

Abstracts

Oils and Fats

Edited by
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MICROBIOLOGICAL FAT SYNTHESIS. Konrad Bernhauer. *Ergeb. Enzymforsch.* 9, 297-360 (1943). The literature is critically reviewed. Present status of the process is described. B. discusses the organisms which qualify for fat production, the course of fat formation, the limitations of surface and submersed cultures for fat production, the formation of accompanying materials, the technology of microbiol. fat production, the compn. of the fat and the chemistry of microbiol. fat synthesis. (*Chem. Abs.*)

PRESENT TRENDS IN SHORTENING. Howard C. Black. *Bakers Dig.* 19, 10-12, 22 (1945). He believes that the consumer will obtain, in the future, higher quality, and perhaps, a wider variety of products. The author discusses margarine, its increased consumption, coconut oil substitutes, flavor and stability problems, bland lard, greater stability in frying fats, longer plastic range and specialty fats.

MILKWEED SEED OIL. POTENTIAL VALUE IN PROTECTIVE COATINGS. Herman J. Lanson, David Habib and P. E. Spoerri. *Ind. Eng. Chem.* 37, 179-81 (1945). The seeds of the common milkweed are obtained as by-products in the production of milkweed floss. These seeds contain about 22% oil which can be readily refined to a very pale color. The phys. and chem. characteristics of the oil are reported. On the basis of its fatty acid compn., the oil may be classified as semidrying. The milkweed seed oil alkyds possess superior color retention and flexibility, although they are only slightly slower in drying than the corresponding soybean oil alkyds.

RAPID DETERMINATION OF FAT IN MEAT AND MEAT PRODUCTS. R. B. Oesting and I. P. Kaufman. *Ind. Eng. Chem., Anal. Ed.* 17, 125 (1945). The need for a rapid control method for fat detns. in meat food products has led to the development of a modified Babcock technique. The method is simple and rapid, giving results sufficiently accurate for the control of manufg. operations. The time required for a detn., when a Waring mixer is used is about 30 min.

THE INFLUENCE OF FISH MEAL AND FISH OIL ON THE FLAVOR OF PORK. C. M. Vestal *et al.* *J. Animal Sci.* 4, 63-7 (1945). Four lots of hogs, fed rations contg. different amts. of menhaden fish meal and oil, were used to det. the influence of these supplements on the flavor of the pork. The fish meal contained 5% of oil. Pork chops, loin roasts and bacon from 3 hogs of each lot were tested for flavor and desirability by different committees. The results of the tests show that 2 rations, contg. 2.5% and 10% of menhaden fish meal resp., produced pork without a distinct fishy flavor. The other 2 rations, contg. 10% of menhaden fish meal plus .5% and 1.5% of menhaden fish oil resp., produced pork with considerable fishiness of flavor. The roasts and bacon from the lot receiving 1.5% of fish oil in addn. to 10% fish meal were decidedly fishy in flavor. This ration also produced some fishiness in the chops. Less of the fishy flavor was found in the meat from the lot receiving the .5% addnl. fish oil. Fishiness was more pronounced in the roasts and bacon than in the chops. Some undesir-

able flavors, other than fishiness, were found in some of the roasts and chops from all lots. These flavors occurred in both the fat and lean meat, but like fishiness, were more pronounced in the fat.

THE FATTY-ACID COMPOSITION OF GLYCERIDE FRACTIONS SEPARATED FROM MILK FAT. E. L. Jack and J. L. Henderson. *J. Dairy Sci.* 28, 65-78 (1945). Milk fat, sepd. into 5 different fractions by pptn. from a solvent at low temps. was analyzed by the ester-fractionation method to det. the amt. and distribution of the individual fatty acids. The amts. of each fatty acid present in each fraction and in the milk fat have been detd. These values, together with corresponding wt. and mol. percentages, are presented. When the values for the compn. of the original milk fat are compared with those obtained by reconstructing milk fat from the increments of the individual fatty acids contained in the fractions, an excellent agreement is observed. These data also compare favorably with those reported by others. The occurrence of small quantities of individual fatty acids is detected with more reliability from the fractions than from the complex entire fat.

THE VALUE OF CHOLINE ADDITIONS TO A CORN AND SOYBEAN OIL MEAL CHICK RATION CONTAINING DISTILLERS' DRIED SOLUBLES. J. A. Marvel, C. W. Carrick, R. E. Roberts and S. M. Hauge. *Poultry Sci.* 24, 181-6 (1945). The total choline content of chick broiler rations is not a safe index of the adequacy or inadequacy of choline in the ration for growth. Rapid growth was obtained when a basal ration contg. corn, soybean oil meal, alfalfa leaf meal, distillers' dried sol., minerals, and vitamins was supplemented with 0.15% choline chloride to give a total choline content of 0.29%. At least some of the choline containing soybean crude lecithin appeared to be available to the chick. Addnl. heating of a sample of soybean oil meal of inferior growth-promoting value failed to improve the growth-promoting value of the meal. Casein or meat and bone scraps exhibited a choline or methionine-like action, when substituted on an equal protein basis for soybean oil meal in an all-vegetable corn and soybean oil meal chick ration, although these products did not increase the total choline or methionine content of the ration. The effect of these addns. may be due to differences in availability of either choline or methionine, or possibly other growth factors. Ten per cent of meat and bone scraps was of no more value than 5% meat and bone scraps in the corn and soybean oil meal chick ration.

FREE FATTY ACIDS IN ANIMAL TISSUES. D. Fairbairn. *J. Biol. Chem.* 157, 645-50 (1945). When rat or cat liver is extirpated, a part of the constituent phospholipids is rapidly hydrolyzed by the intracellular phospholipases. Within a few min. this hydrolysis is intact, isolated liver tissue amts. to about 8%. If the liver is ground, hydrolysis increases to about 15%. When the ground tissue is suspended in buffer at pH 7.2, some 40% of its phospholipids is hydrolyzed within 4 hrs. Decreases in phospholipid P, choline, and fatty acids parallel one another closely. There

appears to be no preferential hydrolysis of particular fatty acids. The amts. of free fatty acids which occur normally in tissues are very small, averaging 2.2 mg. per g. of dry, fat-free mouse tissue and 2.3% of the acetone-sol. lipids of cat liver. These values, due to limitations of the exptl. methods may be regarded as max. Autolysis, even for short periods of time, greatly increases the amts. of free fatty acids in these tissues.

ROLE OF FAT IN INCISOR DEPIGMENTATION OF VITAMIN E-DEFICIENT RATS. H. Granados and H. Dam. *Science* 101, 250-1 (1945). Depigmentation of incisors in vitamin E-deficient rats requires the presence of fat, presumably unsatd. fatty acids, in the diet, a finding which suggests that the phenomenon is related to some abnormal deposition or reaction of fat in the ameloblasts. A previous observation of persistence of dental pigment in rats reared on an E-deficient diet for 167 days cannot be compared with our findings, due to the fact that the diet used was not reported. It is possible that this contradictory finding could be explained by differences in dietary fat content.

PATENTS

FINISHING COMPOSITION AND METHOD OF MAKING. Jacob M. Fain (Foster D. Snell, Inc.). *U. S. 2,368,126*. A finishing compn. comprises the product of reaction of shellac with a soln. in a fatty drying oil of a bivalent metal oxide that is sol. in hot drying oils and substantially ineffective as an accelerator of oxidation thereof, a paint oil drier, and a volatile solvent for the product of reaction.

COATING COMPOSITION. Laurence L. Rector and Charles L. Cron. *U. S. 2,367,376*. Blown castor oil is one of the constituents of this cellulose contg. prepn.

METHOD OF PREPARING HYDROXY HEAVY METAL SOAP COMPOSITIONS. Arthur Minich. *U. S. 2,368,560*. Process of producing a dispersed hydroxy Cu soap in a dehydrated org. vehicle comprises: thermally dehydrating in a substantially water immiscible org. vehicle an aq. magma comprising the reaction product of an alkali soap of at least one substantially water-insol. non-volatile org. acid, free alkali hydroxide and a sufficient quantity of a water-sol. Cu salt to completely react with the alkali soap and the free alkali hydroxide, whereby said hydroxy Cu soap is finally dispersed in substantially insol. form in said dehy-

drated org. vehicle. The products are used as fungicides and insecticides.

TREATMENT OF OIL OR FAT CONTAINING MATERIAL FOR THE RECOVERY OF OIL OR FAT THEREFROM. Joseph Charles Kernot and Victor Sieberstein. *U. S. 2,368,028*. This rendering app. makes use of rendering under water with steam under pressure. Novelty in the invention deals with means of stirring, means of skimming fat and the use of 0.5% soda ash in the water.

METALLIC SOAPS OF TALL OIL. Eduard Färber (Polysor Chemical Co., Inc.). *U. S. 2,367,462*. The process consists in mixing tall oil at above 100° with a neutralizing agent selected from the group consisting of the inorg. oxides and hydroxides, the quantity of the neutralizing agent being not more than about 1/3 and not much less than about 1/20 of the quantity calcd. for the neutralization of the total acidity of the tall oil heating the mass to about 300° and evapg. therefrom at about atm. pressure until the residue is substantially neutral. The product can be used as a lubricant or to rust proof metals.

SEALING COMPOSITION. Laurence L. Rector and Charles L. Cron. *U. S. 2,367,375*. This cellulose product is plasticized with castor oil and/or Bu stearate.

METHODS AND MEANS FOR TREATING GLYCERIDE OILS OF THE UNSATURATED ESTER TYPE. Robert A. Carleton. *U. S. 2,367,666*. This invention comprises a system of improving the drying properties of oils by polymerization of the unsatd. constituents, hydrolyzing the oil and removing the satd. fat acids (or non drying components) by distn. The equipment as described is novel in that it operates in a continuous manner rather than by intermittent steps.

ANTIOXIDANT. Percy A. Wells and Roy W. Riemschneider (Claude R. Wickard as Secretary of Agriculture of the U.S.A.). *U. S. 2,368,435*. Fat acid esters of ascorbic acids are used as antioxidants, i.e., preservatives, for fats and oils.

BETAINE ESTERS. John Lee (Hoffmann-La Roche, Inc.). *U. S. 2,367,878*. Among the compds. illustrated in this invention are many which contain a fat acid radical, a halogen and in some cases an aromatic radical. The products are suitable antiseptic, disinfecting, preserving and wetting agents.

Abstracts

Soaps

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FATTY ACIDS IN POST-WAR SOAPS. Dale Stingley. *Soap* 21, No. 2, 63-65 (1945). The post-war future of the use of fatty acids in soaps is reviewed. War restrictions necessitated the use of larger quantities than had formerly been used. However, soap-makers have found many advantages in using fatty acids. These include: ease in saponification, more complete saponification resulting in more uniform soap products, flexible operation of plant equipment and operating economies.

RAPID SETTLING IN THE COURSE OF LABORATORY SOAP BOILING. H. G. Kirschenbauer. *Soap, Perfumery & Cosmetics* 18, 47-8 (January, 1945). This article de-

scribes a method in which gravity settling is replaced by centrifugal separation of neat soap and nigre. Advantages gained include the following: time required is reduced to about 8 hours, results are definitely reproducible and samples can be made to duplicate quite closely corresponding soaps made on the kettle floor, with regard to appearance and comp.

SPECIAL DETERGENTS: STANDARD METHODS OF SAMPLING AND CHEMICAL ANALYSIS. *Soap, Perfumery & Cosmetics* 18, 53-6 (1945). This article surveys various inorganic alkaline detergents such as caustic soda, soda ash, modified soda sesquicarbonate type, sodium metasilicate and sodium sesquicarbonate, trisodium phos-