

A contribution to the knowledge of Agathidinae (Hymenoptera: Braconidae) from Iran with description of a new species

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Abstract: The subfamily Agathidinae was studied in parts of northern Iran. Six species were collected and identified. Among them, *Cremnops desertor* (L., 1758) is recorded for the first time from Iran. *Lytopylus persicus* Farahani & Talebi sp. n. is described and illustrated. A key to the West Palaearctic species of the genus *Lytopylus* Förster and an updated checklist of Iranian Agathidinae are provided.

Key words: Agathidinae; *Lytopylus*; new species; new record; Iran

Introduction

Agathidinae is a moderately large subfamily of Braconidae (Hymenoptera) with at least 46 genera worldwide (Yu et al. 2012). Approximately 1,000 species of Agathidinae exist worldwide, but an additional 2,000–3,000 species are yet undescribed (Sharkey 2006). Most of the known species are recorded from humid tropical and subtropical regions (Sharkey 1997, 2006). Yu et al. (2012) listed four tribes (Agathidini Nees; Cremnoptini Sharkey; Disophrini Sharkey and Earinini Sharkey) for Agathidinae.

The Agathidinae is an easily recognizable subfamily of Braconidae, because the marginal cell is narrow and the occipital carina is absent (van Achterberg 1976). They are koinobiont endoparasitoids of the larvae of numerous families of Lepidoptera, especially Gelechiidae, Coleophoridae, Noctuidae, Blastobasidae, Tineidae, Pyralidae and Tortricidae (Shaw & Huddleston 1991; Yu et al. 2012). Except for one known species, *Coccygidium gregarium* Sarmiento & Sharkey, 2004, (Sarmiento et al. 2004) all are solitary parasitoids. The species of the tribes Agathidini and Earinini deposit their eggs in the younger larvae of the hosts, but species of tribe Disophrini attack later instar larvae and species of the tribe Cremnoptini attack various larval stages (Sharkey 1997). Many species are important as biological control agents on various insect pests of economic importance, and some have been used in classical biological control (Sharkey 1997).

Nixon (1986) revised and keyed the European Agathidinae. He recognized seven genera, 44 valid species, 11 new synonyms, and 11 new species. Many studies have dealt with the taxonomy and diversity of Agathidinae since 1990 (Simbolotti & van Achterberg 1990, 1992, 1999; van Achterberg & Chen 2002; Leathers & Sharkey 2003; van Achterberg 2004; Pucci & Sharkey 2004; Sarmiento-Monroy 2006; Lindsay & Sharkey 2006; Sharkey et al. 2009; van Achterberg & Dang Long 2010; Žikić et al. 2010, 2011; Sharkey & Clutts 2011; Sharkey & Stoelb 2012). Among the neighboring countries, the Agathidinae of Turkey (Zettel & Beyarslan 1992; Çetin & Beyarslan 2001; Güçlü & Özbek 2002; Çetin 2010), Russia (Telenga 1955; Tobias 1995), Afghanistan (Tobias et al. 1997) and Arabian Peninsula (van Achterberg 2011) have been studied. Van Achterberg (2011) described one species of the genus *Lytopylus*, *L. brevitarsis* van Achterberg, from Yemen. Also, Simbolotti & van Achterberg (1992) described *Lytopylus barbieri* from Algeria and Spain (as *Bassus barbieri*). Sharkey et al. (2011) revised the species of the genus *Lytopylus* from Costa Rica and described 10 new species.

Agathidinae remains poorly studied in Iran and currently only 27 species are listed. These are from the genera *Agathis* Latreille, 1804 (15 species), *Bassus* F., 1804 (5 species), *Camptothlipsis* Enderlein, 1920 (1 species), *Cremnops* Förster, 1862 (1 species), *Coccygidium* Saussure, 1892 (1 species), *Disophris* Förster, 1862 (2 species), *Earinus* Wesmael, 1837 (1 species) and *Ly-*

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topylus Förster, 1862 (1 species) (Telenga 1955; Helén 1956; Hedwig 1957; Lashkari-Bod et al. 2011; Ghahari et al. 2009a, b, c, 2010, 2011a, b, 2012; Ghahari & Fischer 2011a, b, 2012; Ranjbar Aghdam & Fathipour 2010). The generic limits of *Bassus* are in flux; the present concept refers to a small group of Old World species with simple tarsal claws. However many species that do not conform to this concept remain in the genus awaiting proper taxonomic placement. The only West Palaearctic member of *Bassus s.s.* is *Bassus calculator* (F., 1798).

The results presented here about Agathidinae, in which we describe a new species of *Lytopylus* Förster, 1862, is part of our ongoing research on the braconid fauna of Iran.

Material and methods

Specimens of the subfamily Agathidinae were collected using Malaise traps from March to November, in 2010 and 2011, in five northern provinces of Iran, i.e., Alborz, Guilan, Mazandaran, Qazvin and Tehran. Malaise traps were placed in different habitats such as forest, rangelands and orchards. Specimens were extracted from the Malaise traps and sorted weekly. They were then treated with 70% ethanol and placed on a filter paper for drying. The dried specimens were then card-mounted and labeled. The external morphology of specimens were studied and illustrated using an Olympus™ AX70 microscope and Olympus™ SZX9 stereomicroscope equipped with a Sony CCD digital camera. Morphological terminology follows van Achterberg (1988). All specimens are deposited in the insect collection of the Department of Entomology, Tarbait Modares University, Tehran, Iran.

Results

Six species have been collected and identified. Four species, *Agathis fuscipennis* (Zetterstedt, 1838), *Agathis umbellatarum* Nees, 1812, *Camptothlipsis armeniaca* (Telenga, 1955) and *Disophrys caesa* (Klug, 1835) have been previously recorded from Iran. *Cremonops desertor* (L., 1758) is newly recorded for the fauna of Iran and *Lytopylus persicus* Farahani & Talebi sp. n. is new to science.

Agathis fuscipennis (Zetterstedt, 1838)

Synonym: *Agathis albicostellae* Fischer, 1966; *Agathis annulata* Fahringer, 1937; *Agathis artemisiana* Fischer, 1966; *Agathis glabricula* Thomson, 1895; *Agathis meridionellae* Fischer, 1957; *Agathis schmiedeknechti* Kokujev, 1895 (Yu et al. 2012).

Material examined: Alborz province: Karadj (35°46'08.88" N, 50°56'55.20" E, 1277 m a.s.l.), 18.X.2010, 1♀; Tehran province: Shahriar (35°40'08.10" N, 50°56'56.64" E, 1168 m a.s.l.), 20.IX.2010, 4♀♀; 27.IX.2010, 6♀♀, 1♂; 04.X.2010, 7♀♀, 1♂; 12.X.2010, 3♀♀; Guilan province: Roodsar, Rahim abad, Qazichak (36°45'57.54" N, 50°19'35.22" E, 1803 m a.s.l.), 05.VII.2010, 2♀♀; 18.VII.2010, 1♂; Roodsar, Rahim abad, Orkom (36°45'44.34" N, 50°18'11.88" E, 1201 m a.s.l.), 06.VI.2010, 1♀; 13.VI.2010, 5♀♀; 05.VII.2010, 4♀♀; 24.VII.2010, 2♀♀; 22.VIII.2010, 1♀; Astaneh Ashrafiyeh, Eshmankamachal (37°21'10.50"

N, 49°57'56.16" E, 2 m a.s.l.), 26.IX.2010, 1♀; Qazvin province: Zereshk Road (36°25'23.88" N, 50°06'37.68" E, 1926 m a.s.l.), 15.VIII.2011, 1♀; Tehran province: Shahriar (35°40'08.10" N, 50°56'56.64" E, 1168 m a.s.l.), 27.IX.2010, 4♀; leg. M. Khayrandish.

Distribution. East Palaearctic (Korea, Russia), West Palaearctic [Armenia, Austria, Bosnia Herzegovina, Bulgaria, Croatia, Finland, France, Germany, Greece, Hungary, Iran, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Former Yugoslav Republic of Macedonia, Mongolia, Montenegro, The Netherlands, Poland, Serbia (Žikić et al. 2011), Spain, Sweden, Switzerland, Tajikistan, Tunisia, Turkey, United Kingdom] (Yu et al. 2012).

Agathis umbellatarum Nees, 1812

Synonym: *Agathis aurantiaca* Fahringer, 1937; *Agathis brullaei* Lucas, 1849; *Agathis gussakovskiyi* Tobias, 1963; *Agathis gussakovskiyi* Tobias, 1964; *Agathis kolazyi* Fischer, 1959; *Agathis thoracica* Lucas, 1849 (Yu et al. 2012).

Material examined: Tehran province: Peykanshahr (35°44'29.19" N, 51°09'58.88" E, 1278 m a.s.l.), 11.VI.2010, 1♀; leg. S. Farahani.

Distribution. East Palaearctic (Russia), West Palaearctic [Algeria, Azerbaijan, Bulgaria, Croatia, Cyprus, France, Germany, Greece, Hungary, Iran, Israel, Italy, Kazakhstan, Kyrgyzstan, Former Yugoslav Republic of Macedonia, Moldova, Mongolia, Portugal, Serbia (Žikić et al. 2011), Spain, Tajikistan, Tunisia, Turkey, Turkmenistan, Ukraine, Uzbekistan] (Yu et al. 2012).

Cremonops desertor (L., 1758)

Synonym: *Cremonops alternans* Enderlein, 1920; *Cremonops deflagrator* (Spinola, 1808); *Cremonops lemniscatus* Enderlein, 1920 (Yu et al. 2012).

Material examined: Guilan province: Astaneh Ashrafiyeh, Eshmankamachal (37°21'10.50" N, 49°57'56.16" E, 2 m a.s.l.), 25.V.2010, 1♀; 01.VIII.2010, 1♂; 08.VIII.2010, 1♀; 28.VIII.2010, 1♀, 4♂♂; 06.IX.2010, 1♂; 12.IX.2010, 1♂; 18.IX.2010, 1♀, 1♂; 03.X.2010, 1♂; Astaneh Ashrafiyeh, Eshmankamachal (37°22'03.66" N, 49°57'57.84" E, -1 m b.s.l.), 25.V.2010, 1♀; 06.VI.2010, 1♀; 18.VII.2010, 1♀; 04.IX.2010, 3♀♀; 18.IX.2010, 1♀, 2♂♂; 07.XI.2010, 1♀; 24.X.2010, 1♀; Roodsar, Rahim Abad, Orkom (36°45'44.34" N, 50°18'11.88" E, 1201 m a.s.l.), 17.V.2010, 1♂; Mazandaran province: Noor, Joorband (36°26'17.28" N, 52°07'13.62" E, 272 m a.s.l.), 06.VI.2011, 2♀♀; 27.VI.2011, 1♀; 12.VII.2011, 1♀; 25.VII.2011, 1♀, 1♂; 25.IX.2011, 1♀; leg. A. Nadimi.

Distribution. Oriental (China, India, Indonesia), East Palaearctic (Japan, Korea, Russia), West Palaearctic [Armenia, Azerbaijan, Belgium, Bulgaria, Croatia, former Czechoslovakia, Finland, France, Germany, Hungary, Italy, Latvia, Lithuania, Moldova, Myanmar, Nepal, Netherlands, Poland, Romania, Serbia (Žikić et al. 2010), Slovakia, Slovenia, Sweden, Switzerland,

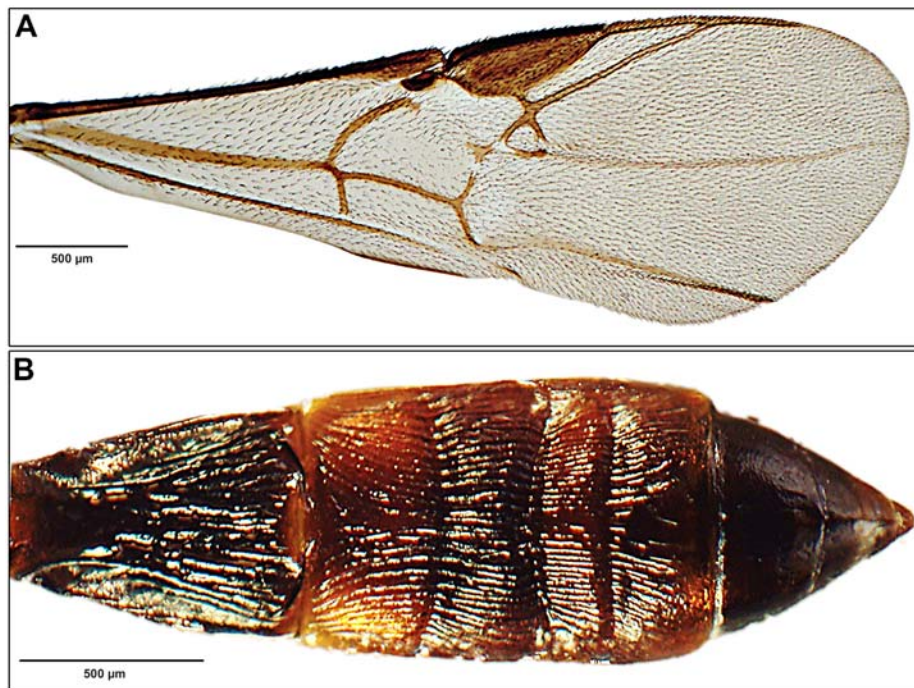


Fig. 1. The external morphology of *Lytopylus rufipes*: A – Forewing; B – Metasoma in dorsal view. Scales 500 µm.

Turkey, Ukraine, United Kingdom], Nearctic (Canada, U.S.A) (Yu et al. 2012). New record from Iran.

Camptothlipsis armeniaca (Telenga, 1955)

Material examined: Alborz province: Karadj (35°46'08.88" N, 50°56'55.20" E, 1277 m a.s.l.), 25.V.2010, 1♀, 2♂♂; leg. A. Nadimi.

Distribution. West Palaearctic (Armenia, Austria, Azerbaijan, Hungary, Iran, Italy, Kazakhstan, Moldova, Switzerland, Turkey, Ukraine) (Yu et al. 2012).

Disophrys caesa (Klug, 1835)

Synonym: *Disophrys anthracina* (Kriechbaumer, 1898); *Disophrys atrithorax* Strand, 1910; *Disophrys baetica* (Spinola, 1843); *Disophrys bovaei* (Lucas, 1849); *Disophrys erythromelas* (Brulle, 1846); *Disophrys imperialis* (Costa, 1888); *Disophrys initiator* (Fonscolombe, 1846); *Disophrys initiatrix* (Schulz, 1906) (Yu et al. 2012).

Material examined: Tehran province: Shahriar (35°40'08.10" N, 50°56'56.64" E, 1168 m a.s.l.), 06.IX.2010, 1♀; 13.IX.2010, 1♀; 20.IX.2010, 1♀; 12.X.2010, 1♀; Guilan province: Roodsar, Rahim abad, Ziaz (36°52'27.18" N, 50°13'24.78" E, 490 m a.s.l.), 05.VII.2010, 1♀; 10.VII.2010, 1♀; 18.VII.2010, 1♀; 04.IX.2010, Roodsar, Rahim abad, Orkom (36°45'44.34" N, 50°18'11.88" E, 1201 m a.s.l.), 05.VII.2010, 3♀♀; 18.VII.2010, 13♀♀; 24.VII.2010, 8♀♀; 01.VIII.2010, 2♀♀; 08.VIII.2010, 10♀♀; 15.VIII.2010, 1♀; 22.VIII.2010, 2♀♀; 04.IX.2010, 1♀; 05.X.2010, 1♂; Roodsar, Rahim abad, Qazichak (36°45'57.54" N, 50°19'35.22" E, 1803 m a.s.l.), 08.VIII.2010, 1♀; 15.VIII.2010, 1♀; Astaneh Ashrafieh, Eshmarkamachal (37°21'10.50" N, 49°57'56.16" E, 2 m a.s.l.), 28.VIII.2010, 2♀♀; 04.IX.2010, 4♀♀; 18.IX.2010, 1♀; 03.X.2010, 1♀; Mazandaran province: Noor, Joorband (36°26'17.28" N, 52°07'13.62" E) 272 m a.s.l., 15.VIII.2011, 3♀♀; 04.IX.2011, 10♀♀; 25.IX.2011, 5♀♀;

09.X.2011, 2♀♀; Noor, Chamestan, Tangehvaz (36°21'55.02" N, 52°06'10.74" E, 692 m a.s.l.), 25.IX.2011, 1♀; Noor, Chamestan, Gaznasara (36°16'58.08" N, 52°10'55.62" E, 2013 m a.s.l.), 15.VIII.2011, 1♀; Noor (36°34'52.98" N, 52°02'45.78" E, -14 m b.s.l.), 25.IX.2011, 1♀; 04.XI.2011, 1♀; leg. A. Nadimi.

Distribution. East Palaearctic (Russia, Russia-Dagestanskaya Respublika), West Palaearctic [Algeria, Armenia, Azerbaijan, Bulgaria, Croatia, France, France-main, Germany, Hungary, Iran, Italy, Italy-Sicily, Italy-main, Morocco, Portugal, Romania, Serbia (Žikić et al. 2010, 2011), Spain, Spain-main, Switzerland, Turkey) (Yu et al. 2012).

Remark. According to the catalogue by Yu et al. (2012), *Disophrys caesa* is considered as synonym of *D. initiator* (Fonscolombe, 1846) while they are two valid species in Fauna Europaea (2012). Van Achterberg (2011) believes that *D. caesa* is present in South West Mediterranean. Also, he believes that the species *D. caesa* (Klug, 1835) and *D. inculcatrix* (Kriechbaumer, 1898) which have been recorded from Iran (Hedwig 1957; Lashkari-Bod et al. 2011) should consider as *D. initiator*.

Lytopylus rufipes (Nees, 1812) (Figs 1, 3A)

Synonym: *Lytopylus amurensis* (Shestakov, 1940); *Lytopylus diversus* (Muesebeck, 1933); *Lytopylus germanicus* (Enderlein, 1904) (Yu et al. 2012).

Material examined: East Azerbaijan, Maragheh; Dash-Atan (37°20'27.00" N, 46°21'19.50" E, 1616 m a.s.l.), 10.IX.2007, 5♀, 5♂; leg. H. Ranjbar Aghdam.

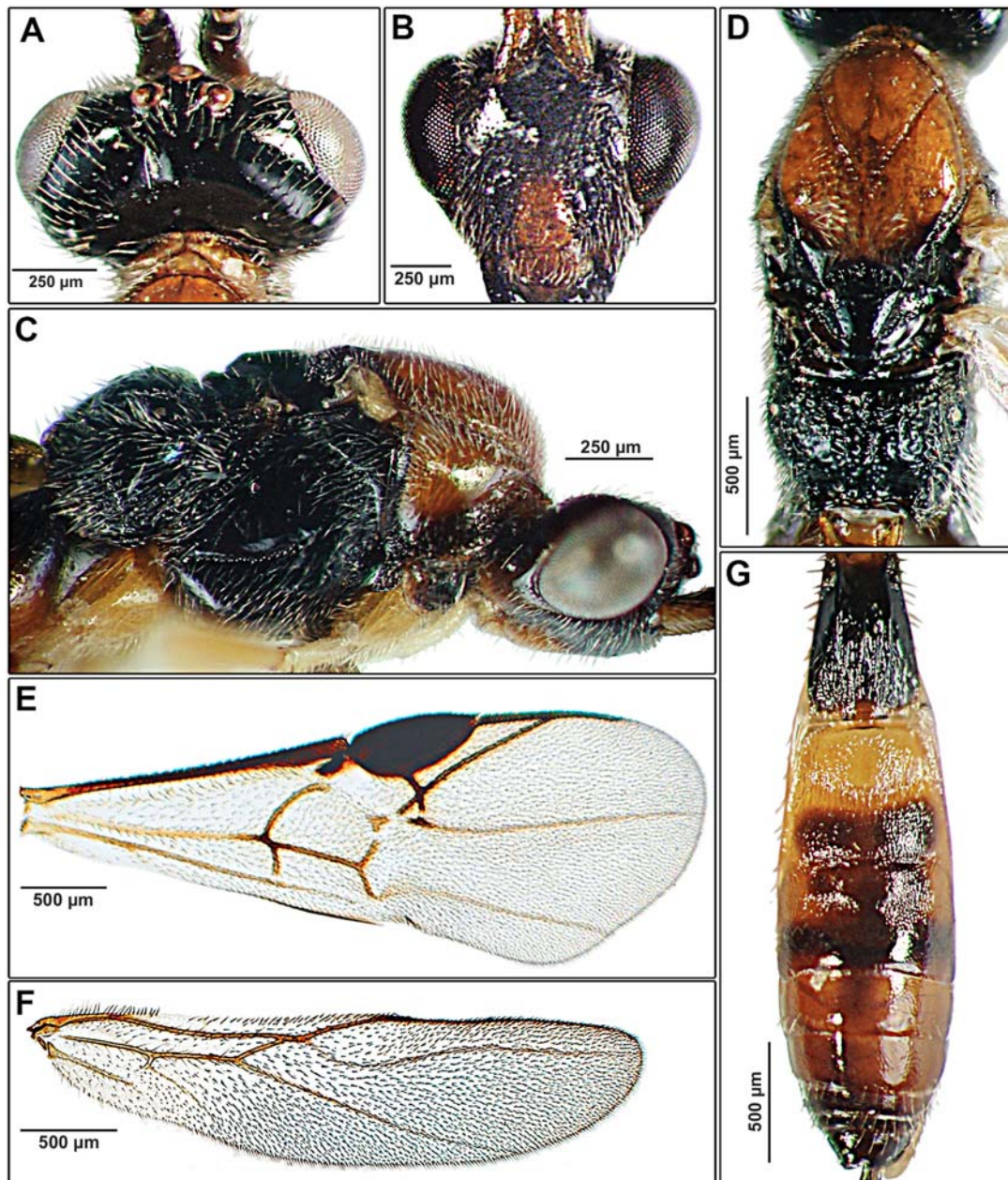


Fig. 2. The external morphology of *Lytopylus persicus* Farahani & Talebi sp. n.: A – Head in dorsal view; B – Face; C – Mesosoma in lateral view; D – Mesosoma in dorsal view; E – Forewing; F – Hind wing; G – Metasoma in dorsal view. Scales 250 µm (A–C), 500 µm (D–G).

Distribution. Australian (Australia), East Palaearctic (Japan, Korea, Russia), West Palaearctic (Armenia, Austria, Azerbaijan, Belgium, Bulgaria, Czechoslovakia, Finland, France, Georgia, Germany, Hungary, Italy, Kazakhstan, Kyrgyzstan, Lithuania, Moldova, Netherlands, Poland, Romania, Slovakia, Sweden, Switzerland, Turkmenistan, Ukraine, United Kingdom), Nearctic (U.S.A.) (Yu et al. 2012).

Lytopylus persicus Farahani & Talebi sp. n. (Figs 2, 3B)

Diagnosis. *Lytopylus persicus* is recognizable by its coloration, the sculpture of the second and third metasomal tergites, and the weakly curved vein SR_1 of fore wing.

Description. Female (holotype). Body length 4.7 mm; length of antenna 4.0 mm; ovipositor length 3.9 mm (Fig. 3B).

Head. Antenna 29–30 segmented; length of third antennal segment 1.3 times fourth segment; gena rounded postero-laterally, protuberances on occiput absent and distinctly punctate; area between antennae with a median keel ending at a small pit in front of anterior ocellus; length of eye longer than 2.0 times length of temple (Fig. 2A), $OOL = 2 OD$ (OOL = distance between posterior ocellus and eye margin; OD = diameter of posterior ocelli) (Fig. 2A); face transverse in frontal view (Fig. 2B),

Mesosoma. Length of mesosoma 1.7 times its height; notauli distinctly impressed (Fig. 2D); scutellum punctate (Fig. 2D); prepectal carina normal,

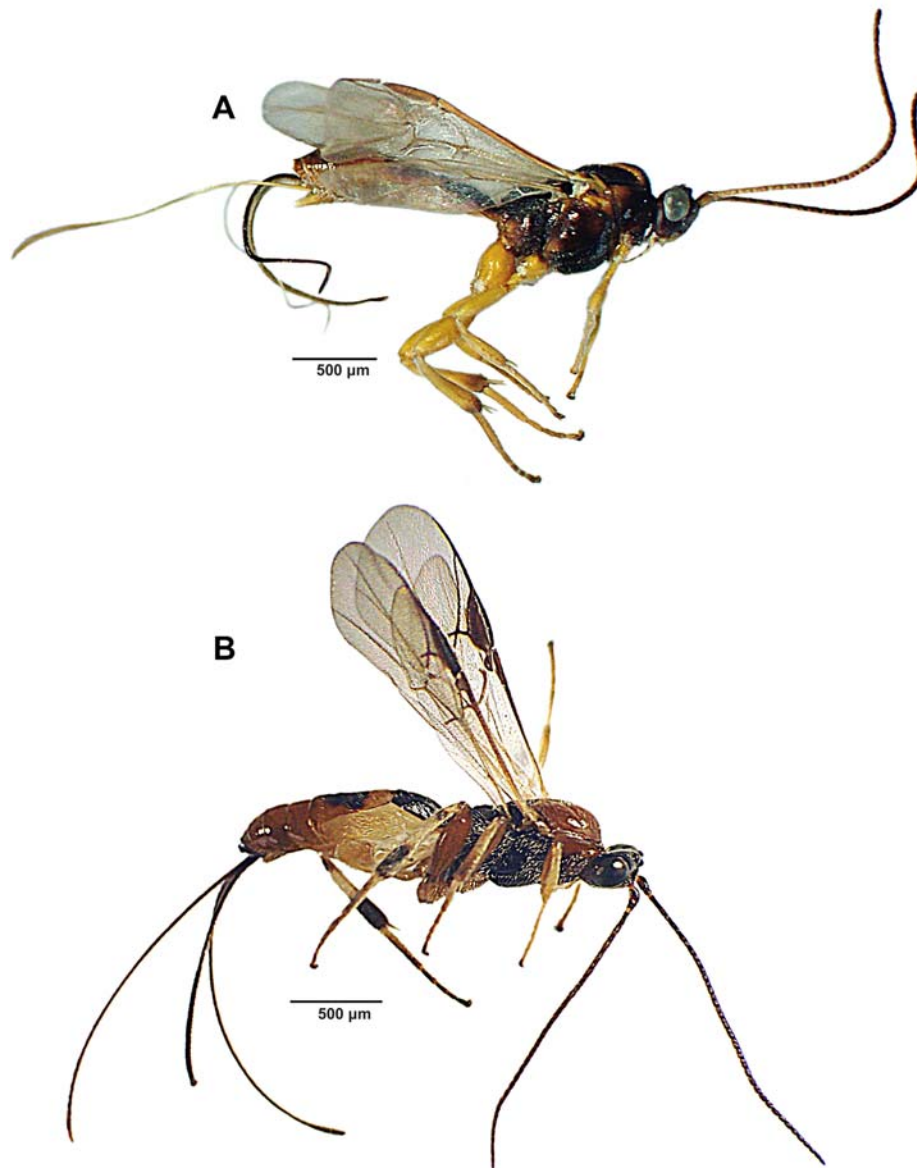


Fig. 3. Adult females, lateral view of general habitus: A – *Lytopylus rufipes*; B – *Lytopylus persicus* sp. n. Scales 500 µm.

slightly emarginated ventrally (Fig. 2C).

Wings. Length of fore wing 4.0 mm, second submarginal cell of fore wing triangular, shortly petiolate; SR1 of fore wing slightly curved towards pterostigma; 2A absent; cu-a inclivous; length of 3-SR+SR1 longer than 8.0 times length of r; 1-R₁ of fore wing as long as 2-R₁; length of pterostigma 2.0 times length of 1-R₁ (Fig. 2E); length of M+CU of hind wing 1.2 times length of 1-M (Fig. 2F).

Legs. Length of hind femur, tibia and basitarsus 3.0, 8.6 and 9.0 times their width, respectively; outer surface of middle tibia with pegs sub-medially and sub-apically; length of inner and outer spurs of hind tibia 0.3 and 0.4 times length of hind basitarsus, respectively; tarsal claws with a basal lobe.

Metasoma. Length of first tergite 1.5 times its apical width, its surface distinctly sculptured, consisting of strong striations and a pair rather strong dorsal carina; length of combined second and third tergites 1.3 times

their maximum width; second and third tergites granulate and finely striate; remainder of metasoma smooth (Fig. 2G); length of ovipositor sheath 1.1 times length of fore wing and slightly shorter than combined length of metasoma and mesosoma.

Colour. Antenna dark brown except at base slightly lighter; palpi yellowish; wing membrane mostly hyaline; pterostigma, parastigma and veins dark brown; fore and middle legs reddish brown, hind leg dark except trochanter, femur and base of hind coxa black, hind tibia with a pale yellow band medially; mesosoma black but mesoscutum and pronotum testaceous; first metasomal tergite black, basal half of tergite II mostly pale but melanic posteriorly, tergite III melanic, remainder of metasoma dark brown.

Male. Similar to female except antennae 28-29 segmented. Occasionally base of hind coxa reddish brown.

Host. Unknown

Table 1. Checklist of Agathidinae known from Iran.

Species name	Distribution in Iran	References
<i>Agathis anglica</i> Marshall, 1885	Guilan	Ghahari et al. (2012)
<i>Agathis assimilis</i> Kokujev, 1895	Semnan Guilan	Ghahari et al. (2009b) Ghahari et al. (2012)
<i>Agathis fulmeki</i> Fischer, 1957	West and East Azerbaijan	Ghahari & Fischer (2011a)
<i>Agathis fuscipennis</i> (Zetterstedt, 1838)	West Azerbaijan Alborz, Qazvin, Tehran, Guilan	Ghahari et al. (2009a) Present study
<i>Agathis glaucoptera</i> Nees, 1834	West Azerbaijan, Ardabil, Guilan	Ghahari & Fischer (2011a) Ghahari & Fischer (2011b)
<i>Agathis lugubris</i> (Förster, 1862)	Ilam Kermanshah	Ghahari et al. (2011a) Ghahari & Fischer (2012)
<i>Agathis malvacearum</i> Latreille, 1805	Qazvin	Ghahari et al. (2011b)
<i>Agathis melpomene</i> Nixon, 1986	Kermanshah, Mazandaran	Ghahari & Fischer (2012) Ghahari & Fischer (2011b)
<i>Agathis montana</i> Shestakov, 1932	Ardabil	Ghahari & Fischer (2011a)
<i>Agathis nigra</i> Nees, 1812	Not exactly defined Guilan	Hellén (1956) Ghahari et al. (2012)
<i>Agathis rufipalpis</i> Nees, 1812	East Azerbaijan Kermanshah	Ghahari et al. (2009b) Ghahari & Fischer (2012)
<i>Agathis semiaciculata</i> Ivavov, 1899	Golestan	Ghahari & Fischer (2011b)
<i>Agathis syngenesiae</i> Nees, 1812	Hamadan; Ilam	Ghahari et al. (2010)
<i>Agathis tibialis</i> Nees, 1812	Kermanshah, Qazvin	Ghahari & Fischer (2012) Ghahari et al. (2011b)
<i>Agathis umbellatarum</i> Nees, 1812	Ilam Kermanshah Tehran	Ghahari et al. (2011a) Ghahari & Fischer (2012) Present study
<i>Bassus dimidiator</i> (Nees, 1834)	East Azerbaijan	Ghahari & Fischer (2011a)
<i>Bassus linguarius</i> (Nees, 1812)	Ardabil	Ghahari et al. (2009b)
<i>Bassus claushtalianus</i> (Ratzeburg, 1844)	Ilam	Ghahari et al. (2011a)
<i>Bassus pumilus</i> (Szepligeti, 1844)	Guilan	Ghahari et al. (2012)
<i>Bassus tumidulus</i> (Nees, 1812)	Kermanshah	Ghahari & Fischer (2012)
<i>Camptothlipsis armeniaca</i> (Telenga, 1955)	East Azerbaijan Alborz	Ghahari et al. (2009a, c) Present study
<i>Coccygidium transcaspicum</i> (Kokujev, 1902)	Not exactly defined	Telenga (1955)
<i>Cremnops richteri</i> Hedwig, 1957	Not exactly defined	Hedwig (1957)
<i>Cremnops desertor</i> (Linnaeus, 1758)	Guilan and Mazandaran	Present study
<i>Disophrys dissors</i> Kokujev, 1903	Mazandaran	Ghahari et al. (2009c)
<i>Disophrys caesa</i> (Klug, 1835)	Fars Alborz, Guilan, Mazandaran	Lashkari-Bod et al. (2011) Present study Hedwig (1957)
<i>Earinus elator</i> (Fabricius, 1804)	East Azerbaijan	Ghahari & Fischer (2011a)
<i>Lytopylus rufipes</i> (Nees, 1812)	East Azerbaijan	Ranjbar Aghdam & Fathipour (2010)
<i>Lytopylus persicus</i> Farahani & Talebi sp. n.	Mazandaran; Guilan	Present study

Material examined. Holotype: female, Iran: Mazandaran province: Noor, Chamestan, Tangehvaz (36°21'55.02" N, 52°06'10.74" E, 692 m a.s.l.), 27.VI.2011. **Paratypes:** 1♀, 1♂, same data as holotype. 1♂, Guilan province: Astaneh Ashrafiyeh, Eshmankamachal (37°22'03.66" N, 49°57'57.84" E, -1 m b.s.l.), 27.IX.2010; leg. A. Mohammadi.

Etymology. The species name, *persicus*, is an adjective derived from Persia, the Latin name used for the area of Iran.

Key to West Palaearctic species of the genus *Lytopylus* Förster

1 Length of ovipositor sheath 0.6 times fore wing; metasoma very short and stout; hind leg stout; antennae 23 segmented *L. fortipes* (Reinhard, 1867)
 – Length of ovipositor sheath 1.0–1.1 times fore wing; metasoma moderately slender; hind leg slender; antennae 29–34 segmented 2

2 Marginal cell of fore wing narrowed basally 3
 – Marginal cell of fore wing somewhat wider 4
 3 Vein SR₁ of fore wing straight; second submarginal cell medium sized; dorsal carinae of first tergite medium sized and confined to basal half of tergite; length of eye 3.0 times temple in dorsal view; antenna 34 segmented *L. sculptilis* (Tobias, 1986)
 – Vein SR₁ of fore wing curved; second submarginal cell very small; dorsal carinae of first tergite absent; length of eye twice temple in dorsal view; antenna 30 segmented *L. barbieri* (Simbolotti & van Achterberg, 1992)
 4 Sculpture of second and third metasomal tergites longitudinally striate and similar to first tergite, second metasomal tergite brown (Fig. 1B); vein SR₁ of fore wing straight (Fig. 1A); hind tibia without pale band medially (Fig. 3A); antenna 31–33 segmented
 *L. rufipes* (Nees, 1812)
 – Sculpture of second and third metasomal tergites

granulate and finely striate, second metasomal tergite yellow (Fig. 2G); vein SR₁ of fore wing slightly curved to pterostigma (Fig. 2E); hind tibia with a pale yellow band medially (Fig. 3A); antenna 28–30 segmented. . . . *L. persicus* Farahani & Talebi sp. n.

Discussion

Twenty-nine species of Agathidinae are now recorded from Iran (Table 1). Most of these species are attributed to genus *Agathis*. Two species, *Agathis umbellatarum* and *A. fuscipennis* have recently been recorded from Ilam and Kermanshah (Ghahari et al. 2011; Ghahari & Fischer 2012) and West Azerbaijan provinces (Ghahari et al. 2009a), respectively. Both species have also been recorded from northern Iran in the present study. *Agathis fuscipennis* attacks mainly members of the lepidopteran family Coleophoridae, whereas *A. umbellatarum* is recorded as a parasitoid of *Depressaria* sp. (Lepidoptera: Oecophoridae) and *Metzneria* sp. (Lepidoptera: Gelechiidae) (Yu et al. 2012).

Previously two species of *Disophrys* were recorded from Iran *D. dissors* Kokujev, 1903 and *D. caesa* (Klug, 1835) have been recorded from Iran (Hedwig 1957; Ghahari et al. 2009b; Lashkari-Bod et al. 2011).

The genus *Cremnops*, had been known from Iran with a single species, *C. richteri*, with unknown biology (Hedwig 1957). The recently recorded species, *C. desertor* is a solitary endoparasitoid reared from pupal stages of various Lepidopterus pests with economic importance, such as *Cydia pomonella* (L., 1758) (Lepidoptera: Tortricidae), *Eurrhyncha hortulata* L., 1758 (Lepidoptera: Crambidae), *Euxoa triaena* Kozhantshikov, 1929 (Lepidoptera: Noctuidae), *Ostrinia nubilalis* (Hübner, 1796) (Lepidoptera: Crambidae), *Palpita machaeralis* (Walker, 1859) (Lepidoptera: Pyralidae), *Synanthedon spheciformis* (Denis & Schiffermüller, 1775) (Lepidoptera: Sesiidae) (Nixon 1986; Yu et al. 2012).

Camptothlipsis armeniaca (Telenga, 1955) has recently been reported by Ghahari et al. (2012) from Iran. It has been recorded as endoparasitoid of *Anarsia eleagnella* Kuznetzov, 1957, *A. lineatella* Zeller, 1839, *Grapholita funebrana* Treitschke, 1835, *Recurvaria leucatella* (Clerck, 1759) and *R. nanella* (Denis & Schiffermüller, 1775) (Yu et al. 2012).

The genus *Lytopylus* Förster was formerly classified as a junior synonym of *Bassus*. Recently, it was validated as separate genus by fore and middle tarsal claws with a distinct basal lobe and area behind antennal sockets shallowly impressed in *Lytopylus*, while in *Bassus* fore and middle tarsal claws are simple (without a basal lobe) and area behind antennal sockets deeply impressed (van Achterberg & Dang Long 2010). Thirty species of the genus *Lytopylus* have been reported worldwide but most of the described species are Nearctic (Yu et al. 2012; Sharkey et al. 2011). It has recently been reported from Iran by a single species, *L. rufipes* (as *Bassus rufipes*) on codling moth, *C. pomonella* (Ranjbar Aghdam & Fathipour 2010). *Lytopylus rufipes*

is also recorded from Azerbaijan, Kyrgyzstan, Russia and Turkmenistan (Yu et al. 2012). This species has a wide distribution and has been reported from Oriental, Nearctic, East and West Palaearctic. The newly described species, *Lytopylus persicus* is the second species of this genus recorded from Iran.

Many species of the Agathidinae are important in natural control of pest species of Lepidoptera (Bartlett et al. 1978) and further investigations are required to determine the potential of these parasitic wasps against lepidopterous pests in Iran. Due to the rich biological diversity in Iran, we believe that many more species of Agathidinae occur in Iran. Therefore, further field work in Iran should be carried out.

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