

Heavy Metals in the Mediterranean mussel *Mytilus galloprovincialis* Lamarck, 1819 from Sinop coasts of the Turkish Black Sea coast as Bio-monitor

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Aim of the study: The concentration of contaminants including heavy metals in the marine environment and their effects need to be assessed taking into account the impacts and threats to the ecosystem in Article 8(1)(b)(ii) of Directive 2008/56/EC. Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards. Thus the concentrations of Zn, Cu, Pb, Cd and Hg in the soft parts of Mediterranean mussel *Mytilus galloprovincialis* collected from Sinop coast have been measured by ICP/MS (Inductively Coupled Plasma – Mass Spectrometer) for monitoring metal pollution in 2014.

Material and Methods: Common mussels were collected by SCUBA-diving at a depth interval of 1-20 m, where also the mussel settlements were most dense. were transported immediately from the sampling sites to the Fisheries Faculty Laboratory of Sinop University and subsequently they were kept separately in clean seawater in tanks (20x20x25 cm) for 24 h to defecate the contents in alimentary canals. Following elimination of the gut contents, the specimens were sorted with respect to their sizes and were separated into soft part. All samples were stored in plastic bags in a deep freezer at -21°C until their analysis. Metal analysis in macrobenthic organisms was made with m-AOAC 999.10- ICP/MS (Inductively Coupled Plasma – Mass Spectrometer) method by approved Environment Industrial Analysis Laboratory Services Trade Company (TÜRKAK Test TS EN ISO IEC 17025 AB-0364-T).

Results: Zn was found in highest concentrations followed by Cu and Pb. Hg and Cd showed the least concentrations in all individuals. The average concentrations of Hg, Cd, Pb, Cu and Zn in soft tissues of the *M. galloprovincialis* were $0.02 \pm 0.009 \mu\text{g g}^{-1}$, $0.03 \pm 0.01 \mu\text{g g}^{-1}$, $0.08 \pm 0.03 \mu\text{g g}^{-1}$, $1.12 \pm 0.3 \mu\text{g g}^{-1}$ and $11 \pm 3 \mu\text{g g}^{-1}$ wet wt., respectively. It is concluded that the Mediterranean mussels *M. galloprovincialis* are suitable biomonitors to assess changes in metal pollution in this coastal area of the Black Sea. The results obtained in the present study on concentration of heavy metals in the Mediterranean mussel show that the levels of heavy metals were lower than the recommended standards. It is worth noting that consumption of these mussels from the studied area as food may not possible health hazards to humans at the time of the study.

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Keywords: Black Sea, heavy metal, *Mytilus galloprovincialis*, bio-monitor