

• Fats and Oils

COUNTER DOUBLE CURRENT DISTRIBUTION WITH CONTINUOUS RECOVERY FOR ISOLATION OF METHYL LINOLENATE. R. O. Butterfield, H. J. Dutton and C. R. Scholfield (Northern Regional Res. Lab., Peoria, Ill.). *Anal. Chem.* **38**, 86-88 (1966). Counter double current distribution (CDCD) was used to produce unisomerized methyl linolenate (methyl 9,12,15-octadecatrienoate) of 99.9% purity from methyl esters of linseed oil without prior concentration. The rate of production is five times that of countercurrent distribution. Production of the labile lipid illustrates the general applicability of CDCD. In addition, a system is described that continuously recovers the solvent and product. This system completes the automation of the CDCD equipment so that solvent inventory, safety hazards and labor are reduced.

METHOD FOR SEPARATING SATURATED FATTY ACID ESTERS FROM UNSATURATED ESTERS FOR GAS CHROMATOGRAPHIC ANALYSIS. W. R. Koehler, J. L. Solan and H. T. Hammond. *Anal. Biochem.* **8** (3), 353-61 (1964). When mixtures of methyl esters of fatty acids were brominated prior to gas chromatography, peaks due to unsaturated components were reduced but not eliminated, and several new peaks appear. (Rev. Current Lit. Paint Allied Ind. No. 281).

USE OF METHANOLIC BARIUM HYDROXIDE AS A SAPONIFICATION REAGENT. E. André and J. Henry. *Compt. Rend.* **257** (1), 143-4 (1963). The saponification value for palmitic, groundnut, castor and coconut oils, when each is saponified with methanolic KOH, ethanolic KOH or methanolic Ba(OH)₂ are maximum when the last named (0.5 N) is used. Because of the insolubility of the Ba soaps produced, it is probable that saponification is complete, whereas in the other two media it ceases when equilibrium is attained between the alcohol and the soap and alkali. (Rev. Current Lit. Paint Allied Ind. No. 281).

FATS AND THEIR DERIVATIVES IN COSMETICS. N. L. Murthy, N. Desikacher and V. Parameswaran (Res. Lab., The Tata Oil Mills Co., Sewri, Bombay, India). *Indian Oil Soap J.* **30**, 359-64 (1965). A review of the various uses of naturally occurring oils, fats and their derivatives in the field of cosmetics.

STUDIES ON THE USE OF TOMATO OIL FOR THE STABILIZATION OF CONCENTRATES OF BETA CAROTENE. J. Janicki and M. Gogolewski. *Przem. Spoz.* **19**, 47-9 (1965). Tomato oil will stabilize beta carotene as well as concentrates of vitamin E prepared from tomato oil. The oil is more effective than the concentrate. (Rev. Franc. Corps Gras).

AUTOXIDATION OF FATS AND OILS. Takaharu Miyakawa (Yoshiwara Oil Mill Ltd., Ninomiya-shi, Japan). *Yukagaku* **14**, 662-71 (1965). A review.

KINETICS AND MECHANISM OF INHIBITION OF AUTOXIDATION. Yoshio Kamiya (Univ. Tokyo). *Yukagaku* **14**, 672-79 (1965). A review.

LIPXYDASE. Hiroyasu Fukuba (Ochanomizu Univ., Tokyo). *Yukagaku* **14**, 679-82 (1965). A review.

OXIDATION OF FATS BY MICROORGANISMS. Takeo Nakanishi (Tohoku Univ., Sendai, Japan). *Yukagaku* **14**, 683-6 (1965). A review.

COMMERCIALLY AVAILABLE ANTIOXIDANTS. Ken-ichi Sawatari (Yoshitomi Pharm. Inds. Ltd., Fukuoka Pref., Japan). *Yukagaku* **14**, 687-91 (1965). A review.

SYNERGISTS CONTAINING METAL-INACTIVATING AGENT AS A CENTRAL MOLECULE. Shinroku Masuyama (Osaka Munic. Tech. Research Inst., Osaka). *Yukagaku* **14**, 692-7 (1965). A review.

RECENT PRACTICE AND PROBLEMS ON PREVENTING OXIDATION OF OILS AND FATS. Kazuhiko Yoshitomi and Hisashi Watanabe (Nissin Oil Mills Ltd., Yokohama). *Yukagaku* **14**, 721-32 (1965). A review.

OXIDATION OF EDIBLE OILS AND THEIR NUTRITIVE VALUE. Toshimi Akiya (Food Res. Inst., Tokyo). *Yukagaku* **14**, 733-9 (1965). A review.

PROBLEMS ON OXIDATION OF PLASTIC FATS. Umajiro Shimamura (Nippon Oils & Fats Co., Tokyo). *Yukagaku* **14**, 740-7 (1965). A review.

DETERIORATION OF FRYING OILS. Shizuyuki Ota (Ajinomoto Co., Kawasaki-shi, Japan). *Yukagaku* **14**, 748-54 (1965). A review.

GAS CHROMATOGRAPHIC STUDIES ON COCOA BUTTER. B. Doro and S. Remoli (Prov. Chem. Lab., Trieste, Italy). *Riv. Ital. Sostanze Grasse* **42**, 108-13 (1965). Results of gas chromatographic analyses of cocoa butter samples and of several commercial chocolate products are reported. In samples of commercial cocoa, the C-18:1/C-18:0 ratio varies between 0.94 and 1.04. Lauric acid is usually completely absent from cocoa or cocoa butter, although sometimes found in traces.

THE ANOMALOUS SOLUBILITY OF CHOLESTEROL IN OILS. L. D. Wright (Grad. School of Nutr. and Section of Biochem & Molecular Biol., Cornell Univ., Ithaca, N.Y.). *Proc. Soc. Exp. Biol. Med.* **121**, 265-67 (1966). Insoluble-elathrate formation occurs between cholesterol and certain dicarboxylic acids or imidazole in a number of natural or synthetic triglycerides only when the initial concentration of cholesterol is in excess of one-half of saturation. The possibility that cholesterol is present in oils in two separate states of dispersion is discussed.

VOLATILE COMPONENTS OF PEACH. II. M. R. Sevenants & W. G. Jennings (Dept. of Food Sci. and Tech., Univ. of Calif., Davis). *J. Food Sci.* **31**, 81-6 (1966). A volatile-essence concentrate, isolated from the Red Globe variety of freestone peaches and already partially characterized, was further fractionated by newly developed gas chromatographic techniques of repetitive ultra micro collections and reinjections. An adapted micro-cavity infra red cell permitted infra red analysis of these minute fractions, which were then identified by comparison with known compounds. Synthesis and ultra-micro vapor phase hydrogenation were used to characterize compounds for which standards could not be obtained. Compounds identified include hexyl formate, hexyl acetate, *trans*-2-hexene-1-ol, isovaleric acid, ethyl benzoate, benzyl acetate, caproic acid, γ -heptalactone, γ -nonalactone, hexyl benzoate, *trans*-2-hexenyl acetate and an α -pyrone.

HIGH-RESOLUTION CAPILLARY ADSORPTION COLUMNS FOR GAS CHROMATOGRAPHY. R. D. Schwartz, D. J. Brasseaux and R. G. Mathews (Shell Dev. Co., Houston, Texas). *Anal. Chem.* **38**, 303-6 (1966). High-resolution capillary adsorption columns, which appear useful for the separation of hydrocarbons, have been prepared by coating stainless steel tubing with colloidal sols containing hydrophobic silica. These columns provide a carbon number separation of saturated hydrocarbons. Under optimum conditions, the resolution obtainable with these columns is comparable to that achieved with capillary partition columns.

TURBULENT FLOW CHROMATOGRAPHY: A NEW APPROACH TO FASTER ANALYSIS. V. Pretorius and T. W. Smuts (Dept. of Phys. and Theoretical Chem., Univ. of Pretoria, Pretoria, S. Africa). *Anal. Chem.* **38**, 274-81 (1966). Expressions have been derived for plate height and minimum analysis time in open tubular columns in which laminar and turbulent flow of the mobile phase may be employed. Using these equations the role of various column parameters in fast analysis has been studied in the laminar and turbulent flow regions of gas and liquid chromatography. In the gas chromatography turbulent flow can lead to analysis times about one tenth of those obtained under comparable circumstances by using laminar flow. In liquid chromatography turbulence can shorten analysis times by as much as a factor of 10⁴. In general turbulent flow chromatography entails the use of slightly greater column lengths and much larger pressure drops than would be needed under similar conditions in laminar chromatography.

NEW ACETYLENIC FATTY ACIDS FROM ACANTHOSYRIS SPINESCENS SEED OIL. R. G. Powell and C. R. Smith, Jr. (Northern Reg. Res. Lab., Peoria, Ill.). *Biochemistry* **5**, 625-31 (1966). The seed oil of *Acanthosyris spinescens* contains a number of previously unknown acetylenic fatty acids. These include 17-octadecen-9-ynoic acid, 18%; *trans*-10,16-heptadecadien-8-ynoic acid, 10%; and *trans*-11,17-octadecadien-9-ynoic acid, 4%. One other nonoxygenated C₁₇ acid (9%) is also present but was not fully characterized. *A. spinescens* is the first of the higher plants found to contain straight-chain C₁₇ acids in more than very small amounts.

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