ABSTRACTS

Oils and Fats

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Synthetic drying oils. H. P. Kaufmann. *Fette u. Seifen 46,* 451-2 (1939). A review.

New reports on the chemistry and technology of phosphatides. H. Fiedler. *Fette u. Seifen 46,* 454-7 (1939). A review.

Which contrifugal — and when? L. P. Sharples. *Ind. & Eng. Chem. 31,* 1072-5 (1939).

Antioxidants for castor oil. G. O. Inman. *Ind. & Eng. Chem. 31,* 1103-4 (1939).

Physicochemical studies of alpha and beta eleostearic acids. I. Molar Refractivity and parachor. S. W. Wan and M. C. Chen. *J. Am. Chem. Soc. 61,* 2283-84. (1939).

Titrometric water determination according to K. Fischer. A. Zimmermann. *Fette u. Seifen 64,* 446-50 (1939). The method is useful for detn. of the H_2O in starch, dextrine, flour, polyvinyl alc. cellulose derivs., pectin, whale meal, ground oil fruit, and certain biological materials. Strong bases, basic salt and aldehydes cannot be titrated for H_2O detn. An exception to these is the trimolecular paraformaldehyde.

A source of error in the use of sodium sulfate as drying agent in fat extractions. S. Schmidt-Nielsen and Jrgine Stene. *Kgl. Norske Videnskab. Selskabs, Forh, 11,* 137-40 (1938) (Pub. 1939). — In grinding fat-rich fish muscle or liver or ox pancreas with Na_2SO_4, the activity of a lipase was increased, thus giving higher values for acid fats after ether extn. (*Chem. Abs.*)

The reaction of wijs solution with tung oil. S. W. Wan and D. B. Hu. *J. Am. Chem. Soc. 61,* 2277-83 (1939). The two-stage halogen absorption from Wijs solution by α-eleosteric acid forming a tetrachloro addition product in the first stage, and the addition of iodine monochloride to oleic acid have been quantitatively established. The difference in halogen absorption between α-eleostearic acid and oleic acid has been applied to the analysis of a mixture of the two acids and to the analysis of α-eleostearic acid glyceride in tung oil, further work being carried on for developing the latter analysis into a reliable method. Boeseken's assumption of a bimolecular reaction for the second stage halogen absorption by α-eleostearic acid from Wijs solution has been found incorrect. A combination of two simultaneous bimolecular reactions has been suggested.

Cereal flours as antioxidants in dairy products. W. S. Mueller and M. J. Mack. *Food Res. 4,* 401-5 (1939).

Determination of sterols. A. Schramme. *Fette u. Seifen 46,* 443-4 (1939).-10 g. of fat are saponified with 30 cc. 2 N alc. KOH, distill off the alc. and ext. the residue 6 times with ether. Emulsion is broken with salt or alc. The residue after evapg. the ether is resaponified and extd. The ether is evapd. and the unsapon. value obtained after drying at 105°. Alternately, the residue can be made to 100 cc. with $CHCl_3$ and ½ used for unsapond. detn. and the remainder for sterol detn. The sterols are ppt. with 5 cc. of 1% digitonin soln. (in alc.); warm 20 min. allowing 5 cc. to evap. Filter thru a sinter-glass filter, wash with 80% alc., then with acetone and then warm water until no foam forms. Again wash with acetone, dry at 105°, % sterol=(digitonide×24.31)/sample wt.

Quantitative analysis of castor oil. H. P. Kaufmann and H. Bornhardt. *Fette u. Seifen 46,* 444-6 (1939). The compn. of the free fat acids of a castor oil were: oleic 7.4, linoleic 3.1, ricinoleic 87.0, dioxystearic 0.6 and satd. acids 2.4%.

Variations in the physical and chemical properties of castor oil due to thermal treatment under different conditions. F. Hawke and B. Segal. *J. Soc. Chem. Ind. 58,* 270-72 (1939). The effect of temp. of treatment on acid, sapon., iodine, and acetyl values are illustrated graphically. In order to render castor oil completely miscible with mineral oils, treatment must be carried out under closely controlled limits of temperature and pressure. The major chemical change involved in the process is not one of polymerisation, but of decomposition. The oils produced by thermal treatment, although possessing excellent viscosity characteristics, are more liable to form sludge and gum than raw castor oil.

Deposition and utilization of fatty acids of low molecular weight; and a fatty acid analysis of coconut oil. H. E. Longenecker. *J. Biol. Chem. 130,* 167-177 (1939). Fasted male rats, fed a high coconut oil ration for 14 days, deposited 14.2 per cent of their body weight as fat (iodine value 31). This depot fat contained very high molar proportions of saturated acids (72.5 per cent). Lauric (31.8 per cent), myristic (18.1 per cent), and palmitic (18.6 per cent) were the predominant saturated acids and oleic acid (20.1 per cent) was the major unsaturated component. The data indicate a preferential utilization of the fatty acids of lower molecular weight. An alternate explanation, depending on the occurrence of dilaurins and maximum distribution of myristic, palmitic, and oleic acids, would be the random removal of 1 glyceride molecule at a time from the depot fat. The presence of dodecenoic acid and larger amounts of tetra-decenoic acid than occur otherwise suggests the ability of the rat to desaturate lauric and myristic acids.

Shark liver oil — a potent source of vitamin A for poultry. L. L. Rusoff and N. R. Mehrhof. *Poultry Science 18,* 339-44 (1939) The shark liver oil (poultry grade) used in this study contained approximately three times as much vitamin A as U. S. P. XI reference cod liver oil (3,000 units of vitamin A per gram).

PATENTS

Process for thickening unsaturated oils. R. W. Richardson (to Standard Oil Development Co.). *U. S. 2,167,726.* The oil is first hydrogenated to below a 100 I. no. and it is then subjected to the action of a silent electric discharge in order to polymerize the same.

Coating composition. W. Nebel (to E. I. DuPont). *U. S. 2,168,040.* Cellulose coating compn. products are rendered flexible by incorporation of a vegetable oil that was heat treated with an oxide of a metal of group 2 of the periodic table.

Distillation of glycerin. N. H. Ittner (to Colgate-Palmolive-Peet Co.). *U. S. 2,164,276.* App. is described.