

***Baryscapus babiysi* Doğanlar, 1993 (Hymenoptera: Eulophidae) is parasitoid of *Lasiosina devitata* (Diptera: Chloropidae) in Turkey: description of male and discovery of host**

***Baryscapus babiysi* Doğanlar, 1993 (Hymenoptera: Eulophidae) – паразитоид *Lasiosina devitata* (Diptera: Chloropidae) в Турции: описание самца и обнаружение хозяина**

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*Baryscapus babiysi* Doğanlar, 1993 is reared from *Lasiosina devitata* Nartshuk in Turkey. This is the first record of a host for *B. babiysi*. The latter species is included in *B. दौरа* species group. Female of *B. babiysi* is redescribed, and previously unknown male of this species is described.

*Baryscapus babiysi* Doğanlar, 1993 выведен из *Lasiosina devitata* Nartshuk (Diptera: Chloropidae) в Турции. Это первое указание хозяина для *B. babiysi*. Последний вид помещается в группу видов *B. दौरа*. Самка *B. babiysi* переписывается, и ранее неизвестный самец этого вида описывается.

**Key words:** Turkey, taxonomy, biology, Hymenoptera, Eulophidae, *Baryscapus*, Diptera, Chloropidae, *Lasiosina*

**Ключевые слова:** Турция, таксономия, биология, Hymenoptera, Eulophidae, *Baryscapus*, Diptera, Chloropidae, *Lasiosina*

## INTRODUCTION

Twenty-two species of the genus *Baryscapus* Förster, 1856 have been recorded from Turkey (Avcı & Özbek, 1990; Graham, 1991; Doğanlar, 1993; Gençer, 2004; Sakaltas & Gençer, 2005; Çıkman & Doğanlar, 2006). *Baryscapus babiysi* Doğanlar, 1993 was originally described by nine females reared from an unknown host in the capitula of *Cirsium vulgare* (Asteraceae) in Turkey. The holotype and five paratypes, examined by the authors, are deposited in the Zoologische Staatssammlung München (ZSM), and three paratypes are in Doğanlar's collection (Turkey).

Recently, *B. babiysi* was reared from *Lasiosina devitata* Nartshuk, 2006 (Diptera: Chloropidae) in a location in Turkey, which is situated in 256 km south-west from the type locality of *B. babiysi*. *Lasiosina devitata* (host of *B. babiysi*) was reared from a stem of *Lepidium latifolium* (Brassicaceae) in Aksaray (Turkey) and described by Nartshuk (2006). Further material on this grassfly and its parasitoid *B. babiysi* were reared by R. Hayat in a locality situated in 80 km east from the type locality of *L. devitata*.

In the present paper, *B. babiysi* is placed in the *B. दौरа* species group, some additional characters of this species are recorded, and previously unknown male of *B. babiysi* is described.

## MATERIAL AND METHODS

Terms and measurements. Line-drawings were made directly from the slides and mounted specimens, using drawing equipment. The morphological terminology follows that used by Graham (1991) and Noyes (2004). HW – head width in facial view; HL – head length in facial view (excluding the mouthparts); HE – height of eye; WE – width of eye; SL – length of scape; PL – length of pedicel; F1, F2, F3, F4 – length of 1st, 2nd, 3rd and 4th segments of antennal funicle; LC – length of clava; PL – length of propodeum; PW – width of propodeum; FL – length of fore wing; FW – width of fore wing; SMV, MV, PMV, SV – submarginal, marginal, postmarginal and stigmal veins [Doğanlar (1993) mentioned stigmal vein as ST]; LG – length of gaster, WG – width of gaster. Measurements in mm are used only for body and fore wing lengths; other measurements are given in  $\mu\text{m}$ .

All the specimens studied are deposited in the following institutions: Zoological Institute of the Russian Academy of Sciences, St Petersburg, Russia (ZIN); Zoologische Staatssammlung München, Germany (ZSM).

## RESULTS

### Family EULOPHIDAE

#### Subfamily TETRASTICHINAE

#### Genus *Baryscapus* Förster, 1856

*Note.* The genus includes numerous species and is almost cosmopolitan. A key to its Palaearctic species is given by Graham (1991). Species of this genus are larval / nymphal endoparasitoids of insects from different orders.

#### *Baryscapus दौरа* species group

*Note.* This group is established by Graham (1961). Till now it contained 15 species (Graham, 1961; Domenichini, 1966 a, b) related to *B. दौरа* (Walker, 1839) and characterised by the following characters:

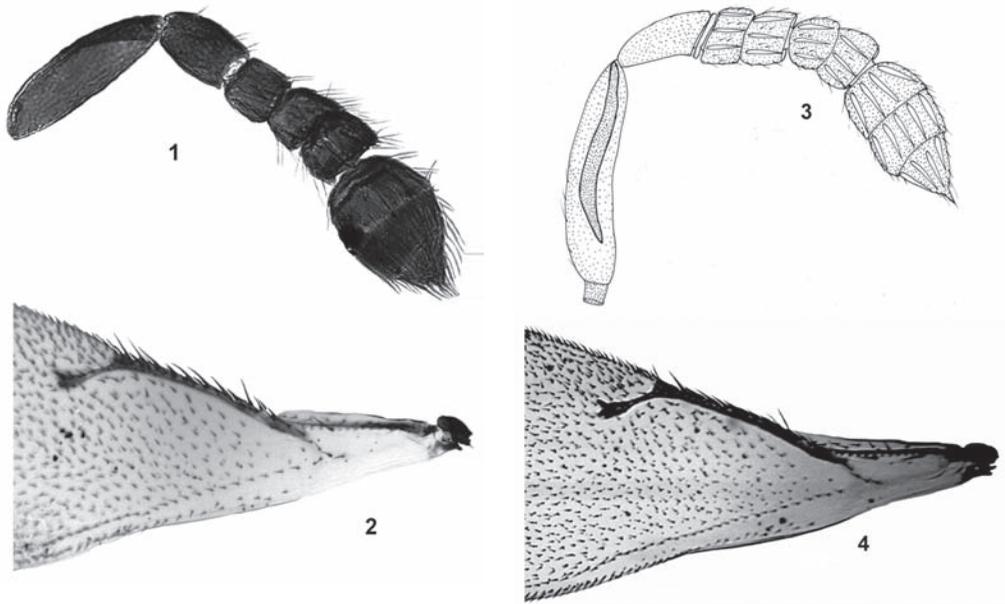
in majority of species, submedian lines of female scutellum from slightly to much nearer to sublateral lines than to each other; female funicular segments equal or subequal in length, from subquadrate to transverse; male antenna short, with clava 1.2–2.0 times as long as broad. Here an additional species (*B. babyi*) is included in this group for the first time, as it is in accordance to the above-mentioned diagnosis. *B. दौरа* species group is mainly Palaearctic group, but known also from Nearctic and Neotropical regions. Its representatives are endoparasitoids of many species of Lepidoptera, Coleoptera and Hymenoptera, and of some species of Diptera and Neuroptera (Graham, 1991).

#### *Baryscapus babyi* Doğanlar, 1993 (Figs 1–4)

*Material examined.* **Turkey:** 2 females (paratypes), Tokat, Tasliciftlik [40°20'N, 36°29'E, 600 m (addition by authors)], reared from capitula of *Cirsium vulgare*, 13 September 1989, leg. H. Cam (ZSM); 17 females, 3 males, Yeşilhisar, Da Rustm, 38°21'13"N, 35°05'29"E, 1126 m, reared from *Lasiosina devitata* (Diptera: Chloropidae) in the stems of *Lepidium latifolium* (Brassicaceae), June–July 2007, leg. R. Hayat (ZIN).

*Diagnosis.* Female: antennal scape not reaching vertex, 2.9 times as long as broad; pedicel 1.5 times as long as broad, with 1 discoid anellus; mesoscutum with 2 or 3 rows from 7–11 short adnotaular setae on each side; SMV with 2 setae; gaster 1.6–1.7 times as long as broad. Male: scape with ventral plaque equal to 0.8 scape in length; clava almost 2 times as long as broad; gaster 0.9 times as long as thorax and 1.9 times as long as broad; last tergite 1.7–1.8 times as broad as long.

*Description.* *Female* (Figs 1, 2). In addition to characters listed by Doğanlar (1993), female characterized by following features. Body dark brown with greenish tint, dark red eyes, dark brown antenna, white ocelli, dark brown tegulae, yellow legs (except brown fore coxae, distal three quarters of mid and hind tibiae, and tarsi). Body length 1.1–1.6 mm.



**Figs 1–4.** *Baryscapus babiyyi* Doğanlar: 1, 2 – female; 3, 4 – male. Right antenna (1, 3); left fore wing (2, 4).

Head 3.0 times as wide as long. Malar sulcus curved. Eyes 1.50–1.58 times as high as long, without setae. Distance between eyes 1.1–1.3 times as long as eyes. Scrobes and antennal toruli situated lower than ventral margin of eyes. Antenna as in Fig. 1; scape not reaching vertex, 2.9 times longer than broad; pedicel 1.5 times longer than broad, with one discoid anellus and funicle. F1 0.7 times as long as broad and 0.6 times as long as F2; F2 0.8 times as long as broad and equal to F3 in length; F3 subquadrate and 0.43 times as long as clava; clava 3-segmented and 1.40–1.55 times as long as broad. Measurements in  $\mu\text{m}$ : HW 12.0, HL 4.0, HE 6.0, WE 4.0, SL 5.0, PL 2.5, F1 1.0, F2 1.7, F3 1.7, LC 3.9, apical sensillum 0.1.

Thorax 1.4 times as long as broad. Pronotum 0.4 times as long as mesoscutum, 3.5 times broader than long. Mesoscutum slightly reticulate, 1.2 times broader than long, with superficial reticulation, with distinct median line, and with two or three rows from 7–11 short adnotaular setae on

each side. Scutellum 0.6 times as long as mesoscutum and 1.2–1.3 times broader than long, with sculpture similar to that on mesoscutum, with medial and lateral lines, and with two pairs of dark setae (first pair of setae placed in middle of scutellum, and second pair, in its hind part); median lines of scutellum nearer to lateral lines than to each other. Propodeum smooth, 4.3–4.7 times broader than long, and with broad cup; spiracle round and small, with paraspicular carina placed in middle of propodeum; callus with three light setae. Fore wing (Fig. 2) 2.44–2.47 times longer than broad; speculum relatively very small and extending along quarter of MV; SMV with 2 setae; MV 3.0–3.5 times longer than SV, with 9–12 setae; PMV absent. Hind wing rounded. Measurements in  $\mu\text{m}$ : PL 3, PW 14, FL 36, FW 17, SMV 10, MV 12, SV 4, cilia 1.0.

Gaster 1.20–1.38 times as long as thorax and 1.6–1.7 times longer than broad. Last tergite 1.7–1.8 times broader than long. Measurements in  $\mu\text{m}$ : LG 24.0, WG 14.5.

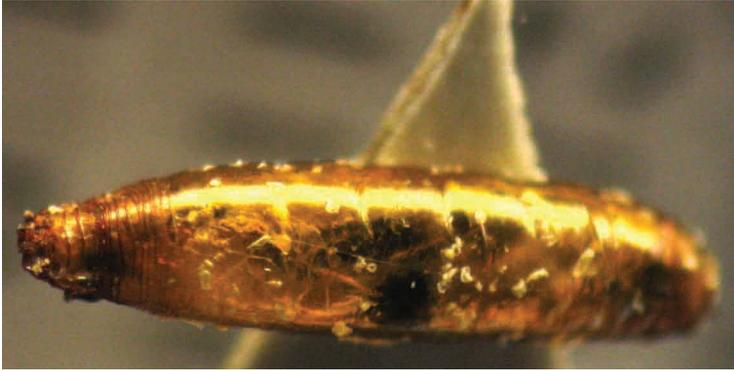


Fig. 5. Pupa of *Lasiosina devitata* with larvae of *Baryscapus babiiji*.

*Male* (nov.) (Figs 3, 4). Body length 0.95–1.03 mm. Colour of body very similar to that in female.

Head 3.4 times as wide as long. Eyes 1.6 times as high as long, without setae. Distance between eyes 1.1 times as long as eye. Scrobes and antennal toruli located lower than ventral margin of eye. Antenna as in Fig. 3; pedicel 2.1 times as long as broad, with one discoid anellus, and with funicle having four segments; ventral plaque equal to 0.8 scape in length; F1 1.8 times as broad as long and 0.8 times as long as F2; F2 1.3 times as broad as long and 0.9 times as long as F3; F3 1.2 times as broad as long and equal to F4 in length; F4 1.6 times as broad as long and 0.24 times as long as clava; clava with three segments, equal to all segments of antennal funicle combined and 1.8 times as long as broad. Measurements in  $\mu\text{m}$ : HW 11.0, HL 3.2, HE 5.6, WE 3.5, SL 5.0, ventral plaque 4, PL 2.1, F1 0.8, F2 1.0, F3 1.1, F4 0.8, LC 3.6, apical sensillum 0.1.

Thorax 1.38 times as long as broad. Pronotum 0.5 times as long as mesoscutum, 3.1 times as broad as long. Mesoscutum 1.2 times as broad as long, with superficial reticulation, with distinct median line, and with two or three rows of short adnotaular setae on each side (first row with four setae, second row with two setae, and third row with one seta or absent). Mesoscutum reticulate. Scutellum 0.7 times as long as mesoscutum, 1.2 times as broad as long, with sculpture similar to that on mesoscutum. Propodeum 4.3 times as broad as long; spiracle rounded

and small, with paraspiracular carina; callus with three light setae. Fore wing (Fig. 4) 2.4 times as long as broad; SMV with 2 setae; MV 3.7 times as long as SV, with 11 or 12 setae; PMV absent. Speculum small and extending along  $1/3$  MV. Measurements in  $\mu\text{m}$ : PL 3, PW 14, FL 40, FW 17, SMV 10, MV 12, SV 4, (cilia) sensillum 1.0.

Gaster 0.9 times as long as thorax and 1.9 times as long as broad. Last tergite 1.7 times as long as broad. Genitalia large; digitus narrow, oblong, with 1 spine; volsellar setae present. Measurements in  $\mu\text{m}$ : LG 20.0, WG 10.5.

*Comparison.* Female of *B. babiiji* differs from that of *B. gradwelli* Graham, 1991 in the following characters: mesoscutum with distinct median line (*B. gradwelli* without this line) and two or three rows formed by 7–11 adnotaular setae on each side (mesoscutum of *B. gradwelli* with one or two rows formed by 3–7 adnotaular setae on each side); MV 3.0 times as long as SV (2.1–2.4 times in *B. gradwelli*); gaster 1.7 times as long as broad (2.0–2.5 times in *B. gradwelli*). Male of *B. babiiji* is distinguished from male of *B. gradwelli* by the antennal ventral plaque equal to 0.8 scape in length (0.5 in *B. gradwelli*) and clava equal in length to all segments of antennal funicle combined (in *B. gradwelli*, clava almost as long as F2–F4 combined).

*Distribution.* Turkey.

*Biology.* Gregarious endoparasitoid of *Lasiosina devitata* Nartshuk, 2006 (Diptera: Chloropidae).

*Note about host.* Larvae of *L. devitata* develop in the stems of *Lepidium latifolium* (Brassicaceae). Length of host pupa 4.13 mm; its diameter about 0.95 mm (Fig. 5). In one pupa of *L. devitata*, seven larvae of *B. babiyyi* were discovered. Emerging adults of *B. babiyyi* gnaw a hole in the pupa of *L. devitata* and leave the host one by one through the same hole that was probably made by the first adult. Diameter of this hole is 0.38 mm; the hole is situated in the ventral oral part of host's pupa.

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