

**GOVERNMENT OF INDIA
ATOMIC ENERGY
LOK SABHA**

STARRED QUESTION NO:260
ANSWERED ON:08.03.2006
IRRADIATION TECHNOLOGY FOR FOOD PRESERVATION
Mohite Shri Subodh

Will the Minister of ATOMIC ENERGY be pleased to state:

- (a) whether the Government has formulated any strategy for use of irradiation technology for food preservation;
- (b) if so, the details thereof;
- (c) whether the Government has conducted any research to ascertain the utility to be derived from irradiation in the field of food preservation;
- (d) if so, the results thereof; and
- (e) the steps taken to augment the use of this facility in the country?

Answer

THE MINISTER OF STATE IN THE PRIME MINISTER'S OFFICE (SHRI PRITHVIRAJ CHAVAN):

(a) to (e) : A Statement is laid on the Table of the House.

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY

STATEMENT REFERRED TO IN REPLY TO LOK SABHA STARRED QUESTION NO. 260 BY SHRI SUBODH MOHITE REGARDING IRRADIATION TECHNOLOGY FOR FOOD PRESERVATION FOR ANSWER ON 8/3/2006

(a) Yes, Sir.

(b) The Bhabha Atomic Research Centre (BARC), a constituent unit of the Department of Atomic Energy (DAE) has developed the necessary technology for radiation preservation and hygienization of food and agricultural products. The major technological benefits that can be achieved by radiation processing of food at different doses include:

- # Disinfestation of stored grains, pulses and their products
- # Disinfestation of fruits and vegetables for overcoming quarantine barriers in international trade
- # Inhibition of sprouting in tubers, bulbs and rhizomes
- # Delay in ripening and senescence in fruits and vegetables
- # Destruction of microbes responsible for food spoilage
- # Elimination of parasites and pathogens of public health importance in food

In 1994 Government of India amended Prevention of Food Adulteration Act (1954) Rules and approved irradiation of onion, potato and spices. Additional items were approved in April 1998 and in May 2001 (Table. 1). In 2004 the Ministry of Agriculture has amended plant protection and quarantine regulations to include irradiation as a quarantine treatment for the export / import of agricultural commodities. On 17th February 2006, the Ministry of Agriculture, Government of India and the U. S. Department of Agriculture have signed an agreement to use irradiation as quarantine treatment for the export of mangoes from India.

Table - 1

Items of food permitted for irradiation under Indian Prevention of Food Adulteration Act (PFA) Rules

Sl.No	Name of food	Dose of irradiation (kGy)		Purpose
		Min	Max	

1	Onion	0.03	0.09	Sprout inhibition
2	Potato	0.06	0.15	Sprout inhibition
3	Shallots (small onion), garlic, ginger	0.03	0.15	Sprout inhibition
4	Rice	0.25	1.0	Insect disinfestation
5	Semolina (Sooji or Rawa), Wheat atta and Maida	0.25	1.0	Insect disinfestation
6	Pulses	0.25	1.0	Insect disinfestation
7	Dried sea-food	0.25	1.0	Insect disinfestation
8	Raisins, figs and dried dates	0.25	0.75	Insect disinfestation
9	Mango	0.25	0.75	Shelf-life extension and quarantine treatment
10	Meat and meat products including chicken	2.5	4.0	Shelf-life extension and pathogen control
11	Fresh sea-food	1.0	3.0	Shelf-life extension
12	Frozen sea-food	4.0	6.0	Microbial pathogen control
13	Spices	6.0	14.0	Microbial decontamination

(c) Yes, Sir

(d) The R&D work of the past four decades in BARC has demonstrated the efficacy of radiation processing technology in preservation and hygienization of agricultural and food commodities. DAE has also sponsored R&D in this field at various agricultural universities and research institutes to assess the utility of the technology for preservation and hygienization of local agricultural and food produce. For demonstrating the technology on a larger commercial scale, the DAE has set up two technology demonstration units for radiation processing of food and allied products. A Radiation Processing Plant at Vashi, Navi Mumbai is operating since January 2000. It is a 30-tonnes per day capacity high dose irradiation unit - capable of hygienizing spices and other dry ingredients - being operated by the Board of Radiation & Isotope Technology (BRIT), another constituent unit of DAE at Mumbai. KRUSHAK (Krushu Utpadan Sanrakshan Kendra) at Lasalgaon near Nashik, Maharashtra is a low dose irradiation facility for technology demonstration being operated by the Food Technology Division, BARC for sprout control of onion and insect disinfestation of agricultural commodities. The unit is operational since July 2003 and can process about 4-5 tonnes of onion and potato per hour. The technology demonstration has been carried out involving actual users on a large commercial scale.

(e) The department is encouraging entrepreneurs in private and co-operative sectors for setting up radiation processing facilities. A number of entrepreneurs, both in private and co-operative sectors came forward and signed MoU with the Board of Radiation & Isotope Technology (BRIT) for setting up radiation processing plants. Some of these plants are already commissioned or are in the advanced stage of construction.