

Evaluation the Concentration of Pb, Cd, Cu, Ni, Zn, Cr in Rainbow Trout and Water of Haraz River

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Abstract : Being the second largest river in the southern Caspian Sea basin, the Haraz River flows northwards through the Alborz mountains in the central region of Mazandaran province. The Haraz basin has specific geological characteristics affecting the river water quality. This area has been a rich source of minerals from times immemorial. About 45 mines (coal, limestone, sand and gravel, etc.) have been operational for the last eight decades. In the other hand this region is one of the most famous fish culturing area around Tehran & many farms are located beside this river. The aim of this study was to determine the concentration of Zn, Cd, Cr, Pb, Cu, Ni in fish muscles & water in Haraz river. In order to determine the heavy metals concentration in all parts of the river, 4 station (Haraz, Razan, Chelrood & Amol) were selected. Totally 32 samples were collected from 8 farms (4 sample from each farm and 2 farms from each station). 4 water samples were collected. Biometric were performed, then 10 grams of fish muscle were dissected and samples were prepared according to standard method. Heavy metal concentration were determined by atomic absorption method. The mean concentration of Zn in fish muscles & water in Haraz, Razan, Chelrood and Amol were 0.72, 0.32, 0.522, 0.5 & 1.72, 1.81, 1.77, 1.7 ppm respectively. Ni didn't detect in fish samples but the mean concentration in water samples in Haraz, Razan, Chelrood and Amol were 1.1, 0.9, 1.1, 1.1 ppm respectively. The mean concentration of Cr in fish muscles & water in Haraz, Razan, Chelrood and Amol were 0.586, 0.492, 0.5, 0.552 & 2.2, 2.2, 2.1, 2.22 ppm respectively. Cd didn't detect in any sample. Pb concentration in fish samples & water in Haraz, Razan, Chelrood & Amol were 0.44, 0.34, 0.37, 0.48 & 0.11, 0.11, 0.11, 0.14 ppm respectively. The mean concentration of Cu in fish muscles & water in Haraz, Razan, Chelrood and Amol were 0.754, 0.372, 0.539, 2.3 & 0.11, 0.21, 0.17, 0.37 ppm respectively. Cu concentration in The fish muscles and water was increased significantly in Amol station. The results of this study showed that heavy metal concentration in fish muscles and water are lower than standards.

Keywords : heavy metals, fish, water, Haraz, Iran

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