

RECENT RESEARCH HIGHLIGHT FROM THE JOURNAL OF THE WORLD AQUACULTURE SOCIETY

This issue's selected publication from the Journal of the World Aquaculture Society is "Addressing Reproducibility in Cryopreservation, and Considerations Necessary for Commercialization and Community Development in Support of Genetic Resources of Aquatic Species" by Leticia Torres and Terrence R. Tiersch. The article is found in volume 49(4):644-663.

Cryopreservation is the use of ultra-low temperature to preserve living cells or tissues. This technology has been widely applied to preserve germplasm of livestock and crops, which has greatly helped in protection, creation and distribution of genetic resources. Nonetheless, cryopreservation is underused in aquaculture species, which was claimed due to irreproducibility in the practice of cryopreservation of aquaculture species. The lack of standardization resulted in irreproducibility, which was further described as a lack of standardized procedures, terminology and lack of reporting guidelines. For example, methods used for estimating sperm motility are highly variable, involving different time after activation, sample volume, activation solution, viewing chamber, use of cover slip or not, all of which could result in difficulties in comparing protocols. Non-standardized terminology and reporting systems could also cause mis-interpretation and irreproducibility of experiments among labs.

In this paper, the authors assessed sources of irreproducibility at the levels of research scale, small-scale application and commercial-scale application. They also provided recommendations and solutions to address the issue of irreproducibility, including standard operating procedures, stock center and internet center for training, and strengthening of the role of scientific journals and reviewers. Standard operating procedures and standard data recording forms can be adopted and harmonized across user communities for small-scale, commercial and repository uses. Stock centers or other forms of community resource centers can provide cryopreservation training to user communities, which would be effective to develop, test and promote new technology and improve reproducibility. Scientific journals can act as harmonizing entities in cryopreservation of aquaculture species if they provide guidelines and enforce checklists that facilitate reproducibility of results.

Standardization is necessary to assure efficient transition to commercial-scale application and repository development of cryopreservation of aquaculture species. Once fully fledged, the application of cryopreservation would greatly promote development of repositories of germplasm of aquaculture species and protection and sharing of their genetic resources.

— *Chenhong Li, Section Editor, JWAS*

GENETICS AND BREEDING IN CHINESE AQUACULTURE: SPECIAL ISSUE PUBLISHED IN THE JOURNAL OF THE WORLD AQUACULTURE SOCIETY

China, the world leader in aquaculture production, has for centuries been home to selective breeding efforts for several important aquaculture species. Many advances have been made in aquaculture genetics and breeding in China over the last two decades. Intensive research programs on genetics and breeding have resulted in the development of 182 novel varieties that have been approved by the Ministry of Agriculture in China.

Professor Shaojun Liu, of the State Key Laboratory of Developmental Biology of Freshwater Fish, College of Life Sciences, Hunan Normal University, Changsha, Hunan, China, and Professors Chenghui Wang and Chenhong Li, of the Key Laboratory of Freshwater Aquatic Genetic Resources, Ministry of Agriculture, National Demonstration Center for Experimental Fisheries Science Education, and Shanghai Engineering Research Center of Aquaculture, Shanghai Ocean University, Shanghai, China, have guest edited a special issue on Genetics and Breeding in Chinese Aquaculture, published in the Journal of the World Aquaculture Society in April, 2018.

The collection of papers published in this special issue covers topics that range from selective breeding, hybridization, gynogenesis, sex control and manipulation, to the characterization of genes associated with important traits related to aquaculture performance.

An editorial by the guest editors summarizes the progress that has been made in China in genetics and breeding of aquaculture species. The special issue includes two review papers, one on genetic advances in tilapia sex control and manipulation and the other on genetic improvement and breeding practices on the Chinese mitten crab. Applied studies in this issue focus on common carp and crucian carp, while fundamental studies published address genetic advances in a variety of species that include: freshwater prawns, olive flounder, hybrid grouper, grass carp, mirror carp, ricefield eel, freshwater sleeper, and pearl oysters.

This special issue of the Journal of the World Aquaculture Society is a timely showcase for recent progress in aquaculture genetics and breeding in China. Members of the World Aquaculture Society can access these papers for free by first logging in to the WAS Member's only area of the web site at www.was.org and then selecting "View Articles" under the "Journal of WAS" heading on the Publications tab or you can scroll down and click on the photo of the JWAS in the right margin of the page. Those who are not yet members of the World Aquaculture Society can either join the society at www.was.org, or otherwise find these and other papers at www.onlinelibrary.wiley.com.