

## CHAPTER ONE

### INTRODUCTION

#### 1.0 INSECTICIDES (General Overview)

Insecticide is a substance or a mixture of substances used for killing insects[1]. It is well known fact that many protozoal bacteria diseases are transmitted from man to man by insects. One may combat these diseases not only by means of prophylactic drugs but also by the destruction of the insects carriers.

Insecticide is a chemical compound that is lethally toxic to insects either by ingestion or by body contact. It is applied to vegetation, crops and insect breeding areas either as liquid spray or as dry powder[2].

They 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 20<sup>th</sup> century.

Nearly, all insecticides have the potential to significantly affect ecosystem, many are toxic to human and others are concentrated in food chain. It is necessary to balance agricultural needs with environmental and health issues when using insecticides. It is crucially important that all the rural areas in Nigeria are being educated on the need to eradicate insects especially mosquitoes that might breed around the environment and transmit malaria to people living within the enclave.

Integrated Pest Management (IPM) in the home begins with restricting the availability of insects of three vital commodities; shelter, water and food. If insects become a problem despite such measures, IPM seeks to control them using the safest possible methods targeting the approach to the particular pest[1].

Years now, efforts are geared towards controlling malaria infestation both in urban and rural areas. A lot of measures are being taken to reduce the number of death as a result of malaria.

We hear now and then that numbers being quoted by the analyst that died of malaria attack. Thus, free mosquito treated nets are always distributed to families and individuals all in a bid to reduce malaria attack from mosquito bite.

In the light of this, it is necessary to study God-given substances in this case, plant that has embedded substances that will help man combat mosquitoes or at least reduce infestation to the barest minimum.

## **1.1 OBJECTIVES OF THE STUDY/WORK**

The purpose of this work is to produce mosquito repellants using orange peels (*cestrum*) wastes, which will save the cost of production and purchase, thereby increasing its availability especially in the rural areas. If the work is successful, production of mosquito repellants using orange peels will provide source of employment to our teeming youths and also make mosquito repellent within the reach of everybody, thereby reducing the number of death due to malaria caused by mosquito bite.

## **1.2 SCOPE OF THE STUDY**

Orange peels (*cestrum*) will be prepared and used for the production of mosquito coil, which ignited, will repel mosquitoes within the limit of the smoke. The produced coil will be tested for its effectiveness performance. Cost analysis should also be taken to know whether mass production will be more effective or not.

## **1.3 LITERATURE REVIEW**

### **1.3.1 HISTORY ASPECT OF MOSQUITO REPELLENT**

Traditionally, various types of substances have been used to repel mosquitoes. These

includesuch things as smoke, plant extracts, oil, tars, muds, etc.

Asinsects repellants technology became more sophisticated, individual compounds were discovered and isolated. This allows the formulation of new and more efficient forms of mosquito repellants.

Thefirst truly effective active ingredient used in mosquito repellants was citronella oil[3]. This material is a herbal extract derived from the citronella plant, an Asian grass. While citronella has been used for centuries for medical purposes, its repellence was only accidentally discovered in 1901, when it was used as a hairdressing fragrance. Since *citronella* oil is a fragrant material, it is thought that the chemical terpenes of which it is composed are responsible for its repellent activity.

*Citronella* oil does repel mosquitoes, but it has certain characteristics which limit its effectiveness. For example, it is very volatile and evaporates so quickly from the surface to which it is applied. Also, large amounts are needed to be effective. The disadvantages of using *citronella* oil prompted researchers to study alternative synthetic compounds. Many of the early attempts at creating synthetic insect repellents were initiated by the United States military. Out of this research, the discovery of the repellent dimethylphthalate in 1929. This material showed a good level of effectiveness against certain insect species, but it was ineffective against others. Indalone was found to repel insects in 1937 and Rutgers 6<sub>12</sub> (2-ethyl-1,3-hexane diol) was synthesized soon after. Like dimethylphthalate, these materials had certain limitations which prevented their widespread use[3].

Since none of the available materials were ideal repellents, research into new synthetic materials continued. In 1955, scientists synthesized DEET (n-n-diethyl-m-toluamide) currently the most widely used active ingredient for mosquito repellents.

After its discovery, repellent manufacturers developed many different forms in which to deliver

DEET, such as creams, lotions and aerosols[4].

## **PRODUCTION OF MOSQUITOE REPELLANTS INSECTICIDES (MOSQUITOE COIL) USING ORANGE PEELS (Cestrum)**

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