

RAPANA VENOSA (VALENCIENNES, 1846) (MOLLUSCA: MURICIDAE): A NEW GASTROPOD IN SOUTH ATLANTIC WATERS

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ABSTRACT *Rapana venosa* (Valenciennes 1846) (Gastropoda: Muricidae), a mollusk native to Eastern Asia, is reported for the first time in Argentine waters in the north of Bahía Samborombón. During a routine bottom sampling, a female specimen of 97.1 and 76.3 mm shell length and width, respectively, and egg capsules were found approximately on 35.3°S–56.4°W in 13 m of water. The possible way of entrance is discussed. The finding of egg capsules permits the supposition that the introduced population is sexually mature and actively breeding. The presence of banks of mussels (*Mytilus edulis platensis*) and oysters (*Ostrea puelchana*), probable prey, together with the occurrence of the egg capsules point out that the development of *R. venosa* in Argentina could be ecologically and economically important.

KEY WORDS: *Rapana venosa*, Muricidae, South Atlantic, mollusca, invasions, Argentina

INTRODUCTION

Rapana venosa (Valenciennes 1846) is a marine gastropod native of Eastern Asia where it is used as a food resource (Hasegawa 1996). Harding and Mann (1999) mentioned the Sea of Japan, the Yellow Sea, the East China Sea, and the Gulf of Bohai as the precise places of origin. Since the description of this species in 1846 it was reported in several countries in Europe and Asia, sometimes as *R. thomasi*, which is mostly used as a synonym. Powell (1972) recorded pagurized shells of *R. venosa* in New Zealand waters. However, these shells were considered as a food item thrown off an Asian fishing boat (Marshall and Crosby 1998). Drapchin (1953) points out the Black Sea as the first place of penetration out of *Rapana*'s traditional geographic distribution. Cesari and Mizzan (1993) mentioned several authors who reported the expansion of this gastropod along the Mediterranean Sea. In 1998, *R. venosa* was recorded in the Chesapeake Bay, U.S.A. (Harding and Mann 1999). This was the first mention of the species in America. Scarabino recorded the same species in Uruguayan waters in April to May of 1998 (pers. comm.).

In this paper we follow the systematic arrangement proposed by Kool (1993). After a phylogenetic study of the family Muricidae he concluded that the genus *Rapana* belongs to the family Muricidae and to the subfamily Rapaninae.

After a routine bottom sampling off Bahía Samborombón, Buenos Aires province, Argentina we found egg-capsules and one adult specimen that belong to *R. venosa*. This constitutes the first written mention of the species in South America.

RESULTS AND DISCUSSION

Egg Capsules and Eggs

Egg capsules of *R. venosa* were collected November 18, 1999 in 13 m of water with a bottom trawl of 120 mm mesh size from

35.436°S–56.373°W (trawl 74, INIDEP EH-09-99) (Figure 1). The whole egg mass (Figure 2) has 208 capsules, which is within the average number (115–220) cited by D'Assaro (1991). Each capsule has an average number of eggs per capsule of 840, ranging from 790 to 890 ($n = 20$). The egg capsules contained embryos at a morula-gastrula stage, 240 microns in diameter. Collected capsules measured 20 to 30 mm in length, including the curved tip, and 3.5 mm in width at the smallest diameter at the base. The general form and measurements are in agreement with Chung *et al.* (1993) and the detailed illustrations shown by D'Assaro (1991).



Figure 1. Map showing the collection localities of *R. venosa* (Valenciennes) and the egg capsules (●).

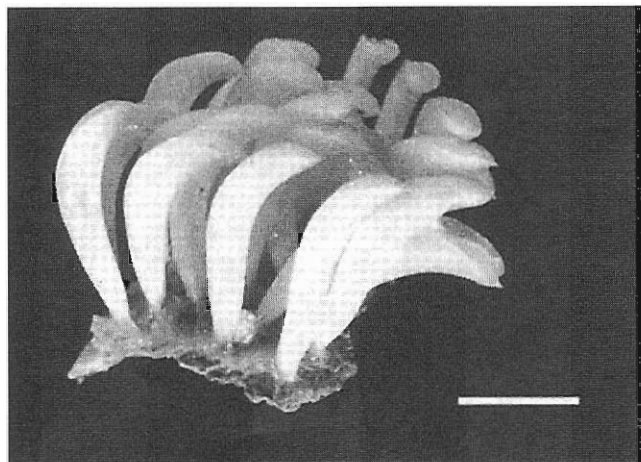


Figure 2. Egg capsules of *R. venosa* (Valenciennes). Scale bar = 1 cm.

Adult Specimen

One female specimen of *R. venosa* (Figure 3, A–C) was also collected on November 18, 1999 in 13 m of water with a bottom trawl from 35.531°S–56.532°W (INIDEP trawl 75 EH-09-99). The specimen was large, reaching 97.1 mm in length and 76.3 mm in width. It has epibiosis of polychaetes Serpulidae and the Cirripedia *Balanus venustus* Darwin. Bottom sediments on both trawls were composed of fine sand.

Together with *Corbicula fluminea* (Müller), *C. largillierii* (Philippi) (Ituarte 1981, Ituarte 1994), and *Limnoperna fortunei* (Dunker) (Pastorino *et al.* 1993; Darrigran and Pastorino 1995) this is the forth species of recently invading mollusks into Argentine waters. However, it is the first gastropod and the first from typical marine environment. All the other invading species of mollusks (all bivalves) are freshwater (*Corbicula* spp.) or euryhaline species (*Limnoperna fortunei*).

Both species of *Corbicula* were apparently introduced as food for crew consumption on Asiatic ships. *R. venosa* is a common and esteemed delicacy in Japan which is called "Akanishi" (Hasegawa

1996). However, this way of entrance seems less probable. Because *Limnoperna fortunei* specimens are not used as food in their native countries it is supposed that the introduction was produced as larvae carried in untreated ballast water from commercial or military ships (Pastorino *et al.* 1993, Darrigran and Pastorino 1995). This is probably the same way that *R. venosa* used to enter North America (Harding and Mann 1999) and Argentine waters as well.

In several papers Carlton (1992 and refs. therein) reviewed probable mechanisms of introduction of non-indigenous marine organisms to North American waters. He mentioned the movement of oysters and the concomitant movement of organisms on the oyster shells or in associated sediments and detritus as one of the most important of these mechanisms. *Ceratostoma inornatum* (Recluz) (Muricidae) was introduced in U.S.A. apparently because of the commercial oyster industry. Another species, *Urosalpinx cinerea* (Say) (Muricidae), was introduced to the northeast Pacific in the same way.

The finding of egg capsules allows us to think that the introduced population is sexually mature and actively breeding. Mussel banks of *Mytilus edulis platensis* d'Orbigny and the local oyster *Ostrea puelchana* d'Orbigny are distributed all along the Argentine northern coast at depth of 35 to 45 m and both are suitable prey for *R. venosa*. The presence of these possible prey together with the occurrence of the egg capsules points out the development of *R. venosa* in Argentina as ecologically and economically important.

ACKNOWLEDGEMENTS

We appreciate the bibliography sent by T. Kimura (Mie University, Japan) and H. Saito (National Science Museum, Japan). Thoughtful reviews were provided by Roger Mann and an anonymous reviewer. This study was supported in part by a research grant from Fundación Antorchas, Argentina and the project BID 802/OC-AR-PICT No. 01-04321 from the National Agency for Scientific and Technical Promotion, Argentina to P.P. This is INIDEP contribution No. 1155.

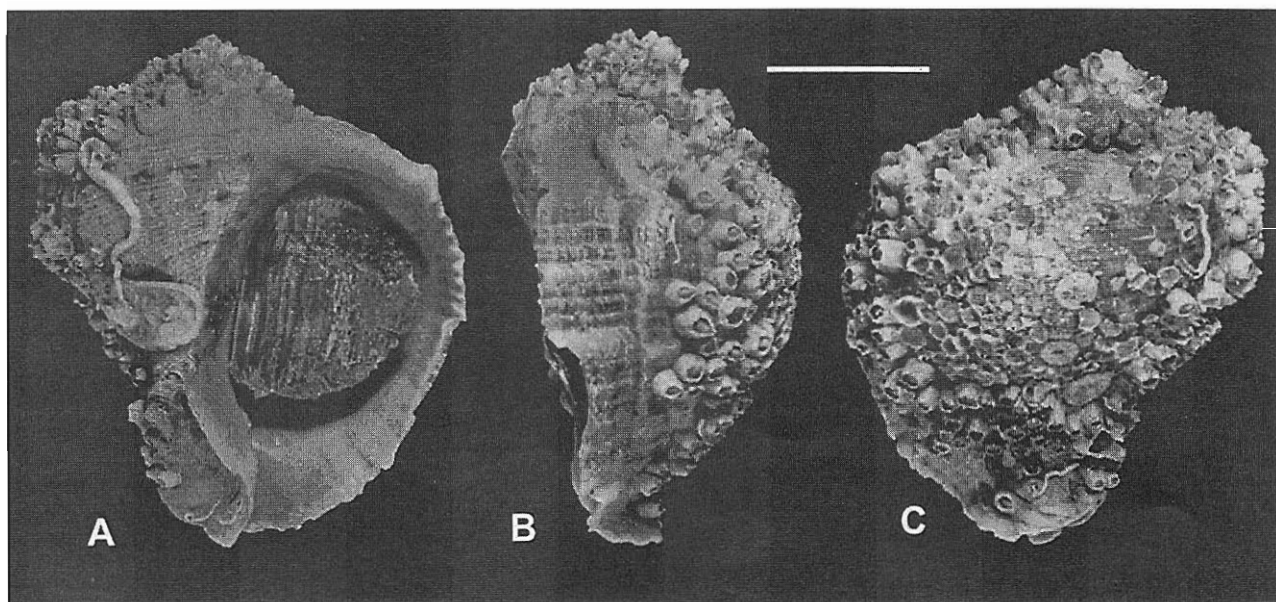


Figure 3. *R. venosa* (Valenciennes). Three views of the female individual collected (A–C). Scale bar = 3 cm.

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