

**Identification of bioactive compounds produced by bacteria-based biopesticides, *Bacillus thuringiensis* ATCC 10792 produced in shrimp pond sludge**

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Biological controls of destructive pest in forest and agriculture sector using bacteria were proven to minimize the problems caused by the usage of chemical insecticides. However, their application is limited due to high production cost through fermentation. In this study, shrimp pond sludge and wastewater were used as an alternate culture medium for bacteria-based biopesticides production. It has been determined by previous part of this study that *Bacillus thuringiensis* ATCC 10792 in hydrolysed shrimp pond has showed the highest potential to be used as bacteria-based biopesticides based on their high growth rate ( $7.44 \times 10^6 \pm 5.16$  CFU/ml) and sporulation ( $5.90 \times 10^6 \pm 7.88$  CFU/ml). Bioassay of entomotoxicity also showed high mortality rate, disruption on the target insect physically and affect the life cycle of the target insect. Hence, proteomic analysis using SDS-Page and MALDITOF-MS were conducted to identify the bioactive compound that contribute to the toxicity of the bacteria-based biopesticides produced. Separation and identification of the bioactive components produced by the bacteria during the fermentation were done and two types of protein were produced by the bacteria. Superoxide dismutase and spore coat protein were identified to be produced during the fermentation and respectively play an important roles to the toxicity of the bacteria. This study showed the potential of *Bt* ATCC10792 to be used as biopesticides.

**Keywords:** Toxin, SDS-Page, MALDITOF-MS, protein