Gorgan University of Agricultural Sciences and Natural Resources

Utilization and Cultivation of Aquatics, Vol. 10(2), 2021
http://japu.gau.ac.ir
DOI: 10.22069/japu.2021.19125.1588

Performance of polypropylene and cotton sheet, as bacterial substrata, on water quality, growth and survival of common carp (*Cyprinus carpio* Linnaeus, 1758) larvae in a recirculating culture system

Gh.R. Rafiee[*1] and C. Rahimi[2]

[1]Professor, Dept. of Fisheries and Environmental Sciences, Faculty of Natural Resources, University of Tehran, Karaj, Iran,

[2]M.Sc. Graduate, Dept. of Fisheries, Faculty of Natural Resources, University of Tehran, Karaj, Iran

Received: 05.03.2021; Accepted: 06.21.2021

Abstract

An experiment was conducted to determine the efficiency of two kinds of substrata (Polypropylene and cotton sheet), as bacterial biofilter media on removal of N-compounds and fish growth in a recirculating culture system for a 6-week period. Rates of survival was significantly different between treatments ($P<0.05$). The mean (± SD) initial individual weight of fish was 3.4 ± 0.20 g and the fish attained to 9.19 ± 0.53 and 7.79 ± 0.38 g in treatments with cotton sheet and polypropylene, respectively at the end of experimental period. Concentration of total nitrogen, total ammonia-n and nitrate were significantly different ($P<0.05$) between treatments at the end of the experiment. Concentration of total ammonia-n reached to 0.050 ± 0.0021 and 0.054 ± 0.0039 mg L^{-1} in cotton sheet and propylene treatments, respectively. The electro-conductivities were significantly different and attained to 970± 0.32 and 900 ± 51.3 µmos/cm in treatments with cotton sheet and propylene, respectively, at the end of experiment ($P<0.05$). It was concluded that cotton sheet, can be used as an efficient bacterial substrate or medium in a recirculating carp culture system.

Keywords: Bacterial biofilter, Cotton, Recirculating system, Substrate, Water quality

*Corresponding author: ghrafiee@ut.ac.ir