



Taxonomy of Some Aphid Species (Homoptera: Aphididae) of Garhwal Range of Western Himalaya

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ABSTRACT: Two new species of aphids viz., *Cryptomyzus elshotze* and *Vesiculaphis polygonii* infesting *Elshotzia* sp. and *Polygonum alatum*, respectively are described. Besides, a note on *Schoutedenia emblica andhraka* Hille Ris Lambers is provided from Garhwal range of Western Himalaya.

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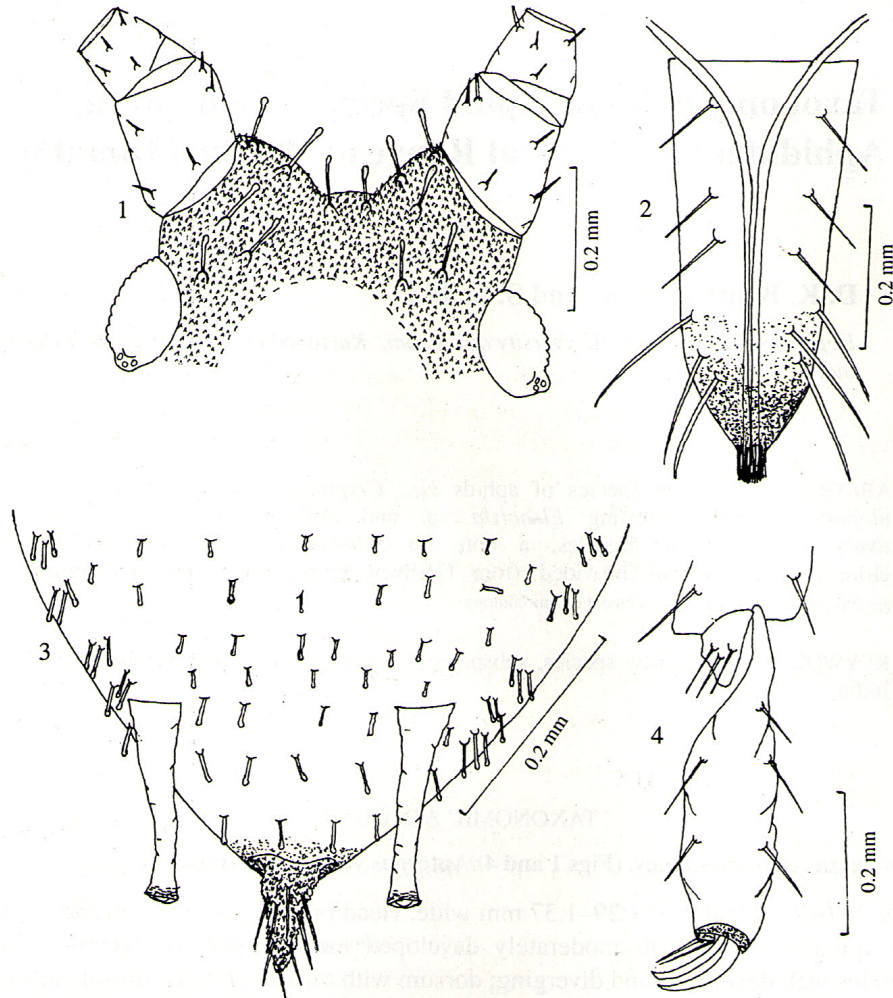
KEYWORDS: aphids, new species, subspecies, taxonomic note, Garhwal Himalaya, India.

TAXONOMIC ACCOUNT

Cryptomyzus elshotze sp. nov. (Figs 1 and 4) Apterous viviparous female

Body 2.76–2.78 long and 1.29–1.37 mm wide. Head brown, both dorsum and venter with spinules; frons with moderately developed median tubercle; lateral frontal tubercles well developed and diverging; dorsum with 6 pairs of hairs; dorsal cephalic hairs thick with spatulate to capitate apices arising from tuberculate bases, longest one on vertex 0.060–0.068 mm long and 1.60–1.80 times the b.d.III. Antennae 6-segmented, 1.20–1.23 times the body length; segment I and II concolorous with head and faintly imbricated; rest of flagellum pale with little darker joints and gradually but distinctly imbricated apicad, segment I with 5–6 hairs, II with 3–4 hairs; longest one on segment III 0.022–0.026 mm long and 0.75–0.87 times the b.d.III; p.t. 4.20–4.35 times the base of segment VI and 1.01–1.03 times the antennal segment III; segment III with 19–20 protuberant secondary rhinaria distributed over entire length of the segment. Rostrum extended to mid-coxae; ultimate rostral segment 1.50–1.55 times the h.t.2 bearing 36 secondary hairs. Abdomen dorsally little scabrous, dorsum with moderately long hairs with knobbed apices; anterior tergites with 10–12 hairs, longest on these tergites 0.033–0.040 mm long and 1.00–1.20 times the b.d.III; marginal hairs usually in a group of 3; tergites VII and VIII with 6–8 and 4–5 hairs; longest on these

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FIGURES 1-4: *Cryptomyzus elshotze* (Apterous viviparous female) 1. Head; 2. Ultimate rostral segment; 3. Posterior part of abdomen; 4. Second joint of hind tarsus.

tergites 0.043–0.050 and 0.057–0.060 mm long and 1.30–1.50 and 1.70–1.80 times the b.d.III, respectively. Siphunculi long cylindrical, faintly imbricated bearing 2–3 inter connecting striae before flange, 0.20–0.21 times the body and 3.00–3.21 times the cauda. Cauda elongated with two constrictions bearing 6–8 hairs on the anterior margin. Legs in general pale brown, with tips of femora and tibiae which are brown, tarsi dark, femora and tibiae smooth, tarsi imbricated; F.TC. 3,3,3.

Measurements of holotype (mm)

Body length 2.76, width 1.30; antenna 3.42; antennal segments III : IV : V : VI :: 0.81 : 0.63 : 0.64 : (0.18 + 0.62); u.r.s. 0.18; h.t.2.0.12; siphunculus 0.56; cauda 0.18.

Holotype

Apterous viviparous female, India: Uttarpradesh; Garhwal Himalaya: Bhairbhathi, 5.V.1994 from *Elshotzia* sp. (coll. D. Bhattacharya).

Paratypes

9 apterous viviparous females and 5 nymphs, collection data as in holotype.

Remarks

This species in having marginal hairs on anterior abdominal tergites arranged in groups of 3, cauda with 6–8 and 3 hairs on first tarsal segments comes closer to *Cryptomyzus korschelti* Börner (1938) and *Cryptomyzus taoi* Hille Ris Lambers (1965). However, it differs from the former in the shorter ratio of p.t. to base of segment VI (8–10 times in *korschelti*), less number of secondary hairs on u.r.s (14–18 in *korschelti*) and shorter ratio of siphunculus to cauda (4.60 in *korschelti*). It also differs from *taoi* in having shorter ratio of u.r.s to h.t.2 (2.75–2.38 in *taoi*), more number of secondary rhinaria on antennal segment III (8–11 in *taoi*) and shorter ratio of p.t. to antennal segment III (1.56–3.30 in *taoi*).

***Schoutedenia emblica andhraka* David and Lambers**

Cerciaphis emblica Patel and Kulkarni, 1953, *J. Bomb. Nat. Hist. Soc.*, **51**: 435.

Schoutedenia emblica andhraka, David and Lambers, 1956, *Indian J. Ent.*, **18**: 41.

Schoutedenia emblica Remaudiere, 1990. *Bull. Soc. Ent. Fr.* **94**: 9; Ghosh and Agarwal, 1993. *Fauna India* (Zool. Surv. India), **6**: 46; Bhattacharya and Dey, 1996. *Entomon*, **21(3&4)**: 289.

Apterous viviparous female

Body 1.70–1.75 mm in length and 0.91–0.94 mm as the maximum width. Head pale medium and lateral frontal tubercles absent; dorsum with 4 pairs of hairs; dorsal cephalic hairs short with blunt apices, longest one on vertex 0.013–0.016 mm long and 0.36–0.40 times the b.d.III. Antennae 5-segmented, 0.68–0.69 times the body length, segment I and II pale rest of the flagellum gradually become brown; flagellum imbricated, segment III without any secondary *rhinaria*; longest hair on segment III 0.023–0.027 mm long and 0.63–0.72 times as long as basal diameter of the segment III; processus terminalis 0.23–0.27 times as long as base of last antennal segment. Rostrum reaches midcoxae, ultimate rostral segment little blunt, 0.94–1.00 times as long as second joint of hind tarsus and bears 2 secondary hairs, abdominal dorsum pale, membranous anterior tergites with 6–8 hairs, tergites 7 and 8 each with 4 and 2 hairs respectively. Longest hair on anterior tergites 0.36–0.46 times as long as b.d.III, these on 7th 0.63–0.72 times and on 8th 0.72–0.81 times as long as b.d.III, respectively. Siphunculi conical, broad at base 0.046–0.047 times the length of the

body and 0.134–0.138 times the width of head across the eye. Cauda oval with 2–4 hairs little brown, distal region of femora with imbrications. First tarsal segments with 3 hairs.

Measurement of one specimen (mm)

Length of body 1.70; width 0.91; antenna 1.14; antennal segments III : IV : V :: 0.39 : 0.21 : (0.18 + 0.08); u.r.s. 0.51; h.t. 20.51, siphuculus 0.08.

Material studied

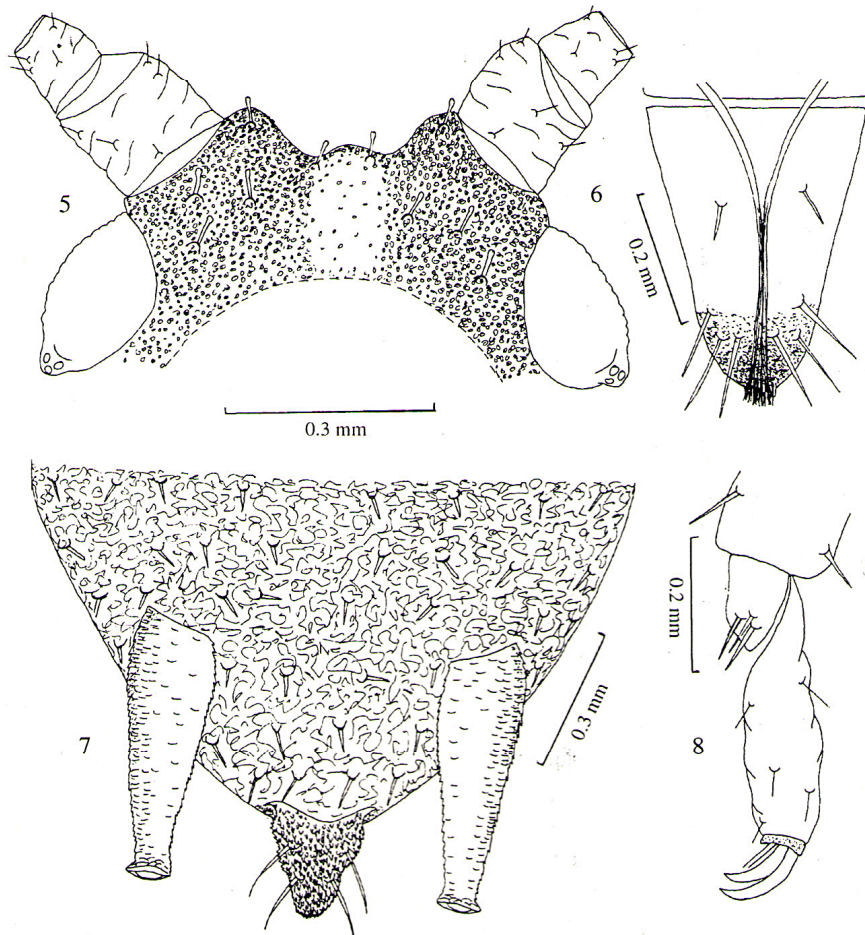
10 apterous viviparous females and nymphs. India: Uttarpradesh: Gyansu (Garhwal Himalaya), 12.VI.1994 from *Spirea* sp. (Collector, S. R. Dey).

Remarks

Schoutedenia emblica was originally described by Patel and Kulkarni (1953) as *Cerciaphis emblica*. Later, David and Lambers (1956) treated the genera *Cerciaphis* Theobald and *Setaphis* v.d. Goot as synonym of *Schoutedenia* Rübsamen, at the same time they described the subspecies *S. emblica andhraka* and treated *S. emblica* as distinct species. They have differentiated their subspecies from *sensu, stricto*, on the basis of very small processus terminalis, small number of secondary rhinaria in alatae. Eastop and Lambers (1976) listed *Cerciaphis* Theobald along with other related genera under *Schoutedenia* Rübsamen. Remaudiere (1990) during the revision of *Schoutedenia* considered *S. emblica* (Patel and Kulkarni) as valid without going to the necessity of establishing a new combination as made by David and Lambers (*op. cit.*) Ghosh and Agarwal (1993) put forward the same fact as made by Remaudiere (1990). In the present study the materials collected from Western Himalaya which revealed that the characters by which David and Lambers (*op. cit.*) established the subspecies is justified. Hence, the present authors concur with David and Lambers (*op. cit.*) and treat *Schoutedenia emblica andhraka* as valid one. A detailed description of the apterous viviparous female of the same is provided.

***Vesiculaphis polygonii* sp. nov. (Figs 5–8): Apterous viviparous female**

Body 1.64–1.67 mm wide. Head of 'Liosomaphidine' type as in pieridis group (Miyazaki, 1980), dorsum warty and corrugated leaving a central space almost free, venter warty along anterior and lateral margins, dorsum with 5 pairs of hairs with expended apices, longest one on vertex 0.013–0.016 mm long and 0.66–0.71 times the b.d.III. Antennae 6-segmented 0.072–0.073 times the body, pale brown except for segment I and II, apices of segment V and whole of the segment VI somewhat dark brown; segment I dorsally almost smooth but ventrally warty and with 5 hairs while segment II with few warts bearing 4 hairs; flagellum gradually imbricated apicad, longest hair on segment III 0.40–0.54 mm long and 0.50–0.57 times the b.d.III. p.t. 2.88–3.11 times the base of segment VI and 1.13–1.16 times the antennal segment III. Rostrum reaches the mid-coxae. Ultimate rostral segment 1.00–1.03 times the second



FIGURES 5–8: *Vesiculaphis polygonii* (Apterous viviparous female) 5. Head; 6. Ultimate rostral segment; 7. Posterior part of abdomen; 8. Second joint of hind tarsus.

segment of hind tarsus and with 2 hairs. Thorax rugose midthoracic furca with separate arms. Abdomen dorsally densely corrugated, dorsum with short hairs arising from elevated bases and with expanded apices, anterior tergites with 8–9 hairs, longest one 0.010–0.011 mm along and 0.50–0.58 times b.d.III; tergites VII and VII each with 4 hairs; longest hairs on these tergites 0.011–0.013 mm and 0.013–0.016 mm long and 0.58–0.66 times and 0.66–0.83 times b.d.III. respectively. Siphunculi dark brown distally swollen, gradually, prominently warty apicad with 1 or 2 interconnecting striae before well developed flange, 0.19–0.21 times body and 2.00–2.40 times the cauda. Cauda pentagonal with 4 hairs. Venter of abdomen finely spinulose, subgenital plate with 2 hairs on the anterior margin and 14–15 hairs on the posterior margin. Legs pale except the tarsi which are brown; femora little scabrous specially on the distal half, tibiae smooth, tarsi poorly imbricated. F.T.C. 3, 3, 3.

Measurements of holotype (mm)

Body length 1.67, width 1.17; antenna 1.32, antennal segment *III* : *IV* : *V* : *VI* :: 0.32 : 0.21 : 0.13 : (0.12 + 0.37); u.r.s. 0.36; h.t.2. 0.35; siphunculus 0.32; cauda 0.13.

Holotype

Apterous viviparous female, India: Uttarpradesh: Garhwal, Lanka, 12. VIII. 1994, from *Polygonum alatum* (collector S. R. Dey).

Paratypes

9 apterous viviparous females and 3 nymphs, collection data as in holotype.

Remarks

Following Miyazaki (1980) this species having Liosomaphidine type of head belongs to pierids group of the genus *Vesiculaphis* del Guercio. Among the species under pieridis group this species comes close to *rhododendri* Ghosh and Raychaudhuri (1972) in having F.T.C. 3, 3, 3; u.r.s. with 2 secondary hairs and similar nature of siphunculi. But it differs from *rhododendri* in the longer ratio of p.t. to base of segment VI (1.00–1.30 in *rhododendri*); shorter ratio in u.r.s. and h.t.2. (1.50 in *rhododendri*) and longer ratio of antennae to the body (0.40–0.41 in *rhododendri*).

The type materials are deposited in the collection of Department of Zoology, University of Kalyani.

Abbreviations

Aptera/e = Apterous viviparous female/s; alata/e = Alate viviparous female/s; h.t.2 = second segment of hind tarsus; F.T.C = First Tarsal Chaetotaxy; p.t. = processus terminalis; b.d.III = basal diameter of antennal segment III; u.r.s = ultimate rostral segment.

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