Research Article
Open Access

Journal of Life Science and Applied Research (JLSAR)
E-ISSN: 2959-8036

SEASONAL MONUMENTAL INSECTS ACCOMPANYING EUPHRATES POPLAR LEAVES

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Article Info:

Received: Feb. 17, 2020
Revised: Mar. 20, 2020
Accepted: Sep. 05, 2020
Published: Dec. 31, 2020

DOI:
10.59807/jlsar.v1i2.17

How to Cite:
W. A. . Yehya, "SEASONAL MONUMENTAL INSECTS ACCOMPANYING EUPHRATES POPLAR LEAVES", JLSAR, vol. 1, no. 2, pp. 49–60, Dec. 2020.

Available From:
https://www.jlsar.com/index.php/journal/article/view/17

Abstract: The study was conducted in the poplar field belonging to the Department of Plant Protection, College of Agriculture and Forestry, University of Mosul in the autumn season of 2018-2019, where it was found that the leaves of the Euphrates poplar have more than one type of insect that infects the leaves, including Egerirotriaza cardi (Berg.) (Psyllidae, Homoptera) poplar leaves, this was evidenced by the symptoms of the infection it causes, which are spotting and galls. The highest infection was recorded in the first week of January 2019, with an average of (70.71) symptoms reported, and the highest average infection was recorded on the eastern side with an average of (41.23) symptoms, although the study showed the highest average of the spots resulting from the infection reached (95.33) spot recorded in the first week of January 2019, on the upper and lower surface of leaves on the western side of the tree, while the highest average of (26.33) galls was recorded on the upper surface of the leaf from the southern side in the last week of January 2019, on the upper and lower surface of the leaves and on the western side of the tree, while the highest average of (26.33) galls was recorded on the upper surface of the leaf from the southern side in the last week of January 2019, where the study showed that there is a negative significant correlation between the temperatures of that autumn season with The insect numerical density (-0.747) at a significant level (p<.0001), this is due to the low temperatures for the period from 4/12/2018 to 23/1/2019, which ranged between (13.8 - 7.11 ° C), while the relative humidity averages did not have a significant correlation with the insect's numerical density, which ranged between (51.43 - 61.14%).

Keywords: Egerirotrioza Ceardi, Chaitophorus sp., Gypsonoma Hepalosarea.

1. Introduction

Poplar trees are one of the forest trees of economic importance in different countries of the world, where the genus Populus of the Salicaceae family populates in various regions of the world, and it includes 30 types of poplar, Poplar species spread in the cold and temperate area with an area of 20 million hectares extending from the forests of North Africa and even after the Arctic Circle, Composing this deciduous natural and artificial trees, where It is estimated that in 1995 the wooded area with poplar exceeded one million hectares in Europe and 103 million hectares in China, Poplar trees are a fast-growing, Heliophytes species with the ability to grow under hot dry climate conditions and are used for decoration and soil stabiliza-

tion on the banks of rivers and streams. Its leaves are also used as animal feed as well as extracting some medicinal drugs from tree bark, in addition to the above, its wood is used in many important wood industries such as leaf pulp, chips, matchstick, fiberboard and handicrafts [1].

Another benefit of the Euphrates (West) leaves is that the hot aqueous extract of the West Leaves is clearly effective in recording the highest inhibition rates of Escherichia coli bacteria (62 mm) at concentrations of 120, 180, 240 mg / ml and 22 mm. To extract the boiling water in Shiqella soni bacteria, while the alcoholic extract of the leaves recorded the highest inhibition zone 14 mm in each of: Shigella soni, Protus mirabilus, Salmonella typhi [2] Poplar trees are afflicted with many sucking insects for plant sap, such as aphids, basil, leaf rodents, and stem diggers, as basil insects at-tack many plants of economic importance and are insects limited to food families in terms of their specialty where Perennial plants particularly affect and are carriers of many bacterial and viral pathogens of plants, Its salivary secretions also cause distortions on the plant, such as tumors and abnormal growths, as well as localized death of plant tissues and secretions of the honeycomb symposium and the damage it causes, so it is one of the dangerous pests on plants, especially when conditions are appropriate for their growth and reproduction [3], [4] also pointed out that the high incidence of his insect in the insect of Trioza gardneri Laing. In the region of the Euphrates Basin in Syria, it resulted in noticeable damage to trees in the dry summer months. Under the bark of trees and fallen leaves for a period of 4 months, the adult female lays between (27 - 40) eggs and that the nymph has 5 ages and the insect has one generation per year [5], it insects Chaitophorus sp. In Iraq, black and white and American nymphs absorb their sap from the lower surfaces of modern leaves and lead to wrinkling and wrapping of the leaves of poplar trees, then their yellowing and drying [6], Also, the insect of the Cypsonoma hapalosarea poplar bond, which belongs to the leaf-winged family and the Tortricidae family, infects the trees of Populus euphratica, which connect two or more leaves and feed on the skin of the leaf within the bound portion [6] as indicated by [7].

The eucalyptus trees are afflicted with axle leaves infected and the laboratory temperature of 30 ° C is suitable for the growth and activity of the insect and at a relative humidity of 5 + 70% if the average insect periods (egg incubation period and larva stage, pre-virgin phase, virgin phase, pre-laying period, Egg-laying period, post-laying period, mating male age, pollinated female age are 5.25, 10.85, 1.5, 6.05, 1.13, 2.7, 0.33, 6.5, 3.4, days, respectively. [8]. Showed that this species Chaitophorus Koch, 1854, includes four species in Iraq, including the type Ch. Populialbae was first registered in Iraq on the Euphrates poplar trees for the period from November 2016 to April 2017 in Baghdad Governorate. These four types are registered in Iraq:

1. Ch. eupharticus
2. Ch. leucmelas kock
3. Ch. nigritus hille Ris lambers
4. Ch. populialbae [8].

In view of the lack of a comprehensive study on the manifestations of infection caused by each of his insects with swollen poplar leaves, and from poplar leaves and the association of the effigy leaves, this study was conducted to clarify the seasonal presence of these insects depending on the manifestations of the injury and the numerical density of insects and their relationship to weather conditions.

2. Materials and Methods

The study was conducted at the College of Agriculture and Forestry, University of Mosul. The type of poplar trees was identified and it was found that they all belong to the Populus euphratica with a diagnosis from Dr. Hayes Al-Jawari (Forestry Division), accordingly, the trees located near the Field Crops Division (photo 1).

Picture 1. The study site.

It was at the average of (10-12) trees, and three trees of similar age and size were selected, and the directions of the four trees (North, South, Eastern, and Western) were identified and random samples were taken from each direction by three leaves for each direction, bringing the total of the leaves in each sample (3 x 4 x 3) = 36 sheets for each weekly reading. The leaf s are placed for each direction in nylon bags on which the date of taking the sample is written and brought to the laboratory for the following studies:

First: The seasonal presence of the insect with the Egerirotrioza ceardi poplar leaves, depending on the symptoms of infection for the autumn season 2018-2019.

After bringing the leaf samples to the laboratory, it was examined and recorded the manifestations of insect infection (spots + galls) and on both the top and lower surfaces of the leaves and the four directions of the tree, The readings continued until the leaves fell, as the readings started in the first week of December 2018 and continued until the last week of January 2019.

Second: the seasonal presence of symptoms of infection (spots) and (tuberculosis) of insect infection with the Egerirotrioza ceardi poplar leaves

The special readings were isolated from the first splash experiment from the tuber and on both the top and lower surfaces of the leaves.

Third: Studying the association between the insect seasonal presence, weekly temperature, and relative humidity.

The Department of Atmospheric Weather at Rashidiya Station was used to obtain the required data, which is the daily temperature and humidity of the city of Mosul, and extracted the weekly average of data and conducted a statistical analysis of the correlation to study the relationship between the temperature, humidity, and numerical density of the insect during the autumn 2018-2019 season.

Fourth: The seasonal presence of an insect from the poplar leaves Nymphs and adult aphids on both the upper and lower surfaces were counted in the four directions of the tree after weekly leaf samples were taken in the same previous way and then examined using the Motic optical microscope for the same period.

Fifth: The seasonal presence of the Leaves Bug for the autumn season of the year 2018-2019, 3 leaves were taken from each direction of the tree per week and observing the manifestations of this insect from the first week of December to the last week of January.

Sixth: The statistical analysis of the data was conducted using the design of the complete global randomized sectors on the SAS system [9] and a multi-range Dunkin test to show the significant differences between the transactions at the 0.05 level.

3. Results and Discussion

First: The seasonal presence of the insect with the Egerirotrioza ceardi poplar leaves (symptoms) in the autumn season 2018-2019.

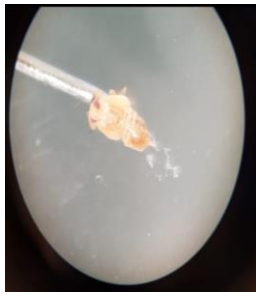
The results of the statistical analysis shown in Table (1) showed that there are significant differences between the treatments. The insect infection started by noticing the spots and galls that occur on the upper and lower leaf surfaces, as in Figure (2) (3) in the first week of December with an average of (0.17) symptoms in 4/12 to reach its highest average (70.71) symptoms in the first week of January, with a significantly excelled on the rest of the dates, take samples and the symptoms of fluctuation continued during the season reach (45.54) symptoms in the second week 23/1/2019. From the observation of the interaction between the surface of the leaf and the date, the Dunkin test showed that there were significant differences between the readings on the two surfaces of the leaf, it recorded the highest aver-age infection (72.75) in the first week of January, on the upper surface of the leaf, did not differ significantly from the lower surface, with an average of (68.67) for the same date.

While the interaction between the leaf surface and the direction did not have any significant differences, but the highest average of infection (41.54) was recorded on the upper surface of the eastern side of the tree and the lowest average (27.88) was recorded on the upper surface also from the south side of the tree. While the mean of the Infection was (34.49) on the upper surface of the leaves, which did not differ significantly from the lower surface and with an average of (33.13) Also, no significant differences appeared in the general average for the direction of the tree and the highest average Infection was (41.23) from the eastern side and the lowest (28.04) from the side Southern. The interaction between the direction and the date of the sample showed that the highest average (109.5) was recorded in the first week of January and from the western side, which did not differ significantly from the average (77.33) which was recorded on 23/1 and from the eastern side. the triple interaction between the leaf surface and the four sides of the tree and the sampling dates, it was found that the highest average (112.67) symptoms was recorded by the western side of the upper surface of the leaf and from the lower surface with an average of (106.33) symptoms in the first week of January, while [5] explained the insect Egerirotrioza ceardi of the poplar Kurdish Egerirotrioza All its phases appeared on poplar trees in the forest area in Mosul in the years 1998 and 1999 from the beginning of the spring to the beginning of the winter season, causing deformations of the leaves and that the numerical density of the insect was fluctuating in that period and reached its peak in June, when its numbers reached (1265, 1145) insects at temperatures (26.4, 30 MeH) for the two study years, respectively.

This is consistent with [5] indicated that the egg and adult phases are confined to the field for a period of three weeks from (24/3 - 4/14), after which the nymph phase appears, which continues with its different ages until the end of January of the year 1998-1999, appears., [5] also explained that the average numerical density of nymphs in 1998/1999 was 642 nymphs in November, while there was no insect presence in December, and this difference may be due to the spacing between 1998-1999 and the current research 2018 - 2019 and lower temperatures for the autumn season, which ranged between (7.4 - 13.8 ° C) and humidity (51.43 - 61.14%).

Picture 2: Symptoms of an insect infection with Egerirotrioza ceardi poplar on the upper surface of the leaf

Picture 3: Symptoms of an insect infection with Egerirotrioza ceardi poplar on the lower surface of the leaf



Picture 4: A Nymph extracted from tubercle

Table 1. Seasonal presence of insect Egerirotrioza ceardi poplar leaves (symptoms) in the autumn season 2018-2019.

Direction average	leaf surface average	interaction between leaf surface and direction	The average of insect density according to the sample date								Tree directions	Leaf surface
			2/13	16/1	9/1	/1/2019 2	2/12 6	1/12 9	1/12 2	/12/2018 4		
a 30.38		a 31.25	c-f 22.67	c-f 37	a-f 53.67	a-e 71.33	a-f 52	c-f 13.33	f 0.00	f 0.00	North	
a 28.04	a 34.49	a 27.88										Upper
a 41.23		a 41.54										
a 35.58		a 37.29	a-f 47	b-f 41.67	c-f 29.67	b-f 41.33	c-f 34.33	c-f 27.67	f 1.33	f 0.00	Southern	
			a-d 74.33	a-f 65	c-f 34.67	a-f 65.67	a-f 61	c-f 25	d-f 6.67	f 0.00	Eastern	
			a-f 48.67	a-f 49.33	c-f 38.67	a 112.67	c-f 30	d-f 10.67	d-f 8.33	f 0.00	Western	
			a-d 48.17	a-d 48.25	b-e 39.17	a 72.75	a-d 44.33	d-f 19.17	f 4.08	f 0.00	The interaction between leaf surface and date	
	a 33.13	a 29.5	c-f 22.33	c-f 39	a-f 50	a-f 66.67	b-f 43.33	c-f 14.67	f 0.00	f 0.00	North	Lower
		a 28.21										
		a 40.92										
		a 33.88	c-f 38.33	b-f 40.67	c-f 25	b-f 45.33	c-f 36	c-f 7.67	ef 2.67	f 0.00	Southern	
			a-c 80.33	a-f 59.67	c-f 38	a-f 56.33	a-e 70.33	d-f 5.67	c-f 17	f 0.00	Eastern	
			c-f 30.67	a-f 60.67	c-f 39	ab 106.33	c-f 19.33	d-f 10.33	ef 3.33	f 1.33	Western	
			b-e 42.92	a-c50.0	c-e 38	ab 68.67	b-e 42.25	ef 17.08	f 5.75	f 0.33	The interaction between leaf surface and date	
			b 45.54	b 49.13	b 38.58	a 70.71	b 43.29	c 18.13	c 4.92	c 0.17	date average	
			d-k 22.5	b-k 38	b-e 51.83	bc 69	b-h 47.67	f-k 14	k 0.00	k 0.00	North	interaction between direction
			b-j	b-k	c-k	b-i	c-k	c-k	i-k 2	k 0.00	Southern	

42.67	41.17	27.33	43.33	35.17	2.67			**and date**
ab 77.33	b-d 62.33	b-k 36.33	b-e 61	b-d 65.67	f-k 15.33	i-k 11.83	k 0.00	**Eastern**
b-k39.67	b-e 55	b-k 38.83	a 109.5	d-k 24.67	i-k 10.5	i-k 5.83	jk 0.67	**Western**

The letters are similar Vertically and horizontally and there are no significant differences between them, according to the Dunkin multi-range test at the 5% probability level.

Second: the numerical density of the appearance of infection (spots) of an insect with Egerirotrioza ceardi Berg in the autumn season of 2018/2019: One of the symptoms of infecting the insect is the spots caused by feeding nymphs on the upper and lower surfaces of leaves Table (2) showed that the spots began to appear in the third week of December 2018 with an average of (12.29) spots and gradually increased to reach the highest average (59.75) spot in the first week of January, which significantly excelled other readings and started to decrease with the continuation of the infection reach (32.92) spot in 23/23/2019. It appears from Dunkin's test of averages that the interaction between the leaf surface and the direction showed significant differences between the readings, The readings as the eastern side excelled on the upper surface of the leaf in recording the highest average stains of 31.83 spot / leaf and did not differ significantly from the western side on the upper surface which reached an average of (30) spot / leaf while the lowest was (17.42) spot on the lower surface of the southern side, the average number of spots was (26.5), its spot on the upper surface and (23.93) on the lower surface, with a significant excelled of the upper surface, that the general average of tree directions differed significantly and recorded the highest average (30.04 and 29.67) spot on both the eastern and western sides, respectively, and the lowest on the southern side with an average (17.89) spot, As for the interaction between the leaf surface and the date of sampling, it recorded the highest average (60.92) spots from the top surface on 01/29/2019, while the average (58.58) reached its spots on the lower surface with the same date, which significantly excelled the subsequent readings until the end of the autumn season and fell the leaves, It appears from the interaction between the direction and the date of the readings that the highest average of (95.33) spots was recorded on the western side of the tree on 01/29/2019 and significantly excelled on the other readings while the lowest average (7.33) was on the northern side of the tree on 12/19/2018 to the third week from the date of sampling, Table (2) also shows the effect of triple interaction between the experiment factors of the leaf surface, tree directions and sampling dates, where it turned out that the highest average reached (95.33) spots recorded on 01/21/2019 on the western side and on both the upper and lower surface and has a significant difference from the readings, The other in the season, while the lowest average (2.67) recorded its spot on the eastern side and on the lower surface of the leaf , which was on 12/19/2018.

Table 2. Numerical density of the symptoms of infection (spots) of an insect with Egerirotrioza ceardi poplar leaves in the autumn season 2018-2019.

Direction average	leaf surface average	interaction between leaf surface and direction	The average spot density according to the sample date								Tree directions	Leaf surface
			23/1	16/1	9/1	2/1/2019	26/12	19/12	12/12	4/12/2018		
b23.64	a26.5	c23.54	o-r13.33	i-k29.22	ef47	b64	eh42.67	p-j8.67	t0.00	t0.00	North	Upper
c17.89		e18.63	b-o20.67	k-n 22.33	no20	g-j36	jj28.33	k-n21.67	t0.00	t0.00	Southern	
a30.04		a31.83	b-j32.67	ef45.67	k-27.67 n	de48.33	cd55.33	k-n23.33	t0.00	t0.00	Eastern	
a29.67		ab30	e-h42.67	e-h40.67	g-i37	a93.33	np16.33	q-t8	t0.00	t0.00	Western	
			b27.34	b34.5	b32.92	a60.92	b29.58	c15.25	e0.00	e0.00	The interaction between leaf surface and date	
	b23.93		o-r13.33	i-k29.33	ef47	b64	g-i37	r-t6	t0.00	t0.00	North	Lower
			l-o20.67	k22.33	no20	hj35.67	no18.33	k-n22.33	t0.00	t0.00	Southern	
			cd55	e-h40.67	k-27.67 m	f-h39.33	b-57.67 e	st2.67	t0.00	t0.00	Eastern	
			e-h42.67	e-h40.67	g-i37	a95.33	n-15.33 q	q-t7.67	t0.00	t0.00	Western	
			b32.92	b33.25	b32.92	a58.58	b32.08	d9.33	e0.00	e0.00	The interaction between leaf surface and date	
			b32.92	b33.88	b32.92	a59.75	b33.88	c12.29	d0.00	d0.00	The date average	
			lm13.33	h29.33	d47	b64	e-39.83 g	n7.33	o0.00	o 0.00	North	interaction between direction and date
			jk20.67	jj22.33	jk20	g35.83	jj23.33	jj22	o0.00	o 0.00	Southern	
			c55	de43.17	hi27.67	de43.83	c56.5	lm12.67	o0.00	o 0.00	Eastern	
			ef42.67	ef40.67	fg37	a95.33	kl15.83	mn7.83	o0.00	o 0.00	Western	

* The letters are similar Vertically and horizontally and there are no significant differences between them, according to the Dunkin multi-range test at the 5% probability level.

Third: the numerical density of the symptoms of infection (Tumors) for its insect Egerirotrioza ceardi Berg with poplar leaves for the autumn season 2018 2019: The results in Table (3) showed that there are clear differences between the readings during the autumn season so that the first appearance of the galls that the plant made as a reaction to infection with the insect was in the first week of December, with an average of (1.33) galls on the lower surface of the leaves from the western side. / 2019 was recorded on the south side of the tree on the upper surface of the leaves and it appears from the general average of the interaction between the leaf surface and the directions of the tree that the highest average amounted to (13.04) galls on the eastern side recorded on the lower surface of the leaves and significantly excelled on the rest treatments, While the lowest infection was recorded on the lower surface of the north side with an average of (4.93) galls, while the aver-age of galls on the upper and lower leaf surfaces (8.8.7.7) was recorded with a significant excelled of the lower surface in the average number of galls, respectively, It turned out from the general average of tree directions that the highest average reached (11.38) galls on the eastern side and significantly higher than the general average for other sides. The same table showed the interaction between the leaf surface and the date. The highest average (16.52) galls was recorded on the lower surface of the leaves on 16/1/2019. It appears that this date recorded the highest general average date for (15.54) galls as well as the last date in 1/23 and the amount (15.13) galls also significant excelled on other dates, where the interaction between the direction of the tree and the date of readings showed that the highest average reached (22.33) galls on the eastern side in the last week 23/1/2019 of the season and (22) tuber on the southern side for the same date, [5] have shown that feeding the nymphs results in a small decrease where they are fed on the lower surface, while on the upper surface of the leaf there is a tumors whose features become clear 9-16 days after the start of feeding and its growth is fully completed during the month of October to reach (2.9 × 2) mm.

Table 3. Numerical density of the symptoms of infection (tuber) of an insect with Egerirotrioza ceardi poplar leaves in the autumn season 2018-2019.

Direction average	leaf surface average	interaction between leaf surface and direction	The Average spot density according to the sample date								Tree directions	Leaf surface
			23/1	16/1	9/1	2/1/2019	26/12	19/12	12/12	4/12/2018		
d5.28	b7.98	f5.63	i-l 9.33	k-o7.67	l-q6.67	k-p7.33	i-l9.33	m-u4.67	v0.00	v0.00	North	Upper
b9.96		c9.25	a26.33	de19.33	i-l9.67	l-t5.33	l-s6	l-s6	uv1.33	v0.00	Southern	
a11.38		c9.71	cd19.33	de19.33	k-p7	de17.33	l-t5.67	r-v2.33	l-q6.67	v0.00	Eastern	
c6.94		de7.34	l-s6	j-m8.67	t-v1.67	de17.33	f-h13.67	q-v2.67	k-m833	i0.00	Western	
			b15.25	b13.75	ef6.25	c11.83	cd 8.67	gh3.92	f-h4.08		The interaction between leaf surface and date	
	a8.8	f4.93	i-l9	i-l9.76	q-v3	q-v2.67	l-r6.33	j-m8.67	v0.00	v0.00	North	Lower
		b10.67	de17.67	de17.33	l-t5	i-l9.67	de17.67	e-g15.33	q-v2.67	v0.00	Southern	
		a13.04	ab25.33	cd19	i-k10.33	d-f17	g-i12.67	q-u3	d-f17	v0.00	Eastern	
		ef6.54	k-n8	cd20	st2	h-k11	n-v4	q-v2.67	p-u3.33	uv1.33	Western	
			b 15	a16.52	fg5.08	c 10.09	c10.17	de7.42	ef5.75	i0.33	The interaction between leaf surface and date	
			a15.13	a15.54	cd5.67	b10.96	b9.42	cd5.67	d4.92	e0.17	date average	
			d-f9.17	e-g8.67	i-l4.84	h-k5	e-h7.83	f-i6.67	n0.00	n0.00	North	interaction between direction and date
			a22	b18.33	f-h7.34	f-h7.5	cd11.84	de10.67	l-n2	n0.00	Southern	
			a22.33	ab19.17	e-g8.67	b17.17	d-f9.17	k-n2.67	cd11.84	n0.00	Eastern	
			f-h7	c14.34	l-n1.84	c14.14	ef8.84	k-n2.67	g-j5.83	mn0.67	Western	

* The letters are similar Vertically and horizontally and there are no significant differences between them, according to the Dunkin multi-range test at the 5% probability level.

Fourth: The numerical density of symptoms of infection with an insect Egerirotrioza ceardi of the poplar leaf with the average weekly temperature and relative humidity for 2018 2019: Table (4) that the highest average population density of symptoms of insect Egerirotrioza ceardi of poplar leaves was recorded with an average of (70.71) symptoms in the first week of January and significantly excelled on other dates in the autumn season and coincided with the average weekly temperature and relative humidity recorded at an average of 8.76 C° ,61.14 %RH, while the lowest average population density was 0.17, symptoms at temperature and humidity (13.8 ° C, 51.48%). The temperature had a significant negative moral impact on the insecticide numerical density of (-0.747) at a significant level ($p<0.001$), during which the temperature ranged between (7.11-13.8 C°).

Table 4. The numerical density of galls and spots of an insect associated with Egerirotrioza ceardi poplar leaves with weekly temperature and humidity for the year 2018-2019.

The average humidity,%, weekly	**The average weekly temperature**	**The average for infection**	**The overall average for infection (symptoms)**	**Directions (replicates)**				***Date of the sample***
				Western R4	Eastern R3	Southern R 2	North R 1	
51.43	13.8	0.17d	4	4	0.00	0.00	0.00	***2018/12/4***
58.922	12.55	4.92d	118	35	71	12	0.00	***2018/12/12***
57.57	10.69	18.13cd	435	63	92	196	84	***2018/12/19***
54.29	8.85	43.29b	1039	148	394	211	286	***2018/12/26***
61.14	8.76	70.71a	1697	657	366	260	414	***2019/1/2***
60.71	8.44	38.58bc	926	233	218	164	311	***2019/1/9***
54.86	8.06	49.13b	1177	330	374	244	229	***2019/1/16***
53.57	7.11	d 0.17	1153	298	464	256	135	***2019/1/23***

* The letters are similar Vertically and horizontally and there are no significant differences between them, according to the Dunkin multi-range test at the 5% probability level.

Fifth: The effect of interaction between the leaf surface and the date of the samples on the numerical density while the correlation of humidity with the numerical density of insect infection was Influence of (0.298) at significantly level (0.098). While the [10] explained that the numerical density of both eggs and nymphs of Camarotoscera speciosa Flor insect (Homoptera: Psyllifae) was positively correlated with temperature and negatively with the relative humidity in the region of Mosul on the black poplar trees Populus nikra, of an insect from Chaitophorus sp. in the autumn season 2018-2019: Table (5) showed that infection with an insect Egerirotrioza ceardi poplar leaves was few and at low average, in the autumn season of 2018-2019 and for the period from the first week in December (2018) until the fourth week of January (2019) and through the Dunkin test for triple interaction The leaf surfaces, tree directions and samples dates show that the highest average number of insects in the numerical density was (48) insects on the lower surface of the leaves from the northern side in the first week of December 2018 and significantly excelled on other treatments. As for the interaction of the leaf surface and the date, the average numerical density of the insect reached (12) insects recorded on the lower surface of the leaf in the first week of December and significantly excelled on the rest treatments. As for the interaction between the leaf surface and the direction, it recorded the highest average (6.25) insects on the lower surface, The leaf is from the northern side and did not differ significantly from the rest of the treatments. While the interaction between the date of the sample and the tree's directions showed that the highest average of aphids was (25.34) insects recorded from the northern side of the tree in the first week of December and significantly higher than the rest treatments and recorded the highest overall average date of insect infection (6.38) insects per week The first for the month of December and the highest general average infection (1.604) is an insect on the lower leaf surface. While the highest overall average of infection was (3,792) insect from the northern side of the tree and did not differ significantly from other directions, Where, [2] explained that an insect of Chaitophorus euphratica poplar preferred both the eastern and northern sides of feeding over the euphoria with an average of 14.82, 16.04 insect / leaf.

Table 5. Effect of interaction between leaf Surface and Date of samples on the Numerical Density of a Chaitophorus sp. in the autumn season 2018-2019.

Direction average	leaf surface average	interaction between leaf surface and direction	The average of insect density according to the date of the samples								Tree directions	leaf surface
			23/1	16/1	9/1	2/1/2019	26/12	19/12	12/12	4/12/2018		
			b 0.0	b 0.0	b 0	b 0.0	b 1.33	b 4	b 2.67	b 2.27	North	Upper
a 0.00		a 0.0	b 0.0	b 0.0	b 0	b 0.0	b 0.0	b 0.0	b 0.0	b 0.0	Southern	
a 0.375		a 0.71	b 0.0	b 0.0	b 0	b 0.0	b 0.0	b 1	b 4.67	b 0.0	Eastern	
a 0.438		a 0.75	b 0.0	b 0.0	b 1.67	b 0.0	b 0.33	b 0.0	3.67	b 0.33	Western	
			b 0.0	b 0.0	b 0.418	b 0.0	b 0.415	b 1.25	b 2.753	b 0.75	The interaction between leaf surface and date	
	a 1.604	a 6.25	b 0.0	b 0.0	b 0.0	b 0.0	b 0.33	b 1	b 0.67	a 48	North	Lower
		a 0.0	b 0.0	b 0.0	b 0.0	b 0.0	b 0.0	b 0.0	b 0.0	b 0.0	Southern	
		a 0.041	b 0.0	b 0.0	b 0.0	b 0.0	b 0.0	b 0.0	b 0.33	b 0.0	Eastern	
		a 0.125	b 0.0	b 0.0	b 0.0	b 0.0	b 0.0	b 0.0	b 1	b 0.0	Western	
			b 0.0	b 0.0	b 0.0	b 0	b 0.83	b 0.25	b 0.5	a 12	The interaction between leaf surface and date	
			a 0.0	a 0.0	a 0.21	a 0	a 0.25	a 0.75	a 1.63	a 6.38	The average of date	
											The interaction between directions and date	
			b 0.0	b 0.0	b 0.0	b 0.0	b 0.83	b 2.5	b 1.67	a 25.34	North	
			b 0.0	b 0.0	b 0.0	b 0.0	b 0.0	b 0.0	b 0.0	b 0.0	Southern	
			b 0.0	b 0.0	b 0.0	b 0.0	b 0.0	b 0.5	b 2.5	b 0.0	Eastern	
			b 0.0	b 0.0	b 0.83	b 0.0	b 0.17	b 0.0	b 2.33	b 0.17	Western	

* The letters are similar Vertically and horizontally and there are no significant differences between them, according to the Dunkin multi-range test at the 5% probability level.

Sixth: The numerical density of aphids is correlated with the weekly average temperature and humidity for the year 2018-2019: With regard to the correlation of the numerical density of aphids with the mean temperatures

and humidity during the seasonal presence of the insect, it has been shown from Table (6) that the average temperatures ranged between 7.11-13.8oM and relative humidity be-tween 51.43-61.14 / R.H, The highest average insect density in the period from the first week of December 2018 to the fourth week of January 2019 was 38.25 insects recorded in the first week of December, an average temperature of 13.8o C and relative humidity 51.43%.Where, no insect infection was recorded in most of the readings in January for the second compatibility with the average temperature ranged from 7.11-8.76 C°, so it was found from the correlation that it was a high positive between the mean temperature and the average insect population density of (0.841) at a significant level p>0.0001 Where the correlation between humidity and insect density was negative (0.41-), and this is consistent with what [2] mentioned about the existence of a moral relationship be-tween preparing an insect from poplar leaves Chaitophorus eupharticus, temperature and significant, with relative humidity.

Table 6. Density correlation of aphids with weekly temperature and humidity for 2018-2019.

The average humidity,%, weekly	**The average weekly temperature**	**The average for infection**	**The total for infection (symptoms)**	**Directions (replicates)**				**Date of the sample**
				Western R4	Eastern R3	Southern R 2	North R 1	
51.43	13.8	35.25	153	1	0	0	152	**2018/12/4**
58.29	12.55	9.75	39	14	15	0	10	**2018/12/12**
57.57	10.69	3.775	15	0	3	0	15	**2018/12/19**
54.29	8.85	1.5	6	1	0	0	5	**2018/12/26**
61.14	8.76	0	0	0	0	0	0	**2019/1/2**
60.71	8.44	1.25	5	5	0	0	0	**2019/1/9**
54.86	8.06	0	0	0	0	0	0	**2019/1/16**
53.57	7.11	0	0	0	0	0	0	**2019/1/23**

Seventh: Seasonal presence of Cypsonoma hapalosarea in the autumn season 2018-2019: The symptoms of this insect appeared in very few numbers in the third week of December 2018, where in Table (7), with an average of 0.33 insects on both the northern and eastern sides, and rose in the first week of January 2019, with averages of 0.67 insects on both the northern and southern sides Eastern and the highest infection on the southern side showed an average of 1.0 insects in the second week of January. It appears from Table (7) that the highest average was 0.29 insects on the northern side and with a total of (7) insects and that the highest average recorded in the first week of January for the second with an average of (0.59) and a total of 7 insects.

Table 7. The seasonal presence of Gypsonoma hepalosarea insect for the autumn season 2018-2019.

The average of insect density according to the date of the samples										**Tree directions**
The average of directions	The total of directions	23/1	16/1	9/1	2/1/2019	26/12	19/12	12/12	4/12/2018	
0.29	7	0.67	0.33	0.33	0.67	0.0	0.33	0.0	0.0	**North**
0.21	5	0.0	0.0	1.0	0.67	0.0	0.0	0.0	0.0	**Southern**
0.17	4	0.0	0.0	0.0	0.67	0.33	0.33	0.0	0.0	**Eastern**
0.17	6	0.33	0.33	0.33	0.33	0.0	0.0	0.0	0.0	**Western**
0.21	22	0.25	0.17	0.42	0.59	0.083	0.17	0.0	0.0	**Average date**
	22	5	2	5	7	1	2	0.0	0.0	**The total of date**

4. Conclusion

In conclusion, the first week of December 2018 saw the highest average density of insects (48), with the correlation between the density of aphids and positive mean temperatures being high (0.841) at a significant level of 0.001 and negative with mean relative humidity (-0.41). The second week of December saw the highest average density of insects (1.0), with Gypsonoma hapalosarea (Tortricidae Lepidoptera) being the highest. Seven insects came from the northern side, and the first week of January likewise had the highest infection rate (seven insects).

Supplementary Materials:

No Supplementary Materials.

Author Contributions:

W. A. Yehya; methodology, writing—original draft preparation, W. A. Yehya; writing—review and editing, W. A. Yehya; paraphrasing. The author has read and agreed to the published version of the manuscript.

Funding:

This research received no external funding.

Institutional Review Board Statement:

The study was conducted in accordance with the protocol authorized by the University of Mosul, Ethics Committee, Iraq.

Informed Consent Statement:

No Informed Consent Statement.

Data Availability Statement:

No Data Availability Statement.

Conflicts of Interest:

The authors declare no conflict of interest.

Acknowledgments:

The authors are thankful for the help of the Department of Plant Protection, College of Agriculture and Forestry, University of Mosul, Iraq. I would also like to thank the undergraduate students for their valuable help and technical assistance in conducting this research.

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