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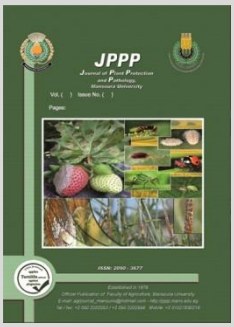
Effect of Certain Barley Plant Varieties on Population Abundance of Some Piercing–Sucking Insects

Hegab, M. A. M. [1*]; Sara E. El-Deeb[2] and M.A.M. Hegab[3]

[1] Plant Protection Department, Faculty of Agriculture, Damietta University, Egypt.
[2] Plant Protection Department, Faculty of Agriculture, Moshtohor, Benha University, Al-Qalyubia., Egypt.
[3] Plant Protection Department, Faculty of Agriculture, Zagazig University, Egypt



ABSTRACT

The current work aimed to examine population abundance of some piercing-sucking-insects infesting different barely plant cultivars at Sharkia Governorate during 2022/23 and 2023/24 seasons. The insects were obtained by methods ofplant samples and sweeping net. These insects were: a)Aphids: *Rhopalosiphum padi* (Linnaeus),*Rhaplosiphium maidis* (Fitch), *Schizaphis graminum* (Rond.) and *Sitobion avenae* (Fabr); b) leafhoppers: *Empoasca decedens* (Paoli), *E. decipiens* (Paoli), *Balclutha hortensis* (Landb.) and *Cicadulina chinai* (Ghaui) and planthoppers: *Sogatella vibix* (Haupt) and *S. furcifera* (Horv.).Peak of *R.padi*, *R.maidis*, and *S. graminum* population occurred at the first week of March, while, *S. avenae*peaked on the third week of March in barely fields. Population abundance of leafhoppers,*E. decipiens* , *E.decedens*, *B. hortensiss* and *C.chinai* showed a single peak at the end of February, whereas that of planthoppers,*S. vibix* and *S. furcifera* exhibited one peak during the third week of February.Barely varieties significantly affected the population abundance ofthe previously mentioned insects, with Giza 138 variety hosted the lowest mean number of insects, while the highest mean number of insects were found with Giza 123 variety. Chemical analysis revealed a positive relationship between protein and carbohydrate contents and insects attack, whereas an inverse relationship was obtained between pH values and insects attack.

Keywords: Aphids, Leafhopper, Planthoppers, Population abundance, Chemical analysis

INTRODUCTION

Cereal plants are essential crops that used as human food due to their importance in the development of the human body and the provision of nutrients. In recent years, the area planted with these crops has increased significantly to cover people's needs and the requirements of Arab and foreign markets (Newman and Newman 2006; Amer,2016; Mansour,2017; Kalsa *et al*. 2019; Omkar and Tripthi,2020 and El-Kady *et.al*,2022.).The insect pest concerns have escalated as crop cultivation has expanded. graminaceous plants are vulnerable to a large number of insect pests throughout the growing season (Ammar and Farrag, 1976; EL-Nahal *etal*., 1977; Aboul Atta, 1983; Hegab *etal*., 1989a). Among different pests attacking those plants, the piercing-sucking insects such as aphids and jassids inflict great economic loss either directly by sucking the plant sap or indirectly by carrying and transmitting plant viruses.Several researchers have discovered that homopterous insects play an important role as vectors of phytopathogenic diseases (Nielson,1968; Harris and Maramoarsh, 1980 and Hegab,1980) Some ecological studies have been conducted on aphid, leafhopper and planthopper species that infesting some graminaceous plants (EL-Khawas *etal.*, 2004; Awadalla *et al.*, 2011, 2013, 2014; Shalaby *et al.*,2012; Hegab 2016, 2022). and El-kady *et. al.*,2022). However, there is a great lack in knowledge regarding some ecological factors that affecting populations of insect pests that attackingbarely plants. Accordingly, the objective of this work is to investigate effect of certain barely varieties on population abundance of the main insect species inhabiting these varieties, as well as to determine effect of chemical analysis of these varieties on population density of these insects.

MATERIALS AND METHODS

This investigation was applied in Diarb-Nigm district at Sharkia Governorate.The experimental field consisted of an area of approximately 1100 m^2. The experimental design was a randomized block layout with 3 replicates. Treatments were randomly assigned to plots. Each plot was about10 meters extensive and 8 meters lengthy.The area between holes changed into 25-30 cm. During the 2022/23 and 2023/24 seasons, plantation took place in the second week of November. All plots were received regular agricultural practices but kept free from any pesticide remedies.

Four barely varieties were sown: Giza 123, Giza 126, Giza 132, and Giza 138. Sampling started when the plants were about one month old and continued weekly throughout the growing season until the harvest time. Plant samples, consisted of 10 tassels and 20 leaves, were collected weekly from ten plants of each varietywhich randomly selected to monitor population density of insects inhabiting those plants. Furthermore, sweep net samples were also considered. 50 double strokes from both diagonal directions of the experimental plot were taken to monitor populations of the leafhopper and planthopper species. The plant and sweep net samples were placed in paper bags and taken to the laboratory for examination with a binocular microscope. The collected aphid specimens were identified based on method of Habib

* **Corresponding author.**
E-mail address: mohmoudhegab@du.edu.eg
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and El-Kady (1961) and then recorded, whereas the collected leafhopper and planthopper specimens were identified based on methods of Herakly(1980) and Hegab *et al*. (1987). The yield of each experimental plot of each variety was estimated. The effect of different plantvarieties on population density of aphids, leafhoppers and planthoppers in relation tovariety yield was statistically analyzed according to a completerandomized block design (Little and Hills, 1975). The chemical analysis of the plant varieties was conducted in the central laboratory of the Faculty of Agriculture at Zagazig University. The analysis was focused on the total protein and carbohydrate contents, pH values, and the levels of phosphorus, calcium and potassium.The effect ofchemical components of various barley varieties on population density of the main insects was determined.

RESULTS AND DISCUSSION

Survey of the main piercing-sucking insects attacking barley plants.

Four aphid species were identified from the plant sample method used in the barely varieties during 2022/23 and 2023/24 seasons (Tables1&2). Based on their abundance, they were arranged in a descend order as follows:

1) The bird-cherry aphid, *Rhopalosiphum padi* (Linnaeus).
2) The corn aphid, *Rhopalosiphum maidis* (Fitch).
3) The green bug, *Schizaphis graminum* (Rond.).,
4) The grain aphid, *Sitobion avenae* (Fabr.).

Four leafhopper and two planthopper species were recorded on barely plant varieties using the sweep net method during 2022/23 and 2023/24 seasons. The leafhopper species obtained were listed in a descending order of abundance as follows: *Empoasca decedens* (Paoli), *E. decipiens* (Paoli), *Balclutha hortensis* (Lindb.), and *Cicadulina chinai* (Ghauri), .The planthopper species were arranged in a descending order as follows:*Sogatellavibix* (Haupt) and *S. furcifera* (Horv.). (Tables 1 & 2).

These findings are consistent with those of Hegab *et al.*(1987), who found that plant sampling appeared to be the most effective method for determining aphid species in the field crops.*R. padi* caused the most widespread infestation on barley plants, followed by *R. maidis*. Concerning the overall amount of *S. graminum* and *S. avenae*, it was discovered that barley plants had a large population of these pests.

The sweeping net approach proved to be the suitablemethod in capturing an increased number of leafhopper and planthopper species inbarely crops. These results are consistent with those reported by Hashem (1997), El -Gindy (2002), Abdel-Samad (2006), Awadalla *et al.* (2013 and 2014).

Seasonal abundance of themain piercing-sucking insects inhabiting barley plants.

i)Aphids insects .

Date arranged in Figs.(1&2) indicated that *R.padi* appeared on the 4th week of December with 4 and 6 individuals on barely plants during the 2022/23 and 2023/24 seasons, respectively, and increased gradually to reach its highest peak number on the 1st week of March with 280 and 320 individuals at an average of 18.42C,18.98 C with 51.85% and 57.62% in the 2022/23 and 2023/24 seasons, respectively.Following this peak, the sum number of aphids tended to decrease until the 3rd. week of April, when it reached its lowest level (2 and 2 individuals) during 2022/23 and 2023/24 season, respectively.

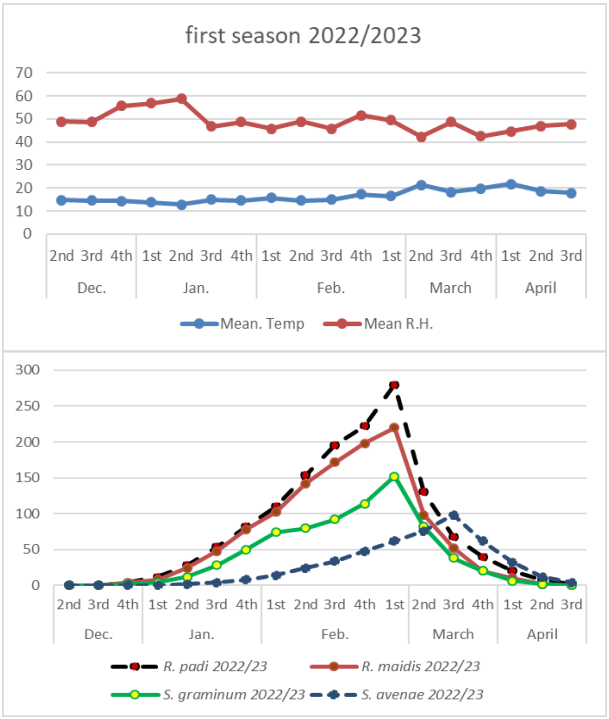

Fig. 1. Seasonal abundance of aphid species attacking barley plants (Giza 138 variety) during the first season (2022/2023).

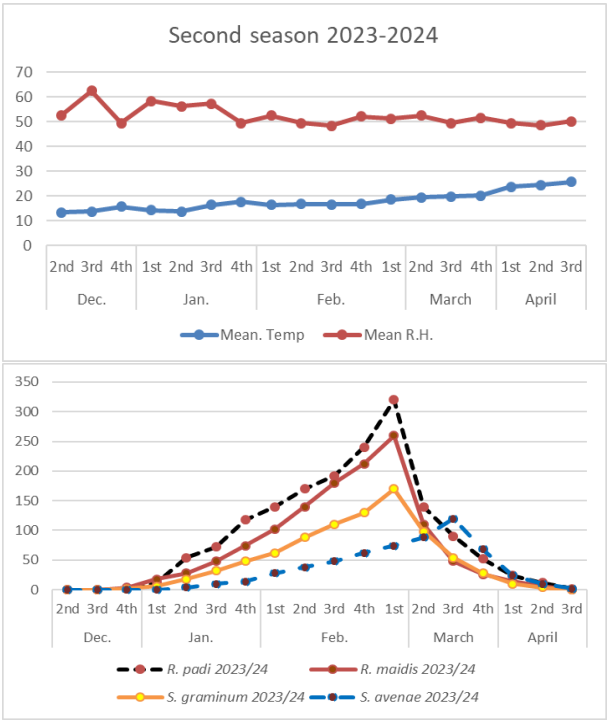

Fig. 2. Seasonal abundance of aphid species attacking barley plants (Giza 138 variety) during the second season (2023/2024).

In the 2022/23 and 2023/24 seasons, *R. maidis* was first observed in 4 th week of December, with a total of 4 and 8 individuals, respectively. The population remained low at first and then gradually increased, reaching its peak in 1st week of March. At this peak, there were 220 individuals in the 2022/23 season and 260 individuals in the 2023/24 season,

with average temperatures of 18.42°C & 18.98°C, and 51.85% R.H & 57.62% R.H for each season, respectively.Following this, aphid populations decreased until they reached a minimum level of 2 and 6 individuals in the 2nd. week of April during the 2022/23 and 2023/24 seasons, respectively (Figs. 1 & 2).

The data shown in Figures 1 and 2 pointed out that *S. graminum* was first found in 4th week of December, with total of 2 individuals on barley plants in both 2022/23 and 2023/24 seasons. The population increased gradually, peaking on March 1st. week with 152 individuals in the 2022/23 season and 170 individuals in the 2023/24 season, at temperatures of 18.42°C and 18.98°C, respectively. The corresponding were 51.85% R.H and 57.62%R.H for each season. After this peak, the sum number of aphids began to decline, reaching a minimum of 2 and 4 individuals by April 2nd week in the 2023 and 2024 seasons, respectively (Figures 1 & 2).

Date arranged in Figs.(1&2) revealed that the population *S.avenae* started off low in the 2nd week of January(2 and 4 specimens) and gradually increased to reach a high point in the 3thweek of March (98 and 120 individuals in total) at 19.24ºC& 20.48ºC and 49.84 % & 53.64 R.H.during 2022/23 and 2023/24 seasons respectively. Following the peak, the *S.avenae* population on barely plants fell until it reached its lowest point (4 and 2 individuals) in the 3rd week of April during the 2023 and 2024 seasons, respectively.

Regarding the aphid insect numbers on barely plants, it is evident that the 2023/24 season was more active of these aphid species than the 2022/23 season.

It is significant to notice that aphid insects *R.padi*, *R.maidis*, and *S.graminum* had one peak of activity on barely plants in 1st week of March, but *S. avenae* population peaked in 3rd week of March.All of these observations are consistent with the conclusions of Hashem (1997), El -Gindy (2002), Abdel-Samad (2006),Awadalla *et al*. (2013 and 2014) and El-Kady *et al.* (2022)who mentioned thataphid species had two peaks on winter plantation.

ii)Leafhopper and planthopper insect species :

The data shown in Figures 3 &4 indicated that *E. decedens* was first observed in the 3rd week of December during the 2022/23 and 2023/24 seasons, with 2 individuals recorded in both years on barley plants. The population gradually increased, peaking in the 4th.week of February with counts of 92 individuals in 2023 and 98 individuals in 2024. The average temperatures during this peak were 17.24°C in 2023 and 18.94°C in 2024, alongside relative humidity levels of 53.42% and 58.24%, respectively. After that, the population of *E. decedens* decreased until it hit its lowest level in the 2nd.week of April, with only 2 individuals recorded in both 2023 and 2024 seasons.

The leafhopper *E. decipiens* was first collected in the 3rd.week of December during the 2022/23 and 2023/24 seasons, with a total of 2 individuals recorded in each season on barley plants. Its population gradually increased, reaching a peak in the 4th. week of February, with 88 individuals in 2023 and 96 individuals in 2024, recorded at temperatures of 17.24°C and 18.94°C, along with relative humidity levels of 53.42% and 58.24% in each respective season. Following this peak, the number of *E. decipiens* began to decline, hitting its lowest point in the 2nd.week of April with only 2 individuals recorded in both years (Figures 3 & 4).

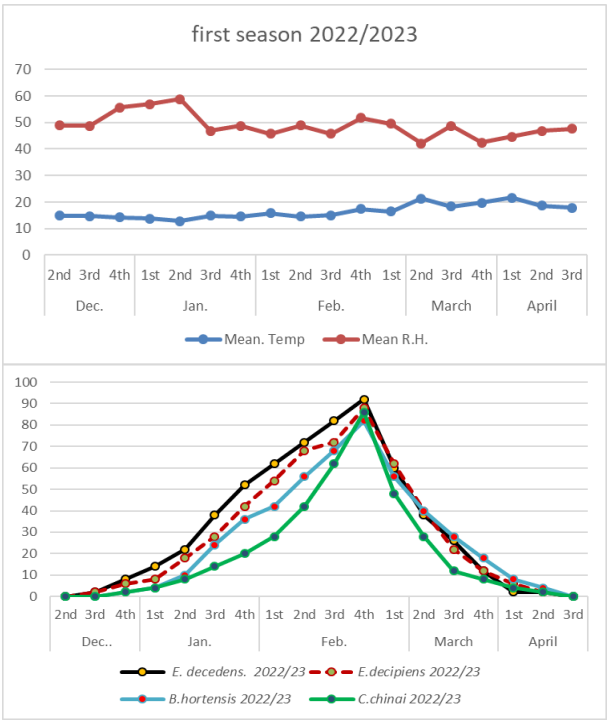

Fig. 3. Seasonal abundance of leafhopper species attacking barley (Giza 138 variety) during the first season (2022/2023).

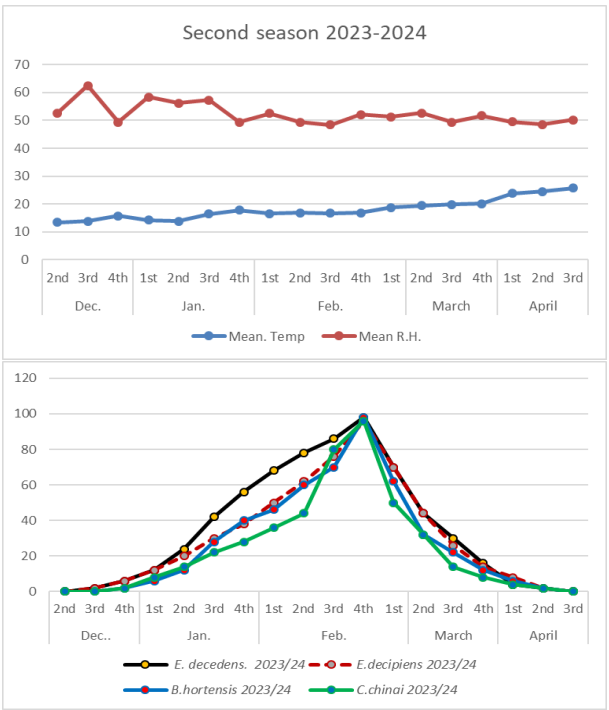

Fig. 4. Seasonal abundance of leafhopper species attacking barley (Giza 138 variety) during the second season (2023/2024).

The data presented in Figures 3 &4 showed that *B. hortensis* occurred in the 4th.week of December during the 2022/23 and 2023/24 seasons, with 2 individuals noticed in both years on barley plants. The population of *B. hortensis* gradually increased, reaching peak numbers by the 4th.week of February, with 82 individuals in 2023 and 98 individuals in 2024, recorded at temperatures of 17.24°C and 18.94°C, and relative humidities of 53.42% and 58.24%

respectively.Following this, the population of *B. hortensis* gradually declined until it hit its lowest point during the 2nd.week of April in both 2023 and 2024, with 4 individuals recorded in 2023 and 2 individuals in 2024.

The data shown in Figs.3 &4 pointed out that *C. chinai* were first appeared in the 4th.week of December, with two individuals recorded in both 2022/23 and 2023/24 seasons. Their numbers gradually increased, peaking in the 4th.week of February with 86 individuals in 2023 and 96 individuals in 2024, at temperatures of 17.24°C and 18.94°C, and relative humidity levels of 53.42% and 58.24%, respectively. After this peak, the number of *C. chinai* decreased, reaching its lowest point in the 2nd.week of April for both years, with only two individuals recorded.

While,the data shown in Figures 5 &6 showed that the planthopper species *S. vibix* was first observed on barley plants during the 4th.week of December, with 2 individuals recorded in both 2022/23 and 2023/24 seasons. Their numbers gradually increased, peaking in the 3rd.week of February, when 78 and 84 individuals were counted at temperatures of 15.48°C and 16.82°C,with relative humidity levels of 49.64% and 54.42% respectively. After this period, the number of *S. vibix* began to decrease, reaching its lowest point in the 2nd.week of April in both 2023 and 2024, with only 2 individuals recorded for each season.

Moreover, planthoppers of the species *S. furcifera* occurred on barley plants in the 4th.week of December during the 2s022/23 and 2023/24 seasons, with 2 individuals recorded in each year. Their numbers gradually increased, peaking in the 3rd.week of February, when 72 individuals were collected in 2022/23 and 86 individuals in 2023/24 (Figs. 5 & 6).After that, the number of *S. furcifera* began to decline, reaching its lowest point of 2 individuals in both 2nd.week of April 2023 and 2024.

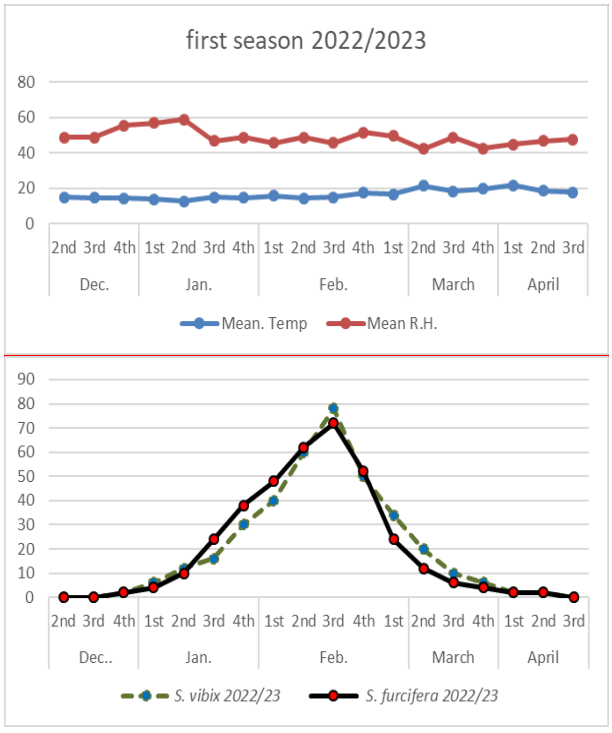

Fig. 5. Seasonal abundance of the different planthopper species attacking Barley (Giza 138 variety) during the first season 2022/2023.

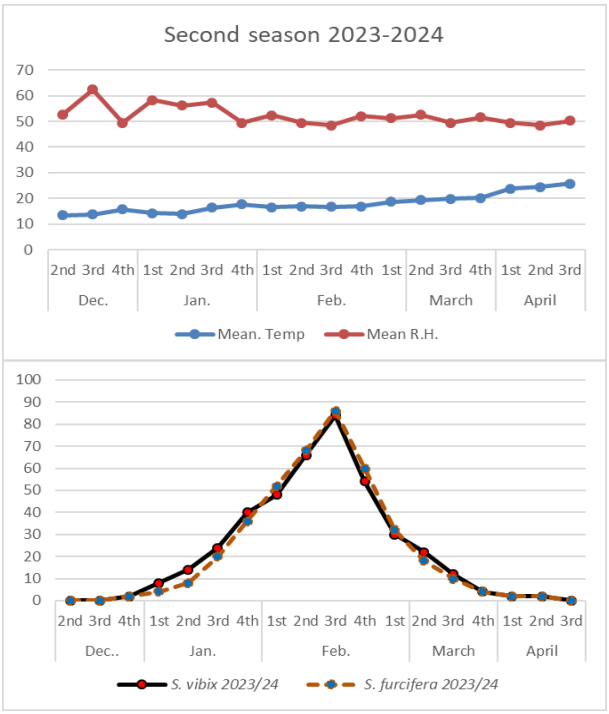

Fig. 6. Seasonal abundance of the different planthopper species attacking Barley(Giza 138 variety) during the second season 2023/2024.

It is important to note that the leafhopper populations of *E. decedens, E. decipiens, B. hortensiss,* and *C. chinai* were most abundant in the fourth week of February in both 2023 and 2024. In contrast, the peak abundance of planthoppers, *S. vibix* and *S. furcifera*, on barley plants was recorded during the third week of February in the 2022/23 and 2023/24 seasons.

These results are inconsistent with Herakly (1980) and Hemeida (1981), who found that *E. decipiens* had a population density of 5 peaks on some solanaceous vegetable plants in summer plantations. Instead, they concur with the data of Hegab *et al.*, (1989 a, b), and Awadalla *et al.*, (2011).These differences might arise from the specific location and environmental conditions present during the experiments.

Influence of different barley varieties on the population density of the main piercing-sucking insects.

The data reported in Table (1 &&2) demonstrate the impact of some varieties of barely on population density of the main piercing-sucking insects during two successive seasons (2022/23 and 2023/24) at Sharkia Governorate.

i)Aphid insects

As according to Tables (1 & 2) the highest mean number of aphid insects *R. padi, R. maidis , S. graminum* and *S. avenae* during the two successive seasons 2022/23 and 2023/24 occurred on Giza 123 variety with (48.44 & 50.88) ; (39.11 & 41.33) ; (30.22 & 32.88) and(24.44& 27.11individuals/sample) for previously insects , correspondingly in 2022/23 and 2023/24 , followed by Giza 126 (41.33 & 48.00) ; (34.44 & 43.11) ; (26.22 & 28.00) and (22.44 & 25.55 individuals/ sample, respectively) , Giza 132 (36.22 & 42.66) ; (30.44&31.77); (21.33&22.88)and (16.00&17.33 individuals/sample ,correspondingly),while the lowest mean number of aphids in general was recorded on Giza 138 variety with (31.33 & 36.44) ; (25.28 & 28.22) ;

(16.80& 19.11) and (10.66 &13.11 individuals/sample in 2022/23 and 2023/24, respectively.

ii)Leafhopper insects

The data in Tables (1 & 2) showed that the maximum mean number of leafhoppers, *E. decedens* ,*E. decipiens* , *B. hortensis*and *C. chinai* in the two investigated seasons 2022/23 and 2023/24 occurred on Giza 123 variety with (16.66 &17.68) ; (15.11 &15.44) ; (13.55& 12.04) and (13.22 & 14.00 individuals/sample) for above mentioned insects ,respectively in 2022/23 and 2023/24, followed by Giza 126 (15.44&16.44) ; (14.22&14.55) ; (12.44 & 13.28) and (12.22 & 13.02 individuals/sample) and Giza 132 (14.44 &15.44) ; (12.88&13.44);(11.66&12.04)and(11.33&12.00 individuals/sample), respectively, while , the lowest mean number of leafhoppers were found on Giza 138 variety with (12.97 & 14.17) ; (11.77 &12.44) ; (10.62 & 11.06) and (8.17 &9.60 individuals/sample) in 2022/23 and 2023/24 years , consecutively.

Table 1. Effect of barley varieties on the population density of the Governorate during 2022/2023 season.

Barely Varieties / Insect species	Mean number of the main piercing-sucking insects / sample				F. value
	Giza 123	Giza 126	Giza 132	Giza 138	
Rhopalosiphum padi	48.44 a	41.33 b	36.22 c	31.33 d	36.42**
R. maidis	39.11 a	34.44 b	30.44 c	25.28 d	30.86**
Schizaphisgraminum	30.22 a	26.22 b	21.33 c	16.8 d	28.62**
Sitobionavenae	24.44 a	22.44 b	16.00 c	10.66 d	24.54**
Empoascadecedens	16.66 a	15.44 b	14.44 c	12.97 d	31.88**
E .decipiens	15.11 a	14.22 b	12.88 c	11.77 d	32.33**
Balclutha hortensis	13.55 a	12.44 b	11.66 c	10.62 d	30.84**
Cicadulinachinai	13.22 a	12.22 b	11.33 c	8.17 d	26.58**
Sogatella vibix	11.06 a	10.00 b	8.75 c	8.17 d	25.68**
S .furcifera	11.33 a	10.11 b	9.11 c	8.04 d	22.48**
Yield kg./plot	18.33d	19.66c	21.33b	22.66a	5.44*

N.B.: F. values were 4.76 and 9.78 at p> 0.05 and p >0.01 ,respectively and the numbers followed by the same letter within a row are not significantly different.

Table 2. Effect of barley varieties on the population density of the main piercing-sucking insects at Diarb-Nigm district, Sharkia Governorate during 2023/2024 season.

Barely Varieties / Insect species	Mean number of the main piercing-sucking insects / sample				F. value
	Giza 123	Giza 126	Giza 132	Giza 138	
Rhopalosiphum padi	50.88 a	48.00 b	42.66 c	36.44 d	39.22**
R. maidis	41.33 a	43.11 b	31.77 c	28.22 d	34.26**
Schizaphisgraminum	32.88 a	28.00 b	22.88 c	19.11 d	29.86**
Sitobionavenae	27.11 a	25.55 b	17.33 c	13.11 d	26.32**
Empoascadecedens	17.68 a	16.44 b	15.44 c	14.17 d	34.63**
E .decipiens	15.44 a	14.55 b	13.44 c	12.44 d	35.06**
Balclutha hortensis	12.04 a	13.28 b	12.04 c	11.06 d	32.4**
Cicadulinachinai	14.00 a	13.02 b	12.00 c	9.60 d	28.84**
Sogatella vibix	11.55a	10.77 b	9.88 c	9.15 d	27.68**
S .furcifera	11.42 a	10.40 b	9.77 c	8.97 d	24.24**
Yield kg./plot	17.33d	18.66c	20.33b	21.66 a	5.92*

N.B.: F. values were 4.76 and 9.78 at p> 0.05 and p >0.01 ,respectively and the numbers followed by the same letter within a row are not significantly different.

iii)Planthopper insects

The date in Tables(1 & 2) proved that, the lowest mean number of planthopper insects, *S.vibix* and *S. furcifera* occurred on Giza 138 variety with (8.17 & 9.15) and(8.04 & 8.97 individuals/sample) for the previously insects , respectively in 2022/23 and 2023/24 seasons , while, Giza 123 variety recorded the largest mean of planthoppers insects *S.vibix* and *S.furcifera* (11.06&11.55) and 11.33&11.42 individuals/ sample) during the two succeeding seasons of 2022/2023 and 2023/2024.Then came Giza 126 (10.00&10.77) and (10.11&10.40 individuals/sample) and Giza 132 (8.75 &9.88) and (9.11 &9.77 individuals/sample) in 2022/23 and 2023/24 seasons, correspondingly.

It is important to notice that the intensity of infestation of piercing –sucking insects in 2022/23 and 2023/24 seasons, measured as mean number of insects on different barely varieties might be arranged descendingly as follows; Giza 123, Giza 126, Giza 132 and Giza138 varieties in the two investigated seasons.It was obvious that in the study, Giza 138 was the least affected plant by the piercing-sucking insects mentioned above, while Giza 123 appeared to be the most affected barley variety.

Generally, it is obvious that all the tested barely varieties were highly infested during the second season than the first one (Tables1&2), this may be due to the variations in environmental factors e.g. weather factors and natural enemies emerged inthe second season of research.

The conclusions and the acquired results were in agreement of Nosser, 1996 ;El-Gindy (2002),Abdel-Samad (2006) ; Awadalla*et.al*. (2011, 2013) ;El-Rawy (2013)and El-Kady *et.al*.(2022),They reported that host plant species had a significant effect on the intensity of piercing-sucking insects.

Effects of chemical components of the different barely varieties on the main piercing -sucking insect species:

The chemical leaf components of four barely varieties were analyzed and the results obtained werepresented in Table(3).

a) Carbohydrate, Protien contents and PH values:

Data in Table (3) indicate that the intensity of aphid, planthopper and leafhopper insects infestation in 2023/24 season measured as a mean number of different homopterous insect species arranged descendingly as follow: Giza 123 (152.22, 22.97 and 61.40 insects/sample for the previously mentioned insects, respectively) , with total protien 14.95% ,carbohydrate 32.98 % and PH 4.68), Giza 126 (144.66, 21.17 and 57.31 insects/sample, respectively), with total protien 13.25 % carbohydrate 30.64 % and PH 4.86), Giza 132 (114.66, 19.66 and 52.93 insects/sample for the for the previously insects, successively) together with total protien 12.14 %, carbohydrate 28.56 % and PH 5.18, and Giza 138 (96.88, 18.13 and 47.28 insects/sample, respectively) with total protien 11.12 %,carbohydrate 26.42 % and PH 5.32 .

Generally, it is evident that the infestation of aphid, leafhopper and planthopper insects was positively related with the high level of protien , carbohydrate contents and the small values of the PH of the differ tested barely plant varieties. While the results indicated that there was noteffect with the percentages of calcium, potassium, and phosphorus in the several tested varieties (Table 3)

These results are consistent with those reached byHegab (2001); El -Gindy (2002); Hashem (2005); Abdel-Samed (2006); Shalaby et al. (2012); Awadalla *et. al.* (2013); Hegab (2015); Awadalla *et al*. (2017); Mansour, (2017) ,Elshyeb (2020) and El-Kady *et.al.* (2022) ,they reported that chemical contents of hosts had a great effect on population of piercing-sucking insects and the cotton aphid was positively associated with higher percentages of total protein, carbohydrate and nitrogen in vegetable plants.

Table 3. Effect of certain chemical constituents of some barely plant varieties on the population density of the main homopterous insects during 2023/2024 season.

Chemical constituents	Barely Varieties				F. value
	Giza 123	Giza 126	Giza 132	Giza 138	
Carbohydrate	32.98 [a]	30.64 [b]	28.56 [c]	26.42 [d]	7.56*
protein	14.95 [a]	13.25 [b]	12.14 [c]	11.12 [d]	8.84*
PH	4.68 [d]	4.86 [c]	5.18 [b]	5.32 [a]	6.86*
K	2.96 [a]	3.12 [a]	3.25 [a]	3.42 [a]	4.32
Ca	1.72 [a]	1.86 [a]	1.95 [a]	2.14 [a]	3.56
P	0.95 [a]	0.84 [a]	0.76 [a]	0.66 [a]	3.46
General mean number of aphid insects/ sample	152.22 [a]	144.66 [b]	114.66 [c]	96.88 [d]	48.24**
General mean number of leafhopper insects/ sample	61.40 [a]	57.31 [b]	52.93 [c]	47.28 [d]	32.92**
General mean number of planthopperr insects/ sample	22.97 [a]	21.17 [b]	19.66 [c]	18.13 [d]	21.46**
Yield kg./plot	17.33 [d]	18.66 [c]	20.33 [b]	21.66 [a]	5.92*

N.B.: F. values were 4.76 and 9.78 at p> 0.05 and p >0.01 ,respectively and the numbers followed by the same letter within a row are not significantly different

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تأثير بعض أصناف نباتات الشعير على وفرة المجموع لبعض الحشرات الثاقبة الماصة

محمود على مرسى حجاب[1] ، سارة عيد الديب[2] و محمد على مرسى حجاب[3]

[1]قسم وقاية النبات - كلية الزراعة – جامعة دمياط
[2]قسم وقاية النبات – كلية الزراعة بمشتهر – جامعة بنها
[3]قسم وقاية النبات – كلية الزراعة -جامعة الزقازيق

الملخص

أجريت هذه الدراسة بهدف حصر أنواع الحشرات الثاقبة الماصة (حشرات المن ونطاطات الأوراق ونطاطات النباتات) ودراسة الوفرة الموسمية للأنواع السائدة منها التي تصيب نباتات الشعير,وكذلك تأثير الأصناف المختلفة لنباتات الشعير على وفرة المجموع لتلك الحشرات في منطقة ديرب نجم - محافظة الشرقية باستخدام شبكه جمع الحشرات والعينات النباتية خلال موسمين متتاليين 2022/23, 24/ 2023 , وقد أوضحت النتائج ان أنواع حشرات المن التى تصيب نباتات الشعير هى: *Rhopalosiphum padi*, *R. maidis*, *Schizaphis graminum*, *Sitobion avenae*وان تلك انواع المن لها قمة نشاط واحدة على نباتات الشعير حيث سجل أعلى تعداد للمجموع لها فى ألأسبوع الأول من مارس , وان نطاطات الأوراق التى تصيب نباتات الشعير هى *Empoasca decedens* , *E. decipiens* , *Balclutha hortensis*, *Cicadulina china* وان تلك الأنواع من نطاطات ألأوراق لها قمة نشاط واحدة على نباتات الشعير حيث سجل أعلى متوسط تعداد لكثافة المجموع لها فى الأسبوع الرابع من فبراير, وقد سجل تعداد نطاطات النباتات *Sogatella furcifera* , *S. vibix* قمة واحدة لكثافة المجموع فى الأسبوع الثالث من فبراير خلال موسمى الدراسة. وأيضا تم أختبار تأثير أربعة أصناف من نباتات الشعير موضع الدراسة للإصابة بحشرات المن ونطاطات الأوراق ونطاطات ألنباتات, وقد أوضحت النتائج أن أعلى تعداد من الحشرات قد تم تسجيلة على صنف الشعير جيزة 123 و كان أقلهم أنتاجا, بينما كان أقلهم تعدادا وأعلى إنتاجا صنف جيزة 138 خلال موسمى الدراسة. ولقد أوضح التحليل الكيميائي لبعض مكونات العصارة النباتية للأصناف المختلفة تحت الدراسة أن هناك علاقة موجبة بين نسبة الإصابة بالمن ونطاطات الأوراق ونطاطات النباتات وكلا من نسبة البروتين الكلى والكربوهيدرات الكلية ,على حين توجد علاقة سالبه بين قيمه PH و نسبه الإصابه بالحشرات السابق ذكرها.