RESEARCH REPORT

Testing efficacy of Herbal oils against different mosquito adult species density in Greater Noida

Overview

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

This research study was conducted to evaluate the repellent efficacy of **Herbal oils** against different adult mosquito species under controlled conditions. The objective was to assess its ability to reduce mosquito landings during a 60-minute exposure period.
The trials were performed on **21-08-2025** in Greater Noida under laboratory-controlled conditions to ensure consistent environmental parameters for reliable results.

Summary

- **Testing Room Dimensions:** 12 × 12 meters
- **Mosquito Release Per Trial:** 60 adult female mosquitoes (3–5 days old, sugar-fed, starved for 12 hours)
- **Exposure Duration:** 60 minutes per trial
- **Control Group:** Plain water (no repellent)
- **Environmental Conditions:**
  - Average **Temperature:** 31.6°C
  - Average **Relative Humidity:** 50.6%

Herbal oils was tested in three replicates, and one control trial was conducted to validate mosquito activity in the absence of repellent

Materials Used:

- Herbal oils Mosquito Repellent spray.
- Negative Control (no repellent)
- Female mosquitoes (3–5 days old, sugar-fed, starved 12 hrs.)
- Human volunteers
- Cotton fabric (if testing on fabric)
- Timer/stopwatch
- Aspirators
- Lab PPE (gloves, mask)
- Thermo-hygrometer

Procedure: Herbal oils Room Spray
Step 1: Mosquito Preparation

- 60 healthy female mosquitoes were selected per trial.
- They were acclimatized for 30 minutes prior to exposure.

Step 2: Application inside room

- No other repellents or sprays were used in the test room prior to trials.
- Herbal oils spray was applied as per label instructions to a designated area.

Step 3: Observations
The following parameters were observed and recorded:

- Number of landings
- Number of probing attempts

Results:

Trial No.	Total Mosquitoes	Exposure Time (min)	Landing Catch	Temperature	Relative Humidity
1	60	60	24	31.4	51
2	60	60	28	31.8	51
3	60	60	19	32.1	50
(Control)	60	60	36	31	50

Analysis

- **Average Landing Catch (Herbal oils):**
  (24+28+19)÷3=71÷3=23.67

- **Landing Catch (Control):** 36

- **Repellency Percentage:**
  (Control – Treated) ÷ Control × 100
  (36–23.67)÷36×100 = 12.33÷36×100 ≈ 34.25

Herbal oils demonstrated a **34.25% reduction** in mosquito landings compared to the control. While effective, the repellency rate suggests that Herbal oils offers **moderate short-term protection** rather than complete deterrence under the given conditions.

Conclusion
Herbal oils showed moderate efficacy in reducing mosquito landings during a 60-minute exposure period in a controlled environment. Although the product did not prevent all landings, its herbal formulation offers a safer alternative for short-term indoor mosquito management.

Recommendations

- I**ncrease exposure duration** in future studies to evaluate longer-term protection.
- **Compare Herbal oils** with synthetic repellents and other herbal formulations.
- **Expand testing** across diverse mosquito species and different climatic conditions.
- **Field trials** should be conducted to validate real-world performance outdoors.
- **Product optimization** to enhance repellency and prolong the protection period.

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