

# PRODUCTION OF MOSQUITO REPELLENT INSECTICIDE COIL USING ORANGE PEEL

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## Abstract:

The main objective of the present study was to formulate mosquito repellent insecticide coil using orange peel .In this preparation limonene oil were used as insecticide limonene oil extract were taken than addition of ingredient such as activated charcoal , turmeric, camphor,water, colouring agent and flavouring agent at appropriate quantity,evaluation and characterization were performed for its safe and effective use .

**Keywords:** orange peel oil (Limonene oil), Turmeric, camphor, charcoal, colouring and flavouring agents.

## Introduction:

orange peel ( cestrum) contains oil known as Limonene oil which has a lethal effect on mosquitoes and some other insects. It can be Used as active ingredient to produce mosquito coil , which when ignited, will repel mosquitoes within the limits of the smoke. Most plant contains compounds that they use in preventing attack from phytophagous insects' insecticide is a substance or a mixture of substances used for killings insects. It is well known fact that many protozoal bacteria diseases are transmitted from man to man by insect . One many combat these diseases not only by means of prophylactic drugsbut also by the destruction of the inspects carriers . Insecticide is a chemical compound that is lethally toxic to insects, either by ingestion or by body contact ,it is applied to insects breeding areas. They are used in agriculture, industry and household.

It is necessary to balance agricultural needs with environmental & health issues when using insecticide . If insect become a problem despite the measured that must have been taken integrated paste management seeks to control them using the safest possible method targeting the approach to the particular paste . year now , effort is geared towards controlling malaria infestation both in urban and rural areas a lot of measured are being take to reduce the number of deaths as a result of malaria .

## Objective:

- The purpose of this work is to produce mosquitoes repent using orange peel ( cestrum) waste perseverance which will save the cost of production and purchase, thereby increasing its availability especially in the rural areas.
- Work is successful, production of mosquito's repellent using orange peel.
- Mosquitoes repellent using orange peel coil are very less side-effects compare by others available of market also the make mosquito repellent within the reach of everybody.
- Thereby reducing the number of deaths due to malaria caused by mosquito bite .

## Significance of the study:

The importance of my project work is the pricing of a mosquito coil that is not harmful to our health and killings mosquito that are vector carriers of malaria sickness and is environmentally friendly.

## Scope of the study:

Orange peel s ( cestrum) will be collected and used for the production of mosquito coil .The produced coil will be tested for effectiveness performance and cost analysis should also be carried out to know if mass production will be encouraged

## Method of preparation

1)**Cage method** : Take the mosquito cage ,add few of mosquito then smok the coil and keeping it near the cage , the mosquito dies in at least 10 minutes

## 2) Sample collection and preparation :

Fresh orange peel & others active ingredient were purchased from India market

The orange peel was washed in water , and mix in the two full night then extract was filtered & alcohol was added and Limonene oil were extracted .

3 )**Repellent coil preparation** : The oil from orange fruits contains Limonene , the extracted oil from the orange was used to prepare insecticide, &limonene oil is all that is needed to make insecticide coil .

### ➤ Procedure of experimental work

Orange Peel Extension:

Mixing of orange peel and water, leave it for two days. Filter the extract. Filter the obtain solution and extract it. Mixing various components. Add Limonene oil, water, camphor, turmeric, activated charcoal powder. Colouring and flavouring agents to the solution. Giving shape & size. Heat the solution and make a proper paste of it. Then mould the paste for obtaining respective size.

**Result :** On the basis of evaluation study and observation it is found that formulation of mosquito repellent coil was done successfully using cage test method. Toxicity study was done, it is found that <1% of this coil hence it is safe and effective formulation.

### ✚ Chemical Used and Quality

Srno	Common Name	Category	Quality
1)	Limonene oil	Insect Repellent	15 ml
2)	Activated charcoal	Reduces Emission of toxins	2 gm
3)	Turmeric	Mosquito repellent natural insecticide	2 gm
4)	Camphor	Natural insecticide	2 gm
5)	Colouring and flavouring agents	Artificial components	2 gm
6)	Water	Natural ingredients	25 ml

### Formulation Table

✚ Chemical name		Limonene oil (C <sub>10</sub> H <sub>16</sub> )
1)	Molar mass	136.238 g mol <sup>-1</sup>
2)	Density	0.8411 g/ cm <sup>3</sup>
3)	Melting point	74.35°C
4)	Toxicity	(LD <sub>50</sub> ) – low toxicity based upon lethal dose.
5)	Appearance	Colorless liquid
6)	Odor	Orange

**Use of ingredients**

Sr.no	Ingredients	Uses
1)	Limonene oil	Use for flea & tick control on pets, as an insecticide spray
2)	Activated charcoal powder	For reducing emissions of toxins in mosquito coil
3)	Camphor	Used in excellent natural insecticide
4)	Turmeric	It's strong aromatic as a mosquito repellent.
5)	Colouring and flavouring agents	Mostly brown repellent is used because of their low toxicity.
6)	Coconut cell powder	Binding agent



Image No 1 : Mosquito repellent coil .



Image No 2: Dead mosquito using coil.

**Observation Table**

Sr no	Test Name	Obtained value	Standard value
1)	Colours	A little yellow	Colourless liquid
2)	Test for chemical	Mosquito larvicides	Larvicidal effect and Aedes albopictus
3)	Mosquito killings time	Shows early effects	Fast and effective
4)	Test for toxicity	0.90 %	0.99 %

**Benefits:**

1. Limonene is utilized as a botanical insecticide
2. It's an active ingredient in multiple pesticides product.
3. Other household products containing this compound include soaps , shampoos,
4. Lotions, perfumes, laundry detergent & air freshener

**Conclusion:**

This mosquito coil is made using orange peel it does not have any side effects for humans and Small children mosquito coil made from these herbal products it very beneficial for repelling Mosquitoes and human health .On the basis of result obtained the mixture of orange peel and 25 % water was the most effective. Among the solution, setup of orange peel and water.Furthermore, it was also concluded that the more concentrated the solution the more it is to Repel or kill mosquitoes used other fruits in testing the efficiency of the given product.

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