RESEARCH REPORT

Testing efficacy of Mosquito Repellent against different species of adult mosquito density in Greater Noida

Overview

- **Title of the Report:**
- Testing Efficacy of Mosquito Repellent on different species of adult mosquito density in Greater Noida.
- **Principal Investigator(s):**
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- **Affiliation:**
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- **Date of Submission:**
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Introduction

This research assessed the effectiveness of **Mosquito Repellent**—a blend of **Eucalyptus oil, Citronella oil, Neem oil, Cedarwood oil, and Rosemary oil**—against adult mosquitoes under controlled laboratory conditions. The study also evaluated the correlation between environmental parameters (temperature and humidity) and repellent performance. Experiments were conducted in **Greater Noida** on **26-08-2025**, using multiple replicates to ensure reliability.

Summary

The experiment was carried out in a controlled laboratory testing room (**12 × 12 m**), where **60 adult mosquitoes** of different species were introduced per replicate. Mosquito Repellent showed **significant reduction in mosquito landings** compared to the control group. Environmental factors such as **temperature (30.7–31.7 °C)** and **humidity (77–79%)** exhibited a moderate influence on repellent efficacy.

Materials Used:

- Mosquito Repellent
- Negative control: No repellent
- Healthy human volunteers (18–50 years old, non-allergic, medically cleared)
- Female mosquitoes (3–5 days old, non-blood-fed)
- Timer/stopwatch
- Aspirators
- PPE (gloves, lab coats)
- Soap, unscented wipes

Methodology:

Mosquitoes:

- 60 healthy female mosquitoes (3–5 days old) were used per experiment.
- Mosquitoes were starved for 12 hours before testing.

Volunteers/Fabric:

- Volunteers washed their arms with unscented soap and let them air dry.
- Mosquito repellent was applied as per label instructions on a marked area of the forearm or feet.

Procedure:

Exposure Method:

Mosquitoes were released into the room. The following observations were recorded:

- Number of mosquito landings
- Number of probing attempts
- Number of actual landing catches

Results:

Experiment	Mosquito Released	Landing Catch	Temperature (°C)	Humidity (%)
Experiment 1	60	14	31.7	79
Experiment 2	60	11	30.8	77
Experiment 3	60	8	30.7	77
4 (Control)	60	33	32	80

Analysis

Landing Catch Reduction Compared to Control:

- Experiment 1: **63.6% reduction**
- Experiment 2: **77.0% reduction**
- Experiment 3: **87.8% reduction**

Observation:

The repellent significantly reduced mosquito landing counts across all treated experiments. **Maximum protection** was observed in **Experiment 3**, indicating strong repellent efficacy even under slightly lower temperature and humidity conditions.

Conclusion

Mosquito Repellent demonstrated **notable effectiveness** against adult mosquitoes, achieving more than **60% reduction in mosquito landings** across all trials. The highest protection rate (87.8%) was recorded in Experiment 3. This suggests that the product has strong potential as a **natural, effective alternative** to synthetic mosquito repellents.

Recommendations

- Conduct **field trials under varied environmental conditions** to validate laboratory results.
- Perform **comparative analysis with standard synthetic repellents (e.g., DEET)**.

- Undertake **long-term safety and skin sensitivity studies** before commercial scale-up.

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