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ASSESSMENT OF METALLIC CONTAMINATION IN SEDIMENT AND MULLET FISH (*Mugil cephalus* Linnaeus, 1758) TISSUES FROM THE EAST ALGERIAN COAST

Abstract

The present work was designed to assess the contamination level in the coastal of Annaba, following the spectrophotometric determination of the level of some metallic elements (Fe, Cu, Pb, Zn, Ni and Cd) in the sediments along an increasing bathymetric gradient (10 m and 20 m), as well as in the biological indicator grey mullet (*Mugil cephalus*) muscle. During the winter period (2014), 12 surface sediment samples, and a total of 24 fish were collected. Once the samples are dried, crushed and sieved, 0.5 g dry weight of each sample was added to concentrated acids. The results showed that the levels of some metals are superior to the recommended guideline values, and consequently the sediment of this bay is contaminated by iron, lead and copper. The contamination index (CI) showed a general tendency in the concentration of the studied metals as follows: Fe > Pb > Cu > Zn > Ni > Cd, since the most studied metals occurred at higher concentration in depth (20 m).

However, the average concentrations of metals in fishes were found to be as the following order: Fe > Zn > Pb > Cu > Ni > Cd. The consumption of fish from some contaminated sites can be dangerous because concentrations of lead, cadmium and zinc exceed the international standards. Moreover, the strong positive correlation observed between the metallic elements of sediments and fishes confirm that these metals resulted from the similar sources of the anthropic activities, such as domestic, port, industrial and agricultural waste discharges. This is confirmed by the determined of pollution load index (PLI) parameter. Conclusively, a regular monitoring program of heavy metal is recommended for protecting these organisms, and to reduce the environmental risks.

Key words: fish, heavy metals, sediment, toxicity, water depth