

Effect of different micro-algae mixtures and rations in hatchery broodstock conditioning of the mussel *Mytilus galloprovincialis*

C. Sánchez-Lazo¹, I. Martínez-Piña, and O. Moreno

¹IFAPA centro Agua del Pino. Ctra. Punta Umbria-Cartaya Km. 12, Huelva (Spain). clara.sanchez@juntadeandalucia.es



Mytilus galloprovincialis broodstock collected from South Spain during wintertime (November) was conditioned with three different microalgae diets: Non-Tetraselmis treatments (NT1 and NT2) consisted of *Isochrysis galbana* (T-Iso) and *Chaetoceros* sp. (1:1); Tetraselmis treatment (TS) consisted of *Tetraselmis suecica*, *I. galbana* (T-Iso) and *Chaetoceros* sp. (1:1:1). Mussels in the NT1, NT2 and TS groups received respectively 1%, 2% and 2% of the mussels dry weight (MDW) based in algae dry weight (ADW) per day. After 2 months conditioning, 1% ration resulted in a descent of mussel condition index, while it was maintained with both 2% rations. Ripe female percentage was higher in the TS group than in the NT2 group, revealing that a varied diet shall be suitable for *M. galloprovincialis* conditioning and suggesting a hypothetic role of *T. suecica* on female riping.



Fig 1. Conditioning installations.

Mussels from La Atunara harbor (S Spain) were collected in November 2008 and divided randomly into three conditioning groups of exactly 4 kg. Animals were placed in baskets in 40 L tanks with 25µm filtered seawater kept at 18°C (±2°C). For 2 months animals on each group were fed with three different algae-based treatments: two Non-Tetraselmis (NT1 and NT2) groups and one Tetraselmis (TS) group. Mussels in the NT1, NT2 and TS groups received respectively 1%, 2% and 2% of the mussels dry weight (MDW) based in algae dry weight (ADW) a day. Collector nets were connected to each tank and were checked daily for spontaneous spawning (Fig. 1).

Mussel samplings were carried out at the beginning and in the end of the experience. They consisted on Condition Index (CI) calculation (DW/L3) and gonad sampling for histological analysis.

After 2 months conditioning, spawning induction attempts (thermal shocks) were carried out.

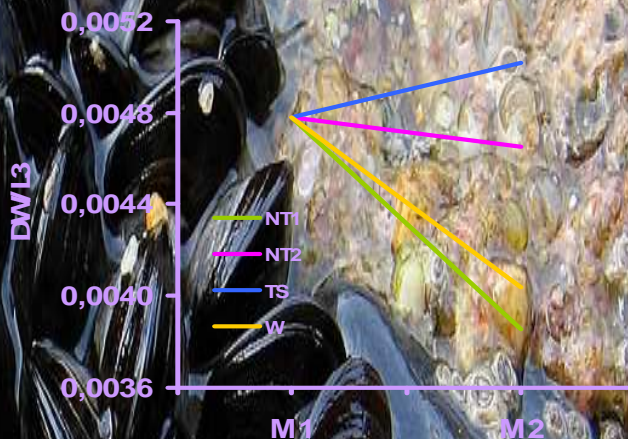


Fig 2. Changes in the mussels Condition Index (MDW/L3) before (M1) and after two months conditioning (M2). W, wild mussels; NT1, NT2 and TS, conditioning groups.

The CI value at the beginning of the experience was 0.0048 (Fig. 2). After 2 months, both wild and NT1 CI values dropped to approximately 0.0040, while both NT2 and TS groups kept similar CI values to the starting one.

Most of males in the first sampling were ripe (over 70%), the rest being in spent. Male stadia percentages did not significantly vary after conditioning excepting several re-developing gonads found in NT2 and TS groups. Most of female gonads in the first sampling were in spawning or spent stages, while just over 10% were ripe. After conditioning, female gonad stadia percentages in the NT1 group did not significantly vary excepting a few recovering gonads found. In the opposite, ripe female counted 45% in NT2 group and 75% in the TS group. No spent stages were found in the TS treatment (Figs. 3 and 4).

Spawning induction did not success in any of the groups.

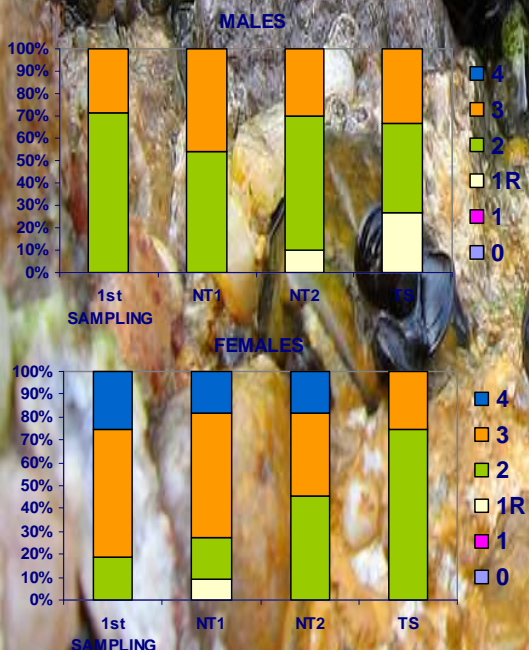


Fig 3. Changes in males and females gonad stages before (1st SAMPLING) and after two months conditioning (NT1, NT2 and TS). 0: resting, 1: early development, 1R: re-development, 2: ripe, 3: spawning, 4: spent.

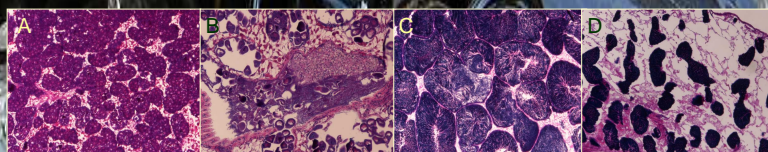


Fig 4. Micrographs of some histological samples. A: ripe female gonad; B: spawning female gonad; C: ripe male gonad; D: spawning male gonad.

CONCLUSIONS

- 1% wasn't an appropriate ration for *Mytilus galloprovincialis* conditioning as it resulted in a descent of CI.
- A varied diet is suitable for female riping

PERSPECTIVES

- Does *Tetraselmis suecica* play a role on female riping?
- Shall the same diets and rations have the same effect on resting mussel populations?