

PhD description:

The use of nanoparticles (NPs) highlights important issues regarding their fate in environmental compartments (accumulation) and their potential effects towards aquatic organisms. Due to their characteristics, they may act through physical (*i.e.* adhesion, adsorption, physical damage of tissues) and chemical (composition) effects. Investigating mechanisms of interaction of NPs with biota is necessary to understand NPs impacts in order to establish a NPs grouping approach within a regulatory context.

Thus, the main aim of this PhD thesis is contributing to increase knowledge on the fate and behavior of NPs towards aquatic organisms, taking into account both freshwater and marine environments. We will investigate the links between physico-chemical properties of NPs, their affinity towards aquatic organisms, their potential transfer or accumulation into trophic chains and their potential effects. In that context, chlorophyceae will be used as primary producers and then potential accumulation and effects will be examined on two invertebrates representing both freshwater (*Daphnia magna* and/or *Ceriodaphnia dubia*) and marine (*Scrobicularia plana*) environments.

Finally, results obtained will allow defining relevant criteria able to explain affinity of NPs towards aquatic organisms and their potential accumulation through the trophic chain and their effects. The link between physico-chemical properties and biological effects will be used in a grouping strategy approach within a regulatory context.

Candidate profile

Master's degree in ecotoxicology, environmental science or related subjects

Strong interest in aquatic ecology and the impact of emerging contaminants

Experience in handling aquatic organisms (primary producers, invertebrates)

Knowledge in running laboratory experiments, biomarker quantification

A first experience in flow cytometry will be appreciated

Good communication skills within the local and wider research team

Experience in data handling and multivariate statistics