



HEALTH
PHYSICS
SOCIETY

FOOD IRRADIATION

POSITION STATEMENT OF THE HEALTH PHYSICS SOCIETY*

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INTRODUCTION

Evidence is mounting that information campaigns on food irradiation are beginning to assume high profiles in the political and public sectors. Certain messages are being communicated that, for the most part, are factually incorrect. The objective of this position statement, issued by the Health Physics Society, is to correct this misinformation through information currently accepted within the scientific community.

SYNOPSIS OF THE ISSUE

In April 1986, the U.S. Food and Drug Administration (FDA) approved regulations permitting the preservation of fruits and vegetables by irradiation. The purpose of this technique is to kill insects, parasites, and some forms of bacteria and yeasts as well as to inhibit spoilage by retarding the ripening of fruits. This process is an alternative to chemical preservatives and can reduce the use of pesticides and fumigants to control insect infestation of foods. The United States is the 25th nation to endorse irradiation for a wide variety of foodstuffs. Among the countries which have issued unconditional or provisional approval for commercial irradiation of certain foodstuffs are: Belgium, Canada, China, France, Holland, Italy, Israel, Japan, and the USSR. This is not the first time that the FDA has approved the use of gamma radiation to preserve food. The process for wheat and potatoes has been approved for more than 20 years; herbs, dried spices, and processed pork were added to the list earlier in the 1980's. Consideration is currently being given to approving irradiation for poultry and fish.

The technique is quite simple. Containers of food are moved by conveyor belt into a thoroughly shielded chamber. Here high-level radioactive sources irradiate the food with a carefully controlled amount of gamma radiation. Similarly to microwaves in an oven, the gamma rays pass through the food. The food does not become radioactive, in the same way that a chest X-ray does not make the body of the patient radioactive. The gamma rays do not heat the food, which can be stored or packaged and shipped immediately. The radiation is produced by radioactivity sealed in metallic

capsules; radioactivity is not added to the food. The same technique has been used for decades to sterilize medical instruments and hospital supplies.

The World Health Organization (WHO) and the United Nations Food and Agricultural Organization have been urging the use of radiation to preserve food to reduce worldwide famine and to eliminate the need for potentially harmful chemical preservatives. Sealed, treated foods can be kept at room temperature for years. The use of radiation to extend the useful life of fresh foods has special potential usefulness for countries where refrigeration is unaffordable and grain and food losses are particularly severe. As an example in China 40% of fruit and vegetables spoil before reaching the marketplace. In addition, food irradiation offers more opportunity for tropical countries to export native fruits by retarding the ripening process.

In 1980 the International Atomic Energy Agency along with the WHO organized a panel of experts to examine the question of the acceptability and potential risks from the use of irradiated food. After examining the most current scientific studies, this panel concluded that "...the irradiation of food...introduces no special nutritional or microbiological problems...and presents no toxicological hazard." They concluded that food pasteurized or sterilized with a prescribed dose of radiation is safe for human consumption. Historically, it is interesting to note that irradiated meals were consumed on the moon by the Apollo astronauts as well as by the crew of the joint American Soviet Apollo-Soyuz space flight in 1975. American astronauts aboard the Space Shuttle have eaten irradiated beef, pork, smoked turkey and corned beef. In fact, they preferred food sterilized by radiation over all other types of preserved foods.

POLICY STATEMENT

From the examination of the issues relevant to food sterilization by irradiation the Health Physics Society concludes that:

1. Food preservation by irradiation offers great potential benefit with no radiation risk to the consumer.
2. The technical feasibility of safely preserving certain foods by irradiation is firmly established by experimental evidence and experience.
3. Federal regulatory bodies responsible for such matters are proceeding cautiously in approving new applications of this technology and are basing their approvals/disapprovals on the best scientific and technical information available.
4. Foods preserved by FDA recommended irradiation procedures do not become radioactive or toxic as a result of irradiation.
5. The application of this technology to the betterment of mankind should neither be permitted nor precluded on the basis of misinformation.

* The Health Physics Society is a non profit scientific professional organization whose mission is to promote the practice of radiation safety. Since its formation in 1956, the Society has grown to approximately 6,000 scientists, physicians, engineers, lawyers, and other professionals representing academia, industry, government, national laboratories, the department of defense, and other organizations. Society activities include encouraging research in radiation science, developing standards, and disseminating radiation safety information. Society members are involved in understanding, evaluating, and controlling the potential risks from radiation relative to the benefits. Official position statements are prepared and adopted in accordance with standard policies and procedures of the Society. The Society may be contacted at: 1313 Dolley Madison Blvd., Suite 402, McLean, VA 22101; phone: 703-790-1745; FAX: 703-790-2672; email: HPS@BurkInc.com.