

Poster presentation: 135

**Effect of aqueous extracts of *Annona glabra* plant and extracellular metabolites of two *Trichoderma* species on the survival of larval *Culex quinquefasciatus* and eggs of *Aedes aegypti***

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Phytochemicals constitute a rich source of bioactive chemicals and some microbial products carry selective toxicity to many insect species, hence those are considered as alternatives to chemical insecticides. This study aimed to determine the potential of concentration gradient of *Annona glabra* aqueous leaf and fruit extracts for the mortality of third instar larvae of *Culex quinquefasciatus*; and to determine the ovicidal activity of extracellular metabolites of *Trichoderma harzianum* and *Trichoderma viride* at concentration gradient of 100, 200, 300, 400, 500 g/L on field collected eggs of *Aedes aegypti* with four replicates including controls for all bioassays. For the bioassays, aqueous crude extraction of plant materials was done by overnight shaking and extraction of extracellular metabolites of *T. harzianum* and *T. viride* was done using Richard's broth. Study revealed that LC<sub>50</sub> for *A. glabra* aqueous leaf extract for third instar larvae of *Cu. quinquefasciatus* was 16.26 g/L and 8.29 g/L in 24 hr and 48 hr exposure respectively (Minitab 14, Probit analysis). LC<sub>50</sub> for *A. glabra* aqueous fruit extract, for third instar larvae of *Cu. quinquefasciatus* were higher than the LC<sub>50</sub> for *A. glabra* leaf extract; 422.54 g/L and 114.01 g/L in 24 hr and 48 hr exposure respectively. 100% mortality was observed in mosquito larvae under 69.86 g/L of leaf and 1000g/L of fruit extract treatments after 24 hours of exposure. Mosquito larvae mortality compared to those in the control group reveals that the mortality of mosquito larvae may be due to the toxic compounds found in the plant. Although literature has shown that most *Trichoderma* strains produce volatiles and non-volatile toxic metabolites, significant ovicidal activity of extracellular metabolites of *T. harzianum* and *T. viride* on field collected eggs of *Ae. aegypti* was not observed (One-Way ANOVA; P>0.05) after 24 hr of exposure. The results of the study revealed that, both *A. glabra* fruit and leaf extracts are potential mosquito larvicides for *Cu. quinquefasciatus*. This may contribute to the formulation of an environmentally friendly measure to control *Cu. quinquefasciatus* vector mosquito species, which is a vital need to overcome the use of synthetic insecticides.

**Keywords:** *Aedes*, *Annona glabra*, *Culex*, metabolites