

**DETERMINATION OF ACTIVITY CONCENTRATION OF RADON-222 BY
USING ITS DAUGHTER PROGENY PLUMBUM-214 AND BISMUTH-214 AND
POTASSIUM-40 FROM *CAMERON HIGHLAND* BY USING GAMMA
SPECTROMETRY**

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**Final Year Project Report Submitted in
Partial Fulfilment of the Requirements for the
Degree of Bachelor of Science (Hons.) Applied Chemistry
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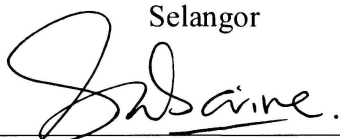
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This Final Year Project Report entitled “**Determination Of Activity Concentration Of Radon-222 By Using Its Daughter Progeny Plumbum-214 And Bismuth-214 And Potassium-40 In Water from *Cameron Highland* By Using Gamma Spectrometry**” was submitted by Che Yasmin Binti Amirudin, in partial fulfillment of the requirements for the degree of Bachelor of Science(Hons.) Applied Chemistry, in the Faculty of Applied Sciences, and was approved by



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ABSTRACT

DETERMINATION OF ACTIVITY CONCENTRATION OF RADON-222 BY USING ITS DAUGHTER PROGENY PLUMBUM-214 AND BISMUTH-214 DAN POTASSIUM-40 IN WATER FROM CAMERON HIGHLAND BY USING GAMMA SPECTROMETER.

This thesis present the result of investigation of the water samples from “Empangan Sultan Abu Bakar”, Ringlet, Cameron Highland, Pahang. The instrument used for count this samples was low background gamma ray spectrometer. It is applied to determine the activity concentration of radon-222 in the water samples. Through this method the water samples will be count with only germanium (Ge) detector using the gamma- ray spectrometer from the radon-222 daughter nuclides plumbum-214 and bismuth-214. Water sample collected are separated into filtered and unfiltered then directly pour into Marinelli beaker and sealed and stored for at least 3 week to reach radon-222 equilibrium before counting. The radon-222 activity concentration derived from γ -ray lines associated with plumbum-214 and bismuth-214 decay. However, the radon-222 activity concentration has not be measured directly but calculated from the assumption that, radon-222 is in transient equilibrium with its daughter plumbum-214 and bismuth-214 or by other criteria. In this study, the activity concentration of radon-222 is higher at location downstream for unfiltered which is 7.00 ± 1.31 Bq/L at wet season and location five which is 6.18 ± 1.34 Bq/L for filtered water samples also in wet season. While the lowest activity concentration of radon-222 investigated at location one which is 2.82 ± 1.42 Bq/L for filtered and 4.69 ± 1.38 Bq/L unfiltered sample which are both in dry season.