## Abstract

The radioactivity levels of rocks sampled from the quarries of Kyasioni, Mavoloni and Kathaana located in the lower Eastern County of Machakos in Kenya were determined. Forty-two samples were collected using stratified random sampling and analysed using NaI(TI) detector with a specially designed lead shield. The parametric values of activity concentration, absorbed dose, annual dose rate and hazard indices were estimated using activity–dose relations suggested in UNSCEAR and ICRP reports. The mean activity concentration for the entire work for 238U (226Ra), 232Th and 40K were 68.33 ± 3.11, 101.10 ± 1.83 and 1084.02 ± 30.28 Bq/kg, respectively. Kyasioni quarry presented the highest activity concentration of 74.75 ± 3.15, 118.48 ± 1.91 and 1120.35 ± 30.07 Bq/kg for 226Ra, 232Th and 40K, respectively. The average annual effective dose was estimated as 0.58 ± 0.01, 0.47 ± 0.01 and 0.52 ± 0.01 mSv/y for Kyasioni, Kathaana and Mavoloni quarries, respectively. Other radiological parameters estimated from the corresponding activities were within the recommended limits hence guaranteeing safety to the users.