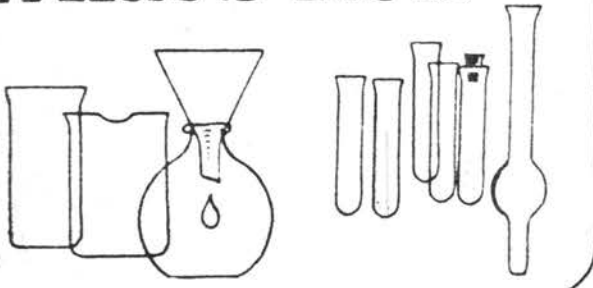


What's New



WASTE WATER IRRIGATION

In countries with a serious shortage of irrigation water, the exploitation of sewage water for agriculture can be a critical alternative. Until now, however, the use of waste water effluent has been limited to orchards, industrial crops (where there is no direct contact between the water and the fruit) and crops which are eaten only after peeling and cooking. In vegetable fields, sewage water constituted a real health danger that disease-causing intestinal bacteria, amoebae, worm eggs and viruses could be passed on.

Now, as a result of research carried out jointly by scientists at the Hebrew University's Faculty of Agriculture, the Hebrew University-Hadassah Medical School and the Eilat Regional Council, contamination of vegetables irrigated with preliminary-treated waste water effluent can be minimized. The method uses the technique of "drip irrigation," in which water is fed directly to plant roots, combined with plastic sheets covering the soil and the drip system. In tests, whose findings will soon be published in the *Journal of Food Protection*, it was found that the sewage-irrigated crops (cucumbers and eggplant) protected by plastic sheets had the same bacterial contamination level as that found in vegetables purchased in the market. In addition, no viruses were found at all.

In order to eliminate any chance contamination in field conditions, the research project was expanded and intensified. Waste water was artificially contaminated with labelled bacteria and polio vaccine viruses at epidemic levels, from 100 to 1,000 times the concentration normally found in the effluent. Once again, laboratory tests revealed no contamination when drip irrigation was combined with plastic sheets.

Since these results were obtained under controlled experimental conditions, the scientists cannot unequivocally recommend waste water effluent for irrigating vegetables. However, it is expected that further research will determine the precise irrigating conditions and minimal purification required to insure the health of both farmers and consumers.

HIGHER YIELD TOMATOES

A new variety of processing tomatoes, yielding 10% more than other kinds of tomatoes grown in Israel today, has been developed by scientists of the Hebrew University's Faculty of Agriculture in Rehovot. Some 10% of the tomato growing areas in Israel were planted with the new variety during the past season; it is assumed that in the near future it will become the most widely grown in Israel.

The development resulted from cooperation between research staff, headed by Dr. Jehoshua Rudich, of the Department

of Field and Vegetable Crop of the Faculty of Agriculture; advisors of the Ministry of Agriculture; and a research staff of the University of California at Davis, headed by Prof. Allan M. Stevens, a well-known expert who has close ties with the Hebrew University.

Five years ago, Prof. Stevens brought seeds of newly developed tomato varieties to Israel and Dr. Rudich began selecting and examining their adaptability to conditions in this country. After four years of research, he succeeded in a variety that excels in its high yield, fruit-set ability, limited plant growth and suitability for mechanical harvesting.

Field experiments have proved the efficiency of the newly developed variety suitable for industrial use. In 1977, 120,000 tons of tomatoes in Israel were processed for export. It is anticipated that the new tomato variety will bring an additional boost in this export drive.

MULTI-PURPOSE VITAMIN D DERIVATIVE

A serious complication of kidney disease, the crippling weakening of bones known as osteomalacia, is now being controlled in hundreds of patients in Israel through use of an active derivative of vitamin D. The drug has been so successful that some patients have been able to discard their crutches and walk about unaided.

The importance of standard vitamin D for the normal development of bones and teeth and the prevention of rickets in children has long been recognized. Only recently, however, has its metabolism and mode of action been resolved, leading to the development of therapies for serious bone diseases resulting from its faulty processing in the body. In kidney disease, however, the kidney's impaired ability to process vitamin D cannot be treated by standard vitamin therapy. Instead, it responds to a synthesized compound known as 1-hydroxy-D³, which is an effective substitute for the substance which normally derives in the body from the proper breakdown of vitamin D.

The substance was originally produced several years ago at the Weizmann Institute of Science and was then distributed to local and foreign hospitals for clinical evaluation. As a result of the enthusiastic reactions of physicians and patients, the Weizmann Institute, through its Yeda Research and Development Company, gave the compound's manufacturing licence to Teva Pharmaceutical Industries of Jerusalem, and the firm is now distributing the vitamin derivative commercially in Israel. The synthesis has been patented by Teva and Yeda in the U.S. and 11 other countries where it is approved for clinical testing.

The new drug has also been successfully used in parathyroid disease in which over- or under-production of the parathyroid gland's hormone disturbs the normal processing of vitamin D and similarly results in serious skeletal difficulties. An additional possible use is in the prevention of osteoporosis, the slow, chronic loss of calcium from bones which afflicts the elderly. One of the most serious hazards of old age is fracture of the hip and extremities due to bone weakness, a problem estimated to account for up to 80% of all patients in orthopaedic wards. Although there is evidence that 1-hydroxy-D³ helps to control osteoporosis, it has not yet been demonstrated that the disease is directly related to faulty vitamin D metabolism.

Apart from its proven and potential uses in human medicine, the compound has applications in the treatment of livestock as well. It has already been utilized to prevent the dangerous drop in blood calcium that often occurs in older cows after calving. Milk fever, as the sometimes fatal animal disease is known, can be treated by only on injection of the vitamin D derivative instead of the intravenous infusion of massive amounts of calcium.