

## Natural Occurrence of Acaropathogenic *Rhizopus* sp. on *Oligonychus* sp. Damaging *Gliricidia* Leaves and the Effect of Pesticides on its Existence

S. Gobinantha\* and G. Mikunthan

Department of Agricultural Biology, Faculty of Agriculture, University of Jaffna,  
Kilinochchi, Sri Lanka

\*[nanthasethu04@gmail.com](mailto:nanthasethu04@gmail.com)

Exploring the nature towards determining the existing biological control mechanisms is the timely need to create awareness among the farming community to manage their pests in crops. This would minimize unnecessary use of pesticides in the ecosystem and to protect the natural mechanisms of pest control to support the goal of toxin free nation. Natural occurrence of acaropathogenic fungus, *Rhizopus* sp. was detected on the two-spotted mite, *Oligonychus* sp. infesting in *Gliricidia* leaves at the Faculty of Agriculture, University of Jaffna, Kilinochchi. The aim of this study was to investigate the occurrence of *Rhizopus* sp. on *Oligonychus* sp. damaging *Gliricidia* leaves and also to determine the effect of some pesticides on its existence. The isolated fungus from the diseased cadavers of *Oligonychus* sp. was identified as *Rhizopus* sp. based on key characteristics. Microscopic examination of aerial growth revealed numerous sporangia-bearing sporangiophores, some were branched and arising directly opposite the rhizoids. Colonies were initially white and then turned to grey in older culture. Sporangiohores were found to be unbranched with the sporangia initially in white but later in black. In order to determine the pathogenic effect of *Rhizopus* sp. on *Oligonychus* sp., *Rhizopus* sp. was identified and isolated from citrus leaves. Different concentrations of the fungus solutions ( $10^5$ ,  $10^6$ ,  $10^7$  and  $10^8$  spores/mL) were tested to determine the LD 50 value. Water instead of fungal solution was used in control. Among all the concentrations, the highest mortality of immature stages observed was 94.76% after eight days by  $10^8$  spores/mL concentration and the lowest (71.07%) was observed in  $10^5$  spores/mL. The LD 50 value of  $10^6$  spores/mL was attained seven days after inoculation. The highest mortality of adults was recorded (70.04%) eight days after inoculation at the concentration of  $10^8$  spores/mL, whereas the lowest mortality (30.56%) was at  $10^5$  spores/mL. The effect of some fungicides on the *Rhizopus* sp. was determined using food poison technique. Diameter of mycelial growth was taken in every 12 hours after inoculation. Compatibility of fungicides on *Rhizopus* sp. revealed that significant inhibition was recorded in mancozeb and copper oxychloride compared to the control (without fungicide). Among the pesticides tested, imidacloprid, agromet, abamactin and profenophos showed significant inhibition against the fungal growth compared to the control. It can be concluded that there is a possibility to use the natural acaropathogenic *Rhizopus* sp. to control *Oligonychus* sp.

**Keywords:** Acaropathogenic fungus, biological control, *Gliricidia*, *Oligonychus*