

Effect of Salinity on Survival, Energy Metabolism and Some Hematological Indices in Common Carp (*Cyprinus carpio* L.) Juveniles Fed Potassium Chloride and Growth Hormone Diet

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Abstract: The juveniles of common carp *Cyprinus carpio* with a weight of 44.82 ± 11.82 g exposed to salinity of 7 and 15 g/l to study the effect of additive potassium chloride and growth hormone to the diet on salinity tolerance, as well as their effects on some hematological and biochemical measurements. Five experimental diets were set as controls: free added diet T1, diet contained two levels of potassium chloride 3% (T2) and 7% (T3), as well as two levels of growth hormone: 1% (T4) and 3% (T5). The experimental diets had a crude protein content of 27.5% and a crude lipid content of 8.02%. The results showed that fishes which were fed potassium chloride shows a high survival rate at salinities of 7 g/l and 15 g/l and fewer changes in blood glucose levels than those that were fed the growth hormone. Protein levels were lower and energy consumption was lower in fishes fed potassium chloride. Liver enzymes: alanine transaminase (ALT), aspartate transaminase (AST) and alkaline phosphates (ALP) have significantly raised, correlated with the food additive and levels of salinity. According to the current study, a diet supplemented with potassium chloride and growth hormone could reduce salinity stress in common carp and improve fish survival.

Keywords: Potassium chloride, Growth hormone, Common carp, AST, ALT, ALP, Oxygen consumption

Introduction

Fishes can make many physiological changes in response to stressors to maintain homeostasis, osmolality and hematology (Carragher & Rees, 1994; McDonald & Milligan, 1997). In aquaculture, salinity is an important abiotic factor and the optimal level can affect growth and survival success (Ruscoe et al., 2004). Different species have varying levels of salinity tolerance (Larsen et al., 2012). The physiological responses of various freshwater and marine fish species to high and low salinity levels in the aquatic environment have been studied (Hasenbein et al., 2013; Sinha et al., 2015).

Common carp, *Cyprinus carpio* is a member of the family Cyprinidae. It is the most widely cultivated freshwater species in the world (El-Saidy & Gaber, 2005),