

Effects of Vitamin E and Vitamin on Growth, Survival and Some Haematological and Immunological Parameters of Caspian Brown Trout, *Salmo trutta caspius* Juveniles

Authors : Hossein Khara, Mahmoud Sayyadborani, Mohammad Sayyadborani

Abstract : In the present study, we examined the effects of different dietary levels of ascorbic acid (vitamin C) and α -tocopherol (vitamin E) and their combinations on growth, survival and some haematological and immunological parameters of Caspian brown trout, *Salmo trutta caspius* juveniles. 15 experimental treatments and one control group with three replicates were considered for experiment. The experimental treatments were fish fed by experimental diets containing different levels of Vit C and E as follow: T1: Vit E (20 mg.kg diet⁻¹) + Vit C (100 mg.kg diet⁻¹), T2: Vit E (30 mg.kg diet⁻¹) + Vit C (100 mg.kg diet⁻¹), T3: Vit E (40 mg.kg diet⁻¹) + Vit C (100 mg.kg diet⁻¹), T4: Vit E (20 mg.kg diet⁻¹) + Vit C (200 mg.kg diet⁻¹), T5: Vit E (30 mg.kg diet⁻¹) + Vit C (200 mg.kg diet⁻¹), T6: Vit E (40 mg.kg diet⁻¹) + Vit C (200 mg.kg diet⁻¹), T7: Vit E (20 mg.kg diet⁻¹) + Vit C (300 mg.kg diet⁻¹), T8: Vit E (30 mg.kg diet⁻¹) + Vit C (300 mg.kg diet⁻¹), T9: Vit E (40 mg.kg diet⁻¹) + Vit C (300 mg.kg diet⁻¹), T10: Vit C (100 mg.kg diet⁻¹), T11: Vit C (200 mg.kg diet⁻¹), T12: Vit C (300 mg.kg diet⁻¹), T13: Vit E (20 mg.kg diet⁻¹), T14: Vit E (30 mg.kg diet⁻¹) T15: Vit E (40 mg.kg diet⁻¹). Also a non-vitamin supplemented was considered as control group. Growth parameters were measured monthly and serum parameters assayed at the end of the experiment. According to our results, Vit C and E improved survival and growth parameters including specific growth rate (SGR), weight gain percent (WG%) and biomass. The highest values of these parameters obtained in T8, T9 and T8 respectively. The lowest FCR obtained in T8. The haematological parameters including red blood cells (RBCs), white blood cells (WBCs), haematocrit (Hct) and haemoglobin (Hb) were higher in vitamin treated groups than control group with highest values in T8. In T13, WBC values were higher compared to other experimental groups. The immunological parameters including lysozyme activity, Immunoglobulin (IgM) and total immunoglobulin (TIg) were significantly higher in vitamin supplemented groups than in control group. In this regard the highest values of these parameters were found in T12. The lowest values of TIg and lysozyme activity were observed in control group and fish fed by only vitamin E i.e. T13, T14 and T15. In conclusion, our results show that Vit C and E in combination or only can improve growth, survival, haematological and immunological indices of Caspian brown trout.

Keywords : vitamins E, vitamins C, growth, survival, haematological parameters, immunological parameters

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020