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الوفرة الموسمية لطفيليات براكونيدى على فراشة وذبابة بنجر السكر وتأثرهما بالمبيدات

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الملخص العربى

أجريت هذا الدراسة في قرية الحميدية، ومعمل قسم بحوث المحاصيل السكرية بمحطة البحوث الزراعية بسخا – محافظة كفر الشيخ لمدة موسمين (٢٠٠٨/٢٠٠٩ و٢٠٠٩/٢٠١٠) لدراسة نشاط الطفيليات التابعة لعائلة براكونيدى (*Opius nitidulator* و*Agathis* sp.) على حشرتى فراشة البنجر *Scrobipalpa ocellatella* وذبابة البنجر *Pegomya mixta* خلال عروات زراعة البنجر المختلفة (أغسطس ، سبتمبر وأكتوبر). كما درست أيضاً الآثار الجانبية للمبيدات الحشرية المستخدمة فى مكافحة الذبابة وهى باسودين ٦٨٪، سوميثيون ٥٨٪ و دبتركس ٨٠٪ والمستخدمة فى مكافحة فراشة البنجر وهى مارشال، سيليكرون واللانيت على هذه الطفيليات. وقد أظهرت النتائج مايلى:-

- زادت أعداد الطفيل *Opuis nitidulator* على ذبابة البنجر خلال العروتين الأولى والثانية حتى وصلت إلى أقصاها فى نهاية الموسم. وقد سجل هذا الطفيل أعلى تعداد له فى العروة الثالثة (عروة سبتمبر) (بمتوسط ١٧.٦٧ فرداً/٤٠ ضربة مزدوجة خلال الموسمين).
- وجدت ذروتان لطفيل *O. nitidulator* خلال موسمى الدراسة، فى شهر أكتوبر (١٧.٠°م ورطوبة نسبية ٦٧.٥٪) وشهر أبريل (١٩.٠ °م ورطوبة نسبية ٦٢.٥٪) فى الموسم الأول، بينما فى الموسم الثانى وجدت الذروتان فى شهرى نوفمبر (١٨.٣ °م ورطوبة نسبية ٦٣.٩٪) وأبريل (١٧.٢ °م ورطوبة نسبية ٦٠.٢٪).
- سجل أعلى تعداد لطفيل *Agathis* sp. على فراشة البنجر فى ميعاد الزراعة الثالث، حيث وصل إلى أقصاه خلال شهر يونيو.

- ظهر لطفيل *Agathis* sp. ذروتان فى الموسم الأول وثلاث ذروات فى الموسم الثانى.
- أدى استخدام المبيدات سابقة الذكر إلى خفض حاد فى تعداد طفيل *O. nitidulator*، تتراوح بين ٥٧.١٣، ٨٥.٥٣ ٪ كمتوسط عام بعد خمسة عشر يوماً من المعاملات.
- بعد يومين وخمسة أيام أدى استخدام المارشال والسيليكرون إلى خفض تعداد *Agathis* sp. بنسبة ١٠٠%، وبمتوسط عام تراوح بين ٩٣.٠٧، ٩٧.٧٠ ٪ بعد خمسة عشر يوماً من المعاملات.

SEASONAL ABUNDANCE OF BRACONID PARASITOIDS ON SUGAR BEET MOTH AND SUGAR BEET FLY, AND SIDE EFFECT OF INSECTICIDES ON THE PARASITOIDS

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ABSTRACT: ***This work was conducted at Hamidia village, Kafr El-Sheikh region and the laboratory of sugar beet department, Sakha Agricultural Research Station during two seasons, 2008/09 and 2009/10, to study the seasonal abundance of the braconid parasitoids on Scrobipalpa ocellatella and Pegomya mixta during three sugar beet plantations (August, September and October plantations) and the side effects of insecticides on the parasitoids. In the first and second plantations, numbers of Opius nitidulator on Pegomya mixta increased to reach their maximal by the end of season. In the third plantation, the parasitoid recorded maximum numbers in April and May. The third plantation (December plantation) produced the highest population density of O. nitidulator number (Av. of = 17.67 parasitoids/40 double strokes). Two peaks of parasitism occurred during the first season; the first one in October and the second one in April at 17.0°C & 67.5 RH% and 19.0°C & 62.5 RH%, respectively. In the second season, the two peaks were recorded in November and April with 18.3°C & 63.9 RH% and 17.2°C & 60.2 RH%, respectively. The highest population density of Agathis sp. on Scrobipalpa ocellatella was recoded on the third sugar beet plantation. Agathis sp. started with a low population density and gradually increased until reached its maximum in June. There were two peaks of parasitism percentage during the first season, and three peaks in the second one. A drastic drop in the population density of O. nitidulator occurred as a result of spraying with Bassoden 68 EC, Thomithion 50 EC, Diptrex 80% WP for controlling sugar beet insect pests. After two or five days, all treatments (Marshal, Selecron and Lannate) caused 100% reduction in Agathis sp. numbers except Lannate which caused 92.86% reduction after five days.***

Key words: ***sugar beet moth, sugar beet fly, braconid parasitoid, insecticides***

INTRODUCTION

All insects have natural enemies which attack one or more of their life stages and the insects may become pests when natural enemies fail to regulate them (Janyce, 1996). Sugar beet plants are attacked by many insects form seed germination up to maturity and harvest (Youssef 1994, Shalaby 2001, Mousa 2005, Amin *et al.* 2008, Abou El-Kassem 2010 and Bazazo 2010).

Strategies of insect pest control in sugar beet depend on applying Integrated Pest Management (IPM) program, to avoid the hazardous effects of insecticides on the final products and on the environment (Norwood 1990 and Barbash and Resek 1996).

Fortunately, the sugar beet ecosystem has several natural enemies that should be wisely conserved to keep the natural balance in the fields (Ewais 1990, Babusnskina 1996, El-Zoghaby 1999 and Talha 2001).

In Egypt, the status of insect parasitoids in sugar beet fields was studied by several authors using *Trichogramma* to reduce the lepidoterous insects (*e.g.* Hassan 1993, Shalaby 2001 and Mesbah *et al* 2004). Mousa (2005), Amin *et al.* (2008) and Abou El-Kassem (2010) studied some ecological aspects of the parasitoid, *Opius nitidulator* Nees. Also, Bazazo 2010 surveyed 38 parasitoid species, belonging to 20 hymenopterous families, from sugar beet fields.

This study was done to evaluate the role of the two parasitoids; *Opius nitidulator* Nees and *Agathis* sp. attacking larval stage of each of *Pegomyia mixta* Vill and *Scrobipalpa ocellatella* Boyed. Also, the side effects of some chemical pesticides on the populations densities of the two parasitoids were investigated at sugar beet fields at Kafr El-Sheikh region during two successive seasons; 2008/09 and 2009/10.

MATERILAS AND METHODS

This work was conducted at Hamidia village Kafr El-Sheikh region, and laboratory of sugar beet department, Sakha Agricultural Research Station during two seasons, 2008/09 and 2009/10.

1. Population fluctuations and parasitism percentages of *Opius nitidulator* (Ness) and *Agathis* sp. on sugarbeet fly, *Pegomya mixta* Vill and sugar beet moth, *Scrobipalpa ocellatella* larvae and pupae:

Sugarbeet, Pleno variety was sown in three successive plantations; first of August, October and December in both seasons, in about one feddan for each date. Normal agricultural practices were followed without any pesticides. Sweep net samples started one month after sowing and

continued monthly till harvest. Each sample was represented by 40 double strokes. The catch was anaesthetized in the net using a piece of cotton saturated with ether and introduced into glass jars tightly closed, and transferred to the laboratory to monitor and then the catch collect the emerging parasitoids.

To study the parasitism percentage, leaves infested by *P. mixta* blotches were collected from the field. These leaves were placed into a carton box and leaves were separated among each other with paper sheets. Every day, the leaves were examined to collect pupae, which were individually put into glass tubes provided with moistened cotton wool and the emerging parasitoids were collected and counted to calculate the parasitism percentage.

In the case of *Agathis* sp., the larvae of *S. ocellatella* were collected from sugarbeet fields throughout the period of study and transferred to the laboratory, counted and kept in glass containers covered with muslin and provided with sugarbeet crowns. When the larvae formed into pupae, every one was put into a glass tube and closed with cotton until emergence of parasitoids or adult insect, and then the parasitism percentage was calculated.

2. The side effects of insecticides on parasitoid populations:

To study the effect of insecticides on parasitoid populations, one feddan was cultivated with Pleno sugar beet variety on the first of October and first of December (one half feddan each), as those plantation dates are subject to high insect infestations. All agricultural procedures were applied. When the peak of *P. mixta* occurred, three pesticides were applied; Bassoden 68% EC (diazinon) (250 ml/100 LW), Thomithion 50% EC (fenitrothion) (1 litter/fed) and Diptrex (trichlorfon) 80% WP (1 kg/fed). The fourth treatment was left without any insecticides (control). Samples were taken 2, 5, 7, 10 and 15 days after insecticide applications using sweep net (40 double strokes) to determine the number of *Opius* parasitoids. The same work was done for *Agathis* sp. in the late time in December plantation using Marshal, Selecron and Lannate at rates of 600 g/fed, 750 ml/fed and 300 g/fed, respectively.

The reductions in populations were calculated using Henderson and Tilton (1955) equation as follows =

$$\text{\% Population reduction} = 100\times\left(1-\frac{Ta\times Cb}{Tb\times Ca}\right)$$

Where:

Ta: Population in treated plots after treatment.
Tb: Population in treated plots before treatment.
Ca: Population in control after treatment.

Cb: Population in control before treatment.

RESULTS AND DISCUSSION

1. Population fluctuations and parasitism percentages:

1.1. *Opius nitidulator* on *Pegomya mixta*:

Data in Table (1) show the population fluctuations of *O. nitidulator* during two seasons, 2008/09 and 2009/10 in the first plantation (August plantation). In the first season, no parasitoids were found during September, October and November. In December, 3 parasitoids/40 double strokes were found and then the parasitoids increased until the end of this plantation (10 parasitoids/40 double strokes in February). In the second season, the parasitoid appeared in November. In both seasons, the parasitoid recorded the highest number during January and February.

In the second plantation (October plantation), no parasitoids were recoded in the first sample during first season and no parasitoids were recoded in the first and second samples during second season. The highest numbers of *O. nitidulator* were recorded in March and April during the two seasons.

In December plantation, data recorded the first appearance of *O. nitidulator* in the first sample, with 6 individulas/40 double strokes during both seasons. Then, the parasitoid numbers increased until reached its maximum in April (32 individuals) during the first season and in May (30 individuals) during the second season.

Generally, data showed that the third plantation (December plantation) produced the highest population of *O. nitidulator* number (17.67 parastods/40 double strokes as an average of both seasons).

Table (1): Population fluctuations of the larval parasitoid, *Opius nitidulator* on *Pegomya mixta* in sugar beet fields at Kafr El-Sheikh region.

Sampling month	No. of adult parasiotoids/40 double strokes									Weather factors			
	August plantation			October plantation			December plantation			°C		RH%	
	2008/09	2009/10	Av.	2008/09	2009/10	Av.	2008/09	2009/10	Av.	2008/09	2009/10	2008/09	2009/10
Sept.	0	0	0	-	-	-	-	-	-	19.5	25.8	60.0	61.5
Oct.	0	0	0	-	-	-	-	-	-	17.0	23.6	67.5	52.8
Nov.	0	1	0.5	0	0	0	-	-	-	14.5	18.3	65.3	63.6
Dec.	3	6	4.5	1	0	0.5	-	-	-	14.5	15.5	65.3	64.3

Jan.	9	11	10.0	6	8	7.0	6	6	6.0	13.4	14.7	65.0	69.3
Feb.	10	11	10.5	9	17	13.0	19	12	15.5	15.2	16.9	70.0	69.0
Mar.	-	-	-	19	28	23.5	29	17	23.0	14.6	17.0	62.1	70.0
Apr.	-	-	-	19	29	24.0	32	29	30.5	19.0	17.2	62.5	60.2
May	-	-	-	-	-	-	16	30	23.0	20.7	19.6	58.8	68.4
June	-	-	-	-	-	-	9	7	8.0	26.3	22.0	62.5	56.1
Mean	3.67	4.83	4.17	9.00	13.67	11.33	18.50	16.83	17.67	17.47	19.06	63.90	63.52

1.2. *Agathis* sp. on sugar beet moth, *Scrobipalpa ocellatella*:

Data in Table (2) show the population fluctuations of the larval parasitoid, *Agathis* sp. on *S. ocellatella* during two seasons. In the first plantation, no parasitoids were recorded in September during two seasons. The highest number of the considered parasitoid was recoded in February (6 individuals/40 double strokes) during the second season, but in the same month, the parasitoid was absent in the inspection sample in the first season.

In the second plantation, the highest number of the larval parasitoid, *Agathis* sp. was recorded in April with 22 individuals/40 double strokes during second season 2009/10, while in the first one, it was recorded as 16 individuals in the same month.

Data show that the highest number of this parasitoid was recoded in the third sugar beet plantation. *Agathis* sp. started with low numbers and gradually increased until reached its maximum in June with 31 and 36 individuals in 2008/09 and 2009/10 seasons, respectively.

Table (2): Population fluctuations of the larval parasitoid, *Agathis* sp. on *Scrobipalpa ocellatella* in sugar beet fields at Kafr El-Sheikh region.

Sampling month	No. of adult parasiotoids/40 double strokes									Weather factors			
	August plantation			October plantation			December plantation			°C		RH%	
	2008/09	2009/10	Av.	2008/09	2009/10	Av.	2008/09	2009/10	Av.	2008/09	2009/10	2008/09	2009/10
Sept.	0	0	0.0	-	-	-	-	-	-	19.5	25.8	60.0	61.5
Oct.	2	1	1.5	-	-	-	-	-	-	17.0	23.6	67.5	52.8
Nov.	2	4	3.0	2	1	1.5	-	-	-	14.5	18.3	65.3	63.85
Dec.	0	1	0.5	0	0	0.0	-	-	-	14.5	15.5	65.3	64.3

Jan.	3	2	2.5	0	0	0.0	0	1	0.5	13.4	14.7	65.0	69.3
Feb.	0	8	4.0	4	8	6.0	2	3	2.5	15.2	16.9	70.0	69.0
Mar.	-	-	-	6	8	7.0	11	17	14.0	14.6	17.0	62.1	70.0
Apr.	-	-	-	16	22	19.0	16	18	17.0	19.0	17.2	62.5	60.2
May	-	-	-	-	-	-	22	20	21.0	20.7	19.6	58.8	68.4
June	-	-	-	-	-	-	31	36	33.5	26.3	22.0	62.5	56.1
Mean	1.63	2.67	1.92	4.67	6.50	5.60	13.67	16.00	14.75	17.47	19.06	63.90	63.52

2. Parasitism percentage:

2.1. *Opius nitidulator* on *P. mixta* pupae:

Results in Table (3) show the numbers of *O. nitidulator* emerging from *P. mixta* pupae during two seasons; 2008/09 and 2009/10 as affected with two weather factors; temperature (°C) and relative humidity (RH%). Data present two peaks of parasitism percentage during the first season (2008/09); the first one in October (15.38%) and the second one in April (19.62) at 17.0°C & 67.5 RH% and 19.0°C & 62.5 RH%, respectively.

In the second season, parasitism percentage recorded two peaks also, in November (25.00%) and in April (16.33%) with 18.3°C & 63.9 RH% and 17.2°C & 60.2 RH%, respectively.

Table (3): Parasitism ratios of *Opius nitidulator* on *Pegomya mixta* in sugar beet fields at Kafr El-Sheikh region during two seasons.

Sampling month	2008/09					2009/10				
	No. of *P. mixta* pupa	No. of *O. nitidulator*	% Parasitism	Temp. °C	RH%	No. of *P. mixta* pupa	No. of *O. nitidulator*	% Parasitism	Temp. °C	RH%
Sept.	19	0	0.00	19.5	60.0	21	0	0.00	25.8	61.5
Oct.	13	2	15.38	17.0	67.5	10	0	0.00	23.6	52.8
Nov.	17	2	11.74	14.5	65.3	12	3	25.00	18.3	63.9
Dec.	26	3	11.54	14.5	65.3	25	1	4.00	15.5	64.3
Jan.	69	0	0.00	13.4	65.0	63	4	6.35	14.7	69.3
Feb.	200	16	8.00	15.2	70.0	159	13	8.18	16.9	69.0
Mar.	266	30	11.28	14.6	62.1	230	27	11.74	17.0	70.0

Apr.	260	51	19.62	19.0	62.5	300	49	16.33	17.2	60.2
May	90	14	15.56	20.7	58.8	110	10	9.09	19.6	68.4
June	23	2	7.70	26.3	62.5	29	2	6.90	22.0	56.1
July	16	0	0.00	26.6	65.3	20	1	5.00	26.4	61.4
Aug.	0	0	0.00	25.7	66.3	0	0	0.00	26.0	65.0
Mean	83.25	10.00	8.40	23.08	64.23	81.58	9.17	7.72	20.25	63.49

2.2. *Agathis* sp. on *S. ocellatella* pupae:

Population fluctuations of the larval parasitoid, *Agathis* sp. on *S. ocellatella* during two seasons; 2008/09 and 2009/10 are shown in Table (4). In the first season, *Agathis* sp. parasitism exhibited 7.69%. Two peaks of parasitism percentage were recorded in February (8.70%) and in May (12.26%) at 15.2°C & 70.0 RH% and 20.7°C & 58.8 RH%, respectively.

In the second season, 2009/10, three peaks of *Agathis* sp. parasitism percentage were detected. The first peak was recorded in September by 2 parasitoids/10 *S. ocellatella* pupae with 20.00%, the second one in January (16.67%) and the third one in April (9.38%) at 25.8°C & 61.5 RH%, 14.7°C & 69.3 RH% and 17.2°C & 60.2 RH%, respectively.

Table (4): Parasitism ratios of the larval parasitoid, *Agathis* sp. on *Scrobipalpa ocellatella* in sugar beet fields at Kafr El-Sheikh region during two seasons.

Sampling month	2008/09					2009/10				
	No. of *S. ocellatella* pupa	No. of *Agathis* sp	% Parasitism	Temp. °C	RH%	No. of *S. ocellatella* pupa	No. of *Agathis* sp	% Parasitism	Temp. °C	RH%
Sept.	13	1	7.69	19.5	60.0	10	2	20.00	25.8	61.5
Oct.	5	0	0.00	17.0	67.5	11	1	9.09	23.6	52.8
Nov.	4	0	0.00	14.5	65.3	6	0	0.00	18.3	63.85
Dec.	6	0	0.00	14.5	65.3	0	0	0.00	15.5	64.3
Jan.	16	1	6.25	13.4	65.0	12	2	16.67	14.7	69.3
Feb.	23	2	8.70	15.2	70.0	14	1	7.14	16.9	69.0
Mar.	33	2	6.06	14.6	62.1	42	2	4.76	17.0	70.0

Apr.	51	6	11.74	19.0	62.5	96	9	9.38	17.2	60.2
May	106	13	12.26	20.7	58.8	126	11	8.73	19.6	68.4
June	163	13	7.97	26.3	62.5	196	10	5.10	22.0	56.1
July	200	16	8.00	26.6	65.3	200	10	5.00	26.4	61.4
Aug.	0	0	0.00	25.7	66.3	0	0	0.00	26.0	65.0
Mean	51.67	4.50	5.72	23.08	64.23	59.42	4.00	7.16	20.25	63.49

3. The side effects of insecticides on parasitoid populations:

3.1. Reduction in *Opius nitidulator* parasitoid as influenced by insecticides in sugar beet fields at Kafr El-Sheikh region:

Data shown in Table (5) present the numbers of *O. nitidulator* and reductions percentage of the parasitoid due to applications. A drastic drop in the population density of the parasitoid occurred as a result of spraying with Bassoden 68 EC, Thomathion 50 EC, Diptrex 80% WP for controlling sugar beet insect pests. Sprays resulted in average reduction of 57.13, 54.18 and 85.53% reductions in the population density of *O. nitidulator* using Bassoden 68 EC, Thomathion 50 EC, Diptrex 80% WP treatments, respectively. Diptrex 80% WP was the most hazardous, as it resulted in 85.53 % reduction in the parasitoids numbers. The other insecticides were also destructive against this parasitoid, as they eliminated 57.13and 54.18 % of the parasitoid populations by Bassoden 68% EC and Thomathion 50% EC treatments, respectively. After two days of treatments, the highest reduction was obtained from using Diptrex 80% WP, followed by Bassoden 68% EC and Thomathion 50% EC with 94.06, 86.81 and 70.31% reduction, respectively. Gradually, the population numbers of the parasitoid began to regain the residual effect of the tested insecticides declined .

3.2. Reduction in *Agathis* sp. parasitoid as influenced by insecticide in sugar beet fields at Kafr El-Sheikh region:

Data shown in Table (6) present the numbers of *Agathis* sp. and reduction percentages of the parasitoid due to insecticide applications. After two and five days, all treatments (Marshal, Selecron and Lannate) caused 100% mortality in *Agathis* sp. numbers except Lannate which caused 92.86% reduction after five days. Average reductions in *Agathis* sp. populations show that Selecron was the most destructive to the parasitoid with 97.72% reduction followed by other two treatments; Lannate and Marshal with 93.12 and 93.07%, respectively.

Table 5,6

REFERENCES

Abou El-Kassem, A. B. (2010). Ecological and biological studies on some insects of sugar beet plants at Kafr El-Sheikh Governorate. Ph. D. Thesis, Fac. Agric., Kafr El-Sheikh Univ., 221 pp.

Amin, A. H., A. Helmi and S. A. El-Servy (2008). Ecological studies on sugar beet insects at Kafr El-Sheikh Governorate. Egypt J. Agric. Res., 86 (6): 2129-2139.

Babusnskina, A. G. (1996). Natural regulators of beet leaf miner fly numbers. Zash. Rast. Moskova, 1: 14-15.

Barbash and E. A. Resek (1996). Pesticides in ground water. Distributation, trends, and governing factors, in: R. J. Gillioim, ed., Pesticides in the hydrologic system, Ann. Arbor Press, Inc., Chelsea, MI, Vol. 2, 588p.

Bazazo, K. G. I. (2010). Studies on some insect pests and natural enemies in sugar beet fields at Kafr El-Sheikh region. Ph. D. Thesis, Fac. Agric., Tanta Univ., 162 pp.

El-Zoghby, A. A. (1999). Biological control of some sugar beet insects. Ph. D. Thesis, Fac. Agric., Cairo Univ., 164 pp.

Ewais, N. A. (1990). Studies on the natural enemies of the beet leaf-miner, *Pegomia mixta* (Villen) (Diptera: Anthomyiidae). M. Sc. Thesis, Fac. Agric., Suez Canal Univ., 130 pp.

Hassan, S. A. (1993). The mass rearing and utilization of *Trichogramma* to control lepidopterous pests: achievements and outlook. Pesticide Science, 37 (4): 387-391.

Henderson, C. F. and E. W. Tilton (1955). Tests with acaricides against the brown wheat mite. J. Econ. Entomol., 48: 157 – 161.

Janyce, M. R. (1996). The garden project, Lansing, Michigan; Douglas A. Landis, Department of Entomology and Pesticides Research Center; Edward J. Grafius, Department of Entomology, Michigan State University.

Mesbah, I. I., F. A. Abou-Attia, S. M. Metwally, A. M. Bassyouny and G. A. Shalaby (2004). Utilization of biological control agents for controlling some sugarbeet insect pests at Kafr El-Sheikh region. Egyptian J. Biol. Pest Cont., 14 (1): 195-199. Proc. 1st Arab Conf. for Appl. Biol. Pest Cont., Cairo, Egypt, 5-7 April.

Mousa, E. A. M. (2005). Studies on sugar beet main insect and their safety control methods. Ph. D. Thesis, Fac. Agric., Mansoura Univ., 302 pp.

Norwood, V. M. (1990). A literature review of waste treatment technologies which may be applicable to wastes generated at fertilizer/agrochemical dealer sites, Tennessee Valley. Environmental Research Center, Muscle Sholas, Al, 32 pp.

Shalaby, G. A. (2001). Ecological studies on some important sugar beet pests and natural enemies and their control. Ph. D. Thesis, Fac. Agric., Kafr El-Sheikh, Tanta Univ., 141 pp.

Talha, E. A. M. (2001). Integrated pest management of sugar beet insects. M. Sc. Thesis, Fac. Agric., Mansoura Univ., 101 pp.

Youssef, A. E. (1994). Studies on certain insect attacking sugar beet. Ph. D. Thesis, Fac. Agric., Kafr El-Sheikh, Tanat Univ., 130 pp

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الوفرة الموسمية لطفيليات براكونيدى على فراشة وذبابة بنجر السكر وتأثرهما بالمبيدات

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الملخص العربى

أجريت هذا الدراسة في قرية الحميدية، ومعمل قسم بحوث المحاصيل السكرية بمحطة البحوث الزراعية بسخا – محافظة كفر الشيخ لمدة موسمين (٢٠٠٨/٢٠٠٩ و٢٠٠٩/٢٠١٠) لدراسة نشاط الطفيليات التابعة لعائلة براكونيدى (*Opius nitidulator* و*Agathis* sp.) على حشرتى فراشة البنجر *Scrobipalpa ocellatella* وذبابة البنجر *Pegomya mixta* خلال عروات زراعة البنجر المختلفة (أغسطس ، سبتمبر وأكتوبر). كما درست أيضاً الآثار الجانبية للمبيدات الحشرية المستخدمة فى مكافحة الذبابة وهى باسودين ٦٨٪، سوميثيون ٥٨٪ و دبتركس ٨٠٪ والمستخدمة فى مكافحة فراشة البنجر وهى مارشال، سيليكرون واللانيت على هذه الطفيليات. وقد أظهرت النتائج مايلى:-

- زادت أعداد الطفيل *Opuis nitidulator* على ذبابة البنجر خلال العروتين الأولى والثانية حتى وصلت إلى أقصاها فى نهاية الموسم. وقد سجل هذا الطفيل أعلى تعداد له فى العروة الثالثة (عروة سبتمبر) (بمتوسط ١٧.٦٧ فرداً/٤٠ ضربة مزدوجة خلال الموسمين).
- وجدت ذروتان لطفيل *O. nitidulator* خلال موسمى الدراسة، فى شهر أكتوبر (١٧.٠°م ورطوبة نسبية ٦٧.٥٪) وشهر أبريل (١٩.٠ °م ورطوبة نسبية ٦٢.٥٪) فى الموسم الأول، بينما فى الموسم الثانى وجدت الذروتان فى شهرى نوفمبر (١٨.٣ °م ورطوبة نسبية ٦٣.٩٪) وأبريل (١٧.٢ °م ورطوبة نسبية ٦٠.٢٪).
- سجل أعلى تعداد لطفيل *Agathis* sp. على فراشة البنجر فى ميعاد الزراعة الثالث، حيث وصل إلى أقصاه خلال شهر يونيو.

- **ظهر لطفيل *Agathis* sp. ذروتان فى الموسم الأول وثلاث ذروات فى الموسم الثانى.**
- **أدى استخدام المبيدات سابقة الذكر إلى خفض حاد فى تعداد طفيل *O. nitidulator*، تتراوح بين ٥٧.١٣، ٨٥.٥٣ ٪ كمتوسط عام بعد خمسة عشر يوماً من المعاملات.**
- **بعد يومين وخمسة أيام أدى استخدام المارشال والسيليكرون إلى خفض تعداد *Agathis* sp. بنسبة ١٠٠%، وبمتوسط عام تراوح بين ٩٣.٠٧، ٩٧.٧٠ ٪ بعد خمسة عشر يوماً من المعاملات.**

Table (5): Reduction in *Opius nitidulator* parasitoid as influenced by certain insecticides in sugar beet fields at Kafr El-Sheikh region.

Treatment	Rate	No. of parasitoid/40 double strokes after treatment						Population reduction %					Average
		Before treatment	2	5	7	10	15	2	5	7	10	15	
Bassoden 68 EC	250 ml/100 l	18	2	4	4	11	15	86.81	80.81	77.78	19.44	20.83	57.13
Thomathion 50 EC	1 l/fed	20	5	6	10	10	16	70.31	74.09	50.00	52.50	24.00	54.18
Diptrex 80% WP	1 kg/fed	20	1	2	3	3	6	94.06	91.36	85.00	85.75	71.50	85.53
Control	-	19	16	22	19	20	20	-	-	-	-	-	-

Table (6): Reduction in *Agathis* sp. parasitoid as influenced by certain insecticides in sugar beet fields at Kafr El-Sheikh region.

Treatment	Rate/fed	No. of parasitoid/40 double strokes after treatment						Population reduction %					Average
		Before treatment	2	5	7	10	15	2	5	7	10	15	
Marshal	600 gm	31	0	0	2	2	9	100.00	100.00	95.20	93.55	76.61	93.07
Selecron	750 ml	30	0	0	0	1	3	100.00	100.00	100.00	96.67	91.94	97.72
Lannate	300 gm	29	0	2	2	4	3	100.00	92.86	94.87	86.21	91.67	93.12
Control	-	29	22	28	39	29	36	-	-	-	-	-	-