

## Studies on Some Palearctic *Achilidae* (*Homoptera*, *Auchenorrhyncha*)

by

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This paper deals with some Palearctic Fulgoroidea of the family *Achilidae*, belonging to the genera *Cixidia* Fieb., *Epiptera* Metc. and *Kosalya* Dist. Descriptions and figures of male genital apparatus for all species studied are given; they were lacking so far in the literature.

I should like to express my sincere appreciation to Dr. Frey Ossiannilsson (Agricultural College of Sweden, Department of Plant Pathology and Entomology) and Mr. A. F. Emelyanov (Zoological Institute in Leningrad) for the loan of some specimens for examination.

*Cixidia* Fieber, 1866

Type species — *Cixius confinis* Zetterstedt, 1840

*Cixidia* Fieber, 1866, Verh. Zool. — Bot. Ges. Wien, 16:499, pl. VII, Fig. 5. *Epiptera* Metcalf, 1922, Canad. Ent., 54:264

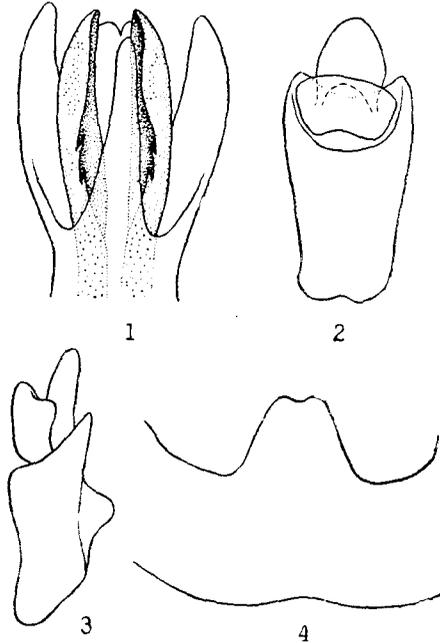
Comparison of the single representative of the genus *Cixidia* Fieb. with Palearctic species of the genus *Epiptera* Metc. shows that they are closely allied to each other both in external morphology and in male genital structure, therefore *Cixidia* Fieb. and *Epiptera* Metc. may be regarded as synonyms.

Like in all representatives of the family the aedeagus is complicated; it has a periandrium with lobes and processes and a penis proper. The periandrium consists of two ventral, two lateral and one dorsal lobes, which are distinctly visible at the apex; the lateral lobes are often supplied with inner processes. The penis proper consists of two symmetrical rods which may be divided into two portions or broadened at the apex. The penis rods may be moved inside the periandrium. A full symmetry of the aedeagus, both of the periandrium and of the penis proper, is a characteristic feature of the genus.

Two subgenera, separated on the basis of the following peculiarities, can be recognized:

1. *Cixidia* Fieber, 1866, s. str. Type species — *Cixius confinis* Zett. Vertex and frons forming an almost right angle with each other. Lateral lobes of periandrium without inner processes; penis rods with spoon-like extension at the apices (Fig. 1). Anal tube with noticeable swelling on ventral surface (Fig. 3).

2. *Cixidia* (*Epiptera* Metcalf, 1922 stat. nov.). Type species — *Flata opaca* Say. Vertex and frons form an acute angle. Lateral lobes of periandrium with more or less distinguishable inner processes; penis rods at apex not broadened, simple or divided into two parts (Figs. 5–6, 9–11, 14, 16). Anal tube without noticeable swelling on ventral surface (Figs. 8, 13, 18).



Figs. 1–4. *Cixidia confinis* (Zett.)

1 — apex of penis, from above, 2 — anal tube, from above, 3 — anal tube, from the side, 4 — ventral surface of pygophore

*Cixidia* (s. str.) *confinis* (Zetterstedt, 1840) (Figs. 1–4)

*Cixius confinis* Zetterstedt, 1840, Ins. Lapp.: 304

Male genitalia. Ventral lobes of periandrium shorter than lateral ones. Dorsal lobe of periandrium narrow, gradually narrower to apex, in lateral aspect semi-circularly curved, pointed at apex and concealed by lateral lobes. Dorsal margins of spoon-like extension of penis rods slightly notched. Anal tube short, broadened to apex; about twice as long as its largest width, showing a distinguishable swelling on ventral surface.

Material examined. Sweden, G. Sandön, not dated, 1 ♂ (A. Jansson coll.).

*Cixidia* (*Epiptera*) *lapponica* (Zetterstedt, 1840) comb. n.

(Figs. 9–14, 20)

*Cixius lapponicus* Zetterstedt, 1840, Ins. Lapp.: 304

Male genitalia. Ventral and lateral lobes of periandrium approximately of the same length. Inner processes of lateral lobes relatively short. Dorsal lobe broad near the base and gradually tapering to the pointed apex. Penis rods branched near

the apex into two parts (this is better visible when the rods are moved out of the periandrium). Anal tube of the same shape as in the preceding species but without the ventral swelling.

Material examined. Amur Land: Yablonovy Mountain Ridge, river Sivokan, June 4, 1914, 11 specimens (Dorogostaisky coll.), Naleo River, June 20, 1908, 1 specimen (Soldatov coll.); Soviet Maritime Territory: Vinogradovka, Aug. 4, 1929, 1 specimen (Dyakonov and Filipiev coll.); Suchan, July 25–28, 1928, 1 specimen (Kurentsov coll.); 93 km. from Tayshet to Bratsk, June 10, 1941, 1 specimen (Barovsky coll.), 117 km. from Tayshet to Bratsk, July 20, 1944, 1 specimen (Barovsky coll.); Antipikha River near Tshita, June 16, 1912, 1 specimen (Gavrilyuk coll.); Totma near Vologda, July 1, 1933, 1 specimen (Barovsky coll.), July 22, 1934, 1 specimen (Barovsky coll.); Voronya Gora near Novgorod, June 18, 1898, 1 specimen (Schmidt coll.); N. Ural, Sabli, June 17, 1908, 1 specimen (Zhuravsky coll.); Kola Peninsula, Lovkhorr, July 24, 1962, 5 specimens (Arens coll.), Vudyavr, Sept. 12, 1931, 1 specimen (V. Rudolf coll.).

*Cixidia (Eiptera) maroccana* sp.n.

(Figs. 5–8)

Brown, with numerous indistinct light spots. Vertex light brownish, parabolic, short and wide, with elevated lateral margins and impressed middle line; its width near posterior margin appreciably larger than medial length. Frontoclypeus light-brownish in apical half, the rest yellow, relatively short, its medial length nearly twice greater than the width. Medial carina indistinct, smoothed out. Pronotum with well distinguishable medial and lateral carinae, the latter bent to the outside. Scutellar keels slightly visible. Forewings brown with faintly discernible speckled markings. Body beneath and legs yellowish, claws brownish. Hind wings brownish with darker veins. Length of body 6.5 mm.

Male genitalia. Ventral lobes of periandrium significantly narrower than the lateral ones; dorsal lobe relatively broad and long. Penis rods branched into two parts. Anal tube with parallel sides and posterolateral angles protruding and pointed, the tube nearly three times longer than its width.

Holotype male. Marocco, 1900 (Vaucher coll.), kept at the Zoological Institute in Leningrad.

In external appearance it is allied to *C. (E.) marginicollis* (Spin.) but differs by the following characters:

*C. (E.) maroccana* sp.n.

Vertex short, its medial length considerably smaller than posterior width.

Frontoclypeus relatively short, nearly twice as long as its greatest width.

Frontoclypeus brown in apical half and yellow in basal part.

Medial keel of frontoclypeus indistinct, smoothed out.

*C. (E.) marginicollis* (Spin.)

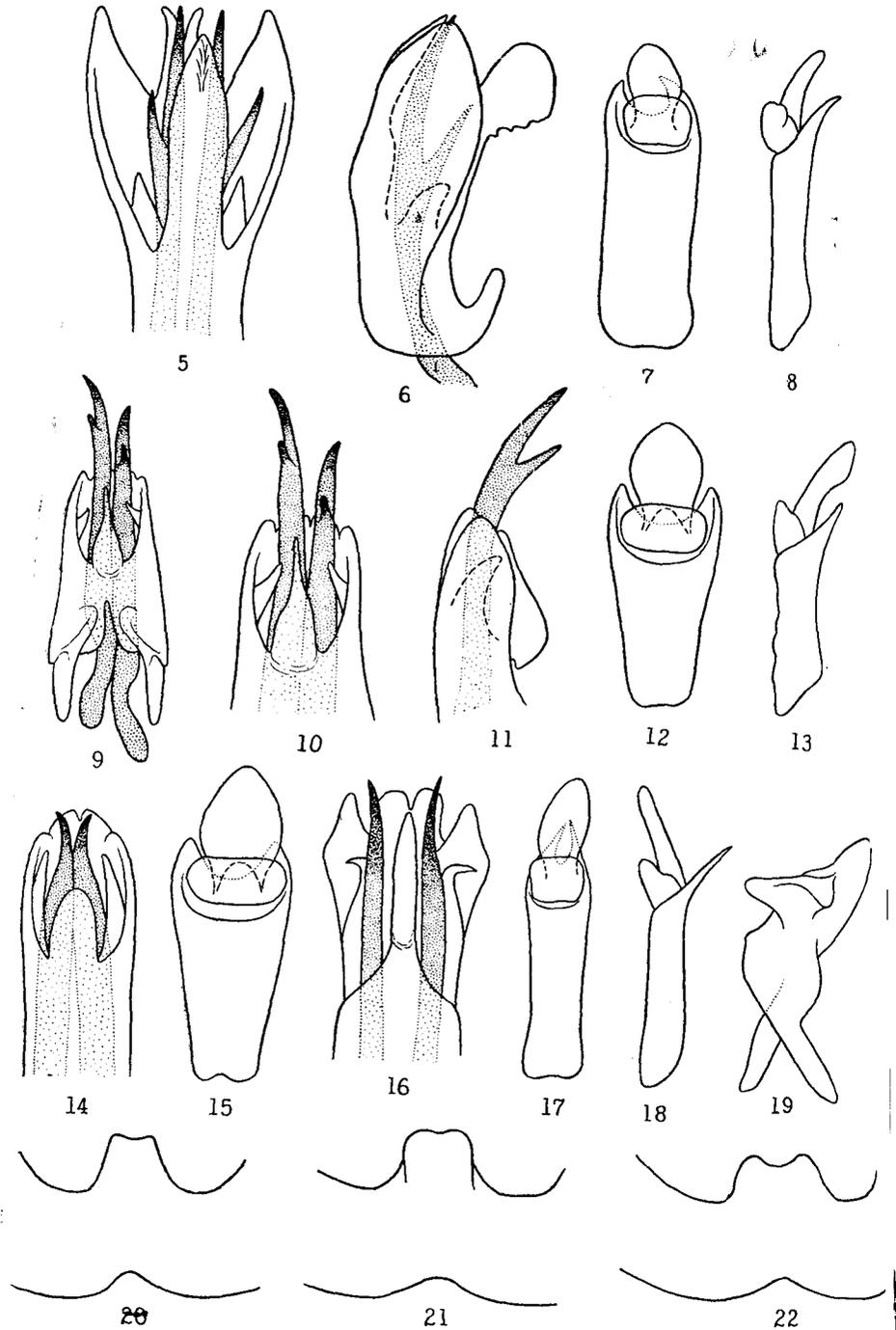
Vertex relatively long, its medial length greater than width near posterior margin.

Frontoclypeus relatively long, more than twice as long as its greatest width.

Frontoclypeus entirely yellow.

Medial keel of frontoclypeus sharp, distinct.

In the male genitalia it is related to the preceding species but differs in the shape and proportion of the anal tube and in the dimensions and shape of the periandrium lobes.



Figs. 5 - 22. *Cixidia (Eiptera) maroccana* sp. n.: 5 - apex of penis, from above, 6 - penis, from the side, 7 - anal tube, from above, 8 - anal tube, from the side. *Cixidia (Eiptera) lapponica* (Zett.): 9 - penis, from above, penis rods moved out of the periandrium, 10 - aedeagal apex, from above, 11 - the same from the side, 12 - anal tube, from above, 13 - anal tube, from the side. *Cixidia (Eiptera) ussuriensis* (Kunz.): 14 - apex of penis, from above, 15 - anal tube, from above. *Cixidia (Eiptera) marginicollis* (Spin.) 16 - apex of penis, from above, 17 - anal tube from above, 18 - anal tube, from the side, 19 - style. Ventral surfaces of the pygophore: 20 - *Cixidia (Eiptera) lapponica* (Zett.), 21 - *Cixidia (Eiptera) ussuriensis* (Kunz.), 22 - *Cixidia (Eiptera) marginicollis* (Spin.).

*Cixidia (Eiptera) marginicollis* Spinola, 1839 comb. n.  
(Figs. 16—19, 22)

*Eiptera marginicollis* Spinola, 1839, Ann. S. E. Fr.: 309

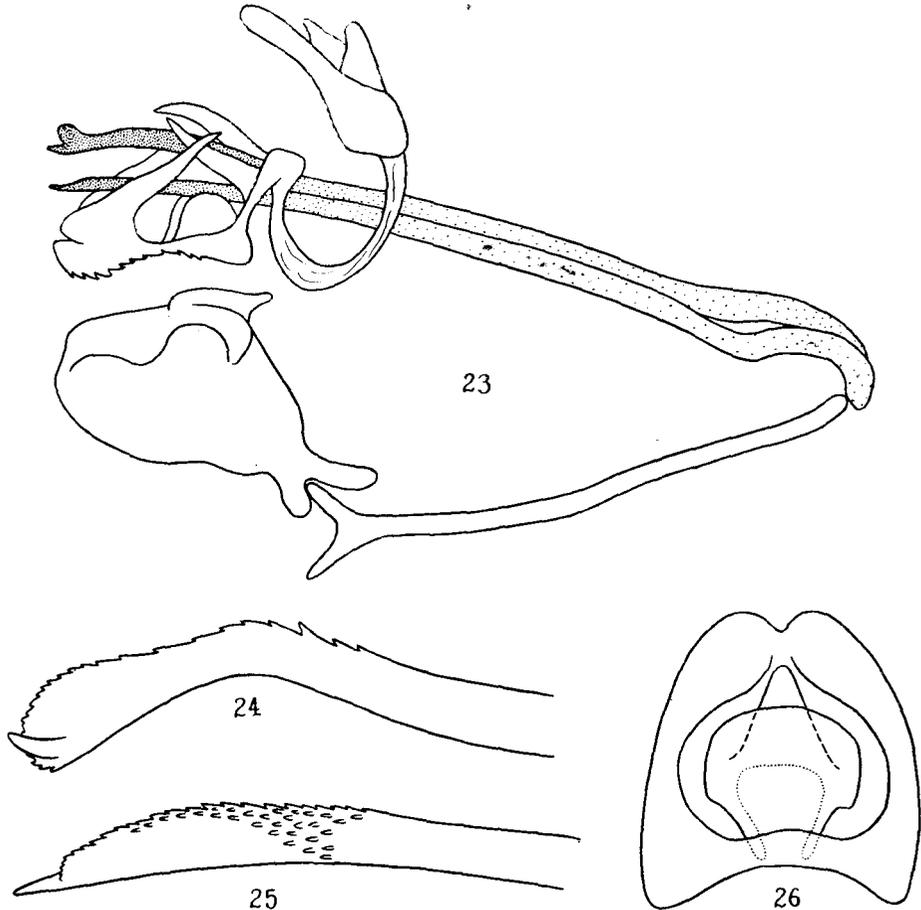
Male genitalia. Ventral and lateral lobes of periandrium approximately of the same length. Inner processes of lateral lobes very long, with apices bent outward. Dorsal lobe narrow on its whole length. Penis rods simple. Anal tube with nearly parallel sides and long and pointed posterior angles, more than three times as long as wide.

Material examined. Moldavia: Bendery, June 17, 1958, 2 specimens (Talitsky coll.); Baurchi, June 24, 1911, 1 specimen (Tshernavin coll.).

*Cixidia (Eiptera) ussuriensis* (Kuznetsov, 1928) comb. n.  
(Figs. 14—15, 21)

*Helikoptera ussuriensis* Kuznetsov, 1928, Konovia, 7: 232

Male genitalia. Ventral lobes distinctly longer than the lateral ones. Inner processes of the lateral lobes relatively long. Dorsal lobe short and broad, widely



Figs. 23—26. *Kosalya flavostrigata* Dist.: 23 — aedeagus, anal tube, connective and style, from the side, 24—25 — apices of penis rods, 26 — anal tube, from above

rounded at the apex. Penis rods single, not branched. Anal tube as in *C. (E.) lapponica* (Zett.), broadened toward apex.

Material examined. Soviet Maritime Territory: Samarginsky Region, Inzinga River, Aug. 3, 1925, 1 specimen (A. Kuznetsov coll.); Suchan, Aug. 12, 1928, 1 specimen (Kurentsov coll.); Suputinsky Reservation, July 19, 1935, 1 specimen (Samoilov coll.), Aug. 9, 1940, 1 specimen (Ivanov coll.).

*Kosalya* Distant, 1906

*Kosalya* Distant, 1906, Fauna Brit. Ind. Rhynchota, 3: 292

The genus consists of only one species described from India and also known from Formosa, collected in the Soviet Maritime Territory by the author as well.

*Kosalya flavostrigata* Distant, 1906

(Figs. 23—26)

*Kosalya flavostrigata* Distant, 1906, Loc. cit.: 293, Fig. 140

Male genitalia, Aedeagus complicated, consisting of the penis proper in the form of two asymmetrical, serrated rods and a periandrium with two nearly symmetrical lobes; each lobe supplied with a pair of crossing teeth and inner roundish prolongation; periandrium bearing notched crest on ventral surface. Anal tube wide, of nearly equal width and length.

Material examined. Soviet Maritime Territory, Suputinsky Reservation, Aug. 27, 1966, many males and females (Anufriev coll.).

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Notes on the Syno  
Eastern A

Presente

Studying the Homoptero  
some species described from  
below.

Besides, I designated lecto  
in the original descriptions.

Macron

*Isthmia fusca* Melichar, 1  
Verz. Palaearkt. Hemipt., 2: :  
Ent. Ztg., **36**: 262; Kuznets  
IV, 1: 63. *Tettigometra (Ma  
metrina grossa* Dlabola, 196:

Material examined. Chir  
holotype of *Isthmia fusca* Me  
ry: Vladivostok, Egersheld  
gometra (*Macrometrina*) gro  
bolov on Khanka Lake, Ma  
June 27, 1908, 2 specimens,  
July 4, 1910, 1 specimen, Ju  
2 specimens (Tarabarov leg  
July 16, 1907, 1 specimen (I  
2, 1929, 1 specimen (Maslo  
22, 1911, 1 specimen (Ryd  
leg.). Manchuria, Dzalan'-ti  
near Blagoveskensk, Sept.  
Naushki, Sept. 3, 1928, 4 :  
gorsk, June 19, 1930, 2 :  
of Svobodnoye, June 12,

Distribution. E. K  
churia, China (Sechu