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AMSTERDAM EXPEDITIONS TO THE WEST INDIAN ISLANDS, REPORT 21 *)

A SIPUNCULAN, REPORTED TO BE "INTERSTITIAL" FROM THE NETHERLANDS ANTILLES

by

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ABSTRACT

The sipunculan *Aspidosiphon exiguus* Edmonds, 1974, is recorded from Bonaire and Curaçao (Netherlands Antilles). It was first described from three localities in Cuba. Unlike most aspidosiphonids, the species seems to belong to the interstitial fauna of marine beaches and appears to be tolerant of considerable changes in salinity of its environment. A redescription of *A. exiguus*, based on the specimens from the Netherlands Antilles, is given.

RÉSUMÉ

On signale pour la première fois le Sipunculien *Aspidosiphon exiguus* Edmonds, 1974, de Bonaire et de Curaçao (Antilles Néerlandaises). Cette espèce avait été décrite de trois localités de Cuba. Ce qui la distingue de la plupart des Aspidosiphonides, l'espèce semble appartenir à la faune interstitielle des plages marines et elle se montre tolérante vis-à-vis de modifications considérables de la salinité de son milieu. On donne une redescription d'*A. exiguus*, basée sur les exemplaires des Antilles Néerlandaises.

INTRODUCTION

A recent examination of two tubes containing seven sipunculans (Sipuncula) sent for identification from the Zoölogisch Museum, Amsterdam, and collected from the Netherlands Antilles during the Amsterdam Expeditions to the West Indian Islands (Stock, 1979) shows that they are *Aspidosiphon exiguus* Edmonds, 1974. The specimens were described in the Station list of the Expedition by the collectors as "interstitial" or "hypogean". The species is not listed in any of the previously published reports of sipunculans from the Netherlands Antilles (Keferstein, 1867; Gerould, 1913; Fischer, 1922; Ten Broeke, 1925; Murina, 1967; Rice, 1976).

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THE ENVIRONMENT OF *ASPIDOSIPHON EXIGUUS*

The Station list (Stock, 1979) gives the following information about the specimens and their habitats:

Station 76/21. Bonaire (Netherlands Antilles), inlet of salt pits, N.E. of Willemstoren; landside; interstitia of coarse coral sand, about 1 m above waterline; chlorinity 23,000 mg/l; 14.VI.76; position 12°02'39"N 68°13'36"W; collected with hand-net (mesh 0.05 mm).

Station 78/276. Curaçao (Netherlands Antilles), Estate Oostpunt, Awa di Oostpunt, just E. of Triangulation Point; interstitial; coarse sand on shore of marine lagoon, 0.5 m above low water: "marine"; 13.V.78; position 12°02'56"N 68°44'26"W; collected with hand-net (mesh 0.05 mm).

This is the second report of *A. exiguus*. It was first described from three localities in Cuba (Edmonds, 1974) and was recorded by the collector, Dr. L. Botosaneanu as "belonging to the interstitial fauna of marine beaches". He adds: "The sand of these beaches is mainly of fluviatile origin but there are also many coral fragments in the sand. It is coarse, loose and clean". The second and present report of the species — collected in another locality by another group of people — also describes the species as "interstitial". An examination of the literature, however, shows that aspidosiphonids commonly live in burrows in coral and limestone (Sato, 1939; Rice, 1975, 1976), under rocks (Gibbs, 1977) or in the vacated shells of some molluscs (Cutler, 1973: 175) and foraminiferans (Cutler, 1973: 178). Some, however, have been reported as being

dredged from sediments (Cutler, 1973: 178). Concerning *Aspidosiphon albus* Murina, 1967, Cutler (1973: 175) says: "Most of these worms were taken from discarded gastropod or scaphopod shells; a few came from calcareous polychaete tubes, and a few were apparently living in the substratum. Although the nature of the sediment is probably not overly important, the areas in which the animals were found were sand or shelly sand."

The question, therefore, arises whether the species collected in Cuba and the Antilles normally live in coral rock or in shells and having for some reason, unknown at present, been displaced from their home, are able to live in coarse sand. Do they usually live in coral or empty shells and are they only interstitial by accident?

Edmonds (1974: 90) in a discussion of the systematics of *A. exiguus* stated that the species is closely related to *Aspidosiphon albus* Murina, 1967, described from a single Cuban specimen. A large number of the latter, however, were dredged from the Atlantic coast of the U.S.A. and described by Cutler (1973). The main difference between *A. albus* (as described by both Murina and Cutler) and *A. exiguus* is that the latter possesses very small, introvert hooks with double points. An examination of five of the Atlantic specimens from Gosnold stations 1462 and 1463 (kindly sent to me by Prof. Cutler) confirms that *A. albus* lacks hooks. Furthermore, in none of the five specimens of *A. albus* are there any conical or spine-like structures that are present on the anterior region of the anal shield of most specimens of *A. exiguus*. Consequently, although the two species are very closely related, it is probably still best to regard them as being different.

It follows from the station notes of the Cuban and Antillean collectors of *A. exiguus* that the species is tolerant of considerable changes in the salinity of its environment. Concerning the Cuban specimens, the collector (quoted by Edmonds, 1974) says: "the samples were made by digging holes in the sand ('Karaman-Chappuis sondages') 1-3 m from the wave line and filtering through a net the water which more or less rapidly fills these holes. This water is strongly brackish, anyway less salt than the sea". On the other hand, the specimens from Bonaire were present in water, the chlorinity of which was 23,000 mg/l, a hypersaline marine environment.

REDESCRIPTION OF *ASPIDOSIPHON EXIGUUS* (Fig. 1)

Material. — Amsterdam Expeditions to the West Indian Islands, Sta. 76/21, Bonaire: 4 specimens; Sta. 78/276, Curaçao: 3 specimens; deposited in the Zoölogisch Museum Amsterdam.

Trunk: Small, white to semitransparent; length of longest specimen 3.8 mm, width 0.5-0.9 mm; appears smooth although covered with numerous, small, flat, elliptical papillae.

Introvert: Long, slender; maximum length 10.5 mm; maximum width 0.35 mm; arising ventral to anal shield. Armed with 10-30 rows of very small, clear hooks with double points; 4-6 accessory spinelets at base of hook. Hooks 0.015-0.019 mm tall × 0.011-0.014 mm wide at base; few very small hooks or spines sparsely scattered on anterior surface of introvert of some specimens, just posterior to region of doubly pointed hooks. Small tubular papillae also present on introvert. No tentacles observed.

Shields: Anal shield circular to oval, caudal

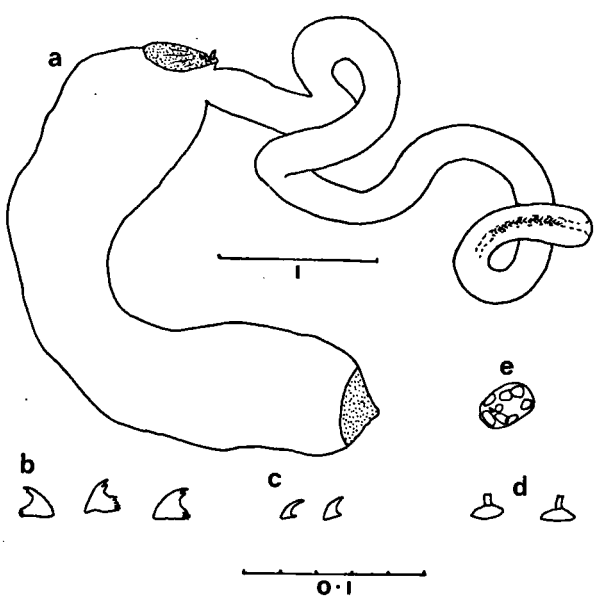

Fig. 1. *Aspidosiphon exiguus*: a, entire animal; b, introvert hooks; c, introvert spines; d, conical papillae from introvert; e, papilla from introvert. (All measurements in mm; figs. b-e to same scale.)

shield more or less conical but sometimes poorly developed; both composed of numerous, very small platelets set very closely together; anal shield may be folded slightly radially, thus resembling a number of furrows. Rim of anal shield may be ridged; anterior region of anal shield may be rugose and modified to form a few spine-like structures. Caudal shield usually without furrowing.

Retractor muscle single, arising near caudal shield from two short roots.

Spindle muscle fastened anteriorly near anus and posteriorly near caudal shield.

Nephridia two, at about level of anus or just posterior to it.

Alimentary canal long, coiled; no fastening muscle and no caecum observed.

No eggs noticed in any specimen.

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