



# Article

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## Braconid wasps (Hymenoptera) of Reunion. 1. Euphorinae (including Meteorini): key to species and description of six new species

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### Abstract

We revised the Euphorinae (Hymenoptera: Braconidae) collected in Reunion Island (Indian Ocean). To date, only *Chrysophthorus hungaricus* (Kiss) was reported there. This catalogue is updated to a total of nine species, six of them being newly described: *Centistes caloupile* **sp. nov.**, *Cosmophorus merdiculus* **sp. nov.**, *Leiophron sarahae* **sp. nov.**, *Leiophron yaeli* **sp. nov.**, *Meteorus comonile* **sp. nov.**, and *Syntretus massale* **sp. nov.** A key to all euphorine species of Reunion is provided.

**Keywords:** parasitoid wasps; Indian Ocean; descriptions; taxonomy

### Introduction

Euphorinae form a greatly diversified taxon of more than 1,100 species and 55 genera (Yu *et al.* 2005). Their morphological variability is quite unusual for a single subfamily (Shaw 1985): some genera exhibit particularly weird structural adaptations as, for example, the raptorial antennae of *Streblocera* Westwood. They may however be diagnosed by the loss of vein 2Cu-a on forewing, letting thus the second brachial cell (2Cu) apically open (Shaw 1985). This synapomorphy is also present in Blacinae, though this has been attributed to evolutionary convergence (van Achterberg 1976). Euphorine wasps also often exhibit a petiolate metasomal tergite I and/or a 3/Rs slightly to strongly arched forwards on forewing.

This morphological diversity matches a bioecology which may appear markedly various at first glance. Although most Braconidae are specialized on a single host order, Euphorinae have indeed been associated with Coleoptera, Hymenoptera, Lepidoptera, Psocoptera, Heteroptera, Orthoptera and Neuroptera. Most of them (but Meteorini) however share the highly unusual feature of parasitism of adult hosts, or, if not, of middle to late instar nymphs of hemimetabolous insects (Shaw 2004, 1988). True adult-parasitism was besides only reported in the once distinguished Neoneurinae, which are now included within Euphorinae (Belshaw & Quicke. 2002, Yu *et al.* 2004, Pitz *et al.* 2007). On the other hand, Aphidiinae are highly specialized parasitoid which sometimes oviposit into adult aphids, but they also accept a wide range of development stages from embryo to adults.

As a result, the phylogeny of the subfamily has been periodically reassessed (Quicke & van Achterberg 1990, Wharton *et al.* 1992, Li *et al.* 2003, Shi *et al.* 2005, Pitz *et al.* 2007). According to the above mentioned features, Euphorinae now include the former Centistinae, Cosmophorinae, Helorimorphinae, Leiophroninae, Liophroninae, Neoneurinae, Perilitinae and Zelinae (van Achterberg 1979, Shaw 1985, Quicke & van Achterberg 1990, Pitz *et al.* 2007). The subfamily is therefore still controversially discussed as a polyphyletic assemblage (Campos & Sharkey 2006), or as a monophyletic group (Shaw 1985, 1988, 1995, 2004, 2006). The most recent morphological and molecular datasets, including several Euphorinae genera, suggest a monophyletic evidence for the apparition of Euphorinae and true adult-parasitism within Braconidae (Boring 2010, unpublished). Moreover, the position of Meteorini (or Meteorinae) is still debated: some authors (Dowton *et al.* 1998, 2002; Pitz *et al.* 2007) place them as