Advancing Cryobank strategies: Innovations and Challenges in Fish Genetic Preservation

Lucie Gavin-Plagne

[1]IMV technologies, L'Aigle 61300 France
E-mail: lucie.gavinplagne@imv-technologies.com

Resumo

As global biodiversity faces unprecedented threats, the conservation of genetic diversity has become a priority in preserving ecosystems and species. Fish genetic preservation, a critical component of aquatic biodiversity conservation, has seen significant advancements through cryobanking strategies. This communication provides an overview of the different cryobank strategies and discusses the practical applications and challenges of cryopreservation in fish genetic resources.

For years, cryopreservation in fish production was primarily used for genetic resource storage, beginning in the 1990s. It became essential for breeding programs, especially with advancements in genomics and the selection for disease resistance. However, the application of cryopreservation was largely limited to off-site facilities until 2016, when IMV Technologies introduced production-based laboratories directly into fish hatcheries. This shift allowed cryopreservation to become a more integrated part of fish farming operations.

Today, various organizational models for cryopreservation services exist worldwide. In the United States and Denmark, public institutes offer off-site cryopreservation services. In France, cooperatives provide similar support, while in Chile and Norway, private companies handle these services. IMV Technologies offers an innovative on-site service model, setting up laboratories within farms. This enables farmers to collect, freeze, and store sperm on-site, providing them with more flexibility and control over their genetic resources.

These developments in cryobanking strategies highlight the need for significant European and national funding to expand and optimize cryobank infrastructure. Establishing and maintaining cryobanks requires substantial resources, and financial support is crucial to fully realize the potential of these technologies. Adequate funding would not only facilitate broader adoption of cryopreservation but also improve the management of genetic resources, ultimately contributing to the sustainability of fish populations.

In conclusion, while significant progress has been made in fish genetic preservation, ongoing research and collaboration are essential to overcome existing barriers and ensure the long-term sustainability of aquatic genetic resources. This communication serves as a call to action for researchers, policymakers, and conservationists to prioritize and invest in the development of robust cryobank strategies as part of global efforts to safeguard our planet's aquatic heritage

Palavras-chave: cryobanking, fish preservation, genetic resources, strategies.