

**A monograph  
of Siphini Mordvilko, 1928  
(Hemiptera, Aphidoidea:  
Chaitophorinae)**



NR 2791

**Karina Wieczorek**

**A monograph  
of Siphini Mordvilko, 1928  
(Hemiptera, Aphidoidea:  
Chaitophorinae)**



Redaktor serii: Biologia  
**Iwona Szarejko**

Recenzent  
**Andrzej Warchałowski**

Praca naukowa finansowana ze środków na naukę w latach 2009—2011  
jako projekt badawczy

Publikacja będzie dostępna — po wyczerpaniu nakładu — w wersji internetowej:

Śląska Biblioteka Cyfrowa  
**[www.sbc.org.pl](http://www.sbc.org.pl)**

# Contents

|                                |    |
|--------------------------------|----|
| Abstract . . . . .             | 7  |
| Introduction . . . . .         | 9  |
| Acknowledgements . . . . .     | 11 |
| Material and methods . . . . . | 13 |

## General part

|  |    |
|--|----|
| Historical account . . . . .   | 21 |
| Morphological characters of the Siphini . . . . .  | 26 |
| The male reproductive system . . . . .   | 40 |
| Bionomy . . . . .  | 49 |
| Siphini species of economical importance . . . . .   | 53 |
| Autecology . . . . .   | 56 |
| Chorological analysis . . . . .  | 63 |
| Cladistic analysis . . . . .   | 70 |
| Phylogenetic relationships within the subfamily Chaitophorinae and the origin of the Siphini . . . . . | 79 |

## Systematic part

|  |    |
|--|----|
| Subfamily Chaitophorinae Mordvilko, 1909 . . . . .         | 91 |
| Tribe Siphini Mordvilko, 1928 . . . . .                    | 92 |
| Genus <i>Atheroides</i> Haliday, 1839 . . . . .            | 94 |
| <i>Atheroides brevicornis</i> Laing, 1920 . . . . .        | 96 |
| <i>Atheroides doncasteri</i> Ossiannilsson, 1955 . . . . . | 99 |

|       |  |     |
|-------|--|-----|
|       | <i>Atheroides hirtellus</i> Haliday, 1839 . . . . .                              | 102 |
|       | <i>Atheroides karakumi</i> Mordvilko, 1948 . . . . .                             | 106 |
|       | <i>Atheroides persianus</i> Wieczorek, 2009 . . . . .                            | 108 |
|       | <i>Atheroides serrulatus</i> Haliday, 1839 . . . . .                             | 109 |
| Genus | <i>Caricosipha</i> Börner, 1939 . . . . .  | 115 |
|       | <i>Caricosipha paniculatae</i> Börner, 1939 . . . . .                            | 116 |
| Genus | <i>Chaetosiphella</i> Hille Ris Lambers, 1939 . . . . .                          | 120 |
|       | <i>Chaetosiphella berleseii</i> (Del Guercio, 1905) . . . . .                    | 123 |
|       | <i>Chaetosiphella longirostris</i> Wieczorek, 2008 . . . . .                     | 126 |
|       | <i>Chaetosiphella massagetica</i> Kadyrbekov, 2005 . . . . .                     | 129 |
|       | <i>Chaetosiphella stipae</i> Hille Ris Lambers, 1947 . . . . .                   | 130 |
|       | <i>Chaetosiphella stipae</i> subsp. <i>setosa</i> Wieczorek, 2008 . . . . .      | 134 |
|       | <i>Chaetosiphella tshernavini</i> (Mordvilko, 1921) . . . . .                    | 138 |
| Genus | <i>Laingia</i> Theobald, 1922 . . . . .  | 141 |
|       | <i>Laingia psammae</i> Theobald, 1922. . . . .                                   | 142 |
| Genus | <i>Sipha</i> Passerini, 1860 s. lat. . . . .                                     | 146 |
|       | Subgenus <i>Sipha</i> Passerini, 1860 s. str. . . . .                            | 147 |
|       | <i>Sipha (Sipha) agropyronensis</i> (Gillette, 1911) . . . . .                   | 149 |
|       | <i>Sipha (Sipha) flava</i> (Forbes, 1884) . . . . .                              | 151 |
|       | <i>Sipha (Sipha) glyceriae</i> (Kaltenbach, 1843) . . . . .                      | 156 |
|       | <i>Sipha (Sipha) littoralis</i> (Walker, 1848) . . . . .                         | 160 |
|       | Subgenus <i>Rungsia</i> Mimeur, 1933 . . . . .                                   | 163 |
|       | <i>Sipha (Rungsia) arenarii</i> Mordvilko, 1921 . . . . .                        | 166 |
|       | <i>Sipha (Rungsia) burakowskii</i> Holman, Szelegiewicz, 1974 . . . . .          | 169 |
|       | <i>Sipha (Rungsia) elegans</i> Del Guercio, 1905 . . . . .                       | 171 |
|       | <i>Sipha (Rungsia) maydis</i> Passerini, 1860 . . . . .                          | 176 |
|       | <i>Sipha (Rungsia) praecocis</i> (Bozhko, 1959) . . . . .                        | 181 |
|       | <i>Sipha (Rungsia) taurica</i> (Mamontova, 1959) . . . . .                       | 183 |
|       | <i>Sipha (Rungsia) uvarovi</i> Mordvilko, 1921 . . . . .                         | 184 |
|       | List of host plants of Siphini (in alphabetical order of plant genera) . . . . . | 275 |
|       | References . . . . .   | 283 |
|       | Streszczenie . . . . .   | 299 |
|       | Resumen . . . . .  | 301 |

## Abstract

The monograph presents the tribe Siphini Mordvilko, 1928 on a worldwide scale. 5 genera, 24 species and 1 subspecies are discussed in detail. 69 morphs (apterous viviparous female, alate viviparous female, oviparous female, male) are redescribed or described and figured in detail. The keys to all known species and morphs are provided.

A new synonym is proposed: *Sipha (Rungisia) aegilopis* Bozhko, 1961 = *Sipha (Rungisia) elegans* Del Guercio, 1905.

The lectotype for *Sipha (R.) elegans* is designated.

New country records for most species are presented as well as new biological data for 6 species (*Atheroides serrulatus* Haliday, 1839; *Chaetosiphella stipae* Hille Ris Lambers, 1947; *Laingia psammae* Theobald, 1922; *Sipha (Rungisia) arenarii* Mordvilko, 1921; *S. (R.) elegans* and *S. (R.) maydis* Passerini, 1860). During the field study the sexuales of *Ch. stipae* were collected and have been described for the first time. There is also provided a host index compiled from the material studied and the literature cited.

The structure of reproductive system of adult males of *A. serrulatus*, *Ch. stipae*, *L. psammae*, *S. (R.) arenarii*, *S. (R.) elegans* and *S. (R.) maydis* has been studied in the light and transmission electron microscopy, as well as the morphological characters of *A. serrulatus*, *Caricosipha paniculatae* Börner, 1939, *Ch. stipae* and *S. (R.) maydis* that have been studied using SEM techniques.

All available data concerning chorology, ecology and bionomy of the species belonging to this tribe is summarized in the study, as well as the relationships within the Siphini and the genesis of this group of aphids is proposed.

**Key words:** Taxonomy, Hemiptera, Aphidoidea, Chaitophorinae, Siphini.

## Introduction

The tribe Siphini belongs to the subfamily Chaitophorinae and encompasses an economically important group of aphids biologically associated with grasses and sedges. In various studies on the Chaitophorinae subfamily, the Siphini are usually discussed marginally and — as opposed to the Chaitophorini — they have never been studied in detail. Little is known about the bionomy of these aphids, their distribution, ecological preferences and trophic associations. The relationships within the Siphini and the Chaitophorinae subfamily have never been analysed in detail either. Identification keys and morph descriptions, which are usually compilatory and concern mainly apterous viviparous females, can be found in regional studies from the Ukraine (MAMONTOVA 1959), Canada (RICHARDS 1972), Western Siberia (IVANOVSKAJA 1977), Great Britain (STROYAN 1977), Hungary (SZELEGIEWICZ 1977), Denmark (HEIE 1982), Poland (SZELEGIEWICZ 1985), Spain (NIETO NAFRIA, MIER DURANTE 1998) and China (QIAO, ZHANG 2002). The characteristics of individual species can be found, among others, in the studies by LAING (1920), THEOBALD (1922, 1929) and HILLE RIS LAMBERS (1939). More recent studies provide a review of species belonging to the genus *Chaetosiphella* (WIECZOREK 2008) and a revision of the genus *Atheroides* (WIECZOREK 2009). Moreover, these studies also contain descriptions of new aphid taxa belonging to the tribe in question, which, together with one species belonging to the genus *Chaetosiphella*, described by KADYRBEKOV in 2005, has increased the number of known taxa of the Siphini (in the rank of species and subspecies) to 25, grouped into 5 genera. Due to the bionomy of these aphids (they usually live in leaf sheaths or inflorescences of grasses and sedges) and difficulties encountered in their collection, probably the actual number of existing species exceeds the number of the species that have already been described.

The objective of the present monograph is to summarise and verify the contemporary knowledge on aphids belonging to the tribe Siphini. The general part of the study contains information on their systematics and morphology (including data on the male reproductive system) and their zoogeographical, ecological and biological characteristics, also in the context of the economic



significance of these aphids as pests of cereal crops and virus vectors. Furthermore, this part of the monograph contains the reconstruction of relationships within the Siphini against the background of the Chaitophorinae subfamily, and also proposes a hypothesis about the origin of this group of aphids.

Second part of the study provides a detailed characteristics of the Chaitophorinae subfamily, the Siphini tribe and the genera belonging to it. It constitutes a complex elaboration, including identification keys for all morphs (apterous viviparous female, alate viviparous female, oviparous female and male) and their descriptions or redescriptions. Moreover, for all species there are also listed the localities where the particular species were recorded, and the host plant on which they were recorded. The monograph is illustrated with original drawings of particular morphs, as well as with maps and photographs. It also provides an alphabetical list of host plants for aphids belonging to the Siphini tribe.

Karina Wieczorek

Monografia Siphini Mordvilko, 1928  
(Hemiptera, Aphidoidea: Chaitophorinae)

S t r e s z c z e n i e

Monografia Siphini Mordvilko, 1928 przedstawia charakterystykę 5 rodzajów, 24 gatunków i 1 podgatunku mszyc należących do tego plemienia. Dla 69 morf (bezskrzydłej dzieworodnej samicy, uskrzydłonej dzieworodnej samicy, jajorodnej samicy, samca) przedstawiono deskrypcje lub redeskrypcje oraz klucze do oznaczania wszystkich znanych gatunków i morf.

*Sipha (Rungisia) aegilopis* Bozhko, 1961 zsynonimizowano z *Sipha (Rungisia) elegans* Del Guercio, 1905.

Dla *Sipha (R.) elegans* wyznaczono lektotyp.

Dla większości gatunków podano nowe stanowiska, na których zostały zaobserwowane, a dla 6 spośród nich (*Atheroides serrulatus* Haliday, 1839; *Chaetosiphella stipae* Hille Ris Lambers, 1947; *Laingia psammae* Theobald, 1922; *Sipha (Rungisia) arenarii* Mordvilko, 1921; *S. (R.) elegans* oraz *S. (R.) maydis* Passerini, 1860) nowe dane bionomiczne. Podczas badań terenowych po raz pierwszy zebrano i opisano jajorodną samicę i samca *Ch. stipae*. Na podstawie cytowanego piśmiennictwa oraz niepublikowanych danych przedstawiono również alfabetyczny wykaz roślin żywicielskich Siphini.

W technice mikroskopii świetlnej i transmisyjnej mikroskopii elektronowej analizowano budowę męskiego układu rozrodczego *A. serrulatus*, *Ch. stipae*, *L. psammae*, *S. (R.) arenarii*, *S. (R.) elegans* i *S. (R.) maydis*, natomiast w technice mikroskopii skaningowej — budowę zewnętrzną *A. serrulatus*, *Caricosipha paniculatae* Börner, 1939, *Ch. stipae* i *S. (R.) maydis*.

Przedstawiono i podsumowano wszystkie dostępne dane z zakresu chorologii, ekologii i bionomii, jak również odtworzono strukturę pokrewieństwa wśród Siphini oraz zaproponowano hipotezę pochodzenia tej grupy mszyc.

**Słowa kluczowe:** Taksonomia, Hemiptera, Aphidoidea, Chaitophorinae, Siphini.

Karina Wieczorek

Monografía de los Siphini Mordvilko, 1928  
(Hemiptera, Ahpidoidea: Chaitophorinae)

R e s u m e n

En esta monografía se tratan y discuten detenidamente 5 géneros, 24 especies y 1 subespecie de la tribu Siphini Mordvilko, 1928. Se describen o redesciben y se dibujan 69 formas (hembras vivíparas ápteras, hembras vivíparas aladas, hembras ovíparas, machos). Se ofrecen también claves para el reconocimiento de las especies conocidas.

Se propone la sinonimia de *Sipha* (*Rungisia*) *aegilopis* Bozhko, 1961 (nombre inválido subjetivo) con *Sipha* (*Rungisia*) *elegans* Del Guercio, 1905.

Se designan el lectotipo de *Sipha* (*Rungisia*) *elegans*.

Se aportan primeras citas para varios países de muchas especies y se aportan datos bionómicos nuevos de seis especies (*Atheroides serrulatus* Haliday, 1839; *Chaetosiphella stipae* Hille Ris Lambers, 1947; *Laingia psammae* Theobald, 1922; *Sipha* (*Rungisia*) *arenarii* Mordvilko, 1921; *S. (R) elegans* and *S. (R) maydis* Passerini, 1860), describiéndose por vez primera los sexados de *Ch. stipae*, que habían sido recolectados en el transcurso del estudio. Se presenta un índice de las planta hospedadoras, compilado a partir de la bibliografía que se ha utilizado.

Se presenta un estudio microscópico (óptico de campo claro y electrónico) del aparato reproductivo de los machos de *A. serrulatus*, *Ch. stipae*, *L. psammae*, *S. (R) arenarii*, *S. (R) elegans* and *S. (R) maydis*. También se presentan informaciones de otros caracteres morfológicos obtenidas mediante microscopía electrónica de *A. serrulatus*, *Caricosipha paniculatae* Börner, 1939, *Ch. stipae* and *S. (R) maydis*.

Se presenta una compilación de los datos conocidos sobre la corología, ecología y bionomía de las especies de la tribu.

Se presenta una propuesta sobre el origen evolutivo y las relaciones filogenéticas de este grupo de pulgones.

**Palabras clave:** Taxonomía, Hemiptera, Aphidoidea, Chaitophorinae, Siphini.

Redaktorzy: Barbara Todos-Burny, Krystian Wojcieszuk

Projektant okładki i stron działowych: Tomasz Gut

Redaktor techniczny: Barbara Arenhövel

Korektor: Sabina Stencel

Copyright © 2010 by  
Wydawnictwo Uniwersytetu Śląskiego  
Wszelkie prawa zastrzeżone

**ISSN 0208-6336**  
**ISBN 978-83-226-1966-7**

Wydawca  
**Wydawnictwo Uniwersytetu Śląskiego**  
**ul. Bankowa 12B, 40-007 Katowice**  
[www.wydawnictwo.us.edu.pl](http://www.wydawnictwo.us.edu.pl)  
e-mail: [wydawus@us.edu.pl](mailto:wydawus@us.edu.pl)

---

Wydanie I. Ark. druk. 19,0. Ark. wyd. 23,0.  
Papier offset. kl. III, 90 g      Cena 32 zł

---

Łamanie: Pracownia Składu Komputerowego  
Wydawnictwa Uniwersytetu Śląskiego  
Druk i oprawa: PPHU TOTEM s.c.  
M. Rejnowski, J. Zamiara  
ul. Jacewska 89, 88-100 Inowrocław