Study shows cryopreserved mussel larvae can survive and develop into adult mussels

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Juvenile mussels (from cryopreserved larvae) settled in ropes with their growth being checked. Credit: Pablo Heres and Estefania Paredes

A long-term study has shown that adult mussels can grow from cryopreserved larvae without compromising the quality of the next generation's offspring, neither for cryopreservation nor post-thawing development of them.

The Mediterranean mussel Mytilus galloprovincialis is one of the most farmed molluscs worldwide. This is the first time M. galloprovincialis

spat produced from cryopreserved larvae were able to develop into adults at the same growth rates as control individuals, be cultured in a natural environment, and even reach average commercial size at the same time as control mussels obtained from non-cryopreserved larvae.

Additionally, the viability of the produced adults is apparently unaffected by the cryopreservation process, with fertility and offspring quality comparable with those of control mussels.

Dr. Estefania Paredes, Universidade de Vigo, who led the research team that designed the cryopreservation protocol, says that "shellfish aquaculture needs the development of new tools such as this to reduce its reliance on natural spat collection whilst improving good practices and efficiently increasing production. The results signify strong evidence for the suitability of this cryopreservation method for use in mussel aquaculture and in research, where animals must be in optimal health."

Details of the cryopreservation protocol are published in *Scientific Reports*.

More information: P. Heres et al, Long-term study on survival and development of successive generations of Mytilus galloprovincialis cryopreserved larvae, *Scientific Reports* (2022). DOI: 10.1038/s41598-022-17935-0

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