THE USE OF ENTOMOPATHOGENIC FUNGI TO CONTROL SANDFLIES: THE VECTORS OF LEISHMANIASES

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Abstract

The control of leishmaniases has over the years relied on chemicals in targeting the parasite or vector. This has been faced with many challenges including high cost, sustainability and increasing resistance. Therefore, there is need to shift focus to more innovative, environmentally- friendly and sustainable strategies especially in managing vectors. Entomopathogenic fungi (EPF) have been used in the control of many pests of both agricultural and medical importance. However, there are limited studies on the use on the use of fungi in the control of sandflies. The goal of this study was to utilize EPF in the control of sandflies. EPFs are environmentally- friendly and sustainable since they are self-perpetuating.

The Entomopathogenic fungus, *Metarhizium anisopliae* was applied in termite mounds within Baringo County over six months. The fungus was used in two forms; powder formulation which was delivered by a modified foot pump and oil-formulation delivered by a knapsack sprayer. Sandfly densities were monitored by trapping using CDC light traps before application and after application of the EPF. Trapped sand-flies were incubated and observed for mycosis. Treatment was done twice within the six months with all environmental variables being recorded. The Entomopathogenic fungus produced mortality effect that was noticeable from week 2 and peaked at week 3. Conidia in powder formulation worked better than in oil-formulation. This was observed from the sharp decrease in sandfly densities from the termite mounds applied with powder as compared to those on oil-formulation. In addition, sandflies on powder were more heavily mycosed than those on oil formulation. The findings revealed that *Metarhizium anisopliae* was effective in reducing sandfly density therefore, can be developed as an alternative to synthetic chemicals in the management of sandflies.

Key words: Sandfly control, entomopathogenic fungi, *Metarhizium anisopliae*