

**SURFACE RADIATION DOSE MEASUREMENT AND  
RADIONUCLIDES CONTENT IN SOIL AT KAMPUNG GAJAH,  
PERAK**

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This Final Year Project report entitled “**Surface radiation dose measurement and radionuclides content in soil at Kampung Gajah, Perak**” was submitted by Ahmad Hanis bin Abdul Latif, in partial fulfilment of the Requirement for the Degree of Bachelor of Science (Hons.) Applied Chemistry in the Faculty of Applied Science, and was approved by:-



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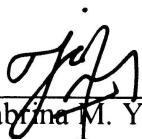
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## ABSTRACT

A study was carried out to determine the surface radiation dose rates and radionuclides contents in soil at Kampung Gajah, Perak. Kampung Gajah area once is a former tin-mining area. Firstly the specific points were determined by using GPS. The surface radiation dose measurement was done in-situ by using survey meter at surface and 1 meter above surface. Then soil samples were taken at various locations to determine activity concentration of radionuclides which are  $^{236}\text{U}$ ,  $^{232}\text{Th}$  and  $^{40}\text{K}$ . The samples were dried and grind before sealed in plastic container by. The 400g of weighed sample was left for at least four weeks before measuring activity concentration of radionuclides. Determination of activity concentration was done by using gamma spectrometer with HPGe detector in laboratory. The surface radiation dose measured at surface and 1meter above surface in ranged 0.13 to 0.31 and 0.12 to 0.29  $\mu\text{Sv/hr}$  respectively. The mean activity concentration of  $^{236}\text{U}$ ,  $^{232}\text{Th}$  and  $^{40}\text{K}$  are 164.69, 204.77 and 558.86 Bq/kg respectively. The air absorbed dose rate, radium equivalent, external hazard index and annual effective dose are in range of 153.94 to 1199.11nGy/hr, 251.39 to 2414.51 Bq/kg, 0.67 to 6.52, and 0.18 to 1.47mSv/yr respectively. Based on the values measured, the area is considered give hazard since the level of radiation is higher than permissible range.