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## Six new record species of the genus *Schizoprymnus* FÖRSTER, 1862 (Hymenoptera: Braconidae, Brachistinae) from Iran

Ali Asghar TALEBI, Samira FARAHANI & Fatemeh Zahra PIROUZEH

### Abstract

A taxonomic study of the Iranian *Schizoprymnus* FÖRSTER, 1862 (Hymenoptera: Braconidae) was conducted in the North of Iran during 2010-2011. Nine species of the genus *Schizoprymnus* were collected and identified, of which six species consisting *S. azerbaijdzhanicus* (ABDINBEKOVA, 1967), *S. bidentulus* (SZEPLIGETI, 1901), *S. crassiceps* (THOMSON, 1892), *S. hilaris* (HERRICH-SCHÄFFER, 1838), *S. tantalus* PAPP, 1981 and *S. telengai* TOBIAS, 1976, are recorded for the first time from Iran. Diagnostic characters and general distribution of the species are provided.

Key words: Braconidae, Brachistinae, *Schizoprymnus*, new records, Iran.

### Zusammenfassung

Vorliegende Arbeit behandelt eine taxonomische Studie betreffend die Gattung *Schizoprymnus* FÖRSTER, 1862 (Hymenoptera: Braconidae) basierend auf Untersuchungen im Nordiran in den Jahren 2010 und 2011. Es gelang der Nachweis von 9 Arten, wobei *S. azerbaijdzhanicus* (ABDINBEKOVA, 1967), *S. bidentulus* (SZEPLIGETI, 1901), *S. crassiceps* (THOMSON, 1892), *S. hilaris* (HERRICH-SCHÄFFER, 1838), *S. tantalus* PAPP, 1981 and *S. telengai* TOBIAS, 1976 Neunachweise für den Iran darstellen. Die Fundangaben werden ergänzt durch diagnostische Merkmalsangaben und Hinweise zur Verbreitung.

Key words: Braconidae, Brachistinae, *Schizoprymnus*, new records, Iran.

### Introduction

Brachistinae is a small subfamily containing nearly 412 described species distributed worldwide (YU et al. 2012). Brachistines are rather robust, blackish and with heavily sculptures. This subfamily has been divided into two tribes: Brachistini FÖRSTER, 1862 and Eadyini VAN ACHTERBERG, 2000, of which first tribe is represented in the Palearctic region (YU et al. 2012). About 20 species in four genera have been recorded from Iran (GADALLAH & GHAHARI 2013; FARAHANI et al. 2016; PIROUZEH et al. 2016).

Two genera, *Triaspis* and *Schizoprymnus*, are easily distinguished from other brachistines by having a metasomal carapace, two submarginal cells and absence

postpectal carina (SHAW & HUDDLESTON 1991; VAN ACHTERBERG 1993). In *Schizoprymnus*, there is usually no transverse furrow on metasomal carapace or visible only along lateral of carapace (TOBIAS 1986). Larvae of the beetles of the families Brentidae, Curculionidae and Mordellidae are the most frequently recorded hosts of *Schizoprymnus* species (YU et al. 2012). In general, species of this genus attack coleopterous larvae but sometimes also dipterous and lepidopterous hosts (RILEY & HOWARD 1890; FALCOZ 1926; TELENGA 1941). Key of *Schizoprymnus* species is provided by TELENGA (1941, USSR), HELLÉN (1958, Finland), TOBIAS (1976, Caucasus), BELOKOBYSKIJ (1998, Russian Far East).

The fauna of Iranian Brachistinae is obviously poorly studied. Up to now, only 9 species of the genus *Schizoprymnus* have sporadically been reported from Iran (GADALLAH & GHAHARI 2013; FARAHANI et al. 2016). The purpose of this research is to improve our knowledge of the fauna of *Schizoprymnus* species in Iran.

### Material and Methods

The material for this study was collected from different habitats on several localities in north central part of Iran (Alborz, Qazvin, Guilan, Mazandaran and Tehran provinces). Specimens were extracted from Malaise traps and transferred to the laboratory. They were treated with 70% ethanol and finally placed on a glass plate with filter paper to dry. The dried specimens were mounted and labeled. The specimens were identified according to the keys in TOBIAS (1986) and BELOKOBYSKIJ (1998). Photographs were taken with an Olympus™ SZX9 stereomicroscope equipped with a Sony™ CX21 digital camera. All specimens are deposited in the insect collection of the Department of Entomology, Tarbiat Modares University, Tehran (TMUC; Iran). General distribution and diagnosis of species are presented.

### Results

#### *Schizoprymnus azerbaijanicus* (ABDINBEKOVA, 1967) (Fig. 1A)

**Material examined:** Alborz province: Chalous Road, Shahrestanak (35°57'N, 51°22'E, 2305 m a.s.l.), 03.viii.2010, 1♂; Tehran province: Shahriar (35°40'N, 50°56'E, 1168 m a.s.l.), 08.vi.2010, 1♀; Guilan province: Roodsar, Ghazichak (36°45'N, 50°20'E, 1787 m a.s.l.), 07.vi.2010, 1♀; leg. M. Khayrandish & A. Nadimi.

**General distribution:** Western and Eastern Palearctic (YU et al. 2012); new record from Iran.

**Diagnostic characters (Female):** Body length 2.0–3.1 mm; antenna 20–23 segmented; head roundly narrowed behind eyes, temple as long as transverse diameter of eye in dorsal view; legs dark brown in greater part; metasomal carapace not bent in apex, transverse furrow between 1<sup>st</sup> and 2<sup>nd</sup> tergites distinct, and between 2<sup>nd</sup> and 3<sup>rd</sup> medially absent (Fig. 2A); length of ovipositor sheaths as long as metasoma (Fig. 1A).

***Schizoprymnus bidentulus* (SZEPLIGETI, 1901) (Fig. 1B)**

**Material examined:** Qazvin province: Zereshk Road (36°25'N, 50°06'E, 1926 m a.s.l.), 06.vii.2011, 1 ♀; Mazandaran province: Noor, Gaznasara (36°16' N, 52°10' E, 2013 m a.s.l.), 18.v.2011, 1 ♀; leg. M. Khayrandish & A. Nadimi.

**General distribution:** Western and Eastern Palaearctic (YU et al. 2012); new record from Iran.

**Diagnostic characters (Female):** Body length 3.9–4.3 mm; antenna 24–26 segmented; head roundly narrowed behind eyes, temple slightly as long as transverse diameter of eye in dorsal view; legs dark in greater part, coxa, trochanter and base of femur blackish in hind leg; metasomal carapace distinctly convex, not bent in apex, metasoma with apical notch and two large denticles (Fig. 2B); length of ovipositor sheaths shorter than metasoma (Fig. 1B).

***Schizoprymnus crassiceps* (THOMSON, 1892) (Fig. 1C)**

**Material examined:** Alborz province: Karaj (35°46'N, 50°56'E, 1277 m a.s.l.), 18.v.2010, 1 ♀; Mazandaran province: Noor, Tangehvaz (36°21'N, 52°06'E, 692 m a.s.l.), 16.viii.2011, 1 ♀; leg. M. Khayrandish & A. Nadimi.

**General distribution:** Western and Eastern Palaearctic (YU et al. 2012); new record from Iran.

**Diagnostic characters (Female):** Body length 3.9–4.0 mm; antenna 26–27 segmented; head widened behind eyes, temple longer than transverse diameter of eye in dorsal view, densely punctate; veins dark brown, pale only in basal half of fore wing; legs brownish yellow, except for blackish coxae and trochanters; metasomal carapace slightly bent in apex (Fig. 2C); length of ovipositor sheaths shorter than metasoma (Fig. 1C).

***Schizoprymnus hilaris* (HERRICH-SCHÄFFER, 1838) (Fig. 1D)**

**Material examined:** Alborz province: Karaj (35°46'N, 50°56'E, 1277 m a.s.l.), 25.v.2010, 1 ♀; 08.vi.2010, 1 ♀; 22.vi.2010, 1 ♀; Chalous Road, Shahrestanak (35°57'N, 51°22'E, 2305 m a.s.l.), 20.vii.2010, 1 ♀; Guilan province: Roodsar, Ziaz (36°52'N, 50°13'E, 537 m a.s.l.), 31.v.2010, 1 ♀; 06.vii.2010, 1 ♀; Roodsar, Orkom (36°45'N, 50°18'E, 1201 m a.s.l.), 07.vi.2010, 1 ♀; Roodsar, Ghazichak (36°45'N, 50°20'E, 1787 m a.s.l.), 07.vi.2010, 1 ♀; Mazandarn province: Noor, Tangehvaz (36°21' N, 52°06' E, 692 m a.s.l.), 29.iv.2011, 1 ♀; leg. M. Khayrandish & A. Nadimi.

**General distribution:** Western and Eastern Palaearctic (YU et al. 2012); new record from Iran.

**Diagnostic characters (Female):** Body length 2.7–3.8 mm; antenna 19–23 segmented; head roundly narrowed behind eyes, temple as long as transverse diameter of eye in dorsal view; legs reddish brown with blackish coxae, sometimes darker; metasomal carapace slightly bent in apex, transverse furrow between 1<sup>st</sup> and 2<sup>nd</sup> tergites distinct, and between 2<sup>nd</sup> and 3<sup>rd</sup> completely absent (Fig. 2D); length of ovipositor sheaths shorter than metasoma (Fig. 1D).

***Schizoprymnus parvus* (THOMSON, 1892) (Fig. 1E)**

**Material examined:** Mazandaran province: Noor (36°26'N, 52°07'E, 272 m a.s.l.), 05.vi.2011, 1 ♀; leg. M. Khayrandish & A. Nadimi.

**General distribution:** Western and Eastern Palaearctic (YU et al. 2012).

**Diagnostic characters (Female):** Body length 3.1 mm; antenna 19 segmented; head roundly narrowed behind eyes, temple shorter than transverse diameter of eye in dorsal view; legs reddish brown with blackish coxae; length of metasomal carapace 1.5 times its width, not bent, transverse furrow between 2<sup>nd</sup> and 3<sup>rd</sup> completely absent (Fig. 2E); length of ovipositor sheaths as long as metasoma (Fig. 1E).

***Schizoprymnus pullatus* (DAHLBOM, 1833) (Fig. 1F)**

**Material examined:** Qazvin province: Looshan (36°40'09.12" N, 49°25'37.74" E, 291 m a.s.l.), 06.vii.2011, 1 ♀; leg. M. Khayrandish & A. Nadimi.

**General distribution:** Western and Eastern Palaearctic (YU et al. 2012).

**Diagnostic characters (Female):** Body length 3.2 mm; antenna 25 segmented; head roundly narrowed behind eyes, temple slightly shorter than transverse diameter of eye in dorsal view; legs reddish in greater part, coxa, trochanter and base of femur blackish in hind leg; metasomal carapace convex and bent distinctly in apex, metasoma with apical notch (Fig. 2F); length of ovipositor sheaths as long as metasoma (Fig. 1F).

***Schizoprymnus tantalus* PAPP, 1981 (Fig. 1G)**

**Material examined:** Alborz province: Chalous Road, Shahrestanak (35°57'N, 51°22'E, 2305 m a.s.l.), 20.vii.2010, 1 ♀; Guilan province: Roodsar, Ghazichak (36°45'N, 50°20'E, 1787 m a.s.l.), 07.vi.2010, 1 ♀; Qazvin province: Zereshk Road (36°25'N, 50°06'E, 1926 m a.s.l.), 06.vii.2011, 1 ♀; leg. M. Khayrandish & A. Nadimi.

**General distribution:** Western Palaearctic (YU et al. 2012); new record from Iran.

**Diagnostic characters (Female):** Body length 1.9–2.3 mm; antenna 19–24 segmented; head roundly narrowed behind eyes, temple as long as transverse diameter of eye in dorsal view; legs blackish in greater part, coxa, trochanter and femur blackish in hind leg; metasomal carapace not bent in apex, transverse furrow completely absent, metasoma with apical notch (Fig. 2G); length of ovipositor sheaths slightly shorter than metasoma (Fig. 1G).

***Schizoprymnus telengai* TOBIAS, 1976 (Fig. 1H)**

**Material examined:** Alborz province: Karaj (35°46' N, 50°56' E, 1277 m a.s.l.), 24.v.2010, 1 ♀; leg. M. Khayrandish & A. Nadimi.

**General distribution:** Western and Eastern Palaearctic (YU et al., 2012); new record from Iran.

**Diagnostic characters (Female):** Body length 2.5 mm; antenna 18 segmented; head roundly narrowed behind eyes, temple as long as transverse diameter of eye in dorsal view; vein 1-R1 of fore wing shorter than pterostigma (0.6 times); legs dark colored, coxa, trochanter and femur blackish in hind leg; metasomal carapace slightly

bent in apex, transverse furrow between 1<sup>st</sup> and 2<sup>nd</sup> tergites distinct, and between 2<sup>nd</sup> and 3<sup>rd</sup> completely absent, metasoma with apical notch (Fig. 2H); length of ovipositor sheaths as long as metasoma (Fig. 1H).

### ***Schizoprymnus terebralis* (SNOFLÁK, 1953) (Fig. 1I)**

**Material examined:** Mazandaran province: Noor, Tangehvaz (36°21'N, 52°06'E, 692 m a.s.l.), 29.iv.2011, 1♀; Tehran province: Shahriar (35°40' N, 50°56'E, 1168 m a.s.l.), 08.vi.2010, 1♀; leg. M. Khayrandish & A. Nadimi.

**General distribution:** Western and Eastern Palaearctic (YU et al. 2012).

**Diagnostic characters (Female):** Body length 2.5-3.2 mm; antenna 21-23 segmented; head roundly narrowed behind eyes, temple as long as transverse diameter of eye in dorsal view; legs completely dark colored; metasomal carapace slightly bent in apex, transverse furrow between 1<sup>st</sup> and 2<sup>nd</sup> tergites distinct, and between 2<sup>nd</sup> and 3<sup>rd</sup> medially absent, metasoma with apical notch (Fig. 2I); length of ovipositor sheaths as long as propodeum and metasoma together (Fig. 1I).

## **Discussion**

This study is concerned with the Iranian species of *Schizoprymnus*, a brachistinae braconid genus. In Iran, very little attention has been paid to the taxonomy of this genus. The first published record of *Schizoprymnus* was those by TELENGA (1941). In the last few years, there has been a growing amount of literatures on this genus (GADALLAH & GHAHARI 2013; FARAHANI et al. 2016). According to our own records and to relevant literature, 16 species of *Schizoprymnus* are known to be present in Iran. In the neighboring countries, 22 species of *Schizoprymnus* are reported from Turkey (BELOKOBYSKIY et al. 2004; GÜÇLÜ & ÖZBEK 2011), while only one species (*S. elongates*) was reported from Afghanistan (TOBIAS et al. 1998).

Alborz and Qazvin provinces are situated in the south slope of Alborz Mountains. Guilan and Mazandaran provinces are located along the southern coast of the Caspian Sea and in the north slope of Alborz Mountains. Our study showed that six species (e.i. *S. azerbaijdzhanicus*, *S. bidentulus*, *S. crassiceps*, *S. hilaris*, *S. tantalus* and *S. terebralis*) have been collected from the both slopes of Alborz mountains, while two species only distributed in the south slope (e.i. *S. pullatus* and *S. telengai*) and one species in the north slope (e.i. *S. parvus*).

Significant knowledge on the biology of the most species of the genus *Schizoprymnus* is still lacking (YU et al. 2012). Because in the studied specimens were collected in Malaise traps, the biology of the recorded species is unknown. Among the recorded species of the genus *Schizoprymnus* from Iran, biology of three species (*S. terebralis*, *S. pullatus* and *S. hilaris*) is known as endoparasitoid of genus *Mordellistena* COSTA (Coleoptera: Mordellidae) in literature review (PAPP 1997, 1998). Additional research is required on the parasitoids of Coleoptera in Iran.

According to PAPP (1993), species of *Schizoprymnus* attract to light. It seems that the light trapping is effective sampling method for collection of this group. It would be expected that still part of *Schizoprymnus* species from Iran remain to be discovered and further studies are needed to clarify the biology and taxonomy of these parasitoids.

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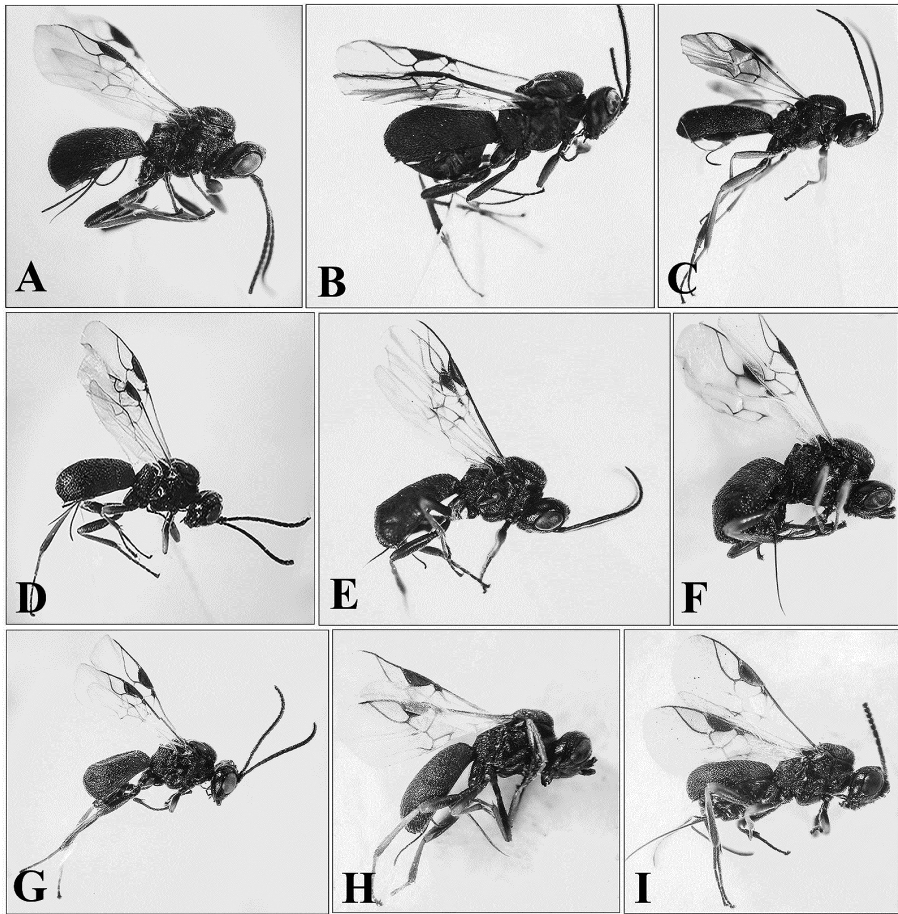
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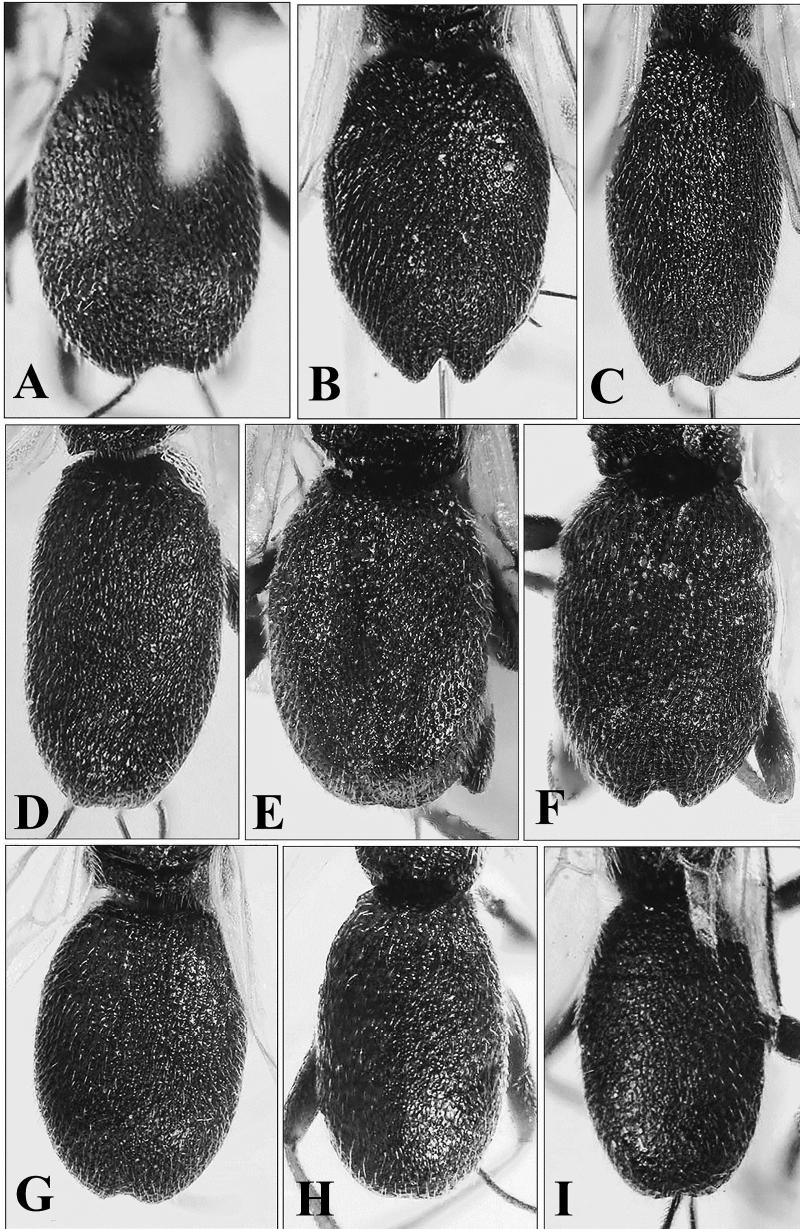
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**Fig. 1:** Fig. Lateral habitus of female in *Schizoprymnus* species: (A) *S. azerbaijdzhanicus* (ABDINBEKOVA, 1967); (B) *S. bidentulus* (SZEPLIGETI, 1901); (C) *S. crassiceps* (THOMSON, 1892); (D) *S. hilaris* (HERRICH-SCHÄFFER, 1838); (E) *S. parvus* (THOMSON, 1892); (F) *S. pullatus* (DAHLBOM, 1833); (G) *S. tantalus* PAPP, 1981; (H) *S. telengai* TOBIAS, 1976; (I) *S. terebralis* (SNOFLÁK, 1953).





**Fig. 2:** Metasomal carapace of female in *Schizopyrmnus* species: (A) *S. azerbaijdzhanicus* (ABDINBEKOVA, 1967); (B) *S. bidentulus* (SZEPLIGETI, 1901); (C) *S. crassiceps* (THOMSON, 1892); (D) *S. hilaris* (HERRICH-SCHÄFFER, 1838); (E) *S. parvus* (THOMSON, 1892); (F) *S. pullatus* (DAHLBOM, 1833); (G) *S. tantalus* PAPP, 1981; (H) *S. telengai* TOBIAS, 1976; (I) *S. terebralis* (SNOFLÁK, 1953).

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