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PSEUDODISTOMA VALERIAE A NEW SPECIES OF APLOUSOBRANCH ASCIDIAN FROM MEDITERRANEAN SEA (TUNICATA, ASCIDIACEA)

Riassunto. Pseudodistoma valeriae *una nuova specie di ascidia Aplousobranchiata del Mediterraneo (Tunicati, Ascidiacei)*.
Pseudodistoma valeriae sp. n. viene descritta e illustrata. Si tratta della quinta specie di questo genere poco numeroso che viene trovata nel Mediterraneo. È caratterizzata dalla disposizione degli zooidi in sistemi circolari e dalla presenza di fasci muscolari trasversali nel torace.

Summary. *Pseudodistoma valeriae* sp. n. (Tunicata, Ascidiacea) from Mediterranean Sea is described. It is the fifth species of this genus which is found in the Mediterranean Sea. It is characterized by the arrangement of zooids in systems and by the presence of transversal muscles on the thorax.

Introduction

Only 28 species are recognized to belong to the genus *Pseudodistoma*. Four are recorded from Mediterranean Sea: *P. arnbacki* Pérès, 1959, *P. crucigaster* Gaill, 1972, *P. cyrnusense* Pérès, 1952 and *P. obscurum* Pérès, 1959. If the present species is correctly assigned, the number of species in Mediterranean represents the 21% of the total which is a very high diversity for such a limited area, supporting the Kott's proposal (1992, 424) that the genus is prevalent in temperate water (with exception of *P. brieni* Pérès, 1949 recorded from Senegal).

Description

***Pseudodistoma valeriae* sp. n.**
(figs. 1-2)

Type locality: at 500 m out of Marzamemi (Pachino, S.E. Sicily) in a rocky outcrops, 15 m, August 2001.

Syntype: 8 colonies deposited in the Museum of Natural History in Venice, registration n° MSNVE-19262.

Colonies, up to 5-6 cm high, are stalked with slightly ovoid head. Living specimens yellow lemon. In preserved materials the pigment slowly dissolve. The sand free test is transparent and contains some little roundish bodies, possibly the remains of regressed zooids. The head test is soft and in preservative becomes gelatinous with an opaque whitish superficial layer in which the round apertures of the contracted zooids are visible; this superficial layer becomes damaged in time. All zooids are strongly contracted and morphological details were observed on stained and mounted material. The collector reports that the colonies were hanging from the roof of rock cavities.

Zooids are arranged in circles with the atrial apertures opening independently toward the centre of the circle. Both apertures has six evenly rounded lobes. In contracted individuals the atrial siphon is longer than the branchial siphon. The branchial tentacles appear to be in two rows, but their number was not possible to determine. About 15 longitudinal muscular bands are on the thorax, they branch in the abdomen forming a sheath which extends along the posterior abdomen and terminates in two horns at its end. Oblique muscles cross the longitudinal bands half way through each side of the thorax in a weaving fashion to form a loose mesh. A vascular stolon, sometimes very long and branched, is present but muscles do not extend into it. There are about 18 stigmata in the second and third rows and about 25 in the anterior row which is deflected anteriorly along the dorsal mid-line. In less contracted zooids the oesophagus is moderately long and enters dorsally into an asymmetrical, smooth-walled stomach. A short duodenal region opens into a roundish posterior stomach in the pole of the gut loop. A ribbon-shaped rectum, without rectal valves, ends with a bilabiate anus. Several little globular mass of male follicles are observed along the posterior abdomen, but ovaries were not found. Generally 4 embryos are present in a developmental series in the distal part of the oviduct and in the atrial cavity.

Larvae are relatively large, the trunk being 0.8 mm long. The tail is wound halfway around it. There are usually three stalked adhesive organs in the anterior mid-line, each consisting of an ectodermal cup with a central stalked papilla. Four lateral ampullae on each side of the anterior mid-line alternate with the adhesive organs. There is an ocellus and an otolith. Larvae with four adhesive organs were detected in some larvae.

Etymology: named after Valeria Brunetti, the author's second daughter.

Remarks

I was uncertain about the assignation of this species to the genus *Pseudodistoma* or *Anadistoma* because of the presence of the oblique muscles on the thorax. The genus *Anadistoma* was erected by Kott (1992) to accommodate *A. attenuatum* characterized by the presence on the thorax of a coat of horizontal circular muscles. However the transverse muscles of *Anadistoma* form a layer beneath the longitudinal bands and not a limited weaved mesh as in the present species. Moreover in *Anadistoma* the posterior abdomen is very short. On the other hand the general morphology of the zooid and larva of the present species well agree with the known species of the genus *Pseudodistoma*.

P. valeriae differs from other Mediterranean species in its clearly stalked colonies that are similar to those of *P. michaelseni* Millar, 1968. It is chiefly remarkable for the arrangement of zooids in circular systems, previously known only in *P. fragile* Tokioka, 1958 (see Monniot & Monniot, 2001). However the latter species has a single embryo in a peduncled incubatory pouch and a larva with only 6 ampullae, two lateral on each side of the anterior mid-line and one dorsal and one ventral.

The arrangement of zooids in systems is an uncommon feature in *Pseudodistoma*. In addition to the circular system of *P. valeriae* and *P. fragile* an organised system is known only

in *P. poculum* Monniot F. & Monniot C., 1996 in which the whole head of the colony appears to be a system. The presence of larvae with more than three adhesive organs was reported also in *P. australe* Kott, 1957 (Kott, 1992, fig. 17) and *P. oriens* Kott, 1992. Kott (1990, 8) suggested the phenomenon could be considered an adaptive response to environmental pressures.

Acknowledgements

I am obliged to my friend Dr. Vincenzo Putrone who collected the specimens and submitted them to me for identification, and to Mr. Alberto Rabito for his contribution in SCUBA collection. A special thanks is due to Patricia Kott for the critical reading of the manuscript.

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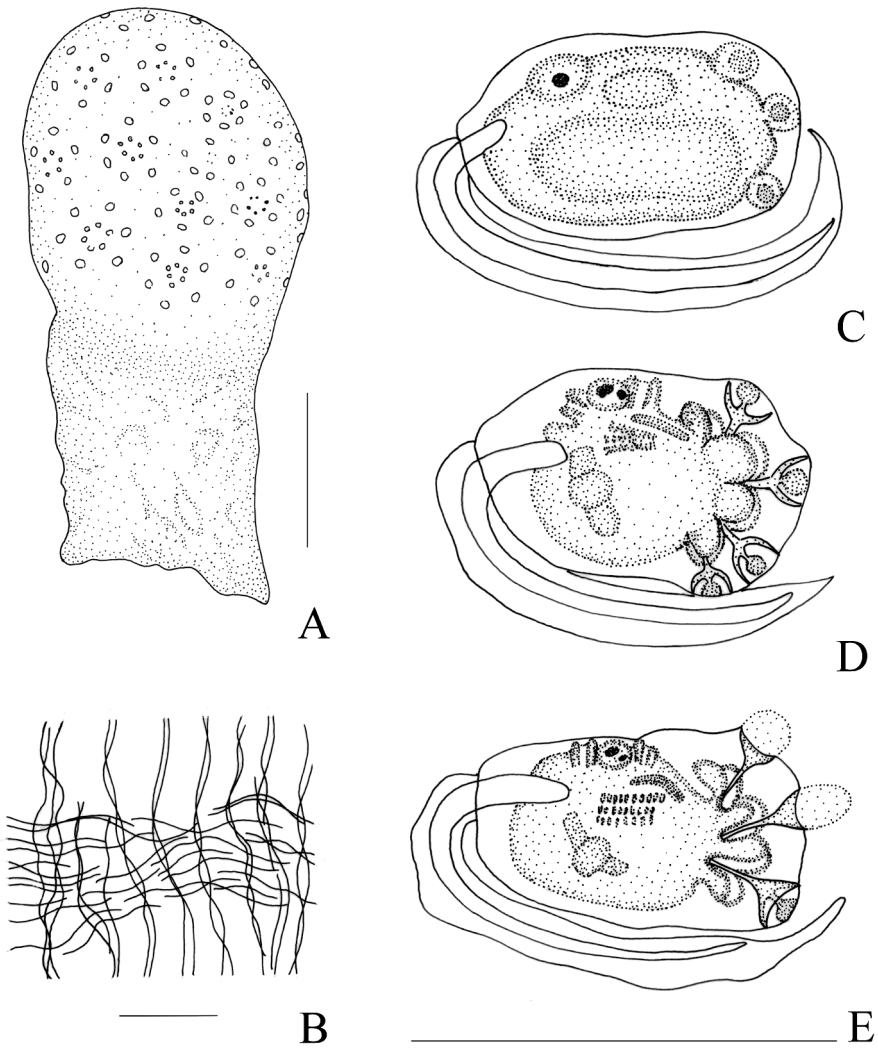

Fig. 1. *Pseudodistoma valeriae* n. sp. A = colony; B = longitudinal and transversal muscles on the thorax; C = unripe larva; D = larva with four adhesive organs; E = larva ready for settlement. Scale: A = 1 cm; B = 100 μm; C-E = 1 mm.

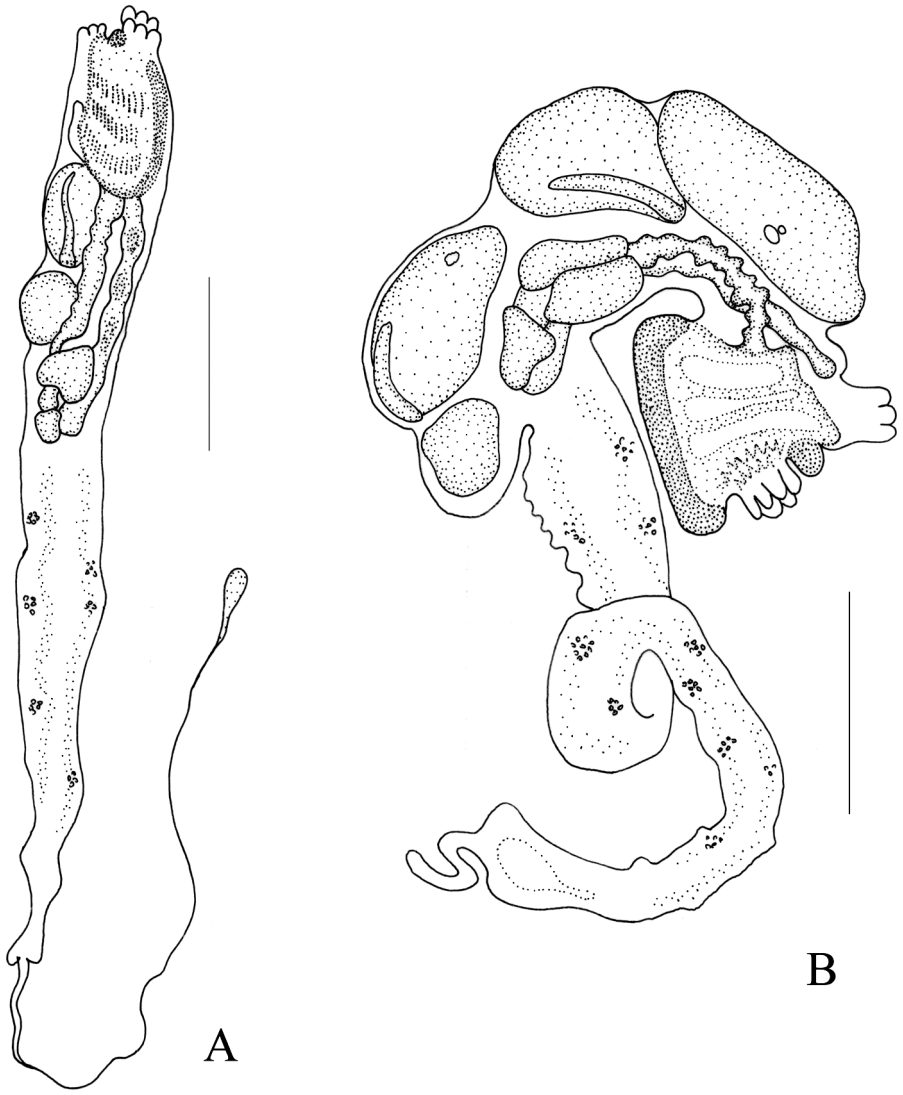

Fig. 2. *Pseudodistoma valeriae* n. sp. Zooids. Scale: A = 1 mm; B = 0.5 mm.