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Determination of the rates of fertilization and hatching in the seabream, *Sparus aurata*, using vitrified spermatozoa

Annalisa Bianchi, Laura Pecoraro, Maroua Sabbah, Roberta Schiavone, Sebastiano Vilella and Loredana Zilli University of Salento, Italy

Previously, we setted up a vitrification procedure for sea bream spermatozoa. The best results in term of sperm quality were obtained by using the drop-wise method, and Mounib buffer containing 10% Me2SO and 10% glycerol as vitrification medium. The addition of a mixture of AFPI and AFPIII improved the quality of vitrified gametes. The aim of the present study was to check the ability of the sea bream spermatozoa, subject to vitrification procedure, to fertilize eggs. The fertilization rate was calculated at the blastula stage (16-32 cells) after a lapse of 3 h and at the post-neurula stage at 24 h. The hatching rate was calculated after a lapse of 53 h. Results demonstrated that the fertilization rate obtained using AFPs-vitrified spermatozoa resulted significantly higher (P<0.05) with respect to that measured using spermatozoa vitrified in the absence of AFPs, whether measured after 3 hours (50% versus 25%) or after 24 hours (30% versus 15%). Also the hatching rate resulted higher using AFPs-vitrified sperm. Up to date, few studies assessed the ability of fish sperm spermatozoa thawed after vitrification to fertilize eggs. A fertilization rate similar (ranging between 30-50%) to that reported in the present study was obtained in rainbow trout and Atlantic salmon. Lower values (10%) were obtained in channel catfish and Eurasian perch. Finally, our results also demonstrated the ability of AFPs to increase significantly the hatching rates. To the best of our knowledge, this is the first work that evaluates the hatching rate of eggs fertilized by using vitrified fish spermatozoa.

Biography

Annalisa Bianchi has completed her studies in Biology at University of Salento, Lecce, Italy in 2012. She carried out her experimental thesis in "Physiology applied to aquaculture". At present, she is pursuing her PhD in Department of Biological and Environmental Sciences and Technologies (DiSTeBA) at University of Salento. She is actively involved in research on development of sperm vitrification protocols of marine species.

bianchiannalisa84@gmail.com

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