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Morphology of the larval stages of *Macropodia czernjawskii* (Brandt, 1880) (Decapoda, Brachyura, Inachidae) reared in the laboratory

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Abstract

The complete larval development of *Macropodia czernjawskii* (Brandt, 1880), is described and illustrated for the first time. Larvae were reared in the laboratory and development consisted of two zoeal stages and a megalopa. The main difference in the zoeal stages is the absence of lateral spines on the telson furcae, which allow it to be distinguished from the remaining species of *Macropodia* as well as from the zoeae of most majoids.

Key words: Brachyura, Majoidea, Inachidae, zoea, megalopa, *Macropodia czernjawskii*

Introduction

The spider crab genus *Macropodia* Leach, 1814, is represented in the northeastern Atlantic and Mediterranean waters by nine species: *M. czernjawskii* (Brandt, 1880), *M. deflexa* Forest, 1978, *M. intermedia* Bouvier, 1940, *M. linaresi* Forest & Zariquiey-Álvarez, 1964, *M. longipes* (Milne-Edwards & Bouvier, 1899), *M. longirostris* (Fabricius, 1775), *M. parva* Noort & Adema, 1985, *M. rostrata* (Linnaeus, 1761), and *M. tenuirostris* (Leach, 1814). *Macropodia czernjawskii* is found in the Eastern Atlantic and Mediterranean Sea (D'Udekem d'Acoz 1999), where it inhabits rocky intertidal pools and bottoms with algae at depths of 0.3–80 m (García Raso 1984; Zariquiey-Álvarez 1968).

The complete larval development reared in the laboratory is known for only four species of *Macropodia*: *M. tenuirostris* (Salman 1981), *M. rostrata* (Ingle 1982, 1992), *M. longipes* (Guerao & Abelló 1997) and *M. parva* (González-Gordillo & Rodríguez 2001). Lebour (1927, 1928) had previously described the larval development of *M. deflexa* (as *M. egyptia*), *M. tenuirostris* (as *M. longirostris*), and *M. rostrata*, but descriptions and illustrations were brief and incomplete. The first zoea of *M. linaresi* was described by Guerao *et al*. (1998).

The complete larval development (two zoeal stages and the megalopa) of *M. czernjawskii* is herein described and illustrated in detail and compared with the known development of other species of the genus.

Material and methods

One ovigerous individual of *Macropodia czernjawskii* was collected by hand from intertidal pools off El Chato beach (Cadiz, southwestern Spain) (36º 28' 30'' N 06º 15' 40'' W), on 10 September 1999. The ovigerous crab was placed in an aquarium containing filtered and well-aerated sea water at a salinity of 32 ± 1 ‰ and keep at 26 ± 1?C. A total of 417 zoeae hatched on 17 September, the 300 most actively swimming zoeae were transferred to 2 L glass bottles (150 ind. L^{-1}) with aeration, and constant temperature (25 ± 1°C) for mass culture. Zoea I larvae were fed with a mix of rotifer *Brachionus plicatilis* (Müller, 1786) (fed with *Nannochloropsis gaditana* Lubián, 1982) and nauplii of *Artemia* sp., and from ZII to first crab with only fresh nauplii of *Artemia* sp. All reared larvae were maintained under the same constant conditions of temperature and salinity mentioned above. Seawater was changed daily, and culture was checked daily for exuviae and dead larvae and it was finished when all megalopae moulted to the first crab instar. Exuviae and specimens of all stages were fixed in 4% neutral formalin for later examination.

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