

## عنوان مقاله:

A Quantitative Assessment of Indoor Radon Level and Its Annual Effective Dose in Buildings of Gachin Rural District in Hormozgan Province, Iran

## محل انتشار:

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## خلاصه مقاله:

**Introduction:** Measurement of indoor radon concentration and its determining factors is crucial for improving public health and developing proper methods that can reduce indoor radon concentrations. This study aimed to measure the indoor radon concentration and to examine its variations in relation to variables, such as the construction materials, ventilation, and age of buildings. **Material and Methods:** Indoor radon concentrations were measured using solid-state nuclear track detectors (SSNTDs) during winter. Each detector was mounted ۵۰-۹۰ cm above the surface flooring of bedrooms and living rooms. After three months of exposure, the detectors were collected and transferred to a laboratory. They were then etched in ۶.۲۵ N NaOH solution in a bath at a constant temperature of ۹۰°C for ۲۴۰ minutes. Next, the detectors were washed with distilled water and dried. The alpha particle tracks were counted using an automatic alpha track counting system. **Results:** The mean radon concentration was ۵۳.۲۰ Bq/m<sup>۳</sup>, and ۹۴% of the samples had a radon concentration ۳, which is the action level proposed by the World Health Organization (WHO). The annual effective dose varied from ۰.۲۵ mSvy<sup>-۱</sup> to ۳.۰۵ mSvy<sup>-۱</sup>, with a mean dose of ۰.۹۱ mSvy<sup>-۱</sup>. The results showed that the type of constructed materials and ventilation influence the indoor radon concentration in winter. **Conclusion:** The annual effective dose in the study area was below the global average of ۱.۱۵ mSvy<sup>-۱</sup>. Therefore, local residents must be informed about the health risks of high radon concentrations and understand the role of improved ventilation in reducing the indoor radon levels.

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