

Article

Morpho-taxonomic study of first zoeas of *Atergatis integerrimus* (Lamarck, 1801) and *A. floridus* (Linnaeus, 1767) (Crustacea: Decapoda: Brachyura: Xanthidae) reared in the laboratory

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Received 5 August 2022; Accepted 15 September 2022; Published online 21 September 2022; Published 1 December 2022



Abstract

Laboratory studies were carried out on an ovigerous female of *Atergatis integerrimus* (Lamarck, 1801) and *A. floridus* (Linnaeus, 1767) collected from Buleji (Karachi, Pakistan). After 9 days larvae were hatched out as first zoeal stage at room temperature 29°C-30°C and water temperature 28°C-29°C in filtered seawater with a salinity of 35-37 parts per thousand and pH 7.5-7.9. The larvae were fed *Artemia* nauplii. A description, illustration, and comparison of its first zoeal stages with the descriptions of its congeners are provided.

Keywords Crustacea; Decapoda; brachyuran; Xanthidae; larvae.

Arthropods
ISSN 2224-4255
URL: <http://www.iaees.org/publications/journals/arthropods/online-version.asp>
RSS: <http://www.iaees.org/publications/journals/arthropods/rss.xml>
E-mail: arthropods@iaees.org
Editor-in-Chief: WenJun Zhang
Publisher: International Academy of Ecology and Environmental Sciences

1 Introduction

In the coastal ecosystems, brachyuran crabs form one of the major animal groups, with 6793 varieties (Ng, Guinot and Davie, 2008). As a result of their high adaptability and ability to survive in extreme habitats, brachyuran crabs are extremely tolerant to natural or anthropogenic environmental changes (Guinot and Hurtado, 2003; Cannicci et al., 2009; Klaus and Plath, 2011; Fusi et al., 2015). The brachyuran crab is an important part of the aquatic ecosystem's trophic web, both as a primary consumer or as a secondary predator (Dye and Lasiak, 1986; Klaus and Plath, 2011; Miller and Morgan, 2015).

The Xanthidae represent the most diverse group of crab families in terms of species and genera, especially in the tropical areas. Most of them inhabit rocky shores at the littoral, where they occupy every possible niche. Identification of species can be challenging, and a large number of synonyms have surfaced over the years (Odhner, 1925). It has not been possible to successfully divide the family into subfamilies (Rathbun, 1930). In their multigene study, Lai et al. (2011) identified numerous problems with current xanthid classification and systematics. A number of zoeal characters were incorporated into their analysis, and they found that these characters were phylogenetically significant, especially when combined with other evidence like DNA sequences and adult morphology. Nevertheless, they believe that the Xanthidae still require a radical systematic reorganization.

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