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Oviposition attraction and larval performances of *Aedes aegypti* and *Aedes albopictus* under different leaf concentrations of invasive flora

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Aedes aegypti and *Aedes albopictus* (Diptera: Culicidae) are the vectors of dengue and dengue hemorrhagic fever. The survival and population density of *Aedes* mosquitoes depend on the characteristics of the oviposition media. Thus, the objective of the present study was to evaluate the attraction and larval development of *Ae. aegypti* and *Ae. albopictus* to different oviposition media prepared using alien invasive flora in rubber plantations. Three oviposition media, each having 25%, 50%, 75% and 100% concentrations, were prepared by the selected invasive flora namely, Guinea grass (*Megathyrus maximus*), Alligator weed (*Alternanthera philoxeroides*) and Austroeupeatorium (*Austroeupeatorium inulifolium*) to evaluate the attraction of mosquito populations in a rubber plantation at Palmadulla (6°36'50.5"N 80°33'03.3"E). Forty-five ovitraps (four concentrations from each infusion with three blanks) were placed on the identified sites for vector breeding in a completely randomized manner for four days. The experimental setup was replicated three times. The number of eggs at each concentration of leaf extracts was enumerated and reared under laboratory conditions until adults. The emerged mosquitoes were identified using morphological taxonomic keys. The highest number of *Aedes* eggs (n=32) were found in ovitraps with 25% concentration of *M. maximus*. At 25% concentration, the highest hatch rate (65%) was obtained from *A. philoxeroides* and at 50% of concentration, the highest hatch rate (75%) was obtained from *M. maximus* infusion. At 75% of concentration, the highest hatch rate (75%) was obtained from *M. maximus* infusion during the second day of rearing. But at 100% of concentration, the highest hatch rate (50%) was obtained by *M. maximus* within the first day of rearing. The highest ovitrap positivity index (number of positive ovitraps/number of ovitraps placed X 100) value of 100, was obtained by *A. philoxeroides* at concentrations of 25%, 50%, and 75%, by *M. maximus* at concentrations of 25, 50, and 100%, and by *A. inulifolium* at concentrations of 25% and 75%. *A. philoxeroides* achieved the lowest value 33.3 at 100% concentration. The maximum Egg Density Index (Total number of eggs/Total number of positive traps) value 22.0 was obtained by *M. maximus* at 25% concentration and the minimum value 2.5 was obtained by *A. inulifolium* at 100% concentration. The larval density shows a significant difference with the different plant infusions. (F=12.90, df =2, P<0.05) and also in different concentration (F=13.81, df=3, P<0.05). The interaction of plant infusion type and their concentrations showed a significant effect on the larval densities (Two-Way ANOVA, F=6.57, df =6, P<0.05). The leaf infusions attracted gravid females of both *Ae. aegypti* and *Ae. albopictus*. The mosquitoes exhibit a vastly different response to each plant species. The present study demonstrates the potential of plant infusions in stimulating oviposition by *Aedes* mosquitoes using ovitraps in mosquito surveillance. These findings confirm the critical importance of the plant species that are used to make leaf concentrations.

Keywords: *Aedes* mosquitoes, invasive flora, larval density, oviposition attraction, ovitrap positivity index, plant infusion