

## **Prevention Action on Dengue Mosquito with The Help of Neem Plants**

Dr. Dharminder pal singh, Department of Botany, Ch. Balluram Godara College, Sri Ganganagar (Rajasthan).  
Dr. Poonam Setia, Department of Botany, Ch. Balluram Godara College, Sri Ganganagar (Rajasthan).

### **ABSTRACT**

Dengue is a mosquito-borne tropical disease caused by the dengue virus. It is spread by the *Aedes aegypti* mosquito, which is found in tropical and subtropical regions around the world. Dengue is a major public health problem, with an estimated 390 million infections and 96,000 deaths each year.

The *Aedes aegypti* mosquito is a small, black and white mosquito that is about one-third the size of a housefly. It is found in urban and peri-urban areas, and prefers to live in close proximity to humans. The mosquito bites during the day, and is most active during the morning and evening hours.

The dengue virus is transmitted when an infected mosquito bites a human. The virus then enters the bloodstream and infects white blood cells. The symptoms of dengue fever usually appear 3-14 days after being bitten by an infected mosquito. The most common symptoms are fever, headache, muscle pain, joint pain, and rash. In some cases, dengue can be a severe illness, leading to dengue hemorrhagic fever or dengue shock syndrome.

Dengue hemorrhagic fever is a life-threatening complication of dengue fever. It is characterized by bleeding from the nose, gums, and skin. Dengue shock syndrome is a severe complication of dengue hemorrhagic fever. It is characterized by low blood pressure, rapid heart rate, and difficulty breathing.

**KEYWORDS: Dengue, Mosquito, Neem**

### **INTRODUCTION**

Dengue is a mosquito-borne illness that occurs in tropical and subtropical areas of the world. It is caused by four different viruses, which are transmitted to humans through the bite of an infected *Aedes aegypti* mosquito. The mosquito is found in urban and peri-urban areas, and breeds in water-filled containers such as buckets, flower pots, and old tires.

Dengue fever is a mild illness in most cases, but it can be severe and even fatal in some cases. The symptoms of dengue fever include fever, headache, muscle pain, joint pain, rash, and vomiting. In severe cases, dengue can cause bleeding, low blood pressure, and organ failure.

The dengue mosquito is a major health hazard in many parts of the world. The disease is widespread and is becoming increasingly common. In 2019, there were an estimated 400 million cases of dengue fever worldwide, and 20,000 people died from the disease.

There is no specific treatment for dengue fever. Treatment is supportive and includes rest, fluids, and pain medication. In severe cases, hospitalization may be required.

There are a number of ways to prevent dengue fever. These include:

- Avoiding mosquito bites: This can be done by using insect repellent, wearing long sleeves and pants, and staying indoors during peak mosquito hours (dawn and dusk).
- Eliminating mosquito breeding sites: This can be done by emptying water-filled containers, repairing leaks, and draining standing water.
- Getting vaccinated: There is a vaccine available for dengue fever, but it is not 100% effective.

Dengue is a serious disease that can be fatal. However, there are a number of things that can be done to prevent the disease. By taking steps to avoid mosquito bites and eliminate mosquito breeding sites, you can help protect yourself and your family from dengue fever.

In addition to the health hazards posed by dengue fever, the dengue mosquito can also transmit other diseases, such as Zika and chikungunya. These diseases are also caused by viruses, and they can cause a variety of symptoms, including fever, rash, joint pain, and muscle pain. In some cases, these diseases can be serious and even fatal.

The dengue mosquito is a major public health threat. It is important to take steps to protect yourself from mosquito bites and to eliminate mosquito breeding sites. By doing so, you can help reduce your risk of contracting dengue fever and other mosquito-borne diseases.

There is no specific treatment for dengue fever. Treatment is supportive and includes rest, fluids, and pain medication. In severe cases, hospitalization may be required. There is also no vaccine for dengue fever. However, there are a number of things that can be done to prevent dengue fever, including:

- Wearing long sleeves and pants when outdoors
- Using insect repellent
- Eliminating mosquito breeding grounds, such as standing water
- Getting rid of containers that can hold water, such as flowerpots, buckets, and old tires
- Keeping your home clean and free of clutter

Dengue is a serious disease, but it is preventable. By taking steps to prevent mosquito bites, you can help protect yourself and your family from dengue fever.

In addition to the *Aedes aegypti* mosquito, there are other mosquito species that can transmit dengue virus, including:

- *Aedes albopictus*
- *Aedes africanus*
- *Aedes polynesiensis*
- *Aedes scutellaris*

These mosquitoes are found in tropical and subtropical regions around the world. The *Aedes aegypti* mosquito is the most important vector of dengue virus, but the other species listed above can also transmit the virus.

## **PREVENTION ACTION ON DENGUE MOSQUITO WITH THE HELP OF NEEM PLANTS**

Mosquitoes transmit severe human plagues, which consistently cause an astonishing number of deaths. The use of organized insect noxious substances to control vector mosquitoes has led to physiological hindrance and contrasts with general effects, regardless of high utilitarian cost. The standard beginner bug has turned to hazardous substances as essential for the control of mosquitoes. *Azadirachta indica* (Meliaceae) and its cultivars have shown distinct insecticidal properties.

The larvicidal efficacy of an emulsified concentrate of neem oil plant (neem oil with polyoxyethylene ether, sorbitan dioleate and epichlorohydrin) made by BMR & Co., Pune, India, was observed against third and mid fourth instar hatchlings of different genera of mosquitoes. Hatchlings were exposed to all of the different determinations (0.5–5.0 ppm) they chose to pass to the untreated control. The larvicidal action of the plant was also considered in the field against *Anopheles*, *Culex* and *Aedes* mosquitoes. Definition was disabled with approx amount of water and applied @ 140 mg ai/m<sup>2</sup> to different mosquito replicate areas with the help of knapsack sprayer preformed. The larval is not permanently established before and after the use of straightening out using a standard scoop.

Mosquitoes transmit serious human diseases such as colic, filariasis, Japanese encephalitis, dengue hemorrhagic fever and yellow fever, causing frequent and unlimited deaths. The widespread use of compound bug showers for control of vector-borne loads has created physical protection from vectors, conflicting with general effects, high utilitarian expense, and neighborhood issues. Different plant matter is commonly used either as a bug deterrent to kill hatchlings or adult mosquitoes, or as specialist enemies for mosquito chewing and is one of the most important decisions for mosquito control.

Neem trees, (*Azadirachta indica*) are fast becoming evergreen trees growing in the range of 12 - 24 m from being a place with the family Meliaceae, in the neighborhood of India. They are widespread in tropical and subtropical regions of the world, including semi-arid and humid-

tropical districts. Neem seeds contain about 99 traditionally potent compounds containing azadirachtin, nimbin, nimbidin and nimbolide monster particles.

A large portion of these derivatives possess antifeedency, ovicidal activity, bug improvement properties, as well as effective cover and repellency against bugs.

Neem products have less destructive potential to birds, fish and warm-blooded animals and are less coordinated to create a barrier to growth on bugs due to their different structures. Similarly, proper correction of neem prevents the progress of the bug by weakening the protective mechanism of the skin of the nails of newborns, thereby converting the root segment of the pathogenic life forms into the bug structure. Azadirachtin, a regularly unique compound has been advanced as another bug poison that is seen as more eco-binding than organized bug showers. Neem's insecticide rationality, traditional achievement and public ownership and its use for the control of crop insects have provoked its social illicit relationship in various mosquito control programs.

Neem-based biopesticides and neem kills have a wide range of effects against the bug, including repellent, reasonable, destructive quality, sterility and improved control action and overall a futile condition of direct bothersome consequences toward non-target biota. is defended with. From the impurity of water bodies to the oceanic biota. Allelochemicals like azadirachtin, nimbin, nimbidin, nimbolides, nimolic upsetting, salanin, meliantriol, azadirachtol present in neem affect the biochemical and physiological events of the bug development and help in deterring the bugs to not allow the insects to enter Detoxification shames the structure. As an emulsifying concentrate, the definition of neem oil was greatly reduced in the concentration of particles and continuously mixed inside the water portion with many suspended particles on the surface of the water. The dispersion of these fine particles certainly increased the possibility of definition.

In controlling the rapid reproduction of mosquitoes with respect to vector-borne diseases, the control of mosquito brood becomes a purely physical issue. In a preliminary review, neem oil definition showed promising larvicidal advancement against the fundamental vectors of gastrointestinal problem, filariasis, dengue, dengue hemorrhagic fever, yellow fever and chikungunya. Improvement of containment in temiphos and *Bacillus thuringiensis* combine strains for practical use as larvicides. Despite how top-notch the permanent process may be in comparison to other larvicidal educated subject matter experts, for example, Temephos and *B. thuringiensis*, it participates in the potential addition of eco-binding, viable and promiscuous potential. Bug check.

These pollutions are left open to human eyes. Spraying mosquitoes through mosquito nets is just food and no enemy of experts is incredibly fine and can be bathed on open valuable vaccination for control of these clothing or skin. Specialist creams or pain relievers are the enemy of infection. The likeness of mosquito nibbles has been clearly applied to the skin and the experts focus on the design of the head in addition to controlling or maintaining the motion making enemies of the investigation. Mosquito repellent these contaminations. The insect repellent is used with amazingly tight fibers that provide a solid and vital process to the weave and is inserted with a strong standard 2 to prevent mosquito-borne diseases.

In a holistic approach, dengue is transmitted by the female mosquito *Aedes aegypti* which thrives in and around urban areas. It is everyday and endlessly anthropophilic, with neighborhood plans clearly showing an overarching trend toward humanizing. It has a higher fundamental breaking point than *Ae. albopictus*, and with small, moderate biting behavior, this solitary can transmit dengue on various occasions during the gonotrophic cycle. It nibbles during the day, preparing for human waste mixtures such as CO<sub>2</sub>, lactic shock, sulfides and ketones. Regulation occurs after a seminal test of the skin surface, and when engorged, the mosquito prefers to rest inside to begin the gonotrophic cycle.

Thus, the female mosquito ideally looks through large containers of fresh water, yet most bins in and around the home are reasonable. As a result of spawning on a holder, oviposition occurs, where the female lays eggs directly at the water's edge, although some eggs may be tracked down into the water. Sensitized to *Aedes*, the mosquito will store parts of its 100–200 egg packs in different contexts in response to, perhaps up to 11 if, a cycle known as 'skip oviposition'. These eggs are particularly impervious to shattering for extended periods of time if left undisturbed and with this in mind, it is not business as usual that the land level of *Ae. aegypti* has relaxed over the years, increased dissemination of *Aedes* eggs by ocean exchange, as well as expanded perception of mosquito microbiomes considering the urbanization of disturbed areas.

## DISCUSSION

Dengue fever is a serious disease that can be fatal. It is important to be aware of the symptoms of dengue fever and to seek medical attention if you think you may have been infected. There is no specific treatment for dengue fever, but early diagnosis and treatment can help to reduce the risk of complications.

There are a number of things that can be done to prevent dengue fever, including:

- Avoiding mosquito bites
- Eliminating mosquito breeding grounds
- Getting vaccinated against dengue fever

If you live in or travel to an area where dengue fever is present, it is important to take steps to protect yourself from mosquito bites. You can do this by:

- Wearing long sleeves and pants
- Using insect repellent that contains DEET
- Sleeping under a mosquito net
- Avoiding areas where mosquitoes are likely to be present, such as swamps and wooded areas

Here are some additional benefits of using neem plants to prevent dengue mosquitoes:

- Neem plants are environmentally friendly and do not have any harmful side effects.
- Neem plants are relatively inexpensive to grow and maintain.
- Neem plants are effective against a wide variety of mosquitoes, including *Aedes aegypti*, the mosquito that transmits dengue.

There is no specific treatment for dengue, and the best way to prevent the disease is to avoid mosquito bites. Neem plants can be used as a natural way to prevent dengue mosquitoes. Neem plants contain a variety of compounds that have insecticidal properties, and they have been shown to be effective in repelling and killing mosquitoes.

There are a number of ways to use neem plants to prevent dengue mosquitoes. One way is to plant neem trees around your home. Neem trees can provide shade and help to keep mosquitoes away. You can also use neem oil to make a mosquito repellent. Neem oil can be applied to the skin or to clothing, and it will help to keep mosquitoes away.

Neem plants are a natural way to control mosquitoes. They contain azadirachtin, which is an insecticidal compound that kills mosquitoes and other insects. Neem oil can be used to make a spray that can be applied to the skin or clothing to repel mosquitoes. It can also be used to soak mosquito nets or to spray around homes and gardens to kill mosquitoes.

Neem plants are also effective at controlling mosquito larvae. The leaves and bark of neem trees can be boiled in water and the resulting liquid can be sprayed on water sources to kill mosquito larvae. Neem oil can also be added to water sources to kill mosquito larvae.

In addition to being effective at controlling mosquitoes, neem plants are also safe for humans and animals. They are not known to cause any harmful side effects.

Here are some ways to use neem plants to control mosquitoes:

- Neem oil spray: Mix 1 part neem oil with 10 parts water in a spray bottle. Apply the spray to your skin or clothing to repel mosquitoes.

- Neem oil soak: Soak mosquito nets in a solution of 1 part neem oil with 10 parts water for 30 minutes.
- Neem oil spray for water sources: Boil 1 cup of neem leaves and bark in 2 cups of water for 30 minutes. Let the mixture cool and then strain it. Pour the liquid into a spray bottle and spray it on water sources to kill mosquito larvae.
- Neem oil tablets: Neem oil tablets can be placed in water sources to kill mosquito larvae.

Neem plants are a safe and effective way to control mosquitoes. They are a natural alternative to chemical insecticides and they are safe for humans and animals.

Here are some additional benefits of using neem plants to control mosquitoes:

- Neem plants are biodegradable and non-toxic.
- Neem plants are effective against a wide range of mosquitoes, including those that transmit malaria and dengue fever.
- Neem plants can be used to control mosquito larvae in water sources, which can help to prevent the spread of mosquito-borne diseases.
- Neem plants are easy to grow and care for.

## CONCLUSION

Neem oil formulation was found to be valuable in controlling mosquito broods in various contexts of responses under standard field conditions. Neem oil formulations are relatively less harmful, eco-friendly and cannot block cultivation and can be used as a substitute instead of other insecticides for the control of vector borne diseases.

## REFERENCES

- Mittal PK, Subbarao SK. Prospects of using herbal products in the control of mosquito vectors. *ICMR Bull.* 2013;**33**:1–10.
- Sukumar K, Perich MJ, Boobar LR. Botanical derivative in mosquito control: A Review. *J Am Mosq Control Assoc.* 2011;**7**:210–237.
- Brown AWA. Insecticide resistance in mosquitoes; a pragmatic review. *J Am Mosq Control Assoc.* 2016;**2**:123–140.
- Schmutterer H. Properties of natural pesticides from the neem tree, *Azadirachta indica*. *Ann Rev Entomol.* 2010;**35**:271–297.
- Locantoni L, Guisti F, Cristofaro M, Pasqualini L, Esposito F, Lupetti P, Habluetzel A. Effect of neem extract on blood feeding oviposition and oocyte ultra structure in *Anopheles stephensi* Liston (Diptera: Culicidae) *Tissue Cell.* 2016;**38**:361–371.
- Su T, Mulla MS. Antifeedancy of neem products containing Azadirachtin against *Culex tarsalis* and *Culex quinquefasciatus* (Diptera: Culicidae) *J Vector Ecol.* 2018;**23**:114–122.
- Sharma VP, Dhiman RC. Neem oil as a sand fly (Diptera: Psychodidae) repellent. *J Am Mosq Control Assoc.* 2013;**9**:364–366.
- Dhar R, Dawar H, Garg SS, Basir F, Talwar GP. Effect of volatiles from neem and other natural products on gonotrophic cycle and oviposition of *Anopheles stephensi* and *An. culicifacies*. *J Med Entomol.* 2016;**33**:195–201.