

## **From mechanistic understanding to application: the plant nanofertilization**

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Engineered nanomaterials (ENMs) are now becoming a significant fraction of the material flows in the global economy. Particular regard has been posed in recent years on applicability to the Agri-food sector, as sustainable solution for plant fertilization, aiming to reduce the use and the impact at Environmental level of conventional fertilizers, as well as to increase the plant production.

In this context, the recent advances in understating of the implications related to ENMs exposure on plant and to the ENM effects at cellular and sub-cellular level, unveiled the mechanisms which lays behind the plant ENM response and the fundamental role of the ENM biotransformation within plant tissues. The information gained are crucial to assess health and environmental risk related to ENMs utilization in agriculture, and functional to the utilization of nanofertilization applied to the Agrifood sector.