Caffeine as a Natural Larvicidal in Reducing the Malaria Transmission of Anopheles quadrimaculatus Mosquitoes

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The purpose of this research was to demonstrate the larvicidal properties of Caffeine in inhibiting the growth of Anopheles quadrimaculatus mosquito larvae. An experiment was conducted to investigate the effects of varying concentrations of a caffeine solution on terminating the development of the Anopheles larvae. The study involved obtaining Anopheles eggs and allowing them to develop into larvae. They were then divided into their respective well plates with incremental concentrations of the caffeine solutions. Well Plate 1 was placed in the incubator and Well Plates 2 and 3 were placed in a temperature controlled room set at 27 degrees Celsius. The larvae were observed for ten days and the mortality rate in each well was recorded. The results provided evidence that although the caffeine solution did not prevent all the larvae from developing, the larvae in the caffeine solution were notably smaller, had slower mobility, and decreased reaction rates in comparison to the larvae in the control wells. This experiment provided support for further studies to determine the properties of caffeine as a replacement for measures taken to control the growth of mosquitoes that have developed a resistance to insecticides and other chemical alternatives. Further research could assist those in low-socioeconomic regions that are affected by Malaria outbreaks and allow them to discover an ecologically safe solution to prevent the widespread growth of these mosquito populations.

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