Zootaxa 2194: 21–36 (2009)
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

Doddifoenus wallacei, a new giant parasitoid wasp of the subfamily Leptofoeninae (Chalcidoidea: Pteromalidae), with a description of its mesosomal skeletal anatomy and a molecular characterization

LARS KROGMANN[1,3] & ROGER A. BURKS[2]

[1]*State Museum of Natural History Stuttgart, Entomology, Rosenstein 1, D-70191 Stuttgart, Germany. E-mail: krogmann.smns@naturkundemuseum-bw.de*
[2]*University of California, Riverside, Entomology Department, Riverside, CA 92521, United States. E-mail: burks.roger@gmail.com*
[3]*corresponding author*

Abstract

A third species of *Doddifoenus* Bouček (Pteromalidae: Leptofoeninae), is described from Laos and Thailand. *Doddifoenus wallacei* **sp. n.** is the first species of the genus occurring west of Wallace's Line, and with a body length of up to 4.2 cm it is among the longest known of any chalcidoid wasp. A differential key and distribution map for the world species of *Doddifoenus* are given. A detailed description of the mesosoma, including external and internal features, and molecular data (D2-D5 fragments of the 28S gene) are provided to facilitate future phylogenetic analyses. The phylogenetic placement of Leptofoeninae is briefly discussed, especially with respect to the pteromalid subfamilies Pteromalinae and Cleonyminae.

Key words: Pteromalidae, Leptofoeninae, Doddifoenus, new species, taxonomy, mesosoma, Indo-Malaya, Australasia, Wallace's Line

Introduction

The Leptofoeninae is probably one of the least known of the 31 subfamilies of Pteromalidae (Chalcidoidea) recognized by Noyes (2009). Leptofoenines are very rarely collected but morphologically are of special interest because of their very large body size (Fig. 1) and a number of character states that are uncommon among chalcidoid wasps. Some, though not all, species appear to have a pigmented costal vein in the forewing, and a sclerotized area where the postulated basal and cubital veins meet (LaSalle & Stage 1985). The phylogenetic affinities of Leptofoeninae to other Chalcidoidea are uncertain, and placement in the family Pteromalidae is essentially a statement that there is no compelling information about the true relationships of the subfamily. Pteromalidae is widely recognized as the "garbage can" family within Chalcidoidea (Gibson *et al.* 1999), containing 31 potentially unrelated subfamilies, totaling about 590 genera and about 3,500 species (Noyes 2009). Gibson (2003), in an analysis of pteromalids that have been postulated as closely related to the subfamily Cleonyminae, hypothesized Leptofoeninae to be the monophyletic sister group of the Australasian subfamily Nefoeninae and, depending on rooting, as more closely related to Pteromalinae than to Cleonyminae. This would place it as a potential member of a yet to be defined "Pteromalidae s.str.". The placement of Leptofoeninae therefore has significant value in unraveling the problem of the relationships of the disparate subfamilies of Pteromalidae, many of which are probably more closely related to other chalcidoid families than to Pteromalinae (see e.g., Krogmann & Vilhelmsen 2006).

Leptofoeninae comprises only seven described species in two genera (Noyes 2009). The genus *Doddifoenus* Bouček includes two Australasian species, whereas *Leptofoenus* Smith contains five described

Accepted by M. Buffington: 9 Jul. 2009; published: 11 Aug. 2009