Cryopreservation of Pacific Oyster larvae: a limited but promising survival!

Marc Suquet, Pierrick Haffray, Anastasia Bestin, F. Malo, Catherine Labbé

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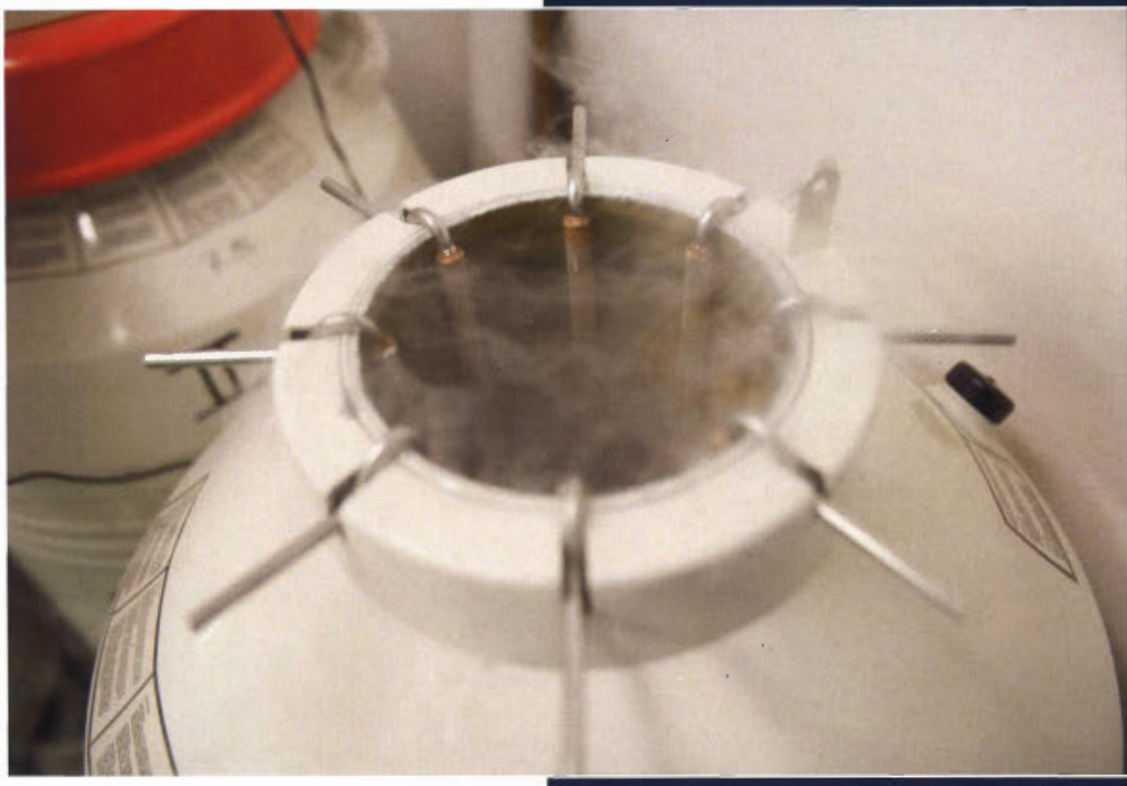

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M. Suquet[1], P. Haffray[2], A. Bestin, F. Malo[1] and C. Labbé[3]

In aquatic animals, while sperm cryopreservation methods are well established, the preservation of larvae is still far from being achieved. Compared to fish species, mollusk oocytes are generally small and have a lower yolk content. This is favorable to larval cryopreservation. Because of the soaring role of hatcheries, Pacific oyster farming requires larval cryopreservation.

Larvae were cryopreserved using the following conditions (Microdigitcool, IMV): larval dilution 1V:1V in cryoprotectant (10% ethylene glycol, 1% PVP, 200mM sucrose), 500µl straws, -35°C after 1h30 and then liquid nitrogen, thawing at 37°C. Survival was similar when larvae were cryopreserved at trochophore (13hpf: hours post fertilization) or D-larval stage (24hpf). A higher larval survival was observed when shortening the cryopreservation cycle from 1h30 to 45min. After a 3 year rearing period, the growth and reproductive performances of oysters, formely cryopreserved at larval stages, were similar to those observed for unfrozen ones.

The survival yields of thawed larvae (close to 0.5%) can be largely improved in the future but the high quality of thawed larvae shows that this technique can be applicable for the establishment of Pacific oyster larvae cryobanks.

Marc Suquet
IFREMER

Marc Suquet is researcher in Ifremer (Center of Brest). He has a 20 year experience on fish reproduction and mainly in gamete biology and management. Since 2006, He is involved in the same subjects but now in mollusks and mainly Pacific oyster and scallop.

[1]Ifremer, UMR 6539, PFOM Department, Argenton
[2]INRA, UR 1037, LPGP, Rennes
[3]Sysaaf, LPGP, Rennes
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