



External Morphological Study of *Tabanus autumnalis* L. 1761,(Diptera: Tabanidae) in Iraq

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Abstract

This work included external morphological study of horse fly *Tabanus autumnalis* L. 1761, which belongs to family Tabanidae order: Diptera. The study involved the most important taxonomic external characters of the: head, thorax, abdomen and their appendages which are: antenna, maxillary palp, wings, legs, spotting in coloring pattern of abdomen.

Key words: Horse fly, Diptera, Tabanidae, Tabanus, Description.

Introduction

The species *Tabanus autumnalis* L. 1761 belongs to family Tabanidae Latreille 1802, subfamily Tabaninae Loew, 1860. This subfamily comprises about 275 species belong to 72 genera, worldwide distributed, from temperate to subtropical and tropical zones [1], it is known from many parts of the world from Asia including Saudi Arabia, Oman, Jordan, Syria, Kuwait and Turkey [2,3,4] to African including Egypt [5] to Europe including Hungary, Italy, Croatia and United Kingdom [6, 7] to North America including U. S. A. and Mexico [8] and to South America including Brazil, Chile and Colombia [9,10], the Tabaninae are poorly known in the Middle East [11], yet a comprehensive generic description is not available [12].

In Iraq, subfamily Tabaninae was studied by Leclercq (1963) describing 24 horse flies species within four genera.

The females of most species 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 [14,15].

The blood – feeding behavior of the females of horse flies make their veterinary and medical important, and includes many species 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 family Tabanidae are medium – sized to larger specimens, usually densely haired on thorax and abdomen. Predominant specimens with brownish side markings on anterior abdominal segments, or mostly grayish – black to black, sometimes with paler dusted and pubescent posterior margins of abdominal segments [18,19].

Compound eyes in living specimens are mostly greenish with three purple bands, only very rarely unbanded or with one or two bands [19].

Eyes are always pubescent, usually rather long and very densely, or the hairs only indistinctly visible in the female sex. Males with longer and more densely haired eyes, facets on the upper parts of eyes either more or less enlarged and sharply separated from lower part with small facets, or all facets almost equal in size [20].

Ocellar tubercle is always present in both sexes, or vertex sometimes with three small vestigial ocelli. Frons usually narrower, frontal calli well developed; median callus usually linear and connected with a larger circular, square to rectangular shaped lower callus; only exceptionally calli reduced or missing. Wings are clear or slightly clouded especially interiorly, rarely with darker patches on cross veins and bifurcations; exceptionally a very short appendix to vein R4 [2,21].

Materials and Methods

Specimens of *Tabanus autumnalis* were collected from the following regions: Anbar\ Remade (Albu-Suda 2013, Almalahma 2013), Falluja (Azragia 2013, Saqlawia 2013); Baghdad\ Abu-Graib 2013\2014, Al-Radwanian 2014 and Al-Yousfia 2014.

A total of seven localities in the East of Iraq were visited during June, August and September 2013 and May, June, July and August 2014.

Horse 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 thirteen female specimens were identified based on [19,21].

The study was made using a dissecting microscope (Olympus, Japan) and compound microscope (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:- Describe of *Tabanus autumnalis* L. 1761**Body**

Length ♀: 24.17 mm and width 13.02 mm.

Head capsule:- Fig -1- A

Length 4.73 mm and width 7.81 mm. Compound eyes large, naked and unbanded.

Frons:- Fig -1- A, B

Length 2.70 mm and width 0.79 mm, nearly parallel-sided, grayish to grey-yellow dusted, index 1: (4 – 5). Lower frontal callus oval, connected with liner median frontal callus. Frontal calli black, slightly shining. Vertex with short black hairs, occiput on postocular margin with a row of short pale hairs. Subcallus and face whitish-grey, the latter with long whitish hairs.

Maxillary palp:- Fig -1- D

Whitish to whitish-yellow, short pale haired with some additional black hairs.

Antennae:- Fig -1- C

Length 2.26 mm. Dark brown or grey occasionally black. Scape approximately square shape with acute angulated, contains dense long for middle hairs. Scape large, its length is four times as long as the pedicle. Flagellum is three times as long as scape, slender with distinct and nearly rectangular dorsal tooth near base.

Thorax: (Dorsal view) Fig -2- A

Length is 7.62 mm and width is 6.01 mm, the colour is grey for blackish dusted, Mesonotum with five indistinct, pale longitudinal stripes and clothed with short blackish hairs. Pleura densely pale pubescent. Notopleural lobes are brownish with black pubescent.

Wing: Fig -2- D

Colour is hyaline, with dark brown veins. Length is 19.21 mm and width is 6.51 mm. Sometimes very slightly clouded at base. Basicosta is hairy when connected with mesonotum. Haltere is light yellow, brownish at base.

Leg: Fig -2- C

Length of fore leg is about 11.91 mm in length, mid leg 13.11 mm, hind leg 16.92 mm. Femur is greyish with pale hairs; tibiae are yellowish-brown, fore tibiae on apical third and posterior four tibiae at tip blackish; tarsus black. Tibia of hind leg is slender, necked and middle size brown – black.

Abdomen: (Dorsal view) Fig -2- B

Length 12.27 mm and width 7.43 mm. black, dark grey dusted, with distinct light grey pattern consisting of three rows of pale haired patches, of median triangular spots occupying the whole width of tergites, with large oval patches at sides.

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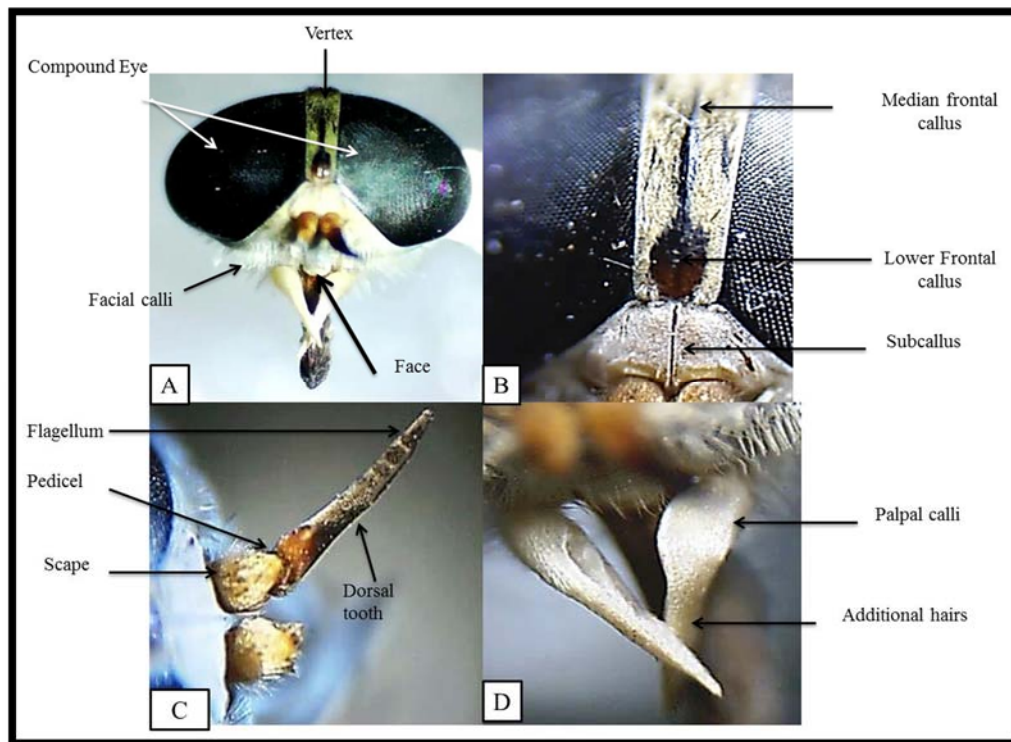


Fig (1): Body parts of *Tabanus autumnalis* L. A- Head Capsule, B- Frons, C- Antenna, D- Maxillary palpi
A- 200X; B, C, D- 3.7X

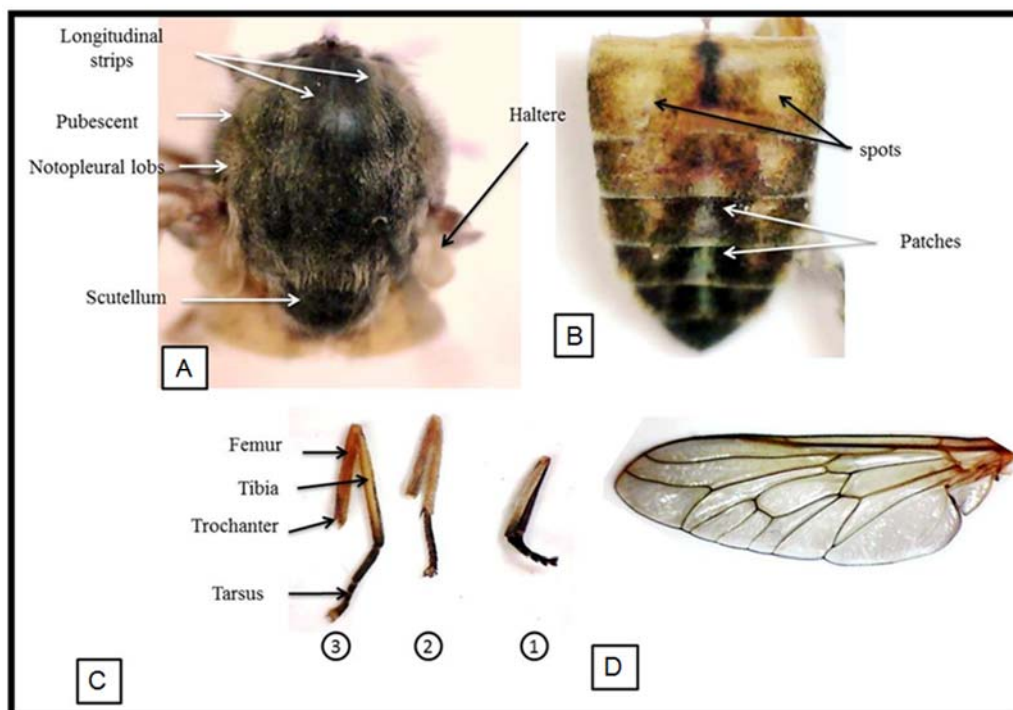


Fig (2): Body parts of *Tabanus autumnalis* L.
A- Thorax, B- Abdomen, C- Legs (1. Fore leg, 2, Mid leg, 3. Hind leg), D- Wing
200X

دراسة المظهر الخارجي للنوع *Tabanus autumnalis* L. 1761 (Diptera: Tabanidae). في العراق

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الخلاصة

تضمن البحث دراسة المظهر الخارجي لذبابة الخيل *Tabanus autumnalis* L. 1761، التي تعود لعائلة Tabanidae من رتبة ثنائية الأجنحة Diptera. شملت الدراسة صفات المظهر الخارجي ذات الأهمية التصنيفية للرأس والصدر والبطن ولواحقها التي تتمثل بقرن الأستشعار والملمس الفكي والأجنحة والأرجل ونموذج التلون والتبع للبطن.

الكلمات المفتاحية: ذباب الخيل، ثنائية الأجنحة، Tabanidae، Tabanus، وصف.