ABSTRACTS

Oils and Fats

Edited by
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Regularities in the glyceride structure of some technically important vegetable fatty oils. T. P. Hilditch and E. C. Jones. *J. Soc. Chem. Ind.* 53, 13-21T (1934).—When an unsatd. fat whose acids belong to the C_{18} series is fully hydrogenated it is possible to obtain by systematic fractional crystn. a series of least sol. fractions which contain all the tristearin present mixed only with palmitodistearins. From the sapon. nos. of such fractions it is possible to est. the proportion of tristearin in the hardened fat and, therefore, of the glycerides in the original fatty oil. This procedure is confined to oils in which the unsatd. acids are only oleic, linoleic and linolenic such as olive, cottonseed, linseed and others of the non-drying and drying type. Cottonseed oil appears to consist of nearly 60% of glycerides contg. one palmityl radical and 2 unsatd. C_{18} groups with perhaps 15% of dipalmito-olein or dipalmito-linolein; only the remaining 24% consists of unsatd. glycerides. Soy-bean and linseed oils with 86 and 90% of unsatd. C_{18} acids in their mixed fatty acids contain 20-25% of mixed satd.-unsatd. acids of glycerides, mainly palmito-diunsatd. glycerides. The unsatd. acids of soy-bean oil contain 26% oleic, 55% linoleic and 6% of linolenic acids, and those of linseed oil, 8% of oleic, 43% of linoleic and 40% of linolenic acid. In olive and tea-seed oils the proportion of completely unsatd. glycerides is less than 7% of the whole, and since linoleic acid forms nearly 10% of the mixed unsatd. acids it is probable that about 20% of the oils will consist of mixed oleolinoleins, so that the content of triolein in either oil cannot greatly exceed 50%. Peanut oil did not prove amenable to the present method of tristearin estn.

E. SCHERUBEL.

Photochemical studies of rancidity. Mayne R. Coe and J. A. LeClere. *Ind. Eng. Chem.* 26, 245-8 (1934).—Oils properly protected from light do not give reliable color tests for rancidity, and oils remain free therefrom even though they have a peroxide value equal to or higher than that of an unprotected rancid oil if they have been protected with black or green paper transmitting light delimited by 4900 to 5800 A. Such oils have not shown organoleptic rancidity after 7 months. The results of expts. with cottonseed and corn oils support the view that oxidative rancidity may be due to photochem. action of light on a compd. which probably exists simultaneously in the oil or is produced from compds. which give rise to the formation of peroxides.

E. SCHERUBEL.

Transition points of mixtures of cow butter and cacao butter. David W. Horn and Margaret Alberta Wilson. *Am. J. Pharm.* 106, 59-61 (1934)., cf. *C. A.* 28, 5052-3.—The transition point of cacao butter is a sensitive characteristic of that substance and is certainly affected by the presence of some foreign fats. The discussion in the present paper relates to the effect of added cow butter upon the transition point of cacao butter. In mixts. of cacao butter and cow butter at intervals of 20% or less throughout the range of concns. between 100% cacao butter and 100% cow butter, the transition points were well defined until the percentage of cow butter approached 80%. As far as 70% there is a linear relation between transition point and the percentage of cow butter in the mixed fat. This linear relation is expressed by the equation, $y = -0.165\,x + 29.2$.

W. G. GAESSLER.

A new type of catalyst for the hydrogenation of oils. Bag, Volokitin and Egunov. *Masloboino-Zhirovoe Delo* 1933, No. 4, 16-17.—An alloy of Ni and Al treated for a short time with NaOH represents a valuable stationary catalyst for the hydrogenation of oils. The NaOH (by its action on the Al) roughens the surface of the alloy, and thus increases its active area. The NaOH-treated alloy does not require an anodic oxidation with subsequent reduction by H, and is not sensitive to the usual poisons (H_2S, etc.), whereby the usual frequent regenerations are eliminated. Alloys contg. 27% Ni showed the highest activity. Low hydrogenation temps. (200° and less) can be applied with this alloy.

ELIAS BIELOUSS.

Identification of gadoleic acid in Japanese sardine oil, herring oil and liver oil of "Sukeso-Dara" (Theragra chalcogramma). Yoshiyuki Toyama & Tomotaro Tsuchiya. *J. Soc. Chem. Ind.*, Japan 37, Suppl. binding 17-20 (1934).—An eicosenoic acid has been isolated in the pure state from Japanese sardine oil, herring oil and "Sukeso-Dara" liver oil. The acid from the first two was identified as gadoleic acid by the ozonide method and that from the liver oil as the same acid by the mixed m.-p. test.

KARL KAMMERMEYER.

The determination of husks in sunflower cakes. R. Heublyum. *Seifensieder-Ztg.* 61, 34-5, 53-4 (1934).—H. modifies the Russian standard method: Moisten 10 g. of the cake of pea-size with H_2O; add 2 g. pepsin, treated for 1-2 min. with 50 cc. 5% HCl, and add to 200 cc. H_2O; transfer the pepsin soln. together with the treated cake to a 500 cc. flask, fill to the mark and keep for 12-18 hrs. at 37-50°. Shake, settle and decant; transfer the residual husks to a porcelain mortar and wash several times with 400-500 cc. H_2O; transfer with 100 cc. H_2O to a 250 cc. cylinder and stir several times by pouring 25-50 cc. satd. NaCl soln. into it to float off any remaining kernel particles; decant, wash, dry and weigh the residue. The results varied at most by 2.26% with a husk content of 22.43%.

P. ESCHER.

Gadoleic acid in cod-liver oil. Yoshiyuki Toyama and Tomotaro Tsuchiya. *J. Soc. Chem. Ind.*, Japan 37, Suppl. binding 14-17 (1934).—Gadoleic acid, $C_{20}H_{38}O_2$, has been isolated from cod-liver oil and its constitution detd. by ozonolysis. Among the decompn. products of the ozonide, undecanoic acid, undecanal and azelaic acid were identified. The constitutoinal formula of gadoleic acid is $CH_3(CH_2)_9CH:CH(CH_2)_7COOH$.

K. K.

Adsorbent for decolorizing oils and fats. Daniel S. Belden and Wm. Kelley (to Filtrol Co. of Calif.) U. S., 1,946,124, Feb. 6. An activated clay pulp is mixed with a substantial proportion of finely divided clay in air-dried condition, the mixt. is heated to 100-315° until an exothermic reaction occurs, and the mixt. is then quenched in 3-5 parts by wt. of hot, softened water, agitated to remove sol. salts and then dried. Cf. *C. A.* 27, 2800.

Stabilizing fats and oils. Roy C. Newton and Donald P. Grettie (to Swift & Co.). Brit. 399,639, Oct. 12, 1933. See Fr. 741,417 (*C. A.* 27, 2833). (Restricted to guaiacum resin.)

Stabilization of oil and fat. Wm. D. Richardson, Donald P. Grettie and Roy C. Newton (to Swift & Co.). Can. 337,546, Nov. 28, 1933. A small amt. of a condensation product of pyrogallol and acetone, which is substantially insol. in water but sol. in the oil or fat, is incorporated into oils or fats for use in food products to stabilize them. Cf. *C. A.* 27, 1535.

Processing fish oil. Wm. S. Bodaly (one-third interest to Agnes Bodaly). Can. 337,392, Nov. 21, 1933. $NaHCO_3$ 3-5 and powd. alum 1-3 oz. are dissolved in hot water. One imperial gallon of oil such as pilchard oil is heated to 212° F. and the soln. of $NaHCO_3$ and alum is added. The mixt. is stirred 15 min. and the temp. maintained until the water content is substantially evapd. When the oil has cooled it is ready for use. The pptd. stearin may be left in with the oil or sepd. as desired but its inclusion does not impair paint produced with the oil then treated.

Hydrogenation of oil. Julius F. T. Berliner (to The Canadian Industries, Ltd.). Can. 336,448, Oct. 17, 1933. Various vegetable and animal oils as well as mineral oils contg. unsatd. compds. are hydrogenated by the use of cracked NH_3 in the presence of a suitable catalyst. *E.g.*, 100 parts of cottonseed oil contg. 2 parts by wt. of a Ni catalyst is charged into a pressure autoclave, heated to approx. 115° and cracked NH_3 is passed into the autoclave until a pressure in the neighborhood of 100 lb. per sq. in. is reached.

PATENTS

Recovery of oil from Japanese acid clay used for purification of oils. Sanpei Kurahashi. Japan. 99,667, Feb. 21, 1933. An aq. soln. of a sulfonate of an alkylated aromatic hydrocarbon is used to recover oil contained in the waste acid clay.

Hydrogenation of oils and fats. Nipon Chissohiryo K. K. (Aiji Honda, inventor.) Japan, 99,101, Jan. 18, 1933. In hydrogenation of highly unsatd. oils, wholly or partly hydrogenated oil is added and the whole is treated with H_2 in the presence of a catalyst. By this means the reaction is completed at a lower temp., and thus the life of the catalyst is prolonged and the quality of the product improved.

Recovery of waste nickel catalyst. Hokkai Yushi Kogyo K. K. (Goro Kimura, inventor.) Japan, 99,594, Feb. 16, 1933. Waste Ni catalyst used for the hardening of oils is dissolved in H_2SO_4 contg. HNO_3. To the soln. NaOH or Na_2CO_3 is added in such amt. that Ni is not pptd. but most of the Fe and other impurities are pptd. After sepn. from the ppt., the soln. is heated with a small amt. of an oxidizing agent (such as $KMnO_4$ or Na_2O_2), by which the remaining Fe is pptd. From the filtrate, Ni is recovered as hydroxide with caustic alkali.