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Efficiency of sentinel organisms as biological monitors for heavy metal pollution

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Monitoring heavy metal pollution in aquatic and terrestrial habitats using sensitive chemical instruments is not valuable. Heavy metals exist in aquatic environment as complexes or free ions. Only free ions are available for living organisms. Moreover, if the analysis with those instruments resulted in nonhazardous concentrations of metal pollutants in the studied areas, the results don't actually reflect the extent of heavy metal contamination in living organisms as the metal concentrations can be transferred and multiplied across the food chain from one consumer to the other. Some living organisms especially, mollusks have the ability to detoxify metal pollutants within some organelles of their tissues. Furthermore, those organisms can accumulate those metal pollutants at their low levels in the inhabitant areas several times so that bioaccumulation factor can be calculated for heavy metals within their tissues relative to that of their inhabiting aquatic and terrestrial habitats. The present work discuss the roles for selecting appropriate biomonitors and their efficiency to monitor heavy metal contaminants determining the contaminated areas that will be unsafe for human uses.

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