

Chemistry in the Service of Dengue Protection

Marcos Aurélio Gomes da Silva
Federal university of juiz de fora.

Article Info

Received Date: 04 June 2024, **Accepted Date:** 17 June 2024, **Published Date:** 20 June 2024

***Corresponding author:** Marcos Aurélio Gomes da Silva, Federal university of juiz de fora.

Citation: Marcos Aurélio Gomes da Silva. (2024). "Chemistry in the Service of Dengue Protection". International Journal of Medical Research and Medical Case Reports, 1(1); DOI: <http://06.2024/ijmrmcr/002>.

Copyright: © 2024 Marcos Aurélio Gomes da Silva. This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 international License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Dengue fever, a mosquito-borne disease caused by the dengue virus, is a major public health concern worldwide. With no specific treatment or widely available vaccine, prevention is key. This is where chemistry steps in, offering solutions to protect against dengue.

Mosquito Repellents:

Chemical compounds like DEET (N,N-Diethyl-methyltoluamide) and picaridin are commonly used in mosquito repellents. These compounds work by interfering with the mosquito's olfactory receptors, making it harder for them to detect human presence.

Insecticides:

Chemistry also plays a role in the development of insecticides. Organophosphates, pyrethroids, and carbamates are classes of chemicals used to control mosquito populations. They work by disrupting the nervous system of the mosquito, leading to their death.

Larvicides:

Larvicides target mosquitoes in their aquatic larval stage. Chemicals like temephos are used to prevent larvae from maturing into adults. Another approach is the use of insect growth regulators, which disrupt the normal growth process of mosquito larvae.

Future Directions:

While these chemical methods have proven effective, there is a growing need for more environmentally friendly and sustainable solutions. Research is being conducted into the use of natural compounds from plants as potential mosquito repellents and larvicides.

In conclusion, chemistry plays a crucial role in the fight against dengue. Through the development of repellents, insecticides, and larvicides, chemistry provides us with the tools to protect ourselves and our communities from this disease. As we move forward, the challenge will be to balance efficacy with environmental sustainability.

References

1. Protection against symptomatic dengue infection by neutralizing antibodies varies by infection history and infecting serotype.
2. The Medicinal Chemistry of Dengue Virus. Available at: Accessed on: 29 Apr 2024.
3. Protective Role of NS1-Specific Antibodies in the Immune Response to Dengue Virus Through Antibody-Dependent Cellular Cytotoxicity. Available at: Accessed on: 29 Apr 2024.
4. Dengue: Update on Clinically Relevant Therapeutic Strategies and Vaccines. Disponível em: Acesso em: 29 Abr 2024.
5. Liao, M.; Kielian, M. Domain III from Class II Fusion Proteins Functions as a Dominant-Negative Inhibitor of Virus Membrane Fusion. *J. Cell Biol.* 2005, 171, 111-12.
6. Rajamanonmani, R.; Nkenfou, C.; Clancy, P.; Yau, Y. H.; Shochat, S. G.; Sukupolvi-Petty, S.; Schul, W.; Diamond, M. S.; Vasudevan, S. G.; Lescar, J. On a Mouse Monoclonal Antibody that Neutralizes All Four Dengue Virus Serotypes. *J. Gen. Virol.* 2009, 90, 799-80.