

Comparative cheliceral morphology of the solifuge species *Biton zederbaueri* (Werner) and *Gluviopsilla discolor* (Kraepelin) through scanning electron microscopy

(Arachnida: Solifugae: Daesiidae)

Abdullah Bayram, Nazife Yiğit, Melek Erdek, Halil Koç, Zafer Sancak,
Abdullah Melekoğlu, İlky Çorak Öcal

Abstract: A detailed comparative morphology of the male chelicerae of *Biton zederbaueri* (Werner) and *Gluviopsilla discolor* (Kraepelin) is presented using stereo microscope and scanning electron microscopy (SEM). The morphology of the cheliceral teeth, setae, flagella and some other organs such as the stridulatory organ that are used for description and identification are described and illustrated. The flagella are membranous, but their shapes are different in both species. The stridulatory organs are similar in both daesiids, being reniform and with seven ridges. On the chelicerae, numerous long-thin, short-thin and short-thick setae are characteristic for both species.

Key words. *Biton zederbaueri*, *Gluviopsilla discolor*, chelicera, morphology, SEM, Daesiidae, Solifugae.

Introduction

Solifuges have conspicuous chelicerae which are scissor-like head extremities; each chelicera consists of two parts, jointed vertically. They are covered with dense sensory setae. Chelicerae have a role in prey capture and physical contact with prey; they also function in defence by adopting an open, flexed and elevated position (MUMA 1967). Together with the pedipalps, they also play a role in mating (AMITAI et al. 1962, WHARTON 1987, PUNZO 1998). During mating, the male thrusts the fixed finger of his chelicerae deep into the female genital opening in order to inject the seminal fluid from his chelicerae (MUMA 1967). PERETTI & WILLEMART (2007) mentioned that males use their chelicerae not only during the attack phase of mating but also during nidification and the excavation of soil. WHARTON (1987) observed the diurnal *Metasolpuga picta* (Kraepelin) during excavation as the chelicerae were used to carry out pebbles and to push the soil. KAESTNER (1933) described the feeding behaviour and the anatomy of the mouthparts and gut systems of solifuges. DUNLOP (2000) and KAESTNER (1933) showed that the chelicerae, together with brush-like setae and the hook-like appendages of the apical surfaces of the rostrum, function as filters for the masticated food. KAESTNER (1933) further indicated that the pharynx functions as a sucking apparatus. KLANN & ALBERTI (2010) studied and compared the histology and ultrastructural morphology of the alimentary system in Solifugae specimens from several families, and they described the detailed morphology of the mouthparts and gut systems (foregut, midgut and hindgut). In particular, they revealed the presence of numerous rather thin cuticular tendons in addition to muscle layers in the cheliceral fingers.