



## Larval development of the shrimp *Hippolyte sapphica* d'Udekem d'Acoz, 1993 forma A and B (Decapoda: Caridea: Hippolytidae) reared in the laboratory, confirmation of the conspecific status of the two forms

ALEXANDROS NTAKIS, CHRYSSEA ANASTASIADOU<sup>1</sup>, ROMAN LIASKO  
& IOANNIS D. LEONARDOS<sup>2</sup>

Laboratory of Zoology, Department of Biological Applications and Technology, University of Ioannina, GR-451 10, Ioannina, Greece.  
Corresponding authors. E-mail:<sup>2</sup>ileonard@uoi.gr; <sup>1</sup>chanasta@cc.uoi.gr

### Abstract

The complete series of larval staging of *Hippolyte sapphica* d'Udekem d'Acoz, 1993 forma A and B from Louros estuary was studied in the laboratory and described in detail for the first time. The reared larvae of *H. sapphica* passed through six zoeal stages and one megalopal stage. The larval monitoring completed when the individuals could be assigned clearly to form A and B via rostra formation. Under the experimental conditions, the average durations of the larval stages were as follows: three days for 1<sup>st</sup> and 2<sup>nd</sup> stages, three to four days for 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> stages, four days for the megalopal stage and 19 to 30 days for immature form A and B individuals. Comparison of the larval morphological characters among the described material and the bibliographic data of closely related species was made and discussed. The offspring of females of the forma A includes forma A and B and the same can be said of the offspring of the forma B. This confirms that the formae A and B are indeed conspecific.

**Key words:** Hippolyte, shrimp, Decapoda, larval development, Greece

### Introduction

The Mediterranean shrimp *Hippolyte sapphica* d'Udekem d'Acoz, 1993 consists of two forms, form A and form B (d'Udekem d'Acoz, 1996, 2007). The systematic position of the two forms has been considered as problematic (d'Udekem d'Acoz, 1996) because the only taxonomical difference was detected on the rostrum morphology. The form A bears a very long dentate rostrum, while form B has a very reduced, toothless rostrum. d'Udekem d'Acoz (1996) supported that “*Considered alone these data would suggest that the two forms are different species. However it appears – the rostrum expected- that all the morphological structures of the two forms are perfectly identical and that specimens of the two forms from the same station have also the same average carapace length*”. Moreover, the author presupposes that the two forms belong to the same species according to their distribution pattern and to their specific extracted ratios in different habitats. No further publications on this field have been made since then, in order to elucidate the taxonomical status of the two forms.

*H. sapphica* forma A is an endemic Mediterranean and Black Sea species which has been reported from the Adriatic, the Ionian, the Aegean and Black Seas (d'Udekem d'Acoz, 1993, 1996, 1999; Koukouras and Anastasiadou, 2002). *H. sapphica* forma B is an endemic species in the central Mediterranean and has been reported only from the Ionian Sea (Gulf of Amvrakikos) and the northern Adriatic Sea (Venice lagoon) (d'Udekem d'Acoz, 1996). In the Amvrakikos Gulf seagrasses loci the two forms always have been found together and demonstrate similar biology (D' Udekem d' Acoz, 1996; present data). The species seems to prefer very sheltered biotopes such as lagoons and closed gulfs with shallow depths ranging from 0.3 m to 1.5 m. *H. sapphica* populations have been collected from small seagrasses (*Zostera marina* and *Cymodocea nodosa*) and also from *Cystoseira* (D' Udekem d' Acoz, 1996; Koukouras and Anastasiadou, 2002).