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ON A NEW SPECIES OF *HESIONIDES* (POLYCHAETA : HESIONIDAE) FROM ORISSA COAST, INDIA

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ABSTRACT

A new species of the mesopsammic polychaete genus *Hesionides* collected in the intertidal sands on Orissa coast (Bay of Bengal), is described under the name *H. similis*. The new species is closely related to *H. peculiaris* Westheide and Rao, but clearly differs from it in morphological details.

INTRODUCTION

Species of the interesting mesopsammic genus *Hesionides* Friedrich form characteristic inhabitants of intertidal zone and recent investigations on different coasts revealed their worldwide distribution in tropical and subtropical beaches. Until now, four species of the genus, *viz.*, *H. arenaria* Friedrich, *H. gohari* Hartmann-Schroder, *H. maxima* Westheide, and *H. unilamellata* Westheide, are known to occur on the coasts of Europe and Galapagos Islands. Two of these species, *viz.*, *H. arenaria* and *H. gohari* are known to have a wide geographical distribution (Westheide, 1971) and were also recorded on the Indian coast (Rao and Ganapati, 1967). Recent faunistic investigations undertaken by the Zoological Survey of India on the Indian east coast revealed the presence of three new species, *viz.*, *H. minima* Westheide and Rao, *H. peculiaris* Westheide and Rao, *H. indooceanica* Westheide and Rao, in addition to the two known species already recorded on Indian coast. These studies indicated the Indian sandy beaches to support more species of this genus than in the mesopsammon of any other faunistic region hitherto explored. An examination of the living collections of interstitial meiofauna made by the author during January 1977 from the intertidal sands on Orissa coast showed the presence of yet another new species of the genus *Hesionides*, which is described here under the name *H. similis*.

SYSTEMATIC ACCOUNT

Order : ERRANTIA
Family : HESIONIDAE
Genus : **Hesionides** Friedrich, 1937
Hesionides similis sp. n. (Fig. 1. A-J)

Material : Three specimens collected by the author on 31 January 1977 in coarse and medium sands 10 cm below surface between low and half-tide levels of the intertidal zone, Gopalpur Beach (19° 15′ 12″ N and 84° 53′ 20″ E), Orissa coast, India. Holotype, one specimen with a length of 1.2 mm

and 23 body segments, deposited in the National Zoological Collections at the Zoolcgical Survey of India, Calcutta, Regd. No. An 921/1.

Description

Small, active and contractile worms, with an elongate and compact body. Whitish-green in colour and without pigmentation. Total body length ranges between 1.0 mm (with 18 setigers) and 1.2 mm (with 23 setigers). Maximum width without parapodia varies between from 60 µm to 90 µm. Body tapers posteriorly. Anterior end with 11 appendages characteristic of the genus (Fig. 1. A). Dorsal and ventral tentacles directed forward, nearly equal in length and measure about 40 µm. Median tentacle occurs at the level of second tentacular cirri and about 65-70 µm long, projecting well beyond anterior extremity of head. Three pairs of tentacular cirri nearly laterally directed and their length progressively increases from the first (65 µm) to the third (100 µm). Tentacles with distinct knot-shaped swellings. Tentacular cirri with indistinct swellings. Tentacles and tentacular cirri distinctly broad at their bases and taper towards their tips.

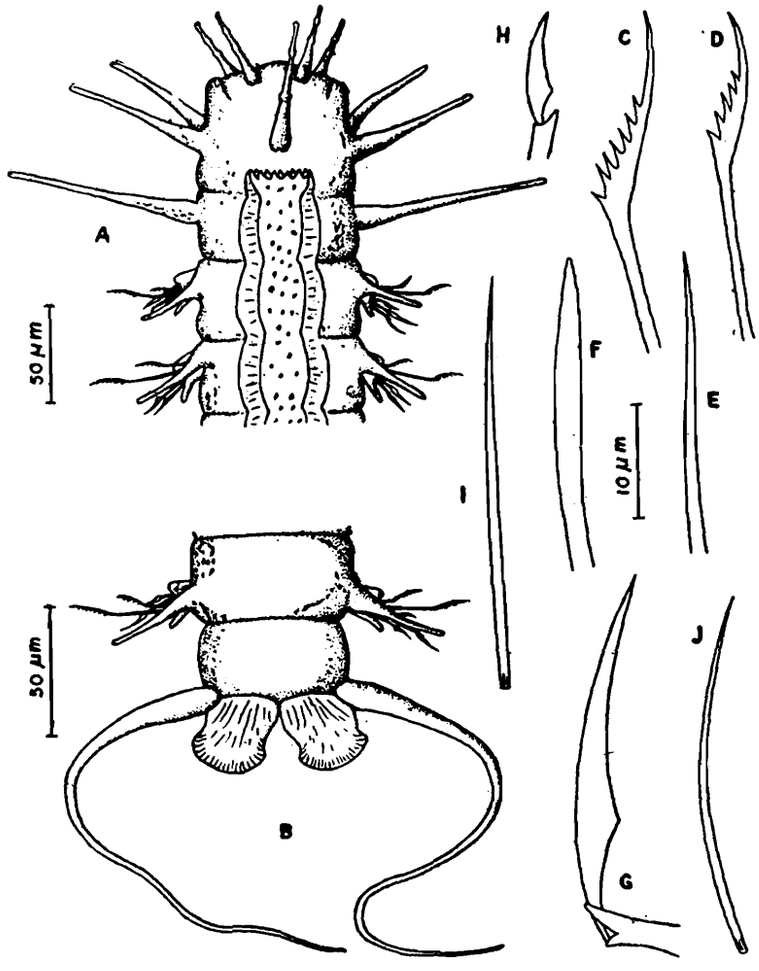

Fig. 1, A-J. *Hesionides similis* sp. n. A. Anterior end, dorsal view ; B. Posterior end, dorsal view ; C. Distal part of long notoseta ; D. Distal part of short notoseta ; E. Aciculum of notopcdium on 3rd setiger ; F. Aciculum of notopodium on 13th setiger ; G. Distal part of large neuroseta ; H. Distal part of small neuroseta ; I—J. Acicula of neuropodium.

Setigerous segments distinctly separated, wider than long and narrowed towards caudal region. Few setigers of middle body region longer than wide. Biramous parapodia stand erect slightly above body stem. Notopodia with dorsal cirri 25-35 μm long, with indistinct knot-shaped swellings. Two simple notosetae of different length are widely streched out, the longer one extending well beyond dorsal cirrus. Notosetae sharply bent in subdistal part ; the longer one with 7 distinct, closely separated saw-shaped teeth and the shorter one with 5 similar teeth. Both the setae distally pointed (Fig. 1, C-D). Notopodium with one fine tapering aciculum in first four segments (Fig. 1, E) ; the acicula strikingly larger from fifth setiger onwards (Fig. 1, F). Neuropodia nearly rectangular, with short and slightly bent cirri. Mostly 5 compound neurosetae present, with slightly curved, unidentate terminal blades of variable length ; two of the setae with large blades (Fig. 1, G) and three with small blades (Fig. 1, H). Neuropodium with two slender tapering acicula, one of them being fine and slightly bent (Fig. 1, I-J).

Pygidium with two distinctly separated, nearly square-shaped anal lamellae, about 30 × 25 μm in size and distally broadened into semicircular lappets with openings of adhesive glands (Fig. 1, B). Two divergent thread-like anal cirri about 260 μm. long, swollen at their bases and taper towards their tips.

In internal organization, pharynx has three folds extending from behind median tentacle up to third setigerous segment. Anteriorly, pharynx terminates with 12 tapering papillae. Sexes separate. Female with oocytes extending from seventh setiger nearly up to last segments. Each oocyte attains about 35-40 μm in diameter. Male with thread-like sperm ; paired vesiculae occur in fourth setigerous segment. Openings of male genital ducts occur just in front of median tentacle at anterior end.

REMARKS

Of the seven species of the genus *Hesionides* hitherto known, the new species *H. similis* Rao shows close resemblance to *H. peculiaris* Westheide and Rao in general organization, particularly in the structure of sharply bent notosetae characteristic of the latter. But *H. similis* clearly differs from *H. peculiaris* in the following characters : body size and number of segments, colouration, disposition of ventral pair of tentacles, relative size of cephalic appendages, dentation of parapodial setae, structure of acicula and shape of anal lammellae.

The specific name of the new species refers to the similar characters it shares with *H. peculiaris.*

ECOLOGICAL NOTES

The polychaetes were collected in coarse and medium sands with little detritus and fine shell gravel 10 cm below surface between low and half-tide levels of the intertidal zone. The sands are silicious, subangular and their texture ranged between 300 and 600 μm in mean diameter. At the time of collection, temperature in the habitat was read 27°C, while the salinity of interstitial water varied between 31 and 32%. The interstitial animal community collected in association with these worms included all the typical inhabitants of this biotope, as Ciliata, Turbellaria, Nematoda, Gastrotricha, Archiannelida, Polychaeta, Oligochaeta, Copepoda and Isopoda.

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