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THE EFFECT OF ANTI-MOULTING (CASCADE-ADMERAL-ANDALIN) AGAINST THE TWO SPOTTED SPIDER MITE , *Tetranychus urticae*.

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ABSTRACT

The effect of anti-moulting (Cascade-Admeral-Andalin) was tested against the two spotted spider mite ,*Tetranychus urticae* Koch in laboratory.

The mortality percentages in immature stages increased by increasing concentrations. Cascade was more toxic to the developmental stages than adults of *T. urticae* than Admeral and Andalin. Treated adult females was produced a lower number of eggs than untreated ones.

INTRODUCTION

The two spotted spider mite *Tetranychus urticae* Koch is considered the most harmful pests infesting crops, ornamentals and fruit trees. (El-Halawany et al.,1981 and Shoeib,1990).

The effect of insect growth regulators (I G R) as development inhibitors was tested against several mite pests (El-halawany et al ., 1981; Anderson et al. 1986; Perugia et al 1986; Debray et al 1987; Price and Tanaka 1987; Lee et al 1989; El-Safte 1993) .

Therefore, the present investigation was evaluate the relative toxicity of Cascade, Admeral and Andalin on *T. urticae* .

MATERIALS AND METHODS

Fifty individuals of each stages (egg,larvae,protonymph, deutonymph and adult) were taken and transferred to discs of *Bauhinia variegata* leaves (1 inch in diameter), set on cotton woll in petri-dish, The discs with mite was sprayed with different concentration of three anti moulting (Cascade, Admeral and Andalin) Three replicates were used for each concentration. Other treatment were sprayed with water to be used as control. The percentages of mortality were determined as previously mentioned.

RESULTS AND DISCUSSION

Effect of Anti-Moulting on Eggs:-

This experiment was conducted to evaluate the ovicidal action of anti-moulting cascade , Admiral and Andalin against eggs of *T. urticae*.

Date in Table (I) show that the mortality percentages of adult treated with cascade concentration of 100, 50, 25, 12.5 and 6.25 averaged 18.45, 11.36, 7.06, 5.02 and 3.87day; Admiral gave 20.78, 14.07, 12.63, 6.98and 5.32%

mortality and Andalin gave 14.87, 11.25, 7.65, 5.87 and 5.29 %mortality percentages respectively.

The survivors laid an average 1.85, 2.26, 3.42, 4.52 and 5.37 eggs/ female/ day when the adult female was treated with cascade in concentration of 100, 50, 25, 12.5 and 6.25 ppm. respectively. The same concentrations of Admiral gave 1.91, 1.94, 2.43, 3.23 and 4.50 eggs/ female/ day in compared with 1.65, 2.23, 3.14, 3.95 and 5.01 eggs/ female/ day using Andalin respectively Table (I).

Thus it could be concluded that Admiral was the anti-moulting which gave the highest effect on eggs deposition of *Tetranychus urticae* when adult females were treated than cascade and Andalin.

Data in Table (I) show that Cascade was more effective than admiral and also more effective than Andalin.

Data in Table (II) show that there was a negative correlation between anti moulting, Cascade, Admiral and Andalin. concentration and the percentage of hatchability. The concentrations of 100, 50, 25, 12.5 and 6.25 ppm of cascade gave 20.33, 33.25, 48.56, 66.78 and 69.95% hatchability, respectively. The same concentrations of Admiral caused 17.55, 24.09, 39.54, 57.63 and 70.18% hatchability and Andalin gave 28.63, 54.92, 67.11, 78.32 and 82.60% hatchability respectively.

Regarding the effect of Admiral on the adult female, it was noticed that, the adult female proved high sensitivity against Admiral than cascade and Andalin.

Effect of Anti-Moulting Cascade, Admiral and Andalin on immature stages of *T. urticae*:-

Data in Table (III) show that when cascade was used at concentrations of 100, 50, 25, 12.5 and 6.25 ppm against larval stages, it caused 95.08, 82.44, 73.62, 69.39and 34.88% mortality respectively. While using it at the same concentrations against protonymphal and deutonymphal stages gave 87.37, 71.21, 52.57, 39.59 and 20.04 % mortality of the treated protonymphs; 73.54, 51.09, 35.62, 19.87 and 14.54% mortality of deutonymphs.

The mortality percentages of larval stages treated with Admiral at concentrations of 100, 50, 25, 12.5 and 6.25 ppm averaged 75.37, 64.05, 45.39, 32.64 and 19.82% respectively. An average percentage of 63.19 & 59.96, 45.04& 38.76 , 39.57&34.28, 24.39&18.52and 13.48&9.92 % mortality for protonymphs and deutonymphs using the previous concentrations respectively.

Table (III) show that the deutonymphal stage gave high sensitivity against anti-moulting (Andalin) than larval and protonymphal stages.

The mortality percentages of larvae, protonymphs and deutonymphs treated with the same concentrations averaged 65.66, 56.37& 64.86; 64.71, 55.98&60.28;47.55,41.22&53.17;34.51,28.96&45.64and5.76,28.31&35.82% individuals, respectively .

Table (I): Effect of Anti-Moulting on mortality percentages and egg production of *T. urticae.*

	Cascade		Admiral		Andalin	
PPm	Adult Mortality %	No. of eggs/femail/ day	Adult Mortality %	No. of eggs/femail/ day	Adult Mortality %	No. of eggs/femail/ day
100	18.45	1.85 ±0.94	20.78	1.19±1.02	14.87	1.65±1.18
50	11.36	2.26±0.82	14.07	1.94±0.094	11.25	2.23±1.64
25	7.06	3.42±0.88	12.63	2.43±0.19	7.65	3.14±1.44
12.5	5.02	4.52±0.94	6.98	3.23±0.69	5.87	3.95±1.26
6.25	3.87	5.37±1.03	5.32	4.50±1.20	5.29	5.01±1.96

Table (II):Effect of Anti-Moulting on hatchability percentages of *T. urticae .*

PPm	Cascade	Admiral	Andalin
100	20.33%	17.55%	28.63%
50	33.25%	24.09%	54.92%
25	48.56%	39.54%	67.11%
12.5	66.78%	57.63%	78.32%
6.25	69.95%	70.18%	82.60%

Control = 96.29.%

Table (III): Effect of Anti-Moulting on immature stages of *T. urticae* mortality percentages.

	Cascade			Admiral			Andalin		
PPm	*Larva*	Proto Nymph	Deuto nymph	*Larva*	Proto nymph	Deuto nymph	*Larva*	Proto nymph	Deuto nymph
100	95.08	87.37	73.54	75.37	63.19	59.96	65.66	56.37	64.86
50	82.44	71.21	51.09	64.5	45.04	38.76	64.71	55.98	60.28
25	73.62	52.57	35.62	45.39	39.57	34.28	47.55	41.22	53.17
12.5	69.39	39.59	19.87	32.64	24.39	18.52	34.51	28.96	45.64
6.25	34.88	20.04	14.54	19.82	13.48	9.92	25.76	28.31	35.82

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تأثير بعض منظمات النمو (كاسكيد – أدميرال – أندالين) على العنكبوت تترانيكس أورنيكا.

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تمت دراسة تأثير خمسة تركيزات هى 100و 50و 25و 12.5و6.25 جزء فى المليون من ثلاثة مركبات من مانعات الانسلاخ هى (كاسكيد- ادميرال- اندالين) على البيض- اليرقات- الحوريات الاولى- الحوريات الثانية- الاطوار الكاملة للنوع *T. urticae* .

(أ) كان تأثير المعاملة بالكاسكيد أكثر تأثير على تطور الأطوار غير كاملة حيث بلغت نسبة الموت فى اليرقات 95.08%فى الحورية الثانية 87.37% عند المعاملة بتركيز 100 جزء فى المليون.

(ب) بينما كانت النسبة 75.37% - 63.19% - 59.96% عند المعاملة بنفس التركيز بمبيد أدميرال .

(جـ) فى حين كانت النسبة 65.66% - 56.37% - 64.86% عند المعاملة بمبيد اندالين للأطوار الغير كاملة على التوالى وبنفس التركيز السابق (100 جزء فى المليون).

(د) وجد ان ا ستعمال مركب الادميرال مع الاناث الكاملة كان له تأثير عالى فى التأثير على النسبة المئوية لفقس البيض .