

632.95

Am9

2006

EFFICACY OF SELECTED BOTANICAL PESTICIDES  
AGAINST HOUSEFLY ( *Musca domestica* L. )  
INFESTING POULTRY

RESEARCH STUDY

SHEENA MAE S. AMURAO  
KAREN C. CAJAYON  
DIANA MARIE B. PASTOR

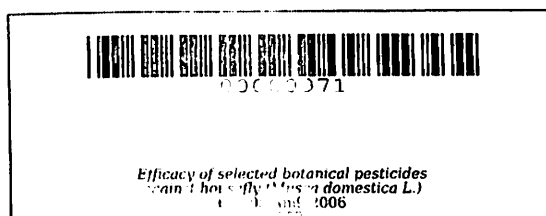
SCIENCE HIGH SCHOOL  
CAVITE STATE UNIVERSITY  
Indang, Cavite

April 2006

2/  
**EFFICACY OF SELECTED BOTANICAL PESTICIDES  
AGAINST HOUSEFLY (*Musca domestica* L.)  
INFESTING POULTRY**

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

In partial fulfillment  
of the requirements for graduation



**Sheena Mae S. Amurao**  
**Karen C. Cajayon**  
**Diana Marie B. Pastor**  
April 2006



## ABSTRACT

**AMURAO, SHEENA MAE S., CAJAYON, KAREN C., PASTOR, DIANA MARIE B. “Efficacy of Selected Botanical Pesticides Against Flies (*Musca domestica* L) Infesting Poultry”** Applied Research III, (General Science Curriculum). Science High School, Cavite State University, Indang, Cavite, April 2006. Adviser: Dr. Teddy F. Tepora

A study entitled “Efficacy of Selected Botanical Pesticides Against Flies (*Musca domestica* L.) Infesting Poultry” was conducted at the Crop Protection Laboratory of the Research Center and at the Animal Production Project, Cavite State University, Indang, Cavite, from March 2005 to December 2005. Specifically, this study aimed to: (a) evaluate the effect of different botanical pesticides in the oviposition preference of housefly; (b) evaluate the insecticidal properties of selected botanicals against housefly maggots; and (c) determine the concentration of the most effective botanical insecticide in controlling housefly maggots; and (d) produce an insecticide that is more affordable than commercial ones.

There were three experiments in the study, namely: Oviposition Test, Toxicity Test and Dilution Test. In the first and second experiments, there were four treatments, each replicated three times. The different treatments were as follows: T<sub>1</sub>- control (Cymbush), T<sub>2</sub> (pure Chrysanthemum extract), T<sub>3</sub> (pure *Alagaw* extract), and T<sub>4</sub> (pure Psychic Nut extract). In the last experiment, there were five treatments, each replicated three times. The different treatments were as follows: T<sub>1</sub> (10% Chrysanthemum extract + 90% distilled water), T<sub>2</sub> (20% Chrysanthemum extract + 80% distilled water), T<sub>3</sub> (30%

Chrysanthemum extract + 70% distilled water), T<sub>4</sub> (40% Chrysanthemum extract + 60% distilled water), T<sub>5</sub> (50% Chrysanthemum extract + 50% distilled water).

In the first experiment (Oviposition Test), it was observed that Chrysanthemum was the most effective botanical used. Chrysanthemum has pyrethrins as its natural defense against insects. This might be the reason why Chrysanthemum is effective.

In the second experiment, results showed that among the botanicals used, Chrysanthemum was the most effective. Chrysanthemum has toxic substance called pyrethrin, which was proven many years ago and can be used as an insecticide. This might be the reason why Chrysanthemum is effective.

Results of dilution test reveals that Treatment 5 (50% Chrysanthemum extract + 50% distilled water) was the most effective among the concentrations tested. This may be due to the fact that the concentration with the highest amount of Chrysanthemum extract has also the highest pyrethrin content.

## TABLE OF CONTENTS

	Page
BIOGRAPHICAL SKETCH.....	i
ACKNOWLEDGEMENT.....	iii
ABSTRACT.....	vi
LIST OF TABLES.....	xi
LIST OF FIGURES.....	xii
LIST OF APPENDIX TABLES.....	xiii
LIST OF APPENDIX FIGURES.....	xvi
INTRODUCTION.....	1
Importance of the Study.....	3
Statement of the Problem.....	3
Objectives of the Study.....	4
Scope and Limitations.....	4
Time and Place of the Study.....	4
REVIEW OF RELATED LITERATURE.....	5
Flies.....	5
Fly Biology.....	6
Insecticide.....	6
Botanical Pesticide.....	7
Chrysanthemum.....	7
Distribution and Description.....	7
Insecticidal Property.....	8

<i>Alagaw</i> .....	9
Distribution and Description.....	9
Insecticidal Property.....	9
Psychic Nut.....	10
Distribution and Description.....	10
Uses.....	10
Insecticidal Property.....	11
MATERIALS AND METHODS.....	13
Materials.....	13
Methods.....	13
Experimental Design.....	13
Oviposition Test.....	13
Toxicity Test.....	14
Dilution Test.....	14
Gathering of the Materials.....	17
Preparation of the Botanical Extract.....	17
Application of the Concentration.....	17
Data Gathering.....	18
Statistical Analysis.....	19
RESULTS AND DISCUSSION.....	20
Number of Eggs Deposited by Houseflies in Fish Meat Treated with Different Botanical Pesticides.....	20
Percent Hatchability of Eggs of Houseflies as Affected by Different Botanical Pesticides.....	26

Mortality Rate of Housefly Maggots as Affected by Different Botanical Pesticides 2 to 24 Hours After Treatment .....	27
Mortality Rate of Housefly Maggots as Affected by Different Concentrations of Chrysanthemum Extract 2 to 24 Hours After Treatment .....	33
SUMMARY, CONCLUSION AND RECOMMENDATION.....	39
Summary.....	39
Conclusion.....	40
Recommendation.....	41
LITERATURE CITED.....	42
APPENDICES.....	44

## LIST OF TABLES

Table		Page
1	Number of eggs deposited by houseflies in fish meat treated with different botanical pesticides in 2, 4, 6 and 8 hours.....	20
2	Hatchability of maggots of houseflies as affected by different botanical pesticide.....	26



## LIST OF FIGURES

Figure		Page
1	General view of the experiment (Oviposition Test).....	15
2	General view of the experiment (Toxicity Test).....	15
3	General view of the experiment (Dilution Test).....	16
4	Eggs deposited by houseflies exposed to different botanical pesticides 2 hours after treatment.....	21
5	Eggs deposited by houseflies exposed to different botanical pesticides 4 hours after treatment.....	23
6	Eggs deposited by houseflies exposed to different botanical pesticides 6 hours after treatment.....	23
7	Eggs deposited by houseflies exposed to different botanical pesticides 8 hours after treatment.....	25
8	Mortality rate of housefly maggots as affected by different botanical pesticides.....	28
9	Housefly maggots exposed to different botanical pesticides 2 hours after treatment.....	28
10	Housefly maggots exposed to different botanical pesticides 24 hours after treatment .....	32
11	Mortality rate of housefly maggots as affected by different concentrations of chrysanthemum extract .....	34
12	Mortality rate of housefly maggots as affected by different concentrations of chrysanthemum extract 2 hours after treatment.....	34
13	Mortality rate of housefly maggots as affected by different concentrations of chrysanthemum extract 24 hours after treatment.....	38

## LIST OF APPENDIX TABLES

Appendix Table	Page
1      Number of eggs deposited by houseflies in fish meat treated with different botanical pesticides 2 hours after treatment.....	45
2      Number of eggs deposited by houseflies in fish meat treated with different botanical pesticides 4 hours after treatment.....	46
3      Number of eggs deposited by houseflies in fish meat treated with different botanical pesticides 6 hours after treatment.....	47
4      Number of eggs deposited by houseflies in fish meat treated with different botanical pesticides 8 hours after treatment.....	48
5      Percent hatchability of eggs of houseflies as affected by different botanical pesticide.....	49
6      Mortality rate of housefly maggots as affected by different botanical pesticides 2 hours after treatment.....	50
7      Mortality rate of housefly maggots as affected by different botanical pesticides 4 hours after treatment.....	51
8      Mortality rate of housefly maggots as affected by different botanical pesticides 6 hours after treatment.....	52
9      Mortality rate of housefly maggots as affected by different botanical pesticides 8 hours after treatment.....	53
10     Mortality rate of housefly maggots as affected by different botanical pesticides 10 hours after treatment.....	54

11	Mortality rate of housefly maggots as affected by different botanical pesticides 12 hours after treatment.....	55
12	Mortality rate of housefly maggots as affected by different botanical pesticides 14 hours after treatment .....	56
13	Mortality rate of housefly maggots as affected by different botanical pesticides 16 hours after treatment .....	57
14	Mortality rate of housefly maggots as affected by different botanical pesticides 18 hours after treatment.....	58
15	Mortality rate of housefly maggots as affected by different botanical pesticides 20 hours after treatment.....	59
16	Mortality rate of housefly maggots as affected by different botanical pesticides 22 hours after treatment.....	60
17	Mortality rate of housefly maggots as affected by different botanical pesticides 24 hours after treatment.....	61
18	Mortality rate of housefly maggots as affected by different concentrations of chrysanthemum extract 2 hours after treatment.....	62
19	Mortality rate of housefly maggots as affected by different concentrations of chrysanthemum extract 4 hours after treatment.....	63
20	Mortality rate of housefly maggots as affected by different concentrations of chrysanthemum extract 6 hours after treatment.....	64
21	Mortality rate of housefly maggots as affected by different concentrations of chrysanthemum extract 8 hours after treatment.....	65

22	Mortality rate of housefly maggots as affected by different concentrations of chrysanthemum extract 10 hours after treatment.....	66
23	Mortality rate of housefly maggots as affected by different concentrations of chrysanthemum extract 12 hours after treatment.....	67
24	Mortality rate of housefly maggots as affected by different concentrations of chrysanthemum extract 14 hours after treatment.....	68
25	Mortality rate of housefly maggots as affected by different concentrations of chrysanthemum extract 16 hours after treatment.....	69
26	Mortality rate of housefly maggots as affected by different concentrations of chrysanthemum extract 18 hours after treatment.....	70
27	Mortality rate of housefly maggots as affected by different concentrations of chrysanthemum extract 20 hours after treatment.....	71
28	Mortality rate of housefly maggots as affected by different concentrations of chrysanthemum extract 22 hours after treatment.....	72
29	Mortality rate of housefly maggots as affected by different concentrations of chrysanthemum extract 24 hours after treatment.....	73

## LIST OF APPENDIX FIGURES

Appendix Figure	Page
1    Materials used in the study.....	74
2    Commercial insecticide (Cymbush).....	75
3    Fish meat.....	76
4    Leaf of Chrysanthemum.....	77
5    Leaf of Alagaw.....	78
6    Leaf of Psychic nut.....	79
7    Pounding of the botanicals.....	80
8    Placing of the botanical on blender.....	81
9    Extraction of the botanical.....	82
10   Crude extract Chrysanthemum.....	83
11   Crude extract Alagaw .....	84
12   Crude extract Psychic Nut.....	85
13   Application of treatments onto fish meat.....	86
14   Housefly depositing its eggs onto the fish meat.....	87
15   Eggs laid by the flies on the treated fish.....	88
16   Housefly maggots.....	89

**EFFICACY OF SELECTED BOTANICAL PESTICIDES  
AGAINST HOUSEFLY (*Musca domestica* L.)  
INFESTING POULTRY**

Sheena Mae S. Amurao  
Karen C. Cajayon  
Diana Marie B. Pastor

---

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

---

**INTRODUCTION**

Poultry is one of the world's major and fastest producers of meat. However, the Philippine poultry industry has been facing a difficult situation since 1996. Poultry producers are incurring substantial losses due to aggressive expansion, coupled with high cost of inputs in the local and international markets, brought about by the peso devaluation and high interest rates. While the poultry producers have trimmed down growth to more moderate levels, the industry is now faced with an even greater challenge in global competition. In the Philippine economy, the livestock and poultry sector is a major growth contributor to the agricultural sector (Batolos, 1981).

Flies are one of the most common pests in poultry. They do not bite poultry but they can pose severe nuisances and spread some poultry diseases. They are present because of poultry manure and exposed wet feed which is ideal feeding and breeding materials (Lyon, 1999).