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Measurement of Mass and Linear Attenuation Coefficients of Gamma-Rays of Elastin protein for 0.122-1.330 MeV Photons

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ABSTRACT

Photon attenuation coefficients methods have been used accurately for the study of the properties of biological sample such as Elastin protein. In this study mass and linear attenuation coefficients of gamma-rays of Elastin protein for 0.122, 0.356, 0.511, 0.662, 1.170, 1.275 and 1.330 MeV photons are determined by using NaI (Tl) scintillation detector. The radioactive sources used in the experiment were Co^{57}, Ba^{133}, Na^{22}, Cs^{137} and Co^{60}. Mass (μ/ρ) and linear attenuation coefficients (μ) of Elastin protein have been measured using the well-type scintillation spectrometer. Measurements have been made to determine gamma ray attenuation coefficients very accurately by using a narrow-collimated-beam method which effectively excluded corrections due to small-angle and multiple scattering of photons. The values of μ and μ/ρ thus obtained are found to be in good agreement with the theory.

Keywords: Linear Attenuation Coefficients, Mass Attenuation Coefficients, Elastin protein.