THE EUROPEAN SOCIETY OF MEDICINE
Medical Research Archives, Volume 13 Issue 4

RESEARCH ARTICLE

Malaria Therapy, Killing Mosquitoes on Their Way to Get Infected Blood Meals

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OPEN ACCESS

PUBLISHED
30 April 2025

CITATION
Tran, P., 2025. Malaria Therapy, Killing Mosquitoes on Their Way to Get Infected Blood Meals. Medical Research Archives, [online] 13(4). https://doi.org/10.18103/mra.v13i3.6407

DOI
https://doi.org/10.18103/mra.v13i3.6407

ISSN
2375-1924

ABSTRACT

Excluding family members and caretakers, mosquito-borne diseases affect approximately 700[1][2] million people annually, which is about one-eleventh of the global population. Among these diseases, malaria is the most severe, causing 250 million illnesses and 600,000 deaths each year[3][4]. Although malaria is widespread in tropical and subtropical regions, 94%[3] of cases are concentrated in a small number of dry, semi-desert sub-Saharan countries, where some nations have infection rates affecting up to 30% of their populations[5]. These high-density regions provide nearly ideal case studies for understanding the mechanisms of malaria transmission. Research indicates that malaria burdens tend to be lower in urban areas with community water supply systems and higher in rural areas[6][7], where people store water in their homes, creating mosquito breeding habitats. Because of inadequate rainfall to sustain surface vegetation[8] and the absence of natural rainwater pockets for mosquito proliferation, "domestic" mosquito populations become the primary disease vectors, transmitting malaria within households. The aim of this study is to address this issue by implementing proven outdoor female mosquito control measures indoors. As a result, no live blood-seeking mosquitoes were detected; they were eliminated before they could bite, preventing malaria transmission within affected households. With no newly infected mosquitoes, the transmission cycle was effectively interrupted, halting the further spread of the disease.

Keywords: *Mosquito, Malaria, Dengue, West Nile Virus, Zika, Yellow Fever, Chikungunya*

Introduction

No doubt that mosuitoes are the most farmful and the most hated animals, in term of mosquito-borne disease control they only become infected upon biting a patient suggesting in indoor invironment where they are. This study introduces a remedy thta not only kill 'all' blood seeking mosquitos in home once but also the new comers to maintain the mosquto-free status of the place.

BACKGROUND

Our decades-long career working on mosquito-related subjects began with a simple observation: in the animal kingdom, species have evolved over millions of years to develop the most suitable means of evading predators and finding food to survive and sustain their species. This is also true for mosquitoes. They are born without mouths and only possess a straw-like proboscis to consume watery solutions. At the same time, they exist today with a significant portion of their bodies equipped with hundreds or even thousands of individual lenses[9], image-capturing organs. Therefore, one could conclude that vision plays an integral role in their navigation, allowing them to locate potential hosts by detecting infrared signatures and identifying water vapor escaping through suitable openings, signaling the presence of an accessible liquid to drink [10][11][12].

In summary:

- Through numerical evidence, we objectively demonstrated that a 40° C warm bait, mimicking the liquid from a warm-blooded host, attracted and killed 97% of female mosquitoes at the scene[12].
- We established a sequential set of preference criteria that mosquitoes use to locate their targets. First, they are drawn to a "blue environment," which enhances the visibility of water vapor, indicating accessible liquid. Next, they respond to temperatures in descending order: 42° C, followed by 38.5° C, and finally 37° C, which suggests the presence of warm-blooded hosts[11].

Our limited resources and knowledge had long prevented us from conducting indoor experimental work that accurately represented the environment in which people live. We did not have the luxury of an extra, separate house-like facility for this purpose —one where we could intentionally create mosquito infestations without causing complaints or objections from our own family. However, once we had a guest house built, we finally had a dedicated space to replicate our outdoor experiments in an infested indoor environment.

Raising mosquito larvae and pupae to produce study samples is a labor-intensive task that requires round-the-clock attention to keep them alive and healthy. For this reason, mosquito farms and laboratories maintain them in enclosed chambers to prevent adult mosquitoes from escaping[13]. This setup ensures a mosquito bite-free working environment, promoting the well-being of those conducting the research.

Equipment and Method

The experiment was conducted in a three-bedroom house with the following setup:

- A mosquito habitat containing approximately 2,000 backyard larvae in one room.
- A 2-liter bait solution placed next to a 10-LED lamp in the middle of the living room, ensuring the "blue light" was visible from other rooms in the house.
- A 40° C bait trap positioned in the center of another room. Because this trap was designed to be less effective than the one in the living room, it served as a secondary confirmation of the primary trap's function.

METHOD:

The main objective of the method is to grdudual introduce adult mosquito samples of species nature to provide a dand to collect the results for the period. Because the insects in the habitat were collected from the wild, they were at all development stages

from fragil new hatches to pupae. They need to be taken care of as if one is taking care of a newborn. It also needs the solution to be daily checked s were checked daily for the development of white crystal rings at the water edge as the indications of female mosquito feeding activities for documented accordingly and reset.

RESULTS:
The experimental setup produced results consistent with outdoor experiments, with white crystal rings forming on the blue trap, not on the other trap.

From these results, we can conclude the following:

- Because the traps were placed out of sight from each other, the mosquitoes navigated by following light reflections to locate the illuminating source—the blue trap. This was their primary target when searching for food.
- The warm bait trap, designed to kill 97% of female mosquitoes, had a zero-mosquito count, confirming that no female mosquitoes remained in the house.
- The ability to care for the larvae without experiencing mosquito bites further supports the conclusion that no female mosquitoes were present indoors.

Discussion

In our studies, boric acid is the agent of choice for killing mosquitoes[15]. However, it is not entirely harmless. For the average person, the word "acid" may raise concerns, such as the potential risk of being bitten by a mosquito previously exposed to boric acid. The answer is -*Yes*-, the amount it took was not enough to cause noticible harms to a 2.5 milligram mosquito yet[16].

As a precautionary measure to prevent children from mistaking the solution for a drink, nausea-inducing substances, such as quinine, should be added. Additionally, the solution must always be kept out of children's reach. There has been one reported incident of a chick's death, where the owner suspected it was due to consuming the solution on a hot day.

Sometimes, bigger is not always better. The number of LEDs we used for illumination were just bright enough for insects to trace the light source and locate the bait. Additional traps may be needed for greater effectiveness and comfort.

Although the experiments were set indoors, user can choose to make the yard mosquito free, in this case he/she needs more than one cover all side to prenent them getting in.

The remedy only attracts and kills hungry mosquitoes, not those who kooks for place to lay eggs. One may find larva nn suitable water bodies even if they are right undrerneath the trap Mosquitoes only become infected and harmful after biting a patient[17]. Theoretically, with sufficient resources, it would be possible to trace back to *patient zero* and *mosquito zero*—the original sources of all infections in targetd areas. At the very least, efforts can be made to prevent mosquitoes from becoming infected in the first place, thereby stopping the disease from spreading. The closer we get to the source, the smaller the area that needs to be covered, leading to more effective disease control. Implementing some form of incentive for detecting early cases might be more cost-effective than treating the consequences of widespread infections. The earlier preventive measures are taken, the greater the chances of successfully controlling the spread of a pandemic.

Although malaria is a deadly disease, studies suggest that for every symptomatic patient, there are 3 others who are infected but asymptomatic[18][19], suggesting that without seeking medical intervention, their bodies were able to fight off the disease on their own. Furthermore, according to data from the World Health Organization, malaria mortality is approximately 1 in 500 cases[3]. Perhaps some of these deaths could be prevented by cutting off parasite resupplies and allowing the body to focus solely on fighting the existing infection.

As a desperate measure, many communities resort to indoor insecticide residual sprayings, where

authorized mosquito control squads, wearing protective chemical gear, go from house to house[20] [21]. They fog homes with insecticides designed not only to kill insects on contact but also to eliminate them later when they contact the residual chemicals. However, this approach leaves residents to deal with the aftermath of contamination. Studies on this practice have shown a fivefold increase in malaria cases after discontinuation, as well as an 83% reduction in cases when the measure is implemented[22], highlighting the fact that indoor female mosquitoes account for 83% of malaria cases. They could be prevented with an effective indoor female mosquito control strategy.

No parents deserve to witness the death of their child. Children under the age of 5 account for 76% of all malaria deaths in the affected regions[3]. Because they are not physically able to protect themselves from mosquito bites, especially when they are sick, it is our moral obligation to protect them. They need help.

After reviewing more than 50,000 entries from a PubMed search for "mosquito control" in published research over the past 10 years, we could not find any studies specifically targeting only blood-seeking female mosquitoes as a recommended control measure. Ultimately, if we can reduce the female mosquito population in infested environments to unnoticeable, undetectable levels, others can achieve the same results elsewhere.

Intellectual Property

The author asserts no intellectual property ownership over this work or its outcomes.

Conclusion

The blue trap treatment, when used as a therapy, effectively kills female mosquitoes on their way to bite patients, thereby preventing them from injecting additional sporozoites that could worsen the condition of infected individuals or spread the disease to others in the vicinity. As a result, the method helps create isolated, contained pockets of infection before the disease can spread to surrounding communities. Although this measure is not designed to replicate the >80% reduction rate achieved by killing all indoor insects, it specifically targets female mosquitoes—the sole vectors responsible for malaria transmission. Together, we can implement this strategy just as effectively or even better less than a dollar per household.

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