

Chemical mechanisms in radioecology : cesium and uranium accumulation in bivalve mollusks

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Of all the environmental compartments that serve as outlets for various metal contaminants, the oceans can be considered the ultimate receptacle for rivers and watersheds. Therefore, the oceans may act as a long-term reservoir (i.e., source) for pollution such as metals and radionuclides. Indeed, the marine environment has often been monitored as a marker of pollution. In the specific case of metal trace radionuclides, such as cesium and uranium, their origin in seawater is essentially anthropogenic (atmospheric nuclear testing, waste management, mining activities, accidental releases, etc.). Most radioecological studies in marine ecosystems have aimed at mapping and inventorying ultra-trace radionuclides, their propagation and accumulation areas in specific compartments (e.g. water and marine organisms). It is also known that the transfer of pollutants to living organisms is strongly dependent on their bioavailability. In the marine system, mollusks, especially mussels, are widely used to better understand radioactive pollution because of their ability to filter large volumes of seawater and for their sedentary nature. Main goal is to understand cesium(I) and uranium(VI) accumulation, distribution and speciation in mussels *Mytilus galloprovincialis* using a model ecosystem. This methodology can also be used to understand the interaction of cesium and uranium with the biomolecules of the target organs. From a broader point of view, this research will provide basic information on U and Cs transfer constants to living organisms and ecotoxicity.

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