

## New Data of Genus *Gasteruption* Latreille, 1796 (Hymenoptera, Gasteruptionidae) from Türkiye

### Türkiye *Gasteruption* Latreille, 1796 (Hymenoptera, Gasteruptionidae) Cinsine Ait Yeni Veriler

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#### Abstract

This study is based on the genus *Gasteruption* Latreille, 1796 specimens collected from Türkiye's provinces of Bingöl and Diyarbakır between 2019 and 2021. As a result, 10 species belonging to this genus were identified: *Gasteruption agrenum* van Achterberg & Talebi, 2014; *G. assectator* (Linnaeus, 1758); *G. dolichoderum* Schletterer, 1889; *G. hastator* Fabricius, 1804; *G. henseni* van Achterberg, 2014; *G. jaculator* (Linnaeus, 1758); *G. merceti* Kieffer, 1904; *G. syriacum* Szépligeti, 1903; *G. undulatum* Abeille de Perrin, 1879; *G. variolosum* Abeille de Perrin, 1879. All species except *G. merceti* are new records for the provincial fauna of Bingöl and Diyarbakır. Also, male external genitalia of *G. agrenum*, *G. hastator*, *G. jaculator*, *G. merceti*, *G. undulatum*, *G. variolosum* species are illustrated for the first time. The photographs of identified species are provided.

**Keywords:** Hymenoptera, Gasteruptionidae, *Gasteruption*, Fauna, Bingöl, Diyarbakır, Türkiye

#### Özet

Bu çalışma, Türkiye'nin Bingöl ve Diyarbakır illerinden 2019 ve 2021 yıllarında toplanan *Gasteruption* Latreille 1796 örneklerine dayanmaktadır. Sonuç olarak bu cinse ait 10 tür tespit edilmiştir: *Gasteruption agrenum* van Achterberg & Talebi, 2014; *G. assectator* (Linnaeus, 1758); *G. dolichoderum* Schletterer, 1889; *G. hastator* Fabricius, 1804; *G. henseni* van Achterberg, 2014; *G. jaculator* (Linnaeus, 1758); *G. merceti* Kieffer, 1904; *G. syriacum* Szépligeti, 1903; *G. undulatum* Abeille de Perrin, 1879; *G. variolosum* Abeille de Perrin, 1879. *G. merceti* dışındaki tüm türler Bingöl ve Diyarbakır illerinin faunaları için yeni kayıttır. Ayrıca *G. agrenum*, *G. hastator*, *G. jaculator*, *G. merceti*, *G. undulatum* ve *G. variolosum* türlerinin erkek dış genital organları ilk kez gösterilmiştir. Tespit edilen türlerin fotoğrafları verilmiştir.

**Anahtar Kelimeler:** Hymenoptera, Gasteruptionidae, *Gasteruption*, Fauna, Bingöl, Diyarbakır, Türkiye

## 1. Introduction

Gasteruptionidae which is a family belonging to the superfamily Evanioidea together with the Aulacidae and Evaniidae (Jennings and Austin, 2000). The family Gasteruptionidae is comprising about 500 described species in two subfamilies, Gasteruptioninae (*Gasteruption* Latreille, 1777; *Plutofoenus* Kieffer, 1911; *Spinolafoenus* Macedo, 2009; *Trilobitofoenus* Macedo, 2009) and Hyptiogastrinae (*Hyptiogaster* Kieffer, 1903; *Pseudofoenus* Kieffer, 1902) (Jennings and Austin, 2002; Macedo, 2009, 2011; Zhao et al., 2012; Van Achterberg and Talebi, 2014). The first specific contribution to the *Gasteruption* fauna of Türkiye was

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made by Yıldırım et al. (2004) with 12 species. However the biggest contribution to *Gasteruption* fauna of Türkiye was made with 21 species for Türkiye by Van Achterberg and Talebi (2014). The valid *Gasteruption* fauna of Türkiye is represented with 36 taxa (Ozbek and Van Achterberg, 2020).

In the present study, 10 species of the genus *Gasteruption* are reported from Bingöl and Diyarbakır provinces of Türkiye.

## 2. Material and Method

This investigation was conducted in Bingöl and Diyarbakır provinces of eastern Türkiye. Adult *Gasteruption* specimens were collected with insect nets from different flowering plants in 2019 and 2021. Collected samples were identified using the newest available key elaborated by (Van Achterberg and Talebi, 2014). Kaplan's (2022) method was used for the extraction, cleaning and examination of the male genitalia. Dried specimens were placed in softening containers for about 12 hours until becoming flexible for genitalia extraction. Genital capsule was removed from abdomen with a fine needle, immersed in 10% potassium hydroxide (KOH) and kept for about 24 hours. Genitalia were cleaned by washing several times with distilled water (Kaplan, 2022). Photographs were taken using a digital camera attached to a stereomicroscope to illustrate morphological features. Identified species were illustrated by photographs taken by using a digital camera attached to a stereomicroscope. All species are hosted in the individual collection of the Department of Plant Protection, Faculty of Agriculture, Bingol University (Bingol, Turkiye).

## 3. Results and Discussion

Totally ten species from the genus *Gasteruption* were listed. The list of species and distributional data are given below alphabetically.

**Family Gasteruptionidae** Ashmead 1900

**Subfamily Gasteruptioninae** Ashmead 1900

**Genus *Gasteruption*** Latreille, 1796

***Gasteruption agrenum*** van Achterberg & Talebi, 2014 (Figure 1a)

Material examined: **Bingöl:** Kurudere, N 38° 54' 25.44", E 40° 27' 40.39", 1188 m, 15.V.2019, ♂; Kiğı, Duranlar, N 39° 15' 14.64", E 40° 21' 01.82", 1134 m, 30.V.2021, ♂; Solhan, Bozkanat, N 38° 51' 56.46", E 40° 52' 41.10", 1230 m, 23.V.2021, ♂.

**Distribution.** Greece, Iran, Jordan, Russia, Syria, Türkiye (Van Achterberg and Talebi, 2014).

***Gasteruption assectator*** (Linnaeus, 1758) (Figure 1b)

Material examined: **Bingöl:** Beyaztoprak, N 38° 54' 53.68", E 40° 37' 25.71", 1067 m, 06.VI.2021, ♀; Büyükterkören, N 39° 49' 54.31", E 40° 34' 21.97", 1008 m, 05.VI.2021, ♀; Çeltiksuyu, N 38° 51' 37.39", E 40° 34' 03.65", 1013 m, 21.V.2021, ♀; Çiriş, N 38° 52' 52.71", E 40° 22' 00.72", 1769 m, 23.V.2019, ♀; Yağızca, N 38° 48' 35.03", E 40° 45' 36.73", 1140 m, 09.V.2021, ♀; Karlıova, Bahçeköy, N 39° 13' 22.87", E 40° 54' 12.20", 1862 m, 01.VI.2019, ♀; **Diyarbakır:** Eğil, Selmanköy, N 38° 11' 20.01", E 40° 10' 14.79", 771 m, 24.IV.2021, ♀.

**Distribution.** Holarctic, Iran, Türkiye (Van Achterberg and Talebi, 2014).

***Gasteruption dolichoderum*** Schletterer, 1889 (Figure 1c)

Material examined: **Bingöl:** Gözler, N 38° 56' 44.27", E 40° 33' 38.98", 1498 m, 22.V.2019, ♂; Karlıova, Hacılar, N 38° 05' 13.77", E 40° 48' 24.58", 1474 m, 27.V.2021, ♂; Solhan, Bozkanat, N 38° 52' 06.11", E 40° 53' 14.78", 1100 m, 18.V.2019, ♂.

**Distribution.** Central Asia, Southeast Europe, Iran, Jordan, Türkiye (Van Achterberg and Talebi, 2014).

***Gasteruption hastator*** Fabricius, 1804 (Figure 1d)

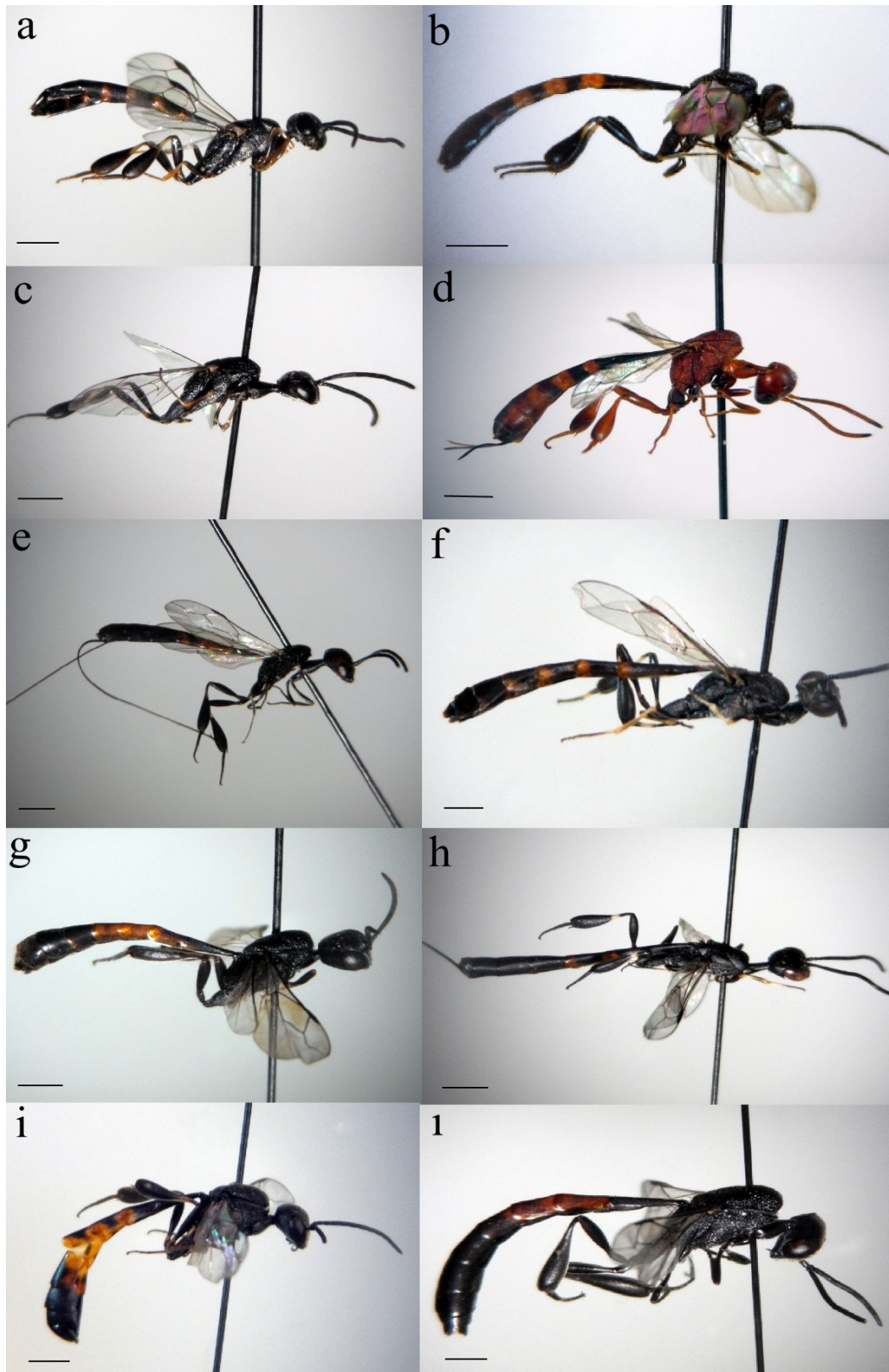
Material examined: **Bingöl:** Komgeçit, N 38° 47' 23.71", E 40° 36' 33.81", 996 m, 24.V.2019, ♀; **Diyarbakır:** Çermik, Karakaya, N 38° 03' 30.83", E 39° 20' 34.38", 567 m, 24.III.2019, ♂; Lice, Oyuklu, N 38° 18' 54.58", E 40° 47' 16.26", 960 m, 11.IV.2019, ♀.

**Distribution.** Europe, North Africa, Iran, Türkiye, Russia (Van Achterberg and Talebi, 2014).

***Gasteruption henseni*** van Achterberg, 2014 (Figure 1e)

Material examined: **Bingöl:** Kardeşler, N 38° 54' 39.23", E 40° 38' 29.93", 1099 m, 06.VI.2021, ♀.

**Distribution.** Türkiye (Van Achterberg and Talebi, 2014).



**Figure 1.** a) *Gasteruption agrenum* (♂), b) *G. assectator* (♀), c) *G. dolichoderum* (♂), d) *G. hastator* (♀), e) *G. henseni* (♀), f) *G. jaculator* (♂), g) *G. merceti* (♂), h) *G. syriacum* (♀), i) *G. undulatum* (♂), j) *G. variolosum* (♂). Scale bar: 1 mm.

***Gasteruption jaculator*** (Linnaeus, 1758) (Figure 1f)

Material examined: **Diyarbakır:** Hani, Uzunlar, N 38° 24' 34.34", E 40° 27' 03.41", 923 m, 27.III.2019, ♂; Hazro, Bağyurdu, N 38° 14' 10.10", E 40° 49' 23.56", 992 m, 04.IV.2019, ♂.

**Distribution.** Europe, Iran, North Africa, Türkiye (Van Achterberg and Talebi, 2014).

***Gasteruption merceti*** Kieffer, 1904 (Figure 1g)

Material examined: **Bingöl:** Çeltiksuyu, N 38° 51' 37.39", E 40° 34' 03.65", 1013 m, 05.VI.2021, ♂; Karlıova, Sarıkuşak, N 39° 23' 27.29", E 40° 50' 01.10", 1833 m, 01.VI.2019, ♂; **Diyarbakır:** Hani, Anıl, N 38° 24' 13.01", E 40° 20' 08.23", 908 m, 25.IV.2021, ♂; Lice, Oyuklu, N 38° 18' 54.58", E 40° 47' 16.26", 960 m, 11.IV.2019, ♂.

**Distribution.** Central and South Europe, Iran, Israel, North Africa, Türkiye (Van Achterberg and Talebi, 2014).

***Gasteruption syriacum*** Szépligeti, 1903 (Figure 1h)

Material examined: **Bingöl:** Büyükterkören, N 38° 49' 54.31", E 40° 34' 21.97", 1008 m, 19.V.2021, ♀; Kaleönü, N 38° 53' 28.91", E 40° 33' 25.74", 1025 m, 21.V.2019, ♀.

**Distribution.** Lebanon, Southeast Europe, Türkiye, Syria (Van Achterberg and Talebi, 2014).

***Gasteruption undulatum*** Abeille de Perrin, 1879 (Figure 1i)

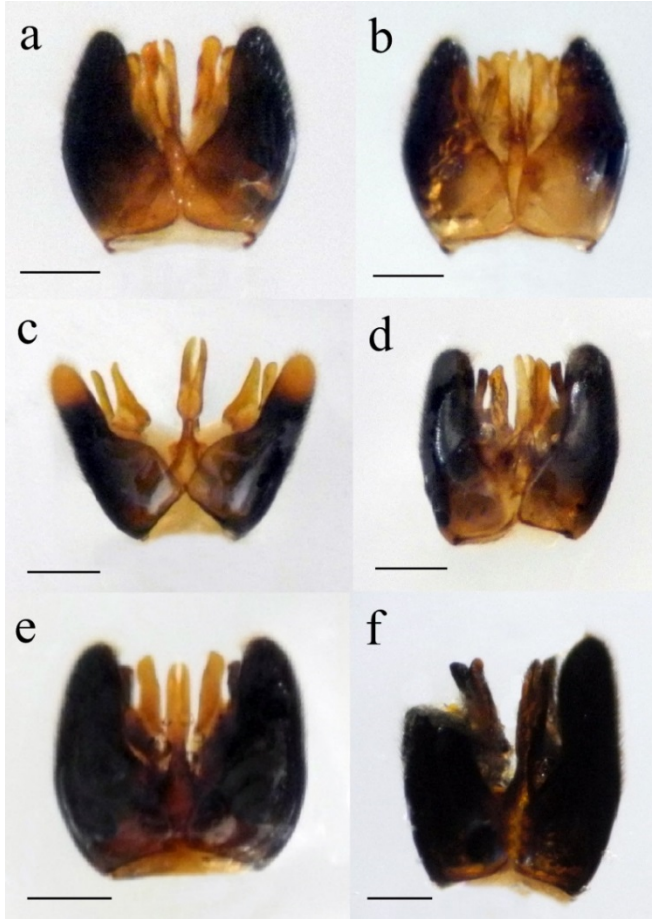
Material examined: **Bingöl:** Akdurmuş, N 38° 50' 40.56", E 40° 28' 30.44", 1467 m, 23.V.2019, ♂; Ekinyolu, N 38° 54' 00.00", E 40° 34' 17.58", 1036 m, 01.VI.2021, ♂; Kardeşler, N 38° 55' 34.81", E 39° 38' 35.70", 115 m, 12.VI.2021, ♂; Genç, Dilektaş, N 38° 46' 06.45", E 40° 46' 27.64", 1653 m, 09.V.2021, ♂; Sürekli, N 38° 46' 01.97", E 40° 35' 51.85", 1036 m, 08.V.2021, ♂; Yağızca, N 38° 48' 35.03", E 40° 45' 36.73", 1140 m, 09.V.2021, ♂; **Diyarbakır:** Aycısuyu, N 38° 03' 44.55", E 39° 59' 22.13", 741 m, 23.III.2019, ♂.

**Distribution.** Central and South Europe, Türkiye (Van Achterberg and Talebi, 2014).

*Gasteruption variolosum* Abeille de Perrin, 1879 (Figure 1i)

Material examined: **Bingöl:** Çeltiksuyu, N 38° 51' 37.39", E 40° 34' 03.65", 1013 m, 06.VI.2021, ♂; Yayladere, Akçadamar, N 39° 12' 11.02", E 40° 04' 08.93", 1385 m, 13.VI.2019, ♂; **Diyarbakır:** Dicle, Sergenli, N 38° 19' 30.64", E 40° 13' 38.46", 750 m, 24.IV.2021, ♂; Kulp, Argunköy, N 38° 28' 48.51", E 41° 05' 16.22", 977 m, 12.IV.2019, ♂.

**Distribution.** Iran, South Europe, Türkiye (Van Achterberg and Talebi, 2014).



**Figure 2.** Male external genitalia of *Gasteruption*: a) *G. agrenum*, b) *G. hastator*, c) *G. jaculator*, d) *G. merceti*, e) *G. undulatum*, f) *G. variolosum*. Scale bar: 0.3 mm.

#### 4. Conclusions

This study was made to determine *Gasteruption* Latreille, 1796 (Hymenoptera, Gasteruptionidae) fauna in Bingöl and Diyarbakır provinces from Türkiye. In this investigation, 10 species of the genus of *Gasteruption* Latreille, 1796 were listed. Excluding *G. merceti*, nine species are new records for the provincial fauna of Bingöl and Diyarbakır. Also, male external genitalia which are very important in species identification of *G. agrenum*, *G. hastator*, *G. jaculator*, *G. merceti*, *G. undulatum*, *G. variolosus* species are shown for the first time. In the current study, eight species (*G. agrenum*, *G. dolichoderum*,

*G. henseni*, *G. syriacum*) only from Bingöl, one species (*G. jaculator*) only from Diyarbakır, and five species (*G. assectator*, *G. hastator*, *G. merceti*, *G. undulatum*, *G. variolosum*) from both Bingöl and Diyarbakır were identified. This study, together with previous studies conducted in Diyarbakır and Bingöl provinces, showed that the region is a very rich area in terms of Hymenoptera biodiversity.

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