

Use some plant extracts in control the *Varroa destructor*

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Abstract

Field studies were conducted in the Department of Biological Control Techniques / Technical College of Al-Mussaib during the Period 2016-2017, Using different concentration of extracts for *Allium sativum* and *Coriandrum sativum* to control the *Varroa destructor* as well as a survey of *Varroa destructor* in different areas of Babylon province .

The results showed that *Varroa destructor* was found in high density and different frequency in areas reached to 89% in Alkawther and less infection 32% is Alnile. the extract of *Coriandrum sativum* high signification rate for killing 75.33% at 100% conc. While the lest rate 12.11 at 25% conc. The result showed that *Allium sativum* has high rate in killing rate reached to 83% at 100% conc. while the killing rate reached at 34.3 at 25% concentration .

Introduction

Honey bees have contributed to the achievement of about 80% of the cross-fertilization of fruit trees, ornamental plants, vegetables and field crops to increase the quantity of production by at least 25% [1]. The honey bee is infected with many pests, including the *Varroa destructor* a genus of arthropods belonging to the Mesopigmata [2]. The parasite was attacked at the beginning of the 20th century in certain parts of East Asia [3].

The high intensity of the varroa within the communities lead to the reduction of reproduction and the death of virgins and mutilation of embryos, as well as reported that Alvarroa transfer many of the deadly pathological causes that contribute to the destruction of bee colonies and destruction [4]. He said [1] that the risk of Alvarroa lies in the rapid reproduction and spread causing the destruction and destruction of bee colonies and that mating occurs within the eye of the six and then graduated small female vaccinated related to the body of adult who completed their life cycle to leave with the eyes sixfold, and after a while invading small brood others (1998). Al-Ansari (1998) states that only female are released after pollination accompanied by full honey bees, while males and other incomplete phases of the *Allium sativum* is dead. Dejong and others (1982)) And Dejong (1984) and Ifantidis (1988) have twenty-one adherent nipples in a hexagonal eye of one male

There have been many attempts to reduce the use of chemical pesticides and to go to alternative methods such as removing the dream from within the communities and studying the health behavior and reaction of bees in the

direction of *Allium sativum* [5]. The use of chemicals is one of the most effective methods to control Alvarroa but the use of disorderly and excessive *Allium sativum* acquisition resistance to pesticides and contamination of bee products [6]. [7] found it impossible to eliminate and limit its spread if it did not follow the correct remedies and within reasonable limits to control them. And the importance of lesion on honeybees and the absence of recent studies in recent years has been proposed to study the existence of ***Varroa destructor*** of honey bees in different parts of the province of Babylon and the calculation of the proportion of infection and evaluate the effectiveness of some powders and plant extracts in the fight against this scourge.

Materials and methods

The two sites were studied for the study of the effects of the extracts on Al - varroa, which affects the first province bees of the biological resistance department in the technical college of Musayib where the bee hives were provided in the study of the effect of the *Coriandrum sativum* extract. The second location is in the Al-Watifia area and the hives are used as replicates for the garlic extract.

Study of the incidence of Varroa infection studied the percentage of infection in some of the provinces of Babylon Mussaib, Qasim, Mahaweel and Nile where it was visited two provinces in each place on 11/3/2017, where opened 10 eyes from the brood in the hives randomly. the percentage of incidence was calculate according to the following equation:

Number of incidence hives

The percentage of incidence= -----×100

The total number of hives Effect the extract of plant on Varroa

Preparation of used plants:

We got of *cariandrum sativum* and garlic seeds from the local markets of Babylon.

Preparation of water extract:

Preparation of garlic extract. Mansour's method used in preparation of garlic extract for garlic plant where got 20 gram of dry seeds and mixed with 200 milliliter of hot distal water in electric mixer for 5 minutes and of room temperature and let it for 30 minutes for solution stability and isolated water extract from residual solid in filtration by piece of cloth and interning them to centrifuge in speed of 1500 cycle / minute for 15 minute .drying the samples which are got gelatinous solution and used concentration equation ($v_1c_1=v_2c_2$) and added 1 milliliter of pravin liquid

Preparation of coriander extract:

The coriander extract is prepared from about 40 gram of coriander seeds and soaked in 150 ml distilled water and boiled for 15 minutes. It is then left and cooled. The solution filter is then added to the diabetic solution (after using the concentration equation) 2: 1 to feed the community one of the honey bee colonies With the extract of coriander seeds three times with a interval of 4 days from time to time. For comparison, a diabetic is used without adding coriander extract.

Results and discussion The results of the survey conducted in different areas of Babylon showed the presence of *Varroa* in those areas and the different densities on hives of honey bee. Where it gave the highest rate in the area of al-Watifiya/Jbala where it reached 89%, while the lowest rate was given in the area of 32 Khaji Um Nisli in the Nile area, where it reached 60%. Our observations also showed that Al-*Varroa* is present in all parts of the hive. Adult within the sixfold.

Table (1) Survey *Varroa destructor* on honeybees and the incidence of infection in different areas of Babylon

Percentage of incidence	The name of area
70 %	Al- mussaib hooral-hussine)azraq(
89 %	Gbala / Alwateafeia
60 %	ALnile/32 khaji omnasli
65 %	Al kefel / Al-muradia

Effect of Different Concentrations of *Coriandrum sativum* Extract in *Varroa destructor*:

Table (2) shows the effect of water coriander extract on alvarroa, which gave the highest rate at 100% and reached 75%. The lowest rate was 12.11% and 25%. The effect of the time period reached the highest rate after 12 days was 70.5% After 3 days of treatment and 47.7%. These results are consistent with [8] by controlling the hives with coriander extract with diabetic solution in the low rate of death during the three treatments gradually. In the study of the effect of vegetable essential oils Thyme, eucalyptus, rosemary, to fight Alvarroa using hot fog spray and found that the aromatic vegetable oils are highly effective against Alvarroa, a first step away from the use of chemical

pesticides and the negative effects in the environment [7]. In another study of the use of natural substances, smoking, including coriander seeds, gave good effect [9].

Table (2) *Varroa destructor* attack with various concentrations of coriander extract and different time periods:

Concentration rate	Attack various of adult			Concentration of extract
	12 day	8 day	4day	
12.11	12.67	12.33	11.33	%25
32.33	40	25	32	50%
57	73	54	39	75%
75.33	86	79	61	100%
	70.5	58.44	47.7	Rate of time period

LSD=0.05 6.66

Effect of different concentrations of garlic extract *Allium sativum* in the attack of *Varroa destructor*

Table (3) shows the effect of Garlic extract on *Varroa destructor* if given the highest rate of concentration of 100% and reached 83%, the lowest rate of 34.3% 25%, the effect of time period reached the highest rate after 12 days of control, as it was 82% While the lowest rate of time after 3 days of control was 48.9%, where the effect of garlic extract on the varroa was better than the extract of coriander and this is consistent with what came [6]. where the use of garlic peeled and mashed gives an effective Killed 60% - 85%.

Table (3) *Varroa destructor* Variation of Varieties of Garlic Extract and Different Time Periods

Concentration rate	Attack various of adult			Concentration of extract
	12 day	8 day	4day	
45.2	35.2	11	8.00	%25
34.3	57.0	23.08	22.92	50%
50	65.0	45	40	75%
83	89	84	76	100%
	82	54.3	48.9	Rate of time period

LSD =0.05 13.62

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الخلاصة

أجريت دراسات حقلية في قسم تقنيات مكافحة البيولوجية / الكلية التقنية بالمسيب خلال الفترة 2016-2017 باستخدام تراكيز مختلفة من مستخلصات نبات *Coriandrum sativum* و *Allium stivum* لمكافحة الفاروا المدمر وكذلك حصر الفاروا المدمر في مناطق مختلفة من محافظة بابل.

أظهرت النتائج أن الفاروا المدمر وجد بكثافة عالية ومختلفة في المناطق وصلت إلى 89% في الكوثر وأقل إصابة 32% في النيل.

مستخلص نبات *Coriandrum sativum* ذو دلالة عالية في القتل 75.33% بتركيز 100%. في حين أن المعدل الأقل 12.11 بنسبة 25%. أظهرت النتائج أن *Alliwm sativum* لديه نسبة عالية في نسبة القتل وصلت إلى 83% عند التركيز 100%. بينما بلغت نسبة القتل 34.3 بتركيز 25%.

الكلمات الدالة: الفاروا، مستخلص، الكزبرة ساتيفوم، الأليوم ساتيفوم