# INSECTICIDAL POTENTIAL OF SEED EXTRACT OF SELECTED BOTANICAL PESTICIDES AGAINST COFFEE BEAN WEEVIL

( *Araecerus fasciculatus de Geer* )

*RESEARCH STUDY*

MHELDAN P. PERANDO
MAY-ANN A. GADDI
CHRISTINE C. REYES

SCIENCE HIGH SCHOOL
*CAVITE STATE UNIVERSITY*
*Indang, Cavite*

*April 2006*

# INSECTICIDAL POTENTIAL OF SEED EXTRACT OF SELECTED BOTANICAL PESTICIDES AGAINST COFFEE BEAN WEEVIL

*(Araecerus fasciculatus de Geer)*

**A Research Study Presented to the**
**Faculty of the Science High School**
**College of Education**
**Cavite State University**
**Indang, Cavite**

**In partial fulfillment**
**of the requirements for graduation**



**MHELDAN P. PERANDO**
**MAY-ANN A. GADDI**
**CHRISTINE C. REYES**
**April 2006**

## ABSTRACT

**PERANDO, MHELDAN P., GADDI, MAY-ANN A., REYES, CHRISTINE C., Insecticidal Potential of Seed Extract of Selected Botanicals Against Coffee Bean Weevil (*Araecerus fasciculatus de Geer*).** Applied Research III, (General Science Curriculum), Science High School, Cavite State University, Indang, Cavite. April 2006. **Adviser: Dr. Teddy F. Tepora**

This study entitled " Insecticidal Potential of Seed Extract of Selected Botanicals Against Coffee Bean Weevil (*Araecerus fasciculatus de Geer*) was conducted at the Crop Protection Research Laboratory of the Research Center, Cavite State University, Indang, Cavite from June 2005 to January 2006. Specifically, the study aimed to: (1) evaluate the insecticidal effectiveness of seed extract of selected botanicals in repelling coffee bean weevil; (2) determine the most effective seed extract of selected botanicals in repelling coffee bean weevil; (3) evaluate the toxicity of produced insecticide against coffee bean weevil; (4) determine the most toxic seed extract of different botanical pesticides against coffee bean weevil; (5) evaluate the effect of different concentrations of the most effective botanical pesticides from experiment 1 and 2 against coffee bean weevil; and (6) determine which concentration was the most effective against coffee bean weevil.

The study focused mainly on testing the insecticidal potential of seed extract of selected botanicals. The botanicals were evaluated using three experiments namely: Efficacy test/Repellant test, Toxicity test, and Dilution test. In the first and second experiment, there were four treatments each replicated three times. The treatments were

as follows: $T_1$ (control-cymbush); $T_2$ (pure sour sop seed extract); $T_3$ (pure papaya seed extract); and $T_4$ (pure lantana seed extract). While in the third experiment (dilution test), five concentrations of the best botanical (lantana) replicated three times were prepared. The treatments were: $T_1$ (10% lantana seed extract + 90% water); $T_2$ (20% lantana extract +80% water): $T_3$ (30% lantana seed extract + 70% water); $T_4$ (40% lantana seed extract +60% water); and $T_5$ (50% lantana seed extract + 50% water).

Results of the first and second experiment showed that lantana was the most effective among the three botanical pesticides used. The third experiment showed that the higher the concentration of lantana (50% lantana seed extract + 50% distilled water), the more effective it is in controlling coffee bean weevil.

## TABLE OF CONTENTS

## LIST OF FIGURES

## LIST OF APPENDIX TABLES

## LIST OF APPENDIX FIGURES

# INSECTICIDAL POTENTIAL OF SEED EXTRACT OF SELECTED BOTANICAL PESTICIDES AGAINST COFFEE BEAN WEEVIL
*(Araecerus fasciculatus de Geer)*

Mheldan P. Perando
May-ann A. Gaddi
Christine C. Reyes

A research study presented to the faculty of the Science High School, College of Education, Cavite State University, Indang, Cavite in partial fulfillment of the requirements for graduation. Prepared under the supervision of Dr. Teddy F. Tepora.

## INTRODUCTION

The coffee bean weevil (CBW), *Araecerus fasciculatus de Geer* is a pest of economic importance on stored commodities like coffee, cacao, citrus, dried legumes, garlic bulbs, banana, and peanut in many countries. It attacks dried fruits that have fallen from a number of trees where coffee and cacao are grown and in warehouses where dried food products are stored for months. It was also reported to attack fruits like coffee and citrus before harvest (Rint, 1992).

Insecticides are considered one of the most effective means of controlling CBW. However, they contain synthetic chemicals that post health hazards to man and environment. It is advantageous to use naturally occurring substances that are toxic to insect pests, yet environment- and human-friendly. These substances can be found to some botanicals such as Papaya (*Carica papaya L.*), Soursop (*Annona muricata*), and Lantana (*Lantara camara L.*). These plant species were reported to contain insecticidal properties.

These botanicals contain bioactive chemicals such as alkaloids. Alkaloids are abundantly present in the seeds of Papaya, hence used as dewormer (UP Cultural Education Center, 1971). Due to its toxic substance, soursop fruit has been used