THE FIRST ZOEAL STAGE OF *EU ALUS SINENSIS* (YU, 1931) (DECAPODA, CARIDEA, HIPPOLYTIDAE), WITH A KEY TO THE KNOWN HIPPOLYTID FIRST ZOEAE OF KOREA AND ADJACENT WATERS

BY

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ABSTRACT

The first zoeal stage of *Eualus sinensis* (Yu, 1931) is described and illustrated in detail. The presence or absence of a posterolateral spine on abdominal somite 5 can be used to separate the larvae of *Eualus* into two groups. The first zoea of *E. sinensis* is easily distinguished from that of *E. leptognathus* by the absence of a rostrum, a pterygostomial spine, and anteroventral denticles on the carapace, as well as by the rudiments of pereiopods. A key to the known first zoeae of 20 hippolytid species of Korea and adjacent waters is provided.

RÉSUMÉ

Le premier stade zoé de *Eualus sinensis* (Yu, 1931) est décrit et illustré en détail. La présence ou l’absence de l’épine postérolatérale du somite abdominal 5 peut être utilisée pour séparer les larves de *Eualus* en deux groupes. La première zoé de *E. sinensis* est facilement distinguée de celle de *E. leptognathus* par l’absence du rostre, de l’épine ptérygostomienne et des denticules antéroventraux sur la carapace, ainsi que par les péréiopodes rudimentaires. Une clé des premiers stades zoés connus de 20 espèces d’Hippolytidae de Corée et des eaux voisines est fournie.

INTRODUCTION

*Eualus sinensis* (Yu, 1931) inhabits small tidal pools near low water, and it has been reported from Korea, southern Japan, and northern China (Hayashi & Miyake, 1968; Kim, 1977). Nine species of Hippolytidae representing seven genera are known to occur in Korean waters (Kim, 1977). Of the nine species
recognized, the larval development of *Latreutes planirostris* (De Haan, 1844) and *Birulia kishinouyei* (Yokoya, 1930) has not yet been described. For the genus *Eualus*, the complete larval development of *Eualus leptognathus* (Stimpson, 1860) and *E. sinensis* has been described by Yamashita & Hayashi (1984) and by Kurata (1968a), respectively. Kurata (1968a) gave a brief account of the larval stages of *E. sinensis* under the name *Eualus gracilirostris* (Stimpson, 1860). Beyond Korea and adjacent waters, nine descriptions of *Eualus* larvae based on laboratory reared zoeae as well as on plankton studies have been reported world-wide: *Eualus fabricii* (Krøyer, 1841) described by Haynes (1981) and Squires (1993); *Eualus suckleyi* (Stimpson, 1864) described by Haynes (1981); *Eualus gaimardii* (H. Milne Edwards, 1837) described by Lebour (1940), Pike & Williamson (1961), and Squires (1993); *Eualus occultus* (Lebour, 1936) described by Bourdillon-Casanova (1960), Lebour (1936) (as *Spirontocaris occulta* Lebour, 1936), and Pike & Williamson (1961); *Eualus pusiolus* (Krøyer, 1841) described by Bull (1939) (as *Spirontocaris pusiola* Krøyer, 1841) and Pike & Williamson (1961); *Eualus herdmani* (Walker, 1898) described by Needler (1933) (as *Spirontocaris herdmani* Walker, 1898); *Eualus macilentus* (Krøyer, 1841) and *Eualus barbatus* (Rathbun, 1899) described by Ivanov (1971); *Eualus dozei* (A. Milne-Edwards, 1891) described by Albornoz & Wehrtmann (1997).

The present paper describes and illustrates in detail the first zoeal stage of *E. sinensis*, compares it with other species of *Eualus*, and provides a key to the known hippolytid first zoeae of Korea and adjacent waters.

**MATERIAL AND METHODS**

On 24 May 1998, an ovigerous female of *Eualus sinensis* was collected from the oyster, *Crassostrea gigas* (Thunberg, 1793), raft culture in Sangju, Korea (34°43′00″N 127°59′30″E). Ten newly hatched larvae were removed into glass bowls each containing 33.3‰ filtered seawater. They were kept in a growth chamber at 20°C and daily fed freshly hatched *Artemia* nauplii. The remaining methods follow those used by Yang & Kim (1999).

**RESULTS**

None of the first larvae lived longer than eight days and five specimens moulted successfully to the second zoeal stage.