Journal Tikrit Univ. For Agri. Sci. Vol. (18) No.(1) – 2018
ISSN-1813-1646

The Seasonal Distribution of Worm *Acronicta aceris* L. on *Populus euphratica*

Rabee A. AL. jouboory
Department plant protection, College of Agriculture, University of Tikrit

Key words:
Seasonal distribution, worm, *Acronicta aceris*, *Populus euphratica.*
Corresponding Author:
Rabee A. Al-jouboory
E-mail:
rabeeaabed@tu.du.iq
Received: 15/12/2016
Accepted: 12/4/2017

ABSTRACT

This study was conducted in sharqat region during the season 2013 , on some leaf shape *Populus euphratica* . The results indicate of the population density of insect fluctuated during this period and reached its peak the end of May 16 , 14 egg/ larva respectively with temperature 28,56 and relative humidity 42,2 % on shape ovate first generations while was less population density of insect during period the end of June and from early July on shape cordate and reniform1,1egg/ larva respectively with temperature 34,15, 33,40 and relative humidity 21, 22%.second generations reached densities of the insect its peak on shape ovate 13 , 11 egg/ larva respectively with temperature 22,41 and relative humidity 34,6% during October . while was less population density of insect during the end November on shape cordate and reniform 0 , 0egg/ larva respectively with temperature 15,45 and relative humidity 75% .The statistical analysis showed it was correlation plus with temperature and correlation negative with relative humidity the eggs while was correlation negative with relative humidity and there not correlation with temperature the larvae..

التواجد والانتشار الموسمي لحشرة *Acronicta aceris* L. على اشجار الحور الفراتي

ربيع عبد عبدالله الجبوري
قسم وقاية النبات – كلية الزراعة – جامعة تكريت

الخلاصة

اجريت هذه الدراسة في منطقة الشرقاط خلال عام 2013 على بعض اشكال أوراق الحور الفراتي، واوضحت النتائج ان الكثافة العددية للحشرة كانت متذبذبة خلال هذه الفترة ووصلت ذروتها نهاية شهر ايار حيث بلغت اعدادها16 ،14 بيضة /يرقة على التوالي عند درجات حرارة 28,56 ورطوبة نسبية 42,2% على شكل البيضي للجيل الاول. بينما كان اقل عدد للكثافة العددية للحشرة خلال نهاية شهر حزيران وبداية شهر تموز على الشكل القلبي والكلوي اذ بلغت 1,1 بيضة /يرقة على التوالي عند درجات حرارة 34,15 , 33,40% ورطوبة نسبية 21 , 22. اما في الجيل الثاني فقد وصلت للكثافة العددية للحشرة ذروتها على الشكل البيضي حيث بلغت اعدادها 13، 11بيضة /يرقة على التوالي عند درجات حرارة 22,41 ورطوبة نسبية 34,6% خلال شهر تشرين الاول. بينما كان اقل عدد للكثافة العددية للحشرة نهاية شهر تشرين الثاني على الشكل القلبي والكلوي اذ بلغت0,0 بيضة /يرقة على التوالي عند درجات حرارة 15,45 ورطوبة نسبية 75 % وكان الارتباط موجب مع درجات الحرارة للبيض وسالب مع الرطوبة النسبية للبيض بينما كان الارتباط سالب مع الرطوبة النسبية لليرقات ولايوجد ارتباط للحرارة مع اليرقات .

الكلمات المفتاحية:
التواجد ، الانتشار، حشرة *Acronicta aceris* L. ، أشجار الحور الفراتي.
للمراسلة:
ربيع عبد عبدالله الجبوري
البريد الالكتروني:
rabeeaabed@tu.du.iq
الاستلام: 15/ 12 / 2016
القبول: 12 / 4 / 2017

Introduction

The forestry from riches naturally important in world, because it plays important role in human's activity. wherever its advantage direct and indirect (Abdullah ,1988) *Populus euphratica* Oliv. is the oldest tree species in genus *Populus* and has wide distribution rang naturally from west and central Asia to north Africa (Calagari et al , 2006) *Populus euphratica* Oliv in Iraq are found naturally on chiefly along large rivers banks. This type of trees is growth fast and strong tolerance to high temperatures and drought (FAO , 1997) poplar wood are economically important as a source of wood production, fodder and wildlife (Calagari , 1998).It's also plays a very important role in maintaining ecosystem function in arid and semi-arid region , because of its tolerance to severe drought and high salinity and alkalinity in soil (Chen et al , 2004) *Populus euphratica* trees infested

by various types of insects among which cause large damage. *Acronicta aceris* L are from important pests, where feeding larvae on leaves it cause large damage. this insect found on poplar trees which growth in Iraq. (Swailem and Al-Maroof , 1981).through source of references insects special forestry appear that this pests is few distribution in more world countries because of the inadequate information which available concerning the role of the most of the *Acronicta aceris* L insects species infesting poplar trees in Iraq. the present investigation conducted to shed light on the ecology study of the worm leaves poplar *Acronicta aceris* L .

Materials and methods

This study was conducted in Sharqat region during the season 2013, five *Populus euphratica* trees were selected randomly. It starts from the insect appears until disappearance it from field. by collection 5 leaves weekly taken of all shape from leaves shapes *Populus euphratica* (reniform , cordate , ovate , oval).The sample size for shape one 25 leaf brought to lab to computation number of eggs and larvae. So effect limited insect on some leaves shapes *Populus euphratica* , data were statically analyzed by using the simple correlation the relation limited between the population density of insect and environmental factors .

Result and Discussion

Population density of eggs:

Table (1) Females of *Acronicta aceris* L. start to lay eggs in first week of May until June, reached its peak 16 egg in fourth week of May on shape ovate with temperature 28,56 and relative humidity 42,2%. while was less number of eggs on shape cordate 1egg in last week of June with temperature 34,15 and relative humidity 21%.second generations Females of *Acronicta aceris* L. start to lay eggs in last week of September until fourth week of November, reached its peak 13 egg in third week of October on shape ovate with temperature 22,41 and relative humidity 34,6% and less number on shapes reniform and cordate 0,0 egg respectively in fourth week of November with temperature 16,32 and relative humidity 76% .

Population density of larvae:

In table (2) clearly number larvae weekly of the worm leaves poplar, the larvae start appearance in second week of Maya and number a few on some leaves shapes *Populus euphratica* then increasing gradually to reach a maximum 14 larva in fourth week of May on shape ovate with temperature 28,56 and relative humidity 42,2% . and less number on shapes reniform and cordate 1 , 1 larva respectively in first week of July with temperature 33,40 and relative humidity 22% . second generations larvae appearance in last week of September, reach a maximum 11 larva in third week of October on shape ovate with temperature 22,41 and relative humidity 34,6% and less number on shapes reniform and cordate 0 , 0 larva respectively in last week of November with temperature 15,45 and relative humidity 75% .probability larvae prefer the shape ovate because big leaf area comparison with other shapes. That the larvae worm leaves poplar leaves prefer big leaf area, where leaves prefer *Populus deltoids* on *Populus nigra* and *Populus euphratica* (Al-jouboory , 2013) The *Cornus floridal* L is infested *Thamnosphecia scitula* (Harris).Its leaves area were from bigger than the disinfested trees leaves area (Heiche and Turner , 1973) The insect *Anisoplia leucaspis* L. leaves prefer *Populus deltoids* on other species (Al-shabby,2009).

Table (3) indicated into *Acronicta aceris* L. monthly Population density The results showed total numbers of eggs, reached its peak in May 121egg in first generation with temperature 27,85 and relative humidity 43% while in second generation, reached its peak in October 127 egg with temperature 23,5 and relative humidity 34%. The general total numbers of eggs 443 egg with average 63,28 egg. The larvae reached its peak in June 86 larva in first generation with temperature 33,35 and relative humidity 22%. while second generation reached its peak in October 98 larva with temperature 23,5 and relative humidity 34%. The general total numbers of larvae 317 larva with average 45,28 larva.

Table (1) population density of eggs Acronicta *aceris* L on *Populus euphratica*

DATA OF SAMPLE	NUMBER OF EGGS				TEMPERATURE **C°**	RELATIVE HUMIDITY **%**
	ovate	oval	Reniform	Cordate		
28/4	0	0	0	0	23	38
5/5	7	5	3	2	25,82	45,1
5/12	9	6	5	3	27,64	44,4
19/5	13	10	8	5	29,38	40,3
26/5	16	12	10	7	28,56	42,2
2/6	14	11	8	4	32,31	24
9/6	12	9	6	3	34,60	19,3
16/6	9	7	5	3	33,44	22,2
23/6	6	5	3	1	32,25	23,5
30/6	4	3	2	1	34,15	21
7/7	0	0	0	0	33,40	22
14/9	0	0	0	0	31,54	28,5
21/9	3	3	2	1	30,85	27,4
28/9	6	6	4	2	32,41	28,1
5/10	10	7	5	4	25,41	32,4
12/10	12	9	6	6	24,52	35
19/10	13	11	9	7	22,41	34,6
26/10	10	8	6	4	21,66	34
2/11	7	5	5	3	21,13	77
9/11	6	4	3	2	19,57	76,2
16/11	5	3	2	2	18,28	76,8
23/11	3	2	0	0	16,32	76
30/11	0	0	0	0	15,45	75
Total	165	126	92	60		
Average	7.17	5.47	4	2.60		

Table (2) population density of larvae Acronicta *aceris* L on *Populus euphratica*

DATA OF SAMPLE	NUMBER OF LARVAE				TEMPERATURE **C°**	RELATIVE HUMIDITY **%**
	ovate	oval	Reniform	cordate		
28/4	0	0	0	0	23	38
5/5	0	0	0	0	25,82	45,1
5/12	6	4	3	2	27,64	44,4
19/5	10	7	5	3	29,38	40,3
26/5	14	10	7	5	28,56	42,2
2/6	12	8	6	3	32,31	24
9/6	9	6	4	2	34,60	19,3
16/6	8	5	3	2	33,44	22,2
23/6	4	3	3	1	32,25	23,5
30/6	3	2	1	1	34,15	21
7/7	2	2	1	1	33,40	22
14/9	0	0	0	0	31,54	28,5
21/9	0	0	0	0	30,85	27,4
28/9	4	3	2	2	32,41	28,1
5/10	8	6	4	2	25,41	32,4
12/10	10	8	4	3	24,52	35
19/10	11	9	7	5	22,41	34,6
26/10	8	6	4	3	21,66	34
2/11	6	4	3	2	21,13	77
9/11	4	3	2	1	19,57	76,2
16/11	3	2	2	1	18,28	76,8
23/11	2	2	0	0	16,32	76
30/11	2	1	0	0	15,45	75
Total	126	91	61	39		
Average	6	4.33	2.90	1.85		

Table (3) population density of monthly *Acronicta aceris* L. with temperature and relative humidity

Number stages insect /month					stage insect and environmental factors
Relative Humidity %	Temperature **°C**	Total	larva	egg	
37	23,85	-----	----	-----	April
43	27,85	197	76	121	May
22	33,35	202	86	116	June
22	31,7	6	6	-----	July
28	31,6	38	11	27	September
34	23,5	225	98	127	October
76	18,15	94	40	52	November
		762	317	443	Total
		108,85	45,28	63,28	Average

Showed that the high percentage of eggs and larvae were on shape ovate 37.24% and 39.74% and shape oval 28.44% and 28. 70% while were less number of eggs and larvae on shapes reniform and cordate 13.54% and 12.30% .(Figure 1, 2).

Table (4) showed, it was correlation plus with temperature and correlation negative with relative humidity the eggs while was correlation negative with relative humidity and there not correlation with temperature the larvae.

Table (4) correlation between eggs and larvae with temperature and relative humidity

	eggs		larvae	
types	**Temperature °C**	**Relative Humidity %**	**Temperature °C**	**Relative Humidity %**
ovate	0.162	−0.213	0.048	−0.207
oval	0.216	−0.280	0.011	−0.206
reniform	0.180	−0.232	0.010	−0.227
Cordate	0.010	−0.139	0.036	−0.223

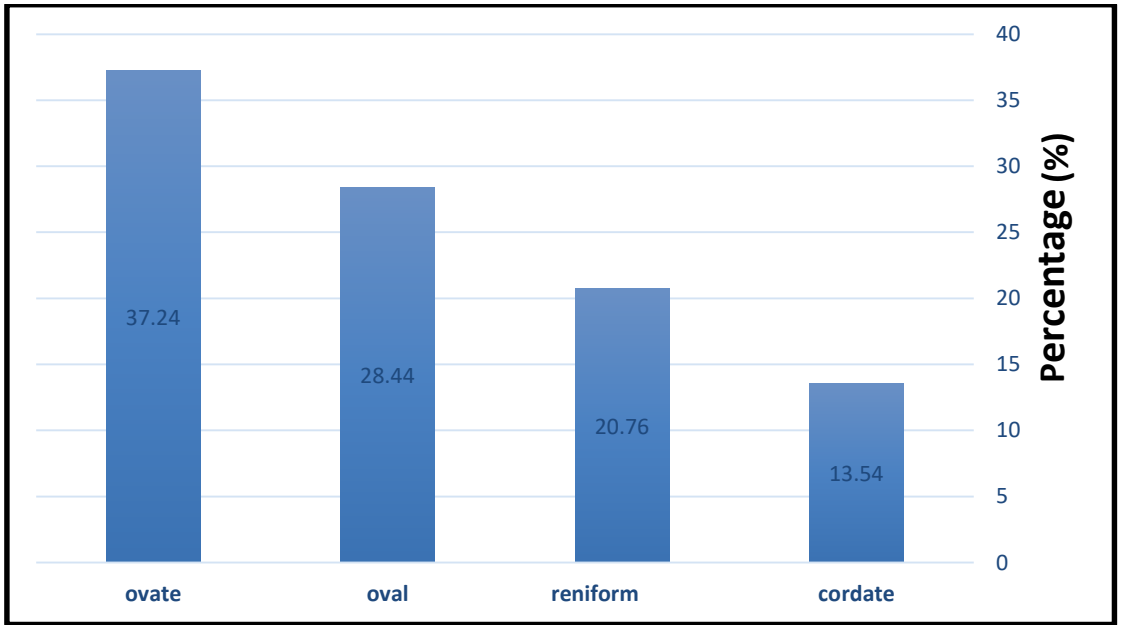

Figure (1) number of egg on shapes *Populus euphratica*

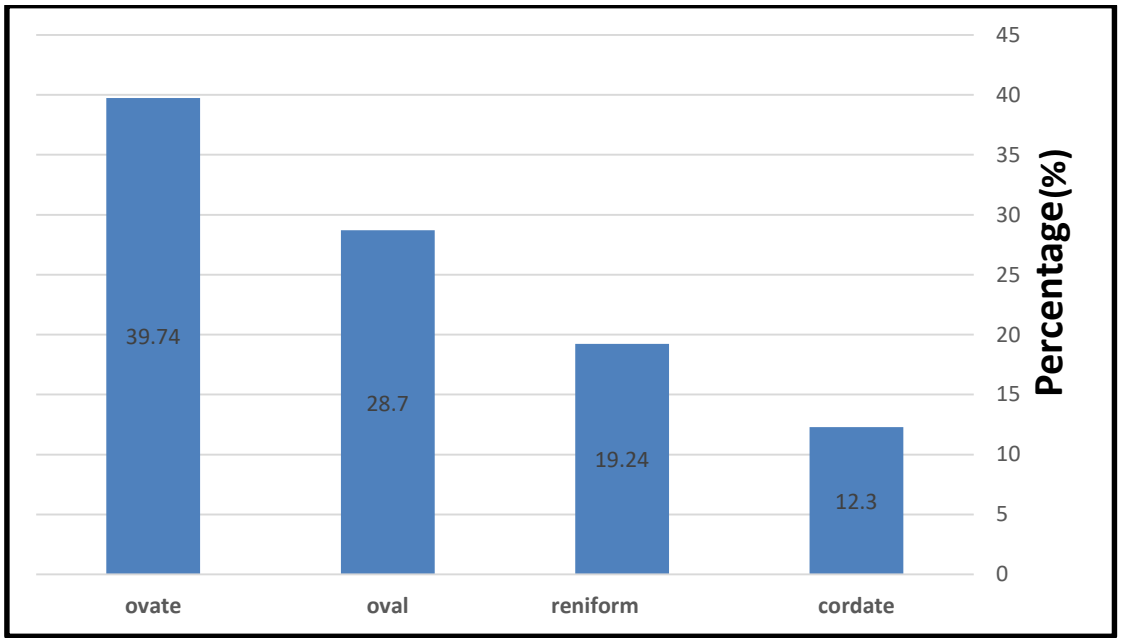

Figure (2) number of larvae on shapes *Populus euphratica*

References:

Abdullah,Y.S.,1988 .Forest Silviculture. Al-Cutub press Mosul University, 336 p.

Al.shabby, S.A ,2009.activity efficiency evaluation of some insecticides in *Anisoplia leucaspis* L .on poplar trees in Ninevah governorate M.S.Thesis.Uni Mosul , Agric,85p.

Al-Jouboory ,R.,A.2013.Susceptibility of different species of poplar trees for *Apatela aceris* J and its chemical control. Ph.D. Thesis. Uni. Mosul , Agric,139p.

Calagari,M., A.R. Modirrahmati and F.Asadi,2006. Morphological variation in leaf traits of *Populus euphratica* Oliv. Natural populations.Int.J.Agri.Bio.,Vol.8,No.6,754-758p.

Calagari,M.,1998.The ecological study of *Populus euphratica* Oliv.in the margin river of Karoon .Sci. Res. Quat .Agric .Jahad Pajouhesh-va-Sazandegi,35:5-20p.

Chen,V.N., N. Wang, X. Ouan, W.H. Li and V.M. Chen, 2004. physiological response of *Populus euphratica* to artificial water-recharge of the lower reaches to Tarim river. Acta Botanica Sinica , 46:401-1363p.

FAO , 1997 . The state of the world's Forests. Food and Agriculture of the United Nations Viale .delle.Treme di Caracalla Rome , Italy.

Swailem , S.M. I.N. Al-Maroof ,1981. Forest entomology. Al-Cutub press Mosul University, 309 p.

Turner, N.C., G.H. Heichel. 1973 . Physiological responses of dogwood *Cornus florida* to infestation by the dogwood borer *Thamnosphecia scitula* Ann. Appl. Biol. 75 : 401-408p.