

**EKSPLORASI BAKTERI ENTOMOPATOGEN *Bacillus thuringiensis* Berliner DARI TANAH DAN TOKSISITASNYA TERHADAP *Sylepta derogata* (Fabr.) (LEPIDOPTERA: PYRALIDAE)**

**Oleh**

**DESINTHA VERONIKA TARIGAN**



**FAKULTAS PERTANIAN  
UNIVERSITAS SRIWIJAYA**

**INDERALAYA  
2012**

Skripsi

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Inderalaya, Mei 2012

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Skripsi berjudul "Eksplorasi Bakteri Entomopatogen *Bacillus thuringiensis* Berliner dari Tanah dan Toksisitasnya terhadap *Sylepta derogata* (Fabr.) (Lepidoptera: Pyralidae)" oleh Desintha Veronika Tarigan, telah dipertahankan di depan komisi penguji pada tanggal 14 Mei 2012

Komisi Penguji

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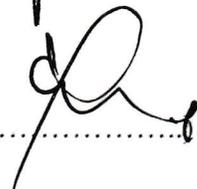
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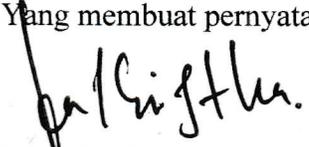
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## PERNYATAAN

Saya yang bertanda tangan di bawah ini menyatakan dengan sesungguhnya bahwa seluruh data dan informasi yang disajikan dalam skripsi ini, kecuali yang disebutkan dengan jelas sumbernya, adalah hasil penelitian atau investigasi saya sendiri dan belum pernah atau tidak sedang diajukan sebagai syarat untuk memperoleh gelar kesarjanaan yang sama di tempat lain.

Inderalaya, Mei 2012

Yang membuat pernyataan

  
Desntha Veronika Tarigan

## SUMMARY

142909

24/06/2014

**DESINTHA VERONIKA TARIGAN. Exploration Entomopathogenic Bacteria *Bacillus thuringiensis* Berliner From the Soil and Its Toxicity towards *Sylepta derogata* (Fabr.) (Lepidoptera: Pyralidae) (Supervised by YULIA PUJIASTUTI and EFFENDY TA).**

*Bacillus thuringiensis* Berliner is a pathogenic bacteria towards insect (entomopathogene). This bacteria can be isolated from various habitat such as soil and cadaver of insect. The utilization of *B. thuringiensis* as biological agents had began since 20th century, and many researchers informed their research about it. In general, it has been known that *B. thuringiensis* are toxic to many spesies of insect belongs to Coleoptera, Diptera, and Lepidoptera. Research about the roles of *B. thuringiensis* as biological control agents in South Sumatera have not been informed yet. For those reasons, research about the exploration of *B. thuringiensis* was held in Ogan Ilir regency. These *B. thuringiensis* isolates were used to investigate their toxicity to the leaf-roller larvae (*Sylepta derogata* F.) attacking hibiscus plants (*Hibiscus rosa-sinensis* L.) Beside that, *S. derogata* is a main pest in cotton plant (Kalshoven, 1981). Therefore, it is needed to find an easy, cheap and safe control for environment.

The aims of this research were to isolate of *B. thuringiensis* from the sample of soil in Ogan Ilir regency and to investigate toxicity of *B. thuringiensis* towards larva of *S. derogata*. The research was conducted in the Laboratory of Fitopathology and the Laboratory of Entomology, Department of Plant Pests and Diseases, Faculty of Agriculture, Sriwijaya University, Inderalaya Ogan Ilir, from May 2011 until March 2012. This research used survey and experiment methods. The samples of soil were taken from Ogan Ilir regency, i.e North Inderalaya, Inderalaya Induk and Tanjung Raja Sub Districts. From each Sub District was taken three locations of soil sample. The steps of experiment were: isolation, identification and toxicity of *B. thuringiensis* to larva *S. derogata*. Preliminary experiment was done by screening test toward the isolate of *B. thuringiensis* that found. From screening test resulted one best isolate toxic to this larvae. The isolate then was tested singly to determine the most effective dose of spore to kill insect test (by showing value of  $LT_{50}$  and  $LT_{95}$ ). From the best *B. thuringiensis* isolate, protein was isolated. To examine toxicity protein of *B. thuringiensis*, it was tested to larvae of *S. derogata* (by showing  $LT_{50}$  and  $LT_{95}$ ). In the toxicity test was used Completely Randomized Design (CRD) with four treatments and four replications. The data was analysed by Analyses of Varians (ANOVA).  $LT_{50}$  and  $LT_{95}$  were calculated by probit analyze.

The result of the research showed that from 9 locations of sub district in Ogan Ilir regency found isolate *B. thuringiensis*. The characteristics and morphology of colony bacteria in the media of NGKG were circular, slick edge, emerge elevation

and white or white to yellow color. From the result of screening test found isolate of IUTPT, isolate from soil in North Inderalaya, Tanjung Putus, was obtained the best result, killing 100 % of insect tested in the first 72 hours. In the next examination, isolate of IUTPT showed value of  $LT_{50}$  was 74.975 hours and  $LT_{95}$  was 124.756 hours. In the test of protein treatment isolate of IUTPT towards *S. derogata* larvae showed mortality of larva on 1 ml treatment of protein caused 100% mortality with value of  $LT_{50}$  was 86.192 hours and  $LT_{95}$  was 155.575 hours.