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Screening the Virulence of *Metarhizium anisopliae* MT193505 against Spider Mite, *Tetranychus urticae* Koch

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Abstract**:** *Tetranychus urticae* Koch is one of the most harmful pests of agricultural crops and management using synthetic acaricides is probably prone to different problems. Therefore, non- chemical measure are being developed as alternative option, avoiding those drawbacks. The present study aims at investigating the potential of the entomopathogenic fungus, *Metarhizium anisopliae* to control spider mite, *T. urticae* Koch. All fungal isolates were pathogenic to spider mite, causing mortality of 85.71% against *T. urticae* associated with LT_{50} values ranging from 3.12 and 6.52 days for 2.4 $x10^7$ and 2.4 $x10^9$ spore ml^{-1}. Concerning the factors affecting the activity of enzymes excreted by fungus, the optimum temperature was 30ºC and pH value was 6.0 for lipase and chitinase. The optimal incubation period was 5 and 7 days for lipase and chitinase, respectively. Chitinase gene on the fungus *M. anisopliae* was determined by PCR amplification achieves at annealing of 55ºC and appeared in a 900 bp fragment at gel marker. The adult mites of *T. urticae* treated by *M. anisopliae* culture were inspected by SEM that demonstrated the existence of colonies of *M. anisopliae* on the body surface of *T. urticae*, that could be recognize by many conidia.

Keywords**:** *M. anisopliae*, *T. urticae*, Spider mite, LT_{50}, Entomopathogenic fungus