

SCREENING OF THE IRRADIATED SPICES BY USING DEFT/APC METHOD

H.B.D. Halkman^{*}, P.K. Yücel, T. Köseoğlu, N. Yazıcı

TAEA, Sarayköy Nuclear Research and Training Center,
Ankara, Turkey

Food irradiation is an effective decontamination method to retain the safety and the quality of food by the reduction and the elimination of the spoilage and the pathogenic microorganisms. Irradiation of spices is currently the most suitable application among the decontamination methods since their aromatic quality is well maintained after the irradiation treatment. Detection methods are necessary to control irradiated food properly, and also ensure the consumer's choice and the acceptance of the irradiated food. The DEFT/APC method has been accepted as a screening method for the detection of irradiated spices by European Union. This method is based on using of the direct epifluorescent filter technique (DEFT) and the conventional aerobic plate count (APC). In this study, to detect the DEFT/APC counts for the irradiated and heat treated samples, the cocktail of the lyophilized *Bacillus* spp., *Lactobacillus* spp. and *E. coli* was inoculated to the non-irradiated black pepper samples and then the samples were irradiated at 10 kGy at the commercial irradiation facility in Turkey. After the irradiation treatment, the samples were analyzed according to EN13783. The log DEFT/APC counts were determined as 0.80; 6.36; 5.98 for the non-treated, the irradiated and the heat treated samples, respectively. At the last step of this study, total of 61 spices and herbs samples were purchased from the local markets and were analyzed according to EN13783.

Keywords: Detection, irradiation, food

* Corresponding author: hilal.halkman@taek.gov.tr