

UNIVERSITI TEKNOLOGI MARA

**EVALUATION OF *Carica papaya* AND
Peltophorum pterocarpum LEAF
EXTRACTS AS POTENTIAL
BOTANICAL PESTICIDES FOR
CONTROLLING GOLDEN APPLE
SNAIL, *Pomacea canaliculata***

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ABSTRACT

Golden apple snail (GAS), *Pomacea canaliculata* is one of the major pests of paddy that cause detrimental effects on the production of rice. It is widely known for its voracious feeding behavior which resulted in severe damage to the paddy. Chemical pesticides had been widely used to control this pest. However, the chemical pesticides produce harmful effects to human health and environment, as well as non-targeted organisms. Botanical pesticides had been studied as an alternative control to replace the use of chemical pesticides. This study was conducted to evaluate the molluscicidal and feeding deterrent activities of *Carica papaya* and *Peltophorum pterocarpum* leaf extracts to control the GAS under field condition and to determine the effects of *C. papaya* and *P. pterocarpum* leaves extracts in relationship with water quality of the paddy field by studying the pH water, water conductivity, and total dissolved solid of the paddy water. The plants were extracted by using Soxhlet extraction and simple maceration with methanol solvent and were then tested for their toxicity effects and feeding deterrence activity in paddy field. Bioassay test and probit analysis were conducted to evaluate the molluscicidal activity of the plant extracts, whereas feeding deterrence index (FDI) was used to evaluate the feeding deterrence activity of the plant extracts in controlling the GAS population under field condition. Furthermore, water sample from experimental plot was tested for pH, water conductivity, and total dissolved solid (TDS) concentration. The result from the bioassay test showed that *P. pterocarpum* leaf extracted using Soxhlet extraction produced the highest percentage mortality ($98.33\% \pm 0.05$) as compared to *C. papaya* leaf ($57.78\% \pm 0.23$). LT_{50} from probit analysis also revealed the lowest value at 20.43 hours. The FDI of *P. pterocarpum* leaf extracted using Soxhlet extracted indicated the highest percentage at 83.27% compared to *C. papaya* leaf ($48.21\% \pm 0.11$). Water quality test showed that the plant extracts did not cause any significant effects on the water quality of paddy water. Thus, the results suggested that *P. pterocarpum* leaf extracted using Soxhlet extraction has potent toxicity effects to be used as botanical pesticide for controlling GAS. However, further study on the water quality and phytochemical analysis are highly recommended if the leaf extracts are to be used for new formulation.

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