Training Course: Low Cost, High Nutrition Food Production

An 8-week training course in low cost, high nutrition food production will be conducted by the Meals for Millions Foundation beginning in January, 1976. The course will concentrate on the following areas: textured vegetable proteins; extrusion technology; vegetable beverage production; and infant foods production. For details on costs, arrangements, etc., please contact: Kenneth L. Shewmon, Associate Program Director, International Institute of Protein Food Technology, Box 1666, Santa Monica, California 90406. ■

abstracts

• Fats and Oils

HEATS OF HYDROGENATION OF LARGE MOLECULES. I. ESTERS OF UNSATURATED FATTY ACIDS. D.W. Rogers and N.A. Siddiqui (Dept. Chemistry, Long Island University, Brooklyn, N.Y. 11201) *J. Phys. Chem.* **79**, 574–7 (1975). A hydrogen microcalorimeter was developed for the purpose of determining heats of hydrogenation and heats of formation of large molecules, particularly those of biochemical significance. The results obtained for the seven unsaturated and polyunsaturated methyl esters of palmitoleic, palmitelaidic, oleic, elaidic, linoleic, linelaidic and linolenic acids are reported. The heats of formation follow from the heats of formation of the saturated reaction products, methyl palmitate and methyl stearate, by Hess' law addition. The sample size on which reliable data can be obtained, about 15 μg, is among the smallest. Standard deviations of six replicate samples of each ester were about 0.3 kcal/mol per double bond.

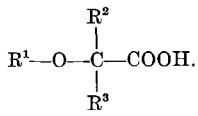
DRY PREPARED FLUFFY FROSTING MIXES. R.D. Harris and R.M. Roudebush (Procter & Gamble). *U.S. 3,882,258.* The process for making the mix comprises the steps of (a) melting and flaking a polyglycerol ester containing 2–12 glycerol units and 1–4 fatty acid groups per molecule, (b) pulverizing the polyglycerol ester at a temperature below its melting point, (c) blending the pulverized ester with a dry mixture comprising sugar and flavoring, and (d) pulverizing the resulting blend to such an extent that 95% of the particles will pass through an 80 mesh screen and 5% of the particles will pass through a 100 mesh screen.

PEANUT BUTTER. C.M. Gooding (CPC International Inc.). *U.S. 3,882,254.* A peanut butter composition having improved spreadability, improved melt down in the mouth, and resistance to oil bleeding and gravitational separation comprises peanut butter and a nonhydrogenated refined and bleached hard fraction separated from palm oil. The palm oil fraction is used in an amount sufficient to provide an SCI value in solution with peanut oil of 2.0–3.0 at 80 F and 1.5–2.5 at 92 F.

AQUEOUS SUSPENSIONS OF STABLE NON-BETA TYPE CRYSTALS OF HIGHER FATTY ACID ESTERS OF CHLORAMPHENICOL. T. Maeda, T. Kiyotaki, Y. Katsuhara, T. Mitsunaga, and M. Iwade (Sumitomo Chemical Co.). *U.S. 3,882,243.* A stabilized suspension of non-β-type chloramphenicol myristate, palmitate, or stearate crystals comprises an aqueous suspension of the crystals and 0.1–20% of either a sucrose ester of a fatty acid selected from the group consisting of stearic acid, palmitic acid, myristic acid, oleic acid, and mixtures of stearic and palmitic acids, or a sucrose ester of a mixed fatty acid derived from beef tallow, lard, lanolin, coconut oil, castor oil, or safflower oil. The sucrose ester has an HLB value of 7–17.

POURABLE CREAM CONCENTRATE. H.J. Pennings and N. Herendi (Lever Bros. Co.). *U.S. 3,883,670.* The concentrate comprises 35–50% fat of a dilatation value at 20 C of at least 200; 0.1–1.5% of α-monoglycerides; 1–6% of egg yolk; at least 5% sugar, the upper limit being determined by the solubility of the sugar in the aqueous phase; 5–15% of polyalcohols selected from the group consisting of glycerol, mannitol, and sorbitol; 0–6% of vegetable phosphatides; 0–5% of egg white; 0–1% stabilizer; and the balance an aqueous phase.

ESTER OF α-TOCOPHEROL. T.P.C. Mulholland (Imperial Chemical Industries Ltd.). *U.S. 3,883,565.* There is claimed an ester of α-tocopherol with an acid of the formula:



R^2 and R^3 are both methyl and R^1 is *p*-chlorophenyl, 4-(*p*-chlorophenyl)benzyl, 4-(*p*-chlorophenyl)phenyl, or 4-(1,2,3,4-tetrahydronaphth-1-yl)phenyl; or R^2 is hydrogen, R^3 is *p*-chlorophenoxy, and R^1 is *p*-chlorophenyl; or R^2 is hydrogen, R^3 is *p*-chlorophenyl, and R^1 is *m*-trifluoromethylphenyl.

CRYSTALLIZATION OF A FATTY COMPONENT. H.J. Schmidt and A. Hartmann (Metallgesellschaft Ag.). *U.S. 3,884,046.* A method of separating and recovering a crystallizable component of an organic phase containing a fatty acid, fatty alcohol, or fatty acid ester comprises the steps of emulsifying the melted organic phase in a surfactant-containing liquid aqueous phase. The emulsion is subjected to evaporative cooling under vacuum, and the component is then crystallized to form a dispersion of the crystals. The crystallized component is recovered from the dispersion.

COMPREHENSIVE EVALUATION OF FATTY ACIDS IN FOODS. L.P. Posati, J.E. Kinsella and B.K. Watt (Consumer and Food Economics Inst., ARS, USDA, Hyattsville, Md.). *J. Amer. Diet. Ass.* **66**, 482–8 (1975). This paper summarizes the comprehensive survey of the world's literature published since 1960 done by the Nutrient Data Research Center on the fatty acids in dairy products and selected non-milk fat-containing products. Production and analytical factors influencing the lipid constituents of these commodities are briefly discussed. Techniques are described for converting the data to grams fatty acids per 100 g food. The dairy products whose fatty acid composition is given are butter and butteroil, cheese and cheese products, creams, milk-based desserts (e.g., ice cream), milk (fluid, canned, dried, flavored), whey, and yoghurt. Those non-milk fat-containing products listed are fluid filled milk, imitation milk, imitation sour cream, nondairy coffee whiteners, and nondairy toppings. The mean fatty acid composition of milk fat derived from the current study is presented.

METHODS AND COMPOSITIONS TO ENHANCE TALL OIL SOAP SEPARATION FROM WASTE PULPING LIQUOR. R.J. Ziegler and H. Lieberman (Betz Laboratories, Inc.). *U.S. 3,880,704.* A method for enhancing the separation of tall oil soap from black liquors derived from alkaline pulping operations comprises adding thereto a composition comprising: (1) 0.1–15% of a product derived by the esterification of an ethoxylated sugar alcohol by an unsaturated C_{14}–C_{20} fatty acid; (2) 0.5–30% of at least one tallow fatty acid, or tallow fatty alcohol, having 12–20 carbon atoms; (3) a material in the weight ratio specified selected from the group consisting of: (a) 0.1–15% of a fatty acid mono or diester of a polyethylene glycol, (b) 0.3–20% of a petroleum sulfonic acid, and (c) mixtures of (a) and (b); (4) 65–98% of a water insoluble liquid selected from the group consisting of vegetable oils, aliphatic, alicyclic, aromatic, and halogenated hydrocarbons, and long chain amines.

PRODUCTION OF KARITE NUT BUTTER. R. Marteau and A.D.E. Marteau. *U.S. 3,880,899.* A process for the extraction of karite nut butter comprises shelling karite nuts to obtain seeds, crushing the seeds, heating the crushed pieces in earthenware vessels to drive off volatile compounds, fine grinding the crushed and heated pieces to a paste which is mixed with water, heating the water to 70–80 C while stirring the paste with wooden stirrers, heating the paste to its boiling point, skimming the karite nut butter from the surface of

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