

Abstract

Selenium is a mineral that known to be a rare and essential ingredient for the growth and physiological function of animals, including fish. This study investigated the effects of different forms of selenium (Mineral, nanoparticles and organic) on growth performance, some of blood enzymes activity and antioxidant response in *Schizothorax zarudnyi*. For this purpose, 210 fish with mean weight (30.15 ± 0.35 g) was prepared from zahak center of proliferation and reconstruction of native fish. After adaptation for two weeks, these fish were distributed in a completely randomized design with 7 treatment group and 3 triplicate (10 fish / replicate) aquariums (50 liter) in each group. fish were fed with diets containing 0, 0.5, 1 mgSe/ kg (mineral, nano, and organic) for 60 days. Results of growth performance did not showed any significant difference between treatments and control group ($p < 0.05$). In this study, the highest amount of carcass moisture was observed in organic selenium 0/5 mg/kg treatment, which had a significant difference compared to control ($p < 0.05$). The highest protein content of carcass was observed in selenium mineral 0/5 mg/kg. The amount of carcass ash in of selenium mineral 0.5 mgSe/kg showed a significant difference compared to control and other treatments ($p < 0.05$). The highest carcass fat content was observed in the treatment nanoselenium 0/5 mg Se/kg, which had significant different with control treatment ($p > 0.05$). In the evaluation of antioxidant and hepatic enzymes in response to various forms of selenium (mineral, nano, and oligene) there was significant difference indicated in MDA activity in selenium mineral 0/5 mgSe/kg and nano selenium 0/5 mg Se/kg, organic selenium 0/5 and 1 mg/kg treatment GPX in treatment nano selenium 1 and 0/5 mg Se/kg, selenium mineral 1 mgSe/kg selenium organic 1mgSe/kg, SOD in treatments selenium organic 0/5 and 1mgse/kg selenium mineral 1mgSe/kg, CAT in all treatment except nano selenium 1mg/kg, AST in treatment selenium mineral and organic in 0/5 mg/kg, ALP in nanoselenium 1mg/kg, selenium organic 1mg/kg and selenium organic 0/5mg/kg and LDH except in the treatment nano selenium 1 mg/kg, selenium organic 1mg/kg compared to control treatment. Selenium accumulation in muscle tissue, was not significantly different between treatments ($p > 0.05$). But, in the liver tissue there was a significant difference ($p < 0.05$). The results of this study showed that the treatment of 1 mg/kg nanoselenium had the best of growth performance. In addition, the effect of different forms of selenium (mineral, nano, and organic) on the carcass composition analysis, antioxidant activity and liver enzymes and accumulation of selenium concentration in muscle and liver tissues in *Schizothorax zarudnyi* do not follow the same pattern of reduction and increase.

Key word: Antioxidant Response, Nanoselenium, Blood enzymes, *Schizothorax zarudnyi*.



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**Effect of dietary contain of different selenium
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*Schizothorax zarudnyi***

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