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Three new aphids from Iran belonging to the genera *Uroleucon* MORDV. and *Aphis* L. (Homoptera: Aphididae)

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The apterous and partially also the alate viviparous females of the following three new aphid species are described from specimens collected in Iran: *Uroleucon (Uroleucon) virgatae* sp.n. (hostplant: *Centaurea virgata* LAM.), *Uroleucon (Uroleucon) caspicum* sp.n. (hostplant: *Serratula quinquefolia* M.B. ex WILLD.) and *Aphis (Protaphis) euphorbicola* sp.n. (hostplant: *Euphorbia denticulata* LAM.).

1. *Uroleucon (Uroleucon) virgatae* sp.n.

Apterous viviparous female (Fig. 1), from 30 specimens (Tab. 1)

Colour: In life brown with dark dorsal spots, which represent tubercles covered by strongly vaulted basal sclerites of dorsal hairs. Antennae and siphunculi dark brown to black, cauda pale to light brown. In macerated specimens head, thorax and abdominal segments colourless with the exception of the above mentioned sclerites. Postsiphuncular sclerites not developed. Coxae and antennal joints I and II smoky, basal part ($\frac{1}{3}$) of femora pale, the rest as well as the whole length of the tibiae and the tarsi dark brown to black. Basal part (up to 20%) of antennal segment III pale, remainder of the antenna brown to dark brown. Siphunculi dark brown to blackish, cauda pale, in some specimens slightly coloured.

Morphological characters: Body oval, 2.00–2.50 mm long, 1.7–2.0 times as long as broad. Dorsal hairs thick, slightly acute at the apex, 0.04–0.06 mm, 1.2–1.5 times as long as the basal diameter of antennal joint III. Number of dorsal hairs on abdominal tergite III 8–12, on tergite VIII 4. The frontal hairs are similar to the dorsal ones. Ventral hairs fine, shorter than the dorsal ones. Genital plate bearing two long hairs on anterior half and 8–10 short hairs along the hind margin. Antennal tubercles well developed, diverging. Total length of antennae 2.49–3.33 mm, 1.01–1.43 times as long as the body. Segment I is more or less equal to the ultimate rostral joint in length, with 5–6 hairs, segment II with 4–5 hairs, segment III 0.61–0.92 mm, about 0.27–0.42 times as long as the body, IV 0.48–0.74 mm, V 0.40–0.59 mm, VI (base) 0.18–0.23 + (proc. term.) 0.53–0.71 mm. Processus terminalis 2.63–3.81 times as long as the basal part of antennal segment VI. Longest hair on antennal segment III about as long as the basal diameter of the same segment. Number of secondary rhinaria on antennal segment III 18–39, irregularly distributed over 70–90% of the whole segment. Rostrum reaching to the hind pair of coxae, ultimate rostral joint 0.13–0.16 mm, 0.83–1.20 times as long as the hind tarsal joint II and 0.63–0.86 times as the basal part of antennal segment VI, bearing 5–6 secondary hairs. First tarsal joints bearing 3:3:3 setae,

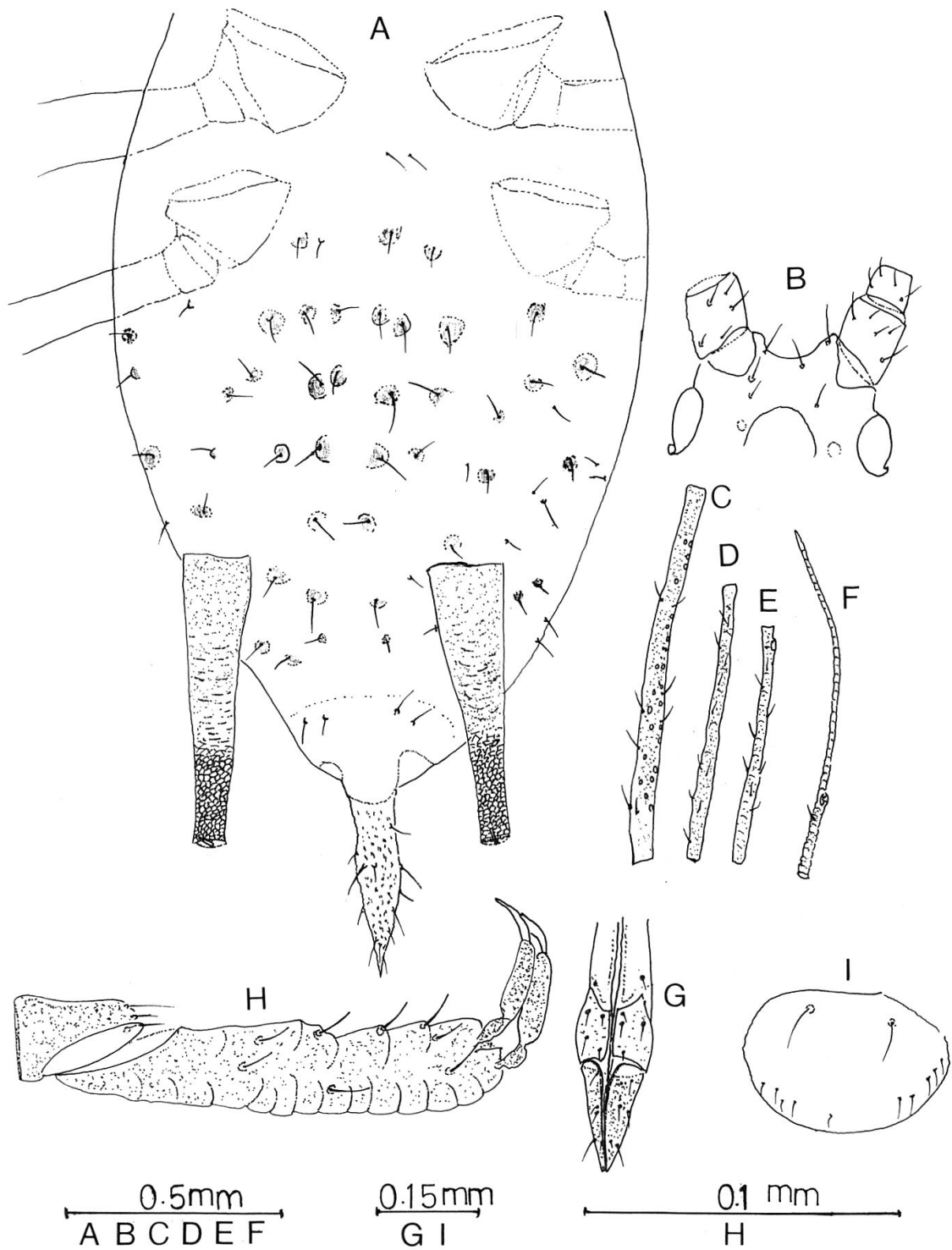


Fig. 1. *Uroleucon virgatae* sp.n., apterous viviparous female. A = mesothorax, metathorax + abdomen, B = head, C = antennal segment III, D = antennal segment IV, E = antennal segment V, F = antennal segment VI, G = distal end of the rostrum, H = hind tarsus, I = genital plate.

one short and two long ones, second joint of hind tarsus 0.13–0.16 mm. Legs long, hind femora and hind tibiae 0.81–1.10 mm and 1.55–2.10 mm respectively, 0.35–0.51 and 0.70–1.03 times as long as the body. Femoral and tibial hairs fine and distinctly shorter than the dorsal ones. Siphunculi 0.49–0.75 mm, 0.22–0.34 times

Tab. 1. *Uroleucon (Uroleucon) virgatae* sp.n., apterous viviparous females. Measurements in mm. Pt. = processus terminalis, Urs. = ultimate rostral segment, H. tars. = hind tarsus, B = basis.

No	Body, length	Antennae, tot. leng.		Antennal segments, length						Siphunculi, length		Cauda	Urs.	H. tars. II, length		Rhin. on III	Index Pt./B VI		Index Siph./Body					
		l	r	l	III	IV	V	VI	l	r	l			r	l		r	l	r	l	r	l	r	
1	2,50	3,21	3,33	0,918	0,918	0,625	0,625	0,562	0,562	0,225+0,625	0,225+0,687	0,750	0,750	0,562	0,150	0,162	0,162	29	24	2,78	3,05	0,30	0,30	
2	2,12	2,91	2,94	0,812	0,812	0,587	0,587	0,500	0,487	0,187+0,600	0,200+0,625	0,675	0,687	0,500	0,150	0,150	0,150	38	31	3,21	3,13	0,32	0,32	
3	2,31	-	3,05	0,850	0,812	0,625	0,600	0,525	0,525	0,212+	-	0,212+0,662	-	0,712	0,475	0,162	0,150	0,150	23	26	-	3,12	-	0,31
4	2,12	2,89	2,88	0,787	0,775	0,612	0,625	0,487	0,487	0,187+0,587	0,200+0,575	0,625	0,625	0,500	0,125	0,125	0,150	29	25	3,14	2,88	0,29	0,29	
5	2,33	2,91	2,89	0,775	0,775	0,600	0,587	0,487	0,500	0,200+0,637	0,200+0,625	0,662	0,687	0,532	0,162	0,150	0,150	33	32	3,19	3,13	0,28	0,29	
6	2,40	-	2,89	0,850	0,837	0,625	0,587	0,487	0,500	0,175+	-	0,175+0,562	0,700	0,687	0,562	0,137	0,137	-	35	39	-	3,21	0,29	0,29
7	2,20	2,74	2,70	0,775	0,750	0,537	0,525	0,462	0,450	0,200+0,550	0,187+0,562	0,625	0,600	0,500	0,150	0,125	0,125	18	20	2,75	3,00	0,28	0,27	
8	2,30	2,51	-	0,650	0,612	0,500	0,475	0,412	0,400	0,200+0,525	-	0,562	0,575	0,512	0,137	0,125	0,125	-	-	2,63	-	0,24	0,25	
9	2,20	3,02	2,99	0,712	0,700	0,650	0,675	0,550	0,537	0,187+0,712	0,200+0,675	0,487	0,500	0,412	0,137	0,125	0,137	24	27	3,81	3,38	0,22	0,23	
10	2,00	-	2,57	0,750	0,750	0,512	0,500	0,425	0,412	0,175+	-	0,175+0,525	0,637	0,612	0,437	0,150	0,125	0,125	36	34	-	3,00	0,32	0,31
11	2,25	-	-	0,812	0,875	0,650	0,737	0,525	-	0,212+	-	-	0,737	0,737	0,550	0,162	0,150	0,150	21	19	-	-	0,33	0,33
12	2,06	2,85	2,85	0,750	0,750	0,587	0,575	0,487	0,500	0,200+0,587	0,187+0,600	0,662	0,662	0,525	0,150	0,150	0,125	28	33	2,94	3,21	0,32	0,32	
13	2,44	3,11	3,11	0,812	0,800	0,687	0,687	0,525	0,537	0,212+0,637	0,212+0,625	0,687	0,712	0,500	0,162	0,150	0,150	33	35	3,00	2,95	0,28	0,29	
14	2,44	3,02	2,97	0,787	0,787	0,637	0,612	0,525	0,512	0,212+0,625	0,212+0,612	0,687	0,687	0,562	0,150	0,150	0,150	24	25	2,95	2,89	0,28	0,28	
15	2,21	2,99	-	0,787	0,787	0,625	0,637	0,550	0,537	0,212+0,575	-	0,650	0,637	0,562	0,150	0,162	0,162	39	38	2,71	-	0,29	0,29	
16	2,00	-	-	0,850	0,850	0,630	-	-	-	-	-	0,687	0,687	0,512	0,150	0,162	0,162	26	24	-	-	0,34	0,34	
17	2,44	-	-	0,837	0,862	0,637	0,650	0,512	-	0,200+	-	-	0,700	0,700	0,562	0,150	0,162	0,162	24	25	-	-	0,29	0,29
18	2,40	2,98	2,96	0,800	0,800	0,644	0,637	0,537	0,512	0,200+0,575	0,187+0,587	0,750	0,750	0,525	0,125	0,150	0,150	24	25	2,88	3,14	0,31	0,31	
19	2,21	2,85	2,94	0,800	0,812	0,575	0,600	0,475	0,500	0,187+0,562	0,187+0,587	0,675	0,675	0,500	0,150	0,137	0,150	35	31	3,01	3,14	0,31	0,31	
20	2,44	3,05	-	0,825	0,812	0,637	0,650	0,537	0,525	0,212+0,587	0,200+	-	-	0,562	0,137	0,162	0,162	29	30	2,77	-	-	-	
21	2,22	3,06	3,00	0,825	0,800	0,637	0,637	0,537	0,525	0,212+0,625	0,200+0,612	0,737	0,750	0,550	0,150	0,150	0,150	31	29	2,95	3,06	0,33	0,34	
22	2,44	-	-	0,762	0,787	0,575	0,575	0,525	0,500	0,200+	-	0,212+	0,700	0,712	0,562	0,137	-	0,137	21	23	-	-	0,29	0,29
23	2,41	-	-	0,862	0,837	0,575	0,587	0,500	-	-	-	0,625	0,650	0,550	0,137	0,125	0,125	25	28	-	-	0,26	0,27	
24	2,20	2,75	-	0,725	0,700	0,562	0,562	0,475	0,475	0,187+0,587	0,187+	-	0,587	0,587	0,500	0,125	0,125	0,137	27	25	3,14	-	0,27	0,27
25	2,46	-	2,49	0,687	0,675	0,487	0,487	-	0,425	-	-	0,175+0,525	0,575	0,575	0,500	0,137	-	0,125	19	23	-	3,00	0,23	0,23
26	2,38	3,12	-	0,837	0,850	0,675	0,675	0,562	0,587	0,200+0,612	0,225+	-	0,700	0,725	0,575	0,137	-	0,137	30	25	3,06	-	0,29	0,30
27	2,46	2,79	-	0,750	0,725	0,537	0,525	0,487	-	0,200+0,612	-	-	-	0,662	0,512	0,137	0,137	-	25	30	3,06	-	-	0,27
28	2,20	3,11	3,14	0,825	0,825	0,675	0,675	0,537	0,550	0,212+0,625	0,212+0,625	0,712	0,700	0,562	0,150	0,150	-	30	31	2,95	2,95	0,32	0,32	
29	2,45	-	-	0,712	0,725	0,625	0,625	0,500	-	0,187+	-	-	0,675	0,675	0,550	0,150	0,137	0,137	26	28	-	-	0,28	0,28
30	2,25	-	-	0,737	0,750	0,612	0,612	-	-	-	-	-	0,675	-	0,525	0,137	0,150	31	30	-	-	0,30	-	

as long as the body and 1.12–1.50 times as the cauda, with the reticulation covering the apical 34–40%. Cauda dirkshaped, usually with a slight constriction before the middle, acuminate, 0.41–0.58 mm, 2.3–3.4 times as long as the width at its base and bearing 12–20 hairs of different size, the longest hairs resembling the dorsal ones.

Hostplant: *Centaurea virgata* LAM. ssp. *squarrosa* (WILLD.) GUGLER (Compositae = Asteraceae), the aphids living on stalks and capitula.

Specimens collected from Daran (2200 m), the center of the Faridan region, situated about 100 km west of Esfahan, on 6.7.1988 by Rezwani. Types in the collection of the first author.

Taxonomic note: This species is closely related to *Uroleucon tortuosissimae* REZ. et LAMPEL, 1987, in the structure of siphunculi, cauda and genital plate as well as in the number of setae on hind tarsal joint I and cauda (see Tab. 2). But it can be distinguished by the longer processus terminalis of the antennae and the higher number of rhinaria. In comparison with the European species *Uroleucon (Uroleucon) jaceicola* (HRL., 1939) from *Centaurea jacea* L., the latter has a siph/cauda index of > 2.00 and first tarsal joints with 5 hairs (HILLE RIS LAMBERS, 1939).

Tab. 2. Comparison of *Uroleucon virgatae* sp.n. and *U. tortuosissimae* REZ. et LAMPEL, 1987 (apterous viviparous females). Measurements in mm, abbreviations as in Tab. 1.

	U. virgatae n=30	U. tortuosissimae n=16
Body length	2,00– <u>2,29</u> –2,50	1,86– <u>2,12</u> –2,60
Antennae	2,49– <u>3,00</u> –3,33	2,57– <u>2,81</u> –2,98
Ant. seg. III	0,61– <u>0,79</u> –0,92	0,66– <u>0,77</u> –0,86
Ant. seg. IV	0,48– <u>0,60</u> –0,74	0,60– <u>0,67</u> –0,74
Ant. seg. V	0,40– <u>0,50</u> –0,59	0,43– <u>0,49</u> –0,55
Bas. ant. seg. VI	0,18– <u>0,20</u> –0,23	0,19– <u>0,20</u> –0,22
Proc. term. VI	0,53– <u>0,60</u> –0,71	0,45– <u>0,49</u> –0,52
Siphunculi	0,49– <u>0,66</u> –0,75	0,58– <u>0,68</u> –0,74
Cauda	0,41– <u>0,52</u> –0,58	0,37– <u>0,46</u> –0,52
Urs.	0,13– <u>0,14</u> –0,16	0,12– <u>0,14</u> –0,15
H. tars. II	0,13– <u>0,14</u> –0,16	0,14– <u>0,16</u> –0,19
Number of:		
Rhin. on III	18– <u>27</u> – 39	7– <u>13</u> – 19
Hairs on cauda	12– <u>15</u> – 20	11– <u>14</u> – 18
Ratios:		
Ant./Body	1,01– <u>1,31</u> –1,43	1,13– <u>1,32</u> –1,59
Siph./Body	0,22– <u>0,29</u> –0,34	0,28– <u>0,32</u> –0,38
Siph./Cauda	1,12– <u>1,25</u> –1,50	1,27– <u>1,49</u> –1,66
Pt./Bas. VI	2,63– <u>3,03</u> –3,81	2,13– <u>2,40</u> –2,63
Urs./H. tars. II	0,83– <u>1,00</u> –1,20	0,80– <u>0,85</u> –1,03
Urs./Bas. VI	0,63– <u>0,72</u> –0,86	0,56– <u>0,67</u> –0,79

2. *Uroleucon (Uroleucon) caspicum* sp.n.

Apterous viviparous female (Fig. 2 + 3), from 10 specimens (Tab. 3)

Colour in living specimens dark brown. Antennae, siphunculi and rostrum dark brown to black, dorsum shiny, cauda pale. In cleared samples head and thorax brown, antennae and siphunculi blackish, cauda pale. Distal end of femora, basal and distal part of tibiae and whole length of tarsi blackish, rostrum brown. Abdominal segments colourless except transversal rows of small sclerites on dorsal side. Genital plate brown.

Morphological characters: Body pearshaped, 3.25–4.19 mm. Abdominal dorsum with transversal rows of sclerites, some of them on tergite VIII and sometimes also on tergite VII fused into plates bearing two or three hairs. This is also the case with the marginal sclerites on the other abdominal tergites. Postsiphuncular sclerites well developed. Dorsal hairs acute, 65–75 μ m, 1.0–1.2 times as long as the basal diameter of antennal segment III. Antennal tubercles well developed, diverging. Antennae 4.06–4.96 mm, 1.13–1.31 times as long as the body. Frontal hairs 0.09–0.10 mm. First joint of antennae bearing 9–13, second 3–4 hairs. Antennal segment III 1.05–1.26 mm, the longest hair on it being equal in length with its basal diameter. Number of rhinaria on antennal segment III 22–37, of different size and irregularly distributed over 70–85% of the whole length. IV. antennal segment 0.71–1.12 mm, V. 0.65–0.85 mm, VI. (base) 0.18–0.21 + (proc. term.) 0.88–1.25 mm. Processus terminalis 4.38–6.68 times as long as the basal

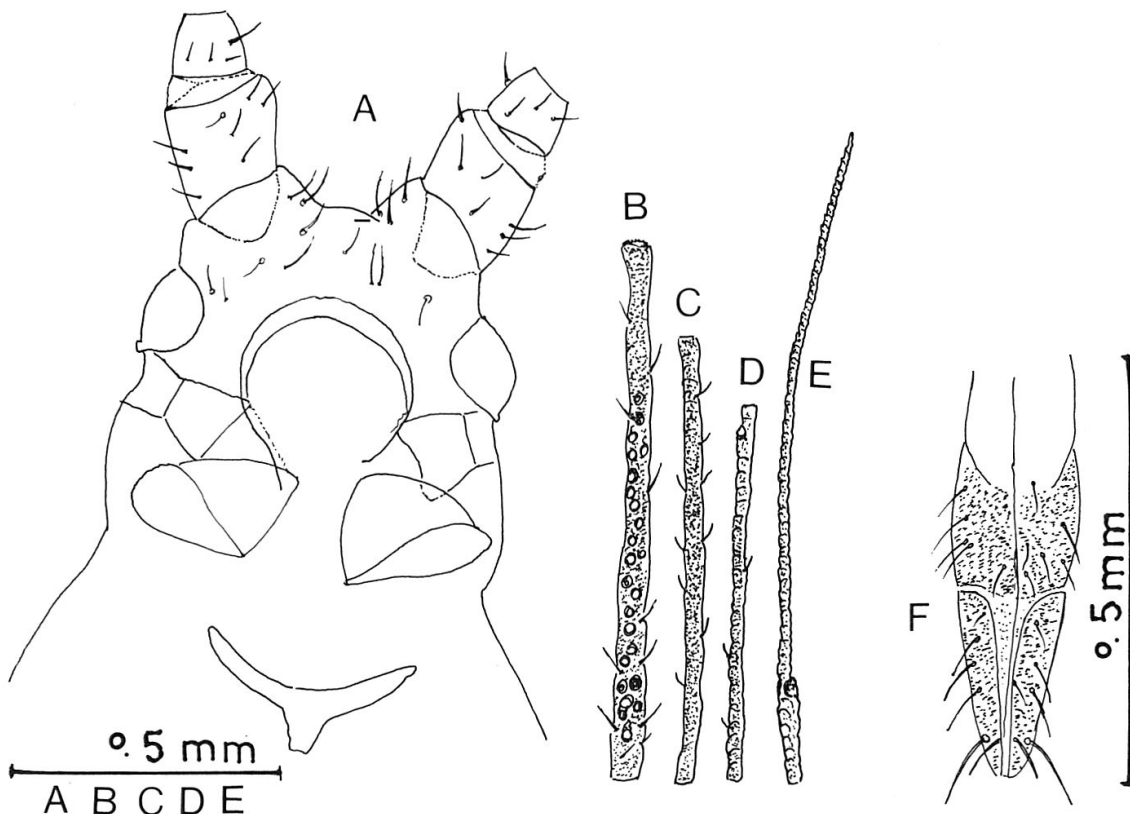


Fig. 2. *Uroleucon caspicum* sp.n., apterous viviparous female. A = head + prothorax, B = antennal segment III, C = antennal segment IV, D = antennal segment V, E = antennal segment VI, F = distal end of the rostrum.

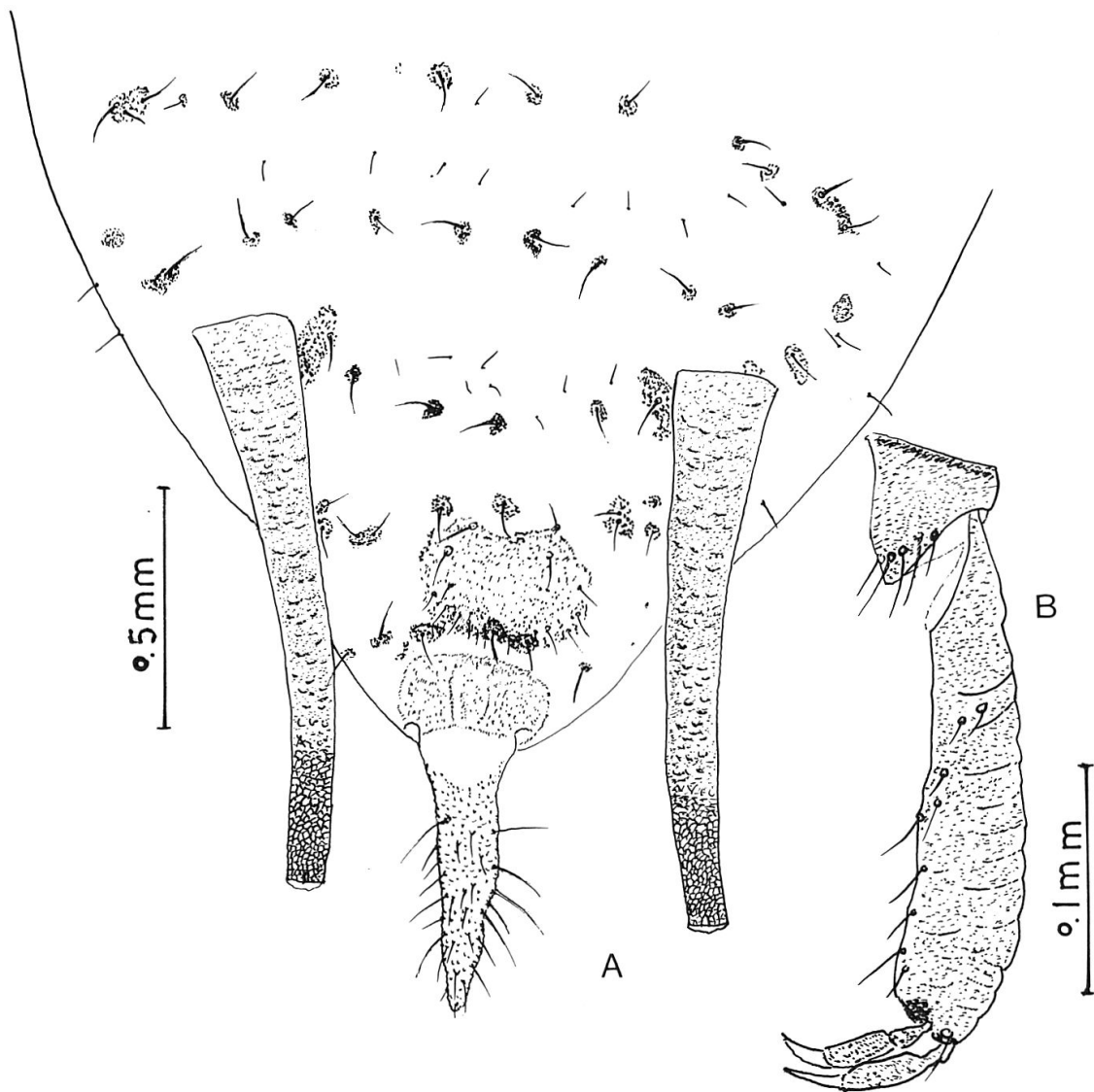


Fig. 3. *Uroleucon caspicum* sp.n., apterous viviparous female. A = end of the abdomen, B = hind tarsus.

part of antennal segment VI and 0.93–1.00 times as long as antennal segment III. First tarsal joints bearing 5:5:5 hairs of equal length. Cauda dirkshaped, weakly constricted in its basal part, 0.74–0.85 mm, 2.8–3.1 times as long as its basal width and 0.64–0.75 times as long as the third antennal segment, bearing 24–41 hairs of variable size, the longest ones up to 130 μ m. Siphunculi 1.22–1.57 mm, 0.33–0.44 times as long as the body and 1.63–1.96 times as the cauda, the reticulated part covering its distal 24–28%, remainder imbricated. Rostrum not reaching to the third coxae, its ultimale joint \pm rounded at the apex, 0.21–0.25 mm, 1.20–1.46 times as long as the second joint of the hind tarsus and 1.06–1.25 times as long as the basal part of antennal segment VI, bearing 7–10 secondary hairs. Hind femora and hind tibiae 1.50–1.68 mm and 2.75–3.07 mm respectively. Hind tarsal joint II 0.15–0.19 mm. Genital plate with 2–4 hairs on anterior and numerous hairs on posterior part. VIII. abdominal tergite with 6–8 hairs.

Tab. 3. *Uroleucon (Uroleucon) caspicum* sp.n. No. 1–10 apterous viviparous females, 11–15 alate viviparous females. Measurements in mm, abbreviations as in Tab. 1.

No	Body length	Antennae, tot. leng.		Antennal segments, length						Siphunculi, length		Cauda	Urs.	H. tars. II, length		Rhin. on III		Index Pt./B VI		Index Siph./Body			
		l	r	l	r	l	r	l	r	l	r			l	r	l	r	l	r	l	r	l	r
1	3,50	4,37	4,25	1,12	1,12	0,987	0,987	0,712	0,725	0,187+1,00	0,200+0,875	1,37	1,39	0,775	0,212	0,150	0,162	33	30	5,35	4,38	0,39	0,40
2	3,25	4,19	4,25	1,11	1,12	0,850	0,900	0,737	0,725	0,175+1,00	0,212+0,987	1,41	1,44	0,787	0,225	0,187	0,187	31	30	5,71	4,66	0,43	0,44
3	3,62	4,51	4,62	1,16	1,15	0,962	0,962	0,837	0,850	0,200+1,10	0,212+1,12	1,44	1,45	0,850	0,225	0,175	0,175	27	28	5,50	5,28	0,40	0,40
4	3,62	-	-	1,06	1,11	0,712	0,712	0,650	-	0,175+	-	1,34	1,36	0,775	0,212	0,162	0,175	35	37	-	-	0,37	0,38
5	3,44	4,34	4,41	1,10	1,12	0,925	0,962	0,775	0,775	0,187+1,02	0,187+1,05	1,40	1,39	0,762	0,237	0,175	0,162	30	29	5,45	5,61	0,41	0,40
6	3,75	-	4,22	1,09	1,05	0,850	0,875	0,750	0,737	0,175+	-	1,22	1,22	0,750	0,225	0,175	0,162	24	22	-	6,11	0,33	0,33
7	3,47	-	4,26	1,06	1,10	0,875	0,887	0,750	0,737	0,187+	-	1,40	1,35	0,737	0,237	0,162	-	32	29	-	6,11	0,40	0,39
8	4,19	-	4,96	1,19	1,25	0,975	1,120	0,837	0,812	0,187+	-	1,42	1,44	0,800	0,237	0,187	0,187	30	28	-	6,68	0,34	0,34
9	3,78	-	4,89	1,24	1,26	1,090	1,060	-	0,837	-	-	1,57	1,56	0,800	0,250	0,187	0,187	31	35	-	5,95	0,42	0,41
10	3,54	-	4,06	1,11	1,05	0,775	0,787	0,737	0,837	0,187+	-	1,40	1,42	0,787	0,225	0,175	0,175	29	29	-	5,35	0,40	0,40
11	4,25	-	5,17	1,21	1,22	1,16	1,11	0,937	0,937	0,212+	-	1,54	1,52	0,750	-	0,187	0,187	40	41	-	6,46	0,36	0,36
12	3,94	5,04	-	1,15	-	1,06	-	0,925	-	0,225+1,34	-	1,31	1,31	0,712	0,250	0,175	0,175	33	-	5,96	-	0,33	0,33
13	4,25	-	5,14	1,30	1,29	1,09	1,07	1,00	0,950	0,212+	-	1,47	1,50	0,700	0,262	0,187	-	41	39	-	6,32	0,35	0,35
14	4,06	-	-	1,19	1,17	1,04	1,02	0,975	-	0,212+	-	1,31	1,31	0,700	0,250	0,162	-	39	37	-	-	0,32	0,32
15	4,32	4,99	-	1,21	1,20	1,01	-	0,950	-	0,187+1,29	-	1,44	1,44	0,650	0,275	-	0,175	31	32	6,90	-	0,33	0,33

Alate viviparous female (Fig. 4), from 5 specimens (Tab. 3)

Colour in life as in the apterous viviparous female except the cauda which is generally darker. In cleared specimens cauda mostly brown and tibiae totally dark, the other characters similar to those of the apterous viviparous female. Abdominal marginal sclerites well developed.

Morphological characters: Body spindle-shaped, 3.94–4.32 mm. Abdominal dorsum with numerous small sclerites, on abdominal tergite I, VII and VIII often fused to a \pm complete transversal bar. Marginal and postsiphuncular sclerites well developed. Dorsal and frontal hairs similar to those in apterous viviparous females. Tergite VIII with 5–8 hairs. Genital plate bearing 4 hairs on anterior and numerous on posterior part. Antennae 4.99–5.17 mm, 1.16–1.28 times as long as the body. Antennal joint III 1.15–1.30 mm, IV 1.01–1.16 mm, V 0.93–1.00 mm and VI (base) 0.19–0.23 + (proc. term.) 1.29–1.37 mm. Processus terminalis 5.96–6.90 times as long as the basal part of antennal segment VI and 1.03–1.22 times as long as antennal segment III. Number of rhinaria on third antennal joint 31–41, of different size and irregularly scattered over about 90% of the whole length of the segment. Last joint of rostrum 0.25–0.28 mm, 1.40–1.57 times as long as the hind tarsal joint II and 1.10–1.47 times as the basal part of antennal segment VI. Siphunculi 1.31–1.54 mm, 0.32–0.36 times as long as the body and 1.87–2.21 times

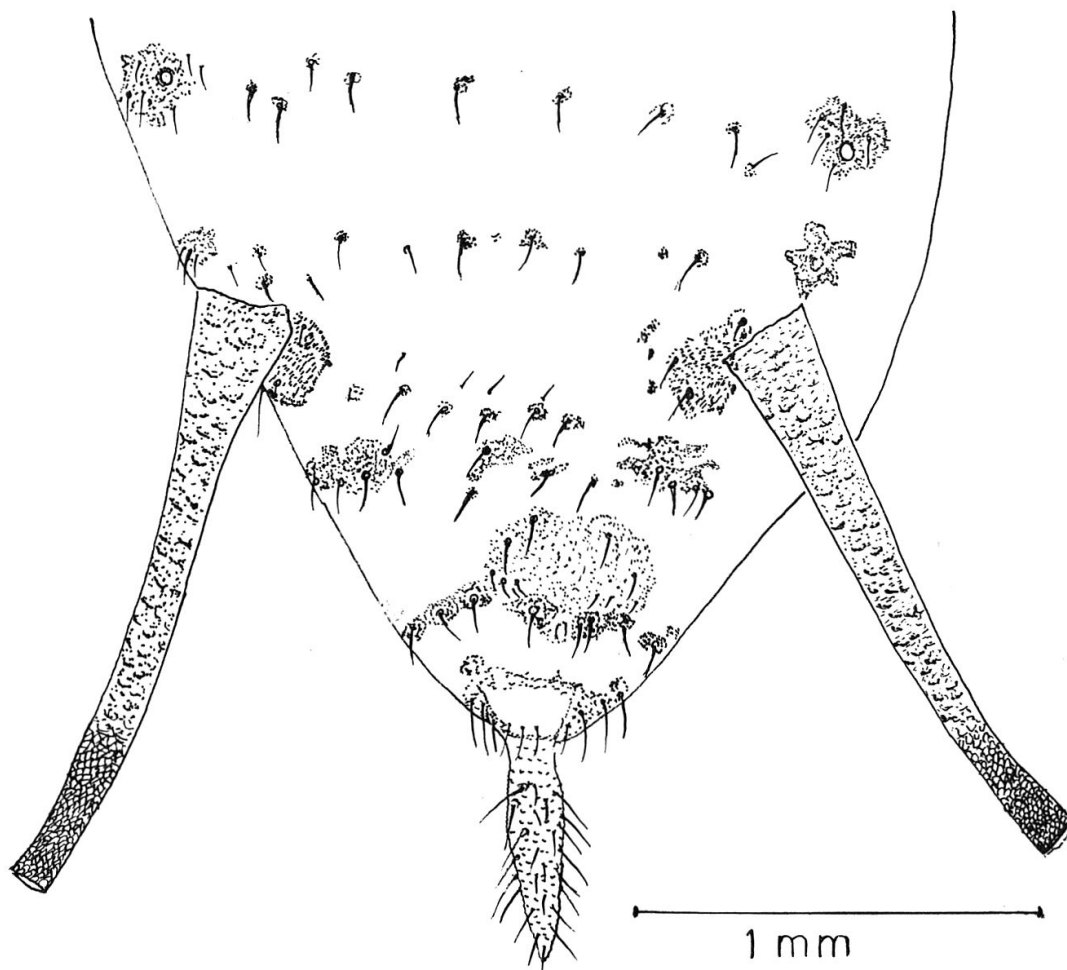


Fig. 4. *Uroleucon caspicum* sp.n., alate viviparous female. End of the abdomen.

as the cauda. Cauda dirkshaped, 0.65–0.75 mm, 0.54–0.62 times as long as the third antennal segment. The other characters as in the apterous viviparous female.

Hostplant: Serratula quinquefolia M.B. ex WILLD. (Compositae = Astera-ceae), the aphids living on the lower side of leaves and on the shoots.

Material collected from Tonokabon area (about 400 m), almost 10 km south of the Caspian Sea and 250 km north of Tehran, on 22.6.1989. Types in the collection of the first author.

Taxonomic note: The new species is related to *Uroleucon* (*Uroleucon*) *jaceicola* (HRL., 1939), from which it differs (apterous viviparous female) by having a higher number of cauda hairs and a smaller siph/cauda index (*U. caspicum* with 24–41 cauda hairs and a siph/cauda index of 1.63–1.96, *U. jaceicola* with 12–16 cauda hairs and a siph/cauda index of always > 2.00, in one specimen described by HILLE RIS LAMBERS, 1939, = 2.82).

It also differs from *Uroleucon* (*Uroleucon*) *mongolicum* HOLMAN, 1975, from Mongolia collected on *Serratula centaureoides* L. and *Serratula* sp. e.g. by having 5:5:5 hairs on the first tarsal joints and by a higher number of cauda hairs. Some characters of our species in comparison with those of *U. mongolicum* from HOLMAN (1975, 1980) are given in Tab. 4.

Tab. 4. Comparison of *Uroleucon caspicum* sp.n. and *U. mongolicum* HOLMAN, 1975 (apterous viviparous females). Measurements in mm, abbreviations as in Tab. 1.

	U.caspicum n=10	U.mongolicum n= 7
Body length	3,25– <u>3,62</u> –4,19	2,34– <u>3,18</u> –3,58
Antennae	4,06– <u>4,41</u> –4,96	2,98– <u>3,46</u> –3,78
Ant.seg. III	1,05– <u>1,13</u> –1,26	0,83– <u>1,06</u> –1,14
Ant.seg. IV	0,71– <u>0,91</u> –1,12	0,45– <u>0,59</u> –0,65
Ant.seg. V	0,65– <u>0,77</u> –0,85	0,39– <u>0,48</u> –0,55
Bas.ant.seg. VI	0,18– <u>0,19</u> –0,21	0,12– <u>0,14</u> –0,15
Proc.term. VI	0,88– <u>1,06</u> –1,25	0,82– <u>0,90</u> –1,03
Siphunculi	1,22– <u>1,40</u> –1,57	0,68– <u>0,94</u> –1,20
Cauda	0,74– <u>0,78</u> –0,85	0,37– <u>0,41</u> –0,44
Urs.	0,21– <u>0,23</u> –0,25	0,18– <u>0,19</u> –0,20
H.tars. II	0,15– <u>0,17</u> –0,19	0,15– <u>0,18</u> (–0,32)
Number of:		
Rhin.on III	22– <u>30</u> – 37	18 – 57
Hairs on cauda	24– <u>33</u> – 41	7 – 11
Ratios:		
Ant./Body	1,13– <u>1,24</u> –1,31	1,03– <u>1,12</u> –1,30
Siph./Body	0,33– <u>0,39</u> –0,44	0,26– <u>0,29</u> –0,36
Siph./Cauda	1,63– <u>1,79</u> –1,96	1,84– <u>2,28</u> –2,73
Pt./Bas. VI	4,38– <u>5,55</u> –6,68	5,93– <u>6,68</u> –7,92
Urs./H.tars. II	1,20– <u>1,31</u> –1,46	1,15 – 1,45

3. *Aphis (Protaphis) euphorbicola* sp.n.

Apterous viviparous female (Fig. 5), from 29 specimens (Tab. 5)

Colour in life dark brown or greyish brown, weakly covered with wax. In cleared specimens head, rostrum, coxae, femora, about $\frac{1}{5}$ distal part of tibiae, tarsi, siphunculi, genital plate, antennal segments I, II and VI as well as the distal part of segment V dark, remainder pale.


Morphological characters: Body oval, very small, 1.00–1.67 mm. Antennae standing on the weakly convex frons, antennal tubercles not developed. Antennae 0.57–0.86 mm, 0.49–0.71 times as long as the body. Antennal segment III 0.11–0.25 mm, IV 0.08–0.16 mm, V 0.09–0.15 mm, VI (base) 0.08–0.11 + (proc. term.) 0.10–0.18 mm. Processus terminalis of antennal segment VI 1.03–1.75 times as long as the basal part of the same segment. Number of antennal hairs on segment I 3–5, on segment II 3–4, longest hair on segment III about $\frac{2}{3}$ as long as the basal diameter of this segment. Third antennal segment without secondary rhinaria, frontal hairs at least 1.5 times as long as the basal diameter of the third antennal joint. Rostrum reaching only to the second pair of coxae, its apical joint acute, wedged-shaped, 0.06–0.10 mm, 0.67–1.15 times as long as the second joint of the hind tarsus, with 3–4 secondary hairs. First tarsal joints with 3:3:3 setae. Siphunculi very short, imbricated, 0.03–0.06 mm, 0.02–0.04 times as long as the body and 0.36–0.90 times as the cauda. Cauda short and rounded, 0.06–0.10 mm, 0.40–0.70 times as long as its basal width, with 4–5 hairs. Abdominal segments membraneous with polygonal small sclerites in the middle of the dorsal side, forming transversal bars in some specimens. Dorsal hairs relatively fine, as long as the medial diameter of the third antennal segment. Marginal tubercles present on abdominal segments I and VII. Genital plate with 2–4 hairs on anterior and 6–8 on posterior part.

Alate viviparous female, from 6 specimens (Tab. 5)

Colour in living and cleared specimens like in the apterous viviparous female, but thorax and all antennal segments in most specimens brown.

Morphological characters: Body 1.06–1.65 mm. Antennae 0.80–0.99 mm, 0.69–0.75 times as long as the body. Antennal segment III 0.18–0.25 mm, IV 0.13–0.19 mm, V 0.14–0.18 mm, VI (base) 0.10–0.13 + (proc. term.) 0.14–0.18 mm. Number of secondary rhinaria on third antennal segment 6–12, on fourth 1–2, on fifth absent. Processus terminalis of antennal segment VI 1.20–1.75 times as long as the basal part of the same segment. Antennal hairs like those of the apterous viviparous female. Rostrum reaching to the second coxae, ultimate rostral segment 0.08–0.09 mm, 0.70–1.00 times as long as hind tarsal joint II. Siphunculi 0.04–0.05 mm. The other characters are similar to those of the apterous viviparous female.

Hostplant: *Euphorbia denticulata* LAM., the aphids living on the lower side of leaves and on the shoots.

Tab. 5. *Aphis (Protaphis) euphorbicola* sp.n. No. 1–29 apterous viviparous females, 30–35 alate viviparous females. No 1–15 and 30–34 from Tafresh, 16–19 and 35 from Hamadan, 20–29 from Daran. Measurements in mm, abbreviations as in Tab. 1. 

No	Body length	Antennae, tot. leng.		Antennal segments, length				Siphunculi, length	Cauda	H. tars. II, length		Rh. on III	Index Pt.,/B VI		Index Siph./Body						
		l	r	l	r	l	r			l	r		l	r		l	r				
1	1,00	-	-	0,200	0,212	0,087	0,100	-	0,037	0,037	0,062	0,087	0,087	0	0	-	1,03	0,037	0,037		
2	1,31	0,72	0,71	0,162	0,187	0,125	0,112	0,100+0,087	0,100+0,125	0,100+0,125	0,062	0,075	-	0,087	0	0	1,25	1,25	0,034	0,028	
3	1,21	0,74	0,72	0,175	0,162	0,112	0,112	0,125	0,112	0,087+0,150	0,075	0,075	-	0,112	0	0	1,72	1,50	0,031	0,031	
4	1,44	0,71	0,72	0,162	0,175	0,100	0,112	0,125	0,112	0,087+0,137	0,075	0,075	-	0,112	0	0	1,57	1,37	0,035	0,035	
5	1,12	0,72	0,74	0,200	0,200	0,125	0,125	0,125	0,125	0,087+0,100	-	-	0,087	0,087	0	0	1,15	1,29	-	-	
6	1,10	0,69	0,69	0,162	0,175	0,100	0,100	0,125	0,112	0,087+0,125	0,087	0,087	-	-	0	0	1,44	1,44	0,034	-	
7	1,20	0,74	0,70	0,175	0,162	0,125	0,112	0,125	0,112	0,100+0,125	0,075	0,087	0,100	0,100	0	0	1,25	1,25	0,031	0,031	
8	1,12	0,80	0,77	0,200	0,200	0,162	0,150	0,137	0,125	0,087+0,125	-	-	0,087	0,087	0	0	1,44	1,25	-	-	
9	1,37	0,85	0,81	0,237	0,225	0,150	0,137	0,137	0,137	0,087+0,125	0,050	0,050	0,100	0,100	0	0	1,44	1,44	0,036	0,036	
10	1,20	0,80	0,79	0,237	0,250	0,112	0,100	0,125	0,137	0,100+0,125	0,031	0,037	-	0,112	0	0	1,25	1,44	0,026	0,031	
11	1,25	0,74	0,74	0,175	0,162	0,125	0,125	0,125	0,125	0,087+0,137	0,087	0,100	0,112	0,112	0	0	1,57	1,72	0,025	0,025	
12	1,41	-	0,75	-	0,187	-	0,125	-	0,125	-	0,044	0,044	0,112	0,112	-	0	-	1,44	0,040	0,040	0,040
13	1,20	-	-	-	-	-	-	-	-	-	0,062	0,100	0,087	0,087	-	0	-	-	0,037	0,037	0,037
14	1,37	-	0,77	-	0,187	-	0,137	-	0,125	-	0,050	0,050	0,087	0,075	-	0	-	1,72	0,036	0,036	0,036
15	1,50	0,76	0,80	0,200	0,200	0,125	0,137	0,137	0,137	0,100+0,150	-	-	0,087	0,100	0,100	0	1,50	1,50	-	-	
16	1,31	0,77	0,77	0,200	0,200	0,125	0,112	0,137	0,125	0,100+0,125	0,050	0,050	0,087	0,075	0,100	0	1,25	1,37	0,038	0,038	
17	1,34	0,82	0,81	0,187	0,187	0,125	0,137	0,150	0,150	0,112+0,137	0,056	0,050	0,100	0,100	0,112	0	1,22	1,50	0,042	0,037	
18	1,67	0,86	0,86	0,200	0,200	0,150	0,150	0,150	0,150	0,100+0,175	0,037	0,037	0,075	0,087	0,087	0	1,50	1,75	0,022	0,022	
19	1,44	0,71	-	0,150	-	0,112	-	0,112	-	0,100+0,137	-	-	0,075	0,087	0,087	0	1,37	-	0,026	0,022	
20	1,20	0,62	0,62	0,137	0,150	0,087	0,087	0,100	0,100	0,087+0,112	0,044	0,044	0,062	0,075	0,087	0	1,29	1,29	0,037	0,037	
21	1,12	0,59	0,57	0,125	0,112	0,075	0,100	0,112	0,100	0,087+0,112	-	-	0,062	0,075	0,087	0	1,29	1,67	-	-	
22	1,25	0,62	0,62	0,137	0,125	0,087	0,087	0,112	0,112	0,087+0,125	0,044	0,044	0,075	0,075	0,087	0	1,44	1,25	0,035	0,035	
23	1,15	0,74	0,75	0,187	0,187	0,137	0,125	0,137	0,125	0,075+0,125	0,037	0,037	0,087	0,087	0,087	0	1,67	1,25	0,032	0,032	
24	1,34	0,69	0,66	0,175	0,162	0,112	0,112	0,112	0,112	0,087+0,112	0,056	0,056	0,062	0,075	0,075	0	1,29	1,29	0,042	0,042	
25	1,15	0,77	-	0,200	0,187	0,137	0,125	0,112	0,125	0,100+0,125	-	-	0,062	0,075	0,087	0	1,25	-	-	-	
26	1,12	0,77	0,80	0,200	0,212	0,100	0,112	0,125	0,125	0,112+0,137	0,031	0,031	-	0,075	0,087	0	1,22	1,22	0,028	0,028	
27	1,15	-	0,66	0,162	0,162	0,112	0,087	0,112	0,112	0,087+0,125	0,037	0,037	0,056	0,075	-	0	-	1,44	0,032	0,032	0,032
28	1,25	0,69	0,72	0,162	0,175	0,112	0,100	0,112	0,112	0,087+0,137	0,031	0,031	0,075	0,062	0,100	0	1,57	1,37	0,025	0,025	
29	1,20	0,72	0,72	0,175	0,175	0,125	0,112	0,125	0,125	0,087+0,125	0,037	0,037	0,075	0,087	0,112	0	1,44	1,25	0,031	0,031	
30	1,43	0,91	0,92	0,212	0,212	0,156	0,175	0,162	0,162	0,112+0,162	0,037	0,037	0,075	-	0,112	6	1,45	1,45	0,026	0,026	
31	1,33	0,99	-	0,250	0,250	0,187	0,175	0,175	0,175	0,100+0,175	-	-	0,087	0,087	0,112	9	1,75	-	-	0,038	
32	1,37	0,94	0,94	0,225	0,237	0,187	0,175	0,175	0,175	0,112+0,150	0,044	0,044	-	0,087	0,100	12	1,34	1,20	0,032	0,032	
33	1,25	0,80	0,80	0,200	0,175	0,125	0,125	0,137	0,150	0,100+0,137	0,044	0,037	0,062	0,087	0,087	7	1,37	1,37	0,035	0,030	
34	1,06	-	-	-	-	-	-	-	-	-	0,037	0,037	0,062	0,075	0,087	-	-	-	0,035	0,035	0,035
35	1,65	-	-	0,237	0,250	0,187	0,187	0,187	0,187	0,133+0,125+0,125	0,044	0,044	0,087	0,087	0,125	8	1,1	-	-	0,027	0,027

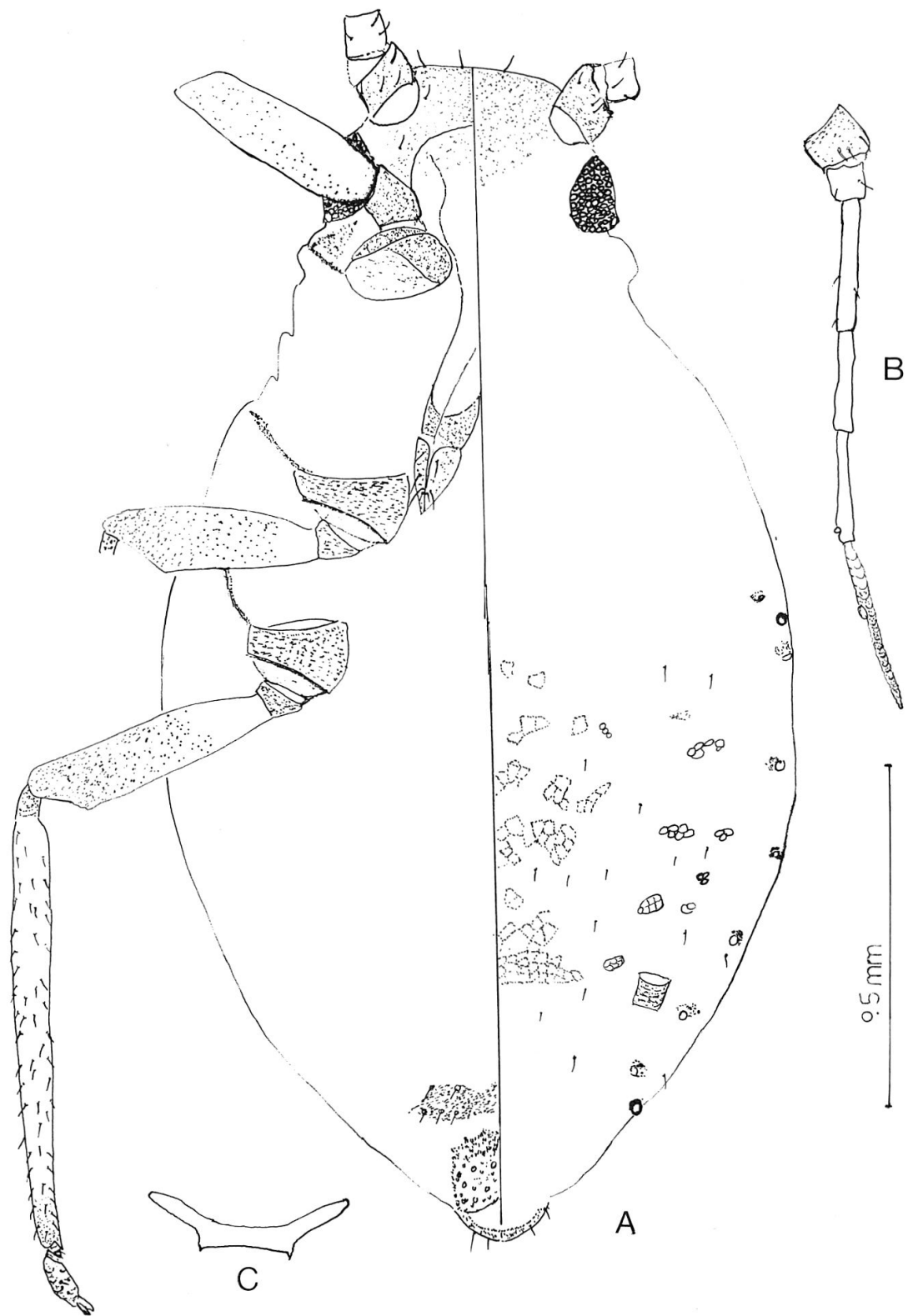


Fig. 5. *Aphis euphorbicola* sp.n., apterous viviparous female. A = ventral (left) and dorsal (right) view, B = antenna, C = mesothoracic fork.

Material collected from Tafresh (1800 m), 280 km south-west of Tehran, on 8.6.1987, from Hamadan (1800 m), 380 km south-west of Tehran, on 8.5.1988, and from Daran (2200 m) about 100 km west of Esfahan, on 11.9.1988 by Rezwani. Types in the collection of the first author.

Taxonomic note: The described aphid differs from all known *Aphis* species in Iran, especially from those living on *Euphorbia* spp., by having a rounded and extremely short cauda. We believe it to belong to the subgenus *Protaphis*, even if after EASTOP (1979) *Protaphis* feeds only "on the subterranean parts of Compositae". On the other hand some *Protaphis* species may after IVANOVSKAYA (1960) also live on leaves, shoots and in the inflorescences of their hostplants. The same author describes even a species from *Euphorbia* sp. in Aserbeidjan, namely *Protaphis nevskyi* Iv., 1960. 1977 she mentions this species from western Siberia on *Artemisia vulgaris* L. In every case, *A. (P.) nevskyi* is not our species from Iranian *Euphorbia*, because it has a fingershaped cauda and not a rounded one. But our new species may be classed with those which IVANOVSKAYA (1960) describes as having a short, truncate-conical or rounded cauda not longer than 0,15 mm. The fact that *Aphis (Protaphis) euphorbicola* was found in three different localities in Iran on *Euphorbia denticulata* seems to proof that this is the true host. A second *Protaphis* species from (nothern) Iran is *A. (P.) elatior* (NEVS., 1928) living on the roots of *Artemisia annua* L.

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