

РОССИЙСКАЯ АКАДЕМИЯ НАУК
Южный научный центр

RUSSIAN ACADEMY OF SCIENCES
Southern Scientific Centre

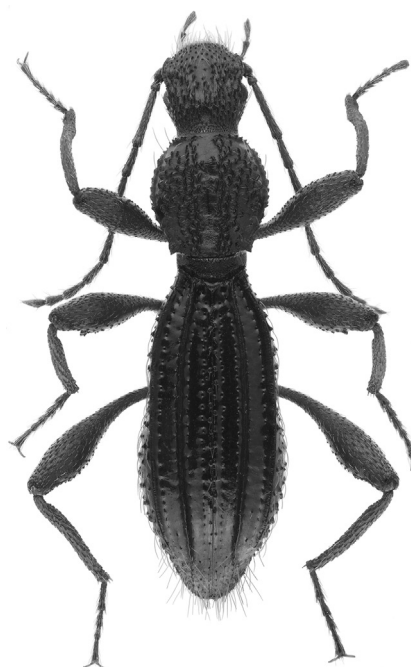


Кавказский Энтомологический Бюллетень

CAUCASIAN ENTOMOLOGICAL BULLETIN

Том 19. Вып. 1

Vol. 19. Iss. 1



Ростов-на-Дону
2023

New data on the pteromalid wasps (Hymenoptera: Chalcidoidea: Pteromalidae) of the fauna of Turkey

© E.V. Tselikh¹, L. Gençer²

¹Zoological Institute of the Russian Academy of Sciences, Universitetskaya Emb., 1, St Petersburg 199034 Russia. E-mail: tselikhk@gmail.com
²Sivas Cumhuriyet University, Faculty of Science, Department of Biology, Sivas 58140 Turkey. E-mail: gencer@cumhuriyet.edu.tr

Abstract. The chalcid wasps from the family Pteromalidae (Chalcidoidea) were studied in three Turkish provinces: Nevşehir, Muğla and Antalya. In total, 28 species from 18 genera were collected. The subfamily Trigonoderinae (Chalcidoidea: Pteromalidae), four genera (*Plutothrix* Förster, 1856, *Stenoselma* Delucchi, 1956, *Trigonoderus* Westwood, 1832, and *Trychnosoma* Graham, 1957) and 11 species are recorded for Turkey for the first time: *Anisopteromalus apiovorus* Rasplus, 1988, *A. quinarius* Gokhman et Baur, 2014, *Cyrtoptyx gallicola* Dzhankokmen, 1976, *Homoporus gibbiscuta* (Thomson, 1878), *H. nypsius* (Walker, 1839), *Plutothrix coelius* (Walker, 1839), *Pteromalus speculifer* Graham, 1981, *P. temporalis* (Graham, 1969), *Stenoselma nigrum* Delucchi, 1956, *Trigonoderus cyanescens* (Förster, 1841), and *Trychnosoma punctipleura* (Thomson, 1878). According to our study and previously published data the pteromalid fauna of Turkey comprises currently 176 species belonging to 59 genera of five subfamilies.

Key words: Chalcidoidea, Pteromalidae, parasitoids, new records, annotated list, Turkey.

Новые данные по птеромалидам (Hymenoptera: Chalcidoidea: Pteromalidae) фауны Турции

© Е.В. Целих¹, Л. Генчер²

¹Зоологический институт Российской академии наук, Университетская наб., 1, Санкт-Петербург 199034 Россия. E-mail: tselikhk@gmail.com
²Сивасский республиканский университет, факультет естественных наук, кафедра биологии, Сивас 58140 Турция. E-mail: gencer@cumhuriyet.edu.tr

Резюме. Хальцидоидные наездники семейства Pteromalidae (Chalcidoidea) были изучены в 3 провинциях Турции: Невшехир, Мугла и Анталия. Всего было собрано 28 видов из 18 родов. Впервые для фауны Турции указываются подсемейство Trigonoderinae (Chalcidoidea: Pteromalidae), 4 рода (*Plutothrix* Förster, 1856, *Stenoselma* Delucchi, 1956, *Trigonoderus* Westwood, 1832 и *Trychnosoma* Graham, 1957) и 11 видов птеромалид: *Anisopteromalus apiovorus* Rasplus, 1988, *A. quinarius* Gokhman et Baur, 2014, *Cyrtoptyx gallicola* Dzhankokmen, 1976, *Homoporus gibbiscuta* (Thomson, 1878), *H. nypsius* (Walker, 1839), *Plutothrix coelius* (Walker, 1839), *Pteromalus speculifer* Graham, 1981, *P. temporalis* (Graham, 1969), *Stenoselma nigrum* Delucchi, 1956, *Trigonoderus cyanescens* (Förster, 1841) и *Trychnosoma punctipleura* (Thomson, 1878). По результатам нашего исследования и ранее опубликованным данным фауна птеромалид Турции в настоящее время включает 176 видов из 59 родов 5 подсемейств.

Ключевые слова: Chalcidoidea, Pteromalidae, паразитоиды, новые находки, аннотированный список, Турция.

Introduction

Up to date the fauna of the family Pteromalidae in the recent sense [Burks et al., 2022] of Turkey comprised four subfamilies, 55 genera and 165 species: Colotrechninae (*Colotrechnus* Thomson, 1878 (10)); Miscogastrinae (*Cyrtogaster* Walker, 1833 (1), *Halticoptera* Spinola, 1811 (15), *Lamprotatus* Westwood, 1833 (1), *Miscogaster* Walker, 1833 (3), *Sphigigaster* Spinola, 1811 (3), *Syntomopus* Walker, 1833 (2), *Thinodytes* Graham, 1956 (1)); Pachyneurinae (*Goidanichium* Bouček, 1970 (1), *Pachycrepoides* Ashmead, 1904 (1), *Pachyneuron* Walker, 1833 (9)); Pteromalinae (*Anisopteromalus* Ruschka, 1912 (1), *Arthrolytus* Thomson, 1878 (8), *Caenocrepis* Thomson, 1878 (2), *Catolaccus* Thomson, 1878 (1), *Cecidostiba* Thomson, 1878 (1), *Cheiropachus* Westwood, 1829 (1), *Chlorocyclus* Graham, 1956 (4), *Coelopisthia* Förster, 1856 (1), *Conomorium* Masi, 1924 (7), *Cyrtoptyx* Delucchi, 1956 (2), *Dibrachoides* Kurdjumov, 1913 (1), *Dibrachys* Förster, 1856 (3), *Dinarmus* Thomson, 1878 (2), *Dinotiscus* Ghesquière, 1946 (1), *Erdoesina* Graham,

1957 (1), *Gugolzia* Delucchi et Steffan, 1956 (7), *Hobbya* Delucchi, 1957 (1), *Homoporus* Thomson, 1878 (4), *Lampoterma* Graham, 1956 (3), *Lariophagus* Crawford, 1909 (1), *Merisus* Walker, 1878 (1), *Mesopolobus* Westwood, 1833 (14), *Muscidifurax* Girault et Sanders, 1910 (1), *Nasonia* Ashmead, 1904 (1), *Norbanus* Walker, 1843 (3), *Philotrypesis* Förster, 1878 (3), *Platneptis* Bouček, 1961 (1), *Pseudocatolaccus* Masi, 1908 (1), *Psilocera* Walker, 1833 (1), *Psilonotus* Walker, 1834 (3), *Psychophagus* Mayr, 1904 (1), *Pteromalus* Swederus, 1795 (12), *Rhaphitelus* Walker, 1834 (1), *Rhopalicus* Förster, 1856 (2), *Roptrocercus* Ratzeburg, 1848 (1), *Schizonotus* Ratzeburg, 1852 (1), *Spintherus* Thomson, 1878 (1), *Stenetra* Masi, 1931 (1), *Stenomalina* Ghesquière, 1946 (3), *Tomicobia* Ashmead, 1899 (1), *Trichomalopsis* Crawford, 1913 (3), *Trichomalus* Thomson, 1878 (8), *Trjapitzinia* Dzhankokmen, 1975 (1), *Walkerella* Westwood, 1883 (1) [Doğanlar, 2018a, b, c, 2020; Noyes, 2019; Tselikh, Burks, 2020].

During our study of a new material in the collection of the Zoological Institute of the Russian Academy of Sciences (St Petersburg, Russia) many species were recorded for

the fauna of Turkey for the first time. An annotated list below substantially fills a gap in the data on the taxonomic composition of Pteromalidae of one of the most interesting territory as Turkey.

Material and methods

The study is based on the examination of the material collected by E.V. Tselikh, which is deposited in the collection of the Zoological Institute of the Russian Academy of Sciences.

Specimens were examined using Nikon AZ100M and Leica MZ16 stereo microscopes. The slides were examined using a Micromed 3 microscope.

In the text, an asterisk (*) designates the species recorded for the fauna of Turkey for the first time. Europe in distribution is specified in a narrow sense, excluding the European parts of Turkey and Russia.

The data on the general distribution and hosts of species are given according to Noyes [2019], Tselikh [2019, 2021], Tselikh and Burks [2020], and Tselikh et al. [2022]. More detailed information on the distribution of taxa within such large areas as Europe, Russia and China is also presented in the mentioned sources.

Family Pteromalidae Dalman, 1820

Subfamily Miscogasterinae Walker, 1833

Halticoptera aenea (Walker, 1833)

Material. 1♀, Muğla Prov., Kayaköy vill., 36°34'43"N / 29°03'51"E, 19–23.10.2022.

Distribution. Europe, Russia, Turkey, Azerbaijan, Iran, North America.

Biology. Primary parasitoid of dipterans of the families Agromyzidae, Cecidomyiidae, Chloropidae, Drosophilidae and lepidopterans from the family Lasiocampidae.

Miscogaster elegans Walker, 1833

Material. 1♀, Muğla Prov., Marmaris, 36°51'05"N / 28°13'25"E, 24.03–1.04.2022; 1♀, Antalya Prov., Gazipaşa, Delikdeniz Kral Köyü, 36°15'36"N / 32°41'35"E, 30.04.2022.

Distribution. Europe, Turkey.

Biology. Primary parasitoid of dipterans of the family Agromyzidae.

Sphegigaster pallicornis (Spinola, 1808)

Material. 1♀, Muğla Prov., 2 km SW of Fethiye, 36°36'08"N / 29°06'02"E, 24–27.10.2022.

Distribution. Europe, Russia, Turkey, Kazakhstan, North America.

Biology. Primary parasitoid of dipterans of the family Agromyzidae.

Syntomopus incurvus Walker, 1833

Material. 1♀, Muğla Prov., Marmaris, 36°51'05"N / 28°13'25"E, 24.03–1.04.2022.

Distribution. Europe, Russia, Turkey, Kazakhstan, China.

Biology. Primary parasitoid of dipterans of the family Agromyzidae and lepidopterans of the family Pterophoridae.

Subfamily Pachyneurinae Ashmead, 1904

Pachycrepoideus vindemmiae (Rondani, 1875)

Material. 1♂, Muğla Prov., Kayaköy vill., 36°34'43"N / 29°03'51"E, 19–23.10.2022; 1♀, Antalya Prov., Çukurbağ vill., 36°14'08"N / 29°39'46"E, 4–5.11.2022.

Distribution. Holarctic, Oriental, Neotropical and Australasian regions.

Biology. Primary parasitoid of many families of Diptera, hymenopterans of the family Apidae, and lepidopterans of the families Pyralidae and Bombycidae. Secondary parasitoid of dipterans of the families Sarcophagidae and Tachinidae, and of many families of Hymenoptera.

Pachyneuron aphidis (Bouché, 1834)

Material. 4♀, Muğla Prov., 13 km SE of Kuşadası, 37°45'50"N / 27°20'27"E, 5.10.2022; 4♀, Muğla Prov., Turgutreis vill., 37°01'56"N / 27°15'21"E, 11–18.10.2022.

Distribution. North Africa, Afrotropic, Europe, Russia, Armenia, Turkey, Syria, Israel, Jordan, Iraq, Iran, Kazakhstan, Turkmenistan, Tajikistan, Kyrgyzstan, Pakistan, India, China, Korea, Japan, Australasia, North America, Neotropic.

Biology. Primary parasitoid of coleopterans of the family Coccinellidae, dipterans of the families Agromyzidae, Cecidomyiidae, Syrphidae, hemipterans of the families Aphididae, Coccidae, Kermesidae, Pseudococcidae, Psyllidae, hymenopterans of the family Cynipidae and lepidopterans of the families Gelechiidae and Tortricidae. Secondary parasitoid of hymenopterans of the families Aphelinidae, Braconidae, Charipidae, Encyrtidae, Figitidae and Scelionidae.

Pachyneuron muscarum (Linnaeus, 1758)

Material. 4♀, Muğla Prov., Bafa Lake, Gölyaka vill., 37°29'32"N / 27°32'20"E, 7.10.2022.

Distribution. Europe, Russia, Georgia, Armenia, Turkey, Israel, Iran, Kazakhstan, India, China, South-Eastern Asia.

Biology. Primary parasitoid of coleopterans of the families Coccinellidae and Curculionidae, dipterans of the families Agromyzidae, Cecidomyiidae and Chloropidae, hemipterans of the families Aphididae, Coccidae, Diaspididae, Eriococcidae, Kermesidae, Pseudococcidae and Psyllidae, hymenopterans of the family Pamphiliidae, lepidopterans of the families Lasiocampidae, Tortricidae and Yponomeutidae. Secondary parasitoid of hymenopterans of the families Aphelinidae, Braconidae, Encyrtidae, Eulophidae and Trichogrammatidae.

Subfamily Pteromalinae Dalman, 1820

Anisopteromalus apiovorus Rasplus, 1988

Material. 2♀, Muğla Prov., 13 km SE Kuşadası, 37°45'51"N / 27°20'28"E, 5.10.2022.

Distribution. Turkey, Ivory Coast, Congo.

Biology. Primary parasitoid of coleopterans of the family Apionidae associated with pods of Fabaceae.

Anisopteromalus quinarius Gokhman et Baur, 2014

Material. 1♀, Muğla Prov., Turgutreis vill., 37°01'56"N / 27°15'21"E, 11–18.10.2022.

Distribution. Russia, Turkey, USA.

Biology. Primary parasitoid of coleopterans of the families Anobiidae and Dryophthoridae.

Chlorocytus diversus (Walker, 1836)

Material. 1♀, Muğla Prov., Marmaris, 36°51'05"N / 28°13'25"E, 24.03–1.04.2022.

Distribution. Europe, Russia, Turkey, Kazakhstan, Uzbekistan, Kyrgyzstan.

Biology. Primary parasitoid of coleopterans of the family Curculionidae, and hymenopterans of the families Cephidae and Cynipidae.

Conomorium pityocampae Graham, 1992

Material. 1♀, Muğla Prov., Kuşadası, Dilek Natural Park, 37°41'30"N / 27°09'38"E, 2.10.2022; 1♀, Muğla Prov., Olüdeniz vill., Lycian Way, 36°33'01"N / 29°08'04"E, 21.10.2022; 4♀, Muğla Prov., 2 km SW of Fethiye, 36°36'08"N / 29°06'02"E, 24–27.10.2022.

Distribution. Europe, Turkey.

Biology. Primary parasitoid of lepidopterans of the family Notodontidae.

Cyrtopyx latipes (Rondani, 1874)

Material. 2♀, Muğla Prov., Bafa Lake, Gölyaka vill., 37°29'32"N / 27°32'20"E, 7.10.2022.

Distribution. Europe, Turkey, Lebanon, Libya, Egypt, Azerbaijan, Iran, Kazakhstan, Pakistan, India, China.

Biology. Primary parasitoid of coleopterans of the family Curculionidae, dipterans of the family Tephritidae, and lepidopterans of the families Coleophoridae and Tortricidae.

**Cyrtopyx gallicola* Dzhankmen, 1976

Material. 2♀, Muğla Prov., Bafa Lake, Gölyaka vill., 37°29'32"N / 27°32'20"E, 7.10.2022.

Distribution. Turkey, Kazakhstan.

Biology. Primary parasitoid of lepidopterans of the family Gelechiidae.

Homoporus fulviventris (Walker, 1835)

Material. 1♀, Antalya Prov., Gazipaşa, Delikdeniz Kral Köyü, 36°15'36"N / 32°41'34"E, 30.04.2022; 2♀, Muğla Prov., Turgutreis vill., 37°01'56"N / 27°15'21"E, 11–18.10.2022.

Distribution. Europe, Russia, Turkey, Iran, Kazakhstan, China.

Biology. Primary parasitoid of hymenopterans of the families Cynipidae and Eurytomidae. Secondary parasitoid of hymenopterans of the family Eupelmidae.

**Homoporus gibbiscuta* (Thomson, 1878)

Material. 1♀, Antalya Prov., Çukurbağ vill., 36°14'08"N / 29°39'46"E, 4–5.11.2022.

Distribution. North Africa, Europe, Turkey.

Biology. Unknown.

**Homoporus nypsius* (Walker, 1839)

Material. 1♀, Nevşehir Prov., Cappadocia, Göreme vill., 38°38'35"N / 34°49'44"E, 26.09.2022.

Distribution. North Africa, Europe, Russia, Turkey, Kazakhstan, Australasia, North America.

Biology. Unknown.

Pseudocatolaccus nitescens (Walker, 1834)

Material. 1♀, 3♂, Antalya Prov., Gazipaşa, Delikdeniz Kral Köyü, 36°15'36"N / 32°41'35"E, 30.04.2022; 1♀, Muğla Prov., Bodrum, 37°01'30"N / 27°21'29"E, 8.10.2022; 1♀, Muğla Prov., Turgutreis vill., 37°01'56"N / 27°15'21"E, 11–18.10.2022; 1♀, Muğla Prov., Kayaköy vill., 36°34'43"N / 29°03'51"E, 19–23.10.2022.

Distribution. North Africa, Europe, Russia, Turkey, Kazakhstan.

Biology. Primary parasitoid of coleopterans of the families Bruchidae and Curculionidae and dipterans of the family Cecidomyiidae.

Pteromalus chrysos Walker, 1836

Material. 1♀, Antalya Prov., Gazipaşa, Delikdeniz Kral Köyü, 36°15'36"N / 32°41'35"E, 30.04.2022; 16♀, Muğla Prov., 2 km SW of Fethiye, 36°36'08"N / 29°06'02"E, 24–27.10.2022.

Distribution. North Africa, Europe, Russia, Turkey, Kazakhstan.

Biology. Primary parasitoid of coleopterans of the family Chrysomelidae, dipterans of the family Tephritidae, hymenopterans of the families Diprionidae and Tenthredinidae, and many families of Lepidoptera. Secondary parasitoid of hymenopterans of the families Bethyidae, Braconidae, Ichneumonidae, Encyrtidae and Torymidae.

Pteromalus intermedius (Walker, 1834)

Material. 1♀, Muğla Prov., Turgutreis vill., 37°01'56"N / 27°15'21"E, 11–18.10.2022.

Distribution. Europe, Russia, Turkey, Iran, Kazakhstan.

Biology. Primary parasitoid of coleopterans of the family Curculionidae, dipterans of the family Tephritidae, and lepidopterans of the family Coleophoridae.

Pteromalus puparum (Linnaeus, 1758)

Material. 1♀, Muğla Prov., Kayaköy vill., 36°34'43"N / 29°03'51"E, 19–23.10.2022; 1♀, Muğla Prov., Olüdeniz vill., Lycian Way, 36°33'01"N / 29°08'04"E, 21.10.2022.

Distribution. North Africa, Afrotropic, Europe, Russia, Turkey, Israel, Iraq, Iran, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Pakistan, India, China, Mongolia, Korean Peninsula, Japan, South-Eastern Asia, Australasia, North America, Neotropic.

Biology. Primary parasitoid of coleopterans of the families Bruchidae, Curculionidae and Scolytidae, dipterans of the family Chloropidae, hemipterans of the family Diaspididae, hymenopterans of the families Cynipidae, Sphecidae and Vespidae, and many families of Lepidoptera. Secondary parasitoid of hymenopterans of the families Braconidae, Ichneumonidae and Pteromalidae.

Pteromalus sequester Walker, 1835

Material. 1♀, Antalya Prov., Gazipaşa, Delikdeniz Kral Köyü, 36°15'36"N / 32°41'35"E, 30.04.2022; 2♀, Muğla Prov., Olüdeniz vill., Lycian Way, 36°33'01"N / 29°08'04"E, 21.10.2022.

Distribution. Afrotropic, Europe, Russia, Turkey, Israel, Iraq, Iran, Kazakhstan, Kyrgyzstan, India, Australasia, North America, Neotropic.

Biology. Primary parasitoid of coleopterans of the families Apionidae, Bruchidae and Curculionidae, dipterans of the families Cecidomyiidae and Tephritidae, hymenopterans of the family Eurytomidae, and lepidopterans of the family Pyralidae.

**Pteromalus specularifer* Graham, 1981

Material. 1♀, Muğla Prov., Turgutreis vill., 37°01'56"N / 27°15'21"E, 11–18.10.2022.

Distribution. Canary Islands, Madeira, Europe, Turkey.

Biology. Unknown.

**Pteromalus temporalis* (Graham, 1969)

Material. 1♀, Antalya Prov., Gazipaşa, Delikdeniz Kral Köyü, 36°15'36"N / 32°41'35"E, 30.04.2022.

Distribution. Europe, Turkey.

Biology. Unknown.

Stenetra ligustica Masi, 1931

Material. 3♀, Antalya Prov., Çukurbağ Vill., 36°14'08"N / 29°39'46"E, 4–5.11.2022.

Distribution. Europe, Russia, Azerbaijan, Turkey.

Biology. Unknown.

**Stenoselema nigrum* Delucchi, 1956

Material. 1♀, Muğla Prov., 13 km SE of Kuşadası, 37°45'51"N / 27°20'28"E, 5.10.2022.

Distribution. North Africa, Europe, Turkey, Armenia, Azerbaijan, Iran, Kazakhstan, Turkmenistan.

Biology. Primary parasitoid of coleopterans of the family Bruchidae, hymenopterans of the family Cynipidae, and lepidopterans of the family Sesiidae.

Note. The genus *Stenoselema* Delucchi, 1956 is recorded for the first time for the fauna of Turkey.

**Trychnosoma punctipleura* (Thomson, 1878)

Material. 1♀, Muğla Prov., 2 km SW of Fethiye, 36°36'08"N / 29°06'02"E, 24–27.10.2022.

Distribution. Europe, Turkey, Iran.

Biology. Primary parasitoid of coleopterans of the family Curculionidae.

Note. The genus *Trychnosoma* Graham, 1957 is recorded for the fauna of Turkey for the first time.

Subfamily Trigonoderinae Bouček, 1964

**Plutothrix coelius* (Walker, 1839)

Material. 1♂, Muğla Prov., 2 km SW of Fethiye, 36°36'08"N / 29°06'02"E, 24–27.10.2022.

Distribution. Europe, Russia, Turkey.

Biology. Primary parasitoid of coleopterans *Anobium punctatum* (De Geer, 1774) (Anobiidae) and *Xylechinus pilosus* (Ratzeburg, 1837) (Curculionidae).

Note. The genus *Plutothrix* Förster, 1856 is recorded for the fauna of Turkey for the first time.

**Trigonoderus cyanescens* (Förster, 1841)

Material. 1♀, Muğla Prov., Kuşadası, Dilek National Park, 37°41'30"N / 27°09'38"E, 2.10.2022.

Distribution. Europe, Russia, Turkey.

Biology. Primary parasitoid of coleopterans of the families Buprestidae and Curculionidae (Scolytinae).

Note. The genus *Trigonoderus* Westwood, 1832 is recorded for the fauna of Turkey for the first time.

Conclusion

This study adds significantly knowledge to the fauna and distribution of Pteromalidae parasitoids in the territory of Turkey. The paper includes an annotated list of four subfamilies (Miscogasterinae, Pachyneurinae, Pteromalinae and Trigonoderinae), 18 genera and 28 species, that contains the new and additional data for the Pteromalidae fauna of studied area. One subfamily (Trigonoderinae), four genera (*Plutothrix*, *Stenoselema*, *Trigonoderus*, and *Trychnosoma*) and 11 species (*Anisopteromalus apiovorus*, *A. quinarius*, *Cyrtopyx gallicola*, *Homoporus gibbiscuta*, *H. nypsius*, *Plutothrix coelius*, *Pteromalus specularifer*, *P. temporalis*, *Stenoselema nigrum*, *Trigonoderus cyanescens*, and *Trychnosoma punctipleura*) are recorded for the fauna of Turkey for the first time.

Thus, according to our study and summarized published data [Doğanlar, 2018a, b, c, 2020; Noyes, 2019; Tselikh, Burks, 2020], the pteromalid fauna of Turkey comprises currently 176 species belonging to 59 genera of five subfamilies.

Acknowledgements

The work was partially funded by grants of the Russian State Research Project No. 122031100272-3.

References

- Burks R., Mitroiu M.-D., Fusu L., Heraty J.M., Janšta P., Heydon S., Dale-Skey Papilloud N., Peters R.S., Tselikh E.V., Woolley J.B., van Noort S., Baur H., Cruaud A., Darling Ch., Haas M., Hanson P., Krogmann L., Rasplus J.-Y. 2022. From hell's heart I stab at thee! A determined approach towards a monophyletic Pteromalidae and reclassification of Chalcidoidea (Hymenoptera). *Journal of Hymenoptera Research*. 94: 13–88. DOI: 10.3897/jhr.94.94263
- Doğanlar M. 2018a. World species of *Arthrolytus* (Hymenoptera: Pteromalidae, Pteromalinae), with description of new species. *Linzer biologische Beiträge*. 50(1): 255–289. DOI: 10.5281/zenodo.3985426
- Doğanlar M. 2018b. Species of *Colotrechnus* Thomson, 1878 (Hymenoptera: Pteromalidae, Colotrechninae) from Turkey, with description of new species. *Munis Entomology & Zoology*. 13(1): 214–241.
- Doğanlar M. 2018c. A new species of *Lampoterma* (Hymenoptera: Pteromalidae) from Erzurum, Turkey. *Munis Entomology & Zoology*. 13(2): 386–394.
- Doğanlar M. 2020. Review of the species of *Conomorium* Masi (Hymenoptera: Pteromalidae), with descriptions of new species from Turkey. *Munis Entomology & Zoology*. 15(1): 235–251.
- Noyes J.S. 2019. Universal Chalcidoidea database. World Wide Web electronic publication. Available at: <https://www.nhm.ac.uk/our-science/data/chalcidoidea/database/index.dsm1> (last updated: March 2019).
- Tselikh E.V. 2019. 38. Family Pteromalidae. In: Annotated Catalog of the Hymenoptera of Russia. Vol. 2. Apocrita: Parasitica.

- Proceedings of the Zoological Institute of the Russian Academy of Sciences*. Supplement 8: 83–110. DOI: 10.31610/trudyzin/2019.supl.8.5
- Tselikh E.V. 2021. New data on the pteromalid wasps (Hymenoptera, Chalcidoidea: Pteromalidae) of the European part of Russia. *Entomological Review*. 101(1): 121–135. DOI: 10.1134/S0013873821010085
- Tselikh E.V., Burks R. 2020. Revision of *Stenetra* Masi, 1931 (Hymenoptera: Chalcidoidea: Pteromalidae). *Zootaxa*. 4759(2): 191–208. DOI: 10.11646/zootaxa.4759.2.3
- Tselikh E.V., Várkonyi G., Dale-Skey N. 2022. Review of the genus *Plutothrix* Förster, 1856 (Hymenoptera, Pteromalidae) with a key to Palaearctic species. *Journal of Hymenoptera Research*. 93: 1–32. DOI: 10.3897/jhr.94.94263

Received / Поступила: 28.06.2023

Accepted / Принята: 5.07.2023

Published online / Опубликована онлайн: 14.07.2023