

Indah Wulandari, 2020, **Uji Hayati Entomopatogen *Bacillus* sp. Lokal yang Diisolasi dari Tanah Alamiah di Taman Nasional Baluran**, Skripsi ini di bawah bimbingan Drs. Salamun, M.Kes. dan Dr. Fatimah, S. Si., M.Kes., Departemen Biologi Fakultas Sains dan Teknologi, Universitas Airlangga, Surabaya.

ABSTRAK

Penelitian ini bertujuan untuk mengetahui nilai LC_{50} , LT_{50} dan perbedaan toksisitas isolat *Bacillus* sp. BK7.1 dan BK7.2 yang diisolasi dari tanah alamiah di Taman Nasional Baluran dalam membunuh larva nyamuk *Aedes aegypti*. Dalam penelitian ini, digunakan kelompok perlakuan yang menggunakan variasi konsentrasi isolat yaitu 0,5 mL; 1 mL; 2,5 mL; 5 mL; 10 mL dalam air PDAM hingga diperoleh volume total 45 mL, dan kelompok kontrol yang tidak diberi isolat. Terdapat 3 kali pengulangan dengan menggunakan 20 larva instar III *Aedes aegypti*. Pengamatan dilakukan pada masa pemaparan 24 dan 48 jam dengan menghitung mortalitas larva. Hasil dari uji hayati dianalisis dengan analisis probit menggunakan aplikasi statistik MINITAB 17 untuk memperoleh nilai LC_{50} dan LT_{50} . Perbedaan toksisitas antar kedua isolat dianalisis dengan membandingkan ada tidaknya tumpang tindih (*overlap*) pada nilai *lower-upper* LC_{50} masing-masing isolat. Isolat *Bacillus* sp. BK7.1 memiliki $LC_{50-24jam}$ dan $LC_{50-48jam}$ secara berturut-turut yaitu $4,4 \times 10^{10} \pm 1,9 \times 10^{10}$ CFU/mL dan $1,7 \times 10^{10} \pm 1,2 \times 10^9$ CFU/mL. Sedangkan isolat *Bacillus* sp. BK7.2 memiliki $LC_{50-24jam}$ dan $LC_{50-48jam}$ secara berurutan yaitu $5,2 \times 10^9 \pm 2,7 \times 10^8$ CFU/mL dan $3,9 \times 10^9 \pm 1,3 \times 10^8$ CFU/mL. Nilai $LT_{50-48jam}$ isolat *Bacillus* sp. BK7.1 dan BK7.2 secara berturut-turut yaitu $46,79 \pm 1,89$ jam dan $29,09 \pm 1,03$ jam. Isolat *Bacillus* sp. BK7.1 dan BK7.2 memiliki perbedaan toksisitas yang signifikan.

Kata Kunci : *Aedes aegypti*, *Bacillus* sp., Uji toksisitas, Taman Nasional Baluran

Indah Wulandari, 2020, **Bioassay of Entomopathogen *Bacillus* sp. Locally Isolated from Natural Land in Baluran National Park**, This Script is guided by Drs. Salamun, M.Kes. and Dr. Fatimah, S. Si., M.Kes., Department of Biology, Faculty of Science and Technology, Airlangga University, Surabaya.

ABSTRACT

This study aims to determine the value of LC_{50} , LT_{50} and differences in the toxicity of isolates *Bacillus* sp. BK7.1 and BK7.2 are isolated from natural soil in Baluran National Park in killing *Aedes aegypti* mosquito larvae. In this study, groups were used that used variations of isolate concentrations of 0,5 mL; 1 mL; 2,5 mL; 5 mL; 10 mL in air, the PDAM obtained a total volume of 45 mL, and the control group was not given isolates. There are 3 repetitions using 20 instar III larvae of *Aedes aegypti*. Observations were made at 24 and 48 hours of exposure by calculating larval mortality. The results of the biological tests were analyzed by probit analysis using the MINITAB 17 statistical application to obtain LC_{50} and LT_{50} values. The difference in toxicity between the two isolates was analyzed by comparing the presence or absence of overlaps in the LC_{50} values of each bottom-up of each isolate. *Bacillus* sp. BK7.1 has a total-full $LC_{50-24 \text{ hours}}$ and $LC_{50-48 \text{ hours}}$ which is $4,4 \times 10^{10} \pm 1,9 \times 10^{10}$ CFU/mL and $1,7 \times 10^{10} \pm 1,2 \times 10^9$ CFU/mL. While *Bacillus* sp. BK7.2 has $LC_{50-24 \text{ hours}}$ and $LC_{50-48 \text{ hours}}$, respectively, $5,2 \times 10^9 \pm 2,7 \times 10^8$ CFU/mL and $3,9 \times 10^9 \pm 1,3 \times 10^8$ CFU/mL. $LT_{50-48 \text{ hour}}$ value of isolates *Bacillus* sp. BK7.1 and BK7.2 in full were $46,79 \pm 1,89$ hours and $29,09 \pm 1,03$ hours respectively. *Bacillus* sp. BK7.1 and BK7.2 have significant differences in toxicity.

Keywords: *Aedes aegypti*, *Bacillus* sp., Toxicity Test, Baluran National Park