ABSTRACTS

Oils and Fats

Edited by
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Apparatus and method for measuring the color of fats and oils. C. Stiepel. *Allgem. Oel-u. Fett-Ztg.* 31, 443-5 (1934).—Various methods are reviewed. S. describes a colorimeter which he devised for this purpose, in which the oil is compared with a soln. of inorg, compds. $Na_2Cr_2O_7$, chromic sulfate, chromic acid, $FeCl_3$, Hanus soln., etc.). Results are reported in cc. of H_2O + cc. of variour standard solns. Thus at 45° one oil matched a soln. of 77 cc. H_2O + 10 cc. Hanus soln.; color No. (45°) = 70 cc. H_2O + 10 cc. Hanus soln. M. M. PISKUR.

The alcohol-extraction process of fatty oils. I. Mutual solubilities of some vegetable oils. M. Sato, T. Inaba and K. Kitagawa. *J. Soc. Chem. Ind., Japan* 37, Suppl. binding 718-19 (1934).—Soln. temp.-concn. diagrams are presented for mixts. of EtOH with peanut oil, cottonseed oil and sesame oil for EtOH of 90.76, 95.13 and 99.42% concn. The crit. soln. temp. in each case was raised greatly by lowering the concn. of alc. **II. Extraction of peanut oil.** *Ibid.* 720.—The extn. app. is pictured and described. The oil yields increased with increasing temp. and alc. concn., but the yield of total extd. matter was not proportional to the oil yield, the concn. of alc. giving the largest amt. of total ext. being lowered by temp. rise. For tech. purposes the concn. of alc. should be kept at about 92% by wt., and the operating temp. at 78°. The quality of the ext'd. residue was superior to that of ordinary pressed cake in regard to color, smell, moisture and protein content and the extd. oil was almost free from fat acids and very light in color. The exptl. results are given in graphical form. KARL KAMMERMEYER.

Soy lecithin. IV. Emulsifying action of oil-water mixtures. T. Inaba, K. Kitagawa and M. Sato. *J. Soc. Chem. Ind., Japan* 37, Suppl. binding 595 (1934); cf. *C. A.* 28, 5479^8.—The stability of fatty oil-water emulsions is increased by the addn. of soy-lecithin and the purer the lecithin the greater the stability. **V. Properties of lecithin soap solutions.** *Ibid.* 595.—Expts. were made with Na soap solns. of oleic, palmitic and stearic acids. Addns. of lecithin had the following effects: the surface tension of the solns. increased; drop no. against kerosene likewise increased in low concns. of soap solns., but decreased in concns. above 0.25%; foam no. and its stability also increased, but inferior results in foam values were obtained; turbidity- and transparency-temps. of the solns. were lowered about 3-5°; gold nos. increased, lecithin soap being inferior to ordinary soaps as a protective colloid against a colloidal soln. of gold. K. K.

The high-pressure hydrogenation of soybean oil. I. The reaction products with a copper catalyst. Y. Shinozaki and H. Kubo. *J. Soc. Chem. Ind., Japan* 37, Suppl. binding 677-8 (1934).—One hundred g. of soybean oil, together with $CuCO_3$ (carrier infusorial earth) as catalyst, was kept at 125 kg./sq. cm. in an autoclave, and the reaction products between 200° and 425° were examd. I no., sapon. no., acid no. and acetyl no. were plotted against temp. Below 250° hydrogenation took place mainly in the unsatd. positions of glycerides. At 300-325° the acid. no. increased considerably, the glycerides being decompd. to fatty acids. The Ac no. increased gradually above 300° and reached a max. at 350°, indicating alc. formation, and then it decreased suddenly above 375° because of the splitting of alcs. to hydrocarbon. **II. The properties of the sodium salt of the sulfuric esters of higher fatty alcohols.** *Ibid.* 678-9—Impurities in the hydrogenated product had a distinctly unfavorable influence on the colloidal properties of aq. solns. of the salts, but in dil. solns. below 0.025% the effect was negligible. Exptl. data for the crude Na salts, prepd. from hydrogenated soybean oil, and for the pure salt of octadecylsulfuric acid were given. KARL KAMMERMEYER.

The detection of fish oils. E. I. Better and J. Szimkin. *Fettchem. Umschau* 41, 225 (1934).—The presence of as little as 5-10% fish oil in fat mixts. can be detected by treating a 3-cc. sample dissolved in a mixt. of 3 cc. AcOH + at least 4 cc. $CHCl_3$, successively with 20 drops of a Br-$CHCl_3$ mixt. (Tortelli-Jaffe soln.) and 10 drops of a soln. of IBr in AcOH (Hanus). A rapidly developing green coloration indicates fish oil. In some cases a further addn. of 10-20 drops of the reagents may be required. J. W. PERRY.

Antioxidants and autoxidation of fats. II. H. S. Olcott, *J. Am. Chem. Soc.* 56, 2492-3 (1934).; cf. Mattill, *C. A.* 25, 1878.—A no. of compds. have been tested for their antioxygenic activity toward lard. Besides pyrogallol, hydroquinone and pyrocatechol, hydroxy-hydroquinone and apionol are excellent antioxidants. The 1,3- and 1,8-naphthalenediols are effective while the 1,4-deriv. is inactive. Esterification and alkylation of 1 or more of the HO groups destroys or greatly reduces the antioxygenic activity. Side chains on the C_6H_6 nucleus reduce the activity of hydroquinone. 1,4-Cyclohexanediol and saligenin are inactive; the quinones possess slight activity. Maleic, tartaric and citric acids are inactive. C. J. WEST.

Occurrence of an unsaturated hydrocarbon in olive oil. T. Thorbjarnarson and J. C. Drummond. *Analyst* 60, 23-9 (1935).—A sample of olive oil from Palestine had a sapon. value 191, I value 82.6 and unsaponifiable matter 1.12%. The I value of the unsaponifiable matter was 255. By treatment of the unsaponifiable matter with hot MeOH and filtering, a soln. was obtained which was used for fractional crystn. The material insol. in MeOH was a heavy colorless oil with an I value of 342, and contained, unexpectedly, a considerable quantity of a hydrocarbon resembling squalene. To attempt a more satisfactory sepn. of the hydrocarbon, some of the original unsaponifiable matter was dissolved in a little gasoline-benzene mixt. and passed through a column of pure Al_2O_3. Four colored zones appeared. The zones were sepd. and examd. spectroscopically. Ergosterol and a pigment of the xanthophyll type were identified. From the fraction of the soln. which passed through the Al_2O_3 without being absorbed, there appeared on standing a crystalline, waxy substance, which had a m. p. of 68° and showed no absorption of I_2; it was probably a mixt. of $C_{29}H_{60}$ and $C_{31}H_{62}$. In the residual part of the unabsorbed soln. there was chiefly a hydrocarbon of the squalene type, contg. 87.6% C and 12.5% H, which corresponds to $C_{30}H_{50}$. By dissolving in acetone and satg. with HCl gas, a good yield of cryst. deriv. was obtained. An attempt was made to obtain this hydrochloride directly from olive oil but the yield was poor. The hydrocarbon appears to be present in all samples of olive oil but attempts to base the identification of olive oil upon its detection were not satisfactory. W. T. H.

PATENTS

Extracting fats. Aage Nyrop. Brit. 418-107, Oct. 18, 1934. In continuously extg. fat from animal and vegetable materials, the pulped raw material is heated in a thin layer under pressure and the compressed pulp is then subjected to a sudden reduction in pressure whereby the fat cells are burst. App. is described.

Preserving coconut oil, lard or other oils, fats, fat acids or their salts and the like. Wm. S. Calcott, Wm. A. Douglass and Herbert W. Walker (to E. I. du Pont de Nemours & Co.). U. S. 1,987,321, Jan. 8. About 0.001-0.2% of p,p'diethoxydiphenylamine or a similar compd. is added as an oxidation inhibitor and rancidification preventive.

Refining oils and fats. Metallges. A.-G. Ger. 605,064, Nov. 3, 1934 (Cl. 23*a*. 3). Animal and vegetable oils and fats are freed from mucilage, lecithin and like impurities by treatment for a short time at about 50° with dil. HCl and an aq. soln. of $CaCl_2$. The HCl and $CaCl_2$ soln. may be added to the oil together or in either order. Details are given of the treatment of cottonseed oil.

Removing foots from crude oil such as corn oil or soybean oil. Elbert C. Ragsdale (to A. E. Staley Mfg. Co.). U. S. 1,985,426, Dec. 25. Oil-bearing material is delivered to an expeller for sepg. the oil from the cake, the oil is pressed through a filter to sep. out the foots; the foots, with a proportion of assocd. oil, are delivered to a squeezer to remove some of the assocd. oil, and the foots are then returned to the oil-bearing material.

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