Research program IZS VE 06/15

Nanoparticles bioaccumulation in edible mussels: methodological assessment for the evaluation of environmental and consumers' exposure.

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Despite of the widespread production and use of engineered nanoparticles (NPs) and their foreseen increased release into the aquatic environment, relatively little is known about NPs interaction with, bioaccumulation in, or transfer to the aquatic food web.

This research project aims at studying the behaviour of different NPs in an artificial marine environment and the bioavailability to aquatic sentinel edible specie: Mediterranean mussel (*Mytilus galloprovincialis)*. In particular, the research will focus on the assessment of the presence and bioaccumulation of NPs in the mussels exposed to different environmentally relevant concentrations (in the range ng-µg/L) of the selected NPs. The first proposal is to include titanium dioxide and cerium dioxide NPs since these appear to be among the most relevant because of the amounts used and the emissions into the environment.

The specific objective of the research will be to study NPs behaviour and stability in artificial marine water and estimate the NPs bioaccumulation in mussels.

This study will contribute to the assessment of the impact of NPs on the environment and ultimately to assess the potential human exposure scenario through the food chain.