

RESEARCH REPORT

Testing efficacy of Neem incense sticks against different species of mosquito adult density in Greater Noida in Greater Noida

Overview

- **Title of the Report:**
Testing Efficacy of Neem incense sticks (Neem based) on different species of mosquito adult density in Greater Noida.
- **Principal Investigator(s):**
Dr Anushrita
- **Affiliation:**
EKO Lifesciences
- **Date of Submission:**
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Introduction

The present study was conducted to evaluate the repellency of Neem incense sticks, formulated with Neem, against different species of mosquito adults. Experiments were performed under controlled indoor laboratory conditions in Greater Noida to assess both mosquito landing behavior and knockdown rates, using treated setups compared to an untreated control. Each trial was observed for a fixed exposure period of 60 minutes.

Summary

The experiment was performed in a laboratory testing room (12 × 12 m), where 60 adult mosquitoes from different species were released per trial. Neem incense sticks demonstrated:

- **High knockdown rates** (38–45 mosquitoes out of 60)
- **Significant reduction in landing catches** (3–5 compared to 32 in control)

The results confirmed that Neem incense sticks has both strong repellent properties and adulticidal action under laboratory conditions.

Material used:

- Test repellent incense sticks.
- Control incense stick (non-repellent/plain)
- Female mosquitoes (3–5 days old, non-blood-fed)
- Timer/stopwatch
- Test room with minimal air flow
- Thermo-hygrometer (for recording temperature and humidity)
- Aspirators
- Mosquito release cups
- Matchstick/lighter

Methodology:

Incense Stick Placement:

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- The incense stick was lit and placed in a holder at a designated location in the test room.
- It was allowed to burn continuously for the duration of the trial.

Observation:

- 60 female mosquitoes from different species were released per replicate.
- Landing catches and knockdown counts were recorded after 60 minutes of exposure.
- Environmental conditions (temperature and humidity) were recorded for each trial to ensure consistency.

Results:

Experiment No	Incense Sticks Count	Total Mosquitoes	Exposure Time (min)	Knock down	Landing Catch	Temperature	Relative Humidity
1	6	60	60	42	5	68	28.3
2	6	60	60	38	3	69	28
3	6	60	60	45	4	68	28.7
4 (Control)	0	60	60	00	32	68	28

Analysis

- All treated trials with **6 incense sticks** achieved substantial mosquito knockdown (63–75%) and drastically reduced landings (over 85% reduction compared to control).
- The **highest knockdown** was recorded in **Experiment 3** (45 mosquitoes), while the **lowest knockdown** was observed in **Experiment 2** (38 mosquitoes).
- Landing catches were lowest in **Experiment 2** (3 landings).
- Environmental conditions were stable across trials (temperature: 28.0–28.7°C; RH: 68–69%).
- The results highlight the dual-action nature of Neem—combining **repellency** and **adulticidal effects**.

Conclusion

Neem incense sticks, demonstrated **high knockdown efficiency** and **excellent repellency** against different species of adult mosquitoes under controlled laboratory conditions. Compared to the untreated control, Neem reduced mosquito landings by more than 85% and achieved knockdown rates of 63–75% within 60 minutes. These findings support the potential of Neem incense sticks as an effective natural mosquito control product for indoor environments.

Recommendations

- Extend exposure periods to assess prolonged effects.
- Perform outdoor and semi-field evaluations to validate laboratory findings.
- Compare performance with leading herbal and chemical mosquito control products for competitive positioning

Submitted By:
Sourav Singh

Submitted To:
Dr. Anushrita

