

Póster

Seawater pH does not affect all the aquaculture marine fish sperm motility

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The climate change includes a decrease in seawater pH, and an increase in its temperature. It is possible that the marine fish sperm cells, which are released to the sea at spawning, can be affected by these expected changes on the water, and become unable of fulfill its role on fertilization. For that reason, different seawater pH has been tested in 3 aquaculture marine species: the European eel (*Anguilla anguilla*), the European seabass (*Dicentrarchus labrax*), and the Senegalese sole (*Solea senegalensis*), and their sperm motility parameters analyzed by a CASA-mot system.

In the European eel, tested seawater pH, from 6.5 to 9.5, affected sperm motility and other kinetic parameters like MP, FA, VCL, VAP, LIN, STR, WOB, ALH and BFC. pH values lower than 7.8 or higher than 8.2 caused lower values of motility and the rest of kinetic parameters. The longevity was not affected by pH from 7.6 to 8.2. In other experiment a seawater pH of 7.8 caused lower motility, FA, VSL, VAP and LIN than a seawater with pH 8.2. The effect of the water temperature was tested, by comparing activation with seawater at 4 °C (our control) and at 23-24 °C. The spermatozoa beating cross frequency (BCF) was the only parameter significantly affected, being lower at 23 °C than at 4 °C. In other experiment where we combined 2 temperatures (4, 24 °C) and two pH (7.8, 8.2), a significant interaction was observed, and in general the worst results were obtained with seawater at 4 °C and at pH 7.8. Considering all these data, it seems that the seawater pH has a deeper effect on the eel sperm motility than a high temperature.

Regarding European sea bass and Senegalese sole, motility and other sperm parameters were not affected by seawater temperature in the pH range from 6.5 to 9.5, thus indicating that ocean acidification would not affect their behavior. The differences found between these species, evolutively and ecologically different, could reflect different activation mechanisms of the spermatozoa motility.