

Water Contamination by Mercury and their Toxic Effects on Aqua Culture and Human Health through Food Chain †

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† Presented at Environmental Toxicology: Impact on Human Health (Environ Tox 2021)

Received: 5.11.2021; Revised: 18.11.2021; Accepted: 20.11.2021; Published: 30.11.2021

Abstract: Mercury is a naturally occurring heavy metal and a toxic pollutant with high atomic weight and density, which is five times greater than water. Introduction of mercury into atmospheric -soil - water distribution cycles can bioaccumulate, causing adverse effects to human health. Mercury can contaminate the aquatic environment through various sources like an industrial waste (metal-based industry), hospital waste, and atmospheric sources. Aquaculture is the rearing of aquatic organisms, and this metal toxicity has a remarkable effect on aquaculture. Mercury is considered a systematic toxicant responsible for inducing multiple organ damage even at a lower level of exposure. It does not only affect the aquatic ecosystem but also humans by biomagnification. When it is released into the environment, it accumulates into water bodies and leads to sedimentation, where it converts into methylmercury, and it makes its way through the food chain into fish, shellfish, and eventually into a human. Methylmercury derived from eating fish is readily absorbed in the gastrointestinal tract and, because of its lipid solubility, can easily cross both the placental and blood-brain barriers. It affects the immune system, manipulates the genetic and enzymatic systems, and even damages the CNS .

Keywords: heavy metal; water; aquaculture.

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Funding

This review received no external funding.

Acknowledgments

The authors are thankful to Vivekananda Global University, Jaipur, India, for providing valuable laboratory and analytical equipment.

Conflicts of Interest

The authors declare no conflict of interest.