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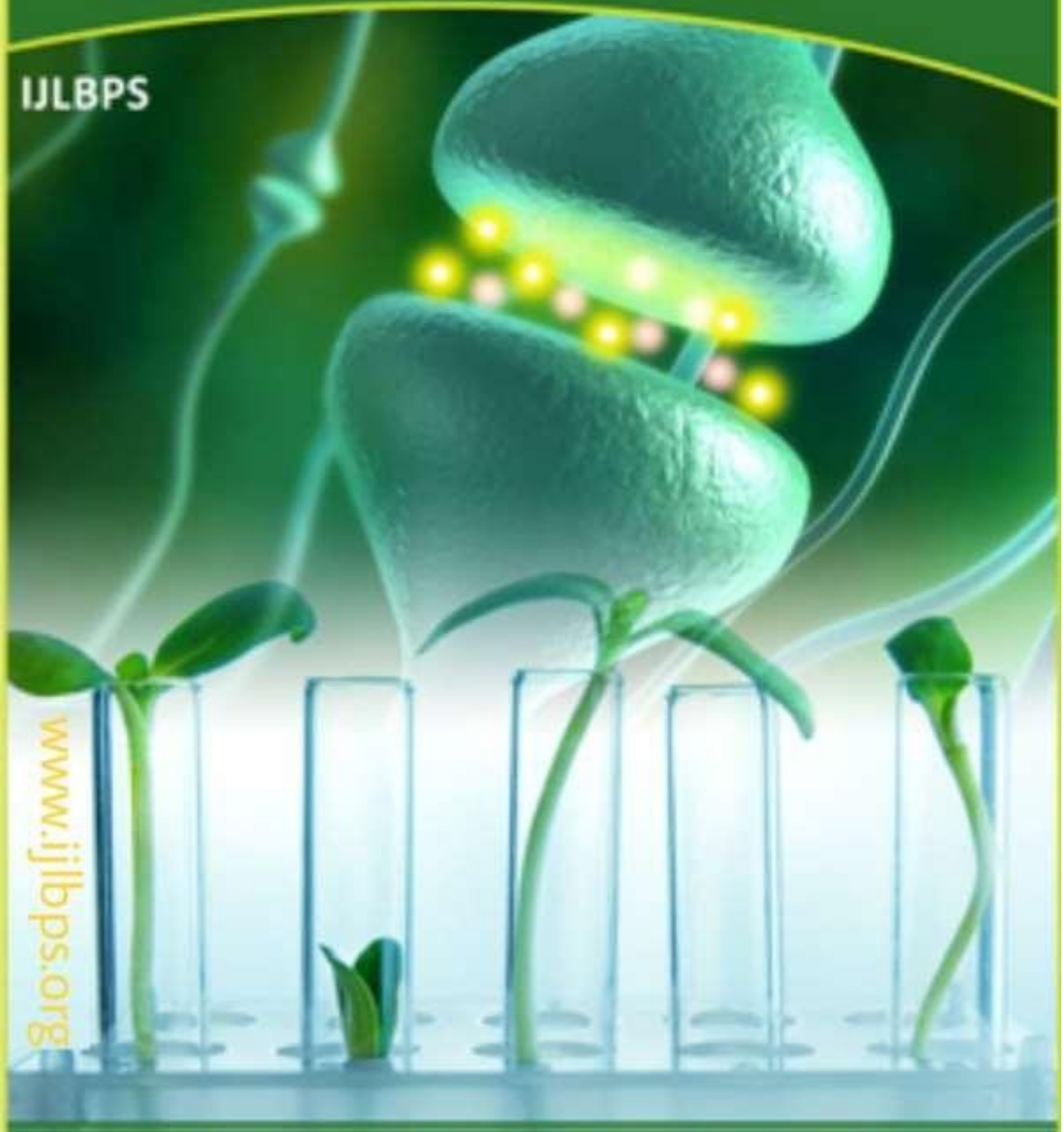

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PRODUCTION OF MOSQUITOES REPELLANTS INSECTICIDES (MOSQUITO COIL) USING ORANGE PEELS (CESTRUM)

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ABSTRACT

The health of people worldwide is still concerned about diseases spread by mosquitoes, especially in tropical and subtropical regions. Using insect repellents is an effective way to prevent mosquito bites and the transmission of certain illnesses.

Mosquito repellents with a chemical base may be unhealthy for people, especially for young children and expectant mothers.

One strategy that has gained traction recently in the production of environmentally safe and sustainable insect repellents is the use of natural plant-based components. We used orange peels to make a mosquito repellent (liquid or coil) in this study because they are a great source of essential oils, such as limonene, which has been shown to have mosquito-repelling properties. In order to repel mosquitoes, orange peels can be used to manufacture liquid or coil incense, as detailed in this research article. To make dough, the orange peels are dried, pounded into a powder, and mixed with other substances including charcoal, camphor, turmeric, and essential oils. Dough is shaped into sticks or cones and then left to dry. The resultant (liquid or coil) has been shown to have strong anti-mosquito properties and to provide protection for a maximum of two hours. Using orange peels as a raw material for mosquito repellent (liquid or coil) has several advantages, such as being readily available, reasonably priced, and environmentally friendly. Moreover, utilizing plant-based organic materials reduces exposure to manmade chemicals and the health concerns associated with them. Overall, our research shows that orange peels have the potential to be a natural source of insect repellent and offers a quick and easy way to make a liquid or coil of repellent.

KEYWORDS: Mosquito repellents with chemical bases may be unhealthy for people, especially for young children and expectant mothers.

1. INTRODUCTION:

The importance of my project work is the producing of a mosquito coil that is not harmful to our health and killing mosquito that are vector carriers of malaria sickness and is environmental friendly. 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. Insect repellent (also known as 'bug spray') aims to reduce the risk of local cutaneous reactions from insect bites (eg mosquito bites) and prevent serious insect-borne diseases including malaria, zika virus, West

Nile virus, dengue fever, yellow fever, and chikungunya fever. Most plant contains compounds that they use in preventing attack from phytophagaus (plant eating) insects. These chemicals fall in to several categories including repellents, feeding deterrents, toxins and growth regulators. Repellents of plant origin do not pose hazards of toxicity to human and domestic animals and are easily biodegradable. Natural products are safe for human when compared to that of synthetic compounds. Therefore, it is the hour to launch extensive search to explore eco-friendly biological materials for control of insect pests. The phytochemial derived from plant resources can act as larvicidal, insect growth regulators, repellents and oviopositional attractants, having deterrent activities observed by different researchers.

Orange peels

Oranges are a citrus fruit that belongs to the family Rutaceae. In addition to other important nutrients, they are a good source of dietary fibre and vitamin C. Typically round or oval in shape, oranges have a rough, leathery skin that can range in colour from orange to yellow-orange. Depending on the kind, the interior fruit is segmented, juicy, sweet or sour.

Orange peels are the outer, colored layer of the orange skin that protects the fruit inside. They are rich in essential oils, flavonoids, and other nutrients. Orange peels can be either bitter or sweet, depending on the variety of orange and the thickness of the peel. Bitter orange peels are often used to make marmalades and other preserves, while sweet orange peels are used for baking and other culinary purposes.

Constituent Chemical[3]

1 Limonene (90%)

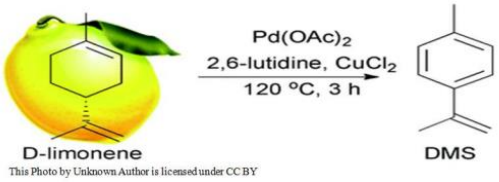
2 Citral (4%)

3 Vitamin C

4 Pectin

5 Hesperidin 6 Aurantimarin and Aurantimaric Acid

Limonene Oil



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

Other Benefit[13]

Protection against mosquito born diseases-;Mosquito repellent coil using orange peel provide protection against mosquito born disease such as dengue malaria etc. 2Natural And Safe-; Mosquito repellent coil using orange peel is natural and safe alternative chemical based mosquito repellent

2. METHODOLOGY

Ingredient

Table No. 1

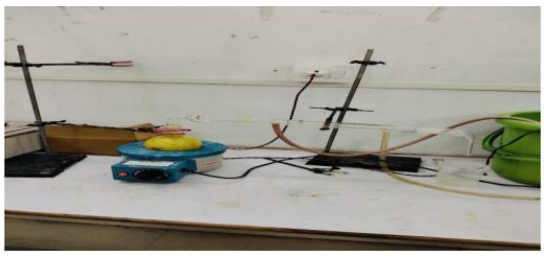
1.Orange Peel	2 kg
2. Limonene Oil	4ml
3. Water	Quantity Sufficient

METHOD[28]

1. Collect and dry the orange peels: Collect the orange peels and wash them thoroughly with water. Then, let them dry in the sun for a few days until they are completely dry.

2. Grind the orange peels: Use a grinder or mortar and pestle to grind the dried orange peels into a fine powder.

3. Extraction of Limonene: Limonene are extracted from the orange peels using Soxhlet extractor.and Fill the Soxhlet extractor with enough Diethyl ether to cover the orange peel powder. Attach the Soxhlet extractor to a condenser and warm the flask on a hot plate or heating mantle. The essential oils was drawn out of the powdered orange peels by boiling the diethyl ether at 15°C, letting it cool, condensing and then dripping it back onto it. Keep up the extraction procedure for 6 to 8 hours, or until the solvent is colourless. Depending on the solvent employed and the quantity of orange peels this period may change. To separate the limonene and diethyl ether the extract was followed through steam distillation at 30°C.



4. Mix the ingredients: Mix the limonene and turmeric. The amount of each ingredient will depend on the desired strength and quantity of the coil. Slowly add water to the mixture while stirring it continuously until it forms a thick paste.

5. Make small cones: Take small portions of the paste and roll them into small cones. We can also use coilmaking molds to give them different shapes.

6. Dry the coil cones: Let coil cones dry in a cool, dry place for a few days until they are completely dry and hard.

7. Burn the coil: When you want to use the mosquito repellent coil light the tip of the cone and let it burn for a few seconds. Then blow out the flame and place the coil in a suitable holder or on a heatproof surface.

Evaluation of mosquito repellent coil[06]

1. Cage Test: The cage sest involves placing a mosquito inside a cage and then buming the coil nearby. We observe the mosquito's behavior to determine if it repelled by the coil. If the mosquito avoids the area around the coil, it indicates that the coil is effective.

2. Mosquito Landing Test: This test involves counting the number of mosquitoes that land on a person's exposed skin when they are in the vicinity of the coil. To perform this test, person sit in a room with the coil burning and count the number of mosquitoes that land on their skin in a set period, such as 5 minutes.

3. Fume test: We observe the orange peel smell so it means the test is positive

4. Toxicity test: Toxicity test is done to ensure that the prepored coil is safe for use.

The ingredient used in the prepureion such as limonene oil, champhor, turmeric and charcoal at all the rates was not toxic

Irriunbility test: The imitability test is performed to check the whether the prepand coil cause any irritation to the skin

Table No. 2

Name of test	Result Obtained		
	Positive	Negative	
1. Cage Test	✓	-	Here we found that the prepared coil the mosquito in the cage were repelled.
2. Mosquito Landing Test	✓	-	The coil was tested on the person for 5 minutes it was observed that the number of the mosquitoes that landed skin was very less nearly 2-3.
3. Fume test	✓	-	The fume produced from the prepared coil was white which indicates that the coil does not contain any hazardous substance
4. Toxicity test	-	✓	As the coil contain all natural ingredients it does not cause any toxic effect to human
5. Irriunbility test	-	✓	Here we found that the prepared coil did not cause any irritation on skin

3. SUMMERY

An organic and natural substitute for mosquito repellents with chemical bases is mosquito repellent (coil or liquid) prepared from orange peels. The natural insecticide limonene which keeps mosquitoes away is abundant in orange peels. The orange peels are dried and then powdered into a fine powder to create the (coil or liquid). This powder is used with additional all-natural insect repellents such activated Charcoal powder, camphor and turmeric. In order to create miniature cones or sticks that can be smoked like traditional incense, the mixture is then made into a paste and molded into these shapes. The (coil or liquid) emits a fragrant smoke when smoked that deters insects like mosquitoes. Although there is little scientific evidence to support the efficacy of mosquito repellents manufactured from orange peels, many people in India and other areas of the world have used (coil or liquid) made from orange peels for generations with good success. It‟s crucial to keep in mind though that natural repellents for mosquitoes could not be as efficient as chemical-based ones and might require more frequent reapplication. It‟s also a good idea to try a new product on a small patch of skin first because some people might be allergic to the components in natural mosquito repellents.

4. RESULT

As a result we had found that the coil and liquid which we had prepared from the orange peels extract has the ability to repel mosquito. Due to the presence of limonene a natural pesticide present in orange peels is an efficient mosquito repellent. The coil liquid emit a pleasant citrus perfume when smoked which keeps mosquitoes and other insects away Additionally it contributes to air purification and fostering a tranquil environment in our house. Limonene the primary component in orange peels was used to make the insect repellant coil and liquid. Evaluation of the prepared coil revealed that it exhibits an immediate effect. It was found that the majority of the mosquito growth was hindered when plates containing different aeromicroflora exposed to the coil made in accordance with the above mentioned process.

5. CONCLUSION

The mosquito coil for small children manufactured from these herbal ingredients is highly effective for repelling mosquitoes and protecting human health. It is made from orange peel and has no negative effects on humans.The combination of orange peel and 25% water proved to be the most successful based on the results obtained. Orange peel and water arrangement is one of the solutions.Additionally, it was shown that the more concentrated the solution, the more effective it is in killing or repelling mosquitoes that were used to evaluate the efficacy of the particular product with different fruits.

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