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# RESEARCH REPORT

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FOOD TECHNOLOGY

The Hebrew University  
of Jerusalem, Israel

## STAFF

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## GENERAL

**Introduction:** The Department of Food Technology, part of the Volcani Institute of Agricultural Research, Beit Dagan, conducts research in the field of dehydration, canning, freezing, freeze-drying, fermentation, juices and concentrates of fruits and vegetables.

The main crops of Israel are studied as to their adaptation to industrial use, their physical characteristics and chemical composition, the quality and retention of organoleptic attributes, etc. These include: citrus fruits, grapes, olives, bananas, peaches, dates, avocados, tomatoes, onions and others.

A course on principles of food technology, is given to third year undergraduates, and a course on technology of fruit and vegetables to M.Sc. students.

**Participation in Scientific Activities:** Mrs. Samish: Second International Congress of Food Science and Technology, Warsaw, August 1966; presented two papers. Executive member, International Organization of Food Science and Technology. Chairman, standards of fruit and vegetable products, Standards Institution of Israel, Central Committee of Food Standards. Member, committee for food exhibits, Ministry of Commerce and Industry. Committee member, Israel Organization of Food Science and Nutrition. Delegate, Israel Organization for Advancement of Science. Member, organizing committee for courses in food and applied nutrition for developing countries, Ministry for Foreign Affairs.

**Research Support:** Research in the department was supported in part by the National Council for Research and Development, and the Date Growers Association.

## RESEARCH REPORTS

## THE EFFECT OF ALKALINE TREATMENTS ON LACTIC ACID FERMENTATION OF GREEN OLIVES

B. Juven, Z. Samish and B. Jacoby\*

The treatment of green olives with alkaline solutions prior to their lactic acid fermentation decreases the bitterness present in the fresh fruit. This treatment is also known to give a very rapid increase in the rate of fermentation. It is generally assumed that this enhanced rate of fermentation is due to the action of the alkali on the waxy coating of the fruit and the consequently increased permeability of the fruit tissues and exodiffusion of substrates and growth factors.

This hypothesis was not confirmed in our experiments. The rate of lactic acid fermentation did not increase when olives had been cut or homogenized.

It appears that the penetration alkali causes biochemical changes in the olive which enhance lactic acid fermentation, possibly through the destruction of an inhibitor.

Fermentation progressed very rapidly when olives were "peeled" before brining, indicating that the inhibiting factor may be concentrated in the outer layers of the fruit.

\* Department of Plant Physiology

## THE REHYDRATION OF OVERDRIED DATES FROM THE NEGEV (ARAVA) AND THE BIOCHEMICAL CHANGES INVOLVED IN THE PROCESS

J. Kanner, Z. Samish and A. Ludin

Dates grown in the Negev (Arava) often dry and shrivel on the tree, during or prior to maturation. Such dates are not marketable, their moisture content being as low as 10—11%, while dates growing under favorable conditions will contain approximately 21—24% moisture even after dehydration.

The effect of different treatments during rehydration, e. g., treatment with NaOH, detergents, deep freezing, water, steam or vacuum, was studied in relation to the rate of rehydration.

Methods of rapid, efficient rehydration are now being established which affect the permeability of the fruit tissue without affecting the wholeness and texture of the dates.

The rise in moisture content was found to activate the enzyme systems, thus increasing the rate of CO<sub>2</sub> evolution from the fruit tissue and affecting sugar inversion, firmness and color retention of the product.