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ON A NEW SPECIES OF *ALOMASOMA* (ECHIURA:BONELLIIDAE) FROM ANTARCTICA

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RESUMO: *Alomasoma lanai* é uma nova espécie de Bonelliidae (Echiura) coletada na Antartica. A nova espécie é de tamanho médio e abriga muitos machos anões presos a pele do tronco. A espécie mostra uma característica única na forma de um sulco transversal que contem a cova genital

ABSTRACT: *Alomasoma lanai* is a new species of Bonelliid (Echiura) collected in Antarctica. The new species is a median size one and bears many dwarf-males attached to the trunk skin. The species shows a unique feature in the form of a transverse furrow which contains the genital pit.

INTRODUCTION

For many reasons the echiurans systematics is still in a very basic level Species have been frequently described from damaged or ill preserved worms. These burrowing creatures are usually secured during oceanographical expeditions which poses additonal problems on worms preservation. That means, as soon as the echiurans are sorted from the dredged material they are thrown into fixatives without a resting period to allow faeces voiding. Then, as the worms contact fixatives, without a previous anesthesia, they strongly contract their bodies and secrete a huge ammount of mucus which greatly impeeds fixatives penetration, the result being a poor preservation of internal structures. Zenkewitch (1966), had already described similar problems on sorting and fixing animals aboard.

If we refer the work by Stephen and Edmonds (1972), we will come across that some 30% of the nominated echiurans were described upon a single specimen which was not found anymore.

Besides that we will mostly find, on the specific literature, summarized descriptions not seldom with a lack of therms precision as well as a lack of illustrations. This general picture certainly did not motivate marine zoologists towards the systematics of this phylum.

Apart from the papers by Amor (1973) and Saxena (1983), where one may find morphological grounds for an incursion on a cladistic analysis of the phylum, the systematics of echiurans follows a linnean treatment, as procedure also adopted here. As the following description is based on five worms, it represents by one side a sum of traits of these specimens and by another it points out how variable these traits can be.

In 1948, Fisher erected the genus *Amalosoma* for *Acanthohamingia paradola* he described in 1946. The outstanding diagnostic feature of this new genus, which includes a second species described by Stephen in 1956, is a longitudinal genital groove the females of these bonelliids bear ventrally.

The genus *Alomasoma*, an unfortunate anagram of *Amalosoma*, was created by Zenkewitch (1959) to contain two deep-sea species devoid of this longitudinal genital groove. After this, two other species were added to the genus, one by Zenkewitch (1964) and another by DattaGupta (1981)

The present paper describes a fifth species of *Alomasoma*.

MATERIAL AND METHODS

Five females, containing on the whole 24 dwarf-males, of a new species of *Alomasoma* were collected by the Brazilian Proantar Expedition at Station 4412 off Elephant Island (61°16 S, 55°05'W) on Drake s Passage. The worms were dredged from a depth of 100 meters in a bottom of muddy sand with rock fragments.

The specimens were dissected under a binocular stereomicroscope.

DESCRIPTION

The worms are medium size echiurans with a pear to sausage-shaped trunk and a *Thalassema*-like proboscis (Figs. 1a, 2a, d) the relative sizes of these organs being plotted on Table 1

Female specimen (mm)	Number of dwarf-males	Trunk length (mm)	Mean diameter (mm)	Proboscis length (mm)	% of trunk s length
01	(none)	25	14	10	40
02	(4)	50	13	15	30
03	(8)	50	15	8	16
04	(1)	53	25	10	18
05	(11)*	55	16	15	27

Table 1 **Main measurements for five females of *Alomasoma lanai*, here described**

* Specimen 05 (type species) presented eight additional skin scars, relative to other dwarf-males not collected.

Trunk body wall thick and produced with densely packed papillae at the anterior end. Females without ventral setae. At the anterior fourth of the trunk there is a specilized pit in which the nephridia open (Figs. 1c, 2c) This pit is set on a well marked transverse furrow, a trait not described for the other *Alomasoma* species (Fig. 1c) Scattered on the worms skin, except on specimen 01, one can see scars where dwarf-males were set (Fig. 2e)

The formalin fixed specimens presented a green-greyish integument which turned grey in alcohol

Internal features. The digestive tract, although ruputured in the dissected worms, follows the usual pattern for echiurans. The musculous pharynx (Fig. 3r) is anteriorly very dilated and able to receive a large ammount of sediments; many conspicuous muscular strands anchor this organ to the internal body wall (Fig. 3q) and may act in the pumping mechanism to engulf sediment. The swallowed sedimet is transformed into elliptical pellets at the oesophagus anterior third. The digestive tract ends on a thin-walled cloaca which is fastened to the body wall by many mesenteries (Fig. 3m)

As concerns the circulatory system, *Alomasoma lanai* conforms type 2 of echiurans circulatory systems described by Amor (1973) Indeed, both neurointestinal vessels unit to each other well before reaching the ventral vessel

The nephridial system is represented by two very long sac-like structures. Each nephridium is composed by and anterior muscular portion (Fig. 3h) and a thin-walled posterior end (Fig. 3j), at least twice as long as the anterior part. Into this last segment one may find numerous yellowish ova of about 0,6 mm in diameter At the junction of muscular and posterior part there is a conspicuous stalked nephrostome (Fig. 3i) The nephridia unite to each other under the nervous cord (Fig. 3p) to open through a single nephridiopore on the genital pit.

As in other species of *Alomasoma*, the anal glands are racemose. Each have a distinct efferent duct, which runs for a short way over the cloaca wall The proximal part of these ducts gives off branches which soon dichotomize again, the result being a broom-like structure (Figs. 3n, o) The ducts derived from the main duct are fastened to the body wall by numerous frenula.

Remarks. Specimen 01 presented no nephridia, although the general internal anatomy conforms to that found for the other dissected worms. The flatworm-like dwarf-males (Fig. 4s) were found attached to the females skin and presented a pair of golden colour setae. Only one male (from female 04) was collected on the genital pit.

DISCUSSION

On account of nephridia structure, shape of nephrostome and anal glands, *Alomasoma lanai* resembles *A. nordpacificum*, however, *lanai* is unique among *Alomasoma* species by the presence of a pronounced transversal furrow which contains the genital pit (Fig. 1d)

It is also readily separated from *A. rhynchollulus* since this has a diminute triangular proboscis and oval shaped nephridia, and from *A. belyaevi* on account of nephrostome structure.

All species of *Alomasoma* previously described inhabit the North hemisphere, being *A. lanai* the first one to occur in the South hemisphere.

KEY TO *ALOMASOMA* SPECIES

1 Females with ventral setae ..... *chaetiferum*
Females without ventral setae 2
2. A transverse furrow present at nephridiopore level ..... *lanai*
No transverse furrow at nephridiopore level 3
3. Oval nephridia and triangular proboscis ..... *rynchollulus*
Elongate nephridia, Thalassema-like proboscis 4
4. Nephrostome set on a long stalk ..... *nordpacificum*
Nephrostome set on a short stalk ..... *belyaevi*

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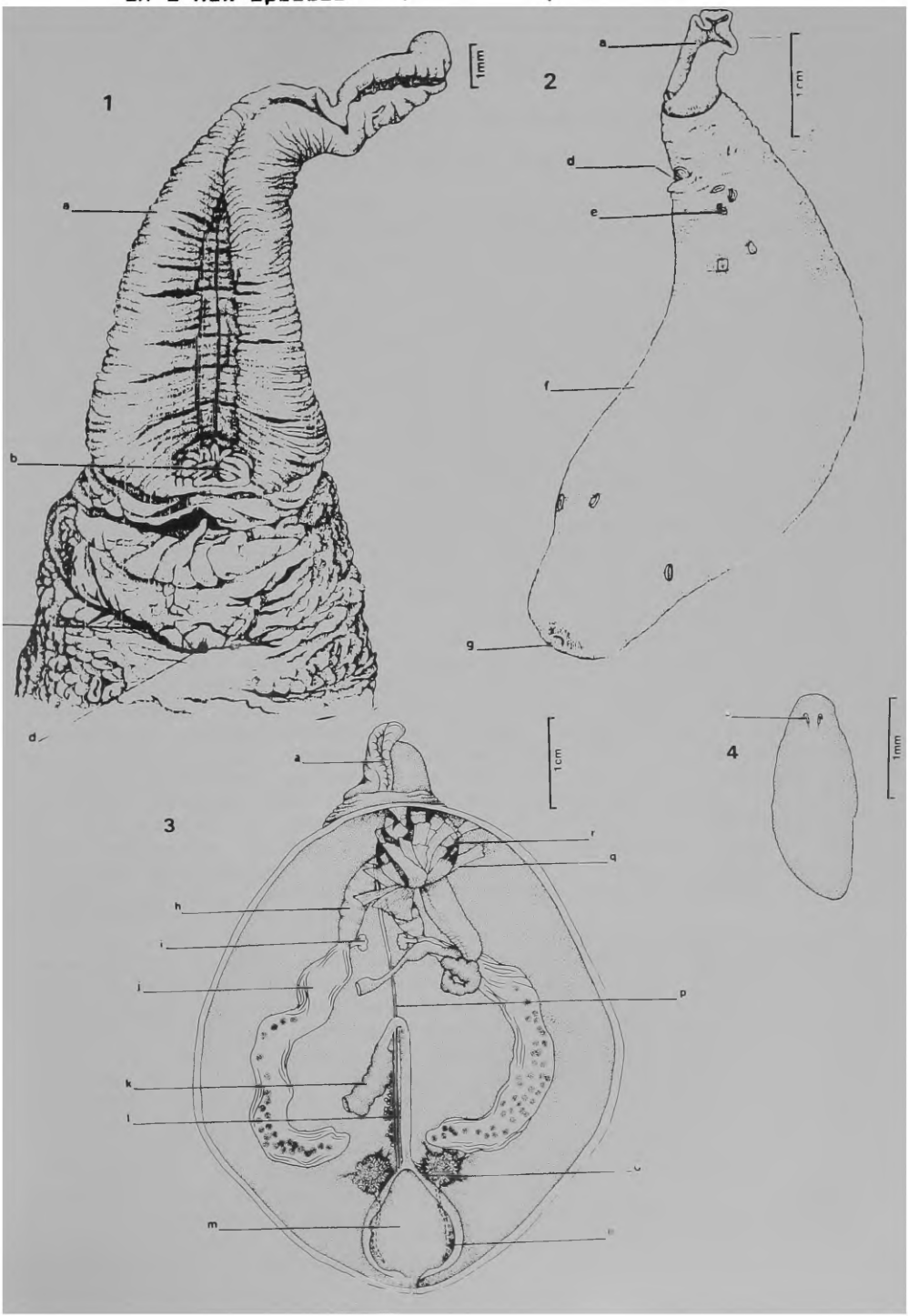
Fig. 1 Ventral view of *Alomasoma lanai*

Fig. 2 Lateral view of *Alomasoma lanai* (type species; specimen 05 of Table 1)

Fig. 3 Dorsal view of a dissected specimen of *Alomasoma lanai* Most of alimentary tract, as well as blood vessels, omitted.

Fig. 4 Ventral view of a dwarf-male of *Alomasoma lanai*. a - proboscis. b - mouth. c - transverse furrow. d - genital pit. e - skin scars, where dwarf-males were found. f - trunk g - anus. h - anterior muscular segment of nephridium. i - nephrostome. j - thin-walled segment of nephridium. k - posterior intestinal segment l - germinative tissue ("ovary") m - cloaca (opened) n - efferent duct. o - tubules bunch of anal gland. p - nerve cord. l - muscular strand r - anterior part of pharynx. s - setae.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