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Systematics of Cyphacolus Priesner (Hymenoptera: Platygastridae s.l.), an Old World genus of spider egg parasitoid

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Abstract

The genus *Cyphacolus* Priesner is unusual among members of the Baeini in having fore wings contoured to the convex surface of metasoma and lacking fore wing venation. It is closely allied to *Odontacolus* Kieffer based on the laterally compressed metasomal horn and pedunculate metasoma. Here we redescribe two of the three previously known species, *C. bhowaliensis* (Mani & Mukerjee) (India) and *C. veniprivus* Priesner (Egypt), and describe as new 13 additional species: *C. asheri* **n. sp.** (Sri Lanka), *C. axfordi* **n. sp.** (Australia), *C. copelandi* **n. sp.** (Kenya, Nigeria, Zimbabwe, Thailand), *C. diazae* **n. sp.** (Kenya), *C. harteni* **n. sp.** (Yemen, Ivory Coast, Paskistan), *C. jenningsi* **n. sp.** (Australia), *C. leblanci* **n. sp.** (Guinea), *C. lucianae* **n. sp.** (Ivory Coast, Madagascar, South Africa, Swaziland, Zimbabwe), *C. normani* **n. sp.** (India, United Arab Emirates), *C. sallyae* **n. sp.** (Australia), *C. tessae* **n. sp.** (Australia), *C. tullyae* **n. sp.** (Australia), and *C. watshami* **n. sp.** (Cameroon, Ivory Coast, Kenya, Madagascar, South Africa, Zimbabwe). In addition, we present a key to separate the species (including *Cyphacolus bouceki* Iqbal & Austin), a preliminary cladistic analysis to examine relationships among species and species groups, and a discussion of the biology, distribution and likely affinities of the genus. An electronic version of the identification key is available at WaspWeb[1]. As part of our phylogenetic study, one of the outgroup species, *Idris floris* (Kononova & Fursov) **n. comb.**, is here transferred from *Ceratobaeus* Ashmead. The electronic version of this document has been formatted with embedded links to additional resources available online via the internet, both to enhance the content and as a demonstration of the utility of international standards for biodiversity informatics.

Key words: Hymenoptera, egg-parasitoid, phylogeny, spider host, ovipositor

Introduction

The genus *Cyphacolus* (Fig. 1) was proposed by Priesner (1951) from a single female, described as *C. veniprivus*, collected in Cairo in 1937. Priesner postulated that the genus was related to *Ceratobaeus* Ashmead and *Odontacolus* Kieffer based on the presence of a metasomal horn, but that it could be distinguished from them by the absence of fore wing venation and having a dark infuscate patch in the fore wing. He further indicated that *Cyphacolus* and *Odontacolus* were more closely related to each other based on their more transverse scutellum and having a "distinctly developed propodeum", a statement that presumably refers to the pair of large spine-like flanges that flank the metasomal horn. Since Priesner (1951), the genus has virtually been ignored except for taxonomic citations (e.g. Muesebeck & Walkley 1956; Johnson 1992), although Kozlov (1971) included *Cyphacolus* in a key to genera. More recently, Iqbal & Austin (2000) included a single undescribed species in their phylogenetic analysis of the Baeini, while Austin & Iqbal (2005) described a new species from Australia, and discussed the putative relationships of the genus.

Over the past 26 years, the phenomenal effort of one of us (LM) to develop a synoptic collection of Platygastroidea from all biogeographic regions has been responsible for amassing much of the material used in the current study. However, apart from a few widely distributed common taxa, most species are represented by very few specimens, indicating that they are either rare in the environment or are not readily sampled using mass collecting techniques such as yellow pans and Malaise traps. Here our aim is to fully revise the taxonomy of the genus and describe the 13 new species. At the same time we present a key to the identification of all species, a preliminary cladistic analysis to examine relationships among species and species groups, and a discussion of the biology, distribution and likely affinities of the genus.

Material and methods

The following collections provided specimens for this study (arranged by acronym order): Australian National Insect Collection Australia, Canberra, Australia (ANIC)[2]; The Natural History Museum, London, United Kingdom (BMNH)[3]; California Academy of Sciences, San Francisco, USA (CASENT)[4]; Canadian National

1. http://www.waspweb.org/Platygastroidea/Keys/index.htm
2. http://biocol.org/urn:lsid:biocol.org:col:32981