

## Determination of Potential Larvicidal Activity of *Parthenium hysterophorus* L. Leaf Extracts against *Aedes aegypti*

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Dengue is a mosquito born viral disease, severely affected most people in the world. Use of phytochemical to control mosquitoes is an eco-friendly method than the application of synthetic insecticides. The study was undertaken to determine the potentiality of larvicidal activity in *P. hysterophorus* L. (Parthenium) leaves extracts against *A. aegypti* larvae. The dried powder of Parthenium leaves was obtained and subjected for sequential extraction method in Soxhlet apparatus using hexane, ethanol and water for 24 hours separately. Crude extracts were evaporated in rotary evaporator and obtained dried crude extracts and stock solutions were prepared. Based on preliminary study, five different concentrations (0.1, 0.2, 0.3, 0.4 and 0.5 %) were prepared from each stock solutions and *A. aegypti* larvae (10n) were introduced in triplicate to determine the mortality after 48 and 72 hours of exposure duration. The distilled water was used as control. LC<sub>50</sub> and LC<sub>90</sub> values were determined for each extract at 48 and 72 hours of exposure. Data was analyzed by using SPSS 22.0 statistical package. Duncan Multiple Range Test (DMRT) was used to compare the means of larval mortalities with different concentrations and exposure duration. The larval mortality was significantly increased with the time and concentrations of the leaves extracts ( $P < 0.05$ ). The least LC<sub>50</sub> and LC<sub>90</sub> values were observed in water extracts at 48 hours (LC<sub>50</sub> and LC<sub>90</sub>: 146.43 ppm and 389.71 ppm), while the ethanol extract had the least values at 72 hours (LC<sub>50</sub> and LC<sub>90</sub>: 132.84 ppm and 329.30 ppm). Hexane extract showed highest LC<sub>50</sub> and LC<sub>90</sub> values in all exposure durations compared with other solvent extracts. The study shows that *P. hysterophorus* L. leaves extracts have larvicidal activity against *A. aegypti* larvae.

**Keywords:** *Aedes aegypti*, Larvicide, *Parthenium hysterophorus*, Sequential extraction