

# **DENDROPOMA PETRAEUM (MONTEROSATO, 1884): A MEDITERRANEAN SPECIES COMPLEX BASED ON REPRODUCTIVE CHARACTERISTICS?**

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## **Abstract**

The reproductive characteristics of the northern Israeli population of the Mediterranean endemic reef-building gastropod *Dendropoma petraeum* were examined. The species is apparently gonochoristic, with a peak of gonad activity from October to May. In June only hatching was observed. Histological examination revealed hermaphroditism and males with parasitic infestation. The characteristics studied (female/male ratio, gonad activity period, size and number of egg capsules and number of eggs per capsule) are markedly different from those reported from Spain.

**Keywords :** *Endemism, Gastropods, Levantine Basin, Reproduction.*

The reef-building vermetid *Dendropoma petraeum* (Monterosato, 1884), a species endemic to the Mediterranean Sea, forms dense aggregations along the northern shores of Israel. These reefs protect the shoreline from erosion by waves and support a high biodiversity community [1]. During the 1960s and 1970s living *Dendropoma* mollusks constituted 30% of the reefs [1], whereas current estimation is 1% for most of the sites (Galil, unpublished). We set out to continue and expand prior research on the reproductive period of the mollusks and their fecundity.

A total of 285 specimens of *D. petraeum* were collected in Shikmona (32°49'N, 34°57'E) from January 2003 to May 2004, in monthly or bimonthly intervals. The samples were divided according to their reproductive stages: resting phase, maturation, active mature and degenerating gonad.

900 egg capsules were harvested in April and June 2003 and analyzed for size, number of embryos/eggs and the developmental stages of the embryos.

Of the 285 mollusks collected, 152 were females, 106 - males, 22 were unidentifiable and 5 were hermaphrodites with developed gonads of both sexes (Fig. 1). In 7 females captured sperm mass was identified within the mantle cavity. In 12 males it was observed that the retained spermatozoa degenerated to dense balls within the testes, half of them were parasitized. Mature males were found from October to May, mature females from December to May. In June no gonad activity was observed, though embryo maturation continued within the female mantle cavity. The resting phase lasted from late June to September, with the gonads degenerating, and histological sex recognition impossible.

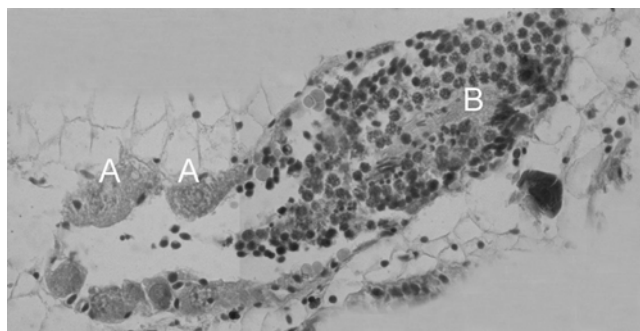


Fig. 1. A hermaphroditic gonad, showing oocytes (A) and spermatozoa (B).

Mean capsule size in April 2003 was 0.91x0.7 mm, in June 2003 - 0.99x0.74 mm. Up to 17 egg capsules per female were recorded (mean=4.67), containing a maximum of 10 eggs/embryos (mean=2.3), see example in Fig. 2. In April the capsules contained pre-hatchlings (24% of embryos), veligers (24%), trochophores (31%) and ova (21%). By comparison, in June the pre-hatchlings constituted 93% of the embryos, veligers - 6%, trochophores - 3% and no ova were observed.

The data indicate a single period of reproductive activity. Gonad maturation in males and females began simultaneously. Males matured earlier than the females, since oogenesis proceeds slower than spermatogenesis. We recorded larger capsules, more eggs/embryos per capsule and less capsules brooded simultaneously than described for the Spanish population of *D. petraeum* [2]. Moreover, the female/male ratio is lower and the repro-

ductive period in Israel, though of same duration, began in October rather than March. The temperature difference between Israel and Spain may be offered as an explanation. However, these findings also strengthen the hypothesis of a genetic difference between the two populations, reported in [3].

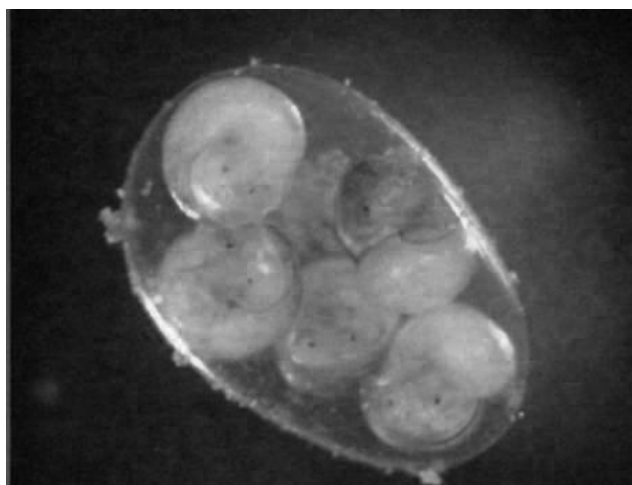


Fig. 2. An egg capsule, containing 5 veligers (photo by A. Klerman).

## **References**

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