscure. Such ingested fat as was incorporated in the depot fat was apparently deposited with the relative proportions of the various acids practically unchanged. Hydrogenation, however, had taken place. The eel possesses a mechanism which can modify ingested fat to a considerable extent, and the action of this mechanism is accelerated by rise of temperature."

Detection of fish oil in linseed oil. E. Percs. *Ber. ungar. pharm. Ges.* **14,** 183-6 (1938).—Dissolve 3 drops of sample in 5 cc. acetone, add 0.05 g. Li$_2$CO$_3$, shake and add 10 cc. distd. water. Filter into a 100 cc. flask and fill to the mark. If the soln. is so clear that one can read letters through it then the oil contains less than 20% fish oil. The clupanodonic acid in fish oil forms an insol. suspension with lithium ions. Pure linseed oil contains 3-6% a-linolic acid the Li soap of which also gives some opalescence. Therefore, the reaction is not suited to quant. work, but is useful for rough estn. (*Chem. Abs.*)

Refining of sunflower oil by hydrogenation. P. Andronov, A. Moshkin, and I. Vorob'ev. *Masloboino Zhirovoe Delo* **14,** No. 10-11 (1938).—Results obtained by conjugated hydrogenation without the use of EtOH by autoclaving the oil in the presence of Ni formate catalyst at 200-65° for 1.75-2 hrs. and filtering at 20-3°. While the content of linoleic acid is equal to that of edible olive oil, the oil solidifies on standing at below 20° and does not completely clarify at 20-3°. When cooled at below 10° and filtered at 10-15° it gives 60-70% of non-solidifying oil. (*Chem. Abs.*)

PATENTS

Purifying fats, etc. N. V. de Bataafsche Petr. Maatschappij. *Brit.* 478,930. Impurities are extd. from fats and oils by means of Amines containing no OH groups, and water.

High vacuum molecular distillation of materials such as vitamin-containing oils. K. C. D. Hickman (Eastman Kodak Co.). *U. S.* 2,117,802-3. App. and method are described.

High vacuum still. K. C. D. Hickman (Eastman Kodak Co.). *Brit.* 479,816. Method of recirculating undistilled portion is described.

Manufacture of emulsions. H. Schrader and H. Stahl. *U. S.* 2,121,305. Combinations of mono- and/or di-glycerides of fat acids and the fat acid amino products formed by the reaction of fat acids with high mol. wt. decompn. products of albumins are used as emulsifiers.

Stabilized fats and method for preventing rancidity. D. J. Maveety (to National Biscuit Co.). *U. S.* 2,124,706. The residue from the distillation of a spice oil is used as an antioxidant.

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Food composition and process of inhibiting oxygenation thereof. H. D. Royce (Southern Cotton Oil Co.). *U. S.* 2,123,863. Partially hydrolized fats are reacted first with P_2O_5 and then with primary amino alcs. to yield a suitable non-toxic antioxidant for fats and oils.

Hydrogenation of higher fatty acids. W. Normann and G. von Schuckmann (to H. Th. Bohme A.-G.). *U. S.* 2,127,367. In the catalytic reduction of fatty acids at elevated temp. and pressures in the presence of H, the step of regulating the activity of the catalyst by means of a catalyst poison in such manner that the reduction of the carboxyl radical alone is affected and not the ester radicals resulting from reaction of the alcs. produced with fat acids.

Process of making an alimentary product. A. D. Barbour (Ont. Res. Foundation). *U. S.* 2,125,215. Preservation of vitamins in fish oils when hydrogenating is accomplished by hydrogenating under pressure at temps. not exceeding 125° C. while violently stirring.

Hydrogenation of fatty oils. W. J. Paterson (to Lever Bros.). *U. S.* 2,123,342. Better selectivity and suppression of iso-oleic acid formation is obtained during hydrogenation of fatty oils by the use of Ni catalyst prepd. from electrolytic Ni substantially free from sulfides.

Oils. A. W. Ralston and S. T. Bauer (to Armour and Co.). *U. S.* 2,119,141. Fish oils for soap-making are both partially hydrogenated and isomerized to increase their melting points.

Method of producing glycerine and fat acids. W. H. Rees (to El Dorado Oil Works). *U. S.* 2,124,168. Method: Reduce the H_2O content of the fat or oil to about 3%, add fat acids to thin the charge, add reagent comprising alc., H_2SO_4, hydrolyzing catalyst and benzol, heat and agitate, filter from solid material, introduce water and separate.

Anti-foaming and anti-freezing mixtures. M. T. Flaxman (to Union Oil Co.). *U. S.* 2,127,490. An anti-foaming and anti-freezing soln. adapted to minimize foaming of aqueous solns. comprises water, glycerine, montan wax and lard oil.

Process of and apparatus for polymerizing oils. J. C. Harris, Jr., and G. Sutherland. *U. S.* 2,118,728. The app. described includes means of heating and cooling the oil charge and maintaining inert gas above the oil.

Method of producing quick drying oil suitable for varnishes. J. L. Schneider, S. L. Flugge and R. J. Evans (Continental Can Co.). *U. S.* 2,120,044. The method of bodying a drying varnish oil which comprises dissolving CO_2 in the oil to saturation at atmospheric temp. and pressure, forcing the oil under a pressure of 1,000 lbs. per sq. in. into and through a conduit heated to a temp. of 500-700° F. and effecting escape of the heated oil from the conduit prior to deleterious carbonization of the oil.

Refining oil, etc. Eugene Kellens. *Ger.* 657,888, Mar. 16, 1938 (Cl. 23a.3).—Oils and fats, especially those of animal or vegetable origin, are refined and decolorized by treatment at a low temp. with a small amt. of finely divided metals, metal oxides or metals salts and, after prolonged stirring, by adding a small amt. of H_2SO_4 or HNO_3 and warming to 90°, adding bleaching earth and filtering. Thus, Congo palm oil is cooled to a temp. near its congealing pt. and a small amt. of MnO_2 stirred in. When a green coloration appears, a small amt. of H_2SO_4 is stirred in and the mixt. heated to 90°. Bleaching earth is then stirred in and the oil filtered.

ABSTRACTS

Soaps

***Edited by* M. L. SHEELY**

Fatty acid softeners for rubber. *Soap Gazette and Perfumer* **40** (8), 12 (1938).—In compounding, zinc stearate has not found so much favor as other zinc salts, principal among which is commercial zinc laurate. The commercial sources of the lauric acids are principally palm kernel oil and coconut oil, which contain about 50 per cent of trilaurin, but because of the demand for lauric acid for the rubber industry and other industries, new sources of raw material are being sought. In India, for example, it is considered that the fats from seeds of certain plants belonging to the Lauraceae, particularly Actinodaphne lookeri, Litsea sebifera and Litsea lanuginosa, have commercial possibilities as important sources of lauric acid. The latter is, of course, the raw material for other products than rubber softeners, such as sodium lauryl sulphate, a new type of detergent considered superior to ordinary soap in many respects, and undoubtedly the commercial lauric acid will become increasingly in demand. Fats from the first two plants mentioned above contain no less than 96 per cent of trilaurin, while the last mentioned contains about 70 per cent. They are, therefore, obviously better sources of lauric acid than the palm kernel or coconut oils.

Synthetic soaps. A. Foulon. *Seifensieder Ztg.* **65,** 606-8 (1938).

Substitutes for the cosmetic and soap industries. T. H. Ruemele. *Seifensieder-Ztg.* **65,** 614-5 (1938).

Soap weight-loss adjustments helped. *Oil, Paint and Drug Reporter* **134** (6), 56 (1938).—In its report to the American Society for Testing Materials at the recent annual meeting committee D-12 on soaps and detergents pointed out that the specification it has developed provides an equitable basis for payment for soap, a matter that has presented a difficult problem in the industry and caused losses to shippers. Because soap dries rapidly, deliveries may be short-weight although still contain all the original soap content. The