Description of *Aphelopus fuscoflavus*, a new species of Dryinidae from Thailand (Hymenoptera, Chrysidoidea)

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Abstract

A new species of *Aphelopus* Dalman is described from Thailand, Sakon Nakhon: *A. fuscoflavus* sp. n. Morphologically the new species is similar to *A. zonalis* Xu, Olmi & He, 2013, known from China, Hainan, but it is clearly different in having the basivolsella fused with the paramere, while the basivolsella is not fused with the paramere in *A. zonalis*. Published identification keys to the Oriental species of *Aphelopus* are modified to include the new species.

Keywords

Aphelopinae, *Aphelopus*, new species, Oriental region, key, Thailand

Introduction

Dryinidae (Hymenoptera, Chrysidoidea) are parasitoids of leafhoppers, planthoppers and treehoppers (Hemiptera, Auchenorrhyncha) (Guglielmino and Virla 1998; Guglielmino and Bücke 2003, 2010; Guglielmino et al. 2006, 2013, 2015). *Aphelopus* Dalman, 1823 is a genus that is present in all zoogeographical regions (Olmi 1984; Xu et al. 2013; Olmi and Virla 2014; Olmi and Xu 2015). In total 78 species have been described from all continents (Olmi and Xu 2015) and the genus was revised at...
world level by Olmi (1984, 1991) and in the Oriental, Neotropical and Eastern Palaearctic regions by Xu et al. (2013), Olmi and Virla (2014) and Olmi and Xu (2015), respectively. The species of *Aphelopus* inhabiting the Oriental region have been recently studied by Xu et al. (2013); they listed 31 species in total.

*Aphelopus* species are parasitoids of leafhoppers belonging to Typhlocybinae (Cicadellidae) (Guglielmino et al. 2013). Contrarily to almost all dryinids, females of *Aphelopus* do not have chelae and do not feed on their hosts; they grasp the body of their hosts between the two fore legs, with or without the help of their mandibles (Olmi 1984, 1994).

In 2016 we examined additional specimens of *Aphelopus* from Thailand and discovered a new species described in this paper.

**Materials and methods**

The descriptions follow the terminology used by Olmi (1984) and Xu et al. (2013). The measurements reported are relative, except for the total length (head to abdominal tip, without the antennae), which is expressed in millimetres. The following abbreviations are used in the descriptions: POL is the distance between the inner edges of the two lateral ocelli; OL is the distance between the inner edges of a lateral ocellus and the median ocellus; OOL is the distance from the outer edge of a lateral ocellus to the compound eye; OPL is the distance from the posterior edge of a lateral ocellus to the occipital carina; TL is the distance from the posterior edge of an eye to the occipital carina.


The types of all Oriental species of *Aphelopus* have been previously examined by the authors.

The type specimen described in this paper is deposited in the collection of the Queen Sirikit Botanic Garden, Chiang Mai, Thailand (QSBG).

**Results**

**Genus *Aphelopus* Dalman, 1823**

*Aphelopus* Dalman, 1823: 8. Type species: *Dryinus atratus* Dalman, 1823, by subsequent designation of Westwood (1839).

**Diagnosis.** Female: Fully winged; epistomal suture not touching antennal toruli; occipital carina complete; antenna without ADO’s; palpal formula 5/2; forewing with cos-
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Tal cell enclosed by pigmented veins, with pterostigma; stigmal vein long and regularly curved; course of forewing veins not marked by dark stripes; hind wing hyaline, with costal cell, without dark medial longitudinal stripe; protarsus not chelate; tibial spurs 1/1/2. Male: fully winged; epistomal suture not touching antennal toruli; occipital carina complete; palpal formula 5/2; forewing with costal cell enclosed by pigmented veins, with pterostigma; stigmal vein long and regularly curved; course of forewing veins not marked by dark stripes; hind wing hyaline, with costal cell, without dark medial longitudinal stripe; basivolsella situated completely below distivolsella apex; tibial spurs 1/1/2.

Aphelopus fuscoflavus sp. n.
http://zoobank.org/FF150F3A-F60D-4702-B992-08DE179813E9
Figs 1–3

Diagnosis. Male with antenna filiform; head testaceous, except large brown spot on vertex; mesosoma testaceous, except area of scutum between notauli darkened, scutellum and metanotum brown, metaepisternal-propodeal complex black; notauli complete, posteriorly separated; basivolsella with one subdistal bristle, fused with paramere.

Description. Male. Fully winged (Fig. 1). Length 1.7 mm. Head testaceous, except large brown spot on vertex. Antenna yellow, except segments 4–10 darkened. Mesosoma testaceous, except area of scutum between notauli darkened, scutellum and metanotum brown, metaepisternal-propodeal complex black. Notauli complete, posteriorly separated; basivolsella with one subdistal bristle, fused with paramere.

Female. Unknown.


Hosts. Unknown.

Etymology. The name fuscoflavus derives from the Latin adjectives “fuscus” (dark) and “flavus” (yellow), because of the partly testaceous and partly brown colour.

Remarks. Because of the head testaceous, except large brown spot on vertex, the mesosoma partly testaceous and partly brown, the complete notauli, the basivolsella with one subdistal bristle, the new species is similar to Aphelopus zonalis Xu, Olmi & He, 2013, described from China, Hainan. The main difference between A. fuscoflavus...
and *A. zonalis* is centered on the structure of the basivolsella; fused with the paramere (Fig. 2) in *A. fuscoflavus*, not fused in *A. zonalis* (Fig. 3). In the key to the males of the Oriental *Aphelopus* species published by Xu et al. (2013), the new species can be included by replacing couplets 1–4 as follows:

1. Mesosoma and metasoma totally testaceous, except petiole black................... *A. borneanus* Olmi
   – Mesosoma and metasoma partly or totally black or brown......................2
2. Head testaceous, at most with ocellar region, or vertex, or part of face darkened ........................................................................................................3
   – Head mostly or totally black or brown..................................................8
3. Notauli absent .................................................. *A. maculiceps* Bergman
   – Notauli distinct .................................................................................4
4. Basivolsella with one subdistal bristle (Figs 2, 3).................................4′
   – Basivolsella with two subdistal bristles .............................................5
5. Basivolsella not fused with paramere (Fig. 3) ..... *A. zonalis* Xu, Olmi & He
   – Basivolsella fused with paramere (Fig. 2)........................................*A. fuscoflavus* sp. n.
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Figures 2–3. Male genitalia, holotypes, left half removed. 2 Aphelopus fuscocollus sp. n. 3 A. zonalis Xu, Olmi & He, 2013 (from Xu et al. 2013) (b = basivolsella; d = distivolsella; p = paramere). Scale bars = 0.09 mm (2), 0.10 mm (3).

Conclusion

Xu et al. (2013) recorded 71 species of Dryinidae from Thailand. Subsequently, Olmi et al. (2015) added an additional species: Anteon huettingeri Olmi, Xu & Guglielmino, 2015. Dryinidae of Thailand belong to the following genera: Aphelopus Dalman, 1823 (seven species), Crovettia Olmi, 1984 (one species), Anteon Jurine, 1807 (27 species), Deinodryinus Perkins, 1907 (two species), Bocchus Ashmead, 1893 (three species), Thaumatodryinus Perkins, 1905 (two species), Dryinus Latreille, 1804 (13 species), Pseudodryinus Olmi, 1991 (one species), Neodryinus Perkins, 1905 (five species), Echthrodelpax Perkins, 1903 (three species), Haplogonatopus Perkins, 1905 (one species) and Gonatopus Ljungh, 1810 (seven species). With the description of the above new species the number of species now known from Thailand is 73.

In comparison with the 193 species recorded in China by He and Xu (2002) and the 62 and 40 listed respectively in India and Laos (Xu et al. 2013), the dryinid fauna of Thailand is poorly known. Some genera such as Gonatopus (with only seven species listed) are clearly understudied.

However, the dryinids of Thailand will be better understood in the future. In fact, during the three year period 2006–2009, an intensive survey of the terrestrial arthropod fauna of Thailand was conducted by the Queen Sirikit Botanic Garden, The Thai Forestry Group, The Hymenoptera Institute and The Natural History Museum of Los Angeles County (TIGER: Thailand Inventory Group for Entomological Research,
coordinated by Michael Sharkey) (http://sharkeylab.org/tiger/). This survey resulted in the collection of about 5000 specimens of Dryinidae, which are actually in study in the authors’ laboratories. The new species described herein is one of the first results of this study.

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References

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