

Sawflies (Hymenoptera: Symphyta) from Racha and Kakheti regions of Georgia (Sakartvelo)

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JAPOSHVILI, G. & HARIS, A.: *Sawflies (Hymenoptera: Symphyta) from Racha and Kakheti regions of Georgia (Sakartvelo)*.

Abstract: Thirty-six species of 103 specimens were collected in Racha and Kakheti regions. Faunistic list and zoogeographic analysis is provided. *Aprosthem a fuscicorne* (Thomson, 1871), *Pristiphora albitibia* (Costa, 1859) and *Pristiphora beaumonti* Zirngiebl, 1957 are new records for the fauna of the country.

Keywords: Caucasus, Hymenoptera, Symphyta, faunistics, new records

Introduction

The present paper is the eight contribution of the authors to the survey of the sawfly fauna of Georgia (JAPOSHVILI and HARIS 2022 a,b,c,d, 2023a,b, SUPATASHVILI, JAPOSHVILI and HARIS 2022).

The two studied regions are in North Georgia, in the Caucasus Mountains.

Two of them, namely Laliani: Tetrtsklebi and Serodani: Tetrtsklebiare located on Gombori pass (North-Eastern Georgia, Kakheti Region) between 1350 and 1400 m altitudes asl. Distance between these two sites is 1.2 km as the crow flies. They are located in the centre of Gombori range, which represents the south-most branch of Greater Caucasus and stretches almost 107 km reaching to Signagi. These sites used by locals as hay meadows, surrounded by highly diverse vegetation containing mainly beech forest mixed with wild hazelnut, wild prunus, oak, hornbeam, lime trees. The warm summers are opposed by cold winters, sometimes even with -15 °C. April and May usually bring high precipitations.

Onchevi: Organenli, Onchevi: Shola and Onchevi: Tloisi are located in Racha region, Oni Municipality between 1050 and 1150 m altitudes asl. In the heart of the Georgian Great Caucasus. These three sites of Racha (Oni Municipality), are located on right slopes of river Jejora canyon, and their meadows hold diverse vegetation. They are surrounded by beech forest dominantly mixed with wild hazelnut, wild pear, oak and hornbeam. Their climate is generally moist and characterized by Mediterranean influences. Summer is warm, but winter is cold, with -10 °C generally with intense snowfalls. April and May are also characterized by high precipitation.

Material and methods

The sawfly material was collected by using Malaise traps located between 1 000 and 1 400 m altitude above sea level in 2 different regions of North Georgia. Malaise traps were erected at 07. 06. 2022 they operated till 4th of July 2022. The sampling strategy was not designed to obtain quantitative data (for example, traps were not installed during the most active periods for Symphyta due to logistic reasons, and also traps were operated for varying lengths of time), but rather to get a snapshot knowledge of the sawfly diversity of the region.

For identification, and for host-plant data, ZHELOCHOVTSEV's (1988) work on the sawflies of the European part of the former USSR, the handbook of LACOURT (2020) on the identification of the European Symphytans, the monograph of BENSON (1968) on the Turkish sawflies fauna, and Gussakovskij's (1935, 1947) monographs on the sawflies of the former USSR were used. We also consulted recent revisions (GYURKOVICS and HARIS 2014, HARIS 2006, PROUS et al. 2017) to confirm the identifications of particular taxa. The general distribution of species are reported based on ROLLER and HARIS (2008), TAEGER et al. (2006), SUNDUKOV (2017). The nomenclature used in this paper, follows the latest monograph of European sawflies (LACOURT 2020) with special concern for the subfamily Nematinae to address the conclusions of PROUS et al. (2014). The higher classification of Symphyta, applied in this work, follows the Hymenoptera part of Fauna Europaea (ACHTERBERG 2013). Host plant records are given according to MACEK et al. (2020).

Laliani: Tetrtsklebi, 41.860324° N, 45.334031° E, 1 374 m asl. (Fig.1)

Onchevi: Organenli, 42.570681° N, 43.495862° E, 1 053 m asl.

Onchevi: Shola, 42.558516° N, 43.519035° E, 1 156 m asl. (Fig. 2)

Onchevi: Tloisi, 42.559317° N, 43.512821° E, 1 072 m asl.

Serodani: Tetrtsklebi, 41.853950° N, 45.320529° E, 1 331 m asl. (Fig. 3)

Results

Argidae

Aprosthem a fusicorne (Thomson, 1871): Serodani: Tetrtsklebi, 21. 06. - 04. 07. 2022, 1 female. Sporadic, West Palaearctic species. Larva on *Vicia cracca*.

Tenthredinidae

Selandrinae

Nesoselandria morio (Fabricius, 1781): Onchevi: Shola, 06-17. 06. 2022, 2 females. Frequent. Host plants: *Brachytecium reflexum*, *Ceratodon purpureus*, *Chenopodium album*, *Dicranum scoparium*, *Fragaria vesca*, *Hedwigia ciliata*, *Myosotis arvensis*, *Plagiomnium cuspidatum*, *Plagiothecium denticulatum*, *Polygonum aviculare*, *Polytrichum commune*, *Pseudobryum cinclidiodes*, *Sanionia uncinata*, *Stellaria media*, *Veronica chamaedrys* and *V. officinalis*. Holarctic.



Fig.1: Landscape at Laliani: Tetrtsklebi, 1374 m asl.



Fig. 2: Landscape at Onchevi: Shola, 1156 m asl.

Allantinae

Allantus (Emphytus) cinctus (Linné, 1758): Laliani: Tetrtsklebi, 22. 06. - 04. 07. 2022, 1 male; Onchevi: Organenli, 07-17. 06. 2022, 2 females; Serodani: Tetrtsklebi, 21. 06. - 04. 07. 2022, 2 males. Common. Host plants: *Rosa* and *Fragaria* spp. Holarctic.

Allantus (Emphytus) cingulatus (Scopoli, 1763): Onchevi: Organenli, 07-17. 06. 2022, 2 females, 2 males. Frequent, Euro-Siberian species. Host plants: *Rosa* and *Fragaria* spp.

Allantus (Emphytus) didymus (Klug, 1818): Onchevi: Organenli, 07-17. 06. 2022, 5 males; Onchevi: Tloisi, 07-17. 06. 2022, 3 males; Serodani: Tetrtsklebi, 21. 06. - 04. 07. 2022, 1 male. Frequent, West-Palaeartic species. Host plants: *Rosa* and *Fragaria* spp.

Allantus (Emphytus) togatus (Panzer, 1801): Laliani: Tetrtsklebi, 22. 06. - 04. 07. 2022, 1 male. Sporadic, Palaeartic species. Larva on *Betula*, *Quercus* and *Salix* spp.

Allantus (Emphytus) viennensis (Schrank, 1781): Onchevi: Organenli, 07-17. 06. 2022, 1 female. Sporadic, West Palaeartic species introduced to USA. Larva on *Rosa* spp.

Ametastegia (Protemphytus) carpini (Hartig, 1837): Onchevi: Organenli, 07-17. 06. 2022, 1 female. Frequent. Holarctic. Host plants: *Geranium* spp.

Ametastegia (Protemphytus) perla (Klug, 1818): Onchevi: Shola, 06-17. 06. 2022, 1 male. Host plants: *Salix* sp., it is also recorded from *Quercus* and *Populus* spp. Sporadic, West Palaeartic species.

Ametastegia (Protemphytus) tenera (Fallén, 1808): Serodani: Tetrtsklebi, 21. 06. - 04. 07. 2022, 1 female. Holarctic. Frequent. Larva on *Rumex* spp.

Athalia circularis (Klug, 1815): Onchevi: Shola, 06-17. 06. 2022, 2 females. Frequent. Host plants: *Arctium lappa*, *Ajuga reptans*, *Veronica beccabunga*, *V. longifolia*, *V. officinalis*, *Alliaria petiolata*, *Glechoma hederacea*, *Melampyrum*, *Capsella* and *Lycopus* spp. Palaeartic. This colour variation was known earlier as forma *cordatoides* Priesner, 1928.

Athalia cordata Serville, 1823: Laliani: Tetrtsklebi, 22. 06. - 04. 07. 2022, 1 female. Frequent, West Palaeartic species. Host plants: *Ajuga* spp., *Antirrhinum majus*. *Misopates* spp., *Plantago* spp., *Veronica* spp.,

Athalia rosae ssp. *ruficornis* Jakowlew, 1888: Onchevi: Organenli, 07-17. 06. 2022, 1 female. Common, East Palaeartic species. Larva on *Brassicaceae*.

Taxonus sticticus (Klug, 1817): Laliani: Tetrtsklebi, 22. 06. - 04. 07. 2022, 3 males; Onchevi: Organenli, 07-17. 06. 2022, 1 male; Onchevi: Shola, 06-17. 06. 2022, 2 males; Onchevi: Tloisi, 07-17. 06. 2022, 1 female. Frequent, West Palaeartic species. Larva on *Rosa* spp.

Heterathrinae

Caliroa cothurnata (Serville, 1823): Onchevi: Organenli, 07-17. 06. 2022, 1 female. West Palaeartic. Frequent. Larva on *Quercus* spp.

Metallus albipes (Cameron, 1875): Onchevi: Shola, 06-17. 06. 2022, 1 female. Frequent, Palaeartic species. Larva on *Rubus* spp., especially on *Rubus idaeus*.

Metallus lanceolatus (Thomson, 1870): Onchevi: Tloisi, 07-17. 06. 2022, 1 female. Sporadic. Palaeartic, introduced to USA. Larva inside the leaves of *Geum urbanum* and *G. rivale*.

Blennocampinae

Halidamia affinis (Fallén, 1807): Onchevi: Organenli, 07-17. 06. 2022, 1 female; Onchevi: Shola, 06-17. 06. 2022, 2 females; Onchevi: Tloisi, 07-17. 06. 2022, 3 females. Frequent. Host plants: *Galium aparine*, *G. odoratum* and *G. molugo*. West Palaeartic, introduced to North America.



Fig.3: Landscape at Serodani: Tetrtsklebi, 1331 m asl.

Eutomostethus ephippium ssp. *vopiscus* (Konow, 1899): Onchevi: Organenli, 07-17. 06. 2022, 3 females. Ponto-Caspian species. Common. Hostplants: *Poaceae*.

Monardis plana (Klug, 1817): Onchevi: Shola, 06-17. 06. 2022, 1 female. Sporadic, West Palaearctic species. Larva on *Rosa* spp.

Tenthredininae

Macrophya (Macrophya) diversipes (Schrank, 1782): Laliani: Tetrtsklebi, 22. 06. - 04. 07. 2022, 1 female; Onchevi: Organenli, 07-17. 06. 2022, 5 females. Frequent, Palaearctic species. Larva on *Fragaria* and *Rubus* spp.

Macrophya (Macrophya) hamata ssp. *caucasicola* Mucho, 1969: Onchevi: Tloisi, 07-17. 06. 2022, 1 female. Frequent, Ponto-Caspian subspecies. Host plant unknown.

Macrophya (Macrophya) sanguinolenta (Gmelin, 1790): Onchevi: Organenli, 07-17. 06. 2022, 1 female; Onchevi: Shola, 06-17. 06. 2022, 1 female; Onchevi: Tloisi, 07-17. 06. 2022, 1 female; Serodani: Tetrtsklebi, 21. 06. - 04. 07. 2022, 1 female. Frequent, Palaearctic species. Larva on *Galenopsis*, *Senecio* and *Veronica*.

Rhogogaster (Rhogogaster) scalaris (Klug, 1817): Onchevi: Organenli, 07-17. 06. 2022, 1 female. Frequent, Holarctic species. Polyphagous, larva mainly on *Rosaceae*, such as *Agrimonia eupatoria*, *Sanguisorba minor*, *Fragaria*, *Filipendula*, *Rosa* and *Rubus* spp.; further confirmed host plants are *Ranunculus repens* and *Alnus* spp.

Tenthredopsis litterata (Geoffroy, 1785): Onchevi: Organenli, 07-17. 06. 2022, 4 females. Frequent. Larva on *Agrostis*, *Dactylis* and *Calamagrostis* spp. West Palaearctic.

Tenthredopsis nassata (Linné, 1767): Onchevi: Organenli, 07-17. 06. 2022, 1 female; Onchevi: Tloisi, 07-17. 06. 2022, 1 female. Frequent, Palaearctic species. Larva on *Poaceae*, like *Dactylis glomerata*, *Deschampsia cespitosa*, *Avenella flexuosa* and *Lolium perenne*.

Tenthredopsis viridis Zhelochovtsev, 1941: Onchevi: Shola, 06-17. 06. 2022, 1 male; Onchevi: Tloisi, 07-17. 06. 2022, 1 female. Ponto-Caspian species. Sporadic. Host plant unknown.

Nematinae

(The nomenclature of this part follows the proposed changes in nomenclature of the last monograph on sawflies written by LACOURT 2020)

Cladius pectinicornis (Geoffroy, 1785): Onchevi: Organenli, 07-17. 06. 2022, 5 males, 2 females; Laliani: Tetrtsklebi, 22. 06. - 04. 07. 2022, 1 female. Holarctic. Common. Host plants: *Alchemilla*, *Filipendula*, *Fragaria*, *Potentilla*, *Sanguisorba*, *Rosa* and *Rubus* spp.

Pristiphora albitibia (Costa, 1859): Laliani: Tetrtsklebi, 22. 06. - 04. 07. 2022, 1 female. Sporadic, Palaearctic species. Larva on *Vicia cracca*, *V. hirsuta* and *V. tetrasperma*.

Pristiphora armata (Thomson, 1863): Onchevi: Organenli, 07-17. 06. 2022, 5 males. Frequent, Palaearctic species. Larva on *Crataegus* spp.

Pristiphora beaumonti Zirngiebl, 1957: Laliani: Tetrtsklebi, 22. 06. - 04. 07. 2022, 1 female. Holomediterranean - Ponto-Caspian species. Sporadic. Hostplant unknown.

Pristiphora pallidiventris (Fallén, 1808): Onchevi: Organenli, 07-17. 06. 2022, 1 female. Frequent. Larva on *Geum*, *Potentilla*, *Rubus* and *Filipendula* spp. Holarctic.

Pteronidea myosotidis (Fabricius, 1804): Onchevi: Organenli, 07-17. 06. 2022, 2 females, 1 male; Onchevi: Shola, 06-17. 06. 2022, 2 males; Onchevi: Tloisi, 07-17. 06. 2022, 2 females, 2 males. Common. Larval hosts: *Onobrychis*, *Vicia* and *Trifolium* spp. also *Lathyrus pratensis*. Palaearctic.

Stauronematus platycerus (Hartig, 1840): Onchevi: Shola, 06-17. 06. 2022, 1 female. Sporadic, Palaearctic species. Larva on *Populus tremula*, *P. alba*, *P. nigra* and *P. balsamifera*.

Cephididae

Calameuta (Calameuta) grombczewskii (Jakowlew, 1891): Onchevi: Shola, 06-17. 06. 2022, 2 females. Ponto-Caspian, Central Asian species. Sporadic. Host plant unknown.

Cephus spinipes (Panzer, 1800): Onchevi: Organenli, 07-17. 06. 2022, 1 female; Onchevi: Shola, 06-17. 06. 2022, 2 females; Onchevi: Tloisi, 07-17. 06. 2022, 1 female. Common, Palaearctic species. Host plants: *Dactylis glomerata*, *Phleum pratense* and other *Poaceae*.

Discussion

Frequent species

The most frequent species is *Pteronidea myosotidis* (Fabricius, 1804) and *Allantus didymus* (Klug, 1818) with 9 collected specimens.

Table: Zoogeographic distribution of sawflies

Zoogeographical area	Number of species	%
Ponto-Caspian-Central Asian	1	2.8%
Ponto-Caspian	3	8.3%
Holomediterran-Ponto-Caspian	1	2.8%
East Palaearctic	1	2.8%
West Palaearctic	10	27.8%
Palaearctic	12	33.3%
Eurosiberian	1	2.8%
Holarctic	7	19.4%

The zoogeographic origin of the collected sawflies was evaluated (Table 1). Most of the species have wide geographic distribution, i.e. Holarctic, Palaearctic, West Palaearctic, East Palaearctic and Eurosiberian; their proportion is 86%. The so called characteristic components are the species with limited distribution areas: Ponto-Caspian, Holomediterran-Ponto-Caspian and Ponto-Caspian-Central Asian. These species are: *Calameuta grombczewskii* (Jakowlew, 1891), *Eutomostethus ephippium* ssp. *vopiscus* (Konow, 1899), *Pristiphora beaumonti* Zirngiebl, 1957, *Macrophya hamata* ssp. *caucasicola* Muche, 1969 and *Tenthredopsis viridis* Zhelochovtsev, 1941. Their proportion is 14%. Similar proportions (12-13%) were experienced during our investigations in the different regions of Caucasus (JAPOSHVILI and HARIS 2022b,c and d).

Identification of *Aprosthemina fusicorne* (Ths.) caused some difficulties, which detailed as follows.

According to LACOURT 2020:

“Wings smoky but with apex lighter, veins and stigma dark brown. *A. fusicorne* (Thomson, 1871)

Wings strongly smoky, uniform, veins and stigma black. *A. austriacum* (Konow, 1892)”

ENSLIN (1912-18) provides more detailed analysis:

“Flügel schwärzlich getrübt, die Spitze jedoch klarer, Geäder und Stigma dunkelbraun. Beine rotgelb, die Hüften, Trochanteren, die breite Basis der vorderen und die schmale Basis der Hinterschenkel schwarz, die Spitze der Hintertibien schwarz, die Spitze der vorderen Tarsenglieder gebräunt, die der hintersten schwarz. Drittes Fühlrglied gegen die Basis stark verengt. *A. fusicorne* (Thomson, 1871)

Flügel völlig gleichmäßig schwärzlichgrau getrübt, die Spitze keine Spur heller; Geäder und Stigma schwarz. Beine schwarz, die Knie, Tibien und die Basis der Tarsen rotgelb, die Spitze der vier hinteren Tibien jedoch geschwärzt; an den Hinterschenkeln manchmal nur die Basis schwarz. Drittes Fühlrglied an der Basis kaum verengt. *A. austriacum* (Konow, 1892)”

MÓCZÁR and ZOMBORI (1973) separate the 2 closely related species as follows:

‘Wings smoky but with apex lighter, veins and stigma dark brown. Legs dominantly reddish yellow; hind legs (entirely?), apices of tibiae and tarsi black. Third antennal segment strongly narrowed basally. *A. fusicorne* (Thomson, 1871)

Wings strongly smoky, uniform, veins and stigma black. Middle and hind legs, furthermore apices of tibiae and tarsi blackish. Third antennal segment not narrowed at all basally. *A. austriacum* (Konow, 1892)’

The Caucasian specimen has wings uniformly smoky (like *A. austriacum*), extensively yellow legs which are nearly entirely yellow, black are only base of coxae and small spots on fore and middle trochanters and on base of fore and middle femora (like *A. fusicorne*) and antennal base strongly narrowed as 5 : 3 (median width : basal width of 3rd antennal segment) (like *A. fusicorne*).

VIKBERG (2004) checked some *Aprosthemina* species. He found, their colour and morphology were subject to changes according to which (spring or summer) generation they belonged. Probably, these 2 names represent only one species. However, we need confirmation for this.

References

- ACHTERBERG, C. 2013: Hymenoptera in Fauna Europaea version 2.6.2. <http://www.faunaeur.org>. Last checked: 03. 05. 2023.
- BENSON, R. B. 1968: Hymenoptera from Turkey, Symphyta. - Bulletin of the British Museum (Natural History). Entomology series, London 22(4): 111-207. <https://doi.org/10.5962/bhl.part.9952>
- ENSLIN, E. 1912-18: Die Tenthredinoidea Mitteleuropas I-07. - Deutsche Entomologische Zeitschrift, Berlin [1912](Beiheft 1-7): 1-790.
- GUSSAKOVSKIJ, V. 1935: Insectes Hyménoptères, Chalastogastra 1. - Fauna SSSR, Moskva, Leningrad, Academie des Sciences de l'URSS, Moscou, Leningrad 2(1): 1-453.
- GUSSAKOVSKIJ, V. 1947: Insectes Hyménoptères, Chalastogastra 2. - Fauna SSSR, Moskva, Leningrad, Academie des Sciences de l'URSS, Moscou, Leningrad 2(2): 1-235.
- GYURKOVICS, H. and HARIS, A. 2014: The genus *Tenthredopsis* Costa, 1859 in Hungary (Hymenoptera: Symphyta). - *Natura Somogyiensis* 24: 99-124. <https://doi.org/10.24394/NatSom.2014.24.99>
- HARIS, A. 2006: Study on the Palaearctic *Pristiphora* species (Hymenoptera: Tenthredinidae). - *Natura Somogyiensis* 9: 201-277. <https://doi.org/10.24394/NatSom.2006.9.201>
- JAPOSHVILI, G. and HARIS, A. 2022a: New *Monoctenus* Dahlbom, 1835 (Hymenoptera: Symphyta) species from Georgia. - *Natura Somogyiensis* 38: 23-28. <https://doi.org/10.24394/NatSom.2022.38.23>
- JAPOSHVILI, G. and HARIS, A. 2022b: Sawflies (Hymenoptera: Symphyta) of Kintrishi National Park, southwest Georgia (Sakartvelo). - *Annals of Agrarian Science* 20: 12-27.
- JAPOSHVILI, G. and HARIS, A. 2022c: Sawflies (Hymenoptera: Symphyta) from North-Western Georgia (Sakartvelo). - *Caucasiana* 1: 41-49. <https://doi.org/10.3897/caucasiana.1.e83640>
- JAPOSHVILI, G. and HARIS, A. 2022d: Sawflies (Hymenoptera: Symphyta) from North-Western Georgia (Sakartvelo) (Part II). - *Natura Somogyiensis* 39: 35-46. <https://doi.org/10.24394/NatSom.2022.39.35>
- JAPOSHVILI, G. and HARIS, A. 2023a: Sawflies (Hymenoptera: Symphyta) from the high altitudes of Caucasus in Kintrishi Nature Reserve, Georgia (Sakartvelo). - *Annals of Agrarian Science* 23: xxx In print
- JAPOSHVILI, G. and HARIS, A. 2023b: Third contribution to the sawflies (Hymenoptera: Symphyta) of Kintrishi Nature Reserve (Georgia, Sakartvelo). - *Annals of Agrarian Science* 23: xxx In print

- LACOURT, J. 2020: Sawflies of Europe: Hymenoptera of Europe 2 N. A. P. Editions. - Verrières-le-Buisson 876 pp.
- MACEK, J., ROLLER, L., BENEŠ K., HOLÝ K., HOLUŠA, J. 2020: Blanokřídli České a Slovenské republiky II. Širopásí - Academia Praha. 669 pp.
- MÓCZÁR, L. and ZOMBORI, L. 1973: Tenthredinoidea - Levéldarázs-alkatúak I. - In: Fauna Hungariae, Akadémiai Kiadó, Budapest, 111, 11(2), 128 p.
- PROUS, M., BLANK, S. M., GOULET, H., HEIBO, E., LISTON, A., MALM., T., NYMAN. T., SCHMIDT, S. SMITH, D. R., VÄRDAL, H., VIITASAARI, M., VIKBERG, V., TAAGER., A. 2014: The genera of Nematinae (Hymenoptera, Tenthredinidae). - Journal of Hymenoptera Research 40: 0-69.
<https://doi.org/10.3897/JHR.40.7442>
- PROUS, M., KRAMP, K., VIKBERG. V., LISTON, A. 2017: North-Western Palaearctic species of Pristiphora (Hymenoptera, Tenthredinidae). - Journal of Hymenoptera Research 59: 1-190.
<https://doi.org/10.3897/jhr.59.12656>
- ROLLER, L and HARIS, A. 2008: Sawflies of the Carpathian Basin, History and Current Research. - Natura Somogyiensis 11. Kaposvár, 261. pp.
<https://doi.org/10.24394/NatSom.2008.11.2>
- SUNDUKOV, Y. 2017: Suborder Symphyta - Sawflies and wood wasps. In: LELEJ A.S. (Ed.). Annotated catalogue of the Hymenoptera of Russia. Volume I. Symphyta and Aculeata. - Proceedings of the Zoological Institute RAS. Supplement 6: 20-117.
<https://doi.org/10.31610/trudyzin/2017.supl.6.5>
- SUPATASHVILI, A., JAPOSHVILI, G. and HARIS, A. 2022: Some important records on sawflies (Hymenoptera: Symphyta) from the Entomological Collection of Agricultural University of Georgia (Sakartvelo) identified by Dr. Ermolenko. - Natura Somogyiensis 39: 47-58.
<https://doi.org/10.24394/NatSom.2022.39.47>
- VIKBERG, V. 2004: Seasonal head dimorphism and taxonomy of some European species of Aprosthema (Hymenoptera: Symphyta: Argidae). - Beiträge zur Entomologie 54(1): 107-125.
<https://doi.org/10.21248/contrib.entomol.54.1.107-125>
- ZHELOCHOVTSEV, A 1988: Otryad Hymenoptera - Pereponchatokrylye, Podotryad Symphyta - Sidyachebryukhie, 7-234. - In: MEDVEDEV, K.H. (ed.) Opredelitel nasekomykh evropeiskoi chasti SSSR, Vol. 3 Hymenoptera, Part 6, Nauka, Leningrad.

