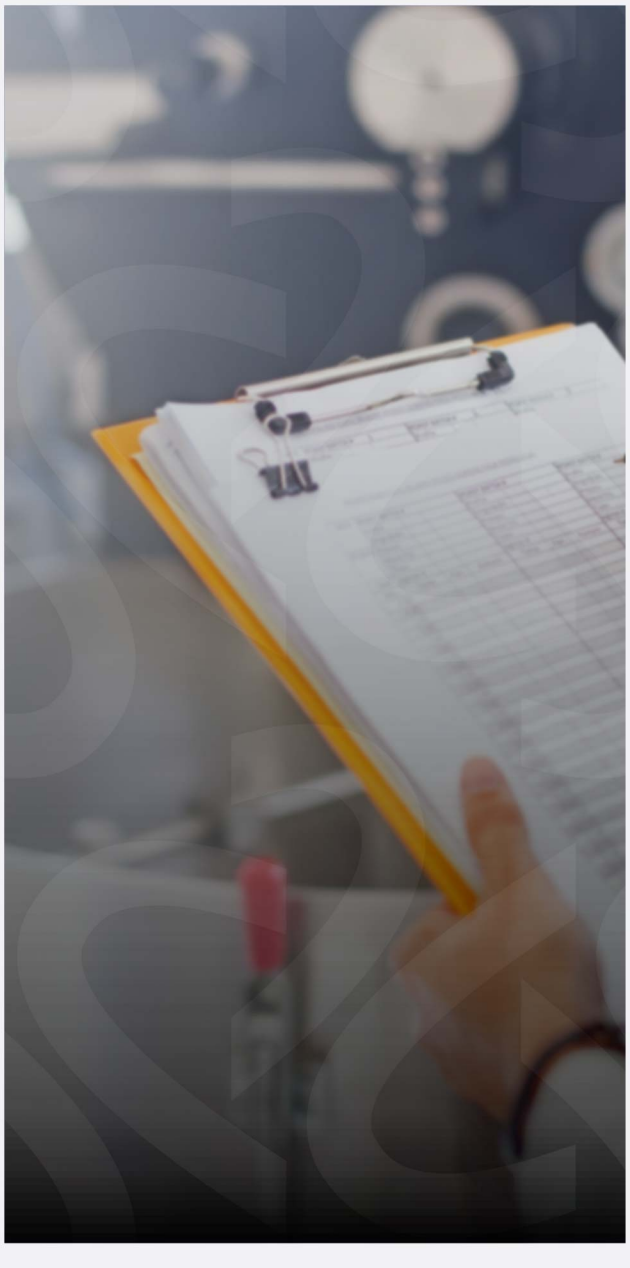
Kingdom of Saudi Arabia
Saudi Food & Drug Authority

Food Irradiation

Food irradiation is a process in which food is exposed to a certain amount of energy called “ionizing radiation.” There are three types of radiation that are allowed to be used, namely:



Gamma rays: It is produced from a radioactive substance (Cobalt-60 or Cesium-137), which produces a continuous high energy from gamma rays and has the ability to penetrate food to a deep extent.

X-rays: produced by an accelerator of electrons, and when irradiated, they have the ability to focus on small areas of food.

Electron beam: They are produced by an accelerator of electrons as well and have the ability to penetrate to a distance of 1-2 inches.

How is food irradiation carried out?

The irradiation process is carried out by passing packaged food on a conveyor belt through a chamber with thick cement walls, where each type of food is exposed to a corresponding radiation. Food is then exposed to gamma rays for a period ranging from 15 to 45 minutes, or to electron beam for some seconds. During the irradiation process, the food or ray source must be mobile to ensure that the rays have sufficiently penetrated the food. After the gamma ray irradiation process is completed, radioactive rods are immersed in an underground water pool. If the irradiation process is performed by electron beam rays, the electronic source of electricity is blocked.

What is the purpose of food irradiation?

Ionizing rays can penetrate food, and thus kill microbes without raising food temperature.

The most important objectives of irradiation are as follows:

- Preventing food poisoning by reducing or decreasing the level of harmful bacteria such as E. coli 0157: H7 in ground meat, salmonella and campylobacter in poultry, and parasites that cause foodborne diseases.
- Preventing food spoilage by eliminating bacteria, molds, yeasts, insects and parasites that cause food spoilage.
- Increasing the shelf life of a food item by slowing down the ripening or budding process in fresh fruits and vegetables.

It is possible for the food to become contaminated after the irradiation process, so food must be stored, handled and cooked well.

Is irradiated food considered safe?

Food irradiation is considered safe as confirmed by studies and research from many universities and competent bodies including the US FDA, USDA, and DOE. as Irradiation technology is endorsed by independent scientific committees in Denmark, Sweden, Britain, Canada and the World Health Organization Food irradiation is currently approved in 37 countries for more than 40 products.

Does irradiation guarantee food safety?

Food irradiation does not necessarily guarantee food safety, but it minimizes the bacterial and microbial load in the food. Appropriate storage and handling is necessary to prevent contamination of irradiated food.

What are the requirements for placing a food label on radioactive materials?

The nutritional label of irradiated food is not placed as a warning label, but is placed on the basis that it is a source of information for the consumer. So that all irradiated foods contain the global green label for irradiation in addition to the words “irradiation treated” or “radiation treated” and the trading phrase “keep it refrigerated” or “keep it frozen.”

Link to source material

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