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TWO APHID SPECIES AND GENERA OF THE TRIBE MACROSIPHINI (HEMIPTERA: APHIDIDAE) NEW TO THE FAUNA OF SERBIA

MIHAJLO TOMIĆ* and OLIVERA PETROVIĆ-OBRADOVIĆ

University of Belgrade - Faculty of Agriculture, Nemanjina 6, 11080 Belgrade-Zemun, Serbia
*E-mail: tomicmihajlo900@gmail.com (corresponding author)

Abstract

First records of two Macrosiphini aphid genera new to the fauna of Serbia are presented with details on their morphology, biology, and distribution, accompanied by original photographs and illustrations. *Ammiaphis sii* (Koch, 1855) was recorded for the first time on *Falcaria vulgaris* near Grocka and in the central Banat district, and *Brachycorynella asparagi* (Mordvilko, 1929) on *Asparagus verticillatus* in Zrenjanin and on *A. officinalis* in Slankamen. There is now a total of 397 species of aphids in Serbia.

KEYWORDS: aphids, fauna, first record, pest, virus vector

Introduction

Macrosiphini is the largest tribe in the subfamily Aphidinae with 255 genera and 2,363 species (Favret, 2025). Species of this tribe can be distinguished by the distance between the stigmal pores on abdominal segments I and II, which is 3 x the diameter of a stigmal pore and usually less than half the distance between pores on segments II and III. If the distance is greater, the stigmal pores are circular and very large. Marginal tubercles are rarely present on abdominal segments I and VII and are smaller than those on segments II-V (Heie, 1980).

The genus *Ammiaphis* Börner belongs to the tribe Macrosiphini and has one described species: *Ammiaphis sii* (Koch, 1885). This species is characterized by its well-developed marginal tubercles on abdominal tergites I-V and the presence of secondary rhinaria in apterae (Favret & Aphid taxon Community, eds., 2025). Its host plant is *Falcaria vulgaris*; colonies feed on stems and in leaf sheaths, causing sheath swelling and leaf curling and twisting (Favret & Aphid taxon Community, eds., 2025).

The genus *Brachycorynella* Aizenberg is a small genus in the tribe Macrosiphini with 2 described species: *Brachycorynella asparagi* (Mordvilko, 1929) and *Brachycorynella lonicerina* (Shaposhnikov) (Favret & Aphid taxon Community, eds., 2025). They resemble *Brachycolus* but differ by having shorter antennae and processus terminalis, as well as very short conical siphunculi (Favret & Aphid taxon Community, eds., 2025). *Brachycorynella asparagi* is associated with *Asparagus* spp., while *Brachycorynella lonicerina* is associated with *Lonicera* spp. migrating to an unknown secondary host (Favret & Aphid taxon Community, eds., 2025).

Brachycorynella asparagi is a known pest of asparagus, causing severe rosetting, stunting, and shortening of internodes and leaves. It is a vector of *Beet mild yellowing virus* (BMYV) and *Turnip yellows virus* (TuYV) (Favret & Aphid taxon Community, eds., 2025; Heie, 1990; Schliephake *et al.*, 2000). Infestations delay flowering and reduce root growth, while heavy infestations can kill seedlings or small plants (Morrison *et al.*, 2014). Feeding damage may cause dwarfed subsequent growth, premature bud break, crown dieback in nursery fields, and loss of yield and stand, although costs of control have been estimated to be less than 10% of the total production costs per acre (Folwell *et al*., 1990). The aim of this paper is to report the first records of *Brachycorynella asparagi* and *Ammiaphis sii* in Serbia, with data on their morphology, biology, and distribution.

Materials and Methods

Aphids were collected from the leaves and stems of their host plants during 2012, 2022, and 2023. Specimens were fixed in Oudeman's fluid in Eppendorf tubes and mounted in Canada balsam and Keifer's F medium. They were examined and measured using a stereomicroscope (Leica, Type: DMLS2), with illustrations prepared using a camera lucida. Measurements are in millimeters. Microscopic slides were deposited in the collection of the Faculty of Agriculture, University of Belgrade, and in the first author's private collection.

Material studied:

Ammiaphis sii

Beograd, Grocka, Umčari, 09.06.2012, 5 apterous viviparous females found on *Falcaria vulgaris,* (leg. M. Janković), Kovačica, Crepaja, 24.06.2022, 2 apterous viviparous females and 2 alate viviparous females found on *Falcaria vulgaris* (leg. N. Popović); Sečanj, between Jarkovac and Neuzina, 17.06.2023, 9 apterous viviparous females and 4 alate viviparous females (leg. D. Smiljanić); Kovačica, Padina, 17.06.2023, 8 alate viviparous females found on *Falcaria vulgaris,* (leg. D. Smiljanić).

Brachycorynella asparagi

Zrenjanin, Bagljaš, 31.07.2022, 1 apterous viviparous female on *Asparagus verticillatus* (leg. I. Pančić); Slankamen, Srem, 07.07.2025, 10 apterous viviparous females and 2 alate viviparous females found on *Asparagus officinalis* (leg. D. Smiljanić).

Results

Two new genera of the tribe Macrosiphini are newly recorded for the fauna of Serbia. *Ammiaphis sii* was first discovered near Grocka in 2012, and *Brachycorynella asparagi* was first recorded in Zrenjanin in 2022.

***Ammiaphis sii* (Koch, 1885) – Sickleweed aphid**

Morphology:

Apterous viviparous female (Figs 1, 2, Table I) (n=9)



Figure 1. *Ammiaphis sii* (Koch, 1885) apterous viviparous female on *Falcaria vulgaris* (Photo: M. Tomić).

When alive, the body is yellow-green mottled with dark green patches and with green antesiphuncular spots. Basal halves of antennae are pale yellow and distal halves black. Legs are pale yellow, except for black apices of tibiae and tarsi. Siphunculi are black, and cauda is pale. When mounted, pale with brown distal halves of antennae, apices of tibiae, tarsi, and siphunculi. Body length 1.47-1.83 mm and 1.45-1.76 times as long as wide. Antennae 5 or 6 segmented, 0.44-0.62 times body length. Antennal segment III with 5-15 secondary rhinaria (1 examined specimen with 0 secondary rhinaria) and segment IV with 0-3 secondary rhinaria. Processus terminalis 1.66-2.73 times the length of base. Ultimate rostral segment with 2 accessory setae, 0.86-1.00 times the length of second hind tarsal segment. Abdominal segments I-V with large, flat, and round marginal and spinal tubercles. First tarsal segment with 2 or 3 setae. Dorsal setae short and blunt. Siphunculi long, cylindrical or slightly swollen distally, 1.27-2.09 times the length of cauda. Cauda pointed with 0 setae (possibly the setae have broken off).

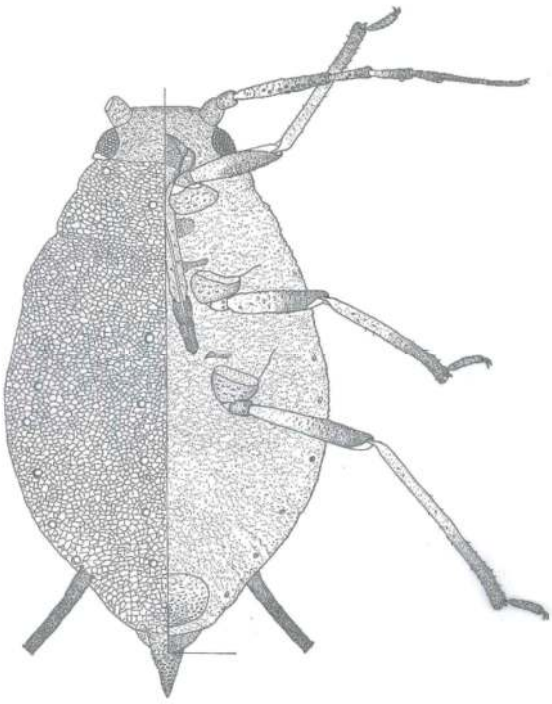


Figure 2. Illustration of the apterous viviparous female of *Ammiaphis sii* (Koch, 1885) (left - dorsal side, right-ventral side).

Alate viviparous females (Figs 3, 4, Table I) (n=12)

When alive, the body is yellow-green with dark green abdominal patches and green antesiphuncular spots. Head, antennae, and thorax are black. Fore legs are mostly pale except for the apices of tibiae and tarsi. Middle and hind legs are mostly black except for the basal parts of femora and tibiae, which are light brown. When mounted, with brown head, antennae, and thorax. The abdomen is pale with brown siphunculi. Body length 1.38-2.84 mm, 1.61-2.27 times as long as wide. Antennae 5 or 6 segmented, 0.72-0.98 times body length. Antennal segments III, IV, and V with 18-35, 1-9, and 0-1 secondary rhinaria, respectively. Processus terminalis 2.62-3.88 times the length of base. Ultimate rostral segment with 2-3 accessory setae, 0.76-1.00 times the length of second hind tarsal segment. Abdominal segments I-V with large, flat, and round marginal and spinal tubercles. First tarsal segment with 2 or 3 setae. Siphunculi long, cylindrical or slightly swollen, 1.50-2.25 times the length of cauda. Cauda pointed with 0-6 setae.

Biology:

*Ammiaphis sii (*Koch, 1885) is monoecious, holocyclic on *Falcaria vulgaris* (Börner, 1952 as cited in Favret & Aphid taxon Community, eds., 2025). In Serbia, sexual morphs and eggs have not been recorded. Since sampling took place in late spring, the species is likely holocyclic.

Table I. Measurements of *Ammiaphis sii.*

Character	*Ammiaphis sii* aptera (n=9)	*Ammiaphis sii* alata (n=12)
Body length (mm)	1.47-1.83	1.38-2.84
Body width (mm)	0.89-1.20	0.77-0.92
Head width across eyes (mm)	0.38-0.43	0.34-0.38
Antennae full length (mm)	0.71-1.00	1.02-1.52
ANT I length (mm)	0.06-0.08	0.07-0.09
ANT II length (mm)	0.05-0.07	0.06-0.07
ANT III length (mm)	0.21-0.41	0.27-0.58
ANT IV length (mm)	0.08-0.12	0.11-0.17
ANT V length (mm)	0.09-0.12	0.08-0.18
ANT VI length (mm)	0.23-0.36	0.40-0.51
ANT base (mm)	0.09-0.10	0.08-0.13
ANT PT length (mm)	0.15-0.27	0.29-0.39
URS (mm)	0.10-0.11	0.10-0.13
URS (No. od setae)	2	2-3
Hind femur (mm)	0.30-0.40	0.28-0.46
Hind tibia (mm)	0.52-0.66	0.61-0.88
2HT (mm)	0.11-0.13	0.12-0.15
SIPH (mm)	0.27-0.39	0.19-0.36
Cauda (mm)	0.16-0.23	0.10-0.19
Cauda (No. of setae)	/	0-6
Rhinaria III count	(0-)5-15	18-35
Rhinaria IV count	0-3	1-9
Rhinaria V count	0	0-1
Antennae/body	0.44-0.62	0.72-0.98
Body length/width	1.45-1.76	1.61-2.27
PT/BASE	1.66-2.73	2.62-3.88
URS/2HT	0.86-1.00	0.76-1.00
SIPH/cauda	1.27-2.09	1.50-2.25

Distribution:

In Europe, it has been recorded in Austria, Italy, Spain, Germany, Ukraine, Hungary, Romania, Czechia, Poland, Netherlands, and Slovakia (GBIF Secretariat, 2023; Müller, 1986; Osiadacz & Hałaj, 2009; PESI, 2025; Ripka, 2008; Wojciechowski *et al.,* 2016). In Asia, it has been recorded in Iran, Azerbaijan, and Kazakhstan (GBIF Secretariat, 2023; Favret & Aphid taxon Community, eds., 2025).



Figure 3. *Ammiaphis sii* (Koch, 1885): alate viviparous female on *Falcaria vulgaris* (Photo: M. Tomić).

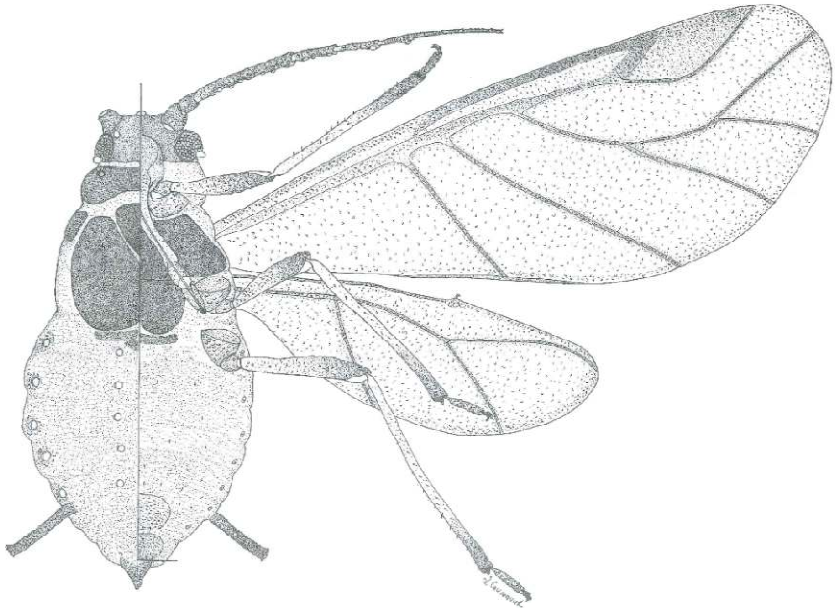


Figure 4. Illustration of the alate viviparous female of *Ammiaphis sii* (Koch, 1885) (left - dorsal side, right-ventral side).

***Brachycorynella asparagi* (Mordvilko, 1929) – European asparagus aphid**



Figure 5. *Brachycorynella asparagi* (Mordvilko, 1929): apterous viviparous female from *Asparagus verticillatus* (Photo: I. Pančić).

Morphology:

Apterous viviparous female (Fig. 5, Table II) (n=11)

When alive, green with pale antennae, legs, and cauda. When mounted, unpigmented. Body length 1.14-1.51 mm, 1.47-1.92 times as long as wide. Antennae 5 or 6 segmented, rarely 4 segmented, 0.28-0.41 times body length. Processus terminalis 1.20-1.55 times the base. Ultimate rostral segment with 4 accessory setae, 0.63-0.85 times the length of second hind tarsal segment. First tarsal segment formula 3:3:2. Dorsal setae short and blunt. Siphunculi conical, 0.10-0.18 times the length of cauda. Cauda tongue-shaped with 7-10 setae.

Alate viviparous female (Fig. 6, Table II) (n=2)



Figure 6. *Brachycorynella asparagi* (Mordvilko, 1929): clarified slide mount of alate viviparous female from *Asparagus officinalis* (photo by Mihajlo Tomić).

When alive, green. When mounted, with pale brownish head, antennae, and thorax. The abdomen is pale. The legs are pale, except for the apices of tibiae, which are light brown. Body length 1.43-1.56 mm, 2.40 times body width. Antennae 6 segmented, 0.61-0.74 times body length. Antennal segment III with 10-15 secondary rhinaria. Processus terminalis 2.23-2.36 times the base. Ultimate rostral segment with 4 accessory setae, 0.71-0.74 times the length of second hind tarsal segment. First tarsal segment formula 3:3:2. Siphunculi short, conical, 0.22-0.27 times the length of cauda. Cauda tongue-shaped with 7 setae.

Biology:

Brachycorynella asparagi (Mordvilko, 1929) has been recorded on 8 species of *Asparagus*: *A. aethiopicus, A. brachyphyllus, A. neglectus, A. officinalis, A. orientalis, A. persicus, A. setaceus,* and *A. tenuifolius* (Favret & Aphid taxon Community, eds., 2025). In Serbia, it has been recorded on *A. officinalis* and *A. verticillatus*. The species is monoecious and holocyclic with alate males (Favret & Aphid taxon Community, eds., 2025). In Serbia, sexual morphs and eggs have not been observed, as sampling took place during summer, but it is likely holocyclic.

Distribution:

In Europe, North Africa, south-west and Central Asia, China, and introduced into North America and Canada (GBIF Secretariat, 2023; Favret & Aphid taxon Community, eds., 2025). In Europe, it has been recorded in Italy, Spain, France, Poland, Switzerland, Germany, Czechia, Slovakia, Romania, Bulgaria, Moldavia, Ukraine, and Russia (Jörg & Lampel, 1988; Osiadacz & Hałaj, 2009; PESI, 2025; Ripka, 2008; Wojciechowski *et al.* 2016).

Table II. Measurements of *Brachycorynella asparagi*.

Character	*Brachycorynella asparagi* aptera (n=11)	*Brachycorynella asparagi* alata (n=2)
Body length (mm)	1.14-1.51	1.43-1.56
Body width (mm)	0.63-0.86	0.60-0.66
Head width across eyes (mm)	0.27-0.36	0.30-0.36
Antennae full length (mm)	0.40-0.58	0.93-1.1
ANT I length (mm)	0.04-0.06	0.06-0.07
ANT II length (mm)	0.04-0.05	0.06
ANT III length (mm)	0.10-0.24	0.29-0.31
ANT IV length (mm)	0.04-0.07	0.12-0.14
ANT V length (mm)	0.05-0.07	0.11-0.13
ANT VI length (mm)	0.14-0.19	0.27-0.39
ANT base (mm)	0.06-0.08	0.08-0.12
ANT PT length (mm)	0.08-0.11	0.19-0.27
URS (mm)	0.07-0.09	0.08
URS (No. od setae)	4	4
Hind femur (mm)	0.22-0.28	0.30-0.33
Hind tibia (mm)	0.32-0.40	0.56-0.58
2HT (mm)	0.10-0.13	0.11-0.12
SIPH (mm)	0.02-0.03	0.03-0.04
Cauda (mm)	0.14-0.17	0.12-0.14
Cauda (No. of setae)	7-10	7
Rhinaria III count	0	10-15
Rhinaria IV count	0	0
Rhinaria V count	0	0
Antennae/body	0.28-0.41	0.61-0.74
Body length/width	1.47-1.92	2.40
PT/BASE	1.20-1.55	2.23-2.36
URS/2HT	0.63-0.85	0.71-0.74
SIPH/cauda	0.10-0.18	0.22-0.27

Conclusion

Ammiaphis sii was first recorded on *Falcaria vulgaris* in Serbia in 2012 and *Brachycorynella asparagi* was found for the first time on *Asparagus verticillatus* in 2022 and on *Asparagus officinalis* in 2025. Both species are monoecious, but their overwintering in Serbia remains unknown, likely holocyclic. *B. asparagi* is not expected to cause significant damage or yield losses. With these two new records, the total number of aphid species known in Serbia rises to 397.

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ДВЕ ВРСТЕ И РОДА ИЗ ТРИБУСА MACROSIPHINI (HEMIPTERA: APHIDIDAE) НОВЕ ЗА ФАУНУ СРБИЈЕ

Михајло Томић и Оливера Петровић-Обрадовић

Извод

Први налази два нова рода биљних ваши за фауну Србије из трибуса Macrosiphini (Hemiptera: Aphididae) су публиковани са детаљима о њиховој морфологији, биологији и распрострањености са оригиналним фотографијама и илустрацијама. *Ammiaphis sii* (Koch, 1885) је први пут регистрована на *Falcaria vulgaris* у околини Гроцке и у Средњебанатском округу, а *Brachycorynella asparagi* (Koch, 1885) је први пут регистрована на *Asparagus verticillatus* у Зрењанину и на *A. officinalis* у Сланкамену. У Србији је сада регистровано укупно 397 врста биљних ваши.

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