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# A clearly identifiable postlarva in the life cycle of a new species of *Pliciloricus* (Loricifera) from the deep sea of the Angola Basin*

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## Abstract

A newly discovered species of *Pliciloricus* from the deep sea of the Angola Basin (Namibia, Atlantic) seems to have two types of postlarvae in its life cycle. Type I is a simplified but clearly identifiable postlarval stage, the other type II consists only of a thin layer of cuticle as the remnant of a postlarva. Both types contain adults that have moulted from them. The simplified type I postlarva has a fully developed lorica with an ornamentation identical to that of the adult, but other body regions are reduced with only a few structures left. The discovery of this clearly identifiable postlarva is important, because it supports the conclusion that *Pliciloricus*-species originally moults from postlarval stages as well as other taxa of Loricifera. Furthermore, it could be concluded that the simple cuticle layer surrounding most adults found during their metamorphosis is the remnant of a postlarval stage. The life cycle of the new species seems to include two phases. After to the bisexual is a unisexual phase, represented by a simplified parthenogenetic adult stage which lacks most parts of the adult morphology. The adults of *P. diva* sp. n. differ from other species in having among others (1) a mouth cone with four strong cuticular bars plus eight primary oral ridges; (2) leaf-like clavoscalids which are very broad basally and narrow distally, and have more than 22 transverse cross walls; (3) a strongly sclerotized double-organ consisting of four rami; (4) large spinoscalids of second row shorter than clavoscalids, (5) short type B spinoscalids of fourth row with claw-tips and with a double row of five teeth as well as distally with a double row of minute denticles; (6) an anterior margin of the lorica with bicuspid protrusions and specific crescent-shaped ornamentations; (7) a midventral plica with five bar-like transversal strengthened ridges. Distinguishing features of the Higgins-larva are (1) short clavoscalids with broad second segments; (3) a collar with seven flosculi located in small pits; posterolateral setae being short but strong and pod-like. The study also revealed new information about the double-organ of the adult and the buccal structures of the Higgins-larva.

**Key words:** deep-sea meiofauna, Angola Basin, DIVA 1

## Introduction

During the DIVA 1 and –2 expeditions (Latitudinal Gradients of Deep-Sea Bio**DIV**ersity in the **A**tlantic Ocean) the meiofauna of the Angola Basin were studied. The aim of the DIVA expeditions was to enhance the knowledge of the benthic fauna inhabiting sediments in Atlantic deep-sea basins from pole to pole (Martínez & Schminke 2005). The 160 multicore samples obtained during the DIVA 1 expedition contained 280 Loricifera. One successful multicore tube contains on average 2–3 specimens of Loricifera in strong contrast to the dominant taxa, Nematoda (2000 specimens) and Copepoda, Harpacticoida (500 specimens). Loricifera make up no more than 0.2% of the total meiofauna in all samples analysed to date. More than 95% of the specimens obtained so far have been larval instars and many of them contain eggs. These have most likely

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