

External Morphological Study of *Chrysops flavipes* Meigen 1803, (Diptera: Tabanidae). In IraqAHMED JAMEEL SABR, HASSAN, SAEED JASIM AND AWWAD SHABAN DAOUD

External Morphological Study of *Chrysops flavipes* Meigen 1803, (Diptera: Tabanidae). In Iraq

AHMED JAMEEL SABR HASSAN SAEED JASIM

Department of Biology, Collage of Education (Ibn Al-Haitham),
University of Baghdad

AWWAD SHABAN DAOUD

Department of Biology, Collage of science, University of Tikrit

Abstract

The work included external morphological study of deer fly *Chrysops flavipes* Meigen 1803, which belongs to family Tabanidae of order: Diptera.

The study involved the most important taxonomic external characters of the: head, thorax, abdomen and their appendages.

Key words:- Deer fly, Diptera, Tabanidae, *Chrysops*, Description.

Introduction

The Genus *Chrysops* Meigen 1803, belong to family Tabanidae Latreille 1802, subfamily Chrysopsinae Enderlein, 1922.

The subfamily Chrysopsinae comprises about 220 species belong to 17 genera, worldwide distributed, from temperate to subtropical and tropical zones [1, 2], it is known from many parts of the world from Asia including Turkey, Malaysia, Japan, China, India and Australian [3, 4] to Europe including Hungarian, Italy, Croatia and United Kingdom [5, 6] to South America including U. S. A. and Mexico [7] to North America including Brazil, Chile and Colombia [8, 9], the Chrysopsinae are poorly known in the Middle East [10], yet a comprehensive generic description is not available [11].

In Iraq, the subfamily Chrysopsinae was studied by Leclercq (1963) describing two deer flies species within three genera.

The females of must species Chrysopsinae feed regularly on nectar, which they need for energy, while blood meals are mainly utilized for Oogenesis by pierce skin and suck blood, while the males have lost their mandibles and feed on nectar and pollen alone [13, 14].

The blood – feeding behavior of the females deer flies make it's veterinary and medical significance [15], and includes many species

External Morphological Study of *Chrysops flavipes* Meigen 1803, (Diptera: Tabanidae). In IraqAHMED JAMEEL SABR, HASSAN, SAEED JASIM AND AWWAD SHABAN DAOUD

important to human and animal health, either by acting as a disease vector such as surra, anthrax and Loaloo, or by debilitating the host [16, 17].

Members of Chrysopsinae are small to medium size insects, usually yellow and black colored or entirely black species, eyes metallic, emerald green or golden yellow and dark spotted in life, wings with brown design which consists usually of a dark margin along costa, a middle cross – band and an apical spot, frons in female relatively broad, slightly divergent, frontal callus prominent, rounded or oval in shape. Antennae very long and slender, much longer than head is deep, all segments nearly equal in size, basal two segments only exceptionally slightly swollen [18,19].

Materials and Methods

Specimens of *Chrysops flavipes* were collected from the following regions:

Al-Anbar\ Falluja (Azragia 2013, Saqlawia 2013), Saladdin\ Samara 2013, Baghdad\ Al-Yousfia 2014.

Deer flies were trapped with chemical trap and a regular insect net. Samples collected by the above traps were fixed on thick paper and kept in insect box. Date and place of collection and hosts were recorded.

A total of eight specimens were identified based on Leclercq (1966) and Chvála *et al.* (1972).

Studies were made using a dissecting microscope (OLYMPUS, JAPAN) and compound microscope with camera (OLYMPUS, JAPAN), using normal light. Images parts of different body insect by photomicroscope type **Ya Xun Microscope User Manual**, having enlargement power 200X max.

Results:- *Chrysops flavipes* Meigen, 1803 Body

Length ♀, 7.75 – 9.53 mm

Head capsule:- Fig -1- A

Length 1.38 mm and width 2.56 mm, Eyes metallic colors, with dark spots in alive specimens.

Frons:- Fig -1- A, B

Length 1.26 mm and width 1.04 mm, frons and face yellow – grey, frontal callus rather small, shining black, widely separated from eye – margins. Vertex with shining black ocellar callus. Facial calli shining black to black – brown, greatly reduced. Genal and facial calli shining black, small.

External Morphological Study of *Chrysops flavipes* Meigen 1803, (Diptera: Tabanidae). In IraqAHMED JAMEEL SABR, HASSAN, SAEED JASIM AND AWWAD SHABAN DAOUD

Maxillary palp:- Fig -1- D

Yellow – brown, long and pointed.

Antennae: Fig -1- C

Long and slender length 3.14 mm, segment I (scape) yellow – brown slender covered with small and median hairs brown dark segment II (pedicle) equal or lightly short and slim from scape, covered with black small and middle hairs. Pedicle and base of III (flagellum) black – brown, rest of segment III black elongate, length do much once and half length scape, with thin ends.

Thorax: Fig -2- A

Length 3.18 mm and width 2.29 mm, grayish dusted and wholly short but fine pale haired, mesonotum with five shining black longitudinal stripes; two narrow sublateral, two broad lateral and one median, which is very narrow. Scutellum mostly shining black. Halteres blackish – brown.

Wing:- Fig -2- D

Length 8.03 mm and width 2.84 mm. Middle cross – band reaches posterior margin nearly on the whole width, discal cell with clear patch at middle. Apical spot rather small, occupies one – third to one – half of vein R4, its connection with cross – band only narrow, occupying frontal half of marginal cell.

Leg:- Fig -2- C

Yellow; length of fore leg 5.10 mm, mid leg 6.05 mm, hind leg 7.0 mm; tip of fore coxa, fourth quarter of hind coxa, apex of fourth anterior quarter of all femora, apical half of fore tibiae, distal apex of fourth posterior quarter tibiae, all fore tarsomeres, apical posterior tarsomeres are blackish – brown to black.

Abdomen:- Fig -2- B

Length 4.00 mm and width 2.78 mm. Predominantly yellow, posterior tergites somewhat grayish; 1st Tergite with two black spots, narrow and connected together and with both anterior and posterior margins. 2nd tergite contains a pair of oval black spots separated from each other, occupy the first quarter and reach to the rear edge then extend laterally, dark patches on last segments hardly visible.

External Morphological Study of *Chrysops flavipes* Meigen 1803, (Diptera: Tabanidae). In IraqAHMED JAMEEL SABR, HASSAN, SAEED JASIM AND AWWAD SHABAN DAUD

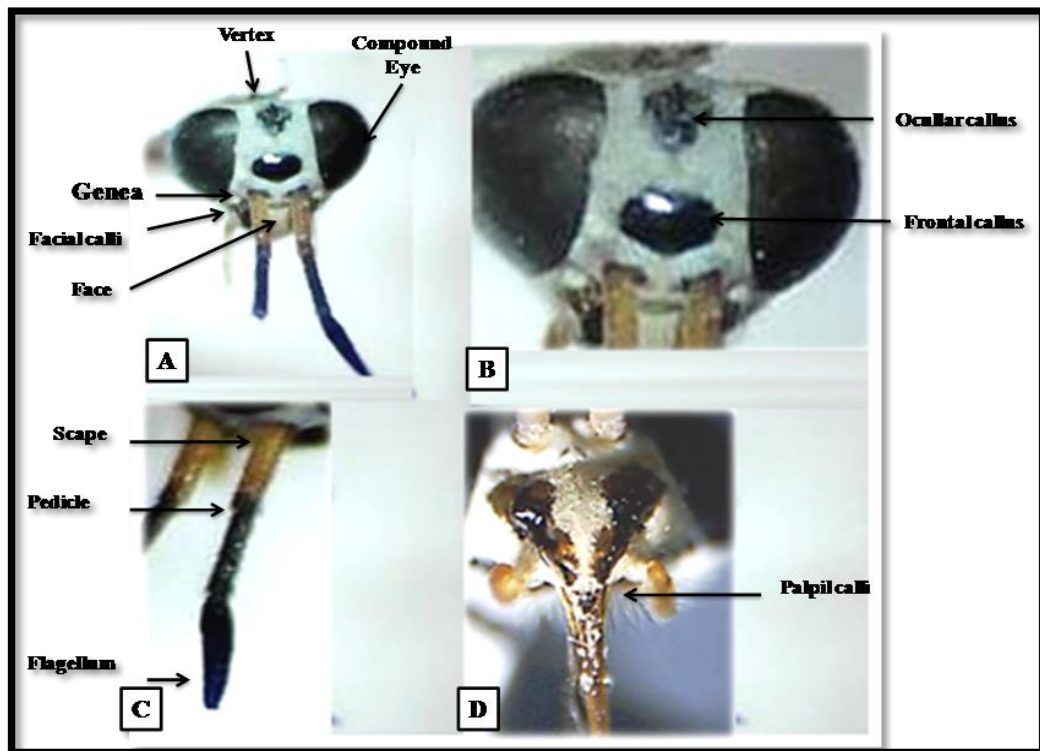


Fig -1-: Body parts of *Chrysops flavipes* Meigen A- Head Capsule, B- Frons, C- Antenna, D- Maxillary palp

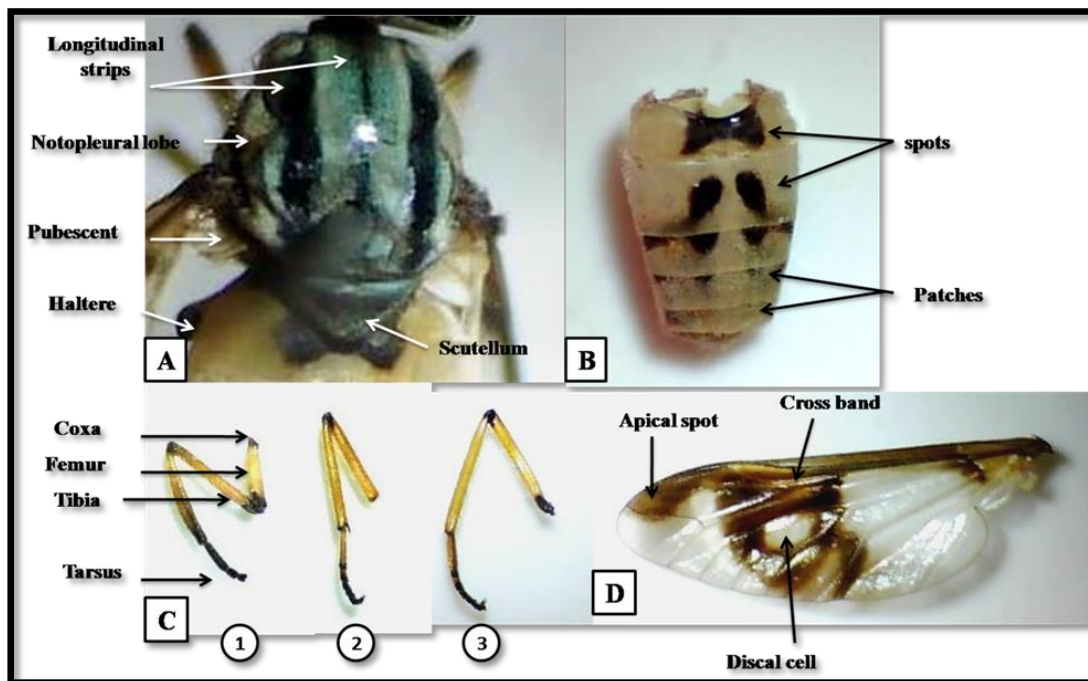


Fig -2-: Body parts of *Chrysops flavipes* Meigen A- Thorax, B- Abdomen, C- Legs (1. Fore leg, 2. Mid leg, 3. Hind leg), D- Wing

External Morphological Study of Chrysops flavipes Meigen 1803, (Diptera: Tabanidae). In IraqAHMED JAMEEL SABR, HASSAN, SAEED JASIM AND AWWAD SHABAN DAOUD

Reference

1. Burger, J.F. (2009). Tabanidae (Horse Flies, Deer Flies). In: Brown, B.V. et al. (Eds.), *Manual of Central American Diptera: Volume 1*. NRC Research Press, Ottawa, Ontario, Canada, pp. 495–507.
2. Pape, T. B. and Mostovski, M.B. (2011). Order Diptera Linnaeus, 1758. In Z-Q Zhang, *Animal biodiversity: an outline of higher-level classification and survey of taxonomic richness*. *Zootaxa*, 3148: 222 – 229.
3. Junfeng, Z. (2012). New horseflies and water snipe-flies (Diptera: Tabanidae and Athericidae) from the Lower Cretaceous of China. *Cretaceous Research*, 36: 1 – 5.
4. Mitra, B. and Sharma, R. (2013). Checklist of Indian horse and deer flies (Insecta: Diptera: Tabanidae). Zoological Survey of India, Central Zone Regional Centre, Jabalpur. 1 – 11.
5. Quercia, O.; Emiliani, F.; Foschi, F. and Stefanini, G. (2008). The wasp-horsefly syndrome. *Eur Ann Allergy Clin Immunol* vol. 40 (N 3): 61 – 63.
6. Egri, A.; Blahó, M.; Száz, D.; Barta, A.; Kriska., G.; Antoni, G. and Horváth, G. (2013). A new tabanid trap applying a modified concept of the old flypaper: Linearly polarising sticky black surfaces as an effective tool to catch polarotactic horseflies. *International Journal for Parasitology*, 43: 555–563.
7. Manrique-Saide, P.; Delfin-González, H. and Ibàñez-Bernal, S. (2001). Horseflies (Diptera: Tabanidae) from protected areas of the Yucatan Peninsula, Mexico. *Florida Entomologist*, 84(3): 352 – 362.
8. Christian, R. G. (2009). *Agelanius chiloensis*, a new species of horse fly from southern Chile (Diptera: Tabanidae). *Guyana*, 73(1): 12 – 16.
9. Parra, H.G.; Alarcón, P.E. and López, V.G. (2008). Ecology and Parasitological Analysis of Horse Flies (Diptera: Tabanidae) in Antioquia, Colombia. *Caldasia*, 30(1): 179 – 188.
10. Al Dhafer, H.M.; Dawah, H.A. and Abdullah, M.A. (2009). Tabanidae (Diptera) of Saudi Arabia Saudi. *Journal of Biological Sciences*, 16: 77–83.
11. Mackerras, I. M.; Spratt, D. M. and Yeates, D.K. (2008). Revision of the horse fly genera *Lissimas* and *Cydistomyia* (Diptera: Tabanidae: Diachlorini) of Australia. *Zootaxa*, 1886: 1 – 80.
12. Leclercq M. (1963). Tabanidae (Diptera) of Iraq. *Bulletin of the Iraq Natural History Institute* (University of Baghdad). No. 7, vol. 11: 1 – 12.
13. Rubio, M.P. (2002). Diptera Tabanidae. Fauna Iberica volume 18. *Museo Nacional de Ciencias Naturales*. Madrid.309 pp.
14. Hunter, F.F. and Ossowski, A.M. (1999). Honeydew sugars in wild-caught female horse flies (Diptera: Tabanidae). *J. Med. Entomol.* 36: 896–899.

External Morphological Study of *Chrysops flavipes* Meigen 1803, (Diptera: Tabanidae). In IraqAHMED JAMEEL SABR, HASSAN, SAEED JASIM AND AWWAD SHABAN DAOUUD

15. Kettle, D.S. (1984). Medical and Veterinary Entomology. *Routledge*: 658 pp.
16. Krinsky, W.L. (1976). Animal disease agents transmitted by horse flies and deer flies (Diptera: Tabanidae). *Journal of Medical Entomology*, 13: 225–275.
17. Mullen, B. A. (2009). Horse flies and deer flies (Tabanidae). In: G. R. Mullen and L. A. Durden (Eds.) *Medical and veterinary entomology (Second Edition)*. Academic Press, Burlington USA: 261 – 274.
18. Leclercq, M. (1966). Révision Systématique et Biogéographique, des *Tabanidae (Diptera) Paléarctiques, Tabaninae*. Inst. R. Sci. Nat. Belg., Bruxelles. 237 pp.
19. Chvála, M.; Lynborg, L. and Moucha, J.; (1972). The Horse Flies of Europe: *Entomological Society of Copenhagen*, Copenhagen, 498 pp.

**دراسة المظهر الخارجي للنوع
Chrysops flavipes Meigen 1803,
(Diptera: Tabanidae). في العراق**

أحمد جميل صبر حسن سعيد جاسم و عواد

قسم علوم الحياة، كلية التربية (أبن الهيثم)، جامعة بغداد، العراق

شعبان داود

قسم علوم الحياة، كلية العلوم، جامعة تكريت، العراق

المستخلص

تضمن البحث دراسة المظهر الخارجي الذباب الغزال *Chrysops flavipes* Meigen 1803، التي تعود لعائلة Tabanidae من رتبة ثنائية الأجنحة Diptera. شملت الدراسة صفات المظهر الخارجي ذات الأهمية التصنيفية للرأس والصدر والبطن ولواحقها.

الكلمات المفتاحية:- ذباب الغزال، ثنائية الأجنحة، *Chrysops*، Tabanidae، وصف.