

**DETERMINATION OF RADON-222 CONCENTRATION AND
EMANATION RATE IN SOIL AT UITM JENGA, PAHANG USING
SOLID STATE NUCLEAR TRACK DETECTOR (SSNTD)**

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ABSTRACT

DETERMINATION OF RADON-222 CONCENTRATION AND EMANATION RATE IN SOIL AT UiTM JENGA, PAHANG USING SOLID STATE NUCLEAR TRACK DETECTOR (SSNTD)

The aim of this study was to determine the domestic outdoor radon-222 concentration and emanation rate in soil at UiTM Jengka and to map radiation rate distribution of radon-222 in UiTM Jengka. This analysis conducted by using CR-39 as SSNTD. Radon gas that emits alpha radiation with high ionization will give some track (dots). From those dots it could be determine the concentration of radon-222 and emanation rate of radon-222 by using some formula related. The CR-39 were placed in a container and planted in certain 24 places in UiTM Jengka that by using mapping technique. The CR-39 were planted in a month and harvested. After that, the CR-39 was etched to ensure that the dots become more visible so that it could be easily counted. Average dots were taken from that we determine the concentration and emanation rate of radon-222. Since that, radon-222 emits alpha particle that could harm our body and effect human health. Since at UiTM Jengka, there is no research conducted, from this research, department of health in Malaysia could get some information about radiation. The concentration of radon-222 in UiTM Jengka are vary from 17.40 ± 4.4 to 200.73 ± 18 Bq/m³ with the average of 67.71 ± 10.27 Bq/m³. The emanation rate of radon-222 in UiTM Jengka varies from 4.647 ± 0.416 to 0.403 ± 0.102 Bqm⁻²day⁻¹ with average 1.56 ± 0.238 Bqm⁻²day⁻¹. Then the isodose map was generated using Surfur 14 software. UiTM Jengka gives low reading and below the action limit but there are certain places that at more than the action limit that need to add some precaution actions. Thus UiTM Jengka is not in any radiological risk.

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