Aphid species and morphs new to the fauna of Finland (Homoptera, Aphididae, Macrosiphini)

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Collecting data are represented on 26 species and subspecies new to Finland and some morphs are described for the first time. Comments on some species are given and new characters of diagnostic value are described for several species. *Acyrthosiphon aurlandicum* Heikinheimo, 1966 is a junior synonym of *A. brachysiphon* Hille Ris Lambers, 1952. A new subgenus, *Metobion*, with typus subgen. *Acyrthosiphon (Metopolophium) graminearum* Mordvilko, 1919, is erected in the genus *Sitobion* Mordvilko, 1914.

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Since my latest report on new aphid species from Finland was published (Heikinheimo 1984), further materials have been examined of aphids captured with wind net traps (loc. cit.), suction traps or other means. This paper lists 26 taxa of the tribus Macrosiphini which are new for the fauna of Finland. Each record includes the abbreviation of the biological province, the name of the municipality, the code of the square mile of the uniform grid system, "Grid 27°E" (Heikinheimo & Raatikainen 1981), the morphs found, the dates and the records of the host plant and details of the biology, if known. If the collector's name is not mentioned, the sample has been collected by the author. The aphid samples include some hitherto undescribed morphs, for which descriptions are presented. Other descriptions are given for comparison and for diagnostic use, which include several characters not reported previously.

Abbreviations (see also Heie 1980):

abd. = abdomen
al. = alate
ant. = antenna
apt. = apterous
ovip. = oviparous female (sexual)
segm. = segment
urs. = ultimate rostral segment
viv. = viviparous female (parthenogenetic)
IIIbd = basal diameter of ant. segm. III
VIa = basal part of ant. segm. VI (up to distal margin of primary rhinarium)
VIb = processus terminalis (distal part of ant. segm. VI, distad from primary rhinarium)
2sht = second segment of hind tarsus

Index of species, see p. 98.

Dysaphis aizenbergi (Shaposhnikov, 1949)
Fig. 1

Material from Finland: U: Vantaa 668:39, al. viv. from suction trap, 16.VII.1981.

Diagnostic characters: Stroyan (1960b) keyed the closely related species *D. newskyi* (Börner, 1940), *D. ossiannilssoni* Stroyan, 1960 and *D. aizenbergi* (Shaposhnikov, 1949). In the two first-mentioned species the hairs on ant. segm. III are

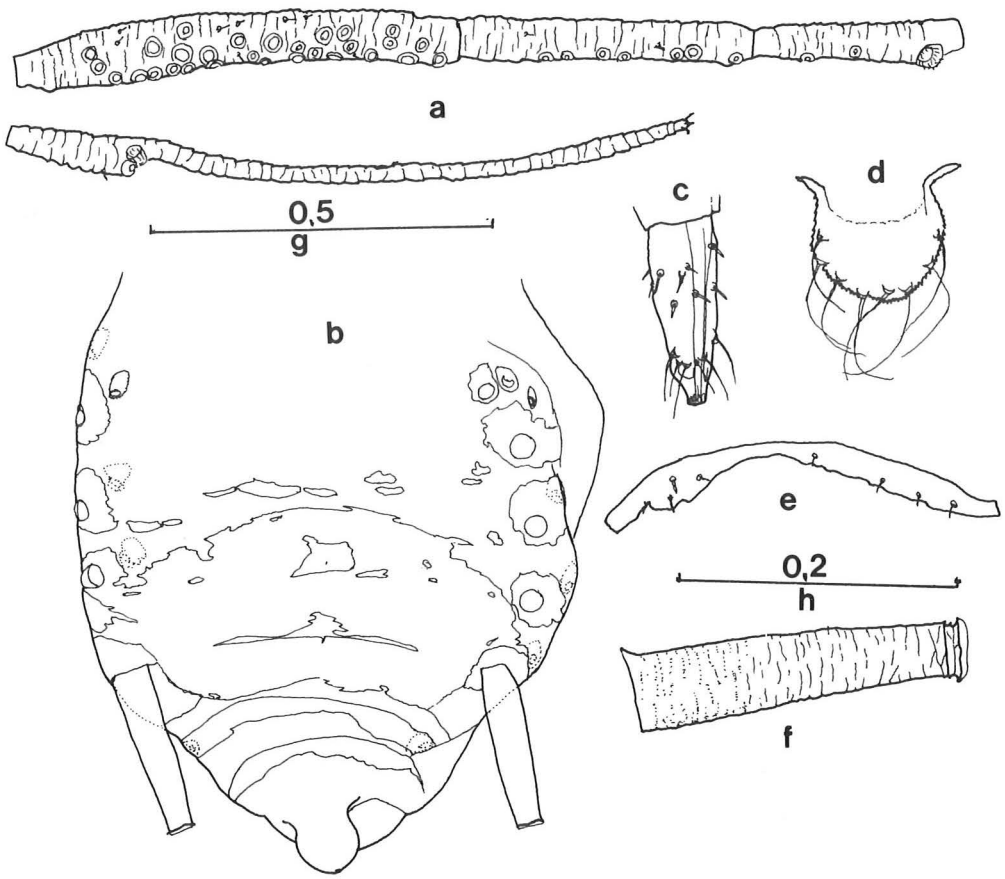


Fig. 1. *Dysaphis aizenbergi* (Shaposhnikov). Alate viviparous female. a: antennal segments III–VI, b: abdomen with dark sclerotic patterns and marginal tubercles, hairs omitted, c: ultimate rostral segment, d: cauda, e: dark dorsal band on abdominal segment VIII, f: siphunculus. Scales in mm: g for b, h for the others.

maximally more than 0.9 × IIIbd in length, whereas in *aizenbergi* the ratio is less than 0.5. In the specimen from Finland the hairs on ant. segm. III and on abd. segm. II–VI are maximally 7 µm, whereas the IIIbd is 19 µm. The hairs are also very short on the tergum of abd. segm. VIII, 11 µm only. Another unique character among *Dysaphis* spp. (Stroyan 1963)is the complete lack of spinal and marginal tubercles on the seventh and eighth tergites.

Biometric data of the al. viv. in mm: Body 1.63; ant. flagellum (segm. III–VI) 1.16; ant. segm.: III 0.32, IV 0.32, V 0.15, VIa+b 0.10+0.385; siphunculi 0.24, its diameter in the middle 0.05; cauda 0.085; urs. 0.13; 2sht 0.11. Secondary rhinaria on ant. segm: III 33 and 35, IV 8 and 10, V 2 and 2. Rhinaria mostly small, not protruding. Number of hairs on cauda 8, subsidiary hairs on urs. 9 on distal part.

Biology: The species lives monoeciously on *Heracleum sibiricum* (L.).

Distribution outside Finland: Soviet Union (Shaposhnikov 1964) and Poland (Huculak 1967).

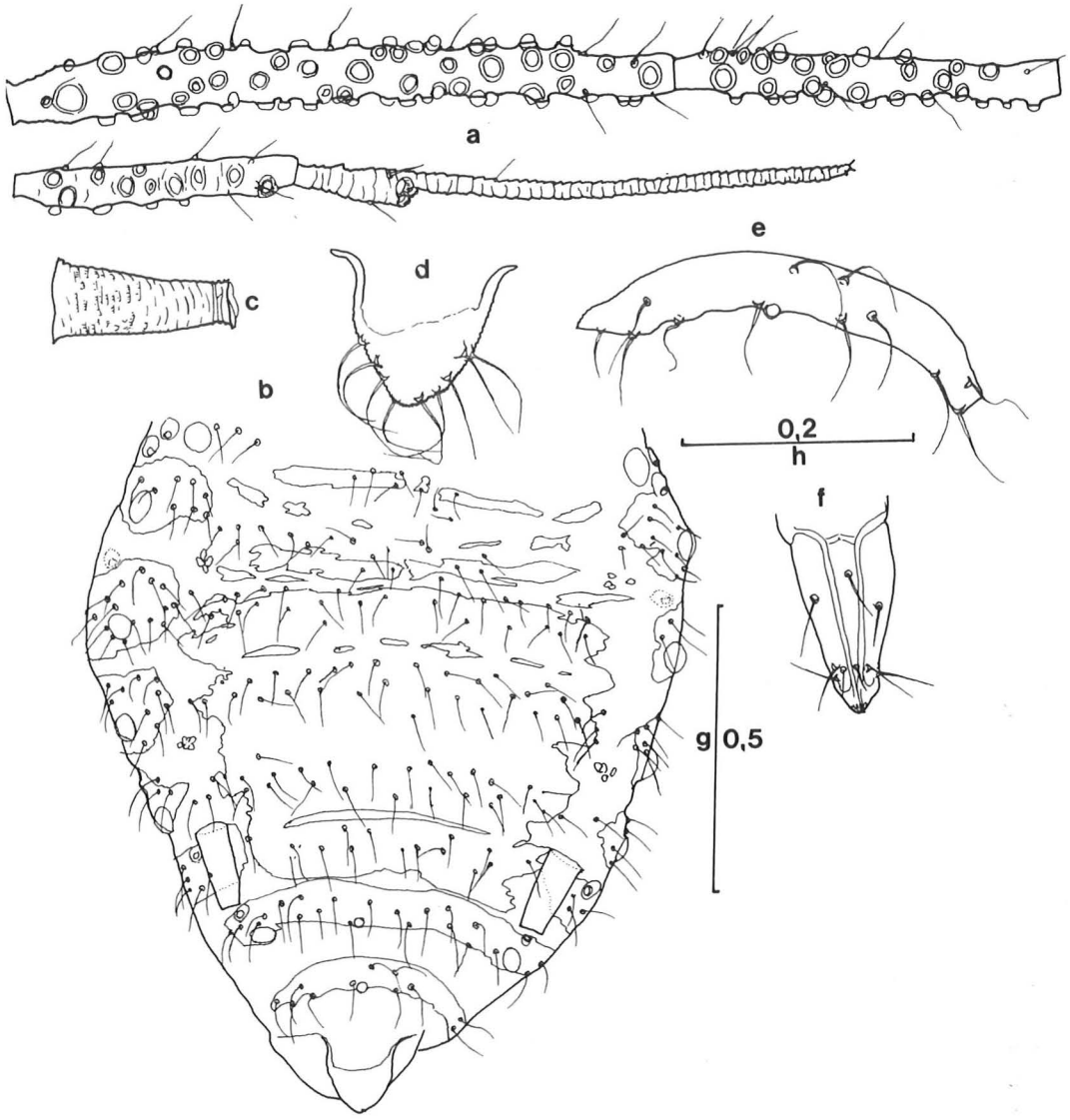


Fig. 2. *Dysaphis hirsutissima* Börner. Alate viviparous female. a: antennal segments III–VI, b: abdomen, dark sclerotic patterns, marginal tubercles and hairs on dorsal side, c: siphunculus, d: cauda, e: sclerotic dark bar on abdominal segment VIII, f: ultimate rostral segment. Scales in mm: g for b, h for the others.

Dysaphis hirsutissima (Börner, 1940)
Fig. 2

Material from Finland: U: Helsinki rural mun. 668:39, one al. viv. from yellow tray trap, 3.VII.1967.

Diagnostic characters: Stroyan (1963) described the different female morphs. The male is unknown. The species is easily recognizable by its very short siphunculi, by the very long and erect hairs on the antennae, by the numerous long hairs on the abdomen and by the strongly protruding ant. rhinaria of the alatae.

Biology: The species passes its whole life cycle on the basal parts of its host, *Anthriscus*

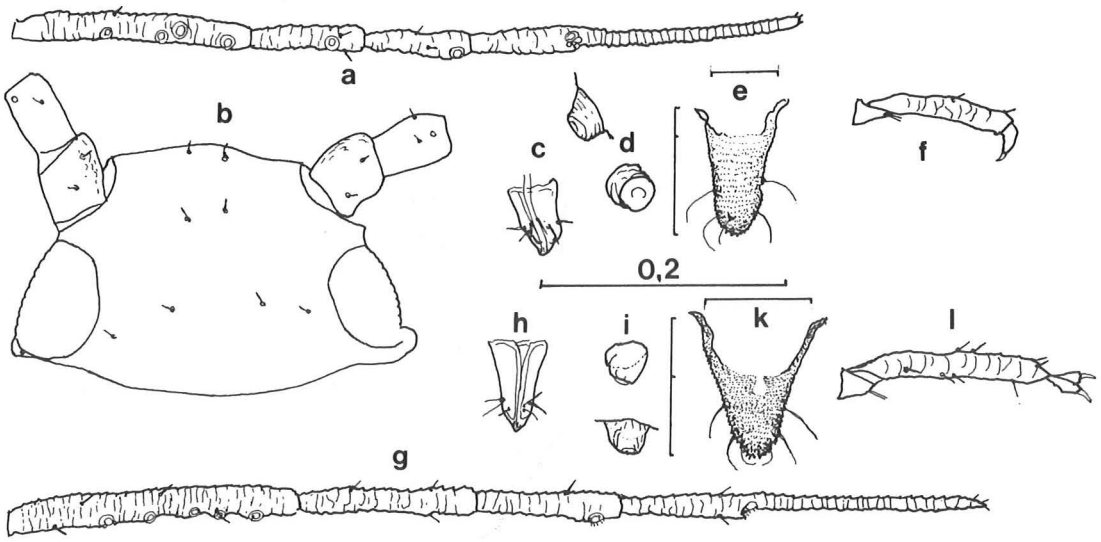


Fig. 3. Alate viviparous females of *Diuraphis* (*Holcaphis*) *calamagrostis* (Ossiannilsson) (a–f) and *D. (H.) frequens* (Walker) (g–l). a, g: antennal segments III–VI, b: head with antennal segments I and II, c, h: ultimate rostral segment, d, i: siphunculi, e, k: cauda, f, l: hind tarsus. Scale in mm.

sylvestris (L.) Hoffm. It is attended by ant species of *Myrmica* and *Lasius*. It prefers host plants growing in sandy or other well-drained places (Stroyan 1963).

Distribution outside Finland: Sweden (Ossiannilsson 1959), British Isles, The Netherlands, Germany (Stroyan 1963), Soviet Union (Shaposhnikov 1964), Poland (Szelegiewicz 1968).

Diuraphis (Holcaphis) calamagrostis (Ossiannilsson, 1959)
Fig. 3

Material from Finland: U: Helsinki rural mun. 668:39, al. viv, from wind net trap, 20.VII.1967; EK: Vehkalahti 672:51, apt.viv. on *Calamagrostis purpurea* (Trin.) Trin., 31.VIII.1967 (E. Thuneberg leg.) (Ossiannilsson 1969b); ES: Kouvola 675:48, al. viv. on *C. purpurea*, 12.VII.1980 (J. Halme leg.); Mikkeli 684:51, 11 al. viv. from wind net trap, 5–23.VII.1967; PPN: Rovaniemi rural mun. 738:45, al. viv. from wind net trap 29.VII.1962 and 25.VII.1963.

Diagnostic characters: Ossiannilsson (1959a) described the apterous and alate viviparous females and oviparous female, and Heinze (1960) keyed the species. The descriptions of Ossiannilsson may be complemented with some important characters which make it easier to distinguish the species from *D. (H.) frequens* (Walker, 1848), the commonest species in this subgenus. The most conspicuous difference lies in the cauda: in *D. (H.) calamagrostis* the pale part on the base of the cauda reaches only to 0.26–0.33 of the total length of the cauda, whereas in *frequens* it reaches 0.45–0.52 or even more. Moreover, in the latter species several specimens have a pale irregular area on the dusky distal part of the cauda, connected with or isolated from the pale basal area. This character never occurred in *calamagrostis*. The shape of the cauda of *frequens* is subtriangular, whereas in *calamagrostis* it has a rounded tip and almost parallel sides, except in the basal part, and the base is narrower than in *frequens*. The shape of the siphunculi is also different: in *frequens* the siphunculi are slightly conical or with

convex sides, so that the diameter at their tip is only 15–25 µm, whereas in *calamagrostis* they are almost cylindrical and with a wider tip, 30–35 µm in diameter. The second segment of the hind tarsus is distinctly longer (140–160 µm) in *frequens* than in *calamagrostis* (110–130 µm). The lengths of the antennal flagellum and antennal segments III–VI are greater in *frequens* than in *calamagrostis*. In contrast, no distinct differences are found in the length ratios between different segments, or in the length/basal width ratio of the ultimate rostral segment. However, it is more conical and narrower in the distal part in *frequens* than in *calamagrostis*. In the latter it is slightly shorter (56–67 µm) than in the former (70–74 µm). According to Heinze (1960), *frequens* differs from the other species of the subgenus in having two subsidiary hairs on the basal part of urs.; the others have none. However, according to my material only a few alate specimens of *frequens* have such hairs, the greater part do not. According to Ossiannilsson (1959a), in *calamagrostis* 3–4 pairs of small round marginal tubercles are present on the abdomen. In my material only a part of the alate specimens of this species have such tubercles. The length ratios VIb/other segments of antennae and the hair length on ant. segm. III mentioned by Ossiannilsson (1959a) are overlapping characters between the two species.

Distribution outside Finland: Known from Sweden only (Heinze 1960).

Hyadaphis passerinii (del Guercio, 1911)
Fig. 4 g–m

Material from Finland: V: Perniö 668:28, two apt. on *Aethusa cynapium* L. 19.VIII.1943; U: Helsinki 667:38, one apt. and one al. on *Seseli pallasi* 10.VIII.1945; Helsinki rural mun. 668:39, one al. from wind net trap 25.VII.1963.

Diagnostic characters: Heinze (1960) gave some differentiating characters for the common *H. foeniculi* (Passerini, 1860) (*mellifera* Hottes, 1930) and *H. passerinii* in his key. The latter is closely related *to H. foeniculi,* and the variation ranges of several characters overlap to some extent. However, in respect of exsules on summer hosts, some of the characters are in fact differentiating, e.g. the shape of the dark prosternal plate of the apt.: in *passerinii* the plate is far narrower than in *foeniculi* (Fig. 4c, i). In apt. of *foeniculi* the ratio Vb/Va varies between 2.31 and 2.65, whereas in *passerinii* the range is 1.63–1.79. The ratio hind tibia/body length is 0.35–0.36 in *foeniculi* and 0.27–0.29 in *passerinii*. In alate exsules the ratio VIb/VIa is 3.64 in *foeniculi* (1 ex) and 2.73–3.29 in *passerinii*. The ratio urs./2sht is 0.83 in *foeniculi* and 0.91–0.97 in *passerinii*. According to Heinze (1960), al. viv. of *foeniculi* have 60–70 secondary rhinaria on ant. segm. III, 18–28 on IV, and 2–5 on V, whereas in *passerinii* their numbers are 30–45, 6–13, and 0, respectively. The alate exsules from Finland have the following numbers of sec. rhinaria: *foeniculi* 36–51 on III, 7–12 on IV and 0–1 on V; *passerinii* 24–37 on III, 5–7 on IV, and 0 on V.

Biology: The winter hosts of *H. passerinii* are *Lonicera caprifolium* L. and *L. periclymenum* L., on which the fundatrix and civis-virgines cause leaf galls similar to those of *foeniculi* on *L. xylosteum* L., i.e discoloration and the leaf folding up along the main vein into a pocket. The summer hosts are some Apiaceae. The species prefers *Conium* L., *Selinum* L. and *Aethusa* L. (Börner 1952).

Occurrence outside Finland: Widely distributed in Western and Central Europe. Owing to the general confusion with *foeniculi* the distribution of the species is not well known.

Hyadaphis polonica Szelegiewicz, 1959
Fig. 4 n–t

Material from Finland: U: Helsinki 667:38, one apt. viv. together with *H. foeniculi* in a leaf gall caused by the latter on *Lonicera xylosteum* L. 10.VIII.1945.

Diagnostic characters: Differs from the other species of *Hyadaphis* in very slender urs. and folded-fan-shaped hairs on abd. segm. VII and VIII (Fig. 5s, t), in the author's specimen more clearly on VIIth, but according to Szelegievicz (1959) also on VIIIth. Siphunculi shorter than cauda. Prosternum without the dark plate typical of several species of *Hyadaphis*. Antennae short, 6-segmented.

Biometric data of the apt. civis virgo in mm: Body: 1.53; antennal flagellum 0.61; ant. segm: III: 0.185, IV: 0.080, V: 0.097, VI: 0.085 + 0.165;

siphunculi: 0.135; cauda: 0.17; urs.: 0.11; 2sht: 0.13; hind tibia 0.59. VIb 1.94 × VIa and 0.89 × ant. segm III. Urs. 0.85 × 2sht. Ant. flagellum 0.14 × body length. Siphunculi 0.79 × cauda.

Biology: Szelegiewicz (1959) described this species according to apt. and al. exsules collected from *Carum carvi* L. The author's apterous specimen was discovered on a leaf gall on *Lonicera xylosteum* L. among *H. foeniculi*, the leaf gall being typical of the latter species. Szelegiewicz conclusion that his *polonica* viviparae on *Carum* were exsules of a *Lonicera* aphid can now be confirmed. The late finding date of the apterous female from Helsinki may indicate that the species has several civis generations during summer and that the host alternation may be facultative.

Distribution outside Finland: Known from Poland only (Szelegiewicz 1959).

Remarks: Apterous viviparous females of the four species of *Hyadaphis* sensu Eastop & Hille Ris Lambers (1976) known from Finland may be keyed as follows:

1. Siphunculi as long as or longer than cauda. Dark prosternal plate present 2
— Siphunculi shorter than cauda. Dark prosternal plate absent 3
2. Dark prosternal plate less than twice as broad as long, about 1.5–1.8 times. Vb/Va ratio more than 2 .... *foeniculi* (Passerini, 1860)
— Dark prosternal plate more than twice as broad as long, about 2.5–3.0 times. Ratio Vb/Va less than 2 .... *passerinii* (del Guercio, 1911)
3. Length of siphunculi less than 3 × their basal width. Length of urs. about 2 × its basal width. Cauda subtriangular. Hairs normal ..... *sphondylii* (Koch, 1854)
— Length of siphunculi more than 3 × their basal width. Length of urs. about 3 × its basal width. Cauda elongated. Hairs on abd. segm. VII and VIII at least partly folded-fan-shaped ..... *polonica* Szelegiewicz, 1959

Hydaphias mosana Hille Ris Lambers, 1956
Fig. 5

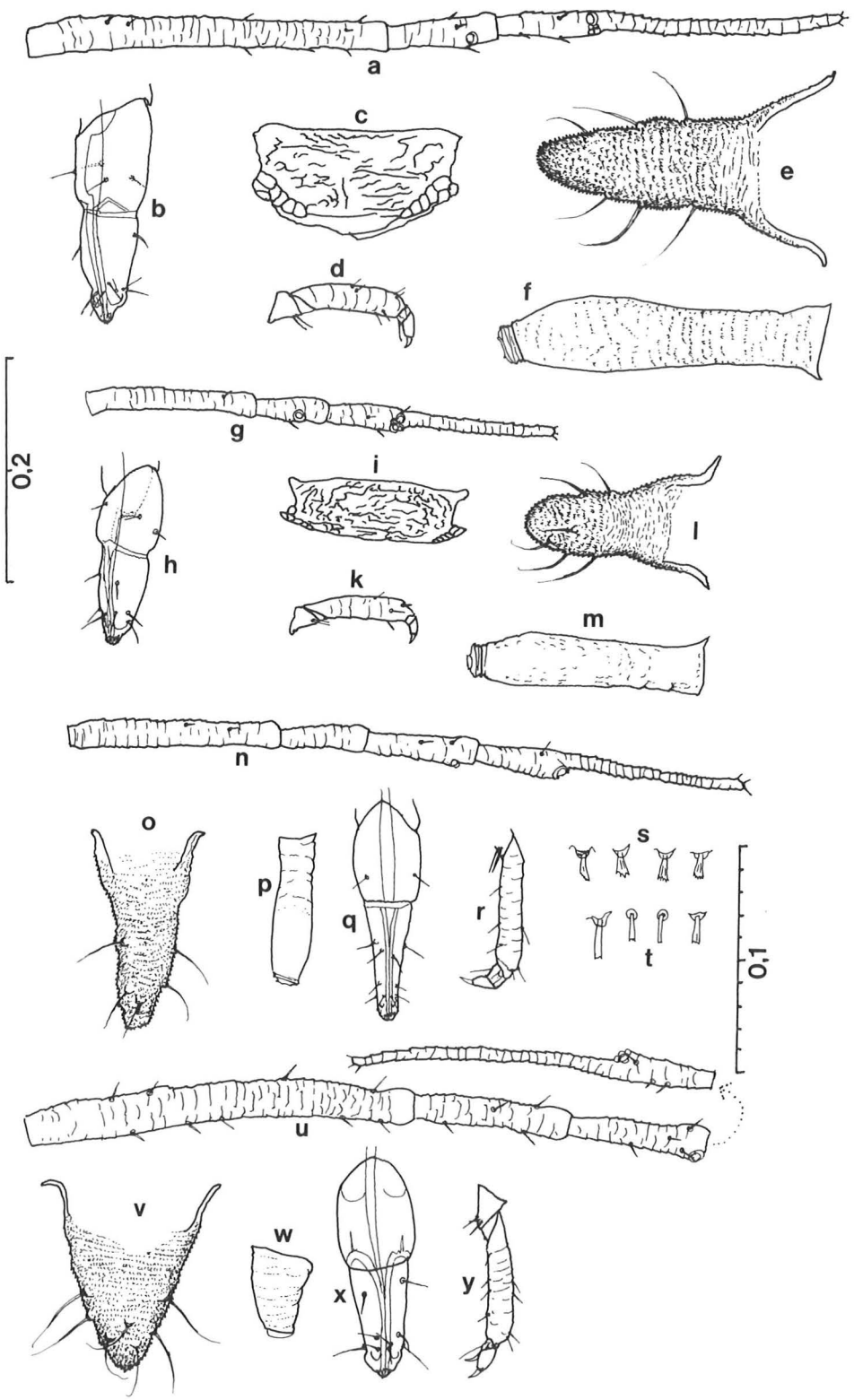
Material from Finland: V: Nauvo 669:22, 1 al. viv. swept from graminetum, 17.VII.1978.

Diagnostic characters: Hille Ris Lambers (1956) described apt. viv. and ovip. and apt. males; Heinze (1960) keyed the species with the other members of the genus. The alate viv. has not been seen or described earlier.

Description of alate viviparous female: Head, ant. segm. I and II, pronotum, pterothorax, siphunculi, cauda, femora, apices of tibiae and tarsi dark. Marginal sclerites around tubercles rather pale, hardly darker than the rest of abdomen, which lacks dark figures on the dorsum. Frons of head convex with protruding ocellus. Marginal tubercles large, semiglobular, present on pronotum and abd. segm. I–V. Their diameter 20 µm or little more, about 1.3 times as long as greatest diameter of stigma, and 2.9–5 times as long as marginal hairs nearby. On ant. segm. III 10 and 12 secondary rhinaria. Rostrum reaching to second coxae, urs. normal in shape, with 6 subsidiary hairs. Siphunculi bent inwards, almost cylindrical, thickest at their apex, slightly wrinkled, particularly on basal 2/5. Their apex semiglobular. Their distal aperture directed inwards, its diameter 0.43 × the apical diameter of siphunculi. Basal 2/3 of cauda, seen from above, conical, at very base as broad as length of cauda, whose apical 1/3 is tongue shaped, with 16 hairs.

Biometric data of one al. viv. in mm: Body: 1.48; ant. flagellum: 1.05; ant. segm. III: 0.385, IV: 0.133, V: 0.130, VI: 0.118 + 0.285; siphunculi: 0.115; cauda: 0.130; urs.: 0.115; 2sht: 0.115; hind tibiae: 0.700. Maximal hair lengths in µm: ant. segm. III: 10, abd. segm. III, spinal: 8, abd. segm. VIII: 10, ventral hairs on abd.: 12–17. Length ratios: VIb/VIa 2.48, VIb/ant. segm. III

Fig. 4. Apterous viviparous females of *Hyadaphis* species found in Finland. a–f: *H. foeniculi* (Passerini) (*mellifera* Hottes), exsulis from *Conium maculatum* L.; g–m: *H. Passerinii* (Del Guercio), -virgo from *Aethusa cynapium* L.; n–t: *H. polonica* Szelegiewicz, civis-virgo from *Lonicera xylosteum* L.; u–y: *H. sphondylii* (Koch), exsulis-virgo from *Angelica sylvestris*. a, g, n, u: antennal segments III–V (VI); b, h, q, x: ultimate rostral segments; c, i: prosternal dark plate; d, k, r, y: hind tarsus; e, l, o, v: cauda; f, m, p, w: siphunculus; spinal and pleural abdominal hairs enlarged, s: on segm. VII, t: on VIII. Scales in mm.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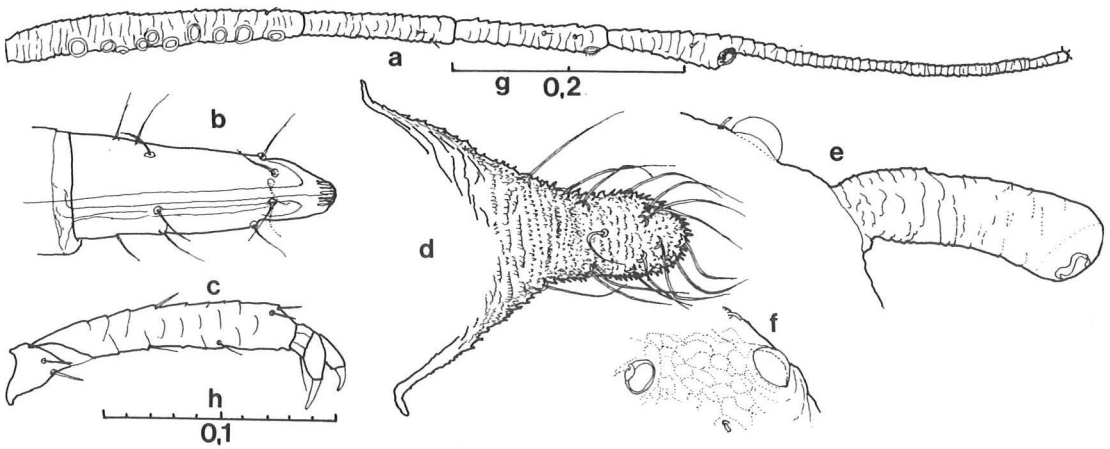


Fig. 5. *Hydaphias mosana* Hille Ris Lambers. Alate viviparous female. a: antennal segments III–VI, b: ultimate rostral segment, c: hind tarsus, d: cauda, e: siphunculus, marginal tubercle and marginal hair, f: marginal tubercle, stigmal porus and two hairs on abdominal segment IV. Scales in mm: g for a, h for b–f.

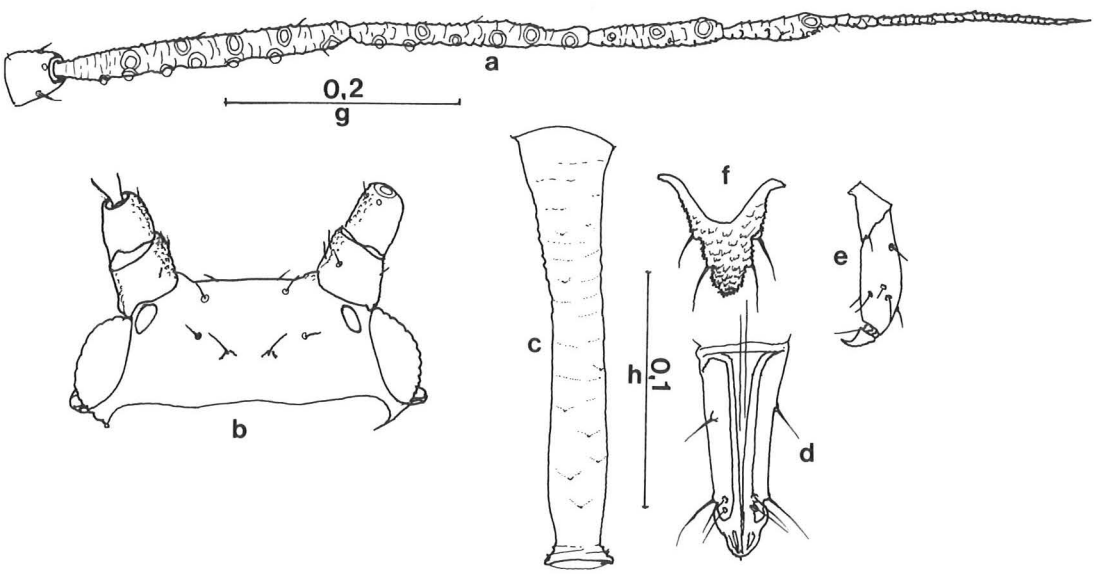


Fig. 6. *Pseudacaudella rubida* Börner. Alate viviparous female. a: antennal segments II–VI, b: head and antennal segments I and II, c: siphunculus, d: ultimate rostral segment, e: hind tarsus, f: cauda. Scales in mm: g for a and b, h for c–f.

0.74, ant. segm. III/IV 2.89, siphunculi/ant. segm. IV 0.86, siphunculi/cauda 0.91. Urs., 2sht, VIa and siphunculi about equal in length. Ventral hairs of abd. 0.4–0.62 × median diameter of ant. segm. III.

Discussion: The main diagnostic characters given by Hille Ris Lambers (1956) for apterous specimens fit well with the alate female also. The very short marginal hairs, large semiglobular marginal tubercles and short processus terminalis are typical of this species. It is readily separable from the other members of the genus.

Biology: Lives on the roots of *Galium album* Miller, attended by ants (Hille Ris Lambers 1956).

Distribution outside Finland: Sweden (Danielsson, oral inf.), The Netherlands (Hille Ris Lambers 1956).

Pseudacaudella rubida Börner, 1939
Fig. 6

Schizomyzus lindneri Börner, 1950

Material from Finland: PPN: Rovaniemi rural mun. 738:45, 6 al. viv. from wind net trap, 19.VIII.1962, 14. and 29.VIII.1967.

Diagnostic characters: The al. viv. has been described by Heinze (1960) and Müller (1973). Characters unique for this species are the shape of the siphunculi and antennae with a thin base in segm. III and pointed tip in VIb.

Biology: Lives throughout the year on *Pleurozium schreberi* (Willd.) Mitt., less frequently also on several other mosses (Müller 1973). Sexuales are not known, but it has special hibernating larvae.

Distribution outside Finland: Sweden (Ossiannilsson 1959), Denmark (Heie, oral inf.), Brit. Isles, Germany, Austria (Börner 1950, Stroyan 1955, 1957), Poland, Soviet Union (Szelegiewicz 1968).

Fimbriaphis latifrons (Börner, 1942)
Fig. 7

Material from Finland: Ks: Kuusamo 736:60, two oviparous females and one apterous male swept from *Vaccinium uliginosum* L. + *Empetrum nigrum* L., 7.IX.1986; KemLE: Pelkosenniemi 743:51 one oviparous female from *Vaccinium uliginosum* L. 4.IX.1986; InL: Inari, Muddusniemi 766:50, one alate viviparous female from wind net trap 26.VII.1962.

Remarks: The systematic position of *latifrons* Börner, 1942 has been uncertain. It has earlier been placed in several different genera: *Ovatus* van der Goot, 1913 (Börner 1942), *Idiovatus* Börner, 1944 (Börner 1944), *Metopolophium* Mordvilko, 1914 (Börner 1952), *Myzodium* Börner, 1950 as *lagarriguei* Remaudière, 1952, the synonymy with *latifrons* being noted by Prior & Stroyan (1960), and *Ericaphis* Börner, 1939 as *empetri* Ossiannilsson, 1954, the synonymy with *latifrons* being noted by Hille Ris Lambers (1955),

Richards (1959) established the genus *Fimbriaphis,* t. g. *fimbriata* Richards, 1959, for two North American species, which shared the unique common feature of fine cilia-like fimbriation on the margins of the secondary rhinaria of alate specimens. Ossiannilsson (1954) first observed such fimbriation in one alate female of his *empetri*, when he wrote: "These rhinaria are of the same type as the primary rhinarium of ant. segm. V, i.e. distinctly fringed, which must be abnormal." Due to this character, *latifrons* is a typical member of the genus *Fimbriaphis*, first established by Prior (1971). He also keyed the genus with species found in Britain.

Description

The apterous viviparous female has been described by Börner (1942), Remaudière (1952) (as *lagarriguei*) and Ossiannilsson (1954) (as *empetri*), the alate viviparous female by Ossiannilsson and Remaudière, the last instar larva of the oviparous female and apterous male by Remaudière. Apart from the apterous viviparous females, the descriptions are based on single specimens and the adult oviparous female has not been described. Accordingly, additional descriptions of the alate female and apterous male are given here with the first description of the adult oviparous female.

Alate viviparous female (Fig. 7 a–g). Pigmentation when mounted. Ant. segm. I–III, thorax, siphunculi, distal 2/3 of femora, tarsi and apex of tibiae dark. Flange of siphunculi, cauda and the other parts of tibiae and femora pale. Sclerites on abdomen distinct and dark. Their arrangement resembling that of species of *Myzus* (*Nectarosiphon*). The sclerotic bar on abd. segm. VII reaching from one stigma to another.

Head almost smooth, ant. tubercles low and small, slightly scabrous. Ant. segm. II scabrous as well, segm. III slightly imbricated, with 10 ciliate sec. rhinaria in a row along the whole segm. Other segm. are missing. Abd. segm. VII and VIII each with a pair of small spinal tubercles. Marginal tubercles on both sides of segm. II–V. Siphunculi gradually tapering from base to apex, in apical part bending slightly outwards, imbricated, and with 3–4 rows of narrow transverse reticulation at apex. The conspicuous broad flange facing outwards. Cauda rather slender, with distinct constriction, the apical 3/5 almost finger-shaped, with rounded tip. Urs. subtriangular, its length almost 2 × basal width.

Biometric data of one alate in mm: Body: 1.83; ant. segm. III 0.440; siphunculi 0.275 with median diameter 0.040 and anterior to flange 0.035; diameter of flange 0.052; cauda 0.182; urs. 0.097; 2sht 0.108. Hair lengths in μm: frons of head 11–13; ant. III 8, about 0.5 × IIIbd; abd. VIII max. 22.

Ant. segm. I with 5 hairs on inner and ventral side apically, 3 hairs on outer side. Segm. II with 3 hairs. Ant. tubercles with 2 hairs, frons with 4 hairs in the middle. On vertex 2 pairs of hairs near spinal tubercles. Abd. segm. II–IV each with 6 spinopleural hairs, marginal sclerites each with 2 hairs. Segm. VIII with 5 hairs. Cauda with 2 pairs of hairs and one median hair near apex. Urs. with 4 subsidiary hairs. First tarsal segments with 2 hairs and one sensory peg.

Length of siphunculi 6.8 × their median diameter, diameter of the flange 1.48 × the diameter of siphunculi anterior to flange.

Oviparous female (Fig 7 h–k). Body pale except for small intersegmental muscle slerites and very small marginal spots on abdomen, which are dusky. On abd. segm. VII two small spinal sclerites and a pleuromarginal spot dusky. On segm. VIII a dusky bar. Antennae, apical rostral segments, legs and siphunculi dusky, gradually darkening apicad. Cauda dusky.

Antennae without secondary rhinaria. Ant. tubercles low, rounded, scabrous. Frons between them slightly convex, broad and almost smooth. Two small spinal tubercles on vertex. O–2 small and low spinal tub. on abd. segm. VII and VIII. Marginal tub. on pronotum, and these may be present on abd. segm. II–V, too.

Biometric data of three oviparous females (Kuusamo, Pelkosenniemi) in mm:

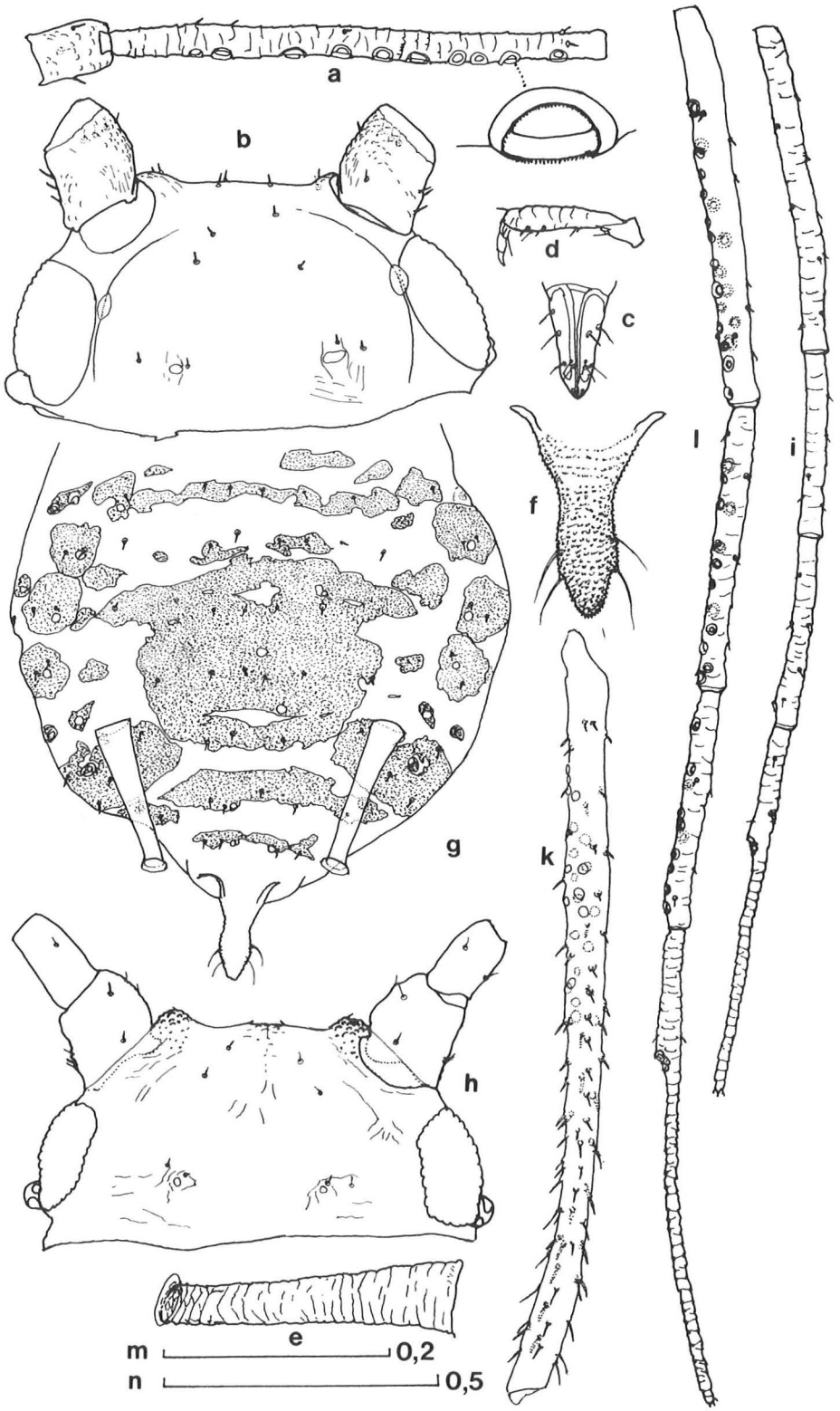
Body	1.55	1.60	1.75
Ant. flag.	0.895	0.975	0.800
Ant. segm.			
III	0.235	0.295	0.245
IV	0.155	0.165	0.135
V	0.185	0.176	0.140
VI	0.110+0.210	0.120+0.220	0.100+0.180
Siph.	0.320	0.325	0.270
Cauda	0.200	0.180	0.175
Urs.	0.090	0.100	0.095
2sht	0.100	0.095	0.090

Length ratios: VIb/VIa: 1.8–1.9, siphunculi/cauda: 1.54–1.81, ant. flagellum/body: 0.46–0.61. Length of siphunculi 6.42–7.44 × their median width, which is 42–45 μm. Diameter of flange 1.31–1.67 × diameter of siphunculi anterior to flange, which is 30–38 μm. Hind tibiae slightly thickened and with 18–38 scent plaques on their basal half. Longest hairs on ant. segm. III 8–10 μm, about 0.5 × IIIbd. Hair lengths on mid frons 13 μm and on abd. segm. VIII 17–21 μm.

Apterous male (Fig. 7l). Head capsule, siphunculi and apical rostral segments dusky. Antennae dark. Dorsal cuticle slightly wrinkled.

Biometric data of one specimen in mm: Body: 1.13; right flagellum (the left missing): 1.26; ant.

Fig. 7. *Fimbriaphis latifrons* (Börner). Alate viviparous female (a–g), oviparous female (h–k), apterous male (l). b, h: head and antennal segments I and II; a: antennal segments II and III, i, l: III–VI; c: ultimate rostral segment; d: hind tarsus; e: siphunculus; f: cauda; k: hind tibia with scent plaques. Scales in mm: n for g, m for the others.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segm III: 0.360, IV: 0.255, V: 0.215, VI: 0.130+ 0.300; siphunculi 0.240 with median diameter 0.040 and anterior to flange 0.030; diameter of flange 0.046; cauda 0.110; urs. 0.090; 2sht 0.095. Hair lengths in µm: Frons of head 11, ant. III 8 and abd. VIII 12.

Ciliate secondary rhinaria on ant segm III: 23, IV: 12, V: 12, situated along the posterior half of the segments. Subsidiary hairs on urs. 4. Hairs on cauda 5.

Discussion: In his key for British species of *Fimbriaphis*, Prior (1971) gave as a distinguishing character the maximum hair length on the frons of the head of the alate *latifrons*, which was 25 µm. However, this does not fit with the figures of Remaudiere (1952) and Ossiannilsson (1954), or with the measurements made on the specimens from Finland. The hair lengths are between the same limits in all morphs, on the head and antennae 13 µm or less. All the other measurements fit well with the descriptions made earlier, especially the shape of the siphunculi.

Biology: Lives monoeciously and holocyclically on *Vaccinium uliginosum* L., *Empetrum nigrum* L. and *Calluna vulgaris* (L.) Hull. Alate viviparous females appeared in June and July — apparently in the 2nd and/or 3rd generation — and the sexuales in August–September.

Distribution outside Finland: This boreoalpine species is widely distributed in North Europe and in high mountain areas farther south: Iceland (Hille Ris Lambers 1955, Prior & Stroyan 1960), Soviet Union (Kola Peninsula) (Shaposhnikov 1964), Norway, Sweden (Ossiannilsson 1969b, Denmark (Heie 1964), Poland (Szelegiewicz 1968), Austria (Alps) (Börner 1942), England, Scotland (Stroyan 1957), France (Pyrenees) (Remaudière 1952).

Myzodium modestum (Hottes, 1926)
Fig. 8

Material from Finland. PPN: Rovaniemi rural mun. 738:45, al. viv. from wind net trap, 21.VII.1962.

Diagnostic characters: The alate and apterous morphs of the species have been described by Hille Ris Lambers (1952b), Heinze (1960), Stroyan (1964) and Müller (1973). Bisexual morphs are not known. In the alate specimen captured in Rovaniemi, urs. has 3+2 very small subsidiary hairs in two rows. The surface of the segment is not smooth as usual, but with diagonal undulation. The specimen shares these unique characters with *Anuraphis farfarae* (Koch), which may indicate closer relation to *Anuraphis* than to *Myzus*.

Biology: Lives on *Polytrichum commune* L., mostly on its lower parts. Also mentioned as hosts are *P. formosum* Hedw. and *P. juniperinum* Willd., *P. piliferum* (Müller 1973) and *Rhacomitrium* (Stroyan 1964). The species seems to prefer sunny and rather dry places (Müller 1973).

Distribution outside Finland: Sweden (Ossiannilsson 1969b, Denmark (Heie 1969), most countries of Central Europe, North America, Greenland, Iceland, Jan Mayen Island (Stroyan 1964).

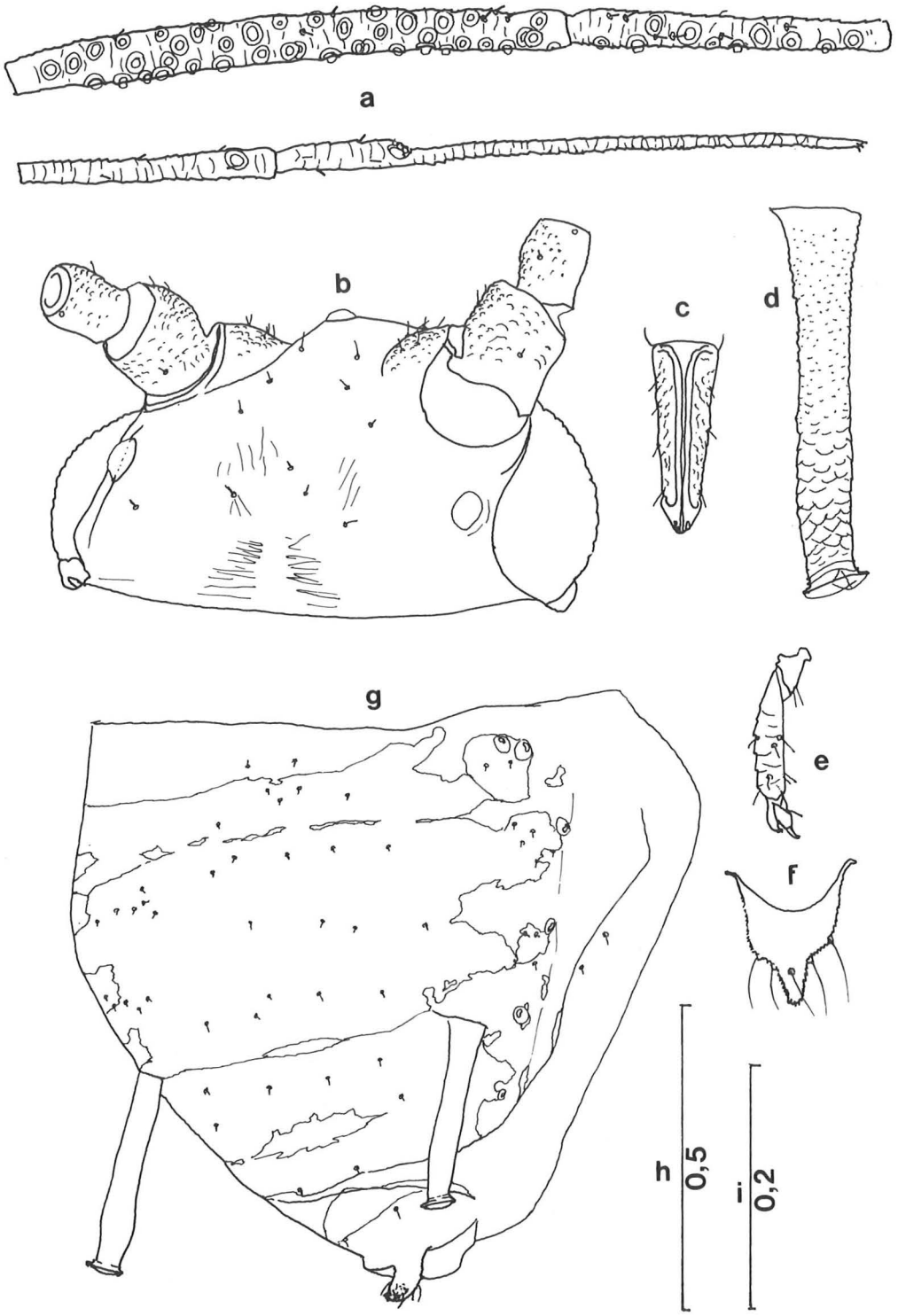
Capitophorus carduinus (Walker, 1850)

Material from Finland. A: Föglö 667:14, apt. viv. and larvae on *Carduus acanthoides* L., 30.VI.1984; U: Helsinki rural mun. 668:39, al. viv. from wind net trap, 29.VII.1963; EK: Virolahti 672:53, apt. and al. viv. and larvae on *Cirsium vulgare* (Savi) Ten, 30.VII.1982.

Diagnostic characters: Hille Ris Lambers (1953) described all morphs and keyed the genus. With the closely related *C. elaeagni* (Del Guercio, 1894) *C. carduinus* is characterized by having only one pair of spinal and pleural hairs in a single row on the abd. segments. The dorsal sclerotic pattern on abd. segm. II–IV of al. viv. is almost quadratic. *C. carduinus* differs from *elaeagni* in having long siphunculi slightly widening apicad and without a dark area at the apex. The sides of the cauda are convex.

Biology: Lives monoeciously on the underside of the leaves, mostly along the veins, of long-thorned *Carduus* and *Cirsium*.

Fig. 8. *Myzodium modestum* (Hottes). Alate viviparous female. a: antennal segments III–VI, b: head and antennal segments I and II, c: ultimate rostral segment, d: siphunculus, e: hind tarsus, f: cauda, g: dorsal side of abdomen. Scales in mm: h for g, i for the others.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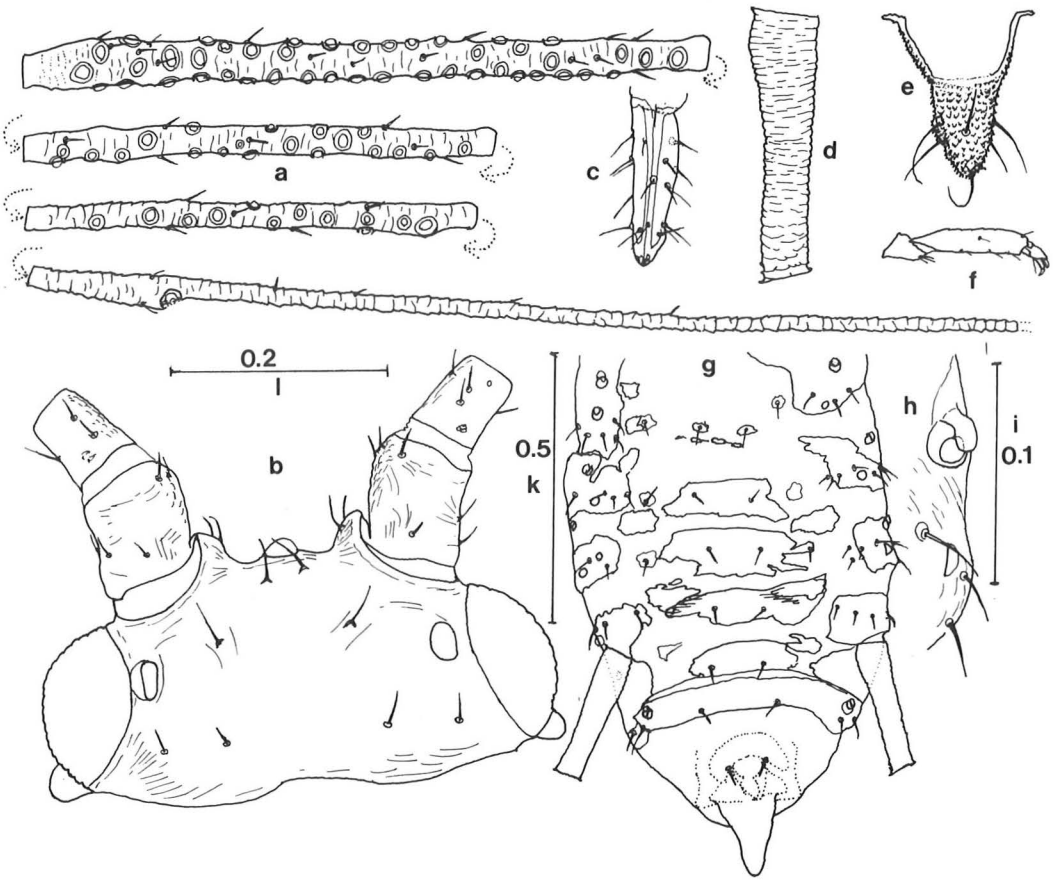

Fig. 9. *Nasonovia* (*Kakimia*) *vannesi* Stenseth, 1968. Alate male from *Saxifraga caespitosa* L., Kuusamo. a: antennal segments III–VI, b: head, c: ultimate rostral segment, d: siphunculus, e: cauda, f: hind tarsus, g: abdomen, h: stigma and tubercle on abd. segm. IV. i: scale for h, k: for g, l: for the other figures. Scales in mm.

Distribution outside Finland: Widely distributed from British Isles to Austria (Hille Ris Lambers 1953), Poland (Szelegiewicz 1968), Norway, Sweden (Ossiannilsson 1969), Denmark (Heie 1962).

Nasonovia (Kakimia) vannesi Stenseth, 1968
Fig. 9

Material from Finland: Ks: Kuusamo 735:60, 1 alate male and nymphs with wing buds on *Saxifraga groenlandica* L. 25.VIII.1978 (P. Alanko leg.).

Diagnostic characters: Stenseth described the alate male taken in Finnmark, Norway, from *Ribes rubrum* L. As the alate male from Kuusamo is somewhat smaller than the specimens of Stenseth, Stenseths measurements do not fit it exactly. Its biometric data are as follows in mm: Body 1.90; ant. flagellum: 2.51; ant. segm. III: 0.63, IV: 0.44, V: 0.415, VI: 0.14 + 0.88 (broken); siphunculi: 0.245; cauda: 0.15; urs.: 0.145; 2sht: 0.11. The ratios VIb/VIa 6.3, VIb/III more than 1.4, siphunculi/2sht 2.23, siphunculi/cauda 1.63, siphunculi/urs. 1.68, and urs./2sht 1.31. Secondary rhinaria on ant. segm. III: 45 and 45, IV: 20 and 18, V: 11 and 14. Pigmented patterns as in Fig. 9.

Biology: Until now no *Nasonovia* species with alate males was known from *Saxifraga* (Heie

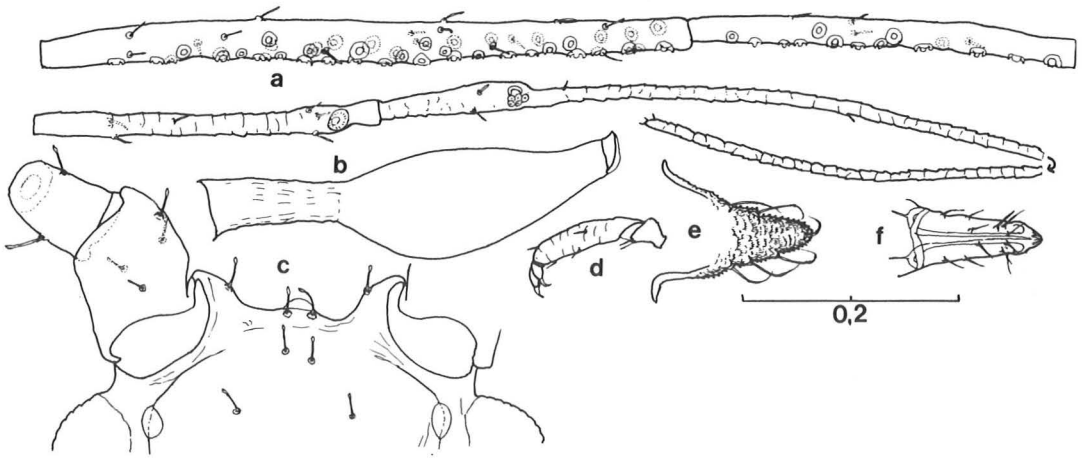

Fig. 10. *Hyperomyzus* (*Neonasonovia*) *zirnitsi* Hille Ris Lambers ssp. *boerneri* Prevost. Alate viviparous female. a: antennal segments III–VI, b: siphunculus, c: frontal part of head and antennal segments I and II, d: hind tarsus, e: cauda, f: ultimate rostral segment. Scale in mm.

1979). According to Stenseth (1968), *Nasonovia vannesi* was discovered on *Ribes rubrum* L. He wrote that although the species lives the whole year on *Ribes*, the possibility cannot be excluded that the species migrates to some summer host, because the males are alate. The present discovery of the species on *Saxifraga* indicates a migratory habit or oligophagy. A migratory habit is also indicated by the observation that all the larvae which were found in Kuusamo on *Saxifraga* had wing buds.

Certainty that the alate male from Kuusamo really belongs to *N. (K.) vannesi* can only be reached after the life cycle of the species has been fully elucidated.

Distribution outside Finland: The locus typicus Vadsø, Finnmark, Norway is the only place where the species has so far been discovered, besides Kuusamo.

Hyperomyzus (Neonasonovia) zirnitsi Hille Ris Lambers, 1952 **ssp. *boerneri*** Prevost, 1959
Fig. 10

Material from Finland: PPN: Rovaniemi rural mun. 738:45, 2 al. viv. from wind net trap, 30.VII. and 10.VIII.1963.

Diagnostic characters: The best characters differentiating *H. (N.) zirnitsi* s. str. and ssp. *boerneri* are the different numbers of secondary rhinaria (apt. viv. 21–37 on ant. III in *boerneri* vs. 35–42 in *zirnitsi*; al. viv. 45 on ant. III and 14 on ant. IV in *boerneri* vs. 75–101 on ant. III and 16–34 on ant. IV in *zirnitsi*),the shorter ant. segm. III and VIb and shorter cauda in *boerneri*, and consequent differences in their length ratios (Table 1). *H. (N.) thorsteinni* Stroyan, 1960 differs morphologically from *boerneri* Prevost, 1959, *sobrinus* Müller, 1966 and *zirnitsi* Hille Ris Lambers, 1952 in having distinctly shorter hairs on the antennae and abdomen, a slightly smaller body and shorter processus terminalis on the antennae (Stroyan 1972).

Description of alate viviparous female. General appearance much like *H. (N.) zirnitsi*. Ant. segm. III with 45 rhinaria on posterior half. (One of the al with 32 rhin. on segm. III, whose apical part is broken.) Differs from al. *zirnitsi* in having shorter ant. segm. III and VIb, shorter cauda and consequently different length ratios between ant. segments, and between siphunculi and cauda (Table 1).

Biometric data of al. viv. females in mm: Body: 2.1; ant. flagellum: 2.36; ant. segm III:

0.62, IV: 0.375, V: 0.335, VI: 0.142+0.895; siphunculi: 0.39; cauda: 0.14–0.16; urs.: 0.125–0.135; 2sht: 0.105–0.115. Hair lengths in µm: ant. segm. III: 23–26, abd. segm. III: 23–27, VIII: 33. For the number of sec. rhinaria and the distinguishing length ratios, see Table 1.

Remarks: The name *Hyperomyzus boerneri* was given by Prevost (1959) to aphids living monoeciously on *Euphrasia*. He described apterous viviparous and oviparous females, the alate male and an atypical intermediate alate specimen. Stroyan (1960a, 1972) redescribed the species and compared it with a new taxon, *H. (N.) boerneri* ssp. *thorsteinni* Stroyan, 1960, which also lives monoeciously on *Euphrasia*. Müller (1966) described *H. (N.) sobrinus* Müller, 1966 and compared it with *H. (N.) boerneri* and *zirnitsi* Hille Ris Lambers, 1952. *H. (N.) sobrinus* has host alternation between *Euphrasia* species and *Ribes alpinum* L., like *H. (N.) zirnitsi*. Eastop & Hille Ris Lambers (1976) arised *H. (N.) thorsteinni* to the species level but synonymized *boerneri* and *sobrinus* with *zirnitsi*. However, owing to the differences in the biology and in some morphological characters between *boerneri* and *zirnitsi* (Table 1) the author consider that *boerneri* deserves recognition, at least as a subspecies of *zirnitsi*.

Biology: Lives monoeciously on *Euphrasia* spp. The finding place, Rovaniemi in Finland, lies far from the northern border of the natural distribution area of *Ribes alpinum* L., the winter host of *H. (N.) zirnitsi* s. tr.

Distribution outside Finland: Switzerland, Austria (Alps) (Prevost 1959).

Rhopalosiphoninus (Pseudorhopalosiphoninus) calthae (Koch, 1854)
Fig. 11

Material from Finland: EH: Janakkala 675:36, apt. viv. and larvae on *Caltha palustris* L., 27.VIII.1985; ES: Mikkeli 684:51, al. viv. from wind net trap, 5.VII.1967.

Diagnostic characters: The species was described by Hille Ris Lambers (1953). The shiny black aphids with extremely large and swollen siphunculi are easily recognizable. The males are apterous.

Biology: The species lives monophagously on the underside of the leaves of *Caltha palustris* L. When reared, alate viv. occurred in the 2nd or 3rd generations, not later than 27 July. The first oviparae were observed in the rearing in the last days of August, the apterous males some days later.

Distribution outside Finland: Widely distributed in Western and Central Europe, Sweden, Norway, Denmark (Ossiannilsson 1969b).

Table 1. Dimensions (mm) of apterous and alate viviparous females of *Hyperomyzus (Neonasonovia) zirnitsi* Hille Ris Lambers, 1952 ssp. *zirnitsi* and ssp. *boerneri* Prevost, 1959.

	ssp. *zirnitsi*		ssp. *boerneri*		
	alate (Finland)	apterous (Müller 1966)	alate (Finland)	intermediate (Prevost 1959)	apterous (Prevost 1959)
Body length	1.95–3.15		2.19–2.25	2.23	1.83–2.17
Ant. segm. III	0.75–0.96		0.62	0.55	0.44–0.56
Ant. segm. VIb	0.96–1.08		0.895	0.77	0.70–0.87
Ratio VIb/VIa	6.5–8.3	6.5	6.24	6.5	6–8
Ratio VIb/ant.III	1.12–1.26	1.17–1.33	1.44	1.4	1.4–1.8
Sec. rhin. on III	75–101	35–42	>32–45	31–35	11–25
Sec. rhin. on IV	16–34		14	5–7	
Sec. rhin. on V	0–3		0	0	
Cauda length	0.24–0.28		0.14–0.16		
Ratio siph./cauda	1.80–2.17		2.44–2.55		

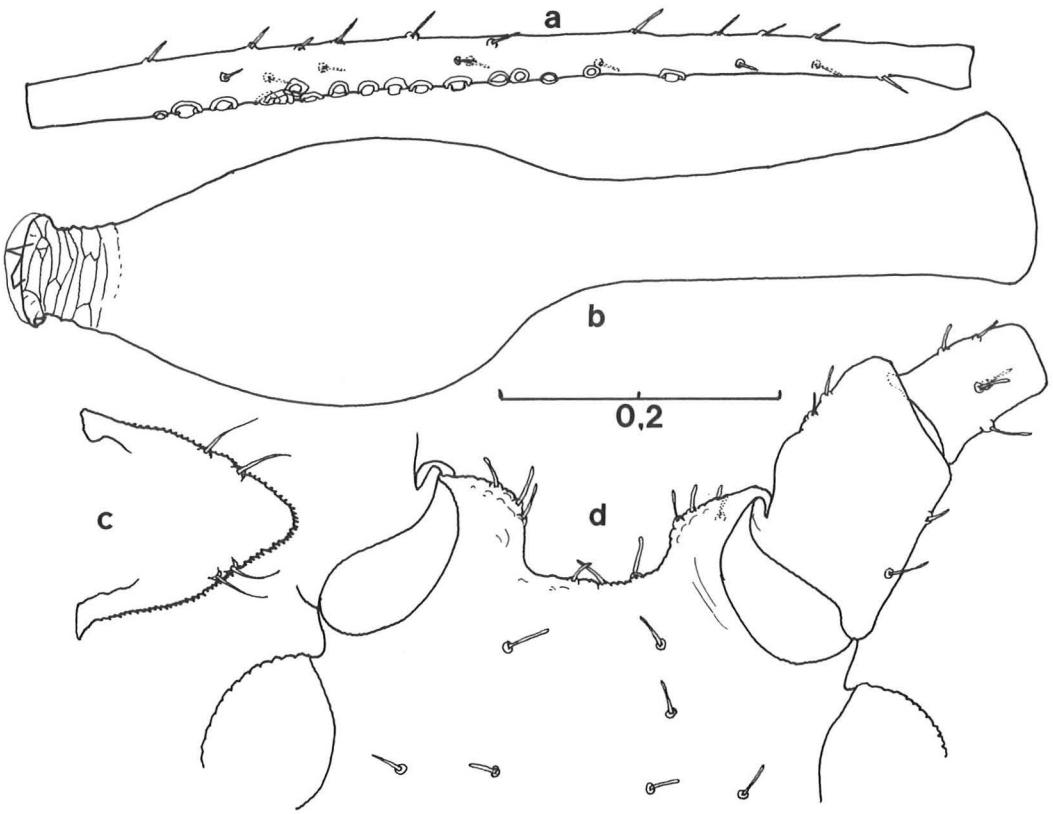

Fig. 11. *Rhopalosiphoninus* (*Pseudorhopalosiphoninus*) *calthae* (Koch). Apterous viviparous female. a: antennal segment III, b: siphunculus, c: cauda, d: head and antennal segments I and II. Scale in mm.

Aulacorthum flavum Müller, 1958
Fig. 12

Material from Finland: U: Kirkkonummi 665:36, apt. viv. on *Vaccinium uliginosum* L., 9.VII.1977 (J. Halme leg.); Siuntio 666:34, ovip. and males on *V. uliginosum*, 24.IX.1983; St: Rauma rural mun. 679:20, apt. viv. swept from a bog, 3.VII.1988; ES: Leivonmäki 686:44, apt. viv. on *V. uliginosum*, 13.VI.1987; PH: Laukaa 691:44, apt. and al. viv. on *V. uliginosum* and *Chamaedaphne calyculata* (L.) Moenh., 4 & 7.VII.1985; Rautalampi 695:49, apt. viv. swept from and reared on *Andromeda polifolia* L. and *V. uliginosum*, 25.VIII.1983; PS: Juankoski 701:56, apt. and al. viv. on *V. uliginosum*, 18.VI.1988; KP: Vimpeli 700:35, apt. and al. viv. on *V. uliginosum*, 5.VII.1985, ovip. and al. males reared on *V. uliginosum* × *corymbosum* cultivar 'Aaron'; Alajärvi 700:36, apt. viv. on *V. uliginosum*; PPS: Hailuoto 721:38, apt. viv. on *V. uliginosum*, 12.VII.1966; PPN: Rovaniemi rural mun. 738:45, al. male from wind net trap, 13.X.1962; Ks: Kuusamo 736:60, ovip. on *V. uliginosum*, 11.IX.1986; KemLE: Pelkosenniemi 743:50, ovip. on *V. uliginosum*, 4.IX.1986.

Diagnostic characters: Müller (1958) gave detailed descriptions of all the morphs of this species. Belonging to the species group *A. rufum* - *palustre*, *A. flavum* has a smooth vertex and unpigmented dorsum in the apterae. In his key for the species group, Szelegiewicz (1967) indicated that *A. flavum* differs from all the other members in having antennae shorter than the body, short proc. terminalis, short urs. and only 5 hairs on the cauda. The siphunculi are rather short and with 4 or more rows of hexagonal cells on their slightly outwards facing apex. In life the aphids are shining yellow - greenish yellow with yellowish brown spots around the siphuncular bases.

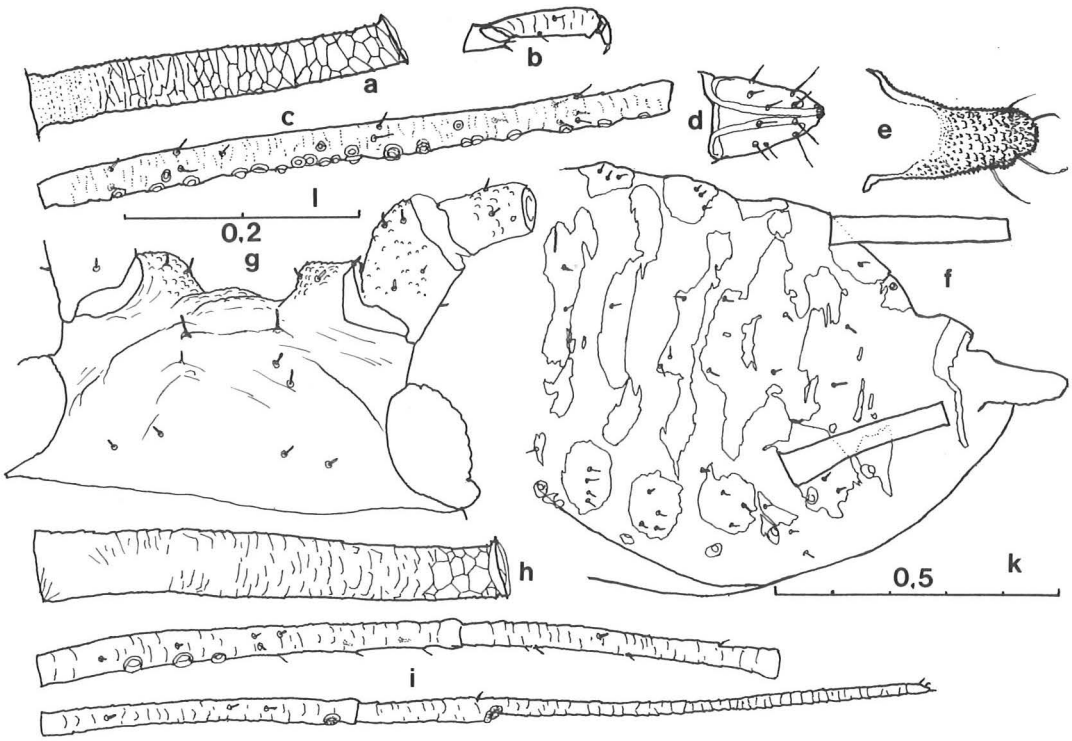

Fig. 12. *Aulacorthum flavum* Müller. Alate male (a–f), apterous viviparous female (g–i). a, h: siphunculus, b: hind tarsus, c: antennal segment III, d: ultimate rostral segment, e: cauda, f: abdomen with dark sclerotic patterns, g: head and antennal segments I and II, i: antennal segments III–VI. Scales in mm: k for f, l for the others.

Biology: Lives on young shoots and on the underside of leaves, principally on *Vaccinium uliginosum* L., monoecious. Rearings on *V. oxycoccos* L., *V. myrtillus* L., *Andromeda polifolia* L. and *Empetrum nigrum* L. gave good results (Müller 1958). In Finland the species has also been discovered on *Chamaedaphne calyculata* (L.) Moench. The al. viv. are rare, occurring only in the 2nd and 3rd generations, early in July. The al. males and ovip. have been recorded in Finland from 21 August onwards.

Distribution outside Finland: Sweden (Danielsson, oral inf.), Denmark (Heie 1969), Germany (Müller 1958), Poland (Szelegiewicz 1968).

Aulacorthum speyeri Börner, 1939
Fig. 13

Material from Finland: ES: Kouvola 675:48, apt. viv. on *Convallaria majalis* L., 14.VII.1980 (J. Halme leg.)

Diagnostic characters: All the morphs have been described by Hille Ris Lambers (1949) and by Müller (1979). The species greatly resembles *A. solani* (Kalt.), but differs in having a pale middle area on the siphunculi, and adult apterous viv. with large black figures on the dorsum (Hille Ris Lambers 1949).

Biology: Lives monoeciously on *Convallaria majalis* L. on the underside of the leaves, causing yellow spots and withering (Börner 1939). *Poly-*

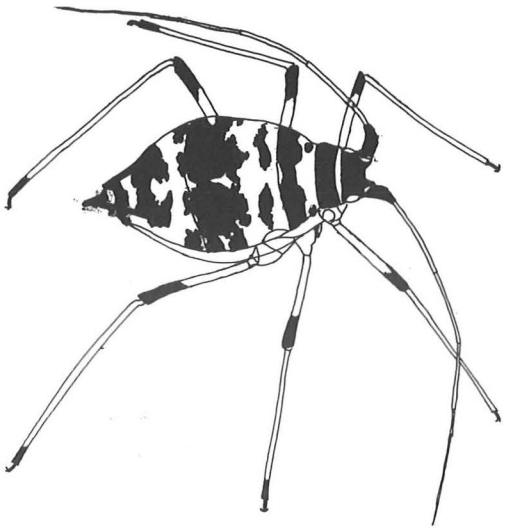

Fig. 13. *Aulacorthum speyeri* Börner. Apterous viviparous female.

gonatum and *Anthericum* have also been mentioned as its hosts (Müller 1979).

Distribution outside Finland: Sweden (Ossiannilsson 1969b), The Netherlands, British Isles (Hille Ris Lambers 1949), Germany (Müller 1979), Poland (Szelegiewicz 1968).

Aulacorthum vaccinii Hille Ris Lambers, 1952
Fig. 14

Material from Finland: Ks: Kuusamo 732:59, apt. viv. swept 30.VII.1964 (J. Viramo leg.); Kuusamo 736:60, ovip. and larvae on *Vaccinium uliginosum* L., 11.IX.1986; KemLE: Pelkosenniemi 743:51, ovip. and al. male on *V. uliginosum*, 4.IX.1986; InL: Utsjoki 774:50, 2nd instar larva 14.VI.1971, 4th instar male nymph 18.VIII.1971, ovip. 20.VIII.1971, 4th instar male nymph and al. male 14.VIII.1971, swept from *Betula tortuosa* birch forest (S. Koponen leg.); Utsjoki 774:50, apt. viv., ovip., al. male swept from *Pedicularis lapponica* L. 18.VIII.1984 (S. Koponen leg.).

Diagnostic characters: According to Hille Ris Lambers (1952), the pale siphunculi form a marked contrast with the totally pigmented black tergum of apt. viv. In the apterous specimens taken in July in Sweden, the dorsum is black, but the siphunculi are not pale, being dark with black apices, and in the apt. viv. taken in Utsjoki in August (apparently sexupara) the siphunculi are at least as dark as the dorsum. In oviparous females, which have not the

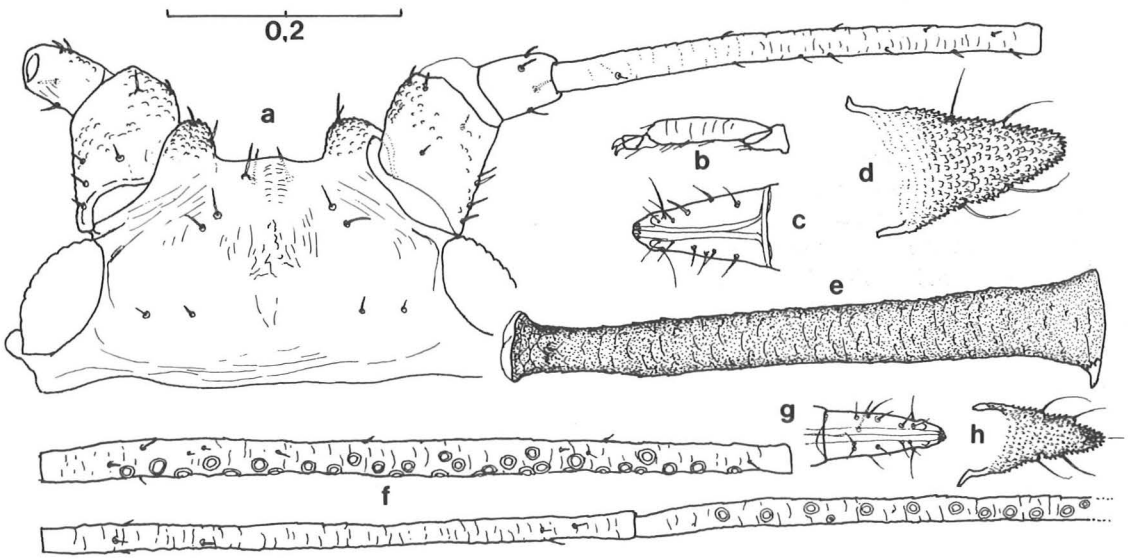

Fig. 14. *Aulacorthum vaccinii* Hille Ris Lambers. Oviparous female (a–e), alate male (f–h). a: head and antennal segments I–III; b: hind tarsus; c, g: ultimate rostral segment; d, h: cauda; e: siphunculus; f: antennal segments III–V (broken). Scale in mm.

black dorsal shield of the apt. viv., the siphunculi are strikingly dark.

The species is a typical member of the species group *Aulacorthum palustre — rufum* (Szelegiewicz 1967) in having the frons and vertex smooth, except for the antennal tubercles and in having 3–4 hairs on the outer side of ant. segm. I. It differs from all other members of the species group in having wholly dark siphunculi with a slight attenuation in their distal 1/6 and in having the antennae shorter than the body in oviparous females. The shortness and subtriangular shape of the rather pointed cauda is also a distinguishing character of the oviparous females and particularly the alate males.

Description of alate male. Head, thorax, siphunculi and antennae black. Cauda and tibiae dusky, the latter with black apices. Abdominal dorsum with irregular dark patterns consisting of spinopleural bars on segments III–VIII, large marginal sclerites on segments II–V, and large postsiphuncular sclerites. Bars on segments I and II broken into more or less isolated spots. Spinopleural bars on segments III–VI more or less fused into a perforated shield.

Antennal tubercles rather scabrous, other parts of frons and vertex smooth. Two spinal tubercles on vertex, on abd. segm. VII 0–1, and on VIII 1 or 2. Marginal tubercles on segments II–V of abd. Siphunculi cylindrical, slightly attenuated in their apical 1/6, imbricated and with 2–3 rows of incomplete reticulation anterior to prominent flange. Cauda subtriangular, rather pointed, with a hardly visible constriction.

Biometric data of 9 alate males in mm: Body: 1.70–2.24; ant. flagellum 2.7–3.2; ant. segm. III: 0.65–0.77, IV: 0.51–0.67, V: 0.50–0.67, VI: 0.19–0.24 + 0.78–0.98; siphunculi 0.40–0.48; cauda: 0.12–0.20; urs.: 0.12–0.14; 2sht: 0.09–0.11. Maximal hair lengths in µm: ant. segm. III: 13–18, about 0.55–0.66 of IIIbd, abd. segm. III: 18–27, VIII: 37–52. Length ratios: VIb/VIa: 3.42–5.04; VIb/ant. segm. III: 1.11–1.44; ant. flagellum/body: 1.36–1.68; urs./2sht: 1.11–1.26. Secondary rhinaria on ant. segm. III: 27–44, on IV: 0, on V: 10–19. Number of dorsal hairs on abd. segm. VIII: 6, on cauda: 5 (–6); on urs. 8 subsidiary hairs.

Remarks: Hille Ris Lambers (1952a) described apt. viv. and ovip. from specimens captured by Ossiannilsson in Uppland, Sweden. Later Ossiannilsson (1959b) captured the al. male, but did not describe it. Al. viv. unknown.

Biology: The species passes its whole life cycle on *Vaccinium uliginosum*. Whether *Pedicularis lapponica* is really a host plant, is uncertain, though a population containing the apterous viviparous female, oviparous female, alate male and some larvae was collected from this plant.

Distribution outside Finland: The species is known from Sweden only, from Småland up to Torne Lappmark (Ossiannilsson 1969b).

Acyrthosiphon brachysiphon Hille Ris Lambers, 1952

Acyrthosiphon aurlandicum Heikinheimo, 1966

Material from Finland: PH: Rautalampi 695:49, apt. viv swept from bogs, 18 and 22.VII.1983; Vimpeli 701:35, apt. and al. viv. on *Vaccinium uliginosum* L., 9.VII.1985; Kn: Kuhmo 710:66, apt. viv. swept from *Ledum palustre* L. growing near *V. uliginosum* L., 8.VII.1980.

Diagnostic characters: Hille Ris Lambers (1952b) described all the morphs from Greenland, Heikinheimo (1966) apt. viv. from Norway, and Meier (1972) apt. Viv. and ovip. from Switzerland. Eastop (1971) keyed the species of *Acyrthosiphon*.

The species is characterized by the siphunculi, which are slightly attenuated in their middle part, swelling gradually apicad and then abruptly narrowing just at the apex and with a few hexagonal cells near the flange with an oblique outside orifice, and by the length of the antennae, which are as long as or a little longer than the body.

Ranges of biometric data (means in brackets) of 11 apt. viv. from Finland in mm: Body: 1.95–2.78 (2.51); ant. flagellum: 2.31–3,00 (2.64); ant. segm. III: 0.59–0.74 (0.66), IV: 0.43–0.62 (0.54), V: 0.42–0.55 (0.49), VI: 0.17–0.21 (0.19) + 0.66–0.93 (0.82); siphunculi: 0.38–0.51 (0.46); cauda: 0.26–0.38 (0.35); urs.: 0.11–0.12 (0.114); 2sht: 0.14–0.16 (0.148). Maximal hair lengths in µm: ant. segm. III: 11–17, about 0.34 of IIIbd, abd. segm III: 10–14, VIII: 20–37. Length ratios: ant.

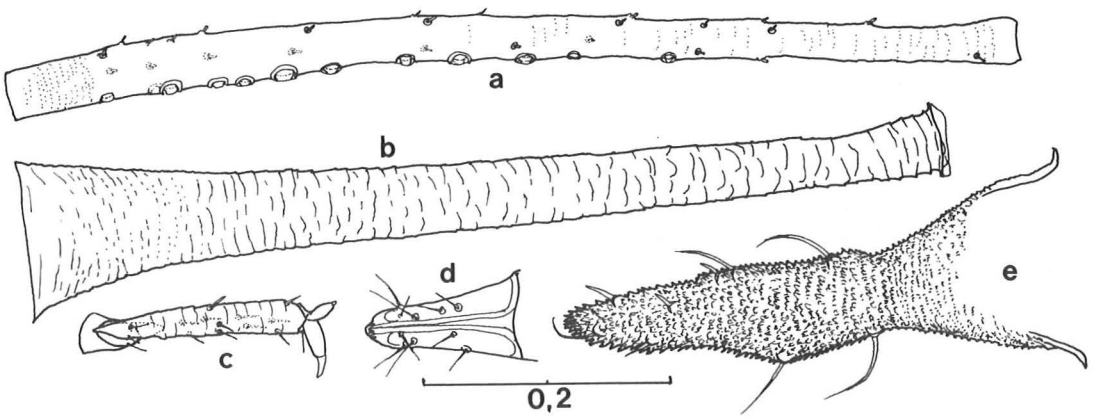

Fig. 15. *Acyrthosiphon knechteli* (Börner). Alate viviparous female. a: antennal segment III, b: siphunculus, c: hind tarsus, d: ultimate rostral segment, e: cauda. Scale in mm.

flagellum/body: 0.98–1.30; VIb/VIa: 3.75–4.75; VIb/ant. segm. III: 1.04–1.37; urs./2sht: 0.69–0.83. Secondary rhinaria on ant. segm. III: 1–9. Number of hairs on cauda: 6–8; on urs. 4–8 subsidiary hairs.

Biometric data of one al. viv. from Finland in mm: Body: 2.42; ant. flagellum: 2.61 & 2.64, ant. segm. III: 0.70 & 0.74, IV: 0.54, & 0.54, V: 0.47 & 0.50, VI: 0.18 + 0.67 & 0.71; siphunculi: 0.34; cauda: 0.31; urs.: 0.11; 2sht: 0.15. Hair lengths as in apt. viv. Sec. rhinaria on ant. segm. III: 17 & 17. 8 hairs on cauda, 7 subsidiary hairs on urs.

Remarks: *Acyrthosiphon aurlandicum* Heikinheimo, 1966 proved to be a junior synonym of *A. brachysiphon* Hille Ris Lambers, 1952.

Biology: Lives monoeciously on *Vaccinium uliginosum* L. The male is apterous (Hille Ris Lambers 1952).

Distribution outside Finland: Sweden (Ossiannilsson 1959), Norway (Heikinheimo 1966), Switzerland (Meier 1958, 1972), Iceland (Prior & Stroyan 1960), Greenland (Hille Ris Lambers 1952b), Baffin Iceland, Canada (Richards 1963), Soviet Union (Kola peninsula) (Shaposhnikov 1964).

Acyrthosiphon knechteli (Börner, 1950)
Fig. 15

Material from Finland. A: Finström 670:10, apt. viv. on *Vaccinium uliginosum* L., 7.VII.1984; St: Rauma rural mun. 678:19, 4th instar larva on *V. uliginosum*, 21.IX.1986; EH: Janakkala 675:36, apt. and al. viv. on *V. uliginosum*, 11. and 27.VII.1985; and 22. VIII.1986; PH: Laukaa 691:44, apt. and al. viv. on *V. uliginosum* and *Chamaedaphne calyculata* (L.) Moench., 3–7.VII.1985; Rautalampi 695:49, apt. viv. swept from bogs, 18. and 20.VII.1983; PS: Varpaisjärvi 702:54, apt. viv. on *V. uliginosum* 16.VI.1988; KP: Vimpeli 700:36 and 701:35 and Alajärvi 700:36, apt. and al. viv. on *V. uliginosum*, 5–9.VII.1985; Ks: Kuusamo 736:60, ovip. on *V. uliginosum*, 11.IX.1986; KemLE: Pelkosenniemi 743:51, ovip. on *V. uliginosum*, 4–5.IX.1986.

Diagnostic characters: A character diagnostic of all the morphs is the shape of the apical part of the siphunculi. Another unique character in apt. and al. viv. is the shape of the cauda with two kinds of hairs. The cauda of ovip. and males is quite different in shape and in the number of its hairs.

Description

The species was originally described very briefly by Börner (1950), as *Metopolophium knechteli*. Additional characters of apt. viv. were presented by Eastop (1971) in the key of *Acyrthosiphon*. A complete description of the different morphs (excl. fundatrix) is presented below.

Apterous viviparous female. Colour in life green without dark sclerotic patterns. Antennal prominences diverging, slightly convex, on outer part faintly scabrous, ant. segm. I on inner half faintly scabrous as well. Rostrum reaching just past second coxae. Body rather slender, cauda elongated, pointed, with more or less visible constriction, with short and in some specimens thorn-like hairs in its apical part, but with normal long and curved hairs in the median part. Siphunculi straight, cylindrical, attenuated from the very base, and in many specimens distinctly swollen in apical 1/12, imbricated from base to apex, without hexagonal patterns just anterior to the well-developed flange.

Biometric data of 4 apt. viv. from Finland in mm: Body: 2.65 –2.85; ant. flagellum: 2.74–3.28, ant. segm. III: 0.74–0.93, IV: 0.55–0.70, V: 0.50–0.64, VI: 0.17–0.19 + 0.76–0.89; siphunculi: 0.78–0.84; cauda: 0.43–0.46; urs.: 0.115–0.120; 2sht: 0.160–0.185. Maximal hair lengths in µm: ant. segm. III: 10, 0.25 × IIIbd, abd. segm. III: 6–8. Length ratios: ant. flagellum/body: 1.02–1.17; VIb/VIa: 4.00–5.24; VIb/ant segm. III: 0.94–1.03; siphunculi/cauda: 1.74–1.93; urs./2sht: 0.62–0.75. Number of hairs on cauda: 7–9; subsidiary hairs on urs.: 4–6. Sec. rhinaria on ant. segm. III: 2–6.

Alate viviparous female. Colour in life pale green. Head and thorax pale brown, antennae and legs gradually darkening towards apices, tarsi dark. Siphunculi and cauda pale. Frons of head broadly concave, antennal prominences with convex inner side, which almost smooth. Ant. segm. I and II scabrous on their ventral and inner sides. Rhinaria on segm. III in a row stretching almost its whole length. Siphunculi and cauda as in apt. viv., cauda less pointed.

Biometric data of 5 al. viv. from Finland in mm: Body: 2.48–3.00; ant. flagellum: 3.15–3.35; ant. segm. III: 0.72–0.92, IV: 0.68–0.75, V: 0.57–0.67, VI: 0.17–0.20 + 0.86–0.94; siphunculi: 0.67–0.72; cauda: 0.36–0.41; urs.: 0.110–0.125; 2sht: 0.16–0.17. Length ratios: ant. flagellum/body: 1.12–1.29; VIb/VIa: 4.50–5.17; VIb/ant. segm. III: 0.93–1.27, siphunculi/cauda: 1.68–1.93; urs./ 2sht: 0.69–0.75. Sec. rhinaria on ant. segm. III: 8–12. Hairs as in apt. viv.

Oviparous female. Colour in life pale green. Cauda elongated subtriangular with rounded apex and a faint constriction in middle. Apices of siphunculi more distinctly swollen than in apt. viv. Hind tibiae strongly swollen and with hundreds of scent plaques along almost its whole length. In other characters similar to apt. viv.

Biometric data of 8 oviparous females from Finland in mm: Body: 1.95–2.55; ant. flagellum: 2.51–3.30; ant. segm. III: 0.66–0.78, IV: 0.52–0.68, V: 0.49–0.63, VI: 0.18–0.23 + 0.76–0.98; siphunculi: 0.59–0.69; cauda: 0.22–0.28; urs.: 0.11–0.12; 2sht: 0.15–0.17. Length ratios: ant. flagel]um/ body: 1.10–1.48; VIb/VIa: 4.22–5.11; VIb/ant. segm. III: 1.13–1.43; siphunculi/cauda: 2.31–2.83; urs./2sht: 0.65–0.75. Sec. rhinaria on ant. segm. III: 0–2. Number of hairs on cauda: 10–15. Subsidiary hairs on urs.: 2–6.

Alate male. Colour of larvae and adult males reddish–orange brown. Head, thorax and antennae almost black. Sclerotized patterns on abdomen dark: marginal and postsiphuncular sclerites, isolated spinopleural transverse bars on segm. II–VI and pleural muscle shields between those segments. Shape of siphunculi as in ovip. Basal 3/ 5 of cauda conical, distal part slender, with parallel sides, between them a distinct constriction.

Biometric data of 8 alate males from Finland in mm: Body: 2.04–2.59; ant. flagellum: 3.45–4.14; ant. segm. III: 0.77–0.97, IV: 0.66–0.83, V: 0.58–0.76, VI: 0.20–0.23 + 1.23–1.40; siphunculi: 0.43–0.52; cauda: 0.17–0.23; urs.: 0.11–0.12; 2sht: 0.15–0.18. Length ratios: ant. flagellum/body: 1.60–1.86; VIb/VIa: 5.77–6.38; VIb/ant. segm. III: 1.28–1.65; siphunculi/cauda: 2.17–2.53; urs./ 2sht: 0.65–0.80. Sec. rhinaria on ant. segm III: 28–43, IV: 0–5, V: 1–116. Number of hairs on cauda: 7–9. Subsidiary hairs on urs.: 4.

Biology: The species lives monoeciously on the upper parts of its host, *Vaccinium uliginosum* L. and on the hybrid of *V. uliginosum* with. *V. corymbosum* L. It has also been found on *Chamaedaphne calyculata* (L.) Moenh. In rearings, the first oviparous females and alate males have been obtained in late August.

Distribution outside Finland: Sweden (Ossiannilsson 1959), Germany (Börner 1950), Switzerland (Meier 1958), Poland (Szelegiewiz 1968), Soviet Union (Kola Peninsula) (Shaposhnikov 1964).

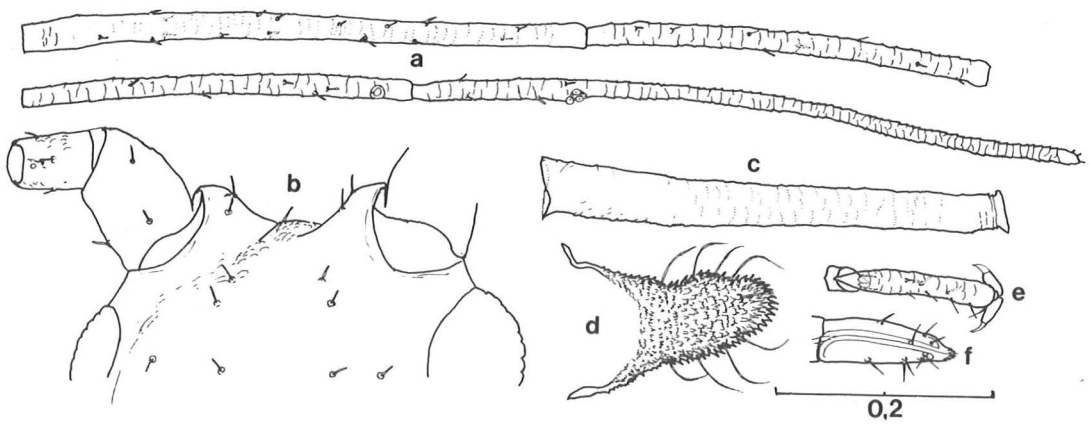

Fig. 16. *Acyrthosiphon* (*Liporrhinus*) *chelidonii* (Kaltenbach). Apterous viviparous female. a: antennal segments III–VI, b: head and antenna] segments I and II, c: siphunculus, d: cauda, e: hind tarsus, f: ultimate rostral segment. Scale in mm.

Acyrthosiphon (Liporrhinus) chelidonii (Kaltenbach, 1843)
Fig. 16

Material from Finland: U: Helsinki 667:38, apt. viv. on *Chelidonium majus* L., 13.VII.1985 (L. Huldén leg.).

Diagnostic characters: The species was described by Hille Ris Lambers (1947) and keyed by Eastop (1971). The subgenus *Liporrhinus* was erected by Börner (1939) for the species *chelidonii* (Kalt.), which differs from all other *Acyrthosiphon* species in lacking secondary rhinaria on the antennae and in having a short stem part in the mesothoracic furca in apterous morphs. In alatae the third ant. segm. bears secondary rhinaria. The first antennal segm. bears 8–9 hairs. According to Eastop (1971), the length ratios VIb/VIa and body/siphunculus are both 2.5–3.5. The siphunculi are cylindrical, with a narrow flange, and imbricated from base to apex. The cauda is slightly constricted near the middle and blunt, about half as long as the siphunculi.

Biometric data of 3 apt. viv. from Finland in mm: Body: 1.47–1.70; ant. flagellum: 1.71–1.86; ant. segm. III: 0.44–0.51, IV: 0.32–0.37; V: 0.34–0.36, VI: 0.14–0.16 + 0.45–0.47; siphunculi 0.40–0.43; cauda: 0.19–0.21; urs.: 0.115–0.125; 2sht: 0.15. Length ratios: ant. flagellum/body: 1.02–1.17; VIb/VIa: 2.88–3.25; VIb/ant. segm. III: 0.90–1.07; siphunculi/cauda: 2.05–2.10; body/siphunculi: 3.59–4.25; urs./2sht: 0.77–0.83. Maximal length of hairs in µm: ant. segm. III: 14, 0.61 × IIIbd; abd. segm. III: 13. Number of hairs on cauda 7–12; subsidiary hairs on urs.: 8–10.

Biology: The species lives monoeciously on the upper parts of *Chelidonium maius* L.

Distribution outside Finland: Sweden (Ossiannilsson 1960b), Denmark (Heie 1961). Widely distributed from The Netherlands to Baltic areas and Hungary (Shaposhnikov 1964). Outside Europe found in Korea (Eastop 1971).

Metopolophium tenerum Hille Ris Lambers, 1947
Fig. 17

Material from Finland: U: Helsinki rural mun. 668:39, al. viv. from wind net trap, l.VIII.1963; Vantaa 668:39, alate male from suction trap, 30.IX.1981; PPN: Rovaniemi rural mun. 738:45, al. viv. from wind net trap, 25.VII.1963 and 20.VII.1967.

Diagnostic characters: Hille Ris Lambers (1947) described and keyed the species. Stroyan (1982) compared and keyed it with closely related species, e.g. the common *M. dirhodum* (Walker, 1849) and *M. festucae* (Theobald, 1917), from which it differs in having a shorter processus

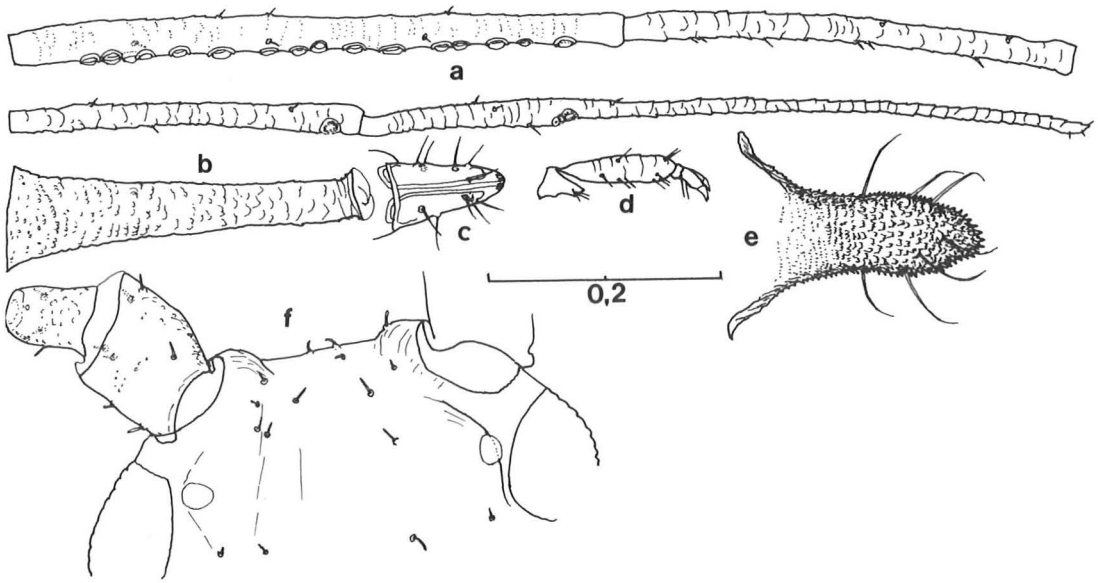

Fig. 17. *Metopolophium tenerum* Hille Ris Lambers. Alate viviparous female. a: antennal segments III–VI, b: siphunculus, c: ultimate rostral segment, d: hind tarsus, e: cauda, f: head and antennal segments I and II. Scale in mm.

terminalis and shorter 2sht compared with the length of urs. Stroyan (1982) indicated how to distinguish *M. tenerum* from the very similar *M. festucae*. He used a biometric function ek/jn, in which e = length of ant. segm. V, k = length of urs., j = length of cauda and n = length of 2sht. When the value of the function is in the range 0.8–1.4, then the species is *tenerum*, when it is 0.5–0.8, then the species is *festucae*. Also diagnostic are differences in the length ratios.

Biometric data of 3 al. viv. from Finland in mm: Body: 2.10–2.34; ant. flagellum: 1.54–2.07; ant. segm. III: 0.44–0.61, IV: 0.29–0.43, V: 0.27–0.39, VI: 0.15–0.20 + 0.39–0.44; siphunculi: 0.31–0.34; cauda: 0.15–0.22; urs.: 0.10–0.11; 2sht: 0.092–0.105. Length ratios: Ant, flagellum/body: 0.65–0.99; VIb/VIa: 2.15–2.60; VIb/ant, segm. III: 0.70–0.89; siphunculi/cauda: 1.41–2.00; body/siphunculi: 6.18–7.42; urs./2sht: 0.95–1.08. Number of hairs on cauda: 5–7. The above mentioned biometric function: 1.42–1.95.

Biology: The species lives monoeciously on *Deschampsia flexuosa* (L.) Trin., *Festuca ovina* L. and *F. rubra* L. (Hille Ris Lambers 1947, Stroyan 1982). The aphids are limited to plants growing in deep shade. The male is alate.

Distribution outside Finland: Norway, Sweden (Ossiannilsson 1969b), from British Isles to Austria and Poland (Prior 1976, Szelegiewicz 1968).

Cryptaphis poae (Hardy, 1850)
Fig. 18

Cryptaphis setiger Hille Ris Lambers, 1947
Neodecorosiphon muscicolens Heinze, 1960

Material from Finland: U: Helsinki rural mun. 668:39, 1 al. viv. from wind net trap, 20.VII.1963; Vantaa 668:39, 1 al. viv. from suction trap, 22.VII.1981.

Diagnostic characters: Hille Ris Lambers (1947) described the different morphs, Müller (1973) pointed out the junior synonymy of *Neodecorosiphon muscicolens* Heinze, 1960. The most striking characters of the species are the long stout capitate hairs on the tergum in al. viv., the very few rhinaria (4–6 only in specimens from Finland) on ant. segm. III in alatae, and the inci-

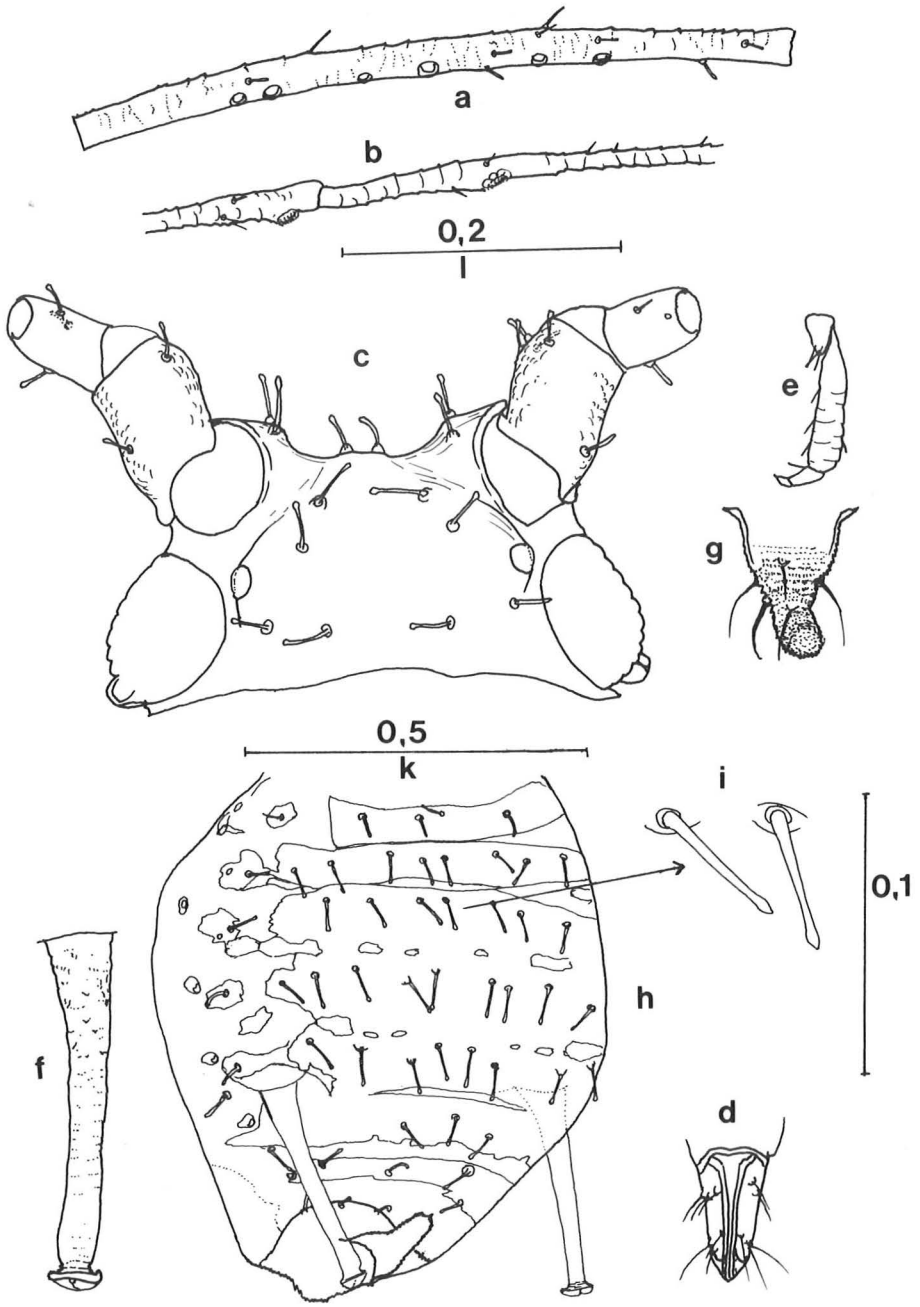

Fig. 18. *Cryptaphis poae* (Hardy). Alate viviparous female. a: antennal segment III, b: joint between ant. segments V and VI, c: head and antennal segments I and II, d: ultimate rostral segment, e: hind tarsus, f: siphunculus, g: cauda, h: abdomen, i: dorsal hairs. Scales in mm: k for h, l for the others.

sion round the siphunculi just at the very broad flange.

Biometric data of two al. viv. from Finland in mm: Body: 1.40–1.65; ant. flagellum: 1.98–2.34; ant. segm. III: 0.48–0.52, IV: 0.33–0.44, V: 0.36–0.44, VI: 0.13–0.15 + 0.64–0.81; siphunculi: 0.25–0.31; cauda: 0.12–0.13; urs.: 0.095–0.100; 2sht: 0.090–0.110. Maximal hair lengths in µm: ant. segm. III: 22, abd. segm. III: 57, VIII: 55. Length ratios: ant. flagellum/body: 1.42; VIb/VIa: 4.61–5.71; VIb/ant. segm. III: 1.34–1.56; siphunculi/cauda: 2.08–2.38; body/siphunculi: 5.5–5.8; urs./2sht: 0.90–1.05. Number of hairs on cauda: 4–5, subsidiary hairs on urs.: 4–6.

Biology: Lives monoeciously on grasses, e.g. *Festuca ovina* L. and *Holcus mollis* L., growing in the shade and preferring parts near the soil surface, runners under stones, and wet surroundings. The male is apterous (Hille Ris Lambers 1947).

Distribution outside Finland: Sweden (Danielsson, oral inf.), Denmark (Heie, oral inf.), England, The Netherlands (Hille Ris Lambers 1947), Germany (Heinze 1960).

Subacyrthosiphon cryptobium Hille Ris Lambers, 1947
Fig. 19

Material from Finland: U: Helsinki rural mun. 668:39, 2 al. viv. from wind net trap, 17. and 19.VII.1963.

Diagnostic characters: Hille Ris Lambers (1947) described all the morphs except fundatrix. The species is easily recognized, being the only *Acyrthosiphon*-like species which has distinct antesiphuncular sclerites (Hille Ris Lambers (1947). According to the original description, the secondary rhinaria of the al viv. are usually confined to the basal half of ant. segm. III. However, in the two alatae from Finland, the 6–8 sec. rhinaria are restricted to the basal 0.6–0.8 part of the segment.

Biometric data of two al. viv. from Finland in mm: Body: 2.13–2.22; ant. flagellum: 2.72–2.77; ant. segm. III: 0.63–0.66, IV: 0.53–0.55, V: 0.48–0.51, VI: 0.18–0.20 + 0.85–0.90; siphunculi: 0.39–0.43; cauda: 0.22–0.23; urs.: 0.125–0.132; 2sht: 0.12. Maximal hair lengths in µm: ant. segm. III: 11, 0.29 × IIIbd, abd. segm. III: 12, VIII: 22. Length ratios: ant. flagellum/body: 1.22–1.30; VIb/VIa: 4.36–5.00; VIb/ant. segm. III: 1.29–1.40; siphunculi/cauda: 1.80–1.91; body/siphunculi: 5.16–5.39; urs./2sht: 1.04–1.10. Number of hairs on cauda: 5–7, subsidiary hairs on urs.: 2–3.

Biology: The species lives the whole year on older parts of lying stems of *Trifolium repens* L. The aphids fall readily when disturbed. The male is apterous (Hille Ris Lambers 1947).

Distribution outside Finland: Norway, The Netherlands (Hille Ris Lambers 1947), Sweden (Ossiannilsson 1969b), England (Stroyan 1955), Germany (Müller 1968).

Rhodobium porosum (Sanderson, 1900)
Fig. 20

Rhodobium rosaefolium Theobald, 1915

Material from Finland. ES: Mikkeli 683:50, 5 apt. viv. on Rosa sp. in a glasshouse, 2.VI.1937. (V. Kanervo leg.)

Diagnostic characters: The species has been described under different names by several authors (Hille Ris Lambers 1947, Börner & Heinze 1957). The most striking characters of this *Metopolophium*- and *Macrosiphum*-like aphid are the host plant, the non-reticulated siphunculi, the narrow cauda with only 5–6 hairs, the dark middle part of ant. segm. III, which bears 5–15 sec. rhinaria in a row in apt. viv., and the very short hairs on the antennae and abdomen.

Biometric data of 5 apt. viv. from Finland in mm: Body: 2.12–2.57; ant. flagellum: 1.83–2.02, ant. segm. III: 0.55–0.62, IV: 0.35–0.45, V: 0.28–0.35, VI: 0.12–0.14 + 0.39–0.48; siphunculi: 0.52–0.60; cauda: 0.25–0.33; urs.: 0.10–0.12; 2sht: 0.105–0.125. Maximal hair lengths in µm: ant. segm. III: 8, 0.25 × IIIbd, abd. segm. III: 8, VIII: 12. Length ratios: ant. flagellum/body: 0.68–0.83; VIb/VIa: 2.92–3.84; VIb/ant. segm. III: 0.77–0.87; siphunculi/cauda: 1.71–2.16; body/siphunculi: 3.83–4.76; urs./2sht: 0.80–1.09. Number of hairs on cauda: 5–6, subsidiary hairs on urs.: 7.

Biology: The male is alate (Börner & Heinze 1957). The species lives all the year round on roses, in Nordic countries only in glassouses on cultivated varieties, in warm climates also out of doors.

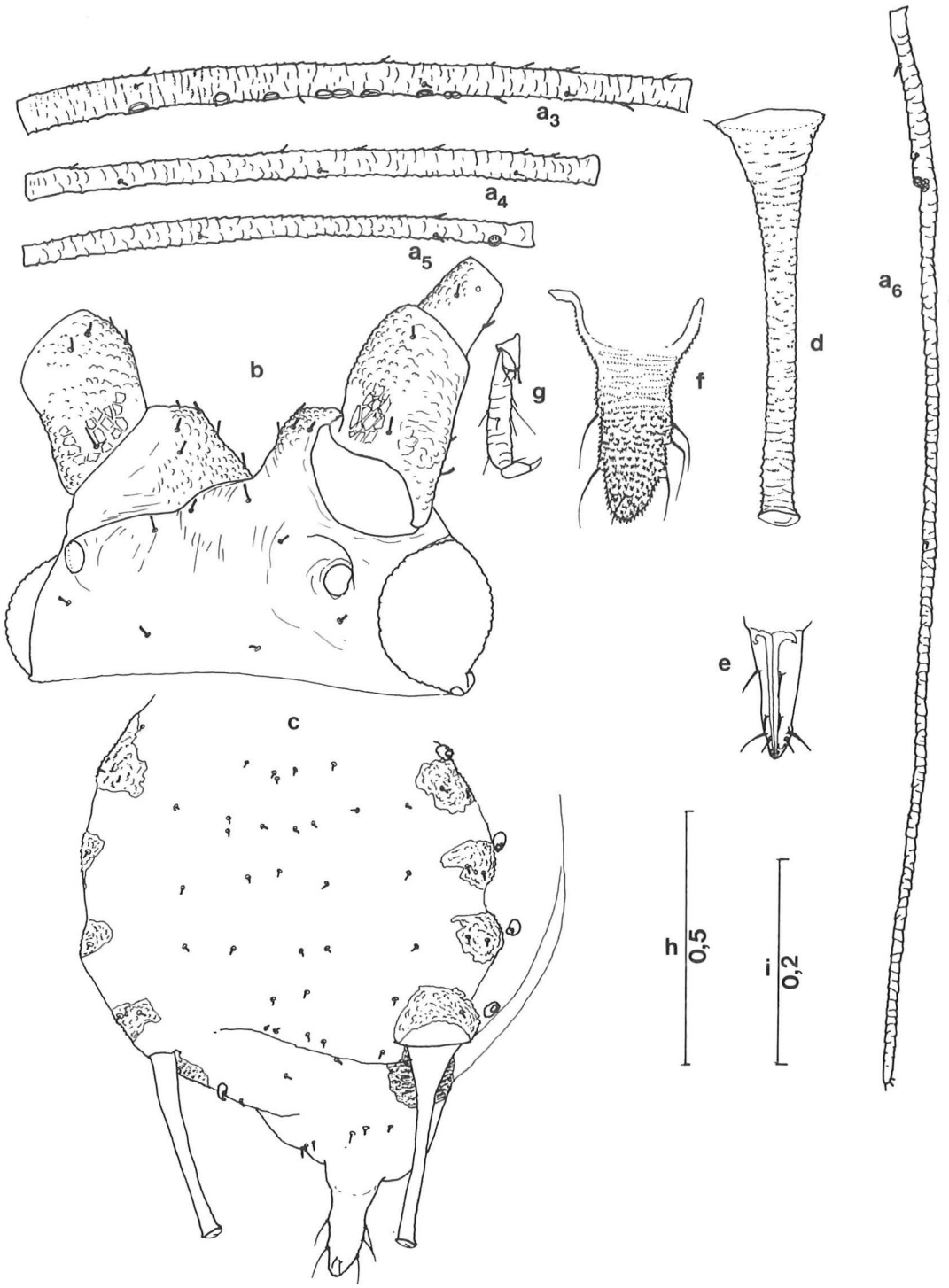

Fig. 19. *Subacyrthosiphon cryptobium* Hille Ris Lambers. Alate viviparous female a_3–a_6: antennal segments III–VI, b: head and antennal segments I and II, c: abdomen, d: siphunculus, e: ultimate rostral segment, f: cauda, g: hind tarsus. Scales in mm: h for c, i for the others.

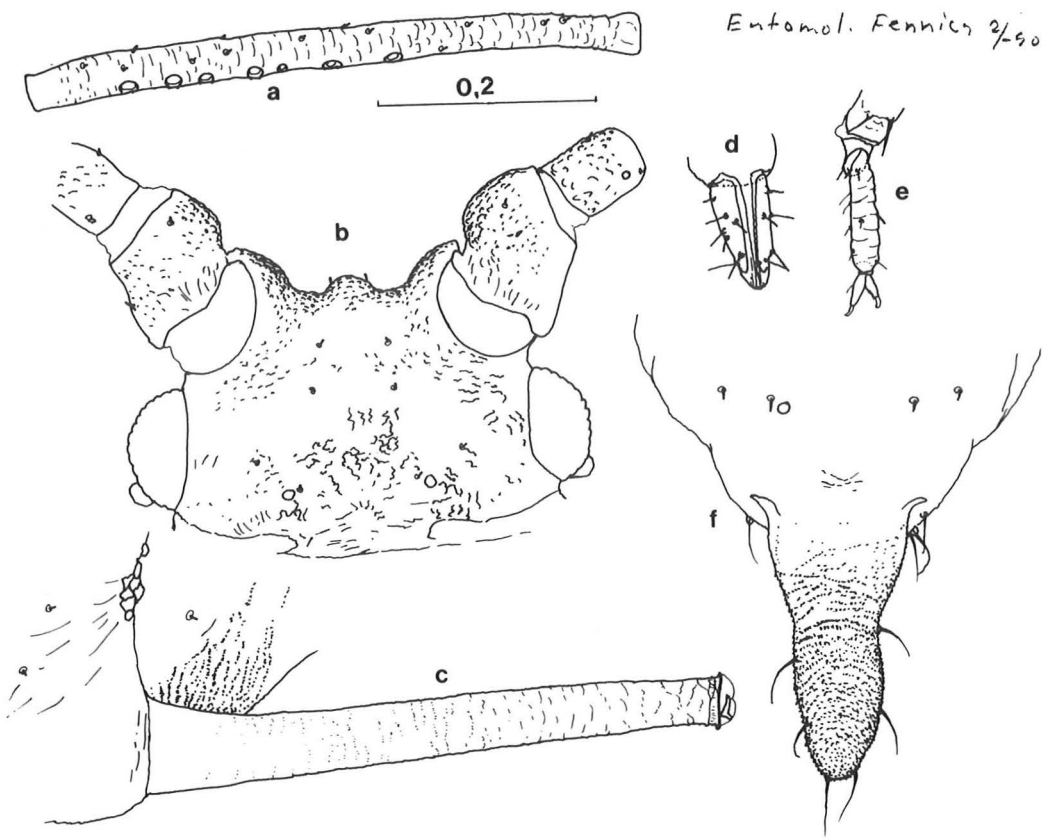

Fig. 20. *Rhodobium porosum* (Sanderson). Apterous viviparous female. a: antennal segment III, b: head and antennal segments I and II, c: siphunculus, d: ultimate rostral segment, e: hind tarsus, f: cauda, spinal tubercle and hairs on abdominal segment VIII. Scale in mm.

Distribution outside Finland: Sweden (Danielsson, oral inf.), Denmark (Reitzel 1971), England (Stroyan 1957), The Netherlands (Hille Ris Lambers 1947), Germany (Börner 1952), Poland (Achremowicz 1967). Widely distributed in countries with warm climates on all continents (Hille Ris Lambers 1948, Müller & Schöll 1958).

Sitobion dryopteridis (Holman, 1959)

Material from Finland: EH: Riihimäki 673:36, 7 fundatrices and 1 apt. viv. on *Athyrium filix femina* (L.) Roth, 17.VI.1953 (E. A. Oinonen leg.).

Diagnostic characters: Holman (1959) gave detailed descriptions of the yellowish or light green apt. viv., the alate male and ovip. female. The *Apterous viviparous female* has long antennae, siphunculi and legs. The well-developed smooth frontal tubercles of the head resemble those of *Acyrthosiphon*. Antennal hairs very short, 0.25–0.5 × IIIbd only. Ratio VIb/VIa 4.1–5.3. Number of sec. rhinaria on ant. segm. III 1–5. Ratio urs/2sht 1.1. Siphunculi cylindrical, with only 4–7 rows of irregular hexagonal cells in their distal 1/15. Cauda elongate-triangular, the ratio length/basal width about 1.6, and with 8–9 hairs. Genital plate with 2 anterior and 6–8 posterior hairs. The *Fundatrix* differs from apt. viv. in

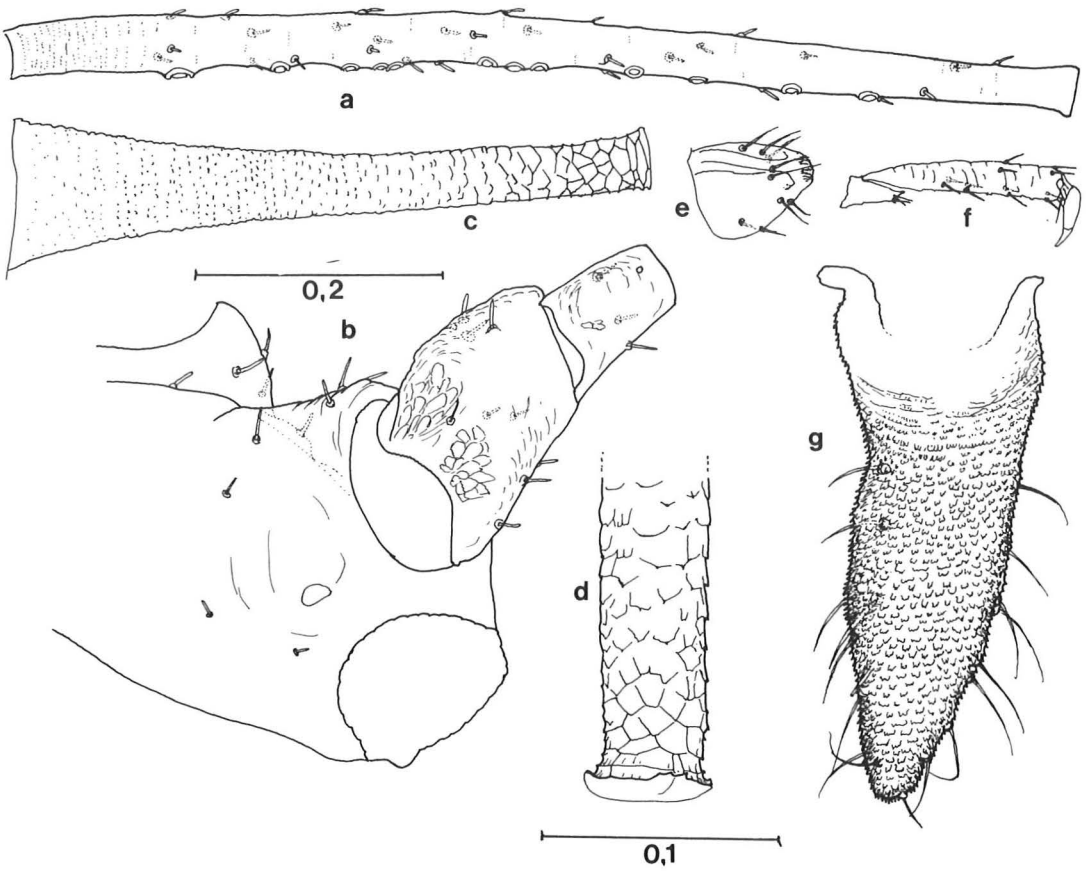

Fig. 21. *Sitobion* (*Metobion* n. subg.) *graminearum* (Mordvilko). Alate viviparous female. a: antennal segment III, b: part of head and antennal segments I and II, c: siphunculus, dorsal side, d: apex of siphunculus, ventral side, e: ultimate rostral segment, f: hind tarsus, g: cauda. Scales in mm.

having shorter antennae, siphunculi and legs. The ratio VIb/VIa is about 3.5 or less. Mesothoracic furca with broad-oval foramen. Other characters as in apt. viv.

Biology: The species is monoecious. It lives on the underside of fern leaves, scattered along the veins, mostly on *Dryopteris*, *Athyrium* and *Gymnocarpium* (Holman 1959, Müller 1987). No deformation or discoloration of the leaves occurred.

Distribution outside Finland: Sweden (Ossiannilsson 1964b, 1972), Czechoslovakia (Holman 1959), Soviet Union (Kola peninsula) (Shaposhnikov 1964), Germany (Müller 1987).

Sitobion* (*Metobion* subgen. nov.) *graminearum
(Mordvilko, 1919)
Fig. 21

Material from Finland: U: Helsinki rural mun. 668:39, one al. viv. from wind net trap, 18.VII.1963.

Diagnostic characters: Descriptions based on the type material of Mordvilko, consisting of the oviparous female and alate male, have been pub-

lished by Mordvilko (1919), Hille Ris Lambers (1947, 1966a) and Eastop (1971). Ossiannilsson (1969a) described apt. viv. from Sweden, which most probably represents the species in question. Stroyan (1969) compared the type material with *Sitobion scoticum*. The alate viviparous female has not been described.

Description of alate viviparous female. Colour in life unknown (colour of ovip. greenish yellow). Antennal prominences on head moderately developed, median tubercle distinct. Ant. segm. I bearing 9–10 hairs. Antennae gradually darkening from base to apex, segm. III with indistinct, IV–VI with distinct imbrication. Segm. III bearing 11–13 secondary rhinaria arranged in a row, which reaches 68% of length of segment in its middle part. Media of the forewings twice branched, with distinctly darkened veins.

Abdomen completely lacking dark sclerites, smooth. Abd. segm. VIII bearing 7 hairs. Siphunculi slightly darker towards apex, with conical base, and gradually tapering towards apex with growing imbrication apicad, and 3–4 rows of polygonal cells at apex, varying in shape and size. Flange distinct, but not conpicuous. Cauda pale, broad and with slight constriction, its apex bluntish.

Biometric data of one al. viv. from Finland in mm: Body: 3.50; ant. flagellum: 3.59, ant. segm. III: 0.91, IV: 0.74, V: 0.62, VI: 0.20 + 1.12; siphunculi: 0.55; cauda: 0.46; urs.: 0.105; 2sht: 0.180. Maximal hair lengths in µm: ant. segm III: 18, 0.4 × IIIbd, abd. segm. III: 20, VIII: 35. Length ratios: ant. flagellum/body: 1.02; VIb/VIa: 5.6; VIb/ant. segm. III: 1.23; body/siphunculi: 6.36; siphunculi/cauda: 1.20; urs./2sht: 0.58. Number of hairs on cauda: 16, subsidiary hairs on urs.: 3.

Biology: Lives monoecously on *Poa*, *Festuca* and *Deschampsia* species (Börner 1952). The male is alate.

Distribution outside Finland: Soviet Union, near Leningrad (Mordvilko 1919), Sweden (Ossiannilsson, 1969a), Austria (Börner 1952).

Discussion: The species *Metopolophium graminearum* Mordvilko, 1919, *Metopolophium beiquei* Hille Ris Lambers, 1960, *Metopolophium brevirostre* Heikinheimo, 1978 and *Macrosiphum (Sitobion) scoticum* Stroyan, 1969 seem to form a special group of grass-inhabiting species, located between *Metopolophium* (type species *Aphis dirhoda* Walker, 1849) and *Sitobion* (type species *Aphis granaria* Kirby, 1798 = *A. avenae* Fabricius, 1775), but not fitting well with either of these genera (Heikinheimo 1978, Hille Ris Lambers 1960, 1966a, Stroyan 1969). Therefore there seems to be reason to erect a new subgenus in the genus *Sitobion* for these species. I suggest the name *Metobion* n. subg., n. comb., with the type species *Acyrthosiphon (Metopolophium) graminearum* Mordvilko, 1919. The new subgenus may be characterized as follows: Body length 2–4 mm, without visible sclerotization on abdomen. Frons of head smooth, with moderate and diverging antennal prominences. Median frontal prominence variable. Hairs short, their length on ant. segm. III less than 0.5 × basal diameter of segment. Rostrum very short, reaching just past fore coxae, its ultimate segment very short, blunt, about as long as broad, 0.07–0.11 mm in length and less than 0.7 × the length of second segment of hind tarsus, and bearing 4 or fewer subsidiary hairs. Cauda mostly robust, the number of caudal hairs at least 8. Siphunculi cylindrical, from base to apex gradually becoming more conspicuously imbricated, and at apex may gradually change to hexagonal cells in at most 4 rows.

The viviparous and oviparous females of the four species may be keyed as follows.

1. Body length less than 3 mm ..... *scoticum* (Stroyan)
— Body length more than 3 mm 2
2. Processus terminalis less than 4 times as long as base of ant. segm. VI, and less than 0.2 × length of body. Cauda slightly constricted, with fewer than 10 hairs. Ultimate segment of rostrum with 4 subsidiary hairs. Colour in life blackish green, dull .... *brevirostre* (Heikinheimo)
— Processus terminalis 4.5–7 times as long as base of ant. segm. VI. Cauda with 8–21 hairs. Ultimate rostral segment with fewer than 4 hairs. Colour pale green 3
3. Processus terminalis 0.20–0.26 × length of body. Cauda broad, without constriction, with 15–21 hairs. Nearctic ..... *beiquei* (Hille Ris Lambers)
— Processus terminalis more than 0.3 × length of body, and 5.6–7.0 × basal part of ant. segm. VI .... *graminearum* (Mordvilko)

The ranges of the data presented above will certainly be changed after more specimens have been found and examined. However, the differences in characters indicate clearly that these are distinct taxa.

Uroleucon (Uromelan) riparium (Stroyan, 1955)[1]

Material from Finland: St: Yläne 676:25, fundatrix and larvae on *Crepis paludosa* (L.) Moench, 17.VI.1982, other morphs reared on *C. tectorum* L.; Ks: Kuusamo 732:59, apt. viv. on *Crepis tectorum*, 22.VII.1964 (J. Viramo leg.); Kuusamo 736:61, 4th instar larva on *Crepis paludosa*, 23.VIII.1978 (P. Alanko leg.); Kuusamo 736:60, apt. viv, on *Taraxacum* sp., 18.VII.1967 (J. Viramo leg.).

Diagnostic characters: Stroyan (1955) gave excellent descriptions of apterous and alate females. The biometric data of apterous and alate viviparous specimens from Finland agree very well with the original data, except that the siphunculi of apt. viv. are distinctly longer, viz. 1.08–1.10 mm. The fundatrix and sexual morphs have not been described earlier.

The species is the only known *Uroleucon (Uromelan)* living on *Crepis*. In the key to *Uromelan* by Hille Ris Lambers (1939) *U. riparium* will run to *U. solidaginis* and *U. jaceae*. It is differentiated from the former by the darker colour in life and by the small flat primary rhinarium (enlarged and protruding in *U. solidaginis*). It is differentiated from *U. jaceae* by the pigmentation of the tibial shaft (yellow in *riparium*, dark in *jaceae*).

Description

Fundatrix. Body broader than in apt. viv. Ant. segm. III and IV jet black. 16–20 secondary rhinaria on basal part of segm. III, hardly countable.

Biometric data of one fundatrix from Finland in mm: Body: 3.80; ant. flagellum: 3.24; ant. segm. III: 1.05, IV: 0.60, V: 0.63, VI: 0.24 + 0.72; siphunculi: 0.96; cauda: 0.53; urs.: 0.155; 2sht: 0.145. Length ratios: ant. flagellum/body: 0.85; VIb/VIa: 3.00; VIb/ant. segm. III: 0.68; body/siphunculi: 3.96; siphunculi/cauda: 1.81; urs./2sht: 1.07.

Oviparous female. Very much like apt. viv. Hind tibiae swollen in basal 2/3, with very numerous scent plaques. Number of hairs on cauda greater (21–33) than in apt. viv. (11–20). Number of secondary rhinaria on ant segm. III 17–26.

Biometric data of 8 oviparous females from rearing in Finland, in mm: Body: 2.78–3.51; ant. flagellum: 3.50–4.24: ant. segm. III: 0.95–1.22, IV: 0.70–0.90, V: 0.62–0.81, VI: 0.19–0.23 + 1.00–1.13; siphunculi: 0.78–1.07; cauda: 0.41–0.53; urs.: 0.17–0.19 2sht: 0.140–0.155. Length ratios: ant. flagellum/body: 1.18–1.35; VIb/VIa: 4.35–5.89; VIb/ant. segm. III: 0.85–1.08; body/siphunculi 2.52–4.49; siphunculi/cauda: 1.83–2.23; urs./2sht: 1.13–1.31.

Alate male. Smaller than al. viv. Siphunculi shorter than in other morphs, cauda small, pointed, with 13–19 hairs. Secondary rhinaria on ant. segm. III: 31–53, IV: 11–19, V: 10–20, along whole length of segments, mostly in posterior half. Sclerotic pattern on dorsum as in the other morphs.

Biometric data of 8 alate males from rearing in Finland, in mm: Body: 2.55–2.93; ant. flagellum: 3.87–4.04; ant. segm. III: 0.97–1.24, IV: 0.81–0.88, V: 0.69–0.80, VI: 0.21–0.25 + 1.10–1.23; siphunculi: 0.60–0.70; cauda: 0.25–0.29; urs.: 0.17–0.18; 2sht: 0.15–0.16. Length ratios: ant. flagellum/body: 1.38–1.52; VIb/VIa: 4.40–5.38; siphunculi/ant. segm. III: 0.99–1.22; body/siphunculi: 3.90–4.34; siphunculi/cauda: 2.38–2.69; urs./2sht: 1.06–1.20.

Biology: Lives monoeciously on *Crepis paludosa* (L.) Moench and *C. tectorum* L. and was also found on *Taraxacum* sp. The two last are new host plant records. Rearing on *Crepis tectorum* gave good results. The first adult oviparous females and alate males appeared in late July.

Distribution outside Finland: Sweden (Danielsson, oral inf.), British Isles (Stroyan 1955).

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[1]Stoetzel (1982) proposed reviving the invalid generic name *Dactynotus* Rafinesque, 1818.

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