

NANOSCIENCE AND NANOTECHNOLOGY PROGRAM

Fernández-Luqueño F, PhD



Research Interests

- Nanotoxicology
- Environmental pollution
- Plant nanotoxicology
- Soil-plant-water interactions
- Soil ecosystem
- Soil biodiversity
- Renewable energy
- Social welfare

Dr. Fernández-Luqueño is a Professor in the Programs of Sustainability of Natural Resources and Energy. During 2005 he completed his M.Sc. at the 'Colegio de Postgraduados' and his Ph.D. at the 'Cinvestav Zacatenco' during 2009. Dr. Fernández-Luqueño is the author of more than 70 publications that have received more than 1000 citations. Dr. Fernández-Luqueño has received independent grants to develop his own unique lines of research on: i) the role of nanoparticles on crop yields, ii) the potential toxicity of nano-sized materials on the environment, iii) the characterization and remediation of drinking water, iv) the affordability of renewable energy in Mexico, and v) the sustainable development and the social welfare. Dr. Fernández-Luqueño has edited or co-edited some books and national or international Proceedings regarding with agriculture, soil pollution, and environmental remediation. Dr. Fernández-Luqueño has also published book chapters indexed in SCOPUS or ISI web, and frequently he also serves as a reviewer for more than 25 journals indexed in the JCR.

Selected Honours and Awards

- Arturo Rosenblueth award by a PhD Thesis co-direction.

Selected Funding

- PROMEP, CB-Conacyt, FOMIX Coahuila, PRODEP

Research Project: Toxicity and potential benefits of nanomaterials on the environment

My research team has the overarching interest of understanding the mechanisms of the nanotoxicity in plants and soil organisms as well as understanding the soil-plant-water interactions and the social benefits or drawbacks of renewable energies. In particular, I am interested in the processes regulating the uptake, adsorption, and translocation of engineered nanoparticles in the cells and tissues of organisms. At Cinvestav, I have established my lines of research focusing on the toxicity of TiO_2 , ZnO and Fe_2O_3 on crops and soil organisms. Also, I am interested in several research areas because I have been ascribed to three Ph.D. Programs such as i) Nanoscience and Nanotechnology, ii) Sustainability of Natural Resources and Energy, and iii) Transdisciplinary in Scientific and Technological Development for Society. Therefore, other research areas such as environmental pollution, soil remediation, soil-plant-water interactions, renewable energy, and social welfare are also of interest to my research group. Additionally, our research team has published review articles regarding the potential risks of silver nanoparticles on human and environmental health, the bioremediation of PAHs polluted soils, the heavy metal pollution in drinking water, and the renewable energy sources in Mexico. Also, our research team has published several book chapters indexed in SCOPUS or ISI web such as 'Phytonanotechnology and environmental remediation', 'Effects of nanofertilizers on plant growth and development, and their interrelationship with the environment', 'Edible crop production by nanotechnology: Is it sustainable technology?', 'Carbon nanotubes as plant growth regulators: prospects', 'Bioremediation of polycyclic aromatic hydrocarbons-polluted soils at laboratory and field scale', 'Effect of engineered nanoparticles on soil biota: Do they improve the soil quality and crop production or jeopardize them?', 'Use of agronanobiotechnology in the agro-food industry to preserve environmental health', among others.