

# Natural Mosquito Repellent Rolls- Formulation and Evaluation

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## ABSTRACT

The important intention of the product is to make 100% natural mosquito repellent due to the fact nowadays, chemical primarily based totally mosquito repellents to be had with inside the marketplace include a few dangerous and toxic chemical which might be probably to purpose chance to human fitness in addition to environment. A strive has been made to put together a natural mosquito repellent primarily based totally on the conventional practice. This product consists of herbal an element that entails the cashew nut, Bay leaves (*Laurus nobilis*), Cow dung, Neem leaves (*Azadirachta indica*), lemon grass oil (*Cymbopogon citratus*), OCB papers. the lawn is having an significance in India as we understand our grandparents used to mention that “Gomay Vaste Lakshmi” meaning goddess of the wealth is living with inside the cow dung and it's far also powerful because it gives a safety in opposition to the mosquitoes and similarly different elements also are beneficial to repel the mosquitoes, the product is made the use of a herbals and are organized with the aid of using the hand rolling approach and it is evaluated for its efficiency. The artificial mosquito repellent reasons the damage to the human fitness and environment .In the marketplace numerous mosquito repellent formulations are to be had in a shape of coil, speedy card, sprays etc. So the usage of the natural with inside the instruction of the this mosquito repellent product are loose from the chemicals, value powerful and easy to formulate.

**Keyword:** Herbal, Chemical free, Mosquito Repellent

## INTRODUCTION

The Culicidae family, which includes the roughly 3600 species of mosquitoes, is a widespread group of flying insects that transmits diseases like malaria, dengue fever, and yellow fever.[1,2] The products that primarily protect humans from dangerous mosquitoes are called mosquito repellants. In order to repel mosquitoes, a variety of synthetic treatments are utilized, some of which may have negative side effects like irritation or respiratory problems. The likelihood of negative effects is decreased as compared to formulation of herbal products. The product's main goal is to provide a 100% natural insect repellent. Hence, attempts to manufacture herbal mosquito rollers are made. [3, 4, 5]

## RESEARCH METHODOLOGY

The research is about the utility of the Cashew Nut Shell (*Anacardium Occidentale*), Bay leaves (*Laurus nobilis*), Cow dung, Neem (*Azardiachta Indica*) as a component of the mosquito repellent roll. *L. nobilis* essential oils were reported to have insect repellent activity against *Culex pipiens*. Accordingly research efforts are focused on the formulation which contains a small amount of active ingredient aiming to reduce the toxicity for the human and cost effective. The formulation contain a dry powder of the Cashew Nut shell powder, Bay leaves powder, Cow dung powder, Neem powder made from bamboo or rice. Also contain Lemongrass oil (*Cymbopogon Citratus*) as a perfume in formulation and Acacia (*Acacia Arabica*) as a binder with required quantity of water in a formulation. The components used in the formulation shows and insecticidal and antibacterial property. The mosquito rolls which are cylindrical in a shape, hollow in between was made so that it require less quantity of the material, lighter in a weight can stand perfectly upright if they are placed on one of the two bases and also it increases the burning time as well as not broken because it's walls don't have any corner. For the preparation of the formulation the powder of the raw materials are collected and then added in the mortar pestle with water to make the thick paste. This paste is converted into the roll using a hand rolling method and dried in oven. [6, 7, 8, 9]

### Collection of raw material [10, 11, 12]

#### *Preparation of Cashew Nut Shell*

The dried cashew nut shell are collected from the village and dried properly for more one month then it is broken into the pieces using a mortar pestle and then added into a grinder to get the fine powder this powder contains liquid or we can say cashew nut shell liquid which shows insecticidal property.

#### *Preparation of bay leaves powder*

The gathered bay leaves are cleaned and air dried for 10 to 12 days. Due to natural color loss and essential oil loss caused by sun drying, bay leaves have a poor market value. The best way to produce bay leaves is via hot air drying at 60°C.

***Preparation of Cow dung Powder :*** The dry cow dung was collected from the nearby village and then subjected for grinding purpose using a grinder so that the powder is obtained and then subjected for screening using a sieve so that fine powder is obtained.

#### *Preparation of Neem Powder*

For the preparation of the Neem powder fresh leaves of the Neem are collected from surrounding, washed with water two to three times and kept for drying in Sun for Three to Four

weeks .The dried Neem leaves are then subjected for grinding using a grinder /mixer after that screening of the Neem powder is done by using a sieve so that the Powder should be very fine or else it create a problem in the binding and burning of the mosquito rolls the prepared raw materials is shown in a figure.

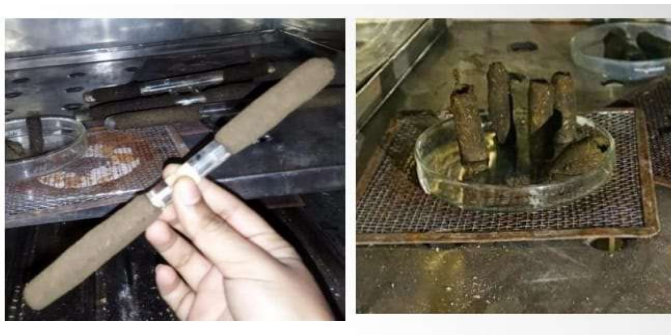
### ***Lemongrass oil and Acacia***

It was taken from the Pharmacognosy laboratory of Ideal College of pharmacy and Research Kalyan. For the preparation of the formulation the Powder of the raw materials are collected and then added in the mortar pestle with water to make the thick paste. This paste is converted into the role using a hand rolling method and dried in oven. [13,14]

## **PREPARATION**

We started by gathering all of the dried herbs. After that, the mixture is ground up into a fine powder and put through an 80-mesh screen. If the powder is not extremely fine, there will be issues with binding, burning, and mosquito rolls. To produce 30 mosquito rolls, 100g of powder premix was used in total. [15, 16]

The amount of herbal items consumed is depicted in formula table number (F1) and (F2), respectively. Water was consumed in an amount adequate to make a dough-like consistency. It should have a good mixture and not be very watery. To avoid problems in producing mosquito rolls, these kinds of safety precautions should be implemented. The dough was then taken in small portions and manually rolled onto a plain glass rod. Then right away take from glass rod and dried for 24 hours in shade. The mosquito rolls are dried more quickly using a hot air oven and other dryers. After drying, lemongrass oil is sprayed on the mosquito rolls before they are finally wrapped in a suitable cloth and kept in storage. [17, 18]



**Figure 1: Natural Mosquito Repellent Rolls**

## FORMULATION

The herbal products are used in the preparation of mosquito repellent formulation in order to reduce the marketed harmful product effects. [19, 20]

### Formulations are:

Sr. No	Ingredients	F1	F2
1	Cashew nut shells	2gm	5gm
2	Bay leaves powder	10gm	15gm
3	Cow dung powder	15gm	15gm
4	Neem powder	10gm	10gm
5	Water (Q.S)	Qs	Qs

## EVALUATION [21, 22]

**Bumming time:** Mosquito repellent rolls of both formulations were bummed and time was noted down. It reduces the mosquitoes and even kills the mosquitoes.

**Smoke visibility:** Mosquito repellent was burned and it is having slow smoke.

**Irritation test:** The mosquito rolls are safe to use and it does not having irritations.

After the evaluation test it is found that F2 formulation shows effective results.

## RESULT AND DISCUSSION

Dried cashew shells, bay leaves, cow dung powder and Neem leaves powder are examples of herbal products with various amounts of the herbal substance. During the assessment test, it was discovered that the F2 formulation produces efficient outcomes. In rural places, households use these resources a lot. There hasn't been a thorough clinical investigation to determine whether they can offer protection from dengue or malaria despite their widespread use. We can use as a Dhoop in temples or at home. The goal of this study is to ascertain whether wearing insect

repellent every evening can lessen malaria in households. To minimize potential effects of mosquito treatment diversion, a maximum of 20% of the homes will be registered. [23, 24]

## CONCLUSION

The artificial mosquito repellent reasons the damage to the human fitness and environment .In the marketplace numerous mosquito repellent formulations are to be had in a shape of coil, speedy card, sprays etc. So the usage of the natural with inside the instruction of the this mosquito repellent product are loose from the chemicals ,value powerful mosquito repellent incense sticks were prepared using herbals show excellent mosquito repellent action and also have no side effects. The incense sticks were eco-friendly, cost effective and safe to use. It is easily portable and can be easily used by all the age groups. The herbal incense sticks give a pleasant smell and repel mosquitoes, so the herbals are highly recommended for the formulation of mosquito repellent incense sticks. The lemon grass oil used in the formulation gives pleasant odor during ignition of the sticks. The F2 formulation containing poly Herbs shows more mosquito repellent action than F1 formulation which contains only single herb.

The artificial mosquito repellent reasons the damage to the human fitness and environment. In the market place numerous mosquito repellent formulations are to be had in a shape of coil, speedy card, sprays etc. So the usage of the natural within side the instruction of this mosquito repellent product is loose from the chemicals value powerful.

It is herbal formulation which can be primary outcome of malaria which reduces the infection rates and reduction of vector species mosquitoes in the houses.

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