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SURVEY OF BRACHYCERA; DIPTERA FROM SEVERAL REGIONS OF IRAQ

Hanaa H. Al-Saffar* and Razzaq Sh. Augul**
Iraq Natural History Research Center and Museum, Baghdad University;
Baghdad, Iraq.
*hanaahani2014@gmail.com
**razzaqshalan@gmail.com

ABSTRACT

A total of 533 specimens were collected in survey of Brachyceran species from different regions of Iraq during February to November 2014 .This study was reported 16 species belonging to 13 genera and 7 families, the results showed that *Dicranosepsis* Duda, 1926 (Family; Sepsidae) is recorded the genus for the first time in Iraq.

Key word: Brachycera, Diptera, Fauna, Iraq, Survey.

INTRODUCTION

The Diptera, commonly called true flies or two-winged flies, are a familiar group of insects that includes, among many others, black flies, fruit flies, horse flies, house flies, midges, and mosquitoes. The Diptera are among the most diverse insect orders, with estimates of described richness ranging from 120,000 to 150,000 species (Colless and McAlpine, 1991; Schumann, 1992; Brown, 2001; Merritt *et al*., 2003) and the number of species were increased to 152,956 under 10000 genera belonging to 150 families (Thompson, 2008; Chapman, 2009). The Diptera are diverse not only in species richness, but also in their structure, habitat exploitation, life habits, and interactions with humankind (Hennig 1973, McAlpine *et al*.,1987; Pape, 2009; Papp and Darvas, 2000; Brown, 2001; Skevington and Dang, 2002).

A large number of fruit flies (Tephritidae) are capable of causing considerable economic damage to fruits and vegetables, making these flies perhaps the most important dipteran family to agriculture (Dowell and Wange, 1986; McPheron and Steck, 1996). The Agromyzidae, well known for the plant-mining habits, also contain a number of important plant pests (Spencer, 1973 and 1990).

The families Calliphoridae, Oestridae, and Sarcophagidae are the major producers of myiasis. The species of Oestridae are involved in dermal, enteric, and nasopharyngeal myiasis of animals and sometimes humans. The larvae of cattle grubs migrate through the host's body and eventually reach the upper back where they cut a small opening in the hide and remain there until ready to pupate. Economic losses result from reduction in milk production, weight loss, and damage to hides (Zumpt, 1965; Scholl, 1993).

The Aim of this study is to determine the prevalence of Brachyceran species which were founded from several regions in Iraq.

MATERIALS AND METHODS

Specimen collection: In the present study there were different methods used for collecting adult Brachyceran flies such as: carcasses, fields of alfalfa plant and light traps; to capture the specimens were used variant instruments: direct colleting by forceps, aspirators, yellow sticky traps, sweeping and aerial nets; also we utilized some of the non identification collection of Iraq Natural History Museum at Baghdad University. Morphological observation was made with a dissecting microscope and figured by Dino Lite, Digital Microscope.

***Identification*:** variant keys were used for diagnosis them such as: Curran (1965), Zumpt (1965), Oldroyd (1970), Unwin (1981), Pont (1991), Mawlood (2001), Al-Saffar (2003), Scudder and Cannings (2006) and Letana (2014). In addition to compare with identified specimens which kept at Iraq Natural History Museum.

RESULTS AND DISCUSSION

Family: Tabanidae

One species only was collected in current study; members of this family that habitually attack humans and livestock are widely regarded as pests because of the bites that of most species inflict, and the diseases and parasites that some species transmit (Wilkerson and Butler, 1984).

***Tabanus autuminalis* Linnaeus, 1761**
Material examined: two specimens collected from Baghdad, Abu Ghraib at 16.VII.2014.

Distribution: Northern Africa (Morocco, Algeria, Tunisia, Egypt), Turkey, Iran, Iraq, Syria, Israel (Theodor, 1965) and Jordan (Al-Talafha *et al*., 2004).

Family: Sepsidae

The specimens belong to this family were collected from a rat carcass in decay stage. This family commonly called the black scavenger flies or ensign flies. There are over 300 species worldwide; they are usually found around dung or decaying plant and animal materials (Ang and Meier, 2010).

Genus: *Dicranosepsis* Duda, 1926 (figure (1))
Material examined: 2 specimens collected from Baghdad, Bab Al-Mouadham at 24.III.2014.

Distribution: Oriental, Australasian, Afrotropical region. Newly recorded to Iraqi fauna.

Briefly description:
Body length: 3-4mm
Color: Body shining black with exception: face, thoracic pleura, antennae, veins and fore legs are brown; mid and hind legs dark brown; wings hyaline.

Humerals and postoculars present; first and second basal cells of wing separated; microsetae present, and often macrosetae on abdomen; Orbital bristles lacking or very small;, strongly constricted behind second tergite; usually two dorsocentrals.

Diagnostic characters:

Distance between eyes at level of vibrissae significantly larger than the width of postpedicel, 2-3 vibrissae; Occipital sclerite with several setae. Arista bare; Abdomen of both sexes without distinct macrochaetae, although sometimes with somewhat stronger hairing on

tergal margins and with strong anal bristles; wing darkened along costa basally; sternopleura shining anteroventrally.

Calliphoridae

In our investigations, most of specimens belong to this family were collected by using rat carcasses, these species are usually the first insects come to carrion because they have the ability to odor dead animal matter from up to 1 mile (1.6 km) away (Smith, 1986; Greenberg, 2004); Therefore, they are the primary and, most accurate forensic indicators of time of death and their development rates are needed to allow more, precise PMI estimates (Grassberger and Reiter, 2001).

***Chrysomya megacephala* (Fabricius, 1794)**

Material examined: 43 specimens were collected from Baghdad Province, Bab Al-Mouadham: 3, 1.IV.2014; 1, 2.IV.2014; 4, 3.IV.2014; 4, 28.IV.2014; 5, 29.IV.2014; 3, 2.V.2014; 5, 2.V.2014; Al-Madaen District: 9 specimens, 2.V.2014; Saladin Province, Tuz Khormato: 1, 23.IV.2014 and 8 specimens from Qaddissya province, Diwaniyah at 11.XI.2014.

Distribution: Australia, Africa, Palearctic Region, South and North America (Zumpt, 1965; Tomberlin *et al*., 2001; Williams and Villet, 2006).

***Ch. albiceps* (Wiedemann, 1819)**

Material examined: 77 specimens were collected from Baghdad: Bab Al-Mouadham; 2, 1.IV.2014; 10, 1.IV.2014; 16, 2.IV.2014; 7, 29.IV.2014; 7, 30.IV.2014; 3, 2.V.2014; 6, 2.V.2014; 2, 16.VI.2014; Al-Mada′in district 4, 17.VI.2014 and 20 specimens from Qaddissya province, Diwaniyah at 11.Nov.2014.

Distribution: widely distributed in the Southern Palearctic, Northern Oriental and Afrotropical regions and Central and South America (Baum-gartner & Greenberg, 1984; Grassberger *et al*., 2003; Verves, 2004; Richards *et al*., 2007).

***Calliphora vicina* Robineau-Desvoidy, 1830**

Material examined: 143 specimens were collected from Baghdad, Bab Al-Muadham: 14, 3.III.2014; 5, 4.III.2014; 12, 5.III.2014; 23, 6.III.2014; 7, 17.III.2014; 19, 18.III.2014; 16, 19.III.2014; 3, 21. IV.2014, 4, 24.III.2014, 1, 25.III.2014; 2, 27.III.2014; 5, 31.III.2014; 6, 1. VI.2014, 7, 2.IV.2014; 1, 3.IV.2014; 6, 2.VII.2014 and 12 specimens from Al-Qaddissya province, Diwaniyah at 11.Nov.2014.

Distribution: worldwide **(Rognes, 2007).**

***Lucilia cuprina* (Wiedemann, 1830)**

Material examined: 25 specimens were collected from Baghdad: Bab Al-Mouadham 5, 31.III.2014; 3, 25.IV.2014, 4, 28.IV.2014, 3, 29.IV.2014; 6, 16.VI.2014 and 4 specimens at 17.VI.2014.

Distribution: This species is almost worldwide in the tropics and warmer climates; it is found in southern United States, Uruguay and northern Argentina (James, 1970); also found it in Peru (Baumgartner & Greenberg, 1985). Mariluis *et al*. (1994) found it in Argentina, Colombia, and Paraguay. Whitworth (2010) recorded it in the West Indies, Cuba, Haiti, Jamaica, Puerto Rico, Trinidad, and Virgin Islands. This species possible occurrence in all countries of the Middle East (Akbarzadeh *et al.*, 2015).

Lucilia sericata (Meigen, 1826)

Material examined (17 specimens): Baghdad, Al-Madaen District: 12, 17.IV.2014 and 5 specimens were collected from Qaddissya province collected at 13.XI.2014.

Distribution: Nearctic Region (Hilburn, 1994; Whitworth, 2010), wide distribution in all countries of the Middle East (Akbarzadeh *et al*., 2015).

Sarcophagidae

This family is attracted to many types of dead vertebrate remains, including humans (Nishida, 1984); this family has a worldwide distribution and is one of the most biologically diverse families of calyptrate flies, containing sarcosaprophagous and parasitic species (Pape, 1996).

***Sarcophaga africa* (Wiedemann, 1824)**

Material examined: 20 specimens were collected from Baghdad: Bab Al-Mouadham 1, 5.III.2014; 2, 27.III.2014; 1, 2.IV.2014; 3, 3.IV.2014; 1, 8.IV.2014; 2, 29. IV.2014; 4, 30.IV.2014; 1, 2.V.2014; 3, 16.VI.2014 and 2 specimens collected at 17.VI.2014.

Distribution: Nearctic, Palearctic, Afrotropical, Neotropical, Oriental and Australian regions (Meiklejohn, 2012).

***Ravinia pernix* (Harris, 1780)**

Material examined: 7 specimens were collected from Baghdad: Bab Al-Mouadham 1, 25.III.2014; 1, 27.III.2014; 1, 8.IV.2014; 2, 29.IV.2014; 1, 30.IV.2014 and 1 specimen collected at 2.V.2014.

Distribution: Austria, Belarus Belgium, Britain, Bulgaria, Canary Is., Corsica, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Malta, Norway, Poland, Portugal, Romania, Slovakia, Spain, Sweden, Switzerland, The Netherlands, Turkey, Ukraine, (Kara and Pape, 2002).

Muscidae

In this survey the specimens were collected from field of alfalfa, weeds, filth and decay substances.

***Musca domestica* Linn. 1758**

Material examined (155 specimens): 68 specimens were collected from Baghdad province: Bab Al- Muadham 37, 22.II.2014; Kadhumyia 31, 10.III.2014; 30 specimens from Karbala province, Karbala on 11.V.201; 20 specimens from Basra, Abu Al- Khaseeb at 25.III. 2014; 27 specimens from Al- Najaf province, Najaf at XII.6.2014 and ten specimens from Al-Qaddissya province, Al -Diwaniyah at 5.XI. 2014.

Distribution: Europe, America, Asia: Lebanon, Syria, Iraq, Palestine, Turkey, Iran, Afghanistan, Mongolia, Korea, China, Japan, North Africa: Morocco, Algeria, Tunisia, Libya, Egypt, Azores, Madeira, Canary Islands (Pont ,1986,1991).

***Muscina stabulans* (Fallen, 1817)**

Material examined (20 specimens): eight specimens collected from Baghdad province: Al Madaen, 4 at 17.IV.2014; Al-Jaddria 4 at 2.V.2014; 6 specimens from Diyala at 10.X.2014; Karbala province, Karbala 5 at 2. XI. 2014; and one specimen collected from AL-Najaf province, Najaf at 10.XI .2014.

Distribution: Europe, Asia: Iraq, Syria, Occupied Palestine, Turkey, Afghanistan Mongolia, Korea, China, Japan, North Africa: Morocco, Algeria, Tunisia, Egypt; Azores, Madeira, Canary Islands. (Pont, 1986)

***Musca albina* Wiedemann, 1830**
Material examined: 3 specimens from Karbala at 24 .IV.2014.

Distribution: USSR. UK. Asia: Syria, Iraq, Saudi Arabia, Palestine, Iran, Afghanistan, China, North Africa, Tunisia, Egypt, Oriental and Afro-tropical Regions (Pont,1986).

Atherigona soccata Rondani, 1871
Material examined: 10 specimens were collected from Baghdad Province: Al Taji, 3 at 23.III, 2014, Al-Jaddria 5 at 11.XI.2014 and two specimens were collected from Al-Kadhumyia at 15.XI.2014.

Distribution: Europe, Asia: Iraq, Palestine, Turkey, Afghanistan, China, North Africa: Morocco, Libya, Egypt, Oriental and Afro tropical Regions (Pont, 1986).

***Graphomya maculata* (Scapoli, 1763)**
Material examined (3 specimens): two specimens were collected from Baghdad, Tarmia at 4.XI.2014 and one specimen was collected from Al- Qaddissya province, Al-Diwaniyah at 15. XI. 2014.

Distribution: Europe, Asia: Lebanon, Iraq, Palestine, Syria, Turkey, Iran, Mongolia, Korea, China, Japan; North Africa: Morocco, Algeria, Tunisia, Egypt, Canary Islands, Oriental and Australian Regions (Pont, 1986).

Family Syrphidae:

Hoverflies are important pollinators of flowering plants in a variety of ecosystems worldwide. Adult of these flies are frequent flower visitors to a wide range of wild plants as well as agricultural crops and are often considered the second most important group of pollinators after wild Adults are often found near plants, their principal food source being nectar and pollen (Larson *et al.*, 2001).

***Sphaerophoria scripta* (Linnaeus, 1758)**
Material examined (4 specimens): two specimens were collected from Baghdad province, Al-Jaddria at 22.III.2014 and two specimens collected from Karbala province, Karbala at 28.III, 2014.

Distribution: Mediterranean region, Canary Islands, North Africa, Asia (Dousti and Hayat, 2006).

Family Anthomyiidae

This family is a large and diverse family of Muscoidea flies, most look rather like small house flies, but are commonly drab grey. The genus Anthomyia, in contrast, is generally conspicuously patterned in black and white or black and silvery-grey, most are difficult to identify, apart from a few groups such as the kelp flies that are conspicuous on beaches (Suwa, and Darvas, 1998).

***Delia antiqua* (Meigen, 1826)**
Material examined: Two specimens were collected from Baghdad province, Bab Al- at 28.IV.2014.

Distribution: Northern America, Western Europe, China, Japan, Korea and Central Asia (Martinson et al., 1988).

Finally; there are many species have been not been recorded during this study, might be due to lack of coverage of all regions of Iraq during this study, as well as to the families there are studied in previous investigations such as: Al Saffar (2011) on Tephritidae and Augul *et al.*, (2013) on Bombyliidae.

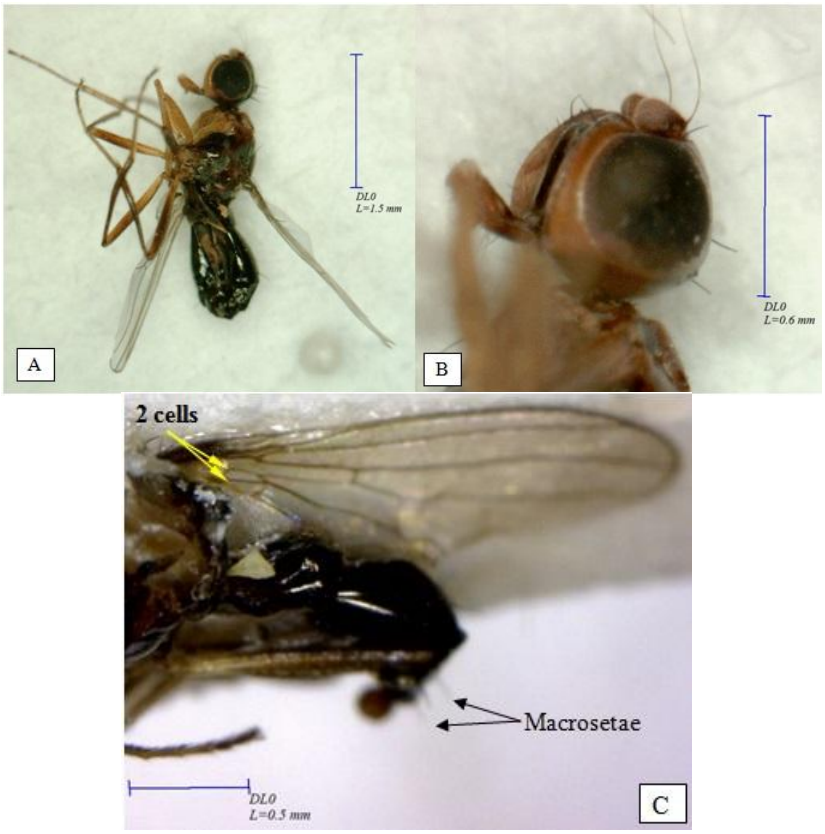

Figure 1: Genus of *Dicranosepsis* Duda
A) adult.
B) head.
C) wing and abdomen.

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مسح للذباب قصير قرون الاستشعار من رتبة ثنائية الأجنحة (BRACHYCERA; DIPTERA) في بعض مناطق العراق

هناء هاني الصفار و رزاق شعلان عكل
مركز بحوث و متحف التأريخ الطبيعي / جامعة بغداد

الخلاصة

جمعت ٥٣٣ عينة خلال الدراسة المسحية للتحري عن انواع الذباب قصير قرون الاستشعار من مناطق مختلفة من العراق خلال الفترة من شباط-تشرين الثاني ٢٠١٤. سجل خلال الدراسة ١٦ نوعا تعود الى ١٣ جنسا و ٧ عوائل، اظهرت النتائج تسجيل الجنس

Dicranosepsis Duda, 1926 (Family; Sepsidae)

لاول مرة للمجموعة الحيوانية في العراق.