O. García-Alvarez · V. Urgorri · L. von Salvini-Plawen

Dorymenia troncosoi sp. nov. (Mollusca Solenogastres: Proneomeniidae), a new species from the South Shetland Islands (Antarctica)

Received: 9 April 1998 / Accepted: 12 June 1998

Abstract During the Spanish oceanographic expedition BENTART '95, carried out in Antarctic waters off Livingston Island (South Shetland Islands), five small specimens of a new species of Solenogastres-Cavibelonia, Dorymenia troncosoi sp. nov., were collected at a depth of 65–240 m on a silt bottom. The species is characterized by the presence of a pallial cavity with four pouches (a dorsal, two lateral and a ventral pouch), seminal receptacles that open into the spawning ducts through a short duct, radula having 9–11 teeth per row (1 central and 4–5 lateral, all the same size), the end of the copulatory spicules having a cross-section in the shape of a four-pointed star, and abdominal spicules present. These characteristics separate this species from other species of the genus, particularly from Dorymenia profunda, which is the most similar.

Introduction

The Solenogastres are one of the types of molluscs about which our knowledge is most incomplete. This is basically due to the difficulty and complexity involved in their collection (Salvini-Plawen 1985); many species are easily overlooked because of their small size, and the material is sorted at speed during oceanographic expeditions. However, the Solenogastres of Antarctic waters are the best known due to the large number of oceanographic expeditions carried out during the twentieth century; these contributed a substantial number of specimens which were studied by Salvini-Plawen (1978) in the monograph on “Antarktische und subantarktische Solenogastres”.

A small collection of Solenogastres was obtained during the samplings done on the Spanish Antarctic Expeditions for the Study of Benthos (BENTART '94 and BENTART '95) carried out on the islands of Livingston and Deception in the Bransfield Strait (South Shetland Islands). Five of these specimens, collected at Livingston Island during the BENTART '95 expedition, have proved to be long to a new species to science.

Materials and methods

The specimens studied were fixed and preserved in 70% alcohol. The spicules were studied by separating small pieces of cuticle from the central dorsal area of the body and along the ventral groove. These pieces were then treated with 5% sodium hypo-chlorite for 12 h in order to isolate the spicules; they were later rinsed with water and dried under a heater at 40°C and mounted using Eukitt. For the anatomical study, three specimens (holotype and two paratypes) were decalcified in an ethylenediaminetetra-acetic acid (EDTA) solution for 12 h and cut in paraffin in series of 10-μm cross sections. The staining method used was Azan Heidenhain.

Results

Order Cavibelonia Salvini-Plawen, 1978

Family Proneomeniidae Simroth, 1893

Genus Dorymenia Heath, 1911 (see Opinion 1185)

Dorymenia troncosoi sp. nov.

Diagnosis. Body measuring 10–22 × 1–1.3 mm, having a circular section with a moderate cuticle, lacking a keel and protuberances, with hollow acicular spicules. The
pedal groove is accompanied by solid acicular spicules and blade-shaped scales. Radula with 9–11 teeth per row 1 central and 4–5 lateral, all the same size. The pallial cavity has four pouches, a dorsal, two lateral and a ventral pouch. The seminal receptacles open into the spawning ducts through a short duct. The distal ends of the copulatory spicules have a cross-section in the shape of a four-pointed star. Outlet of the spawning duct unpaired. Abdominal spicules present. One dorsi-terminal sense organ.

Type locality. South of Livingston Island (6-BOX-1) (South Shetland, Antarctica) 62°43.8170’S; 60°26.2575’W (Fig. 1): two specimens, the holotype 10 mm long by 1.2 mm wide (cut in serial sections) and a paratype 1 measuring 10 by 1 mm, both collected on 18 January 1995 from a bottom of fine silt with a box-corer at a depth of 66 m.

South of Livingston Island (3-BOX-1) (South Shetland, Antarctica) 62°37.0298’S; 60°23.5048’W (Fig. 1): one specimen (paratype 2), 14 mm long by 1.2 mm wide (cut in serial sections), collected on 16 January 1995 from a bottom of compact silt with a box-corer at a depth of 66 m.

South of Livingston Island (3-BOX-2) (South Shetland, Antarctica) 62°37.8998’S; 60°23.3878’W (Fig. 1): one specimen (paratype 3), 22 mm long by 1.3 mm wide, collected on 16 January 1995 from a bottom of compact silt with a box-corer at a depth of 65 m.

North of Livingston Island (29-BOX-1) (South Shetland, Antarctica) 62°4.9333’S; 60°25.5053’W (Fig. 1): one specimen (paratype 4), 22 mm long by 1 mm wide (cut in serial sections), collected on 3 February 1995 from a bottom of silt with a box-corer at a depth of 240 m.

Deposit and derivatio nominis. The holotype and paratype 2 were deposited in the Museo Nacional de Ciencias Naturales of Madrid, numbers: 15.02/1, 15.02/2 the paratypes 1, 3 and 4 were placed in the collection of the Departamento de Biología Animal of the Universidad de Santiago de Compostela. The species is dedicated to Dr. J.S. Troncoso, an excellent malacologist and friend, who sorted the specimens during the BENTART ’95 expedition.

Description. Habitus. Animal having an elongated cylindrical body with a narrower and more pointed posterior end. Lacking protuberances and keel. Smooth surface, the spicules do not protrude and the ventral groove is quite noticeable. Yellowish color in alcohol.

Mantle. Cuticle between 40 and 80 μm thick with narrow-necked papillae and spherical distal segment. Hollow spicules (Fig. 2A) 110–210 μm long and of

---

**Fig. 1** Location of the sampling station

**Fig. 2A–D** Mantle spicules and radula of *Dorymenia troncosoi* A Hollow spicules; B Greeve spicules; C Hemiradula apparatus; D Position of the lateral radular teeth

---