



**THE ROLE OF CERTAIN PHYSICAL AND CHEMICAL FACTORS ON THE *MUSCA DOMESTICA* L. (MUSCIDAE: DIPTERA) WITH SPECIAL CONCERN TO THE ELECTRICAL SHOCK**

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**ABSTRACT**

This study was carried out on adult, larvae and pupa of house fly, in growth chamber at  $27 \pm 1^\circ\text{C}$ . The experimental flies were collected from field of the (Delbe) village 5km. away from the West Duhok city using the hand net, during summer of 2015. The results showed that the starvation 0.01mg., insecticide 0.02mg., electrical shock 0.006mg. for adult weight starvation 3mm., insecticide 6mm., electrical shock 5mm. for adult length starvation 0.001mg., insecticide 0.3mg., electrical shock 0.5mg. for larvae weight, starvation 0.3mm., insecticide 0.9mm., electrical shock 1.01mm. for larvae length. Starvation 0.14mg., insecticide 0.27mg., electrical shock 0.02mg. for pupa weight, starvation 0.4mm., insecticide 0.5mm., electrical shock 0.8mm. for pupa length.

**Keywords;** Housefly, electrical shock, Starvation, Insecticides

**INTRODUCTION**

Housefly, *Musca domestica* L. is a global species and lives in close relations to human. It is usually considered as a mechanical vector of diseases and feed on liquid or semiliquid substances beside solid material which has been softened by saliva or vomit. Because of their large intake of food, they deposit feces constantly, one of the factors that makes the insect a dangerous carrier of pathogens of pathogenic organisms

to human and animals. *M. domestica* usually attracted to human food sources or animal wastes (Barnard et al 1995; Nmorsi *et al.*, 2007; Sanchez and Capinera, 2008; Butler *et al.*, 2010).

**The aim of this work is to shed a light on the following topics:**

The effect of certain factors such as electrical shock , insecticide and starvation on the larvae of house fly. The role of those factors on shape and

biological processes within the periods of experiment were investigated.

## MATERIALS AND METHODS

This study was conducted from July 2015 to the end of May 2016, in the growth chamber, Department of plant protection. College of Agriculture, University of Duhok.

### Experimental House Flies:

The flies were collected from the field of the (Delbe) village 5km. West Duhok city using the sweeping net, during summer of 2015. The specimens were kept inside boxes measured ( 30 x 30 x 30 cm), included Petri-dish involved the bread previously immersed in meat soup to attract the adult flies (Sanchez, 1998). Then kept in cages inside growth chamber at  $27 \pm 1^\circ\text{C}$ .

### Measurement the weight and length of the individuals: -

#### Adult, Larvae and pupa stages

The experiment was conducted to study the adult weight in control , electrical shock , the name of insecticide and starvation treatments, by picking up 10 insects from each experiment were placed in the empty capsule in fig. (1) . Measured the weight of each adult larvae and pupa by a sensitive balance ( KERN,CE WF 117421 , Germany).



Fig. (1): Adult flies in capsules

### Larvae length

Measured the length of control, insecticide, starvation and electrical shock treatments, Larvae were used from the culture were breed in growth chamber at  $27 \pm 1^\circ\text{C}$ . and the data were recorded.

## RESULTS AND DISCUSSION

This work was concerned with some factors such as (starvation , insecticide , electrical shock) and control as well.

The study performed on all *M. domestica* stages as bellow:

### Larval stage

This study indicated that the length affected significantly range starvation (0.1mm.-0.3mm.) with an average 0.17mm. The larvae were treated by insecticide range ( 0.5mm.-0.9mm.) with an average of 0.693mm.. In case of treated the larvae electrical shock , the length approached range (0.3mm.-1.01mm.) with an average of 0.680 mm.. In comparison with control treatments indicated other factors intentioned above it was found that, the control treatments gave the rang from (1mm.-9mm.) with an average 4.66mm. it could be communicated that in all factors had an highly significant as in fig.(2).

In case the weight in increase of starved larvae gave range (0mg.-0.003 mg.) with an average of 0.0009mg. probably due to consuming the essential element to inhabit the metabolic rate (Chapman 1978). In case of insecticide there are range between (0.001mg-0.3mg.) with average of 0.0288mg. as a result of sever effect of insecticide which play

good role as drastic process which destroy the internal organ, which invade the nerve system and cause the abnormal sign (Wiggles Worth 1972). Viet figure, the electrical shock sever damage to the internal organs for that

reason the range (0.04mg.-0.42mg.) with average 0.079mg. in comparison with control which take range was (0.003mg.-0.021mg.) as showed fig. (3).

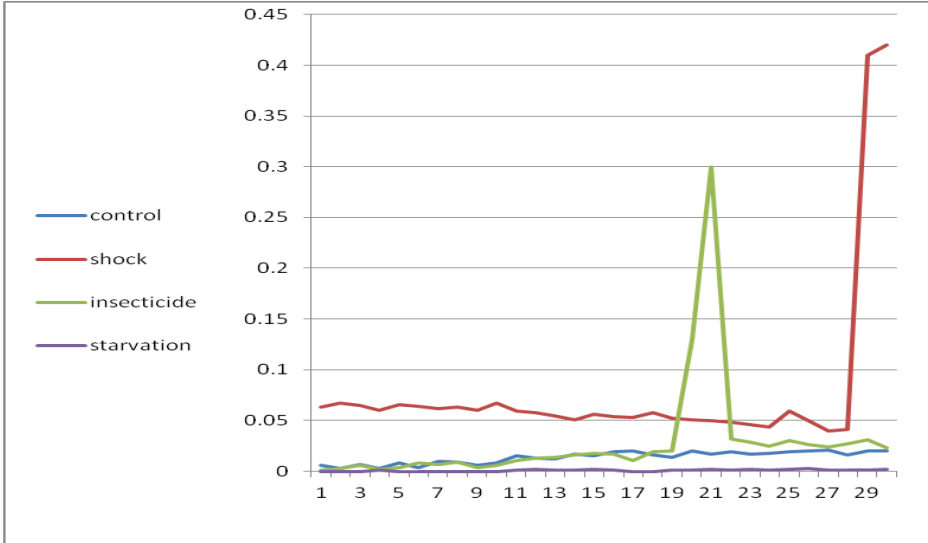


Fig. (2): Larvae Length

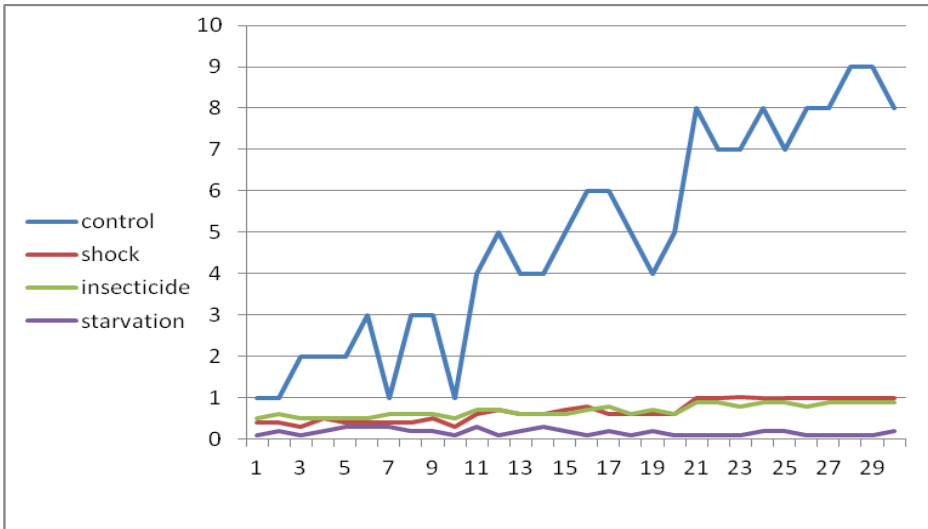


Fig. (3): Larvae Weight

**Pupa stage**

The results indicated that the pupa produced from starved larve undergo a huge and drastic alteration , so the weight decreased significantly as showed in fig. (4) the weight of starved pupa ranged (0mg.-0.012mg.) with an average 0.0058mg. while , the pupa effected severely when treted by

insecticide being the range (0.011mg-0.14mg.)with average 0.0591mg. Electrical shock played good role for effecte on enternal organ and oclosion which gave (0.022mg-0.27mg.)with an avarage 0.0494mg. while the control take the range from (0.014mg-0.035mg.).

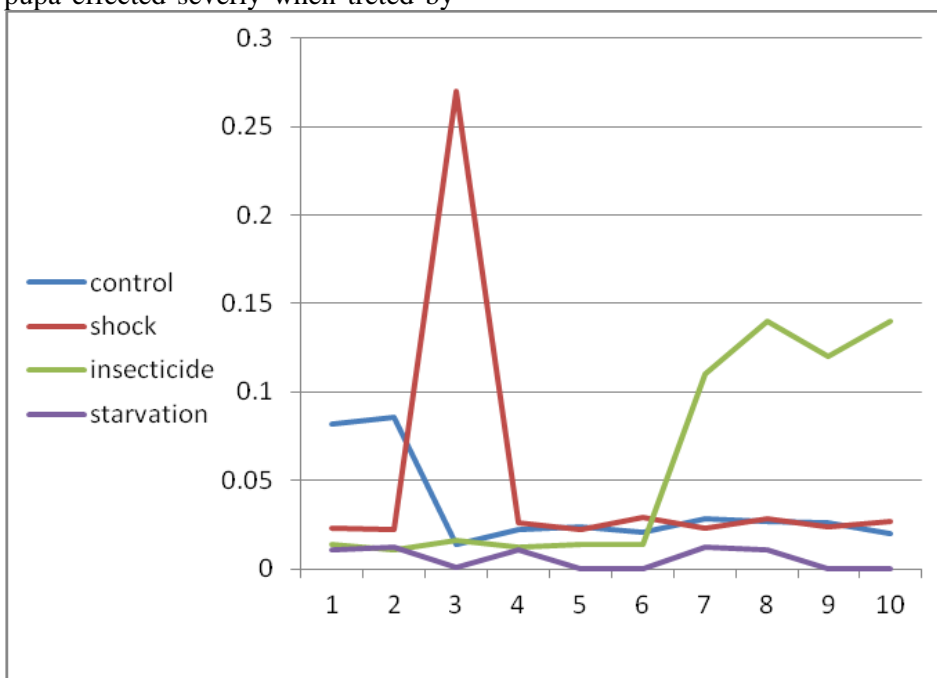


Fig.(4): Pupa Weight

The length of pupa was take the normal curve as above which take range starved larve (0.1mm.-0.4mm.) average 0.22mm. Insecticide obviously appear that the pupa affected severely which take range (0.4mg.-0.6mg.) an average 0.49mg. while electric as a highly significant effect being take (0.7mg-0.8mg.) an average 0.75mg. the control treatment which aforementioned as above. As Fig. (5).

In all factors above use mention that those factors has severed damage particularly the enternal organ so caused the declination of the curve.

**Adult weight :**

The adult stage treated (starvation gave range 0.008mg.-0.012mg. with an average 0.0099mg.) in case of two other insecticide and electrical treatments (0.015mg. , 0.0084mg.) take average, respectively, while the control gave 0.0192mg.

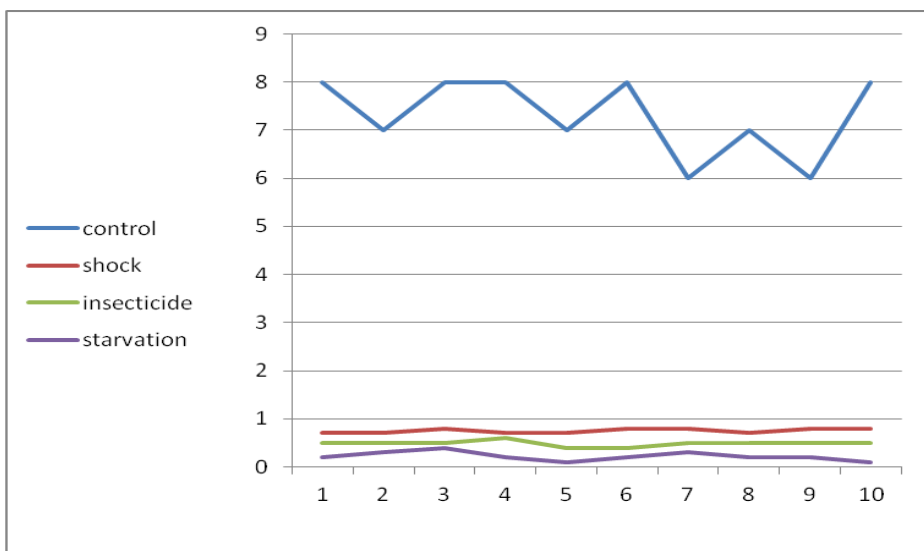


Fig. (5): Pupa Length

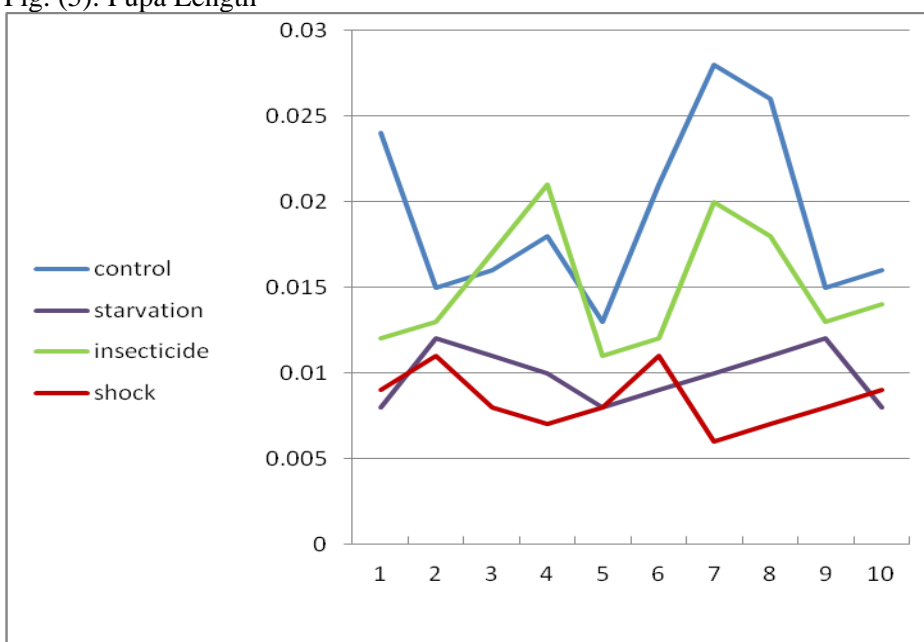


Fig. (6): Adult Weight

Effect of starvation length was significantly affect being ranged (0mm.-8mm.) with an average 7.9mm. The effect of insecticide was clearly which take the range of (3mm.-7.5mm.) averaged 408mm, electrical shock caused significant alteration inside the body particularly

nerve system and caused shacking case hardly then die. The range electrical shock was ( 0mm.-7.6mm.) averaged 1.9mm.

Finally, when make the comparison among the factors we should find a wide variation among three factors as show in figures

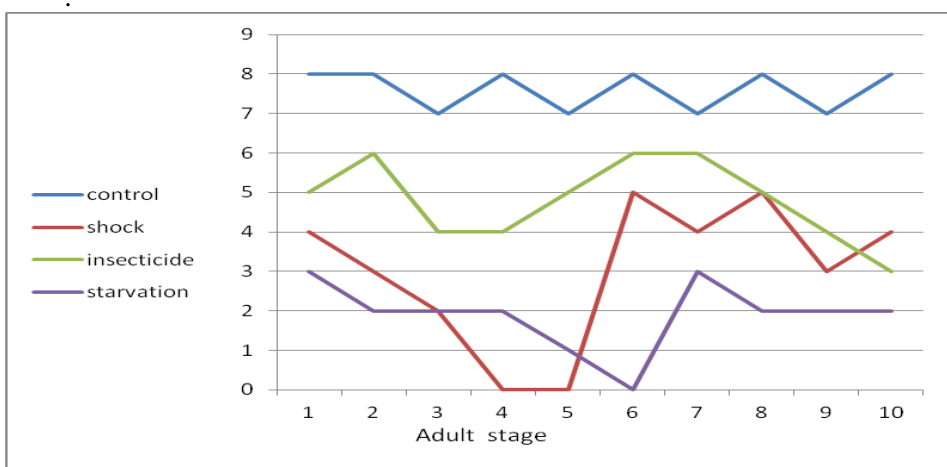


Fig. (7): Adult Length

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