

## SURVEY OF BRACHYCERA FLIES ON ALFALFA

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### ABSTRACT

Brachycerous Dipteran species on alfalfa plant *Medicago sativa* surveyed in several regions of Iraq from March to November 2012. The study was registered 14 species belonging to nine genera and four families. The results showed that *Limnophra quaterna*, *Atherigona laevigata* and *Atherigona theodori* as new records to Iraq and new pests of alfalfa.

**Keywords:** alfalfa, Brachycera species, pests, *Medicago sativa*.

### INTRODUCTION

*Medicago sativa*, (Family: Legminosae), is the most important forage crop. Alfalfa is a perennial legume with high protein content dense foliage. A stand alfalfa sometimes lives for as long as 30 years (Oklahoma S. U., 1982) and therefore, provides a relatively stable and favorable habitat for a large number of insects and arthropods. (Al Suhaibani, 1996).

Brachycera Diptera is a large group of species which diagnosed by short antennae consists of three segments and flagellum compact to along joint bears an aristate or stylate. The palpi are porrect and one or two jointed; the first anal cell is either closed or narrowed towards the margin of wing. (Comstock, 1948).

Brachycera was divided into two sections: Orthorhapha and Cyclorhapha according to the presence or absence of ptilinum suture (Oldroyd, 1970). The latter is divided into other sections are: Calyptrate and Acalyptrae flies (Roback, 1951; Brues *et. al* 1954; Ross, 1956; Curran, 1965; Unwin, 1981; Scudder and Cannings, 2006).

Calyprate flies characterize from these features; The second segment of antennae (pedicle) has longitudinal fissure, frontal linule has ptilinum suture, vabrissae present; mesothorax with complete transverse suture and the most diagnostic character is the presence of large squamae., such as Muscid flies.

Acalptrat flies can diagnosed from the absence of: long tudinal fissure of pedicle, Vabrissae, and squamae, but the transvers suture at mesothorax is incomplete, such as Tefritid flies.

The previous records of Brachycera flies of alfalfa in Iraq Derwesh, 1965; El-Haderi *et al* 1972; Al-Ali 1977 and Al- Saffar 2003, 2011 announced to some flies associated with alfalfa.

The Aim of this study was to determine the prevelance of Brachycera flies species which were founded on alfalfa plant in several region of Iraq.

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### MATERIAL AND METHODS

Specimens were collected from alfalfa field of several regions of Iraq in period from February to November (2012) by standard sweeping net and collecting leaf miners by bring the infested leaves to laboratory and put them in Petri dishes until the adult impressed. Some of alfalfa brachycerous dipteral are mounted by insects' pins and smallest others were preserved in small capsules. Locality and date of collection were recorded and keys were used for diagnosed as follows: Spencer, 1972; Pont, 1991; Pont & Magpayo 1995. In addition the specimens were compared with collecting specimens were kept in the Department of Entomology at Iraq Natural History Museum-University of Baghdad.

### RESULTS

In this study which have been taken for gathering and identification of Brachycerian flies in alfalfa fields in several regions of Iraq in 2012, totally 14 species. These species belonging to nine genera and four families have been collected. These species and their particular features were as follow:

#### 1-Family Musidae (House flies)

There are small to median size flies, bodies grey-whitish grey, the main diagnostic characters are: the arista of flagellum plumose, pubescent and bare; hypopleural bristle absent; first anal vein 1<sup>st</sup> A1 not reach to wing margin; hind tibia without true sub median dorsal bristle. This family is calyprate flies. Pont 1986; Imms 1977.

In this case there are eight species belong to three genera *Musca domestica* L., its wiedy distributed and collected from Baghdad, (Taji); Kerbala; Kut; Nejef; Basra, Abul-Khaseeb, at March, April, May, to October *Musca sorbens* Wiedemann. collected from Taji at October .

Five species of genus *Atherigona* Rondani were collected from many regions, and easily diagnosed from the quadrate shaped of head in side view. flagellum long and arista bare. The species are *Atherigona orientalis* Schiner collected from Baghdad, Al-Taji on June, *A. laevigata* (Loew) collected from Kufa, Nejef on October and November, as new record and new pest of alfalfa. *A. theodori* Hennig collected from Kut on May as new recod too. *A. soccata* Rondani collected from Abo-Ghraib, Al-Taji on April and May. *A. varia* (Meigen) collected from Abu-Ghraib at November. It was agree with El-Haidari 1972.

*Limnophora quaterna* (Loew) collected from Abu-Ghraib on April, as new record for Iraq.

#### 2- Family Tephritidae (Fruit flies)

Species of fruit flies were small to median size and diagnosed from Vibrassae absent, wings with attractive spots or lines or both of them, subcosta short and bend towards costal vein at right angl and not reach the wing margin. Cole 1969. Three species belong to two genera, *Trupanea auger* (Frauenfeld) collected from Abu Graib on March, from Abul-Khaseeb, Basrah on 21<sup>st</sup> of March. *Trupanea amoena* (Frauenfeld) from Kerbalaa on July. *Acanthiophilus helianthi* Rossi collected from Baghdad, Abu Ghraib on March, May. Abul Khaseeb, Al Basrah on March.

#### 3- Family Agromyzidae (Leaf Miner)

Small flies 2- 4 mm soft not dark, Acalyprtat flies, arista bare, wing hyline without spotted. In this study there were three species belonging to three genera. *Agromyza nana* Meigen collected from Baghdad, Abu Graib, Taji on March. *Liriomyza bryoniae* Kitb. collected from Abu - Ghraib on May. *Phytomyza atricornis* Megin collected from Kerbalaa on May.

Hanaa H. Al-Saffar

4- Family Syrphidae (Flower flies)

Small to big species with attractive colors diagnosed from the superior vein on wing. *Syrphus* sp. as pollinators collected on March from Baghdad.

LITERATURE CITED

- Al-Ali, A. S. 1977. Phytophagous and Entomophagous insects and mites of Iraq. *nat. His. Res. Cent., Publ. No. 33, 142Pp.*
- Al-Saffar, H. H. 2003. The taxonomic study of the family Muscidae (Insecta: Diptera) in the middle of Iraq. Msc thesis of Biology Department, Collage science, Baghdad University, 194 Pp.
- Al-Saffar, H. H. 2011. The taxonomic study of fruit flies family: Tephritidae (Insecta: Diptera) from some Governorate of Iraq. PhD. thesis of Biology Department, Collage science, Baghdad University. 179Pp.
- Alsuhaybani, A. M. 1996. Entomofauna of alfalfa in Riyadh, Saudi Arabia. *J. King Saud Univ. Agr. Sci.*, 8(2): 269-277.
- Brues, C. T.; Melander, A. L. and Carpenter, F. M. 1954. Classification of Insects. Keys to the living and extinct families of insects, and to the living families of other terrestrial arthropods. *Bull. Mus. Comp. Zool. at Harvard College. Vol. 108, Cambridge, Mass. U. S. A., printed for the museum, 917 Pp. (Diptera: 305-538).*
- Cole, F. R. 1969. The flies of Western North America. University of California Press Berkeley and Los Angeles, 693 pp.
- Comstock, J. H. 1948. An introduction to Entomology. Ninth Edition Revised. Ithaca, New York Comstock Publishing Company Inc 1064 Pp. (Diptera, Chapter 38: 773-876.)
- Curran, C. H. 1965. The families and genera of North American Diptera. 2<sup>nd</sup> rev. ed. Henry Trip, 515 pp.
- Derwesh, A. I. 1965. A preliminary list of identified insects and arachnids of Iraq. *Direct. Gen. Agric. Res. Proj. Baghdad, Bull. No. 121: 123Pp.*
- El-Haidari, H.; Fattah, Y. M.; Sultan, J. A. 1972. Contribution to the fauna of Iraq. Director general of Plant Protection, Part 4, Bull. 18 (4): 1-17 pp.
- Imms" A. D. 1977. Classifications and biology. *In: General Textbook of Entomology.* Richard, O. W. and Davies, R. C. (eds) Chapman and Hall Ltd. London, 1345Pp.
- Oklahoma State University. " Alfalfa Production and pest management in Oklahoma ". Coop. Ext. seav., Div. of Agric. Circular E-826 Oklahoma State Univ.
- Oldroyd, H. 1970. Diptera, Introduction and key to families. *Handbk. Ident. British insects.* 1 (1): 1- 105.

Survey of Brachycera Flies on Alfalfa

- Pont, A. C. 1986. Family Fanniidae and family Muscidae: 41 -215. *In: Catalogue of the Palaearctic Diptera, Volum 11, Scatopsidae, Hypodermatidae*, Ed. By Soons, A. and L. Papp, Budapest., 436 Pp.
- Pont, A. C. 1991. A review of the Fanniidae and Muscidae (Diptera) of the Arabian Peninsula. *Fauna of Saudi Arabia*, 12: 312-365.
- Pont, A. C. and Magpayo, F. R. 1995. Muscidae of shoot flies of the Philippines Islands (Diptera: Muscidae) genus *Atherigona* Rondani. *Bull. Ent. Res. Suppl. (3): 1-123*.
- Roback, S. S. 1951. Aclassification of the Muscoid Calyptrate Diptera. *Ann. Ent. Soc. Amer.* 44(3): 327-361.
- Ross, H. H. 1965. A text book of Entomology. 3<sup>rd</sup> Ed. John Wiley & Sons, Inc. New York, 539 pp. (Diptera: 361-391) .
- Scudder, G. G. E. and Cannings, R. A. 2006. The Diptera families of British Colombia. *The Diptera families of British Colombia. 1-158*.
- Spencer K. A. (1972) Diptera: Agromyzidae. Handbooks for the Identification of British Insects 10 (5). Royal Entomological Society of London. 136 pp.
- Unwin, D. M. 1981. A key to the families of British Diptera. *Field studies*, 5: 513-553. *AIDGAP Tested*

## مسح للذباب قصير قرون الاستشعار على نبات الجت

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### الخلاصة

درست انواع الذباب ذو القرون القصيرة على نبات الجت *Medicago sativa* في عدة مناطق من العراق للفترة من آذار الى تشرين الثاني عام ٢٠١٢ وسجلت هذه الدراسة ١٤ نوعاً تعودى تسعة اجناس واربع عوائل وأظهرت النتائج ان *Atherigona* و *Limnophra quaterna* و *Atherigona theodori* و *laevigater* هي تسجيلات جديدة للعراق وآفات جديدة على نبات الجت.