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Taxonomic status of *Velinoides* Matsumura (Hemiptera: Reduviidae: Harpactorinae) inferred from mitochondrial and nuclear genes

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Abstract

In this study, we used three mitochondrial genes (cyt *b*, COI, and 16S rRNA) and one nuclear gene (28S rRNA) to evaluate the current taxonomic status of the genus *Velinoides* erected by Matsumura. Phylogenetic analyses of genes using maximum parsimony, maximum likelihood, and minimum evolution resulted in different phylogenetic trees. However, the combined dataset analysis revealed better phylogenetic relationships. The constructed phylogenies appeared to be largely congruent with morphological studies. Results based on the molecular data strongly supported that the *C. dilatatus*, the type species of *Velinoides*, was the sister group to all other species of the genus *Coranus* Curtis. Incorporation with the morphological and cytogenetic characteristics, we proposed that *Velinoides* is of subgeneric status, the genus *Coranus* Curtis should be divided into two subgenera, *Velinoides* Matsumura and *Coranus* Curtis. Our phylogenetic results suggested that the 28S rDNA gene segment alone might not be an optimal molecular marker for the phylogeny of the genus *Coranus* Curtis.

Key words: *Coranus*, cyt *b*, COI, 16S rDNA, 28S rDNA, Harpactorinae, molecular data, taxonomic status

Introduction

The genus *Coranus* was established by Curtis in 1833 with *Cimex subapterus* De Geer (1773) as the type species. It is one of the largest genera in the reduviid subfamily Harpactorinae with 96 known species worldwide (Putshkov & Putshkov 1985; Maldonado-Capriles 1990). The genus is widely distributed and occurs throughout the Eastern Hemisphere, with 30 Palaearctic, 17 Oriental, 41 Ethiopian, and 17 Australian species. Fifteen species in the genus *Coranus* have been recorded in China (Hsiao & Ren 1981; Ren 1984; Lu & Cai 1989; Nonnaizab et al. 1988; Putshkov & Putshkov 1996).

Nearly all the species of *Coranus* are similar having a medium-sized body except *C. dilatatus* (Matsumura), which is distinctly larger than its congeners. *C. dilatatus* was described from Japan by Matsumura (1913) as the type species of the genus *Velinoides* Matsumura. Later, the genus *Velinoides* was synonymized with *Coranus* by Kanyukova (1982). Hsiao & Ren (1981) described *Coranus magnus* from China. Because of morphological similarity, Cai (1994) suspected that *C. magnus* Hsiao et Ren may be synonymic with *C. dilatatus* (Matsumura). Lu & Cai (1994) confirmed that the two names were synonymic.

Muramoto (1981) reported the chromosome number in *V. dilatalus* has 2n = 80. However, the chromosome number in the smaller-sized species *Coranus fuscipennis* is 2n = 27 (Jande 1959). The egg structure of *C. dilatatus* is also different from that in other reported species of *Coranus* (Cai, unpublished data). Therefore, Cai (1994) suggested that *Velinoides* might be a valid genus or perhaps as a subgeneric status. Although Maldonado-Capriles (1990) and Putshkov & Putshkov (1996) cataloged the *Coranus*, they did not mention the subgeneric division within the genus.

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