

Effect of Jujube fruit cultivars on chemical control of jujube fruit fly***Carpomyia incompleta*****Ali Dharub Al-Masudey****Aqeel Adnan Al-yousuf****Plant Protection Dept; College of Agriculture, Basra University****Abstract**

The present study was conducted the aim of effect of cult Jujube fruit *Ziziphus* spp.(Rhamanaceae) cultivars (cv.) in the degree of the insecticides used in control of jujube fruit fly *Carpomyia incomplete* ,at Qurnah region ,Basrah , during winter growing season 2010. The revealed that lannate was the most affective against Jujube fruit fly *C. incomplete*, by lowering its infestation up to 22.9 %,which significantly did not differ with cyfluthrin, releved 28.1 %, compared with control, reaching 50.4%. The results indicated that the cultivar Zaitooni was such more resistance to the jujube fruit fly infestation , that was decreased to 23.9 % compared to cv. Bambawi, reaching 43.7%.the intractions between pesticides and(cv.) were reduced infestation with usingThe cyfluthrin and lannate with were cultivar Zaitooni to 13.3 and 17.5% respectively compared with40.8% at control infestation rates of spraying cv Bambawi with cyfluthrin and lannate were 42.9 and 28.3% respectively compared 60 % at control . The results indicted that the efficiency of lannate and cyfluthrin were increased against fruit fly on cv Ziatooni by lowering its population density of larvae to 1.75 and 2.25 (larvae /10 fruits) (4.50 larvae /10 fruits at control), compared to cv Bambawi, where the population density of larvae 2.08 and 3.17 (larvae /10 fruits) (4.17 larvae /10 fruits at control)

Insecticides were superior after the 2nd spray, compared with the 1st spray, had infestation rates 20.8 and 46.8% respectively.

Introduction

Fruit fly *Carpomyia incomplete* (*Tephritidae: Diptera*) are among the economically important pests, attacking soft fruits worldwide, especially the jujube *Ziziphus* spp.(Rhamanaceae), Larva fruit fly, Soon after hatching bores into the fruit and feeds there until larval development is complete,the infested fruits drop down and dry off (Aluja and Norrbom, 2001), fruits were attacked by the larvea, starting from flowering and all fruit setting stages, and in the two generations per year, the 1st in November and the other in April (Jebber, 1996). fruits Jujube on an important tree in Basrah province.

Table (1): insecticides using against Jujube fruit fly

Trade Name	Active Ingredient	Dosage rate/100 L.	Company
Lannate 90 SP	Methomyl	50 gr.	Dupont
Baythroid	%50cyflathrin	100ml.	Byer Crop Science Germany

Results

The results revealed that the two insecticides lannate and cyluthrin were significantly effective against Jujube fruit fly *C. incomplete* (figure 1), the rate of infestation redaced 22.9 and 28.1 % respectively, compared to 50.4% at control.

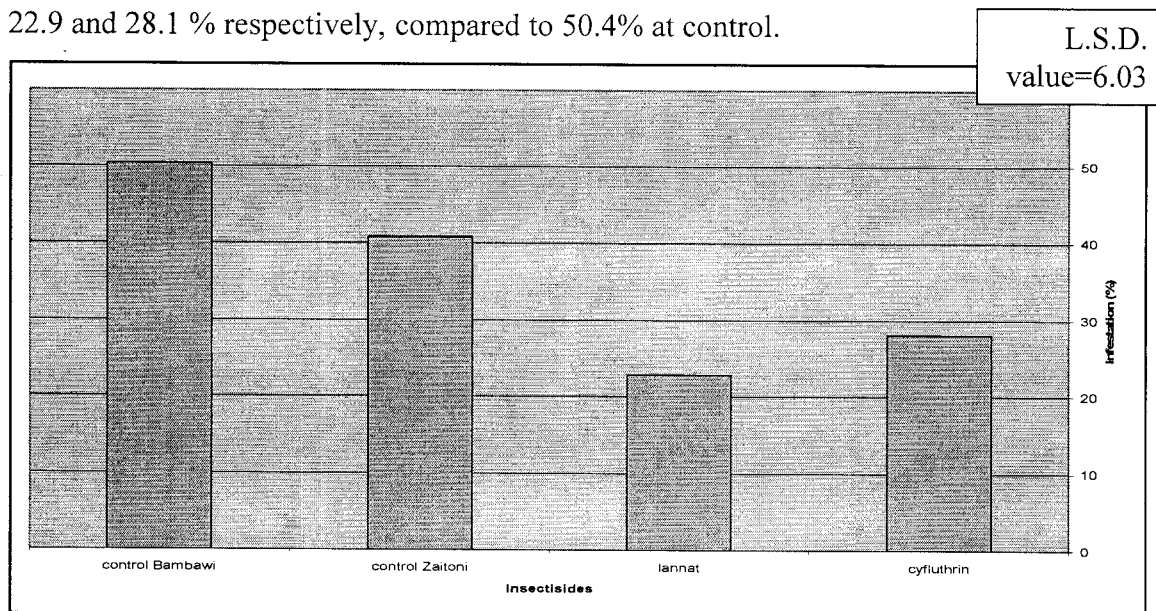


Figure 1: Effect of insecticides on infestation percentage of Jujube fruit fly *C. incomplete*.

The result of table 2 showed that the cultivar Zaitooni was more resistance to the jujube fruit fly infestation , it was decreased to 23.9 % compared to cv. Bambawi, was reached 43.7% . Results of cvs. Zaitooni and Bambawi spraying with insecticides indicated to the increasing of efficiency of cyfluthrin and lannate on cv. Zaitooni, it reducet the infestation rates to 13.3 and 17.5% respectively (40.8% at control) compared with infestation rates of spraying cv Bambawi with cyfluthrin and lannate were 42.9 and 28.3% respectively (60 % at control) .

Table (2): The effect of the interaction of cultivar/ insecticides on infestation rate of Jujube fruit fly *C. incomplete*.

Cultivar	Insecticides	Infestation percentage of <i>C. incomplete</i>						
		Before applicatio	data after(day)		data after(day)		Mean	
			Before applicatio		Before applicatio			
			10	20	10	20		
Bambawi	Cyfluthrin	70.0	68.3	46.7	40.0	16.7	9.42	7.43
	Lannate	66.7	53.3	36.7	23.3	0.0	3.28	
	Control	60.0	86.7	70.0	50.0	33.3	0.60	
Zaitooni	Cyfluthrin	60.0	23.3	10.0	16.7	3.3	3.13	9.23
	Lannate	70.0	26.7	23.3	16.7	3.3	5.17	
	Control	70.0	66.7	50.0	30.0	16.7	8.40	
Mean			45.2	39.5	29.4	12.2		
			46.8		20.8			
L.S.D. 0.05 value			6.03				N.S	7.39

L.S.D. value for interaction = N.S

Insecticides were superior after the 2nd spray, compared with the 1st spray, having infestation rates 20.8 and 46.8% respectively. The results of Table 2 elucidated that the highest effective of insecticides in 20th day after the spraying, it resulted in the lowest percentage of infestation (25.8%), compared with the infestation rates after 10th days after the spraying, reaching 41.8%.

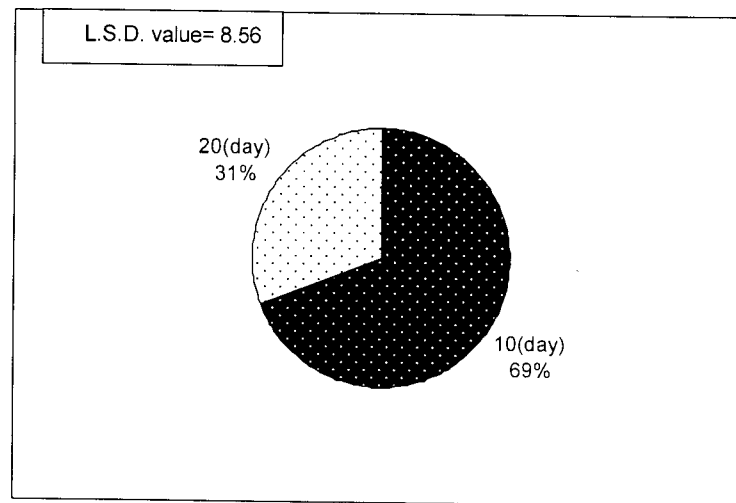


Figure 2: Effect of the time on chemical control of Jujube fruit fly *C. incomplete*.

The results of before spray and after two sprays population density of Jujube fruit fly in cvs Bambawi and Zaitooni fruits has given in table 3 revealed that Lannate was the most effective against the fruit fly by lowering its population up to 1.92 larvae /10 fruits and significantly did not differ with cyfluthrin, where the population average 2.71 larvae /10 fruits, compared with control, reaching 4.33 larvae /10 fruits.

Table (3): The effect of the interaction of cultivar/ insecticides on the population density of larva Jujube fruit fly *C. incomplete*.

Cultivar	Insecticides	population density of <i>C. incomplete</i> (larva/10 fruits)						
		Before applicatio	data after(day)		data after(day)		Mean	
			Before application		Before applicatio			
			10	20	10	20		
Bambawi	Cyfluthrin	6.67	2.00	7.67	2.67	0.33	17.3	14.3
	Lannate	5.00	2.67	5.33	0.33	0.00	08.2	
	Control	6.67	7.33	3.67	3.67	2.00	17.4	
Zaitooni	Cyfluthrin	8.67	4.00	2.00	2.67	0.33	25.2	83.2
	Lannate	7.67	2.67	0.00	4.33	0.00	75.1	
	Control	15.67	8.00	5.67	4.00	0.33	50.4	
Mean			44.4	06.4	94.2	50.0		
			25.4		72.1			
L.S.D. 0.05 value			001.1				N.S	N.S

L.S.D. value for interaction = N.S

The results indicted that the efficiency of lannate and cyfluthrin were increased against fruit fly on cv Ziatooni by lowering its population to 1.75 and 2.25 larvae /10 fruits comparing 4.50 larvae /10 fruits at control , while the cv Bambawi, where the population 2.08 and 3.17 (larvae /10 fruits) (4.17 larvae /10 fruits at control). highest effective of insecticides was in 2nd spray, by decreasing the population to 1.72 larvae /10 fruits, compared to 4.25 larvae /10 fruits in 1st spray, but there is no significant differences were observed in the values of interactions.

Present study indicated that there are differences in infestation percentage and population density of Jujube fruit fly on Jujube fruits cultivar Bambawi and Ziatooni, treated with insecticides, it was clarified that cv Ziatooni was resistance to fruit fly and the efficacy of cyfluthrin and lannate were increased against the insect on cv Zaitooni. From these results, it might be concluded that the synergistic interactions at the insecticides with resistance cultivars against the fruit fly . the result may be belonging to physiological different between juicily ripening of Jujube fruits where the averages were 120 day with cv. Ziatooni compared with cv. Bambawi where the averages were 180 day(Mohammd ,2011),or may be difference the aqueous content in Jujube fruits where its was 73-76% in cv. Ziatooni compared with 70% in cv. Bambawi(AL-ebresam,2009) various studied have shown significant differences that insects reared on resistant plant cultivars are less tolerant to insecticides when compared with individuals reared on susceptible cultivars (Hinks and Suprr , 1989 ; Mohamed and van Emden, 1989 ; Ghidiu *et al* 1990). Culvert's and Radcliffeadcliffe (1984) found that interactions between aphid parasitism, alfalfa cultivar resistance, and insecticide on pea aphid, *Acyrtosiphon pisum* (Harris).Saljoqi and Emden(2003) reported that the synergistic interaction of insecticides with resistant potato cultivars on *Myzus persicae*.

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تأثير اصناف السدر *Zizphus sp.* في المقاومة الكيماوية لذبابة ثمار السدر *Carpomyia incompleta*

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ملخص

نفذت هذه الدراسة لغرض معرفة دور الأصناف النباتية للسدر في تأثير المبيدات الكيماوية ضد ذبابة ثمار السدر *Zizphus spp.* (*Tephritidae: Diptera*) على نبات السدر (*Rhamanaceae*) في منطقة القرنة في البصرة خلال موسم النمو الربيعي ٢٠١٠ ، وأشارت النتائج الى تفوق المبيد *Iannate* ضد ذبابة ثمار السدر ، اذ انخفضت نسبة الاصابة الى ٢٢.٩ %، ولم يختلف معنويا عن معاملة المبيد *cyfluthrin* ، والتي معدل نسبة الاصابة فيها ٢٨.١ %، مقارنة بمعاملة السيطرة والبالغة ٥٠.٤ %، ولوحظ ان الصنف الزيتوني كان اكثر مقاومة لذبابة ثمار السدر، اذ بلغت نسبة الاصابة فيها ٢٣.٩ % مقارنة بالصنف البمباوي والتي بلغت النسبة فيها ٤٣.٧ % ، وتبين من التداخل بين تأثير المبيد والصنف انخفاض نسبة الاصابة بذبابة الثمار مع المبيدين *Iannate* و *cyfluthrin* على الصنف الزيتوني الى ١٣.٣ و ١٧.٥ % على التوالي مقارنة مع نسبة الاصابة في معاملة السيطرة والبالغة ٤٠.٨ %، كما انخفضت نسبة الإصابة في الصنف البمباوي المعاملة بالمبيدين *Iannate* و *cyfluthrin* الى ٢٨.٣ و ٤٢.٩ % على التوالي مقارنة مع نسبة الإصابة في معاملة السيطرة والبالغة ٦٠ %، كما اشارت النتائج الى كفاءة المبيدين *Iannate* و *cyfluthrin* على الصنف الزيتوني في خفض الكثافة العددية لليرقات على ثمار السدر الى ١.٧٥ و ٢.٢٥ يرقة / ثمار مقارنة ٤.٥٠ يرقة / ١٠ ثمار في معاملة السيطرة، كما بلغت الكثافة العددية لليرقات على ثمار الصنف البمباوي المعاملة بالمبيدين *Iannate* و *cyfluthrin* ٢.٠٨ و ٣.١٧ يرقة / ١٠ ثمار على التوالي مقارنة مع ٤.١٧ يرقة / ١٠ ثمار في معاملة السيطرة. ان تأثير المبيدين كان اعلى بعد الرش الثانية مقارنة بالرش الاولى ، والتي بلغت فيهما نسبة الاصابة ٢٠.٨ و ٤٦.٨ % على التوالي.