ANALYSIS OF THE REPELLENT ACTION OF INSECTICIDES ON Aedes aegypti (DIPTERA: CULICIDAE): A SYSTEMATIC REVIEW

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Aedes aegypti is a vector of significant arboviruses in global health, such as Dengue, Zika, and Chikungunya viruses. It is a well-studied biological model, with special attention to its biology and control, particularly due to its widespread resistance to the most known and available insecticides worldwide. However, little is known about its repellency to these insecticides. In this context, we conducted a systematic review guided by the following question: "What is known about the repellent action of insecticides on A. aegypti?" The databases consulted were MEDLINE (PubMed) and the "Biblioteca Virtual em Saúde" (BVS). Only original articles published between 1990 and 2023 in English, Spanish, and Portuguese were considered. The descriptors used were repellency, insect repellents, *A. aegypti*, organochlorates, pyrethroids, organophosphates, carbamates, neonicotinoids, and growth inhibitors. Of the 543 studies initially selected, 47 were included in this review, with 46 presenting positive results for repellency. In total, 185 insecticide repellency bioassays were performed in the 47 studies, of which 75.5% suggested some degree of repellency, regardless of the resistance/susceptibility level of the population, type of essay, and the insecticide used. The repellency effect in resistant populations was observed in 67.6% of the essays, while the same effect was observed in 87.6% of essays with susceptible insects. Nearly 80% of the essays tested repellency for pyrethroids. Of the most used insecticides, DDT exhibited the highest frequency of repellency effects in the bioassays (93.8%), while 78.7% of the assays with deltamethrin and 71.7% of the assays with permethrin showed repellency effects. Only four insecticides (including Temephos) showed no repellency effects in any study. These findings underscore the importance of studying insecticide repellency to understand vector behavior and improve integrated vector management strategies.

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