Abstract

The grasshopper *Chrotogonus trachypterus* is one of the most important pests Sistan region, while quantitative and qualitative losses to crop products will enter. in this study, due to problems chemical pesticides to humans and animals and harmful effects on environment, pathogenicity entomopathogenic fungus *Paecilomyces variotti* and effect of extract *Peganum harmala* as a safe agents for pest control examined. Strain in the laboratory on culture medium purified and plant extract by distillation method was extracted. Therefore, adult insect susceptibility to fungus by Infecting inoculum method (Inoculation) was investigated. fungus concentrations included 10^6, 10^7, 10^8, 10^9 and 10^{10} spores per ml and control (distilled water with Tween20) in four replicates for each concentration and mortality within 10 days calculated. In the studies, the lowest mortality for concentration was 10^6 spore per ml. the LC_{50} for fungus 4.4×10^6 calculated. Positive correlation was observed between concentrations and grasshopper mortality. The highest mortality rates in the concentration 10^{10} spore per ml was 90%. As well as, the effect of different concentrations of *Peganum harmala* (30, 15, 7.5 and 3.75 Mg/ml) in third replications on adult grasshoppers in vitro was investigated. LC_{50} for fungus 6.83 calculated. With increasing concentration of the extract used, mortality rate of pest also increased. Thus, according to present results, in high concentrations, fungus *Paecilomyces variotti* can be a good biological control agent and also *Peganum harmala* extract on the synthesis of natural pesticides is important. In general, the use of fungus and plant extracts, to control this pest in integrated management program of sistan native pest is promising.

Keywords: *Chrotogonus trachypterus*, Bioassay, *Peganum harmala*

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Lethal effect extract of *Peganum harmala* and pathogenicity of *Paecilomyces variotti* on *Chrotogonus trachypterus*

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