

Research article

Gnamptodontinae Fischer, 1970 a new record subfamily of Braconidae (Hymenoptera) in Turkey

Ahmet BEYARSLAN 

Department of Biology, Faculty of Arts and Science, Bitlis Eren University, Turkey

e-mail: abeyars@gmail.com

Abstract: In order to determine Braconidae fauna of Turkey, adult specimens of Gnamptodontinae (Hymenoptera: Braconidae) were collected from various habitats of the Turkish Mediterranean region using light traps and sweeping nets. *Gnamptodon georginae* (van Achterberg, 1983) (Hymenoptera, Braconidae, Gnamptodontinae) is recorded from Antalya, Gazipaşa. Gnamptodontinae and its species are new record to the fauna of Turkey.

Keywords: Braconidae, *Gnamptodon georginae*, Gazipaşa, Fauna, Antalya.

Citing: Beyarslan, A. 2021. Gnamptodontinae Fischer, 1970 a new record subfamily of Braconidae (Hymenoptera) in Turkey. *Acta Biologica Turcica*, 34(2), 55-58.

Introduction

The species of the Braconidae (Hymenoptera, Ichneumonoidea) distributed worldwide. It is a large parasitoid family with an economic significance in agriculture, known as 1056 genera and approximately 19652 species under 46 subfamilies. Thirty-six of these subfamilies settled in the Western Palaearctic Region. Braconidae members are very common and successful in tropical and subtropical regions of the old world. However, the subfamilies known in our country so far are as follows: Adeliinae Viereck, 1918; Agathidinae Haliday, 1833; Alysinae Leach, 1815; Aphidiinae Haliday, 1833; Blacinae Foerster, 1862; Brachistinae Foerster, 1862; Braconinae Nees, 1811; Cardiochilinae Ashmead, 1900; Charmontinae van Achterberg, 1979; Cheloninae Foerster, 1862; Doryctinae Foerster, 1862; Euphorinae Foerster, 1862; Helconinae Foerster, 1862; Homolobinae van Achterberg, 1979; Hormiinae Foerster, 1862; Ichneutinae Foerster, 1862; Macrocentrinae Foerster, 1862; Meteorideinae Tobias, 1967; Microgastrinae Foerster, 1862; Miracinae Viereck, 1918; Opiinae Blanchard, 1845; Orgilinae Ashmead, 1900;

Rogadinae Foerster, 1862 (Yu et al., 2016). Despite of the recent extensive surveys on the rare Turkish braconids (Beyarslan, 2009; Beyarslan and Aydogdu, 2013), no species of Gnamptodontinae have been previously recorded. In this study, the subfamily Gnamptodontinae Fischer, 1970 and its species, *Gnamptodon georginae* (van Achterberg, 1983), have been recorded first time in Turkey.

The Gnamptodontinae Fischer, 1970 (Hym.: Ichneumonoidea, Braconidae) is a small (1.5 mm) cosmopolitan subfamily with 87 described species worldwide (Yu et al., 2016). Species of Gnamptodontinae are characterized by presence of a transverse elevated area at the base of second metasomal tergite and absence of occipital and epicnemial carinae (van Achterberg, 1993). All species of Gnamptodontinae are solitary koinobiont endoparasitoids of Nepticulidae (Lepidoptera) (Shaw and Huddleston, 1991; Yu et al., 2016). The host of *G. georginae* belongs to Gracillariidae (Balevski, 1997; 1998) and Nepticulidae (van Achterberg, 1983; Tobias, 1986) (Lepidoptera). The known genera of the subfamily are as follows: Gnamptodon Haliday, 1833, Gnaptogaster

Tobias, 1976, Neognamptodon Belokobylskij, 1999, Pseudognamptodon Fischer, 1965 and Exodontiella Wharton, 1977. Only the first genus is represented in the west Palaearctic region (van Achterberg, 1983; Yu et al., 2016). World species of the Gnamptodontinae were revised and keyed by van Achterberg (1983), who described eleven new species for this taxon. Taxonomy of the genus *Gnamptodon* was studied in China (Chen *et al.*, 2002), India (Narendran and Rema, 1996; Ahmad, 2008), Iran (Ghahari et al., 2010), Italy (Pennacchio et al., 1995), Germany (Hilpert, 1989), Moldavia (Talitzky and Kuslitzky, 1990), Russia and European part of USSR (Tobias, 1986; Belokobylskij, 1987), Korea (Papp, 2003), Australasian, Nearctic and Ethiopian regions (Fischer, 1965, 1987). The host-plant associations of the European species were discussed by van Achterberg (1984).

Material and Methods

Adult specimens of Braconidae were collected from Gazipaşa (Antalya, Turkey). Sweeping nets were used to obtain samples on herbaceous plants. Collected samples were then pinned and labelled according to taxonomic rules and regulations. The collected specimens were identified using keys provided by van Achterberg (1983), Farahani et al. (2014) and Tobias (1986). The specimens are deposited in the collection of the Zoological Museum of Department of Biology, Bitlis Eren University. Illustrations of the new record were taken using a camera "Leica DFC295" attached to a stereomicroscope "Leica S8APO". The hosts of species are given according to Yu et al., (2016). Morphological terminology follows van Achterberg (1993).

Results

One species of the genus *Gnamptodon* Haliday was collected Antalya (Gazipaşa). It was identified as *Gnamptodon georginae* (van Achterberg, 1983) (Hymenoptera, Braconidae, Gnamptodontinae). This species and related subfamily are new records for the fauna of Turkey.

Diagnosis of *Gnamptodon georginae* (van Achterberg, 1983): Antennae (Figs. 1A, 1B) with 20-23 segmented in male, 19-21 in female (Tobias, 1986) and at least 4 basal segments of antennae dark brownish yellow (Fig. 1B). Mesosoma 1.3 times as long as high (Fig. 1A). First three metasomal tergites yellow, suture between 2nd and 3rd abdominal tergites distinct, usually deep and basal

elevation on second tergite distinct (Fig. 1D). Face and metasomal terga with weak granulose sculpture. Mesonotum usually without longitudinal furrow. Anterior margin of radial cell at best 7/10, often longer than, distance from radial cell to wing apex; not less than half of stigma, often longer. Vein r (first section of radial vein) of forewing distinctly shorter than vein 3-SR (2nd section of radial vein). Distance between apex of marginal cell and tip of wing 0.5-1.5 times as long as vein 1-R1 in forewing (Figs. 1C); Anterior margin of radial cell at best slightly (not more than 1.3 times) longer, often shorter, than distance from radial cell to wing apex. Vein SR-1 (3rd section of Radius) of forewing slightly sinuate (Fig. 1C). Legs usually light colored (Fig. 1A). Body 1.25 mm.

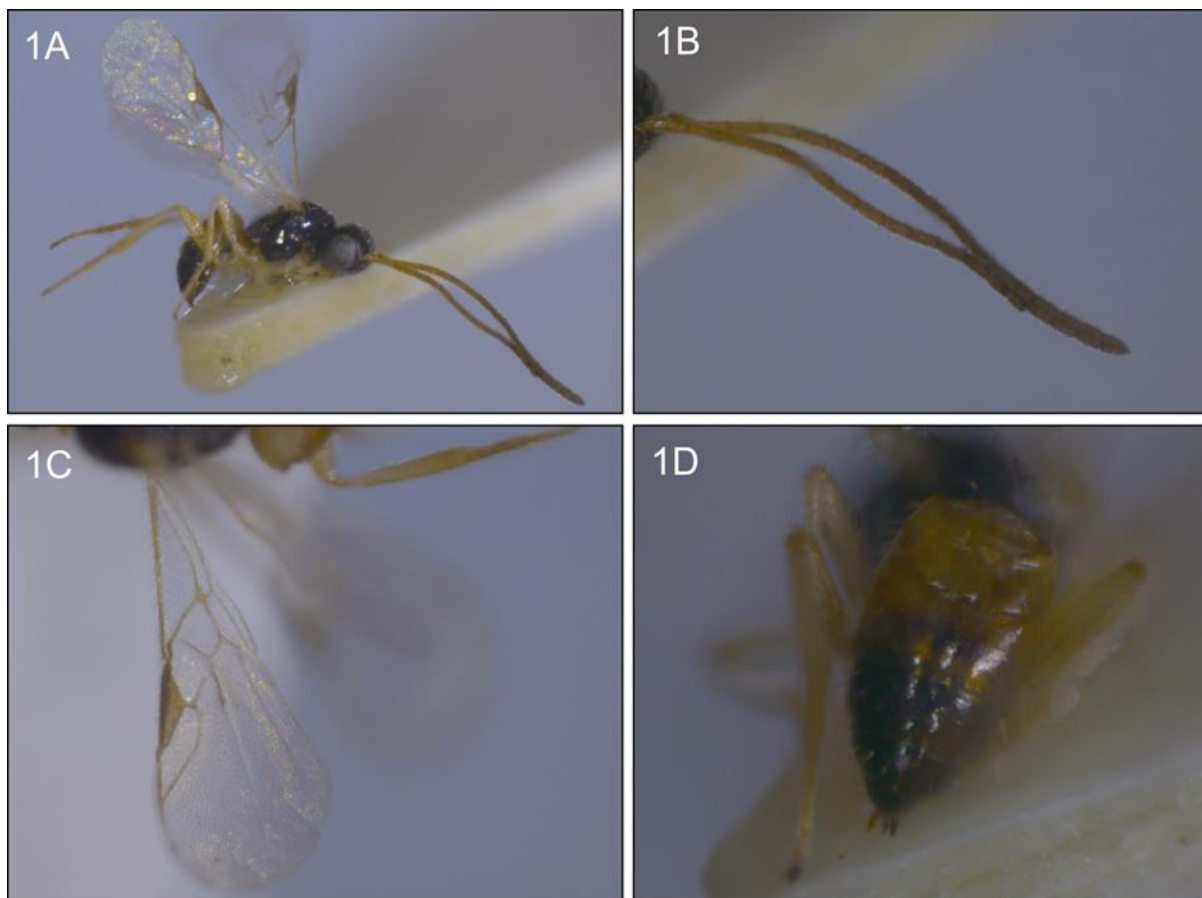
Examined material: Antalya, Gazipaşa, (36°16'6.82"N, 32°18'51.49"E), 19 m., 05.06.2019, 1♂, leg. A. Beyarslan.

Hosts: **Lepidoptera, Gracillariidae:** *Parornix anguliferella* (Zeller, 1847). [*Pyrus communis*] (Balevski and Tomov, 1997). **Nepticulidae:** *Stigmella hybnerella* (Hübner, 1796) [*Crataegus monogyna*]; *S. malella* (Stainton, 1854) [*Malus sylvestris*]; *S. ruficapitella* (Haworth, 1828). [*Quercus* sp.]; *S. tityrella* (Stainton, 1854) [*Fagus sylvatica*] (van Achterberg, 1983). *S. incognitella* (Herrich-Schäffer, 1855) [*Malus sylvestris*] (Balevski and Tomov, 1997); *S. lemniscella* (Zeller, 1839) (Tobias, 1986) and *S. magica* Puplesis, 1985 [*Rhododendron mucronulatum*] (Belokobylskij, 1997).

Distribution: Algeria, Bulgaria, China, Germany, Hungary, Iran, Italy, Moldova, Mongolia, Poland, Russia, Switzerland, Ukraine (Yu et al., 2016). Turkey: Antalya, Gazipaşa (in this study).

Discussion

Adult specimens of Braconidae were collected from various habitats of Turkey between 1979 and 2019. However, *G. georginae* is recorded only from Antalya (Gazipaşa). This species and its subfamily Gnamptodontinae can therefore be considered as rare Subfamily in Turkey. *G. georginae* is an important population regulatory factors on species of forest pests. *G. georginae* is known to have one species of Gracillariidae and 7 species of Nepticulidae (Lep.) hosts. These species are also pests of the following important plants: *Pyrus communis*, *Crataegus monogyna*, *Malus sylvestris*, *Rhododendron mucronulatum* *Malus sylvestris*, *Fagus sylvatica*. The total number of Turkish subfamilies of Braconide has reached from 24 to 25.



Figures 1. *Gnamptodon georginae* (van Achterberg, 1983): A. Habitus, B. Antennae, C. Fore wing, and D. Metasoma (dorsal view).

Ethical Approval

The author declares no need to ethical approval for this study.

Conflicts of Interest

The author declares that he has no conflict of interest.

Funding Statement

The author does not declare any fund.

References

- Ahmad, Z. (2008). A revision of the genus *Gnamptodon* Haliday (Hymenoptera: Braconidae) from India. *Journal of Advanced Zoology*, 29(2), 83-87.
- Belokobylskij, S.A. (1987). *The subfamily Gnamptodontinae (Hymenoptera, Braconidae) from the Far East of the USSR*. pp. 78-84. In: Kapustina, O. G. (Ed.). *Taxonomy of insects from Siberia and Far East*, Vladivostok, Russia.
- Beyarslan, A. (2009). A survey of the Turkish Miracinae, with the description of a new species, *Mirax striacus* (Hymenoptera: Braconidae). *Entomological News*, 120(3), 291-296.

- Beyarslan, A., & Aydogdu, M. (2013). Additions to the rare species of Braconidae fauna (Hymenoptera: Braconidae) from Turkey. *Munis Entomology and Zoology*, 8(1), 369-374.
- Chen, X., Whitfield, J.B., & He, J. (2002). The discovery of the genus *Gnamptodon* Haliday (Hymenoptera: Braconidae) in China, with description of one new species. *Pan-Pacific Entomologist*, 78(3), 184-187.
- Farahani, S., Talebi, A.A., & Rakhshani, E. (2014). The Rare Genus *Gnamptodon* Haliday (Hymenoptera: Braconidae: Gnamptodontinae) in Iran, with Three New Records. *Journal of the Entomological Research Society*, 16(3), 87-93.
- Fischer, M. (1965). Die Opiinae der Nearktischen Region (Hymenoptera, Braconidae). (The Opiinae the Nearctic region (Hymenoptera, Braconidae)). II. Teil. *Polskie Pismo Entomologiczne*, 35, 3-212.
- Fischer, M. (1987). Hymenoptera Braconidae (Opiinae III) - äthiopische, orientalische, australische und ozeanische Region. *Das Tierreich*, 104, 1-734.
- Ghahari, H., Fischer, M., Hedqvist, K. J., Erdogan, Ö.Ç., van Achterberg, C., & Beyarslan, A. (2010). Some new records of Braconidae (Hymenoptera) for Iran. *Linzer Biologische Beiträge*, 42(2), 1395-1404.

- Hilpert, H. (1989). Zur Hautflüglerfauna eines südbadischen Eichen-Hainbuchenmischwaldes. *Spixiana*, 12(1), 57-90.
- Papp, J. (2003). Braconidae (Hymenoptera) from Korea, XXI. Species of fifteen subfamilies. *Acta Zoologica Academiae Scientiarum Hungaricae*, 49(2), 115-152.
- Papp, J. (2005). A checklist of the Braconidae of Hungary (Hymenoptera). *Folia Entomologica Hungarica*, 66, 137-194.
- Pennacchio, F., Scaramozzino, P.L., & Tremblay, E. (1995). Hymenoptera Braconidae. Checklist della Specie della Fauna Italiana. Fascicola, 95, 2-29.
- Shaw, M.R., & Huddleston, T. (1991). Classification and Biology of Braconid Wasps (Hymenoptera: Braconinae). *Handbooks for the Identification of British Insects*, 7, 1-126.
- Talitzky, V.I., & Kuslitzky, W.S. (1990). Parasitic Hymenoptera of Moldavia. Kishinev, Kartya Moldovenskaya, 304 pp. (in Russian).
- Tobias, V.I. (1986). *Family Braconidae*. In: Medvedev G.S. (ed). *Key to the insects of the European part of the USSR*. Volume III, Hymenoptera Part IV. Academy of Sciences of the USSR, New Delhi: Amerind Publishing. 908 p.
- van Achterberg, C. (1983). Revisionary note on the subfamily Gnaptodontinae, with descriptions of eleven new species (Hymenoptera: Braconidae). *Tijdschrift Voor Entomologie*, 126, 25-57.
- van Achterberg, C. (1984). The preference of zoophagous Hymenoptera for certain types of plants as shown by the subfamily Gnaptodontinae (Braconidae). *Internationalens Symposiums über Entomofaunistik Mitteleuropa, Budapest*, 10, 97-98.
- van Achterberg, C. (1993). Illustrated key to the subfamilies of the Braconidae. (Hymenoptera: Ichneumonoidea). *Zoologische Verhandelingen (Leiden)*, 283, 1-189.
- Yu D.S., van Achterberg C., & Horstmann K. 2016. Ichneumonoidea 2011 (Biological and taxonomical information). Taxapad Interactive Catalogue. Available at www.taxapad.com.