P 58 *Metarhizium anisopliae* (Ascomycota: Hypocreales): An effective alternative to chemical acaricides against different developmental stages of soft ticks (Acari: Argasidae)

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Ticks are obligatory hematophagous ectoparasites of vertebrates; they may cause paralyses, toxicoses, irritation, and allergy. Like hard ticks, soft ticks are known to be vectors of various disease agents. *Argas persicus, A. reflexus*, and *Ornithodoros lahorensis* are some common soft tick species. In this study, the pathogenicities of different isolates of the entomopathogenic fungus *Metarhizium anisopliae* to different life stages of soft ticks including *A. persicus*, *A. reflexus*, and *O. lahorensis* were evaluated under laboratory conditions. For this purpose, different isolates of the fungus (V245, 685, 715C, 3247, and 4456) were removed after culturing in PDA medium. The treatment groups were conducted by immersing eggs, larvae, and adult ticks in the spore suspensions and transferring them into Petri dishes. They were then kept on moist tissue paper to retain humidity for fungal growth. As control groups, eggs, larvae, and adult ticks were immersed in sterilized distilled water. All treated and untreated groups were observed daily, and the mortality of larvae and adult ticks and the hatchability of eggs were assessed. Five concentrations of different strains of *M. anisopliae* ranging from 1×10^3 to 1×10^7 conidia/ml were utilized. The effects of fungal strains on egg hatchability and larval and adult mortality were significant and dose-dependent compared to the control groups ($P<0.05$). The present study revealed that under laboratory conditions different strains of *M. anisopliae* in different concentrations had high pathogenicities against different life stages of soft ticks. The estimated LC_{50} values for all strains also showed that they had promising potential as biocontrol agents of argasid ticks.