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The mesothoracic wings of Afrotropical Scutelleridae (Hemiptera: Heteroptera): morphology and taxonomic significance

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Abstract

Mesothoracic wings have been examined and compared in 32 species representing 20 genera of Afrotropical Scutelleridae. Morphological characters of the corium are described. Three main types of mesothoracic wing venation patterns can be recognized. The taxonomic significance of forewing characters in Scutelleridae is briefly discussed.

Key words: Hemiptera, Heteroptera, Scutelleridae, mesothoracic wings, forewings, morphology, taxonomy, Afrotropical Region

Introduction

Heteropterous forewings *(hemelytra)* are characteristically divided into three main parts: basal sclerotized corium, clavus, and distal membrane (Betts 1986; Wootton & Betts 1986; Schuh & Slater 1995; Lis 2002). The forewings of most Scutelleridae are almost totally covered by the scutellum (except for the basal and apical parts). Morphological characters of scutellerid forewings have not been studied deeply so far. Only a few aspects were analysed: range of sclerotized area within the corium (Fischer 2001), extent of scutellar coverage of the hemelytra (Cassis & Vanags 2006), and presence of medial longitudinal fracture and characters of membrane venation (Grazia *et al.* 2008).

Metathoracic wing venation has been already studied in Scutelleridae (Czaja 2007). The results distinguished four venational patterns which can be used for suprageneric classification within the Scutelleridae. It is worth checking to see if the forewings also bear features of taxonomic importance for this family.

The family Scutelleridae comprises about 500 species in 80 genera (Cassis & Vanags 2006). The infra-familial classification is still under construction. Tsai *et al*. (2011) in their recent study recognized eight subfamilies within the Scutelleridae: Elvisurinae, Eurygastrinae, Hoteinae, Odontoscelinae, Odontotarsinae, Pachycorinae, Scutellerinae, and Tectocorinae. Only members of New World Pachycorinae and Tectocorinae are not represented in Afrotropical fauna (Cassis & Vanags 2006; McDonald & Cassis 1984; Schuh & Slater 1995; Tsai *et al*. 2011). The last overall study of Afrotropical fauna was presented by Schouteden (1903). According to that publication, 47 species of 19 genera occurred in the Afrotropical Region. The current number of species is not unambiguously determined and includes 23 genera with over 70 species (Czaja, unpublished data).

The aim of this study is to describe the venational patterns and other morphological characters of mesothoracic wings in Afrotropical Scutelleridae, and investigate their possible taxonomic value for this family of Heteroptera.

Material and methods

The study is based on Afrotropical specimens of Scutelleridae. Thirty-two Afrotropical species representing 20 genera have been studied. The classification of the family is that of Fischer (2001), Göllner-Scheiding (2006), and Carapezza (2009). Sphaerocorinae is treated in this study as a separate subfamily.

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