Occurrence of the rare aphid parasitoid *Praon bicolor* Mackauer, 1959 (Hymenoptera, Braconidae, Aphidiinae) in central Asia

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ABSTRACT. A seldom collected parasitoid of the pine aphids, *Praon bicolor* Mackauer, 1959, was captured in Malaise traps, mounted near the pine forests of Alborz Province (north central of Iran). It is the first record of this species from Iran and from the central Asian area. A brief diagnosis according to the morphological characters is presented and the host range within the conifers aphid parasitoids is also discussed.

Key words: Northern Iran, central Alborz, pine forest, new record


Introduction

The genus *Praon* Haliday is the largest genus of the tribe Praini within the subfamily Aphidiinae (Braconidae) with more than 50 described species worldwide (Kavallieratos et al. 2005). Like mostly Aphidiinae, they are an important group of aphid parasitoids. The main differences with other Aphidiinae are its venation and the type of pupation; pupation takes place under the body of the death host aphid (Starý 1970). The systematics of the genus *Praon* has been studied in Europe (Mackauer 1959; Starý 1971, 1983; Kavallieratos et al. 2005), Asia (Starý and Schlinger 1967; Mescheloff and Rosen 1988; Rakhshani et al. 2007) and North America (Johnson 1987; Pike et al. 2000). Distribution of the genus *Praon* in Iran have been reviewed by Rakhshani et al. (2007) and then supplemented in Barahoei et al. (2010). In this paper, the occurrence additional *Praon* species in Iran is recorded.

Materials and Methods

The sampling was performed using Malaise traps mounted in Alborz province near pine forests in 2010. Specimens were collected weekly from the traps. The Aphidiinae specimens were separated under a Nikon™ SMZ645 stereomicroscope. For the
study of the external morphology and for photographing slide mounted specimens a Nikon Eclips E200 microscope were used. Line drawings were traced on the digital photographs in Adobe Illustrator CS5, and were then mounted in Adobe Photoshop CS5. The terminology followed Kavallieratos et al. (2005).

Results

**Praon bicolor** Mackauer, 1959

(Figs. 1–7)

**Material examined:** 1 female, 25 May – 01 June, 2010, Iran, Alborz province, Karaj (35°46' N, 50° 56' E, 1278m a.s.l.), leg. A. Nadimi.

**Diagnosis:** *Praon bicolor* can be recognized by the combination of the following characters. Face (Fig. 1) with two rows of long setae at each side and a glabrous area in between. Antenna (Fig. 2) 19-segmented. Laterally mesoscutum (Fig. 3) without glabrous areas. Forewing (Fig. 4) pterostigma elongated, 3.6–3.8 X as long as its width, R1 (metacarpus) long, 0.8–0.9 X as long as stigma, Rs+M effaced, only its first fifth visible, median (M) vein well developed, almost twice as long as m-cu vein. Propodeum (Fig. 5) with moderately dense setosity. Tergite I (Fig. 6), elongate quadrangular with prominent lateral spiracular tubercles, two lateral carinae extended toward base. Ovipositor sheath (Fig. 7) with almost straight dorsal outline, with two conical apical spines. General body colour brown, face and mouth parts, legs and wing venation yellowish, tergite I dark brown, ovipositor sheath blackish brown in dorsal outline.

**Discussion**

*Praon bicolor* has been considered rare species that occurred only in Europe (Yu et al. 2012). The present account of *P. bicolor* from the Iranian mountains is the first record of *P. bicolor* outside Europe. It was generally recorded as parasitoids of aphids on *Pinus* spp., including *Eulachnus agilis* (Kaltenbach) (Mackauer 1959; Starý 1987; Wiackowski et al. 2001); *Eulachnus rileyi* (Williams) (Starý 1976; Kavallieratos et al. 2005; Baker and Broad 2009)

The evidence from *Schizolachnus obscurus* Börner (Michelena et al. 1998) and *Schizolachnus piniti* (Fabricius) (Wiackowski et al. 2001; Kavallieratos et al. 2005; Núñez-Perez and Tizado 1996), tends to be due to a mix of *Eulachnus* mummies close to or inside the colonies of *Schizolachnus*.

On the basis of the specific host range, the reported association of *Praon bicolor* with *Metopolophium dirhodum* (Walker) (Polgár 1984) and *Semiaphis dauci* (Fabricius) (Wiackowski et al. 2001; Kavallieratos et al. 2005; Núñez-Perez and Tizado 1996) seems erroneous, usually arising from the mixed aphid individuals dropped from the above trees or misidentification of the parasitoid species.

A well defined assemblage of rare aphid parasitoids is known to be associated with aphids on Pinaceae trees worldwide (*Diaeretus leucopterus* Haliday, 1834; *Diaeretus essigellae* Starý and Zuparko, 2002; *Pseudopron mindariphagum* Starý, 1975; *Xenostigmus bifasciatus* Ashmead, 1891; *Paulesia spp.*; *Areopraon nipponicum* Takada, 1968), but none of them have been recorded from Iran until now (Yu et al. 2012).

The origin of *P. bicolor* in the montane pine forest of Iran looks to be a natural association or even it can be an accidental introduction together with its host plant as an ornamental tree, as it was also assumed for *Paulesia hazratbalensis* Bhagat, 1981, a parasitoid of *Cianara tujafilina* (del Guercio) on *Thuja orientalis* (Starý et al. 2005). Further investigations directly on aphid parasitoids associated with conifers in the montane areas of northern Iran is worth of interest.
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References


انتشار زنبور پارازیتیبد کمیاب (Praon bicolor Mackauer, 1959) در آسیای مرکزی (Braconidae, Aphidiinae)

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چکیده: زنبور؛ Praon bicolor Mackauer، ۱۹۵۹ که به وسیله تله مالیزی نصب شده در جنگلهای کوه‌های کلی، که نشان‌دهنده در حال از کلیه‌های ایران و نواحی مرکزی آسیا گزارش می‌شود.

خصوصیات افتراقی بر اساس ویژگی‌های مرفولوژیک و دامنه میزبانی آن در بین پارازیتیبدهای شته‌های مخروطیان بحث شده است.

واژگان کلیدی: شمال ایران، البرز مرکزی، جنگل کلی، گزارش جدید