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Natural Enemies and Population Movement of the California Red Scale, *Aonidiella aurantii* Maskell (Homoptera: Diaspididae) with Efficiency of Parasitoid, *Aphytis melinus* (How.) (Hymenoptera: Aphelinidae) in Lemon Orchards

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ABSTRACT

This study was conducted to determine natural enemies, population movement of *Aonidiella aurantii* Maskell (Homoptera: Diaspididae) and efficiency of parasitoid, *Aphytis melinus* (How.) (Hymenoptera: Aphelinidae) in lemon orchards in Adana and Mersin provinces during 2004-2005. Sampling was made two times a month during March-September and once a month during October-February. Laboratory host *Aspidiotus nerii* Bouché (Homoptera: Diaspididae) was reared in climatized rooms on potatoes and squash in 25±1ºC temperature and 50% humidity and 12/12 light and dark conditions. However, the rearing of parasitoid were carried out in the same conditions. *Aphtis melinus* was released as a dosage of 15 000 parasitoid ha^{-1} in fifteen days interval totally 25.500 parasitoids when the male scales caught in traps baited with California red scale pheromone during March-October months. *Aonidiella aurantii* has three generations in spring, summer and autumn per year. The Release of parasitoid for each generation when the second stage and virgin females of the pest were abundant was found conformable. Parasitation rate was increased by releasing *A. melinus* according to the years. The highest parasitization rate was occured on fruits, followed by leaves and shoots. The lowest parasitization rate was occured on stem. Natural enemies were determined as *Comperiella* sp., *Chilocorus bipustulatus* L., *Stethorus* sp. *Rodolia cardinalis* (Muls.), *Cybocephalus* sp., *Scymnus* sp. (Coleoptera: Coccinellidae); *Conwentzia* sp.(Neuroptera: Coniopterygidae); *Chrysoperla carnea* (Steph.)(Neuroptera:Chrysopidae), *Paraseiulus soleiger (*Ribaga) (Acarina: Phytoseiidae).

Key words: Citrus, *Aonidiella aurantii*, *Aphytis melinus*, biological control, population movement, natural enemies.

INTRODUCTION

Citrus is an important product in Turkey's agriculture in terms of both the amount of production and the variety. 87% of the citrus are grown in the Mediterranean Region, 20% of which is exported (Anonymous, 2002). As is the case with all the others crops, among the factors that affect the productivity are also the problems with