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Concentration of heavy metals in the sea food (fishes, shrimp, lobster and crabs) and the impact on human health in Saint Martin Island, Bangladesh

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The contaminated aquatic environment may end up into the food chain posing risks to tourists' health in tourist destination. To assess the health risk for tourists visiting Saint Martine island, the best destination of the tourists, both domestic and foreigner, in Bangladesh, a study has been undertaken to analyze the level of heavy metal contamination from Chromium (Cr), Manganese (Mn), Copper (Cu), Zinc (Zn), Arsenic (As), Cadmium (Cd), Lead (Pb), Mercury (Hg), Iron (Fe), in six mostly consumed fish (*Leporinus fasciatus*, *Rastrelliger kanagurta*, *Hygrocybe nigrescens*, *Pleistodontes cuneatus*, *Polistes annularis* and *Sargocentron rubrum*), and five crustacean species (one shrimp (*Parapenaeopsis sculptilis*) one lobster (*Pityriasis versicolor*) and three crabs (*Portunus sanguinolentus*, *Thalamita crenata* and *Matuta victor*) captured at Saint Martine Island of Bay of Bengal, Bangladesh. The samples were analyzed for trace metals using atomic absorption spectrometer (AAS) and the concentrations of the metals were interpreted using US EPA (Environmental Protection Agency) health risk model. Muscle and carapace/exoskeleton of shrimp, lobster and crabs were analyzed which contained various concentration of Pb, Hg, As, Cr, Cd, Fe, Cu, Zn and Mn. The hierarchy of the heavy metal in marine fishes showed as Fe>Cd>Zn>Pb>Cu>Cr>Mn>Hg. Concentration of Pb in the species *R. kanagurta*, *H. nigrescens* and *S. rubrum* was above the Food Safety Guideline (FSG) by Australia-New Zealand and other legislation in most of the marine fish and crustaceans. Furthermore, crabs showed the highest mean heavy metal concentrations than that of shrimp and lobster. The carcinogenic acceptable ranges were observed in three fish species (*R. kanagurta*, *H. nigrescens*, and *S. rubrum*) and one crustacean species (*P. sculptilis*) samples.

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