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Description of a new Betylobraconini-like parasitoid wasp genus and species (Hymenoptera: Braconidae: Rogadinae) from Chile

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Abstract

Gondwanocentrus **gen. nov.** (type species *Gondwanocentrus humphriesi* **sp. nov.**) from Chile is described and illustrated. Morphological and weak molecular evidence indicate that the new genus may be a basal member of the Betylobraconini. The molecular data analysed to assess its placement additionally draw into question the relationship between Betylobraconini and Clinocentrini. Previously, the Betylobraconini were known only from the Australasian region, Oceania and Eocene Europe (Baltic amber), thus if *Gondwanocentrus* **gen. nov.** does belong to this group it confirms the groups present day Gondwanan distribution.

Key words: biogeography, taxonomy, systematics, New World, Gondwanan distribution, parasitoid wasp, phylogeny

Introduction

We have attempted to DNA sequence a large number of specimens during on-going molecular phylogenetic studies of cyclostome braconid wasps, and in particular members of the Rogadinae and allies, including much material from remote localities or with interesting morphologies. We report here on a specimen from Chile that carelessly we had initially thought was an aberrant species of Rhysipolinae. This specimen was included in a molecular analysis as ‘?Rhysipolis’ by Quicke et al. (2014) in which it was recovered in a polytomy leading to a clade comprising the Lysiterminae, Hormiinae and the rogadine tribes Aleiodini, Yeliconini, Betylobraconini (represented only by one *Mesocentrus* species); the Betylobraconini was recently demoted from subfamily to tribe status within the Rogadinae (Butcher & Quicke 2015). Our initial mistake about the identity of the new taxon, however, was perhaps not so surprising since the taxa belonging to the Rogadinae display a surprisingly large amount of morphological homoplasy, sometimes making it, currently, impossible to recognise to what group they belong with certainty (Butcher & Quicke 2015).

Here we present a new molecular analysis and a detailed morphological appraisal of the placement of the specimen for which we erect a new genus. Taxon sampling for the molecular analysis includes a greater representation of betylobraconines, lysitermines, clinocentrines and yeliconines (a group of Rogadinae that are morphologically quite convergent to the Betylobraconini). Analyses of the new data set suggests that the new genus belongs to, or is a sister group to, the Betylobraconini. Morphologically the specimen comes closest to *Promesocentrus* van Achterberg from Australia which is included within the Betylobraconini (van Achterberg 1985) though it is less derived in terms its head morphology. One reason the new genus and species described here is particularly important is that it extends the range of the Betylobraconini from Australia/Oceania and the Palaeo-European, to Chile, another region rich in taxa of so-called Gondwanan origin.

Although some species/genera that have been thought in the past to be closely related to *Betylobracon*, and hence placed in the Betylobraconinae, were described from the New World (though not Chile), viz. *Conobregma* van Achterberg and *Jannya* van Achterberg, more recent molecular phylogenetic studies have shown that these are not closely related to *Betylobracon* and *Mesocentrus* but rather belong in a clade within the Rogadinae tribe Yeliconini. Further, although no biological data are available as yet for betylobraconines *sensu stricto*,