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The description of *Alloxysta chinensis*, a new Charipinae species from China (Hymenoptera, Figitidae)

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Abstract

A new figitid species, *Alloxysta chinensis* Fülöp & Mikó sp nova, based on females, is described from China and South Korea. The functional morphology and the phylogenetic implication of some anatomical structures frequently used in Charipinae and the validity of the genus *Carvercharips* is discussed. This manuscript is the first of its kind linking descriptive terminology to Hymenoptera Anatomy Ontology classes, which provides persistent links to definitions for terms used within this manuscript.

Key words: hyperparasitoid, description, taxonomy, Hymenoptera Anatomy Ontology

Introduction

Alloxysta Förster species are common hyperparasitoids of aphid pests (Raworth *et al.* 2009, MacFadyen *et al.* 2009) and hence they are important in serving as model systems for studying trophic interactions (Traugott *et al.* 2008) and biocontrol research (Hougardy & Mills 2009).

Besides a few endemic species (three Australian (Carver 1992), two New Zealandian (Ferrer-Suay *et al.* 2012a), five South American (Pujade-Villar *et al.* 2002, Ferrer-Suay *et al.* 2011), three African (Andrews 1978), one Oriental (Paretas-Martínez *et al.* 2005), all members of the genus are known from the Holarctic Region, most of them from the Palearctic (78), and particularly Europe (65) (Andrews 1978, Ferrer-Suay *et al.* 2012b). Ten *Alloxysta* species are known from Asia: three from Japan (Andrews 1978), five from the Far East of Russia (Belizin 1962, 1973), one from Taiwan (Paretas-Martínez *et al.* 2005, 2007b) and one from India (Singh & Sinha 1979). All, except *A. pleuralis* (Cameron) and *A. mara* Paretas-Martínez & Pujade-Villar, are known from the Eastern Palearctic only (Table 1).

Alloxysta species are easy to distinguish from other charipine genera by the presence of the posterior carina on the subaxillary bar, presence of mesopleural triangle, absence of the precoxal sulcus, absence of a notch on the forewing margin and the cylindrical pedicel (Paretas-Martínez *et al.* 2007a). *Carvercharips* was erected for one species, *Alloxysta carinata* Carver by Kovalev (1995) based on the unique structure of the posterior part of the mesoscutellum and the metapetal-propodeal complex. Later it was synonymised with *Alloxysta* based on the homoplasious nature of the mentioned apomorphies (Paretas-Martínez *et al.* 2007a). *Alloxysta chinensis* Fülöp & Mikó, sp. nova shares all the diagnostic characters of *Carvercharips* and *A. carinata* and the two species might compose a monophyletic group within or outside *Alloxysta*.