

Molt cycle in *Neomysis awatschensis*
(Crustacea: Mysidacea) based on marsupial
development

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Introduction

In crustacea the molting cycle is the most important physiological process affecting growth, behaviour, reproduction and population dynamics through their life span. Particularly molt cycle is closely related to reproductive cycle, and it is important to determine the successive stages of molt cycle to understand reproductive phenomena including ovarian cycle and the development of the embryos in the marsupium.

The present study described the marsupial development, ovarian cycle and cuticular cycle of *Neomysis awatschensis* in view of a single cyclic process. The stages of the cycle of the female could be determined by the state of development of the embryos in the marsupium rather than on observation of the structure of the integument. The results were compared to those of the previous studies on other mysid species.

Materials and methods

The mysids were collected from Chun-soo bay in August, 1998 and July, 1999 by a modified R-H push net and a D-hand net during the low tide periods. The large females (total length: 19~26mm) were observed for ovarian cycle, marsupial development and cuticle cycle. Twenty females were numbered and individually reared without feeding in a glass bottle of 500ml. They were daily taken out by a plastic spoon to examine their

embryos under a dissecting microscope in live condition. Since the oostegites were transparent, development of ovaries and embryos can be easily observed in a short time without serious physical damages of the females.

Results

The ovarian cycle: Development of the ovary is a cyclic change and a continuous process. After oviposition the ovary continues to develop. According to successive stages of the marsupial development we can match the ovarian cycle.

The cuticular cycle of females: When the larvae are released from the marsupium, the females molt, and then the unfertilized egg mass is laid in the marsupium. Therefore, in mysids the ovarian cycle and egg laying are closely related to molting cycle. In view of cuticular cycle the development of ovaries and the larvae can be described.

Formation of setae and spines: (1) Postmolt Stage (Stage A-B), (2) Intermolt Stage (Stage C), (3) Premolt Stage (Stage D).

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