STUDIES ON THE COTTON MEALYBUG, *PHENACOCCUS SOLENOPSIS* TINSLEY AND ITS CONTROL

BY

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ABSTRACT

Field studies were conducted on the cotton mealybug, *Phenacoccus solenopsis* Tinsley (Hemiptera: Sternorrhyncha: Coccoidea: Pseudococcidae) which infested tomato and green bean plants at Atfih district, Giza Governorate and Qaha district Qalyubia Governorate during two successive summer and nili seasons 2016 and 2017. The population density, activity periods and the effects of some weather factors on *P. solenopsis* and its associated natural enemies were considered. The obtained results revealed that in summer and nili seasons the total numbers of alive stages had one peak of activity on the infested crops. The total effects of some weather factors such as maximum and minimum air temperature (°C) and relative humidity percentage (RH%) showed positive significant relationship with the cotton mealybug population. During this study three hymenopterous solitary endparasitoids and four predacious species were recorded. The parasitoids were *Aenasius arizonensis* (Girault), *Anagyrus pseudococci* (Girault) and *Acerophagus gutierreziae* Timberlake (Encyrtidae). The predacious ones were *Scymnus syriacus* Mars., *Coccinella undecimpunctata* (L.) (Coleoptera: Coccinellidae), *Chrysoperla carnea* (Stephens) (Neuroptera: Chrysopidae) and *Orius laevigatus* (Fiber.) (Hemiptera: Anthocoridae). In an attempt to control this insect pest species, eight insecticides belonging to different chemical groups, were tested on *P. solenopsis* and its natural enemies on green bean field conditions. The obtained results indicated that Imidacloprid was the highest efficacy against *P. solenopsis* recording 89.17 – 90.71% reduction of the insect population after 21 days of application. Also Imidacloprid was the highest efficacy against parasitoids and predators of the cotton mealybug.

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