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Irradiated Foods

Introduction

Let us begin by answering the common question “what is irradiation?” Some people have heard of irradiation, however they do not actually know what the process of irradiating something entails. Furthermore, consumers are unaware that the food they eat may have been actually treated with the process of irradiation. By definition, food irradiation is the process of treating food with ionizing radiation that can kill bacteria in food. Some facts about irradiation are that it does not damage the food characteristics, the radiation completely penetrates the food and its packaging, and also it does not make food radioactive. The process does also not kill all bacteria, therefore it is not a replacement for other techniques of sterilization. The FDA regulates food irradiation treatment, and has declared irradiation as a food additive and not a food treatment. Regardless, food products that have been treated with irradiation must be labeled.

In 1999, the World Health Organization conducted an investigation to determine if irradiation was safe for consumers. The assessment of the research committee led by Professor R. V. Bhat (1999) concluded that there was no toxicological hazard for any food treated up to a dose of 10 kGy. Irradiated foods are a lot more common than you may think, depending on where in the world you live. For example, if you are eating meats, perishable foods, fruit, grains, vegetables, or spices you may have already consumed food that has been irradiated. This does

not mean the food has been “poisoned” or is radioactive. Rather the food has been treated safely according to strict guidelines set by the FDA.

Food irradiation is used throughout the United States, but usage varies for the rest of the world. One study found that “commercial food irradiation is increasing significantly in Asia, but decreasing in EU” (Kume 2009). The reason is that consumers are still uncomfortable with irradiated foods. There have been studies that confirm that people from other continents around the world do not even know what food irradiation is. Becoming more familiar with this technology can be really beneficial, because other studies have found that the certain chemicals they use to preserve food have worse effects compared to food irradiation.

Recent Development

A 2017 study in Brazil focused on gathering consumer data about food irradiation. The study used surveys to ask consumers of various demographics what their thoughts and opinions of what they thought irradiation was, and whether they understood the process of irradiating food. The study found that most people did not have a lot of knowledge or understanding of what food irradiation was, and they were unlikely to purchase food treated with irradiation. However, people that were young and had higher levels of education and higher incomes were likely to purchase food treated with irradiation, because they understood the process, as shown by Lima (2017). Most people that hear the word “radiation” almost immediately associate it with negative images, such as cancer. But people are unaware of the process of irradiating foods, and need to be educated on all of the facts.

A study titled “Commodities Improving Quality and Microbial Safety of Wheat Flour by Gamma Irradiation” in 2016 analyzed the benefits of irradiation on Egyptian wheat flour. The study states that “food irradiation offers potential alternatives to highly toxic fumigations such as

ethylene oxide and phosphine usually used for insect control of stored commodities” (Hammad 2016). The study also found that there were no chemical changes or changes in properties of the bread after treatment, and the post treatment comparison of irradiated bread and non-irradiated bread showed no differences in properties such as texture and flavor. The consumers benefit because no harmful chemicals are used to preserve the bread.

Conclusion

As the world of food evolves, we also have to adapt. Irradiation is a very important aspect of food preparation. People need to understand the purpose of food irradiation, and realize that it is important because it can help prevent future outbreaks of bacterial infection. Right now in the US, irradiation research is currently increasing due to growing international trade. As more food infections pop up, the more irradiation will be researched and put into use for a good cause. Microbes and bacteria are always evolving because of antibiotic resistance, but irradiation can prevent that because it does not use antibiotic chemicals. There are many different ways irradiation can be used to make certain types of foods safer. Irradiation is used on meat and poultry products to prevent bacteria like E. coli from infecting the product. Irradiation is used on vegetables and grains in order to decontaminate or disinfect insects, and other harmful contaminants. However, all foods, irradiated and non-irradiated, need to be stored properly in order to prevent contamination.

References

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