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First record of *Rhoptromeris heptoma* Hartig, 1840 (Hymenoptera: Cynipoidea, Figitidae) for the fauna of Egypt

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ABSTRACT

During the investigation of parasitoids in the fields of Kafr El- Sheikh Governorate in April and May. One sample of wasp from the family Figitidae from the Sugar beet was collected, this sample was identified under the species name *Rhoptromeris heptoma*, that for the first time, its genus and species are reported from Egypt.

Keywords: New parasitoid, Rhoptromeris, Figitidae, Eucoilinae, Palearctic species, Sugar beet

1. Introduction

Hymenopterous parasitoids have immense importance in natural and agricultural ecosystems, where they influence or regulate the population density of many pests (Godfray,1994). *Rhoptromeris* is a genus of small wasps of the characteristic figitid subfamily Eucoilinae. They are usually less than 2 mm long, and as far as known are koinobiont larval- pupal parasitoids of Chloropidae (Diptera) (Noort *et al.,* 2015).

The genus belongs to the tribe Trichoplastini Kovalev 1989, where it shares with *Nanocthulhu* Buffington, 2012, *Angustacorpa* Quinlan, 1988, *Stentorceps* Quinlan, 1984 and *Trichoplasta* Benoit, 1956 the lateral bridges on the pronotal plate and the modified second flagellomere of the male's antenna. *Rhoptromeris* can be further distinguished by the sloping scutellum, narrow wings and marginal cell with both abscissae of approximately the same size (Nordlander 1978). *Rhoptromeris* has a cosmopolitan distribution with the exception of the Neotropical region (Forshage and Nordlander 2008). The centre of diversity for the genus is in the Afrotropical region, where most of the described species occur (Quinlan 1986).

The European fauna is second in numbers of described species and was revised by Nordlander (1978), who presented a redescription of the genus, provided information about its biology and dealt with a number of nomenclatural issues.

Females of most *Rhoptromeris* search for hosts on grass or low-growing vegetation (Nordlander 1978). The parasitoid habits of *Rhoptromeris hepatoma* Hartig, 1941 have been extensively studied, as the species attacks *Oscinella frit* (L.) (Diptera: Chloropidae), a common pest of cereals (Nordlander 1978).

The aim of the present study is to revise the Egyptian species of *Rhoptromeris*.

2. Material and Methods

A very limited number of samples were obtained through using sweeping net in the morning (10-12 a.m.) on 1, 15, 30 April and 1, 15 and 30 May, 2022. These were invaluable for the study and represent a substantial part of the material from which some of the new species are described in Egypt.

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Descriptions are based on observation of specimen made with stereo microscopes (14x 2x). Names of morphological structures are based on Fontal-Cazalla *et al.* (2002), Nordlander (1978) and Nordlander and Grijpma (1991).

Allahvaisa *et al.* (2020) recorded *R. hepatoma* in sugar beet fields of the Hamedan province, Iran in October 2019. This genus and species are new records for the funa of Iran. *Rhoptromeris* is widely distributed in the world including Afrotropical region through which most of described species of this genus are known to occur (Quinlan, 1986). *R. hepatoma* was also reported from China (Dong and Yang, 1985).

3. Results and Discussion

***Rhoptromeris* Förster, 1869**

Synonyms:

Rhoptromeris Förster, 1869 type *Cothonaspis eucera* Hartig, 1841.

Miomoera Förster, 1869 type *Miomoera aberrans* Förster, 1869.

Hexamerocera Kieffer, 1901 type *Eucoila rufiventris* Giraud, 1860.

Striatellia Belizin, 1966 type *Striatellia armeniaca* Belizin, 1966.

Diagnosis:

Relatively smaller size or usually less than 2 mm and elongate, Pronotal plate with lateral bridges and closed lateral pits. Posterior part of scutellum sloping (in lateral view), not distinctly protruding over propodeum or lacking a protruding posterior lobe; broadly rounded distinctly striate, especially anteriorly (in dorsal view). Wings narrow with a narrow triangular marginal cell. Mesosoma elongate, usually almost twice as long as high. Males usually have a strongly modified antennal F2 (second flagellomere).

1. *Rhoptromeris heptoma* (Hartig, 1840) Figure 1

Synonyms:

Rhoptromeris carinata Ionescu, 1969 wPA.

Rhoptromeris dichromata sp. nov. wPA.

Rhoptromeris heptoma (Hartig, 1840) wPA.

Cothonaspis heptoma Hartig, 1840.

Cothonaspis biscapa Hartig, 1840.

Cothonaspis eucera Hartig, 1841.

Cothonaspis tristis Hartig, 1843.

Eucoila nodosa Giraud, 1860.

Eucoila parvula Thomson, 1862.

Miomoera aberrans Förster, 1869.

Eucoela (*Rhoptromeris*) *aequalis* Kieffer, 1901.

Eucoela (*Rhoptromeris*) *graciliclava* Kieffer, 1902.

Specimens examined: Sakha**,** Kafer El- Sheikh, 7.9.2022 ♂ by sweeping.

Description:

Black brown, length 2 mm. Compound eyes and ocelli relatively small. Male antennae 15 entirely dark segmented, flagellomeres stout, 2nd flagellomere strongly and clearly longer than 1st flagellomere

(Pl. a; Fig. 1). Foveae of pronotal plate separated by a medial bridge (Pl. b; Fig. 1). Lateral bars of scutellum polished, scutellar foveae almost round, scutellar disc punctate-reticulate to almost smooth, rounded apically, scutellar cup longer than broad, elliptical (Pl. c; Fig. 1). Metapleura with an anteroventral cavity, posterior margin at most weakly depressed, anteroventral cavity of metapleura present, posterior incision of metapleura absent. Legs black and yellowish, rather short; femora of fore and middle legs expanded or enlarged. Wings relatively narrow**,** veins brownish surfaces pubescent, margins with apical hair fringe, radial cell of forewing closed on margin, Rs2 and Rs1 of equal length, M and Rs+M indicated (Pl. d; Fig. 1).

Distribution:

Africa: Democratic Republic of Congo, South Africa, Zaire Asia: China
Europe: Austria, British Islands, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Italy, Lithuania, Norway, Poland, Romania, Russia (uncertain: 'USSR' records), Slovakia, Slovenia, Spain, Sweden, Switzerland, The Netherlands, Ukraine. (Forshage et al. 2017; Baião and Forshage, 2018).

Distribution in Egypt: Lower Nile.
Hosts in Egypt: Unknown.

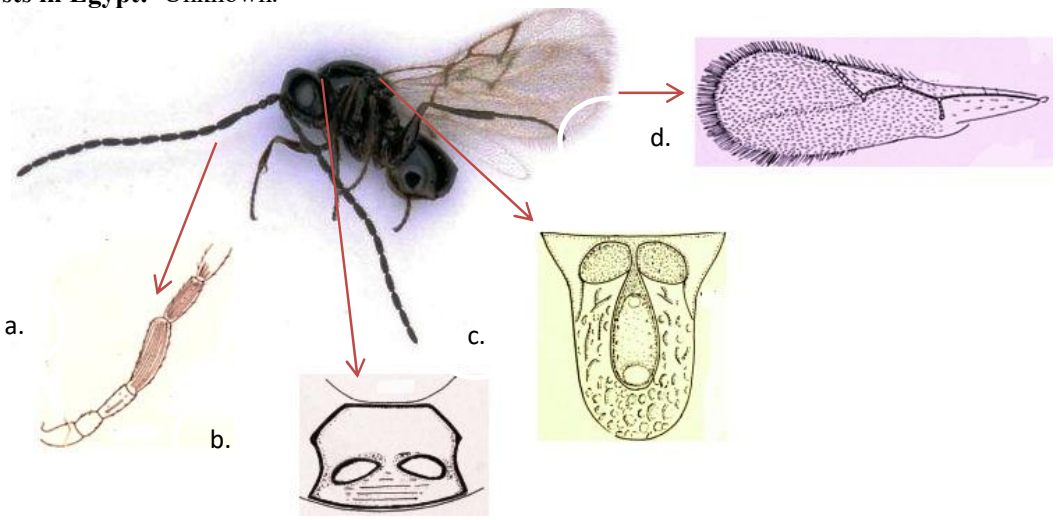

Fig. 1: *Rhoptromeris hepatoma* (Hartig, 1840) (Hym., Figitidae, Eucoilinae), male, lateral

Remarks:

Rhoptromeris species are considered to be poorly adapted for flight due to the narrow wings and small eyes (Nordlander and Grijpma 1991), a hypothesis supported by the fact that specimens are most often collected in grassy areas or among low-growing vegetation, where they presumably find their hosts (Nordlander 1978).

Rhoptromeris ubiquitous; the most common genus of eucoilines in Africa, which reflects the morphological plasticity and complexity of the genus. Though many Afrotropical species have been described, there are undoubtedly many more undescribed species awaiting description. Further, Quinlan's (1986) reliance on antennal characters to separate species within *Rhoptromeris* will have to be revisited too, since antennal characters themselves without other characters are frequently unreliable in figitid taxonomy.

The morphological characters of *R. heptoma* was described by Nordlander (1978) and Nordlander and Grijpma (1991) as follows: Metapleura with an anteroventral cavity, posterior margin at most weakly depressed, foveae of pronotal plate separated by a medial bridge, compound eyes and ocelli relatively small, male antenna 13-segmented entirely dark.

4. Acknowledgement

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References

Allahvaisi, S., M. Hassani and E. Ebrahimi, 2020. First report of *Rhoptromeris heptoma* (Hymenoptera: Figitidae) for the fauna of Iran. Journal of Entomological Society of Iran, 40 (2): 233-235.

Baião, G. C. and M. Forshage, 2018. Revision of the West Palaearctic species of *Rhoptromeris* Förster, 1869 (Hymenoptera: Figitidae: Eucoilinae), Journal of Natural History, 52: 17-18, 1201-1224.

Fontal-Cazalla, F. M., M. L. Buffington, G. Nordlander, J. Liljeblad,P. Ros-Farré, J. L. Nieves-Aldrey, J. Pujade Villar and F. Ronquist (2002). Phylogeny of the Eucoilinae (Hymenoptera: Cynipoidea: Figitidae). Cladistics, 18: 154-199.

Forshage, M. and G. Nordlander, 2008. Identification key to European genera of Eucoilinae (Hymenoptera, Cynipoidea, Figitidae). Insect Syst Evol. 39:341-359.

Forshage M., J. Bowdrey, G. Broad, B. Spooner and F. van Veen, 2017. Checklist of British and Irish Hymenoptera - Cynipoidea. Biodiversity Data Journal 5: e8049. https://doi.org/10.3897/BDJ.5.e8049.

Förster, A., 1869. Ueber die Gallwespen. Verhandlungen der kaiserlich-königlichen zoologisch-botanischen Gesellschaft in Wien 19: 327-370.

Godfray, H. C. J., 1994. Parasitoids: Behavioural and Evolutionary Ecology. Princeton University Press, Princeton.

Kovalev, O. V., 1989. A new tribe and a new genus of eucoilid wasps (Hymenoptera, Cynipoidea, Eucoilidae). Trudy Zoologitseskogo Instituta an SSSR Leningrad. 188: 109-113. Russian.

Nordlander, G, 1978. Revision of the genus *Rhoptromeris* Förster, 1869 with reference to northwestern European species. Studies on Eucoilidae (Hym.: Cynipoidea) II. Entomol Scand. 9: 47-62.

Nordlander, G. and P. Grijpma, 1991. Systematics and biology of Rhoptromeris strobigena sp. n., a parasitoid of chloropids inhabiting conifer cones (Hymenoptera: Cynipoidea: Eucoilidae). Entomol Scand. 22: 209-218.

Quinlan, J, 1986. A key to the Afrotropical genera of Eucoilidae (Hymenoptera), with a revision of certain genera. Bull Br Mus Nat Hist Entomol. 52: 243-366.

Van Noort, S., M. L. Bungton and M. Forshage, 2015. Afrotropical Cynipoidea (Hymenoptera). ZooKeys, 493: 1-176.