

# New data on encyrtid (Hymenoptera: Chalcidoidea: Encyrtidae) parasitoids of Coccoids (Hemiptera: Coccoidea) from Turkey, with description of five new species

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Parasitoids of coccoids were surveyed using malaise traps at the Golcuk Natural Park (Isparta Province), Turkey, in 2009 and 2010. More than 40 species of parasitoids were collected, with twelve being new records for Turkey, of which five, *Anagyrus descriptus* sp. n., *A. alienus* sp. n., *Aschitus golcukus* sp. n., *Charitopus bulentyasari* sp. n., and *Ch. ismailkaracai* sp. n. (Hymenoptera: Encyrtidae), are described as new species.

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## 1. Introduction

Encyrtidae is the most speciose group of parasitoids attacking scales and psyllids. Members of this family are important in biological control. More than 400 encyrtid species have been used or are used today for suppression of various crop pests (Japoshvili & Noyes 2006). There are more than 1270 described species of encyrtids in the Palaearctic Region (Trjapitzin 1989, Yasnosh & Japoshvili 1999, Japoshvili 2005, 2007, Japoshvili & Karaca 2004, Japoshvili & Noyes 2005a, 2006, Japoshvili & Abrantes 2006). The first comprehensive account of encyrtid parasitoids of Coccoids from Turkey was given in Öncüer's (1991) catalogue, where he recorded 27 species of encyrtids and 17 species of aphelinids. The number of encyrtid species was later increased to 50 by Trjapitzin & Doganlar (1997). Recent studies in Turkey have found an additional 82 encyrtid species (Japoshvili & Karaca 2002, 2004, Karaca & Japoshvili 2002, Japoshvili *et al.*

2004, Uygun *et al.* 2004, Japoshvili 2005, Japoshvili & Noyes 2005a,b, 2006, Kaydan *et al.* 2006, Japoshvili & Celik 2010, Kaydan & Japoshvili 2010).

The purpose of this study was to identify encyrtid parasitoids of Coccoids using malaise traps. The genera that are discussed in this study are recorded as parasitoids of Coccoids, without exception.

## 2. Material and methods

Insect samples were collected from March to October in 2009 and 2010, using malaise traps (Townes 1972), which were supplied by Bands Entomology-The Net Suppliers (UK). The traps were placed in two locations: Pilav Tepe (N: 37° 43' 19.35", E: 30° 29' 19.74", 1,520 m a.s.l.) and *Acacia* reforested area, near main entrance at Golcuk Natural Park (N: 37° 44' 12.33", E: 30° 29' 24.00", 1,414 m a.s.l.). The traps were

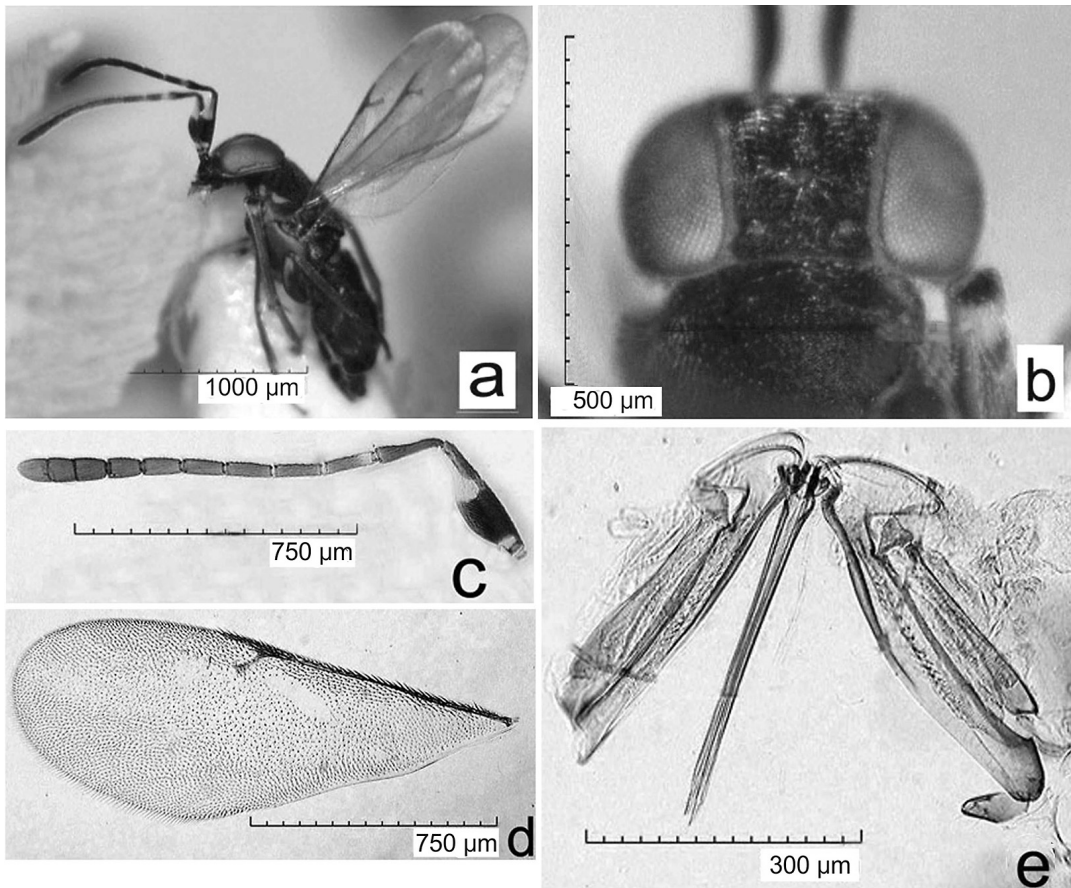


Fig. 1. *Anagyrus alienus* sp. n. female. – a. Body. – b. Head. – c. Antenna. – d. Fore wing. – e. Ovipositor.

checked and material was collected every 10 days. Additionally, from March to July, I set malaise trap in a rocky area (N: 37° 42' 52.51", E: 30° 29' 47.42", 1,430 m a.s.l.), also checked every 10 days. Captured insects were sorted into orders, and then hymenopterans were sorted into superfamilies and families. Specimens in the superfamily Chalcidoidea were critical point dried to preserve morphological features. Encyrtid specimens were card mounted and slide mounted according to Noyes (2010). Identification was done by the author using various identification keys and literature sources (Trjapitzin 1989; Noyes & Hayat 1994; Guerrieri & Noyes 2000; Hayat 2006). Descriptions of new species of parasitoids were prepared according to Noyes & Hayat (1994).

During these studies, available material from various museums were also examined, including

the Smithsonian Institution, the Madrid Natural History Museum, the Natural History Museum in London and the St. Petersburg Entomology Collection of the Institute of Zoology.

The following abbreviations are used in the text: AOL, distance between posterior and anterior ocelli; EL, maximum eye length; EOL, ovipositor length (exserted part); FV, minimum frontovertex width; F<sub>1</sub>L, F<sub>2</sub>L, etc., first funicle segment length, second funicle segment length, etc.; F<sub>1</sub>W, F<sub>2</sub>W, etc., first funiculus segment width, second funiculus segment width, etc.; FWL, length of forewing; FWW, width of forewing; GL, maximum length of gonostylus (= third valvula); GOL, abdomen length including exserted part of ovipositor; HW, maximum head width; M, length of marginal vein; MF, the length of the longest marginal setae on the forewing; MS, malar space (shortest distance from eye to

Table 1. Differences between *Anagyrus alienus* Japoshvili **sp. n.** and *A. zaitzevi* Trjapitzin. Abbreviations: FV, minimum frontovertex width; AOL, distance between posterior and anterior ocelli; POL, posterior ocellar line (= the shortest distance between posterior ocelli).

<i>A. alienus</i> <b>sp. n.</b>	<i>A. zaitzevi</i>
FV 0.41× as broad as head	FV 0.33× as broad as head width
Ocelli forming slightly obtuse angle	Ocelli forming slightly acute angle
AOL < POL	AOL = POL
Midtibial basitarsus almost as long as midtibial spur or slightly longer	Midtibial basitarsus 1.2–1.3× as long as midtibial spur
Only basal half of flagellum F <sub>1</sub> whitish	Flagellum white or yellowish
Antennae with scape about 3.3× as long as broad	Antennae with scape about 2.7× as long as broad
Clava 3.8× as long as broad	Clava 3× as long as broad

mouth margin); MT, length of midtibia; MTS, length of midtibial spur; MTT, length of midbasitarsus; OCL, occipital ocellar line (distance of posterior ocellus from occipital margin); OD, greatest diameter of an ocellus; OL, ovipositor length; OOL, ocular-ocellar line (shortest distance between posterior ocellus and adjacent eye margin); P, length of postmarginal vein; PL, pedicel length; POL, posterior ocellar line (= the shortest distance between the posterior ocelli); PW pedicel width; S, length of stigmal vein; SL, scape length; SW, scape width; ThL, thorax and head length together.

Illustrations were made by using a Hirox KH-7700 digital microscope. The holotype and paratypes and other voucher specimens are deposited in the collection at the Entomology and Biocontrol Research Centre, Agricultural University of Georgia, Tbilisi, Georgia. New records are marked with a double asterisk.

### 3. Descriptions of new species of the family Encyrtidae

#### 3.1. *Anagyrus alienus* **sp. n.** Figs. 1a–e

*Material examined.* Type material: Holotype ♀, Turkey, Isparta, Golcuk Natural Park, Pilav Tepe, N: 37° 43'19.35", E: 30° 29'19.74", 1,520 m, 21.V.2009, leg. G. Japoshvili and H. Celik (slide).

Female. Length of holotype 1.7 mm (Fig. 1a).

All body dark brown, almost black; only sides of mesoscutum and scutellum with very small yellow spots on sides; mesopleuron orange; all body covered with densely silver bristles; eyes

with orange band around; coxae with brown ventral surface and whitish on dorsal; legs yellowish; fore, middle legs and hind femora brown with one whitish line across; only hind tibia completely brownish.

Head 2.1× as broad as frontovertex (Fig. 1b); ocelli forming slightly obtuse angle; antennae with scape about 3.3× as long as broad, pedicel about 4.3× as long as broad (Fig. 1c).

Relative measurements (holotype). HH 497.5; HW 570.2; FV 237; MS 128.8; EL 384.6; AOL 80; POL 105.5; OOL 34; OD 30; OCL 28.8; THL 711; GOL 884; SL 335; SW 100.4; PL 167.3; PW 39.3; F<sub>1</sub>L 141.5; F<sub>1</sub>W 31.6; F<sub>2</sub>L 129.9; F<sub>2</sub>W 32.4; F<sub>3</sub>L 130.8; F<sub>3</sub>W 34.3; F<sub>4</sub>L 105.9; F<sub>4</sub>W 39; F<sub>5</sub>L 104.9; F<sub>5</sub>W 43.8; F<sub>6</sub>L 86.2; F<sub>6</sub>W 52.7; CL 235.6; CW 62; FWW 575.7; FWL 1517.7; M 118.35; P 131.7; S 98 (Fig. 1d); OL 453.6; GL 70.3 (Fig. 1e); MT 693.6; MTS 186; MTT 192.9.

*Comment.* The closest species to *Anagyrus alienus* Japoshvili **sp. n.** is *A. zaitzevi* Trjapitzin. Females of these species can be separated by the characters given in Table 1.

*Etymology.* The species is named according Latin name "alienus", which means "different".

#### 3.2. *Anagyrus descriptus* **sp. n.** Figs. 2a–e

*Material examined.* Type material: Holotype ♀, Turkey, Isparta, Golcuk Natural Park, Acacia reforested area, N: 37° 44'12.33", E: 30° 29'24.00", 1,414 m, 14.VIII.2009, leg. G. Japoshvili and H. Celik (slide).

Female. Length of holotype 1.2 mm (Fig. 2a).

Head with FV dark orange color; frons with brown spot on each side of toruli; genae and



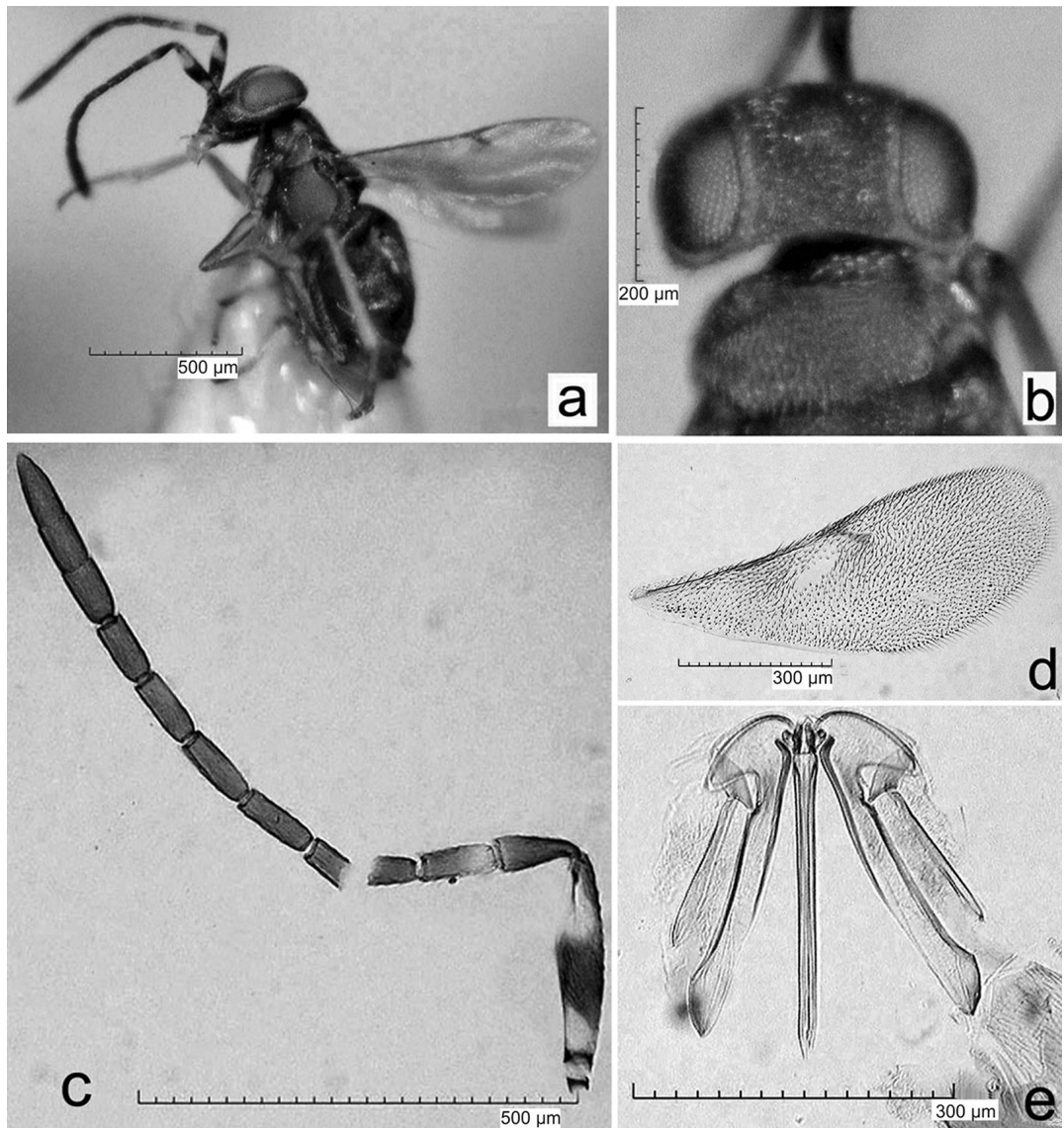


Fig. 2. *Anagyris descriptus* sp. n. female. – a. Body. – b. Head. – c. Antenna. – d. Fore wing. – e. Ovipositor.

malar space brown except yellow band around eyes; all body dark orange color, only tegulla with basal half whitish and apically with brown spot; coxae yellow but infuscated; legs yellow but front and back sides with brown lines across; midtibia yellow; scape basal 1/5 and apical 2/5 whitish, middle 2/5 brown; F<sub>1</sub> basal half whitish and all other segments brown.

Head 1.8× as broad as frontovertex (Fig. 2b); ocelli forming slightly obtuse angle; antennae with scape about 4× as long as broad, pedicel about 2.4× as long as broad (Fig. 2c).

Relative measurements (holotype). HH 370; HW 403.6; FV 207; MS 112; EL 256; AOL 61; POL 81; OOL 42; OD 22; OCL 27.7; THL 428.6; GOL 620; EOL 52.

Additional relative measurements. SL 229.8; SW 55.3; PL 91.5; PW 38.1; F<sub>1</sub>L 89; F<sub>1</sub>W 31; F<sub>2</sub>L 88; F<sub>2</sub>W 29.6; F<sub>3</sub>L 86.5; F<sub>3</sub>W 31; F<sub>4</sub>L 89; F<sub>4</sub>W 31; F<sub>5</sub>L 82.2; F<sub>5</sub>W 30.5; F<sub>6</sub>L 76; F<sub>6</sub>W 31.6; CL 206.5; CW 38.5; FWW 301.9; FWL 857.2; M 50.9; P 60.6; S 65.2 (Fig. 2d); OL 338.7; GL 59.5 (Fig. 2e); MT 459; MTS 159; MTT 149.8.

*Comment.* The closest species to *Anagyris*

Table 2. Differences between *Anagyrus descriptus* Japoshvili **sp. n.** and *A. matritensis* (Mercet). Abbreviations: F<sub>1</sub>, F<sub>2</sub>, etc., first funicle segment, second funicle segment, etc.; FV, minimum frontovertex width; AOL, distance between posterior and anterior ocelli; POL, posterior ocellar line (= the shortest distance between posterior ocelli).

<i>A. descriptus</i> <b>sp. n.</b>	<i>A. matritensis</i>
F <sub>1</sub> basal half whitish and all other segments brown	F <sub>2</sub> and F <sub>3</sub> with basal half whitish
FV 0.5× as broad as head	FV 0.4× as broad as head
Ocelli forming slightly obtuse angle	Ocelli forming slightly acute angle
AOL < POL	AOL = POL
Eyes 2.3× as long as malar space	Eyes more than 2.5× as long as malar space
Scape 4× as long as broad	Scape 3.3× as long as broad
Pedicel 2.4× as long as broad; F <sub>6</sub> 2.4× as long as broad	Pedicel 4.5× as long as broad; F <sub>6</sub> 2× as long as broad
Head wider than high	Head as broad as high
Legs yellow but front and back sides with brown lines across	Legs with dark parts but they don't form lines across
Marginal vein shorter than postmarginal	Marginal vein almost as long as postmarginal

*descriptus* Japoshvili **sp. n.** is *A. matritensis* (Mercet). Females of these species can be separated by the characters given in Table 2.

*Etymology.* The species is named according Latin name “descriptus”, which means “well organized” or “described”.

### 3.3. *Aschitus golcukus* **sp. n.** Figs. 3a–e

*Material examined.* Type material: Holotype ♀, Turkey, Isparta, Golcuk Natural Park, Acacia reforested area, N: 37° 44'12.33", E: 30° 29'24.00", 1,414 m, 28.VI.2009, leg. G. Japoshvili and H. Celik (slide).

Female. Length of holotype without exserted part of ovipositor 1.6 mm (Fig. 3a).

Head yellow, only behind posterior ocelli and eyes with brown band; pronotum, mesoscutum, scutellum and axillae brownish yellow with

brown stripe (line) in the middle of pronotum, mesoscutum and scutellum; mesopleuron almost brown; gaster brown with tergites back side with yellow line; above the cerci in the middle 1/3 almost yellow; all legs brownish yellow; scape brown with ventral light line and pedicel light brown; all flagellum and clava dark brown.

Head 2.8× as broad as frontovertex (Fig. 3b); ocelli forming slightly obtuse angle; antennae with scape about 2.2× as long as broad, pedicel about 1.64× as long as broad (Fig. 3c).

Relative measurements (holotype): HW 517.7; FV 183; MS 161.1; EL 265.1; AOL 50; POL 81; OOL 27; OD 23.8; OCL 29.6; THL 533.5; GOL 797.2; EOL 63.3.

Additional relative measurements: HH 404; SL 247.9; SW 111.6; PL 68.8; PW 42; F<sub>1</sub>L 42.9; F<sub>1</sub>W 41; F<sub>2</sub>L 38; F<sub>2</sub>W 47.9; F<sub>3</sub>L 42.9; F<sub>3</sub>W 56.1; F<sub>4</sub>L 43.7; F<sub>4</sub>W 61.8; F<sub>5</sub>L 44.9; F<sub>5</sub>W 66; F<sub>6</sub>L 45.6;

Table 3. Differences between *Aschitus golcukus* Japoshvili **sp. n.** and *A. neoacanthococci* Myartseva. Abbreviations: AOL, distance between posterior and anterior ocelli; OD, greatest diameter of ocellus; F<sub>5</sub>, fifth funicle segment.

<i>A. golcukus</i> <b>sp. n.</b>	<i>A. neoacanthococci</i>
Ocelli forming slightly obtuse angle	Ocelli forming slightly acute angle
AOL > OD	AOL < OD
Scape 2.2× as long as broad	Scape slightly less than 2× as long as broad
Pedicel about 1.64× as long as broad	Pedicel slightly less than 2× as long as broad
Marginal slightly more than 2× as long as postmarginal	Marginal vein slightly less than 1.5× as long as postmarginal
F <sub>5</sub> dark brown	F <sub>5</sub> yellow

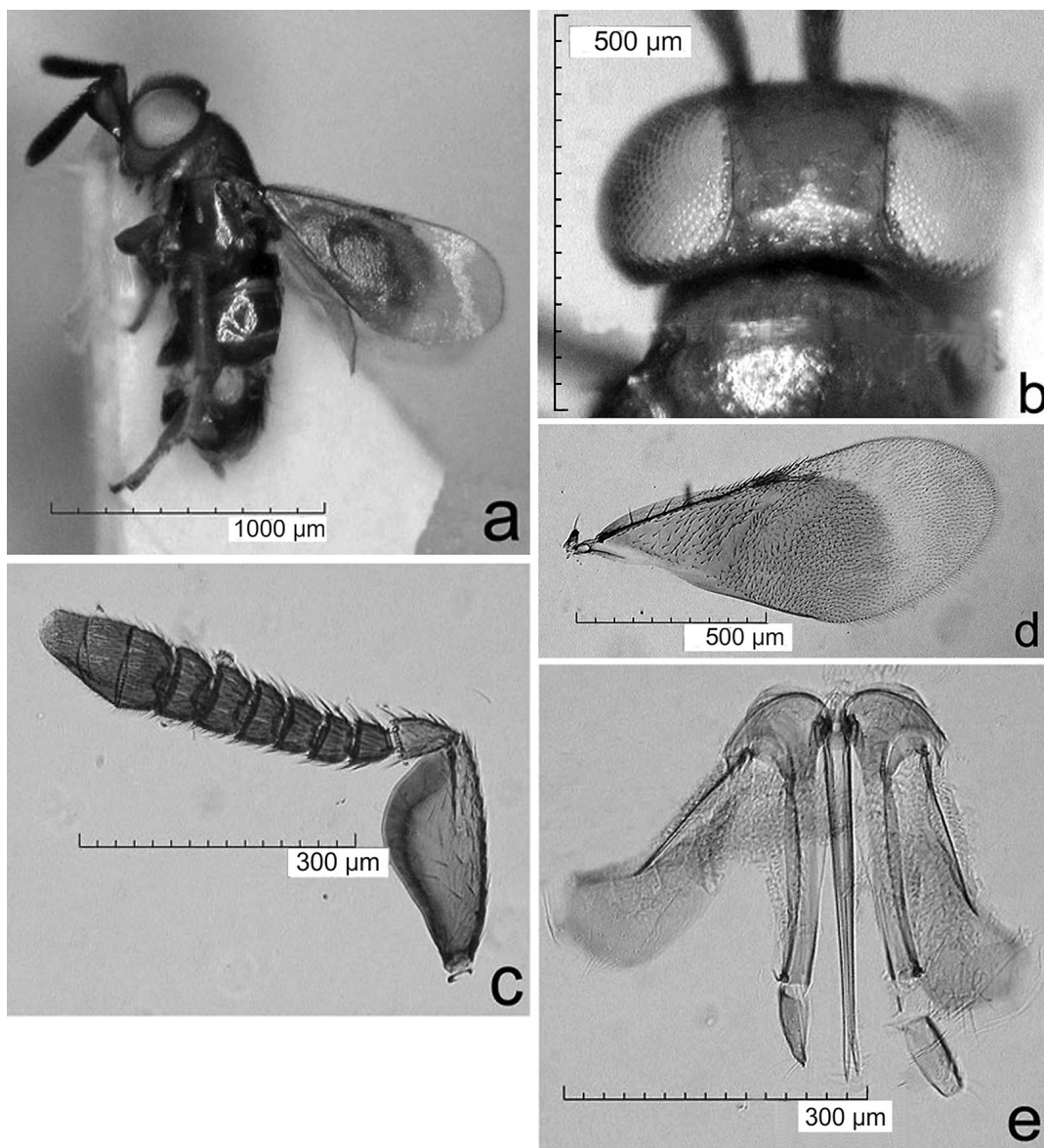


Fig. 3. *Aschitus golcukus* sp. n. female. – a. Body. – b. Head. – c. Antenna. – d. Fore wing. – e. Ovipositor.

$F_6W$  74.6;  $CL$  156.3;  $CW$  85.9;  $FWW$  446.8;  $FWL$  1063;  $M$  110.8;  $P$  51;  $S$  95.7 (Fig. 3d);  $OL$  395.8;  $GL$  82 (Fig. 3e);  $MT$  440.6;  $MTS$  125.5;  $MTT$  125.3.

*Comment.* The closest species to *Aschitus golcukus* Japoshvili sp. n. is *A. neoacanthococci* Myartseva. Females of these species can be separated by the characters given in Table 3.

*Etymology.* The species is named according lake name “Golcuk”, around which the species was found.

### 3.4. *Charitopus bulentyashari* sp. n. Figs. 4a–c

*Material examined.* Type material: Holotype ♀, Turkey, Isparta, Golcuk Natural Park, *Acacia* reforested area, N: 37° 44'12.33", E: 30° 29'24.00", 1,414 m, 03.VII.2009, leg. G. Japoshvili and H. Celik (card mounted); Paratype, ♀, *Acacia* reforested area, 12.VII.2009, leg. G. Japoshvili and H. Celik (slide).

Female. Length of holotype 1.41 mm.

Head dark brown with metallic violet-silver



Table 4. Differences between *Charitopus bulentyasari* Japoshvili **sp. n.**, *Ch. fulviventris* Förster and *Ch. eristoi* Japoshvili. Abbreviations: FV, minimum frontovertex width; F<sub>1</sub>, first funicle segment.

<i>Ch. bulentyasari</i> <b>sp. n.</b>	<i>Ch. fulviventris</i>	<i>Ch. eristoi</i>
All coxae and femora brown	Fore and hind femora brown	All coxae and femora yellow
Head 2× as broad as FV	Head 2.4× as broad as FV	Head 2.2× as broad as FV
Pedicle 1.4× as long as F <sub>1</sub> and 2.7× as long as broad	Pedicle 1.6 as long as F <sub>1</sub> and 3× as long as broad	Pedicle 1.3 as long as F <sub>1</sub> and 2.4× as long as broad
Scape 3.6× as long as pedicel	Scape 2.5× as long as pedicel	Scape 3.4× as long as pedicel
Exserted part of ovipositor 0.1× as long as gaster	Exserted part of ovipositor 0.2× as long as gaster	Exserted part of ovipositor 0.05× as long as gaster

reflection; pronotum, mesopleuron, mesoscutum, scutellum, axillae, sides of abdomen, metanotum, propodeum, all coxae and femora brown with metallic violet-golden reflection. Fore tibia with basal ¼ brown; midtibia with basal half brown and hind tibia with slight infuscation at the basal ¼ to ½ dark brown; antennae all dark brown with

metallic violet-golden reflection, only apical 1/5 of scape light. Occipital margin very sharp.

Head 2× as broad as frontovertex; ocelli forming obtuse angle; antennae with scape about 6× as long as broad, pedicel about 2.7× as long as broad (Fig. 4a).

Relative measurements (holotype): HH 353; HW410.6; FV 173.5; MS 118.8; EL 224.4; AOL 34.5; POL 67.9; OOL 27; OD 21; OCL 23; THL 418; GOL 801.8; EOL 77.

Additional relative measurements (paratype): HH 372; HW 457.6; FV 200; MS 181; EL 238; SL 313; SW 53; PL 92; PW 34; F<sub>1</sub>L 64; F<sub>1</sub>W 23.5; F<sub>2</sub>L 74.7; F<sub>2</sub>W 24.7; F<sub>3</sub>L 75; F<sub>3</sub>W 26; F<sub>4</sub>L 82.2; F<sub>4</sub>W 30.7; F<sub>5</sub>L 79; F<sub>5</sub>W 35.7; F<sub>6</sub>L 74.8; F<sub>6</sub>W 40.7; CL 169; CW 54; FWW 384; FWL 1044; M 97; P 45.8; S 98.8 (Fig. 4b); OL 637; GL 286 (Fig. 4c); MT 377; MTS 55.7; MTT 91.

*Comment.* The closest species to *Charitopus bulentyasari* Japoshvili **sp. n.** are *Ch. fulviventris* Förster, 1860 and *Ch. eristoi* Japoshvili. Females of these species can be separated by the characters given in Table 4.

*Etymology.* The species is named after Prof. Bulent Yasar who is a well known Coccoidologist from Turkey.

### 3.5. *Charitopus ismailkaracai* **sp. n.** Figs. 5a–c

*Material examined.* Type material: Holotype ♀, Turkey, Isparta, Golcuk Natural Park, *Acacia* reforested area, N: 37° 44'12.33", E: 30° 29'24.00", 1,414 m, 03.VII.2009, leg. G. Japoshvili and H. Celik (card mounted); Paratypes, *Acacia* reforested area, 25.VI.2009, 2♀, leg. H. Celik (slide); *Acacia* reforested area, 03.VII.2009, 1♀, H. Celik; *Acacia* reforested area, 14.VIII.2009, 2♀, leg. G. Japoshvili and H. Celik.

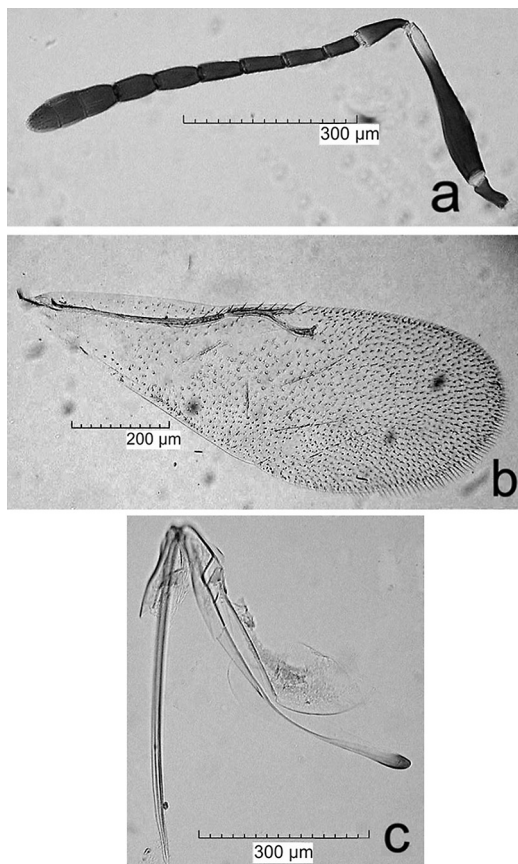


Fig. 4. *Charitopus bulentyasari* **sp. n.** female. – a. Antenna. – b. Fore wing. – c. Ovipositor.

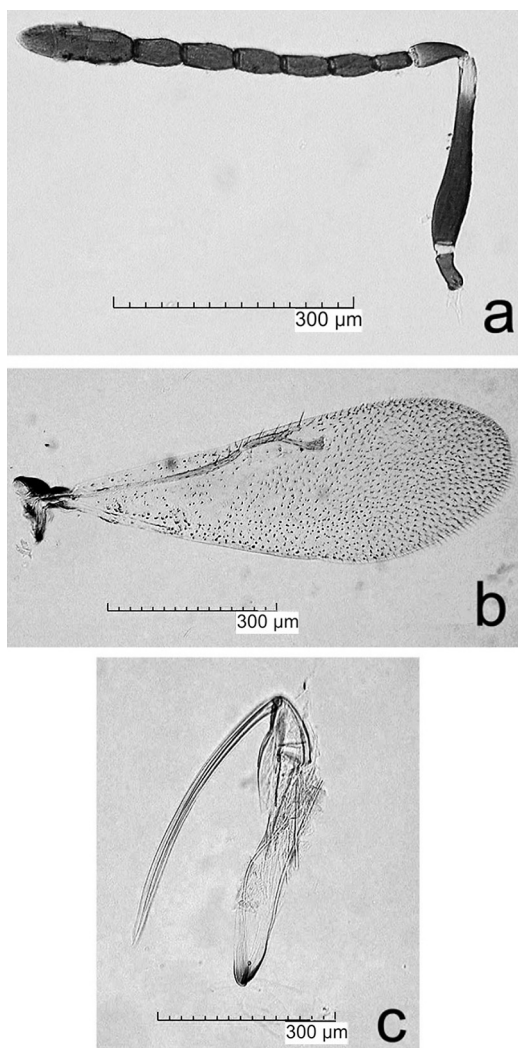


Fig. 5. *Charitopus ismailkaracai* sp. n. female. – a. Antenna. – b. Fore wing. – c. Ovipositor.

Female. Length of holotype 1.4 mm.

Head dark brown with metallic violet-golden reflection; pronotum and mesoscutum with violet-golden-green, axillae and scutellum with violet-silver, mesopleuron, metanotum, propodeum and sides of abdomen, with silver reflection; fore and mid coxae brown, hind coxae infuscated to brownish; fore and mid femora brown; hind femora completely yellow, in some specimens can be with ring like infuscation at basal part; fore and hind tibia yellow, midtibia with ring like infuscation at the basal part; antennae all brown, only scape with apical 1/6 to 1/7 light. Occipital margin very sharp.

Head 2.4× as broad as frontovertex; ocelli forming obtuse angle; antennae with scape about 5.7× as long as broad, pedicel about 2.9× as long as broad (Fig. 5a).

Relative measurements (holotype): HH 397.5; HW 426; FV 179; MS 140.8; EL 233.7; AOL 40; POL 78.5; OOL 33; OD 21.4; OCL 12; THL 416; GOL 767; EOL 65.

Additional relative measurements (paratype): HH 310.8; HW 349.5; FV 179; MS 132.6; EL 190.5; SL 245.5; SW 43; PL 73.5; PW 25.2; F<sub>1</sub>L 48; F<sub>1</sub>W 19; F<sub>2</sub>L 56.5; F<sub>2</sub>W 27.6; F<sub>3</sub>L 60; F<sub>3</sub>W 25.7; F<sub>4</sub>L 64.8; F<sub>4</sub>W 28.8; F<sub>5</sub>L 65.8; F<sub>5</sub>W 33.4; F<sub>6</sub>L 64.8; F<sub>6</sub>W 35.3; CL 149.8; CW 49; FWW 278.6; FWL 824; M 83; P 54; S 76.2 (Fig. 5b); OL 519; GL 142.6 (Fig. 5c); MT 323.5; MTS 38.7; MTT 51.3.

*Comment.* The closest species to *Charitopus ismailkaracai* Japoshvili sp. n. is *Ch. desertus* Myartseva. Females of these species can be separated by the characters given in Table 5.

*Etymology.* The species is named after Prof. Ismail Karaca who made valuable contributions to biocontrol in Turkey.

#### 4. List of other species recorded in Golcuk Natural Park

In this study more than 40 encyrtid parasitoid species of coccoids were found. Seven species were newly recorded for the Turkish fauna (indicated by \*\* in the list below), in addition to the five species described as new to science above. Specimens identified to species are listed below. *Baeocharis* sp., *Coccoidencyrtus* sp., several *Erycydnus* spp., *Subprionomitus* sp., *Trichomasthus* sp. are not included in the list. For the two main study localities at the Golcuk Natural Park, i.e. Acacia reforested area and Pilav Tepe, the abbreviations of AR and PT, respectively, are used below. Abbreviations of GJ and HC are used for G. Japoshvili and H. Celik, respectively.

*Anagyrus aligarhensis* Agarwal and Alam, 1959

Material examined: AR, 14.VIII.2009, 1♂, leg. GJ & HC; AR, 24.VIII.2009, 2♂, leg. GJ & HC; AR, 03.IX.2009, 2♂, leg. GJ & HC; AR, 14.IX.2009, 1♀, 1♂, leg. GJ & HC.

\*\**Anagyrus securicornis* Domenichini, 1953

Material examined: PT, 24.VIII.2009, 1♀,



Table 5. Differences between *Charitopus ismailkaracai* Japoshvili **sp. n.** and *Ch. desertus* Myartseva. Abbreviation: F<sub>6</sub>, sixth funicle segment.

<i>Charitopus ismailkaracai</i> <b>sp. n.</b>	<i>Ch. desertus</i>
At least F <sub>6</sub> less than 2× as long as broad	All flagellar segments 2× as long as broad
Marginal vein shorter than stigmal and at least 1.5× as long as postmarginal	Marginal vein shorter than stigmal and less than 1.5× as long as postmarginal
Exserted part of ovipositor almost 1.11× as long as gaster	Exserted part of ovipositor 1/6–1/7 as long as gaster
Fore and mid femora brown	Fore and mid femora yellow
Stigmal vein 1.4× as long as postmarginal	Stigmal vein more than 2× as long as postmarginal
<hr/>	
leg. GJ & HC.	1♀, leg. GJ & HC.
<i>Anagyryus schmuttereri</i> Ferriere, 1955	<i>Ericydnus apterogenes</i> Mayr, 1876
Material examined: PT, 21.V.2009, 1♀, leg. GJ & HC.	Material examined: AR, 21.VII.2009, 1♀, leg. HC.
** <i>Aphycus moravicus</i> (Hoffer, 1952)	<i>Ericydnus robustior</i> Mercet, 1921
Material examined: AR, 03.IX.2009, 1♀, leg. GJ & HC.	Material examined: AR, 25.VI.2009, 12♀, 6♂, leg. GJ & HC; PT, 28.V.2009, 2♀, 1♂, leg. GJ & HC; AR, 06.VI.2009, 2♂, leg. GJ & HC; Rocky place, 06.VI.2009, 1♂, leg. GJ & HC; AR, 03.VII.2009, 1♂, leg. GJ & HC; AR, 12.VII.2009, 1♂, leg. GJ & HC; AR, 21.VII.2009, 1♀, 7♂, leg. GJ & HC.
<i>Blastothrix gurselae</i> Japoshvili and Karaca, 2004	<i>Ericydnus sipylus</i> (Walker, 1837)
Material examined: AR, 05.X.2009, 1♀, leg. GJ & HC.	Material examined: AR, 25.VI.2009, 3♀, 1♂, leg. GJ & HC; AR, 03.VII.2009, 5♀, leg. GJ & HC; AR, 12.VII.2009, 1♀, leg. GJ & HC; AR, 21.VII.2009, 5♀, leg. GJ & HC; PT, 14.VIII.2009, 1♂, leg. GJ & HC; AR, 24.VIII.2009, 1♀, leg. GJ & HC; PT, 14.IX.2009, 1♀, leg. GJ & HC; AR, 24.IX.2009, 1♂, leg. GJ & HC.
<i>Cerapterocerus mirabilis</i> Westwood, 1833	** <i>Leptomastix ephyra</i> Noyes and Hayat, 1994
Material examined: AR, 19.VII.2010, 1♀, 1♂, leg. GJ.	Material examined: AR, 28.VI.2009, 1♂, leg. GJ & HC; AR, 03.VII.2009, 1♀, leg. HC; AR, 21.VII.2009, 1♂, leg. GJ & HC; AR, 14.VIII.2009, 1♀, leg. GJ & HC; AR, 24.VIII.2009, 2♂, leg. GJ & HC.
<i>Charitopus fulviventris</i> Förster, 1860	<i>Leptomastix dactylopii</i> Howard, 1885
Material examined: Rocky place, 06.VI.2009, 1♂, leg. GJ & HC; AR, 21.VII.2009, 2♀, 2♂, leg. GJ & HC; AR, 14.VIII.2009, 2♀, leg. GJ & HC; AR, 29.VII.2010, 1♀, 1♂, leg. GJ.	Material examined: AR, 21.VI.2009, 1♂, leg. GJ & HC.
<i>Cheiloneurus elegans</i> (Dalman, 1820)	<i>Mahencyrtus comara</i> (Walker, 1837)
Material examined: PT, 28.V.2009, 1♀, leg. GJ & HC; AR, 14.VIII.2009, 1♀, leg. GJ & HC; 03,14,24.IX.2009, 3♀, leg. GJ & HC.	Material examined: PT, 28.V.2009, 1♀, leg. GJ & HC.
<i>Cheiloneurus claviger</i> Thomson, 1876	** <i>Mayrencyrtus imandes</i> (Walker, 1837)
Material examined: AR, 03,12.VII.2009, 2♀, leg. GJ & HC; AR, 19.VII.2010, 1♀, leg. GJ.	Material examined: PT, 03.VII.2009, 1♀, leg. GJ & HC; AR, 12.VII.2009, 3♀, leg. GJ & HC; AR, 21.VII.2009, 2♀, 1♂, leg. HC; AR, 05.X.2009,
<i>Cheiloneurus paralia</i> (Walker, 1837)	
Material examined: AR, 14.VIII.2009, 2♀, leg. GJ & HC.	
<i>Dusmetia ceballosi</i> Mercet, 1921	
Material examined: AR, 03.VII.2009, 1♀, leg. GJ & HC; PT, 03.VII.2009, 1♀, leg. GJ & HC; AR, 12.VII.2009, 3♀, leg. GJ & HC; AR, 21.VII.2009, 2♀, 1♂, leg. HC; AR, 05.X.2009,	

GJ & HC; AR, 24.VIII.2009, 1♀, leg. GJ & HC; PT, 14.IX.2009, 1♀, leg. GJ & HC.

\*\**Metaphycus discolor* Hoffer, 1976

Material examined: AR, 21.VII.2009, 1♀, leg. GJ & HC; AR, 19, 29.VII.2010, 2♀, leg. GJ.

*Mayridia procera* (Mercet, 1921)

Material examined: AR, 24.IX.2009, 1♀, leg. GJ & HC; AR, 29.VII.2010, 1♀, leg. GJ.

*Metaphycus lounsburyi* (Howard, 1898)

Material examined: AR, 15.X.2009, 1♀, leg. GJ & HC.

*Metaphycus petitus* (Walker, 1851)

Material examined: AR, 21.VII.2009, 1♀, leg. GJ & HC.

\*\**Metaphycus stanleyi* Compere, 1940

Material examined: AR, 21.VII.2009, 1♀ (slide), 1♀ (card mounted), leg. GJ & HC.

*Metaphycus swirskii* Annecke and Minhardt, 1979

Material examined: Rocky place, 06.VI.2009, 2♀, leg. GJ & HC.

*Metaphycus zebratus* (Mercet, 1917)

Material examined: AR, 12.VII.2009, 2♀, leg. GJ & HC.

\*\**Microterys darevskii* Trjapitzin, 1968

Material examined: AR, 19.VII.2010, 1♀, leg. GJ.

*Pseudococcobius obenbergeri* (Novickij, 1926)

Material examined: AR, 21.VII.2009, 1♀, leg. GJ & HC; 14.VIII.2009, 2♀, leg. HC; 19.VII.2010, 1♀, leg. GJ.

*Rhopus flavidus* (Mercet, 1921)

Material examined: PT, 28.V.2009, 1♀, leg. GJ & HC; AR, 12.VII.2009, 1♀, leg. GJ & HC.

*Zaomma lambinus* (Walker, 1838)

Material examined: AR, 03.IX.2009, 1♀, leg. GJ & HC.

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