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**Contribution to the singing cicadas of Israel
and adjacent countries
(Homoptera, Auchenorrhyncha: Cicadidae et Tibicinidae)**

W. SCHEDL

A b s t r a c t : Cicada material (143 specimens) stored in the Department of Zoology of the University of Tel Aviv, belonging to Israel and adjacent countries, is studied by the author. In many cases special preparations had been done, also drawings of the pygophores, the opercula and other important morphological structures. Data of localities, distribution and ecology are registered. Of this material, collected by different zoologists, are discussed 9 species of Cicadidae and 5 species of Tibicinidae. 3 specimens of the Arava Valley in SE-Israel appear as a new species, named *Adeniana yoivataensis*.

K e y w o r d s : Cicadidae, Tibicinidae, Near East, taxonomy, morphology, new species.

Introduction

Although the cicadas of the families Cicadidae and Tibicinidae are medium sized till great the knowledge about these sucking insects of the west-palaeartic region is not the best. The taxonomy and nomenclature is difficult and not well studied. This problem is also given in the cicadas of the Near East. There exists no key for the determination of all genera and species. So it needs hard work in partly old literature and in studying the original descriptions and the type-specimens. All the material, which is studied in the following chapters, is stored in the Department of Zoology of the University of Tel Aviv in Israel.

Methods

For an intensive study of this insect material it is very important to make genital preparations of the male pygophores. It is necessary to mollify the hard genital armatures with 10 % KOH, to wash up in H₂O and to bring in alcoholic solutions till glycerol. In very little vials the pygophore and subgenital plate can be stored at the pinned insect. Seldom the characteristic structures of the genital capsule are so erected in dry material, that a determination without preparation can be done. In cases, when till now no exact figure of the genital-armature exists, the author has made drawings of these and other important morphological details by a stereomicroscope of WILD M 5 with drawing apparatus.

Sometimes the author has spaned the right fore and hind wings for better seeing the venation characters. Some type specimens were loaned from central-European museums (also of relative species, which have not found in Israel till now): StMNST=Staatliches Museum für Naturkunde in Stuttgart, NHMBu=Natural History Museum in Budapest.

The author uses the original datas from the etiquettes of the pinned insects, only the roman numbers of the months are written in latin. () means completion of the author. Some words in Hebrew are translated into English. Abbreviations: G.Pr.with number means genital preparation in glycerol mini vials made by the author, without number are dry preparations.

Systematic Part

Cicadidae

Lyristes plebeius (SCOPOLI 1763)

Localities: 1♀ Graecia, Limni Marathon, 15.7.1956, leg. Bytinski-Salz; 1♂ Turkey, Adana, 13.7.72, (leg.) Gerling, G.Pr.; 1♀ 1♂ Iran, 140 km E Gorgan, 27.7.72, (leg.) Gerling, 18, G.Pr.

Distribution: mediteranean-westasiatic (SCHEDL 1986).

Ecology: active pontomediterranean (DLABOLA 1981). Adults on evergreen bushes and trees f.i. *Quercus* spp., *Fraxinus* spp., *Populus* spp., *Olea europaea*, *Vitis vinifera* (SCHEDL 1986).

Cicada orni (LINNAEUS 1758)

Localities: 1♀ 3♂♂ Graecia, Asklepeion, 7.7.1960, leg. Bytinski-Salz, 1 G.Pr.(♂); 1♀ Greece, Peloponisia, 1.8.73, (leg.) A. Arbel (The specimen has extreme long wings); 1♂ Israel, Jerusalem, 30.7.1950, Hebr. Univ., (leg.) J. Wahrman, H 318, *Cicada orni* OLIV. Linnavouri det., G.Pr.; 1♂ Israel, Monvia, (on) *Olea*, 10.7.84, (leg.) A.Igbaria, G.Pr.; 1♂ Iran, 140 km E Gorgan, 27.7.72, (leg.) Gerling, 18, G.Pr.

Distribution: Ponto-mediterranean, W-Jordan, Iran (DLABOLA 1965, 1981; SCHEDL 1986).

Ecology: Arboreal-pontomediterranean, similary to *L. plebejus*, but also on *Pinus* spp.

Psalmocharias plagifera (SCHUMACHER 1922)

Localities: 1♂ Israel, Santacatarin, 22.5.79, (leg.) Fromen, G.Pr.; 1♂ Israel, En Avdat, 29.4.1987, (leg.) A. Freidberg; 1♂ Israel, Ein Ovdar, 22.5.1986, col. Z. Zilberberg; 2♀♀ Mitzpe Ramon, 17.5.88, (leg.) E. Teicher, found on hassiach (?); 2♂♂ Palestine, Negev, Wadi Ramon, 25.4.1950, (leg.) J. Wahrman, 1♂ G.Pr., at 1♂ "*Cicadetta atra* OLIV. Linnavouri"; 2♂♂ (Egypt), W. Shag, 12.7.74, S. Ian R25, coll. Zuckei David, F.S.C. Hamed after David Tamir, Sinai, Santa Kattarina, *Melampsalta musiva* det. A. Shulor, 1974, G.Pr., G.Pr.164 W.S. fec. 2.1.96.; 1♂ Israel (Egypt?), Santacatarin, 22.5.79, (leg.) R. Fromen, G.Pr. 1♀ (Israel?), W. Hedhira, 29.4.50, T.A. Univ., Rhyn. 7.

Distribution: Northern Africa (BOULARD 1981), Iran (1♀ 1♂ det. DLABOLA, in StMNST), first exact evidence for Israel!

Fig. 1 a, b, c shows the typical penis form at the pygophore, the subgenital plate from above (G.Pr. 164) and the left, mainly black operculum with silvery hairs of a male.

E c o l g y : ?

***Psalmocharias querula* (PALLAS 1773)**

L o c a l i t y : 1♂ Palestine, Negev, Wadi Ramon, 25.4.1950, (leg.) J. Wahrmann, G.Pr. 166 W.S., 323.

Fig. 2 shows the pygophore laterally with the typical sclerotized parts of the penis.

D i s t r i b u t i o n : Turkey, Israel, Egypt, Iran, Afghanistan, Pakistan, India, central Asia to Mongolia, Algeria, Tunisia (f.i. NAST 1972, SCHEDL 1993). A transeremian faunal element (LINNAVOURI 1953; DLABOLA 1971, 1981).

E c o l o g y : In half-desert habitats with *Glycirhiza*, deciduous forests and brushwood (DLABOLA 1981).

***Cicadatra flavicollis* HORVÁTH 1911**

L o c a l i t i e s : 1♀ Israel, Biq'at Ha Yareh, 15.5.75, 27, "*Cicadatra flavicollis* HO."; 1♀ Israel, Nawamis, 22.5.79, (leg.) A. Fromen.

D i s t r i b u t i o n : Israel, Egypt, Arabia, an eremian faunal element (LINNAVOURI 1964, SCHEDL 1993).

E c o l o g y : Similary to *P. querula*.

***Cicadatra hyalina* (FABRICIUS 1798)**

L o c a l i t i e s : 1♀ Palestine, Kirjat Anarim (?), 27.5.1942, leg. Bytinski-Salz; 1♂ Palestine, Mishmar Haemek, 6.6.54, (leg.) O. Theodor, "*Cicadatra hyalina* (F.) P. Duffels 1984, G.Pr.169 W.S., fec.27.1.96; 2♂♂ Israel, Ramla, 18.5.1959, 24.5.1959, (leg.) Werner, Hebr. Univ., G.Pr.167 W.S., fec.12.1.96; 1♀ 1♂ (Israel ?), Brosh, 14.5.64, (leg.) Kamon & Marglit; 1♂ Israel, Hulda, 23.5.70, (leg.) M. Kaplan.

Fig. 3 shows the pygophore in lateral view with the typical sclerotized penis apex, Fig. 3 b the left operculum yellow. The subgenital plate has a small excarvation in the medio-apical line. The colour of the body is varying very much.

D i s t r i b u t i o n : In the South of the palaeartcis, but not in North Africa, an active arboreal-pontomediterranean faunal element (DLABOLA 1981, 1987).

E c o l o g y : In half deserts with deciduous trees (DLABOLA 1981).

***Cicadatra longipennis* SCHUMACHER 1923**

L o c a l i t i e s : 1♂ Palestine, Kirjath Anavim, 27.5.1942, leg. Bytinski-Salz, G.Pr.171 W.S., fec. 1.2.96; 1♂ Israel, Jerusalem, 20.7.1946, Hebr.Univ., (leg.) J. Wahrman, H319, "*Cicadatra longipennis* SCHUHM" Linnavouri det., G.Pr. fec. 6.2.96 W. S.; 2♂♂ Israel, Jerusalem, 9.6.1952, 13.6.1952, Bet Wagan, Coll. Shulov, H. U. Zool. (En.), G.Pr.; 1♂ Israel, Jerusalem, 1.7.1953, (leg.) J. Wahrman, Hebr. Univ., "*Cicadatra atra* OLIV. R.d., G.Pr.; 1♂ Israel, Devir(?), 25.5.1977, (leg.) D. Simon, G.Pr.; 1♂ Israel, N. Zalmon, 8.7.84, (leg.) Y. Zvik, G.Pr. 170 W.S. fec. 1.2.96; 1♂ Israel, Jerusalem, 27.5.88, (leg.) I. Macklis, G.Pr.; 1♂ (Egypt) Sinai, W. El-Arish, 25.5.69, col. Zila, Entomology Dep. H. U. Jerusalem, G.Pr. 184 W.S., fec. 3.1.96 (specimen not in full colour).

The pygophore in lateral view is given in Fig.4, showing the characteristic form of the penis. The subgenital plate is without an excavation in the medio-apical line. The left operculum of the male is broad, bright yellow and with fine short hairs, the base is dark-brown. See also LINNAVOURI (1962).

D i s t r i b u t i o n : Israel, Jordan (HAUPT 1927, LINNAVOURI 1952, 1962, DLABOLA 1965), new for Egypt!

E c o l o g y : Found on herbs and bushes on dry sunny hillsides (LINNAVOURI 1962).

***Cicadatra platyptera* FIEBER 1876**

L o c a l i t i e s : 1♂ Palestine, Jerusalem, 12.7.1942, leg. Bytinski-Salz, G.Pr.; 1♂ Israel, Hula, 23.6.1952, (leg.) J. Wahrman, G.Pr. 165 W.S., fec. 9.1.96; 1♂ Israel, W. Rvas, 28.6.1952, (leg.) J. Wahrman, G.Pr.; 1♂ Israel, loc. Jerusalem, 30.5.1954, Coll. G. Backsht, H. U. Zool. (Ent.); 5♂♂ Israel, Jerusalem, 5.6.1954, 10.6.1956, 12.6.1959 (2♂♂ G.Pr.), 19.6.1956, (all leg.) J. Wahrman; 1♂ Israel, Jerusalem, 14.6.57, (leg.) Lotan, 1♂ detto, 22.7.1961, (leg.) Katznelson; 1♂ Israel, Eshtaol, 18.6.1961, leg. Bytinski-Salz, G.Pr., (partly destroyed through *Anthrenus*); 1♂ Israel, Mt. Hermon, 10.7.1975, (leg.) M. Kaplan, G.Pr.; 1♂ detto, 10.7.1975, (leg.) Kugler, G.Pr.; 1♂ detto, 1600 m, 9.7.1987, (leg.) Yoram Zvick, G.Pr.; 1♂ detto, 1400 m, 10.7.1975, (leg.) A. Freidberg, 31, G.Pr.; 1♂ 1♀ detto, 1600 m, 2.7.11986, (leg.) A. Shlagman et G. Eldar, G.Pr.; 1♂ Israel, Nahal Amud, 10.6.1987, (leg.) A. Freidberg, 31, G.Pr.; 1♂ Israel, Up. N. Amud, 10.6.1987, (leg.) Yoram Zvik; 1♂ Israel, Mevasseret, 31.5.1990, (leg.) Yoram Zvik, G.Pr.; 1♂ Israel, Bor Mashash, 21.7.1986, (leg.) A. Freidberg, G.Pr.; 1♂ Israel, Ramot Naftali, 9.6.1991, (leg.) A. Friedberg, G.Pr.; 2♂♂ Isreal, Rihaniya, 10.6.1991, (leg.) A. Freidberg, G.Pr.; 1♂ Israel, Har Dov, 8.7.1987, (leg.) Yoram Zvik, G.Pr.

The pygophore in lateral view is shown in Fig. 5 a, also the left broad, yellow operculum, which is touching on the right one in the middle of the abdomen.

D i s t r i b u t i o n : Syria, asiatic Turkey, Jordan, Israel (DLABOLA 1965).

E c o l o g y : Similar to *C. atra* (OLIVIER), in the mountains living till 1600 m NN!

***Cicadatra ramanensis* LINNAVOURI 1962**

L o c a l i t y : 5♂♂ Isreal, Wadi Ramon, 13.8.1956, Trias, (leg.) J. Wahrman, Hebr. Univ., G.Pr. 168 W. S. + 1 G.Pr.

Fig. 6 is showing the pygophore in lateral view with the very short penis-armature, see also to Fig. 25 and 26 in LINNAVOURI (1962). The species is relative to *C. vulcanica* DLABOLA & HELLER (1962) from Belutschistan (Iran).

D i s t r i b u t i o n : Israel, a Syroiranian eremian faunal element (DLABOLA 1981).

E c o l o g y : ? but surely with high xero-thermic demands.

***Cicadatra* spp. ♀♀**

The following ♀♀ the author cannot determine exactly because it is impossible with the recently known taxonomical characters, if there exists no male from the same locality, date and collector.

Localities: 1♀ Turkey, Adana, 13.8.72, (leg.) Gerling; 1♀ Lebanon, Kefarkuh, 5.7.1982, (leg.) D. Simon, [†]*Cicadatra atra* (OLIV.) "det. J. P. Duffels, 1984; 1♀ Israel, Jerusalem MS, 21.6.1946, Hebr. Univ., (leg.) J. Wahrman, "*Cicadatra livida*" Linnavouri det., 1♀ detto, 9.6.61, (leg.) ?; 1♀ Israel, Acre, 27.8.1954, coll. L. Fishelsohn; 1♀ Israel, W. Aasal, 1600 m, 27.7.67, coll. Nitzo.; 1♀ Israel, (Mt.) Meron, 11.6.67, (leg.) F. Nachbar; 1♀ Israel, Haz Meron, 900 m, 11.6.1991, (leg.) A. Freidberg; 1♀ Israel, Montfort, 2.6.1981, (leg.) A. Freidberg; 1♀ Israel, Ein gov, 10.4.1983, (leg.) D. Zur, 28; 1♀ Israel (?) Mt. Hermon, 9.7.1987, (leg.) Yoram Zvik.

Tibicinidae***Tettigetta dimissa* (HAGEN 1856)**

Locality: 1♀ Greece, Peloponisia, 1.8.73, (leg.) A. Arbel.

Distribution: SE-Europe, asiatic Turkey, S-Armenian, Azerbaijan, Kazachstan, parts of southern Siberia, China (Sinkiang), an eastmediterranean-westasiatic faunal element (NAST 1972, SCHEDL 1986).

Ecology: In open landscape with scrubs and trees as *Paliurus spina-christi*, *Rubus* spp., *Quercus ilex*, *Q. pubescens*, *Olea europaea* and *Pinus* spp. (SCHEDL 1986).

***Tettigetta musiva* (GERMAR 1830) n. comb.**

synonym *Cicadetta musiva* (GERMAR)

Localities: 1♂ Iran, 100 km S hiras, m. Shur R., 7.8.72, (leg.) Gerling; 1♂ 1♀ (Egypt), Sinai, W. Taiba, 1.7.1972, (leg.) A. Freidberg; 4♂♂ (Egypt) Israel, Sinai, Arandal, 20.5.69, col. Tsabar, Entomology Dep. H.U. Jerusalem; 1♂ Israel, Ain Haruf, Negev, 28.4.1952, Hebr. Univ., (leg.) J. Wahrman; 1♂ Israel, Hatseva, 7.6.1960, (leg.) J. Wahrman; 1♀ 1♂ Israel, Ein-Hozebe, 29.6.1961, (leg.) V. Amitbt; 1♂ Israel ?, Ein Husub, 24.6.63, (leg.) Y. Yantov; 1♂ Israel, Ein Tamar, 15.9.1963, Hebr. Univ., (leg.) Katznelson; 1♂ Israel ?, Neot Hakikan, 28.5.64, (leg.) Margatit; 2♂♂ Israel, Finar, 21.5.1971, coll. A. Schwartz; 1♂ Israel, Sde Boker, 13.7.1978, (leg.) M. Kaplan.

Distribution: N-Africa, Israel, Jordan, Syria, Cyprus, Turkey, Iran, Transkaukasus?, Iraq, Aserbaitshan, Kasachstan, Turkmenistan, Usbekistan (NAST 1972, SCHEDL 1993), an eremian faunal element (LINNAVOURI 1964).

Ecology: Very common on *Tamarix* sp., there can be observed also the oviposition in paired rows (BODENHEIMER & THEODOR 1929).

***Tettigetta parvula* (FIEBER 1876)**

(=synonym *Heptaglena (Oligglena) libanotica* HORVÁTH 1911)

Localities: 1♂ Israel, Qirjat Gat, 22.4.1962, Hebr. Univ., (leg.) Katznelson, G.Pr. 172 W. S., fec. 2.2.1996; 1♀ Israel (?), Rosh Hanskra, 1.5.64, (leg.) Hangalit; 1♂ Israel, Zikron Jáecov, 13.5.1975, (leg.) Kugler; 1♀ Israel, Mliron, 13.5.1973, (leg.) M. Kaplan; 1♂ Israel, Har Meron, 900 m, 11.6.1991, (leg.) A. Freidberg; 1♂ Israel, Carmel, Atlit, 6.5.1969, (leg.) A. Freidberg; 1♂ Israel, Tel Dan, 5.5.1977, (leg.) D. Simon, 44; 1♂ Israel, Má agan Michael, Roman Bridge, 20.4.1986, (leg.) A. Freidberg, G.Pr. 178 W.S., fec. 14.4.96; 2♂♂ Israel (?), Mt. Hermon, 1600 m resp. 2000 m, 9.7.1987 resp. 7.7.1987, (leg.) Yoram Zvik; 2♂♂ Israel (?), Mt. Hermon, 1300 m resp. 1900 m, 26.5.1987 resp. 28.7.1971, (leg.) J. Kugler; 2♂♂ Israel (?), Mt. Hermon,

1500 m, 29.5.1984, (leg.) I. Yarom; 2♂♂ + 1♂ Israel (?), Mt. Hermon, 1600 m resp. 2000 m, 18.5.1976, 9.6.1975 resp. 7.7.1987, (leg.) M. Kaplan; 2♂♂ detto, 2000 m, 22.6.1973, (leg.) M. Kaplan; 2♂♂ 1♀ Israel (?), Mt. Hermon, 1600 m resp. 2000 m, 27.5.1986 resp. 1♂ 1.7.1986, (leg.) A. Shlagman; 5♂♂ 1♀ Israel(?), Mt. Hermon, 1900-2000 m, 1.7.1986 resp. 7.7.1987 (1♂), (leg.) A. Freidberg; 2♂♂ Israel (?), Mt. Hermon, 1500 m, 29.5.1984 resp. 11.6.1976, (leg.) A. Freidberg; 2♂♂ + 1♂ Israel (?); Mt. Hermon, Asta, 1900 m, 9.7.1987 resp. 1600 m, 12.7.84, (leg.) A. Freidberg; 1? 1/ Israel (?), Golan Heights, 1900 m, above magdal-Shams, without date, (leg.)?

Fig. 7 a and b are showing the pygophore (G.Pr. 178) in lateral and ventral views with the characteristically spine-formed penis structure. Fig. 7 c shows the right operculum of the male, which is yellow with a dark basis, Fig. 7 d the left posterior wing with its venation from the holotype (NHMBu) of *Oligoglana libanotica* (HORVÁTH 1911), fec. 25.4.96. The venation of fore and hind wings is varying very much. After studying of 33 specimens of this material the dispersion of the account of apical cells oscillates in the fore wing between 7 and 9 (mainly 8), in the hind wing between 4 and 6 (mainly 5) also between right and left wings.

D i s t r i b u t i o n : Morrocco (?), Turkey (LODOS & KALKANDELEN 1981), Lebanon (HORVÁTH 1911), new for Israel!

E c o l o g y : ? Range of distribution up to 2000 m!

Adeniana longiceps (PUTON 1887)

L o c a l i t i e s : 1♂ Israel, Hebr. Univ., 125-129, (leg.) Werner, G.Pr.; 1♂ Israel, Avdat, 16.6.1986, (leg.) A. Freidberg, G.Pr. 179 W. S., fec. 24.4.96.

D i s t r i b u t i o n : Algeria, Tunesia, Egypt Israel, Aserbaitshan (LINNAVOURI 1962, NAST 1972; SCHEDL 1993), eremian faunal element (LINNAVOURI 1962, 1964).

E c o l o g y : ?

Adeniana yotvataensis n. sp.

L o c a l i t y : 2♀ 0♂ Israel, Yotvota (ca 35 km North of Eliat), 1.7.63, Coll. Kugler, G.Pr. 183 W. S., fec. 12.12.96 (Photo 1).

Male: Head (fig. 8 a) yellow, around the ocelli brown, greyishly pilose; pronotum distinct broader than the head with a brown longitudinal fascia, front and apical margins of the pronotum yellow, mesonotum brown with a yellow three forked figure to the front, metanotum showing in an elliptical great area the blistered tympanal membrane of the 1. abdominal tergite. Thorax ventrally yellow, mesosternum with two brown spots, legs yellow with brown spots at the femora in front, opercula small, yellow, hooked and pilose (fig.8 c).

Venation of fore and hind wings yellow, parts of the apical costa brown, area of both wings hyalin only anal area of hind wings milky. Fore wings with eight apical cells, the area costalis (first apical cell) very small elliptically, hind wings with five apical cells (fig. 8 b).

Abdomen yellow, the first two tergites dark brown, the following with a median row of brown spots, abdomen beneath yellow with for the genus typical transparent broad sternites. The tymbal membranes are very great and elliptical (Photo 2).



Photo 1: *Adeniana yotvataensis* nov. spec. ♂: from above (holotype). Photo: B. Knoflach-Thaler.



Photo 2: *Adeniana yotvataensis* nov. spec. ♂: right tymbal membrane at the first abdominal tergite. Photo: B. Knoflach-Thaler.

Pygophore in lateral view see fig. 8 d, subgenital plate thin, yellow and transparent (fig. 8 e), apically with a round medial excavation.

Length 22 mm, with the wings 27 mm, wingspread 52 mm, breadth of the mesothorax 7 mm.

F e m a l e : Similar to the male, the brownish colour in head and thorax slighter. Abdominal tergites with brownish rings in addition to a longitudinal row of brown spots. The sternites are normal and lack the broad transparent character as they are in the male.

Measurements very similar to the male.

D e r i v a t i o n o f n a m e : The specimens of the new species has been found near the Kibbutz Yotvata in the Arava Valley.

D i s c u s s i o n : Of all till now badly known *Adeniana* species of North Africa and Arabia this species is the greatest one. Perhaps *A. obokensis* DISTANT 1914, and *A. yerburgi* (DISTANT 1905) are relative to the new species. Drawings of the pygophores are known only from *A. longiceps* (PUTON 1887) and *A. kovácsi* (HORVÁTH 1911). The venation seems to be not an exact taxonomical structure and is very similar in many "species". Also the colour might be of no great importance. The key of VILLIERS (1943) gives no help to the taxonomic status of the new species.

D i s t r i b u t i o n : Endemic (?) to Israel, possibly an Ethiopian faunal element sensu BYTINSKI-SALZ (1961).

E c o l o g y : ? but with xerothermic preference.

Remarks

In this study the author did not give remarks to the male songs or to known oscillograms of these. 143 specimens may coordinate to 14 species, not all are indicated from the state of Israel. Somme females of the genus *Cicadatra* cannot determined untill to the species. Former material from Israel and adjacent countries (f.i. *Cicadatra livida* SCHUM. in LINNAVOURI 1952 and *C. atra* (OLIV.) in LINNAVOURI 1953) have to identify again using the new knowledge of taxonomy and nomenclature, but I estimate the number of species in Israel about 12 Cicadidae and 8 Tibicinidae at all. Data of singing cicadas (Cicadidae & Tibicinidae) are useful as biological indicators for each country, specially for the Near East, where different zoogeographical regions come into contact.

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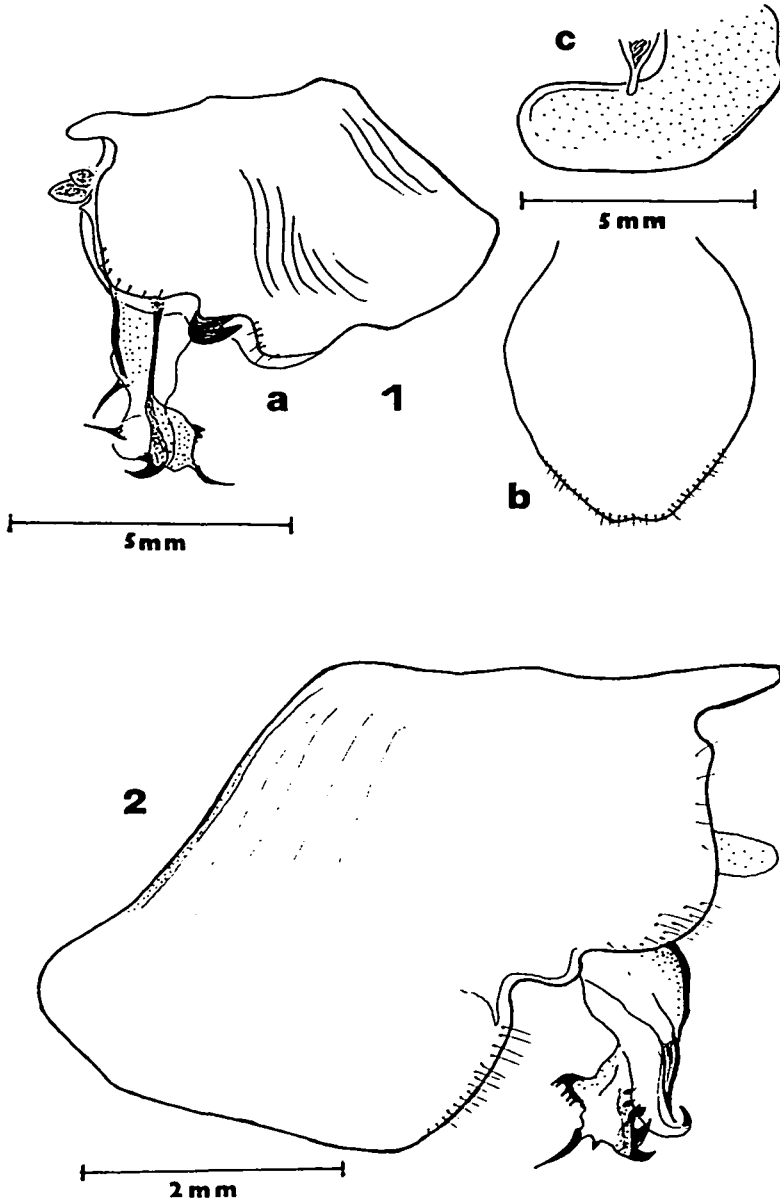


Fig. 1: *Psalmocharias plagifera* (SCHUM.) ♂ a – pygophore laterally, b – subgenital plate from above, c – left operculum. Fig. 2: *Psalmocharias querula* (PALLAS) ♂ pygophore laterally.

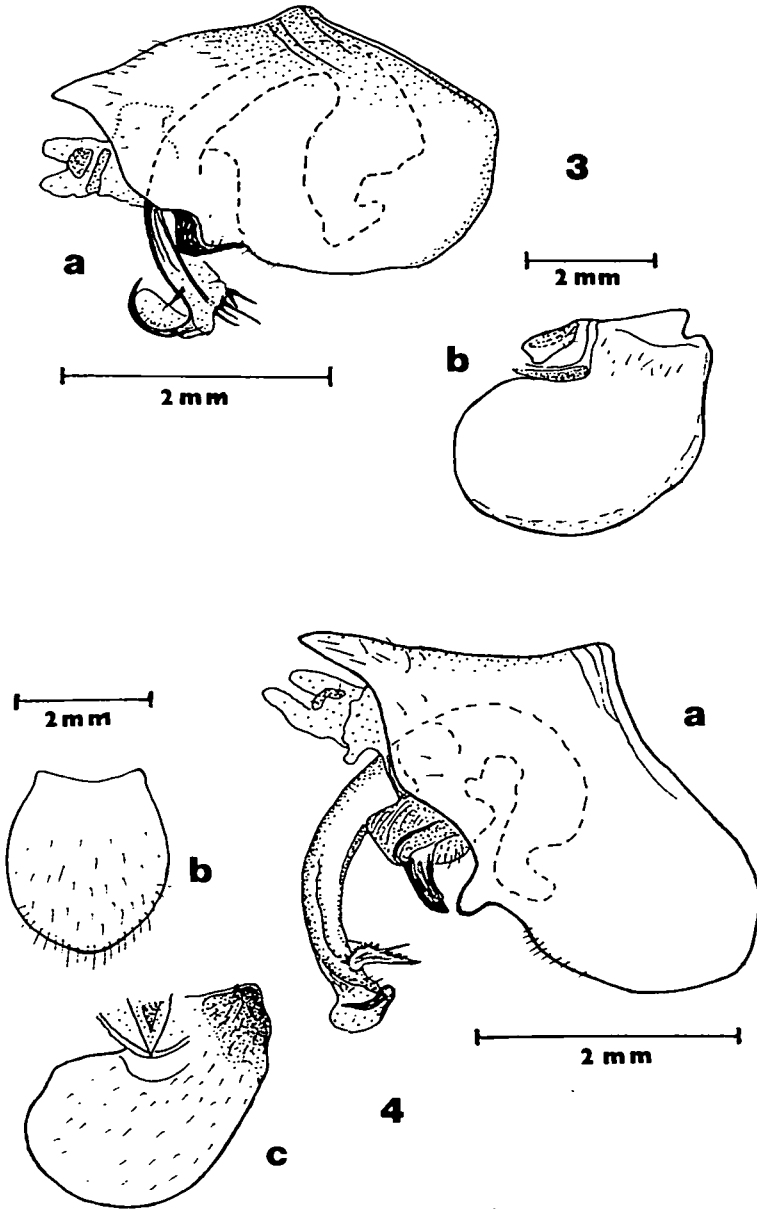


Fig. 3: *Cicadatra hyalina* (F.) ♂ a – pygophore laterally b – left operculum. Fig. 4: *Cicadatra longipennis* SCHUM. a – pygophore laterally, b – subgenital plate from above, c – left operculum.

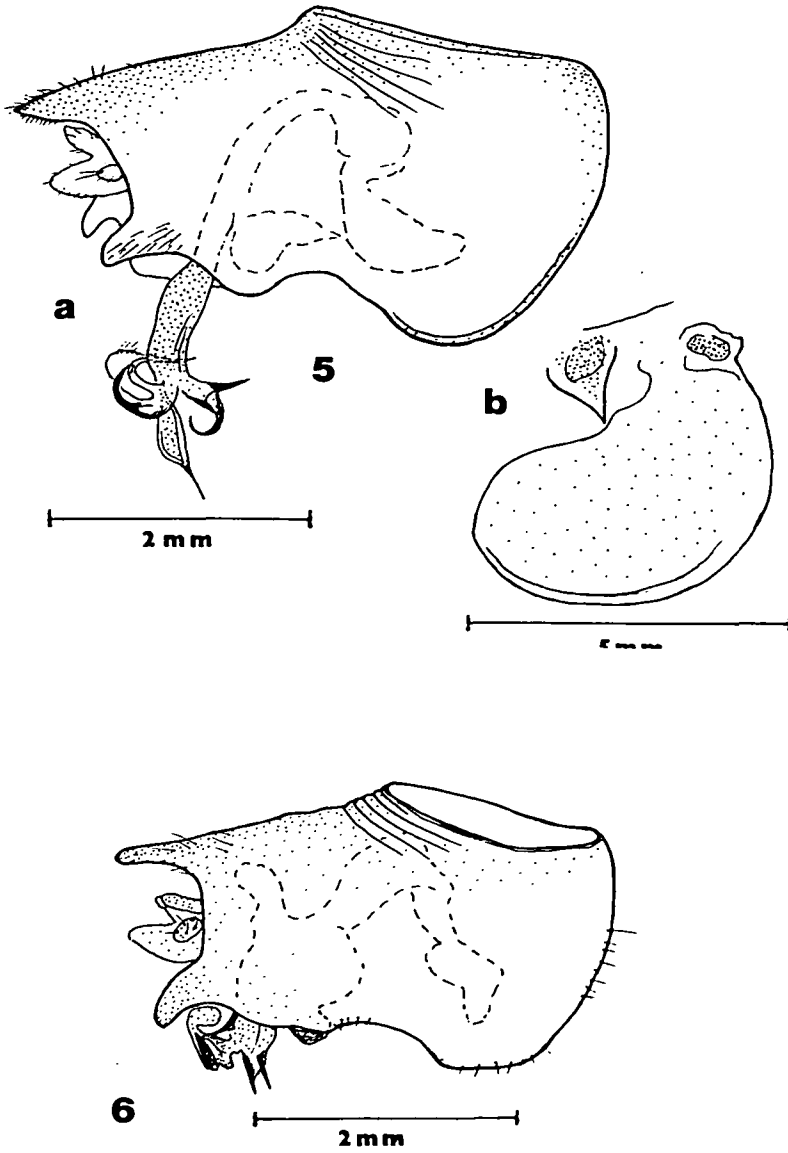


Fig. 5: *Cicadatra platyptera* FIEBER ♂ a – pygophore laterally, b – left operculum.
Fig. 6: *Cicadatra ramanensis* LINNAVOURI ♂ : pygophore laterally.

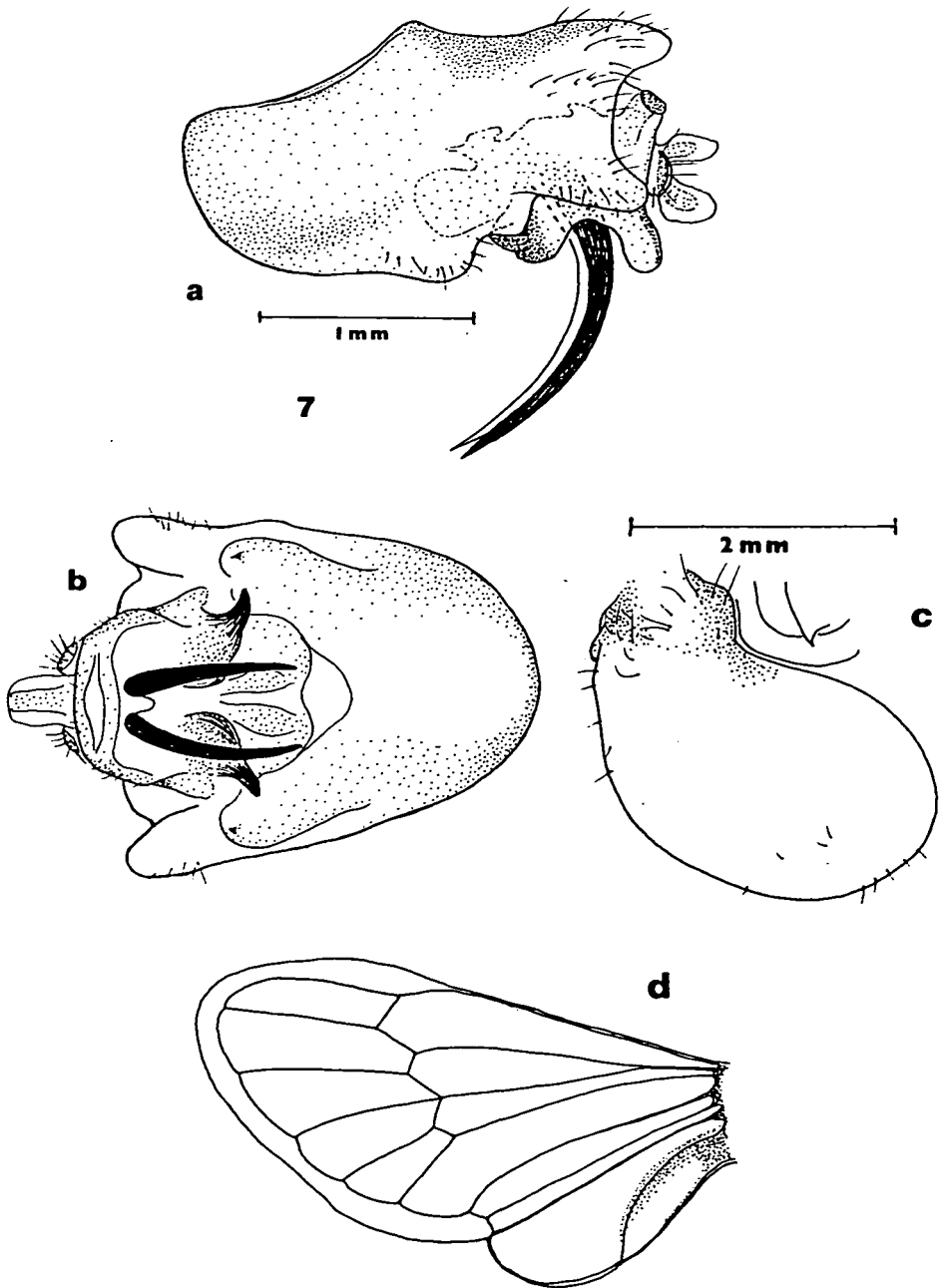


Fig. 7: *Tettigetta parvula* (FIEBER) ♂ a – pygophore laterally, b – pygophore ventrally, c – right operculum, d – left hind wing from the holotype of *Oligoglena libanotica* (HORVATH 1911).

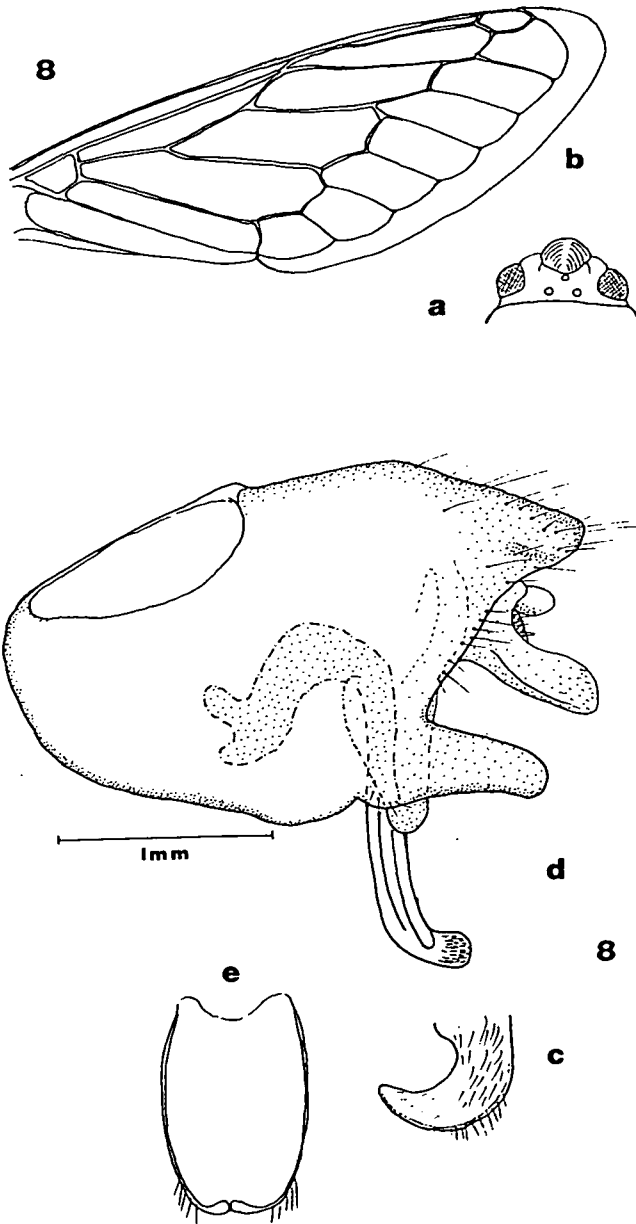


Fig. 8: *Adeniana yotvataensis* nov. spec. ♂ a – caput from above, b – right fore wing, c – left operculum, d – pygophore laterally e) subgenitale plate from above (all from the holotype).

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