

Use of Ionising Radiation or Energy in Food Preservation

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Introduction: Food is usually uncovered to ionizing energies or ionising energy for terminating microorganisms, bacteria, viruses, or insects which the food might comprise. Further applications comprise delay of seasoning, increase of juice yield, sprout hang-up and perfection of rehydration. In certain cases, food ionising energy leads to large chemical changes. Food ionising energy is very hopeful as a new practice in enhancing food safety and quality standards by causing the demolition of pathogenic microorganisms. Ionising energy process also helps in decrease of spoilage bacteria, insects and parasites. It grew its importance as a high-quality food hygiene exercise by causing the decrease and elimination of injurious and enteric microorganisms and bacterial population. The Food and Drug Administration has agreed ionising energy as an effective food quality system for preservation and increasing packing life of meat, fresh fruits, vegetables and spices. The effects of ionising energy on the food and on animals and people eating ionised food have been studied widely for more than 40 years, shows visibly that ionising energy process is agreed for application on foods. Food ionising energy is a very effective mechanism in stoppage of many food borne diseases and intoxications. Food conservation by ionising energy technique offers consumers with good and nutritious food items having upgraded hygiene and easy obtain ability and quantity with improved storage life, ease to transport.

Effects of ionisation energy on food preservation: Ionizing energy leads to demolition and permanent damage to DNA of pathogenic creatures. As a result, they lose their

Ability to multiply and increase. Ionizing energies impart the same effect as of during heat disinfection of liquids, such as milk. Food ionising energy is viewed as cold process of conservation because this kind of handling does not cause any important rise in temperature. Temperature of ionised food product poses impact on physical changes made by exposure to radiation. Rise in temperature makes increase in passage free radicals which affect the overall rate of radiolysis. Condensed temperature cuts the creation of volatile substances in food products.

Global acceptance of ionisation energy: Nearly 40 countries all over the globe repetition food ionising energy and the process is acceptable there. The volume of food preserved is estimated to exceed 5,00,000 metric tons yearly worldwide. Food ionising energy also extends the shelf-life of food. In some foods such as herbs and spices food ionising energy help in dropping microbial count by several degree. In this way, spoilage initiating microorganisms are forever destroyed. The United Nations Food and Agricultural Organization (FAO) have agreed a motion to commit member states to instrument ionising energy knowledge for their national Phyto-sanitary plans.

Radiation absorbed dose: The quantity unit of exposure is Radiation captivated dose which is the unit of physical measure which controls the processing of food products associated to its useful effect. Many food manufacturers also express their unwillingness in this regard for the long-term destructive effects. Even preservationist activists and customers believe that eating of ionised food expose to stern long-term health hazards.

Regulation of global food ionising energy:

The Food and Drug Administration (FDA) is the leading International agency for guideline of all aspects of food ionising energy. It also highlights about use of radiations on suitable type of edible products, radiation dosing and proper labeling of radiated food products for customers. The U.S. Department of Agriculture (USDA) is accountable for the check and nursing of irradiated meat and poultry products and for the execution of FDA Principles concerning these irradiated food

products.

Scientific recommendation: Currently over 40 countries have accepted ionising energy as a process for preservation and increasing shelf life of almost 40 different foods. These contain different fruits, vegetables, spices, grains, seafood, meat and poultry. More than half a million tons of food is now irradiated during the world on a yearly basis. The annual feasting of irradiated food items is always rising.