

## **"The impact of nanoparticles on the environment and the food chain. Ecotoxicology and Biomagnification" Miquel Borràs**

The increasing use of nanomaterials in everyday life implies its progressive release into the environment. To assess the effects of such a new scenario from the point of view of ecological safety, an effort for adaptation and miniaturization of the current ecotoxicological tests to these special materials has been needed.

As an example of these issues, we present a study carried out on cerium oxide nanoparticles. Cerium nanoparticles (CeO<sub>2</sub>) are raising great interest in fields such as catalysis in diesel cars, solar panels, gas sensors, biotechnology or medicine.

The environmental effects caused by nanoparticles were tested in soil and water compartments. The soil study was performed in terrestrial worms (OECD 207) and by means of the assessment of germination and root elongation in seeds from 3 species (lettuce, tomato, cucumber), while aquatic studies were conducted in *Chlorella vulgaris* (OECD 201) and *Dario rerio* (Draft OECD FET).

No adverse effects were observed in the test germination and root elongation in any of the species studied, and no behavioral changes or mortality were recorded in the fish embryotoxicity test. The LC<sub>50</sub> calculated in the acute toxicity test worms was 4403mg / L. In the algae test, there was a moderate inhibition of growth at highest concentrations.

The effect of temperature on the accumulation along the food chain (biomagnifications) has also been evaluated.