



## A new species of Loxosomatidae (Entoprocta) from the Atlantic Ocean: *Loxosomella cubana* n. sp.

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### Abstract

A new species of Entoprocta belonging to the genus *Loxosomella* is described: *L. cubana* n. sp. It has been found on the coast of Cuba living as an epizoite on the sponge *Aiolochoiria crassa*. It is one of the largest Loxosomatidae described up to now and the first record of an entoproct for Cuba.

**Key words:** Solitary entoproct, *Loxosomella cubana*, new species, sponge, *Aiolochoiria crassa*, Cuba

### Introduction

The family Loxosomatidae includes all the solitary species of Entoprocta and is the most speciose family of the phylum. Up to now, 118 species of *Loxosomella* and 25 species of *Loxosoma* have been described (Nielsen 2010), but this number of species is not indicative of the real diversity of this group. Many species remain undescribed because many areas have not been studied. Particularly in Cuba, there are no studies at all on the entoprocts and they are very scarce in general in all the Western Atlantic (e.g. Nielsen 1966; Emschermann 2011) The small size of these organisms, their life habits on biotic or abiotic substrata, and their seasonality make difficult to study them.

Recent sampling directed to the study of marine invertebrates from the coast of Cuba showed the existence of an unknown loxosomatid inhabiting the surface and the channels of the sponge *Aiolochoiria crassa* (Hyatt). This new loxosomatid is described below.

### Material and methods

Specimens were collected by scuba diving at 8 m depth in the Cuba National Aquarium (23°07'12" N, 82°25'74" W) (Havana, Cuba) on 15 April 2011. A sponge with numerous entoprocts was found on the rocky bottom of a coralline reef in the aquarium. The sponge was identified as *Aiolochoiria crassa* (Verongida: Aplysinidae). Sponge samples of approximately 2 cm<sup>2</sup> with loxosomatids were collected and transported in a jar with seawater to the laboratory where the material was photographed *in vivo*. Afterwards, the individuals were anesthetized with a 5% ethanol solution and subsequently fixed in formalin.

### Systematics

#### *Loxosomella cubana* n. sp.

(Figs 1, 2; Table 1)

**Material examined.** *Holotype*: ANC. 06. 010 and *paratypes* ANC. 06.011, deposited in the Marine Natural Collec-

tion of the Cuba National Aquarium (Havana, Cuba). All individuals of the new species were collected on and inside the channels of the sponge *Aiolochoiria crassa* growing in the Cuba National Aquarium (Havana, Cuba) on 15 April 2011.

**Type locality.** Cuba National Aquarium (Havana, Cuba).

**Etymology.** The species is named after the country, Cuba, where it was collected.

**Description.** A large species; holotype 3000  $\mu\text{m}$  long in life (from the apex of the calyx to the end of the foot), comprising calyx length of 740  $\mu\text{m}$  (calyx width 530  $\mu\text{m}$ ) and stalk length 1795  $\mu\text{m}$  (stalk width 170  $\mu\text{m}$ ); foot without lateral lobes, foot length 465  $\mu\text{m}$ , foot width ca. 250  $\mu\text{m}$ . Stalk length was measured as distance between basal end of calyx (at minimum width) and basal end of foot. Biometrical data of the holotype and some other live individuals are given in Table 1.

**TABLE 1.** Measurements (in  $\mu\text{m}$ ) of five live specimens of *Loxosomella cubana*. Specimen 1 holotype. \*Total length: from the apex of the calyx to the end of the foot.

Specimen	1	2	3	4	5
Total length*	3000	2800	2900	2700	2500
Calyx length	740	720	670	637	530
Calyx width	530	480	433	450	600
Stalk length	1795	1720	1893	1780	1500
Stalk width	170	153	138	143	230
Foot length	465	360	335	281	268
Calyx length/stalk length	0.41	0.42	0.35	0.36	0.35
Calyx length/calyx width	1.4	1.5	1.5	1.4	1.5
Total length/ length of foot	4.15	4.10	4.11	4.10	4.13

Tentacle number 18 in all studied individuals (holotype and paratypes); tentacle length in live animal ca. 350  $\mu\text{m}$ .

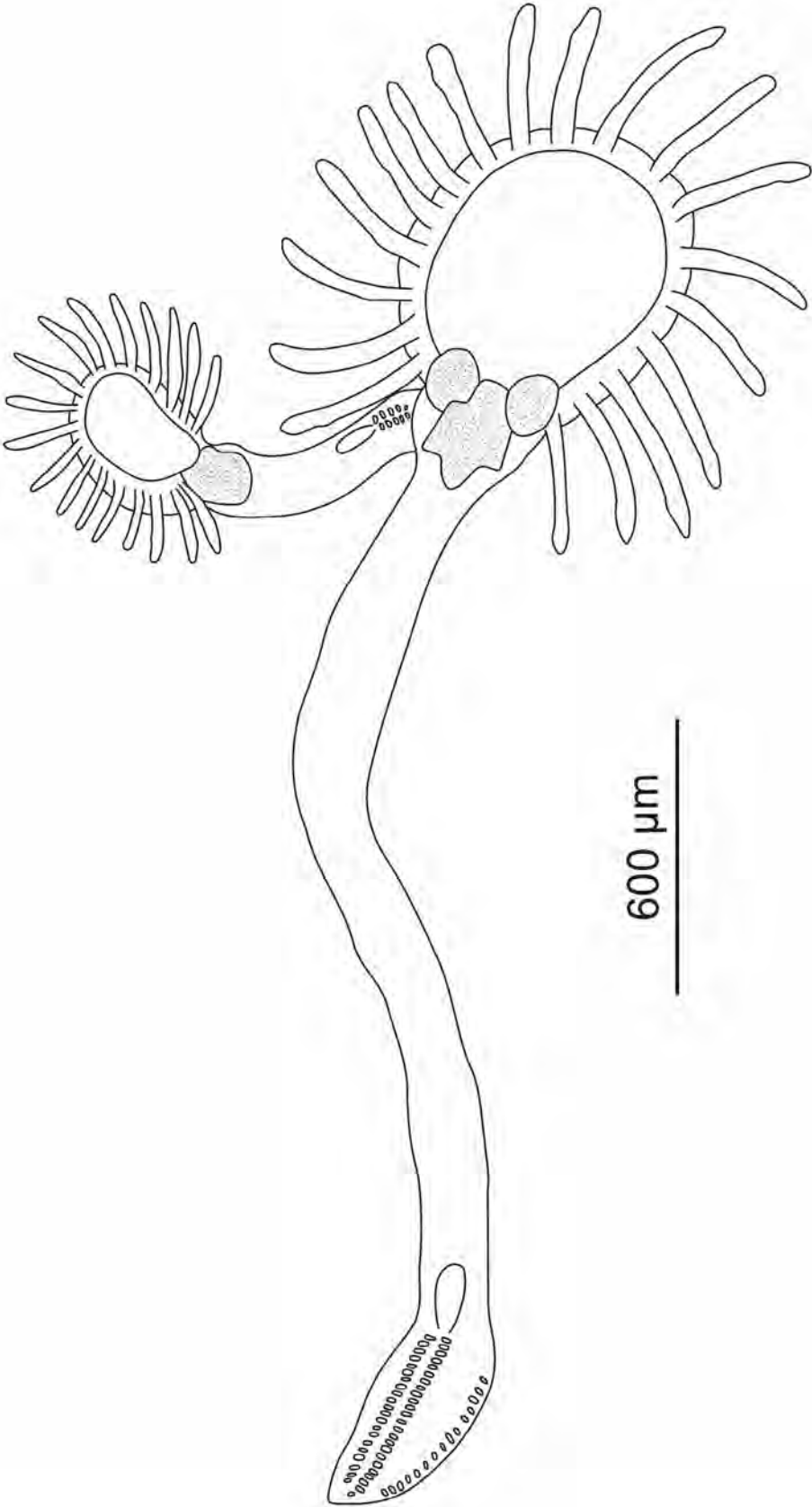
Calyx ca. 1.4–1.5 times longer than wide (although tentacle crown is circular), without lateral expansions or wings/lobes, gradually narrowing towards stalk. No conspicuous gland cells observed in calyx. Gonads spherical, situated above lateral parts of stomach. Stomach with almost parallel sides, slightly longer than wide, pointed basally and slightly narrower at its apex.

Foot without lateral wings. Main foot gland oval. Middle groove of foot clearly lined by glandular cells on both sides. Some specimens carried a lateral bud at the level of the lateral expansion of the calyx. Bud on holotype: 840  $\mu\text{m}$  total length, 260  $\mu\text{m}$  calyx width.

## Discussion

Many *Loxosomella* species inhabiting sponges have a pair of conspicuous lateral lobes on the foot that according to Iseto *et al.* (2008) are absent in only five species: *L. bocki* Franzén (but see Franzén 1966 and below in this section), *L. cochlear* (Schmidt), *L. museriensis* Bobin, *L. vivipara* Nielsen and *L. plakorticola* Iseto, Sugiyama & Hirose. This absence is also shared by *L. cubana* **n. sp.** The new species can be easily distinguished from these five species by its considerably larger size. The maximum total lengths of the other species are: 900  $\mu\text{m}$  (*L. bocki*), 600  $\mu\text{m}$  (*L. cochlear*), 560  $\mu\text{m}$  (*L. museriensis*), 1400  $\mu\text{m}$  (*L. vivipara*) and 1226  $\mu\text{m}$  (*L. plakorticola*). Moreover, the number of tentacles clearly distinguishes it from *L. cochlear* (8 tentacles; Nielsen 2008), *L. museriensis* (14–16 tentacles, Bobin 1968) and *L. vivipara* (12–16 tentacles, Iseto *et al.* 2008; 14–16 tentacles, Emschermann 2011). *L. plakorticola* presents up 14 or 15 tentacles at the bud stage, increasing after liberation from the parent, but never exceeding 18; nevertheless it presents granular cells in the calyx, tentacles and stalk (Iseto *et al.* 2008), which have not been observed in *L. cubana* **n. sp.** Finally, *L. bocki* has 16–18 tentacles (usually 18), but it can be easily distinguished from *L. cubana* **n. sp.** because its calyx is considerably wider, being about three quarters of the length, its stalk is short (slightly shorter than the calyx length), and when the lophophore is contracted the tentacles are partially covered by a tentacular membrane (Franzén 1966), a feature not observed in *L. cubana* **n. sp.** Moreover,

according to the original description of *L. bocki* (Franzén 1966), the foot has thin lateral wing-like expansions, in contrast with those pointed out by Iseto *et al.* (2008).



**FIGURE 1.** *Loxosomella cubana* n. sp. Drawings of the live holotype in abfrontal view.



**FIGURE 2.** Photograph of a live individual of *Loxosomella cubana* **n. sp.** with a large bud.

Regarding their geographical distribution, *L. bocki* is known from the Gilbert Islands (Pacific Ocean) (Franzén 1966), *L. plakorticola* from Western coast of Okinawa Island (Pacific Ocean) (Iseto *et al.* 2008), *L. cochlear* from the Mediterranean Sea (Nielsen 2008), and *L. museriensis* from the Red Sea (Bobin 1968). Only *L. vivipara* has been collected relatively close to *L. cubana* **n. sp.**, particularly in Saba Bank (Netherlands Antilles, Caribbean Sea) and Florida waters (Emschermann 2011).

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**FIGURE 3.** Photograph of a live individual of *Loxosomella cubana* n. sp.

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