



## Food Irradiation: Not all Foods can be Processed by Irradiation in Brazil.

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### 1. Introduction

Initial research using irradiated food treatment in Brazil was carried out during the 1960s, by the Center for Nuclear Energy in Agriculture (CENA), in Piracicaba, SP., Brazil [1,2,3,4].

Regarding laws, the first legislation in Brazil on the use of ionizing radiation for food preservation occurred in 1985 through decree law number 72,718 of August 29, 1973. Ordinances number 9 of March 8, 1985 and number 30, of September 25, 1989, subsequently approved by the Food Health Surveillance Division, were revoked by RCD resolution number 21 of January 26, 2001 of the National Health Surveillance Agency (ANVISA), this legislation was considered the most [1,2,3,4].

The irradiation process consists of subjecting food to exposure to ionizing radiation from sources or devices, which emit gamma rays, X-rays or electron beams. Since after processing the food by irradiation it can be consumed immediately, because the process does not leave toxic residues or make the food radioactive, it only passes energy into the food, which is completely different from food contaminated by radioisotopes [1,2,3,5].

Although the irradiation process was primarily used to sterilize medical equipment, this technology is also being used as a public health intervention measure to prevent cases of hospital infection [5].

The treatment of food with ionizing radiation is already recognized as an efficient means of reducing contamination and associated medical problems, since irradiation eliminates pathogenic protozoa in fish, poultry, shellfish and red meat, ending up also contaminating humans who eat [1,6,7]. The food irradiation process also makes it possible to inhibit the sprouting of roots, tubers and bulbs, postpone the ripening of fruits and vegetables and reduce the population of pathogenic microorganisms, increasing the shelf life of foods of plant or animal origin, also allowing commercialization of products in off-season periods or when there is a shortage of the product on the market for various reasons [1,2,4,6,8,9].

Although food radiation has been adopted by international bodies of experts on the subject, such as the World

Health Organization (WHO) and the Food and Agriculture Organization of the United Nations (FAO), some countries in Europe still do not adopt this technique. One of the problems is the lack of information about the benefits it can bring in terms of food security [1,4,6,7,8,9]. The objective of the work was to inform the public, teachers, students and researchers that not all foods can be processed by irradiation.

## 2. Methodology

It was to carry out a review of the standards and ordinances related to foods processed by irradiation that exist in Brazil. After pointing out that some users of the process of irradiation foods for young children said that, as a rule, these foods cannot be irradiated, we took the initiative to carry out a review comparing the regulations to clarify this subject [10, 11].

## 3. Results and Discussion

As we can see in Table 1, the actual legislation for food irradiation in Brazil. It is very common to find on websites and in scientific articles published in the area of food irradiation, saying that all types of food can be processed by irradiation, a statement that is in accordance with the “ANVISA” Resolution – RDC nº 21, of January 26, 2001[10]. But based on the results presented in Table 2, we can observe that this is not true, therefore we need to be very careful when we say that in Brazil it is now possible to irradiate any type of food, this is because contradicts what appears in Ordinance number 34 of January 13, 1998 [11].

Table I: Legislation for food irradiation in Brazil (2001).

Code/Name	Summary	Observations
ANVISA Resolution – RDC nº 21, of January 26, 2001	Technical regulation for food irradiation.	Any food may be treated by irradiation as long as the following conditions are observed: <ul style="list-style-type: none"> <li>- the minimum absorbed dose must be sufficient to achieve the intended purpose;</li> <li>- the maximum absorbed dose must be lower than that which would compromise the functional properties and/or sensory attributes of the food.</li> </ul>

Table II: Legislation for transitional foods for infants and young children (1998).

Code/Name	Summary	Observations
Ordinance no. 34, of January 13, 1998	Establishes general standards for transitional foods for infants and young children.	<i>Specific Prohibition</i> Transitional foods for infants and/or young children cannot be irradiated.

#### 4. Conclusions

Therefore, according to the results, we concluded that some measure should be taken by the National Health Surveillance Agency (ANVISA). In order to resolve this contradiction in Resolution - RDC nº 21, of January 26, 2001, that is, include in this resolution an addendum informing that with the exception of Transition Foods for Infants and/or Young Children, other foods can be processed by irradiation.

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