THE COMPLETE ZOEAL DEVELOPMENT OF THE ACTAEINE CRAB,
NOVACTAEA BELLA GUINOT, 1976
(DECAPODA, BRACHYURA, XANTHIDAE) IN THE LABORATORY

BY

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ABSTRACT

The complete zoeal development of the coral reef actaeine crab, *Novactaea bella*, is reported. Only two zoeal stages are present. The larvae are compared with those from the closely related *N. pulchella*; the zoeae of the two species differing in the structure of the tips of the antennal protopod, the proportions of the antennal exopod, the tips of the forks of the telson, as well as the setation of the antennal exopod, basal endite of the maxillule, dorsal surfaces of abdominal somites 2 to 5, and lateral margins of the forks of the telson.

INTRODUCTION

The actaeine crabs (family Xanthidae) contain some 150 species, and are generally regarded as one of the most difficult taxonomic groups in the family. Larval characters have been used frequently in the last few years to clarify many aspects of xanthoid taxonomy (see Rice, 1980; Martin, 1984; Chia et al., 1993; Ng, 1993), but unfortunately, larvae are known for only three actaeine species, namely *Actaea semblatae* Guinot, 1976 (as *Actaea savignyi* (H. Milne Edwards, 1834) (cf. Terada, 1983, 1987), *Novactaea pulchella* (A. Milne Edwards, 1865)
The present paper reports on the complete zoeal development of a reef actaeine, *Novactaea bella* Guinot, 1976.

**MATERIALS AND METHODS**

An ovigerous female was collected from a now-reclaimed littoral coral reef on the island of Sentosa, south of Singapore. The female was kept in an aerated aquarium until the zoeae hatched. No prezoeal stage was observed. The ex-ovigerous female and undissected zoeae are preserved in buffered formalin and kept in the Zoological Reference Collection, Department of Zoology, National University of Singapore. Larval specimens were dissected and drawn in lactophenol using a Nikon stereo-microscope and an Olympus BH-2 compound microscope with phase-contrast and attached camera lucida. At least five replicates of each structure or appendage were observed in order to determine variation.

**DESCRIPTION**

*Novactaea bella* Guinot, 1976 (figs. 1-4)

First zoea

Carapace (fig. 1A): c. 0.9 mm, dorsal spine long, straight with rounded termination, spinulation absent; rostral spine slightly shorter that dorsal spine, approximately equal in length to protopod of antenna, curves distally upward and terminates in a point, spinulation absent; lateral spines present, about 12% length of rostral spine; eyes sessile.

Abdomen (fig. 1B, C): 5 somites; somite 2 with 1 pair of lateral processes directed anteriorly; somite 3 with 1 pair of lateral processes directed posteriorly; somites 3-5 with short posterolateral processes; somites 2-5 without posterodorsal setae; pleopod buds present.

Telson (fig. 1C): each fork long, gradually curved, not spinulated, tips curled terminally towards dorsal plane, no lateral setae, dorsal medial setae absent, posterior margin with 3 pairs of stout plumose setae.

Antennule (fig. 2A): uniramous, unsegmented and conical with 3 stout terminal aesthetascs and 1 short stout seta.