



A review of the subfamily Rogadinae (Hymenoptera: Braconidae) from Iran

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Abstract

Specimens of the subfamily Rogadinae (Hymenoptera: Braconidae) were collected in northern Iran during 2010–2011 with a series of Malaise traps. Twelve species belonging to three genera (*Aleiodes* Wesmael, 1838, *Heterogamus* Wesmael, 1838 and *Clinocentrus* Haliday, 1833) were identified, with one genus (*Heterogamus*) and seven species new for the fauna of Iran. An updated checklist of the genera and species of the subfamily Rogadinae is included. A total of 26 species belonging to four genera are listed for Iran after correction for misidentifications. A key to the genera and the species of Rogadinae known from Iran is provided.

Key words: *Heterogamus*, *Aleiodes*, *Clinocentrus*, identification key, new records, checklist

Introduction

The Braconidae is the second largest family of Hymenoptera (Aguiar *et al.* 2013). The large subfamily Rogadinae Foerster, 1862 is cosmopolitan, up to 2012 comprising 58 genera and 1159 described species worldwide (Yu *et al.* 2012) and during 2012–2014 at least 2 genera and 244 species are added.

Members of the Rogadinae are easily recognizable by having the second metasomal spiracles on the dorsal face of the tergite, the median carina of propodeum usually at least half as long as the propodeum and the dorsal carinae of first metasomal tergite are often united (van Achterberg 1993). The subfamily Rogadinae has been divided into five tribes: Aleiodini Muesebeck, 1928, Clinocentrini van Achterberg, 1991, Rogadini Foerster, 1862, Yeliconini van Achterberg, 1991 and Stiropiini van Achterberg, 1993, all of them except the last one, are reported from the Palaearctic region (Yu *et al.* 2012).

Rogadines are koinobiont endoparasitoids of various lepidopteran larvae, especially Noctuidae and Geometridae (Shaw & Huddleston 1991; Yu *et al.* 2012). The host caterpillar becomes mummified (Shaw 2006), what allows an easy recognition when the parasitoids are reared from their hosts. Most species are solitary parasitoids of caterpillars but some species are gregarious (van Achterberg 1991; Maetô & Arakaki 2005; Quick *et al.* 2012). It is interesting that adults of the genera *Rogas* Nees, 1919 and *Aleiodes* Wesmael, 1838 emerge from the caudal end and through the dorsum of the host's skin, while *Clinocentrus* Haliday, 1833 adults emerge from the capital end but with no particular dorso-ventral bias (Shaw & Huddleston 1991).

The Palaearctic species of the genus *Clinocentrus* were revised and keyed by Belokobylskij (1995), who re-described nine species and described three new species. Van Achterberg (1991) revised and keyed the Afrotropical and western Palaearctic rogadines (excluding the *Aleiodes* species). Rather little has been published on the genus *Aleiodes* of the western Palaearctic region (Tobias 1986; Belokobylskij 1998, 2000), but a revision is being prepared by Mark Shaw and van Achterberg (van Achterberg, pers. comm.).

In recent years, considerable progress has been made in understanding the taxonomy of different subfamilies of Braconidae in Iran (Farahani *et al.* 2014a, b, c, d; Ameri *et al.* 2013, 2014), but sporadic faunistic studies have been dealt with the subfamily Rogadinae in Iran (Telenga 1941; Hedwig 1957; Shenefelt 1975; Fallahzadeh &