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DESMODASYS PHOCOIDES GEN. ET SP. N., FAMILY TURBANELLIDAE (GASTROTRICHA MACRODASYOIDEA)[1]

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ABSTRACT

A marine gastrotrich, *Desmodasys phocoides*, representing a new genus of the family Turbanellidae, is described from the Norwegian west coast. The chief difference between the new species and the species of the other genera of the family lies in the size and arrangement of the anterior adhesory tubules.

DESCRIPTION

Desmodasys phocoides[2] gen et sp. n. has been found in coarse shell gravel from the outer part of Korsfjorden, southwest of Bergen, within a depth range of 15 to 30 m. Findings were made fairly regularly, but the number of specimens obtained was usually small. By comparison, the macrodasyoid gastrotrich *Diplodasys ankeli* WILKE, a common inhabitant of coarse shell deposits, was about five times as frequent in the samples. The description is based upon studies of living specimens.

D. phocoides reaches a maximum length of at least 520 μ. The body is only moderately dorsoventrally flattened. Bluntly pointed anteriorly, it maintains a fairly constant breadth throughout the pharyngeal region. The breadth then increases toward the mid-body region, to taper more slowly toward the base of the caudal lobes (Fig. 1).

Fairly evenly spaced along the sides of the body are many fine hairs, c. 30 μ long. A few shorter and stiffer hairs stand on each side of the mouth. There are two ventral, longitudinal bands of cilia, and dorsally a band of cilia runs across the middle "head" portion.

Adhesory tubules occur in two main groups only, an anterior and a posterior. The absence of lateral adhesory tubules and other lateral projections than the fine hairs and a pair of knob-like gland protrusions caudally, lends the animal a smooth and glossy appearance.

The anterior adhesory tubules are arranged in an aberrant manner, being grouped together in two ventrolateral, paired tufts (Figs. 1 and 3). Each group contains about 12 to 14 tubules varying greatly in length. The inner, or most ventral tubules are the shortest, measuring some 7 μ. But the size of the tubules

[1] Contribution from the Biological Station, Espegrend, Blomsterdalen, Norway.

[2] The species name *phocoides* refers to the seal-like shape of the adult animal.

increases considerably toward the sides, the very longest attaining 35 μ. The longer tubules project laterally, and five to seven of them are seen from the dorsal side when the animal moves.

All but the outermost of the posterior adhesory tubules are found on the hind edges of the caudal lobes, and large specimens have about 15 tubules on each lobe. There is a series of short tubules alternating with a series of longer ones, the innermost and outermost tubules belonging to the short series. In both series the length of the tubules increases toward the tip of the lobes, the size range being about 7—17 μ and 14—26 μ respectively.

A paired row of dorsal epidermal glands, some 7—15 μ in diameter, extends all along the body. The secretion is of the band-like type and is emptied dorsally through small epidermal papillae. There is also a paired ventrolateral row of smaller glands 4—5 μ in diameter, with finely granulated contents.

The cylindrical mouth cavity is neither narrow nor spacious. The pharynx is wide and about 2/5th of the total gut length. It has two very prominent knobs near its posterior end.

D. phocoides is a hermaphrodite and, as typical for the family, has paired gonads. The testes are situated in the mid-body region and extend forward to the posterior end of the pharynx. They are bent in the usual way, opening medioventrally below the anterior part of the intestine. The ovaries lie close behind the testes. There are usually two ova in the anterior part of the oviduct, dorsal to the intestine.

A Y-organ, as originally described by REMANE from *Turbanella*, could not be detected with the phase contrast equipment. The locomotion of *D. phocoides* is slow.

H o l o t y p e. Specimen 400 μ long, with distinct testis, but without ova, collected by the author on 1 July 1965. Deposited in the Zoological Museum, Bergen, reference No. 47961.

T y p e l o c a l i t y. Norway, Korsfjorden, between Tekslo and Seiskjær, 20—25 m, coarse shell gravel, Biological Station reference No. 293—65.

P a r a t y p e. One specimen from the type locality, collected on 12 October 1964, Biological Station reference No. 461—64. Deposited in the Zoological Museum, Bergen, reference No. 47962.

DISCUSSION

Three genera of the family Turbanellidae have hitherto been recognized: *Turbanella* M. SCHULZE, 1853, *Dinodasys* REMANE, 1927 and *Paraturbanella* REMANE, 1927. Several species of *Turbanella* and *Paraturbanella* are known, while *Dinodasys* like *Desmodasys* is represented by only one species.

The most conspicuous difference between *Desmodasys* and the other genera of the family lies in the arrangement of the anterior adhesory tubules. *Turbanella*,

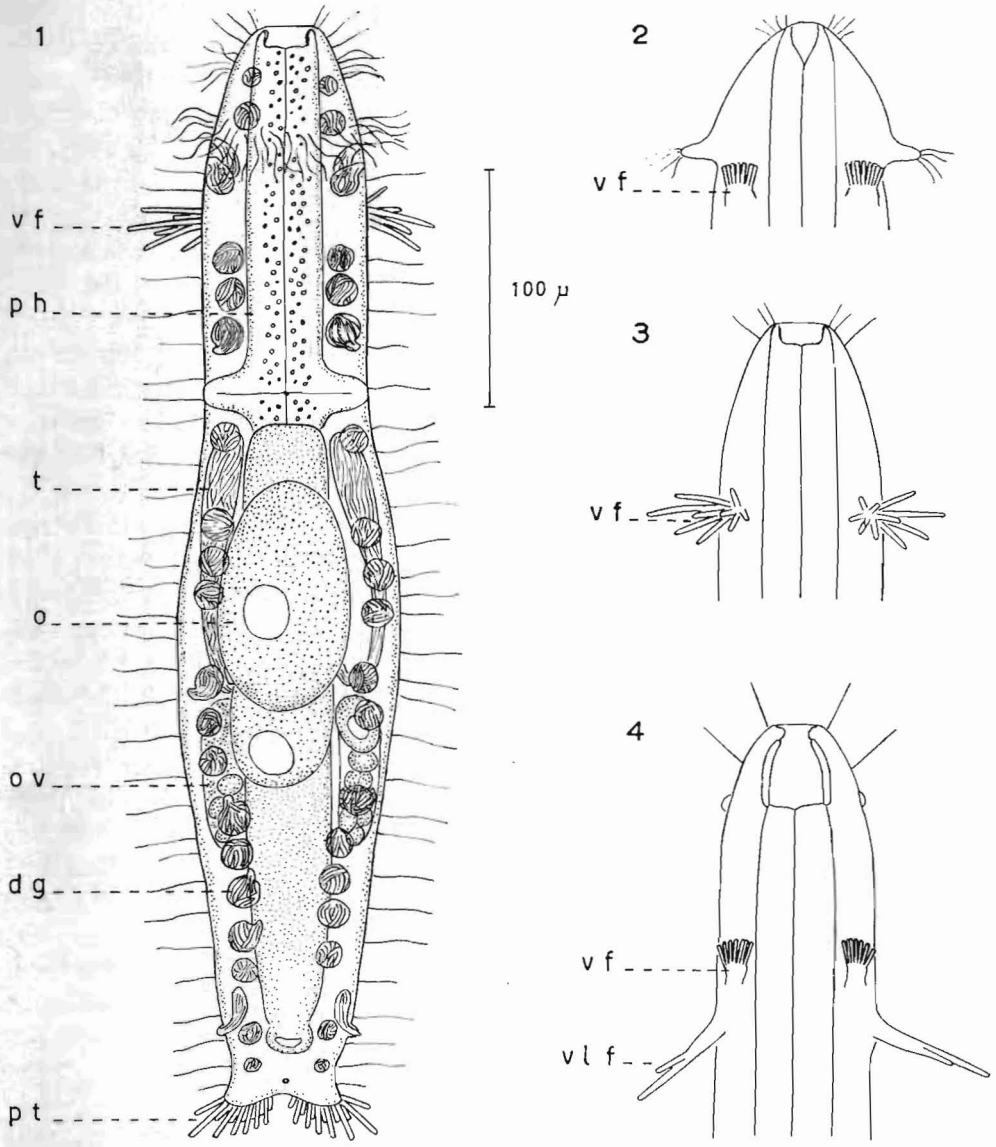

Fig. 1. *Desmodasys phocoides*. Dorsal view. dg dorsal gland; o ovum; ov ovary; ph pharynx; pt posterior adhesory tubules; t testis; vf ventral foot.

Fig. 2. *Turbanella cornuta*. Anterior region in ventral view. vf ventral foot.

Fig. 3. *Desmodasys phocoides*. Anterior region in ventral view. vf ventral foot.

Fig. 4. *Paraturbanella dohrni*. Anterior region in ventral view. vf ventral foot; vlf ventrolateral foot.

Paraturbanella and *Dinodasys* all possess so-called ventral feet, where the tubules are arranged in a transverse row on a more or less developed and usually mobile cuticular process (Figs. 2 and 4). *Paraturbanella* has in addition a pair of lateral or ventrolateral feet, composed of two unequal tubules, also placed on a mobile protuberance of the cuticle and situated behind the two groups of ventral tubules (Fig. 4).

With its tuft-like, single pair of feet, *Desmodasys* clearly deviates from both conditions mentioned above. No mobile common base for the tubules can be traced in *Desmodasys*, and the feet are also placed farther from the mouth than is the case with the ventral feet in *Dinodasys* and *Turbanella* and most of the *Paraturbanella* species. Further, as a whole, the anterior tubules of *Desmodasys* point laterally, not anteriorly as in the other genera. Obviously there are reasons for regarding the conditions found in *Desmodasys* as derived from the conditions met with in *Paraturbanella* or conversely. It is this intermediate position between *Turbanella* and *Paraturbanella* as regards the anterior adhesory tubules that the name *Desmodasys* alludes to.

The many findings of *Turbanella* and *Paraturbanella* species have shown that only few characters can be credited to one genus alone (see also SWEDMARK, 1954 and WIESER, 1957). Among the characters which speak for a closer relationship between *Desmodasys* and *Paraturbanella*, is the abundance of dorsal glands with band-like contents. The reduction of the lateral adhesory tubules points in the same direction. The small and poorly cuticularized mouth cavity on the other hand, speaks for a closer connection between *Turbanella* and *Desmodasys*.

The habitat in which *D. phocoides* is found is from time to time much exposed to the action of waves and in addition consists of coarse material with large interstices. The many large both ventrally and laterally projecting anterior tubules seem to be a device, which, once developed, would help a small animal like *Desmodasys* to get proper contact with the substrate. A highly specialized adaptation to the environment indicates a high degree of development and supports the view that the anterior adhesory tubules of *D. phocoides* have been derived from two different groups of tubules like those met with in *Paraturbanella*.

Family Turbanellidae

Body more or less band-like flattened. Testes paired, vasa deferentia bent forward, male genital porus ventrally in the anterior intestinal region. Paired ovaries at the sides of the intestine, behind the pharynx. Hind end bilobed. Pharyngeal pores at the posterior end of the pharynx.

Key to the genera

1 With a pair of anterior ventrolateral feet formed by two unequal adhesory tubules. A pair of anterior ventral feet also present ..... Gen. *Paraturbanella* REMANE, 1927
– Ventrolateral feet absent. Ventral feet present 2
2 Individual tubules of ventral foot arranged in a tuft..... Gen. *Desmodasys* gen. n.
– Individual tubules of ventral foot arranged in a transverse row. 3
3 Head with tentacles and two pairs of anterior bifurcate lobes...Gen. *Dinodasys* REMANE, 1927
– Anterior dorsal tentacles absent. Head with elongated side lobes or rounded.
Gen. *Turbanella* M. SCHULZE, 1853

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