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## ECO-FRIENDLY MOSQUITO REPELLENT COIL

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### ABSTRACT:

The plant based repellents have been used from the generations by the indigenous people against the mosquito. The knowledge of traditional mosquito repellent plant obtained from ethnobotanical studies. Mosquito repellents are very important way for prevention of mosquito bites and various diseases. Mosquitoes are the most important and frequently observed pest in urban, sub-urban and rural environment. However use of chemical mosquito repellent is hazardous to health. In the present study attempt has been made to make an effective, eco-friendly and natural mosquito repellent coil from the natural ingredients like cowdung, neem, tulsi, and nilgiri. This product keep environment pleasant and is not harmful to health as compared to other chemical mosquito repellents. The present study has been made to develop 100% herbal product and also maximum repellence activity. Since, it has no effect on human health after inhalation or even on digestion. These mosquito repellent products are safe to use, cheapest and easy for the development. In the Indian culture cowdung is considered as very sacred. The cowdung shows the antiviral property. The main aim of this product is to develop eco-friendly mosquito repellent coil. It is innovative source to provide employment to the rural people and to increase the economy of farmers.

**Keywords-** Cowdung, mosquito repellent and environment.

### INTRODUCTION:

According to the World Health Organization, global warming is also playing important role to increase the range of mosquitoes which carry malaria, yellow fever, and dengue fever, putting millions more humans at risk. "The world's most dangerous animal is the mosquito," according to a BBC World

Service Health Program: malaria now infects approximately 110 million people annually, causing 2-3 million deaths, and with increasing drug resistance. Mosquitoes are the carriers of many harmful diseases like west virus diseases; Malaria, Dengue fever, Chikungunya, Lyme diseases, etc. Dengue Fever and Dengue Hemorrhagic Fever are the most common mosquito-borne viral diseases that affect a wide range of people in the world. It is caused due to the bite of an infected *Aedes* mosquito. The controlling of this disease includes protects yourself from mosquito. For avoiding or prevent the disease from mosquitoes, mosquito repellent is very useful. Whole world scientists are engaged in developing the effective vaccine for malaria. Mosquito repellent is a substance which can be applied to skin, clothing, or other substances which prevents bite of the insect.

The ingredients used in the synthesis of natural mosquito repellent are Neem, Tulsi, Cowdung and Nilgiri. The neem is major source of several insecticidal alkaloids. (Saha, *et al.*, 2006). Neem has medicinal and insecticidal properties resulting from its various active components, including Azadirachtin. The products of neem are cheapest and safe for beneficial organism, they also repels insects. (Sarode, *et al.*, 1995). 2% neem oil mixed in coconut oil, when applied to the exposed body parts of human. It provides the complete protection for 12 hr from the bites of all *Anopheles* species. Application of neem oil is safe and can be used for protection from malaria in endemic countries.

Many scientists showed that pyrethroids used in repellent can cause hyper excitation of nervous system and prolonged use affect the corneal damage, liver damage, asthma. Near about 12% people are seriously affected by use repellents. However many people still don't like the smell of mosquito repellent coils containing synthetic pyrethroid. Because of that attempt have been made to find out active ingredient, from the natural compounds to replace the synthetic pyrethroid. Other chemicals like Transflurethrin present in repellent can cause irritation. The synthetic chemical repellents cause rashes, swelling, low blood pressure and one report of death (Patel, *et al.*, 2012). The major problem caused because of inhalation of its smoke. Natural mosquito repellents are effective,

environment eco-friendly inexpensive and biodegradable. These are not hazardous to the living organism.

#### **MATERIAL AND METHOD:**

The raw materials are used for the preparation of natural mosquito repellent are cowdung, neem, tulsi and nilgiri. The most known & popular ways for repelling mosquitoes are leaves of neem along with cowdung, when these compound burnt its acts as antiviral agent. Neem is indigenous and widely grown in India. Neem has natural mosquito repellent properties. Tulsi and neem are the mostly used medicinal plants; because it has excellent antiviral and insecticidal activity. Nilgiri is aromatic and medicinal plant. It has been used because of its antiviral property and good smell.

The raw material collected based on traditional methods and ancestors. The healthy leaves of neem, tulsi and nilgiri were collected. These collected material were grind in grinder and mixed with cowdung and coils was prepared then they are allowed to dry in shade.

The compositions of ingredient have been change along with formulation. The different concentrations of ingredients formulation are tried as shown in below.

1. Cowdung+ Neem+ Tulsi
2. Cowdung+ Neem+ Nilgiri
3. Cowdung+ Neeem+ Tulsi + Nilgiri.

#### **OBSERVATIONS:**

**Table No. 1 Result of natural mosquito repellent coil.**

<b>Neem (gm)</b>	<b>Tulsi (gm)</b>	<b>Nilgiri (gm)</b>	<b>No. of mosquito in culture box</b>	<b>No. of Mosquito dead in 8 hours</b>
<b>5</b>	<b>2.5</b>	<b>2.5</b>	<b>25</b>	<b>10</b>
<b>10</b>	<b>5</b>	<b>5</b>	<b>25</b>	<b>16</b>
<b>15</b>	<b>7.5</b>	<b>7.5</b>	<b>25</b>	<b>21</b>

**CONCLUSIONS:**

In this present investigation different concentrations of mosquito repellents were produced. Out of these concentrations of repellent the neem+tulsi+ nilgiri+ cowdung are the most effective. After using these repellent 21 Mosquitoes were dead in 8 hours. Hence, 80% were dead by using the natural mosquito repellent coil. A survey is conducted on 100 peoples from different localities, different social sections, and hostels. Out of these three formulation, formulation 3 is most effective than the other formulation. Mosquito repellents are prepared from natural sources; hence, it could not affect the health of living being. These product not only mosquito repellent but they also shows properties like hygienic, asthetic and medicinal. It is easiest and cheapest method than the other mosquito repellent. The present product is very useful in rural area because these ingredients are easily available in this region. It is innovative source of employment to the people of rural areas.

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