Susceptibility of channel catfish, blue catfish and channel × blue catfish hybrid to *ichthyophthirius multifiliis*

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Received: *01-Aug-2022; Manuscript No: JAEFR-22-73216;* ***Editor assigned:*** *03-Aug-2022; Pre QC No: JAEFR-22-73216 (PQ);* ***Reviewed:*** *17-Aug-2022; QC No: JAEFR-22-73216;* ***Revised:*** *22-Aug-2022 (R); Manuscript No: JAEFR-22-73216 (R);* ***Published:*** *29-Aug-2022;* ***DOI:*** *10.3153/JAEFR.22.8.005*

Introduction

Aquaculture has become an important sector given its potential to contribute to nutrition and family income, especially in relation to heteroclaria. It is highly productive due to its high resistance to disease and environmental pollution. Bangladesh Bureau of Statistics (2007) noted that in more than two-thirds of the world where 60% of the people live in poverty, aquaculture has become an increasingly important sector, especially in relation to heteroclalian cultures. I discovered that Possibility to contribute to nutrition and family income. Fish are members of the paraphyletic group of organisms consisting of all aquatic cranes that have gills and do not have digitized limbs. Included in this definition are live hagfish, lampreys, cartilaginous fish, bony fish, and various extinct related groups. Since most fish are ectothermic, changes in ambient temperature can change their body temperature. Fish are abundant in most bodies of water and can be found in nearly every aquatic environment, from high mountain streams to deep waters and even the deepest ocean depths. With 33,100 described species, fish have more biodiversity than any other vertebrate group.

Description

Stocking density directly affects growth and survival. Despite research on stocking densities, it is still difficult to obtain information on better stocking densities by species, as optimal stocking densities are affected by different culture systems, fish species, and fish switches. Successful farming requires proper species selection, proper feeding, maintenance of water quality, and general management. Stocking density can influence growth performance, fish physiology and behavior, feeding activity, metabolic disturbances and digestive benefits, feed conversion, hormonal changes and immune activity. However, fish growth is also determined by space availability, sufficient food, and other environmental factors. Farmed fish are typically fed 1%-5% of their body weight per day, with fish fed 5% performing best. After 52 weeks, the fish were tested for blood. Fish samples were individually removed from each treatment tank using a plastic filter basket net and placed belly up on the table. A blood sample of approximately 2.0 ml was taken from the ventral area near the anal opening using a 2.5 ml syringe and hypodermic needle. Blood samples were placed in heparinized ethylenediaminetetraacetic acid (EDTA) anticoagulant tubes and capped to prevent leakage for hematological analysis. Using a plastic syringe is a necessary precaution for fish blood, as contact with glass increases clotting time and anticoagulants also reduce clotting time. Physiological assessment based on the hematologic response of fish exposed to xenobiotics has provided insight into the devastating effects of xenobiotics and has been used as a sensitive biomarker in the contamination and health assessment of aquatic biota. The significant reductions in RBC, HB, PCV, and erythrocyte index compared to controls were a result of the hemolytic effect of the effluent released onto the RBC membrane, likely inhibiting the pathway for hemoglobin synthesis. A decrease in these parameters indicates a microcystic hypochromic anemic state resulting from increased erythrocyte degradation rates at the expense of their formation.

Conclusion

The results of this study allowed us to conclude that the growth performance of hybrid catfish decreased as the proportion of autoclaved castor cake in the diet increased. Further research into the use of castor bean cake in adult fish diets as a non-conventional plant material will maximize its inclusion in fish diets as an alternative source of plant protein. We will replace the existing feed and formulate compound feed at low cost. Without compromising growth and feed efficiency, in this study, corn gluten meal was used at minimal levels in the diet of Heteroclarious puppies, along

with other vegetable protein materials such as soybean meal and peanut cake. Pure plant protein materials offered a better alternative protein source in fish nutrition because they were readily available and inexpensive. Currently, fish farm fish feed is expensive due to the high cost of feed ingredients, especially protein sources for juvenile fish. The only inexpensive and sustainable alternative is to encourage the use of locally available plant material to replace expensive fishmeal in fish nutrition.

Acknowledgement

None.

Conflict of Interest

The author declares there is no conflict of interest in publishing this article.

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