



## **Measurement of Mass and Linear Attenuation Coefficients of Gamma-Rays of Alanine for 0.662, 1.170, 1.280 and 1.330 Mev Photons**

**Pravina P. Pawar, Govind K. Bichile**

Department of Physics, Dr. Babasaheb Ambedkar Marathwada University,  
Aurangabad: 431 004. India

E-mail: [pravina.pawar@yahoo.com](mailto:pravina.pawar@yahoo.com)

---

### **ABSTRACT**

*Gamma –ray transmission methods have been used accurately for the study of the properties of biological sample such as alanine. In this study mass and linear attenuation coefficients of gamma-rays of Alanine for 0.662, 1.170, 1.280 and 1.330 MeV photons are determined by using NaI (Tl) scintillation detector. The radioactive sources used in the experiment were  $Cs^{137}$ ,  $Co^{60}$  and  $Na^{22}$ . Mass ( $\mu/\rho$ ) and linear attenuation coefficients ( $\mu$ ) of alanine for 0.662, 1.170, 1.280 and 1.330 MeV gamma-rays photons 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  $\mu$  and  $\mu/\rho$  thus obtained are found to be in good agreement with the theory.*

**Keywords:** Mass attenuation coefficients, Linear attenuation coefficients, Gamma rays, Alanine.

---