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The horseflies fauna (Diptera: Tabanidae) of Jordan

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Abstract: The horsefly fauna of Jordan consists of 24 species belonging to seven genera. Illustrations for the horseflies of Jordan are given based on examined materials. Distribution and geographic ranges for each species are also included.

Key words: horseflies, Tabanidae, Jordan, taxonomy, zoogeography, arid environments.

Introduction

In a recent study, we identified the horsefly fauna of Jordan (AL-TALAFHA et al. 2004), however, this treatment did not focus on morphology and distribution of this little known group of haematophagous dipterans in Jordan. SALIBA (1977) studied the horseflies of Azraq desert oasis in eastern Jordan and reported four species. Regionally, the tabanids of Palestine and Saudi Arabia were extensively studied (AUSTEN 1920, 1922, BUXTON 1924, PHILIP 1952, THEODOR 1965, AMOUDI 1989, AMOUDI & LECLERCQ 1988, 1992, 1993, 1996, LECLERCQ 1982, 1986a, 2000). Fragmentary reports included records from Iraq (LECLERCQ 1963, 1986b) and Syria (LECLERCQ 1961).

Results and discussion

The present study revealed the presence of 24 species of horseflies in Jordan which are included within two subfamilies (Chrysopsinae and Tabaninae) and seven genera. Genera *Chrysops*, *Dasyrhamphis* and *Therioplectes* are represented by a single species, while each of the genera *Atylotus*, *Haematopota* and *Hybomitra* is represented by two species. The most diversified is the genus *Tabanus*, with 14 reported species.

Subfamily Chrysopsinae

Tribe Chrysopsini

Chrysops flavipes MEIGEN 1804 (Fig. 1a, Fig. 2a, Fig. 3a, Fig. 4a)

Diagnosis: Smaller species with clear patch in discal cell, middle cross-band reaches posterior margin and occupy the whole width of the wings. Antennae long and slender. Eyes located laterally.

Remarks: This is the only species of the genus *Chrysops* recorded in Jordan. This species constituted 1,77 % of the total collected specimens. It is distributed from Al Mukhaybah al Fawqa in the north to the Suwaymah (Dead Sea basin) to the south. *Chrysops flavipes* is a Mediterranean species penetrating to central Europe as well eastwards over Turkey, Syria, Palestine, Iraq, and Iran (THEODOR 1965). All collected specimens were netted from the back of cows and horses.

Subfamily Tabaninae

Tribe Tabanini

Atylotus farinosus (SZILÁDY 1915) (Fig. 1b, Fig. 2b, Fig. 3b, Fig. 4b)

Diagnosis: Yellowish species, abdomen with four rows of triangles of black hairs which become reduced in size posteriorly. Frons wider dorsally compared with *A. pulchellus*.

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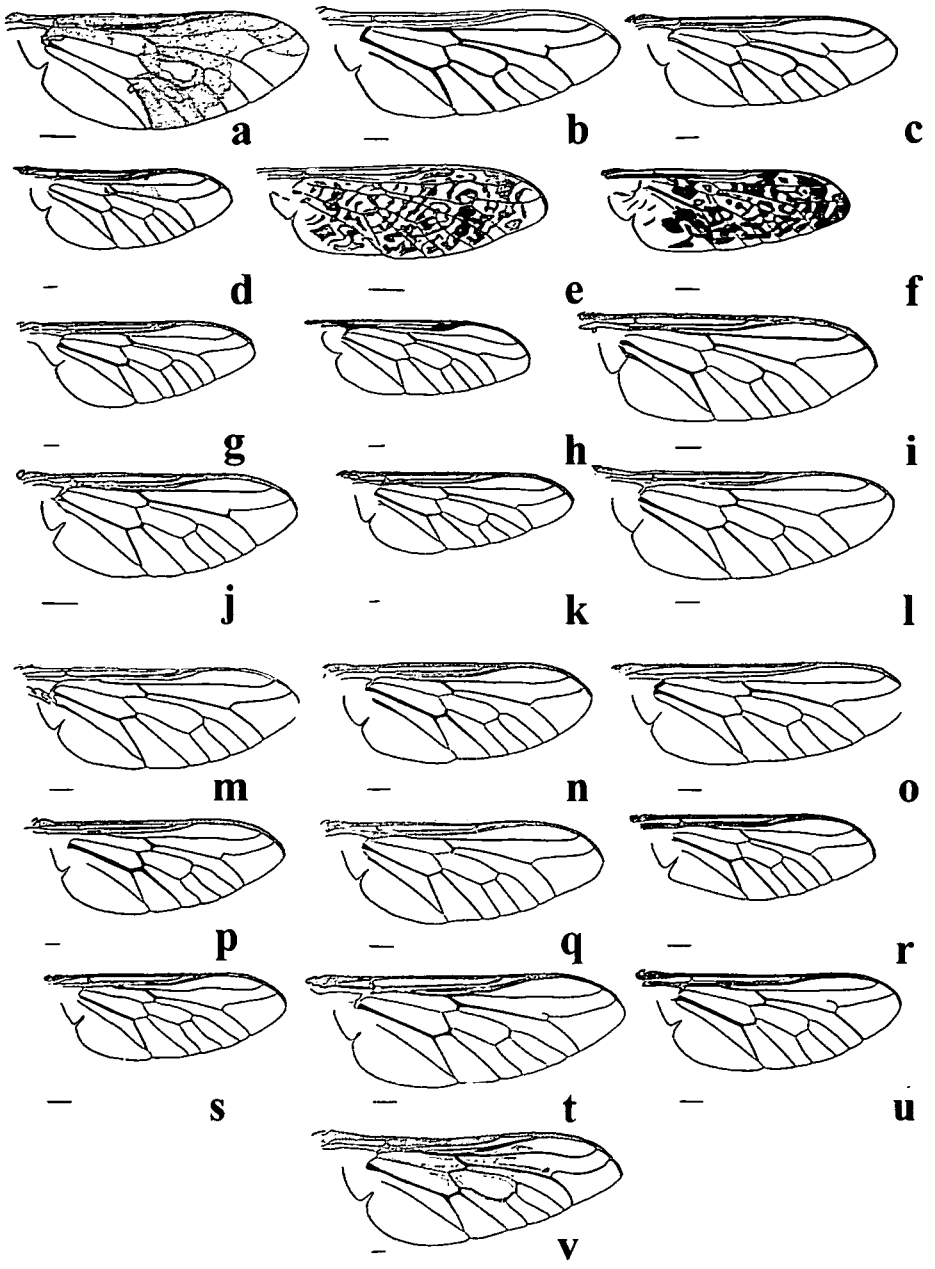

Fig. 1: Wing patterns of tabanids from Jordan (scale bar 1mm).

Remarks: In Jordan, *A. farinosus* has been collected only from the Dead Sea area. On the other hand, this species is widely distributed in North Africa and the Middle East (CHVÁLA et al. 1972). This species represented 1,2 % of the collected material.

Atylotus pulchellus (LOEW 1858) (Fig. 1c, Fig. 2c, Fig. 3c, Fig. 4c)

Diagnosis: Greyish yellow species. Frons parallel. Dorsum of abdomen with four rows of dark patches, which are in fact spots of black hairs, between each lateral pair, a stripe of white spots.

Remarks: First record by SALIBA (1977) in Al-Azraq oasis. Only 5 specimens were caught, representing 0,6% of the collected horseflies. It is widely distributed in North Africa. The species is known as a vector of trypanosomiasis of camels under laboratory conditions (CHVÁLA et al. 1972).

Dasyrhamphis umbrinus (MEIGEN 1820) (Fig. 1d, Fig. 3d, Fig. 4d)

Diagnosis: Black species, whitish hairs on the posterior margins of abdominal segments. Subcallus polished black. Antennae, palpi and legs black.

Remarks: This is one of the least collected species. Genus *Dasyrhamphis* is characterised by fused elongated calli. Marking on the wing of Jordanian specimens is darker than those in specimens collected from southern Europe. AUSTEN (1922) considers *T. insecutor* as a synonym of *T. umbrinus*, but the differences between the two species appear constant. This horsefly is widely distributed over the East Mediterranean, as well as the Asiatic part of the former Soviet Union (CHVÁLA et al., 1972).

Haematopota coronata AUSTEN 1908 (Fig. 1e, Fig. 2d, Fig. 3e, Fig. 4e)

Diagnosis: doubled-or multiple-rosettes on the wing, swollen, shining, deeply constricted first antennal segment. Tip of the wing is white.

Remarks: It is identical to *H. mordax* SURCOUF, 1908 but *mordax* is rather smaller, first antennal segment slightly smaller, scutellum with grey patch extending in middle line CHVÁLA et al. (1972). One single specimen was collected from `Al-Badhiyah near Wadi Mujib.

Haematopota minuscula AUSTEN 1920 (Fig. 1f, Fig. 3f, Fig. 4f)

Diagnosis: Dorsum of thorax olive, dorsum of abdomen with black median longitudinal stripe. First joint of antenna distinctly swollen.

Remarks: It seems that this species is rare in Jordan. AUSTEN (1920) described the female based on a single specimen, while the male was described by THEODOR (1965).

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Hybomitra decora (Loew 1858) (Fig. 1g, Fig. 2e, Fig. 3g, Fig. 4g)

Diagnosis: blackish, broadly built species, lower callus very large compared with upper one which is linear, oval in shape. Tergite two with red patches laterally. Eyes long whitish haired with one band.

Remarks: It is one of the species that have hairy eyes and is restricted to the northern part of Jordan. However, all hairy eyes species have been found only in the north of country. It is only species which has distinct grey hairs on the venter. The reddish side markings vary in size as well as intensity, also vary in number of eye bands from one to three, some specimen have no eye bands The centre distribution lies in the East Mediterranean (Chvála et al. 1972).

Hybomitra mendica (Villeneuve 1912) (Fig. 1h, Fig. 3h, Fig. 4h)

Diagnosis: Resembling *Th. tunicatus*, but smaller in size, first two tergites whitish grey covered with reddish hairs.

Remarks: Distributed mainly to the northern Jordan valley, this species was described from Damascus from a single female, and the male from specimen from region near Tiberias (Theodor 1965). Leclercq (1963) recorded this species in Iraq, so it appears that this species endemic to the Middle East.

Tabanus accensus Austen 1920 (Fig. 1i, Fig. 2f, Fig. 3i, Fig. 4i)

Diagnosis: Smaller and greyish species with two well-developed frontal calli, distinctly elongated abdomen, with four stripes of elongated dark patches.

Remarks: Confined to the Dead Sea area. This species represents 10,1 % of the total collected material.

Tabanus albifacies Loew 1856 (Fig. 1j, Fig. 2g, Fig. 3j, Fig. 4j)

Diagnosis: Smaller species, frontal calli blackish brown, transversely rectangular, sometimes upper callus elliptical, frons black haired dorsally and white hairs ventrally.

Remarks: The most common species in Jordan. Major collection of this species restricted to the Dead Sea area, resemble *T. sufis*, but can be distinguished by its frons. Frons of *T. sufis* is very broad and very wide dorsally, also, the hair on the frons are white and light grey dusted, while the hair on the frons are black dorsally and white ventrally. Distributed from the Libyan Desert to Persian Baluchistan (Theodor 1965).

Tabanus autumnalis Szilády 1914 (Fig. 1k, Fig. 2h, Fig. 3k, Fig. 4k).

Diagnosis: Large, brownish-grey species, pale pattern of abdomen have median stripe consist of triangles with concave sides and oval lateral patches.

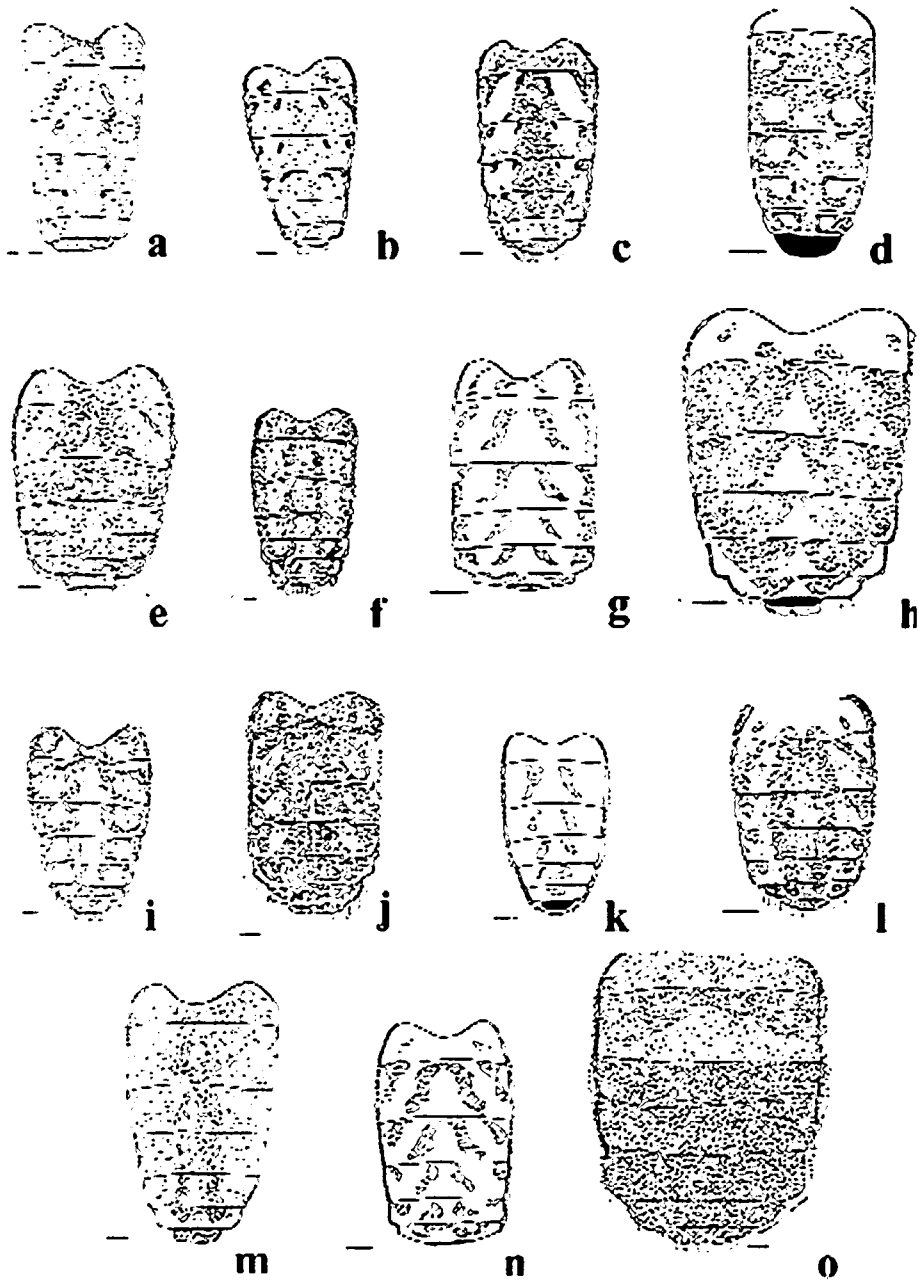

Fig. 2: Abdominal patterns of tabanids from Jordan (scale bar 1mm).

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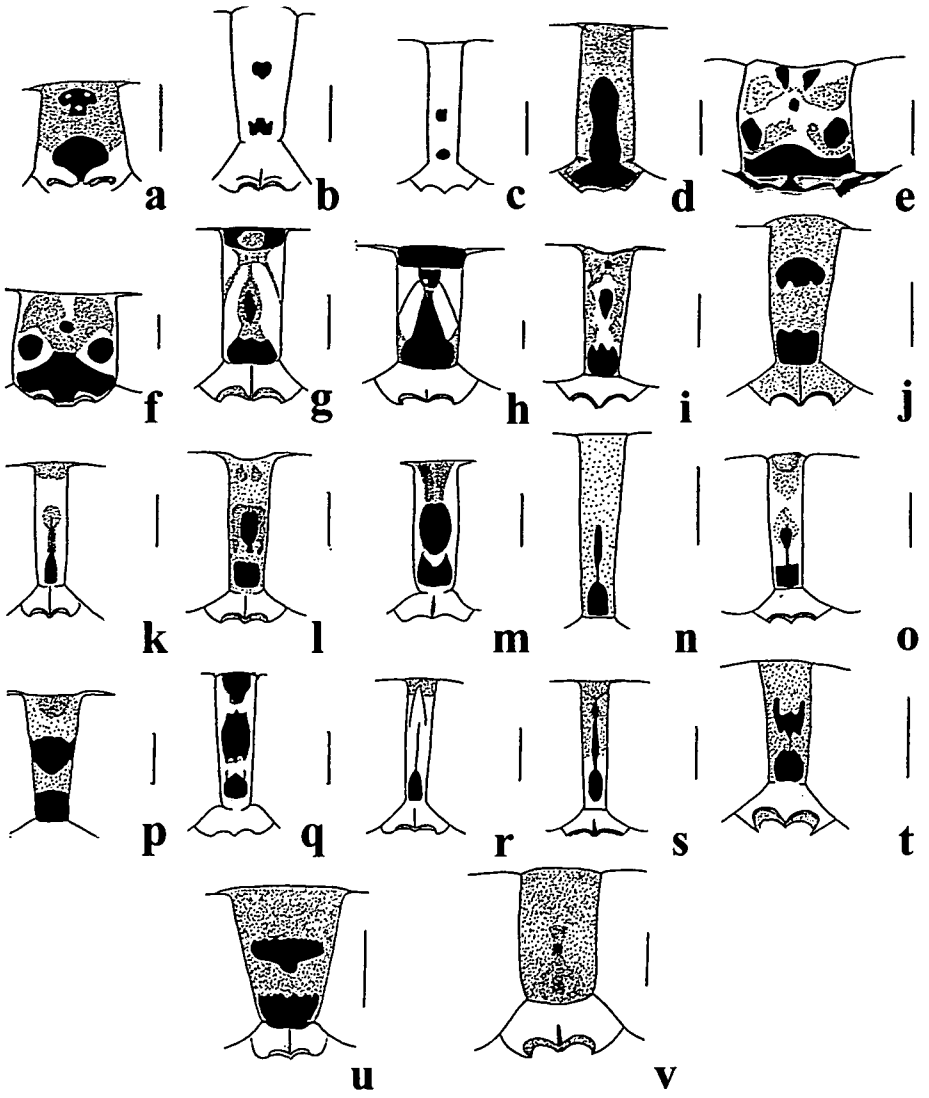

Fig. 3: Frons patterns of tabanids from Jordan (scale bar 1mm).

Remarks: Common in the northern Jordan valley, but rare in southern part, only two specimens were collected from South "Suwaymah, Dead Sea area". In Europe, the specimens of the *autumnalis* are blackish grey, with distinct grey pattern consisting of a row of median triangles and oval lateral patches.

Tabanus bifarius Loew 1858 (Fig. 1l, Fig. 3l, Fig. 4l)

Diagnosis: greyish to olive-grey species, both calli are clearly separated eyes haired with three bands, antennae reddish-brown with darker annulated part.

Remarks: Restricted to the northern parts of Jordan, it is well known species from the whole Mediterranean region as well as from North Africa. A very variable species, especially in coloration of antennae and in abdominal pattern (Chvála et al. 1972).

Tabanus darimonti Leclercq 1964 (Fig. 1n, Fig. 3n, Fig. 4n)

Diagnosis: Similar to *T. pallidipes* but it is more greyish.

Remarks: This is a European species similar to *T. regularis* and *T. miki*, it has dark greyish abdomen with three rows of patches, *darimonti* specimens in Jordan are intermediate form between *pallidipes* and *darimonti* specimens from southern France, southern Spain and southern Turkey, they have yellowish brown abdomen with very indistinct greyish markings.

Tabanus laetetinctus Becker 1912 (Fig. 1o, Fig. 2i, Fig. 3o, Fig. 4o)

Diagnosis: Grey species, with a grey pattern that consists of median stripes of triangles and two lateral circular patches. *bromius*-like, but much darker than *bruniventris* and *pallidipes*.

Remarks: The distribution of this species extends along the Jordan Valley deep into the southern Dead Sea basin. In the Middle East, this species was recorded from Turkey (Kiliç 1999). No records are available from Palestine (Theodor 1965) or from Iraq (Leclercq 1963).

Tabanus leleani Austen 1920 (Fig. 1p, Fig. 2j, Fig. 3p, Fig. 4p)

Diagnosis: smaller blackish grey species, eyes naked with one dark band, antennae black, palpi whitish and very stout.

Remarks: One of the common species in Jordan. This species shows high variability in the shape of upper callus through the world (Chvála et al. 1972). It has a wide area of distribution, it is recorded in Europe, from the Near and Middle East, as well as from oriental region, also it has been recorded from Siberia and in North Africa from Morocco through Tunisia (Chvála et al. 1972).

Tabanus lunatus Fabricius 1794 (Fig. 1q, Fig. 3q, Fig. 4q)

Diagnosis: medium-sized species, eyes haired microscopically with three bands. Abdomen olive grey with brownish anterior four tergites at sides.

Remarks: *T. lunatus* has a wide range of variability, in coloration of antenna, in ab-

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dominal pattern and in the lower callus. It is Mediterranean species recorded from Europe, Near and Middle East as well as from central Asia and North Africa.

Tabanus nemoralis MEIGEN 1820 (Fig. 1m, Fig. 3m, Fig. 4m)

Diagnosis: Abdomen dark grey with three rows of pale spots, calli well separated; lower and upper callus are very large.

Remarks: Segment three is dark brown and narrow compared with that in T. *lunatus*, in which the segment is reddish-yellow and broad. It is a Mediterranean species, recorded from South West Europe and North Africa (CHVÁLA et al. 1972).

Tabanus pallidipes AUSTEN 1920 (Fig. 1r, Fig. 2k, Fig. 3r, Fig. 4r)

Diagnosis: Small species, upper frontal callus liner or narrow and elongate, abdomen cinnamon-coloured darker brown median markings.

Remarks: One of the common species in Jordan, distributed from Al Mukhaybah al Fawqa to the Al-Badhiyah (Mujib Basin). It has never been recorded in regions with high altitude. Some specimens are large and reach to the size of T. *laeticinctus*, but they differ in the width of frons, the form of the frontal calli and the colour of the abdomen.

Tabanus regularis JAENNICKE 1866 (Fig. 1s, Fig. 2l, Fig. 3s, Fig. 4s)

Diagnosis: Smaller to medium sized species, lower callus elongated, antennae black or third segment brown, or antenna entirely brownish. Grey stripes on abdomen tapering posteriorly.

Remarks: Recorded from six localities, of which five are from the north. Restricted to the forested areas.

Tabanus rupinae AUSTEN 1920 (Fig. 1t, Fig. 2m, Fig. 3t, Fig. 4t)

Diagnosis: Medium sized species, dorsum of abdomen reddish-orange, become darker posteriorly; two median dark stripes consist of black hairs, upper callus take the shape of U letter.

Remarks: It has Afrotropical affinity. All specimens were collected from Dead Sea basin.

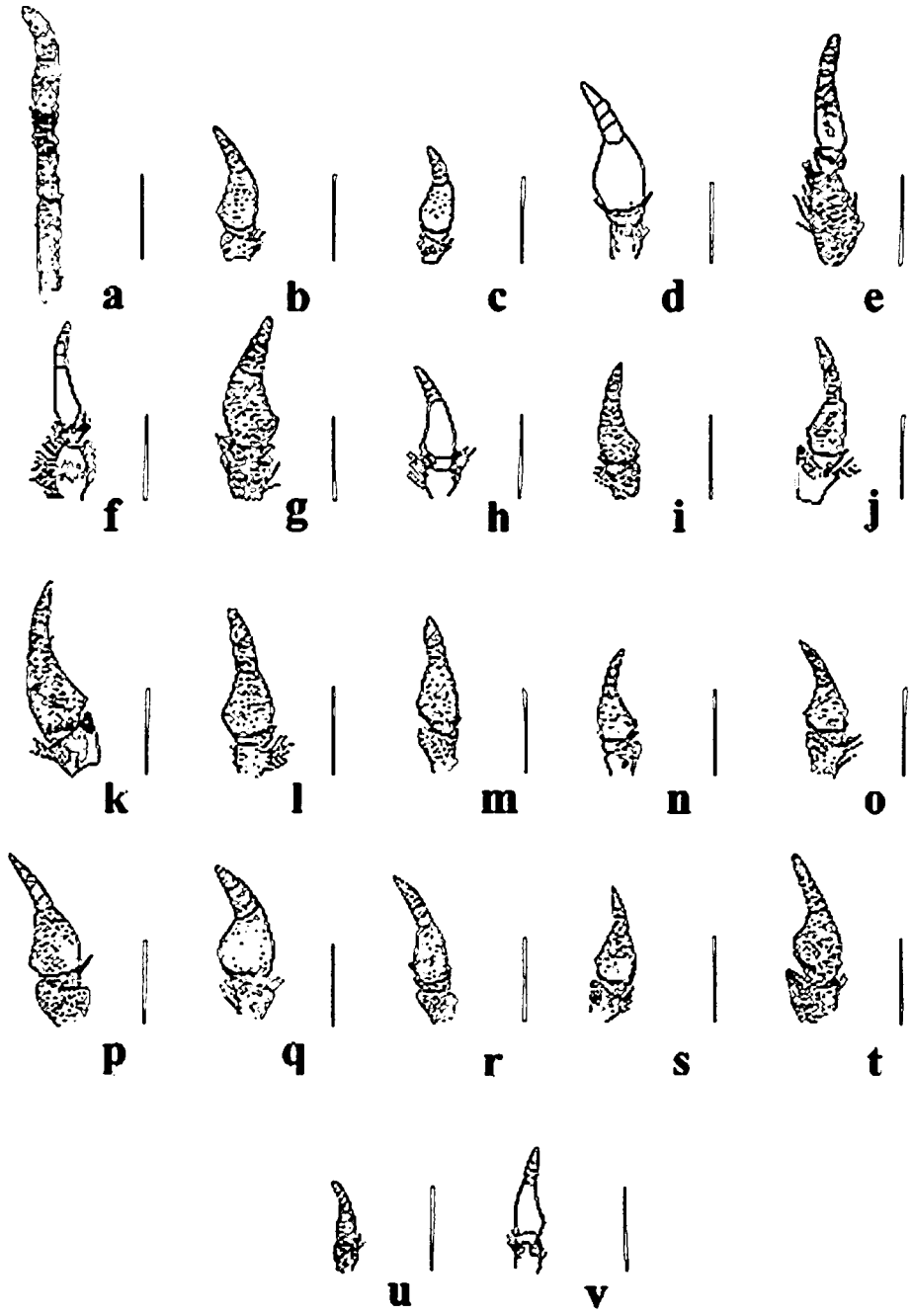

Fig. 4: Antennal patterns of tabanids from Jordan (scale bar 1mm).

Tabanus sufis JAENNICKE 1867 (Fig. 1u, Fig. 2n, Fig. 3u, Fig. 4u)

Diagnosis: Smallest species in collection, grey in colour, very broad frons with transverse rectangular brown callus.

Remarks: Found in the three localities, being distributed mainly among the Dead Sea basin. Performs a large fraction of the collection in the Suwaymah.

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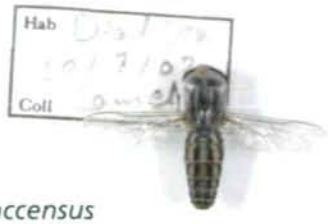
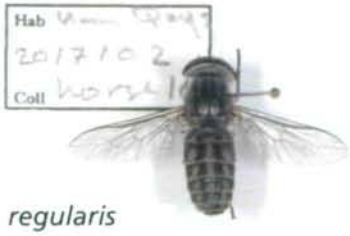
C. flavipes



T. accensus

T. autumnalis

T. leleani



T. regularis

T. rupinae

T. sufis

Th. tunicatus

Tabanus unifasciatus Loew 1858

Diagnosis: Dark-grey species with medium size, has narrower frons compared with *T. leleani*. Eyes with one band.

Remarks: *T. unifasciatus* has narrower frons in comparison with other species of the "cordiger" group. It is a blackish species but represented by light specimens that are named by Kröber as a variety *albescens* and recorded from Turkey (Kiliç, 1999). The males were collected in a large numbers in the morning. Distribution include South and Central Europe as well as Asia Minor, Iran, Syria, Palestine and North Africa (Chvála et al. 1972).

Therioplectes tunicatus (Szilády 1927) (Fig. 1v, Fig. 2o, Fig. 3v, Fig. 4v)

Diagnosis: Face and palpi pubescent, frons thickly covered with long reddish hairs especially at the upper region, second tergite of abdomen covered with whitish hairs a long the posterior margin.

Remarks: Size-wise, it is considered with *T. autumnalis* as the largest species in the collection. Distributed from northern Jordan Valley to the northern end of Dead Sea. It is distributed from SE Europe through Turkey to the Transcaucasus. It is recorded from the East Mediterranean (Syria and Palestine).

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Zusammenfassung

Die Bremsenfauna (Tabanidae: Diptera) Jordaniens. Die Bremsenfauna Jordaniens umfasst 26 Arten aus 7 Gattungen. Gezeigt werden Abbildungen der Bremsen Jordaniens aus dem untersuchten Material. Für jede Art wird auch die Verbreitung und das Gesamtareal angegeben.

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