

## عنوان مقاله:

Blood Samples of Cancerous Patients as Biomarkers of Alpha Emitters

## محل انتشار:

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## خلاصه مقاله:

Introduction: Radioactive contamination by uranium and its emissions, such as alpha particles, is considered one of the most critical issues affecting the human race and its existence. The study investigated the high ionization capacity number of alpha particles in whole blood samples from cancer patients because these particles have the most significant impact on the shape and function of living cells, modifying them into malignancies. Material and Methods: The TASLImage solid nuclear trace detector CR-۳۹ was used to measure the effects of alpha emitters in the whole blood samples from ۴۰ cancer patients for five types of cancer (breast, uterus, prostate, kidney, and colon) collected from a government hospital at Karbala/Iraq and compared with ten healthy samples. Moreover, the research investigated whether smoking and gender variation affect the outcomes. Results: The radon concentration in whole blood samples from patients and healthy individuals was significantly different ( $p < 0.05$ ), and it was slightly higher in males with ( $۲۲.۸۲۲۵۴ \pm ۷.۳۸۷۹۴$  Bq/m<sup>۳</sup>). Women with colon cancer had higher blood levels of radon ( $۳۲.۱۳۷۸۷ \pm ۵.۷۹۲۶۱$  Bq/m<sup>۳</sup>) than men with the same malignancy ( $۱۸.۸۰۵۳۱ \pm ۵.۶۳۷۴۷$  Bq/m<sup>۳</sup>), regardless of gender. While the age factor had no noticeable impact, the smoking element had a considerable effect ( $p < 0.05$ ). Conclusion: All alpha levels were within the (ICRP) usual ranges. Women with colon cancer had the most significant alpha values. In contrast, men with the same disease had the lowest values despite cancer patients' blood levels being higher than those of the healthy group.

## کلمات کلیدی:

Alpha Particles, Whole blood, Effective Dose, Radon

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