Grouping of nanomaterials as a previous step for safe by design, registration and risk assessment: an approach based on ecotoxicity data in H2020 project NanoReg2

José Mª Navas

INIA

jmnavas@inia.es

Manufactured nanomaterials (MNs) with the same core chemical composition can show an enormous variety of forms depending on their shape, size, specific surface, crystallinity, and other physicochemical properties. In addition, the presence of coatings constitutes an additional source of variability that complicates even more the general vision of the field. Since MNs must be registered for their commercialization and its possible risk for the human health and the environment must be assessed, it is essential to look out for strategies that could simplify these regulatory processes considering the continuously growing number of MNs. In addition, this grouping exercise can be very useful in safe-by-design approaches establishing those collections of MNs that can be more susceptible of improvements. Taking all this into account, in the framework of the H2020 NanoReg2 project we have generated ecotoxicity data of a set of nanomaterials in order to perform a grouping exercise that also considers basic physicochemical properties. Ecotoxicity data for a set of MNs have been produced in vitro and in vivo using fish and mussel cells, Daphnia, algae and mussels. Some hypothesis for grouping were generated and statistical approaches are being applied in order to establish appropriate MNs groups.