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### The Role of House Fly *Musca domestica* in transmitting the Intestinal Parasites for Human

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#### ABSTRACT

The present study is made up during October 2014 till March 2015 to know the parasitic stages which are carried out by different part *Musca domestica*. The samples are collected from five different places which are included the restaurants, schools , kitchens, grid sewage and wild land. The number of the samples which are examined is reached 100 samples, all of them were examined by direct smear using the physiological solution and lugal iodine solution by flotation way and by using saturated zinc sulfide solution and diagnosed four species of intestinal parasites which are *Entamoeba coli*, *Entamoeba histolytic*, *Giardia lamblia* , *Trichomonas hominess* .

#### Introduction

*M. domestica* insect has number and spread s inside villages and towns especially the contaminated areas like grid sewage ,restaurants kitchens, animal barn [1,2].

*M. domestica* insect activates during all seasons of year however they abound in May, June and September but the decrease during winter then they start breeding in Spring and Autumn [3].

*M. domestica* insect is one of the most dangerous ones which live in human environment. The proliferation, production the oviparous in great number and the difficult fighting against insects are main reasons to spread *M. domestica* insect where these insects transform mechanically diseases from the contaminated area to human by using their wings ,mouth and feet [4].

Studies indicate that the real role of *M domestica* is transforming the reasons of diseases to human and spreading the infection because of the seasonal increases in the number of *M. domestica* fly which leads to Diarrhea and other diseases [5,6].

To know the relation between *M. domestica* and infectious parasitic diseases ,it noticed that fighting *M. domestica* by pesticides or environmental circumstances (temperature and humidity) leads to decrease the ratio of infection as well as in the number of mortality in children because of Diarrhea and fever so fly considers one of most dangerous insects in our live [7].

#### Aim of Study:

Isolate and to diagnose the transmitted intestinal parasites by *M. domestica* and indicate the effect sources and areas where *M. domestica* live and To explain the role of different parts of *M. domestica* body.

#### Materials and methods

##### Collecting samples of *Musca domestica*:

Samples of *M. domestica* has been collected in six sits in random way from October 2014 to March 2015 from butcheries, vegetables shops, grid sewage, houses and isolated areas [8].

#### Methods

**Parts of fly:** The body of fly has been divided by a septic anatomist tools under microscope. These parts are mouth, right wing, left wing, feet and parts of abdomen. Each part has put in one ml. of physiological salt solution then it has moved and alleviated to 1/10 and put in the refrigerator until to test it [9].

##### The cranking fly body in the physiology solution:

The leave fly of the six sits has dunked in the test tube containing 1ml.of physiological solution with continuous cranking for short time then kept in the refrigerator till he date of test. This process has repeated in each sit for two flies.

##### Testing the provided samples:

**Direct Method:** prepare two slide. A drop of sediment has put on the first slide then cover it with

cover. Another drop of sediment and alkaliiodine solution have put on the second slat and covered to diagnose the parasitic phases. The test has been made up twice to each sample [10].

#### Flotation Method by using saturated zinc sulfate solution:

This is one of the best methods to diagnosis of cysts and ova where the saturated zinc sulfide solution %32 has been added to the sediment in the test tube which filled with solution and covered then centrifuged at 2000/ rpm for one minute. After that the cover of the slat has been removed and transformed to another slide containing a drop of alkali iodine solution and tested under the microscope[10,11].

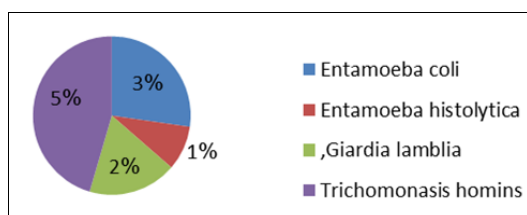
**Statistical analysis:** The data has been analyzed statically by using MINITAP system according to the test of ANOVA. The computational averages compared according to Dankins test.

#### Results

The results of the current study have indicated that there is an apparent role for *M. domesticain* transforming the intestinal parasites to human and making contamination in the different parasitic stages by testing 100 samples from different areas where the ratio of the infection with *Entamoeba coli* is 3 %, *Entamoeba histolytica* is 1 %, *Giardia lamblia* is 2 % and *Trichomonas hormones* is 5% as in table and figure -1.

**Table 1: Types of recorded parasites and ratio of contamination according to number of the 100 tested samples.**

	Types of parasites	Contaminated insects number	Ratio of infection
1	<i>Entamoeba coli</i>	3	%3
2	<i>Entamoeba histolytica</i>	1	%1
3	<i>Giardia lamblia</i>	2	%2
4	<i>Trichomonas homonas</i>	5	%5
Total of infectious insects	11	% 11	

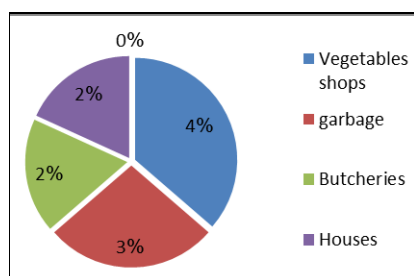


**Fig. 1: Types of parasites**

The results about the ratio of the presence of parasites in the site of flies appeared that the high ratio was in vegetables shops 4 %, carnages 3 % and the low ratio was in the wild and 0.0% as in the table and figure(2).

**Table 2: percent of infectious samples within sits of samples collecting .**

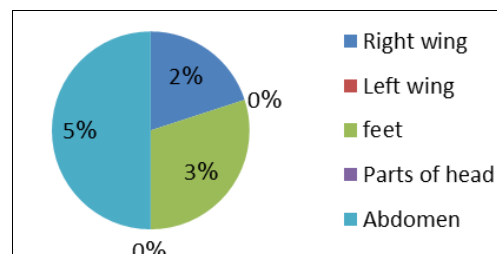
Collecting Resource	Total samples	Infectious samples	Infection Ratio
Vegetables shops	10	4	%4
Garbage	10	3	%3
Butcheries	10	2	%2
Houses	10	2	%2
Wild land	10	0	%0.0
Total	100	11	%11



**Fig. 2: presence of infectious samples within sits samples collecting**

**Table 3: parasites on the fly body**

	Insect body	Parasites	%
1	Right wing	<i>Entamoeba, entamoeba coli, Giardia lamblia, histolytica</i>	%2
2	Left wing	-----	%0.0
3	feet	<i>Entamoeba coli, Giardia lamblia, Trichomonas hominis</i>	%3
4	Parts of head	-----	%0.0
5	Abdomen	<i>Entamoeba coli, Giardia lamblia, Entamoeba Trichomonas hominis, histolytica</i>	%5
	Total		%11



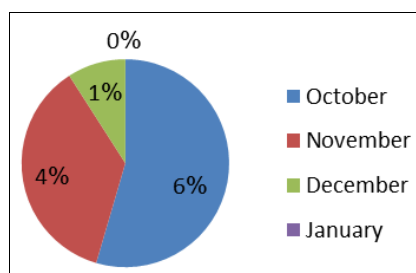
**Fig. 3: parasites on the fly body**

The study also indicates that the high ratio of contamination with intestinal parasites in October is %6, November %4 (table and figure -4). there was no recorded ratio in January because of the low temperature and high humidity which help to

decrease the movement of flies which leads to decrease the contamination.

**Table 4: The presence of intestinal parasites during months.**

	Months of year	Contamination Ratio
1	October	%6
2	November	%4
3	December	%1
4	January	%0.0



**Fig. 4: The presence of intestinal parasites during months**

## Discussion

The current study indicate the role of *M. domestica* in transforming intestinal parasites stages and making contamination in different parasitic stages by testing 100 samples from several areas where infection with *E. coli* 3 %, *E. histolytica* 1% , *G. lamblia* 2 % and *T. hominis* 5% as in table and figure (1). This result is compatible with [12,13].

To know the ratio of parasites within the sits of the house flies ,results appeared that high ratio was in vegetables shops %4 and butcheries %3.While low ratio was in wild land %0.0.This result is compatible with (14), (3)and (16).

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The results indicates that the *M. domestica* has an active role in transporting the pathological reasons by parasites at vegetables shops and butcheries for this reason we have to protect ourselves from contamination by stewing food and meat as well as washing vegetables and fruit before having food and sterilizing water [17,18].

From the current study, Results also appeared that high ratio was in abdominal surface 6 %, feet 3 %, right wing 2% and left wing recorded 0.0% as it is apparent in schedule and figure (4). This result is compatible with (14), (19), (20), (21), (22) and (23). The high ratio of intestinal parasites on abdominal surface and feet is because of cushion in the feet, filament and thorns on abdominal surface which increases number of parasites in these areas which help insects to be a perfect element to transform the pathogens reasons to human being and its active role to convey different parasitic stage[18,19,20].

The presence of parasitic stages on bodies of house fly represents the main role which caused contamination by parasites and ensure the role of these insects to transform diseases and the necessity to protect ourselves by stewing food and sterilizing water [21,22,23].

The current study indicates that the high recorded ratio of contamination with intestinal parasites in October is 6%, November 4% (table and figure - 4). There was no recorded ratio in January because of the low temperature and high humidity which help to decrease the movement of flies which leads to decrease the contamination. This result is compatible with [24,25,26,27].

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## دور الذباب المنزلي *Musca domestica* في نقل الطفيليات المعوية للإنسان

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### الملخص

اجريت الدراسة الحالية خلال المدة ما بين شهر تشرين الاول 2014 ولغاية نهاية شهر شباط 2015 لمعرفة الادوار الطفيلية التي تقوم بنقلها حشرة ذبابة المنزل بواسطة ارجل واجنحة وجسم حشرة بالكامل. جمعت العينات من خمس مناطق مختلفة (المجازر سوق الخضروات، القمامة، محل الحلويات، البرية)، وبلغت عدد العينات التي فحصت 100 عينة و تم الفحص العينات بطريقة المسحة المباشرة باستعمال المحلول الفسلجي ومحلول البيود اللوكالي وبطريقة التطويق باستعمال محلول كبريتات الخارصين المشبع. وتم تشخيص اربعة انواع من الطفيليات المعوية وهي *Entamoeba coli* , *Entamoeba histolytic* , *Giardia lamblia* , *Trichomonas hominess* .