

# TECHNICAL SECTION

JOURNAL OF  
**Agricultural  
and Food  
Chemistry**

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

## **Sugar Fermentation Loss and Solubility, Enzyme and Color Losses Reported**

• Lactic acid is found in the process liquors from sugar beet factories. The two possible sources have been considered the beets themselves or fermentation of the sugar substrate. It has been generally assumed that fermentation is the cause. The cost is estimated at a quarter million dollars. Stark, Goodban, and Owens have studied the subject by determining the concentration of lactic acid at the various steps of processing sugar beets. Increasing amounts of the acid were found in proceeding through the steps of the process. Fermentation in the diffusion battery was clearly indicated. Increased temperatures, at about 70° C. in the battery reduced the amount of acid, markedly indicating that heat sterilization is one way of decreasing lactic acid fermentation. • In the interest of a better knowledge of the solubility of sugar, which could serve as a valuable tool in food processing, Segur and Miner studied the solubility of sucrose and dextrose in several concentrations of aqueous glycerol, which is often used as a humectant in foods and pharmaceuticals. Sucrose was found more soluble than dextrose at lower glycerol concentrations while dextrose is more soluble at higher glycerol concentrations. The solubility of both decreased with increased glycerol concentration and lowered temperature. • A study of the rate of enzyme inactivation in cooked foods and its possible relation to ascorbic acid oxidation was made by Watts and Griswold. Potatoes and parsnips were submitted to four different kinds of cooking while internal temperatures were measured. Enzyme activity and ascorbic acid level were determined at five-degree intervals. Statistical analysis of the data indicated that pressure cooking caused most rapid rate of inactivation of enzymes. The rate of inactivation could not be related to the ascorbic acid level. No evidence could be found for the enzymatic oxidation of ascorbic acid. • The gradual loss of color from strawberry preserves is an important factor in marketing the product. Meschter extracted the pigment from strawberry juice with 1-butanol to examine the effects of various materials on color deterioration. Temperature and pH were important factors in the rate of pigment loss. Furfural and hydroxymethylfurfural, typical sugar reduction products, also increase the rate of pigment loss. The author suggests that the loss of color of the preserves is the result of a reaction between the products of sugar deterioration and the strawberry pigment.

## **Derris Deposits Lose Toxicity in 10 Days**

• The duration of residual toxicity following application of derris preparations formulations is reported by Pagán and Morris. Derris preparations, a source of rotenone, were applied as root latex emulsions, powders, and water suspensions of powders to growing plants and toxicity levels of the plants were determined at intervals using a guppy technique for bioassay. The authors conclude that derris deposits lose almost all toxicity 10 days after application. The guppy bioassay is sensitive enough to show that no measure of translocation of the toxic components had taken place, indicating that loss of toxicity probably is due to decomposition.