Irradiated Foods Fifth Edition

By ACSH Staff — May 1, 2003

An overwhelming body of scientific data from around the world indicates that irradiated food is safe, nutritious and wholesome. Health authorities worldwide have based their approvals of food irradiation on the results of sound scientific research. When combined with proper hygienic practices in handling, processing, storage and distribution, irradiation increases the safety profile of a variety of foods.

The safety of food irradiation has been studied more extensively than that of any other food preservation process, including canning, freezing, dehydration and chemical additives. As is true of other food processes, irradiation can lead to chemical changes in food. Compounds called radiolytic products (compounds formed because of action by radiation), are formed that are similar to thermolytic products in heat treatment of foods. None of these radiolytic products, in the amounts found in irradiated foods, has been demonstrated to be toxic by any modern toxicological methods.

As of March 2003, food irradiation has been approved by more than 50 countries. This food preservation process has been applied successfully for several types of food in more than 30 countries, including such technologically advanced countries as Canada, France, Japan, The Netherlands, Belgium, South Africa and the United States.

The U.S. FDA has approved the use of irradiation for a number of foods and purposes, including antimicrobial treatments for spices and dried vegetable seasonings (1983), destroying Trichinella in pork (1985), insect disinfestations and shelf-life extension of foods of plant origin (1986), and pathogenic bacteria control in poultry meat (1990), red meat (1997),
shell eggs, and sprouting seeds (2000). The FDA is currently evaluating petitions for destroying harmful bacteria in ready-to-eat foods (e.g., deli meats) and seafood such as oysters and clams.

- Recent major food recalls have heightened awareness of the risks of food-borne pathogens and have highlighted the utility of irradiation as a sanitary treatment to ensure the microbiological safety of foods. It is increasingly accepted and applied in several countries. In the USA, irradiated ground beef was introduced into commercial channels in early 2000 following approval by the FDA in 1997 and the USDA Food Safety Inspection Service in 1999. The number of supermarkets carrying this product has increased from 84 in May 2000 to over 7,000 in March 2003.
- Any irradiated food sold as such must be labeled with a statement such as "Treated by Irradiation" or "Treated by Ionizing Radiation." The purpose of the treatment may be displayed on the label as long as it is truthful and not misleading.
- Currently, several major meat processing companies have incorporated irradiation into their processing procedures to ensure the microbiological safety of their products. A major fast food restaurant chain and some other chain restaurants are beginning to offer irradiated meat on their menus. Irradiation provides an additional layer of product safety to protect the health of consumers.
- The United States Department of Agriculture estimates that the American consumer will receive approximately $2 in benefits such as reduced spoilage and less illness for each $1 spent on food irradiation.
- In 2000, electron beam and X-ray machines were introduced into the American food processing system. Previously, only cobalt-60 irradiators had been used for food irradiation.
- When electron beam or X-ray machines are used, no radioactive isotopes are involved. When a cobalt-60 source is used, food irradiation facilities and transport of radioactive source must meet stringent federal and state regulations. Such irradiators have been in use for many years for sterilization of a number of medical devices and consumer and other products. The industry has an excellent safety record.
- A unique characteristic of irradiation as a food process is that it can be used as a sanitary treatment to ensure microbiological safety of food and as a phytosanitary treatment to prevent the introduction of exotic pests in or on fresh produce before they enter the United States. The approval by Animal Plant Health Inspection Service (APHIS) of such phytosanitary irradiation should pave the way for a wide variety of tropical and sub-tropical fruits to enter the U.S. market, and will provide consumers with a wide variety of fresh and nutritious food.
- The American Council on Science and Health supports food irradiation as a science-based technology that has been proven to be safe and effective. ACSH supports informational not warning labeling requirements for irradiated food as approved by the FDA. The use of irradiation provides American consumers with an even wider choice of safe, high-quality food.

Irradiated Foods (Fifth Edition) [2]