

REICHENBACHIA

STAATLICHES MUSEUM FÜR TIERKUNDE IN DRESDEN

Band 20

Ausgegeben: 27. September 1982

Nr. 4

Empoascini of Japan, Korea and North-east Part of China

(Homoptera, Auchenorrhyncha, Cicadellidae, Typhlocybinae)

With 382 Figures

IRENA DWORKOWSKA

Warszawa

The review includes results of studies of MATSUMURA's collection and collections of the British Museum, United States National Museum and Zoological Department of the California Academy of Sciences. For loan of the material I am indebted to Drs. SADAŌ TAKAGI, W. J. KNIGHT, J. P. KRAMER and P. J. ARNAUD.

Type series of newly described species are preserved at the following collections:

USNM — United States National Museum in Washington

BM — British Museum (Nat. Hist.) in London

ISEZ — Institute of Systematic and Experimental Zoology, Polish Academy of Sciences in Kraków.

Curator of holotype is mentioned on the first place at description.

Empoasca (s. str.) *vitis* (GOETHE, 1875) (Figs. 1–15)

Typhlocyba vitis GOETHE, 1875

Chlorita pirisuga MATSUMURA, 1931 **syn. n.**

Chlorita flavescens: MATSUMURA, 1931 in part

Type series of *Chlorita pirisuga* MATS.: 1 ♂, 1 ♀, Hokkaido, Sapporo, on *Pirus ussuriensis*.

Material studied. Female, lectotype of *Chlorita pirisuga* MATS. labelled: „Sapporo Matsumura [some text in Japanese] 9 X 31” „*Chlorita pirisuga* Matsumura Type” male, paralectotype: same labels as at the lectotype except „transcriptio” at the beginning, and „mounted together with the lectotype” just before paralectotype label; 1 ♂, 3 ♀♀, Japan, Hokkaido, Sapporo, Oct. 5, 1931 (*Ch. flavescens*: det. MATSUMURA); 3 ♂♂, 2 ♀♀, Sapporo, May 30, 1903 (*Ch. flavescens*: det. MATSUMURA); 1 ♂, Honshu, Chichibu, Sep. 6, 1951; 9 ♂♂, 7 ♀♀, Mt. Fuji, Sep. 25, 1952; 3 ♀♀, Nagano Pref., Karuizawa, May 31, 1953, P. W. OMAN; 1 ♂, Karuizawa, July 10, 1966; 1 ♂, Niigata Pref., Mikuni Pass, July 13, 1966, Y. MIYATAKE.

The drawings of pygophore processes of the paralectotype are based on specimen removed from Canada Balsam and damaged on margins.

Empoasca (s. str.) *flavovitella* MATSUMURA, 1931 (Figs. 16–29)

Chlorita flavovitella MATSUMURA, 1931

Empoasca arborescens VILBASTE, 1968 **syn. n.**

Chlorita flavescens: MATSUMURA, 1931 in part

Type-series of *Chlorita flavovitella*: 1 ♂, 4 ♀♀, Honshu, Tokyo.

Material studied. Female, lectotype of *Chlorita flavovitella* MATS. labelled: „Japan Matsumura [Tokyo in Japanese] 11. 12” „*Chlorita flavovitella* M.”, „Type Matsumura” and „*Chlorita flavovitella* Mats. Type” 2 ♀♀, paralectotypes (mounted together), labelled as the lectotype except „transcriptio” at the beginning, and „mounted together with the lectotype” just before paralectotype label; genital apparatus of a male,

paralectotype of *Ch. flavovitella* MATS.; 1 ♂, 3 ♀♀, Hokkaido, Sapporo, May 30, 1903 (*Ch. flavescens*: det. MATSUMURA); 19 ♂♂, 43 ♀♀, Tokyo, Apr. 8, 1953; 2 ♂♂, Tokyo, June 27, 1953; 1 ♂, Honshu, Kyoto, Sep. 25, 1951; 1 ♂, Sep. 29, 1951; 3 ♂♂, 1 ♀, Kyoto Pref., Kibune, May 10, 1953, P. W. OMAN.

The above synonymy is based on comparison of the studied specimens with data at the original description (VILBASTE, 1968).

Empoasca (s. str.) todo MATSUMURA, 1931 (Figs. 30–33)

Chlorita todo MATSUMURA, 1931

Empoasca vilbastei ANUFRIEV, 1973 **syn. n.**

Type-series of *Chlorita todo* MATS.: 1 ♂, 1 ♀, Hokkaido, Nopporo nr Sapporo, on *Abies sachalinensis*.

Material studied. Male, lectotype of *Chlorita todo* MATS. labelled: „Sapporo Matsumura 9 X 31 [some text in Japanese]“ „*Chlorita todo* n. „Type Matsumura“ and „*Chlorita todo* Matsumura Type“

Female of the type-series of *Ch. todo* MATS. was not found in MATSUMURA's collection. The above synonymy is based on a comparison of the lectotype of *Ch. todo* MATS. with data at the original description of *E. vilbastei* ANUFRIEV. (ANUFRIEV, 1973).

Empoasca (s. str.) okadai sp. n. (Figs. 34–47)

Body slim, light greenish with whitish hypodermal pattern poorly expressed. Fore wing semitransparent, uniformly greenish. Length ♂ 3.6 and 3.7 mm.

Male genital apparatus differs from that of *E. serrata* VILB. by apical part of paramere provided with not numerous teeth (Fig. 40), anal tube appendage with large basal lobe (Figs. 34, 38) and by apical part of pygophore appendage (Figs. 36, 37, 44, 47) with dorsal serration less expanded than the ventral one. The almost symmetrical subapical broadening of pygophore appendage differs the new species also from *E. pacifica* VILB.

Specimen mutilated (Figs. 34–37) has anal tube appendage and broadening of pygophore appendage broadened.

Holotype male and paratype ♂, Japan, Honshu, Chichibu, Sep. 6, 1951, P. W. OMAN. (USNM)

The new species is named in honour of Dr. Tadatora OKADA of the Chugoku Agriculture Experiment Station at Fukuyama (Japan).

Empoasca (s. str.) emeljanovi ANUFRIEV, 1973 (Fig. 48)

Material studied. 1 ♂, North Korea, Ryang-gang Prov., Plateau Chann-pay, Sam-zi-yan, 1700 m, Aug. 26; 6 ♂♂, same locality, Aug. 27 4 ♂♂, same locality, Aug. 28, 1971, S. HORVATOVICH and J. PAPP.

Empoasca (s. str.) apicalis (FLOR, 1861) (*Typhlocyba*) (Figs. 49–51)

Material studied. 4 ♂♂, North Korea, Ryang-gang Prov., Plateau Chann-pay, Sam-zi-yan, 1700 m, Aug. 26; 24 ♂♂, 1 ♀, same locality, Aug. 27 8 ♂♂, 1 ♀, same locality, Aug. 28, 1971, S. HORVATOVICH and J. PAPP.

Empoasca (s. str.) limbifera (MATSUMURA, 1931) (Figs. 52–57)

Chlorita limbifera MATSUMURA, 1931

Chlorita nopporensis MATSUMURA, 1931 **syn. n.**

The type-series of *Chlorita limbifera* MATS.: 1 ♂, 2 ♀♀, Hokkaido, Jozankei nr Sapporo; the type-series of *Chlorita nopporensis* MATS.: 1 ♂, 1 ♀, Hokkaido, Nopporo nr Sapporo.

Material studied. Lectotype of *Ch. limbifera* MATS., male labelled: „Ziozan“, „Empoasca limbifera det. Matsumura“ „Type Matsumura“ and „Empoasca limbifera Matsumura Type“ paralectotype of *Ch. limbifera* MATS., female labelled as the lectotype except „transcriptio“ at the beginning and „mounted together with the lectotype“ just before the paralectotype label; lectotype of *Ch. nopporensis* MATS., female labelled: „Sapporo Matsumura [some text in Japanese] 9 X 31“ „Chlorita nopporensis n.“ „Type Matsumura“ and „Chlorita nopporensis Matsumura Type“ paralectotype of *Ch. nopporensis* MATS., male (abdomen dissected separately) labelled „Sapporo Matsumura [some text in Japanese] 9 X 31“ „C. nopporensis M Co-type Matsumura“ „Chlorita nopporensis det. Matsumura“ and „Chlorita nopporensis Matsumura Type“

Empoasca (s. str.) betuleti VILBASTE, 1965 (Figs. 58–61)
USSR (Altai, Maritime Territory); Korea (ANUFRIEV, 1973).

Empoasca (s. str.) sibirica VILBASTE, 1965 (Figs. 62–65)
USSR (Altai, Maritime Territory); Korea (ANUFRIEV, 1973).

Empoasca (s. str.) furcata VILBASTE, 1968 (Figs. 72–104)

Empoasca sp. A: OKADA, 1971

Empoasca altaica: DWORAKOWSKA, 1968 in part (LEE & KWON, 1979)

According to the original description (VILBASTE, 1968) *E. furcata* VILB. differs from *E. altaica* VILB. by broader penis and by anal tube process solid and directed obliquely cephalad.

Comparative material from Japan allows to observe that these features vary depending on degree of mutilation by parasites. In Figs. 77, 85, and 102–104 are shown not fully sclerotized anal tube appendages of *E. furcata* VILB. They are very similar to these of *E. altaica* VILB. (Fig. 69). It is evident that subapical broadening of pygophore appendage in *E. furcata* VILB. is narrower than in *E. altaica* VILB. Not fully sclerotized anal tube appendage in *E. furcata* VILB. has both arms curved and folded at their bases; the longer arm is distinctly narrower at base and size of the appendage is smaller while to compare with normal specimen.

Material studied. 4 ♂♂, 12 ♀♀, Japan, Honshu, Kyoto Pref., Kibune, May 10, 1953, W. OMAN; 1 ♂, Honshu, Kanayama, Yamanashi, Aug. 2, 1959, Y. MIYATAKE; 4 ♂♂ (mutilated), Hokkaido, Jozankei nr Sapporo, Aug. 7, 1952, P. W. OMAN; 1 ♂, Hokkaido, Aisan (Antaroma), Kamikawa-gun, July 25, 1962, Y. MIYATAKE; 1 ♂, Korea, 45 km S of Pyeongyang, 1970, S. MAHUNKA and H. STEINMANN; 1 ♂, Korea, Taesong-san nr Pyeongyang, May 25, 1965, M. MROCZKOWSKI and A. RIEDEL.

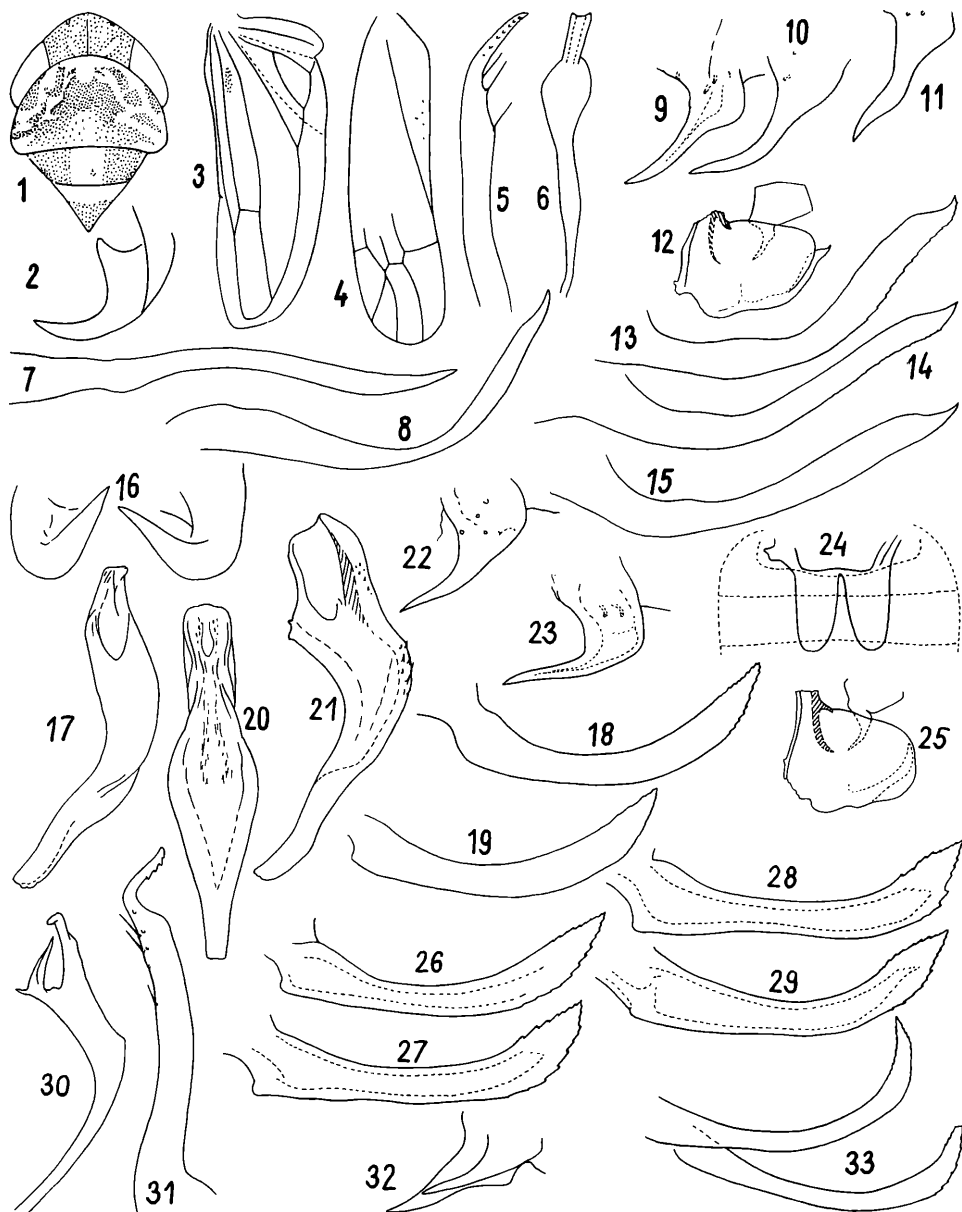
Empoasca (s. str.) hankaensis VILBASTE, 1966 (Figs. 105–112)

Empoasca altaica: DWORAKOWSKA, 1968 in part (LEE & KWON, 1979)

In the original drawings by VILBASTE (1966) two characteristic features are observable, viz: pygophore appendage slim, curved upwards, broadened subapically and pointed at apex (Figs. 109, 110), and both arms of anal tube appendage divergent from each other at base (Figs. 111, 112). The difference observable between the present drawings and the original ones are supposingly caused by incomplete sclerotization of my specimens.

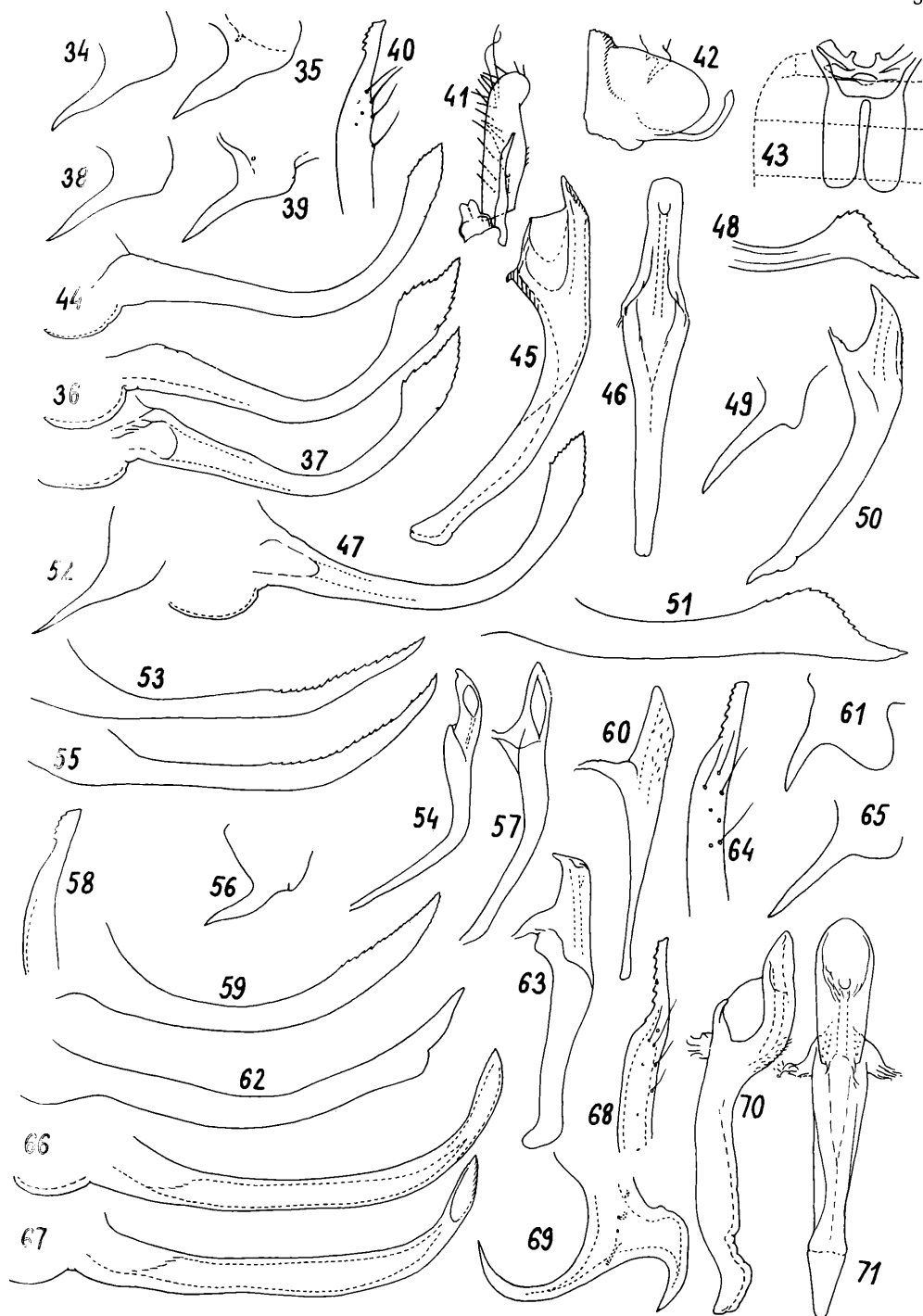
Material studied. 2 ♂♂, Korea, Onpho nr Chngjin, Aug. 21, 1959, B. PISARSKI and J. PRÓSZYŃSKI; 1 ♂, Tečhon-ri, Samsok Distr., May 22, 1965, M. MROCZKOWSKI and A. RIEDEL.

Empoasca (s. str.) anguina DWORAKOWSKA, 1972 (Figs. 113–118)
Korea (LEE & KWON, 1979).



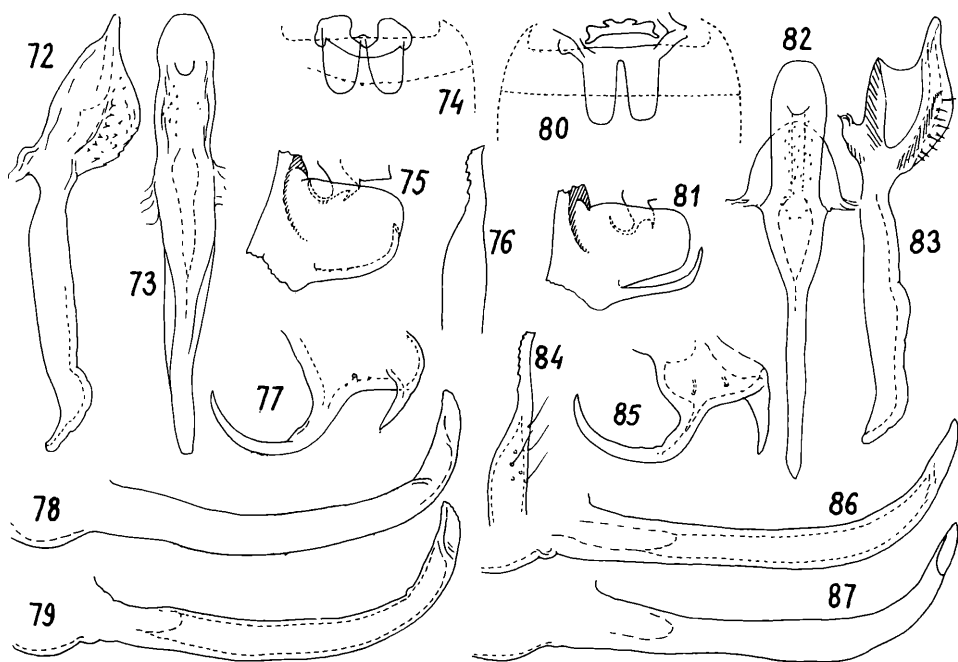
Figs. 1-33.

Empoasca (s. str.) vitis (GOETHE): 1-15. 1-8: paralectotype of *Chlorita pirisuga* MATS. 1: head and thorax, dorsal view — 2: anal tube appendage — 3: hind wing — 4: fore wing — 5: apical half of paramere — 6: penis — 7 + 8: pygophore appendages (genital capsule of the paralectotype mounted in Canada Balsam) — 12: proportions and pigmentation of pygophore side and 1st limb of anal tube. — *E. (s. str.) flavovitella* (MATS.): 16-29. 16-19: paralectotype of *Chlorita flavovitella* MATS. — 20: penis, posterior view — 21: penis, side view — 24: abdominal apodemes. — *E. (s. str.) todo* (MATS.), lectotype: 30-33.



Figs. 34-71.





Figs. 72-87.

Empoasca (s. str.) *furcata* VILB. 72-79: specimen from Korea. 80-87 specimen from Japan.

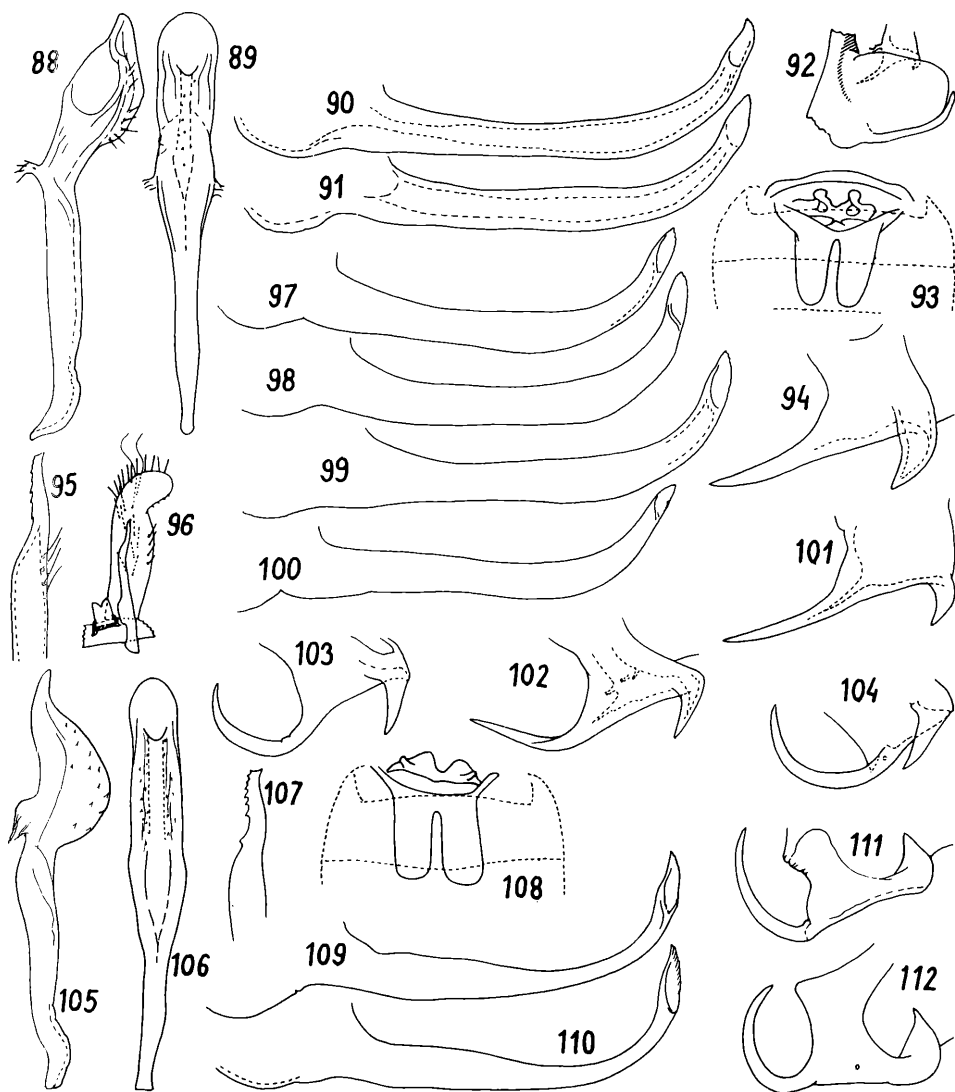
Empoasca (s. str.) *vietnamica* DWORAKOWSKA, 1972 (Figs. 119-123)
N Vietnam; China (nr Canton) (DWORAKOWSKA, 1972).

Empoasca (s. str.) *fissurata* DWORAKOWSKA, 1968 (Figs. 124-127)
Korea (LEE & KWON, 1979).

Empoasca (s. str.) *amurensis* ANUFRIEV, 1970 (Figs. 128-134)
Empoasca orientalis: DWORAKOWSKA, 1968 (ANUFRIEV, 1973)
USSR (Maritime Territory); Korea (ANUFRIEV, 1973).

Empoasca (s. str.) *abietis* (MATSUMURA, 1917) (*Dikraneura*) (Figs. 135-140)
Type-series: numerous specimens collected in Jozankei nr Sapporo on *Abies sachalinensis*. Known also from Honshu (ESAKI & ITO, 1954).
Material studied. Lectotype, male labelled: „Sapporo Matsumura 9 / IX 1903 [some text in Japanese]“, „Unkella abietis M. det. Matsumura“, and „Type Matsumura“
Paralectotypes. 3 ♀♀ (mounted together) labelled as the lectotype except „transcriptio“ at the beginning, and „mounted together with the lectotype“ just before paralectotype label; 1 ♂, 16 ♀♀, 3 specimens with abdomen lost (mounted together), labelled: „Jozankei“, and „*Empoasca abietis*“

Empoasca (s. str.) *okadai* sp. n.: 34-47 41 proportions of subgenital plate, paramere and connective. — *E. (s. str.) emeljanovi* ANUFRIEV, apical part of pygophore appendage (after ANUFRIEV, 1973): 48. — *E. (s. str.) apicalis* (FLOR): 49-51. — *E. (s. str.) limbifera* (MATS.): 52-57 52-54: lectotype of *Chlorita limbifera* MATS. 55-57 paralectotype of *Chlorita nopporensis* MATS. — *E. (s. str.) betuleti* VILB.: 58-61. — *E. (s. str.) sibirica* VILB.: 62-65. — *E. (s. str.) altaica* VILB., specimen from Mongolia: 66-71.



Figs. 88–112.

Empoasca (s. str.) *furcata* VILB., specimens from Japan: 88–104. 88–96: one example.
— *E.* (s. str.) *hankaensis* VILB. 105–112.

***Empoasca* (s. str.) *ariadnae* DWORAKOWSKA, 1971 (Figs. 141–145)**

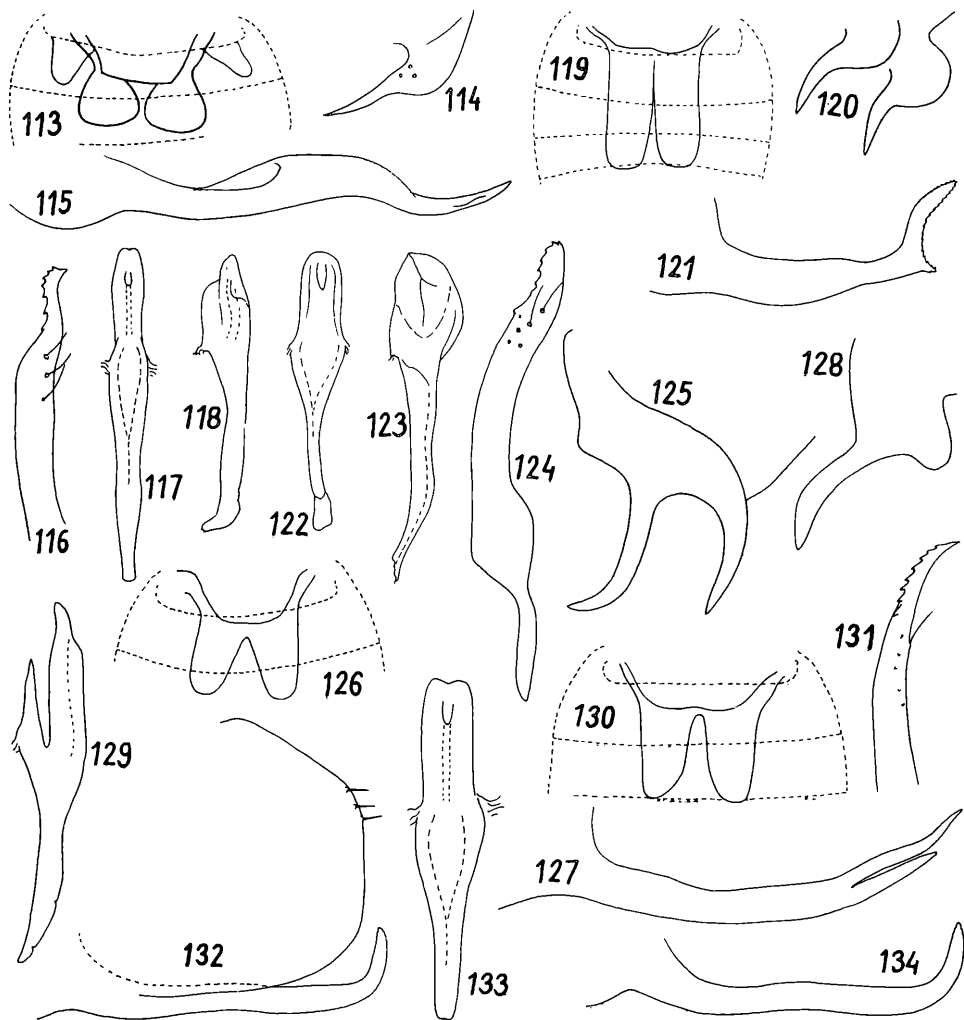
Empoasca abietis: DWORAKOWSKA, 1968 (LEE & KWON, 1979)

Korea (LEE & KWON, 1979).

***Empoasca* (s. str.) *lipcowa* sp. n. (Figs. 146–154)**

Testaceous-ochre with indistinct whitish hypodermal pattern on head and thorax. Vertex produced anteriorly. Length ♂ 3.3 mm.

Male genital apparatus similar to that of *E. majowa* DWOR. but extension on penis



Figs. 113–134.

Empoasca (s. str.) *anguina* DWOR.: 113–118. — *E.* (s. str.) *vietnamica* DWOR.: 119–123.
— *E.* (s. str.) *fissurata* DWOR.: 124–127 — *E.* (s. str.) *amurensis* ANUFR.: 128–134.

stem situated more basally (Fig. 147), anal tube appendage long (Fig. 150) and pygophore appendage larger (Fig. 153).

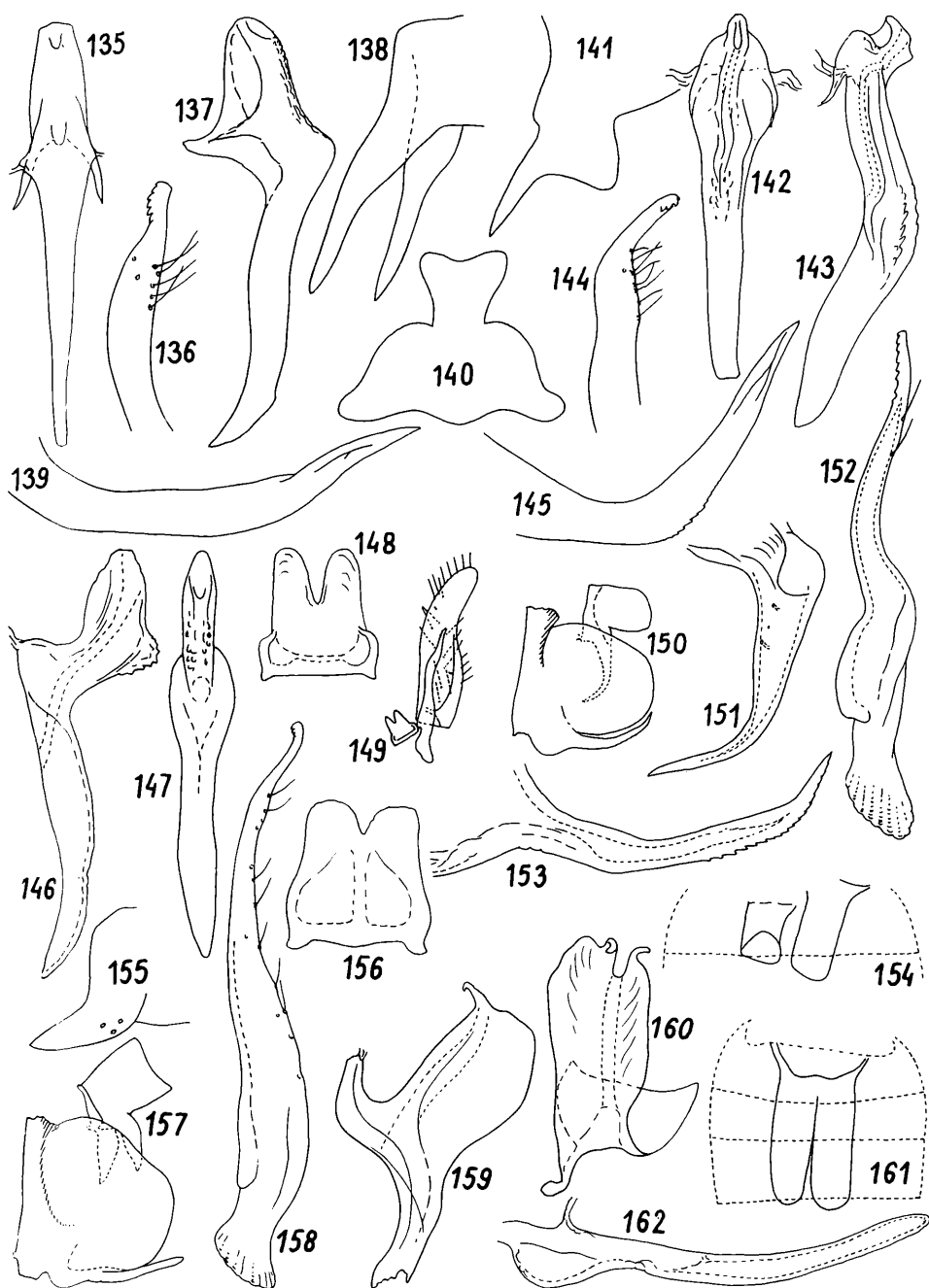
Holotype male and paratype ♂, China, Foochow, 1937–1938, M. S. YANG. (BM)

***Empoasca* (s. str.) *mochidai* DWORAKOWSKA, 1972 (Figs. 155–162)**

Empoasca sp. E: OKADA, 1971

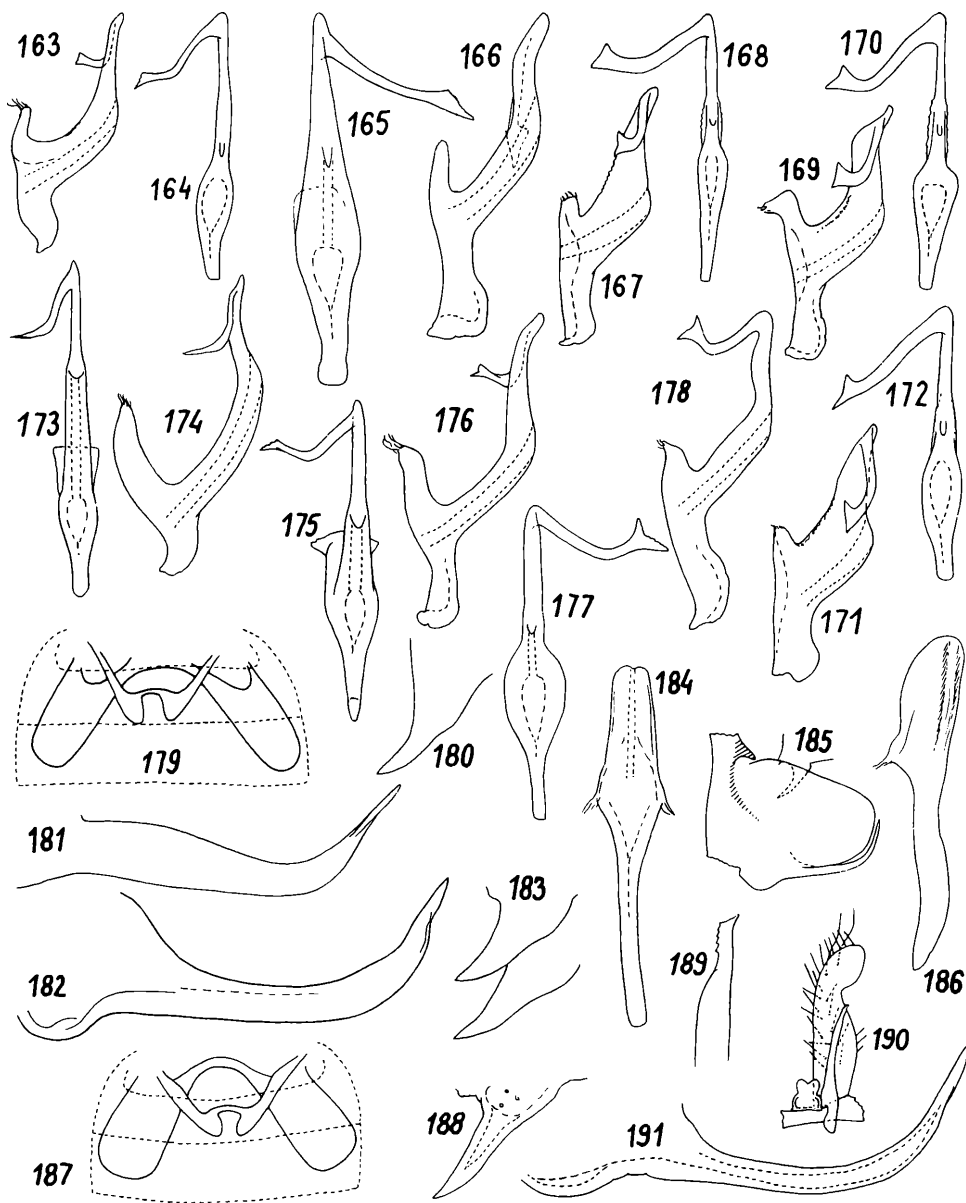
China (S of Nanking); Japan (Tokyo) (DWORAKOWSKA, 1972), Kyushu (OKADA, 1971).

Material studied. 3 ♂♂, Japan, Honshu, Omiya, Sep. 7, 1951, P. W. OMAN.



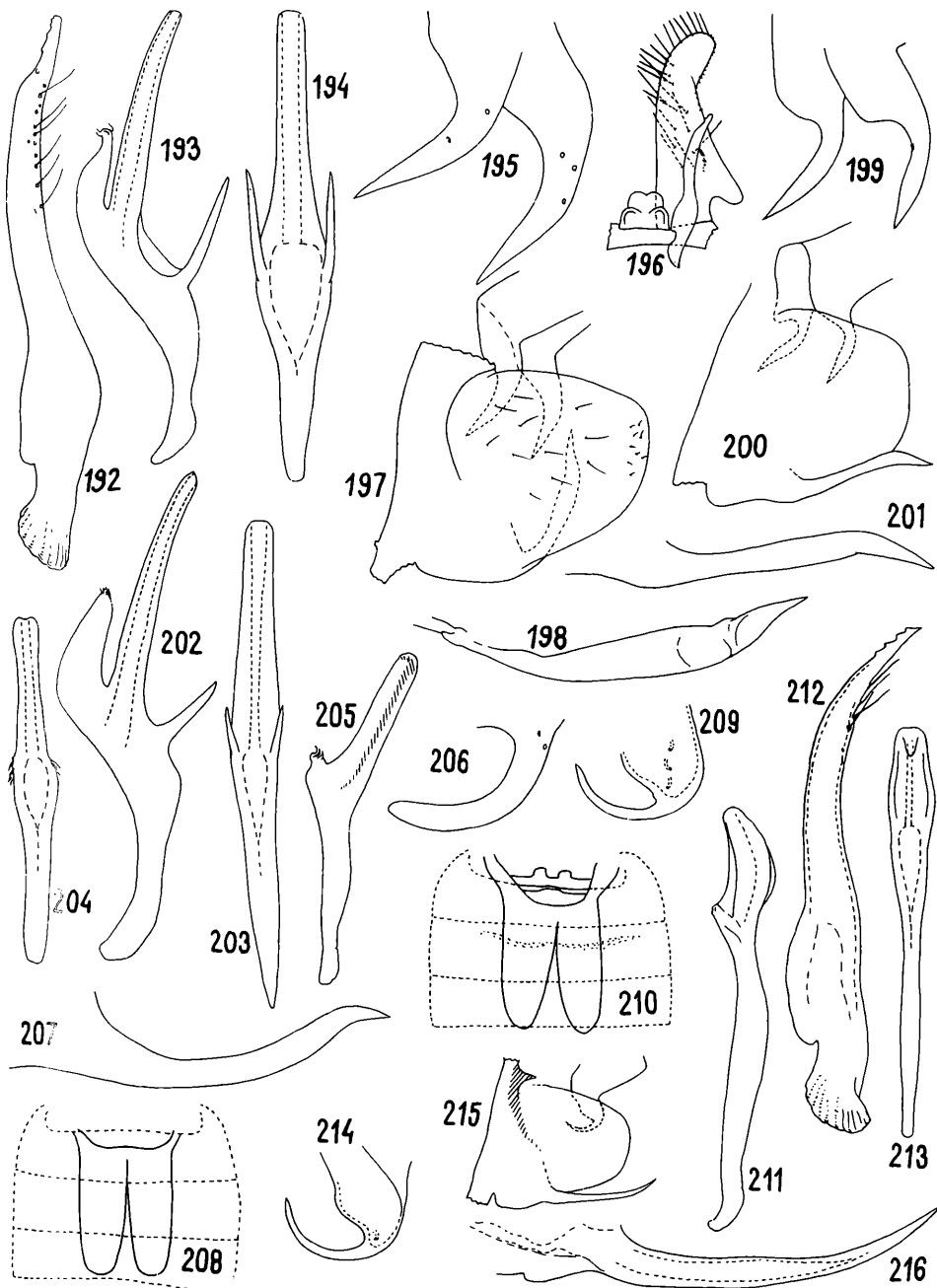
Figs. 135–162.

Empoasca (s.str.) *abietis* (MATS.): 135–140. 140: connective. — *E.* (s.str.) *ariadnae* DWOR.: 141–145. — *E.* (s.str.) *lipcowa* sp.n.: 146–154. — *E.* (s.str.) *mochidai* DWOR.: 155–162.



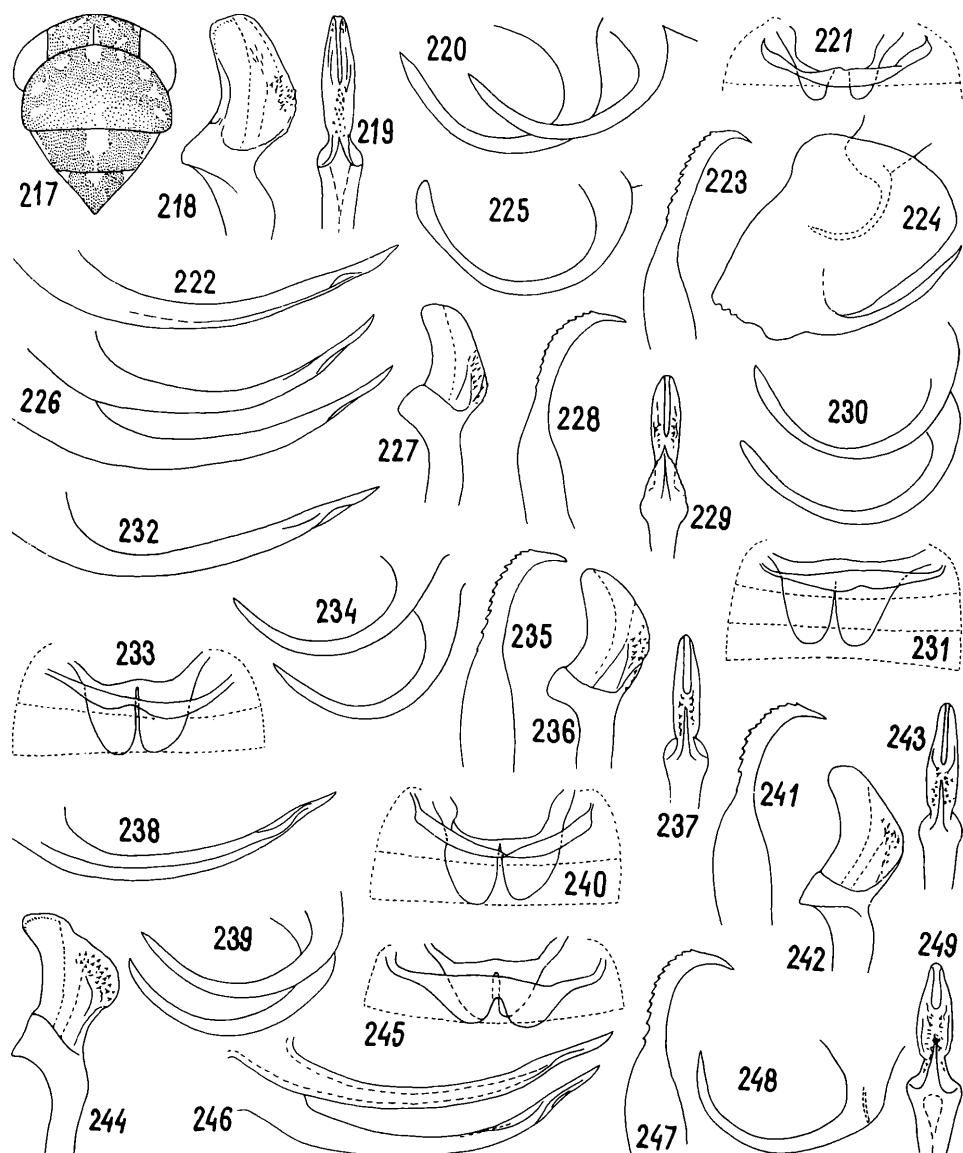
Figs. 163–191.

Empoasca (s. str.) *lutowa* DWOR.: 163, 164. — *E.* (s. str.) *cienka* sp. n.: 165, 166. — *E.* (s. str.) *rybiogon* DWOR.: 167, 168. — *E.* (s. str.) *sakaii* DWOR.: 169–172. 169 + 170: holotype. — *E.* (s. str.) *cisiana* DWOR.: 173, 174. — *E.* (s. str.) *kaicola* sp. n.: 175, 176. — *E.* (s. str.) *nipponica* sp. n.: 177, 178. — *E.* (s. str.) *hiromichii* (MATS.): 179–184. 180 + 181 holotype. — *E.* (s. str.) *matsudai* DWOR.: 185–191.



Figs. 192-216.

Empoasca (Matsumurasca) aino MATS.: 192-198. — *E. (M.) diversa* VILB.: 199-203.
— *E. (M.) onukii* MATSUDA: 204-208. — *E. (Distantasca) atika* sp. n.: 209-216.

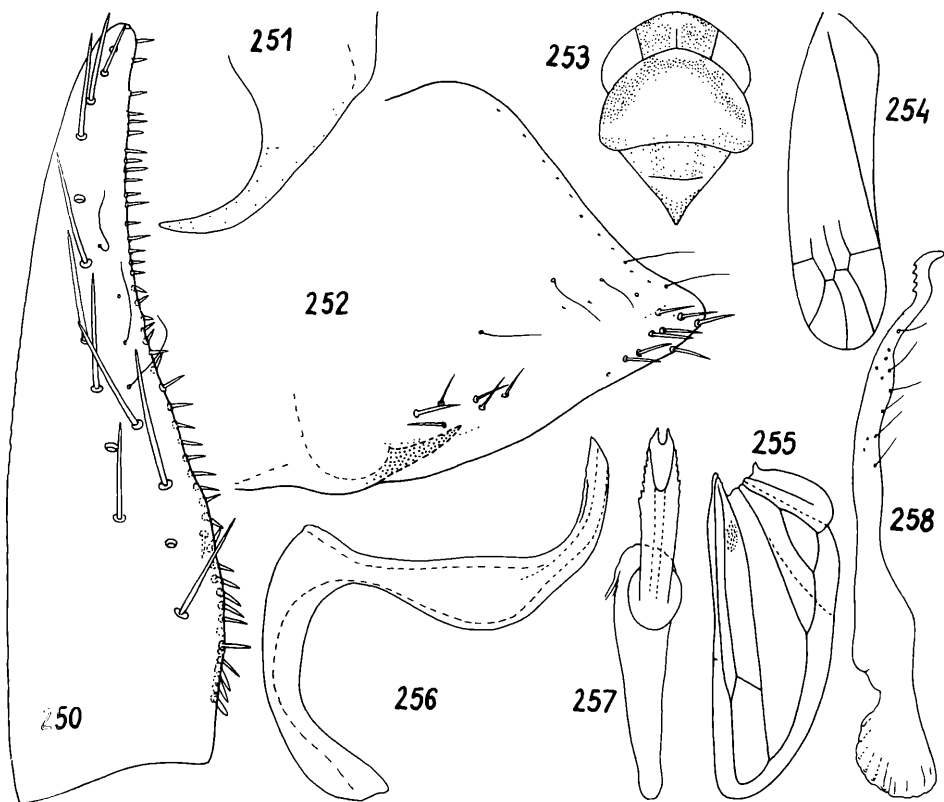


Figs. 217-249.

Empoasca (*Kybos*) *koreana* (MATS.): 217-224. 217: female, holotype. — *E. (K.) cornuta* (DWOR.): 225-232. — *E. (K.) niveicolor japonica* (DWOR.): 232-237. — *E. (K.) rufescens matsumurai* (DWOR.): 238-243. — *E. (K.) soosi* DWOR.: 244-249.

***Empoasca* (s. str.) *lutowa* DWORAKOWSKA, 1971 (Figs. 163, 164)**

Material studied. 2 ♂♂, Korea, Pyeongyang, Aug. 4-5, 1971, S. HORVATOVICH and J. PAPP



Figs. 250–258.

Empoasca (Okubasca) okubella MATS. 253–255: lectotype of *Chlorita fraxinella* MATS.

***Empoasca (s. str.) cienka* sp. n. (Figs. 165, 166)**

Externally as *E. lutowa* DWOR. Length ♂ 3.0–3.1 mm.

Penis of the new species differs from that of *E. lutowa* DWOR. by longer manubrium, upper part of the stem only slightly narrower than lower part (Fig. 166), and by the lower part broadened basally.

Holotype male and paratype ♂, Korea, Pyeongyang, Aug. 4–5. Paratypes

♂, Pyeongyang, Aug. 14; 1 ♂, Pyeongyang, Aug. 7–8, 1971, S. HORVATOVICH and J. PAPP. The holotype and part of paratypes is preserved at the Hungarian Natural History Museum in Budapest, some paratypes at ISEZ.

***Empoasca (s. str.) rybiogon* DWORAKOWSKA, 1971 (Figs. 167, 168)**

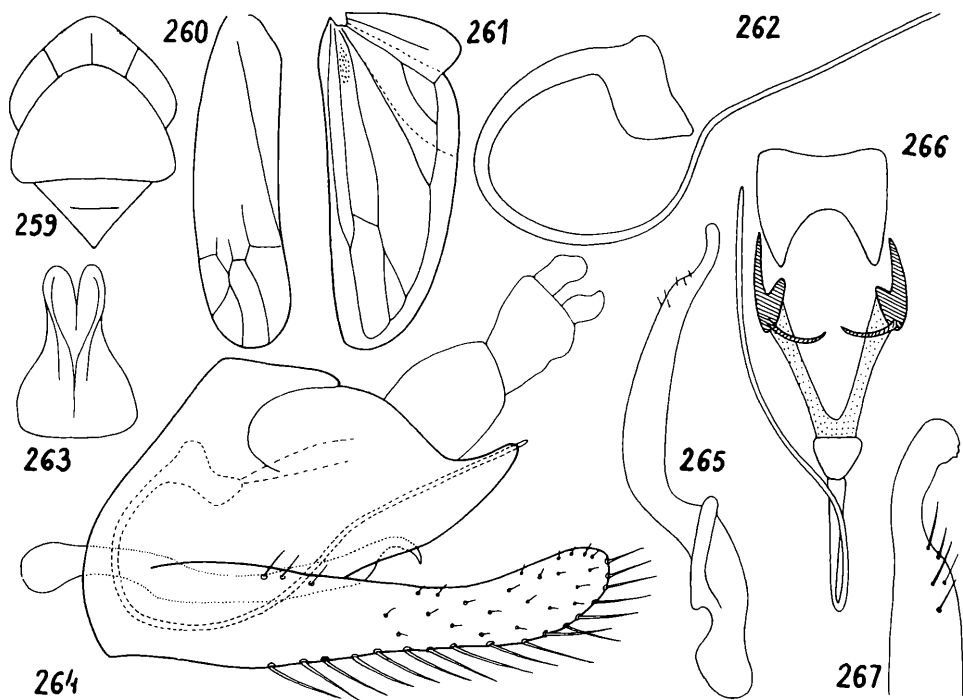
China (Hangchow, Nanking) (DWORAKOWSKA, 1971); Korea (LEE & KWON, 1979).

***Empoasca (s. str.) sakaii* DWORAKOWSKA, 1971 (Figs. 169–172)**

Empoasca sp. B: OKADA, 1971

Japan (Tokyo) (DWORAKOWSKA, 1971), Kyushu (OKADA, 1971).

Material studied. 1 ♂, Japan, Honshu, Cmp. Fuji, 2500', Sep. 25, 1952; 1 ♂, Tokyo, Aug. 27, 1952; 1 ♂, Chiba, Shishama, June 8, 1953, P. W. OMAN.



Figs. 259–267.

Schizandrasca rubrifrons (MATS.): 259, 260. — *S. ussurica* (VILB.) 261–267 264: genital block — 266: penis and its upper suspension, dorsal view (261 after ANUFRIEV, 1972, modified; 262–267 after ANUFRIEV, 1969).

Empoasca* (s. str.) *cisiana DWORAKOWSKA, 1971 (Figs. 173, 174)
China (nr Canton) (DWORAKOWSKA, 1971).

***Empoasca* (s. str.) *kaicola* sp. n.** (Figs. 175, 176)

Olivaceous green with well developed whitish hypodermal pattern on upper side of body. Fore wing semitransparent. Length ♂ 2.9–3.0 mm.

Penis differs from that of *E. cisiana* DWOR. by its canaliferous part shorter, manubrium longer, and apical part of the stem long and solid and apical appendage broadened and serrated terminally.

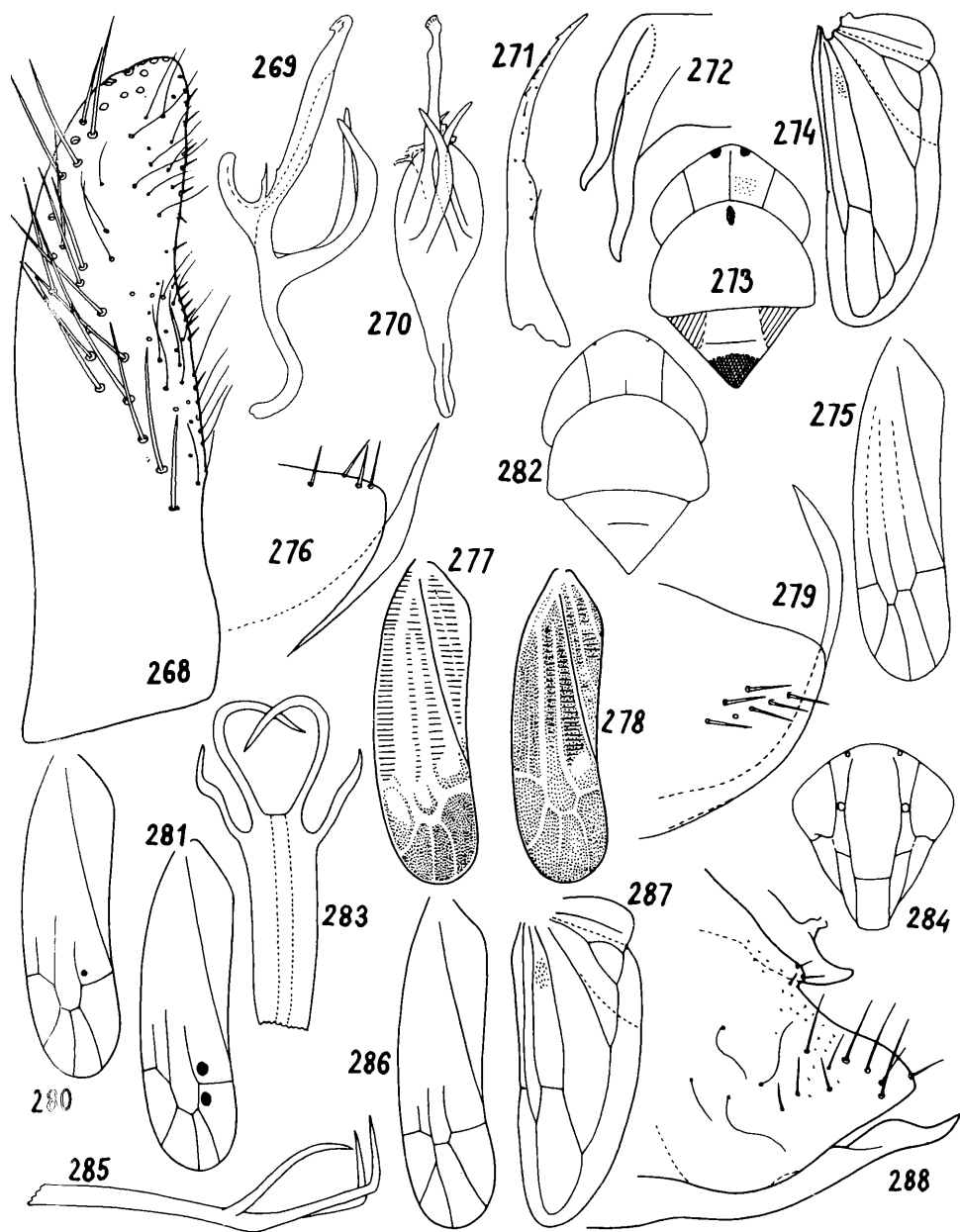
Holotype male and **paratypes** 2 ♂♂, 1 ♀, China, Homan, cotton, Nov 1947, no collector. (USNM, ISEZ)

***Empoasca* (s. str.) *nipponica* sp. n.** (Figs. 177, 178)

Sordid yellowish with ivory patches on upper side of body. Fore wing semitransparent with a greenish tint. Length ♂ 3.15 mm.

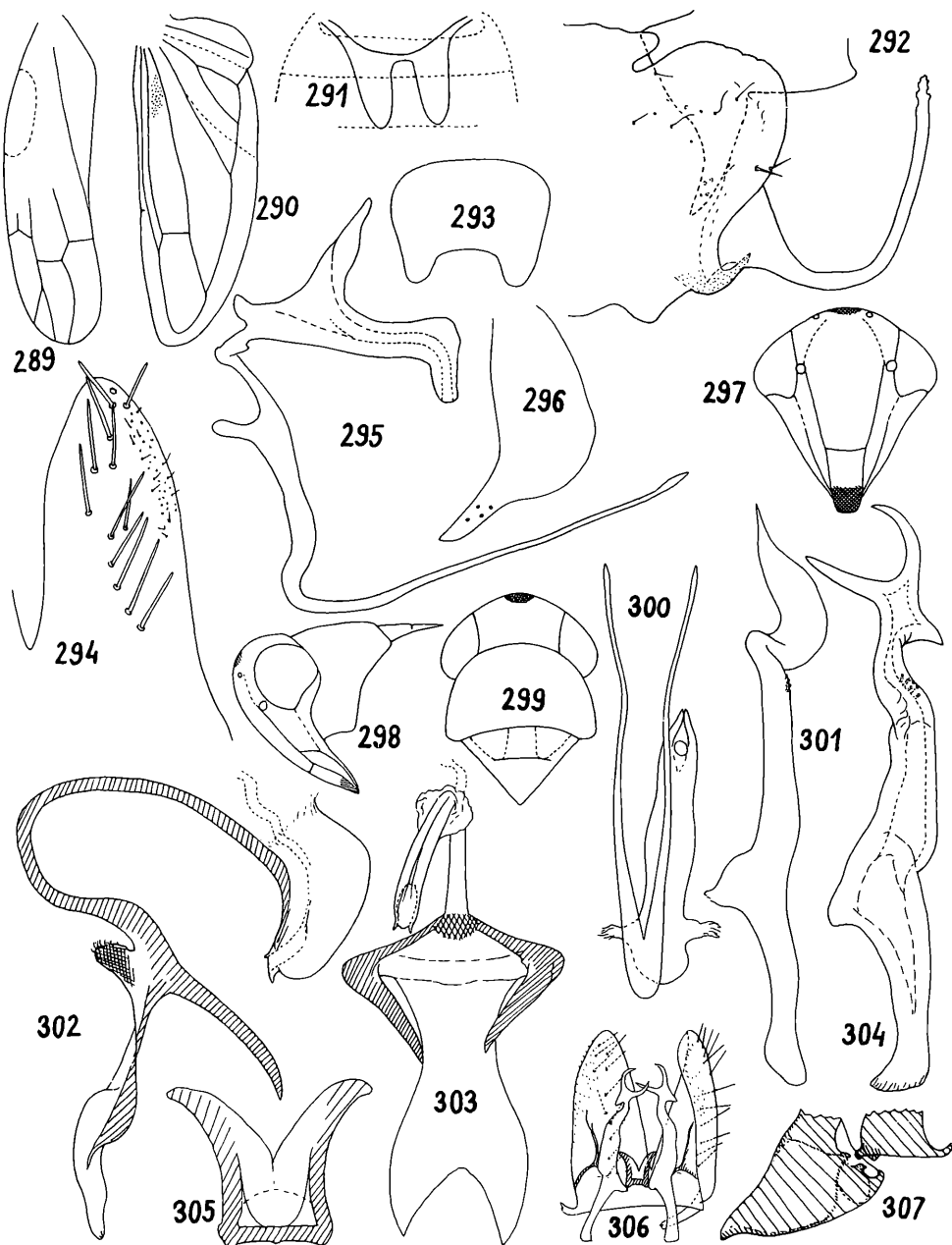
Penis the most similar to that of *E. cisiana* DWOR. but stem shorter and rounded apically and tip part of apical process broadened, deeply incised and serrated at margin.

Holotype male and **paratype** ♂, Japan, Honshu, Kyoto, Sep. 29; **paratypes** 2 ♂♂, Kyoto, Sep. 25, 1951, P. W OMAN. (USNM, ISEZ)



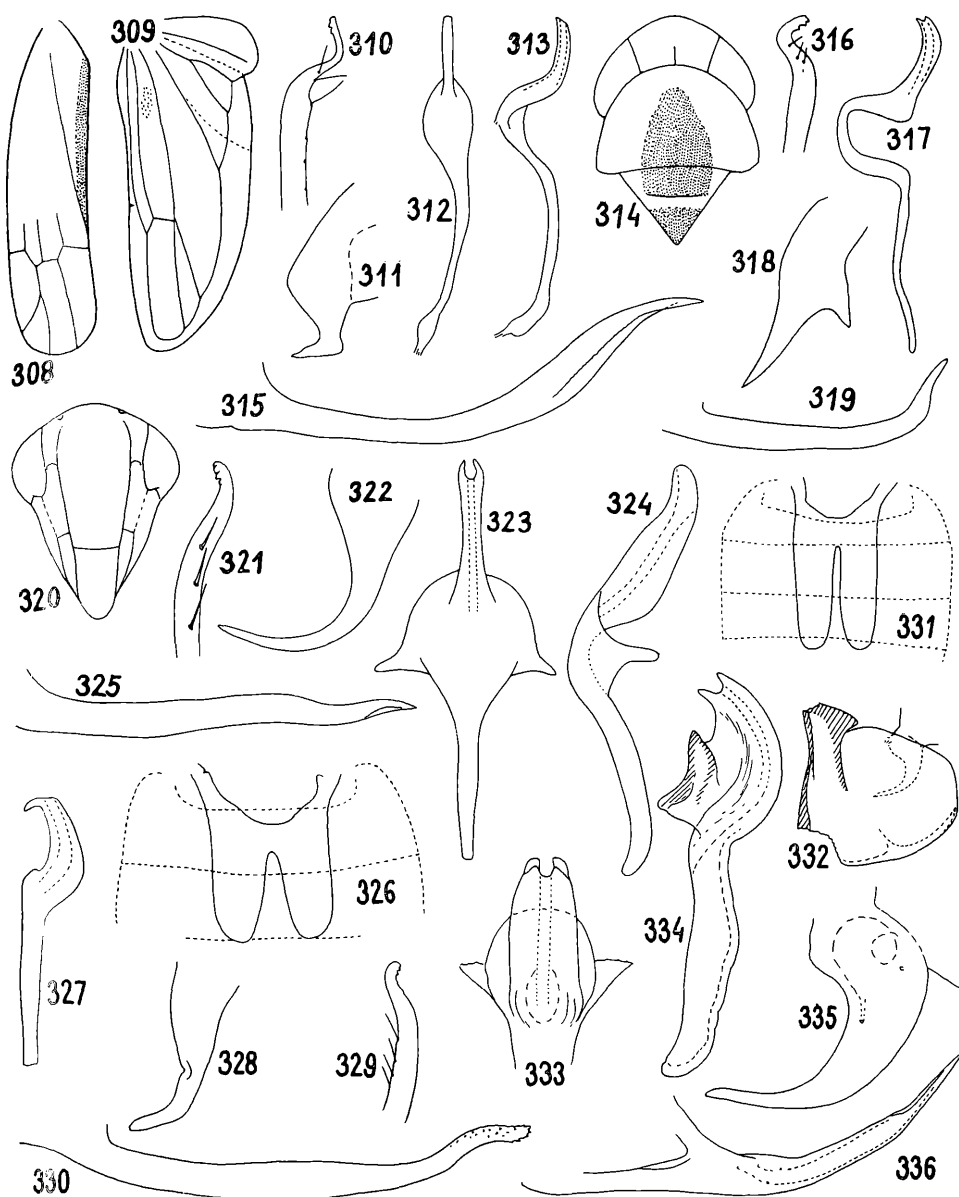
Figs. 268–288.

Nikkotettix galloisi MATS., after ANUFRIEV, 1972: 268–275. — *Austroasca vittata* (LETH.): 276, 277. — *A. mitjaevi* DWOR.: 278, 279. — *Kyboasca bipunctata* (OSH.) 280. — *K. sexevidens* DLAB.: 281. — *Dayus takagii* DWOR.: 282–288, 284: face.



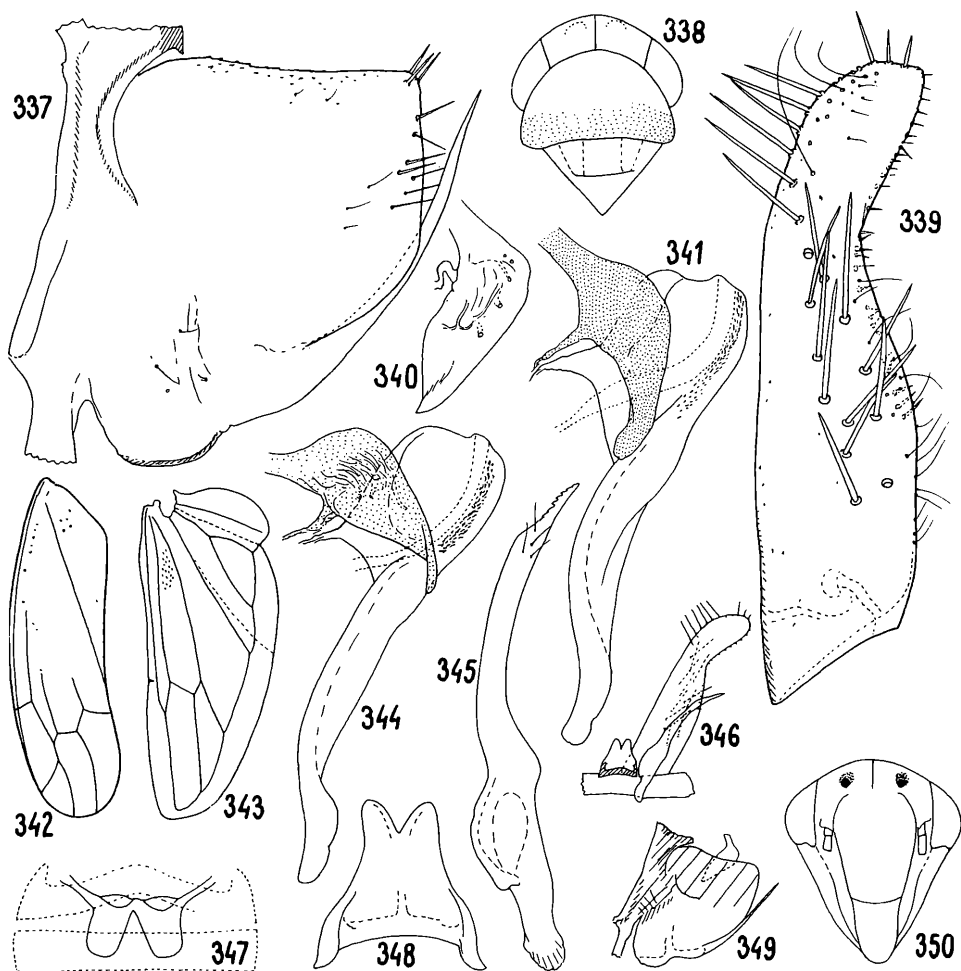
Figs. 289-307

Ishiharella polyphemus (MATS.): 289-301. 300: penis, posteroventral view. — *I. iochoui* sp. n.: 302-307.



Figs. 308–336.

Alebroides marginatus MATS.: 308–315. — *A. flavifrons* MATS.: 316–319. — *A. salicis* (VILB.): 320–326. 324: after ANUFRIEV, 1969. — *A. akashianus* MATS.: 327–330. — *A. hachijonis* MATS.: 331–336.



Figs. 337–350.

Apheliona (Sujitettix) ferruginea (MATS.), specimens from India. 341: penis and anal tube appendage, side view.

***Empoasca* (s. str.) *hiromichii* (MATSUMURA, 1931) (*Chlorita*) (Figs. 179–184)**

Type-series: holotype ♂, Japan, Hokkaido, Nopporo nr Sapporo.

Material studied. Holotype, male labelled: „Sapporo Matsumura [some text in Japanese] 9 X 31“, „Chlorita hiromichi n.“ „Type Matsumura“ and „Chlorita hiromichi Mats. Type“

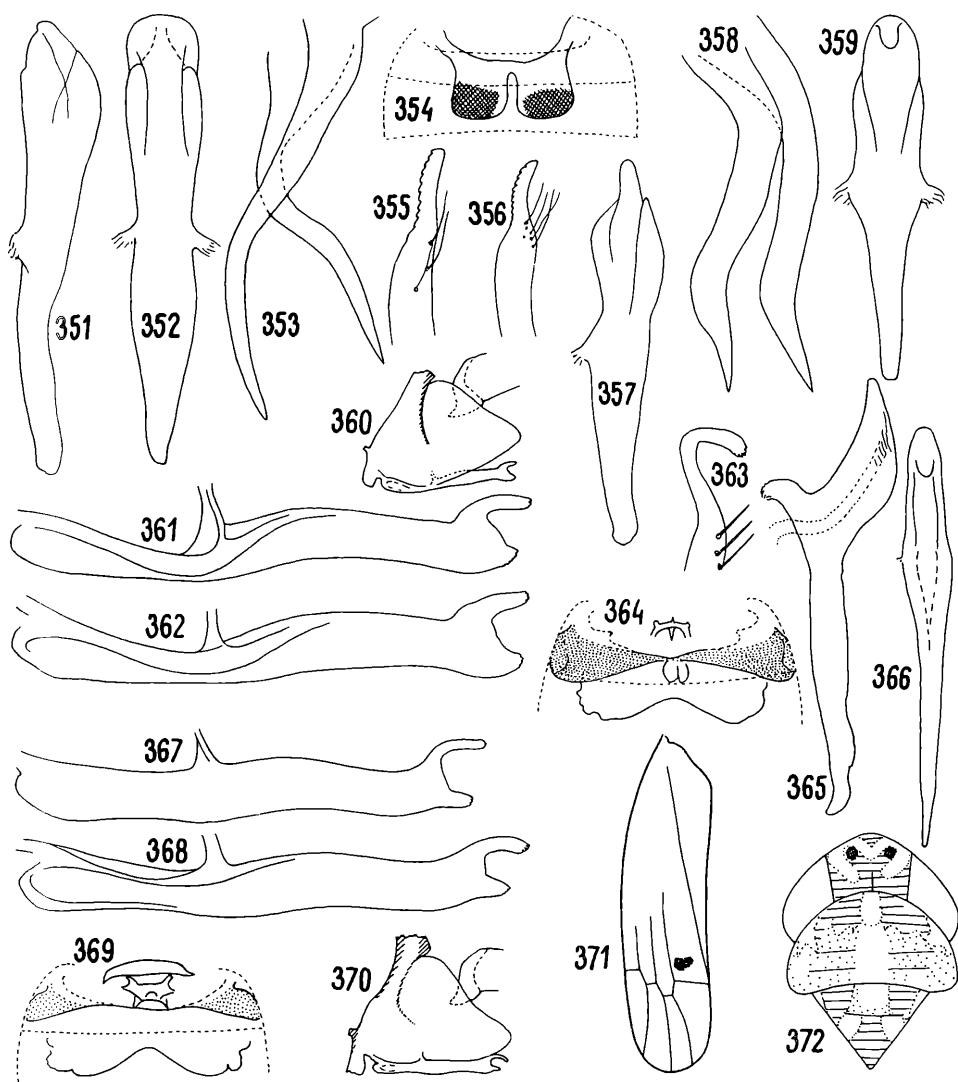
China (nr Nanking, Hangchow) (DWORAKOWSKA, 1972).

***Empoasca* (s. str.) *matsudai* DWORAKOWSKA, 1972 (Figs. 185–191)**

Empoasca sp. F OKADA, 1971

Japan: Honshu; Korea (LEE & KWON, 1979); Japan: Kyushu (OKADA, 1971).

Material studied. 1 ♂, China, Honan, Kai-fung, cotton, Nov., 1947, no collector; 1 ♂, Japan, Honshu, Omiya, Sep. 7 1 ♂, Kyoto, Oct. 11, 1951, P W OMAN.



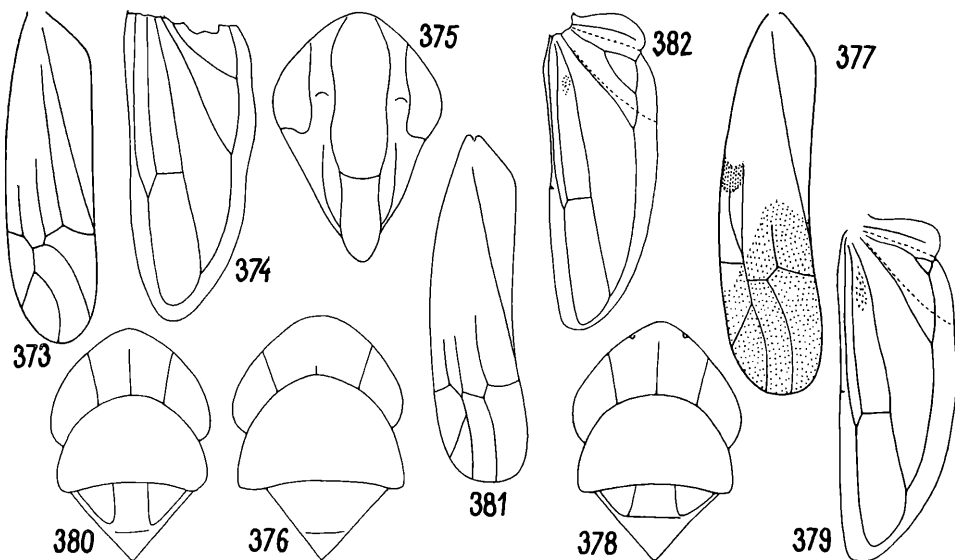
Figs. 351–372.

Chlorita (*Eremochlorita*) *erecta* DWOR. 351–355. — *Ch. (E.) matsumurai* DWOR.: 356–359. — *Jacobiasca boninensis* (MATS.): 360–366. — *J. furcastylus* (RAM. et MENON): 367–370. — *Amrasca biguttula* (ISHIDA): 371, 372.

***Empoasca* (*Matsumurasca*) *aino* MATSUMURA, 1931 (Figs. 192–198)**

Type-series: 1 ♂, 4 ♀♀, Japan, Hokkaido, Sapporo.

Material studied. Lectotype, male labelled: „*Empoasca aino* Mats. det. Matsumura“, „Sapporo 1903“, „Type Matsumura“ and „*Typhlocyba aino* Mats. Type“ Paralectotypes. 1 ♀ labelled: „Sapporo 1903“ and „*Empoasca aino* Mats. det. ex coll. S. Matsumura“ 1 ♀ labelled: „Jozankei Sep. 9. 1903“ 1 ♂, Sapporo, Aug. 12, 1962, Y. MIYATAKE.



Figs. 373-382.

Helionides singularis MATS., after MATSUMURA, 1932: 373-376. — *Empoasca rubriceps* MATS., lectotype: 377-379. — *Typhlocyba subtilis* MATS., lectotype: 380-382.

***Empoasca (Matsumurasca) diversa* VILBASTE, 1968 (Figs. 199-203)**
Soviet Maritime Territory; Korea (LEE & KWON, 1979).

***Empoasca (Matsumurasca) onukii* MATSUDA, 1952 (Figs. 204-208)**
Japan: Honshu, Kyushu, Shikoku (ESAKI & ITO, 1954); China (Hang-chou); Vietnam (Co-loa) (DWORAKOWSKA, 1971).
Material studied. 2 ♂♂, 5 ♀♀, Japan, Honshu, Hanno, Aug. 31, 1951, P W OMAN.

***Empoasca (Distantasca) atika* sp. n. (Figs. 209-216)**
Dried specimen ochre-yellow with distinct whitish hypodermal pattern. Fore wing missing. Length ♂ to the end of pronotum 0.65 mm.
Male genital apparatus differs from these of other species of the subgenus by anal tube appendage thin and arcuate (Figs. 209, 214), pygophore appendage (Fig. 216) almost straight, and penis (Figs. 211, 213) without lateral protrudings.
H o l o t y p e male, Japan, Hokkaido, Tokyo, no collector. (BM)

***Empoasca (Kybos) koreana* (MATSUMURA, 1931) (*Chlorita*) (Figs. 217-225)**
Type-series. Holotype, female from Korean Peninsula, Mt. Chohaku.
Korea; China (Hupeh) (DWORAKOWSKA, 1976).

***Empoasca (Kybos) cornuta* (DWORAKOWSKA, 1968) (*Kybos*) (Figs. 226-231)**
Kybos oshanini: VILBASTE, 1968
Korea (DWORAKOWSKA, 1976); Soviet Maritime Territory (VILBASTE, 1968).
Material studied. 1 ♂, Korea, Pyeongyang, Aug. 14, 1971, S. HORVATOVICH and J. PAPP.

Empoasca (Kybos) niveicolor japonica (DWORKOWSKA, 1973) (*Kybos*) (Figs. 232–237)
Japan: Honshu (Kogota nr Sendai) (DWORKOWSKA, 1976).

Empoasca (Kybos) rufescens matsumurai (DWORKOWSKA, 1973) (*Kybos*) (Figs. 238–243)
China: Manchuria; Korea (DWORKOWSKA, 1976).

Material studied. 1 ♂, Korea, Pyeongyang, Aug. 4–5; 1 ♂, Pyeongyang, Aug. 7–8, 1971,
S. HORVATOVICH and J. PAPP.

Empoasca (Kybos) soosi DWORKOWSKA, 1976 (Figs. 244–249)

Material studied. 1 ♂, Korea, Pyeongyang, Aug. 4–5; 1 ♂, Pyeongyang, Aug. 9–10,
1971, S. HORVATOVICH and J. PAPP.

Okubasca subgen. n. of **Empoasca** WALSH, 1863

Type-species *Empoasca okubella* MATSUMURA, 1931

Proportions of head and thorax (Fig. 253) as in subgenus *Kybos* FIEB.

Fore wing venation (Fig. 254) differs from that of *Empoasca* s. str. by longer distance
between cu and m apical veins, thus 2nd apical cell is narrower and the 3rd one
broader than in nominate subgenus.

Pygophore lobe provided with a couple of additional rigid microsetae at its lower
margin, just at the apex of short pygophore appendage (Fig. 252).

Subgenital plate triangular, elongated, with well distinguishable thin macrosetae and
several short slender microsetae. Marginal microsetae numerous, distributed on almost
whole outer margin (Fig. 250). Sculpture indistinct, apical part infuscated.

The name of the subgenus is to be treated as arbitrary combination of letters. Gen-
der: Feminine.

Empoasca (Okubasca) okubella MATSUMURA, 1931 (Figs. 250–258)

Chlorita fraxinella MATSUMURA, 1931 **syn. n.**

Chlorita okubonis MATSUMURA, 1931 **syn. n.**

Type-series. *Empoasca okubella* MATS.: holotype ♂, Japan, Honshu, Okubo nr Tokyo;

Chlorita fraxinella MATS.: 1 ♀, Japan, Hokkaido, Sapporo, on *Fraxinus mandchurica*;

♀♀, Honshu, Ogikubo [sic] nr Tokyo; *Chlorita okubonis* MATS.: 4 ♀♀, Okubo nr
Tokyo.

Material studied. Male genital apparatus of the holotype of *Empoasca okubella* MATS.
mounted in slide by R. MATSUDA; female, lectotype of *Chlorita fraxinella* MATS.
labelled: „Sapporo Matsumura [some text in Japanese]“, „*Chlorita fraxinella* n.“,
„Type Matsumura“ „*Chlorita fraxinella* Matsumura Type“, and „25“ female, lectotype
of *Chlorita okubonis* MATS. labelled: „17 VII [some text in Japanese]“ „*Chlorita*
okubonis det. Matsumura“ „Paratype Matsumura *Chlorita okubonis*“, and „*Chlorita*
okubonis Matsumura Type“ paralectotypes of *Ch. okubonis* MATS. 3 ♀♀ (mounted
together) labelled: „[some text in Japanese] 7/17“ „*Chlorita okubonis* n.“ and „Type
Matsumura“

Remaining 4 ♀♀ of the type-series of *Ch. fraxinella* MATS. were not found in the
MATSUMURA's collection.

Schizandrasca rubrifrons (MATSUMURA, 1931) **comb. n.** (Figs. 259, 260)

Empoasca rubrifrons MATSUMURA, 1931

Type-series: 1 ♀, Japan, Honshu, Harima; 1 ♀, Kyushu, Satsuma.

Material studied. Lectotype, female labelled: „Japan Matsumura 12. 10 [a word in
Japanese, perhaps »Harima«]“ „*Empoasca rubrifrons* n. sp.“, „Type Matsumura“, and
„*Empoasca rubrifrons* Matsumura Type“ paralectotype, ♀ with all labels in Japanese
(it is not conspecific).

Schizandrasca ussurica (VILBASTE, 1968) (*Alebroides*) (Figs. 261–267)
Soviet Maritime Territory; Korea (LEE & KWON, 1979).

Nikkotettix galloisi MATSUMURA, 1931 (Figs. 268–275)

Material studied. Holotype, male labelled: „Japan Chuzenji 7-8-1916 Edme Gallois“
„Nikkotettix galloisi n.“ „Type Matsumura“ „Nikkotettix galloisi n.“ and „Nikkotettix galloisi Matsumura Type“

Austroasca vittata (LETHIERRY, 1884) (Figs. 276, 277)

Large area in Palaearctic (LEE & KWON, 1979).

Material studied. 1 ♂, 2 ♀♀, China, Manchuria, Aug. 13, 1939, S. MATSUMURA and H. KONO (*Ch. flavescens*: det. MATSUMURA); 1 ♂, 7 ♀♀, Japan, Kyushu, Fukuoka, Hokozaki, July 6, 1958; 1 ♂, 1 ♀, Fukuoka, Aragoyama, June 26, 1959, Y. MIYATAKE; 13 ♀♀, Honshu, Tokyo, June 15, 1953; 10 ♂♂, 30 ♀♀, Tokyo, July 11, 1953; 1 ♂, 1 ♀, Kyoto, Sep. 25, 1951; 6 ♂♂, 3 ♀♀, Kyoto, Sep. 29, 1951; 4 ♀♀, Kyoto, Oct. 11, 1951; 1 ♂, Honshu, Omiya, Aug. 3, 1951; 1 ♂, Omiya, Sep. 3, 1951, P. W. OMAN; 5 ♂♂, 5 ♀♀, Korea, 45 km E of Pyeongyang, May 23; 1 ♂, 1 ♀, same locality, May 27 4 ♂♂, 7 ♀♀, Kanwon Prov., Kum-gang-san, May 29; 1 ♀, Kengi Prov., 27 km SW of Kaesong, June 7 1 ♂, 1 ♀, 20 km SE of Kaesong, June 7, 1970, S. MAHUNKA and H. STEIN-MANN; 1 ♂, Pyeongyang, Aug. 11; 1 ♂, Sep. 1; 1 ♂, Sep. 2; 1 ♀, nr Pyeongyang, Aug. 11; 1 ♀, island Nung-ra nr Pyeongyang, Aug. 17 1 ♀, Mts. Pakyon, 20 km NE of Kaesong, Sep. 11, 1971, S. HORVATOVICH and J. PAPP.

Austroasca mitjaevi DWORAKOWSKA, 1970 (Figs. 278, 279)

Mongolia; Korea (LEE & KWON, 1979).

Kyboasca bipunctata OSHANIN, 1971 (Fig. 280)

Large area in Holarctic (LEE & KWON, 1979).

Material studied. 3 ♂♂, 1 ♀, China, Manchuria, Aug. 13, 1939; 5 ♂♂, 3 ♀♀, Peking, Aug. 12, 1939, S. MATSUMURA and H. KONO (*Ch. flavescens*: det. MATSUMURA); 3 ♂♂, Korea, Pyeongyang, island Nung-ra, May 27, 1970, S. MAHUNKA and H. STEIN-MANN; 5 ♂♂, 8 ♀♀, Pyeongyang, Aug. 4–5; 2 ♀♀, Aug. 5–6; 4 ♀♀, Aug. 7–8; 1 ♂, 2 ♀♀, Aug. 9–10; 1 ♀, Aug. 11; 1 ♂, 1 ♀, Aug. 12; 1 ♂, Aug. 14; 2 ♂♂, Aug. 18; 1 ♀, Aug. 19; 10 ♂♂, 36 ♀♀, Aug. 23; 1 ♂, Sep. 2; 1 ♂, Sep. 6–7, 1971, S. HORVATOVICH and J. PAPP.

Kyboasca sexevidens DLABOLA, 1967 (Fig. 281)

Mongolia; Soviet Maritime Territory (ANUFRIEV, 1969).

Material studied. 1 ♀, China, Peking, Oct. 1, 1920, A. P. JACOT.

Dayus takagii DWORAKOWSKA, 1971 (Figs. 282–288)

Empoasca rufa: MATSUMURA, 1931 (from Japanese islands)

Japan: Kyushu, Yakushima; Korea (LEE & KWON, 1979).

Material studied. 1 ♂, Japan, Okinawa I, Oct. 3, 1945, F. N. YOUNG.

Ishiharella polyphemus (MATSUMURA, 1931) (*Empoasca*) (Figs. 289–301)

Type-series: 3 ♂♂, 3 ♀♀, Japan (Hokkaido and Honshu), 1 ♀, Caucasus.

Recorded from Japan: Shikoku (ISHIHARA, 1953).

Material studied. Lectotype, female labelled „Kyoto [some text in Japanese]“, „Empoasca polyphemus n. det. Matsumura“ and „Type Matsumura“ paralectotype, ♂ labelled: „10/VII Kagoshima“ and „Empoasca polyphemus Mats. det. ex coll. S. Matsumura“ 1 ♀, Honshu, Chichibu, Sep. 6, 1951, P. W. OMAN; 1 specimen with abdomen lost, labelled: „Japonia Rekkakubashi Sauter“

Ishiharella iochoui sp. n. (Figs. 302–307)

Body sordid ochre anteriorly. Head with black patches as in *I. polyphemus* (MATS.). Pronotum tomato-red centrally, then slightly brownish. Basal triangles brownish. Centre of scutum and scutellum blackish. Fore wing testaceous, clavus and veins brownish. Length ♂ 4.3 mm.

Male genital apparatus differs from that of *I. polyphemus* MATS. as shown in drawings. Holotype male, China, Che Kiang Prov Mokansan, Sep. 24, 1927, Mrs. Dora E. WRIGHT. The holotype is preserved at the California Academy of Sciences in San Francisco (U.S.A.).

The new species is named in honour of Professor Dr. IO CHOU of the North-Western College of Agriculture in Wugong, Shanxi (China).

Alebroides marginatus MATSUMURA, 1931 (Figs. 308–315)

A. ebroides iwataensis MATSUMURA, 1931

Japan: Honshu, Kyushu, Hachijo I; Taiwan (ESAKI & ITO, 1954).

Alebroides flavifrons MATSUMURA, 1931 (Figs. 316–319)

Japan: Honshu (Kyoto, Hakone) (ESAKI & ITO, 1954).

Alebroides salicis (VILBASTE, 1968) (*Paolia*) (Figs. 320–326)

Soviet Maritime Territory; Korea (LEE & KWON, 1979).

Alebroides akashianus MATSUMURA, 1931 (Figs. 327–330)

Alebroides rubicunda ISHIIHARA, 1953

Japan Honshu (Harima), Shikoku (ESAKI & ITO, 1954).

Alebroides hachijonis MATSUMURA, 1931 (Figs. 331–336)

Japan: Hachijo I (ESAKI & ITO, 1954).

Material studied. 2 ♂♂, 1 ♀, Japan, Hokkaido, Kabut-numa, Aug. 9, 1959, Y. MAETA; 1 ♂, 1 ♀, Honshu, Kanayama, Yamanashi, Aug. 2, 1959, Y. MIYATAKE; 2 ♂♂, Mt. Fuji, Sep. 25, 1952, P. W. OMAN; 1 ♀, Yamanashi Pref., Kitazawa, July 27, 1959, Y. MIYATAKE.

Apheliona (Sujitettix) ferruginea (MATSUMURA, 1931) (Figs. 337–350)

Empoasca capitata KATO, 1933

Japan: Honshu, Kyushu, Hachijo, Shikoku (ESAKI & ITO, 1954).

Material studied. 1 ♀, Shikoku, Kuwahara-mura nr Matsuyama, Iyo, Nov., 1937, Susumu KASHIMA.

Chlorita (Eremochlorita) erecta DWORAKOWSKA, 1968 (Figs. 351–355)

China (Nanking); Korea (LEE & KWON, 1979).

Material studied. 1 ♂, Korea, Pyeongyang, May 27, 1970, S. MAHUNKA and H. STEINMANN; 1 ♀, Pyeongyang, Sep. 6–7, 1971, S. HORVATOVICH and J. PAPP.

Chlorita (Eremochlorita) matsumurai DWORAKOWSKA, 1970 (Figs. 356–359)

Chlorita tessellata: MATSUMURA, 1931 (records from Japan)

Japan: Honshu, Kyushu (DWORAKOWSKA, 1970).

Material studied. 2 ♂♂, 1 ♀, China, Nanking, Shaolingwei, Feb. 30, 1937, Miss HURFORD.

Jacobiasca boninensis (MATSUMURA, 1931) (*Chlorita*) (Figs. 360–366)

Bonin I.; Japan: Honshu; Vietnam, India.

Material studied. 1 ♂, Japan, Kyushu, Tatsudayama, Kumamoto, Dec. 27, 1959, T. KAWARABATA.

Jacobiasca furcostylus (RAMAKRISHNAN et MENON, 1972) (*Amrasca*) (Figs. 367–370)
Material studied. 2 ♂♂, Japan, Honshu, Kyoto, Sep. 25; 1 ♂, Kyoto, Oct. 11, 1951,
P. W. OMAN.

Amrasca biguttula (ISHIDA, 1913) (*Chlorita*) (Figs. 371, 372)

Chlorita bimaculata MATSUMURA, 1931

Almost whole Oriental Region, also Afghanistan and Manchuria in N China; Japan:
Okinawa, Honshu (ESAKI & ITO, 1954).

Species of uncertain generic position

Helionides singularis MATSUMURA, 1931 (Figs. 373–376)

Type-series: 3 ♀♀, Japan, Honshu, Tokyo (TAKASAGO and OKUBO); 1 ♂, China,
Hongkong (Happy Valley) (MATSUMURA, 1931).

The type-series not available on loan.

Empoasca rubriceps MATSUMURA, 1931 (Figs. 377–379)

Type-series: 3 ♀♀, Japan, Honshu, Takao, Masashi Prov., Harima and Kyoto.

Material studied. Lectotype, female labelled: „Harima [some text in Japanese]/2 Mat-
sumura“, and „Paratype S. Matsumura Zygotettix rubriceps“; paralectotype ♀ labelled:
„43“, „Empoasca rubriceps M. det. Matsumura“ and „Type Matsumura“ paralectotype
♀ labelled: „19/VII 1903 Takao“, „Co-type Matsumura“, and „Paratype S. Matsumura
Z. rubriceps n.“

Typhlocyba subtilis MATSUMURA, 1932 (Figs. 380–382)

Type-series: 2 ♀♀, Japan, Honshu, Kyoto.

Material studied. Lectotype, female labelled: „157 Kyoto“, „T. subtilis Mats.“ „Type
Matsumura“, and „Typhlocyba subtilis Matsumura Type“.

Chlorita kisui MATSUMURA, 1931

Type-series. 1 ♀, Japan, Honshu, Tokyo. Not available on loan.

Chlorita hakonella MATSUMURA, 1931

Type-series: 1 ♂, 1 ♀, Japan, Honshu, Hakone. Not available on loan.

Empoasca buzensis MATSUMURA, 1931

Type-series: 1 ♀, Japan, Kyushu, Jono (Buzen). Not found in the MATSUMURA's
collection.

References

- ANUFRIEV, G. A., 1969: New and little known Leaf-Hoppers of the subfamily
Typhlocybinae from the Soviet Maritime Territory (Homopt., Auchenorrhyncha).
— Acta Faun. Ent. Mus. Nat. Pragae **13**, 163–190.
—, 1972: New and little known Palaearctic genera and species of Typhlocybinae
(Homoptera, Cicadellidae). — Bull. Acad. Polon. Sci., Ser. Sci. Biol. **20**, 35–42.
—, 1973: The genus *Empoasca* Walsh, 1864 (Homoptera, Cicadellidae, Typhlocybinae)
in the Soviet Maritime Territory. — Ann. Zool. **30**, 537–558.
DWORAKOWSKA, I., 1970: On some genera of Empoascini (Cicadellidae, Typhlocybinae).
— Bull. Acad. Polon. Sci., Ser. Sci. Biol. **18**, 269–275.
—, 1971: *Dayus takagii* sp. n. and some other Empoascini (Auchenorrhyncha, Cica-
dellidae, Typhlocybinae). — Ibid. **19**, 501–509.
—, 1972: On some East Asiatic species of the genus *Empoasca* Walsh (Auchenorrhyncha,
Cicadellidae, Typhlocybinae). — Ibid. **20**, 17–24.
—, 1976: *Kybos* Fieb., subgenus of *Empoasca* Walsh (Auchenorrhyncha, Cicadellidae,
Typhlocybinae) in Palaearctic. — Acta Zool. Cracoviensia **21**, 387–464.
ESAKI, T., ITO, S., 1954: A tentative catalogue of Jassoidea of Japan and her adjacent
territories. Tokyo. 315 pp.

- ISHIHARA, T., 1953: A tentative check list of the superfamily Cicadelloidea of Japan (Homoptera). — Sci. Rep. Matsuyama Agric. Coll. **11**, 1–72.
- LEE Chang Eon, KWON Yong Jung, 1979: A check-list of Auchenorrhyncha from Korea (Homoptera). — Flora and Fauna of Korea **23**, VII, 779–1018.
- OKADA, T., 1971: Leafhoppers, genus *Empoasca* in Kyushu with some ecological surveys (Homoptera, Cicadellidae). — Bull. Kyushu Agr. Exp. Sta. **15**, 693–735.
- VILBASTE, J., 1966: Novye vidy cikadovyh (Homoptera: Cicadina) iz Primorskogo Kraja. — Izv. Akad. Nauk. Estonskoj SSR **15**, 61–71.
- , 1968: K faune cikadovyh Primorskogo Kraja. Tallin. 180 pp.

Address for reprints:

Systematic Entomology Laboratory, U.S. Department of Agriculture, U.S. National Museum, Washington D.C. 20560

Department of Entomology, Hemiptera Section, British Museum (Nat. Hist.), London SW7 5BD

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Reichenbachia](#)

Jahr/Year: 1982

Band/Volume: [20](#)

Autor(en)/Author(s): Dworakowska Irena

Artikel/Article: [Empoascini of Japan, Korea and North-east Part of China \(Homoptera, Auchenorrhyncha, Cicadellidae, Typhlocybinae\) 33-57](#)