Effects of Lemon Grass (Cymbopogan citratus), San Francisco (Codiaaeum variegatum) and Tawa-tawa (Euphorbia hirta) on the Growth and Development of the Mosquito, Aedis aegypti, a Vector of Dengue Virus

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The mosquito, Aedes aegypti, the principal vector of dengue virus has caused an alarming health issue worldwide. Commercial mosquito insecticides are readily available, but the vectors develop resistance to these and may cause harm and pose negative effects on living organisms and to the environment. This study evaluated the crude extracts of Lemon grass (Cymbopogon citratus), San Francisco (Codiaeum variegatum) and Tawa-tawa (Euphorbia hirta) leaves on the hatchability of mosquito eggs, and the mortality, abdominal morphology and behavior of 4th instar A. aegypti larvae. Mosquito eggs and larvae were exposed to 500 µL of each crude extract and then observed after 24 hours. Mean level of hatchability and mean level of mortality were recorded and the larvae were observed under a compound light microscope. Results showed significant differences on the hatchability and mortality manifested in the treatment using San Francisco crude extract. This means no eggs hatched out of the ten eggs introduced in the San Francisco crude extract, manifesting its ovicidal potential. Also, all ten larvae introduced in San Francisco crude extract did not survive indicating its larvicidal potential. Qualitative analyses showed that the extracts from Tawa-tawa and Lemon grass caused abnormalities on the abdominal morphology and behavior of the 4th instar A. aegypti larvae when compared with the control. The results showed a great potential for the production of organic insecticides from the plant extracts to control A. aegypti, vector of the dengue virus.