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**Title:** Chemical speciation of trace metals in sediment and their bioaccumulation in fish species of three urban rivers around Dhaka City, Bangladesh

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**Abstract**

Trace metals were measured in sediments and three commonly consumed fish species, *Channa punctatus*, *Heteropneustes fossilis* and *Trichogaster fasciata* by using inductively coupled plasma mass spectrometer (ICP-MS). Abundance of total metals in sediments varied in the decreasing order of Cr > Ni > Pb > Cu > As > Cd. Sequential extraction tests revealed that the studied metals were predominantly associated with the residual fraction, followed by the organically bound phases. The range of metal concentration in fish species were Cr (0.75–4.8), Ni (0.14–3.1), Cu (1.1–7.2), As (0.091–0.53), Cd (0.008–0.13) and Pb (0.052–2.7 mg/kg ww), respectively. The rank of biota-sediment accumulation factors (BSAFs) for fish species were in the descending order of Cu > As > Pb > Ni > Cr > Cd. Metals concentration in fish exceeded the international permissible standards suggests that these species are not safe for human consumption.