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Further data about jumping plant lice of Turkey (Homoptera, Psylloidea)

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Summary

The present paper is the continuation of the work already published (see, Klimaszewski and Lodos, 1977) and deals with the jumping plant lice species of Turkey. The following list of plant lice species is based mainly on the specimens that collected recently from different parts of Turkey. 33 Species listed in this study, about 14 of which are new records for Turkey and one new species, **Cyamophila stoklosai** Klimaszewski - Lodos is described.

Introduction

The previous studies on jumping plant lices of Turkey (Vondracek, 1952; Klimaszewski and Lodos, 1977) have not showed the complete picture of this group in that country. Simultaneously even so scarce and fragmentary informations as collected up to day, show the richness and zoogeographical differentiation of psyllids in Turkey. It reflects the geographical position of this country, in which numerous different genetically and geographically species are to find. e.g. in this region occur interesting species of South-Siberian (Eurocaucasian) group, as well as some Irano-turanian and Mediterranean species. From this reason the more detailed study on turkish psyllids may countribute to better knowledge concerning

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the history of jumping plant lice fauna in south Palaearctic and the origin of Mediterranean fauna. Study of psyllids is of some practical importance as well: in this group of insects numerous pests of different cultivated plants occur.

Systematical list of collected species

1. **Agonoscena succinata** (Heeger)

Material examined: Tire, 7.9.1977, on **Pistacia terebinthus.** This species lives on different species of **Pistacia** L., as well **Ruta graveolens.** From Turkey was previously listed (Klimaszewski and Lodos, 1977). Its range includes likely the basins of Mediterranean and Black Seas and Caucasus, where has been recently found (Gegeckori, 1966; Loginova, 1968).

2. **Agonoscena viridis** Bajeva

Material examined: G. Antep-Gureniz, 9.6.1972, on **Pistacia vera;** Gaziantep, 1973, on **Pistacia vera.**

This species has been described from Tadjikistan (Bajeva, 1963) and recently is known only from Georgian SSR (Gegeckori, 1966). New for Turkish fauna.

A. viridis Bajeva is easy to distinguish from the former species, thanks to homogenously yellowish membrane of fore wing (without characteristic design as in **A. succinata** as well as to greater body size. Significant differencies are to be observed in male genitalia: in **A. viridis** Baj. the parameres are broader and without outgrowths on back edge. Body colour of **A. viridis** Baj. (despite the name of this species) is variable from green to sandy-yellow.

3. **Euphyllura olivina** (Costa)

Material examined: Narlıdere - İzmir, 9.3.1977; Bornova - Izmir, 5.4.1977; Cumaovası - İzmir, 2.5.1977; Dikili - İzmir, 19.7.1977; Seferihisar-İzmir, 25.8.1977; all specimens on **Olea europaea** or **O. silvestri.**

This species is common in whole region of Mediterranean Sea, causes serious damages in olive-tree orchards. Known from several regions of Turkey.

4. **Euphyllura phillyreae** Först.

Material examined: Bornova-İzmir, 5.4.1977, on **Olea europaea;** Kavacık-İzmir, 22.8.1977, on **P. media.**

The range of this species is similar as in the former one, occurs also in Caucasus. Loginova (1973) thinks that **E. phillyreae** is the morphological form of **E. olivina** (Costa) only. This oppinion is recently not adequately justifiable and more advisable is to abide in opinion of former interpretation of the species names (Vondracek, 1952). He has analysed the Europaean species of **Euphyllura** Först. and accepted the separateness of **E. olivina** (Costa) and **E. phillyreae** Först., synonimizing the species names used by Horvath (1918) and Enderlein (1921).

5. **Camaratoscena speciosa** (Flor)

Material examined: Kozak (Bergama)-İzmir, 6.5.1977, on **Pirus** sp.

This species lives on different poplar species **(Populus** L.). Its range includes the south of middle - and western Palaearctic eurocaucasian species. From Turkey was previously listed (Klimaszewski and Lodos, 1977).

6. **Camaratoscena hoberlansti** Vondr.

Material examined: Başkale, 8.8.1977, 3 ♀♀, **Populus** sp.

This species, morphologically very similar to the former one was described from Turkey (terra typica) by Vondracek (1952) and later was found in Azerbaijan and Turcomania (Loginova, 1968).

7. **Camaratoscena subrubescens** (Flor)

Material examined: Bayındır-İzmir, 21.7.1977, on **Populus** sp.

This species has characteristic body colour rusty-red, and the fore wings are rusty-yellow without design. **C. subrubescens** (Fl.) was found as today only from France, Yugoslavia, and Italy and its host-plant was not known. There was to suspect that similarly as in other species of **Camaratoscena** Haupt it lives on different species of **Populus** L.

8. **Camaratoscena** sp.

Material examined. Ayrancılar, 13.7.1977, 1 ♀ **Populus** sp. The specimen captured in Ayrancılar has yellow-green body and transparent, colourless wing. On that score it is similar to **C. unicolor** Log., which is

known Kasakhstan and Turcomania (Loginova and Parfentev, 1958). This second one has however numerous cone-shaped spines on ovipositor valvae, especially frequent on distal part of dorsal valva. The specimen from Ayrancılar has no any spines. Similar structure of ovipositor have **C. subrubescens** (Fl.), **C. badia** Log. and **C. tryamitzini** Log. but they differ markedly in body colour. It seems that collection of more abundant specimens, including males will permit the determination of species to which belongs the specimen found in Ayrancılar.

9. **Crastina myricaria** Log.

Material examined: Başkale, 12.6.1976, on **Myricaria** sp. Species described from Caucasus by Loginova (1964). Because this description is incomplete (published in key to species determination) will be useful to give supplement to it.

Colour of the body rusty-yellow, of abdomen greenish. Antennae rusty-yellow, only the terminal segments darker, brown. Fore wings yellowish with darker yellow-brown patches in distal part (Fig. 1).

Head width 0,60 mm, vertex 0,26 wide and 0,19 long. Antennae length 0,68 mm long with the 3rd segment, 2,48 time longer than the next one. Fore wings 2,06 mm long and 0,85 mm wide in males, in females rather greater, Cu_1 cell on fore wings elongated with coefficient 2,25. Hemitrichae great regularly cover the wing membrane.

Male genitalia. Subgenital plate as high as long, with straight upper edge. Its surface covered with barely observable microsculpture in from of tiny single spines. Proctiger hight 0,23 mm, and its armes length (as measured from frontal edge of the cone) 0,36 mm. Paramerae 0,19 mm high, the broadest in apical part (Fig. 2) characteristically shaped. The frontal edge of paramera terminated with serrated outgrowth, the back edge expandes upward. The penis markedly swollen, its length equals the half of mobile part length.

The described species is known from Central Asia, Kazakhstan and Caucasus. New for Turkey.

10. **Cerna omissa** Wagner

Material examined: Hakkâri, 15.6.1976, on **Fraxinus** sp. Species widely distributed in Palaearctic, living on **Artemisia vulgaris.** Only in scattering period is find on other plants. New for Turkey.

11. **Amblyrhina turkiana** Klimasz. and Lodos

Material examined: Besni, 8.5.1976; Kâhta-Narince, 7.6.1976, on **Prunus amygdali;** Malatya, 9.6.1976; Siirt, 11.6.1976. Species described previously from Turkey (Klimaszewski and Lodos, 1977) and known only from this region.

12. **Psyllopsis fraxinicola** (Förster)

Material examined : Hakkâri, 15.6.1976 on **Fraxinus** sp. Holarctic species commonly occurring on different species of **Fraxinus** L., from Turkey listed in previous paper (Klimaszewski and Lodos, 1977).

13. **Arytaina cytisi** (Puton)

Material examined: Çeşme-İzmir, 29.3.1977, on **Calycotome spinosa;** Bornova-İzmir, 5.4.1977, on **C. spinosa** and **Pyrus elaeagrifolia;** Karaburun-İzmir, 14.3.1977, on **C. spinosa.**

For this species characteristic are the slightly yellowish fore wings with regularly rounded apical edge and with hemitrichae in all cells, reaching not the veins. Hemitrichae are very fine. In male genitalia characteristic are the listshaped narrow forceps (Fig. 3) with finger-like apical part curved forward.

A. cytisi is known only from Mediterranean region. New for Turkish fauna.

14. **Floria horvathi** Scott

Material examined: Kozak (Bergama)-İzmir, 6.5.1977, on **Genista** sp.

This species markedly differs from other species of the genus owing to distinct longitudinal russet band reaching from apical to basal part of the wing. **F. horvathi** Scott is known only from the South of Europe. New for Turkey.

15. **Diaphorina putoni** Löw

Material examined: Hilvan, 4.8.1977, on **Scrophularia** sp.

Diaphorina putoni Löw is one of widest distributed species of this genus in Mediterranean region. Loginova (1978) has included this species to the species group living on plants of **Tamarix** and **Licium** genera. The host-plant of **D. putoni** was not known up to date. Numerous males and

females found on **Scrophularia** sp. let to suppose, that some plants of this genus are host-plants of **D. putoni** Löw.

The interesting great differentiation of host-plants of this species group suggests that it includes no closely related species. The characteristic feature for this group of species is similar distribution of hemitrichae on wings. They cover completely and regularly the whole membrane of fore wings.

16. **Cyamophila glycyrhizae** (Beck.)

Material examined: Iğdır, 6.6.1977, on **Glycyrhiza glabra;** Van, 9.8.1977, on **Glycyrhiza glabra;** Muş, 10.8.1977, on **G. glabra.**

This species together with numerous group of species morphologically similar was included till now to the genus **Cacopsylla** Oss. **(Psylla** Geoffr. s.l.). Loginova (1976) has separated these species as the genus **Cyamophila** Log., belonging to the subfamily Arytaininae. In fact these species are not include to the Psyllinae, however the views on species relations in Arytaininae, represented by Loginova (1976, 1977) are controversial, as made on the base of statistical comparison of some morphological features, without regard to possibility of occurrence of sympleziomorphical or synapomorphical similarities.

17. **Cyamophila stoklosai** sp.n.

Head and body sandy-yellow, with rusty design in form of patches and bands. Antennae sandy-yellow, only the ends of 6-7 segments and whole 8-10 segments dark brown. The fore-wings transparent, slightly yellowish in apical part. Legs sandy yellow, with brown patches in proximal part of the femur and with brown end of tarsus. Abdomen sclerits brown or dark brown. The membrane between sclerits of segments brightly yellow. Male and female genitalia yellow-brown lighter than the abdomen sclerits, irregularly coloured.

Head width 0.62 mm in ♂♂ and 0.66 mm in ♀ ♀. Vertex width 0,38 mm and length 0,19 mm in ♂♂, and 0,42 mm x 0,20 mm respectively in ♀ ♀. Genal cones 0,11 mm long, lobar with rounded peak (Fig. 4). Antennae 0,98 mm long in ♂♂ and 1,10 mm in ♀♀; the 3rd segment 1,6 time longer than the next one. Fore wing 1,68 mm long and 0,74 mm wide in ♂♂, and 1,98 mm x 0,85 mm respectively in ♀ ♀. Cu_1 cell high its coefficient about 1,4; M_1 cell elongated, its length amounts to 1/3 of the wing length. Hemitrichae reduced, upper absent and under only in Cu_2 cell and in form of border spines in M_1, M_2 and Cu_1 cells (Fig. 5).

Male genitalia. Subgenital plate as high as wide with upper edge regularly convex (Fig. 6) without microsculpture on surface. Proctiger narrow, 0,32 mm high, covered with subtle microsculpture, consisting of irregular list-shaped swellings with tiny spines on upper edge. Forceps 0,24 mm long, smooth, lobarly expanded in apical part (Fig. 6,7). The upper edge of the forceps intensively pigmented, with serrated outgrowth in front. The end of penis slightly expanded, its shape as in fig. 8.

Female genitalia. The upper valva 0,66 mm long, with conal spines along the edge in distal part. Ventral valva 0,48 mm long, with upper edge markedly convex in middle part (Fig. 9). The total hight of both valvae by the base amounts to 0,42 mm. The valvulae ventrales by the end slightly upward recurvate, with characteristic truncation.

Host-plant. All specimens were found on **Astragalus** sp. being probably the host plant of this species.

Holotype: ♂, Nemrut (Bitlis), 9.6.1977, on **Astragalus** sp.

Paratypes: 2 ♂♂, 3 ♀ ♀ found in the same time and place as the holotype.

On **Astragalus** sp. have been found up to date three species of jumping plant lice: **Astragalita gracilis** Log. (1976), **Cyamophila dicora** Log. (1978) and **C. astragalicola** (Gegechk., 1977) comb. nov. The described species belongs undoubtedly to the genus **Cyamophila** Log. (for the genus **Astragalita** Log. characteristic is lack of pterostigma, which occurs in described species). **Cyamophila dicora** Log. differs markedly from **C. stoklosai** in the colour of wing membrane in distal part of R_1, M_2, Cu_1 cells and in basal area (in described species occurs only imperceptible yellow stain covered regularly its distal part) and in occuring of under spines in the whole M_2 cell. These spines are absent in **C. stoklosai** Klimaszewski-Lodos.

C. astragalicola (Gegechk.) is undoubtedly the most similar to the described species, from which differs in the lack of dimness in all cells of fore wings (except C-Sc cell), in rather higher Cu_1 cell, and in lack of serrated outgrowth in the apical part of penis.

18. **Cyamophila odontopyx** Loginova

Material examined: Tire, 7.8.1977, on **Castanea sativa** 1 ♂; Urfa, 14.8.1977, on weeds, numerous ♂♂ and ♀♀.

Species very similar to **C. glycyrrhizae** (Beck.) from which differs in shorter genal cones and the structure of apical part of the forceps. The

serrated outgrowth of forceps is in **C. odontopyx** Log. very massive and located in the middle of internal side, whereas in **C. glycyrrhizae** (Beck.) and other related species this outgrowth is located on the forceps edge or in nearest proximity of it.

C. odontopyx Log. is known only from terra typica (Loginova, 1978) i.e. from numerous localities of Middle Asia and Iran. New for Turkey.

19. **Psylla alni** (Linnaeus)

Material examined: Bozdağ (Ödemiş)-İzmir, 18.8.1977, on **Alnus** sp.

Species widely distributed in Palaearctic, from Turkey up to date was not known.

20. **Psylla foersteri** Flor

Material examined: Bozdağ (1600 m. a.s.l.), 30.5.1977, on **Alnus** sp.

Species similarly distributed as the former one, most frequently found on **Alnus glutinosa.** These two species differ however in respect to bionomy: the larvae of **P. foersteri** live on leaves and not on twigs, and adults appear about two weeks later than adults of **P. alni** (L.).

21. **Cacopsylla alaterni** (Förster)

Material examined : Karaburun - İzmir, 14.3.1977, on **Rhamnus alaternus.**

Characteristic for this species are areas of hemitrichae not reaching the veins in all cells and in R_1 not reaching the wing border. Forceps in form of narrow list, which terminates withspine, curved forward (Klimaszewski, 1968).

C. alaterni (Förster) (nec **Psylla alaterni** Loginova 1964) is known from single localities in Italy, France and Ireland.

22. **Cacopsylla costalis** (Flor)

Material examined: Mersin-Fındıkpınarı, 26.6.1976, on **Malus** sp.

Species known up to recent only from Europe, where occurs regionally. The mass occurrence of **C. costalis** (Fl.) were observed in Bulgaria (Harisanov, 1966), where this insect is a pest of apple trees. New for Turkey.

23. **Cacopsylla myrti** (Puton)

Material examined: Erzincan, 4.8.1977, on weeds; Gördes, 26.7.1977, on **Myrthus** sp.

The structure of paramere and the whole male genitalia in this species are very similar to occuring in **C. alaterni** (Först.) from which differs in the different distribution of hemitrichae on fore wings. In **C. myrti** (Put.) the hemitrichae are fewer than in **C. alaterni** (Först.); they are absent in C+Se cell, whereas in other cell they occur only in distal parts.

C. myrti (Put.) is known only from single localities in Mediterranean basin including Turkey (Vondracek, 1952).

24. **Cacopsylla pulchella** (Löw)

Material examined: Bornova-İzmir, 2.5.1977, on **Cercis siliquestrum;** Tire-İzmir, 11.5.1977, on **C. siliquestrum.**

Species occuring in Black Sea and Mediterranean regions. In Turkey probably common (Löw, 1878; Klimaszewski and Lodos, 1977).

25. **Cacopsylla pyri** (L.)

Material examined: Bornova-İzmir, 5.4.1977, on **Pirus communis** and **P. elaeagrifolia;** Foça-İzmir, 25.7.1977, on **P. communis;** Kavacık-İzmir, 22.8.1977, on **P. communis.**

Species distributed in Euro-Siberian area in some regions, especially in the south is a severe pest of pear trees.

26. **Cacopsylla pyricola** (Förster)

Material examined: Kemalpaşa-İzmir, 5.4.1977, on **Pirus communis** and **P. elaeagrifolia.**

Species widely distributed in Palaearctic, introduced to South America. In South of Europe the common pest of orchards. Species listed previously from Turkey (Klimaszewski and Lodos, 1977).

27. **Homotoma ficus** (Linnaeus)

Material examined: Paşaçeşmesi (Tire)-İzmir, 4.8.1977, on **Ficus carica.**

Species common in Ponto-Mediterranean region, often recorded as pest of fig-trees.

28. **Homotoma viridis** Klimasz.

Material examined: Bayındır-İzmir, 21.7.1977, on **Ficus carica;** Kavacık-İzmir, 22.8.1977, on **F. carica.**

Species distributed similarly as the former one. Both species occur usually together. They are very similar in respect to morphology and differ in details of genitalia structure (Klimaszewski, 1961; Tamanini, 1966) as well as in body colour.

29. **Trioza urticae** (Linnaeus)

Material examined: Pozantı-Güzeloluk, 9.7.1976, on **Malus** sp.; Mersin-Fındıkpınarı, 26.6.1976, on **Malus** sp.

Cosmopolitic species, everywhere common. It occurs on different species of **Urtica** L., only during the scattering period is to find on various plants.

30. **Trioza galli** (Förster)

Material examined: Urfa, 15.5.1976, on grape-vine.

Characteristic of this species is great variation in occuring of hemitrichae on fore wings. The specimens collected in Urfa have the fore wings without hemitrichae (except the Cu_1 cell, and border spines), are therefore typical form. This form occurs most frequently and its distribution includes the whole Europe, Middle Asia and Siberia. New for Turkey.

31. **Heterotrioza alacris** (Flor)

Material examined: Bornova-İzmir, 31.5.1977, on **Laurus nobilis.**

The natural range of this species includes the Mediterranean region. Together with host-plants (different species of **Laurus** L.) it has been introduced to several regions (e.g. both Americas), where often occurs, *similarly as in Middle and Northern Europe, only in greenhouses.*

32. **Heterotrioza neglecta** Loginova

Material examined: Karakoçan-Elazığ, 15.6.1977, on **Eleagnus orientalis;** Urfa, 14.8.1977, on weeds.

In the body structure and size, this species is very similar to **H. magnisetosa** Log., listed previously from Turkey (Klimaszewski and Lodos,

1977). The only one difference between these species is rather different structure of ovipositor valvae in females. In **H. neglecta** the narrow distal part of ovipositor is relatively short and amounts to about 1/3 of the length of dorsal valvae and is about so long as the hairs by its base. In **H. magnisetosa** the narrow part of the valvae is relatively long, about twice longer than the hairs by the base, and so long as the previous part of the ovipositor.

Both species live on various species of **Eleagnus** L.-**H. neglecta** Log. is known up to day from the South of European part of USSR, Armania, Iran, Turkey (one of the paratypes 1 ♀ listed by Loginova is collected in Urgur) and probably in Rumania (under the specific name **T. eleagni** Scott sensu Dobreanu and Manolache 1962 has been listed according to Loginova **T. neglecta** Log. and not **T. magnisetosa** Log., as there was supposed previously). Region of Turkey is the area where the ranges of both species are overlapping.

33. **Bacteriocera tremblayi** (Wagner)

Material examined: Erzurum, 16.7.1974, 15.7.1974, on **Allium cepa.**

This species is very similar to **B. nigricornis** (Först.), but differs from it in markedly outside curved genal cones, and more bulky, broader forceps, without visible concavity of frontal edge in subapical part, as there occurs in **B. nigricornis.**

The distribution of **B. tremblayi** (Wagn.) is not fully known: it has been listed only from Italy (Wagner, 1961) and Syria (Klimaszewski, 1968). New for Turkey.

Özet

Türkiye Psyllid faunasına ek bilgiler

Bu makale daha önce yayınlanmış olan (Bak. Klimaszewski and Lodos, 1977) Türkiye Psyllid türleri ile ilgili bilgilerin bir devamıdır. Bu çalışmada toplam 33 Psyllid türü verilmiştir. Bunlardan takriben 11 tanesi Türkiye için yeni kayıttır. Ayrıca yeni bir tür olan **Cyamophila stoklosai** Klimaszewski-Lodos'nin description'u verilmiştir.

Explanation of figures

Fig. 1. **Crastina myricaria** Log.: diagram of forewing.

Fig. 2. **Crastina myricaria** Log.: male forceps, in lateral view.

Fig. 3. **Arytaina cytisi** (Put.): outer genitaliae of male, in lateral view.

Fig. 4. **Cyamophila stoklosai** sp. n.: dorsal view of head.

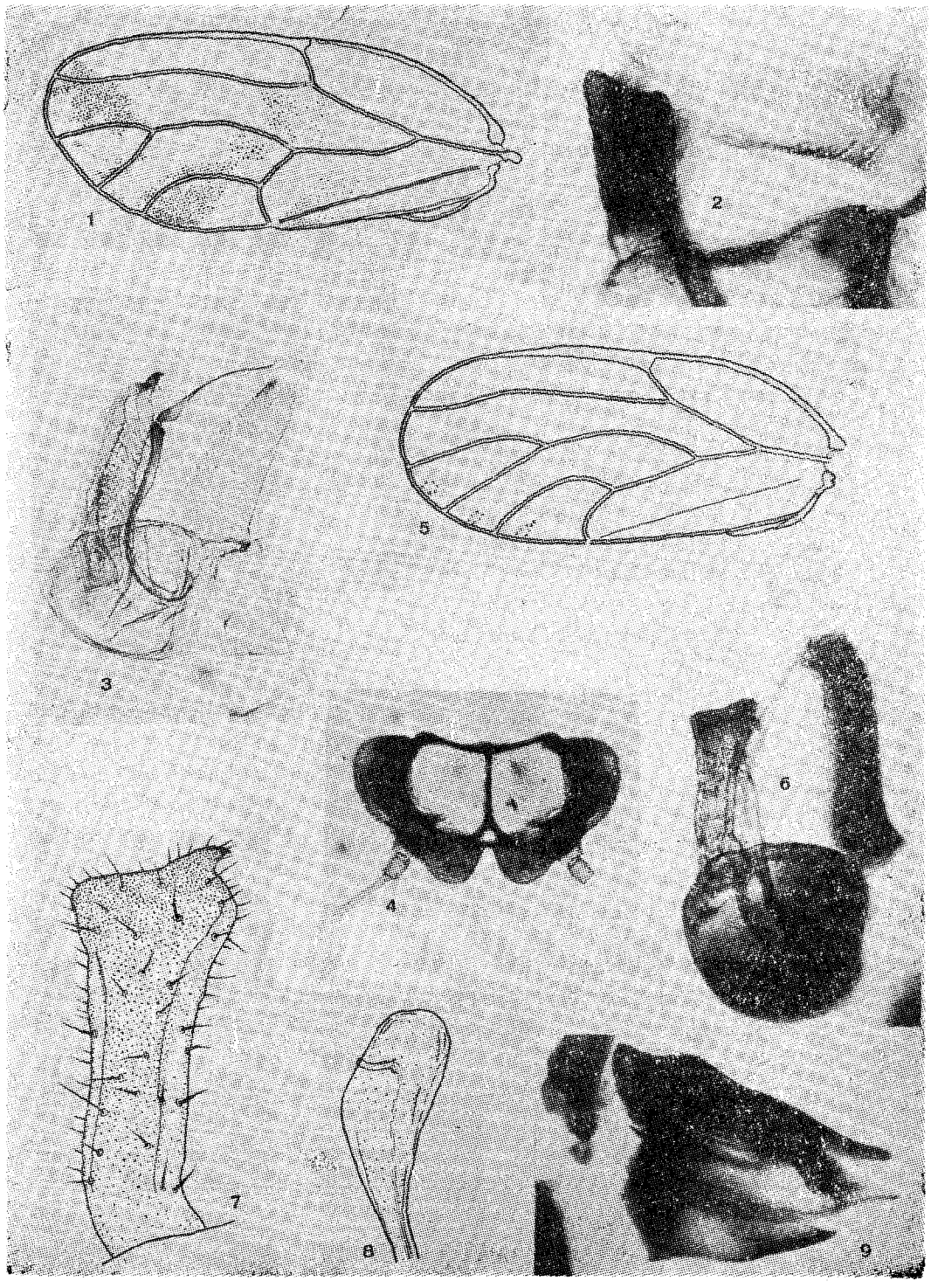
Fig. 5. Cyamophila stoklosai sp. n.: diagram of forewing.

Fig. 6. **Cyamophila stoklosai** sp. n.: outer genitaliae of male, in lateral view.

Fig. 7. **Cyamophila stoklosai** sp. n.: diagram of male forceps (parametre).

Fig. 8. **Cyamophila stoklosai** sp. n.: diagram of penis.

Fig. 9. **Cyamophila stoklosai** sp. n.: outer genitalia of female, in lateral view.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