

EVALUATION OF IDENTIFICATION METHODS OF IRRADIATED SPICES AND DEHYDRATED VEGETABLES IN BRAZIL

Dulcila Maria Lessa BERNARDES & Nélida Lúcia DEL MASTRO

Department of Nuclear Techniques Applications
Institute of Nuclear and Energy Researches - IPEN-CNEN/SP
São Paulo, SP, Brazil

This paper deals with the use of analytical methods to determine whether imported or for export Brazilian spices and dehydrated vegetables were irradiated. Viscosimetry, thermoluminescence (TL) and electron spin resonance (ESR) were used for the identification of some irradiated products: black pepper, white pepper, cinnamon, nutmeg, garlic, cumin, oregano, celery, paprika and coriander. Viscosimetry was performed in suspensions of irradiated spices and dehydrated vegetables which had been gellified by heat. Thermoluminescence (TL) is based on the transference of electrons to an excited state by radiation with emission of light when the electrons are thermally stimulated. The thermoluminescent signal of spices can be explained by the presence of mineral grains adhering on the surface of the samples. Free radicals produced by irradiation of spices were analyzed by electron spin resonance (EPR) signals. The results of this study lead to the conclusion that viscosimetry, thermoluminescence and electron spin resonance are analytical methods that can be use to detect whether spices and dehydrated vegetables were irradiated, specially when a combination of different methods was used.

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