



<http://dx.doi.org/10.11646/zootaxa.3721.4.4>

<http://zoobank.org/urn:lsid:zoobank.org:pub:C2BC5101-9325-4F72-88AD-9D26A70F0F8C>

The taxonomic value of the structures for the insertion of the stylet muscles in the Eutardigrada, and description of a new genus

GIOVANNI PILATO

Dipartimento di Biologia Animale “Marcello La Greca” dell’Università di Catania, Via Androne 81, 95124 Catania, Italy.

E-mail: pilato@unict.it

Abstract

The new genus *Dastychius* has been instituted for the species *Isohypsibius improvisus* Dastych, 1984. It has claws of the *Isohypsibius* type, rigid buccal tube without ventral lamina and with ridge-shaped apophyses for the insertion of the stylet muscles; peribuccal lamellae absent; peribuccal papulae seem to be present but the datum should be confirmed; pharyngeal bulb with apophyses and placoids, lunules present in the known species; smooth eggs laid in the exuvium. The apophyses for the insertion of the stylet muscles have some peculiarities that justify the institution of a new genus. They are long, uninterrupted ridges tailing off caudally almost reaching the stylet supports; at almost a quarter of their length they have an incision and a septum never noted in other genera of Eutardigrada. In the author’s opinion it is possible to hypothesize that all the structures for the insertion of the stylet muscles recognizable in the Eutardigrada may be derived from long ridge-shaped apophyses (but without incision and septum). The comparison of the shape of the apophyses for the insertion of the stylet muscles in the Eutardigrada seems to indicate that this character has taxonomic value at level of genus but not at family level.

Key words: Eutardigrade, *Dastychius* gen. nov., ventral lamina, apophyses, taxonomic value

Introduction

The stylet muscles in the Eutardigrada are inserted on apophyses at the anterior part of the buccal tube. In most Eutardigrada taxa, the ventral and dorsal apophyses are more or less equally developed and the ventral apophysis is not prolonged in a long and prominent lamina (e.g. Fig. 1A–C). However, in some taxa the ventral apophysis is present as a prolonged and well-developed, prominent, longitudinal ventral lamina. Where this occurs the dorsal apophysis is usually absent (e.g. Fig. 1D), but in a few taxa the dorsal apophysis is also present (e.g. Fig. 1E, F).

High taxonomic value has been always attributed to the shape of the apophyses for the insertion of the stylet muscles (AISM). In the description of *Isohypsibius*, Thulin (1928) described the AISM as ridge-shaped (*crista-förmig*) (Fig. 1A) and for *Hypsibius* Ehrenberg, 1848, hook-shaped (*hakenförmig*) (Thulin, 1928) (Fig. 1B). For many years the AISM were defined simply “hook-shaped” or “ridge-shaped” in all eutardigrade genera.

In 1986 Binda & Pilato described the new genus *Ramazzottius* and stressed that the apophyses were a different shape. They redefined the AISM of *Hypsibius*, as “semilunar hooks” (Fig. 1B), and described those of *Ramazzottius* as “blunt hook-shaped” (Fig. 1C) (Binda & Pilato 1986). In addition, these authors stressed that the apophyses in *Hypsibius* were symmetrical with respect to the frontal plane; whereas, in *Ramazzottius*, they are asymmetrical because the dorsal apophysis is short and stumpy, with a clearly prominent caudal apex, while the ventral apophysis is longer and more slender (Fig. 1C).

Since then, the shape of the AISM in the definition of the eutardigrade genera has been carefully described and many variants of both the hook-shaped and the ridge-shaped apophyses are known today. The shape of these apophyses does not show individual variability (minute details excluded that do not change the general configuration), and it is accepted that their shape is constant also within each genus. So the taxonomic significance of their shape has therefore been confirmed (Pilato, 1987; Pilato & Binda, 1987, 1989; Bertolani *et al.*, 1999; Nelson *et al.*, 1999; Guidetti *et al.*, 2005; Pilato & Binda, 2010; Marley *et al.* 2011).