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**SUBMISSION FOR EVALUATION
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FORMULATION OF NATURAL PESTICIDES FROM CORIANDER
(*Coriandrum sativum*) PLANTS AGAINST GOLDEN APPLE SNAIL
(*Pomacea canaliculata*) IN RICE PADDY FIELD (*Oryza sativa*) TOWARDS
KILLING AND REPELLENCY

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This Final Year Project entitled “**Formulation Of Natural Pesticides From Coriander (*Coriandrum sativum*) Plants Against Golden Apple Snail (*Pomacea canaliculata*) In Rice Paddy Field (*Oryza sativa*) Towards Killing And Repellency**” was submitted by Muhammad Syahrulnizam Daniel Bin Jafely in partial fulfilment 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

FORMULATION OF NATURAL PESTICIDES FROM CORIANDER (*Coriandrum sativum*) PLANTS AGAINST GOLDEN APPLE SNAIL (*Pomacea canaliculata*) IN RICE PADDY FIELD (*Oryza sativa*) TOWARDS KILLING AND REPELLENCY

The Golden Apple Snail (*Pomacea canaliculata*) was discovered to be a significant invasive pest that posed a threat to Malaysian rice farming, especially in important rice-producing regions such as Kedah and Perlis. Due to the snail's high flexibility and ability for reproduction, the widespread usage of chemical pesticides has raised health and environmental concerns and demonstrated reduced efficiency. In order to control *Pomacea canaliculata* through killing and repellent effects, this research was performed to develop and evaluate a natural and sustainable pesticide made from coriander (*Coriandrum sativum*) essential oil. The objectives of this research were to determine which part of the coriander plant (the leaf or the stem) produced a higher amount of essential oil, identify the active compounds that were responsible for the repellency activity, and evaluate the effectiveness of the prepared *Coriandrum sativum* essential oil against *Pomacea canaliculata* under carefully monitored experimental conditions. Distillation methods were used to extract essential oils from coriander leaves and stems, and gas chromatography–mass spectrometry (GC–MS) was used to analyze the oils' chemical composition. At various concentrations of the prepared essential oil, repellency biological analysis was carried out in laboratory conditions under careful supervision. Based on the findings, coriander leaves yielded much more essential oil than stems. The presence of important bioactive compounds associated with repellent activity has been proven by GC-MS analysis. The repellency test showed that higher concentrations of essential oils had stronger effects on *Pomacea canaliculata*, that clearly showed a respond that depends on the concentration. The findings indicated that *Coriandrum sativum* essential oil, particularly when obtained from the leaf, showed significant potential as a sustainable, biodegradable, and eco-friendly natural pesticide for the management of Golden Apple Snails. This study improved sustainable pest management strategies in rice cultivation and promoted the usage of coriander-based formulations as alternatives to chemical pesticides.

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