UJI TOKSISITAS EKSTRAK DAUN DAN BATANG BIDURI *Calotropis gigantea* R. Br. TERHADAP IMAGO KUTU BERAS *Sitophilus oryzae* L.

SKRIPSI

VITRI ARYANTI

JURUSAN BIOLOGI
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
UNIVERSITAS AIRLANGGA
SURABAYA
2000

Vitri Aryanti, 2000.Uji Toksisitas Ekstrak Daun Dan Batang Biduri *Calotropis gigantea* R.Br. Terhadap Imago Kutu Beras *Sitophilus oryzae* L. Skripsi ini di bawah bimbingan Dra. Hamidah, M.Kes. dan Drs. Noer Moehammadi, M.Kes. Jurusan Biologi.Fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Airlangga

---

ABSTRAK

Tujuan dari penelitian ini untuk mengetahui: (1) perbedaan toksisitas ekstrak daun dan ekstrak batang biduri *Calotropis gigantea* R.Br. terhadap imago kutu beras *Sitophilus oryzae* L., (2) efektifitas ekstrak daun dan ekstrak batang biduri *Calotropis gigantea* R.Br. sebagai bioinsektisida terhadap imago kutu beras *Sitophilus oryzae* L., (3) pengaruh perbedaan masa pencelupan imago kutu beras *Sitophilus oryzae* L. akibat pemberian ekstrak daun dan ekstrak batang biduri *Calotropis gigantea* R.Br.

Metode penelitian yang digunakan adalah metode eksperimental dengan rancangan acak lengkap. Sebagai perlakuan ekstrak daun dan ekstrak batang dilakukan dengan lima kali ulangan, dengan dilakukan dua uji, yaitu uji pendahuluan dan uji sesungguhnya. Setelah diadakan uji pendahuluan, maka uji hayati pada ekstrak daun dan ekstrak batang digunakan konsentrasi sebesar 5%, 10%, 20%, 40%, dan 50%. Selanjutnya untuk mengetahui LC_{90} masing-masing ekstrak, digunakan Analisis Probit. Sedangkan untuk mengetahui perbedaan masa pencelupan *Sitophilus oryzae* L. digunakan masa pencelupan 15 dan 30 detik, data yang diperoleh dianalisis dengan uji ANAVA.

Hasil penelitian menunjukkan ada perbedaan toksisitas bioinsektisida (LC_{90}) ekstrak daun dan ekstrak batang biduri (*Calotropis gigantea* R.Br.) terhadap kematian *Sitophilus oryzae* L., dengan nilai ekstrak batang lebih tinggi daripada ekstrak daun. Sedangkan pada uji ANAVA memperlihatkan bahwa tidak ada perbedaan yang nyata terhadap keefektifan antara ekstrak daun dan ekstrak batang, serta pada uji ANAVA untuk masa pencelupan juga menunjukkan tidak ada perbedaan pengaruh yang nyata terhadap jumlah kematian *Sitophilus oryzae* L. akibat masa pencelupan yang berbeda pada LC_{90} ekstrak daun dan ekstrak batang biduri (*Calotropis gigantea* R.Br.).

Kata kunci : ekstrak daun, ekstrak batang, biduri, *Sitophilus oryzae* L., LC_{90}

Vitri Aryanti, 2000. Toxicyti of Stem and Leaf Extract *Calotropis gigantea* R.Br. Towards Imago Rice Fleas *Sitophilus oryzae* L. This thesis is under the guidance of Dra. Hamidah, M.Kes. and Drs. Noer Moehammadi, M.Kes. Biology Department. Faculty of Math and Science Airlangga University.

ABSTRACT

The purpose of this research is to determine: (1)the difference in toxicity between the stem and leaf extracts of biduri (*Calotropis gigantea* R.Br.), (2)the effectiveness of stem and leaf extracts of biduri (*Calotropis gigantea* R.Br.) as a bioinsecticide towards rice fleas *Sitophilus oryzae* L., (3)the impact towards the differences in the exposure of rice fleas *Sitophilus oryzae* L. after being given the leaf and stem extracts of biduri (*Calotropis gigantea* R.Br.).

This research uses experimental methods and completed random planning. Each experiment of leaf extract and stem extract was implemented five times, with two test, an preliminary and the actuall testing. After a preliminary test, a biological test on the leaf and the stem of biduri using a concentration of 5%, 10%, 20%, 40%, and 50% was implemented. To determine the LC_{90} a Probit Analysis was used. To determine the exposure period of *Sitophilus oryzae* L. a 15 and 30 second immersion was implemented. Data recovered from the experiment were tested using Variant Analysis.

Test result showed a difference in toxicity of bioinsecticides (LC_{90}) in leaf and stem extracts of biduri (*Calotropis gigantea* R.Br.) towards the death of *Sitophilus oryzae* L., having a higher amount in stem extract compared to leaf extract. for the Variant Analysis testing revealed that there was no difference towards the effectivenes between leaf extract and stem extract. It was also discovered that there were no obvious effects towards the death of *Sitophilus oryzae* L. caused by the differences in exposure of LC_{90} in leaf and stem extracts of biduri (*Calotropis gigantea* R.Br.).

Key Words : Leaf extract, stem extract, *Calotropis gigantea* R.Br., *Sitophilus oryzae* L., Lethal Concentration (LC)

Widuriningtyas, L. E., 2001, The Temperature Impact on the Viability of Earthworm Cocoon *Lumbricus rubellus*. This study is under advisory of Drs. T. Widyaleksono C. P., M.Si and Dra. Hj. Mariatun Loegito, MS., Department of Biology, Faculty Mathematics and Natural Science, Airlangga University, Surabaya.

ABSTRACT

The objective of this observation is to reveal temperature impact on the viability of earthworm cocoon *Lumbricus rubellus*. The observation was performed experimentally by using completely random design. This applied treatment temperature of 23°C, 25°C, 27°C, 29°N and 31°C, while control temperature was 27°C. Every treatment used 10 grains of cocoon with 5 times replication. Those samples then incubated in treatment temperature for 20 days.

The observation result showed that the highest cocoon's viability was in 25°C and 27°C, because its viability reached 100%. However, the optimal temperature for earthworm cocoon's viability was 27°C , because it reached 100% in 16 th day. The second highest cocoon viability was in 23°C, id est 90%. The next viability was 50% in 29°C and the lowest cocoon viability was 10% in 31°C. The result of variance analysis showed that there was significant difference. From LSD test, it was revealed that most of treatment couples had significant difference, but three couples, id est between 23°C and 25°C, between 23°C and 27°C, and between 25°C and 27°C. Result of this observation showed that the optimum temperature for viability of earthworm cocoon *Lumbricus rubellus* was 27°C with 100% viability that reached in 16th day.

Key words : viability, cocoon *Lumbricus rubellus*, temperature