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# The Effect of Crude Extract for Terpenoids compounds and water Extract of *Tamarix ramosissiam* L. on Some Biological Aspects of *Tribolium castaneum* (Herbst) (Coleoptera: Tenebrionidae) and isolation and identification of active compounds by using high performance liquid chromatography HPLC.

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**ABSTRACT**

A series of tests were carried out to estimate the efficacy of the extract of the turbine compounds and the water extract of the Tamarixramosissiam plant in some of the life performance parameters of the red beetle (Triboliumcastaneum) Herbest, The results obtained from the study found that the extract of the crude turbines comes primarily in its impact on the various standards of life performance of the insect With the highest mortality rate of the first larval stage 67.89% at the treatment of 2 mg / ml and different treatment methods compared to 31.75% and at the same concentration when treatment with the extract of water Tamarixramosissiam, The study showed the first larval stage was more affected by the extract from late larval stage (fifth and sixth) and both extracts .The extract also showed the highest percentage of water abstraction when treating pupa In a way spray the extract on the pupa The highest mortality at treatment was 2 mg / ml and each of the turbine extract and water extract was 49.2% and 25.33% respectively. The study also showed the superiority of the extract of the crude turbine compounds on the water extract of Tamarixramosissiam In the mortality of adults red beetle beetleTriboliumcastaneum (Herbest), And the difference in treatment methods with the highest mortality rate of 37.03% at the concentration of 2 mg / ml compared with 31.75% when treated with water extract and at the same concentration andIsolation and identification of six compound isolation from terpenoid extract the Farnasal compound which had retention time(3.88) mintue which was higher concentration compound

**Keywords:** Tamarixramosissiam L, Triboliumcastaneum (Herbst), terpenoids, HPLC.

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## INTRODUCTION

Triboliumcastaneum (Herbest) is one of the important pests that affect stored grain, especially flour in Iraq and in the world. [7] This pest spreads in the mills and often begins to infect this pest in the mills and then moves with the infected flour to the stores And markets and houses. The flour of this insect is characterized by a very special smell, which is very unpleasant due to the gaseous excretions produced by this insect (uric acid). The dough made from the flour is low viscosity and rubber, thus making it unsuitable for making bread. These are These chemicals, in addition to the emergence of new strains resistant to these compounds, have led researchers to use safer and less toxic methods for humans as alternatives to chemical pesticides. [14] [6] to the fact that the plant contains phenolic compounds and trapezoidal in the first place can play an important role in the control of insects so this plant was selected for the purpose of investigating the biological effectiveness in some aspects of the life performance of this insect as a way to find alternatives to pesticides manufactured against insects.

The current study aims to study the effect of different concentrations of the extract of the soil and the water extract of Tamsissima plant in the life performance of this insect represented in the larvae (I, V and VI) and to show the sensitivity of these phases and roles of the extracts using different treatment methods to show the best ways to resist This type of pest also investigated the sensitivity of the virgins and bugs of the different concentrations of extracts as well as the isolation and diagnosis of the active compounds of the extract of crude turbines and determine the concentrations of these compounds of plants using HPLC technique

## MATERIAL AND METHODS

The infected flour was obtained from one of the flour stores in Karbala and the colony was preserved for the insect. 250 g of bran was placed in a clean and sterile glass vial and 20 pairs of insects aged between 48 and 24 hours after separation Previously, the nozzle was covered with a plastic cover with a hole for ventilation and covered The hole in the tulle cloth to ensure that the insect did not come out and then placed at a temperature of 2 + 28 m and humidity by 5 + 70% inside the incubator To get the insect in different ways to conduct experiments

### Preparation of the water extract and tartini of the T.ramsissima

The water extract of the twinkling plant was prepared according to the method [11]. In order to estimate the effectiveness of the cold water extract of the twinkling plant on the red eel flour beetle, take 2 g Dry dill extract from the extract separately and in 100 ml distilled water. Thus, the concentration of the solution (Stock Solution) was 2%, and the concentrations were prepared (2% 1.0.5 mg / ml, control treatment was done using distilled water only. For the purpose of estimating the biological efficacy of the extract of the Turbine crude compounds of the Turf plant, 2 g of dry extract was dissolved in a mixture of 1.5 ml of chloroform with 1.5 ml of ethyl alcohol and supplemented to 100 ml by adding distilled water. The concentration of the solution, The concentration treatment was 1.5 ml of chloroform with 1.5 ml of ethyl alcohol and supplemented to 100 ml by adding distilled water.

Effect of Water and Turbine Extracts of T.ramsissima Plants in the Rate of Destruction of the First Larval Stage and Late Turbulence (5th and 6th)

(5) larvae / replicates of the first stage larvae of T. castaneum, which were distinguished by their small sizes and skins, and by three replicates for each concentration of concentrations prepared for each extract and placed in disposable petri dish Following three methods of treatment:

1. Treatment of the surface of the internal dish before feeding and introducing the larvae (contact effect)
2 - Treatment of natural food (1 g black flour) before the introduction of larvae (infectious effect)
3. Treatment of larvae directly (local effect)

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The treatment was done with the above concentrations, using a small machine gun. Each treatment was sprayed with a concentration of approximately 25 cm. The treatments were placed at 28 ± 2 ° C and 70 ± 5% relative humidity. The mortality rates were recorded after 24 hoاكتب المعادلة هناurs of treatment and the results were corrected according to the Abbott equation. [12] The same steps were followed in terms of concentration, number of larvae and repeaters, except replacement of larvae of the first stages with late larvae (fifth and sixth). The percentage of depreciation was calculated after 24 hours of treatment and different treatment methods and corrected the results according to the Abbott equation [12[

Effect of Water and Turbine Extracts on Turtles in the Prostitution of Viruses and Adults:

(5) virgins for each refined (newly formed) and by (three) replicates for each concentration and each extract, and placed in the dishes of Petri container on the food medium 1) g flour Black. Then treated with extracts (2%, 1% and 0.5% ) Directly, and the dishes were placed at a temperature of ± 28 ± 28 ° C and a relative humidity of 5 ± 70%. The loss rates were recorded 24 hours after the treatment and the results were corrected according to the Abbott equation [12].The following steps were followed in the treatment of larvae, except larval replacement with adults. The different treatment methods were also followed: direct spraying (local effect), food treatment (gastrointestinal effect) and spraying of internal dish surfaces (contact effect). The percentage of consumption was calculated after 24 hours of time Treatment and corrected the results according to Abbott equation [12]

The death percentages were corrected according to the Abbott Formula [12]. The percentages of death corrected were calculated according to the following equation:

$$The\ corrected\ loss = \frac{n\%\ For\ depreciation\ in\ the\ transaction - \%\ for\ depreciation\ in\ the\ control\ transaction}{100\% - for\ depreciation\ in\ the\ control\ transaction!} X\ 100\%$$

The adjusted depreciation percentages were converted to angle values for inclusion in the statistical analysis and the results were analyzed using the ginstat statistical analysis program

Isolation and diagnosis of active compounds of the extract of the crude turbine compounds of the twinkling plant using HPLC technique

The main active compounds in the crude turbocharged extract were isolated and used using FLC (Fast Liquid Chromatographic) under ideal conditions for the phenomenex C18-DB (50x4.6 mm ID) and granular size 3 µm and the mobile phase is Methanol: deionized water : THF (tetrahydrofuran) using (954: 5: 1), using a flow velocity of 1.6 ml / min. The compounds were identified and identified using ultraviolet radiation and wavelength 220 nm. Where 1mg of the extract of the oregano compounds was dissolved in 10ml deionized water and then subjected to a high sonication process in 60 cycles during 25 minutes and 25 ° C followed by centrifugation of 7,500 rpm for 15 minutes. To suspensions in 0.1 mL of HPLC methanol gradients by entering the vortexing vortexes. The resulting mixing is passed through single-use filters with a diameter of 2.5 um and then stored at 4 ° C for further analysis. 20 ml of the sample is then injected into the HPLC under optimal separation conditions [25] and [23].

**RESULTS AND DISCUSSION**

Table (1) shows a significant effect on the treatment method of the extract of the crude turbid compounds of the twinkling plant and the concentrations used and their overlap in the percentage of the first larval phase loss of the reddish flour beetle T. castaneum, Azohart results to the existence of a significant effect of the method of treatment extract crude turbine vehicles, showed the results of the way mixing flour extract with the highest proportion of the loss of the first phase of the Larva, which amounted to 55.79% and the lowest loss ratio for the first larval phase when treated in a manner extracted on the dish sprayed as it stood at 35.15%.

The results indicate the existence of a significant effect of the concentration of the extract used as it affected all concentrations significantly compared to the treatment of control, and the results showed the

highest rate of destruction of the developed larval first at the concentration 2 mg / mL 67.89% and the lowest percentage of the loss of developed larvae at the concentration of 0.5 mg/ml reached 53.17% . The interaction between the method of adding the turbo extract to the twinkling plant is also indicated And the concentrations to have a significant effect on the rate of destruction of the first larval stage of the insect has achieved the highest rate of loss in the first larval stage of the insect when the treatment of mixed mixing of the extract with flour, where it reached 90% and the concentration of 2 mg/ml, and the lowest rate of destruction of the first larval stage of the beetle in all ways Spraying at zero concentration (control treatment) which reached 0%.

**Table 1: shows the effect of the treatment method on the extract of the crude turbine compounds of the twinkling plants at different rates on the larvae of the first stage Effect on the percentage of larval larval stages (fifth and sixth) and after 24 hours**

| Concentration of the extract Mg / ml | Treatment method | | | |
|---|---|---|---|---|
| | Mix the extract with flour | %For decomposition of onthe extract on the first larval stage | %For decomposition sprinkle on the dish | the average |
| 0 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 90.00 | 59.60 | 54.8 | 67.89 |
| 1 | 70.07 | 59.60 | 74.29 | 58.99 |
| 0.5 | 63.8 | 57.29 | 39.13 | 53.17 |
| | 55.79 | 44.12 | 53.13 | |
| L s .D | Treatment method | Concentration of the extract | Interference | |
| | 0.459 | 0.531 | 0.319 | |

Table (2) shows a significant effect on the treatment method of the extract of the turbine compounds and the concentrations and the overlap in the percentage of the fifth larval phase of the T. castaneum beetle. The results showed a significant effect of the treatment method. The percentage of the larvae of the fifth larval stage was 41.6% and the lowest percentage of the larval larvae was treated with the method of spraying the raw soil extract of the plant of the twinkle on the dish at 20.03%The results showed that there was a significant effect on the concentration of the extract. All the concentrations were significant in relation to the control treatment. The results showed the highest loss of the insect in the fifth larval stage at the concentration of 2 mg / ml at 45.36%. The interaction between the method of addition of the extract of the turbine compounds of the twig plant and the concentrations showed a significant effect on the mortality rate of the fifth larval stage of the falciparum beetle with the highest percentage of loss in the treatment of mixing the extract of the flour with the flour at 56.38% and at the concentration of 2 mg / And the lowest rate Hala For the fifth larval stage of the T. castaneum beetle when the two treatments were treated (spray on the fifth larval stage and the extracts on the dish) and zero concentration at 0.67%

**Table 2: shows the effect of the treatment method on the extract of the crude turbine compounds of the twinkling plants at different rates on the fifth larval stage**

| Concentration of the extractMg / ml | Treatment method | | | |
|---|---|---|---|---|
| | Mix the extract with flour | For decomposition of on the extract on the first larval stage | For decomposition sprinkle on the dish | the average |
| 0 | 1.33 | 0.0.67 | 0.0.67 | 0.89 |
| 2 | 56.38 | 48.29 | 31.41 | 45.36 |
| 1 | 55.08 | 39.68 | 27.77 | 40.84 |

| | | | | |
|---|---|---|---|---|
| 0.5 | 51.44 | 36.05 | 20.23 | 35.93 |
| the average | 41.06 | 31.17 | 20.3 | |
| L.S.D | Treatment method 1.99 | Concentration of the extract 1.269 | Interference 2.198 | |

Table (3) shows a significant effect on the method of treatment with the extract of the raw turbine compounds of the twinkling plants and the concentrations used and their overlap in the percentage of the sixth larval phase of the T. castaneum beetles. The results showed a significant effect of the treatment method in the extract VI Which has reached (24.46%) and the lowest in the treatment of the spray method on the dish at 1.00% in the control treatment. The results showed that there was a significant effect on the concentration of the extract. All the concentrations were significantly affected by the control treatment. The results showed the highest loss of the sixth larval stage at the concentration of 2 mg / ml of 21.91% and the lowest of the concentration at 0.5 mg / ml at 8.44%

.The difference between the addition of the extract and the concentrations indicates that there was a significant effect on the sixth larval phase loss. The highest mortality rate was recorded in the sixth larval stage when the mixture was mixed with the flour at 40.01% and at the concentration of 2 mg / ml. In the treatment of the larvae extract on the sixth larval stage and at 0.5 mg / mL concentration, which was 0.00%.

**Table 3: shows the effect of the treatment method on the extract of the crude turbine compounds of the plant at different rates on the sixth phase**

| Concentration of the extract Mg / ml | Treatment method | | | |
|---|---|---|---|---|
| | Mix the extract with flour | For decomposition of on the extract on the first larval stage | For decomposition sprinkle on the dish | the average |
| 0 | 0.1 | 0.33 | 0.67 | 0.67 |
| 2 | 40.1 | 22.39 | 3.33 | 21.91 |
| 1 | 31.52 | 16.54 | 0.00 | 16.02 |
| 0.5 | 25.33 | 0.00 | 0.00 | 8.44 |
| the average | 24.46 | 9.82 | 1.00 | |
| L.S.D | Concentration of the extract | Treatment method | Interference | |
| | 2.039 | 2.354 | 4.077 | |

Figure (1) shows the effect of the extract of the crude turbent compounds of the twinkling plant and the concentrations used in the percentage of the virulence of the insect pupae. The results show that the highest mortality rate in the virginal phase of the insect at the concentration2 mg / ml at 49.31%, and the lowest concentration loss 0.5%.

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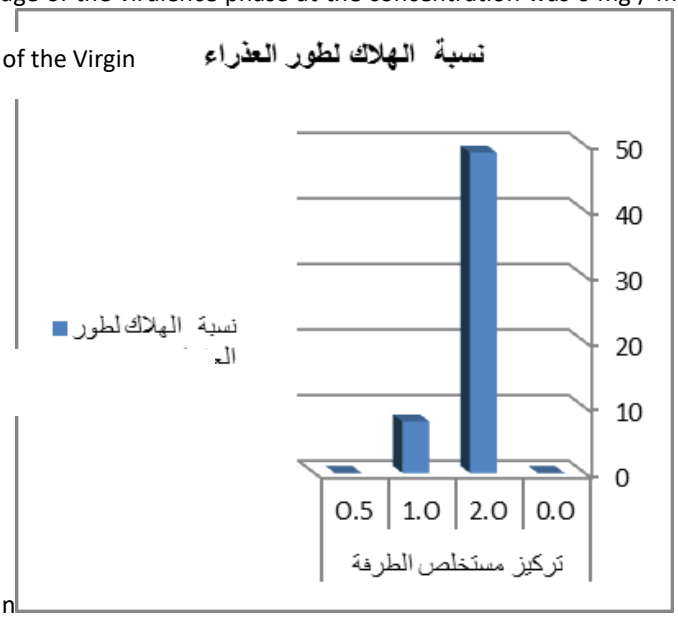
The percentage of virulence phase loss at the concentration of 1 mg / ml for the blink extract was 23.6%, while the percentage of the virulence phase at the concentration was 0 mg / ml (control treatment) at




Influence in adult mortality rates after 24 hours

Table (4) shows the significant effect of the treatment method on the extract of the turbine compounds of the twinkling plant and the concentrations used and their interaction in the percentage of the adult females of the T. castaneum. The results showed a significant effect of the treatment method with the extract. The results showed a significant effect of the concentrations of the extract used. All concentrations were significant in relation to the control treatment, and the results showed the highest percentage of eugenics. LAC for adults at the concentration of 2 mg / ml was 37.03% and the lowest percentage of loss at zero concentration (control treatment) was 0.67%. The interaction between the addition of the extract and the concentrations indicates a significant effect on adult mortality highest loss was obtained when mixing the extracted mixture with the flour at 56.53% at the concentration of 2 mg / ml and the lowest ratio in the treatment of overlapping (sprinkling the extract on the eggs and sprinkling the blender on the dish) while the loss rate was 0% at the treatment of 0.5 mg

Effect of different concentrations of the water extract of the twinkling plant in the different roles of red beetle beetle T. casteneum

| Concentration of the extract Mg / ml | Treatment method | | | the average |
|---|---|---|---|---|
| | Mix the extract with flour | For decomposition of on the extract on the first larval stage | For decomposition sprinkle on the dish | |
| 0 | 2.00 | 0.00 | 0.00 | 0.67 |
| 2 | 56.53 | 34.16 | 20.41 | 37.3 |
| 1 | 52.37 | 25.33 | 0.00 | 25.90 |
| 0.5 | 44.56 | 0.00 | 0.00 | 14.85 |
| the average | 38.37 | 14.87 | 5.10 | |
| L.SD | Treatment method | Concentration of the extract | Interference | |
| | 1.857 | 2.155 | 3.733 | |

Effect of the larval phase loss rate first after 24 hour

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Table (5) shows the significant effect of the treatment of the water extract and the concentrations used and their overlap in the percentage of the first larval phase of the T. castaneum beetle. The results showed a significant effect of the treatment method of the water extract. The first larval of the larvae, which was 42.51%, and the lowest percentage of the larval larvae stage, was treated with 28.22%. The results showed that there was a significant effect of the concentrations of the extract used. All concentrations were significant in relation to control treatment incidence of T. castaneum for the first larval stage at concentration 2 was 58.1% and the lowest percentage loss at zero concentration (control treatment) was 1.22%. The interaction between the method of addition of the extract and the concentration indicates a significant effect in the percentage of loss, with the highest loss of the first significant stage of the T. castaneum when mixing the mixing of the water extract with the flour at 79.35 % and at the concentration of 2 mg / ml, First larval phase loss in the treatment of the spraying of water extract on the dish and the concentration of 0.5 mg / ml at 30.33%.

| Concentration of the extract Mg / m | Treatment method | | | the average |
|---|---|---|---|---|
| | Mix the extract with flour | For decomposition of on the extract on the first larval stage | For decomposition sprinkle on the dish | |
| 0 | 1.33 | 0.67 | 1.67 | 1.22 |
| 2 | 44.96 | 50.24 | 79.35 | 68.18 |
| 1 | 36.25 | 42.82 | 50.18 | 43.08 |
| 05 | 30.33 | 34.38 | 38.84 | 34.52 |
| the average | 28.22 | 32.3 | 42.51 | |
| L.S.D | Treatment method | Concentration of the extract | Interference | |
| | 4.36 | 6.53 | 7.55 | |

Table 6 shows a significant effect on the treatment of the water extract and the concentrations used and their overlap in the percentage of the fifth larval phase loss of T. castaneum. The results showed a significant effect of the treatment method in the extract and achieved the results of mixing the water extract with flour above The larvae of the fifth larval stage, which was 25.99%, and the lowest rate of destruction of the sixth larvae stage when treated with the method of sprinkling the water extract on the dish, reached 20.14%.

**Table 6: shows the effect of the method of treatment with the water blink extract at different rates on the fifth larval stage**

| Concentration of the extract Mg / m | Treatment method | | | the average |
|---|---|---|---|---|
| | Mix the extract with flour | For decomposition of on the extract on the first larval stage | For decomposition sprinkle on the dish | |
| 0 | 1.33 | 1.67 | 1.67 | 1.56 |
| 2 | 28.64 | 35.58 | 38.68 | 34.30 |
| 1 | 26.71 | 31.69 | 34.12 | 30.84 |
| 0.5 | 23.87 | 27.13 | 29.51 | 26.84 |
| the average | 20.14 | 24.02 | 25.99 | |
| L.S.D | Interference | Concentration of the extract | Treatment method | |
| | 3.29 | 2.86 | 1.89 | |

The results showed that there was a significant effect of the hydrofluoric extract concentrations. All concentrations were significantly affected by the control treatment. The results showed the highest rate of phase loss The fifth larvae at the concentration of 2 mg / ml was 34.30% and the lowest percentage of larval larvae at concentration was 0.5 mg / ml at 26.84%. The overlap between the method of adding the water extract and the concentration indicates that there is a significant effect on the larval phase loss. The highest percentage of loss was recorded in the fifth larval stage of the falciparum beetle in the treatment of mixing the water extract with flour at 38.68% and at the concentration of 2 mg / ml. Drainage of the larvae stage when spraying the water extract on the dish and the concentration of 0.5 mg / ml, which reached 20.14% As for the sixth larval stage,

Table (7) showed a significant effect of the treatment of the water extract and the concentrations used and their overlap in the percentage of the sixth larval phase of the T. castaneum. The results showed a significant effect of the treatment method of the water extract, The method of mixing the water extract with the flour was the highest loss of the sixth larval stage, which was 21.778%. The lowest percent of the larvae larvae was valued with 0.333%. The results showed that there was a significant effect of the hydrofluoric extract. All the concentrations were significantly affected by the control treatment. The results showed the highest loss of the sixth larval stage at the concentration of 2 mg / ml of 19.704% and the lowest of the control concentration of 1.333%. The overlap between the method of adding the water extract and the concentration showed a significant effect on the sixth phase loss rate. The highest loss was recorded in the treatment of mixing the water extract extract with the flour at 35.193% and at the concentration of 2 mg / ml. The aquatic floccus on the dish of the sixth larval stage and concentrations (0.5,1,2) mg / ml, which reached 0.00%.

**Table 7: shows the effect of the method of treatment with water extract of water at different rates on the sixth larval stage.**

| Concentration of the extract Mg / m | Treatment method | | | the average |
|---|---|---|---|---|
| | Mix the extract with flour | For decomposition of on the extract on the first larval stage | For decomposition sprinkle on the dish | |
| 0 | 1.333 | 1.000 | 1.667 | 1.333 |
| 2 | 0.000 | 23.320 | 36.193 | 19.702 |
| 1 | 0.000 | 19.113 | 24.830 | 14.648 |
| 0.5 | 0.000 | 16.640 | 25.420 | 14.020 |
| the average | 0.333 | 15.168 | 21.778 | |
| L.S.D | Interference | Concentration of the extract | Treatment method | |
| | 5.41 | 3.123 | 2.705 | |

**Figure 2 shows the effect of the hydrofluoric extract and the concentrations used in the percentage of virginity of the T. castaneum The results show that the highest rate of killing of the falciparum flour at concentration of 2 mg / ml was 25.33%. Concentration was 1 mg / ml where the percentage of virulence in the insect of the water extract was 20.63%, and the lowest percentage of virginity of the T. castaneum was 0.5 mg / ml at 0.000%, while the percentage of virulence The concentration of 0 mg / ml (control treatment) was 0.66**

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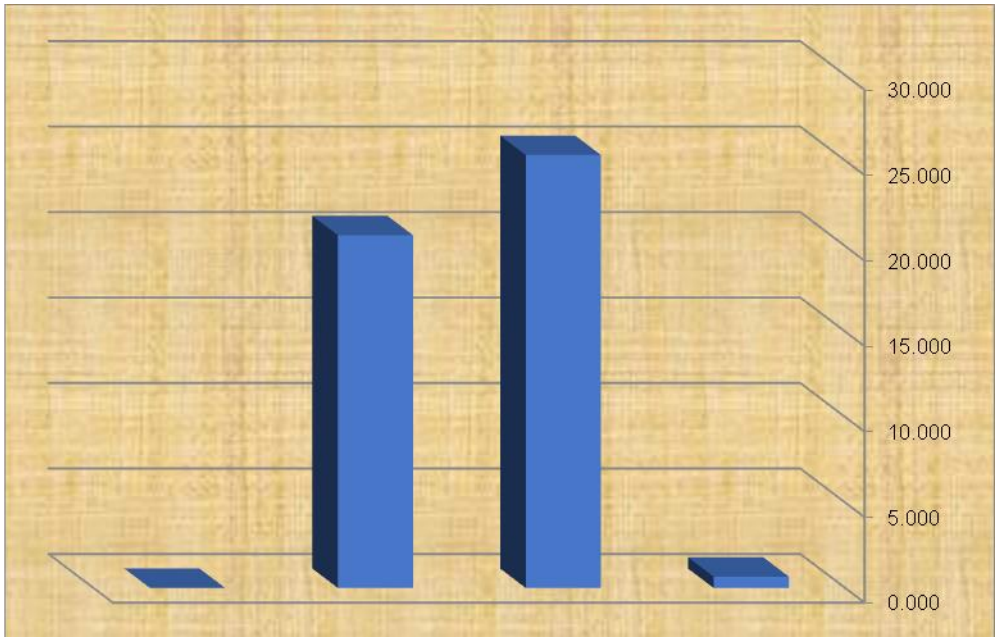


Influence in adult mortality rates after 24 hours.

Table (8) shows that there is a significant effect on the method of treatment with water extract and the concentrations used and their interaction in the percentage of the adult species of T. castaneum. The results showed a significant effect of the treatment method with the water extract of the straw. The percentage of the perishable water was 15.83%.

The results showed that there was a significant effect on the concentrations of water extract. All the concentrations were significantly compared to the control treatment. The results showed that the highest kill rate of T. castaneum was 2 mg / ml at 31.75% and the lowest percentage of adults at 0.5 mg / Ml has reached 0.0%

The interaction between the method of adding the water extract and the concentrations indicated that there was a significant effect on the mortality rate of the T. castaneum with the highest percentage loss in adults when mixing the mixing of the water extract with the flour at 38.15% and the concentration of 2 mg / ml and the lowest percentage In all spray methods and at 0.5 concentration, which was 0.0%

| Concentration of the extract Mg / m | Treatment method | | | the average |
|---|---|---|---|---|
| | Mix the extract with flour | For decomposition of on the extract on the first larval stage | For decomposition sprinkle on the dish | |
| 0 | 1.67 | 1.33 | 1.67 | 1.56 |
| 2 | 24.42 | 32.68 | 38.13 | 31.75 |
| 1 | 7.87 | 15.67 | 23.50 | 15.75 |
| 0.5 | 0.00 | 0.00 | 0.00 | |
| the average | 8.48 | 12.47 | 15.83 | |
| L.S.D | Interference | Concentration of the extract | Treatment method | |
| | 6.06 | 7 | 12.13 | |

Table (9), (100), Figure (3-A), and (3-b) show the concentration of each of the crude turbocharged compounds isolated by HPLC technique. There were significant differences in the separated compounds and

the area of each curve. Farnasal, which has a time of 3.88 min and a curved area of 78099 µv under the ideal conditions of column C18-DB (50 x 4.6 mm ID) and granular size 3 micrometer and flow velocity 1.6 ml / min where the concentration of the compound was 1444µg / ml. Has the highest concentration in the turbocharin extract sample. The table shows that mesembrine, which has a 6.98min retention time, is the least concentrated Table 1 shows that both the Farnasal and Camphene compounds occupied the highest concentrations in the sample of the extract with different storage time and the curved area of each compound. The figure shows that elemene-α, b-caryophylene, α-bisabolene, and mesembrine had the lowest concentration in the turbine extract For the twinkling plant of the different curved area and time of detention for each vessel.

**Table 9: Sequence of standard compounds in the extract of the turbocharged compounds of the twinkling plants using the technique of H.P.L.C**

| Seq | Subjects | Retentic time (min) | Area (µv) | Concent tion (µg/ml) |
|---|---|---|---|---|
| 1- | Camphene | 1.52 | 63824 | |
| 2- | elemene-α | 2.37 | 41300 | |
| 3- | Farnasal | 3.71 | 5407 | |
| 4- | b-caryophyllene | 4.58 | 48536 | 25 |
| 5- | α-bisabolene | 5.55 | 63655 | |
| 6- | Mesembrine | 6.37 | 57036 | |

**Table 10: Name and concentration of the effective compounds isolated from the extract of the crude turbocharged compounds of the flocculation plants using HPL technology**

| Seq | Subjects | Retention time (min) | Area (µv) | Concentration (µg/ml) |
|---|---|---|---|---|
| 1- | Camphene | 1.71 | 63824 | 232.49 |
| 2- | elemene-α | 2.55 | 41300 | 22.94 |
| 3- | Farnasal | 3.88 | 5407 | 1444 |
| 4- | b-caryophyllene | 4.68 | 48536 | 20.52 |
| 5- | α-bisabolene | 6.5 | 63655 | 46.83 |
| 6- | Mesembrine | 6.9 | 57036 | 19.44 |

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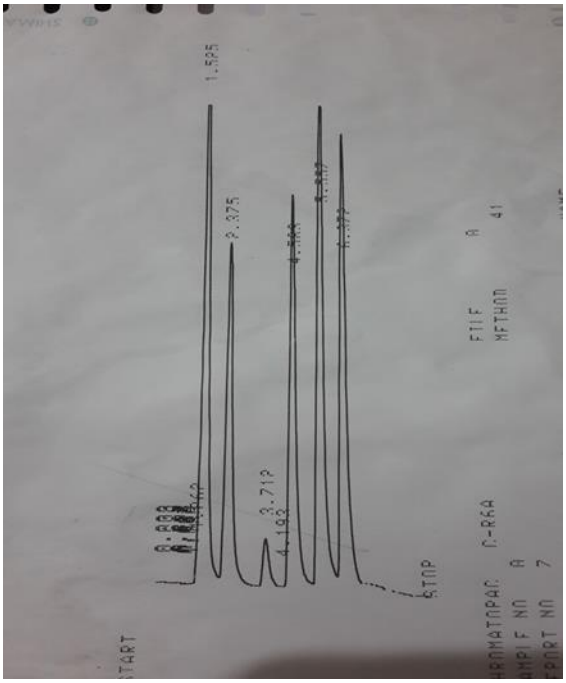


**Figure 3-A: Active compounds isolated from the extract of the crude turbine compounds of the twinkling plant (standard) using HP.P.L.C**

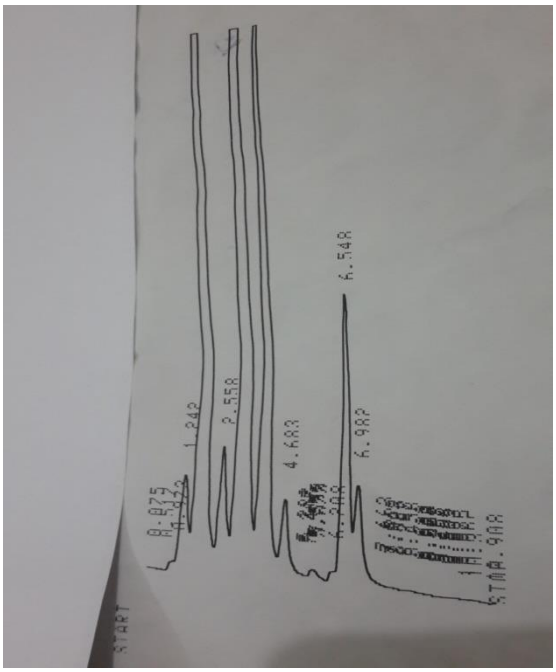


**Figure 3-B: Active compounds isolated from the extract of the crude turbent compounds of the twinkling plant (sample) using H.P.L.C**

**DISCUSSION**

EFFECT OF WATER AND TURBINE EXTRACTS OF TARMISIMA. In the rate of loss of the larval stages of the beetle beetle T. casteneum.

As for the effect of the soil and water extracts of Trsissima, which is used to influence the larvae of the red eel beetle and the different spraying methods, the results showed that the extract of the oregano

compounds was superior to the water extract in terms of effect. The larvae may be due to damage caused by the use of Extracts in the tissues of the middle layer of larvae, including the inability of the muscle layer to work because of its separation and inability to benefit from food because of the dissolution and decay of the same epithelial tissue, [27] and [24] or may be the impact of toxic compounds, including the vehicle Turbine plant larvae, leading to a very slow growth of larvae and thus death [26] vehicles or turbine may be toxic have the ability to influence the nervous system of the larva and thus the failure to paralysis and then continue to grow. [21] The results showed that the first larval stage was more sensitive than the larval larvae of the extract. The reason is that the thickness of the kyotele layer surrounding the larvae at the beginning of its formation, which is thicker with larval age [3], may be due to the destruction of the first stage. A substance or a chemical compound exposed to it, and because its bodies and organs are thin and thin [18]

The results showed that larvae were significantly different depending on the spray methods used. The most significant effect was the increase in larvae in the treatment of larvae or direct spraying compared with the method of spraying the internal surfaces of the contact vessels. To large amounts of food for the purpose of growth, which causes the entry of large quantities of extract with food into the intestinal tract leading to the destruction of larvae early because of nutrition, where he noted Khafaji [4] that the larva to eat only if you eat enough food to grow and produce New body wall. The larvae were also found to be more toxic than larval larvae. The larvaeOr large-scale conversion of toxic substances present in the extracts into non-toxic compounds (Detoxication), whereas the first larval ages can not do so for their lack of this enzymatic system. Some studies have shown consistency with the current study in terms of the effect of extracts. The results of a study [20] showed that volatile oil compounds of xylopaethiopica and Ocimumgratissium were affected by contact and by feeding on modern larval larvae and whole insects against T. falciparum beetle as shown by the study [2] on henna lawsoniainermis and throat Adhatodavasica and tobacco Nicotianatobacum using some spectral and diagnostic methods and some chemical tests and study the effect on some insects, including the beetles of flour Castaneum.T that its deadly effect on the first larval stage and all the treatments and the appearance of appearance defects in the larvae treated with prolongation in the number of days Larval phase.

As for the effect of water extracts, the study showed that the water extract had less effect on the larvae than the extract of the crude turbid compounds due to the difference in the secondary chemicals in the plant depending on the type of solvent used in extraction. Some studies have verified the validity of these results by their compatibility in terms of effect. [1] C. cinerariifolium extracts were used against T. castaneum. The cold water extract was more effective than the boiled water extract against the Castaneum.T.

Effect on the loss of virgins:

The results of the current study showed that most virgins were destroyed and turned brown to non-adults. The reason may be due to the contents of the extract, especially the turbine, an effective chemical compound that has an activity of insect growth regulators or may be counteracting the action of the youth hormones Anti-JH [14], and the virgins of this insect are of the type of cable and have no mobility or nutrition [17]. The results showed the superiority of the raw soil extract on the water extract due to the effect of the poisonous extract on the active compounds that led to the destruction of the virgins [19

Influence of adult mortality

The results of this study showed a significant effect on the raw soil extracts and their high effectiveness in the loss of the insect under study. This may be due to the fact that the active compounds in the plants may be dissolved in chloroform or may be due to the inclusion of the chloroform extract on compounds that have the potential to spread and influence in living tissues, , And this is consistent with the study [9] the superiority of the turbopropy compounds of the plant blink on the rest of the extracts in the life performance of mosquito mosquito Culexpipiens, as shown in the study [5] superiority of terpenes crude compounds on alkaloids and phenolic compounds Or plant Alzeraj Chrozophoratinctoria in-life performance of an insect fly home and bring the proportion of high-Hlakat. A study of the effect of aquatic extracts of Acacia modesta and Glycyrrhizaglabra against red beetle beetle showed that the extracts were effective in the destruction of the adult insect. [22] The results of the study of the toxic effect of the aquatic extracts of the

walnut and leaf leaves on the percentage of larvae in the adult beetle The results showed a significant efficacy against insect larvae. The percentage of adult mortality at the concentration was 1.5 mg / ml in both treatments (78.7% and 60.7% respectively).

Isolation and diagnosis of active compounds in the extract of the crude turbent compounds of the twinkling plant using HPLC technique

From the above results, we found that the extract of the turbocharged compounds of the turf plant contains six compounds that differ in their concentration and the area of the extension. These compounds were identified in the sample extracted based on the approximate time of detention between the standard compounds and the sample compounds. Life of the insect.

HPLC technology has been used as a highly sensitive technology that is sensitive to low concentrations of the material. [13] Since plant extracts contain many active ingredients and different concentrations, and this large variation in their composition content makes their analysis difficult to use, The high-performance liquid phase, which is one of the best methods in this field, allows researchers in the field of plant chemistry to conduct a quantitative and qualitative separation of a mixture of organic compounds derived from the textile parts of the plant. [15] It diagnosed as an adjective taxonomic among other species of plants belonging to the same sex.

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