



A Study on A Local *Bacillus thuringiensis* SP7 To Control Mosquito Larvae of *Aedes aegypti*

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Abstract: *Bacillus thuringiensis*(Bt) is a gram-positive bacteria, spore-forming, and producing crystal proteins used as bioinsecticides. The purpose of the study was to know potential of local isolates of Bt in controlling mosquito larva of *Aedes aegypti*. Isolation of Bt was conducted from soil samples of Tongkoh Forest, Brastagi, North Sumatra, Indonesia. Bt spore and crystal protein were observed using compound light microscope and further using scanning electron microscope. Two suspected isolates were chosen based on their morphological and biochemical characteristics. Further identification was done using their 16S rRNA gene. To know Bt growth pattern in inexpensive C and N-source, Bt isolate was grown in culture media with molasses and urea as C and N sources. To assay on Bt isolate to control mosquito, larva instar 3 of mosquito were put in 50 ml of test media of concentration of 10, 20, 30, 40, and 50% of Bt culture in plastic cup. Observation was done after 24 hrs. Two isolates SP7 and SP15 showed to have morphological and biochemical characteristics similar to that of Bt. Identification based on 16S rRNA gene sequence showed that SP7 and SP15 were closed to *B. thuringiensis* strain MCCC 1A00395 with similarity of 99%. Since two Bt isolates seemed to be similar to *B. thuringiensis* strain MCCC 1A00395, SP7 was chosen for further study. SP7 reached its maximum growth at 30 hrs of incubation time with cell number of 17.01 log CFU/ml in culture media with molasses and urea as C and N sources. It showed to kill up to 97.5% mosquito larvae at concentration of 50% bacterial culture.

Keywords: *Aedes aegypti*, *Bacillus thuringiensis*, bacterial cell growth, crystal protein.

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