***METHODOLOGY***

This chapter includes the research methodology of the science investigatory project. In more details, in this part the researcher outlines the research design, the research process, data gathering and the type of data analysis.

***Research Questions***

This study sought to answer the question, what will be the effect of lessening of insects.

***Materials***

The materials used in the experiment is chopping board ginger and vinegar 4 spray bottles knife water

***Procedure***

Collect or prepare the materials needed. Chop the ginger. Put 3 tablespoons of the chopped ginger inside the 4spray bottles evenly. In the 1st spray bottle pour 2 cups of vinegar inside , in the 2nd spray bottle add 2 cups of vinegar and ½ cup of water, in the 3rd spray bottle put 2 cups vinegar 1 cup of water, and in the 4th bottle put 2 cups of vinegar and 1 ½ cup of water. After putting the ingredients in each perspective bottle try several trials in your garden. Find out which is the more effective among the trials.Record your observation

***Data Gathering***

This shows the presentation, analysis, and interpretation of the data gathered. In this part you will determine the percentage of how the researchers product is effective upon using. And which among the 4 trials are effective

***Chapter lll***

Table 1: Qualitative Data of Measurement

|  |  |  |  |
| --- | --- | --- | --- |
| Trial No. | Amount of Ginger | Amount of Vinegar | Amount of Water |
| 1 | 3tbsp | 2cups | None |
| 2 | 3tbsp | 2cups | ½ cup |
| 3 | 3tbsp | 2cups | 1 cup |
| 4 | 3tbsp | 2cups | 1 ½ cup |

Table 2: Time of Effectiveness of the Insecticides

|  |  |
| --- | --- |
| Trial No. | Time of effectiveness |
| 1 | 20 seconds |
| 2 | 34 seconds |
| 3 | 56 seconds |
| 4 | 1 minute and 4 seconds |
|  |  |

The (Ginger and Vinegar as Organic Insecticide) cannot kill fast because it will depend on the amount of water like the 2nd 3rd and 3rth trials but In the 1st trial which is it has no any amount of water the insects will die In just 20 seconds it is very effective when you didn’t mix any amount of water

***Chapter I***

***Background of the study***

We can grow healthful food without depending too much on toxic chemicals and chemical fertilizers with NATURAL ORGANIC AND BIOLOGICAL FARMING systems.The knowledge and simple and practical technology in this manuscript can save your crops and help you to earn more from your garden and farm because of this you don’t have to spend too much money just to buy a pesticides we have this product to help many people and farmers for their plants this is very useful because the consumers can avoid eating the chemicals in the food that can affect our body. Let’s return in to the “Natural” ways.

***Statement of the problem***

Is ginger & vinegar mixture effective as insecticide?

***Goal***

To examine if ginger & vinegar is effective as insecticide

***Significance of the Study***

The researchers have made this organic insect killer out of ginger and vinegar to create friendly substances. Since, our environment is at stake because of pollutions. One of these pollutions is on air. If you haven’t noticed our planet is deteriorating because of this. And of the causes of air pollution is the insecticide and pesticides used today contain those harmful chemical. So the researcher made this organic insect killer to help our mother earth by this project it can help us to reduce the problem in our community. To lessen the problem of air pollution, the researchers have made this organic insecticide.

***Scope of the and Limitation***

Vinegar is a liquid substance consisting mainly of acetic acid and water, the acetic acid being produced through the fermentation of ethanol by acetic acid bacteria. It is today mainly used in the kitchen as a general cooking ingredient, but historically, as the most easily mild acid, it had a great variety of industrial, medical, and domestic uses, some of which (such as general household cleanser) are still promoted today. Commercial vinger is produced either by fast or slow fermentation processes. In general, slow method are used with traditional vinegars, and fermentation process slowly over the course of the weeks or months. The longer fermentation period allows the accumulation of a nontoxic slime composed of acetic acid bacteria. Fast methods add mother of vinegar to the source liquid before adding air using a venture pump system or a turbine to promote oxygenation to obtain the fastest fermentation. In fast production processes, vinegar may be produced in a period ranging from 20 hours to three days. And ginger or ginger root is the rhizome of the plant Zingiberofficinale, consume as a delicacy, medicine, or spice. It lends its name to its genus and family (Zingiberaceae). Other notable members of this plant family are turmeric, cardamom, and galangal. These two studies come up to make an organic insect killer.

***Definition of Terms***

Insecticides- are a pesticide use against insects. They include ovicides and larvicides used against the eggs and larvae of insects respectively. Insecticides are used in agriculture, medicine, industry and household. The use of insecticides is believed to be one of the major factors behind the increase in agricultural productivity in the 20th century. Nearly all insecticides have the potential to significanctly later ecosystem; many are toxic to humans; and other concentrated in the food chain.

Ginger- or ginger root is the rhizome of the plant Zingiberofficinale, consumed as a delicacy, medicine, or spice. It lends its name to its genus and family (Zingiberaceae). Other notable members of this plant family are turmeric, cardamom, and galangal.

Vinegar- is a liquid substance consisting mainly of acetic acid and water the acetic acid and water, the acetic acid being produced through the fermentation of ethanol by acetic acid bacteria.

***Chapter IV***

In this project the researchers have formulated an organic insecticide which is effective on all sort of insects. In the research we have done we have come to this point which we have learned and discovered that we have made is very much effective. The trials research proves that this product can be of good use especially on your garden. With this organic insecticide which you can now take care o your garden the natural way without using those other insecticides that contain toxic chemicals which can help lesson your problems towards those insects but can also destroy our environment. Because of this product you can now protect your garden from certain insects but you can also lessen the problem of our environment because of this product. Therefore I concluded that in all the trials that I make is all effective but they don’t have the same time.

***Chapter V***

***Recommendation***

More than 1000 people die in a year because of dengue. This has been a big issue in our society, especially, on the health of our young once that has been resolve. Now, the time has come to slowly put and to this deadly insects. Now invention has occurred to be made to reduce the population of dengue causing mosquitos.

We should like to recommend our newest contribution to our society to reduct and may avoid the cause of dengue. We recommend this product not only to our fellow students but also to everyone so that they could use this as an alternative for mosquito repellent, rather than using toxic insecticides. Since this is easy to make and it is not harmful to our health for it is made out of vinegar and ginger

Easy to make cheaper than the others , good for the health and environmental friendly that is what our vinegar and ginger insecticide repellent is. It is proven to be effective and quality

***Ginger(ZingerberOfficinalis)and vinegar as Organic Insecticide***

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