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## Uptake and Translocation of Zn, Mn, and Ce NPs by soybean (Glycine max (L.) Merrill plants

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## Abstract

Nanomaterials are a promising source of nutrients for plants, with an extraordinary potential to boost the yield on crops. In this scenario, an investigation on the interactions among engineered-nanoparticles (ENPs) and agricultural plants is under a skyrocketing. In this context, this work aims to present an overview regarding seed, root, and foliar exposure of ZnO, MnO, and CeO<sub>2</sub> NPs to soybean (Glycine max (L.) Merrill plants. As part of an integrative, multidisciplinary approach, these studies employed elemental and optical techniques, e.g., benchtop and synchrotron-based X-ray fluorescence and absorption spectroscopy (XRF and XANES), Single Particle Inductively Coupled Plasma Mass Spectrometry (SP ICP-MS), and ScanningElectronic Microscopy (SEM), to evaluate the uptake, translocation, and physiological effects of the NPs, which might shed light into the plant and nanoparticles interactions in order to ensure its reliable in-field application on crops.



**Biography:** 

Bologist by the Luiz de Queiroz College of Agriculture of University of São Paulo, in Piracicaba, Brazil. Member of the Laboratory of Nuclear Instrumentation of Center for Nuclear Energy in Agriculture of University of São Paulo. Has interest in Plant Physiology and Development, Mineral Nutrition, Effects of Nanomaterials in Agriculture and Environment and Nuclear Analytical Techniques, with focus in X-Ray Fluorescence Spectroscopy (XRF). Has experience in plants cultivation under artificial light and hydroponic solution and in X-Ray fluorescence analysis, mainly in vivo analysis of plants.

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