Mating, oviposition and life-span of a parasitic copepod, *Pseudomyicola spinosus* (Crustacea: Copepoda)

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Mating, oviposition and the life-span of a parasitic copepod *Pseudomyicola spinosus* was observed in the laboratory. The adult females were collected from the mantle cavity of *Mytillus edulis galloprovincialis*, which were found in the intertidal zone of Yokosuka harbor. The eggs were fertilized and raised (Nakamura, Kajihara and Oka, 1978) under laboratory condition to get virgin males and females for this study.

Mating behavior of P. spinosus: Twenty virgin females were used for this study. For the males, some virgin males and some wild males were used. The body length of a female was 2 to 3 mm and that of a male was 1.5 to 2 mm. The females were put in separate dises with a piece of the gill of *M. edulis* individually, and an adult male was added to each dish to make a couple. The process of the mating was observed under a binocular microscope. Copulation was confirmed by the fact that the spermatophores were attached to the dorsal side of the genital segment of the female. When the male meets the female, he shows a short recognizing action, for less than 1 second, and then rides on the back of the female. He grips the female with the 2nd maxilliped at the portion between the 4th and 5th perepods of the female. The male shows rapid stroking on the female's dorsal side of the genital somite, then takes a pair of spermatophores, which come out of spermatophore sac, with his 3rd and 4th legs, and puts them to the postal region of a genital pore of the female. The male and the female separate 1 to 2 min later. A pair of stalks elongate from the spermatophores, fuse, and reach into a genital pore of the female. The process from the attachment of the spermatophores to the release of the sperms takes about 40 to 50 min.

Oviposition of P. spinosus: The number of ovipositions after the 1st mating varied from 2 to 106, and that after the 2nd mating was 3 to 12, depending upon the life-span of the female. Only 3 females among 20 performed the 2nd mating. The number of eggs per oviposition was 2 to 19, being less than that of a wild female (25 to 43). The length of oviposition period after the 1st maing varied from 7 days to 818 days (more than 2 years). Five females laid eggs for more than 200 days. Therefore, it seems natural for a female *P. spinosus* laying eggs for a long period after one mating.

The interval between ovipositions was 6 to 8 days in most cases, being less variable than any other criterias. Usually, first five ovipositions took longer interval than the later ones. The longest interval observed was 37 days between the 75th and 76th oviposition in the female which lived longest. The irregularity may be due to the old age of this female and the weak activity of the gonads. Aged females often showed syncopic state and fell down from the gill piece. This results in less nutrition. As the wild females lay eggs with about one-week-interval in the laboratory, this egg-laying interval observed in the cultured females seems to be natural.

The life-span of P. spinosus: The longest life-span of the females in this study was 849 days. Eleven out of 20 lived less than 200 days and 6 lived more than 300 days. However, it is not likely that wild females live more than 1.5 years because the host shells do not live more than 2 years and young hosts are not parasited usually. The life-span of males are shorter than females, especially when cultured with females. The longest life-span in males was about 10 months in this study.

Reference

Nakamura, K., T. Kajihara and M. Oka (1978) *Proc. Jap. Soc. Syst. Zool.*, 17, 38.