GAMMA-RAY ACTIVITY CONCENTRATIONS, DOSE RATE AND HAZARD INDEX DETERMINATION OF NATURAL RADIOACTIVITY IN MALAYSIA'S SELECTED TOURISM BEACH SANDS

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ABSTRACT

Gamma-Ray Activity Concentrations, Dose Rate and Hazard Index Determination Of Natural Radioactivity In Selected Malaysia's Tourism Beach Sands

Natural occurring radioactive element materials (NORM) is a source of continuous exposure to human. NORM can be found in rocks, soil and sand. Gamma radiation is emitted from radioactive elements such as in sands. Malaysia was known as a tropical country, which is, consists of interesting attraction such as island and beaches. The objective for this study is to measure activity concentrations radionuclides Ra-226, Th-232, K-40, hazard index and dose rate in sands samples collected from several state in peninsular Malaysia. Activity concentrations were measured by gamma ray spectrometry. The average value for concentrations of Ra-226 (Uranium series), Th-232, and K-40 were found in range 14.22 Bq kg^{-1}, 8.23 Bq kg^{-1}, 70.30 Bq kg^{-1} respectively. The average for dose rates is 14.47 $nGy.h^{-1}$ and annual effective dose is 0.02 (mSv/y). Then external hazard index for this studied, were found in normal range from 0.03 to 0.22.