

***Trichogramma cacoeciae* Marchal
(Trichogrammatidae: Hymenoptera)**

(3) (2) (1)

24 *Trichogramma cacoeciae* Marchal

1) : .(4 3 2

%100
(IOBC)

(2)) .IOBC

%(94.40 56.03 82.05) (

(3 2 2)

%89.25 IOBC

Trichogramma cacoeciae :

...

The Side- effects of Some Insecticides to Be Used in Apple Orchards on The Adults of Egg Parasitoid *Trichogramma cacoeciae* Marchal (Trichogrammatidae: Hymenoptera)

F. Al- Abbar⁽¹⁾; M. J. Hajjar⁽²⁾
and M. Jamal⁽³⁾

ABSTRACT

The side-effect of six insecticides get to be used on apple trees in Syria were tested on the adults of the egg parasitoid *Trichogramma cacoeciae* Marchal. Using the exposure of adults to treatment glass plates for 24 hours. The highest recommended field application rate was applied. The classification of the International Organization for Biological Control for insecticides effect in adults mortality or reducing of parasitism was used (1, Harmless; 2, slightly harmful; 3, moderately harmful; 4, harmless). This study showed that Cloropyrifos, Deltamethrin and Acetamiprid and caused adults mortality 100%, and classified as harmful insecticides (glass 4) according to IOBC. While Diflubenzuron, lufenuron and fenoxycarb were slightly harmful in adults mortality (class 2) according to IOBC. Whereas was harmful to larval stage only, and moderately harmful to the egg and pupae. Acetamiprid was also harmful to the egg stage and moderately harmful to larvae and pupae. Whereas the insect growth regulator insecticides and the insect growth inhibitors (Diflubenzuron, Lufenuron and Fenoxycarb) caused reducing in parasitism (82.05, 56.03, 94.40)% for the three insecticides respectively, and classified (class 2, 2, 3) respectively according IOBC category compared with the parasitism in control 89.25%, also the latest three insecticides reduced significantly the longevity of adults which were survived after the exposure to treatment class plate compared with the control.

Key Words: *Trichogramma cacoeciae*, Insecticides, Egg-parasitoid, Syria.

^{(1),(2),(3)}Department of plant protection, Faculty of Agriculture, Damascus University, Syria.

.(Sterk *et al.*, 2003) (IPM)

Trichogramma

.(Hassan, 1994)

T. cacoeciae Marchal (Trichogrammatidae)

Hassan(1998)

Encarsia

Aphidius

formosa

(IOBC)

(Grützmacher *et al.*, 2004; Candolfi *et al.*, 2001;

Trichogramma

.Hassan, 1992)

.(Hassan, 1994)

T. cacoeciae

)

.(2003

.(Franz *et al.*, 1980)

.(Hassan *et al.*, 1998;

(1985) Coleman Bull

Thomson *et al.*, 2000)

Trichogramma spp.

(Bull and House, 1983)

(2010)

.%100

- -

T. cacaoeciae

.(Niemczyk *et al.*, 1990)

T. cacaoeciae

)

()

(

:

-1

.(1)

T. cacaoeciae

:*T. cacaoeciae*

-2

Ephestia kuehniella

%5±75 °1±23)

.(16

)

.(1999

.(UV Light)

2.5

25

T. cacaoeciae

.(Charles *et al.*, 2000)

24

(1)

***T. cacaoeciae* Marchal**

100/					
25	Pyrethroides	EC	50	Decis	Deltamethrin
150	Organophosphate	EC	48	⁴ Lentrek 4	Cloropyrifos
50	Neonicotinoid	SP	20	Zenith	Acetamiprid
60	Benzoylurea	WP	25	Dimilin	Diflubenzuron
100	Benoylurea	EC	50	Match	lufenuron
40	Carbamate	WP	250	Insegar	Fenoxycarb

T. cacaoeciae

-3

:

.(Hassan *et al.*, 2000)

.2

-1 -3

:

250

10

T. cacaoeciae

30 -20

24

24

.%50

.%20±75

°2±26

.(1925) Abbott

$$100 \times \frac{Y-X}{X} = \%E$$

:X

:Y

:% E

SPSS®15

.(Duncan)

:*T. cacaoeciae*

-2-3

24

10±100

E. Kuehniella

T. cacaoeciae

24

.1 -3

.1 -3

Abbott

.1 -3

(1925)

:*T. cacaoeciae*

-3 -3

24

.1 -3

.1 -3

:IOBC

-80) -3 (%79-30) -2 (% 30>) -1
(Bueno *et al.*, 2008, Boller. 2005, Grützmaker (%99<) -4 (%99
et al., 2004)

(Hassan, 1977; Hassan *et al.*, 2000)

.(Grützmaker *et al.*, 2003)

T. cacaoeciae

(2) **-1**
:*T. cacaoeciae*

%100

IOBC

(Zhu Jiu-Sheng *et al.*, 2009) *T. evanscens*
T. platneri (2001) Brunner

Zhu Jiu-Sheng

(2009)

T. evanscens
T. cacaoeciae

.(Goulart *et al.*, 2008)

(2)

Trichogramma cacoeciae

	%	±	()		%	±	()	
-	-	-	-	4	100	0.00 ± 0.00	c	Deltamethrin
-	-	-	-	4	100	0.00 ± 0.00	c	Chlorpyrifos
-	-	-	-	4	100	0.00±0.00	c	Acetamiprid
2	82.05	c	3.555 ± 16.02	2	36.92	54.67 ± 12.156	b	Diflubenzuron
2	56.03	b	9.974 ± 39.24	2	48.46	44.67 ± 6.912	b	lufenuron
3	94.40	d	00.2.179 ± 5	2	44.62	48.00 ± 9.888	b	Fenoxycarb
-	-	a	6.250 ± 89.25	-	-	86.67 ± 10.541	a	Control

%5

:±

(Duncan)

:()

-3 (%79-30)

-2 (% 30>)

-1 : (Boller *et al.*, 2005) IOBC

.(%99< -4 (%99 -80)

() IOBC
%(44.62 48.46 36.92)

.%86.67 ()

(2)

()

T. cacoeciae

() IOBC %89.25

()

%56.03

.(94.40 82.05)

()

.(Cônoli *et al.*, 1998)

(1998)

Hassan

T. cacaoeciae

(Boller *et al.*, 2005)

.(Müjgan and Kismali, 1990)

(IOBC, 2005) *T. cacaoeciae*

IOBC

.(Bull and Coleman, 1985; Charles *et al.*, 2000)

:

%.100

:

-2

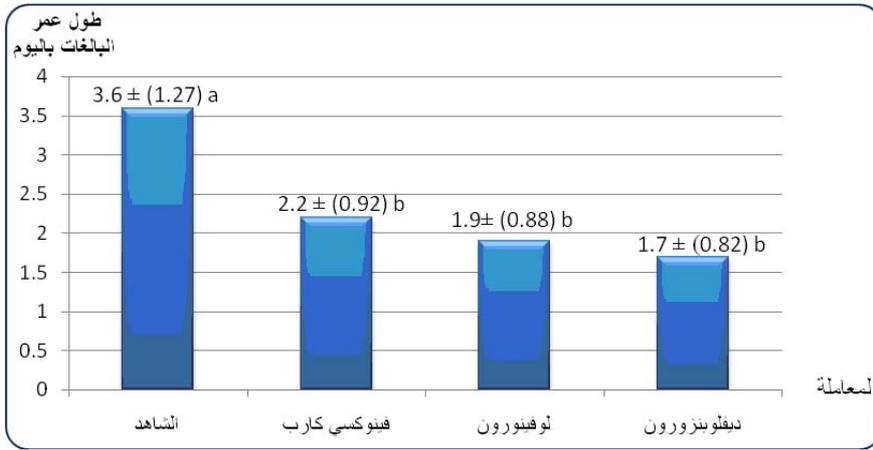
24

(1)

3.60

(1.70 1.90 2.20)

271



(Duncan) %5

T. cacaoeciae

(1)

(Garcia et al, 2001)

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.90 -85 :1 :28 .

Cydia pomonella L.

.(2003) .

. 295 .

.(1999) .

Earias insulana Bios

Helicoverpa armigera Hbn

Trichogramma principium Sugon & Sorok

/ (28- 24) .

.133 -117 :1999

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Received	2010/08/11	
Accepted for Publ.	2010/11/29	