

١ **First record of *Thysanus ater* (Hymenoptera: Chalcidoidea:**  
٢ **Signiphoridae) in Iran**

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١٦ Short running title: *Thysanus ater* in Iran

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۲۴ **ABSTRACT**

۲۵ In this paper we present *Thysanus* Walker, a genus new to the Iranian fauna. Only one  
۲۶ species has been identified in Iran: *Thysanus ater* Walker, 1840. We illustrate the species  
۲۷ morphology of wings, antennae, head, thorax and abdomen.

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۲۹ **Key Words:** *Thysanus ater*, Signiphoridae, new genus and species record, Iran.

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## ٤٧ INTRODUCTION

٤٨ The family Signiphoridae (Hymenoptera: Chalcidoidea) is one of the smallest families of  
٤٩ parasitic Hymenoptera, whose members are distributed in all zoogeographical regions of  
٥٠ the world. It currently contains four genera and 84 species (Noyes, 2012). Main diagnostic  
٥١ characters of this family are: Antenna 5- to 7-segmented with funicle segments ring-like  
٥٢ and club long and unsegmented, Scutellum strongly transverse with anterior and posterior  
٥٣ margins subparallel and axillae not distinctly marked off from scutellum, the two together  
٥٤ forming a transverse band, Propodeum with a characteristic large triangular median area,  
٥٥ Body smooth more or less devoid of sculpture and often waxy in appearance, Fore- and  
٥٦ hind wings naked or nearly so, more or less devoid of setae, Gaster broadly sessile (Girault,  
٥٧ 1913; Timberlake, 1924; Gibson et al., 1997; Gauld and Bolton, 1988).

٥٨ The signiphorids are primary or secondary parasitoids of Coccidae, Aleyrodidae, Miridae,  
٥٩ Tachinidae, Psyllidae, Diaspididae, Aphididae (Gibson et al., 1997). Some species are  
٦٠ endoparasitoids, and most are known to be hyperparasitic via other chalcids. Some species  
٦١ are reported to be gregarious hyperparasitoids through encyrtids (Gauld and Bolton, 1988).  
٦٢ They play an important role in the control of insect pests. Ghahari et al. (2010) reported  
٦٣ *Chartocerus kurdjumovi* (Nikol'skaya) and *C. subaeneus* (Förster) from Iran. The aim of  
٦٤ this study was to add this new genus and species record to the list of Iranian Chalcidoidea  
٦٥ and to complete with new information on distributional data.

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## ٦٧ MATERIAL AND METHODS

٦٨ During our collection program of chalcidoid wasps (Hym.: Chalcidoidea) in Kerman  
٦٩ Province, Southeast of Iran, we bred some hymenopterous parasitoids from ephedra galls

۷۰ (*Ephedra major* Host) collected in April, 2011. The galls were collected at Sang-e-Sayad  
 ۷۱ Mountains located in Bardsir (Kerman Province), (N29°37'31.4"E056°51'20.9", 2784m), on  
 ۷۲ 26 April 2011. They were moved to the laboratory and were kept at room temperature in  
 ۷۳ mesh covered transparent plastic rearing boxes until the emergence of parasitoids.  
 ۷۴ Emerging date was May 2011. The emerged parasitoid wasps were preserved in 75%  
 ۷۵ ethanol until it was partly mounted on cards. Then the specimens were slide mounted in  
 ۷۶ Canada balsam. The host could not be identified.  
 ۷۷ For the present study, two specimens of Signiphoridae which reared from ephedra galls (*E.*  
 ۷۸ *major*) in Southeastern Iran were examined. Terminology and classification follow Goulet  
 ۷۹ and Huber (1993). The identified material is deposited in Zoological Museum of Shahid  
 ۸۰ Bahonar University of Kerman, Iran (ZMSBUK) and the last author personal collection.  
 ۸۱ The pictures of the species were taken using a Canon digital camera connected to the  
 ۸۲ microscope. The material was identified by PhD Emilian Pricop.

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## ۸۴ **RESULTS AND DISCUSSION**

۸۵ **Material examined:** Kerman Province, Bardsir, Sang-e-Sayad Mountains, N29° 37' 31.4"  
 ۸۶ E56° 51' 20.9", 2784m, 26.IV.2011, ex. galls on *Ephedra major* (A. Moeinadini), 2♀.

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### ۸۸ **Genus *Thysanus* Walker, 1840**

۸۹ *Neosigniphora* Rust, 1913

۹۰ *Plastocharis* Förster, 1856

۹۱ *Thysanus* Walker

۹۲ *Thysanus* Walker, 1840

93 *Triphasius* Förster, 1856

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95 The genus *Thysanus* Walker is characterized by 3-dentate mandibles, pronotum as long as  
96 mesoscutum, basitarsi of middle legs as long as tibiae and a comparatively slender habitus.

97 Spur of middle tibiae more than 0.5 length of middle tarsus. Antennal funicle with four  
98 segments (Walker, 1840; Hayat, 1970, 2009; Ferrière and Kerrich, 1958; Botoc, 1960;  
99 Perju et al., 1989; Woolley, 1988).

100 Four species of *Thysanus* are known worldwide: *Thysanus ater* Walker, 1840; *Thysanus*  
101 *melancholicus* (Girault, 1913); *Thysanus nigrellus* (Girault, 1913); *Thysanus*  
102 *rusti* Timberlake, 1924.

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104 *Thysanus ater* Walker, 1840

105 FEMALE:

106 Body brownish-black, lustrous; fore wing dark or **hyaline** at base. Maximum length of  
107 marginal fimbria of forewings slightly less than width of wing. Antennae of female with a  
108 long club, funicle very short. Body length about 0.6mm. Mesophragma overlapping the  
109 ovipositor. Secondary parasite of armored scales (Diaspididae).

110 Head. Brown, frontovertex yellow, eyes reddish; ocelli arranged in obtuse triangle; malar  
111 space shorter than eye width. Occipital margin roundish, mandibles with three teeth.

112 Antennae (Fig. 1a,b). Scape almost white, pedicel, funicle and basal one half of club yellow  
113 to brownish; basal three funicle segments ring-like, fourth segment as long as preceding  
114 three segments combined; club elongate and slender.

115 Mesosoma. (Fig. 1g). Brownish, little shining, pronotum whitish with its anterior margin in  
116 middle brown; pronotum as long as mesoscutum; scutellum and metanotum transverse;  
117 axillae not distinct; propodeum large.

118 Fore wings. (Fig. 1c). Basal half infuscated, distal half hyaline; about three times longer  
119 than wide; submarginal vein longer than marginal vein with one seta; marginal vein with  
120 four setae on anterior margin and one seta at lower margin; postmarginal vein absent;  
121 stigmal vein short, pointed; marginal fringes longer than width of disc.

122 Hind wings (fig. 1d). Hyaline, parallel sided distad of venation; marginal fringes more than  
123 twice longer than width of disc.

124 Legs. Whitish to brown; base of fore femora, hind trochanters and hind femora except  
125 apices fuscous; basitarsus of middle leg (fig. 1h ), its spur shorter than basitarsus and  
126 provided with spines on its inner surface. Basitarsus of middle leg almost as long as mid-  
127 tibia.

128 Metasoma. Brownish; longer than thorax; ovipositor long.

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130 **Distribution:** Former USSR, some European countries, United States of America, India,  
131 some Asian countries (Noyes, 2012). This species is recorded for the first time from Iran.

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133 **Hosts:** This species is primary parasitoid of Coccidae, Diaspidiidae, Aphelinidae and  
134 Encyrtidae (Moglan, 2004; Noyes, 2012).

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185 Text under Figure

186 Figure 1. *Thysanus ater* Walker, 1840: a, b – female antenna and the funicle; c – forewing  
187 vein; d – hind wing; e – head; f – body; g – mesosoma; h – part of mid leg, femur,  
188 tibia and a long metatarsus characteristic for the second pair of legs (original).

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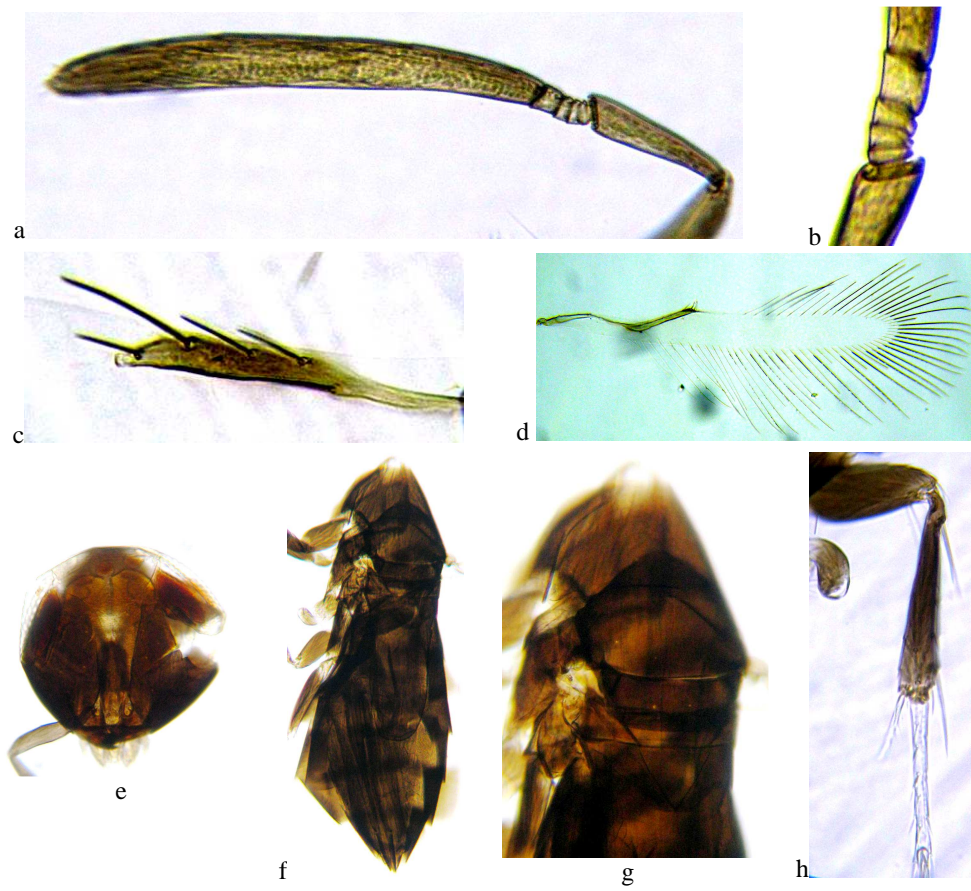
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۲۰۸ Figure 1

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