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Heavy metals contamination in highly consumed small indigenous fish species and possible human health risk implications in BangladeshShamshad B Quraishi¹, Maesha Musarrat², A K M Atique Ullah¹, Shamima Akon², Naznin Shultana Moushumi², Quamrun Nahar³ and Syeda Saliha Saliheen Sultana²¹Bangladesh Atomic Energy Commission, Bangladesh²College of Home Economics, Bangladesh³Bangladesh Institute of Research and Rehabilitation in Diabetes, Bangladesh

Fish is the most important single source of high-quality protein which contributes about 55% of the animal protein of Bangladeshi people. However, due to the rapid urbanization and unplanned industrialization, aquatic environments are being polluted with various types of chemical contaminants especially with heavy metals that are non-biodegradable and carcinogenic. Consequently, it is emergent to evaluate the level of contamination in fish species as they are one of the most important ingredients among different types of biota. Indigenous small fishes are supposed to be contained high quality protein and people usually take them with high rate. Therefore, the research was aimed to determine the toxic elements in highly consumed indigenous small fish with a good number of varieties with a view to assess the possible human health. The concentrations of five heavy metals (Pb, Cd, Cr, As and Hg) in 14 fish species collected from local markets of Dhaka city, Bangladesh were measured using Atomic Absorption Spectrometry (AAS) technique. The estimated values for Pb, Cd, Cr and Hg were found to be 0.284-1.554, 0.010-0.014, 0.055-0.431 and 0.027-0.252 mg/kg, respectively. However, the concentration of As in the investigated fish species was not detected (method quantification limit, 0.08 mg/kg). The Estimated Daily Intake (EDI) of heavy metals was calculated based on mean fish consumption of 49.5 g/person/day by Bangladeshi households and indicated that no risk to people's health due to consumption of indigenous small fish. Moreover, from the estimation of non-carcinogenic risk, the intake of individual heavy metals as well as combined heavy metals through the consumption of selected fish species were found safe for human health.

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