

## New aphid species of the genus *Volutaphis* Börner, 1939 (Homoptera, Aphidinae, Macrosiphini) from West Tien Shan

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*Volutaphis* is the small genus with 3 species (G. and M. Remaudiere, 1997). Else one new species of *Volutaphis* genus was found in the time of definition of the materials from the collection of Zoological Institute (Almaty, Kazakhstan). Now 3 species together with new ones are recorded from Kazakhstan (Kadyrbekov, 1991). Key for species definition of *Volutaphis* Börn. is presented below.

The following abbreviations are used in the text: S. - southern, W. – western, gor. - gorge, ran. - Mass range, ap. v. f. - apterous viviparous female, b. - body, ant. - antennae, siph. - siphunculi, c. - cauda, u. r. s. - ultimate rostral segment, 2 s. h. t. - second segment of hind tarsus.

All dimensions are given in millimeters.

Holotype and paratypes of described species are deposited in the collection of the Institute of Zoology (Almaty, Kazakhstan).

### *Volutaphis karatavica* Kadyrbekov, sp. n.

**Apterous viviparous female** (by 3 specimens). Body is broad oval, 2.07-2.28. Cuticle is membranous or slightly sclerotic. Frontal groove is broad, not deep. Antennal tubercles are low. Median frontal tubercle is rounded (fig. 1a). Frontal hairs (0.008-0.011) are short, blunted, 0.3-0.4 of basal diameter of 3<sup>rd</sup> antennal segment. Antennae are six-segmented, 0.57-0.64 of body length. Third segment is 1.8-2.0 of 4<sup>th</sup>, 0.95-1.08 of the 6<sup>th</sup> ones. *Processus terminalis* is 2.4-2.5 of the base of 6<sup>th</sup> segment and 0.65-0.75 of the 3<sup>rd</sup> one. Secondary rhinaria are developed in the distal part of the 3<sup>rd</sup> ((0)1-7) and 4<sup>th</sup> (7-11) segments (fig. 1b). Hairs on the 3<sup>rd</sup> segment are short, blunted (0.005), 0.2 of its basal diameter. Rostrum calls behind middle coxae. Its ultimate rostral segment is short, blunted, 0.85-0.92 of the 2<sup>nd</sup> segment of hind tarsus with 2-4 accessory hairs (fig. 1c). Penultimate segment with 3-4 hairs. Siphunculi are swollen in distal part, with little flanges. They are 0.10-0.13 of the body length, 1.1-1.4 of the cauda (fig. 1d). Cauda is tongue-shaped, constricted in the middle, with 5 hairs (fig. 1e). Dorsal hairs are short blunted equal to frontal ones. There are 6-7 hairs on the 8<sup>th</sup> tergite. Marginal tubercles are absent. Genital plate is broad oval, with 3-4 hairs on disk and 8-9 ones along its posterior margin. Legs are normally developed. First tarsal segment with 3:3:3 hairs.

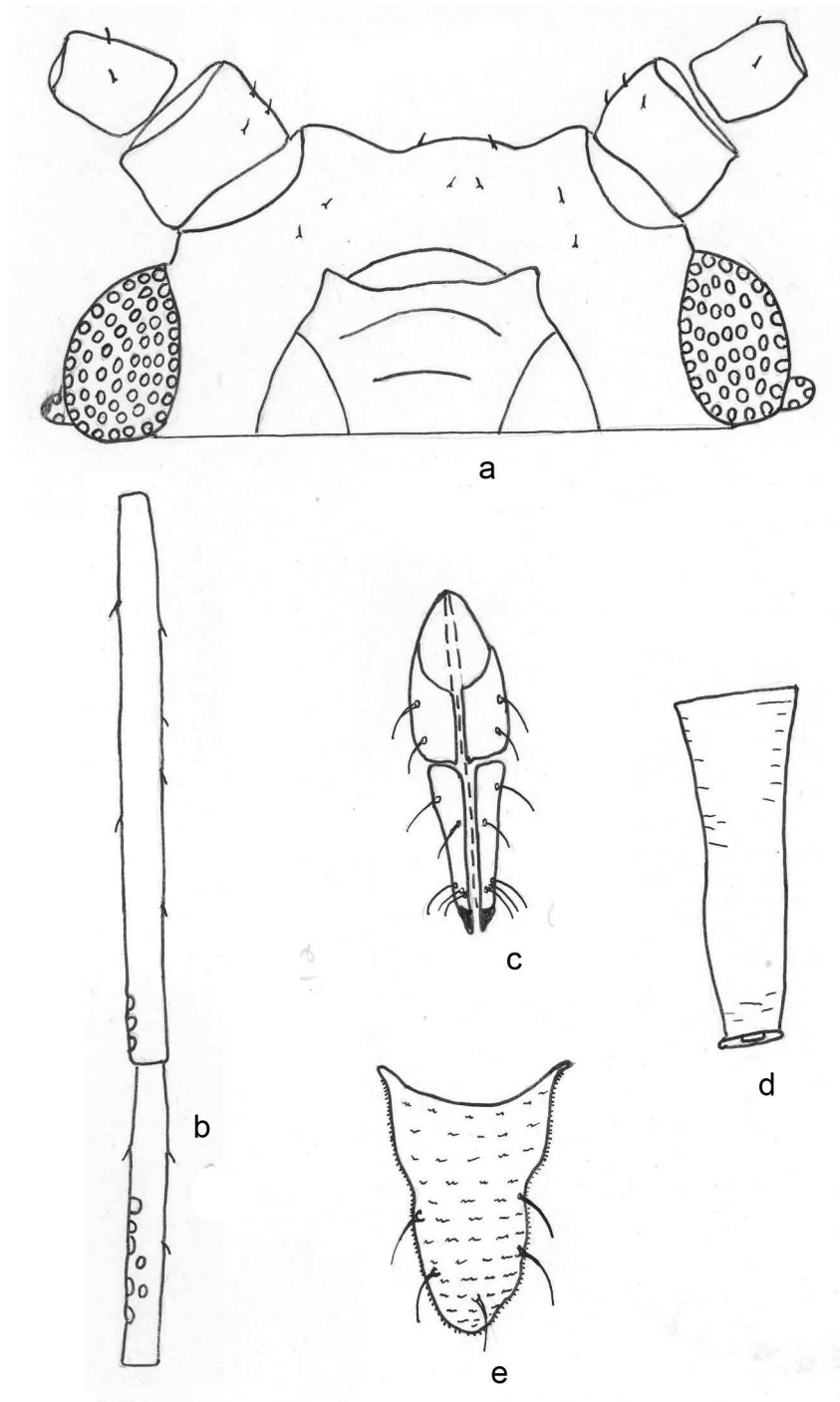
Color in life: body is yellow-greenish, eyes are reddish. Color on slide: apex of the 4<sup>th</sup>, 5-6<sup>th</sup> antennal segments, 3-4<sup>th</sup> rostral segments, apices of tibiae, tarsi, siphunculi, cauda, anal and genital plates are bright-brownish. Body and other parts are pale.

**Dimension of holotype.** B. 2.28; ant. 1.30-1.31: III 0.39, IV 0.21, V 0.16-0.17, VI 0.38 (0.11+0.27); siph. 0.23; c. 0.20; u. r. s. 0.117; 2 s. h. t. 0.140.

**Host plant.** ? *Barbarea arcuata* Reichb. (Brassicaceae). Probably a mistake in label. Known species live on plants from Caryophyllaceae family.

**Bionomy.** Aphids live in flowers and flower stalks, not visited by ants.

**Material examined.** Holotype: ap. v. f., slide N 3467, S. Kazakhstan, W. Tien-Shan, Karatau ran., Kogashik gor., 28. 05. 1966, S. Arkhangelskaja.



**Fig. 1.** Apterous viviparous female of *Volutaphis karatavica* sp. n.: a – frons, b – 3<sup>rd</sup> and 4<sup>th</sup> antennal segments, c – ultimate and penultimate rostral segments, d – siphunculus, e – cauda.

**Taxonomical notes.** New species relates to *V. centaureae* (Born.) (Heie, 1994) and *V. alpinae* Prior (Prior, 1970). *V. karatavica* sp. n. differs from first species by less ratios of siphunculi to body (0.10-0.13 versus 0.14-0.15), ultimate rostral segment to the 2<sup>nd</sup> segment of hind tarsus (0.85-0.92 in comparison 1.0-1.1), processus terminalis to base of the 6<sup>th</sup> antennal segment (2.4-2.5 versus 2.6-3.0), less quantity of accessory hairs (2-4 against 4-6). It differs from second species by the more ratios of processus terminalis to base of the 6<sup>th</sup> antennal segment (2.4-2.5 versus 1.8-2.2), siphunculi to cauda (1.1-1.4 in comparison 0.9-1.1), short antennal and dorsal hairs, less quantity of hairs on 1<sup>st</sup> tarsal segment (3, 3, 3 against 4, 4, 4). It distinguishes from these species by the presence of secondary rhinaria on the 4<sup>th</sup> antennal segment.

#### Key for definition species of *Volutaphis* Born. (by the apterous viviparous females)

1(6). Secondary rhinaria are developed on the 3<sup>rd</sup> or 3-4<sup>th</sup> antennal segments. First tarsal segment with 3, 3, 3 hairs.

2(3). Processus terminalis is 5.5-7.2 of the base of the 6<sup>th</sup> antennal segment. Ultimate rostral segment is 1.2-1.4 of the 2<sup>nd</sup> segment of the hind tarsus, with 7-20 accessory hairs. Aphids live on *Silene alba*. Spain, Italy, Germany, Ukraine, Russia (European part), Southern-Eastern Kazakhstan.....*V. schusteri* (Borner, 1939)

3(2). Processus terminalis is no more than 3 of the base of the 6<sup>th</sup> antennal segment. Ultimate rostral segment is no more than 1.1 of the 2<sup>nd</sup> segment of the hind tarsus, with 2-6 accessory hairs.

4(5). Processus terminalis is 2.4-2.5 of the base of the 6<sup>th</sup> antennal segment. Secondary rhinaria in number 7-11 are developed on the 4<sup>th</sup> antennal segment. Ultimate rostral segment is 0.85-0.92 of the 2<sup>nd</sup> segment of the hind tarsus, with 2-4 accessory hairs. Siphunculi are 0.10-0.13 of the body length. Aphids live on *Barbarea arcuata*. Southern Kazakhstan .....*V. karatavica* sp. n.

5(4). Processus terminalis is 2.6-3.0 of the base of the 6<sup>th</sup> antennal segment. Secondary rhinaria are absent on the 4<sup>th</sup> antennal segment. Ultimate rostral segment is 1.0-1.1 of the 2<sup>nd</sup> segment of the hind tarsus, with 4-6 accessory hairs. Siphunculi are 0.14-0.15 of the body length. Aphids live on *Silene otites*, *S. pendula*, *S. repens*, *Viscaria spp.* France, Sweden, Germany, Austria, Czechia, Ukraine, Eastern Kazakhstan.....*V. centaureae* (Borner, 1939)

6(1). Secondary rhinaria are absent on the 3-4<sup>th</sup> antennal segments. First tarsal segment with 4, 4, 4 hairs. Aphids live on *Silene vulgaris*. Austria .....*V. alpinae* Prior, 1970

#### References

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### Резюме

**Кадырбеков Р.Х. Новый вид тлей рода *Volutaphis* Börner, 1939 (Homoptera, Aphididae, Macrosiphini) из Западного Тянь-Шаня.**

Описан *V. karatavica* sp. n. с *Barbarea arcuata*. Новый вид близок к *V. centaureae* (Born.) и *V. alpinae* Prior. *V. karatavica* sp. n. от первого вида отличается меньшими пропорциями шлица к основанию 6-го членика усиков (2.4-2.5 против 2.6-3.0), трубочек к телу (0.10-0.13 в сравнении с 0.14-0.15), последнего членика хоботка ко 2-му членику задней лапки (0.85-0.92 против 1.0-1.1) и меньшим числом аксессуарных волосков на нем (2-4 в сравнении с 4-6). Описанный вид отличается от *V. alpinae* более высокой пропорцией шлица к основанию 6-го членика усиков (2.4-2.5 против 1.8-2.2), трубочек к хвостику (1.1-1.4 в сравнении с 0.9-1.1), более короткими дорсальными и усиковыми волосками и меньшим числом волосков на 1-м членике лапок (3, 3, 3 против 4, 4, 4). От обоих сравниваемых видов, *V. karatavica* sp. n. отличается наличием вторичных ринарий на 4-м членике усиков бескрылых девственниц. Возможно, что *Barbarea arcuata* — не является истинным кормовым растением нового вида. Так как все известные виды *Volutaphis* живут на растениях семейства Caryophyllaceae. Для известных видов *Volutaphis* (4 вида) составлена определительная таблица.

### Резюме

**Қадырбеков Р.Х. Батыс Тянь-Шаннан *Volutaphis* Börner, 1939 (Homoptera, Aphididae, Macrosiphini) туысының жаңа қимдік биті тірі.**

Қаратау жотасынан *V. karatavica* sp. n. с *Barbarea arcuata* сипатталынып жазылды. Жаңа тірі *V. centaureae* (Born.) және *V. alpinae* Prior. Ққсас. *Barbarea arcuata* оныҚ наҚыз Қоректік Қсімдігі болмауы да мҚмкін. *Volutaphis* туысының белгілі тірлерінің бҚрі Caryophyllaceae тіҚқымдасы Қсімдіктерінде тіршілік етеді. *Volutaphis* (4 тір) белгілі тірлерінің аныҚтаҚш кестелері Ққрылды.