



# ANTI MICROBIAL MOSQUITO NET FOR BABIES

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## ABSTRACT

Mosquito diseases are major public health concerns in India, particularly affecting babies. To address this, there is a focus on natural methods to combat mosquito problems. In the past, cotton nets were used to protect babies from mosquito bites, but now, polyester nets have largely replaced them. Cotton is preferred for its ease of use, maintenance, and soft natural structure. This study aims to create an anti-microbial mosquito net for babies using cotton infused with mimosa pudica extract, harvested, shadow dried, and processed into a fine powder, then extracted with methanol to observe the anti-microbial properties using Dip and Shadow dry method and the effectiveness of this approach was tested on SEM, FTIR, and mosquito repellent tests to ensure the stability of the anti-microbial properties in the cotton net. This research highlights the benefits of mimosa pudica and natural methods for protecting babies from mosquito bites without using any chemicals, making it environmentally friendly.

**Key words: Cotton mosquito net, Anti- microbial, Mimosa pudica, Babies protective, Environmental friendly, Mosquito repellent**

## 2.INTRODUCTION

Mosquito nets are essential for preventing mosquito-borne illnesses, improving health outcomes, and raising general quality of life for both individuals and communities. Their use is a straightforward but effective disease prevention strategy, especially in areas where mosquitoes are a major threat to public health. Mosquito nets offer a cost-effective means of disease prevention compared to medical treatments or hospitalization expenses incurred due to mosquito-borne illnesses. Investing in mosquito nets can lead to significant long-term savings in healthcare costs.

**Environmental friendliness:** Unlike chemical-based mosquito repellents or insecticides, mosquito nets are environmentally friendly and pose no harm to ecosystems. They provide a sustainable and non-toxic method of mosquito control, minimizing the ecological impact associated with other pest management strategies.

**Breathability:** Cotton naturally breathes, allowing air to flow through and avoiding overheating to create a comfortable sleeping environment.

**Comfort:** Cotton is a comfortable material to sleep under because of its soft and gentle texture, which helps to prevent skin irritation from synthetic materials.

**Effectiveness:** When cotton is woven tightly, it creates a dense barrier that effectively keeps out mosquitoes and provides dependable defense against mosquito-borne illnesses.

Mimosa pudica, or the sensitive plant, offers potential protection from mosquito bites through its repellent properties, anti-inflammatory effects, and antimicrobial activity. Extracts from the plant may deter mosquitoes, reduce inflammation, and prevent secondary infections. Additionally, the cooling sensation of Mimosa pudica gel can provide immediate relief from itching and discomfort associated with mosquito bites. While its effectiveness varies and more research is needed, Mimosa pudica shows promise as a natural remedy for alleviating the effects of mosquito bites.

### **3.MATERIAL AND METHODS**

#### **3.1 SELECTION OF FABRIC**

The natural cotton fibers used to make cotton mosquito netting provide a lightweight, breathable barrier against insects, especially mosquitoes. By keeping mosquitoes out of places like beds and outdoor seating areas, this fabric acts as a dependable barrier that lowers the risk of mosquito-borne illnesses like dengue fever and malaria.

Its fine mesh construction guarantees complete protection while permitting airflow, guaranteeing comfort whether lounging or sleeping, particularly in warm weather. Cotton's softness also makes it pleasant to the skin, allowing for extended use without discomfort.

Because cotton mosquito netting is machine washable and air dryable, it requires little maintenance to keep its effectiveness over time.



(Fig:1) COTTON MOSQUITO NET

### 3.2 SELECTION OF HERB

Mimosa pudica, commonly referred to as the touch-me-not or sensitive plant, is frequently used for its ability to relieve mosquito bites. Its use for this reason results from a number of advantageous qualities:

**Anti-inflammatory properties:** Mimosa pudica is composed of substances with anti-inflammatory characteristics. These substances might lessen the swelling, redness, and itching that are frequently brought on by mosquito bites.

Research indicates that Mimosa pudica possesses antimicrobial properties against specific pathogens. Mimosa pudica can potentially stop secondary infections from arising from scratching or irritation caused by mosquito bites.

**Cooling effect:** When applied to the skin, the gel-like material present in Mimosa pudica leaves provides a cooling feeling. Itching and discomfort from mosquito bites may be lessened by this cooling effect.

### 3.3 SOLVENT EXTRACTION TECHNIQUES

Harvesting Mimosa pudica leaves from the plant using healthy leaves and removing dust from the leaves and make sure the place in clean and dry surface allows the leaves to had dry naturally 2 to 3 weeks after a week leaves or completely dry can grain them into a fine powder becoming into smooth constancy and boiling the Mimosa pudica powder at the 3 of water for for 30 minutes including methanol dipping the Cotton it into the extraction of Mimosa pudica



(Fig:2) DryinMimosa Pudica



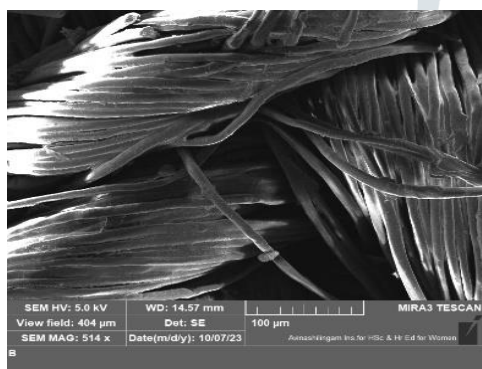
(Fig:3) Mimosa Pudica Powder



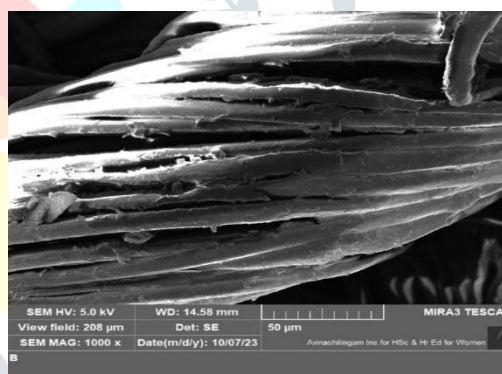
(Fig:4 ) Extract

## 4.RESULT AND DISCUSSION

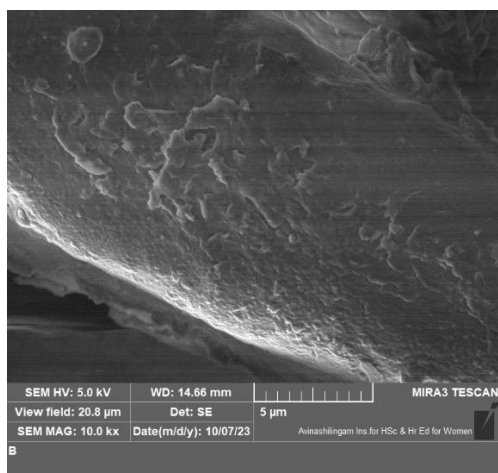
### 4.1.SEM TEST



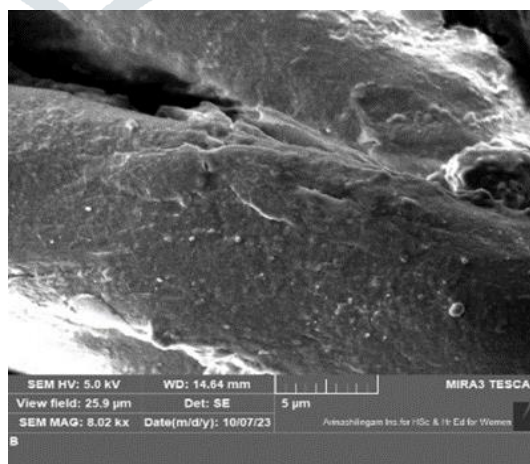
(Fig:5)



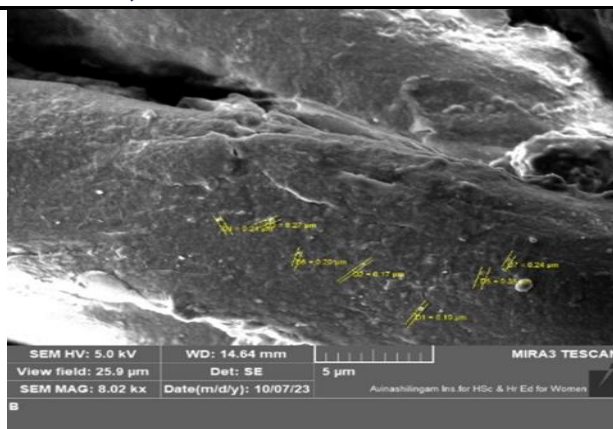
(Fig:6)



(Fig:7)

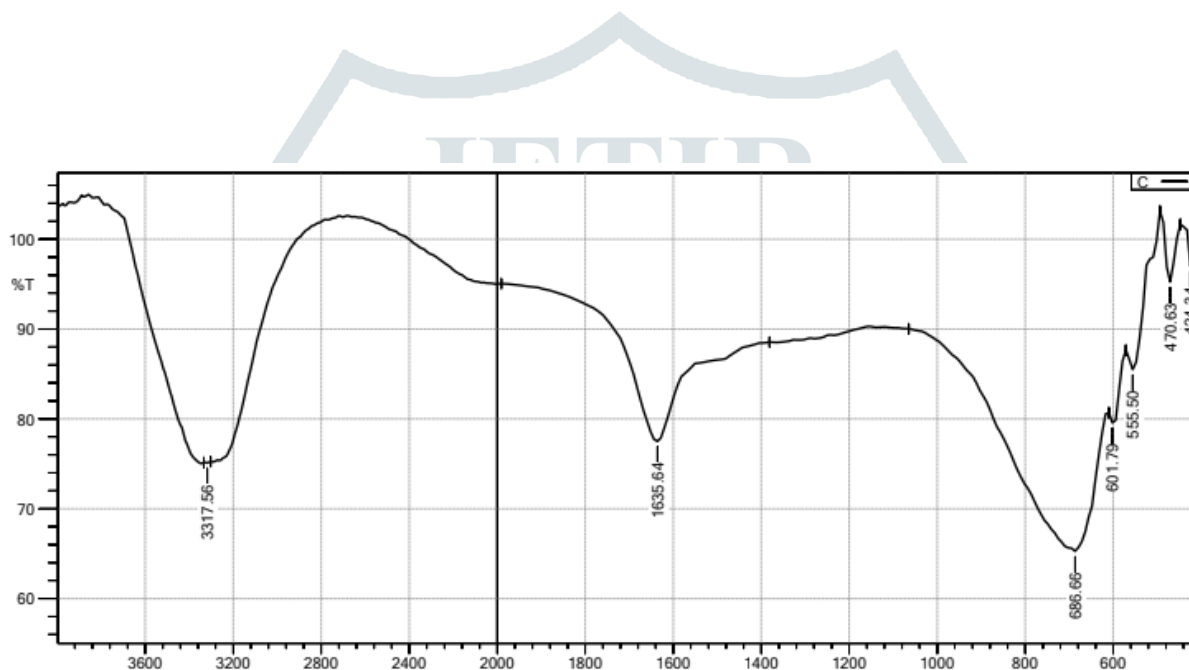


(Fig:8)



(Fig:9)

## 4.2 FTIR TEST

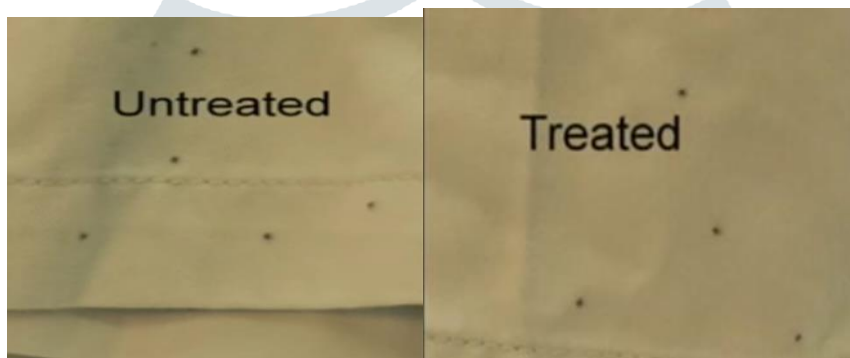


The given Herbal treated cotton shows 7 Peak are present. Peaks are representing the Active sites or Active components are preset.

S.NO	PEAK READING	CHEMICAL COMPONENTS
1	5633.17	OH aromatic
2	1635.64	Diketones
3	686.60	Halogen compound(C-C1)
4	601.79	Halogen compound (C-1)
5	555.50	Halogen compound (C-C1)
6	470.63	Alkyl halides
7	424.34	Alkyl halides (OH)

### 4.3. MOSQUITO REPELLENT TEST

Mosquito repellent tests are important because they help determine the effectiveness of different products in repelling mosquitoes. These tests ensure that the repellents are safe to use and provide reliable protection against mosquito bites. By conducting these tests, we can identify the most effective formulations and ingredients, helping people make informed choices for mosquito bite prevention. This is especially crucial as mosquitoes can transmit diseases like malaria, dengue, and Zika. Mosquito repellent tests help ensure our safety well-being when it comes to dealing with these pesky insects. Positive test results for insect repellents mean that the product has proven to be successful in keeping mosquitoes away. These experiments are carried out to assess the repellent's effectiveness and safety. Positive test results indicate that the repellent has effectively proven its capacity to deter mosquitoes and lower the likelihood of getting bitten by them.



### 7. CONCLUSION:

The plant prominently features in the texts of 'Ayurveda', the traditional Indian system of medicine, which prompted the authors to compile the published data and to critically analyze it, and is an honest, though rather the preliminary attempt for the preparation of the plant monograph. The review presented a brief profile of *M. pudica*, a plant associated with fond memories of almost every Indian childhood (*chiasmus*). The literature claims that there is vast potential in this herb in view of therapeutics and furthermore, commercialization of this herb would be in line with the WHO guidelines (developing country needs to give more emphasis on exploration of their natural resources like medicinal plants) is highly desirable for the benefits of humanity. It is suggestive of greater benefits as it is economically viable, easily available and a reservoir of significant medicinal properties

## ANNEXURE



(Fig:9)



(Fig:10)



(Fig:11)

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