Effect of different therapeutic baths of potassium permanganate ($KMnO_4$) and copper sulfate ($CuSO_4.5H_2O$) on bacterial and fungal load on skin and gill and stress and blood indices in Acipenser ruthenus

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The present study was planned to investigate the effect of different baths copper sulfate and potassium permanganate on bacterial and fungal flora of the skin and gill tissue of Acipenser ruthenus. For this research 105 fish were sampled with average weight of41/83±2/85 gr and average length of 23/67±0/48cm. Treatments with con centrations of copper sulfate 2 ppm (bathroom of long-term, 12 hours), 5 ppm (for short-term ratings, 5-10 minutes), 10 ppm (bath of immersion, 30-45 seconds) and potassium permanganate concentrations 1 ppm (bath of long-term, 12 hours), 2 ppm (for short-term ratings, 5-10 minutes), 3 ppm (bath of immersion, 30-45 seconds) and the last group "no matter disinfection" served as a control were done. Bacterial and fungal results showed a statistically significant difference between treatment and control group, in 2 and 3 ppm doses decreased the fungal flora of the skin and gills. Also the copper sulfate in 10 ppm and 5 ppm concentrations reduced the bacterial flora on the skin. White blood cell and Neutrophil results showed a statistically significant difference between treatments and control group ($p<0.05$). Also, Cortisol and Glucose results showed a statistically significant difference between treatments and control group ($p<0.05$). According to the results of the disinfection method, disinfection short-term (10 minute) is recommended for both materials

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