

The effect of *Zataria multiflora* extract on growth performance and liver enzyme activities in Caspian Roach (*Rutilus rutilus caspicus*)

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Received date: 2021.05.21

Reception date: 2021.07.05

Abstract

Zataria multiflora it is one of the plants that has been considered as an effective medicinal aspect. The aim of this study was to evaluate the effect of *Zataria multiflora* extract on growth function and serum enzyme activities in Caspian Roach (*Rutilus rutilus caspicus*) for 60 days. 240 fish with an average weight of 30.25 ± 1.20 g were tested in a completely randomized design with 4 experimental treatments and 3 replications (with 20 pieces per replication) in 2019. The control treatment (without plant extract) and the experimental treatments 2, 3 and 4 had 0.25, 0.5 and 0.75 g of plant extract per kg of diet, respectively. At the end of the experiment, it was found that the highest final weight, body weight gain and specific growth rate were observed in treatment 4 including 0.75 g of *Zataria multiflora* extract per kg of diet, which showed significantly different from the control treatment. Also, the highest feed conversion ratio was observed in the control treatment and the lowest feed conversion ratio was observed in treatment 4 with 0.75 g of *Zataria multiflora* extract per kg of diet. Also, the levels of ALP, ALT, AST and LDH enzymes in the treatments with sage extract were lower than the control treatment and a significant difference was observed between the levels of these enzymes between the treatments ($P < 0.05$). The lowest amount of serum enzymes was observed in treatment 4, which contains 0.75 g of *Zataria multiflora* extract per kg of diet. The results of present study showed that diets containing *Z. multiflora* improve growth performance and reduce liver enzyme levels in *R. rutilus caspicus*.

Keywords: *Zataria multiflora* extract, Caspian Roach, Growth, Serum enzyme activity.