

Impact of Phytoplankton on the Growth of Common Carp *Cyprinus carpio* L. Larvae

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ABSTRACT

The current study was conducted at the Agricultural Research Station- Al-Hartha (Agriculture College, Basrah University) in Al-Hartha District, approximately 16km to the northeast of Basrah Governorate. The experiment was conducted in four earthen ponds (2500m²). These ponds were drained for one month; one ton of organic fertilizers (Buffalo dung) was applied in each pond before refilling with water. After one week from refilling, 10000 common carp larvae with an average weight of 0.104± 0.002g were stocked in each pond. No artificial food was supplied to the fish during the experiment. Fish growth recorded a high rate at the beginning of experiment, then decreased or ceased at the end. The total number of phytoplankton was low at the beginning of the experiment, while a gradual increase was detected during the study. A negative correlation was found between the total number of phytoplankton and fish growth in all ponds. In addition, a significant positive correlation was recorded between salinity and fish growth. The investigation of phytoplankton taxa in the four ponds revealed that the first important family was Bacillariophyceae followed by Chlorophyceae.

INTRODUCTION

Common carp, *Cyprinus carpio*, is a very important cultivated species in several Asian countries and also in some European countries (Rahman, 2015). This is the most common cyprinid species that constitutes a significant part of inland freshwater fish production (Vilizzi *et al.*, 2015). The highest production of four cultivated fish around the world in 2020 were 5791.5, 4896.6, 4407.2 and 4236.3 thousand tons for grass carp, *Ctenopharyngodon idella*, silver carp, *Hypophthalmichthys molitrix*, the Nile tilapia, *Oreochromis niloticus*, and common carp, respectively (FAO, 2022).

The presence of carp has led to the shift in ecosystems characterized by phytoplankton-dominated turbid waters, few macrophytes, and subsequent decreases in biodiversity (Zambrano & Hinojosa, 1999; Khan *et al.*, 2003; Miller & Crowl, 2006). Hnatiuk (2006) found that ponds cultivated with carp species tended to be turbid and