

**A retrospective dosimetry method based on luminescence measurements of food seasonings**

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Nowadays, due to the socio-political events of the last decade, the problem of how to administrate an emergency caused by a radiological accident or a radiation casualty event is considered of crucial importance by the international scientific community. One of the important activities which have to be accomplished immediately after the occurrence of a radiological accident or attack is the evaluation of doses absorbed by the individuals not carrying physical dosimeters, in order to carry out a triage of the population and to minimize the harmful or lethal effects of radiations. In a following phase of the management operations the environmental dose assessment has to be done in order to get a classification of the level of exposure of different areas and to obtain a confirmation, with the support of numerical calculation models, of the doses absorbed by the population. An estimation of the dose absorbed by common use objects (like bricks and tiles) and biological tissues (such as cut fingernails) collected from areas and individuals may be performed through the identification of radio-induced defects with physical techniques (EPR and stimulated luminescence). A long time experience in food irradiation detection field has shown that herbs and spices contain mineral contaminants with high luminescent sensitivity at high absorbed doses (some kGy). Moreover, different types of natural salt are known to have good luminescence properties. The high availability of these aliments makes them very good candidates to be used as "emergency" environmental dosimeters. The following aspects have been investigated: -the possibility of using photo-stimulated luminescence (PSL) on herbs, spice and salt samples as a screening technique for a qualitative identification of the occurred accidental exposure to the low doses involved in a radiological accident or attack (order of some gray); -the thermoluminescence (TL) signal properties of different kind of salt samples exposed to low doses (0.5-2 Gy); -the characterization of the dosimetric TL properties of mineral debris extracted from a particular kind of herb, the Jamaica Mexican Flower, focusing in particular on its TL signal sensitivity and stability. The performed measurements have provided encouraging results in view of the utilization of salt, herbs and spices as retrospective dosimeters. In particular, the PSL technique on some of the examined samples seems to be suitable for a qualitative low dose exposure estimation, while TL measurements allow also a quantitative estimation of the absorbed dose. A survey of the main results will be presented.