

## عنوان مقاله:

Estimation and Measurement of Radiation contamination in the Thyroid

## محل انتشار:

کنگره بین المللی علوم و مهندسی (سال: 1396)

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## خلاصه مقاله:

After a radiological radiation despite the fact that whole-body counter is a special apparatus especially to measure total body radiation, there is not enough time to transfer injured people to the centers equipped with this device. This project discusses about the possibility of measuring radioactivity caused by the breathing of individuals at the time of incident by hand-held spectrograph. Experiments and measurements have been carried out by a gamma-ray spectrograph and a thyroid phantom and a  $^{131}\text{I}$  hotbed. It should be noted that background radiation plays an important role in the outcome of the final result in all stages of testing and measurements which its effects will be examined separately. In the end, an instruction will be prepared for calibration of handheld gamma spectrometers with regard to extracting parameters affecting the efficiency and minimum detectable activity and its measures will be developed for provision and deployment in nuclear disaster management centers in the country. The absolute return of detector was measured for Phantom thyroid containing  $^{131}\text{I}$  in the range between 0.1 and 0.03 in terms of distances up to 15 cm. in this research the amount of LLD was obtained to be equal to Bq128 which was in line with the results of Sumber group (equal to 142 Bq). We also practically showed that this device is capable of identification and estimation of  $^{131}\text{I}$ - activity inside thyroid phantom in values near Bq250. This device has the required practical capability to classify internal contamination of patients and it is very useful in this respect for programs of internal contamination estimation in radiological accidents which may occur in nuclear medicine centers and the nuclear industry.

## کلمات کلیدی:

calibration, handheld gamma spectrometer, thyroid, spectrometry

## لینک ثابت مقاله در پایگاه سیویلیکا:

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