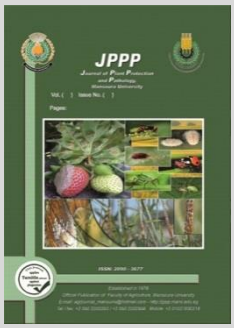
Journal of Plant Protection and Pathology

Journal homepage: www.jppp.mans.edu.eg
Available online at: www.jppp.journals.ekb.eg

Population Estimates of The Seychellarum Mealybug, *Icerya seychellarum* (Hemiptera: Margarodidae) in Relation to some Biotic and Abiotic Factors

Ata, T. E.[1]; S. S. Awadalla[2*]; M. H. Bayoumy[2] and Aya A. Osman[1]

[1]Economic Entomology Department, Faculty of Agriculture, Damietta University, Damietta, Egypt.
[2] Economic Entomology Department, Faculty of Agriculture, Mansoura University, Mansoura 35516, Egypt.



ABSTRACT

One of the most serious mealybug species that attack guava tress in Egypt is *Icerya seychellarum* (Hemiptera: Margarodidae). This study has been done to monitor the fluctuations in population of this pest in guava orchards during seasons of 2018/2019 and 2019/2020 in new Damietta district. The effects of abiotc (temperature and relative humidity, preferable direction) and biotic (predators) factors on its population has been examined. Three annual peaks of seasonal abundance for *I. seychellarum* were determined during November, May and September. The highest population of this insect was recorded during autumn season with total numbers of 1957 and 1674 individuals/leaf during the first and second year, respectively. On contrary, the lowest population of *I. seychellarum* was recorded during spring seasons of both years. The metrological factors insignificantly affected on the total population of the tested pest. The north direction is the preferable direction for *I. seychellarum* during the two years of study. Data revealed that there was synchronization in occurrence between populations of *I. seychellarum* and its predators, *Rodolia cardinalis* and *Chrysoperla carnea*.

Keywords: Distribution, direction, guava, humidity, predator, synchronization, temperature.

INTRODUCTION

In Egypt, guava *Psidium gaujava* L. is attacking by several species of mealybugs (Hemiptera: Margarodidae) that finally the infestation by these species leads to losses in both quantity and quality of the crop (Attia, 2010; Awadalla, 2013; El-Sherbenie 2004; Abdel-Mageed 2011). One of the most harmful species of mealybugs that attack guava trees in Egypt is the seychellarum mealybug, *Icerya seychellarum* (Westwood) (El-Sherbenie, 2004). In addition to direct damage, the honey dew, that secret by these insects, increases the damage by saprophytic fungi and reduces the photosynthesis and plant respiration (Mittler and Douglas, 2003; Zaki *et al.*, 2013; El- Sayed, 2015; Mohamed, 2015). Its known that mealybugs are hard to kill because they are accumulated in protected areas, the body wall of their developmental stages is covered with waxes, and most of insecticides are ineffective. However, mealybugs - being weak in their immobility that enable biocontrol agents to be effective (Mani *et al.* 2011).

Several studies have been investigated the role of predatory insects in controlling mealybug species(Canhilal *et al.* 2001, Ibrahim 2005 and Ramadan 2011). For example, the Vedalia beetle, *Rodolia cardinalis* (Mulsant) (Coleoptera: Coccinellidae), was introduced into Egypt in 1902 to control *Icerya purchasi* Mask. Developmental stages of *R. cardinalis* have been found to be associated with populations of *Icerya aegyptiaca* (Douglas) on *Ficus nitida* trees in the Mansoura district of Egypt (Ragab, 1995). Afterwards, it became one of the most important predators that attack mealybug species in different locations of Egypt (Hamed and Saad, 1989; Ibrahim, 2005; Awadalla, 2013). The green lacewing, *Chrysoperla carnea* (Stephens) (Neuroptera: Chrysopidae) is known as a generalist predator of a wide range of insect species (Carrillo and Elanov, 2004; El-Serafi *et al.*, 2004). It is considered one of the species that has taken great interest because of its wide distribution with high relative frequency of occurrence, good searching characters and easy rearing in the laboratory.

Although the population of this mealybug species has been monitored by several authors in different locations of Egypt, the continuous update of these information and knowing the preferred times to population increase in relation to certain ecological factors is highly required in preparing programs of integrated pest management.

Therefore, this study has been conducted to monitor the fluctuations in population of this pest in guava orchards that grow in new Damietta district, and to examine the effects of abiotc (temperature and relative humidity, preferable direction) and biotic (predators) factors on its population.

MATERIALS AND METHODS

The present study was conducted throughout the period extended from September, 2018 to September, 2020 on guava trees (*Psidium guajava* L.) planted in a private orchard located in New Damietta, Damietta Governorate, Egypt. The selected orchard did not receive any chemical control during the period of study. All trees received the same routine horticultural practices.

Sampling method and assessment

Five trees were selected to carry out these studies. Selected trees for investigation were similar in size, shape,

* **Corresponding author.**
E-mail address: awadalla28@yahoo.com
DOI: 10.21608/jppp.2021.170469

height, vegetation and relatively homogenous in their infestation with *Icerya seychellarum*. Samples were picked up biweekly intervals throughout the investigation period from the four cardinal directions; East-West-North and South in addition to the center of each selected trees.

Sample size was 125 leaves represented 25 leaves for each direction. Samples were picked up at random from each tree by using a garden scissors. The samples were packed immediately in polyethylene bags with minute holes and transferred to the laboratory directly on the same day for examination by using stereoscopic microscope (binocular) to record the number of *Icerya seychellarum*

To study the population fluctuation of predatory insects of the Seychellarum scale, *Icerya seychellarum*, the five trees were visually examined in the field.

Distribution of *Icerya seychellarum*

To determine the cardinal directions (east, west, north and south) that affect the distribution of *Icerya seychellarum* mathematically, the following equation, that proposed by Mahmoud (1981), Hassan (1998) and Nabil (2003) was applied:

$$\mathbf{H} = \sqrt{F1^2 + F2^2 + 2F1F2\ \mathrm{Cos}\ Q}$$

where H is summation of powers; F1 is the population on the (east) minus that on the (west) if former is higher, and vice versa; and F2 is the population on the (north) minus that on the (south) if the former is higher, and vice versa. The figure obtained represents the tangent, the corresponding values of which were received by the equation.

$$\tan \mathbf{Q = F2/\ F1.}$$

The seasonal distribution of insect mealybugs was also determined during both years of the study.

Meteorological data

The daily means of temperature and relative humidity were obtained from the Egypt-Weather Underground

https://www.wunderground.com/global/EG.html.

Statistical analysis:

One-way ANOVA and regression analyses in SPSS software program were applied on the obtained data and in case of significant mean separated by using Duncan's Multiple Range test.

RESULTS AND DISCUSSION

Population fluctuation of the *I. seychellarum* on guava trees

The population fluctuations of *I. seychellarum* on guava trees during the 2018/19 and 2019/20 are given in Figs. (1 and 2). The annual total of *I. seychellarum* was 4793 and 4366 individuals during 2018/19 and 2019/20 years, respectively.

Three peaks for *I. seychellarum* on guava trees were recorded during the first year, 2018/19 (Fig.1). The first peak was occurred on 3rd of November 2018 (494 mealybugs/125 leaves) with daily means of temperature and relative humidity were 23.9 C° and 65.0%, respectively, the second one was on 18th of May 2019 (321 scales /125 leaves) with daily means of temperature and relative humidity were 25.9 C° and 71.0% respectively, and the third one was on 7th of September 2019 (239 scales /125 leaves) with daily means of temperature and relative humidity were 26.3 C° and 70.5%, respectively.

Three peaks also for *I. seychellarum* on guava trees were determined during the second year, 2019/20 (Fig. 2). The first peak was occurred on 2nd of November 2019 (456 scales/125 leaves) with daily means of 20.5C° and 58.9 RH%, the second was on 16th of May 2020 (315 scales/125 leaves) with daily mean of 25.5 C° and 72.8 RH%, and the last one was on 5th of September 2020 (160 scales/125 leaves) with daily means of 26.2C° and 72.4 RH%.

In both seasons, the highest abundance for *I. seychellarum* was in the beginning of November.

Icerya seychellarum had two (Tawfik and Mohamed 2001; Attia and Youssef (2017) and three (Assem 1990; EL-Borollosy *et al*., 1990; Sayed, 2008; Mohamed 2013; Zaki *et al.*, 2013) annual peaks of abundance. The times of these peaks differed from study to others, however the times of peak occurrence in some of them are in consistent with our results. Nevertheless, the difference between number of peaks and their times of occurrence between this study and others may be due to the variation in weather factors and host plants (Bakry, 2009).

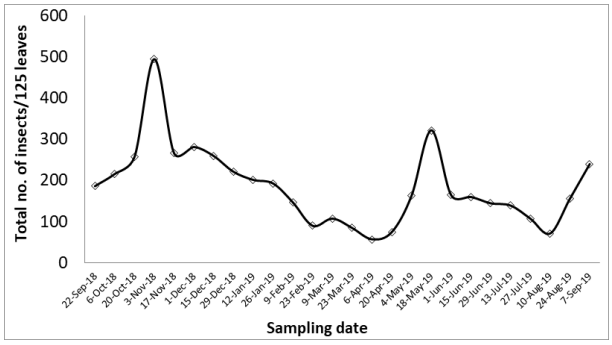


Fig. 1. Total numbers of *Icerya seychellarum* (nymphs and adults) per 125 leaves and the corresponding tested climatic factors (as biweekly mean) during the first year of 2018/19 at new Damietta region.

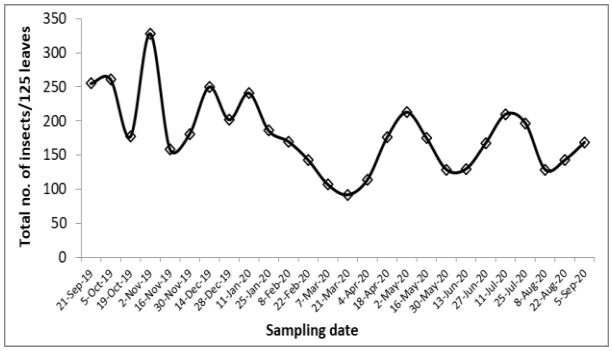


Fig. 2. Total numbers of *Icerya seychellarum* (nymphs and adults) per 125 leaves and the corresponding tested climatic factors (as biweekly mean) during the second year of 2019/20 at new Damietta region.

Influence of certain weather factors on the population density of *I. seychellarum*:

The simple correlation (r) and regression (b) coefficients between the daily mean of temperature as well as the daily mean of relative humidity and the population density of *I. seychellarum* during the first (2018/19) and second (2019/20) years are given in Table (1).

The correlation between the population of *I. seychellarum* and temperature was non-significant in the first and second years, whereas it was significantly

negative and non-significant negative for relative humidity in the first and second year, respectively.

The exact effect of both weather factors could be seen by the values of partial regression in Table (1). These values showed the same trend that recorded by simple correlation coefficient.

Our results partially confirmed by some of previous studies. The population densities of *I. seychellarum* were significantly affected by the changes in both temperature and relative humidity on sago palm (El- Borollsy *et al.* 1990), on mulberry (Osman, 2005), on guava (Attia and Youssef, 2017), and on citrus (Moustafa, 2012) trees. Whereas, our findings came in reverse direction to others (Zaki *et al.*, 2013; Abdel-Rahman *et al.*, 2007). These variation between studies are hard to explain, however there are several other climatic factors that may be interacted to change every single effect from season to season.

Table 1. Simple correlation and regression coefficients and explained variance (E.V.) between tested weather factors and biweekly means of *I. seychellarum* populations during 2018/19 & 2019/20.

Year	Correlation coefficient			Regression coefficient				
	Factor	*r*	*p*	*b*	*p*	"F"	Prob>F	E.V.
2018/19	Temperature	0.089	0.664	0.114	0.530	4.12	0.029	20.0%
	R.H.%	-0.501	0.009	-0.507	0.010			
2019/20	Temperature	-0.065	0.752	-0.079	0.868	1.89	0.174	6.6%
	R.H.%	-0.367	0.065	-0.370	0.068			

The synchronization between populations of *I. seychellarum* and its predators

The biweekly means of total numbers of *I. seychellarum* and its predators (*R. cardinalis* and *C. carnea*), on guava trees during the first (2018/19) and second (2019/20) years are represented in Figures (3 and 4).

In the first year (Fig. 3), the total number of *I. seychellarum* was relatively lower in the beginning of the year on 22nd September, 2018 (186 scales), then increased gradually to reached the highest value (494 scales) in the beginning of November, 2018 and decreased again to reached its minimum number in the first week of April 2019 (57 scales).

The fluctuations in total numbers of predators (*R. cardinalis* and *C. carnea*) took the same trend as *I. seychellarum* during the first year. The maximum number of *R. cardinalis* recorded in the beginning of Nov. 2018 (31 beetles) and the lowest number occurred during April 2019 (6 beetles). While, the maximum number for *C. carnea* was recorded in the beginning of December 2018 (29 individuals) and the lowest number occurred during February and March 2019 (2 Individuals).

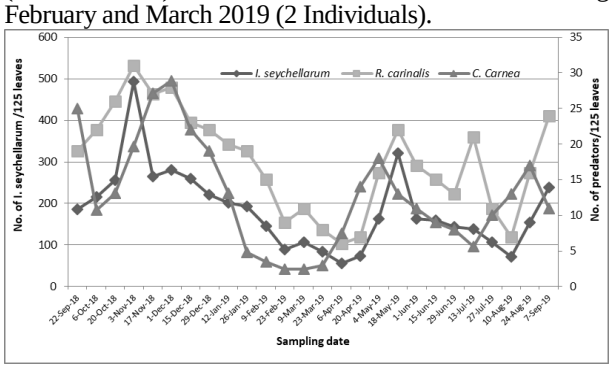


Fig. 3.The total numbers of *I. seychellarum* (nymphs and adults) and its predatory insects per 125 leaves during the first year (2018/2019) at new Damietta region.

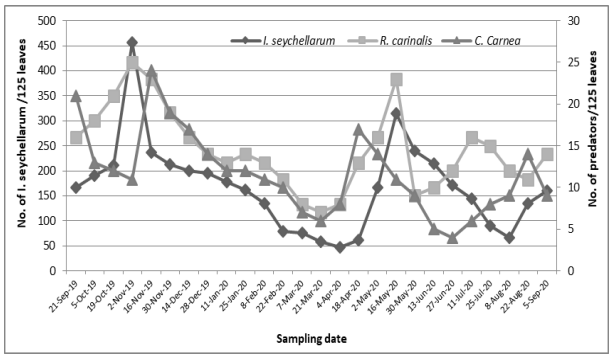


Fig. 4. The total numbers of *I. seychellarum* (nymphs and adults) and its predatory insects per 125 leaves during the second year (2019/2020) at new Damietta region.

In the second year (Fig. 4), the total numbers of *I. seychellarum* was relatively higher in the beginning of the year on 21st September, 2019 (255 scales), and continued in increasing to reach the highest number (328 scales) in the beginning of November, 2019 and then decreased again to reach its minimum number in the last week of March, 2020 (92 scales). The biweekly means of the total numbers of *R. cardinalis* exhibited the same trend as that for *I. seychellarum*, whereas *C. carnea* did not. The maximum number of *R. cardinalis* was recorded in the beginning of November 2019 (25 beetles) and the lowest number occurred during March 2020 (7 beetles). While, *C. carnea* the maximum number recorded in the middle of November 2019 (24 individuals) and the lowest number occurred during March 2020 (6 individuals.).

Results of simple correlation coefficient in Table (2) confirmed these fluctuations. The populations of *R. cardinalis* synchronized with those of its host, *I. seychellarum* during both years of the study, whereas the population of *C. carnea* coincided with those of its host during the first year only.

Table 2. Simple correlation coefficient between populations of *I. seychellarum* and each of its predators during the two successive years 2018/19 and2019/20 at Damietta Governorate.

Year	*I. seychellarum*			
	Predator species	*r*	*p*	Significant
2018/19	*R. cardinalis*	0.902	0.001	**
	C. carnea	0.558	0.003	**
2019/20	*R. cardinalis*	0.740	0.001	**
	C. carnea	0.216	0.289	ns

The results of *R. cardinalis* are in agreement with those of Hamid and Hassanian (1991), El-Sherbenie (2004), Abdel-Mageed (2005), Abdel- Aleem (2008), Moustafa (2012), Ghanim *et al.* (2013), Mohamed (2013), and Attia and Youssef (2017).

Distribution of *I. seychellarum* on guava trees

The data illustrated in Figures (5 and 6) show the effect of cardinal directions on the distribution of *I. seychellarum* populations during the first (2018/19) and second (2019/20) years. These data were driven from the original data for seasonal abundance, where each guava tree was sampled in the four cardinal directions plus center. Each direction subsample was examined separately, and data was pooled for seasonal abundance.

In the first year (Figs 5 and 6), the population per sample in the north direction of the guava trees was significantly higher than other directions with an annual mean was 56.3 scales/sample. The center of the guava tree came next as 42.4 scales/sample; the third preferred direction was west with annual mean of 33.7 scales /sample. The fourth one was on the east direction with 28.2 scales/sample. The south direction of the guava tree had significantly the lowest population over the study with 24.1 scales/sample.

In the second year (Figs. 5 and 6), the same trend as that in the first year was obtained. There were significant differences in mean numbers of *I. seychellarum* between directions. The northern direction of guava trees harbored the highest numbers of mealybugs followed by center, western, eastern and southern. The annual mean of the insect numbers was 51.2, 38.4, 30.7, 25.6 and 22.0 scales/125 leaves, respectively. The preferable directions were the north-western of guava tree during the two years of study with angels of 80.03 º and 80.04º to the west, respectively.

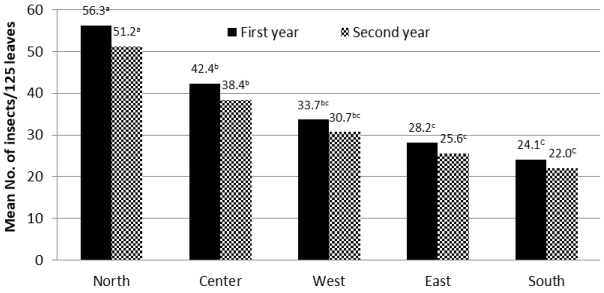


Fig. 5. Mean numbers of *I. seychellarum* at different directions of guava trees during the first and second years at new Damietta region. Means followed by the same letter are not significantly different.

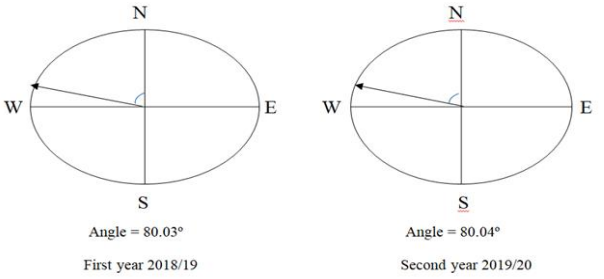


Fig. 6. Preferable cardinal directions of *I. seychellarum* infestation on guava trees at new Damietta region during 2018/19 and 2019/20 seasons.

The highest number of *I. seychellarum* was mostly accumulated at the north-western direction of guava tree. These results may be attributed to the brightness of the sun in the southern direction, which causes the insects to flee to the opposite, northern direction.

The preferable direction for the population activity of the striped mealybug, *Ferrisia virgata* could be found in north-eastern of the corn plant (shrub), *Dracaena fragrans* plant with an angle of 23.5º to the north-eastern at 2014/2015 and the same direction at 2015/2016 but an angle of 29.7º to the north-eastern. The preferred direction of *F. virgata* could be found in north-eastern of the *D. marginata* plant with an angle of 32.5º to the north-eastern in 2014/2015 and the same direction at 2015/2016 but an angle of 49.7º to the north-eastern. The preferred direction of P. citri could be found in north-eastern of the *C. variegatum* plant with an angle of 81.4º to the north-western at 2014/2015 and the same direction at 2015/2016 but an angle of 30.3º to the north-eastern (Metwally, 2017).

Seasonal distribution of *I. seychellarum*

The highest total numbers of *I. seychellarum* were recorded in autumn (1957 scales/125 leaves), followed by spring (1023 scales/125 leaves), winter (957 scales/125 leaves), and summer (856 scales/125 leaves) of the first year (Fig. 7).

The highest total numbers of *I. seychellarum* were recorded in autumn (1674 scales/125 leaves), followed by spring (1102 scales/125 leaves) and winter (824 scales/125 leaves), and summer (766 scales/125 leaves) of the second year (Fig. 7).

The highest numbers of the seychellarum mealybug, *I. seychellarum* on *Hedera helix* plants were recorded during summer (Mohamed, 2015) and autumn on guava and ficus trees (Awadallah, 2013). The highest mean numbers of *F. virgata* population on *D. fragrans* and *D. marginata* shrubs and *P. citri* on *C. varigatum* shrubs were during autumn (Metwally, 2017).

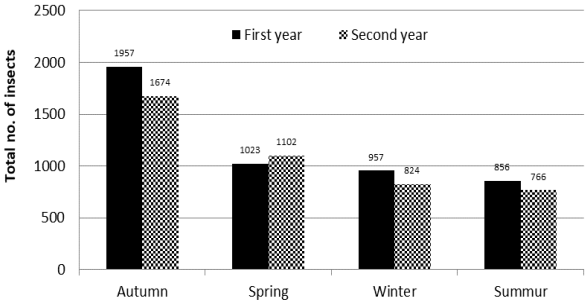


Fig. 7. Seasonal distribution of *Icerya seychellarum* on guava leaves during the two successive seasons of the study at new Damietta region.

REFERENCES

Abdel-Aleem, R.Y. (2008). Biological studies on the mealybug *Icerya seychellarum* (Westwood) (Homoptera, Margarodidae). Fayoum J. Agric. Res. & Dev. 22 (2):120-128.

Abdel-Mageed, S. A. M. (2005) Influence of certain natural enemies on some mealybug populations. M. Sc. Thesis, Fac. Agric., Mansoura Univ. pp. 140.

Abdel-Rahman, M. M., Salem, M. S., Moussa, S. F. M., Nour, M. E. and. EL-Said M. I, (2007). Seasonal fluctuation of the Seychelles fluted scale, *Icerya seychellarum* (Westwood) on four mango cultivars in Egypt. Egypt. J. Agric. Res.; 85 (1): 77-88.

Assem, S. M., (1990). Survey and ecological studies on some insects attacking certain ornamental plants. Ph.D. Thesis, Fac. Agric., Cairo, Egypt; 202 pp.

Attia, S. A. (2010). Ecological studies of scale insects infesting mango and guava trees and their control in Qalubyia Governorate . Ph.D. Thesis, Fac. Science Ain Shams Univ .1-213 pp.

Awadalla, H. S. S., (2013). Ecological and biological studies on certain mealybug species and their associated natural enemies at Mansoura district. Ph.D. Thesis, Fac. Agric. Mansoura Univ. pp198.

Bakry, M. M., (2009). Studies on some scale insects and mealybugs infesting mango trees in Qena Governorate. M. Sc. Thesis, Fac. Agric., Minia Univ.

Canhilal, R.; Uygun, N. and Carner, G. R. (2001). Effects of temperature on development and reproduction of a predatory beetle, *Nephus includens* Kirsh (Coleopetra: Coccinellidae) J.Agric.Urban Entomol., 18(2): 117-125.

Carrillo M, Elanov, P. (2004) the potential of *Chrysoperla carnea* as a biological control agent of *Myzus persicae* in glass houses. Annuals of Applied Biology.; 32:433-439.

Duncan, B.B. (1955): Multiple ranges and multiple F test Biometrics 11: 1-32.

Egypt-Weather Underground *https ://www .wunder ground. com/global/EG.html.*

EL-Borollosy, F. M., El-Bolok, M. M., Assem, S. M. and Ezz, I., (1990). Ecological studies on the ornamental palm meaylbug, *Icerya seychellarum* (Westwood), (Margarodidae: Homoptera) on a *Cycus revolute* Thumb (Cycadaceae). Bull. Soc. Ent. Egypt.; 69: 257 – 269.

El-Sayed, A. T., (2015). Ecological and biological studies of mealybugs, *Icerya seyclellarum* (Hemiptera: Coccoidae: Monophlebidae) on Mulberry trees at Giza and Sharqiya Governorates. M. Sci. Thesis, Fac. Sci. Al-Azahar Univ., Cairo, Egypt 183 PP.

El-Serafi, A. Hala; A. A. Ghanim; A. H. El-Heneidy and El-Sherbenieb, M. K., (2004). Ecological studies on certain insects infesting guava orchards and their predatory insects at Mansoura District. Egypt. J. Biol. Pest Cont., 14(1): 77–85.

El-Sherbenie, M. K. G., (2004). Role of established predatory insects in suppressing the population density injurious insects infesting guava orcahreds at Dakahlia Governorate. M. Sc. Thesis, Fac. Agric., Mansoura Univ. 121 pp.

Ghanim, A. A., Abdel-Salam A. H., Elkady H. A., El-Nagar M. E. and Awadalla H. S. S., (2013). Ecological studies on some mealybug species attacking mandarin trees and their predatory insects at Mansoura district. J. Plant Prot. And Path., Mansoura Univ., Vol. 4 (3) 303 – 315.

Hamed, A. R. and Hassanien, F. A., (1991): Survey of parasitoids and predators of important scale insects, mealybugs and whiteflies in Egypt. Egypt, J. Biol. Pest Control, 1 (2): 147-152.

Ibrahim, M. M. (2005): Ecological and biological studies on persimmon (*Diospyros kaki* L.) pests and their natural enemies. Ph.D. Thesis, Fac. Agric. Mansoura Univ. pp. 154.

Mani, M., Krishnamoorthy, A. and Shivaraju, C. (2011). Biological suppression of major mealybug species on horticultural crops in India | Journal of Horticultural Sciences Vol 6 (2).

Metwally, M. M. M. (2017). Ecological studies on mealybugs infesting ornamental plants. M. Sc. Thesis, Fac. Agric., Al- Azahar Univ., Cairo, Egypt pp 130.

Mittler, T. E. and Douglas, A. E. (2003): Honeydew. In: Resh VH, Carde RT (eds) Encyclopedia of insects. Academic, Amsterdam.

Mohamed, G. S., (2015): Population dynamics of the seychellarum mealybug, *Icerya seychellarum* (WESTWOOD) (Hemiptera: Margarodidae) on the ornamental plant, *Hedera helix*. J. Plant Prot. and Path., Mansoura Univ., Vol.6 (3):481–498.

Mohamed, N. E., (2013): Ecological studies on some mealybug species infesting grapevine trees and their associated predatory insects at Mansoura district. J. Plant Prot. and Path., Mansoura Univ., Vol. 4 (10): 821 – 836.

Moustafa, M. (2012). Scale insects (Coccidae: Hemiptera) infested citrus trees and their natural enemies with a key of these pests in Egypt. Egypt. Acad. J. Biolog. Sci.; 5 (1): 1-23.

Osman, E. A. (2005). Studies on homopterous insect pests infesting mulberry tree in relation with *Bambyx mori;* L. (Bombycidae: Lepidoptera) silk production. Ph.D. Thesis, Fac. Agric., Cairo Univ.; 160 pp.

Ragab, M. E. (1995). Adaptation of *Rudulia cardinalis* (Mulsant) (Col., Coccinellidae) to *lcerya aegyptiaca* (Douglas) (Hom., Margrodidae) as compared with *lcerya purchasi* Mask. J. Appl. Ent. 119: 621-621.

Ramadan, Marwa M. E. (2011): Ecological studies on certain insect pests attacking ornamental plants and their insect predators in Mansoura District. M.Sc. Thesis, Fac. Agric. Mansoura Univ. pp 206.

Sahar, A. Attia and Naglaa, M. Youssef (2017). Population density and generation determination of *Icerya seychellarum* (Westwood) on guava orchards in Qalubyia Governorate. J. Plant Prot. and Path., Mansoura Univ., Vol.8 (12): 657–661.

Sayad, A. M. M. (2008). Studies on the mealybugs infesting some fruit trees and its natural enemies .Ph.D. Thesis, Fac .Agric., Al-Azhar Univ. Egypt. 312pp.

Tawfik, M. H. and Mohammed, Z. K., (2001). Ecological studies of two scale insects (Hemiptera: Coccoidea) on *Morus alba* in Egypt. Bollettino di Zoologia Agrariae di Bachicoltura, 33(3): 267 – 273.

Zaki, D. N., Amin, A. H., Abdallah, Y. E. Y. and Hassan, N. A., (2013). Certain ecological aspects for *Icerya seychellarum* (Westwood) on coffee plants *Coffea arabica* in Egypt. J. Plant Prot. and Path., Mansoura Univ., Vol. 4 (3): 265 – 277.

تقديرات التعداد لبق السيشيلاروم الدقيقي على أشجار الجوافة وعلاقتها بالعوامل الحيوية وغير الحيوية

طارق السيد عطا [1]، سمير صالح عوض الله [2]، محمد حسن بيومى [2] وآيه أحمد عثمان[1]

[1] قسم الحشرات الأقتصادية – كلية الزراعة – جامعة دمياط

[2] قسم الحشرات الأقتصادية – كلية الزراعة – جامعة المنصورة

يعد بق السيشيلارم الدقيقي أحد أهم أنواع البق الدقيقي في مصر والذي يهاجم بساتين الجوافة، وتهدف الدراسة الحالية إلى دراسة التغيرات التي تحدث فى مجاميع هذه الآفة خلال موسمين متتاليين (19/2018) و(20/2019) في بساتين الجوافة محافظة دمياط، بالإضافة إلى شرح تأثيرات بعض العوامل الجوية، (درجات الحرارة والرطوبة النسبية)، الإتجاه المفضل والمفترسات الحشرية المرتبطة بها على تعداد تلك الأفه. أظهرت البيانات التي تم الحصول عليها أن حشرة بق السيشيلارم قد سجلت ثلاثة ذروات لتعداد الحشرات على أشجار الجوافة في كلا عامي الدراسة، تم تسجيلها خلال (نوفمبر ومايو وسبتمبر) ، وكان أعلى نشاط للحشرة خلال فصل الخريف في العامين الأول والثاني (بإجمالي أعداد 1957 و 1674 فرد / ورقة). على العكس من ذلك ، تم تسجيل أدنى نشاط للحشرة خلال أوائل أبريل وأواخر مارس في العام الأول والثاني. وأشارت النتائج إلى أنه لا يوجد علاقة معنوية بين المتوسط اليومى لدرجات الحرارة والمدى لدرجات الحرارة وبين تعداد الحشرة ولكن وجدت علاقة معنوية بين تعداد الحشرة والرطوبة النسبية. كما وجد أن الحشرة فضلت إتجاة الشمالى الغربى فى كلا عامى الدراسة. كما أوضحت البيانات أن هناك تواجدًا متزامنًا لحشرات بق السيشيلارم والمفترسات الحشرية المرتبطة بها وهى خنفساء أبو العيد فيداليا و أسد المن.