

A case study on heavy metal contamination and sediment texture at Kolatoli Beach, Cox's Bazar, Bangladesh: implications for ecological and human health risks

Nazmul Hossain¹, Md. Simul Bhuyan^{2,3}, Mohammad Ismail⁴, Sajid Al Azwad¹, Maksudur Rahman Asif⁵, Md Mehedi Iqbal⁶

¹Department of Soil Science, University of Chittagong, Chittagong 4331, Bangladesh.

²Bangladesh Oceanographic Research Institute, Cox's Bazar 4730, Bangladesh.

³Department of Aquatic Resource Management, Faculty of Fisheries, Sylhet Agricultural University, Sylhet 3100, Bangladesh.

⁴Department of Environmental Science and Disaster Management, Noakhali Science and Technology University, Noakhali 3814, Bangladesh.

⁵College of Environmental Science and Engineering, Taiyuan University of Technology, Taiyuan 030024, Shanxi, China.

⁶Institute for East China Sea Research, Organization for Marine Science and Technology, Nagasaki University, Nagasaki 851-2213, Japan.

Correspondence to: Md. Simul Bhuyan, Bangladesh Oceanographic Research Institute, Cox's Bazar 4730, Bangladesh. Email: simul@bori.gov.bd

Table S1. Analytical specifications for AAS-based HMs analysis

Heavy metal	Experimental parameters of hollow cathode lamp				Permissible limits in sediments (according to USEPA)			Recovery Rate (%) \pm SD	Method Detection Limit (MDL, mg/kg)
	Lamp current (mA)	Wavelength (nm)	Slit width (nm)	Calibration range ($\mu\text{g/L}$)	(mg/kg)				
Cu	4	324.8	0.5	400-2,000	16	95 \pm 1.5		0.02	
Zn	5	213.9	1	200-1,000	110	97 \pm 1.2		0.03	
Mn	5	279.5	0.2	500-2,000	30	98 \pm 1.0		0.04	
Fe	5	248.3	0.2	2,000-10,000	30	96 \pm 1.3		0.05	
Cd	4	228.8	0.5	400-2,400	0.60	94 \pm 1.6		0.01	
Pb	10	217	1	5,000-25,000	40	92 \pm 1.8		0.02	