TECHNICAL SECTION

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Review of Fat Oxidation; Sugar Solubility in Glycerol; Wheat Gluten Gel

• New and improved techniques, such as low-temperature crystallization, chromatography, countercurrent distribution, polarography, and infrared and ultraviolet spectrophotometry, have permitted the gathering of evidence, in the past five or six years, which supports and defines the generally accepted theory of the autoxidation mechanism of fats. A review of recent literature on the subject, first presented at the 124th Meeting of the ACS before the Division of Agricultural and Food Chemistry, is summed up by Morris. Data obtained by numerous workers are discussed in relation to the mechanism of oxidation of mono-, di-, and triethanoic fatty acids. • Glycerol is used as a softener or humectant in many foods and confections in which sugar is an ingredient; therefore, it is desirable to know the amount of sugar which can be dissolved in aqueous glycerol. Use of a mixture of sucrose and dextrose, whose combined solubilities exceed that of either, affords a way of introducing the maximum amount of sugar into a solution. Segur and Miner provide information on the solubility of sucrose-dextrose mixtures and invert sugar in aqueous glycerol. • A method for producing a gel-forming derivative of wheat gluten for about $2.00 a pound, compared with the cost of previous methods of about $8.00 to $10, is described by Mohammad, Mecham, and Olcott. The new method, an adaptation of a process used for phosphorylation of cellulose, consists of treatment with phosphoric acid and urea, drying, and heating at temperatures near 140° C. Product absorbs 100 to 300 times its own weight in water to form a firm, odorless, tasteless, nontoxic gel suitable for use as a thickening agent in ice cream and other foods and for use in pharmaceutical preparations.

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Cottonseed Flour Enhances Protein Value of Water Bread

• Processing of cottonseed has advanced to the point of producing meals and flours of high nutritive value. Womack, Marshall, and Summers present a study of the nutritional value of substituting cottonseed flour for part of the wheat flour used in white bread. Results of their work suggest that where protein supplies are limited and where milk solids are not available, cottonseed flour of the quality used in their experiments might prove useful to enhance the protein quality of bread.

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Tailor-Making an Insecticide; Potential Market for Chemicals as Rodent Repellents

• Efforts to tailor a compound of optimum activity against the two-spotted spider mite and free of the undesirable side effects often associated with insecticides are related by Harris and Zukel. After the discovery that 2-chloroethyl dodecyl sulfite is highly toxic to these mites, they studied the relationship between structure and activity, identifying the sulfite radical as the toxic group. Rest of the molecule serves to modify chemical and physical properties. Substitution of aryloxy radicals for a portion of the long-chain alkyl radical produced a flexible series of sulfites, thus making it possible to fit the compound to the job. • Chemical repellents for rodents offer the chemical industry a potential outlet for many new products, according to Welch. The antibiotic actidione is by far the most effective material, but its toxicity, limited availability, and high cost restrict it to use as a standard of comparison for potential repellents. Some of the promising materials are: trinitrobenzene complexes, zinc dimethyldithiocarbamate–cyclohexylamine complex, thiuram disulfide, and hexachlorophene.

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