

Evaluation of Entomopathogenic Fungi *Metarhizium Anisopliae* against Dengue Virus Mosquitoes *Aedes Aegypti* (Diptera: Culicidae).

Wondmeneh Jemberie¹, Hill, S., Rännbäck, L. M., Ondiaka, S.^{2*}, Nagappan Raia and Ignell, R.

¹College of Natural and Computational Science, University of Gonda

^{2*}Department of Applied and Technical Biology The Technical University of Kenya

Abstract:

In this study, the bio-potential of the entomopathogenic fungus *Metarhizium anisopliae* was tested against *Aedes aegypti* under laboratory conditions. The study includes the analysis of the attractive response, survival and fecundity rate of non-blood and blood fed female mosquitoes exposed to the volatiles of two *M. anisopliae* strains. The attractive response was analysed using a two-choice behavioural bioassay, with three different sizes of dry spore plates (full, 1/4 and 1/16 plates). The survival and fecundity bioassay was conducted simultaneously in plastic pots. Log-rank survival curve analysis was used for statistical comparisons of the attractive response, survival and fecundity. Non-blood and blood fed mosquitoes were highly attracted to *M. anisopliae*-30 volatiles compared with that of the *M. anisopliae*-131 strain. Moreover, attraction was dependent on the size of the dry spore plate. Survival was completely abolished in unfed mosquitoes 5 and 6 days after treatment with 109 spores/mL of *M. anisopliae*-30 and *M. anisopliae*-131, respectively, whereas almost 80% of untreated unfed females survived more than 28 days. Survival in blood fed mosquitoes treated with same dose of *M. anisopliae*-30 and *M. anisopliae*-131 was abolished after 6 and 7 days, respectively, while over 80% of untreated blood fed females survived more than 28 days in the controls. Mean number of eggs laid by blood fed mosquitoes treated with 109 spores/mL of *M. anisopliae*-131 was 26±3 compared to control (67±4). However for *M. anisopliae*-30, 19±3 eggs were laid compared to control 72±5 eggs. This study concludes that both the strains of *M. anisopliae* reduce egg laying capacity and survival rate in *Ae. aegypti*. As such, these strains can be useful for the development of mycoinsecticides for the control of the dengue fever vector mosquito, *Ae. aegypti*.

Entomon Vol.43 (1) pp.7-18 (2018)

See more at: <https://www.cabdirect.org/cabdirect/abstract/20183163276>