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| Title | Heavy Metal Concentrations and Human Health Risk Assessment of Selected Wild and Cultured Fishes of Bangladesh | | |
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| Abstract |  |
| This study was conducted to estimate the concentration of selected heavy metals such as chromium (Cr), manganese (Mn), cobalt (Co), nickel (Ni), copper (Cu), zinc (Zn), cadmium (Cd), and lead (Pb) as well as the possible risk to consumer health from the flesh of three wild and cultured fishes (Labeo rohita, Mystus cavasius, and Heteropneustes fossilis) collected from the Meghna river, Narayangonj and Rajoir fish farm, Madaripur district respectively. Heavy metal concentrations were determined using Atomic Absorption Spectrometric method. The average concentration of heavy metals were found in the wild fish samples in the range as Cr (0.295-1.647), Mn (0.900-1.294), Ni (0.063-0.198), Cu (0.179-0.529), Zn (5.487-8.343), Cd (0.004-0.009) and Pb (0.193-0.290) mg/kg dry weight while in the cultured fish samples in the range as Cr (0.043-0.315), Mn (0.975-2.36), Co (BDL), Ni (0.005-0.095), Cu (0.238-0.978), Zn (5.487-8.305), Cd (0.004-0.009), and Pb (0.238-0.286) mg/kg dry weight respectively. The hierarchy of mean concentration of heavy metals in wild fishes was Zn> Mn> Cu> Pb> Cr> Ni > Cd and in the cultured fishes, the order was found Zn> Mn> Cr> Pb> Cu> Ni > Cd. The present study showed that the wild fish accumulated higher concentration of heavy metals in their muscles than the cultured fish. The analyzed Ni, Cu, Zn, Cd, and Pb were below the allowable level specified by international agencies (FAO, WHO, EU, CE, USEP). In order to assess the human health risk, the Target Hazard Quotient (THQ), Hazard Index (HI), and Target carcinogenic Risk (TR) were calculated. The TR values suggested that the fishes posed low to moderate carcinogenic risk from Cr, Ni and Cd. Consequently, continuous and excessive consumption of these fish species over a lifetime will increase the possibility of causing cancer. | |