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Catalogue of the Iranian Microgastrinae (Hymenoptera: Braconidae)

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Abstract

In the present study, the Iranian Microgastrinae (Hymenoptera: Braconidae) fauna is summarized. It is based on a detailed study of all available published data and new material collected. In total 99 species belonging to 8 genera are from Iran: *Apanteles* Förster, 1862 (36 species), *Cotesia* Cameron, 1891 (34 species), *Deuterixys* Mason, 1981 (1 species), *Diolcogaster* Ashmead, 1900 (4 species), *Microgaster* Latreille, 1804 (4 species), *Microplitis* Förster, 1862 (11 species), *Pholesetor* Mason, 1981 (4 species) and *Protapanteles* Ashmead, 1898 (5 species) in 4 tribes (Apantilini, Cotesiini, Microgastrini and Microplitini). A faunistic list with distribution data, and host records are given. Four species are new records for the fauna of Iran: *Apanteles brunnistigma* Abdinbekova, 1969, *A. ingenuoides* Papp, 1971, *Microplitis decipiens* Prell, 1925 and *M. marshallii* Kokujev, 1898.

Key words: Hymenoptera, Braconidae, Microgastrinae, new records, catalogue, Iran

Introduction

Microgastrinae are cosmopolitan braconid wasps, comprising solitary or gregarious koinobiont larval endoparasitoids which attack a wide range of Lepidoptera (Gauld and Bolton 1988; Whitfield 1995, 1997; Inanç and Beyarslan 1990; Ruohomäki *et al.* 2013), with the possible exception of Hepialidae and a few other primitive lineages of Lepidoptera (Güçlü and Özbek 2011). Microgastrine wasps are considered one of the most important groups in the biological control of lepidopteran caterpillar pests of forestry and agriculture (Whitfield 1997; Rouse and Gupta 2013). Microgastrinae ranks as the second most diverse and largest subfamily of Braconidae, with more than 2,230 described species (Yu *et al.* 2012; Fernández-Triana *et al.* 2014) and many thousands more awaiting description (Mason 1981; Rodriguez *et al.* 2012). There are 757 species of Microgastrinae currently known in the Palaearctic region of which 529 are recorded from the western Palaearctic region and 496 from eastern Palaearctic region (Yu *et al.* 2012; Fernández-Triana *et al.* 2014).

Because of the large numbers of species and the worldwide distribution of Microgastrinae, as well as the incidence of morphological convergence and reduction in characters, many problems have been faced in its generic classification (Shaw and Huddleston 1991).

Only a few studies have been conducted on the Microgastrinae of Iran (Karimpour *et al.* 2001; Golizadeh *et al.* 2007; Norouzi *et al.* 2009; Farahani *et al.* 2014; Khajeh *et al.* 2014). Their results were largely restricted to the addition of one or two new microgastrine records and have never completely covered all of Iran. In some cases the records were partly included in larger studies of Braconidae; the most recent examples are Rastegar *et al.* (2012), Sadeghi *et al.* (2012) and Farahani *et al.* (2014). Fallahzadeh and Saghaei (2010) listed 102 braconid species from Iran, which included 30 microgastrine species from 6 genera. The present work represents a faunistic catalogue of Microgastrinae recorded from different regions of Iran.

Materials and methods

The published data on the subfamily Microgastrinae from Iran are summarized. Classification follows Yu *et al.* (2012). Names of valid genera are listed alphabetically within tribes, and valid species names are listed alphabetically within genera. The following data are included: valid taxon names, Iranian localities (published records with provincial distribution) (Fig. 1), or when this information is not available - "Iran (no locality cited)" is given), worldwide distribution and host records. Host species information is recorded in Appendix 1.

Results

A total of 99 species of the subfamily Microgastrinae in four tribes (Apantilini, Cotesiini, Microgastrini and Microplitini), and comprising eight genera (*Apanteles* Förster, 1862, *Cotesia* Cameron, 1891, *Deuterixys* Mason, 1981, *Diolcogaster* Ashmead, 1898, *Microgaster* Latreille, 1804, *Microplitis* Förster, 1862, *Pholesetor* Mason, 1981 and *Protapanteles* Ashmead, 1898) are listed from the Iranian fauna, of which four are newly recorded: