PRIMARY STANDARDIZATION OF AIR KERMA FOR ^{60}CO: A SYSTEM FOR IMPROVING THE TEMPERATURE CORRECTION

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Temperature is one of the main quantities of influence for the standardization of the quantity air kerma for ^{60}Co. Even controlling the laboratory environmental conditions, small variations in temperature occur and must be corrected. This correction is performed measuring the room temperature and applying a correction factor. This is enough for secondary standardization but not for primary. The main reason is that the temperature inside the chamber is not varying in the same way as the room temperature. This is mainly due to the build up cup that introduces a thick material that is not a good heat conductor. A temperature sensor was installed in a dummy chamber and the results compared to the temperature measured with the same sensor in the air. The data were acquired with an automated system running a specially designed LABView program. The results showed that this procedure could be used for correcting the temperature at least 50% better leading to decreasing approximately 0.02% the experimental dispersion.

CURRENT METHODS FOR DETECTION OF IRRADIATED FOODS

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Extensive studies on the safety and wholesomeness of irradiated food products have demonstrated the safety of the food produced. Like any other food processing technique the process must be used properly. Although in principle, the administrative control supported by international agreements provides a reliable method of controlling irradiated foods, analysis of the food itself to determine whether it has been irradiated or not may be desirable. Irradiation of various foods is increasingly being used internationally. United States of America are at present the leader in the development and application of radiation technology on foods as a mean of reducing pathogenic microorganisms and organisms which cause food spoilage, increasing in that way, the quality of food and extending the shelf-life and also as quarantine control as a substitute for the used of post harvest pesticides. The European Union (EU), on the other hand, has been presented several restrictions to that application. They consider that before an extensive application of irradiation on food, it is necessary to have methods to discriminate between irradiated and non-irradiated products. In December 1996, the EU had approved as European Norms five methods for the detection of irradiated foods. They are based on: gas chromatography of food containing lipids, gas chromatography/mass spectrometry of foods containing lipids, electron paramagnetic resonance of food containing bones, electron paramagnetic resonance of food containing cellulose and thermoluminescence of food containing silicates. Other methods that are still been studied are based on: electron paramagnetic resonance of food containing crystalline sugars, detection by photo stimulated luminescence, the DNA comet assay, the screening using the detection by the epifluorescent filter technique/aerobic plate counts (DEFT/APC) and the microbiological *Limulus amoebocyte* lysate comparison with the number of Gram negative bacteria (LAL/GNB) screening. In Brazil, research on detection of irradiated food started at the IPEN in the last decade. Concomitantly, several initiatives are been taken to spread the application of this technology in the country. Commercial scale irradiators are being installed and others are being planned for different sites and different purposes. In January 2001, following international recommendations, the Ministry of Health approved the use of irradiation as a treatment that can be apply on food without maximum dose limits.