Rapid communication

Report of a larval parasitoid of *Tuta absoluta* (Meyrick) (Lepidoptera: Gelechiidae) from Iran

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Abstract: The tomato leafminer *Tuta absoluta* (Meyrick) is one of the most devastating pests of greenhouse and outdoor tomato crops. Since it is a newly introduced pest in Iran, there is an important need to search for its natural enemies. In the course of a survey on the natural enemies of this pest, samplings were carried out in tomato greenhouses heavily infested with the tomato leafminer, in the Borazjan region of the Bushehr province in Iran. Leaves with mines were reared in the laboratory until emergence of parasitoids. A single parasitoid species of the family Eulophidae was reared and identified as *Neochrysocharis formosus* (Westwood 1833). This species is reported for the first time on the tomato leafminer in Iran. Such information may help in developing biological control programs to control this serious pest.

Key words: *Neochrysocharis formosus*, parasitoid, tomato, *Tuta absoluta*

Introduction

The tomato leafminer, *Tuta absoluta* (Meyrick) (Lepidoptera: Gelechiidae), originates from South America (Guedes and Picanço 2012) and was recently introduced in Asia (Erler *et al.* 2010; Seplyarsky *et al.* 2010; Desneux *et al.* 2011). It is a pest of both outdoor and greenhouse tomatoes. This pest was recently distributed in Iran (Baniameri and Cheraghian 2011) and causes irrecoverable damage. Different control measures have been recommended against this pest but since it has been newly introduced in Iran (Baniameri and Cheraghian 2012), its natural enemies have never been studied. Therefore, this study aimed to study the natural enemies of *T. absoluta* in the Borazjan region of Iran's Bushehr province.

Materials and Methods

During 2012–2013, samplings were carried out in tomato greenhouses of the Borazjan region of the Bushehr province (south of Iran) to survey parasitoids of this pest. Leafminer-infested leaves were transferred to the laboratory and kept at room temperature (25±5°C) in a glass cage (50 × 50 × 30 cm) until the parasitoids' emergence.

The specimens were identified by a second author, according to Hansson (1990). The specimens are deposited in the insect collection of the Department of Plant Protection, Agriculture and Natural Resources of East-Azerbaijan, Tabriz, Iran.

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Results and Discussion

Reared parasitoids were identified as *Neochrysocharis formosus* (Westwood 1833) (Hymenoptera: Eulophidae, Entedoninae) (Fig. 1).

This species has so far been reported on *Liriomyza sativae* Blanchard and *L. trifolii* (Burgess) (Diptera: Agromyzidae) from Tehran province; and *Phyllocnistis citrella* Stainton (Lepidoptera: Gracillariidae) from Fars province (Talebi *et al.* 2011). The important diagnostic characters of

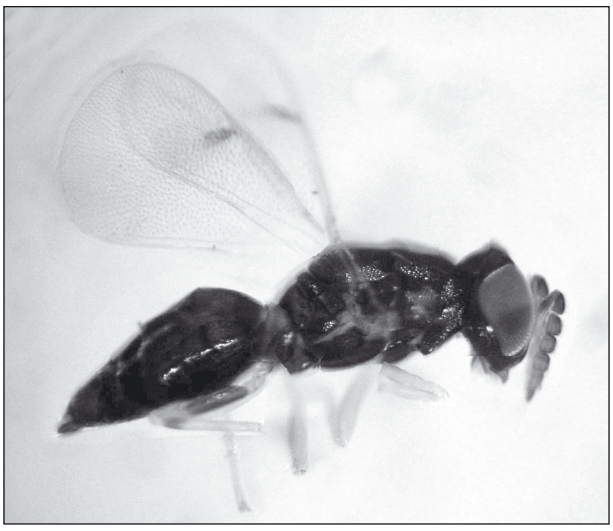

Fig . 1. The adult parasitoid *N. formosus*

this species are as followed: body length 1.2–1.4 mm in the female and 1–1.2 mm in the male; body dark brown; funicle 2 segmented; clava 4 segmented, and apical segment very small and narrow; Mesoscutal midlobe with 4 setae, notauli straight and incomplete; submarginal vein with 2 dorsal setae, postmarginal vein subequal or a little shorter than the stigmal vein (Asadi *et al*. 2006).

This species is widely distributed in Afrotropical, Nearctic, Neotropical, and Palaearctic regions (Noyes 2013), and in Iran (OILB 1971; Hesami *et al*. 2006; Yefremova *et al*. 2007, 2010). This species has a wide host range and attacks species of different orders (Coleoptera, Diptera, Hemiptera, Hymenoptera, and Lepidoptera) (Gençer 2009; Noyes 2013). *T. absoluta* was recently reported as one of the hosts of *N. formosa* in Argentina (Luna *et al*. 2011). This is the first record of *N. formosus* on *T. absoluta* from Iran.

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