

NOTE

A Hook-Shaped Process on the Cephalosome of  
*Centropages dorsispinatus* (Copepoda, Calanoida)

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*Centropages dorsispinatus* (Copepoda, Calanoida)의 두부에 있는  
갈고리 형태의 돌기에 대하여

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A hook-shaped process on the cephalosome of the female of *Centropages dorsispinatus* was observed using scanning electron microscopy. Two rows of sensory pores, each with a central cilium were found just anterior to the process. The tip of the process was bifurcated.

*Centropages dorsispinatus*의 암컷 두부에 있는 갈고리 형태의 돌기를 전자 현미경으로 관찰하였다. 돌기의 앞에는 한개의 섬모를 가진 감각공(感覺孔)이 두 줄로 나열되어 있으며, 돌기의 끝부분은 벌어져 있다.

It has been well-known that some species of the family Calanidae belonging to Copepoda have the various types of sensilla such as the integumental pores, setae, pits, pegs, and pigments (Fleminger, 1973; Ferrari, 1977; Mauchline, 1988; Nishida, 1986, 1989). In some species, their function has also been surmised by behavioral and physiological observations (Friedman and Strickler, 1975; Mauchline, 1988; Nishida, 1986, 1989). Recently, Nishida (1989) observed a hump on the dorsal surface of cephalosome in Calanidae, Paracalanidae and Mecynoceridae using scanning electron microscopy (SEM) and transmission electron microscopy. He suggested that it played an important role as a chemoreceptor and mechanoreceptor.

In spite of the above findings, however, there are still many unknown copepod structures on morphology and function. A hook-shaped process found on the dorso-posterior surface of cephalo-

some of *Centropages dorsispinatus* is one of these (Fig. 1-A, B). This process is surrounded by the bright reddish pigments. Available information on its structure is restricted to gross morphology by light microscopy. This paper examines its ultrastructure by SEM with a discussion on its biological significance.

The specimens were fixed in glutaraldehyde, rinsed in filtered sea water and distilled water, dehydrated in series of acetone, exchanged for isoamyl acetate, and dried critical point drying method with carbon dioxide. After sputter coating with gold the specimens were examined by SEM (JEOUL 35 CF).

The hook-shaped process was present in both sexes of *Centropages dorsispinatus*. In the present study, of these, only the female was observed. This process is located on the dorso-posterior surface of the cephalosome. The tip of the process was

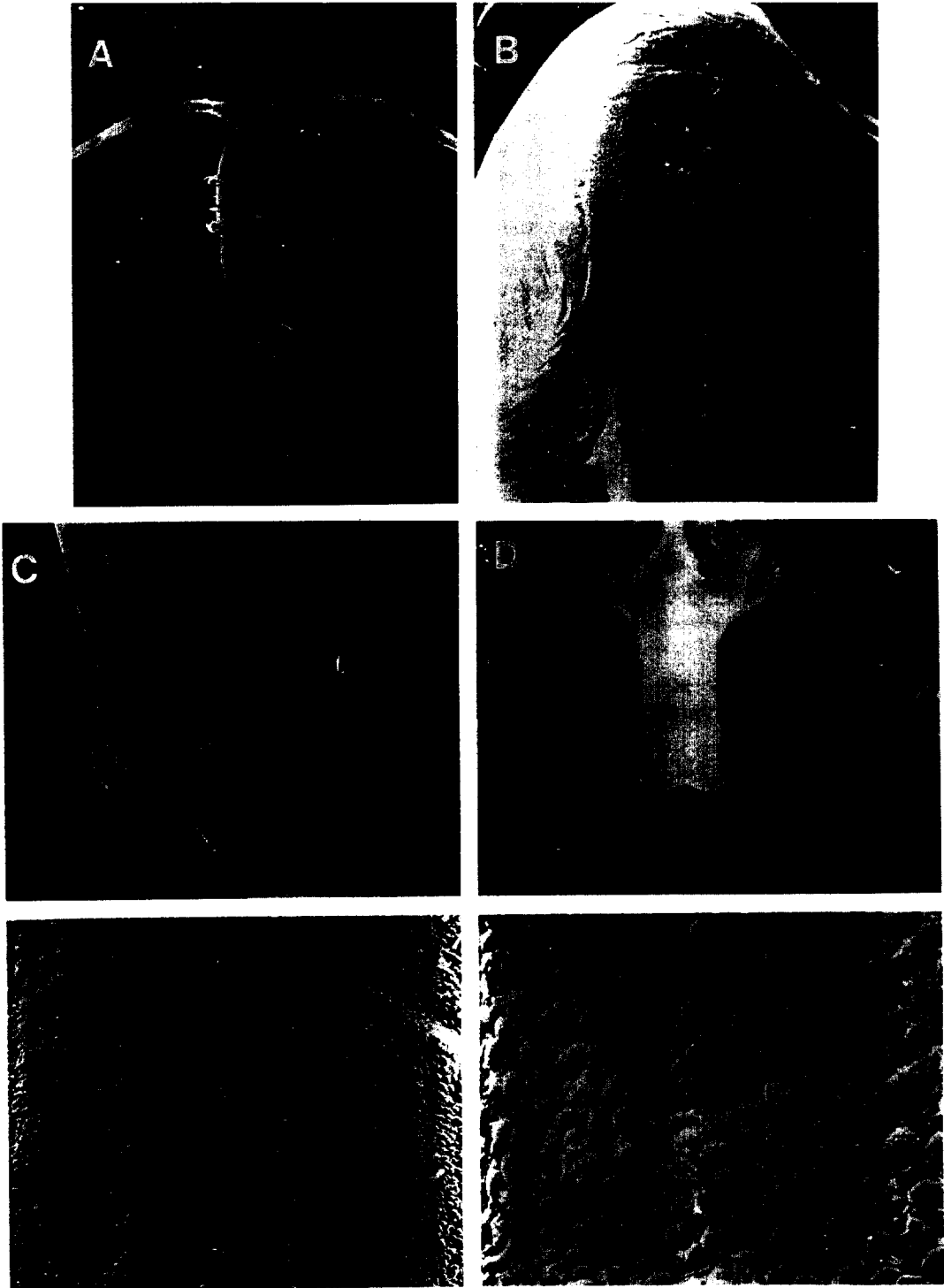


Fig. 1. *Centropages dorsispinatus* (Female): A. dorsal view of body (150x); B. dorsal view of cephalosome (360x); C. lateral view of a hook-shaped process (360x); D. frontal view of a hook-shaped process (1200x); E. dorsal view of pores (1200x); F. lateral view of pores (4000x).

bifurcated (Fig. 1-C, D). Two rows of sensory pores are found just anterior to the process surrounded by reddish pigments (Fig. 1-E). The pore is the spherical cavity, each with a central cilium (Fig. 1-F).

An organ similar to the process of this study has recently been reported in some Calanoid copepods (Nishida, 1989). This organ is located on the dorso-anterior surface of the cephalosome, and a name, cephalic dorsal hump (CDH) is proposed. Externally, it usually has two pores, anterior and apical, a dorsal plate, and a thin cuticle along the sides. The simplest type of CDH was found in *Mesocalanus tenuicornis* and *Bathycalanus* sp. (Nishida, 1989). In *Bathycalanus* sp. CHD was rudimentary and only circularly arranged pores was visible. These pores are similar to the pores of *C. dorsispinatus*. Although the hook-shaped process does not resemble CDH in location, external morphology, and position of sensory pores, it is supposed to be a sensory organ taking into consideration of the bifurcated tip of the process and pores.

In Oithonidae and decapoda larvae the pore is glandular and each pit is innervated by two pairs of cilia which appear to be endings of two sensory cells (Laverack and Barriendos, 1985; Nishida, 1986). As mentioned above, we can observe only one cilium protruding from each pore.

In the present study, no attempt was made to elucidate the function of this organ. Future studies should include detailed observation of the physiological significance.

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