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Food irradiation

Food irradiation is the process in which food is exposed to ionizing radiation. Ionizing radiation is a form of radiation that is strong enough to remove electrons from atoms and molecules, thereby creating ions. Ionizing radiation can be produced artificially by machines, such as electron beams and X-rays, or by radioactive decay of unstable atoms, such as cesium-137 and iodine-131. Food irradiation is used for various purposes, including killing or decreasing populations of organisms, such as bacteria, fungi, or insects, in food, or sterilizing food, and increasing the shelf life of food. Food irradiation primarily extends the shelf life of foods by killing microorganisms that cause food to spoil or become unsafe to eat. Food irradiation can also be used to inhibit the growth of plants, such as potatoes and onions, to prevent them from sprouting, and to control the ripening of fruit.

Food irradiation is a cold process that does not significantly raise the temperature of the food being irradiated, unlike other food processing methods such as cooking, pasteurization, or canning. Food irradiation is a form of radiation processing, along with other processes such as wastewater treatment, medical sterilization, and sterilization of materials for medical use. Food irradiation is a form of radiation processing, along with other processes such as wastewater treatment, medical sterilization, and sterilization of materials for medical use.

Food irradiation is permitted for use in spices, and also as an overall treatment for food in many countries. Food irradiation is also used to sterilize food for astronauts, patients with immune system deficiencies, and people who have food allergies