

The Effect of Zooplankton Density on the Growth and Survival of the Common Carp Larvae in Aquaculture Ponds

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ABSTRACT

To measure the effect of zooplankton density on the growth and mortality of the common carp fry in fish farm ponds, four clay ponds of area 2500 m² were chosen, with each having no water for one month. One ton of organic fertilizer (buffalo waste) was added to each pond and then filled with water. After a week-long of restocking, the weight of 10,000 common carp larvae of 0.104 ± 0.002g was filled in each tank. All the artificial food like pellets were not kept for the fish during the experimental period (April 2 to May 18, 2019). For the results, the initial fish growth was high and then exhibited a significant decrease or ceased toward the end of the experiments. At the beginning of the experiment, zooplankton population was at the highest number, but the figure gradually went down, forming a linear trend, as the experiment progressed. That pointed out the likelihood of a strong relationship between the expected and actual growth rate with the total quantity of zooplankton, which is 99% with the significance level ($P \leq 0.05$). This hence leads to the establishment of the right weight for the larvae in order for zooplankton to serve as their natural food. In the process of zooplankton classification through the research in four basins, rotifers proved to be the leading group for being followed by the copepods.

INTRODUCTION

The zooplankton provides most of the nutrients for fish larvae; among these, rotifers and small crustaceans such as copepods, cladocerans, ciliates and artemia are the ones that are mainly used for this purpose; however recently, live zooplankton has become a significant feed for fish farming with the success in farming relying on its quality as well as its fitness to be taken by the larvae in relation to size and taste (Davis *et al.*, 2018). Due to their rapid growth rates, the omnivorousness and capacity to reproduce in confined waters, the common carp is the most suitable for pond culture in Asia either alone or in conjunction with other species (Mohale *et al.*, 2020). This species stands the third among the globally exploited freshwater fishes after tilapia and trout, respectively, since it contributes 8% of the total production worldwide while grass carp (*Ctenopharyngodon idella*) represents 11% of the fish yield followed by the silver carp