

Short Paper

First record of the genus and species *Phaneroserphus punctibasis* Townes, 1981 (Hymenoptera: Proctotrupidae) from Iran

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Abstract: The genus *Phaneroserphus* Pschorn–Walcher, 1958 is recorded for the first time from Iran and its allied species, *Phaneroserphus punctibasis* Townes, 1981 is recorded from West Palaearctic region for the first time. The specimens were collected from Mazandaran Province during 2011 using Malaise traps. Diagnostic characters and geographical distribution of the newly recorded genus and species is briefly discussed.

Keywords: Proctotrupidae, *Phaneroserphus*, Iran, First record

Introduction

The Proctotrupidae is a small family of parasitic wasps (Hymenoptera: Proctotrupeoidea) with about 400 species which occur mainly in temperate and humid climates (Kolyada and Perkovsky, 2011). Most species are endoparasitoids of coleopteran larvae, especially Carabidae, Elateridae and Staphylinidae (Townes and Townes, 1981).

The genus *Phaneroserphus* Pschorn–Walcher, 1958 with 9 species is a small genus in the family Proctotrupidae (Townes and Townes, 1981; Fan and He, 1991; Liu *et al.*, 2011). Species of this genus are mainly distributed in Oriental and Holarctic regions (Townes and Townes, 1981; Liu *et al.*, 2011) and only one species *Phaneroserphus calcar* (Haliday, 1839) is reported from West Palaearctic (Kolyada, 1998). Among these wasps only, biology of *Ph. calcar* is known. This species has been reported as larval

parasitoid of *Quedius simplicifrons* Fairmaire, 1861, *Bolitochara obliqua* Erichson, 1837 (Coleoptera: Staphylinidae) and *Lithobius forficatus* (Linnaeus, 1758) (Chilopoda: Lithobiomorpha: Lithobiidae) (Pschorn–Walcher, 1971; Townes and Townes, 1981). No species of the genus *Phaneroserphus* has previously been reported from Iran.

Materials and Methods

Materials for this study were collected from north of Iran (Mazandaran province) in 2011 using Malaise. The specimens were extracted from the traps and sorted weekly, transferred to ethyl alcohol 70% and then stored in the freezer, for further study. For the preparation of samples, they were transferred to a mixture of 40% xylene and 60% alcohol 96%, for two days then to amyl acetate for one day and finally placed on a piece of blotter paper for drying (AXA method, van Achterberg, 2009). The dried specimens were card mounted and labeled. Relevant literature (Townes and Townes, 1981; Kolyada, 1998) were used for identification of the specimens. Illustrations

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were taken using an Olympus™ SZX9 stereomicroscope equipped with a BMZ-04-DZ™ digital imaging system (Behin Pajouhesh Co., Iran). A series of 4–5 captured images were merged into a single in-focus image using the image-stacking software, Combine ZP1.0. The terminology for morphological characters follows Townes and Townes (1981) and Kolyada (1998). All specimens are deposited in the insect collection of the Department of Entomology, Tarbiat Modares University, Tehran (TMUC).

Results

The genus *Phaneroserphus* and a single species, *P. punctibasis* is reported for the first time from Iran.

Genus: *Phaneroserphus* Pschorn–Walcher, 1958

Type species: *Proctotrupes calcar* Haliday, 1839

Diagnosis (Female and male): (Fig. 1a) Front of head with a high to very high median vertical carina between antennal sockets and on lower part of fronts; mandible with one tooth; lateral aspect of pronotum smooth except for a weak carina diverging from collar, with hairs anteriorly, near upper edge and on hind corner, elsewhere hairless; propodeum with reticulate wrinkles, its upper face with a median carina and usually with a smooth area near base on each side of median carina; longer spur of hind tibia shorter than hind basitarsus, tarsal claws simple; stalk of abdomen about 1.1 times as long as width in dorsal view; lower half of lateral aspect of syntergite quite hairless; ovipositor sheath with sparse punctures, weakly decurved and tapered to a point.

***Phaneroserphus punctibasis* Townes, 1981 (Figs. 1a-c)**

Material examined: 2♀♀, 1♂; Mazandaran province, Noor, Chamestan, Tangehvez (36°18'51.42" N, 52°07'48.00" E, 1353 m a.s.l.), 13.VII.2011, 1♀; 03.VIII.2011, 1♀; 05-IX-2011, 1♂, leg. M. Khayrandish.

Diagnosis:

Female: Length of body 3.1–3.6 mm; ridge between antennal sockets moderately high, without secondary ridge; second flagellar segment 2.8 times longer than its maximum width, tenth of flagellar segment 2.5 times longer than its maximum width; propodeum with median longitudinal carina and laterally reticulately rugose (Fig. 1b); metapleuron punctato-rugulose (Fig. 1c); stalk of abdomen 1.2 times as long as wide (Fig. 1b); in dorsal view with transverse rows of small punctures (Fig. 1b), in lateral view with three transverse rows of small punctures on base and with eight longitudinal ridges on apical (Fig. 1c); base of syntergite with median groove, its length 0.8 times the distance between base of syntergite to first thyridia, each side of median groove with 2 lateral grooves? (Fig. 1b); length of ovipositor sheath 0.3 times as long as hind tibia and with sparse punctures; body black, scape and pedicel yellowish brown, flagellum brown and legs brownish yellow (Fig. 1a).

Male: Similar to female expect that second flagellar segment is 3.2 times longer than its maximum width, tenth flagellar segment 3.0 times longer than its maximum width; stalk of abdomen in dorsal view with reticulate transverse wrinkles on its basal and with longitudinal wrinkles on its apical part.

Distribution: China (Liu *et al.*, 2011), Japan (Townes and Townes, 1981), Russian Far East (Kolyada, 1998) and Iran (new record).

Biology: Unknown.

Key to species of the genus *Phaneroserphus* in West Palearctic (Female base)

- Stalk of abdomen with transverse rows of small punctures in dorsal view (Fig. 1b)
..... *Phaneroserphus punctibasis* Townes, 1981
- Stalk of abdomen without transverse rows of small punctures in dorsal view, with transverse wrinkles
..... *Phaneroserphus calcar* (Haliday, 1839)

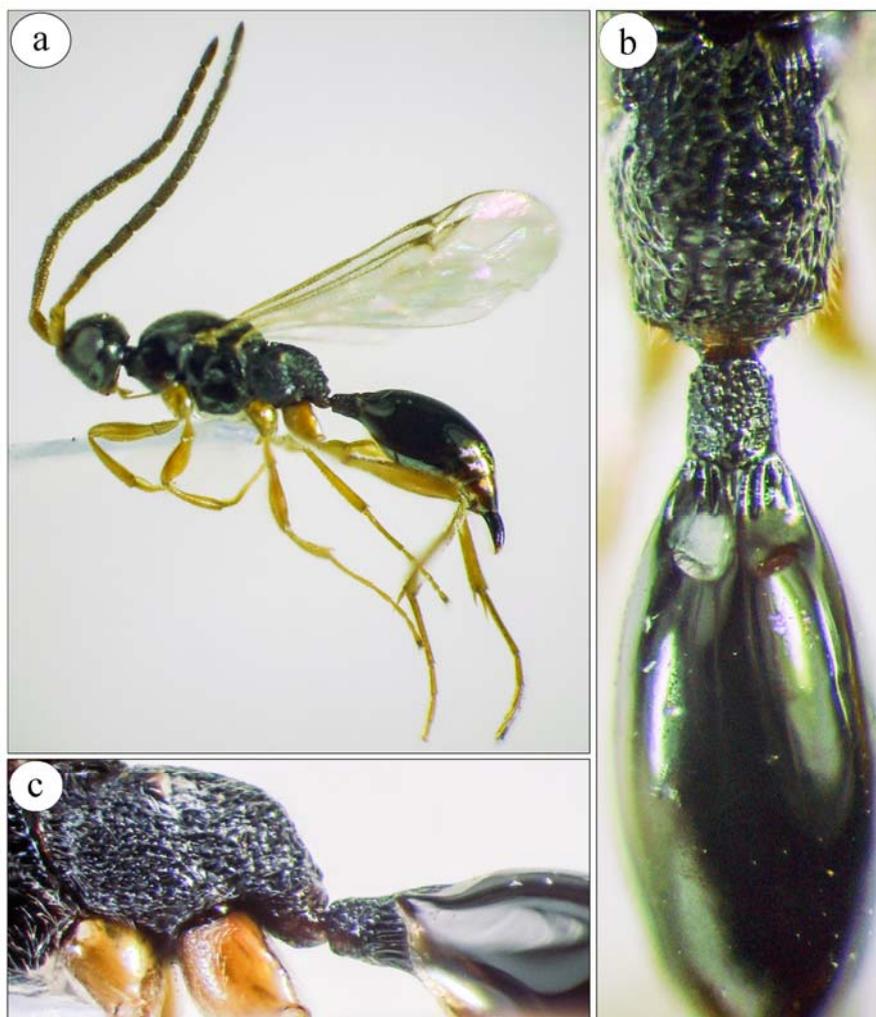


Figure 1 *Phaneroserphus punctibasis*, female: a) Lateral habitus, b) propodeum and metasoma, dorsal view, c) metapleuron, propodeum and base of metasoma, lateral view.

Discussion

Among the species of genus *Phaneroserphus*, only *P. calcar* is reported from West Palaearctic region and it is a very common species in different European countries (Pschorn–Walcher, 1964; Townes and Townes, 1981; Kolyada, 1998), however we have collected *Ph. punctibasis* from north of Iran. *Phaneroserphus punctibasis* is distributed in China, Japan and Russian Far East (Kolyada, 1998; Liu *et al.*, 2011) and is reported from West Palaearctic for the first time.

Due to the rich biological diversity in Iran, we believe that more species of *Phaneroserphus*

might be occurring in Iran. In the fact, only a small part of the country has been explored, while the major parts with highly variable climatic conditions and vegetations are left unexplored. Therefore, further field work in Iran should be carried out.

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References

- Fan, J. and He, J. 1991. Two new species of the genus *Phaneroserphus* Pschorn-Walcher (Hymenoptera Serphidae) from China. Wuyi Science Journal, 8 (12): 63-66.
- Kolyada, V. A. 1998. Fam. Proctotrupidae, part., In: Lehr, P. A. (Ed.), Key of The Insects of Russian Far East. Vol. 4. Neuropteroidea, Mecoptera, Hymenoptera, Part 3. Vladivostok: Dalnauka, pp. 666-675 (In Russian).
- Kolyada, V. and Perkovsky, E. 2011. A new species of the genus *Disogmus* Förster (Hymenoptera, Proctotrupoidea, Proctotrupidae) from the Eocene Rovno amber. Zookeys, 130: 455-459.
- Liu, J., He, J. and Xu, Z. 2011. Study on the genus *Phaneroserphus* Pschorn-Walcher, 1958 (Hymenoptera, Proctotrupidae) from China. Acta Zootaxonomica Sinica, 36 (2): 257-263.
- Pschorn-Walcher, H. 1964. A list of Proctotrupidae of Japan with descriptions of two new species (Hymenoptera). Insecta Matsumurana, 27: 1-7.
- Pschorn-Walcher, H. 1971. Hymenoptera: Heloridae et Proctotrupidae. Insecta Helvetica Zurich, pp. 1-64.
- Townes, H. and Townes, M. 1981. A revision of the Serphidae (Hymenoptera). Memoirs of the American Entomological Institute, 32: 1-541.
- van Achterberg, C. 2009. Can Townes type Malaise traps be improved? Some recent developments. Entomologische Berichten Amsterdam, 69 (4): 129-135.

اولین گزارش جنس و گونه‌ی *Phaneroserphus punctibasis* Townes, 1981 (Hymenoptera: Proctotrupidae) از ایران

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چکیده: در این مطالعه جنس *Phaneroserphus* Pschorn-Walcher, 1958 برای اولین بار از ایران و گونه‌ی *Phaneroserphus punctibasis* Townes, 1981 برای اولین بار از ناحیه پالئارکتیک غربی گزارش می‌شود. نمونه‌ها با استفاده از تله‌ی مالیز از استان مازندران طی سال ۱۳۹۰ جمع‌آوری گردید. مشخصات افتراقی و پراکنش جغرافیایی جنس و گونه‌ی گزارش شده، به‌طور مختصر ارائه شده است.

واژگان کلیدی: *Phaneroserphus*, Proctotrupidae، ایران، اولین گزارش