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Effect of fish breeding pool location on hematological and biochemical, anti-oxidative serum indiced in cultured rainbow trout (*Oncorhynchus mykiss*)

***H.R. Gheisari[1], N. Eskandari Roozbahani[2], A. Nasri[3], S. Nazifi[4], J. Rajabi Aslani[5]**

[1]Associate Prof., Dept., of Food Hygiene, School of Veterinary Medicine, Shiraz University, Shiraz, Iran, [2]Ph.D. Student of Pharmacology, Dept., of Basic Sciences, School of Veterinary Medicine, Shiraz University, Shiraz, Iran, [3]Ph.D. Graduated of Food Hygiene, Dept., of Food Hygiene, School of Veterinary Medicine, Shiraz University, Shiraz, Iran, [4]Professor, Dept., of Clinical Studies, School of Veterinary Medicine, Shiraz University, Shiraz, Shiraz, Iran, [5]D.V.M., Dept., of Food Hygiene, School of Veterinary Medicine, Shiraz University, Shiraz, Iran

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Abstract

The aim of this study was to investigate the effect of fish breeding pools on the health of fish in relation to their blood factors. The pools were selected from three different locations, depending on the geographical location and the distance from the agricultural lands. District one, the source of water was river, the second district was from the well and the third district was provided by spring. Farmers in the district one consumed the highest amount of agricultural pesticides and the district two had the least consumption. Total 66 fish samples were isolated from pools in three regions; blood samples were taken and examined biochemical, hematological and oxidative factors. The level of liver enzymes, alanine aminotransferase (ALT) and aspartate aminotransferase (AST), in district two was the highest and there was a significant difference with the other regions ($p<0.05$). The hematological parameters, hemoglobin (Hb) and Hematocrit (PCV), were lowest in the district two. In the case of differential counting of white blood cells, heterophils, monocytes, and eosinophils in district two was higher than other regions ($p<0.05$). The level of Superoxide dismutase (SOD) was the highest in the district one ($p<0.05$). In district two, despite lower consumption of pesticides in agriculture, because of the low distance of the pool from agricultural lands, we showed a high level of liver enzymes, a low level of blood-related factors associated with anemia and an increase in blood cells, which is an indicator of probable microbial contamination. In general, the fish health of this district was less than the others. Therefore, it could be suggested that the location of the fish breeding pool has an impact on the health of fish.

Keywords: Fish Farming Pool, Rainbow Trout, Biochemical and Serum Antioxidant factors, Hematological Parameters

*Correspond author: ghaisari@shirazu.ac.ir