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Physiological and Molecular Responses of Plants to Engineered Nanomaterials

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Message from the Guest Editors

Nanomaterials are at the forefront of scientific research in many fields. Scientists involved in plant physiology and molecular biology are working hard to understand the effects of engineered nanomaterials (ENMs) from mechanistic and applicative points of view. It has been established that the production of reactive oxygen species (ROS), damages to chloroplasts and mitochondria compromising photosynthesis and respiration are the main activity of ENMs within the plant cell. However, not all the ENMs have detrimental effects on plants, some of them have been found to stimulate growth and to limit parasite infections. It is possible to use some of them in agriculture to substitute the standard methods of fertilization to limit the waste of macro- and micro-nutrients utilized as fertilizers so far. Plant physiology and molecular biology are called on to clarify all these different interactions of plants with the different types of ENMs.

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Message from the Editor-in-Chief

Nanoscience and nanotechnology are exciting fields of research and development, with wide applications to electronic, optical, and magnetic devices, biology, medicine, energy, and defense. At the heart of these fields are the synthesis, characterization, modeling, and applications of new materials with lower nanometer-scale dimensions, which we call "nanomaterials". These materials can exhibit unusual mesoscopic properties and include nanoparticles, coatings and thin films, metal–organic frameworks, membranes, nano-alloys, quantum dots, self-assemblies, 2D materials such as graphene, and nanotubes. Our journal, *Nanomaterials*, has the goal of publishing the highest quality papers on all aspects of nanomaterial science to an interdisciplinary scientific audience. All of our articles are published with rigorous refereeing and open access.

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