

Article

Life table parameters of *Phytoseius plumifer* (Phytoseiidae) fed on *Rhyncaphytoptus ficifoliae* (Diptilomiopidae) under laboratory conditions

MOJDEH LOUNI, SHAHRIAR JAFARI* & JAHANSHIR SHAKARAMI

Department of Plant Protection, Faculty of Agriculture, Lorestan University, P.O. Box: 465, Khorramabad, Iran.

*Corresponding author: Phone: +98 661 4231917, Fax: +98 661 4200289, E-mail: Jafari.s@lu.ac.ir

Abstract

Rhyncaphytoptus ficifoliae Keifer is one of the most important pests of fig in southwestern Iran. *Phytoseius plumifer* Canestrini & Fanzago is a phytoseiid mite on fig that is found naturally in Iran and can feed and reproduce on *R. ficifoliae* and other pest mites. The life table parameters of this predator on adult stages of *R. ficifoliae* were determined under laboratory conditions at $25\pm 1^\circ\text{C}$, $65\pm 5\%$ RH and a photoperiod of 12:12 h (L: D). The results demonstrated that *P. plumifer* can develop on adult stages of *R. ficifoliae*. The developmental time of egg, larva, protonymph, deutonymph and all immature stages was 1.94 ± 0.08 , 1.12 ± 0.05 , 2.71 ± 0.07 , 2.92 ± 0.04 and 8.73 ± 0.07 days, respectively. The egg hatch rate and the survival rate for immature stages were 100%. Female adult longevity and life span were 39.36 ± 0.26 and 48.10 ± 0.25 days, respectively. The sex ratio was 65% female. The mean generation time (T), net reproductive rate (R_0), intrinsic rate of increase (r_m) and finite rate of increase (λ) were 18.78 ± 0.19 days, 17.99±0.35 female offspring, 0.154 ± 0.001 and $1.166\pm 0.001 \text{ day}^{-1}$, respectively. The mean number of preys consumed daily by the protonymphs, deutonymphs and female individuals was 13.13, 18.46 and 26.70, respectively. The findings of this study offer new information on the life table parameters of *P. plumifer* fed on *R. ficifoliae*, and can be used in integrated management programs against this pest.

Key words: Life table parameters, *Phytoseius plumifer*, *Rhyncaphytoptus ficifoliae*, *Ficus carica*

Introduction

The common fig (*Ficus carica* L.) is cultivated on 42,000 hectares in Iran, mainly in Fars province (Safaei *et al.* 2008). In recent years, fig production has increased to more than 1000 ha in Lorestan province mainly in southwestern region. The fig fruits are used commercially for jam, beverages, cake, chocolate, marmalade, dried fruit, fresh fruit, medicines etc (Babazadeh Darjazi 2011).

Fig trees in Iran are infested by several major pests, including *Rhyncaphytoptus ficifoliae* (Diptilomiopidae) and *Eotetranychus hirsti* (Tetranychidae). Chemical pesticides were used extensively for control of mites in fig orchards (Khanjani & Hadad Irani-nejad 2006). *Rhyncaphytoptus ficifoliae* has been reported from America, New Zealand, China, Saudi Arabia and Egypt (AL-Atawi & Halawa 2011). This pest was reported for the first time by Ramezani *et al.* (2006) in Khuzestan Province, south Iran. It has high population density on fig trees in Lorestan