ABSTRACTS

Oils and Fats

Edited by
W. F. BOLLENS and M. M. PISKUR

Purification of wool fat. Usaku Toko. *Repts. Imp. Ind. Research Inst., Osaka, Japan* 15, No. 9, 1-49 (1934).—Of several methods of purification, extn. with benzine or purification by centrifugal force is the best for com. purposes. Benzine extn. has the advantages that it can be used for highly colored crude fat because the coloring matters can be removed by adsorbent; it has the disadvantage of requiring a special treatment to make the product pass the KMnO$_4$ test. Purification by centrifugal force is simple in operation and gives products with low KMnO$_4$ test, has the disadvantage that only light-colored crude fats can be used because of difficulty in removing the coloring matters by adsorbent. N. U.

Spoilage in fats and oils. III. Rancidity of oleic and elaidic acids, a contribution to the constitution of these acids. Richard Neu. *Pharm. Zentralhalle* 76, 65-70 (1935); cf. *C. A.* 28, 4925^8.—Attention is directed to the similarity in transformation of maleic to fumaric acid to that of oleic to elaidic acid. The degradation of oleic and elaidic acids to the 2 isomeric dihydroxystearic acids by oxidative action (KMnO$_4$ and (NH$_4$)$_2$S$_2$O$_4$) is discussed in the light of previous investigations, from which it is concluded that oleic acid possesses the *cis-*, while the elaidic acid represents the *trans*-configuration. In the spoilage of fats and oils no rearrangement of butendial occurs, but rather a direct splitting off of CO, thus: $(:CHCHO)_2 - CO = CH_2CHCHO$. W. O. E.

Iodine values of linolenic, linoleic and stearolic acids by the Wijs and Rosenmund-Kuhnhenn methods. Yoshiyuki Toyama and Tomotarô Tsuchiya. *J. Soc. Chem. Ind., Japan* 38, Suppl. binding 32-5 (1935).—The results which are presented show that the Wijs method gives higher I nos. than the Rosenmund-Kuhnhenn method, for the polyethylenic acids (I) such as highly unsatd. acids of sardine oil (II), and for linolenic and linoleic acid (III). The discrepancy between the 2 methods increases with the increase in the degree of unsatn. of I, being largest for II and extremely small for III. For stearolic acid (triple bond) the Rosenmund-Kuhnhenn method gives a higher value than the Wijs method, which gives the value corresponding to the addn. of 1 mol. of halogen. KARL KAMMERMEYER.

Report of the oil and fat commission of the German section of the I. V. L. I. C. C. Riess. *Collegium* 1934, 644-7.—In the detn. of inorg. sulfate in sulfonated oil, a better sepn. was obtained if the soln. of oil in ether and NaCl soln. was neutralized with 0.1 *N* HCl before shaking out in the separatory funnel. In the detn. of free fat acid in ammonia oils, the following method gave much better results than boiling off the NH$_3$ as in the I. S. L. T. C. method; dissolve 5 g. oil in ether, acidify with HCl, shake out with concd. NaCl soln. until neutral, then take up the ether soln. in alc. and titrate. I. D. C.

Oxidation of cod-liver oil and a rapid method for determining the antioxygen action of various compounds. Marcel Mottier. *Arch. sci. phys. nat.* 16, 139-43 (1934).—When O is passed through cod-liver oil at 75° and the oxidation is followed by detg. the acidity of the oil, the curve is practically horizontal for the first 3 hrs. (period of induction, satn. of the double bonds) and then rises sharply. Addn. of antioxygens prolongs the induction period or decreases the slope of the curve. The method showed that guaiacol, and especially maleic acid, have a marked antioxygen action. A test can be completed in 5-8 hrs. A. PAPINEAU-COUTURE.

Solvent extraction of soybean oil. Er-Kang Li, Pei-Sung King and Shih-Shun Lin. *Chinese Industry* 1, No. 1, 115-28 (1935).—Oil and fat in the soybean can be extd. by chloroform, ether, CS$_2$, CCl$_4$, benzene, benzine, or benzine and alc., the last mentioned being the best. Beans (150 g.) extd. with 200 cc. benzine + 100 cc. alc. yield 24.7 g. oil (91% of total oil content), but the oil obtained must be refined by phys. or chem. methods. C. L. TSENG.

Polymerization of perilla oil. A. M. Khomutov. *J. Applied Chem.* (U.S.S.R.) 7, 960-6 (1934).—The consts. of perilla oil are changed by refining and the viscosity of the refined oil increases more rapidly upon heating than that of the unrefined. Polymerization in a closed container is more effective than polymerization in an open container. The viscosity of the oil increases more rapidly on intermittent than on continuous heating. The polymerized oil remains unchanged for a long time if it is hermetically sealed. A. A. BOEHTLINGK.

The change in physical and chemical properties of hemp seed due to spontaneous heating. V. G. Svital'skii. *Sci. Inst. Cereal Research* (Moscow) No. 11, 33-8 (1933).—The spontaneous heating of the seed in storage increases the acidity and decreases the protein content. If the temp. reaches 60° the lipase is destroyed. J. S. J.

The fats: new lines in an old chapter of organic chemistry. T. P. Hilditch. *Chemistry & Industry* 1935, 139-45; 163-7, 184-9 (1935).—The Jubilee Memorial Lecture is given in full, in which H. seeks to substantiate the claim that the compn. of natural fats is available in fuller detail in many cases than for other groups such as the carbohydrates or proteins. The illustrations to show this are drawn from recent contributions to such topics as the component acids and glycerides of fats, the manner in which their chem. constitution dets. their properties and the uses to which they may be put, their transformations when subjected to hydrogenation under different conditions, and the evolution of a new group of strongly detergent compds. from fatty derivs. E. SCHERUBEL.

Rapid micro bromide test of linseed oil in mustard-seed oil. S. Neogi. *Analyst* 60, 91-2 (1935).—Spread 1 drop of the oil on a microscope slide which is free from grease. Make a thin, uniform film by drawing the narrow edge of another slide slowly along the whole length of the first slide at an angle of 30°. Expose to

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the action of Br_2 vapors, allow to stand in the air to remove excess Br_2 and note the phys. appearance of the film. Then place the slide horizontally on the edge of a small rectangular glass trough and cover with a mixt. of ether and petr. ether. Stir the film with a small glass rod and look for a white curdy ppt. From the amt. of ppt. (dilinolenic linolic bromoglyceride) an estimate of the quantity of linseed oil can be made.
W. T. H.

PATENTS

Oils and fats. "Elact" Ges. für elektrische Apparate G. m. b. H. Fr. 766,739, July 3, 1934. Oils and fats are stabilized by passing then in a continuous manner between electrodes.

Stabilizing fatty material against rancidity. Albert S. Richardson, Frank C. Vibrans and John T. R. Andrews (to Procter & Gamble Co.). U. S. 1,993,181, March 5. Materials such as lard, etc., are stabilized by addn. of a small proportion of H_2SO_4 or H_3PO_4 or their salts or esters having an acid reaction. Cf. *C. A.* 29, 1173^6.

Stabilizing fatty materials such as edible cottonseed oil (salad oil). Eddy W. Eckey (to Procter & Gamble Co.). U. S. 1,993,152, March 5. About 0.01% or less of H_3PO_4 or an acid deriv. such as Ca acid phosphate in equiv. proportion is added.

ABSTRACTS

Soaps

Edited by M. L. SHEELY

Drying Rosin Soap by Atomization. D. N. Smirnov, S. Ya Koruitov and A. S. Nemkin. *Lesokhimicheskaya Prom.* 3, No. 1-2, 24-6 (1934).—A powdered rosin soap was obtained from a viscous mass containing about 50% H_2O by atomizing this mass in a drying chamber constructed by Ivanchenko. The product was of a high commercial quality and did not adsorb moisture from the air. It contained H_2O 3, rosin 82, ether-insoluble substances 1.23, total alkali 12.08 and NaCl 0.4%. The apparatus and its operation are described in detail. (C. A. 29, 6, 2009, March 20, 1935.)

Causes of the Darkening of Rosin Soap and Data on the Characteristics of Individual Rosin Components. F. Solodkii. *Lesokhimicheskaya Prom.* 3, No. 7, 25-9 (1934).—Darkening of rosin soaps is due to the presence of unstable acids; these can be removed in part by salting out. Soaps prepared from gum rosin have a better color than those from wood rosin. These acids can also be removed by boiling the soap solution simultaneously blowing with air and then salting out. The experimental procedure is described and a literature review is appended. (C. A. 29, 6, 2009, March 20, 1935.)

Benzine Soaps. J. Grosser. *Ceskoslovensky mydlar a vonavkar* 11, 21, 35-6 (1933).—Soaps insoluble in H_2O and soluble in gasoline are added to gasoline to prevent the formation of explosive vapors and to assist in dry cleaning. Dried Marseilles soap and olein saponified by NH_3 are used, their action being enhanced by the addition of C_2HCl_3, C_2Cl_4 and similar substances. (C. A. 29, 6, 2008, March 20, 1935.)

Continuous Process of Soap Manufacture. *Perfumery and Essential Oil Record* 26, 4, 155 (April, 1935).—The attractiveness, and at the same time the difficulties, of such a process have already been pointed out in these notes, and various patents for the purpose have from time to time been described. One of the most notable of these was that of J. B. E. Johnson ("P. & E. O. R.," 1932, 125), in which a mixture of fat and alkali lye, in the right proportions to produce a neutral soap, is forced under a pressure of not less than 150 lbs. per square inch through an externally heated narrow reaction tube or pipe at a temperature of upwards of 180° C. Saponification takes place very rapidly and the resultant soap is projected at a high temperature into a receiver maintained at low pressure (10-20 mm. of mercury) so that most of the glycerin is vaporized and the substantially anhydrous soap deposited in powder form. In the original patent it is stated that the pipe may be heated by any suitable means, e.g., direct firing, by immersing it in a heated bath of any suitable liquid, or by arranging the pipe to constitute one part of a tubular heat exchanger, to which a suitable heating medium such as oil or superheated steam is supplied.

An improvement on this has now been patented by Johnson, in association with Garbinton, Ltd. (British Patent 423,188), by which the reaction tube is made of an electrically conducting material, preferably one with high electrical resistance, through which a current of electricity is passed, whereby the requisite temperature is attained. With 60 kw. for a batch of 600 lbs. the temperature is raised to 280-300° C. in 30 seconds.

The saponification during passage through such a tube is very rapid and complete.

Saponification and Salting Out. I. Davidsohn. *Seifensieder-Ztg.* 61, 939-41, 961-2 (1934).—The ability to attain complete saponification (e.g., with tallow) when soap is made from fats by the "cold" process and with excess caustic solutions too concentrated for successful use in the usual boiling process is explained as being due to the lower temperature, the stirring and the viscosity of the more concentrated caustic solutions acting to promote contact of fat and caustic. This favorable effect seems to be mainly due to decreased rate of salting out of small amounts of soap which exert an emulsifying action. (C. A. 29, 6, 2007, March 20, 1935.)

Incorporation of Synthetic Higher Fatty Alcohols in Soap. *Perfumery and Essential Oil Record* 26, 4, 157 (April, 1935).—British patent protection has been given E. I. Du Pont de Nemours and Company, Wilmington, Delaware, U. S., for an invention (Specification 424,283), an object of which is to improve upon