

OCCURANCE OF ADULT MUSCID FLIES ON STICKY TRAPS IN SOME IRAQI PROVINCES

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ABSTRACT

Muscid flies *Musca domestica* L., *M. biseta* Hough, *M. crassirostris* Stein, *M. sorbens* Wied., *Muscina stabulans* (Fallen), *Atherigona orientalis* Schiner, *Atherigona* sp. and *Limnophora quaterna* (Loew) were captured by using yellow sticky traps from different provinces of Iraq during November 2010. The results showed the highest percentage of all collected species were recorded in Babylon (48.33%), while the lowest percentage was observed in Baghdad (4.88%). *Musca domestica* was the predominant species and was ranked first in overall prevalence in all provinces studies, while *M. biseta* was the lowest abundant species.

INTRODUCTION

Muscid flies small to medium size, usually dull colored, the squamae medium or large size, hypopleural bristles absent, the second antennal segment (pedicel) with dorsal longitudinal fissure, arista plumose, pubescent, or bare, eyes of males holoptic but of females dioptic, frontal bristles always present, intrafrontals frequently present. Abdomen composed of four segments in the male while five in the female (Curran, 1965; Oldroyd, 1970). While Scudder and Cannings (2006) referred to these flies are slender to stocky, 2 to 14 mm long and usually bristly. Their color ranges from yellowish to grey or black, but some are metallic blue or green. In a few cases the flies are brightly setulose. The wings are usually unmarked, but some have dark cross veins. The head is usually higher than long with the frons in males narrow to broad and its central plate sometimes strongly reduced, but in females is at least 25% as wide as the head with the central plate always distinct and normally wider than the fronto-orbital area. There are one to many frontal bristles curved inwards. The parafacial area is usually bare, but the vibrissa is normally strong.

This family worldwide distributed, contains many numbers of species which assigned to several subfamilies and tribes, and a vast number of genera. In general appearance they are often very similar to members of the calliphorid flies (Zumpt, 1965), so was written about the house fly as a carrier of disease and pest of domestic animals and also make attention to man (Curran, 1965; Pont, 1991), on the other hand Zumpt (1965) assured that muscid flies can be involved in myiasis cases. Because the flies feeds on filth of all kinds and visits our foodstuffs, lighting with impunity upon the things we would eat, it is particularly loathsome. It is attracted to almost anything that is moist, such as sputum, feces, garbage, etc., and may fly directly from any of these to food used for human consumption.

Flies were implicated in the direct and indirect mechanical transmission of a number of pathogens responsible for human disease, especially those causing diarrheal illness; the

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common factor in the ecology of several species of flies are their utilization of decomposing organic materials as food sources for the adults and as developmental media for their larvae. Considering that these materials are often carrion, feces and food wastes (all with associated pathogens) (White, 2006) furthermore there are many species of flies can be lay their eggs in open wound of man and animals causing Myiasis disease (Zumpt, 1965).

The following species were reported in Iraq; *Musca determinate* Walker, *M. humilis* Wied., *M. vitripennis* Meigen, *M. tempestiva* Fallen, *Philaematomyia crassirostris* Stein, *Stomoxys calcitrans* (L.), *Lyperosia exigue* DeGeer, *L. minuta* Bezzi and described *Musca mesopotamiensis* as a new species Patton(1920), while Khalaf (1957) was recorded species *Muscina stabulans* (Fall.), *Graphomya maculate* (Scope.), *Musca sorbens* Wied., *Musca domestica vicina* Macq., *M. domestica nebulo* Fab., *M.domestica* complex, *Limnophora* sp. and *Daysphora hirsutoculata* (Macq.), also *Lispe assimilis* L. and *L. longicollis* (Meigen) were recorded by (Khalaf, 1963 more ever Hussain (1963) recorded the species: *Musca vicina* Macq., *M. sorbens* Wied., and *Muscina stabulans* Fall..

Furthermore (Derwesh, 1965) was referred that the following species found in Iraq were: *Musca domestica* Lin., *M.crassirostris* Stein, *M. stabulans*, *Stomoxys calcitrans* (L.) and *Limnophora* sp., whereas Kaddou (1967) recorded that *Atherigona orientalis* Sch., *Lispe leucospila* Wied. and *Muscina assimilis* (Fall.) , Abdul-Rassoul (1969) showed the species of North of Iraq were: *Musca larvipara* Protsch, *Morellia simplex* (Loew), *Dasyphora sultum* Rond., *Pyrellia cadivera* L. *Muscina pablorum* Fall. and *Myiospla meditabunda*; El-Haidari et al (1972) recorded the species *Atherigona varia* Mgn., *Helina duplicata* Mgn. and *Dasyphora asiatica* Zimin; whereas Khalaf and Al-Omar (1974) reported *Atherigona soccata* Rond., *Coenosia attenuata* Stein, *C. tigrina* Fall., *Coenosia* sp., *Lispe pygmaea* Fall., *Musca larvipara* Portsch and *M. tempestiva* Fall.

Recently, Al-Saffar (2003) studied the taxonomical aspects of this family in the Middle of Iraq and the following three species are recorded for the first time as new records in Iraq: *Musca autumnalis* De Geer, *Atherigona leavigata* (Loew) and *A. theodori* Hennig.

The aim of this study was to determine the presence of the fly species as their captured by sticky traps near livestock in some provinces of Iraq.

MATERIALS AND METHODS

Many samples were collected from sticky traps from Iraq State Board for Veterinary Services during November 2010, Fly populations were monitored using 50 x 24.5 cm yellow sticky traps (Starkeys products) Figure -1, traps consist of attractive lure which composed of several chemicals as showed in table 1; these samples represent some areas of some provinces of Iraq. The provinces were Baghdad (Tagi); Babylon (Alexandria); Najaf (Al-Kifal); Missan (Ali Al-Gharbi); Nainava (Kokagi) and Diyala (Baqubah).

The flies were examined with the aid of dissecting microscope after removing them from the traps by xylol. Then using keys for diagnosed them such as Pont (1991) and Al-Saffar (2003), in addition the samples compared with specimens which kept at Iraq Natural History Museum.

The temperature and relative humidity through this study obtained from Iraqi meteorological office. The distribution or presence of flies was recorded.



Figure 1: yellow sticky trap (Starkeys products)

Table 1: The composition of attractive lure used in the sticky trap

No.	Compounds	Amounts
1	Benzoic acid	12gm
2	Indole	12 gm
3	Sec- Butyl Alcohol	187 ml
4	Iso- Butyl Alcohol	187 ml
5	Acetic Acid (1.7N)	102 ml
6	Butyric acid	82 ml
7	Valeric acid	82 ml
8	Phenol	50 ml
9	P-cresol	50 ml
10	Dimethyl Disulfid	187

RESULTS AND DISCUSSION:

The following species were captured in the sticky traps: *Musca domestica*, *M. biseta*, *M. crassirostris*, *M. sorbens*, *Muscina stabulans*, *Atherigona orientalis*, *Atherigona* sp. and *Limmophora quaterna*, the last one appeared to be a new record for Iraq their prevalence, temperatures and relative humidity were recorded in table 2.

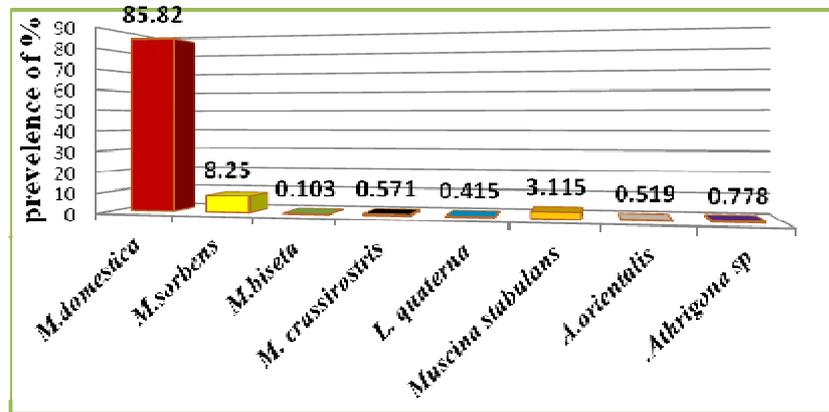
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Table-2: Species record of muscid flies which recorded in some provinces of Iraq through November 2010

Province	Species	NO.	Temp. °C		RH%	%
			Min.	Max.		
Baghdad	<i>Musca domestica</i>	69	10.1	27.7	46	4.88
	<i>M. sorbens</i>	7				
	<i>Atherigona orientalis</i>	10				
	<i>Limnophora quaterna</i>	8				
Babylon	<i>Musca domestica</i>	779	11	27.8	49	48.33
	<i>M. sorbens</i>	143				
	<i>M. biseta</i>	1				
	<i>M. crassirostris</i>	8				
Nijef	<i>Musca domestica</i>	175	12.9	28.3	41	9.76
	<i>M. sorbens</i>	9				
	<i>M. crassirostris</i>	3				
	<i>M. biseta</i>	1				
Missan	<i>Musca domestica</i>	140	12.2	29.4	51	9.98
	<i>Muscina stabulans</i>	50				
	<i>Atherigona sp.</i>	2				
Diyala	<i>Musca domestica</i>	335	11.4	28.3	48	18.49
	<i>Muscina stabulans</i>	8				
	<i>Atherigona sp.</i>	13				
Nainava	<i>Musca domestica</i> L.	155	6.1	14.7	56	8.56
	<i>Muscina stabulans</i>	10				

Furthermore Table-2 showed the estimated total number of muscid flies during the month of the study, the highest percentage of all collected species prevalence in Babylon (48.33%), while the lowest percentage was in Baghdad (4.88%). Whereas in Nijef, Missan, Diyala, and Nainava were (9.76, 9.98, 18.49, 8.56) % respectively. The provinces which showed the lowest percentage of flies could be due to the dusty climate which caused lower fly catch rates and indicated that dust accumulation on traps may reduced trap efficiency (Kaufman, et al. 2001) and may be resulted in decreasing the activity of flies flying.

The survey showed that the house fly, *Musca domestica* was the predominant species and it had the first ranked in overall prevalence in all provinces under studies (Figure 2). The house fly was commonly found wherever man has established himself, therefore it can be found in abundance at fisheries, slaughterhouses, garbage disposal sites, vegetable farms, market places and poultry farms (Sulaiman et al., 1988). The high numbers of *M. domestica* recorded in the current study was similar to previous studies of flies associated with waste in other countries (Imai, 1985; Essa & El Sibae, 1993, Nurita et al. 2008). However, Goulson et al. (1999) reported low proportions of *M. domestica* in flies emerging from garbage in landfills.

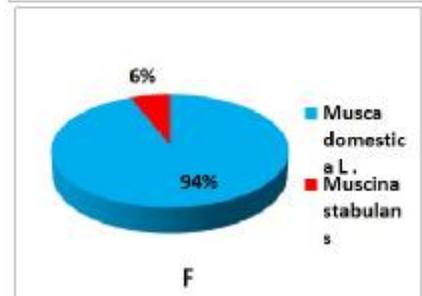
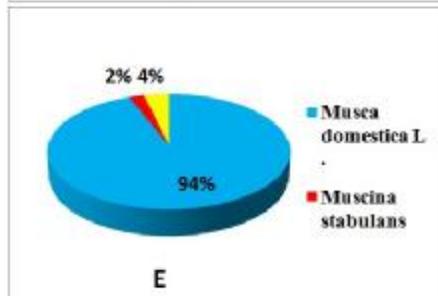
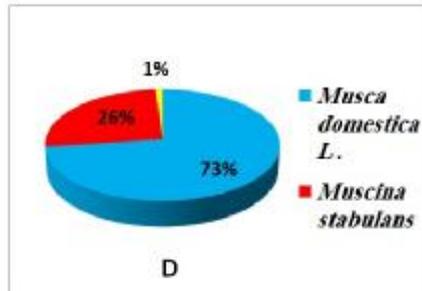
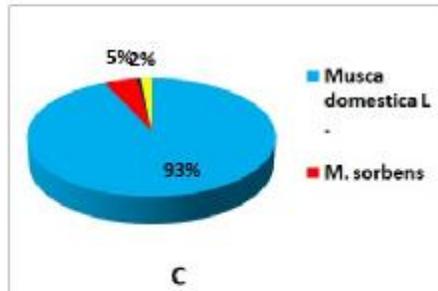
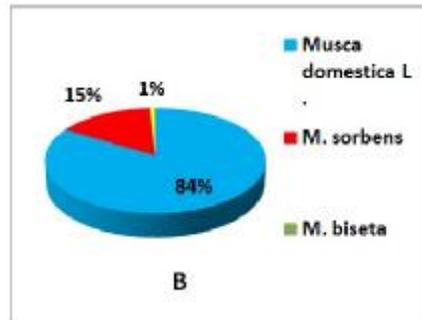
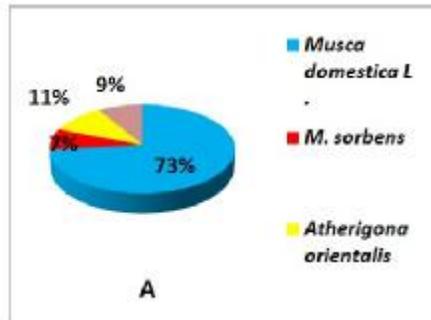


The abundance of collected species was: In Baghdad as the follows *Musca domestica*, *Atherigona orientalis*, *Limnophora quaterna*, and *M. sorbens*, the percentage of these types as illustrated in table 2 and figure (3 A), this results in agreement with the results of Abul-hab (1980); Aboul-hab and Kassal, (1998) and Abdul-Rassoul *et al.* (2009) for *M. domestica* and *M. sorbens*. These authors could not recorded the other two species because they did not associated with carcasses but they were agricultural pests.

In Babylon the collected species were *Musca domestica* L., *M. sorbens*, *M. crassirostris*, and *M. biseta*., the percentage of these species as in table 2 and figure (3 B). In Nijef the collected species were *Musca domestica* L., *M. sorbens*, *M. crassirostris*, and *M. biseta*, the percentage of these species as in table 2 and figure (3 C). While in Missan the collected species were *Musca domestica* L., *Muscina stabulans*, and *Atherigona* sp., the percentage of these species as recorded in table 2 and figure (3 D).

In Diyala the collected species were *Musca domestica* L., *Atherigona* sp. and *Muscina stabulans*, the percentage of these species as in table 2 and figure (3 E). Finally in Nainava collected species were *Musca domestica* and *Muscina stabulans*, only the percentage of these two species as illustrated in table 2 and figure (3 F).

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دراسة التواجد لكاملات عائلة الذباب المنزلي على اللواصق الجاذبة في بعض محافظات العراق

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الخلاصة

استخدمت اللواصق الجاذبة الصفراء لجذب كاملات عائلة الذباب المنزلي، حيث تم اصطياد الانواع الاتية:

Musca domestica L., *M. biseta* Hough, *M. crassirostris* Stein, *M. sorbens* Wied., *Muscina stabulans* (Fallen), *Atherigona orientalis* Schiner, *Atherigona* sp.

اضافة إلى النوع (*Limnophora quaterna* (Loew) من عدة محافظات عراقية طيلة شهر تشرين الثاني، سجلت محافظة بابل اعلى نسبة للذباب حيث بلغت % ٤٨.٣٣ بينما كانت اوطأ نسبة % ٤.٨٨ و التي سجلت في محافظة بغداد. كما أكدت الدراسة على سيادة النوع *Musca domestica* على باقي الأنواع، أما النوع *M. biseta* فكان الأقل تواجداً .