



Effect of cold and boiled water extracts of *Carissa macrocarpa* on some biological aspects of house *Musca domestica*(Diptera:Muscidae).

Zaid Saleem Khudair¹, Hadi Meziel AL-Rubaei²

1-College of science for women\University of Babylon/
Iraq(zaid.abbas.gsci87@student.uobabylon.edu.iq).

2-College of science for women\ University of Babylon/ Iraq

Summary :-

A series of laboratory experiments were conducted in the Insect Environment Laboratory / College of Science for women / University of Babylon from September 2021 to December 2021, and the current study aimed to study the effect of cold and boiled water extracts of *Carissa Macrocarpa* plant on some biological of the life performance of the house fly. *Muscadomestica*, under laboratory conditions.

This study showed that the effect of these extracts on the mortality rate of eggs, different larval instar and pupal stage stages as well as the cumulative and non-cumulative mortality rates of immature stages, weights and lengths of pupa which were produced from treatment. The results showed that the cold water extract was more effective than boiled water extract on percentage of mortality the percentage of egg was (81) % in the concentration 2% compared with (1)% at control treatment. The 1st, 2nd, 3rd larval instars were (98.33) at concentration 2% compared with (7.66) at control treatment.

Key words: *Musca domestica*, *Carissa macrocarpa*, *Catharanthus vinca*

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protection and hepatotoxicity improvement. Renal improvement of nephrotoxicity (Souilem et al., 2019).

Materials and methods

Plant collection and identification.

Samples of the twigs of the *C. Macrocarpa* plant were collected from the gardens of the College of Science for women / University of Babylon in July of 2021 while it was in the flowering stage. They were cleaned and dried laboratory conditions with stirring from time to another to prevent rotting. After that, it was grinding by using an electric grinder, and then the dry leaf powder was stored in clean, dry plastic bags until use. The plant was diagnosed in the College of Science for woman / University of Babylon by Prof. Dr. Huda Jassim Al-Tamimi as *C. Macrocarpa*.

Introduction

The house fly, *M. domestica*, belongs to the family Muscidae, which was one of the most important families for the order Diptera. (Patric and Claudio, 2008). Peter (2013).

The carissa plant *C. macrocarpa* (Eckl.) belongs to the oleander family Apocynaceae which is a large family comprising 402 genera and 18497 species distributed all over the world (EL-Kashef et al., 2015). This family compounds and flavonoids and terpenoid compounds Rose and Prasad, (2013). (Souilem et al 2019).

The Plant *C. macrocarpa*

Have many medicinal applications as it is anti-oxidant, anti-inflammatory, anti-cancer, analgesic, antiepileptic, anti-epileptic, diuretic, anti-diabetic, hypolipidemic protective, liver



was modified from Harborne (1973) after some modifications by us which were made increasing the extraction time to 24 hours instead half hour , to obtain the best extraction and the largest amount of the active components. The extraction was done by taking 20 gm of dry leaf powder of the plant under study put a volumetric glass bottle of (500) ml, and 200 ml of cold sterilized water was added and mixed for 30 minutes . then the extract was left for 24 hours to obtain the best extraction and the largest amount of the active substance after Close it to prevent the ingress of impurities and foreign matter, then filter the extract by using two layers of gauze and take the filtrate and discard the sediment and put the filtrate in the centrifuge at 3000 cycle/minute for ten minutes. After then the extracts dried at 40-45 °C in oven ,and then the produced extract kept in the refrigerator until use boiled water extract, it was done in the same way by using boiled distilled water instead of cold distilled water.

For the study biological activity of this extract was done by using (5) gms dissolved in (100) ml dist. Water to produce stock solution (5)% and then prepared concentration (0.25,0.5,1,2) as well as control treatment for using distilled water only .

Results and Discussion:

Shows a table (1) and (2) the effect of increasing the proportion of the concentration of water extract and cold boiled *Carissa macrocarpa* on the destruction of the eggs of different larval and oddball. Shows the relationship between increasing concentrations and the high proportion of the loss of eggs and larvae of various oddball insect. The highest proportion of whites and the destruction of the different larval concentration of eccentric 2%, reaching 100% in some phases compared with the control treatment by the loss (16-15%).

Insect collection and breeding .

Whole of the housefly, *M.domestica*, was collected from one of the areas from Babylon city during September of 2021 by means of a standard insect collection network. Then the whole populations were transferred to cages for breeding the insect, according to the method of Abdel-Fattah (1989). This insect's feeding by using cotton pads moistened with a solution containing water and milk after placing them in Petri dishes for the purpose of obtaining eggs, and then obtaining the larva and pupae stages to obtain successive generations of the insect. The insect was reared at a temperature of (30±1)°C and a humidity of 20-30%. The obtained eggs were feeding dishes were contained artificial nutrient medium prepared according to the method of Abd (1989) For the purpose of developing the larval instars , this medium consists of 601 gm of animal manure (cow dung) that has been sterilized by autoclave at a temperature of 121 °C and a pressure of 15 pounds / ang, 5 g of yeast and 10 g of malt sugar. The larvae were reared in the incubator at a temperature of (30±20)°C and a relative humidity of (+65)% until they reached the pupae stage.

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The resulting pupae were collected and transferred to the rearing cages that were previously set up until the emergence of the adults from the virgins and their mating containing milk in addition to the plates containing sugar solution (Abdel-Fattah 1989) after being lowered onto the plates.

The larval, adult male stage were distinguished from females based on pont (1973) and Abu al-Hab (1979). The diagnosis was confirmed for Natural History Museum, University of Baghdad, as *M.domestica*.

Preparation of aqueous extracts

Prepare cold and boiled water extract of leaves for *C. Macrocarpa* separately according to Al-Mansour method (1995) which

Effects of concentrations for cold and boiled water extracts for *C.macrocarpa* on rates of egg and larval instar of *M.domestica*

Table (1) . Water cold

Extract	Egg	%		%	pupo
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Concentrations	mortality rate	1 st	2nd	3rd	mortality
0	1	4	7	12	15
0.25	33	40	45	60	100
0.5	65	80	90	100	100
1	71	85	95	100	100
2	81	95	100	100	100

Table (2) .Water boiled

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Extract Concentrations	Egg % mortality rate	1 st	2 nd	3rd	% pupo mortality
0	1.6	5	7	13	16
0.25	35	40	48	100	100
0.5	70	75	80	100	100
1	74	80	90	100	100
2	80	85	90	100	100

the physiological functions and overlaps with some vital systems of the larval instars.

As for the effect of cold and boiled water extract of the *C. macrocarpa* plant on the mortality rate of the different larval stages of the house fly, it may be due to the effect of these extracts on the efficiency of food conversion of the larvae or that they are preventative materials for feeding, and thus will cause the larvae to abstain from feeding, which led to their mortality (Rokestin. 1972). The first larval was instars more effective with an increase in the percentage of mortality compared to other larval instars and this is due to the lack of cuticle thickness in the first larval instars, which led to the entry of toxic compounds into the target organs of the larva and led to its mortality (Al-Doksaly. 1982).

The reason for the effect of the cold water extract may be due to an increase in the mortality rates compared with boiled water extract, because the cold water do not effect on enzymes and thus the active toxic substance remains unchanged and causes these percentages of mortality. The results of this study agree with the study conducted by (Khalaf 2013) in terms of the effect of the difference in the active substance, as the aqueous extract of the plant *Carrisia macrocarp* gave an effect as it reduced the percentage of eggs. It enters the inside of the eggs when immersed in the extracts and thus the eggs mortality . The effect of the water extracts on the larval instars were also attributed to it, as it causes an imbalance in



Figure (1) Effect of cold water extract concentrations of *C.macrocarpa* on the average cumulative mortality rates of adult roles of the house fly insect *M.domestica*

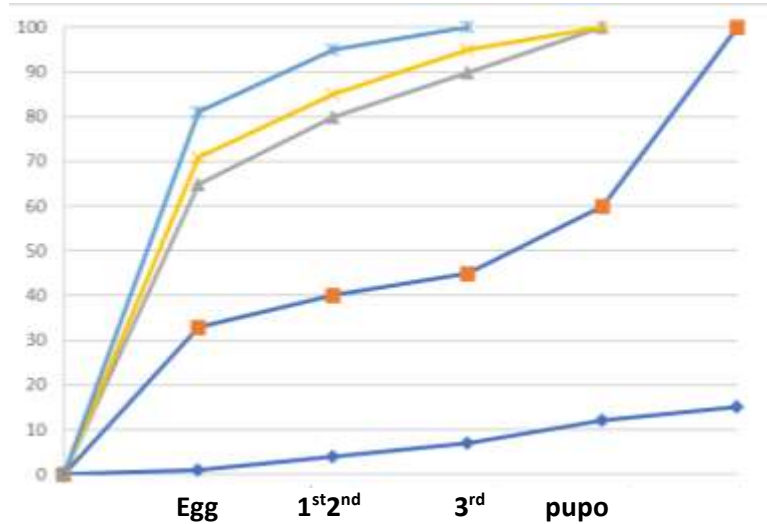
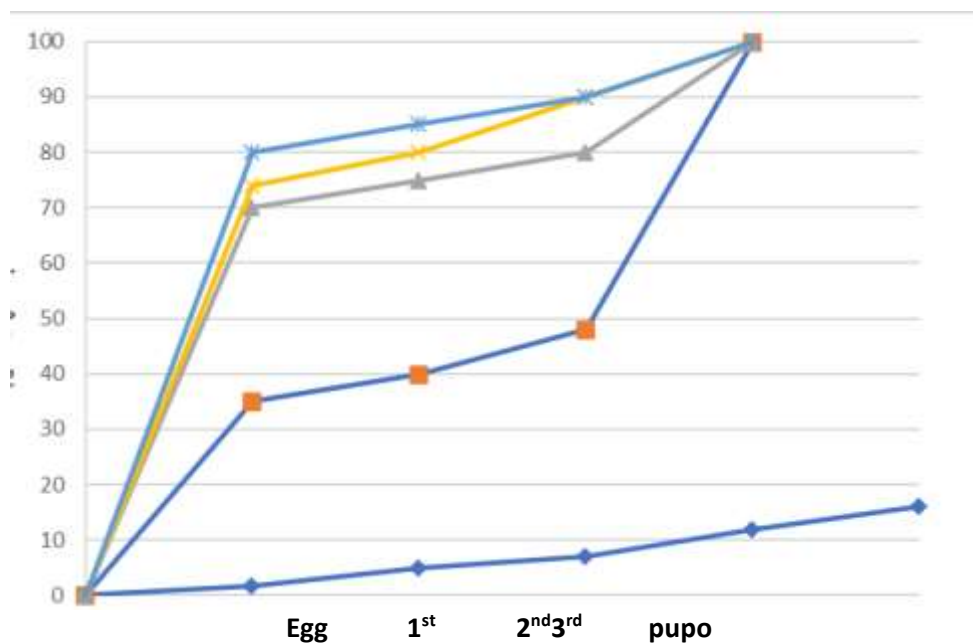


Figure (2) Effect of the concentrations of the boiled water extract of *C.macrocarpa* on the average cumulative mortality rates of immature roles of the house fly insect *M.domestica*

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