Abstract:

The Effects on Cortisol, Glucose and Lysozyme Activity in Different Concentration of Formaldehyde in Rainbow Trout

In this study fish diseases and therapeutic purposes prophylactic widely used formalin (CH₂O)'s in rainbow trout (Oncorhynchus mykiss) cortisol, glucose and their effects on lysozyme activity were examined. October-November 2009 the researches have been carried out among the 60 rainbow trout weighing approximately 180 g were used. Replications in the experiment conducted of formalin 250 mg/L (60 minutes), 500 mg/L (45 minutes) concentrations were applied. For each group of 20 fish, cortisol, serum glucose and lysozyme activity was used for measurements. Cortisol analysis ECLIA (Electro chemiluminescence Immuno Assay) method, lysozyme activity diffusion agar (agar plate, lysoplate) with the method of analysis and glucose were determined by spectrophotometric methods. The data obtained in the experiment of the SPSS package statistical program to evaluate all the data using analysis of variance (ANOVA) was applied and the group mean differences between LS Means JMP Student's T test multiple comparison test with significance level according to p<0.05 was set. With the lowest average value of cortisol data in the control group (90.11 ±10.68 nmol), with the highest average value of 500 mg/L formalin group (280.30 ±42.78 nmol) was observed. Lowest aver-age value of data in the control group in glucose (55.00±2.22 mg/dL), the highest average value of 250 mg/L formalin group (115.10 ±7.3 mg/dL) was observed. With the lowest average value of lysozyme activity 500 mg/L formalin group (1.937 ±0.34 mg/mL), the highest aver-age value in the control group (2.114 ±0.50 mg/mL) was observed. Formalin applied cortisol and glucose levels in fish in a statistically significant increase is detected, the lysozyme level as a decrease was statistically (p<0.05). In serum than the control group these values of the statistical difference was due to stress by determining the formation of formalin use for rainbow trout farming systems should be used consciously been concluded.

Keywords:

Oncorhynchus mykiss, Formalin, Cortisol, Glucose, Lysozyme activity