

**THE EFFECT OF CLOVE BUD (*Syzygium aromaticum*) ETHANOL EXTRACT AS AN INSECTICIDE TOWARDS *Aedes aegypti* MOSQUITO**

**FINAL ASSIGNMENT**

**To Fulfill The Requirements For The Degree of Bachelor of Medicine**



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**FACULTY OF MEDICINE  
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CERTIFICATION PAGE

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## ABSTRAK

Kanapathy, Prabakaran, 2015. **THE EFFECT OF CLOVE BUD (*Syzygium aromaticum*) ETHANOL EXTRACT AS AN INSECTICIDE TOWARDS *Aedes aegypti* MOSQUITO**. Tugas akhir, Fakultas Kedokteran Universitas Brawijaya. Supervisors: dr. Aswin Djoko Baskoro, MS, Sp.Par.K & Aswaty Nur, S.Si., M,Kes.

Nyamuk *Aedes aegypti* adalah serangga yang menjadi vector bagi berbagai macam virus yang menyebabkan penyakit seperti demam berdarah, chikungunya, demam kuning, dan sebagainya. Nyamuk *Aedes aegypti* diketahui dapat menularkan penyakit demam berdarah yang dapat mematikan karena menyerang trombosit dalam darah. Tujuan penelitian ini adalah buat melihat efikasi extract bunga cengkeh (*Syzygium aromaticum*) sebagai insektisida terhadap nyamuk *Aedes aegypti*. Penelitian ini dilakukan menggunakan ekstrak bunga cengkeh yang diencerkan dalam tiga konsentrasi yakni 20%, 30% dan 40% yang digunakan untuk membunuh nyamuk *Aedes aegypti* menggunakan metode semprot dengan melakukan observasi pada menit ke-10, ke-20, ke-30, ke-40, ke-50, ke-60 dan jam ke 24. Penelitian ini dilakukan dengan pengulangan sebanyak 4 kali. Didapatkan bahwa pada menit ke-60, persentase nyamuk yang mati mencapai 100% buat konsentrasi ekstrak 40%. Hal ini menunjukkan bahwa ekstrak bunga cengkeh mempunyai "knock-down effect" yang jelas di mana kesemua nyamuk mengalami paralisis atau mati sebelum menit ke-60. Analisis korelasi Pearson menunjukkan ada korelasi yang positif dengan *P-value* 0,000 antara konsentrasi, waktu dan kematian nyamuk *Aedes aegypti* yakni semakin tinggi konsentrasi ekstrak ethanol bunga cengkeh maka semakin banyak matinya nyamuk *Aedes aegypti* dalam hitungan waktu 24 jam. Dengan demikian, maka ekstrak ethanol bunga cengkeh (*Syzygium aromaticum*) memiliki potensi sebagai insektisida terhadap nyamuk (*Aedes aegypti*) dengan konsentrasi efektif 40%.

Kata kunci: *Syzygium aromaticum*, nyamuk (*Aedes aegypti*)

## ABSTRACT

Kanapathy, Prabakaran, 2015. **THE EFFECT OF CLOVE BUD (*Syzygium aromaticum*) ETHANOL EXTRACT AS AN INSECTICIDE TOWARDS *Aedes aegypti* MOSQUITO**. *Final assignment, Brawijaya University Faculty of Medicine. Supervisors 1) dr. Aswin Djoko Baskoro, MS, Sp.Par.K & 2) Aswaty Nur, S.Si., M,Kes.*

*Aedes aegypti* mosquitoes are known vectors for a variety of viruses that cause diseases such as dengue, chikungunya, yellow fever, and so on. *Aedes aegypti* mosquitoes known to transmit dengue fever that can be deadly as it attacks the platelets in the blood. The purpose of this study is to determine the efficacy of clove (*Syzygium aromaticum*) extract as an insecticide towards *Aedes aegypti* mosquitos. This research was conducted using clove bud extract diluted in three concentration which were 20%, 30% and 40% were used to kill the *Aedes aegypti* mosquitoes using spray method and then observing the outcome in the 10th, 20th, 30th, 40th, 50th, 60th minute and 24th hour of exposure. This was then repeated 4 times. It was found that in the 60th minute, the percentage of dead mosquitoes reached 100% for the extract concentration of 40%. This suggested that the clove extract has a clear knock-down effect whereby all of the *Aedes aegypti* mosquitoes either became paralyzed or died by the 60th minute. Pearson correlation analysis showed there was a positive correlation with P-value of 0.000 between concentration, time and death of *Aedes aegypti* i.e. the higher the concentration of ethanol extract of clove, the more the deaths of *Aedes aegypti* mosquitoes occur in a matter of 24 hours. Thus, the ethanol extract of clove (*Syzygium aromaticum*) has the potential as an insecticide against *Aedes aegypti* mosquitoes with an effective concentration of 40%.

Keyword: *Syzygium aromaticum*, mosquito (*Aedes aegypti*)

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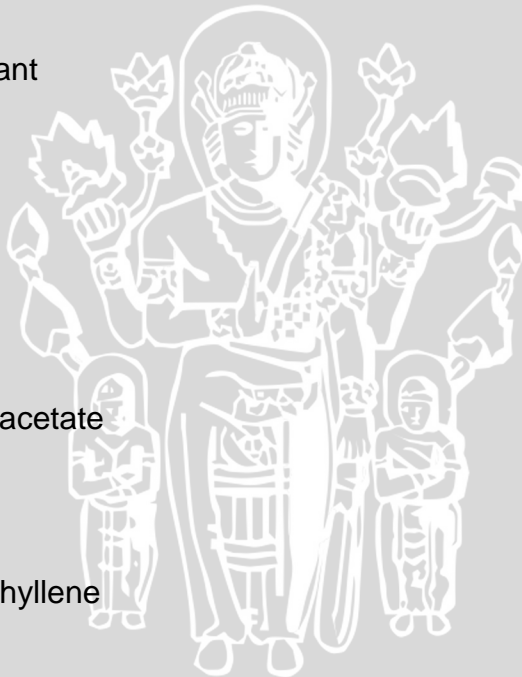


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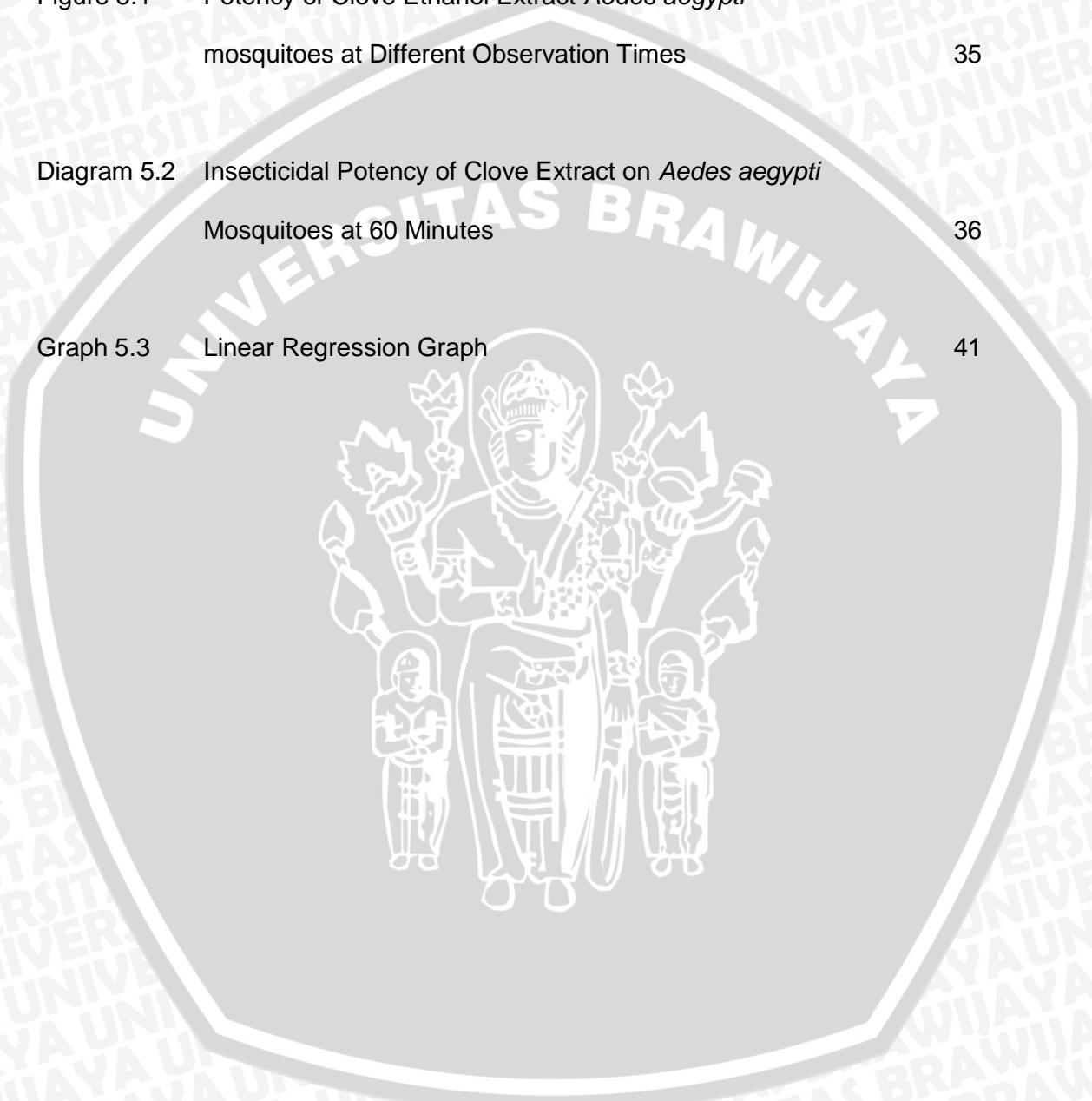


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**LIST OF ABBREVIATIONS**

ANOVA	Analysis of Variance
DEET	N,N-Diethyl-meta-Toluamide
Dr	Doctor
FDA	Food and Drug Administration
FKUB	<i>Fakultas Kedokteran Universitas Brawijaya</i>
KT50	50% knockdown time
M. Kes	<i>Magister Kesehatan Masyarakat</i>
mg	miligram
Sp. ParK	<i>Spesialis Parasitologi Klinik</i>
S.Si	<i>Sarjana Sains</i>
RISKEDAS	<i>Riset Kesehatan Dasar</i>
WHO	World Health Organisation

