

Report of STSM

Title: Characterization of oocytes and eggs of seabass (*Dicentrarchus labrax*, L.) in terms of fertilization and development potential

Purpose of the STSM

The oocytes and eggs of seabass are covered by a thick membrane. The reaction of this membrane is very interesting upon contact with seawater. Within few seconds, a significant change is occurred in the egg membranes in contact with seawater and a clear perivitelline space become visible. After the pre-incubation in seawater for several seconds, eggs of seabass enlarge and become round in shape. During this short term scientific mission we tried to assess the reactions of egg membranes inactivation and fertilization process.

Description of the project

During my stay, we performed 4 experiments shared with other projects of that institute and using the best opportunities. We involved in broodstock selection for female maturity assessment, heterologous stimulation of ovulation, artificial fertilization and also egg quality assessment. To understand the membrane reactivity of seabass eggs, we pre-incubated freshly stripped and overripe eggs of several spawns for different time slots and then fertilized them. The effects of pre-incubation of eggs in seawater were evaluated in terms of fertilization rate. Egg samples from ovulated, pre-incubated and fertilized eggs were fixed in glutaraldehyde for further observation of the egg membranes under scanning and transmission electron microscope.

Our main findings


The response of the egg membranes in contact with seawater was very fast and interesting. The effects of pre-incubation of eggs were in similar trends for all the females. We have observed significant increase of fertilization rate with 0.5 to 2 min of pre-incubation time for immediately fertilized and overripe eggs. We obtained good fertilization rate (around 50%) with 3 min pre-incubated eggs which provided a very good indication of egg viability in seawater up to 3 min which is reported for the first time. The micrograph from scanning and transmission electron microscope will be added more value to this work and will provide more coherent information about egg membrane reactivity during activation and fertilization.

Confirmation by the host institution of the successful execution of the STSM

Dr. Christian Fauvel, Institut français de Recherche pour l'Exploitation de la Mer, department of Biology of Exploited Marine Organisms (BOME), Experimental Aquaculture Station of Palavas (Montpellier), France. Dr. Christian Fauvel certifying that Mohammad Abdul Momin Siddique visited his laboratory under STSM, AQUAGAMETE COST action from 10th January to 15th February. Momin Siddique has been trained under my supervision and he successfully performed his experiments for the assessment of egg membranes reactivity.

Signature:

Dr. Christian Fauvel



Signature:

Mohammad A. Momin Siddique

