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Aximopsis trypeticola (Zerova, 1978) n. comb. (Hym.: Eurytomidae) a parasitoid of *Bruchidius virgatus* (Fahraeus, 1839) in Iran

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Abstract. During the study of Chalcidoidea in the northwestern of Iran, we reared an interesting pair of large specimens of the family Eurytomidae (Hymenoptera: Chalcidoidea). These specimens were collected during summer of 2011 in East-Azarbaijan, Marand. They belong to the *nodularis* group of the genus *Eurytoma* Iliger, but are transferred to *Aximopsis* Ashmead as *Aximopsis trypeticola* (Zerova, 1978) **n. comb.** This species was reported as parasitoid of gall maker fruit fly (Diptera: Tephritidae) on *Artemisia maritima*L., 1753, while our studied specimens were obtained from *Astragalus neo-mobayenii* Maassoumi (Fabaceae) infested by *Bruchidius virgatus* (Fahraeus, 1839) (Col.: Chrysomelidae). Its important morphological characters are presented. All of known Eurytomidae which attack *Bruchidius* Schilsky, 1905 are listed.

Key words: Eurytomidae, parasitoid, seed-eater, new record, *Eurytoma*

The family Eurytomidae with about 1500 valid species include parasitic and phytophagous wasps with about 50 species from seven genera in Iran (Saghaei et al. 2018). In this family the genus *Eurytoma* Iliger within its new definition is a specious genus including only some of the species that were historically placed in *Eurytoma* (Lotfalizadeh et al. 2007). This genus possesses a strong posterogenal carina which is often seen as a conspicuous dent laterally (Zerova 1995, Lotfalizadeh et al. 2007). *Eurytoma* species were clustered into a number of species groups by different authors (Burks 1971, Bouček 1988, Zerova 1995, Lotfalizadeh et al. 2007). Members of the *nodularis* species group (Lotfalizade et al. 2017) or the *robusta* species group (Zerova & Seryogina 2006) were transferred to the genus *Aximopsis* Ashmead (Lotfalizadeh et al. 2007).

The genus *Aximopsis sensu lato* is potentially a very large genus which includes 30 described species (Gates 2009, Lotfalizadeh & Hosseini 2014). It is a cosmopolitan genus that in the Old World has been classified under *Eurytoma*, especially the *nodularis* species group (Lotfalizadeh et al. 2007, Gates & Delvare 2008). This species group was characterized by Lotfalizadeh et al. (2007). Three species of this genus [*Aximopsis augasmae* (Zerova), *Aximopsis collina* (Zerova), *Aximopsis ghazvini* (Zerova)] have been reported from Iran (Zerova et al. 2004, Lotfalizadeh et al. 2007, Lotfalizadeh & Hosseini 2014). During our collecting in the northwest of Iran we found an interesting species currently classified in the *nodularis* species group of *Eurytoma* and reporting on it is the purpose of this paper.

Our studied specimens were collected during the summer of 2011 in East-Azarbaijan, Marand and were reared from seeds of *Astragalus neo-mobayenii* Maassoumi (Leguminosae). Specimens were air-dried and then mounted on rectangular cards using water-soluble glue according to the method outlined in Noyes (1982).

The identification was done using the keys of Zerova (1995) and Zerova and Seryogina (2006).

The specimens were compared to the morphologically close species of *nodularis* group.

Specimens are deposited in the insect collection of the Department of Plant Protection, East-Azarbaijan Research & Education Center for Agriculture & Natural Resources, Tabriz, Iran.

In the studied site *Astragalus neo-mobayenii* was infested by *Bruchidius virgatus* (Fahraeus, 1839) (Col.: Chrysomelidae, Bruchinae). This pest destroyed about 20% of seeds of *A. neo-mobayenii* in this area (Nikdel 2014). We obtained an eurytomid species that was identified as *Eurytoma trypeticola* Zerova, 1978. Since this species belongs to the *nodularis* species group, it is transferred to *Aximopsis* as redefined by Lotfalizadeh et al. (2007).

***Aximopsis trypeticola* (Zerova, 1978) n. comb.**

Eurytoma trypeticola Zerova, 1978: 335–336.

Material examined: IRAN, East-Azarbaijan province, Marand, Mishoo Mountain, 38.330682N, 45.626349E, summer 2011, ex *Bruchidius virgatus* on *Astragalus neo-mobayenii,* Nikdel M. leg., 1♀ & 1♂.

Main morphological characters. Some of the important morphological characters of *A. trypeticola* are: body length of female about 5 mm, body generally black, face over the clypeus densely striated with striae reaching antennal toruli, eyes without distinct edging; mesosternal carina in form of triangular anterior projection, propodeum uniformly concave medially with wide median furrow; metasoma of female elongate, with short petiole (petiole distinctly wider than long), nearly twice as long as mesosoma (in lateral view), strongly compressed, S-shaped, distinctly elevated at apex, 7th tergite of gaster strongly elongated, two times longer than 6th (in lateral view); marginal vein shorter than very long postmarginal vein. Antenna of male with 5-segmented funicle and 2-segmented club.

Comparative diagnosis. It may be separated from species of the *nodularis* species group by its distinctly S-shaped and long metasoma. Female of this species is close to *E. robusta* Mayr but abdomen and 7th gastral tergite of *A. trypeticola* are much longer than in *E. robusta,* also mesepisternum in the middle is transversely striated, with a well-marked long mesosternal carina, which is smooth in *E. robusta.* In male specimens of *A. trypeticola* funicular segments have longer stems than in males of *E. robusta.*

Biological associations. This species has not been reported from Iran and only known from Ukraine (Zerova, 1978, 1995). It was reported as a parasitoid of gall maker

Table 1. Known eurytomid parasitoids of *Bruchidius* species with their host and geographical distribution.

Parasitoid	*Bruchidius* as host species	Geographical distribution	Reference
Aximopsis mimisarum (Rasplus, 1988)	*Bruchidius* sp.	Afrotropical	Rasplus (1988), Gates and Delvare (2008)
Aximopsis lamtoensis (Rasplus, 1988)	*B. albizziarum* Decelle, 1958	Afrotropical	Rasplus (1988), Gates and Delvare (2008)
Aximopsis trypeticola (Zerova, 1978) n. comb.	*B. virgatus* (Fahraeus, 1839)	East-Palaearctic	Present research
Eurytoma alhagicola Zerova, 1981	*B. pallidulus* (Reitter, 1895)	East-Palaearctic	Zerova and Seryogina (2006)
Eurytoma wachtli Mayr, 1878	*Bruchidius* sp.	Europe and Transcaucasia	Herting (1973)

fruit fly, *Oedaspis multifasciata* (Loew) (Diptera: Tephritidae) on *Artemisia maritima*, while we reared this species on *Astragalus neo-mobayenii* infested with *Bruchidius virgatus* (Col.: Chrysomelidae, Bruchinae). Lotfalizadeh et al. (2007) mentioned as a biological association of genus *Aximopsis* endophytic Coleoptera and aculeate Hymenoptera nesting in twigs or leaf-mining Buprestidae, so our finding supports this.

Several species of the family Eurytomidae have been reported on the genus *Bruchidius* in the world. We summarize them in Table 1.

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