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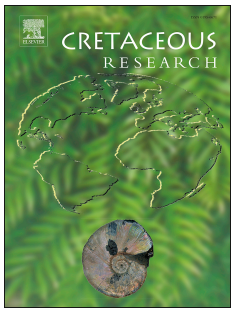

A new species of *Haploberotha* (Neuroptera: Berothidae) from mid-Cretaceous Burmese amber

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A new species of *Haploberotha* (Neuroptera: Berothidae) from mid-Cretaceous Burmese amber

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Abstract

Haploberotha carsteni sp. nov. (Neuroptera: Berothidae) is described from mid-Cretaceous Burmese amber. It has a very similar venation to *H. persephone* Engel and Grimaldi, 2008, but clearly differs by the male genitalia. The simplification of the venation (as found in *H. carsteni* sp. nov.) likely occurred independently many times in berothids during the Mesozoic. There are at least two character states in the male genitalia of some Cretaceous berothids, which are not found in extant taxa, i.e., the presence of extremely long gonocoxites 9, which extend far beyond the ectoprocts, and the long slender ventral process of T9+ectoproct.

Key words: Neuroptera, Berothidae, new species, Burmese amber

1. Introduction

Berothidae is a relatively small family today, comprising approximately 130 extant species (including Rhachiberothinae) (Oswald, 2018). Nine subfamilies are currently recognized in the family: Mesithoninae and Paraberothinae from the Mesozoic (see Makarkin et al., 2012; Makarkin, 2015a); Rhachiberothinae and Berothinae known from the Eocene to Recent (see Makarkin and Kupryjanowicz, 2010; Makarkin, 2017), and Cyrenoberothinae, Nyrminae, Protobiellinae, Trichomatinae and Nosybinae, which include only extant species (Aspöck and Nemeschkal, 1998; Aspöck and Randolf, 2014). The Rhachiberothinae is often considered as a distinct family.

There are numerous fossil taxa: 49 species in 35 genera have been described from the Middle Jurassic to late Eocene (pers. data). In particular, berothids dominate the neuropteran assemblage in the mid-Cretaceous Burmese amber, both in number of specimens and species, with 15 described species (Engel, 2004; Engel and Grimaldi, 2008; Makarkin, 2015a, b; Yuan et al., 2016). Of these, four species belong to Paraberothinae, which have raptorial forelegs; the subfamily affinities of others with walking (cursorial) forelegs are unclear.