



## 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

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### 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

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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

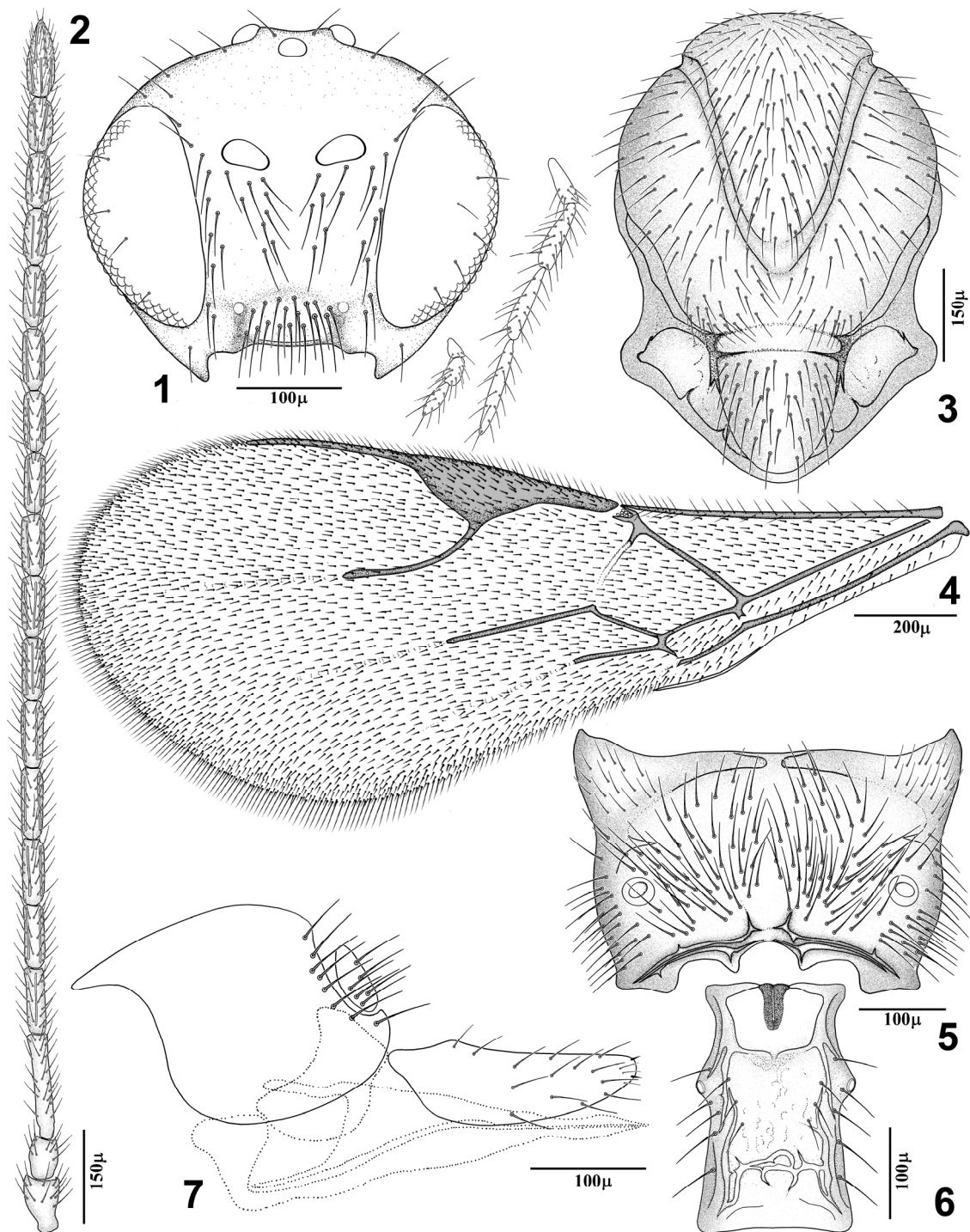
generally recorded as parasitoids of aphids on *Pinus* spp., including *Eulachnus agilis* (Kaltenbach) (Mackauer 1959; Starý 1987; Wiackowski *et al.* 2001); *Eulachnus rileyi* (Williams) (Starý 1976; Kavallieratos *et al.* 2005; Baker and Broad 2009)

The evidence from *Schizolachnus obscurus* Börner (Michelena *et al.* 1998) and *Schizolachnus pineti* (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) 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; *Pauesia* 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 *Pauesia 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.



**Figures 1-7.** External morphology of *Praon bicolor* Mackauer, 1959. **1.** Frontal view of head, **2.** Antenna, **3.** Dorsal aspect of mesonotum, **4.** Forewing, **5.** Propodeum, **6.** Tergite I, **7.** Ovipositor sheath.

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انتشار زنبور پارازیتویید کمیاب (*Praon bicolor* Mackauer, 1959) (Hymenoptera, Braconidae, Aphidiinae) در آسیای مرکزی

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**چکیده:** زنبور *Praon bicolor* Mackauer, 1959 از پارازیتوییدهای کمیاب است که به وسیله تله مالیز نصب شده در جنگل‌های کاج استان البرز (شمال مرکزی ایران) شکار شد. این گونه برای اولین بار از ایران و نواحی مرکزی آسیا گزارش می‌شود. خصوصیات افتراقی بر اساس ویژگی‌های مرفولوژیک و دامنه میزبانی آن در بین پارازیتوییدهای شته‌های مخروطیان بحث شده است.

**واژگان کلیدی:** شمال ایران، البرز مرکزی، جنگل کاج، گزارش جدید