

Egg parasitoids of *Rhaphigaster nebulosa* (Poda) (Heteroptera: Pentatomidae) with description of a new species of *Trissolcus* Ashmead (Hymenoptera: Scelionidae)

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Summary

The parasitoids, *Telenomus chlonopus* Thomson, *Trissolcus grandis* Thomson and *Trissolcus antakyaensis* n.sp. (Hym.: Scelionidae), were reared from the egg masses of *Rhaphigaster nebulosa* (Poda) (Het.: Pentatomidae) which were collected from Ankara, Adana and Antakya (Hatay) provinces in 1997-1999. Taxonomic characters of the parasitoids and the description of the new species were given.

Key words: *Rhaphigaster nebulosa*, new species, egg parasitoids, *Telenomus antakyaensis* n.sp.

Anahtar sözcükler: *Rhaphigaster nebulosa*, yeni tür, yumurta parazitoitleri, *Telenomus antakyaensis* n.sp.

Introduction

The egg parasitoids of *Rhaphigaster nebulosa* (Poda) (Heteroptera: Pentatomidae) were studied by several authors (Kozlov, 1978; Kozlov & Le, 1978; Suludere & Candan, 2001). Kozlov (1978) recorded the following species as egg parasitoids of *R. nebulosa*: *Telenomus heydeni* Mayr, *T. chloropus* Thomson (may also develop as a parasite of *Trissolcus grandis* Thomson) (Hym.: Scelionidae). Suludere & Candan (2001) stated a species of *Telenomus* Haliday reared from egg masses of *R. nebulosa*.

Taxonomic works on Scelionidae are very common (Kozlov, 1965; 1971; 1978; Masner, 1976; 1979; 1980; Kozlov & Le, 1978; Doğanlar, 1999). Most of them revised the genera and species of the family and created keys for their identification.

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Alınış (Received): 11.09.2000

Safavi (1968) prepared an identification key to the species of *Trissolcus* Ashmead (under the generic name *Asolcus* Nakagawa which was synonymized with *Trissolcus* by Masner, 1964) from the Middle East, North Africa and Southern Europe. Kozlov & Le (1978) worked on Palearctic species of *Trissolcus* and stated 53 species from the palearctic and 23 of them from Europe. Johnson (1985 a,b) worked on the New World species of *Trissolcus* in the different groups and characterized them and provided the identification keys to the species.

In this paper the species of parasitoids reared from the eggs of *R. nebulosa* were studied and a new species of *Trissolcus* is named and described. Some biological informations for the species are given.

Material and Methods

The specimens of *Telenomus chloropus* and *T. grandis* were reared from egg masses of *R. nebulosa* which were collected from Ankara; Kazan, Orhaniye; Çubuk, Ovacık in 1999 by S. Candan. The specimens of the new species were reared from the egg masses on leaves of *Acacia* sp. collected in 1997 and 1998 by several collectors in the Agriculture Faculty of Mustafa Kemal University, Antakya, Hatay. The egg masses were put into petri dishes for rearing the parasitoids under normal conditions. The specimens were prepared for the collection and the diagnostic characters were drawn by the aid of camera-lucida.

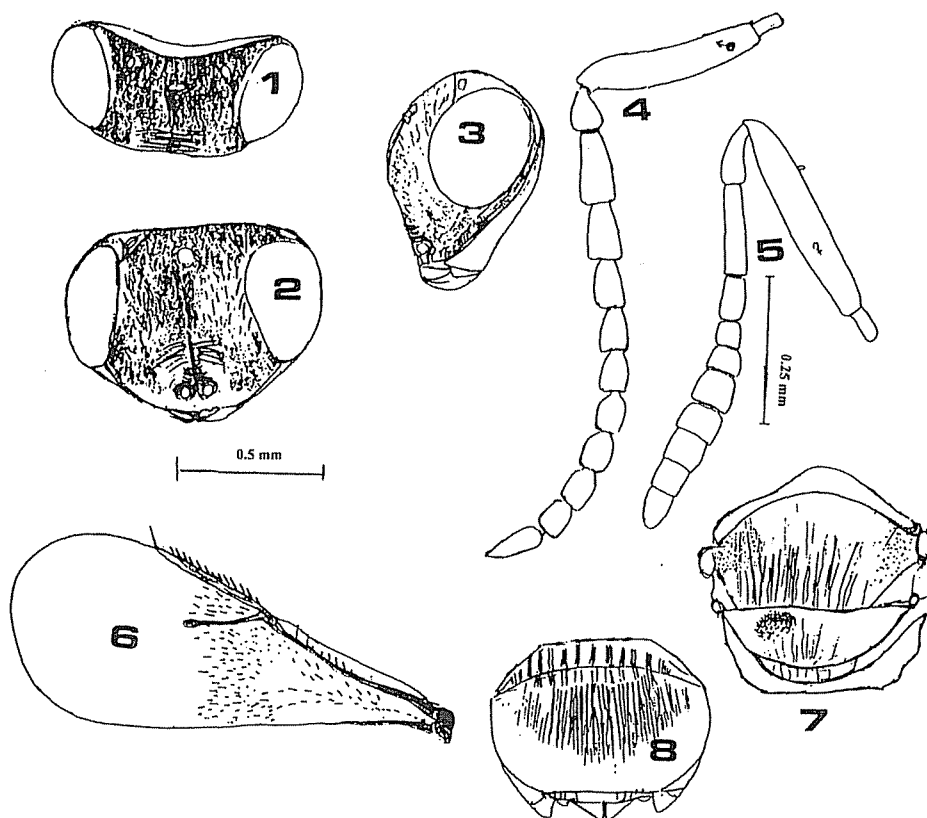
Results and Discussions

From an egg mass collected from Ankara two specimens of *T. grandis* and 8 specimens of *T. chloropus* were reared together. From the four other eggs nothing was emerged. All of the specimens reared from the egg masses collected from Adana, Karaisalı in 1999 and the specimens reared from the egg masses collected from Antakya, Hatay, Türkiye belong to the new species.

Trissolcus antakyaensis n.sp. (Fig. 1-8)

Female: Length 1.8-1.9 mm (n=10). Body black; radicle fuscous, concolorous with scape, pedicellus and the first three segments of funicle brown to fuscous; the fourth dark brown, club with five segments black; trochanteres, apical 1/4 of femora, tibiae and tarsi fuscous; wings hyaline with fuscous veins.

Antenna (fig. 5): measurements of antennal segments (length: width) : 44:7; 12:5; 16:4; 8:4,5; 5:5; 4,5:6; 6:8; 6:8; 6:7; 6:6; 7:5; (31:8); hyperoccipital carina well developed, angulated between hind ocelli and runs continuously across the vertex (figs. 1-3); orbital furrow absent; frons outside of antennal scrobes with engraved microsculpture, on sides near inner orbits with distinct piliferous punctures; scrobal depression shallow; central keel poorly defined, reaching only 1/4 of height of eye, with transverse rugulae arising from keel extending to the sides of scrobes, only up the scrobes with some transverse rugulae extending variable distance; orbital furrow absent; mandibulae merging each other in front of clypeus in some distance, with three teeth, the middle one acute, the teeth on both sides truncate, broad; head viewed laterally, with genae bulging posteriorly, postoccipital carina developing a shelf along the outer orbit; mesoscutum 1.5 times as wide as



Figs. 1-8. *Trissolcus antakyaensis* n.sp.; 1-3, head, 1. dorsal, 2. frontal, 3. lateral view; 4-5, antennae, 4. male, 5. female; 6. forewing; 7. thorax, dorso-lateral view; 8. gaster.

long, anteriorly with fine raised reticulations, longitudinally rugulose posteriorly; notauli absent; scutellum almost 2.8 times as wide as long, with finer microsculpture, almost smooth medially; dorsellum well developed with two rows of deep pits. Forewing as seen in fig. 6. Postmarginal vein longer than stigmal vein, basal cell with some ciliae in rows. Gaster (fig. 8): T1 without sublateral setae; T2 with extensive longitudinal rugulae beyond basal costae and reaching $\frac{2}{3}$ of the length of the tergite; apex smooth, with single subapical transverse line of white setae, line broadly interrupted medially.

Male: Similar to female, except as follows: antennae, apical half of femora, tibiae and tarsi yellow; antennae (fig. 4): filiform. Measurements of antennal segments (length:width): 34:6; 7:5; 12:6; 10:6; 8:5; 7:5; 7:5; 7:5; 7:5; 6:5; 10:4

Biology: All of the specimens were reared from the eggs of *R. nebulosa* collected from the leaves of *Acacia* sp.. The parasitisms by the new species in Antakya were 40 % of 22 egg masses collected in 1997 and 35 % in 12 egg masses collected in 1998.

Material examined: Holotype: female; Antakya, Campus of Mustafa Kemal University in city center; 6.V.1999 (F. Doğanlar); Paratypes: 4 males, 13 females, same locality as the holotype, 21.IV.-8.V.1997 (Ş. Tarla); 4 males; 24 females: 25.IV.-6.V.1998 (O. Doğanlar); 1 male, 8 females, Adana, Karaisali, May 1999 (A. Erdoğan).

Diagnosis: *Trissolcus antakyaensis* n.sp. may be distinguished from the known species of the genus in having a well developed hyperoccipital carina, notauli undeveloped, posterior half of mesonotum with longitudinal striae, orbital furrow absent. The new species differs from *T. saakovi* Mayr in having mesonotum without notauli (in *saakovi* notauli developed) and propodeum with a spiracular furrow posteriorly carinated (in *saakovi* spiracular furrow carinated anteriorly and posteriorly). *T. antakyaensis* n.sp. differs from *T. mentha* Kozlov & Lé in having posterior half of mesonotum longitudinally striated (in *mentha* mesonotum without striae), bigger body (1.8-1.9 mm) (in *mentha* body length 1.05 mm).

T. antakyaensis n. sp. was reared from the eggs of *R. nebulosa* and *T. saakovi* from the eggs of *Apodiphus amygdali* Germ. (Het.: Pentatomidae) in same place and time. All of the mating tests were not having success. They did not mate with each other.

***Trissolcus grandis* Thomson**

Female: Body length 0.8 – 1.3 mm. Body black including all femora and tibiae black; the bases and apices of tibiae brown. Frons slightly concave, vertex without transverse carina; posterior half of mesonotum with longitudinal striae; without notauli; forewing with postmarginal vein twice longer than stigmal vein.

Biology: Parasite of eggs of species of *Eurygaster* Lap. (Het.: Scutelleridae) *Dolycoris* M.R., *Carpocoris* Kol., *Palomena* M.R., *Aelia* F. and *Eurydema* Lap. (Het., Pentatomidae) (Kozlov & Le, 1978; Doğanlar, 1999). *T. grandis* was also reared from eggs of *R. nebulosa* together with *Telenomus chloropus*.

***Telenomus chloropus* Thomson**

Female: 0.9 – 1.6 mm. Body black excepts as follows radicle brown, basal and tips of scape, tibiae, tarsi yellow, femora brown dorsally darker. Head twice broader than long measured medially. Frons smoothly joining with vertex the last without carina.

Vertex, behind posterior ocelli with a hyperoccipital carina; posteriorly 1/3 of vertex with distinct but fine granular sculpture, between them with perceptible dots. Temples 0.50 times as long as transverse axis of eye. Antennae with pedicel 0.6 times as long as first funicular segment the last one about 3 times as long as broad, the fourth oblong, clava with five segments. Mesonotum without notauli, entirely having granular sculpture without longitudinal wrinkles. Gaster with 2nd tergite having anteriorly with longitudinal striation on 1/4 of its length, the other parts of gaster smooth.

Material: 4 females, 2 males, Ankara, Kazan, Orhaniye, May, 1999 (S. Candan), reared from the eggs of *R. nebulosa*.

Biology: It develops in the eggs of *R. nebulosa*, but they were reared from the egg mass together with *T. grandis*. The result showed that *T. chloropus* may also develop as hyperparasite.

Özet

Rhaphigaster nebulosa (Poda) (Heteroptera: Pentatomidae)'nın yumurta parazitoidleri ve yeni bir *Trissolcus* Ashmead (Hymenoptera: Scelionidae) türünün tanımı

Ankara, Adana ve Antakya (Hatay)'dan 1997-1999 yıllarında toplanan *Rhaphigaster nebulosa* (Poda) (Heteroptera: Pentatomidae)'nın yumurtalarından *Telenomus chloropus* Thomson, *Trissolcus grandis* Thomson ve *T. antakyaensis* n.sp. (Hym.: Scelionidae) parazitoidleri elde edilmiştir. *T. antakyaensis*'in, tanımı yapılmış, önemli vücut kısımlarının çizimleri verilmiştir.

Acknowledgements

I thank S. Candan, (Gazi University, Science Faculty, Biology Department, Ankara) for the kind loans of the specimens of *T. chloropus* and *T. grandis* and the collectors of *T. antakyaensis* n.sp.

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