

# Effect of larval density on the growth and survival of veliger larvae of the European clam *Ruditapes decussatus* (Linnaeus, 1758) in a controlled environment

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## INTRODUCTION



The European clam *Ruditapes decussatus* (L. 1758), in the family Veneridae, a species with a vast geographical distribution. In Morocco, it has a variable distribution although it is widespread almost all along the coast (Dautzenberg, 1910).

Culture of clams is clearly limited by the availability of natural seed (Ojea et al., 2008; Da Costa et al., 2020). Therefore, bivalve spat from hatchery is currently the only sustainable alternative for the support of aquaculture activities (Ojea et al., 2008 ; Da Costa et al., 2012).

## OBJECTIVE

Determine the most optimal densities, to achieve faster growth and higher survival rates in hatchery of *R. decussatus*. four different densities 5, 10, 15 and 20 larvae mL<sup>-1</sup> were tested in a controlled environment.

## METHODOLOGY

- Hatchery at the Shellfish Research and Technology station in Amsa (North of MARO)
- The clams from the Kabila area in Tetouan, were conditioned at 21 °C, fed once a day (Fig. 1)
- Clams were spawned by thermal stimulation (Fig. 2)
- Four different densities have been tested 5, 10, 15 and 20 larvae mL<sup>-1</sup>, the larvae were fed daily with a mixture of three phytoplankton; *Chaetoceras calcitrans*, *Isochrysis galbana* and *Tetraselmis suecica* (Fig. 4)
- The larvae count was carried out just after each sieving, a sub-sample was taken to count the number of survivals and the length of the shell.



1- Conditioning



2- Spawning



3- larval rearing



4- Effect of density on veliger larvae

## RESULTS

### Conditioning

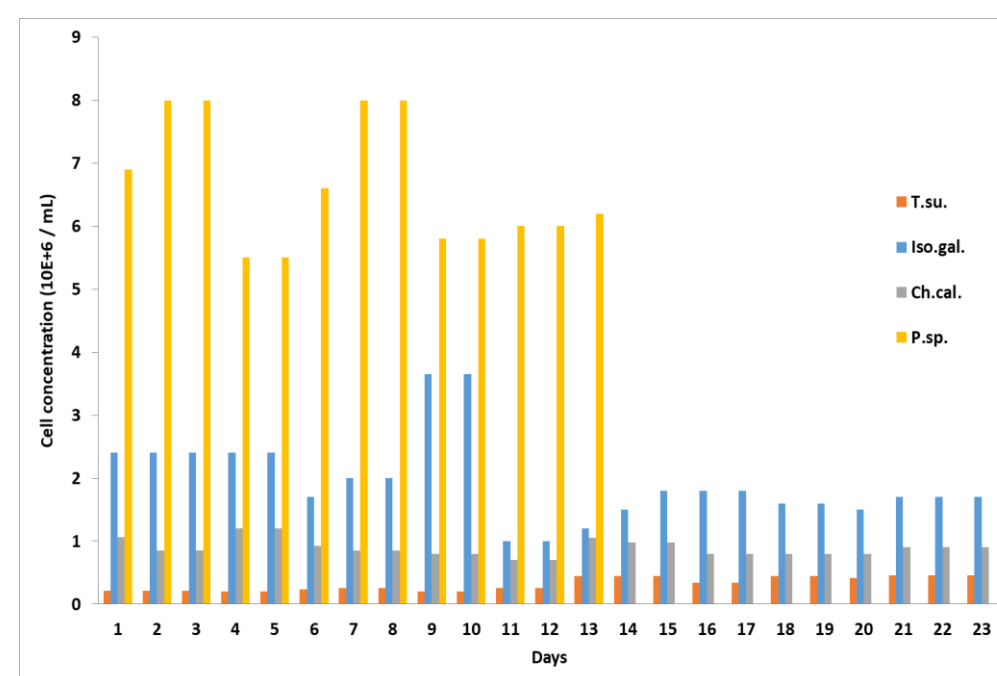


Fig. 1: Diagram of the concentrations of phytoplankton distributed to the broodstock.

### Spawning and larval rearing

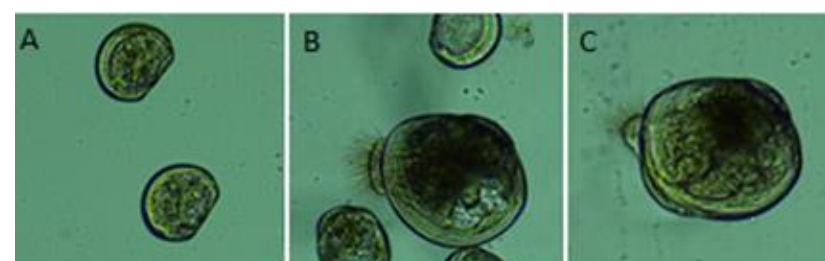


Fig. 2. Different planktonic stages of *Ruditapes decussatus* larvae (Magnification x 10): A) 48 h, D-shaped veliger larvae; B) 5 day-old umbonated veliger larvae; C) 12 day pediveliger larvae.

### Effect of density on veliger larvae

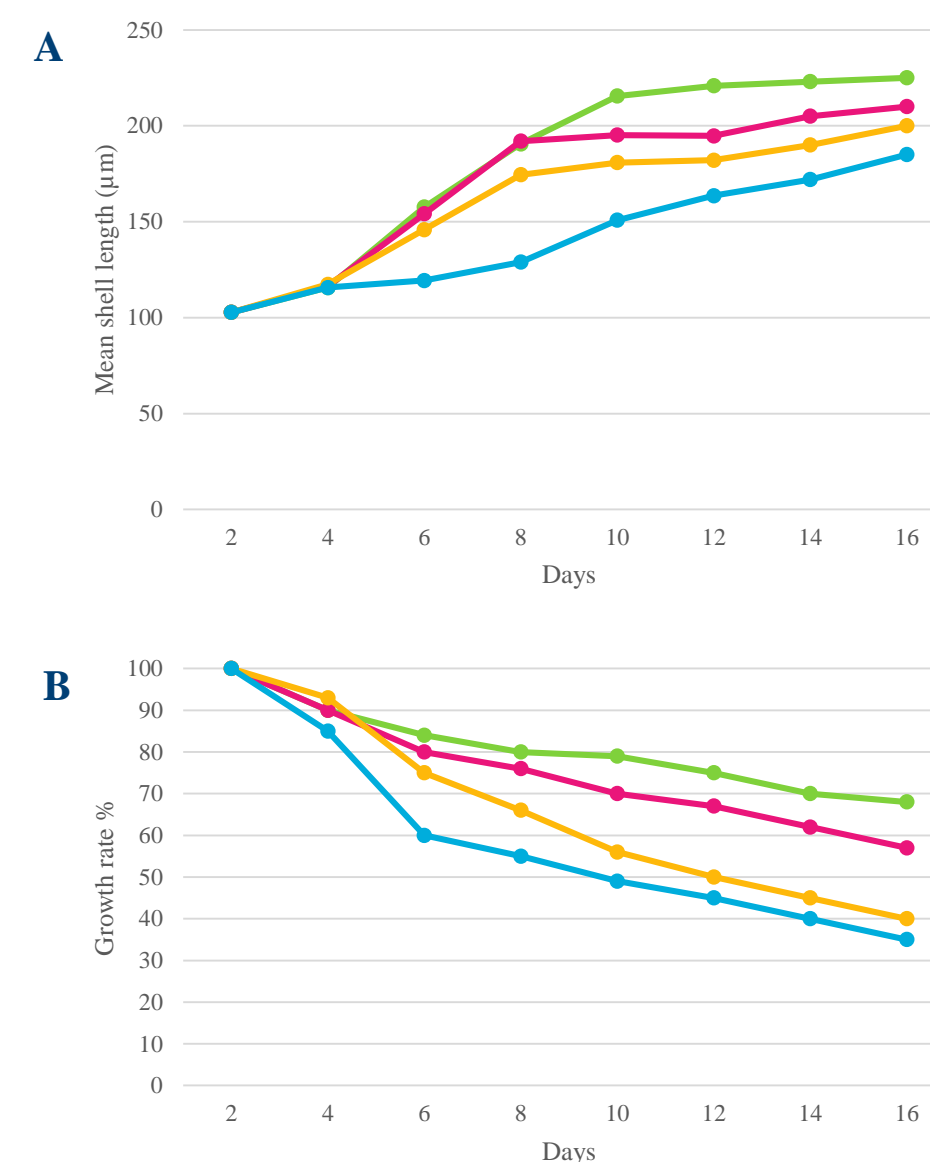


Fig. 3. Growth (A) and survival (B) of *Ruditapes decussatus* larvae reared at four experimental densities: 5 (green), 10 (pink), 15 (orange) and 20 (blue) larvae mL<sup>-1</sup>.

## CONCLUSION

In general, the rate of larval growth decreased considerably with increasing larval density. Densities of 5 and 10 larvae mL<sup>-1</sup> appear to be optimal for normal growth of veliger larvae of *R. decussatus*. In addition, larval survival was significantly higher at 5 and 10 larvae mL<sup>-1</sup>.

## REFERENCES

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