

On *Isodactylactis borealis*, a new species of cerianthid larvae

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ABSTRACT: A morphological description is given of a new cerianthid larva, *Isodactylactis borealis*. The species, found in neuston from 37° 20' N. 74° 58' W., is compared with other *Isodactylactis* species.

INTRODUCTION

The following description is based on material, collected by the Virginia Institute of Marine Science in 1976. The measurements of the column, tentacles and other organs, as well as of the different nematocyst types are based on material fixed and preserved in formaldehyde and alcohol. The terminology used in this paper follows that established by Carlgren (1924) concerning the morphology of ceriantharian larvae. The nomenclature of the nematocysts is the one introduced by Weill (1934) and Carlgren (1940).

DESCRIPTION

Isodactylactis borealis n. sp.

Holotype: Deposited in the Swedish Museum of Natural History, Stockholm, catalogue number 4907.

Type locality: 37° 20' 12" N. 74° 58' 39" W.; in neuston.

Diagnosis: Column semispherical-conical, whitish-yellowish in colour. Oral disc wide. Marginal tentacles usually twelve in number. No labial tentacles. Directive tentacle present. Siphonoglyph narrow, rather deep. Hyposulcus and hemisulci distinct. Mesenteries as a rule twelve in number. No acontioids or botrucnids.

Cnidom: column – atrichs (ptychocysts?), microbasic *b*-mastigophors; oral disc – atrichs (ptychocysts?), microbasic *b*-mastigophors, spirocysts; tentacles – microbasic *b*-mastigophors, spirocysts; stomodaeum – holotrichs, atrichs, microbasic *b*-mastigophors; filaments – atrichs, microbasic *b*-mastigophors.

GENERAL CHARACTERISTICS

The 96 specimens found in the type locality are between three and twelve millimeters in length. The semispherical to conical column is white or yellowish in colour (in preserved specimens). The flagellated supporting cells of the column are high (Fig. 1b). The

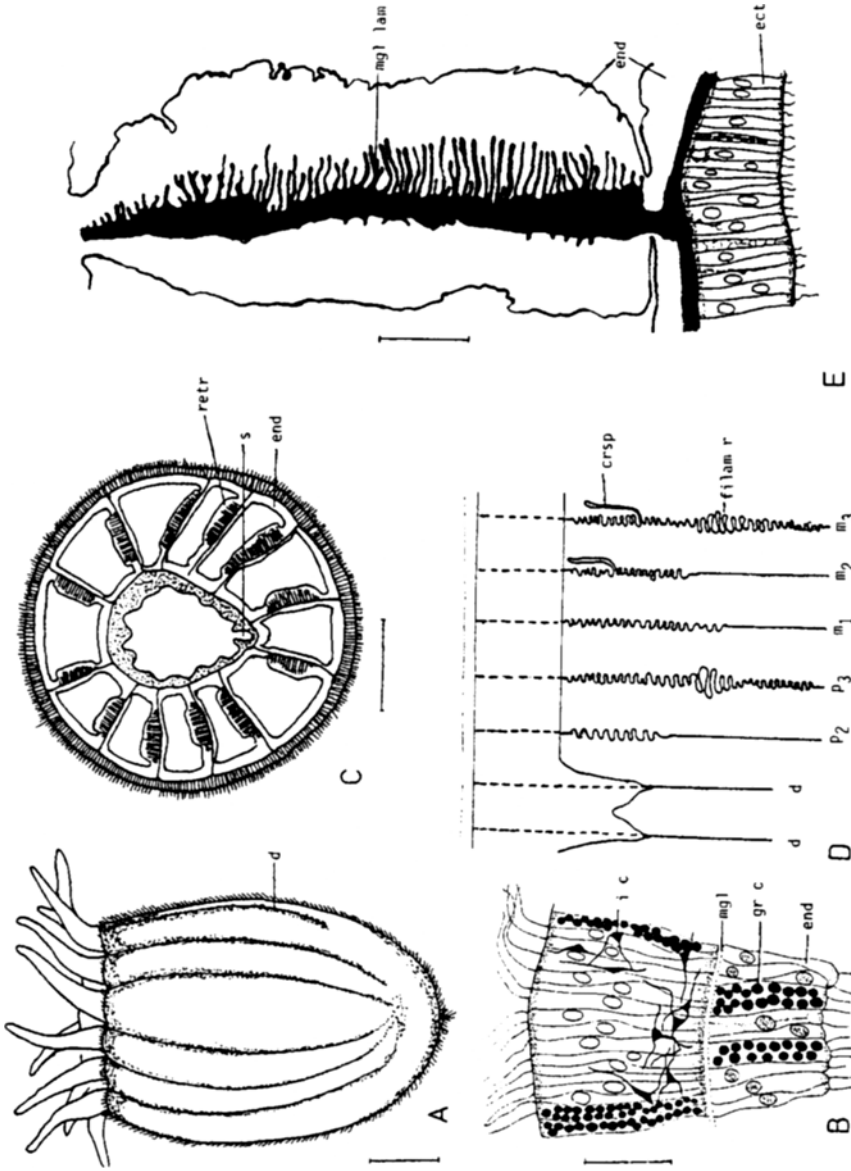


Fig. 1. *Isodactylactis borealis*. A: Side view of larva. B: Schematic view of proximal part of the column. C: Section of proximal part of the column. D: Schematic view of the arrangement of the mesenteries on one side of the larva. E: Cross section of protomesentery 2 in the stomodaeal region. Scale bars: A 2 mm, B 40 μ m, C 2 mm, E 80 μ m. Crasp, craspedoneme; d, directive mesentery; ect, ectoderm; end, endoderm; filam r, filament region of mesentery; gr c, gland cell with granular secretion; i c, interstitial cell; m 1-3, metamesentery 1-3; mg l, mesogloea; mg l lam, mesogloea lamella; p 2-3, protomesentery 2-3; retr, retractor of mesentery; s, siphonoglyph

absence of an apical tuft of flagellae, as well as the structure of the columnar cells is in accordance with the conditions in primarily lecithotrophic planktonic larvae of the Actiniaria and the Corallimorpharia (Widersten, 1968, 1992). The column is covered by a thin cuticle with strong affinity to reagents for muco-polysaccharides. The oral disc is flattened, wide (Fig. 1a), and whitish in color. The tentacles are rather short, with a broad base. There are no labial tentacles. The marginal tentacles are eleven (11111111111) or – as a rule – twelve (111111111111) in number. All the specimens are equipped with a directive tentacle (1). The number of mesenteries is usually twelve (Fig. 1a, c). (In one of the larger specimens a thirteenth mesentery (m4) was developing.) The length of the stomodaeum is about one-third of the length of the column. The siphonoglyph is narrow, and rather deep. The hyposulcus in the larger specimens is distinct, but short. The hemisulci are proportionately well developed (Fig. 1d). The directive mesenteries reach to about two-thirds of the length of the body. The other protomesenteries (p2, p3), as well as the metamesenteries (m1–3) reach almost the proximal pole. (In smaller specimens m3 may not, however, present the same degree of development of the filaments, as is typical in the older larvae.) While a filament zone is missing in the directives (and in m4, when this mesentery is developing), it is strong in the other mesenteries (Fig. 1d). Craspedonemes are found on m2 and m3 in larger specimens. Neither acontioids nor botrucnids are developed. The mesenteries arranged in a way typical of ceriantharians are, especially in the stomodaeal region, equipped with a varying number of mesogloea lamellae (about 70 in p2; 20 to 40 in p1, p3, and the metamesenteries). The longitudinal as well as the circular musculature of the column is rather strong, giving rise to a number (often eight) of longitudinal furrows in each interseptal chamber, in the studied, slightly contracted specimens.

Nematocysts: Column: atrichs (ptychocysts?) 17 x 3.2 – 25.7 x 4.3; microbasic *b*-mastigophors (axial filament short and thin) 10.7 x 2.1 – 16 x 3.3. Oral disc: atrichs (ptychocysts?) (common) 21.4 – 25.8 x 3.8; microbasic *b*-mastigophors (rare) approximately 24.5 x 2.2; spirocysts 18.5 x 2.8 – 28 x 2.7 – 4.

Tentacles: Microbasic *b*-mastigophors (common) 21.4 x 2.7 – 27 x 3.8; spirocysts 18.7 – 28 x 2.7 – 3.2.

Stomodaeum: Holotrichs 6.5 x 3.8 – 11.2 x 7 – 8; atrichs (?) 25.7 x 3.3 – 30 x 4.3; microbasic *b*-mastigophors 16 x 2.7 – 24 x 3.3.

Filaments: Microbasic *b*-mastigophors 22.4 x 3.7 – 27 x 4.8; 24.7 – 36 x 4.3; atrichs (?) (rare) approximately 11 x 8 μ m.

DISCUSSION

The studied specimens of *Isodactylactis borealis* present certain morphological similarities to a specimen from 4° 05' N. 30° 00' W., described by Leloup (1964) as *Isodactylactis kempfi*. In contrast to *I. kempfi*, *I. borealis* is characterized by the presence of hemisulci, craspedonemes on some of the metamesenteries and mesenterial mesogloea of a developmental degree that is unusual in ceriantharian larvae in general. The number of metamesenteries and tentacles, the well marked siphonoglyph, as well as the developmental degree of the stomodaeum separate *I. borealis* from *I. elegans*, described by E. van Beneden (1891) from the Guinea stream. Striking morphological distinctions also exist between *I. borealis* and the other, earlier described, *Isodactylactis* species (*cf.* also Carl-

gren, 1924): *I. discors*, *I. praecox*, *I. tardiva* (Senna, 1907), and *I. obscura* (Calabresi, 1927). An argument for the assumption that *I. borealis* has its corresponding adult off the East coast of North America is supported by the discovery of two cerianthid specimens from 39°48'55"N. 72°12'07"W. (85 m depth), which had apparently recently changed to benthic life. These two specimens present obvious conformities with larger *I. borealis* larvae, regarding the developmental degree of the proto- and metamesenteries, as well as the characteristics of the cnidom.

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