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Study of the genus *Opius* Wesmael (Hymenoptera: Braconidae: Opiinae) in Southern Iran, with eleven new records

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Abstract

This study was carried out to determine the species of the genus *Opius* Wesmael, 1835 in Hormozgan province (Southern Iran). Malaise traps and sweep nets were used to obtain adult specimens from various habitats in Hormozgan province during 2011–2013. Fifteen species from the genus *Opius* belonging to ten subgenera were collected. The subgenera *Merotrachys* Fischer, 1972 and *Opiostomus* Fischer, 1972 and eleven species are recorded for the first time from Iran: *Opius* (*Agnopius*) *nowakowskii* Fischer, 1959; *Opius* (*Agnopius*) *novosimilis* Fischer, 1989, *Opius* (*Allophlebus*) *staryi* Fischer, 1958; *Opius* (*Allotypus*) *damnosus* Papp, 1980; *Opius* (*Opiostomus*) *riphaeus* Tobias, 1986; *Opius* (*Opiothorax*) *minusculae* Fischer, 1967; *Opius* (*Pendopius*) *bajariae* Fischer, 1989; *Opius* (*Merotrachys*) *penetrator* Fischer 1966; *Opius* (*Hypocynodus*) *flavipes* Szepligeti, 1898; *Opius* (*Hypocynodus*) *latidens* Fischer, 1990 and *Opius* (*Hypocynodus*) *latipediformis* Fischer 2004. A key for identification of *Opius* species from southern Iran is provided.

Key words: taxaonomy, fauna, Hormozgan province, identification key

Introduction

Opiinae is a large subfamily of Braconidae (Hymenoptera, Ichneumonoidea), including 33 genera and about 1,981 described species throughout the world (Yu *et al.* 2012). The world fauna of Opiinae has been reviewed by Fischer (1972, 1977, 1986, 1987). Wharton (1997a, 1988), van Achterberg (1997, 2004a, 2004b), Chen and Weng (2005), van Achterberg and Salvo (1997) and van Achterberg and Chen (2004) published updates or some additions to the existing keys to the genera of the Opiinae, but the number of genera is still a matter of discussion. Various numbers of genera have been considered by different authors; 23 (Fischer, 1972), 17 (Wharton 1997b), although some authors determined 33 (Yu *et al.* 2012) and 35 genera (van Achterberg & Maeto 1990; van Achterberg & Salvo 1997; van Achterberg 1997, 2004a, 2004b).

Species of the subfamily Opiinae are solitary koinobiont endoparasitoids of larvae of cyclorraphous Diptera, but oviposition may take place in the egg of the hosts (egg-larval parasitoids). They play an important role in the control of dipterous pests such as fruit flies (Tephritidae) and leaf-miner flies (Agromyzidae) (Wharton 1984, 1997a; Schuster & Wharton 1993). The parasitoid larvae complete their development within the host larvae and pupate and emerge as adults (Li *et al.* 2013). Some species of *Opius* have great potential in biological control of agromyzid leaf miners (Diptera: Agromyzidae). For example *O. tirolensis* is a biological control agent against *Phytomyza flavicornis* Fallen, 1823*, O.* (*G.*) *caucasi* against *Chromatomyia horticola* (Goureau, 1851), and *O.* (*A.*) *nowakowskii* against *Phytomyza thysselini* Hendel, 1923 (Yu *et al.* 2012). *Opius* Wesmael, 1835 is the largest genus of Opiinae and also one of the largest in the family Braconidae, with 33 subgenera and 135 described species (Yu *et al.* 2012). The genus has been the subject of major taxonomic studies (Fischer 1972, 1977, 1987; van Achterberg 1997 & Wharton 1987, 1988).

The fauna and host associations of *Opius* in Iran is poorly known, indicating the necessity of further studies.

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Discussion

In this study, eleven species of *Opius* are recorded for the first time from Iran and all species are new for Hormozgan province. In summary, 79 species of the subgenus *Opius* have been recorded (including the current study) in Iran belonging to 10 genera and 16 subgenera. The majority of species belong to seven subgenera *Opiothorax* (8 species), *Nosopoea* (5 species), *Misophotora* (5 species), *Hypocynodus* (4 species), *Agnopius* (3 species), *Opius* (3 species*), Allotypus* (3 species) Fischer (1960, 1963, 1990, 2001; Ghahari *et al*. 2009, 2010, 2011a, 2011b, 2012a, 2012b; Lashkari *et al*. 2011; Rastegar *et al*. 2012).

The number of species recorded in Iran is still low in comparison to the known Palaearctic fauna. The number of species of the subfamily Opiinae in the adjacent countries is recorded as: 182 in Turkey (Beyarslan & Fisher 2011; Fischer & Beyarslan 2013), 58 in Russia (Fischer 1972; Fischer 1964), 35 in Bulgaria (Zykov, 1983) and 22 in Greece (Papp 1982). To date, no species have been recorded in Iraq and Syria (Beyarslan & Fischer 2011), although this is almost certainly as a result of little or no collecting.

According to previous studies, the majority of the Opiinae genera have been recorded in north, north western and north Eastern Iran (Farrar *et al.* 2000; Ghahari *et al.* 2009, 2010, 2011a, 2011b, 2012a, 2012b; Lashkari *et al.* 2011; Rastegar *et al.* 2012; Khajeh *et al*. 2014). This is the first record of the subfamily Opiinae in Hormozgan province and Queshm Island and all species studied are new records to Hormozgan province.

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