ABSTRACTS FROM OTHER JOURNALS

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Free Fatty Acids in Palm Oil. A. C. Barnes (Bull. Mat. Grasses, 1924, 304-322). The acidity of the pulp oil, which is largely due to the enzyme in the pulp cells coming into contact with the oil, does not increase to any marked extent for some 7-9 days when ripe fruit heads are kept dry and well ventilated, and the development is slower in fruits that fall naturally. Mold growth results in production of enzymes which are an additional factor causing increase of acidity, and acidity in an oil containing enzymes will increase during storage. It is, therefore, of advantage to free the oil from all vegetable debris by filtration, and heating to 110° prevents hydrolysis. If the fruit is kept at 55° for 10 min. by heating in water, the action of the pulp enzyme is completely checked, and the color of the oil is not damaged. Removing the pericarp of the fruit in solutions of various chemicals, results in certain changes in acidity, e.g., when 1 per cent sodium carbonate was used the acidity of the oil was only 2.9 per cent, compared with 27 per cent in oil extracted under ordinary conditions. The acidity of the oil was also diminished by use of dilute sulphuric acid; sodium chloride and tannic acid tended to increase it, and sodium sulphate and ammonium alum had little effect.—D. G. H.

Refining of Oils and Fats. Lever Bros. Ltd., and R. Craig (E. P. 224,928, 24.5.23). Precipitable and coagulable impurities are separated by means of acid-treated bleaching earth, e.g., "Tonsil A. C.," and free fatty acids and volatile odoriferous substances are then removed by passing steam through the oil, the surface of which is maintained under very low absolute pressure, air being excluded until the oil is cool.—D. G. H.

Tests for Rancidity in Fats. J. Bulir (Chem. Ind., 1925, 19, 357-362). Rancid fats contain products which give peroxide reactions, and in testing for these p-diaminodiphenylamine sulphate is a good reagent. A surer method is as follows: shake 1 c.c. of the fat dissolved in 1 c.c. of light petroleum with 2 c.c. of 20 per cent alcoholic potassium iodide solution, add 15 c.c. of water, shake, and test the aqueous layer with starch paste. A blue color indicates that the fat is rancid.—B. W. Anderson.

Purifying Oils and Fats Under a High Vacuum by Means of Steam or the Like. Metallbank U. Metallurgische Ges., and W. Gensecke (E. P. 242,739, 17.9.24). Steam led into the oil or fat contained in a vacuum vessel is withdrawn from the vessel by a special injector (cf. E. P. 237,309) and may then be passed through a second vacuum vessel before being condensed. The injector is provided, in front of the convergent guide conduit with an additional nozzle which increases the velocity of the steam and decreases its pressure. The vacuum obtained is higher and the steam consumption lower than in the ordinary vacuum condenser plant.—G. T. Peard.

Mixed Esters (Glycerides) of Lower and Higher Fatty Acids. G. L. Schwartz, Assr. to E. I. du Pont de Nemours and Co. (U. S. P. 1,558,299, 20.10.25. Appl., 11.4.22). Glycerin is heated with acetic acid and the acids from coconut oil in presence of a small quantity of sulphuric acid, and any water formed is removed by passing a current of nitrogen through the mixture. A product which is for the most part the diacetylmonoglyceride of the coconut oil acids is obtained. It has a low freezing point, is non-volatile, anl rapidly colloids pyroxylin. A similar product is obtained by using coconut oil, acetic acid and glycerin.—T. S. Wheeler.

Higher Fatty Acids of Peanut (Arachis) Oil. W. D. Cohen (Proc. K. Akad. Wetensch, Amsterdam, 1925, 28, 630-635). Repeated fractional distillation in a vacuum (0.001 mm.) of the ethyl esters of the higher fatty acids present in arachis oil effects a separation into two fractions, (1) m.p. 42.5°, (2) m.p. 53.5-54°, which on hydrolysis yield respectively arachidic acid, m.p. 74.5-75°, and a C_{24} acid, m.p. 80-80.5°, the properties of which render it probable that it is a straight-chain acid belonging to the same homologous series; each acid is present to the extent of 3-4 per cent of the total fatty acids. No trace of a C_{22} acid could be detected, the substance obtained by Ehrenstein and Stuewer (B., 1923, 1031 A) being probably a mixture, since effective separation cannot be obtained by distillation in an ordinary filter-pump vacuum.—J. W. Baker.

Application of Measurement of Capillary Forces to Study of Fatty Acids. R. Dubrisay (Compt. rend., 1925, 181, 1060-1061). Surface tensions of fatty acids in benzene solution in contact with dilute soda solutions have been determined by the drop method. An equimolecular mixture of stearic and myristic acids has the same refractive index as palmitic acid, but they may be differentiated readily by surface tension measurements. An equimolecular mixture of stearic and palmitic acids has a different surface tension from daturic acid (cf. Gerard, B., 1890, 1137).—L. F. Hewitt.

Detergent and Antiseptic Value of Perfume Material in Toilet Soap. J. J. Bryant (Perf. Ess. Oil Rec., 1924, 15, 426-431). Toilet soaps were compared with simliar unperfumed bases for detergent values by means of Clark's method of determining the hardness of water and by the carbon suspension process. The values obtained show that the perfume materials do add to the detergent value. A comparison of the different perfumes (essential oils and synthetics) was made by making up 1 per cent of each with a common soap base, leaving to mature for 30 days, and testing as above. In 63 per cent of the cases an improvement was observed due to the perfume and the negative results in the other cases may be due to the volatile character of the perfume. A similar procedure was followed in studying the bactericidal values, the "Lancet" method of determining the Rideal-Walker carbolic acid coefficient being used. Here again an increase in value was noted where the perfume was present, and a table showing comparative values for the essential oils and synthetics used is given.—D. G. H.

Determination of the Melting Point of Cacao Butter. T. Sabalitschka (Z. Angew. Chem., 1925, 38, 1013-1014). The author confirms the results of several investigators according to which a sample of melted cacao butter in a capillary, even if kept in ice, requires several weeks to attain completely the solid state. Melting-point results with incompletely solidified samples are too low. Welmanns' method (Pharm. Ztg., 1900, 45, 959), in which the sample does not require to be previously melted, is coming more and more into use (cf. Fincke, B., 1925, 640).—C. Irwin.

Evolution of Hydrogen Peroxide by Oils on Exposure to Light. G. F. A. Stutz, H. A. Nelson and F. S. Schmutz (Ind. Eng. Chem., 1925, 17, 1138-1141). Seeds, oils and resins from vegetable sources affect the sensitive photographic plate in a manner similar to the action of light, and evidence has been accumulated that this action is due to hydrogen peroxide evolved from the materials. In the case of oils the effect is greatly increased on exposure to light. Saturated fatty acids from the oils are inactive, and unsaturated fatty acids strongly active, therefore, the phenomenon is associated with the drying of an oil, and probably with the entire process of oxidation of the oil film. Tests with various oils which were exposed to light at a distance of 36 cm. from a standard mercury vapor lamp showed that in general the drying oils reach a maximum and then decrease within two hours of exposure, whilst the non-drying oils show a steadier increase with no maximum, in the same period. Apparently in the case of drying oils a rapid reaction chiefly on the surface takes place with the formation of a skin relatively impervious to hydrogen peroxides. Of various metal soaps added to linseed oil, those that greatly accelerated drying showed no effect, whereas those that accelerated drying but little had a strong effect. The primary oxidation of an oil is probably a molecular autoxidation, whereby molecules of oxygen are added at the double linkings, thus forming peroxides. Further action probably results in the breaking up of these peroxides with the evolution of hydrogen peroxide as well as such products as lower acids, aldehydes, carbon dioxide and water. A film of linseed oil continued to evolve hydrogen peroxide until it became a brittle mass. Accepting the evolution of hydrogen peroxide as a measure of the progress of the destructive oxidation, then the sources of light used in accelerated testing should have a decided maximum in the region of the spectrum 4300 to 3000A.—H. M. Langton.

Separation of Oils or Fats (from Blubber and Oil-Bearing Tissues of Marine Animals). Chemical Engineering Co. (Manchester), Ltd., J. W. Spensley and J. W. Battersby (E. P. 241,276, 16.7.24 and 24.2.25). By feeding strips of blubber or oil-bearing tissue into the central aperture of the high-speed pinned disc mill described in E. P. 186,462 (J., 1922, 886 A), revolving at a peripheral speed of about 20,000 ft. per min., the separate fibres in the blubber are opened up in such manner as to destroy the oil-bearing cells formed by the relative crossing of the fibres. The oil can then be separated from the fibres by keeping or by means of sieves, after slight heating if necessary. Further oil can be obtained from the fibrous residue by pressing or by centrifugal treatment. The residual fibre may then be further treated for production of gelatin.—A. De Waele.

Separation of Fats from Animal Tissues. Chemical Engineering Co. (Manchester), Ltd., J. W. Spensley and J. W. Battersby (E. P. 241,804, 16.7.24 and 24.2.25). The process described in E. P. 241,276 (preceding) is applied to the extraction of fats solid at the ordinary temperature, e.g., beef fat and mutton fat from kel fat, lard from pig leaf, etc. After the mechanical treatment the mass is warmed to a temperature somewhat above the melting point of the fat.—H. M. Langton.

Extraction of Oil from Palm Fruit and the Like. T. Dickinson, F. J. Brimley and Nigerian Products, Ltd. (E. P. 241,297, 21.7.24). Palm fruit or the like is treated in a closed stationary vessel supplied with superheated steam and fitted with beaters or arms, whereby the pericarp is pulped and the nuts are rendered easy to crack and open. The mass is separated from the liquid by centrifuging, and conveyed to a hollow rotary dryer supplied with hot gases; the nuts are separated from the dry fibre in a rotary separator, then cracked, and the broken nuts screened prior to the separation of the kernels from the broken shell.

Digesters or Sterilizers for Treating Palm Fruit and Like Nuts Provided with a Fibrous Covering Containing Oil or Fat. C. Downs and R. A. Bellwood (E. P. 241,298, 22.7.24). A digester having a greater height or length than its diameter is provided with a rasp-like abrasive liner on its inner surface, and with a shaft and stirers similarly furnished with rasp-like faces on their exterior surfaces, the faces being preferably inclined. The digester is provided with steam inlets at a number of points.—A. De Waele.

Plant for Removal of Free Fatty Acids and Other Impurities from Oils, Fats and the like. Lever Bros., Ltd., R. Craig and C. E. C. Shawfield (E. P. 242,316. 9.5.24). The plant described is for treating fats, oils and the like (for example the purified oil of E. P. 224,928; B., 1925, 45) by means of fresh steam under low pressure. The liquid material is passed into a horizontal treatment vessel, long in comparison with its width, divided into compartments by means of baffles, so arranged that steam is admitted into the liquid in each compartment. It is constructed of an alloy (containing about 90 per cent of aluminum, together with copper, with or without a small proportion of other metals, e.g., nickel or magnesium), which is not corroded by free fatty acids even when hot. A substantially uniform low absolute pressure is maintained throughout the vessel, which is heated so that the free fatty acids are eliminated with the steam, and a constant level of liquid is maintained in it. Air is prevented from obtaining access to the treated oil until it is cool.—D. G. Hewer.

Hydrogenation of Oils. Edgar A. Knowles, Chemistry & Industry (Feb. 19th page 121, and Feb. 26th, page 127). A very good article dealing chiefly with electrolytic production of hydrogen, and is recommended to those interested in the subject.

Studies in Filtration. This is the Journal of the Society of Chemical Industry Transactions No. 1-T (January 1, 1926). Careful study of a subject from an engineering standpoint. The article is too long to be abstracted satisfactorily.