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Hybridization Potential of Oreochromis Niloticus (Nile Tilapia) with Oreochromis Jipe (Tilapia Jipe) in View of Lake Jipe Fishery Genetic Conservation

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Abstract : Oreochromis jipe is a tropical freshwater bentho-pelagic fish belonging to the Cichlid family that is endemic to the Pangani River basin and Lake Jipe in Kenya and northern Tanzania, while Oreochromis niloticus inhabits the Lake Victoria basin with reported cases in Lake jipe too. Unlike O. jipe, Oreochromis niloticus is spreading across the globe due to its cultural potential. This, however, could cause genetic purity concerns in the event of cross-breeding among the tilapiines, which is already taking place in the wild. The study envisaged establishing the possibility of hybridization among the two species under aquaculture conditions and phenotypically informing the difference between pure and cross lines. Two hundred sixteen mature brooders weighing 100-120g were selected randomly, 108 of Oreochromis Jipe and 108 of Oreochromis niloticus; for each trial, 72 males and 144 females were distributed into 3 crosses, each grouped in triplicates (Oreochromis niloticus (♀) X Oreochromis niloticus(♂);Oreochromis niloticus (♂) X Oreochromis jipe (♀); Oreochromis jipe (♂) X Oreochromis niloticus (♀); Oreochromis jipe (♂) X Oreochromis jipe (♀). All trials had the F1 generation, which is currently undergoing growth trials and assessing its viability for the 2nd generation. The results indicated that Oreochromis niloticus has better growth, followed by crosses (Oreochromis niloticus X Oreochromis jipe) and, finally, pure line Oreochromis jipe. Further, pure Oreochromis jipe F1 demonstrated potential for aquaculture adoption despite its recent introduction into aquaculture; thus, this will help towards the conservation of indigenous fish species of Lake Jipe fishery, which is currently under the Internationa Union for Conservation of Nature Red List of endangered fish species. However, there is a need to inform the purity of existing Oreochromis jipe wild stocks to inform genetic material conservation.

Keywords : biodiversity, climate change, fisheries, oreochromis jipe, conservation
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