

TECHNICAL SECTION

JOURNAL OF Agricultural and Food Chemistry

- Biochemical Engineering
- Fermentation
- Food Processing
- Nutrition
- Pesticides
- Plant Nutrients and Regulators

FOOD PROCESSING

Antioxidants and Enzymes. Two commercial antioxidants, NGDA and propyl gallate, were found by Tappel and Marr to inhibit, at concentrations allowed in foods, some of the enzyme systems typical of those which cause deterioration in refrigerated and frozen foods. Fourteen enzyme systems were tried in all and three antioxidants, including α -tocopherol because of its biological significance. Most of the enzyme systems tested were not sensitive to inhibition by these antioxidants.

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Food Coatings. Physical properties of technical grade acetostearins, which form wax-like solids, have made them potentially useful as protective coatings for processed meats like frankfurters, dressed meats to be stored at low temperatures, cheese, fruits, nuts, candy, and other foods. As part of the evaluation of these modified fats, Lovegren and Feuge studied their water permeability. Comparing the permeability of these films with other materials, they find them to be less permeable to water vapor than that of cellulose acetate and slightly greater than nylon, ethylcellulose, and polystyrene. Cellophane and paraffin wax have significantly smaller permeabilities.

NUTRITION

Alfalfa Carotenoids. Xanthophyll-rich materials such as dehydrated alfalfa meal are necessary in chick feeds to give finished poultry the desirable yellow color, but the amount of such supplements needed cannot be determined until the amount and kinds of xanthophylls present and their pigmenting value are known. Bickoff, Livingston, Bailey, and Thompson present results of a chromatographic separation of the carotenoids in alfalfa. Over 40 xanthophyll bands were shown to be present in the dehydrated meal. Five of the compounds comprised 99% of the xanthophylls in fresh alfalfa and 87% in dehydrated meal.

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Nutritional Assay. Wei, Pyke, and Parrish present an evaluation of a proposed method for determining vitamin D in supplements intended for poultry feeding. The official method of the Association of Official Agricultural Chemists compares the percentage ash of dried and extracted tibias from groups of chicks grown under specified conditions. The suggested new method involves toes or beaks, which are more easily and quickly prepared. Correlations between the two methods were close.

PESTICIDES

Pesticide Residues. A sensitive method for determining spray residues of malathion is presented by Norris, Vail, and Averell. The method is based upon rapid decomposition of malathion by alkali to form dimethyldithiophosphoric acid and subsequent determination of this decomposition product by a colorimetric method. The method can be used with a wide variety of plant materials.

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Pesticide Residues. Two methods for determining aldrin residues of the order of 0.1 p.p.m. in agricultural crop materials have been developed by O'Donnell, Neal, Weiss, Bann, DeCino, and Lau. Both involve extraction of aldrin from plant materials with a hydrocarbon solvent and separation from glycerides by saponification and from other materials by adsorption chromatography. At this point, aldrin can be determined by a modification of the phenyl azide-photometric determination or by a determination of chlorine by combustion. The photometric method has a high degree of specificity for aldrin.