

Thematic course: Antioxidant properties of aqueous media. Part 3.

Water research during the *Clarias gariepinus* farming in the closed containment aquaculture system

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Abstract

The article presents the results of a biochemical study of the total antioxidant activity of water during the *Clarias gariepinus* farming in closed containment aquaculture system, including the dynamics without replacement. For the first time is shown an increasing the total antioxidant activity with the highest values in the lower part of the biological filter. According to the results of daily observation, the fish behavior was adequate until the end of the experiment, which was stopped with the beginning of their mass death (more than 20%). Researches have shown the promise of using the indicator of total antioxidant activity to assess the work of the closed containment aquaculture system for hydrobionts farming. The issues of reducing the cost of farmed fish by the closed containment aquaculture system using aquaponics, which distinguished among other technologies by the high quality of environmentally friendly food products while significantly saving water resources which is an important problem for closed containment aquaculture system are considered. Food plants feed on bacteria from the waste products of fish while they consume the necessary secretion products from water – chemicals (nitrogenous, potassium, phosphorus compounds), naturally purifying the water. Aquaponics simulates the natural whirlpool, using the natural processes of fish vital functions for plants nutrient medium. As food plants can be used *Salicornia europaea* and glycophyte *Nasturtium officinale*, which has a high productivity and high content of vitamins, iron and glycosides. Both plants are tested in the closed containment aquaculture system including human, increased degree of isolation.

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