JHR 97: 937–944 (2024)
doi: 10.3897/jhr.97.135648
https://jhr.pensoft.net

RESEARCH ARTICLE

JOURNAL OF Hymenoptera RESEARCH
A peer-reviewed open-access journal
The International Society of Hymenopterists

A new species of *Merismomorpha* Girault, 1913 (Chalcidoidea, Pteromalidae) from the Palaearctic region

Ekaterina V. Tselikh[1], Jean-Yves Rasplus[2], Jaehyeon Lee[3], Natalie Dale-Skey[4], Ankita Gupta[5], Deok-Seo Ku[6]

1 *Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia* **2** *CBGP, INRAE, CIRAD, IRD, Montpellier SupAgro, University of Montpellier, Montpellier, France* **3** *Department of Plant Medicine, Gyeongsang National University, Jinju 52828, Republic of Korea* **4** *Natural History Museum, London, UK* **5** *ICAR-National Bureau of Agricultural Insect Resources, Bangalore, India* **6** *The Science Museum of Natural Enemies, Geochang 50147, Republic of Korea*

Corresponding author: Ekaterina V. Tselikh (tselikhk@gmail.com)

Academic editor: Petr Janšta | Received 27 August 2024 | Accepted 30 September 2024 | Published 25 October 2024

https://zoobank.org/D3473710-0E18-413F-BBFD-4BC62CB66C7C

Citation: Tselikh EV, Rasplus J-Y, Lee J, Dale-Skey N, Gupta A, Ku D-S (2024) A new species of *Merismomorpha* Girault, 1913 (Chalcidoidea, Pteromalidae) from the Palaearctic region. Journal of Hymenoptera Research 97: 937–944. https://doi.org/10.3897/jhr.97.135648

Abstract

A new species of *Merismomorpha* Girault, 1913, *M. ulleungensis* Tselikh, Rasplus & Ku, **sp. nov.**, is described and illustrated from the Palaearctic region (Russian Far East and South Korea). An updated diagnosis of the genus is given, as well as a comparison to the closely related genus *Pterosemopsis* Girault, 1917.

Keywords

New records, new species, Pteromalinae, taxonomy

Introduction

The pteromalid genus *Merismomorpha* Girault, 1913 (type species *Merismomorpha acutiventris* Girault, 1913) belongs to the family Pteromalidae, subfamily Pteromalinae, tribe Pteromalini (Burks et al. 2022).

Until now, the genus comprised fourteen species and appears widely distributed in the Old World. Indeed, five species (*Merismomorpha elongata* Sureshan, 2000; *M. minuta* Sureshan, 2000; *M. tamilnadensis* Sureshan, Manickavasagam & Dhanya,

2013; *M. truncata* Sureshan, 2000; *M. yousufi* Ahmad & Agarwal, 1994) occur in the Oriental region (Ahmad and Agarwal 1994; Sureshan 2000; Narendran et al. 2006; Sureshan et al. 2006). Eight species (*Merismomorpha acutiventris* Girault, 1913; *M. asilus* (Girault, 1915); *M. faunus* Girault, 1933; *M. flavipetiole* (Girault, 1933); *M. fulvicoxa* Girault, 1913; *M. nigra* Girault, 1913; *M. petiolata* (Girault & Dodd, 1915); *M. sicarius* (Girault, 1915)) are distributed in the Australasian region (Bouček 1988; UCD Community 2023). *Merismomorpha gatra* Narendran, 2006 is reported from the mountains of South-Western Yemen, an area that formally belongs to the Afrotropical region (Narendran et al. 2006). While the generic assignation of this species requires to be confirmed, undescribed species are known from the Afrotropical region (Mitroiu et al. 2024). Finally, Koponen and Askew (2002) reported specimens tentatively identified as *Merismomorpha* from the Canary Islands (La Palma and Tenerife) (as "?*Merismorpha* sp.", sic). This archipelago is part of the Macaronesian subregion (Western Palaearctic).

The biology of species of *Merismomorpha* is poorly known. Bouček (1988), based on the biology of closely related genera, suggested the genus as a possible parasitoid of Agromyzidae and other Diptera. However, the only reared *Merismomorpha* species (*M. tamilnadensis*) has been obtained from *Cerococcus* sp. (Hemiptera: Coccoidea: Cerococcidae) on *Hibiscus* sp. (Sureshan et al. 2006). Cerococcidae is a small family of scale insects that comprises several pests of cultivated trees and is distributed worldwide (Hodgson and Williams 2016).

During our study of Pteromalidae of the Eastern Palaearctic region, several specimens of a new species of *Merismomorpha* were collected in forested areas of Eastern Part of Russia and South Korea. These samples represent the first confirmed occurrence of the genus in the Palaearctic region. Hereafter, we describe this new Palaearctic species of *Merismomorpha*. A comparative diagnosis of *Merismomorpha* Girault is also given.

Material and methods

The material used in this study is deposited in the Hymenoptera collections of the Natural History Museum, London, United Kingdom (**NHMUK**), National Institute of Biological Resources, Incheon, Republic of Korea (**NIBR**), Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia (**ZISP**) and Zoological Survey of India, Western Ghats Field Research Station, Kerala, India (**ZSIK**).

Morphological terminology, including sculpture and wing venation nomenclature, follows Bouček and Rasplus (1991); Gibson (1997) and Burks et al. (2022). The following abbreviations are used: **POL** – posterior ocellar line, the minimum distance between the posterior ocelli; **OOL** – ocello–ocular line, the minimum distance between a posterior ocellus and compound eye; **clv$_1$**–**clv$_4$** – clavomeres 1–4; **mv** – marginal vein; **stv** – stigmal vein; **pmv** – postmarginal vein; **fu$_1$**–**fu$_5$** – funicular segments 1 to 5; **Mt$_1$** – petiole; **Mt$_2$**–**Mt$_8$** – metasomal terga posterior to petiole. The scape is measured without the radicle; the pedicel is measured in lateral view. The distance between the clypeal lower margin and the toruli is measured from the lower margins of the toruli. Eye height is measured as maximum diameter, eye length as minimum diameter. Eye, mesosoma and metasoma are measured in lateral view, the latter including the ovipositor sheaths.

Taxonomy

Merismomorpha Girault, 1913

Epipolycystus Girault, 1915: 336. Type species: *Epipolycystus asilus* Girault, 1915, by original designation. Synonymy by Bouček (1988: 461).

Giorgionia Girault, 1933. Type species: *Giorgionia flavipetiole* Girault, 1933, by monotypy. Synonymy by Bouček (1988: 461).

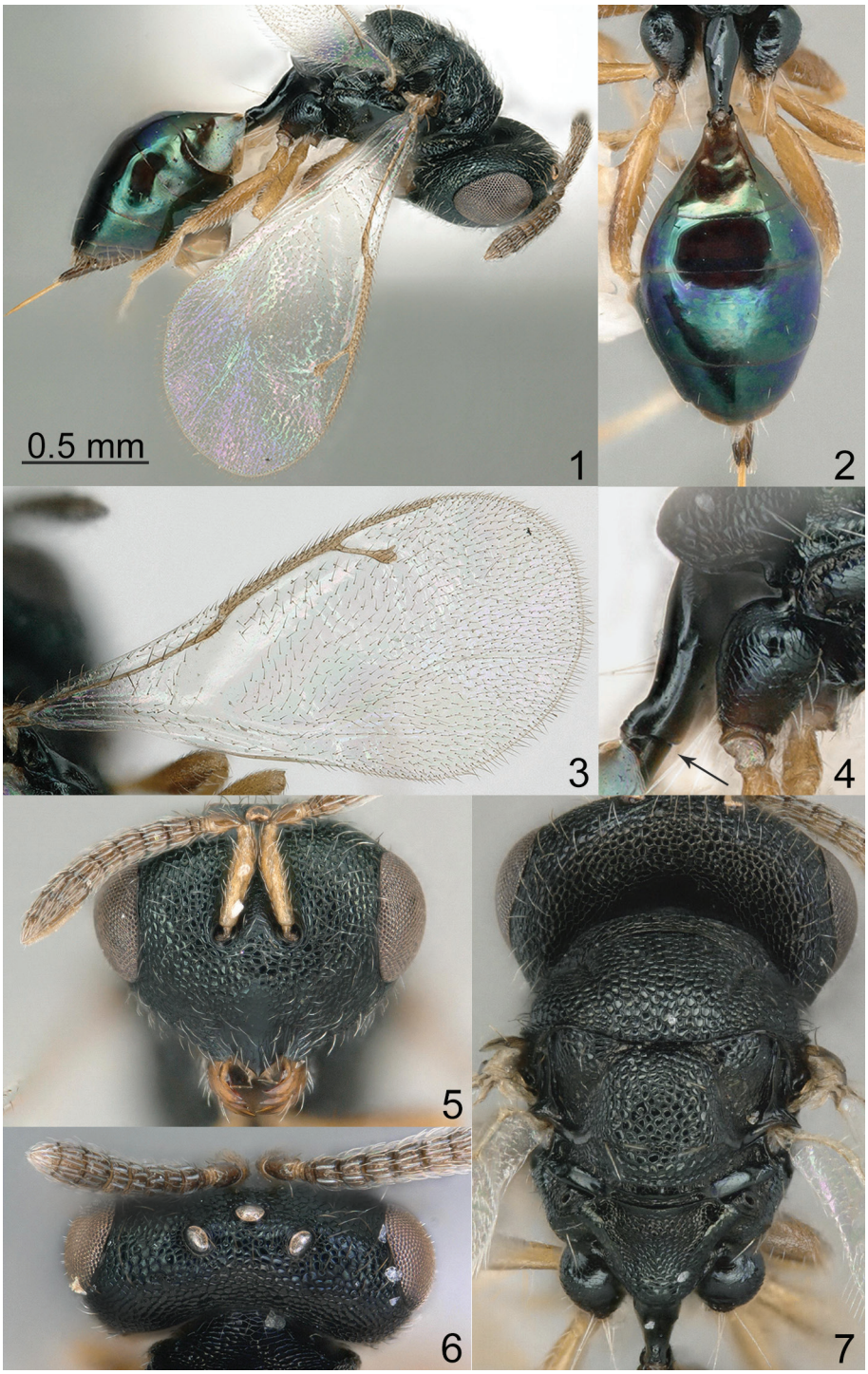
Neopolycystella Girault, 1915: 336. Type species: *Neopolycystella sicarius* Girault, 1915, by original designation. Synonymy by Bouček (1988: 461).

Type species. *Merismomorpha acutiventris* Girault, 1913, by original designation Girault (1913: 82–83).

Diagnosis. Head without occipital carina (Fig. 7). Gena with a shallow malar depression; genal lamina absent. Clypeal margin medially produced, subconical (Figs 5, 17). Antennal formula 11354 (Fig. 5); flagellum slightly or obviously clavate; clava symmetric, area of micropilosity large, extending from distal clv_1 to clv_4 (Fig. 5). Antenna inserted above lower ocular line; antennal protuberance absent; scrobes shallow (Figs 5, 17). Pronotum short with collar not carinate (Figs 1, 7, 14); notauli complete (Figs 7, 15) or incomplete. Mesoscutellum arched, frenal area not raised (Figs 1, 14). Propodeum reticulate with conspicuous,long and posteriorly converging plical furrows; costula and median carina absent, nucha distinct; propodeal spiracle inserted close to anterior propodeal margin (Fig. 7). Fore wing hyaline, with distinct speculum; mv not widened and longer than stv and pmv (Figs 3, 16). Hind coxa dorsally bare (Fig. 4, 14). Petiole in dorsal view smooth and fusiform (Fig. 2); in lateral view appears as bipartite and curved (Fig. 4). Mt_2 large with tapered base (Fig. 2), cerci with setae subequal in length, ovipositor shortly protruding.

Remarks. *Merismomorpha* Girault belongs to a small group of pteromaline genera with elongated petiole (Bouček 1988); it looks similar to *Pterosemopsis* Girault, 1917, with which it could be confused. Indeed, the two genera exhibit shared characters: a lower clypeal margin medially produced and subconical (Figs 5, 10, 17); antennal formula 11354 (Figs 5, 8); antennal toruli situated above level of lower ocular line (Figs 5, 10, 17); propodeum with converging plical furrows (Figs 7, 9, 11); long and smooth petiole (Figs 2, 11). However, *Merismomorpha* differs from *Pterosemopsis* by the petiole in lateral view appears as bipartite and curved (Fig. 4) *vs* petiole in lateral view appears as single and not curved in lateral view (Fig. 8); frenal area of mesoscutellum not raised (Fig. 1) *vs* raised (Figs. 8, 12); collar margin of pronotum not carinate (Fig. 1) *vs* carinate (Fig. 8).

Accurate circumscription and diagnoses of these genera have not been published yet and only the key to Australasian genera of Pteromalidae (Bouček 1988) can be used to separate them, which could be troublesome for Oriental species. Indeed, some of the species of *Pterosemopsis* have erroneously been identified as belonging to *Merismomorpha*. Likewise, some species of *Merismomorpha* may not belong here (e.g. *M. gatra*) (Sureshan et al. 2006) and the two genera are in need of revision.



Figures 1–7. *Merismomorpha ulleungensis* Tselikh, Rasplus & Ku, sp. nov., holotype female **1** body, lateral view **2** metasoma, dorsal view **3** fore wing **4** petiole and hind coxa, lateral view **5** head and antenna, frontal view **6** head, dorsal view **7** mesosoma and propodeum, dorsal view.

***Merismomorpha ulleungensis* Tselikh, Rasplus & Ku, sp. nov.**
https://zoobank.org/BDD0E889-00E9-4757-AB8B-4795A5295593
Figs 1–7

Description. Female. Body length 1.50–1.90 mm. Fore wing length 1.20–1.40 mm.

Head black; antenna with scape yellowish-brown, pedicel and flagellum brown. Mesosoma and all coxae black; all femora brown; all tibiae and tarsi yellowish-brown. Fore wing hyaline, venation brown. Metasoma dark metallic bluish-green with diffuse violet iridescence; ovipositor sheath dark brown.

Head reticulate; clypeus and area above clypeus shallowly alutaceous. Mesosoma reticulate; lateral part of propodeum finely reticulate, nucha shallowly alutaceous. Petiole and gaster smooth and shiny.

Head in dorsal view 2.24–2.30 times as broad as long and 1.28–1.32 times as broad as mesoscutum; in frontal view 1.21–1.23 times as broad as high. Lower margin of clypeus angulate. POL 0.96–1.05 times OOL. Eye height 1.30 times eye length and 1.70–1.76 times as long as malar space. Distance between antennal toruli and lower margin of clypeus 1.45–1.57 times distance between antennal toruli and median ocellus. Antenna with scape 0.73–0.80 times as long as eye height and 0.95–1.07 times as long as eye length; pedicel 1.62–1.70 times as long as broad and 1.63–1.65 times as long as fu_1; combined length of pedicel and flagellum 0.82–0.84 times breadth of head; fu_1–fu_5 wider than long; clava 2.20–2.40 times as long as broad.

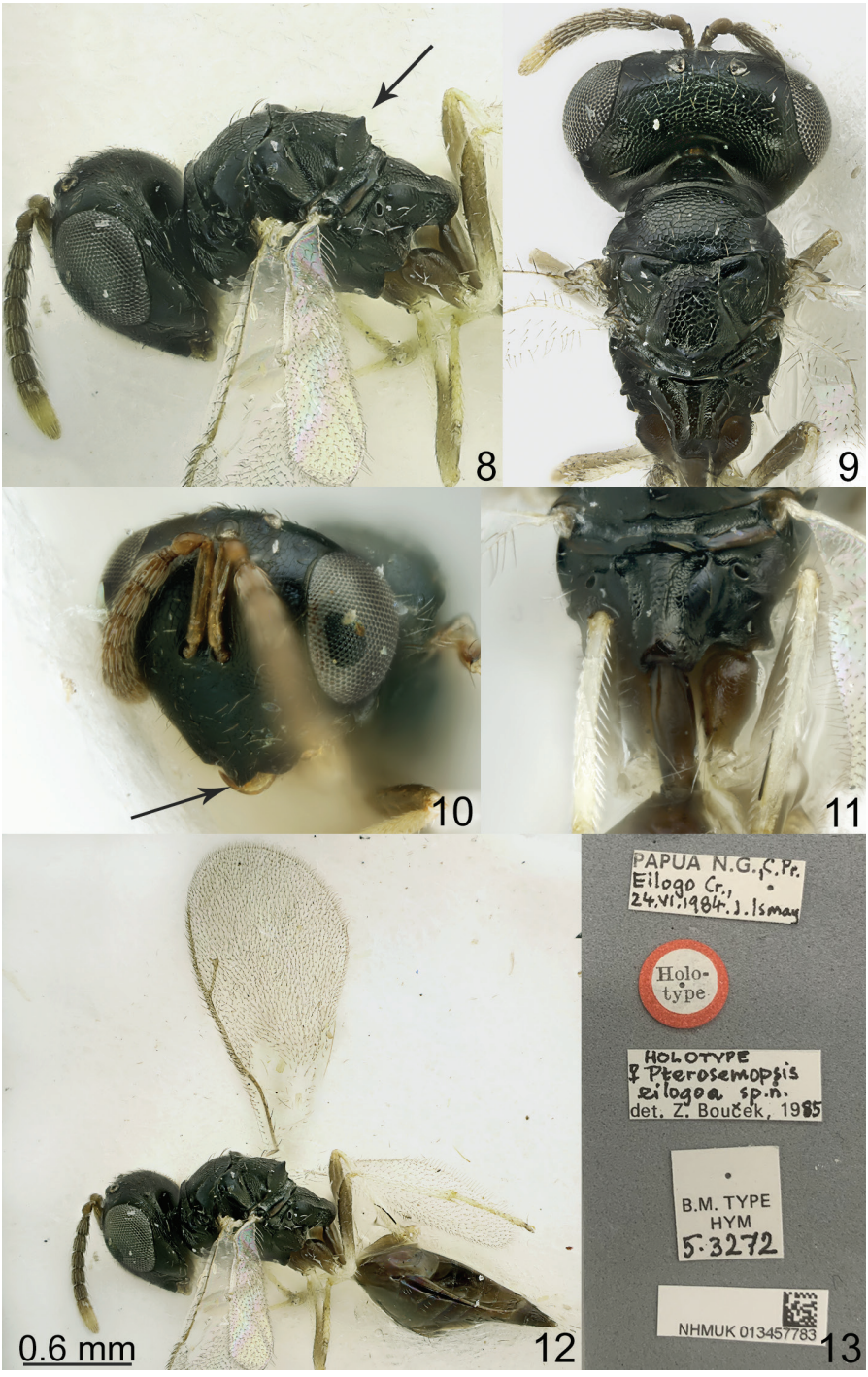
Mesosoma 1.45–1.55 times as long as broad. Mesoscutellum 0.88–0.90 times as long as broad. Propodeum 0.87–0.93 times as long as mesoscutellum. Fore wing 2.15–2.20 times as long as maximum width; basal cell partly pilose; basal vein pilose; speculum closed; mv 1.32–1.40 times as long as pmv and 2.09–2.22 times as long as stv.

Gaster 1.65–2.20 times as long as broad, 0.95–0.96 times as long as mesosoma and 0.72–0.74 times as long as mesosoma and head. Petiole fusiform, 2.55–2.63 times as long as broad and longer than hind coxa. Mt_2 and Mt_3 posteriorly not emarginate. Ovipositor sheath projecting beyond apex of metasoma.

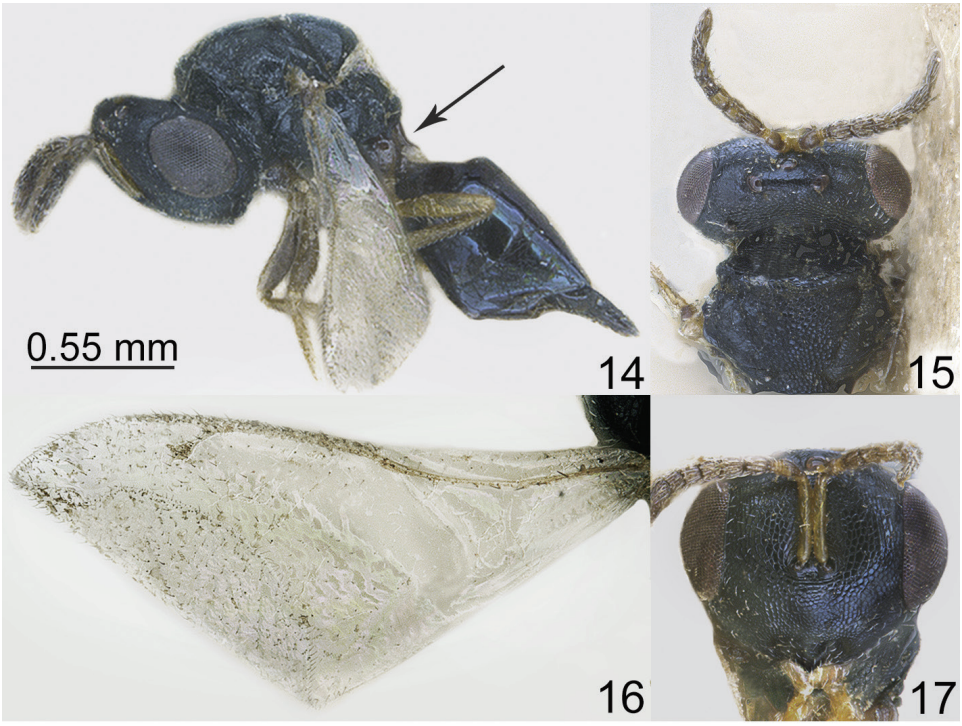
Comparative diagnosis. The new species shares similarities with *Merismomorpha minuta* Sureshan, 2000: clypeus with angulate lower margin (Figs 5, 17), scape not reaching lower edge of median ocellus (Figs 5, 17), fore wing with mv longer than pmv (Figs 3, 16). However, *M. ulleungensis* has POL 0.96–1.05 times OOL (Fig. 6); the basal cell of fore wing is partly pilose; basal vein pilose, mv 1.32–1.40 times as long as pmv (Fig. 3), petiole longer than hind coxa (Fig. 4); whereas *M. minuta* has POL 1.30–1.40 times OOL (Fig. 15), basal cell and basal vein bare, mv 2.20–2.32 times as long as pmv (Fig. 16); petiole shorter than hind coxae (Fig. 14).

Etymology. The species is named in honour of the type locality, Ulleung-do Island (adjective).

Material examined. ***Holotype*:** South Korea • ♀; **Ulleung-do**, Ulleung-gun, Seo-myeon, Hakpo-ri, Malaise Trap, 37.5021918734491, 130.804925476545, 01–15.VIII.2017, coll. D.S Ku; deposited in NIBR. ***Paratype***: Russia • 1 ♀; **Amur Prov.**, Chingan Reserve, 24 km W Archara Vill., Kleshinskoe Lake, 10–11.VIII.2022, coll. O. Kosheleva; deposited in ZISP.



Figures 8–13. *Pterosemopsis eilogoa* Bouček, 1988, holotype female (NHMUK) **8** head and mesosoma, lateral view **9** head and mesosoma, dorsal view **10** head and antenna, frontal view **11** propodeum and petiole, dorsal view **12** body, lateral view **13** labels.



Figures 14–17. *Merismomorpha minuta* Sureshan, 2000, holotype female (ZSIK) **14** body, lateral view **15** head and mesosoma, dorsal view **16** fore wing **17** head, frontal view.

Male. Unknown.
Distribution. Russian Far East, South Korea.

Acknowledgements

This work was supported by a grant from the National Institute of Biological Resources (NIBR), funded by the Ministry of Environment (MOE) of the Republic of Korea (NIBR201801201, NIBR202402202). And it was partially funded by Russian State Research (project No. 122031100272-3). AG is grateful to Director ICAR-NBAIR for research support and to Dr P. M. Sureshan, ex Officer-Incharge, WGRC, ZSI, Kozhikode for sharing the images of *Merismomorpha minuta*.

References

Ahmad MJ, Agarwal MM (1994) A new species of *Merismomorpha* Girault (Chalcidoidea: Pteromalidae) from north India. Journal of Entomological Research 18(3): 229–232.

Bouček Z (1988) Australasian Chalcidoidea (Hymenoptera). A biosystematic revision of genera of fourteen families, with a reclassification of species. CAB International, Wallingford, Oxon, U.K., Cambrian News Ltd; Aberystwyth, Wales, 832 pp.

Bouček Z, Rasplus J-Y (1991) Illustrated key to West-Palaearctic genera of Pteromalidae (Hymenoptera: Chalcidoidea). Institut National de la Recherche Agronomique, Paris, 140 pp.

Burks R, Mitroiu M-D, Fusu L, Heraty JM, Janšta P, Heydon S, Papilloud ND-S, Peters RS, Tselikh EV, Woolley JB, van Noort S, Baur H, Cruaud A, Darling C, 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. https://doi.org/10.3897/jhr.94.94263

Gibson G (1997) Morphology and Terminology. In: Gibson GAP, Huber JT, Woolley JB (Eds) Annotated Keys to the Genera of Nearctic Chalcidoidea (Hymenoptera). NRC Research Press, Ottawa, 16–44.

Girault AA (1913) Some chalcidoid Hymenoptera from north Queensland. Archiv für Naturgeschichte (A) 79(6): 70–90.

Girault AA (1915) Australian Hymenoptera Chalcidoidea IV. Supplement. Memoirs of the Queensland Museum 3: 180–299.

Girault AA (1933) Some beauties inhabitant not of commercial boudoirs but of nature's bosom, notably new insects. Brisbane, private publication, 5 pp.

Hodgson CJ, Williams DJ (2016) A revision of the family Cerococcidae Balachowsky (Hemiptera: Sternorrhyncha, Coccomorpha) with particular reference to species from the Afrotropical, western Palaearctic and western Oriental Regions, with the revival of *Antecerococcus* Green and description of a new genus and fifteen new species, and with ten new synonomies. Zootaxa 4091(1): 1–175. https://doi.org/10.11646/zootaxa.4091.1.1

Koponen M, Askew RR (2002) Chalcids from Madeira, Canary Islands and Azores (Hymenoptera, Chalcidoidea). Vieraea (Folia Scientarum Biologicarum Canariensum) 30, 115–145.

Mitroiu MD, Rasplus J-Y, van Noort S (2024) New genera of Afrotropical Chalcidoidea (Hymenoptera: Cerocephalidae, Epichrysomallidae, Pirenidae and Pteromalidae). PeerJ 12, e16798. https://doi.org/10.7717/peerj.16798.

Narendran TC, Girish Kumar P, Sheeba M, Kishore L (2006) Three new species of Pteromalidae (Hymenoptera: Chalcidoidea) from middle-east. Uttar Pradesh Journal of Zoology 26(1): 29–34.

Sureshan PM (2000) Taxonomic studies on *Merismomorpha* with the description of three new species from India (Hymenoptera: Chalcidoidea: Pteromalidae). Records of the Zoological Survey of India 98: 103–110. https://doi.org/10.26515/rzsi/v98/i3/2000/159665

Sureshan PM, Manickavasagam S, Dhanya B (2006) A review of the Oriental species of *Merismomorpha* Girault (Hymenoptera: Pteromalidae) with description of a new species parasitising *Cerococcus* sp. (Hemiptera: Sternorrhyncha: Cerococcidae) from Tamil Nadu, India. Hexapoda (Insecta indica) 19(1): 15–21.

UCD Community (2023) Universal Chalcidoidea Database (UCD) curated in TaxonWorks, 1143. https://sfg.taxonworks.org/api/v1/ [Accessed on 04 August 2024]