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Glasshouse Evaluation on the Efficacy of *Bacillus thuringiensis* (Bt) Against Bagworm, *Metisa plana* and Non-target Effect on Oil Palm Pollinator, *Elaeidobius kamerunicus* (Faust)

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*Evaluations on the performance of selected bioinsecticides and recommended chemical insecticides to suppress the bagworm, *Metisa plana* (Walker) infesting oil palm, were carried out in a glasshouse environment. The results showed that a series of biological products using *Bacillus thuringiensis* (Bt) is effective in killing 80 per cent of bagworm larvae within 7 to 15 days after application (DAA). Among the biological products, the Bt1 product showed the highest efficacy, killing 99.72 per cent of the bagworm population at 7 DAA. Although slow in reacting, Bt products were highly toxic to the adults, and less effective on the emergence of pollinator weevil, *Elaeidobius kamerunicus* (Faust). The chemical insecticide, cypermethrin was the most effective compared to all other treatments ($p < 0.05$), killing 100 per cent of the bagworm larvae in only 3 DAA. All non-Bt based insecticides, including cypermethrin, were toxic to both adults and emergence of the weevils. There was no significant difference in the number of adult emergence between the non-treated (control) and Bt-insecticides, but significantly was lower when treated with other insecticides ($F = 93.75$ $p < 0.05$). Based on its high performance, the biopesticide Bt1 product has a higher potential to be tested in the field for integrated leaf-eating caterpillar management programme. To ensure consistency in their efficacy, these bio-insecticides need further evaluation in large-scale trials, especially in oil palm fields infested with bagworms in epidemic proportions.*

Keywords: Bagworms, *Bacillus thuringiensis*, non-target effect, pollinator, oil palm.