

Relation of Water Quality and Bacteria Occurrence In Cage-Cultured Common Carp (*Cyprinus carpio*) In Basra, Iraq

Asaad M. R. Al-Tae^{*}, Raghad S. Jaafer, Anwar A. Maki

Marine Science Center, University of Basrah, Basra, Iraq

^{*}Corresponding Author: asaad.abdulhussain@uobasrah.edu.iq

ARTICLE INFO

Article History:

Received: May 17, 2024

Accepted: Aug. 7, 2024

Online: Aug. 21, 2024

Keywords:

Aquaculture,
Bacteria,
Cyprinus carpio,
Floating cages,
Physiochemical
parameters

ABSTRACT

Aquaculture is an extreme activity of valuable and fast sector and expansion worldwide, however there are concerns related to environmental sustainability. The current study was carried out to determine the relation between water quality and the occurrence of bacteria in cage farmed common carp (*Cyprinus carpio*) in Basrah Governorate southern Iraq. Water from floating cages were randomly sampled from seven sites along the Tigris River and Shatt al-Arab estuary from December 2012 to June 2013 and from October 2018 to May 2019. The water quality of each sample was measured, including the temperature, pH, iron, chloride, sulfide, ammonia, nitrite, phosphate, total suspended solids, conductivity, biological dissolved oxygen and chemical dissolved oxygen. A total of seventeen bacterial species were identified, including *Aerococcus viridans*, *Streptococcus gordonii*, *Streptococcus thoralansis*, *Staphylococcus lentus*, *Staphylococcus pseudintermedius*, *Staphylococcus lugdunensis*, *Kocuria kristinae*, *Lactococcus lactis* spp. *lactis*, *Leuconostoc mesenteroides* ssp. *cremoris*, *Vibrio cholera*, *Sphingomonas paucimobils*, *Aeromonas hydrophila*, *Aeromonas veronii*, *Aeromonas sobria*, *Pasteurella testudinis*, *Elizabethkingia meningoseptica*, and *Pseudomonas aeruginosa*. The results indicated that, despite the changes in the quality of the water, no association was detected between the alteration recorded and the occurrence of bacteria, whether in the water or sediment, during the period of study.

INTRODUCTION

Global population growth represents a major existential threat, and hence old farming methods may not cover the actual food requirements. In addition, major steps are needed to repair the severe environmental collapse. Therefore, innovative ideas in aquaculture could enable people to obtain nutrients without degrading the environment.

The aquaculture industry has steadily grown in response to the increasing demand for products intended for human consumption, which has allowed humanity to substantially exploit seas, lakes, and rivers, as well as maintain the quality of fish cages (Olapoju *et al.*, 2014; Karimian *et al.*, 2017; Palladino *et al.*, 2021; Yaghoubzadeh *et al.*, 2021; <https://www.ift.org>, 2022).