

PRO 2643

Research Proposal

**Study Efficiency of Filtration
and Water Quality Changes in
the Intensive System**

TSK 4692

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Introduction

To economize on the use of water in aquaculture in the present series of investigations, the indoor recirculation of water was coupled with the intensive monoculture of fish.

This approach has already been followed for several decades in different countries in the world with variable degrees of success

In intensive farming, the fish are raised in artificial tanks at very high densities and are subject to supplemental feeding and fertilization.

Farmers must have a thorough understanding of the targeted species so that water quality, temperature levels, oxygen levels, stocking densities, and feed are set at the optimal levels to promote growth, reduce stress, control disease, and reduce mortality.

Essential here is aeration of the water, as fish need a sufficient oxygen level and fresh water for growth.

This is achieved by bubbling, cascade flow or with a water purification system.

Problems are encountered with the release and accumulation of metabolic wastes in pond water which may lead to potentially toxic conditions as well as to significant fluctuations in some water quality parameters such as pH, alkalinity, turbidity, ammonia and, in the prevailing dissolved oxygen levels of the recirculation water.

In order to remedy this situation, steps were implemented to minimize and, in some cases, also to reduce the initial levels of some of the potentially toxic metabolic wastes discharged into the recirculation water.

Various types of mechanical and biological filters were developed to aerate the water and to facilitate the breakdown processes of nitrogenous wastes.

It is better to maintain enough aeration in the intensive system to make environment healthy and favorable for the fish growth.

Objective

To find out the efficiency of filtration and Water quality changes in the intensive system

Methodology

One fish tank from the guppy growing section which is functioning under the intensive system will be selected for the experiment.

Initial water quality parameters mentioned below, will be checked in the selected tank.

- Temperature
- pH
- Nitrite
- Ammonia
- DOH

After that, water recirculating function will be stopped in earlier selected tank.

Initially measured parameters will be checked again in several times with two hour ratios.

Finally, data will be analyzed.

Literature Review

https://en.wikipedia.org/wiki/Fish_farming#Intensive_aquaculture

<http://fishcount.org.uk/farmed-fish-welfare/development-of-intensive-fish-farming>

<http://biology.kenyon.edu/stures/Compsnelson/Aquaculturepage.htm>