

THE INSECTICIDAL EFFECT OF EXTRACTS OF FRESH AND AIR-DRIED BULBS
OF GARLIC (Allium sativum Linnaeus) ON THE EGGS, LARVAE AND
PUPAE OF MOSQUITO (Aedes aegypti Linnaeus)

A Thesis -

Presented to the
Faculty of the Graduate School
University of San Carlos
Cebu City, Philippines

In Partial Fulfillment
for the Requirements of the Degree
Master of Science in Biology

by

Rosemila V. Bullecer

March, 1995

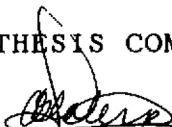
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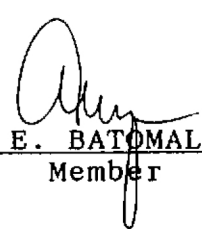
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APPROVAL SHEET


This thesis entitled "THE INSECTICIDAL EFFECT OF EXTRACTS OF FRESH AND AIR-DRIED BULBS OF GARLIC (Allium sativum Linnaeus) ON THE EGGS, LARVAE AND PUPAE OF MOSQUITO (Aedes aegypti Linnaeus)" prepared and submitted by ROSEMILA V. BULLECER in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE IN BIOLOGY, has been examined and is recommended for acceptance and approval for the ORAL EXAMINATION.

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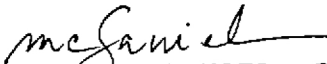

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ACKNOWLEDGEMENT

The researcher wishes to thank the following people who, in one way or another, have contributed to the making and completion of this work:

To her thesis adviser, Prof. Cristobal G. Plateros, her thesis committee, Prof. Antonio E. Batomalaque, Dr. Leticia Cabrera and Dr. Montana C. Saniel, for their valuable comments, suggestions, and guidance;

To her husband, family, and friends, for their love and support; and

To God, for her strength.

R.V.B.

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ABSTRACT

The study investigated the insecticidal effect of the fresh and air-dried bulb extracts of garlic (Allium sativum Linnaeus) on the development of the eggs, larvae, and pupae of Aedes aegypti Linnaeus. Based on LD₅₀, three varying concentrations were prepared namely, 40%, 50%, and 60% for both types of extracts. Pure breeding of A. aegypti was carried out to collect the organisms at their desired stages of development. A gross morphological examination of all treated organisms was conducted to determine any corresponding anatomical or physiological effect of the extract on the experimental organisms.

Extracts of A. sativum were found to have significant insecticidal effect on the test organisms. However, no significant difference was noted between water solution alcohol - free extract concentrates of fresh garlic (WSAECFG) and water solution alcohol - free extract concentrates of dried garlic (WSAECDG). Results also showed that there was no significant difference among the three different concentrations of both types of extracts (WSACFG and WSAECDG). All test organisms under each stage of development were found significantly susceptible to the insecticidal effect of the extracts. The insecticidal action of the extract is believed to be as contact poison and as an antifeedant.

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CHAPTER 1
THE PROBLEM AND ITS SCOPE

Introduction

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The development of synthetic insecticides during the past decades stands as one of the great achievements of times. The saving of millions of lives from insect-borne diseases and the protection of food and fiber products in agricultural community attest the tremendous value of such advancement. However, the massive use of broad-spectrum insecticides unfortunately, created significant after-effect problems as man's growing reliance on the products has almost always been followed by pest resistance, pest resurgencies, and outbreaks of secondary pests (Metcalf, et al., 1993: 7.48). Inevitably, these ecologic imbalances have been related to the suppression of key natural enemies and the unforeseen disrupted effects of insecticide residues on non-target ecological systems by the injudicious application of these synthetic products (Morallo-Rejesus, 1985: 9). These problems have been cited frequently, and recently, people have been alerted by the fact that many of these materials and their metabolites are permeating and contaminating the air, water, soil, food, wildlife, and to a certain extent, the human bodies.

The current world-wide energy crisis requires man's capabilities and creativeness to devise practical and appropriate