J. Agric. Sci. Mansoura Univ., 34 (11): 10699 - 10705, 2009

THE EFFICIENCY OF THE ECTOPARASITOID *Diglyphus isaea* WALKER (HYMENOPTERA: EULOPHIDAE) ON THE SERPENTINE LEAFMINER *Liriomyza trifolii* (BURGESS) IN TOMATO GREENHOUSES .

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ABSTRACT

Natural abundance of the ectoparasitoid *Diglyphus isaea* Walker was studied in four tomato greenhouses at Sakha, Mehalla Al-Kobra, and Metobus. The parasitoid showed low populations in March, then developed good populations that kept the populations of the serpentine leafminer, *Liriomyza trifolii* at low densities till the end of the season in all studied greenhouses.

D. isaea recorded two peaks of abundance in three of the greenhouses, the highest peak recorded 21, 36, 28 and 31 individuals/ 50infested leaflets in greenhouses 1, 2, 3 and 4, respectively . The highest average numbers occurred in April in all greenhouses recording 18 ± 2.9, 24.3 ± 8.3, 23.0 ± 5.2 and 26.0 ± 5.2 individuals/ 50infested leaflets in greenhouses 1,2,3 and 4 ,respectively. On the other hand, the percentage of parasitism ranged between 17.8 ± 0.9 and 47.3 ± 1.3% recording its highest numbers in May in greenhouse 1 (43.3 ± 5.3%), and in April in greenhouses,2,3 and 4 recording 46.4 ± 5.1 , 43.6 ± 2.3 and 47.3 ±1.3% , respectively. The percentage of killed larvae according to host-feeding recorded its highest monthly average numbers in May in greenhouses 1, 2 and 3 (43.5 ± 5.3 , 29.0 ± 9.2 and 24.0 ± 7.3% respectively) and in June in greenhouse 4 recording 30.6 ± 6.4% .

INTRODUCTION

Genus *Liriomyza* contains more than 300 species, widely distributed in the new and old world but are commonly found in temperate areas (Parrella, 1987). Among them, *L. trifolii* Burgess (Diptera: Agromyzidae), the American serpentine leaf miner is known as one of the most serious pests of many vegetable and horticultural crops worldwide (Spencer, 1973). *L. trifolii* has a wide range of host plants with more than 400 species reported as hosts (Baufeld and Motte, 1992). Thirty nine species of parasitoids have been reported to attack *L. trifolii* on a variety of commodities (Johnson and Hara, 1987). *Diglyphus isaea* Walker was the most dominant parasitoid species against *L. trifolii* of the parasitoid complex which contained *Opius pallipes* Wesmeal and *Chrysocharis parksi* Crawford (Hymenoptera: Eulophidae) as endoparasitoids (El-Khouly, 2003). Ozawa *et al.* (2001) found that the dominant parasitoid species emerging from *L.trifolii* larvae in Homaoka tomato greenhouses was *D.isae*.This parasitoid was released in tomato greenhouses to control *L.trifolii* at different release doses , the percentage of parasitism ranged 94.1-100% by the end of the growing season (Ozawa *et al* 1999and Ozawa *et al* 2001). The parasitoid *D.isae* is a primary ectoparasitoid capable of developing on at least 18 different agromyzid species (Boueck