GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYASABHA
UNSTARRED QUESTION NO. 1603
ANSWERED ON 13/03/2025

DAE TECHNOLOGIES FOR FOOD PRESERVATION

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SHRI SUBHASH BARALA

Will the PRIME MINISTER be pleased to state:-

(a) whether Department of Atomic Energy (DAE) has any technology to solve the general issue of food preservation; and

(b) if so, the details thereof particularly for preservation of agricultural produce in the country?

ANSWER

THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (DR. JITENDRA SINGH)

(a) Yes, Department of Atomic Energy (DAE) has the radiation technologies to address the general issue of food preservation. Radiation technologies are clean, eco-friendly and additive free technology for shelf-life extension of agricultural produce. Bhabha Atomic Research Centre (BARC) a constituent Unit of DAE developed radiation processing which has been approved and Gazette notified (2012) by the Government of India as per food classes.

(b) Research & Development work on the use of radiation processing for extending shelf life of agri-produce and allied food products has been extensively carried out in the Department. BARC has developed technologies for radiation processing of several agricultural commodities and food products so as to enable: (1). Disinfestation of insect & pests in stored products, (2). Disinfestation of quarantine pests in fresh produce, (3). Delay in ripening and senescence in fruits and vegetables, (4). Inhibition of sprouting in tubers, bulbs and rhizomes, (5). Destruction of microbes responsible for food spoilage, (6). Elimination of parasites and pathogens in food harmful to public health.

DAE has setup two commercial technology demonstration food irradiation facilities, one at Vashi, Navi Mumbai for preservation of spices and high dose applications and the second at Lasalgaon, Nashik, Maharashtra, for low dose applications such as preservation of onion, mango etc. Successful operation of the above two demonstration facilities resulted in number of private entrepreneurs evincing keen interest in establishing Radiation Processing facilities in the country. Currently 28 plants, based on BARC developed radiation technology are operational in various parts of the country.

Some of the food preservation technologies developed by BARC and transferred to private entrepreneurs for commercialization are listed below:

1. Shelf- life extension of hard mature mangoes var. 'Kesar' to enable export via sea-route
2. Ambient Prolonged Storable Meal for Natural Calamities and Other Targets
3. Delicious & Preservative free, Shelf Stable Natural Jamun Product
4. Shelf Stable Oil Free Potato Chips of Different Flavors
5. Long Lasting Delicious Strawberry Candy Roll (SCR)
6. Process For Long Lasting Ready- To- Eat (RTE) Intermediate Moisture (IM) Fruit Cubes
7. Safe and Prolonged Storable Legume Sprouts and Sweet Corn Kernels
8. Shelf Stable Luscious and Nutritious Chiku Fruit Bites
9. Process for Retaining Pericarp Colour and Extending Shelf Life of Litchi.

In addition, Standard Operating Procedures (SOPs) have been developed involving gamma irradiation and subsequent storage in controlled environment for shelf-life extension of onion and potatoes up to 7.5 months and 8 months respectively while retaining the quality attributes. Large-scale trials have been carried out for the same.

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