

De La Salle University –Dasmariñas
Dasmariñas, Cavite
College of Engineering and Technology

Pandan Extract :
Non-Toxic Alternative to Chemical Insecticides

An undergraduate Thesis Presented
To The Faculty of College of Engineering and Technology
De la Salle University – Dasmariñas
Dasmariñas, Cavite

In Partial fulfillment in the degree of Bachelor of Science
in Industrial Technology

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Recommendation

This undergraduate thesis entitled “Pandan Extract: Non-Toxic Alternative to Chemical Insecticides” prepared and submitted by Erwin C. Salonga, in partial fulfillment of the requirements for the Degree in Bachelor of Science in Industrial Technology has been examined and is recommended for the acceptance and approval for oral defense.

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Table of Contents

	Page
Title Page	i
Recommendation	ii
Approval Sheet	iii
Acknowledgement	iv
Table of Contents	vi
List of Table	ix
List of Figure	x
Abstract	xi
Chapter I Problem and Its Background	1
Introduction	1
Background of the Study	4
Conceptual Framework	6
Statement of the Problem	7
Objectives	7
Hypotheses	8
Scope and Limitation of the Study	8
Significance of the Study	9

Definition of Terms	10
Chapter II Review of Related Literature	12
Research Literature	12
Conceptual Literature	14
Chapter III Methodology	18
Research Design	18
Research Instrument	18
Chapter IV Presentation and Analysis of Data	25
Procedure in manufacturing Pandan Insect Spray	25
Effect of Lime to the Properties of Pandan as Insecticide	26
Effects of Pandan Insect Spray in close and open areas	27
Findings	27
Sources of Raw Materials	29
Components of Commercial Insecticides	30
Components of Pandan Insect Spray	30
Cost of Pandan Insect Spray and Commercial	
Insect Spray	31
Advantages and Disadvantages using Pandan	
Insect Spray and Commercial Insecticide	32

Chapter V Problem Tree and Objective Tree	34
Problem Tree	34
Problem Tree Analysis	35
Objective Tree	36
Objective Tree Analysis	37
Chapter 6 Conclusion / Recommendation	38
Conclusion	38
Recommendation	38
Bibliography	39
Appendixes	40
Certificate	41
Computations	42
Curriculum Vitae	45

List of Tables

Table 1 Effect of Lime to the Properties of Pandán Extract as Insecticide	26
Table 2 Effect of Pandán Extract and lime in close and open areas	27
Table 3 Sources of Raw Materials	29
Table 4 Active Ingredients of Commercial Insecticides	30
Table 5 Inert Ingredients of Commercial Insecticides	30
Table 6 Active Components of Pandán Insect Spray	30
Table 7 Inert Components of Pandán Insect Spray	31
Table 8 Cost of Pandán Insect Spray and Commercial Insecticide	31

List of Figure

Figure 1 Manufacturing Process of Pandan

Leaves Extract and Lime Insect Spray

19



ABSTRACT

The extract of pandan was tested for its effectivity as insecticide. This was determined by observing cockroaches and mosquitoes sprayed with pandan extract and lime mixture. Lime content varied from 5g, 2.5g and 1g combined with 20 ml of pandan extract. Each mixture was sprayed to cockroaches and mosquitoes both in open and closed areas. Insects died faster in 20 ml pandan extract with 1g of lime in closed area. Each mixture showed potential as insecticide. It is best and effective with decreasing amount of lime sprayed in closed area but has an inverse effect on the mixtures shelf life.

Material and Method

Pandan and lime are the primary materials used in this research. Pandan was extracted using water as the base. Lime powder was dissolved in filtered pandan extract. Three different mixtures of pandan extract and lime solution were prepared as follows: 20 ml of pandan extract with 5g of lime, 20 ml of pandan extract with 2.5g of lime and 20 ml of pandan extract with 1g of lime.

Cockroaches and mosquitoes were collected from our home as well as nearby houses.

Pandan extract with three different lime concentrations were separately sprayed to 15 cockroaches and 15 mosquitoes both in close and open areas.

In determining the effectivity of pandan extract with lime as insecticide, the time of reaction to the insects were observed and recorded. These observations were compared and repeated five times with the reactions sprayed with commercial insecticides.

Result and Discussion

Insect like cockroaches and mosquitoes showed susceptibility to pandan extract with lime as summarized in Table 1. Based on observations the susceptibility of insects increases with decreasing concentration of lime. It took 15 minutes to exterminate insects in mixture of 20 ml of pandan extract and 5g of lime, 9 minutes in mixture of 20 ml of pandan extract and 2.5g of lime and 7 minutes in mixture of 20 ml of pandan extract and 1g of lime. The aromatic smell of pandan was also noted increasing with the decreasing amount of lime and inversely proportional to the length of preservation. The more aromatic smell the more effective as insecticide. The less concentration of lime the less in the mixtures shelf life.

The potential of pandan extract as insecticide was also proven effective when sprayed in closed area as shown in Table 2. It was observed that cockroaches and mosquitoes simply resist the pandan extract spray through crawling and flying away when done in open area. On the other hand, the

cockroaches become restless and later die while mosquitoes fall down and later die when spraying is done in closed area.

Summary and Conclusion

The potential of pandan extract as insecticide was investigated. The concentrations of pandan extract used were 20 ml of pandan extract with: 5g, 2.5g and 1g of lime. The test insect used were cockroaches and mosquitoes. This study aims to determine the potential of pandan extract as alternative for commercial insecticide and determine the most effective concentration of pandan extract and lime in exterminating insects when exposed to pandan insect spray.

In extracting pandan, water was used as a base. Lime was combined with the extracted and filtered pandan extract. Cockroaches and mosquitoes reactions to different concentrations of pandan extract sprayed both in closed and open areas were noted.

The pandan extract combined with lime showed potential as insecticide for cockroaches and mosquitoes.

In exterminating insects highest susceptibility was observed in mixture of 20 ml pandan extract with 1g of lime solution followed by the mixture with 2.5g lime and least susceptibility in 5g of lime. On the other hand prolonged shelf life of mixture was noted in higher concentration of lime which is 5g and

decreases as lime content decrease. Also the effectivity of pandan insect spray was observed when done in closed area rather than in open area. This mean that pandan insect spray have potential as insecticide and can be use as alternative for commercial insecticide for it is cheaper, easy to make and environmental friendly.

