

Title: MANAGEMENT OF YELLOW SCORPION (*Tityus serrulatus*) BY *Metarhizium anisopliae*

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Abstract:

Metarhizium anisopliae is a fungal species with known action on large numbers of arthropods. It is believed that over 200 different species of insects may be infected, which makes this fungus a model in the study of host-pathogen interactions. The objective was to verify the possibility to control the *Tityus serrulatus* using *M. anisopliae*. The scorpions were placed in plastic boxes (10 per box) containing white gravel, cotton soaked in water for humidity control and an egg tray under the same. Scorpions were fed live crickets (*Gryllus assimilis*). Four trials were conducted using this fungus biomass from Potato Dextrose Agar (PDA), varying the form of contact. The first consisted of exposure to fungal biomass contained in Petri dishes. The plates lids were kept open and strategically placed inside the boxes, so that fungal structures were scattered about the scorpions, for about 20 days. The second consisted of spraying a suspension of conidia in saline solution of the fungal species, prepared after fungal growth. The third consisted of fungal growth in a PDA contained Becker, into which scorpions were added for a period of 30 minutes. The last consisted of exposure to fungal biomass within the egg trays. The egg carton hollows were half filled with PDA where the fungus was seeded. After growth, the trays were placed inside the housing boxes to replace the containers that served as shelter. Scorpions showed a lack of interest regarding the food provided (*Gryllus assimilis*). Furthermore, it was observed a reduction in the activity level, scorpions remained nearly motionless. Most scorpions presented a depigmented exoskeleton, with loss of brightness and opacity. Some specimens showed dark areas and more pigmented spots. The highest death rates were observed in the fourth method, followed by the first and second methods. By processing the internal parts of the exoskeleton of insects, fungal isolation was possible in 65% of cases. Although, there is a need for further studies to find which may be the best ways of applying this fungus as a biocontrol measure for the yellow scorpion management, we consider that *Metarhizium anisopliae* is certainly one of the most promising fungal species in the control of this urban nuisance.

Keywords: management, arthropod, scorpion