

SUSCEPTIBILITY OF SOME STARWEBERRY CULTIVARS TO THE INFESTATION OF TETRANYCHUS URTICAE KOCH

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ABSTRACT

The relative susceptibility of six strawberry cultivars (Chandler sweet charl Branko, style , Helda and Almont) to the infestation with the two spotted mite *Tetranychus urticae* Koch was studied in Al kanater Research station Qualubia Governorate , through two successive seasons (2010/2011) and (2011/2012) . Evaluation of mite infestation was estimated according to the other mean number of eggs and immature stages, results showed that the population dynamics of spider mites infestation in the six cultivars appear in few numbers during the period from October until February. The infestation increased during March and reaches until February the infestation increased during march and reaches the maximum during April and decreases.

The results also showed that sweetcharll and Chandler are the least preferable varieties, while Almont and Helda where the most preferable varieties to spider mite infestation .

Based on these conclusions, Sweetcharll and Chandler varieties are recommended for the strawberry growers in order to depress the population density of the mite *T. urticae* in the strawberry fields in Egypt.

INTRODUCTION

Among different vegetables species cultivated in Egypt, strawberry fragaria ananassa Douch , is considered important for both local consumption and export the strawberry nurseries in Egypt cover every year about 500 feddan . the produced shootlets are enough to cultivate about 5000 fedden . Strawberry helds are concentrated in Ismailia , Qualubia and Sharkia Governorate . However, Nubaria , Beni- Suef and sohag started recently to grow some areas of this crop.

Several millions of strawberry shootlets were exported during some seasons to Greece , Italy , Tunisia , India and Turkey . fresh fruits are exported every year to some Arabian, European and Asian courtiers .

Strawberry plants , in Egypt are subjected to several pests among which the mites is the most important . They affect not only the quantity and the fruit size , but also the quality of the furits (Ahmed , 1984 ; Dabrowski and Rodriguez , 1971; Hamilton et al , 1988; Kishaba et al ., 1972 , Mac Farlane , 1993 ; Mac farlane and Hepworth , 1994 ; and Schuster et al ., 1980)

The aim of the present study was to study the population fluctuations of the mite in the strawberry fields and to evaluate some strawberry cultivars for their susceptibility to the mite infestations.

MATERIALS AND METHODS

Shootlets of six strawberry cultivars were planted during two successive seasons 2010/2011 and 2011/2012 in Al kanter Research Station, Qualubia Governorate. The tested cultivars are: Chandler, Sweetcharll, Bronko, Style, Almont and Helda

For this purpose, a complete randomized block design with four replicates was used. Each experimental plot was one row of 7 m long, i.e. each replicate consisted of 6 rows, one for each cultivar. In both seasons, the experiment was planted on the first of October – Normal agricultural practices were used. No chemical control was applied.

After ten days from planting a sample of 25 randomly selected leaves was taken from each plot and inspected in the laboratory for estimating the population of the two spotted spider mite, *Tetranychus urticae* Koch. Eggs and moving stages of mites. Analysis of variance was then carried out to evaluate the relative susceptibility of the tested strawberry cultivars to mite infestation (Peterson, 1994)

RESULTS AND DISCUSSION

Data in Tables (1 and 2) indicated that, there are differences between the mean number of eggs and moving stages of spider mites / 25 leaves among the six tested strawberry cultivars. The infestation of spider mites during both seasons appeared in few numbers during the period from the first inspection until February to reach its maximum in March and April (18.75, 18.25, 34.00, 36.25, 151 and 94.25 eggs /25 leaves in March on (chandler, Sweetcharll, Bronko, Style, Helda and Almont) and in April (40.50, 39.25, 58.75, 59.25, 236.00 and 309.00 eggs /25 leaves) on the six cultivars, respectively, then the population reduced again through the two successive seasons the highly infested cultivars were Almont and Helda. This result agreed with Mac Farlane (1994) and Ahmed (1984), Bronko and style were moderately infested. The lowest infested cultivars were sweet Charll and Chandler. According to L.S.D the cultivars could be arranged for infestation in a descending order as Almont, Helda, Bronko, style, sweetcharll and Chandler in the first season (2010/2011) and as Almont, Helda, Style, Bronko, Sweetcharll and Chandler in the second season (2011-2012)

On the other hand, the occurrence of moving stages had the same trend during the two seasons chandler, Sweetcharll, Bronko, Style, Helda and Almont

Table (1): The relatives susceptibility of some cultivars to infestation by *Tetranychus urticae* eggs

Cultivars inspection data	Total No. of eggs /25 leaves					
	Chandler	Sweet charll	Bronko	Style	Helda	Almont
Oct 2010	0.50 ± 0.58	0.50 ± 0.58	4.75 ± 0.95	1.00 ± 0.0	7.00 ± 1.83	7.75 ± 2.06
Nov	0.50 ± 0.52	3.50 ± 0.58	0.58 ± 0.69	0.58 ± 0.51	7.25 ± 1.50	5.25 ± 1.44
Dec	0.40 ± 0.42	1.00 ± 0.00	0.75 ± 0.5	0.25 ± 0.5	2.75 ± 0.29	3.00 ± 0.82
Jan 2011	0.08 ± 0.15	2.25 ± 0.96	0.40 ± 0.42	0.40 ± 0.42	8.67 ± 0.0	8.00 ± 0.71
Feb	1.75 ± 0.50	1.33 ± 0.83	20.5 ± 7.68	21.25 ± 1.50	43.58 ± 11.19	72.00 ± 12.75
Mar	18.75 ± 5.91	18.25 ± 2.06	34.00 ± 11.60	36.25 ± 7.54	151.25 ± 27.77	94.25 ± 26.82
Apr	40.50 ± 7.67	39.25 ± 7.93	58.75 ± 10.47	59.25 ± 12.39	236.00 ± 94.01	309.00 ± 76.47
Oct 2011	0.50 ± 0.58	0.5 ± 0.58	0.83 ± 0.35	1.08 ± 1.35	3.00 ± 0.71	3.75 ± 0.87
Nov	0.33 ± 0.47	1.00 ± 1.15	1.25 ± 0.5	1.33 ± 1.16	5.00 ± 1.41	2.00 ± 0.82
Dec	0.08 ± 0.15	0.58 ± 1.50	0.25 ± 0.5	0.00 ± 0.00	3.50 ± 1.60	6.00 ± 0.82
Jan 2012	2.50 ± 0.58	1.5 ± 0.58	0.83 ± 0.89	0.33 ± 0.47	9.25 ± 1.50	15.00 ± 2.94
Feb	4.75 ± 0.50	12.25 ± 0.96	42.00 ± 8.45	40.00 ± 3.46	104.75 ± 3.75	152.25 ± 13.22
Mar	35.00 ± 9.13	38.75 ± 11.44	34.5 ± 8.89	36.5 ± 5.97	171.25 ± 40.20	137.50 ± 26.59
Apr	45.25 ± 9.43	39.5 ± 12.66	48.75 ± 10.59	65.5 ± 3.00	226.00 ± 37.39	335.25 ± 48.07

The statistical analysis indicated that six strawberry cultivars (Almont , Helda , Bronko , Style , sweetcharll and Chandler) are Significantly differed to the spider mites infestation (Tables 3)

From the foregoing results , it could be concluded that Chandler and Sweet charll cultivars are the most suitable one to be cultivated under our circumstances because it is the least cultivars harbouring spider mite .

Table (2) : The relative susceptibility of some strawberry cultivars to infestation by *Tetranychus urticae* moving stages

Cultivars inspection data	Mean No. of moving Stages /25 leaves					
	Chandler	Sweet charll	Bronko	Style	Helda	Almont
Oct 2010	0.40 ±0.42	0.33 ± 0.47	1.08 ± 0.69	7.70 ± 0.40	3.25 ± 1.58	2.00 ± 0.00
Nov	0.33 ± 0.37	2.00 ± 1.41	0.23 ± 0.15	0.48 ± 0.35	0.75 ± 0.5	2.75 ± 0.50
Dec	0.08 ± 0.15	0.53 ± 0.40	0.08 ± 0.15	0.5 ± 0.58	1.08 ± 0.69	1.75 ± 0.50
Jan 2011	0.08 ± 0.15	1.05 ± 0.58	0.25 ± 0.15	0.15 ± 0.17	2.5 ± 0.41	1.15 ± 0.98
Feb	1.00 ± 0.82	0.83 ± 0.35	9.25 ± 3.30	12.5 ± 3.32	35.75 ± 2.87	26.25 ± 6.39
Mar	9.00 ± 3.37	8.5 ± 2.65	18.00 ± 4.24	3.25 ± 6.85	64.50 ± 13.02	265.25 ± 1.44
Apr	26.25 ± 10.11	22.75 ± 6.70	23.05 ± 5.07	40.75 ± 10.56	152.00 ± 31.17	112.00 ± 11.57
Oct 2011	0.33 ± 0.47	0.08 ± 0.15	0.50 ± 0.58	0.75 ± 0.5	0.83 ± 0.35	2.00 ± 0.82
Nov	0.58 ± 0.51	0.30 ± 0.00	0.58 ± 0.51	0.65 ± 0.40	1.5 ± 0.58	1.00 ± 0.82
Dec	0.00 ± 0.00	0.00 ± 0.00	0.33 ± 0.47	0.00 ± 0.00	1.5 ± 0.58	2.50 ± 1.29
Jan 2012	1.00 ± 0.00	0.58 ± 0.51	0.40 ± 0.42	0.25 ± 0.5	4.5 ± 0.58	5.25 ± 1.50
Feb	4.00 ± 1.41	6.25 ± 2.22	13.75 ± 4.43	26.5 ± 5.05	62.75 ± 20.30	108.25 ± 29.98
Mar	20.25 ± 6.65	21.05 ± 9.81	21.5 ± 0.41	33.25 ± 3.77	161.5 ± 39.61	137.75 ± 37.96
Apr	34.05 ± 6.14	29.75 ± 6.24	31.5 ± 4.36	51.50 ± 6.42	136.75 ± 7.79	190.00 ± 37.75

Table (3): The relative susceptibility of some strawberry cultivars to infestation by *Tetranychus urticae*

Cultivars	Total of means per 25 leaves			
	2010 /2011		2011/2012	
	Eggs	Immature stages	Eggs	Immature stages
Almont	499.25 d	411.15 d	641.75 d	446.75 d
Helda	456.50 c	259.83 c	522.75 c	324.33c
Style	118.98 b	84.40 b	144.75 b	112.90b
Branko	119.73b	52.93b	128.41b	68.56b
Sweetcharll	66.08 a	36.44a	94,08 a	58.46 a
Chandler	62.56 a	36.41 a	88.41a	60.66a
L.S.D 0.05	23.81	25.05	21.61	26.07

Means in a column followed by the same letter are not significantly different

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حساسية بعض أصناف الفراولة للإصابة بالعنكبوت الأحمر العادي

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تمت دراسة حساسية ستة أصناف من الفراولة وهي شاندر ، سويت شارل ، برنكو ، ستايل ، هليدا والمونت للإصابة بالعنكبوت الأحمر العادي وذلك بمحطة بحوث القناطر بمحافظة القليوبية خلال موسمي ٢٠١٠/٢٠١١ و ٢٠١١/٢٠١٢ على إعداد البيض والأطوار الغير كاملة للعنكبوت الأحمر العادي وقد أظهرت النتائج أن الإصابة بالأكاروس بدأت في الموسمين خلال شهر أكتوبر واستمرت بإعداد بسيطة حتى شهر فبراير وازدادت في مارس ووصلت الأقصى تعداد في أبريل ثم تناقص بجفاف الأوراق وقد تميز الصنفين سويت شارل و شاندر بإثباتهما أقل الأصناف المختبرة تفضيلا للإصابة بالأكاروس في حين كان الصنفين المونت وهليدا أكثر تفضيلا ومن خلال هذه الدراسة أوضحت أن الصنفين سويت شارل و شاندر هما أفضل الأصناف المختبرة للزراعة من حيث القابلية للإصابة بالعنكبوت الأحمر العادي .

قام بتحكيم البحث

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