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The Effect Of Organic Solvent Extracts For Leaves And Flowers Of The Sweet Basil Plant Basilicum Ocimum In Some Aspects Of The Life Performance Of The Southern Lobia Beetle Insect Callosobruchus Maculatus

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Abstract :.

This research was conducted with the aim of finding out the effect of alcohol extracts and chloroform for the leaves and flowers of the sweet basil plant in some aspects of the life performance of the southern lobia beetle insect.

The study showed the effect of the concentration of the extract with the highest rate of eggs subjected to 72.8 eggs/female at the concentration of 0.25%, while for the extract type factor the highest egg laying rate was 71.9 eggs/female for an alcoholic extract sweet basil leaves, while the lowest egg laying rate was 58.1 eggs/female for the sweet basil flower chloroform extract, The interference effect was the highest egg laying rate at 81.6 eggs/females at a concentration of 0.25% of sweet basil leaf alcohol extract, while the lowest rate was To lay eggs 28 eggs/female at a 1% concentration of chloroform basil flower extract.

The study showed that the effect of the concentration and type of extract in the percentage of egg hatching resulting from adult treatment for the southern lobia beetle insect C. maculatus , The highest rate of egg hatching was 77.6% at 0.25%, while for the extract type factor, the highest rate of egg hatching was 71.5% for the sweet basil leaf alcohol extract, while the lowest rate of egg hatching was 65.8% for chloroform sweet basil flower extract. The effect of interference was the highest rate of egg hatching at 81.6% at 0.25% concentration of alcoholic extract for sweet basil leaves, while the lowest rate of egg hatching was 36.6% at 1% concentration of chloroform basil flower extract.

The study showed the effect of the concentration and type of extract in the percentage of larvae killed by adult eggs treated for the southern lobia beetle insect C. maculatus, The highest rate of larval death was 13.7 percent at 1 percent. As for the extract type factor, the highest rate of larvae death was 32.7% alcohol extract for sweet basil leaves, while the lowest rate of larvae death was 30.7% for chloroform extract for sweet basil leaves. The interference effect was the highest rate of larval death at 15.6% at 1% concentration of alcohol extract for sweet basil flowers, while the lowest rate of larvae death was 7% at 0.25%.

Introduction: -

Prepare the lobia Vigna sneninis Important legume crops in tropical and subtropical regions of the world as they are important crops in third world countries S(tanton, 1966) (,Salisukharon, 2000).The lobea belongs to the Fabaceae family and is considered one of the most important vegetarian families because it includes a large number of economic crops (Ali and others, 1990).

The lobia is infected with many thousands, including different pulse beetles and is considered the southern lobia beetle Callosobruchus maculatus Which infects crops in fields and stores (Centre oversea pest Res, 1981), The damage caused by feeding larvae on grains is made up of tunnels and renders them unfit for human and agricultural consumption (Bello, Edde, 2001).

Chemical pesticides have been used to protect some crops from pest infection and eliminate insects that transmit diseases to humans and animals, and the frequent use of pesticides has caused the emergence of genetically resistant insect strains to these pesticides and increased the cost of control in addition to polluting the ecosystem, which has led to the search for modern and safe alternatives such as pesticides of plant origin, including extracts and plant powders to combat insect pests due to their rapid analysis of the environment and its non-toxicity to humans, animals and plants (Mohmed, 2019) . These powders and extracts contain chemically effective substances against many insect pests by preventing them from laying eggs or repellent them and are resistant to feeding as well as limiting the growth and development of larvae or limiting adult fertility (De souse and others, 2005), Among these plants used are Basilicum Ocimum, which belongs to the Lamiaceae oral species and currently has more than 160 agricultural varieties (Sullivan,2009).

The study aims to extract raw secondary compounds for basil leaves and flowers and test different compositions of alcohol extracts and raw chlorform in some aspects of the life performance of the southern lobia beetle insect.

Materials and methods

1. Collecting and raising the insect

The insect colony of the southern lobia beetle Callosobruchus maculates was raised where the seeds of the insect-infected lobia were taken from the laboratory of the pre-diagnosed bio-resistance department at the Museum of Natural History / University of Baghdad as healthy seeds were prepared and placed in frozen for two days and at a hot degree -20 m° to ensure that they are free of any insect, fungal or bacterial infection, after which, Then the insect colony was destroyed by placing the infected lobia with the intact in glass bottles 30 cm high and 10 cm diameter with the addition of 5 g of baking yeast and covered the nozzles of bottles with a cover of The amalgam cloth and the rubber band are attached to ensure that the adults do not exit, the bottles were placed in the incubator at a temperature of 28±1 m and humidity 70±% 5% in the dark (Mahmoud, 1989). The insect colony has been renewed several times for use in laboratory experiments to obtain pure strains throughout the search.

2. Collection of plant samples

I collected leaves and flowers of sweet basil from the home gardens in al-Musayib district / Babil province washed the leaves and flowers to remove dust and then dried leaves in laboratory conditions, then grinded to get soft powder and keep the powder in nylon bags in the refrigerator until use.

3. Preparation of organic solvent extract

Organic solvent extract is prepared for sweet basil flowers and leaves according to method. (Harborne,1984), Where different organic solvents were selected, namely ethyl alcohol and chloroform.

He took (01) grams of plant leaf powder, put in the succulent extraction device, then poured 200 ml of ethyl alcohol and continued to extract the plant sample for (24) hours. He took the spray and focused on the rotary evaporator at a temperature (40-45) m the sample was dryed in the electric oven at a temperature of 45-40 (m), repeated the same process for the flowers of the sweet basil plant separately and for the purpose of testing the effect of raw extracts resulting from the extraction of organic solvents, I attended the trikes by taking 2 grams of raw extracts extracted with ethyl alcohol and dissolved in 5 ml of ethyl alcohol and completed the size to 100 ml with distilled water. The concentration of stock solution (2) or equivalent (20 mg / ml), from which the concentrations were prepared (0.25, 0.5 and 1) and 1 (% while the control treatment was 5) ml of ethylene alcohol and completed the volume to 100ml with distilled water. As for chlorophormi extract, the same steps were followed above, except for replacing the alcoholic solvent with chloroformi.

4·The effect of plant extracts on the number of eggs placed, the rate of hatching and the number of emerging adults

I took the seeds of a healthy lobia and placed with nylon bags and weight (10 g) per bag and then added plant extract (alcoholic, chloroform) with a concentration (0.25, 0.5 and 1) separately where it weighed with a delicate balance and took three repeats of each ratio with the treatment of control in which the seeds were used only, after which the bags were shaken for three minutes to ensure that the extract with the seeds were well mixed, the seeds distributed the treatment with extracts Vegetarian with petri dishes 1.5 cm high and 9 cm diameter and added four adult pairs of lobia beetle (four males + four females) newly emerging from the role of virgin to get enough eggs placed for the purpose of study, the dishes were placed in the incubator at a temperature of 28±1 m and humidity 70±5% (Mahmoud, 1989) After laying eggs for the first time, adults were removed from the dishes for 24-hour eggs and the dishes were returned to the incubator and seven days later the number of eggs placed and hatching was calculated and followed up to the adult insect for the purpose of calculating the percentage of adult emergence and calculating the productivity of emerging adults.

5·Calculating the percentage of larvae's death

After placing the eggs on the seeds treated with the organic extracts mentioned in paragraph 4 and their vertebrae, the number of dead larvae was calculated by placing seeds infected with warm water at a degree of 37 m for five minutes and then the seeds were opened and the dead larvae were calculated (source).

6. Statistical analysis

Use the statistical program Statistical Analysis System - SAS(2012) In data analysis to study the effect of different transactions on the qualities studied according to the design of full dinner(CRD)The moral differences between the averages were compared with the lowest moral difference test (LSD). The percentages of doom corrected according to an equation Abbott Formula (Abbott, 1925).

Results and discussion

1. The effect of concentrations of alcohol extracts and raw chlorform in the number of eggs produced by adult treatment of the southern lobia beetle insect C. maculatus.

Table (1) results showed the effect of concentrations of extracts above, with the highest rate of eggs placed at 72.8 eggs/female at a concentration of 0.25 compared to the control treatment of 93 eggs/females, As for the extract type factor, the highest egg laying rate was 71.9 eggs/female for an alcoholic extract for sweet basil leaves, while the lowest egg laying rate was 58.1 eggs/female for chloroform extract for sweet basil flowers. The interference effect was the highest egg laying rate at 81.6 eggs/females at a concentration of 0.25 for the alcoholic extract of sweet basil leaves. The lowest egg lay rate was 28 eggs/female at a 1% concentration of chloroform sweet basil flower extract compared to the control treatment of 93 eggs/females. The results of the statistical analysis indicated the moral differences in the results obtained.

Table (1) Effect of concentrations of alcoholic extracts and raw chlorform in the number of eggs produced by adult treatment of the southern lobia beetle insect C. maculatus.

Rate	Number of eggs placed				Concentration extract
	Type extract				
	Chloroform Flowers	Chloroform Papers	Ethanol flowers	Ethanol leaves	
72.8	70	70	69.6	81.6	0.25
49.2	41.6	46.6	54.6	63.3	0.5
37.5	28	31.6	40.6	50	1
93	93	93	93	93	control
---	58.1	60.3	62.2	71.9	Rate
LSD value under (0.05) for extract concentration factor = 6.60, extract type factor = 6.60 and interference = 13.20					

Found (2011) Adedire et al. The spicy water extract of Anacardium occidentale seeds reduced the number of eggs placed for the southern lobia beetle from 28 eggs/females to treat control by 85.90% to ten eggs by a hatching rate of zero, so increased concentration means increased concentration of active substances in the extract, which increases the efficiency of the extract, extracts, as well as their deadly and repellent

effect, have a hormonal effect that reduces the rate of eggs, as well as the repellent effect of plant extracts due to their containing aromatic oils (Zidan et al., 1993).

2**. The effect of concentrations of alcohol extracts and raw chlorform in the percentage of egg hatching resulting from adult treatment of the southern lobia beetle insect C. maculatus.**

The results in table (2) showed the effect of extract concentrations with the highest rate of egg hatching at 77.6% at concentration of 0.25 compared to the control treatment of 92 eggs/female, while for the extract type factor the highest rate of egg hatching was 71.5% for the alcohol extract of sweet basil leaves while the lowest egg hatching rate was 65.8% for chloroform extract for sweet basil flowers. The effect of interference was the highest rate of egg hatching at 81.6% at the concentration of 0.25% alcohol for sweet basil leaves, while the lowest rate of egg hatching was 36.6% at the concentration of 1 chloroform sweet basil flower extract compared to the control treatment of 92%, the results of the statistical analysis indicated moral differences between transactions, these results are consistent with the study carried out by Khalaf (2012) as it was shown that the extract of the plant enamel lantana camara gave the highest effect in reducing the percentage of eggs hatching rate for the southern cowpea beetle when treated with a concentration of 10 mg/ml, it amounted to 13.33%, while it reached 20.0 and 16.66% for the plants of Datura and Jasmine saffron Clerodendron inerme, respectively. Reducing hatchability may be due to the extract preventing air from entering the egg and thus preventing the fetus from breathing.

Table (2) Effect of concentrations of alcoholic and chloroform extracts on the percentage of eggs hatched from adults treated with southern cowpea beetle C. maculatus.

Rate	The percentage of eggs hatching				Concentration extract
	Type extract				
	Chloroform Flowers	Chloroform Papers	Ethanol flowers	Ethanol leaves	
77.6	73.3	78.3	77.3	81.6	0.25
65.2	61.6	64.3	66.6	68.3	0.5
43.2	36.6	48.3	43.6	44.3	1
92	92	92	92	92	control
---	65.8	70.7	69.8	71.5	Rate
LSD value under (0.05) for extract concentration factor = 2.679 and for extract type factor = 2.679 and for overlap = 5.357					

3. The effect of concentrations of alcoholic and chloroform extracts in the percentage of larvae from eggs developed from adult treatment of the southern lobia beetle insect C. maculatus

Table (3) results showed the effect of the extract concentration factor, with the highest rate of larval death being 13.7% at concentration 1. As for the rate of extract type, the highest rate of larvae death was 32.7% for the alcohol extract of sweet basil leaves, while the lowest rate of larvae death was 30.7% for

chloroforme extract for sweet basil leaves. The interference effect was the highest rate of larvae death at 15.6% at 1% concentration of alcohol extract for sweet basil flowers. While the lowest rate of larvae death was 7% at 0.25%, the results of the statistical analysis indicated moral differences between transactions compared to the control treatment may be due to the sensitivity of larvae to active substances of plant extracts that affect metabolism, which affects the life of the insect and may interfere with chemicals in the hormones of the e.g. (Jaipal.et al, 1983).

Table (3) Effect of concentrations of alcoholic and chloroform extracts on the percentage of larval mortality resulting from eggs laid from adults treated with the southern cowpea beetle C. maculatus.

Rate	Percentage of larval decay				Concentration extract
	Type extract				
	Chloroform Flowers	Chloroform Papers	Ethanol flowers	Ethanol leaves	
8	8.3	7	8.3	8.6	0.25
10.9	10.6	9.3	11.3	12.6	0.5
13.7	13.3	11.6	15.6	14.6	1
95	95	95	95	95	control
---	31.8	30.7	32.5	32.7	Rate
LSD value under (0.05) for extract concentration factor = 1.259, for extract type factor = 1.259 and for overlap = 2.518					

The current study agrees with what Al-Awsi (2009) found in her study that the alcoholic extract of the fruits of the rosary plant significantly reduced the egg hatching rates of the southern cowpea beetle, and high concentrations of it led to the failure of eggs to hatch.

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