

When nanotechnology meets agriculture: A recipe for success

Vasileios Fotopoulos

Department of Agricultural Sciences, Biotechnology & Food Science, Cyprus University of Technology, 3603 Lemesos, Cyprus

ABSTRACT

Global agricultural production is suffering substantial losses due to climate change-related weather events such as drought and salinity, leading to tissue damage and, ultimately, major yield losses. The development of sustainable, 'green' technologies is therefore becoming of utmost importance, also due to the need for reduced agrochemical use. Nanotechnology provides invaluable tools to a variety of industrial sectors. Increasing attention is being given to the development and optimization of nanomaterials for application in the agricultural industry towards protection against stress and improved growth, based on their small size, high surface to volume ratio and unique optical properties. The current presentation gives an up-to-date description of main research activities carried out at the Cyprus University of Technology with the employment of advanced nanoparticles and polymers applied at plant and seed level. This technology offers an attractive alternative to established approaches such as

conventional breeding and genetic modification with key advantages, representing a characteristic example of integrative plant physiology where multiple disciplines such as materials science, agriculture and analytical chemistry join forces to develop exciting new tools in modern agriculture.

Biography:

Vasileios Fotopoulos is Associate Professor in Structural and Functional Plant Biology at the Cyprus University of Technology. His main scientific research focuses on the study of nitro-oxidative signaling cascades involved in plant responses to stress factors, while emphasis is being given in the development of priming technologies towards the amelioration of abiotic stress factors and promotion of plant growth. To date, Dr. Fotopoulos is the author of 85 scientific articles published in peer-reviewed journals (h-index=37), while he serves as Editor-in-Chief in Plant Stress and Associate Editor in Plant Molecular Biology.