Effect of phytogenic pigment lutein on growth performance, nutrition, survival rate and pigmentation of *Salmo trutta caspius*

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Receive date:
Acceptant date:

Abstract
In this study, the effects of lutein (a plant pigment) on the growth performance, nutrition, survival rate and pigmentation of *Salmo trutta caspius* with initial average weight 87±0.37g were studied for 8 weeks. 4 treatments with 3 replicates were tested as follows: T1: control, T2: 14 mg/kg lutein, T3: 16 mg/kg lutein, T4: 20 mg/kg lutein. The results showed that there were no significant difference between the weight and length of the treatments which fed lutein ($P>0.05$), by the means these treatments had significantly more weight and length than the control ($P<0.05$). In growth performance, nutritional parameters and the survival rate between the treatments which fed lutein, no significant difference were observed, except in the condition factor (CF) ($P>0.05$). But these treatments showed significant differences compared with control in all of these factors except in the FCR ($P<0.05$). The minimum range of food conversion ratio (FCR) and CF, and the maximum range of body weight index (BWI) and growth rate (GR) were observed in T4. In terms of pigmentation between experimental treatments, lutein 20 mg/kg was created more color change than other treatments and control. The results showed that the usage of lutein in the diet was effective for *Salmo trutta caspius*.

Keywords: *Salmo trutta caspius*, Lutein, Growth, Survival rate, Pigmentation.